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38 Years

1335 & 1339 Bank Street
Proposed Mixed-Use Development

Development Servicing Study and Stormwater Management Report

PROPOSED MIXED-USE DEVELOPMENT
1335 & 1339 BANK STREET

DEVELOPMENT SERVICING STUDY AND STORMWATER MANAGEMENT REPORT

Prepared by:

NOVATECH
Suite 200, 240 Michael Cowpland Drive
Kanata, Ontario
K2M 1P6

March 3, 2021
Revised December 20, 2021

Ref: R-2020-071
Novatech File No. 119210

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Engineers, Planners & Landscape Architects

December 20, 2021

Lofty Riverside Development LP
206-900 boulevard de la Carriere
Gatineau, QC
J8Y 6T5

Attention: Mr. Mike Wiebe

Dear Sir:

Re: Development Servicing Study and Stormwater Management Report
Proposed Mixed-Use Development
1335 & 1339 Bank Street, Ottawa, ON
City File No.: D07-12-21-0031
Novatech File No.: 119210

Enclosed is a copy of the revised 'Development Servicing Study and Stormwater Management Report' for the proposed mixed-use development located at 1335 & 1339 Bank Street, in the City of Ottawa. This report addresses the approach to site servicing and stormwater management and is submitted in support of a Site Plan Control application. An Assessment of Adequacy of Public Services Report has already been submitted as it relates to the OPA and ZBLA applications.

Please contact the undersigned, should you have any questions or require additional information.

Yours truly,

NOVATECH

François Thauvette, P. Eng.
Senior Project Manager

cc: Adam Baker (City of Ottawa)
Doug Van den Ham (Hobin)

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF APPENDICES

LIST OF PLANS

1.0 INTRODUCTION

The new mixed-use building is being proposed by Lofty Riverside Development LP and Novatech has been retained to complete the site servicing, grading and stormwater management design for this project. This report is being submitted in support of a site plan control application.

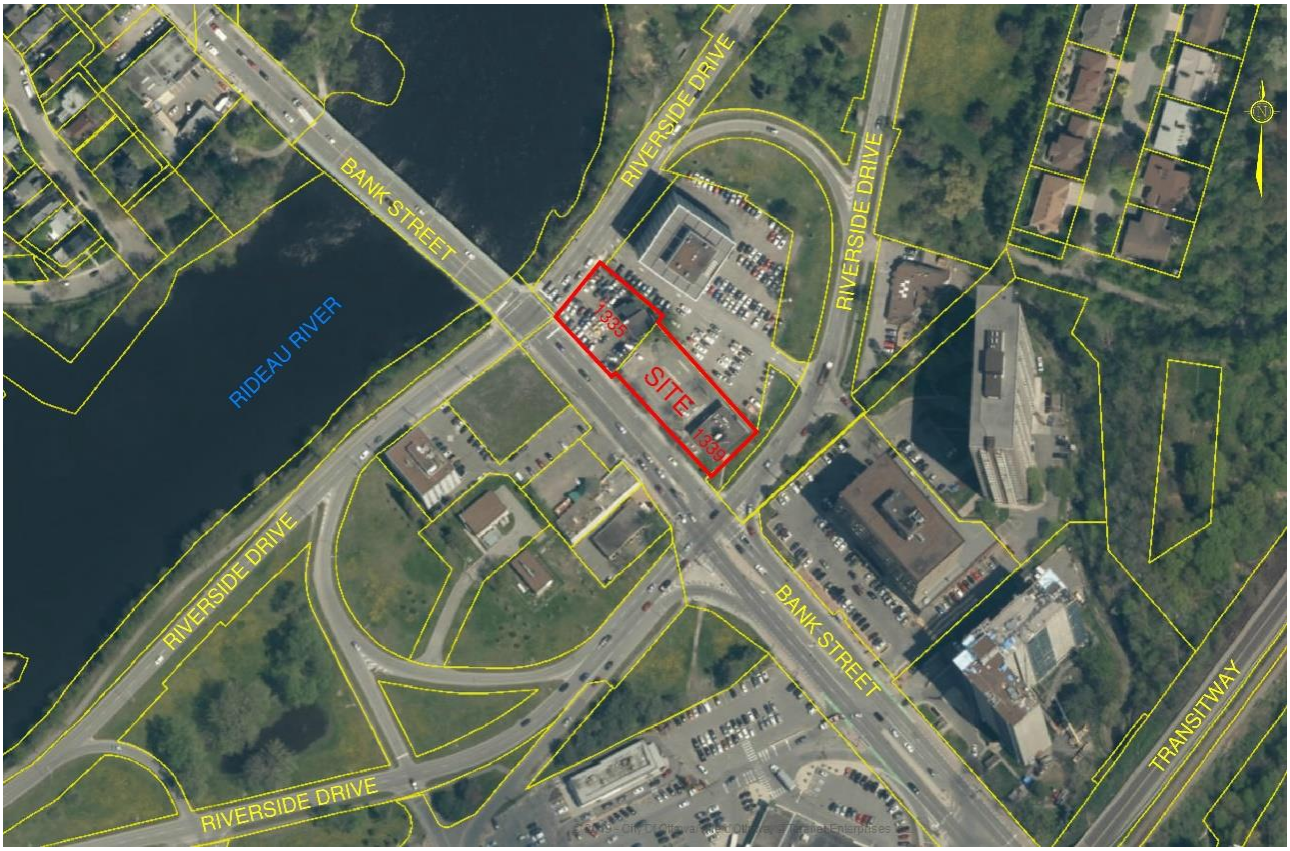
1.1 Site Description and Location

The subject site currently consists of two (2) separate properties located on the east side of Bank Street, which cover a total area of approximately 0.283 hectares. The existing buildings on site have been demolished, but used to include:

- a used car dealership (1335 Bank Street), located immediately south of the Rideau River and Riverside Drive (westbound), and
- a Harvey's Restaurant and associated parking lot (1339 Bank Street), located immediately to the south of the used car dealership

The properties have been merged to accommodate the proposed development. A multi-storey commercial tower and associated parking lot abuts the property to the east. The future R.O.W. widening limit along Bank Street will reduce the total site area from 0.283 ha to approximately **0.253 ha** and follow the west façade of the proposed building along Bank Street. The legal description of the subject site is designated as Part 1 Plan of Lot 2, Registered Plan 347 and the North Half of the West Half of Lot 18, Concession Junction Gore, Geographic Township of Gloucester, City of Ottawa.

Figure 1: Aerial View of the Subject Site



1.2 Pre-Consultation Information

A pre-consultation meeting was held with the City of Ottawa on February 20, 2020, at which time the client was advised of the general submission requirements. The Rideau Valley Conservation Authority (RVCA) was also consulted regarding the proposed development. Based on a review of **O. Reg. 525/98: Approval Exemptions**, a Ministry of the Environment, Conservation and Parks (MECP) Environmental Compliance Approval (ECA) will not be required for the proposed development. Refer to **Appendix A** for a summary of the correspondence related to the proposed development.

1.3 Proposed Development

The proposed development will consist of a 26-storey residential tower with a 7-storey podium, ground floor commercial space (i.e. café/bar, fitness gym), two levels of underground parking as well as indoor and outdoor amenity spaces. The proposed building will be serviced by extending new laterals to the municipal sanitary sewer and watermain in Bank Street. A second water service will also be extended to Riverside Drive. Stormwater from the site will be directed to the municipal storm sewer in Riverside Drive, north of the site. Due to the one-way streets, access to the site will be a left-in (via Riverside Drive Westbound) and left-out (via Riverside Drive Eastbound).

The City of Ottawa's Municipal Design and Construction division is proposing a new capital works project in the area, referred to as the Bank Street Renewal Project. The project includes both roadway and underground infrastructure modifications, including upgrading of the existing watermain, replacement of the sanitary sewer and extension of a new storm sewer in front of the subject property. The City of Ottawa has shared preliminary drawings for coordination purposes and our design is based on this information. We will continue to work with the City of Ottawa and coordinate our servicing and grading designs with the Bank Street Renewal project design. Construction for the Bank Street Renewal project is currently being forecast for 2023, pending City council approval.

1.4 Reference Material

The following reports and studies were prepared and/or reviewed as part of the design process:

[1] Assessment of Adequacy of Public Services Memorandum (R-2019-195), prepared by Novatech on February 4, 2021.

[2] The Geotechnical Investigation Report (Ref. No. PG5044-1), prepared by Paterson Group on December 3, 2019.

2.0 SITE SERVICING

The objective of the site servicing design is to provide proper sewage outlets, a suitable domestic water supply and to ensure that appropriate fire protection is provided for the proposed development. The servicing criteria, the expected sewage flows and the water demands are to conform to the requirements of the City of Ottawa municipal design guidelines for sewer and water distribution systems. The City of Ottawa Servicing Study Guidelines for Development Applications requires that a Development Servicing Study Checklist be included to confirm that each applicable item is deemed complete and ready for review by City of Ottawa Infrastructure Approvals. A completed checklist is enclosed in **Appendix B** of the report.

2.1 Sanitary Sewage

The existing commercial properties on the east side (1335 & 1339) and west side (1330, 1340 & 1346) of Bank Street, are currently being serviced by the existing 225mm dia. sanitary sewer in Bank Street. It is assumed that the property at 2211 Riverside Drive is also tributary to the sanitary sewer in Bank Street. There are no other upstream properties contributing flow to this sewer segment. The municipal sanitary sewer in Bank Street flows south and outlets into the 1200mm dia. Rideau River collector sewer located within the eastbound section of Riverside Drive, south of the site.

The preliminary Bank Street Renewal project includes an upgraded 250mm dia. PVC sanitary sewer in Bank Street. Based on discussions with City staff, it is assumed that the new sanitary sewer will be in place to accommodate the proposed development. If the new sewers are not yet installed, the proposed development could outlet to the existing 225mm dia. sanitary sewer in Bank Street. The service lateral would then have to be re-connected to the future 250mm dia. sanitary sewer, once constructed. The sanitary service lateral will be equipped with a backflow preventer.

The City of Ottawa design criteria were used to calculate the theoretical sanitary flows for the proposed development. The following design criteria were taken from Section 4 – 'Sanitary Sewer Systems' and Appendix 4-A - 'Daily Sewage Flow for Various Types of Establishments' of the City of Ottawa Sewer Design Guidelines:

Residential and Commercial Uses

- Residential Units (1-Bedroom or Studio): 1.4 people per unit
- Residential Units (2-Bedroom): 2.1 people per unit
- Residential Units (3-Bedroom): 3.1 people per unit
- Average Daily Residential Sewage Flow: 280 L/person/day (ISTB-2018-01)
- Residential Peaking Factor = 3.3 (Harmon Equation)
- Average Commercial Sewage Flow: 2.8 L/m^2/day
- Commercial Peaking Factor = 1.5
- Infiltration Allowance: 0.33 L/s/ha x 0.253 ha site = 0.08 L/s

Table 1 identifies the theoretical sanitary flows for the proposed development based on the above design criteria and information provided by the architect.

Table 1: Theoretical Post-Development Sanitary Flows

Type of Use	Unit Count/ Floor Area	Design Population	Average Flow (L/s)	Peaking Factor	Peak Flow (L/s)	Total Flow (L/s)
1-Bedroom / Studio	273	382	1.24	3.3	4.09	4.09
2-Bedroom	92	193	0.63	3.3	2.06	2.06
3-Bedroom	17	53	0.17	3.3	0.57	0.57
Commercial Space	2,156 m^2	-	0.07	1.5	0.10	0.10
Infiltration Allowance	-	-	-	-	-	0.08
Total for Site	-	**628**	-	-	-	**6.90**

A 200mm dia. sanitary gravity sewer at a minimum slope of 1.0% has a full flow conveyance capacity of 34.2 L/s and will have enough capacity to convey the theoretical sanitary flows for the proposed development. Refer to **Appendix C** for detailed sanitary sewage calculations. As indicated in the Adequacy of Public Services Memorandum[1], the existing municipal sanitary sewer system has enough capacity to service the proposed mixed-use development. The future 250mm dia. sanitary sewer being proposed as part of the Bank Street Renewal Project will have additional capacity due to it being a larger 250mm dia. PVC pipe at a steeper slope of 1.0%.

2.2 Water Servicing

The existing commercial properties on the east side of Bank Street are currently being serviced by the existing 200mm dia. watermain in Bank Street. Under post-development conditions, the proposed development will continue to be serviced by the watermain in Bank Street. As per City of Ottawa Technical Bulletin (ISDTB-2014-02), the proposed development will require a second water service, as the daily water demands are greater than 50m^3/day (0.58 L/s). Based on discussions with the City of Ottawa, the second (redundant) building connection will be serviced off the existing 150mm dia. DI watermain in Riverside Drive, south of the subject. The building will be fully sprinklered and serviced by two (2) 150mm dia. water services. The fire department (siamese) connection will be located on the west side of the building, within 45m of the municipal fire hydrant along Bank Street. The water meter will be located within the water entry room, with a remote meter on the exterior face of the building.

The following watermain works are being proposed as part of the Bank Street Renewal project in the vicinity of the subject site:

- Replacement and upsizing of the existing watermain in Bank Street with a new 300mm dia. PVC watermain
- Extension of an additional local 300mm dia. watermain from the existing 610mm dia. feedermain (discharge pipe from the Billings Bridge Pump Station) providing an additional feed to the watermain in Bank Street
- Replacement and upsizing portions of the existing watermains in Riverside Drive both north and south of the subject site with new 150mm/200mm dia. PVC watermain

Based on discussions with City staff, it is assumed that the new watermain will be in place to accommodate the proposed development. As part of the local improvements, the City of Ottawa will also be constructing a new watermain between Billings Avenue and Sarah Billings Place, south of the Riverside Hospital, to facilitate servicing for the adjacent streets. This new municipal loop should also benefit the proposed development, without relying on the private Hospital watermain. The proposed watermain upgrades will provide the redundancy and adequate fire flow for the subject site.

2.2.1 Water Demands and Watermain Analysis

Preliminary water demand and fire flow calculations were based on criteria in the City of Ottawa Design Guidelines. The fire flows are calculated using the Fire Underwriters Survey (FUS) method, based on general assumptions and information provided by the architect. The following design criteria were taken from Section 4 – 'Water Distribution Systems' of the Ottawa Design Guidelines – Water Distribution:

- Residential Units (1-Bedroom or Studio): 1.4 people per unit
- Residential Units (2-Bedroom): 2.1 people per unit
- Residential Units (3-Bedroom): 3.1 people per unit
- Average Daily Residential Water Demand: 280 L/person/day (ISTB-2021-03)
- Maximum Day Demand Peaking Factor = 2.5 x Avg. Day Demand (City Water Table 4.2)
- Peak Hour Demand Peaking Factor = 2.2 x Max. Day Demand (City Water Table 4.2)
- Average Commercial Water Demand: 2.8 L/m^2/day
- Maximum Day Demand Peaking Factor = 1.5 x Avg. Day Demand (City Water Table 4.2)
- Peak Hour Demand Peaking Factor = 1.8 x Max. Day Demand (City Water Table 4.2)

Table 2.1 identifies the theoretical domestic water demands and fire flow requirements for the development based on the above design criteria. Refer to **Appendix D** for detailed calculations.

Table 2.1: **Theoretical Water Demand for Proposed Development**

Type of Use	Unit Count / Floor Area	Design Population	Avg. Day Demand (L/s)	Max. Day Demand (L/s)	Peak Hour Demand (L/s)	Fire Flow (L/s)
1-Bdrm/Studio	273	382	1.24	3.09	6.81	183
2-Bdrm	92	193	0.63	1.56	3.44	
3-Bdrm	17	53	0.17	0.43	0.94	
Commercial Space	2,156 m^2	-	0.07	0.10	0.19	
Total for Site	-	**628**	**2.1***	**5.2***	**11.4**	**183**

*Represents rounded values

The following design criteria were taken from Section 4.2.2 – 'Watermain Pressure and Demand Objectives' of the City of Ottawa Design Guidelines for Water Distribution:

- Normal operating pressures are to range between 345 kPa (50 psi) and 483 kPa (70 psi) under Max Day demands
- Minimum system pressures are to be 276 kPa (40 psi) under Peak Hour demands
- Minimum system pressures are to be 140 kPa (20 psi) under Max Day + Fire Flow demands

Preliminary domestic water demands, and fire flow requirements were provided to the City of Ottawa. **Table 2.2** summarizes preliminary hydraulic analysis results based on municipal watermain boundary conditions provided by the City of Ottawa.

Table 2.2: Hydraulic Boundary Conditions Provided by the City

Municipal Watermain Boundary Condition	Boundary Condition	Normal Operating Pressure Range (psi)	Anticipated WM Pressure (psi)*
WM Connection 1: Bank Street			
Minimum HGL (Peak Hour Demand)	125.0 m	40 psi (min.)	~ 93 psi
Maximum HGL (Max Day Demand)	132.5 m	50 - 70 psi	~ 104 psi
HGL (Max Day + Fire Flow)	127.0 m	20 psi (min.)	~ 96 psi
WM Connection 2: Riverside Drive			
Minimum HGL (Peak Hour Demand)	125.0 m	40 psi (min.)	~ 93 psi
Maximum HGL (Max Day Demand)	132.4 m	50 - 70 psi	~ 104 psi
HGL (Max Day + Fire Flow)	109.6 m	20 psi (min.)	~ 71 psi

*Based on an approximate roadway elevation of 59.5m in both Bank Street and Riverside Drive service connections.
Design pressure = (HGL – watermain elevation) x 1.42197 PSI/m.

Based on preliminary calculations the pressure within the municipal watermain network will exceed the upper end of the normal operating pressure range during Peak Hour and Max Day Conditions. Pressure reducing valves (PRV) will be required given the high system pressures. However, given the height of the proposed tower, booster pump(s) will be required to provide adequate water pressure to the upper floors.

The fire flow requirements include both sprinkler system and hose allowances in accordance with the OBC and NFPA 13. The sprinkler systems will be designed by the fire protection (sprinkler) contractor as this process involves detailed hydraulic calculations based on building layout, pipe runs, head losses, fire pump requirements, etc. Fire flow requirements calculated using the FUS method tend to generate higher values when compared to flows being calculated using the OBC and NFPA. As discussed with the City of Ottawa, a multi-hydrant approach to firefighting is anticipated and is in accordance with the City of Ottawa Technical Bulletin ISTB-2018-02. Refer to **Appendix D** for detailed calculations and for correspondence from the City of Ottawa.

2.3 Storm Drainage and Stormwater Management

On-site stormwater management (SWM) will be required given the proximity of the site to the Rideau River. The proposed storm outlet is the existing 300mm dia. storm sewer located in Riverside Drive (Westbound), north of the site. The proposed storm drainage and stormwater management design for the site is discussed in the following sections of the report.

2.3.1 Stormwater Management Criteria and Objectives

The stormwater management (SWM) criteria have been provided during pre-consultation meetings with the City of Ottawa. The SWM (quantity control) criteria and objectives are as follows:

- Provide a dual drainage system (i.e. minor and major system flows).
- Control post-development storm flows, up to an including the 100-year design event, to the maximum allowable release rate calculated using the Rational Method, with a runoff coefficient equivalent to existing conditions, but in no case greater than C=0.5, a time of concentration no less than 10 minutes and a 5-year rainfall intensity from City of Ottawa IDF curves.
- Provide guidelines to ensure that site preparation and construction is in accordance with the current Best Management Practices for Erosion and Sediment Control.

The subject site is located within the jurisdiction of the Rideau Valley Conservation Authority (RVCA). Based on preliminary feedback from the RVCA, surface parking lots and drive aisles typically require an 'Enhanced' Level of Protection (i.e. 80% TSS removal). Landscaped areas and roof tops are considered clean for the purposes of water quality and aquatic habitat protection. In this case, since parking will be provided underground and surface parking areas will be covered, on-site stormwater quality control will not be required. Refer to **Appendix A** for correspondence from the RVCA and City of Ottawa.

2.3.2 Pre-Development Conditions and Allowable Release Rate

There are currently no water quantity or water quality control measures being provided on site. Consequently, the uncontrolled pre-development runoff from the 0.283 ha site was calculated using the Rational Method to be 69.7 L/s during the 5-year design event and 133.1 L/s during the 100-year design event. Refer to **Appendix E** for detailed calculations. As specified by the City of Ottawa, the maximum allowable release rate from the subject site (having a reduced area of 0.253 ha based on the future Bank Street R.O.W. widening) is to be calculated using the Rational Method, based on a 10-minute rainfall intensity, using a 5-year return period (City of Ottawa IDF Curves) and a runoff coefficient of 0.50.

T_c = 10 min C =0.50
I_{5yr} = 104.2 mm/hr A = 0.253 ha

Q_{allow} = 2.78 CIA
= 2.78 (0.50) (104.2) (0.253)
= 36.6 L/s

2.3.3 Post-Development Conditions

Under post-development conditions, most of the site flows will be directed to an internal SWM tank and pumped, prior to being discharged into the municipal storm sewer in Riverside Drive. This approach will mitigate the impacts associated with the increase in imperviousness of the site. Due to the proposed grading design, a small area around the perimeter of the building will sheet drain uncontrolled towards the adjacent streets, as there is no practical way to capture this drainage.

2.3.3.1 Area A-1: Direct Runoff

The runoff from this sub-catchment area will flow overland towards the roadway catch basins in Riverside Drive and Bank Street. The uncontrolled post-development flows from this sub-catchment area were calculated using the Rational Method to be approximately 3.5 L/s during the 5-year design event and 6.7 L/s during the 100-year design event. Refer to **Appendix E** for detailed calculations.

2.3.3.2 Area A-2: Uncontrolled Runoff from Patio

The runoff from this small sub-catchment area will be drained from the external patio area at the north-west corner of the proposed building via a catchbasin within the sunken patio area. In order to further protect the building a secondary trench drain will be connected to the internal building plumbing and will outlet any overflow drainage from the patio to the internal SWM tank, prior to being pumped to the building service. The uncontrolled post-development flows from this sub-catchment area were calculated using the Rational Method to be approximately 0.5 L/s during the 5-year design event and 1.0 L/s during the 100-year design event. Refer to **Appendix E** for detailed calculations.

2.3.3.3 Area R-1: Controlled Flow from Building Roof

Stormwater runoff from this sub-catchment area will be captured by the main roof and lower terrace roof drains and directed to an internal stormwater storage tank. Stormwater collected within the storage tank will be pumped up to the proposed storm service and released into the existing storm sewer in Riverside Drive. A pump (designed by the mechanical consultant) is required to control flow from the tank to a maximum rate of 3.78 L/s (60 USGPM), which is significantly less than the maximum allowable flow for this catchment area. A "stand-by" pump will be provided for emergency and/or maintenance purposes. An emergency power supply will also be provided. The storm service will be equipped with a backflow prevention device to protect the building from any potential sewer back-ups. **Table 2.3** summarizes the controlled post-development design flows and approximate storage volumes from area R-1 for both the 5-year and 100-year design events.

Table 2.3: Internal Stormwater Storage Tank and Pumped Flow

Design Event	Post-Development Conditions		
	Design Flow (L/s)	Volume Required (m^3)	Volume Provided (m^3)
1:2 Year	3.78 L/s	38.6 m^3	> 163 m^3
1:5 Year	3.78 L/s	57.1 m^3	
1:100 Year	3.78 L/s	129.0 m^3	
1:100 Year incl. a 20% IDF increase	3.78 L/s	162.4 m^3	

As indicated in the **Table 2.3** above, the internal stormwater storage tank will provide sufficient storage for the 100-year design event, including an increased volume due to a 20% increase in rainfall intensity. Refer to **Appendix E** for detailed calculations.

In addition to the pumped system protecting the building from potential sewer backups and flooding during large storm events, CBMH 01 will act as the emergency overflow spill point from the internal plumbing and building service connection. The top of grate elevation of CBMH 01 has been set 0.30m to 0.45m below the finished floor elevation of the building (59.90m on south side and 60.05m on north side of the building). The external patio elevation has been set approximately 0.35m above the emergency spill point elevation (59.85m top of grate and 59.90m patio elevation).

2.3.3.4 Stormwater Flow Summary

Table 2.4 provides a summary of the total post-development flows from the site and compares them to the uncontrolled pre-development flows and allowable release rate specified by the City.

Table 2.4: Stormwater Flows Comparison Table

Design Event	Pre-Development Conditions		Post-Development Conditions				
	Uncontrolled Flow (L/s)	Allowable Release Rate (L/s)	A-1 Flow (L/s)	A-2 Flow (L/s)	R-1 Flow (L/s)	Total Flow (L/s)	Reduction in Flow (L/s or %)*
5-Yr	69.7	36.6	3.5	0.5	3.8	7.8	61.9 or 89%
100-Yr	133.1		6.7	1.0	3.8	11.5	121.6 or 91%

*Reduced flow compared to uncontrolled pre-development conditions from the current 0.283 ha site area.

As indicated in the table above, the 100-year post-development flows from the site will be less than the allowable release rate specified by the City of Ottawa. Furthermore, this represents significant reductions in total site flow rate when compared to the respective uncontrolled pre-development conditions.

2.3.4 Stormwater Quality Control

As stated above, the subject site is located within the jurisdiction of the Rideau Valley Conservation Authority (RVCA). Based on preliminary feedback from the RVCA, landscaped areas and roof tops are considered clean for the purposes of water quality and aquatic habitat protection. In this case, since parking will be provided underground and surface parking areas will be covered, on-site stormwater quality control will not be required. Refer to **Appendix A** for correspondence from the RVCA and City of Ottawa.

3.0 SITE GRADING

The elevation of the existing site varies from approximately 60.3m near the back of sidewalk along Bank Street at the north-west property corner down to approximately 59.7m near the south-west property corner. The existing site generally slopes in a south-westerly direction from the south edge of the bridge over the Rideau River along Bank Street and primarily drains to the Bank Street right-of-way. The grade also falls away from the centreline of Bank Street to the east and west along Riverside Drive at both the east-bound and west-bound intersections. There is an existing concrete retaining wall along the rear property line that currently retains the on-site grades up to 1.3m above the adjacent parking lot for the Pebb Building site to the north-east. The finished floor elevation (FFE) of the proposed building has been set at 60.05m. Due to the elevation drop along Bank Street, the FFE will transition down to 59.90m at the south end of the building. The FFE and all building openings, including the site entrance/exits have been set a minimum of 0.80m above the 100-year flood elevation in the Rideau River (58.96 masl). The grades along the property lines will be maintained, where possible. The grading design on the west side of the building will be coordinated with the Bank Street Renewal project. Refer to the enclosed Grading and Erosion & Sediment Control Plans for details.

4.0 GEOTECHNICAL INVESTIGATIONS

A Geotechnical Investigation Report has been prepared by Paterson Group for the proposed project. Refer to the Geotechnical Report[2] for subsurface conditions, construction recommendations and geotechnical inspection requirements.

5.0 EROSION AND SEDIMENT CONTROL

To mitigate erosion and to prevent sediment from entering the storm drainage system, temporary erosion and sediment control measures will be implemented on-site during construction in accordance with Best Management Practices for Erosion and Sediment Control. Details are provided on the Grading and Erosion and Sediment Control Plan. This includes the following measures:

- Filter bags / catchbasin inserts (sediment sacks) will be placed under the grates of nearby catchbasins and manholes and they will remain in place until vegetation has been established and construction is completed.
- Silt fencing will be placed per OPSS 577 and OPSD 219.110 along the surrounding construction limits.
- Mud mats will be installed at the site entrances.
- Street sweeping, and cleaning will be performed, as required, to suppress dust and to provide safe and clean roadways adjacent to the construction site.
- On-site dewatering is to be directed to a sediment trap and/or gravel splash pad and discharged safely to an approved outlet as directed by the engineer.

The temporary erosion and sediment control measures will be implemented prior to construction and will remain in place during all phases of construction. Regular inspection and maintenance of the erosion control measures will be undertaken.

6.0 CONCLUSION

This report has been prepared in support of a Site Plan Control application for the proposed mixed-use development located at 1335 & 1339 Bank Street.

The conclusions are as follows:

- The proposed building will be serviced by the municipal watermain, sanitary sewer and storm sewer in Bank Street and/or Riverside Drive.
- The building will be sprinklered and supplied with a fire department siamese connection. The siamese connection will be located within 45m of a municipal fire hydrant.
- The site flows from sub-catchment areas A-1 and A-2 will be uncontrolled. The flows from sub-catchment area R-1 will be directed to an internal SWM tank and controlled prior to being discharged into the municipal storm sewer system.
- The total post-development site flow will be approximately 7.8 L/s during the 5-year design event and 11.5 L/s during the 100-year event, both of which are less than the allowable release rate of 36.6 L/s, specified by the City of Ottawa.
- Regular inspection and maintenance of the building services, roof drains, internal SWM tank, pumps and backup power supply is recommended to ensure that the storm drainage system is clean and operational.

- Erosion and sediment control (ESC) measures are to be provided on a temporary basis during construction.

It is recommended that the proposed site servicing and stormwater management design be approved for implementation.

NOVATECH

Prepared by:

Stephen Matthews, B.A. (Env.)
Senior Design Technologist

Reviewed by:

François Thauvette, P. Eng.
Senior Project Manager

APPENDIX A

Correspondence

Pre-consultation Notes

Meeting: February 20, 2020 – 4105E – 110 Laurier Avenue West

2:30pm

Discussion:

A number of topics were discussed during the pre-application consultation meeting. A brief history of the project was provided to provide a comparison of the new concept. The subject site includes both 1335 & 1339 Bank Street, where previously only 1335 Bank Street was considered. As well, the proposed height on 1335 Bank has increased to 26 storeys.

The proposed building is for a 26-storey mixed-use building with a 6-storey base. The Gross floor area (above grade) is noted as 28,640m^2, approximately 405 units and 175 parking spaces. Indoor and outdoor amenity spaces are provided on the 7th and 26th floors. The ground level includes indoor parking and layby space, bicycle parking, and a 366m^2 space at grade plus 228m^2 mezzanine for commercial use.

The building faces Bank Street, and the site plan identifies a 27.5 metre right-of-way width, which includes space for a sidewalk, cycle track, layby space, and a bus landing on Bank Street. Vehicular access to the site is from Riverside Drive North, with vehicles exiting onto Riverside Drive South. How the proposal interacts with the parcel to the east will require further detail.

<u>Concept:</u>

Pre-consultation Notes

Meeting: February 20, 2020 – 4105E – 110 Laurier Avenue West

2:30pm

Planning:

The Official Plan identifies this parcel as Arterial Mainstreet. Mainstreet designations identify streets that offer significant opportunities for intensification through medium-density and mixed-use development, along streets that are Transit Priority Corridors or are well-served by transit. The objective of the Mainstreet designation is to encourage more dense and mixed-use development that supports, and is supported by, increased walking, cycling and transit use. The Official Plan also identifies this street as requiring protection for a 37.5 metre wide right-of-way.

Node 1 of the Bank Street Secondary Plan encompasses the subject property. The secondary plan is indented to guide development along this stretch of Bank Street, and identifies maximum building height, maximum floor space index, streetwall height, step backs for upper stories, articulation of street frontages, and placement of street trees. Amendments to the secondary plan requires an Official Plan amendment.

The property is zoned Arterial Mainstreet, Subzone 8, which permits a maximum height of 50 metres. Amenity space and parking rates will also need to be reviewed for conformance. The site is within 600m of the Billings Bridge transit station, but from my review it appears that 227 parking spaces would be required for the development, with more potentially needed depending on the use of the retail space (based on square footage).

Bank Street has a renewal project underway. The scope for the Bank Street Renewal project is to rehabilitate underground infrastructure and construct a functioning and safe arterial main street which will cater to pedestrians, cyclists, transit, and vehicles.

<u>Other notes:</u>

1) The Planning Rationale Terms of Reference may be found here.
2) Additional information on preparing studies and plans may be found here.
3) The City of Ottawa Solid Waste Collection Guidelines may be found here.
4) The above pre-consultation comments are valid for one year. If you submit a development application after this time, you may be required to meet for another pre-consultation meeting and/or the submission requirements may change.
5) The pre-consultation fee is refundable if the associated applications are submitted within one year from the date of pre-consultation. Provide the full required fee for the application at the Client Service Centre desk. Once the assigned file lead planner receives the invoice through internal mail, the planner

can request a refund for the pre-consultation fee and the Owner will receive payment within two weeks.

Environment:

Rideau River

6) The building site is within 30 m of the normal highwater mark of the Rideau River. The Planning Rational should provide a discussion on the setback issue. They will need to request a reduced setback and address the concerns of OP Section 4.7.3 Policy 7, please involve the CA regarding a discussion of the reduced setback with the conservation authority?
7) Where an exception to the setback is requested under Policy 6, an alternate setback will be considered by the City in consultation with the Conservation Authority on the basis of a study that addresses the following criteria: [Amendment #96, February 22, 2012]
    a) Slope of the bank and geotechnical considerations related to unstable slopes, as addressed in Council's Slope Stability Guidelines for Development Applications in the City of Ottawa, 2004;
    b) Natural vegetation and the ecological function of the setback area;
    c) The nature of the abutting water body, including the presence of a flood plain;
    d) The need to demonstrate that there will be no negative impacts on adjacent fish habitat. [OMB decision #1754, May 10, 2006]

Landscape Plan

8) Due to the proximity of the river the planting plans should focus on native or non-invasive horticultural species. The Official Plan Section 4.7.2 encourages the planting of native species where appropriate and in this location adjacent to the Rideau River it is important not to introduce another source of invasive plants.

Bird Safe Design

9) The Rideau River is an important habitat feature for wildlife and in particular birds. Please consider Bird Safe / Bird Friendly Design in your site. More information is available from the CSA A460:19 standard on Bird-friendly Building Design and from Safe Wings in Toronto. The City of Ottawa is working on its own guidance which will be available soon.

Transportation:

10) Follow Traffic Impact Assessment Guidelines
    - A TIA is required based on number of units proposed.
    - Screening/Scoping can be submitted together.

Pre-consultation Notes

Meeting: February 20, 2020 – 4105E – 110 Laurier Avenue West

2:30pm

- The 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)

11) Required ROW on Bank St between Riverside and Hunt Club is 37.5m even as per OP.
12) Required ROW on Riverside between Smyth and Heron is 37.5m as per OP (measure as 7.0 m from the point where the edge of the roadway meets the sidewalk).
13) Corner triangles as per OP Annex 1 - Road Classification and Rights-of-Way at the following locations on the final plan will be required (measure on the property line/ROW protected line; no structure above or below this triangle): Arterial Road to Arterial Road: 5 m x 5 m.
14) Sight triangle as per Zoning by-law is 6 m x 6 m measure on the curb line.
15) Desirable minimum clear throat distance for >200-unit apartment on an arterial is 40m (measured from curb).
16) 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 movement diagrams required for all accesses showing the largest vehicle to access/egress the site.
    - Turning movement diagrams required for internal movements (loading areas, garbage) – if applicable.
    - Show all curb radii measurements; ensure that all curb radii are reduced as much as possible.
    - Show lane/aisle widths.
    - Sidewalk is to be continuous across access as per City Specification 7.1. à As per the City's Functional Plan for the Bank Street renewal, a new sidewalk is shown along Riverside eastbound and an existing sidewalk is present along Riverside westbound.
    - A lay-by along Bank Street would not likely be supported by City staff.
    - New bus pad and bus shelter on Bank St should be shown on site plan.
    - Grey out any area that will not be impacted by this application.
17) Noise Impact Studies required for the following:
    - Road
    - Rail
    - Stationary due to the proximity to neighboring exposed mechanical equipment and/or if there will be any exposed mechanical equipment due to the proximity to neighboring noise sensitive land uses

Pre-consultation Notes

Meeting: February 20, 2020 – 4105E – 110 Laurier Avenue West

2:30pm

18) AODA legislation is in effect for all organizations, please ensure that the design conforms to these standards. See attached checklist.

Urban Design:

19) Questions and Concerns
    - Can more be done to further improve Bank street context? ROW?
    - Can parking be accommodated fully underground?
    - Can more of the ground floor be supportive of street/public realm? (~60% non-active)
    - Number of units = 405
    - Number of parking = 175
    - Floor plate is shown as 866m2, the maximum tower floor plate for a high-rise residential building should be 750m^2.
        - Please refer to tall building guidelines: https://documents.ottawa.ca/sites/documents/files/design_guide_tall_bldgs_en.pdf
20) This project to go to UDRP
    - Provide proposed/anticipated massing of surrounding sites. (Both east and across the street);

Parks:

21) Under the current planning framework, cash-in-lieu of parkland dedication would be required for the site plan application for the proposed development. The amount of cash-in-lieu of parkland dedication would be determined in accordance with the provisions of the Planning Act and the City's Parkland Dedication By-law.
22) Please advise if the proposed development would meet the development threshold for the City to request community benefits under Section 37 of the current Planning Act.
23) The Ministry of Municipal Affairs and Housing posted Proposed Regulatory Matters Pertaining to Community Benefits Authority Under the Planning Act, the Development Charges Act, and the Building Code Act on the Environmental Registry of Ontario on February 28, 2020. Depending on the timing for the development applications and the City's approach to the proposed Community Benefits system, the site plan application could be subject to a Community Benefits charge instead of cash-in-lieu of parkland dedication.
24) If possible, please provide a site plan for the proposed development.

Engineering:

25) Notes attached

Pre-consultation Notes

Meeting: February 20, 2020 – 4105E – 110 Laurier Avenue West

2:30pm

Forestry:

Planning Forester TCR requirements:

26) 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
27) 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
28) Any removal of City-owned trees will require the permission of Forestry Services who will also review the submitted TCR
29) The TCR must list all trees on site by species, diameter and health condition – separate stands of trees may be combined using averages
30) The TCR must address all trees with a critical root zone that extends into the developable area – all trees that could be impacted by the construction that are outside the developable area need to be addressed.
31) Trees with a trunk that crosses/touches a property line are considered co-owned by both property owners; permission from the adjoining property owner must be obtained prior to the removal of co-owned trees
32) If trees are to be removed, the TCR must clearly show where they are, and document the reason they cannot be retained – provide a plan showing retained and removed treed areas
33) 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
34) Please ensure newly planted trees have an adequate soil volume for their size at maturity
35) For more information on the process or help with tree retention options, contact Mark Richardson mark.richardson@ottawa.ca

Comments Attached:

- Engineering
- Study and Plan Identification List

Pre-consultation Notes

Meeting: February 20, 2020 – 4105E – 110 Laurier Avenue West

2:30pm

Prior to submission of an application it is recommended to consult with the Ward Councillor and community groups.

I have included the study and plan identification list. For any questions, please feel free to contact me at the information below.

Best regards,

Kelby Lodoen Unseth MCIP, RPP
Planner II | Urbaniste II
Development Review (South Services) | Examen des projets d'aménagement (services sud)
Planning, Infrastructure and Economic Development | Services de planification, d'infrastructure et de développement économique

City of Ottawa | Ville d'Ottawa
☎ 613.580.2424 ext./poste 12852
ottawa.ca/planning / ottawa.ca/urbanisme

Enc.

Pre-consultation Notes

Meeting: February 20, 2020 – 4105E – 110 Laurier Avenue West

2:30pm

Location:

1335-1339 Bank Street

City Attendees:

Kelby Lodoen Unseth – Planner	Adam Baker – Infrastructure Project Manager
Christopher Moise – Architecture & Urban Design	Josiane Gervais – Transportation Project Manager

Property Overview:

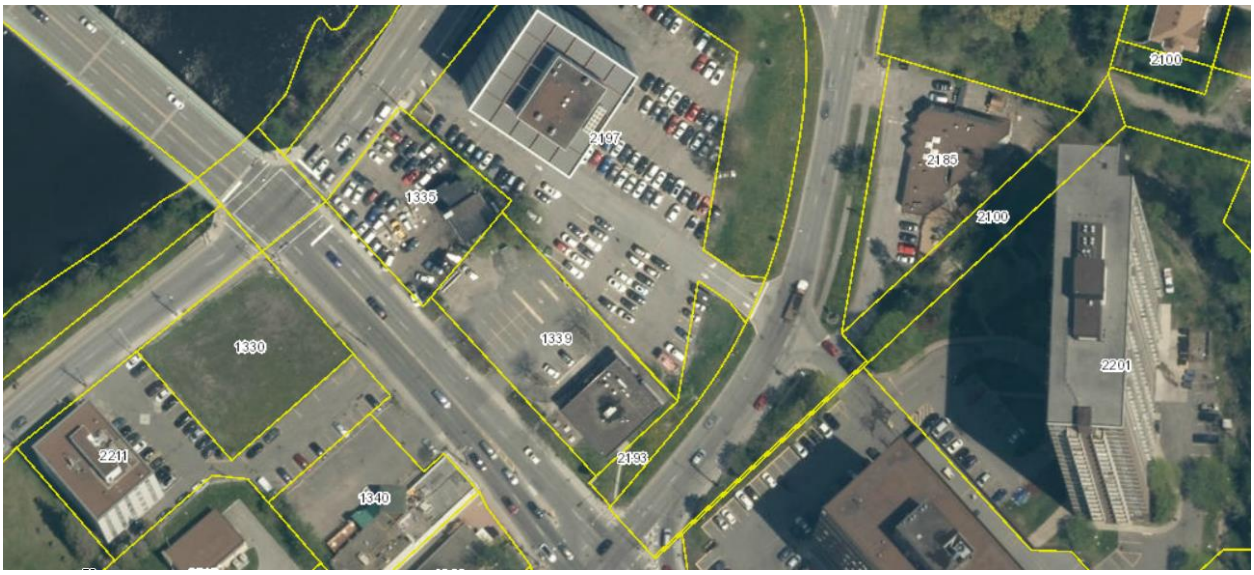
The properties are located at 1335 & 1339 Bank Street, and is currently zoned Arterial Mainstreet, Subzone 8 (AM8). The intent of the AM is to:

*(1) accommodate a broad range of uses including retail, service commercial, offices, residential and institutional uses in mixed-use buildings or side by side in separate buildings in areas designated **Arterial Mainstreet** in the Official Plan; and*

(2) impose development standards that will promote intensification while ensuring that they are compatible with the surrounding uses.

Subzone 8 includes a number of performance standards, as well at the inclusion of "apartment dwelling, high rise" and a maximum height of 50 metres.

<u>Property:</u>



Development Review – Pre-application consultation Checklist (Municipal Servicing)

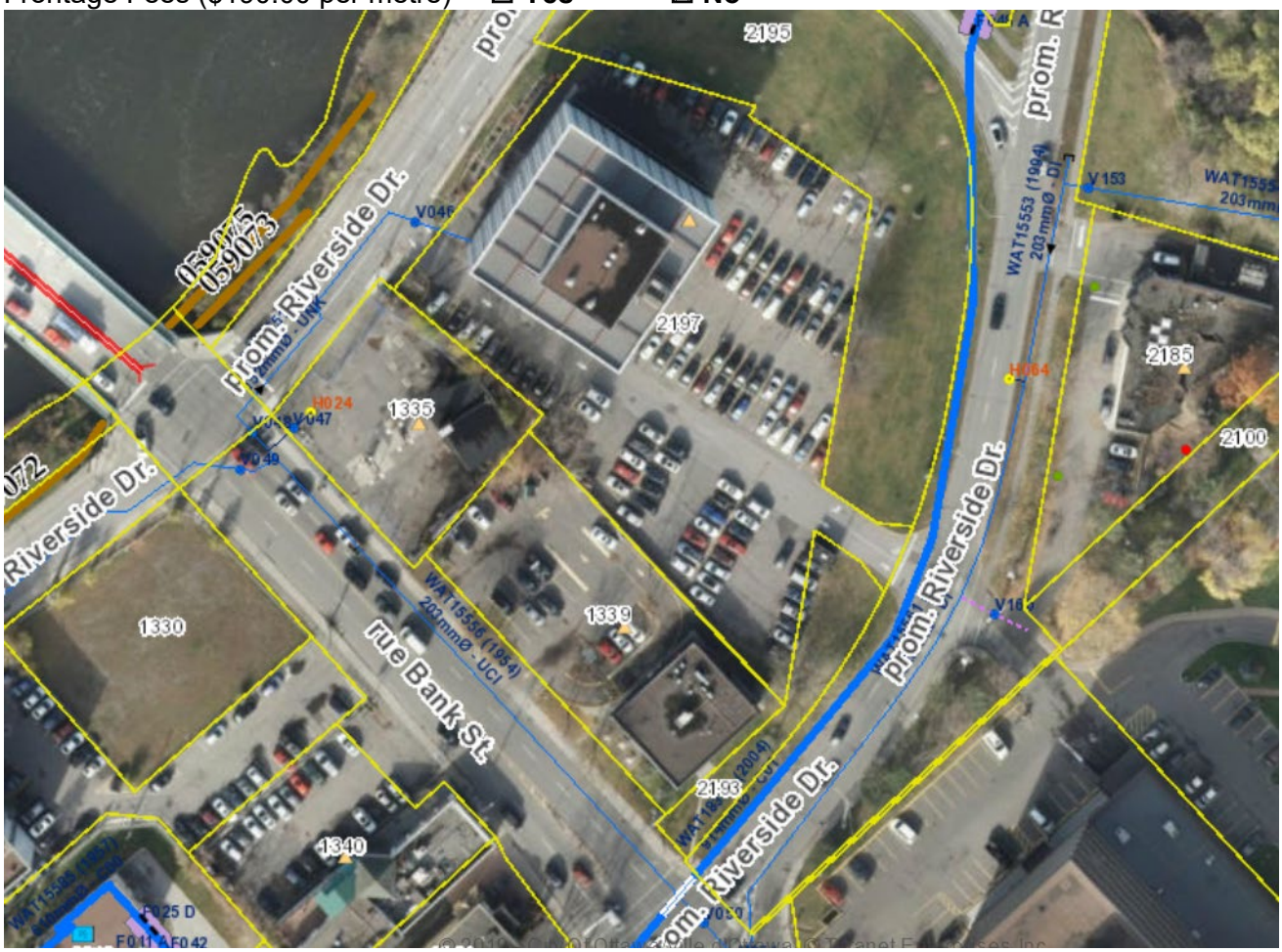
Date: 2020-Mar-06

Site Location: 1335, 1339 Bank

Type of Development: ☐ **Residential (☐ townhomes, ☐ stacked, ☐ singles, ☐ apartments), ☐ Office Space, ☐ Commercial, ☐ Retail, ☐ Institutional, ☐ Industrial, Other:** Mixed Use
Owner/Agent: Christine McCuaig @ Lloyd Phillips Planning Consultants
Assigned Planner: Kelby Lodoen Unseth

Infrastructure Information – advise applicant/owner that all existing and proposed utilities (municipal pipes) must be shown on the servicing plans

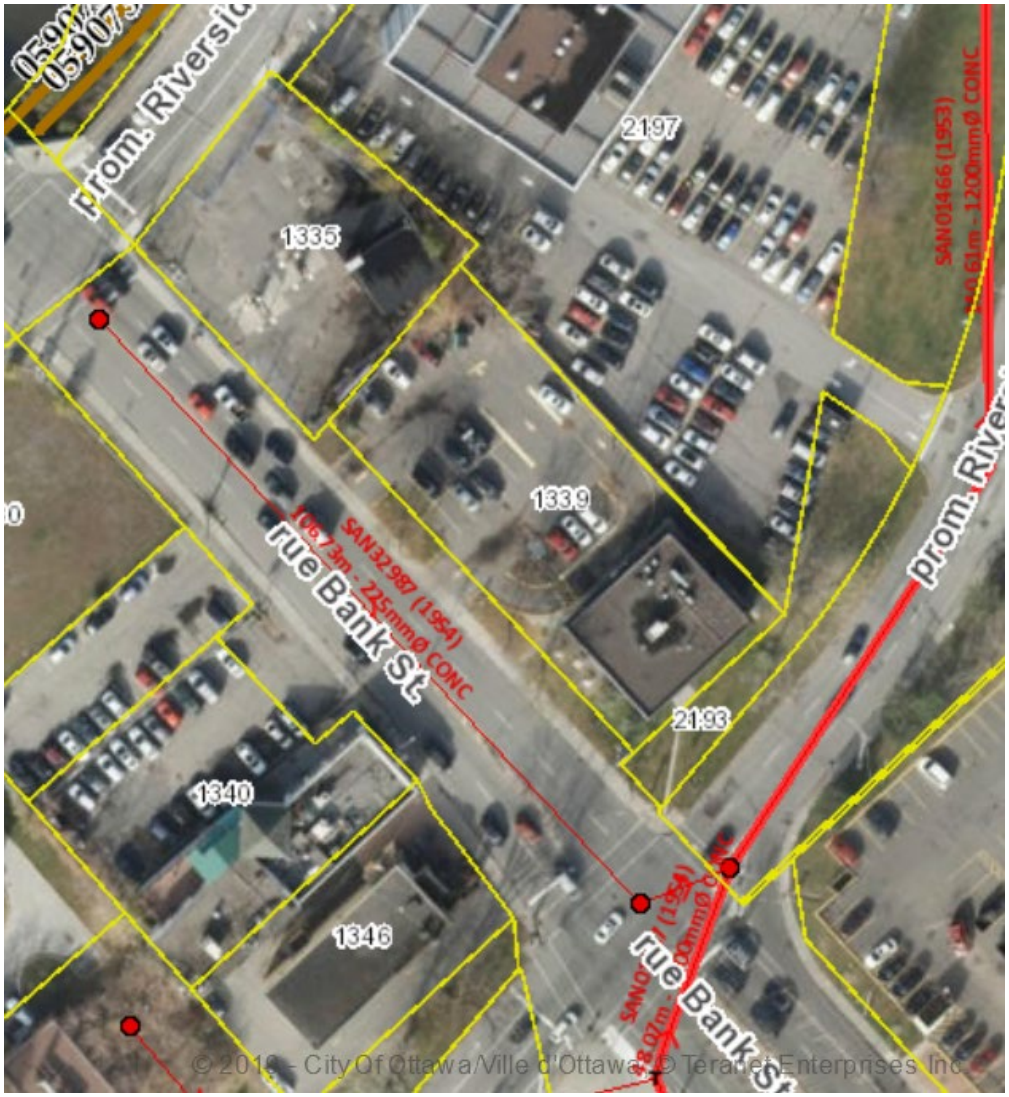
Water:
District Plan No. ME
Water Frontage Fees ($190.00 per metre) ☐ **Yes** ☒ **No**



Available Water Mains:
Riverside Drive North – 152mm
Riverside Drive South – 152mm ductile iron
Bank Street – 203mm unlined cast iron

Development Review – Pre-application consultation Checklist (Municipal Servicing)

Sanitary Sewers:



Available Sanitary Sewers:

Bank Street – 225mm concrete

Development Review – Pre-application consultation Checklist (Municipal Servicing)

Storm Sewers:

Available Storm Sewers:

Riverside Drive North – 300mm
Riverside Drive South – 300mm concrete

SWM Criteria:

The post-development runoff release rates shall not exceed the five year pre-development conditions. The maximum allowable pre-development runoff coefficient (C) is 0.50.

Submission documents must address/discuss:

- Boundary conditions (civil consultant must request boundary conditions from the City's assigned Project Manager, Development Review)

  - Water boundary condition requests must include the location of the service and the expected loads required by the proposed development. Please provide all the following information:
    - Location of service
    - Type of development and the amount of fire flow required (as per FUS, 1999).
    - Average daily demand: ___ l/s.
    - Maximum daily demand: ___l/s.
    - Maximum hourly daily demand: ___ l/s.
- Fire protection (Fire demand, Hydrant Locations)
- a water meter sizing questionnaire [water card] will have to be completed prior to receiving a water permit (water card will be provided post approval)
- a construction management plan is required if crossing 400mm Ø watermain during construction
  - The temporary watermain support shall be as per City of Ottawa Standards, where applicable. A structural support detail drawing prepared by a Structural Engineer licensed in the Province of Ontario is required in all other cases.
  - The permanent support detail drawing shall be provided.
  - Backfill detail drawing shall be provided.
  - Watermain isolation valve locations shall be provided.
  - The operation status of the watermain must be specified (i.e. operational, throttled, or shutdown). The proposed throttle or shutdown of the watermain shall provide reasoning and approved on exceptional basis only.

Note: The proposed design detail will be coordinated with the Water Distribution Branch for comment.

Ministry of Environment, Conservation and Parks (MECP)
All development applications should be considered for an Environmental Compliance Approval, under MECP regulations.

a. Consultant determines if an approval for sewage works under Section 53 of OWRA is required. Consultant determines what type of application is required and the City's project manager confirms. (If the consultant is not clear if an ECA is required, they will work with the City to determine what is required. If unclear or there is a difference of opinion the City Project Manager will coordinate requirements with MECP).
b. The project will be either transfer of review (standard), transfer of review (additional), direct submission, or exempt as per O. Reg. 525/98.
c. Pre-consultation is not required if applying for standard or additional works (schedule A of the Agreement) under Transfer Review.
d. Pre-consultation with local District office of MECP is recommended for direct submission.
e. Consultant completes an MECP request form for a pre-consultation. Sends request to moeccottawasewage@ontario.ca.

NOTE: Site Plan Approval, or Draft Approval, is required before any Ministry of the Environment and Climate Change (MOECC) application is sent

Are there are Capital Works Projects scheduled that will impact the application? ☐ **Yes** ☒ **No**

Exterior Site Lighting:
If yes, require certification by a licensed professional engineer confirming the design complies with the following: The location of the fixtures, fixture type (make, model, part number and the mounting height) must be shown on one of the approved plans.

1. Lighting must be designed only using fixtures that meet the criteria for Full Cut-off classification, as recognized by the Illuminating Engineering Society of North America (IESNA or IES), and
2. It must result in minimal light spillage onto adjacent properties. As a guideline, 0.5 foot-candle is normally the maximum allowable spillage.

Development Review – Pre-application consultation Checklist (Municipal Servicing)

Refer to following table for the list of required supporting plans and studies required for the infrastructure component of your submission.

APPLICANT'S STUDY AND PLAN IDENTIFICATION LIST – SPA – MUNICIPAL SERVICING

Legend:

The letter **S** indicates that the study or plan is required with application submission.
The letter **M** indicates that the study or plan may be required with application submission.

For information on preparing required studies and plans refer to:

http://ottawa.ca/en/development-application-review-process-0/guide-preparing-studies-and-plans

S/A	ENGINEERING		S/M
S	1. Site Servicing Plan	2. Site Servicing Study	**S**
S	3. Grade Control and Drainage Plan	4. Geotechnical Study	**S**
	5. Composite Utility Plan	6. Groundwater Impact Study	
	7. Servicing Options Report (Urban)	8. Wellhead Protection Study	
	9. Community Transportation Study and/or Trans. Impact Study / Brief	10. Erosion and Sediment Control Plan / Brief	**S**
S	11. Storm water Management Report / Brief	12. Hydro-geological and Terrain Analysis (Not for Commercial/Industrial)	
	13. Hydraulic Water main Analysis	14. Noise Control Study	**S**
	15. Roadway Modification Design Plan	16. Confederation Line Proximity Study	

APPLICANT'S STUDY AND PLAN IDENTIFICATION LIST – OPA & ZBLA

Legend: **S** indicates that the study or plan is required with application submission.
A indicates that the study or plan may be required to satisfy a condition of approval/draft approval.

For information and guidance on preparing required studies and plans refer to:

http://ottawa.ca/en/development-application-review-process-0/guide-preparing-studies-and-plans

S/A	Number of copies	ENGINEERING		S/A	Number of copies
		1. Site Servicing Plan	2. Assessment of Adequacy of Public Services / Site Servicing Study / Brief	S	3
		3. Grade Control and Drainage Plan	4. Geotechnical Study / Slope Stability Study	S	3
		5. Composite Utility Plan	6. Groundwater Impact Study		
S	3	7. Servicing Options Report	8. Wellhead Protection Study		
S	3	9. Community Transportation Study and / or Transportation Impact Study / Brief	10.Erosion and Sediment Control Plan / Brief		
		11.Storm water Management Report / Brief / Plan	12.Hydro geological and Terrain Analysis		
		13.Hydraulic Water main Analysis	14.Noise / Vibration Study		
		15.Roadway Modification Design Plan	16.Confederation Line Proximity Study		

S/A	Number of copies	PLANNING / DESIGN / SURVEY		S/A	Number of copies
		17.Draft Plan of Subdivision	18.Plan Showing Layout of Parking Garage		
		19.Draft Plan of Condominium	20.Planning Rationale	S	3
S	3	21.Site Plan	22.Minimum Distance Separation (MDS)		
S	3	23.Concept Plan Showing Proposed Land Uses and Landscaping	24.Agrology and Soil Capability Study		
		25.Concept Plan Showing Ultimate Use of Land	26.Cultural Heritage Impact Statement		
		27.Landscape Plan	28.Archaeological Resource Assessment Requirements: **S** (site plan) **A** (subdivision, condo)		
S	3	29.Survey Plan	30.Shadow Analysis	S	3
S	3	31.Architectural Building Elevation Drawings (dimensioned)	32.Design Brief (includes the Design Review Panel Submission Requirements)	S	3
		33.Wind Analysis			

S/A	Number of copies	ENVIRONMENTAL		S/A	Number of copies
		34.Phase 1 Environmental Site Assessment	35.Impact Assessment of Adjacent Waste Disposal/Former Landfill Site		
		36.Phase 2 Environmental Site Assessment (depends on the outcome of Phase 1)	37.Assessment of Landform Features		
		38.Record of Site Condition	39.Mineral Resource Impact Assessment		
		40.Tree Conservation Report	41.Environmental Impact Statement / Impact Assessment of Endangered Species		
		42.Mine Hazard Study / Abandoned Pit or Quarry Study	43.Integrated Environmental Review (Draft, as part of Planning Rationale)		

Number of copies
***Reports require 3 copies; Plans require 3 copies**

Meeting Date: February 20, 2020

Application Type: Site Plan Control

File Lead (Assigned Planner): Kelby Lodoen Unseth

Infrastructure Approvals Project Manager: Adam Baker

Site Address (Municipal Address): 1335 & 1339 Bank St.

*Preliminary Assessment: 1☐ 2☐ 3☐ 4☐ 5☐

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

It is important to note that the need for additional studies and plans may result during application review. If following the submission of your application, it is determined that material that is not identified in this checklist is required to achieve complete application status, in accordance with the Planning Act and Official Plan requirements, the Planning, Infrastructure and Economic Development Department *will notify you of outstanding material required within the required 30 day period. Mandatory pre-application consultation will not shorten the City's standard processing timelines, or guarantee that an application will be approved. It is intended to help educate and inform the applicant about submission requirements as well as municipal processes, policies, and key issues in advance of submitting a formal development application. This list is valid for one year following the meeting date. If the application is not submitted within this timeframe the applicant must again pre-consult with the* Planning, Infrastructure and Economic Development Department.

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S	3	31.Architectural Building Elevation Drawings (dimensioned)	32.Design Brief (includes the Design Review Panel Submission Requirements)	S	3
		33.Wind Analysis			

S/A	Number of copies	ENVIRONMENTAL		S/A	Number of copies
S	3	34.Phase 1 Environmental Site Assessment	35.Impact Assessment of Adjacent Waste Disposal/Former Landfill Site		
A	3	36.Phase 2 Environmental Site Assessment (depends on the outcome of Phase 1)	37.Assessment of Landform Features		
S	3	38.Record of Site Condition	39.Mineral Resource Impact Assessment		
S	3	40.Tree Conservation Report	41.Environmental Impact Statement / Impact Assessment of Endangered Species		
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Meeting Date: February 20, 2020

Application Type: Site Plan Control

File Lead (Assigned Planner): Kelby Lodoen Unseth

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Francois Thauvette

From: Jamie Batchelor <jamie.batchelor@rvca.ca>
Sent: Friday, June 5, 2020 4:14 PM
To: Francois Thauvette
Cc: Steve Matthews
Subject: RE: 1335 & 1339 Bank Street Redevelopment - RVCA Pre-Consultation

Good Afternoon Francois,

Rainwater runoff from rooftop drainage and landscaped areas are considered to be clean for the purpose of protecting water quality for aquatic habitat. Therefore, providing there is no surface parking being provided, there would be no additional onsite water quality treatment required.

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

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

From: Francois Thauvette <f.thauvette@novatech-eng.com>
Sent: Friday, June 5, 2020 3:19 PM
To: Jamie Batchelor <jamie.batchelor@rvca.ca>
Cc: Steve Matthews <S.Matthews@novatech-eng.com>
Subject: 1335 & 1339 Bank Street Redevelopment - RVCA Pre-Consultation

Hi Jamie,

We are working on the proposed re-development of the 1335 & 1339 Bank Street properties (currently occupied by a used car dealership and a Harvey's restaurant). The properties will be merged and the proposed development will consist of a 25-storey residential tower with a 7-storey podium, having UG parking, ground floor commercial space (i.e. café/bar, fitness gym) as well as roof-top amenity space. The building footprint will effectively take up the entire site area and all runoff from the roof will be directed to an internal SWM tank prior to being discharged into the nearby municipal storm sewer. The outlet is the Rideau River, located immediately to the north of the site/Riverside Drive (Southbound).

Based on the proposed development, please confirm if on-site stormwater quality control measures are required.

Regards,

François Thauvette, P. Eng., Senior Project Manager | Land Development & Public Sector Engineering
NOVATECH Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 Ext: 219 | Cell: 613.276.0310 | Fax: 613.254.5867

APPENDIX B

Development Servicing Study Checklist

Servicing study guidelines for development applications

4. Development Servicing Study Checklist

The following section describes the checklist of the required content of servicing studies. It is expected that the proponent will address each one of the following items for the study to be deemed complete and ready for review by City of Ottawa Infrastructure Approvals staff.

The level of required detail in the Servicing Study will increase depending on the type of application. For example, for Official Plan amendments and re-zoning applications, the main issues will be to determine the capacity requirements for the proposed change in land use and confirm this against the existing capacity constraint, and to define the solutions, phasing of works and the financing of works to address the capacity constraint. For subdivisions and site plans, the above will be required with additional detailed information supporting the servicing within the development boundary.

4.1 General Content

- ☐ Executive Summary (for larger reports only).
- ☒ Date and revision number of the report.
- ☒ Location map and plan showing municipal address, boundary, and layout of proposed development.
- ☒ Plan showing the site and location of all existing services.
- ☒ Development statistics, land use, density, adherence to zoning and official plan, and reference to applicable subwatershed and watershed plans that provide context to which individual developments must adhere.
- ☒ Summary of Pre-consultation Meetings with City and other approval agencies.
- ☐ Reference and confirm conformance to higher level studies and reports (Master Servicing Studies, Environmental Assessments, Community Design Plans), or in the case where it is not in conformance, the proponent must provide justification and develop a defendable design criteria.
- ☒ Statement of objectives and servicing criteria.
- ☒ Identification of existing and proposed infrastructure available in the immediate area.
- ☒ Identification of Environmentally Significant Areas, watercourses and Municipal Drains potentially impacted by the proposed development (Reference can be made to the Natural Heritage Studies, if available).
- ☒ Concept level master grading plan to confirm existing and proposed grades in the development. This is required to confirm the feasibility of proposed stormwater management and drainage, soil removal and fill constraints, and potential impacts to neighbouring properties. This is also required to confirm that the proposed grading will not impede existing major system flow paths.
- ☐ Identification of potential impacts of proposed piped services on private services (such as wells and septic fields on adjacent lands) and mitigation required to address potential impacts.
- ☐ Proposed phasing of the development, if applicable.

☒ Reference to geotechnical studies and recommendations concerning servicing.

☒ All preliminary and formal site plan submissions should have the following information:
- Metric scale
- North arrow (including construction North)
- Key plan
- Name and contact information of applicant and property owner
- Property limits including bearings and dimensions
- Existing and proposed structures and parking areas
- Easements, road widening and rights-of-way
- Adjacent street names

4.2 Development Servicing Report: Water

☐ Confirm consistency with Master Servicing Study, if available
☒ Availability of public infrastructure to service proposed development
☒ Identification of system constraints
☒ Identify boundary conditions
☒ Confirmation of adequate domestic supply and pressure
☒ Confirmation of adequate fire flow protection and confirmation that fire flow is calculated as per the Fire Underwriter's Survey. Output should show available fire flow at locations throughout the development.
☒ Provide a check of high pressures. If pressure is found to be high, an assessment is required to confirm the application of pressure reducing valves.
☐ Definition of phasing constraints. Hydraulic modeling is required to confirm servicing for all defined phases of the project including the ultimate design
☒ Address reliability requirements such as appropriate location of shut-off valves
☒ Check on the necessity of a pressure zone boundary modification.
☒ Reference to water supply analysis to show that major infrastructure is capable of delivering sufficient water for the proposed land use. This includes data that shows that the expected demands under average day, peak hour and fire flow conditions provide water within the required pressure range

- ☒ Description of the proposed water distribution network, including locations of proposed connections to the existing system, provisions for necessary looping, and appurtenances (valves, pressure reducing valves, valve chambers, and fire hydrants) including special metering provisions.
- ☐ Description of off-site required feedermains, booster pumping stations, and other water infrastructure that will be ultimately required to service proposed development, including financing, interim facilities, and timing of implementation.
- ☒ Confirmation that water demands are calculated based on the City of Ottawa Design Guidelines.
- ☒ Provision of a model schematic showing the boundary conditions locations, streets, parcels, and building locations for reference.

4.3 Development Servicing Report: Wastewater

- ☒ Summary of proposed design criteria (Note: Wet-weather flow criteria should not deviate from the City of Ottawa Sewer Design Guidelines. Monitored flow data from relatively new infrastructure cannot be used to justify capacity requirements for proposed infrastructure).
- ☐ Confirm consistency with Master Servicing Study and/or justifications for deviations.
- ☒ Consideration of local conditions that may contribute to extraneous flows that are higher than the recommended flows in the guidelines. This includes groundwater and soil conditions, and age and condition of sewers.
- ☒ Description of existing sanitary sewer available for discharge of wastewater from proposed development.
- ☒ Verify available capacity in downstream sanitary sewer and/or identification of upgrades necessary to service the proposed development. (Reference can be made to previously completed Master Servicing Study if applicable)
- ☐ Calculations related to dry-weather and wet-weather flow rates from the development in standard MOE sanitary sewer design table (Appendix ‘C’) format.
- ☒ Description of proposed sewer network including sewers, pumping stations, and forcemains.
- ☐ Discussion of previously identified environmental constraints and impact on servicing (environmental constraints are related to limitations imposed on the development in order to preserve the physical condition of watercourses, vegetation, soil cover, as well as protecting against water quantity and quality).
- ☐ Pumping stations: impacts of proposed development on existing pumping stations or requirements for new pumping station to service development.
- ☐ Forcemain capacity in terms of operational redundancy, surge pressure and maximum flow velocity.
- ☐ Identification and implementation of the emergency overflow from sanitary pumping stations in relation to the hydraulic grade line to protect against basement flooding.
- ☒ Special considerations such as contamination, corrosive environment etc.

4.4 Development Servicing Report: Stormwater Checklist

- ☒ Description of drainage outlets and downstream constraints including legality of outlets (i.e. municipal drain, right-of-way, watercourse, or private property)
- ☒ Analysis of available capacity in existing public infrastructure.
- ☒ A drawing showing the subject lands, its surroundings, the receiving watercourse, existing drainage patterns, and proposed drainage pattern.
- ☒ Water quantity control objective (e.g. controlling post-development peak flows to pre-development level for storm events ranging from the 2 or 5 year event (dependent on the receiving sewer design) to 100 year return period); if other objectives are being applied, a rationale must be included with reference to hydrologic analyses of the potentially affected subwatersheds, taking into account long-term cumulative effects.
- ☐ Water Quality control objective (basic, normal or enhanced level of protection based on the sensitivities of the receiving watercourse) and storage requirements.
- ☒ Description of the stormwater management concept with facility locations and descriptions with references and supporting information.
- ☐ Set-back from private sewage disposal systems.
- ☐ Watercourse and hazard lands setbacks.
- ☐ Record of pre-consultation with the Ontario Ministry of Environment and the Conservation Authority that has jurisdiction on the affected watershed.
- ☐ Confirm consistency with sub-watershed and Master Servicing Study, if applicable study exists.
- ☒ Storage requirements (complete with calculations) and conveyance capacity for minor events (1:5 year return period) and major events (1:100 year return period).
- ☒ Identification of watercourses within the proposed development and how watercourses will be protected, or, if necessary, altered by the proposed development with applicable approvals.
- ☒ Calculate pre and post development peak flow rates including a description of existing site conditions and proposed impervious areas and drainage catchments in comparison to existing conditions.
- ☒ Any proposed diversion of drainage catchment areas from one outlet to another.
- ☒ Proposed minor and major systems including locations and sizes of stormwater trunk sewers, and stormwater management facilities.
- ☐ If quantity control is not proposed, demonstration that downstream system has adequate capacity for the post-development flows up to and including the 100 year return period storm event.
- ☒ Identification of potential impacts to receiving watercourses
- ☐ Identification of municipal drains and related approval requirements.
- ☒ Descriptions of how the conveyance and storage capacity will be achieved for the development.
- ☒ 100 year flood levels and major flow routing to protect proposed development from flooding for establishing minimum building elevations (MBE) and overall grading.

- ☐ Inclusion of hydraulic analysis including hydraulic grade line elevations.
- ☒ Description of approach to erosion and sediment control during construction for the protection of receiving watercourse or drainage corridors.
- ☒ Identification of floodplains – proponent to obtain relevant floodplain information from the appropriate Conservation Authority. The proponent may be required to delineate floodplain elevations to the satisfaction of the Conservation Authority if such information is not available or if information does not match current conditions.
- ☐ Identification of fill constraints related to floodplain and geotechnical investigation.

4.5 Approval and Permit Requirements: Checklist

The Servicing Study shall provide a list of applicable permits and regulatory approvals necessary for the proposed development as well as the relevant issues affecting each approval. The approval and permitting shall include but not be limited to the following:

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

4.6 Conclusion Checklist

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

APPENDIX C

Sanitary Sewage Calculations

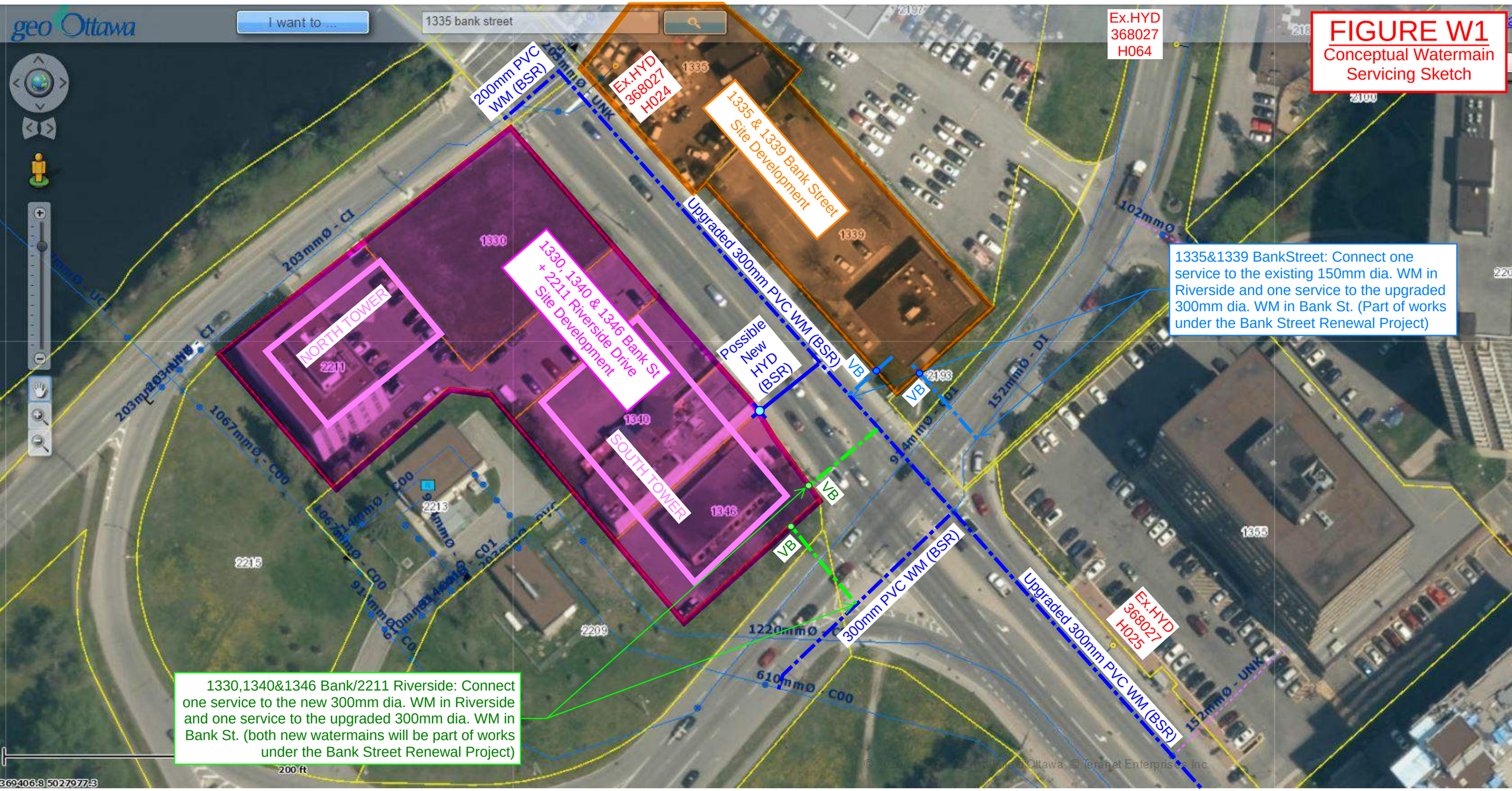
1335 & 1339 Bank Street: [26-Storey Tower with 7-Storey Podium]
POST-DEVELOPMENT SANITARY FLOWS

Residential Use		
Number of Studio / 1-Bedroom Units	273	
Persons per Studio / 1-Bedroom Unit	1.4	
Number of 2-Bedroom Units	92	
Persons per 2-Bedroom Unit	2.1	
Number of 3-Bedroom Units	17	
Persons per 3-Bedroom Unit	3.1	
Total Number of Units	382	
Design Population	628	
Average Daily Flow	280	L/c/day
Peak Factor (Harmon Formula)	3.30	
Peak Residential Flow	**6.72**	**L/s**
Commercial/Amenity Use		
Commercial Space	2,156	m^2
Average Commercial Flow	2.8	$L/m^2/day$
Commercial Peaking Factor	1.5	
Peak Commercial Flow	**0.10**	**L/s**
Site Area	0.253	ha
Infiltration Allowance	0.33	L/s/ha
Peak Extraneous Flows	**0.08**	**L/s**
Total Peak Sanitary Flow	**6.90**	**L/s**

APPENDIX D

Water Demands, FUS Calculations, City of Ottawa Boundary Conditions and Hydraulic Modelling Results

FIGURE W1
Conceptual Watermain Servicing Sketch



1335 & 1339 Bank Street: [26-Storey Tower with 7-Storey Podium]
WATER ANALYSIS

DOMESTIC WATER DEMAND

Residential Use

Number of Studio / 1-Bedroom Units	273	
Persons per Studio / 1-Bedroom Unit	1.4	
Number of 2-Bedroom Units	92	
Persons per 2-Bedroom Unit	2.1	
Number of 3-Bedroom Units	17	
Persons per 3-Bedroom Unit	3.1	
Total Number of Units	382	
Total Design Population	628	
Average Day Demand (280 L/c/day)	**2.04**	**L/s**
Maximum Day Demand (2.5 x avg. day)	**5.09**	**L/s**
Peak Hour Demand (2.2 x max. day)	**11.19**	**L/s**

Commercial/Amenity Use

Commercial Space	2,156	m^2
Average Day Demand (28,000 L/ha/day)	**0.07**	**L/s**
Maximum Day Demand (1.5 x avg. day)	**0.10**	**L/s**
Peak Hour Demand (1.8 x max. day)	**0.19**	**L/s**

Total Average Day Demand	**2.11**	**L/s**
Total Maximum Day Demand	**5.19**	**L/s**
Total Peak Hour Demand	**11.38**	**L/s**

BOUNDARY CONDITIONS (Values with Bank Street Renewal Upgrades and Service Connection to Bank)

Maximum HGL =	132.5	m
Minimum HGL =	125.0	m
Max Day + Fire Flow =	127.0	m

PSI	m OF HEAD
1.42197	1

PRESSURE TESTS To convert Head(m) to PSI: multiply by 1.42

Average Ground Elevation 59.5 m

High Pressure Test = (Max HGL - Avg.Ground Elev.) x 1.42 PSI/m (should be between 50- 70 PSI)
High Pressure = **103.8** PSI

Low Pressure Test = (Min. HGL - Avg. Ground Elev.) x 1.42 PSI/m (should be > 40 PSI)
Low Pressure = **93.1** PSI

Max Day + Fire Flow Test = (Max Day + Fire Flow - Avg. Ground Elev.) x 1.42 PSI/m (should be > 20 PSI)
Max Day + Fire Flow Pressure = **96.0** PSI

1335 & 1339 Bank Street: [26-Storey Tower with 7-Storey Podium]
WATER ANALYSIS

DOMESTIC WATER DEMAND

Residential Use

Number of Studio / 1-Bedroom Units	273	
Persons per Studio / 1-Bedroom Unit	1.4	
Number of 2-Bedroom Units	92	
Persons per 2-Bedroom Unit	2.1	
Number of 3-Bedroom Units	17	
Persons per 3-Bedroom Unit	3.1	
Total Number of Units	382	
Total Design Population	628	
Average Day Demand (280 L/c/day)	**2.04**	**L/s**
Maximum Day Demand (2.5 x avg. day)	**5.09**	**L/s**
Peak Hour Demand (2.2 x max. day)	**11.19**	**L/s**

Commercial/Amenity Use

Commercial Space	2,156	m^2
Average Day Demand (28,000 L/ha/day)	**0.07**	**L/s**
Maximum Day Demand (1.5 x avg. day)	**0.10**	**L/s**
Peak Hour Demand (1.8 x max. day)	**0.19**	**L/s**

Total Average Day Demand	**2.11**	**L/s**
Total Maximum Day Demand	**5.19**	**L/s**
Total Peak Hour Demand	**11.38**	**L/s**

BOUNDARY CONDITIONS (Values with Bank Street Renewal Upgrades and Service Connection to Riverside)

Maximum HGL =	132.4	m
Minimum HGL =	125.0	m
Max Day + Fire Flow =	109.6	m

PSI	m OF HEAD
1.42197	1

PRESSURE TESTS To convert Head(m) to PSI: multiply by 1.42

Average Ground Elevation 59.5 m

High Pressure Test = (Max HGL - Avg.Ground Elev.) x 1.42 PSI/m (should be between 50- 70 PSI)
High Pressure = **103.7** PSI

Low Pressure Test = (Min. HGL - Avg. Ground Elev.) x 1.42 PSI/m (should be > 40 PSI)
Low Pressure = **93.1** PSI

Max Day + Fire Flow Test = (Max Day + Fire Flow - Avg. Ground Elev.) x 1.42 PSI/m (should be > 20 PSI)
Max Day + Fire Flow Pressure = **71.2** PSI

FUS - Fire Flow Calculations

As per 1999 Fire Underwriter's Survey Guidelines

NOVATECH
Engineers, Planners & Landscape Architects

Novatech Project #: 119210
Project Name: 1335 & 1339 Bank Street
Date: 18/01/2021
Input By: S.Matthews
Reviewed By: F.Thauvette

Legend: Input by User; No Information or Input Required

Building Description: 26-Storey Building with a 7-Storey Podium
Fire Resistive Construction

Step			Choose		Value Used	Total Fire Flow (L/min)
Base Fire Flow						
1	**Construction Material**			**Multiplier**		
	Coefficient related to type of construction C	Wood frame		1.5	0.6	
		Ordinary construction		1		
		Non-combustible construction		0.8		
		Modified Fire resistive construction (2 hrs)	Yes	0.6		
		Fire resistive construction (> 3 hrs)		0.6		
2	**Floor Area**					
	A	Podium Level Footprint (m^2)	2035			
		Total Floors/Storeys (Podium)	7			
		Tower Footprint (m^2)	869			
		Total Floors/Storeys (Tower)	19			
		Protected Openings (1 hr)				
		Area of structure considered (m^2)			**10,461**	
	F	**Base fire flow without reductions**				**14,000**
		$F = 220\ C\ (A)^{0.5}$				
Reductions or Surcharges						
3	**Occupancy hazard reduction or surcharge**			**Reduction/Surcharge**		
	(1)	Non-combustible		-25%	-15%	**11,900**
		Limited combustible	Yes	-15%		
		Combustible		0%		
		Free burning		15%		
		Rapid burning		25%		
4	**Sprinkler Reduction**			**Reduction**		
	(2)	Adequately Designed System (NFPA 13)	Yes	-30%	-30%	**-4,760**
		Standard Water Supply	Yes	-10%	-10%	
		Fully Supervised System	No	-10%		
				Cumulative Total	**-40%**	
5	**Exposure Surcharge (cumulative %)**				**Surcharge**	
	(3)	North Side	> 45.1m		0%	**3,570**
		East Side	10.1 - 20 m		15%	
		South Side	30.1- 45 m		5%	
		West Side	20.1 - 30 m		10%	
				Cumulative Total	**30%**	
Results						
6	(1) + (2) + (3)	**Total Required Fire Flow, rounded to nearest 1000L/min**			**L/min**	**11,000**
		(2,000 L/min < Fire Flow < 45,000 L/min)		or	L/s	**183**
				or	USGPM	2,906
7	**Storage Volume**	Required Duration of Fire Flow (hours)			Hours	2
		Required Volume of Fire Flow (m^3)			m^3	1320

Steve Matthews

From: Baker, Adam <adam.baker@ottawa.ca>
Sent: Tuesday, February 2, 2021 4:17 PM
To: Francois Thauvette
Cc: Mottalib, Abdul; Steve Matthews
Subject: RE: 1335 & 1339 Bank Street - WM Boundary Condition Request
Attachments: 1335_1339 Bank Street February 2021.pdf

Hello,

Please find attached water boundary conditions for 1335/1339 Bank Street –

The following are future boundary conditions as per Development Review's request to include the future Bank Street renewal upgrades. The HGL for hydraulic analysis considers both developments (1335-1339 & 1330_1340_1346 Bank - zone 2W2C) and assumes them to be connected to the future Bank Street renewal upgrades (see attached PDF for location).

1335 1339 Bank

Riverside Connection:

Minimum HGL = 125.0m

Maximum HGL = 132.4m. The maximum pressure is estimated to be over 80 psi. A pressure check at completion of construction is recommended to determine if pressure control is required.

MXDY + Fire Flow (183 L/s) = 109.6m

Bank Connection:

Minimum HGL = 125.0m

Maximum HGL = 132.5m. The maximum pressure is estimated to be over 80 psi. A pressure check at completion of construction is recommended to determine if pressure control is required.

MXDY + Fire Flow (183 L/s) = 127.0m

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.

Please note that both developments have increased their demands from what was previously provided. The interim fire protection solution developed to install the hydrant on Riverside and move the pressure zone will not meet the new FUS demands of 183 L/s for 1335 & 1339 Bank Street.

Thanks,

Adam

Adam Baker, EIT
Project Manager
Planning, Infrastructure and Economic Development Department - Services de la planification, de l'infrastructure et du développement économique
Development Review - South 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 26552, Adam.Baker@ottawa.ca

From: Francois Thauvette <f.thauvette@novatech-eng.com>
Sent: January 27, 2021 3:14 PM
To: Baker, Adam <adam.baker@ottawa.ca>
Cc: Mottalib, Abdul <Abdul.Mottalib@ottawa.ca>; Steve Matthews <S.Matthews@novatech-eng.com>
Subject: 1335 & 1339 Bank Street - WM Boundary Condition Request

Hi Adam,

As discussed during our Teams call this morning, we are sending this e-mail to request updated municipal watermain boundary conditions based on the understanding that the Bank Street Renewal project watermain upgrades will be in place to accommodate the proposed development. The anticipated water demands for the proposed site are as follows:

- Average Day Demand = 2.58 L/s
- Maximum Day Demand = 6.40 L/s
- Peak Hour Demand = 14.04 L/s
- Maximum Fire Flow Demand = 183 L/s (see attached FUS calculations for details)

Please refer to the attached sketch showing two (2) water services, one off Bank Street and the other off Riverside Drive (south of the subject site). A multi-hydrant approach to firefighting is also anticipated to be required. Based on a review of geoOttawa, there are a few hydrants within 150m of the subject site. Please confirm the existing hydrants will provide the necessary fire flow. As shown on the attached sketch, it may be possible to add a new hydrant along Bank Street, if necessary.

Regards,

François Thauvette, P. Eng., Senior Project Manager | Land Development & Public Sector Engineering
NOVATECH Engineers, Planners & Landscape Architects
Please note that I am working from home. Email or MS Teams are the best ways to contact me.
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 Ext: 219 | Cell: 613.276.0310 | Fax: 613.254.5867

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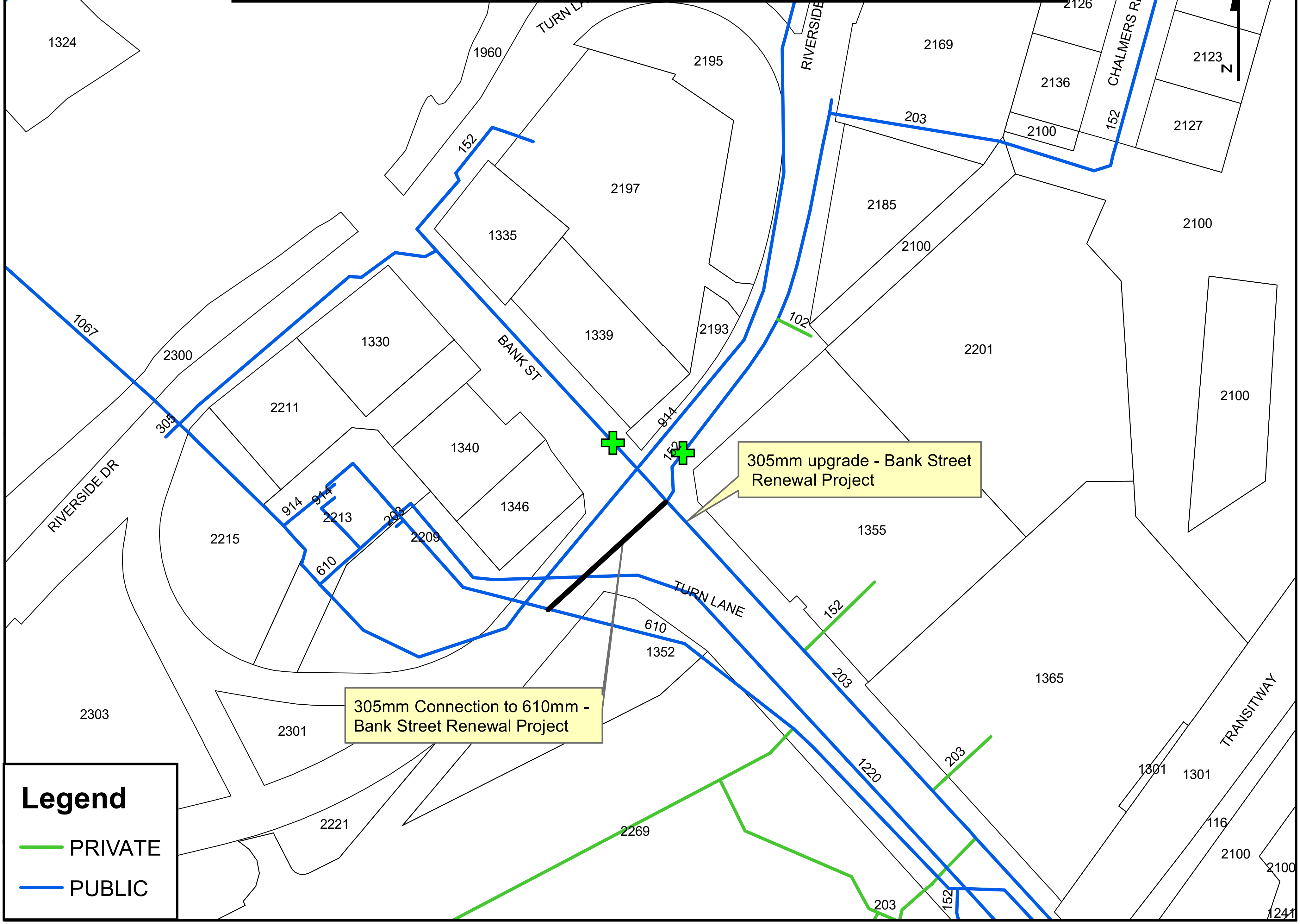
Boundary Conditions for 1335-1339 Bank Street (Future Conditions)



305mm upgrade - Bank Street Renewal Project
305mm Connection to 610mm - Bank Street Renewal Project
Legend
PRIVATE
PUBLIC
N
BANK ST
TURN LANE
RIVERSIDE DR
RIVERSIDE
CHALMERS RD
TRANSITWAY
1335
1339
1330
1340
1346
1352
1355
1365
2197
2195
2193
2185
2201
2211
2213
2209
2215
2300
2301
2303
2221
2269
1324
1312
1960
2169
2136
2126
2116
2100
2109
2123
2127
1301
1241
1067
305
914
610
152
203
102
1220
116

Steve Matthews

From: Baker, Adam <adam.baker@ottawa.ca>
Sent: Tuesday, January 12, 2021 10:39 AM
To: Francois Thauvette
Cc: Xu, Lily; Christine McCuaig; Polowin, Jeff; Lodoen Unseth, Kelby
Subject: 1335/1339 Bank - Watermain Update

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Francois,

This email is to provide you an update on the Bank Street renewal project and additional watermain work which impact the development at 1335/1339 Bank Street.

The Bank Street renewal is currently forecast for 2022 pending council approval. Asset Management has added additional watermain work for this project. A new watermain between Billings Avenue and Sarah Billings Place will be constructed to facilitate servicing for the adjacent streets. As well, a new 305mm watermain will connect the existing 610mm watermain from the Billings Bridge Pump Station to the new 305mm watermain in Bank Street at Riverside. As a result, these additional watermains will also provide the required redundancy to 1335/1339 Bank Street properties. The Bank Street renewal will also meet the fire demands that you had previously provided.

Additional details on the watermain work for the Bank Street renewal will be provided to you as it becomes available.

Thank you,
Adam

Adam Baker, EIT
Project Manager
Planning, Infrastructure and Economic Development Department - Services de la planification, de l'infrastructure et du développement économique
Development Review - South 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 26552, Adam.Baker@ottawa.ca

Francois Thauvette

From: Baker, Adam <adam.baker@ottawa.ca>
Sent: Thursday, July 30, 2020 3:33 PM
To: Christine McCuaig
Cc: Francois Thauvette; Kevin McMahon; Pierre Boulet; George Gaty; dougv@hobinarc.com; Xu, Lily; James, Douglas; Shillington, Jeffrey; Lodoen Unseth, Kelby
Subject: RE: Bank Street - Servicing Issues - 1335/1339 Bank Street

Hello,

In response to the memo of Lloyd Phillips & Associates (dated July 9, 2020) and two accompanying geoOttawa Capture sketches showing the five options to provide a secondary watermain feed for redundancy to 1335 and 1339 Bank Street, please find below information:

- Option 1 – This option will not provide the required redundancy to the site.
- Option 2 – This option will not provide the required redundancy to the site (will not provide required fire flows).
- Option 3 – This option, which proposes a connection to the 914mm backbone watermain is not an available option because this main is operated on a different pressure zone than the proposed site.
- Option 4 & 5 – This general layout is viable in terms of providing the secondary watermain feed for redundancy to the project site. There are a few considerations:
    - Several utility poles are located in the sidewalk which will conflict with the proposed route of Option 5.
    - These layouts need to connect to and upsize the existing 203mm watermain running east-west on Riverside Drive to provide the required looping (illustrated below).
    - Consider connecting to the 1220mm watermain trunk rather than the 610mm as this would shorten the length of the proposed watermain and eliminate a watermain trunk crossing.

In terms of implementing the proposed watermain infrastructure, this will be a development driven project. The City is undertaking the Bank street infrastructure renewal project, currently scheduled for 2022, and will upgrade the existing 203mm diameter watermain to a 305mm diameter watermain (including in front of the subject properties – Riverside to Riverside) which will, based on current proposed water demands for the site, meet the primary domestic and fire demands. Cost-sharing of the construction of either Option 4 or 5 can be explored with the City through coordination of the proposed watermain works with this project to provide the required secondary feed for redundancy.

Thank you,

Adam Baker, EIT
Project Manager
Planning, Infrastructure and Economic Development Department - Services de la planification, de l'infrastructure et du développement économique
Development Review - South 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 26552, Adam.Baker@ottawa.ca

From: Christine McCuaig <christine@lloydphillips.com>
Sent: July 21, 2020 9:21 AM
To: Xu, Lily <Lily.Xu@ottawa.ca>; James, Douglas <Douglas.James@ottawa.ca>; Baker, Adam <adam.baker@ottawa.ca>; Shillington, Jeffrey <jeff.shillington@ottawa.ca>; Lodoen Unseth, Kelby <Kelby.LodoenUnseth@ottawa.ca>
Cc: Francois Thauvette <f.thauvette@novatech-eng.com>; Kevin McMahon <kevin@loftydevelopments.com>; Pierre Boulet <pierreb@bouletconstruction.com>; George Gaty <ggaty@elkproperty.com>; dougv@hobinarc.com
Subject: Bank Street - Servicing Issues - 1335/1339 Bank Street

Hello Lily,

As you know, we are currently stalled until we can finalize a path forward to address the servicing constraints. On June 30th, we had a Teams meeting and the City requested options from Novatech. Francois prepared these and sent them to the City on July 2nd (email attached). We have not heard any response since.

I understand this is a larger issue, but we need to move forward with this project and request input and response from City staff on the presented options in order to service this proposal.

It would be greatly appreciated if you could obtain a response as soon as possible, ideally in the next couple days, so that our submission can be finalized.

Regards,
Christine

--

/

Christine McCuaig, RPP MCIP M.PI
Senior Planner | Lloyd Phillips & Associates Ltd.
christine@lloydphillips.com
24 Kirkstall Avenue, Ottawa, ON, K2G 3M5
(c) 613-850-8345

***AS OF AUGUST 1ST - NEW CONTACT DETAILS WILL BE**:*
christine@q9planning.com | 613-850-8345
www.q9planning.com

'

'

Francois Thauvette

From: Francois Thauvette
Sent: Thursday, July 2, 2020 2:36 PM
To: 'Baker, Adam'; Mottalib, Abdul
Cc: 'Mike Wiebe'; 'dougv@hobinarc.com'; 'Shillington, Jeffrey'; Lee Sheets
Subject: RE: 1335/1339 Bank Site Servicing (Watermain)
Attachments: geoOttawaCapture(WM).pdf; geoOttawaCapture(WM2).pdf

Hi Adam and Abdul,

As requested during our Teams meeting on Tuesday (June 30), please find attached two (2) sketches showing possible watermain work (extensions) that might alleviate the (lack of) redundancy and (low) fire flow issues related to the current configuration of the municipal watermain network in the area. These options are for review and discussion purposes. Please let us know if any of these options may be feasible from the City's perspective. The City's water modelling group will have to analyze the various scenarios to determine the impact the suggested improvements may have on the municipal watermain network. By no means is this an exhaustive list of possible options. Depending on the City's review and modelling results, other options and/or multiple options may be required (i.e. Option 2 & 3) to meet the requirements of the future developments in the area. Options 3, 4 and/or 5 could be coordinated with the on-going Bank Street Renewal project.

Regards,

François Thauvette, P. Eng., Senior Project Manager | Land Development & Public Sector Engineering
NOVATECH Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 Ext: 219 | Cell: 613.276.0310 | Fax: 613.254.5867

From: Francois Thauvette
Sent: Friday, June 26, 2020 2:02 PM
To: 'Baker, Adam' <adam.baker@ottawa.ca>
Cc: 'Mike Wiebe' <mike@loftydevelopments.com>; dougv@hobinarc.com; 'Shillington, Jeffrey' <jeff.shillington@ottawa.ca>; Lee Sheets <l.sheets@novatech-eng.com>
Subject: RE: 1335/1339 Bank Site Servicing (Watermain)

Hi Adam,

Would the City have recent hydrant flow data for the hydrants in close proximity to our site (i.e. **Hydrants 368027-H024**, **368027-H025** and **368027-H064**)? I suspect that the fire flow is greater than the theoretical maximum of 90 L/s (previous provided by the City), as the private valves on the Riverside Hospital campus are likely open (the Hospital likely needs a redundant feed). If the valves are indeed open, then the watermain network is looped to the system on the east side of the Transitway.

If no data is available, could these hydrants be tested, so we can confirm the fire flow available? As discussed during our Teams Meeting on June 24/20, this has an impact on the entire area, including the Hospital as well as the residential and commercial properties, not just our site.

Also, does the City know if the watermain at the end of Sarah Billings Place is capped on the east or west side of the Transitway? If capped on the east side of the Transitway, it would be easy to extend the watermain (approx. 60m) onto

the Hospital property, to create a watermain loop that would be independent of the private Hospital watermain network. An easement may be required. See marked-up sketch (geoOttawa screen shot) for details.

Please also confirm when the City's water modelling group will be available to meet via Teams.

Regards,

François Thauvette, P. Eng., Senior Project Manager | Land Development & Public Sector Engineering
NOVATECH Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 Ext: 219 | Cell: 613.276.0310 | Fax: 613.254.5867

From: Francois Thauvette
Sent: Thursday, June 25, 2020 4:02 PM
To: Baker, Adam <adam.baker@ottawa.ca>
Cc: Mike Wiebe <mike@loftydevelopments.com>
Subject: RE: 1335/1339 Bank Site Servicing

Hi Adam,

Have you had any luck scheduling a meeting with the City's water modelling group?

Regards,

François Thauvette, P. Eng., Senior Project Manager | Land Development & Public Sector Engineering
NOVATECH Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 Ext: 219 | Cell: 613.276.0310 | Fax: 613.254.5867

From: Baker, Adam <adam.baker@ottawa.ca>
Sent: Monday, June 22, 2020 11:23 AM
To: Francois Thauvette <f.thauvette@novatech-eng.com>
Subject: RE: 1335/1339 Bank Site Servicing

Hi Francois,

Yes, I've attached a screenshot of those invited to the meeting. Please feel free to forward the invite on if there's anyone else to include.

Thanks,
Adam

-----Original Appointment-----
From: Francois Thauvette <f.thauvette@novatech-eng.com>
Sent: June 22, 2020 10:45 AM

To: Baker, Adam
Subject: Accepted: 1335/1339 Bank Site Servicing
When: June 24, 2020 10:00 AM-12:00 PM (UTC-05:00) Eastern Time (US & Canada).
Where: Microsoft Teams Meeting

I can't see from the invitation, but I'm assuming that all others (i.e. architect, client, etc.) have also been invited to the meeting?

Regards,

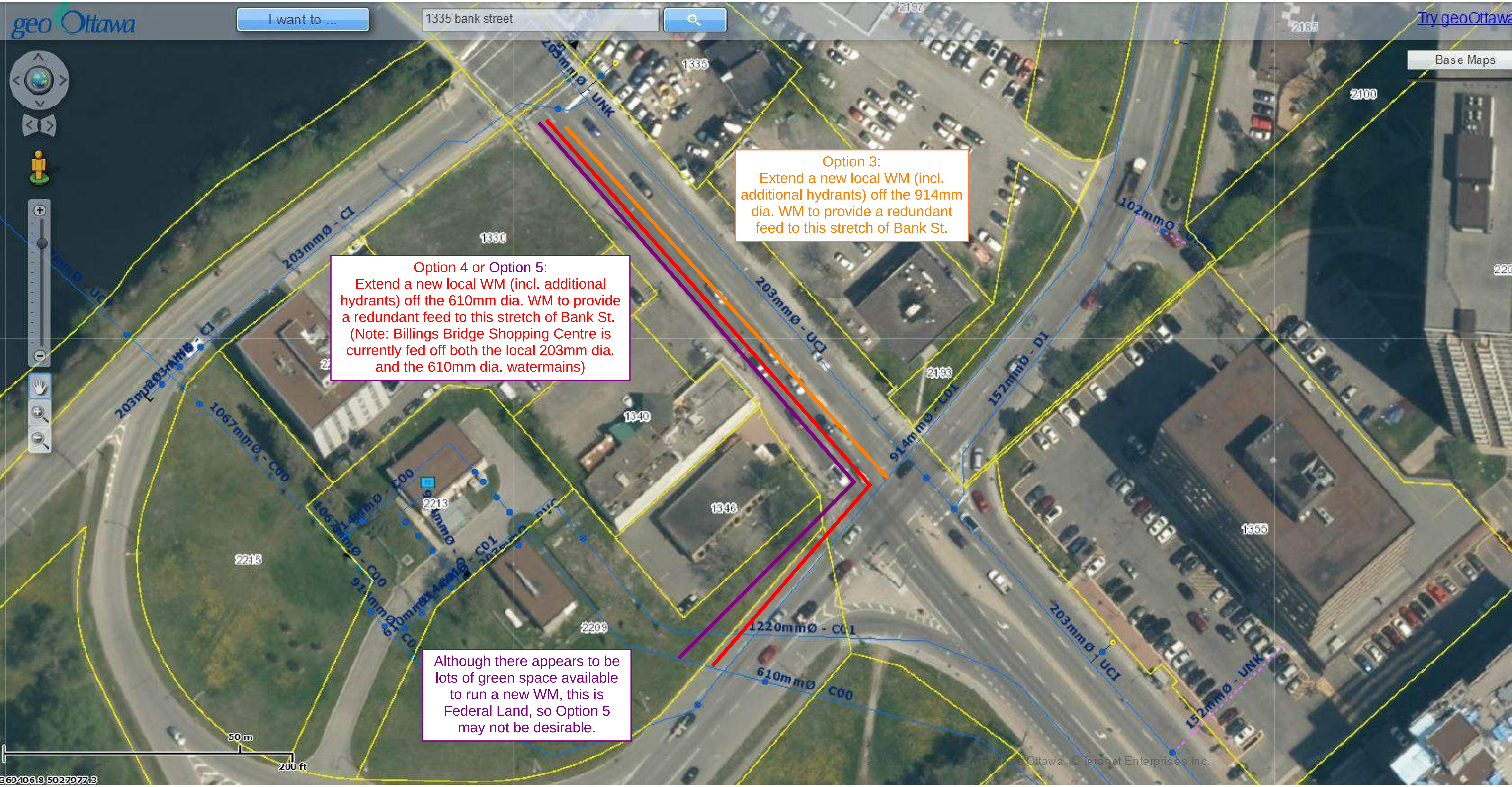
François Thauvette, P. Eng., Senior Project Manager | Land Development & Public Sector Engineering
NOVATECH Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 Ext: 219 | Cell: 613.276.0310 | Fax: 613.254.5867

'

'

Option 1 (Interim solution):
Agreement with Hospital to keep valves open at all times

Option 2:
Could the City extend the WM to create a looped system, independent of the private Hospital WM network?



geo Ottawa
I want to ...
1335 bank street
Try geoOttawa
Base Maps
Option 3:
Extend a new local WM (incl. additional hydrants) off the 914mm dia. WM to provide a redundant feed to this stretch of Bank St.
Option 4 or Option 5:
Extend a new local WM (incl. additional hydrants) off the 610mm dia. WM to provide a redundant feed to this stretch of Bank St.
(Note: Billings Bridge Shopping Centre is currently fed off both the local 203mm dia. and the 610mm dia. watermains)
Although there appears to be lots of green space available to run a new WM, this is Federal Land, so Option 5 may not be desirable.
203mmØ - UNK
203mmØ - CI
203mmØ - UCI
914mmØ - C01
152mmØ - DI
102mmØ - UNK
1067mmØ - C00
1220mmØ - C01
610mmØ - C00
152mmØ - UNK
1335
1330
1340
1346
1355
2193
2209
2213
2215
2100
2185
2197
50 m
200 ft
369406.8 5027977.3

Francois Thauvette

From: Baker, Adam <adam.baker@ottawa.ca>
Sent: Tuesday, June 16, 2020 3:55 PM
To: Francois Thauvette
Cc: Steve Matthews; Oram, Cody; Shillington, Jeffrey
Subject: RE: 1335 & 1339 Bank Street - Redevelopment - WM Boundary Condition Request
Attachments: Current configuration.pdf

Hi Francois,

Please find the response for your inquiry on the fire flow below with attached water map:

"The results provided are based on current configuration as shown in the attached figure. The 914mm watermain on Riverside is currently set up to be on 1W pressure, which is how Production normally operates. By doing so, the old 203mm UCI on Bank st is the main supply to the area in question, including the hydrants. You will not be able to pull more than 90L/s from the surrounding hydrants before which pressure falls below 20psi. The reason we didn't provide an HGL during fire is because the HGL/pressure is below 20psi based on their fire flow."

As well, unfortunately we have also determined that it is not feasible to use the 203mm watermain on Riverside west of Bank street to provide redundancy in case of a watermain break on Bank. The City's water departments are currently looking into available options that would be available to provide water service redundancy for these properties.

Once they have completed their due diligence, I am looking to set up a meeting with Novatech and include members of the City water department so that these issues can be discussed directly with them. I will be sure to keep you posted on any updated information that I receive in the meantime.

Thank you,
Adam

Adam Baker, EIT
Engineering Intern
Planning, Infrastructure and Economic Development Department - Services de la planification, de l'infrastructure et du développement économique
Development Review - South 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 26552, Adam.Baker@ottawa.ca

From: Francois Thauvette <f.thauvette@novatech-eng.com>
Sent: June 16, 2020 12:26 PM
To: Baker, Adam <adam.baker@ottawa.ca>
Cc: Steve Matthews <S.Matthews@novatech-eng.com>
Subject: RE: 1335 & 1339 Bank Street - Redevelopment - WM Boundary Condition Request

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Hi Adam,

Have you received any additional response from the water modelling group? Please advise.

Regards,

François Thauvette, P. Eng., Senior Project Manager | Land Development & Public Sector Engineering
NOVATECH Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 Ext: 219 | Cell: 613.276.0310 | Fax: 613.254.5867

From: Baker, Adam <adam.baker@ottawa.ca>
Sent: Friday, June 12, 2020 11:46 AM
To: Francois Thauvette <f.thauvette@novatech-eng.com>
Cc: Steve Matthews <S.Matthews@novatech-eng.com>
Subject: RE: 1335 & 1339 Bank Street - Redevelopment - WM Boundary Condition Request

Hi Francois,

I forwarded your question regarding the fire flow to our water modelling group yesterday. I have made them aware that you and your client are very eager to submit. I will call you/set up a Teams meeting as soon as I hear back.

Thanks,
Adam

Adam Baker, EIT
Engineering Intern
Planning, Infrastructure and Economic Development Department - Services de la planification, de l'infrastructure et du développement économique
Development Review - South 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 26552, Adam.Baker@ottawa.ca

From: Francois Thauvette <f.thauvette@novatech-eng.com>
Sent: June 12, 2020 10:46 AM
To: Baker, Adam <adam.baker@ottawa.ca>
Cc: Steve Matthews <S.Matthews@novatech-eng.com>
Subject: RE: 1335 & 1339 Bank Street - Redevelopment - WM Boundary Condition Request

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Hi Adam,

Any chance you are available to chat via Teams? The client is very eager to submit, but we haven't received a response to the e-mail below.

Regards,

François Thauvette, P. Eng., Senior Project Manager | Land Development & Public Sector Engineering
NOVATECH Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 Ext: 219 | Cell: 613.276.0310 | Fax: 613.254.5867

From: Francois Thauvette
Sent: Thursday, June 11, 2020 2:00 PM
To: Baker, Adam <adam.baker@ottawa.ca>
Cc: Steve Matthews <S.Matthews@novatech-eng.com>
Subject: RE: 1335 & 1339 Bank Street - Redevelopment - WM Boundary Condition Request

Hi Adam,

We have a concern with the following statement, provided in the e-mail below: *The total available flow @ 20psi using all hydrants within 150m of property is 90 L/s.* Is this correct? It seems very low and should be addressed…

Please also provide the HGL during Max Day + Fire Flow conditions.

I will send you a Teams meeting invitation to discuss. What time works best for you?

Regards,

François Thauvette, P. Eng., Senior Project Manager | Land Development & Public Sector Engineering
NOVATECH Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 Ext: 219 | Cell: 613.276.0310 | Fax: 613.254.5867

From: Baker, Adam <adam.baker@ottawa.ca>
Sent: Thursday, June 11, 2020 1:27 PM
To: Francois Thauvette <f.thauvette@novatech-eng.com>
Cc: Steve Matthews <S.Matthews@novatech-eng.com>
Subject: RE: 1335 & 1339 Bank Street - Redevelopment - WM Boundary Condition Request

Hi Francois,

We are still in the process of verifying that the unused watermain length along the portion of Riverside to the west of Bank could be put into use if there is a watermain break to provide temporary service to these properties in the case of a watermain break on Bank Street. I anticipate having an answer for you on this by the end of next week. If this is not a possibility, we will need to work with you further on how to provide water service redundancy for this development.

That being said, I understand that you and your client are very eager to submit the application. As such, I've provided the tentative boundary conditions below, which is based upon the proposed twin services, separated by a watermain valve, connecting on the 203mm Bank Street watermain:

The following are boundary conditions, HGL, for hydraulic analysis at 1335-1339 Bank St (zone 2W2C) assumed to be connected to the 203mm Bank St (see attached PDF for location).

Minimum HGL = 121.0m

Maximum HGL = 131.0m. *The maximum pressure is estimated to be more than 80 psi. A pressure check at completion of construction is recommended to determine if pressure control is required.*

Multi-Hydrant Analysis

The total available flow @ 20psi using all hydrants within 150m of property is 90 L/s.

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.

Pleased to discuss further. Feel free to send over a Teams invite if you want to chat.

Thanks,
Adam

Adam Baker, EIT
Engineering Intern
Planning, Infrastructure and Economic Development Department - Services de la planification, de l'infrastructure et du développement économique
Development Review - South 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 26552, Adam.Baker@ottawa.ca

From: Francois Thauvette <f.thauvette@novatech-eng.com>
Sent: June 11, 2020 12:16 PM
To: Baker, Adam <adam.baker@ottawa.ca>
Subject: RE: 1335 & 1339 Bank Street - Redevelopment - WM Boundary Condition Request

Hi Adam,

I am available any time if you want to chat via Teams (re: WM boundary conditions). My preference would be to call via Teams rather than by cell phone (if possible).

Regards,

François Thauvette, P. Eng., Senior Project Manager | Land Development & Public Sector Engineering

NOVATECH Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 Ext: 219 | Cell: 613.276.0310 | Fax: 613.254.5867

From: Baker, Adam <adam.baker@ottawa.ca>
Sent: Wednesday, June 10, 2020 10:45 AM
To: Francois Thauvette <f.thauvette@novatech-eng.com>
Cc: Steve Matthews <S.Matthews@novatech-eng.com>
Subject: RE: 1335 & 1339 Bank Street - Redevelopment - WM Boundary Condition Request

Hi Francois,

I've been working with our water resources group with regards to the water service redundancy on this site. Would you be available around 11:30 today for a Microsoft Teams call to discuss this?

Thanks,
Adam

Adam Baker, EIT
Engineering Intern
Planning, Infrastructure and Economic Development Department - Services de la planification, de l'infrastructure et du développement économique
Development Review - South 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 26552, Adam.Baker@ottawa.ca

From: Francois Thauvette <f.thauvette@novatech-eng.com>
Sent: June 10, 2020 9:57 AM
To: Baker, Adam <adam.baker@ottawa.ca>
Cc: Steve Matthews <S.Matthews@novatech-eng.com>
Subject: RE: 1335 & 1339 Bank Street - Redevelopment - WM Boundary Condition Request

Hi Adam,

Any chance we can obtain the watermain boundary conditions today? The request was sent in over a week ago and the client is very eager to submit the Adequacy of Public Services report for OPA and ZBL amendments.

Regards,

François Thauvette, P. Eng., Senior Project Manager | Land Development & Public Sector Engineering
NOVATECH Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 Ext: 219 | Cell: 613.276.0310 | Fax: 613.254.5867

From: Francois Thauvette <f.thauvette@novatech-eng.com>
Sent: Tuesday, June 2, 2020 4:25 PM

To: Baker, Adam <adam.baker@ottawa.ca>
Cc: Steve Matthews <S.Matthews@novatech-eng.com>
Subject: 1335 & 1339 Bank Street - Redevelopment - WM Boundary Condition Request

Hi Adam,

We are working on the proposed 25-storey mixed-use development at 1335 & 1339 Bank Street. The properties will be merged and the new building will replace the old car dealership (1335) and Harvey's restaurant (1339) sites.

We are sending you this e-mail to request watermain boundary conditions for the 200mm dia. WM in Bank Street (as shown on geoOttawa). The anticipated water demands for the proposed site are as follows:

- Average Day Demand = 2.54 L/s
- Maximum Day Demand = 6.31 L/s
- Peak Hour Demand = 13.85 L/s
- Maximum Fire Flow Demand = 167 L/s (see attached FUS calculations for details)

Please note that we anticipate requiring two (2) water services due to the high domestic demands. These will likely be located near the NW property corner. A multi-hydrant approach to firefighting is also anticipated to be required. Based on a review of geoOttawa, there are a few hydrants within 75m of the subject site, one of which is near the NW corner of the subject site. A hydraulic analysis will be completed, once the WM boundary conditions are provided by the City.

We are aware that a Bank Street Renewal project is underway, including roadway modifications as well as underground infrastructure upgrades, but have no information regarding this project. Would you be able to provide us with preliminary plans related to the Bank Street Renewal project, s this will have an impact on our grading and servicing design. Our understanding is that the City PM for the Bank Street Project is Roxanne Tubb (roxanne.tubb@ottawa.ca).

Please send us an e-mail should you require any additional information.

Regards,

François Thauvette, P. Eng., Senior Project Manager | Land Development & Public Sector Engineering
NOVATECH Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 Ext: 219 | Cell: 613.276.0310 | Fax: 613.254.5867

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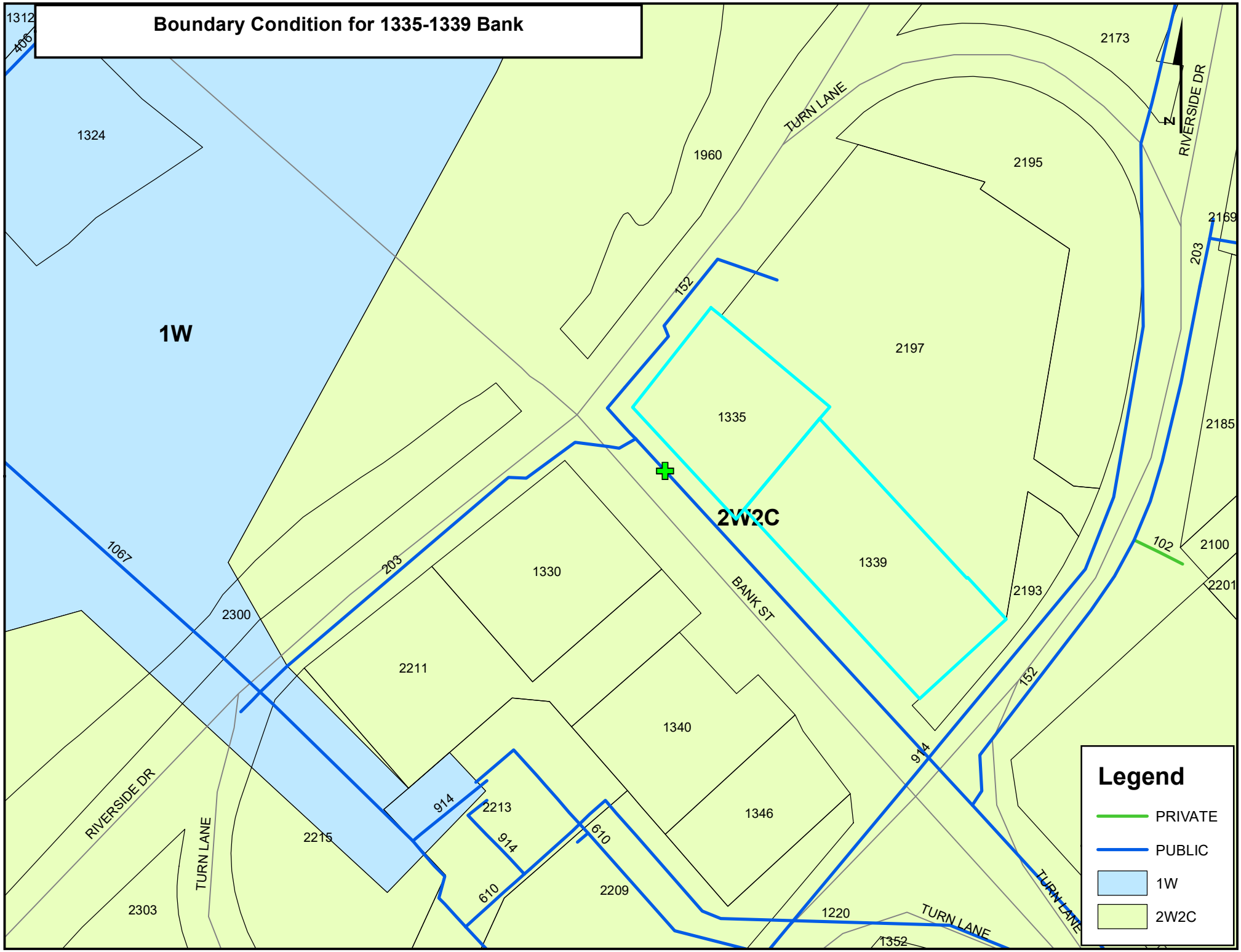
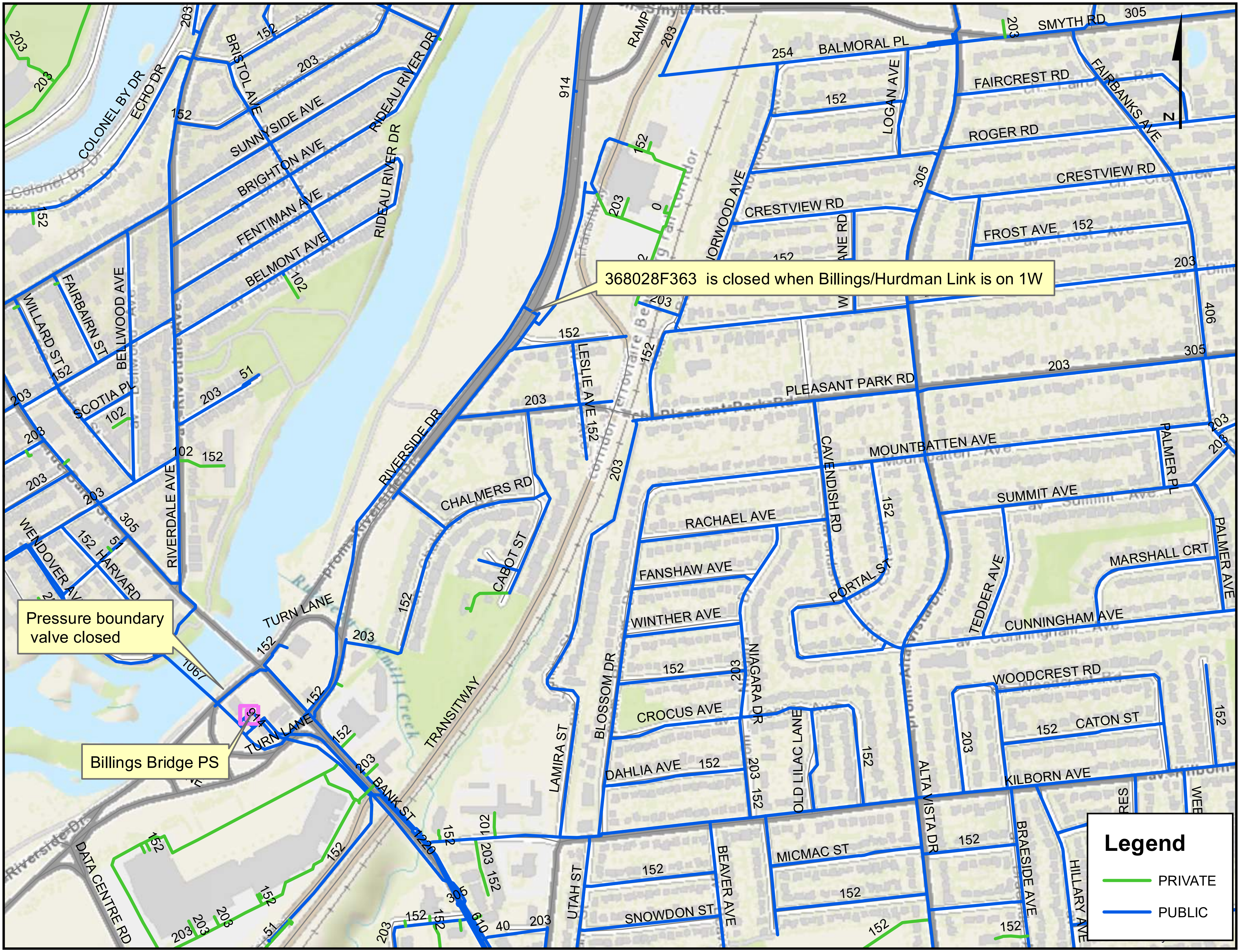
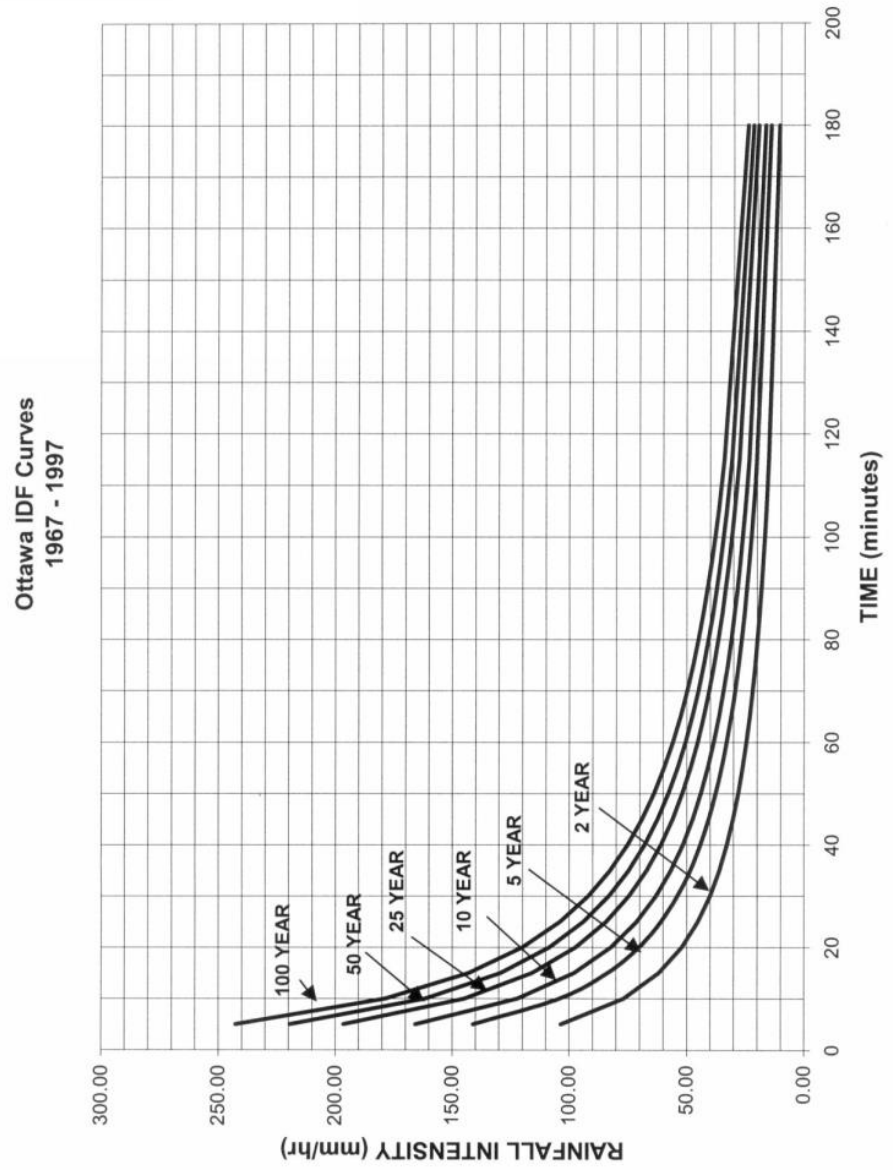

Boundary Condition for 1335-1339 Bank
1312
406
1324
1W
1960
TURN LANE
2173
RIVERSIDE DR
2195
2169
203
152
2197
1335
2W2C
1339
2185
2100
102
2201
1067
203
1330
BANK ST
2193
2300
2211
1340
914
152
RIVERSIDE DR
TURN LANE
914
2213
2215
914
610
610
1346
2209
2303
1220
TURN LANE
TURN LANE
1352
Legend
PRIVATE
PUBLIC
1W
2W2C


368028F363 is closed when Billings/Hurdman Link is on 1W
Pressure boundary valve closed
Billings Bridge PS
Legend
PRIVATE
PUBLIC
N
SMYTH RD
BALMORAL PL
FAIRCREST RD
ROGER RD
CRESTVIEW RD
FROST AVE
FAIRBANKS AVE
LOGAN AVE
NORWOOD AVE
PLEASANT PARK RD
MOUNTBATTEN AVE
SUMMIT AVE
PALMER PL
PALMER AVE
MARSHALL CRT
CUNNINGHAM AVE
TEDDER AVE
WOODCREST RD
CATON ST
KILBORN AVE
BRAESIDE AVE
HILLARY AVE
ALTA VISTA DR
CAVENDISH RD
PORTAL ST
RACHAEL AVE
FANSHAW AVE
WINTHER AVE
CROCUS AVE
DAHLIA AVE
NIAGARA DR
OLD LILAC LANE
BLOSSOM DR
LAMIRA ST
UTAH ST
BEAVER AVE
MICMAC ST
SNOWDON ST
LESLIE AVE
CHALMERS RD
CABOT ST
RIVERSIDE DR
TRANSITWAY
BANK ST
TURN LANE
DATA CENTRE RD
RIVERDALE AVE
WENDOVER AVE
HARVARD
SCOTIA PL
BELLWOOD AVE
FAIRBAIRN ST
WILLARD ST
BELMONT AVE
FENTIMAN AVE
BRIGHTON AVE
SUNNYSIDE AVE
BRISTOL AVE
RIDEAU RIVER DR
COLONEL BY DR
ECHO DR
RAMP

APPENDIX E

IDF Curves and SWM Calculations

APPENDIX 5-A OTTAWA INTENSITY DURATION FREQUENCY (IDF) CURVE



Proposed Mixed-Use Development
1335 & 1339 Bank Street - Lofty Riverside

Pre - Development Site Flows										
Description	***Area (ha)***	***$A_{impervious}$ (ha) C=0.9***	***A_{gravel} (ha) C=0.6***	***$A_{pervious}$ (ha) C=0.2***	**Weighted C_{w5}**	**Weighted C_{w100}**	**1:5 Year Flow (L/s)**	**1:100 Year Flow (L/s)**	**Allowable C_{value}**	**Allowable Flow 5 year (L/s)**
Subject Site (based on Future Bank Street R.O.W. limit)	0.253	0.233	0.000	0.020	0.84	0.94	61.9	118.2	0.5	36.6

T_c = 10mins

Post - Development : Site Flows if the areas were left Uncontrolled								
Area	**Description**	***Area (ha)***	***A_{imp} (ha) C=0.9***	***A_{perv} (ha) C=0.2***	**C_5**	**C_{100}**	**Uncontrolled Flow (L/s) 5 year**	**100 year**
A-1	Direct Runoff from Site	0.015	0.013	0.002	0.81	0.90	3.5	6.7
A-2	Uncontrolled Runoff from Patio	0.002	0.002	0.000	0.90	1.00	0.5	1.0
R-1	Controlled Internal SWM Tank	0.236	0.236	0.000	0.90	1.00	61.5	117.2
	Summed Area Check:	0.253					T_c = 10mins	T_c = 10mins

Post - Development : Total Flows for Controlled Site + Uncontrolled Direct Runoff						
Area	**Description**	**Peak Design Flow (L/s)**		**Storage Required (m^3)**		**Provided (m^3)**
		5 year	**100 year**	**5 year**	**100 year**	
A-1	Direct Runoff from Site	3.5	6.7	-	-	-
A-2	Uncontrolled Runoff from Patio	0.5	1.0	-	-	-
R-1	Controlled Internal SWM Tank	3.8	3.8	57.1	129.0	> 163
	Totals :	**7.8**	**11.5**	**57.1**	**129.0**	**> 163**
	Over Controlled:	28.8	25.2			

Proposed Mixed-Use Development
Novatech Project No. 119210
REQUIRED STORAGE - 1:5 YEAR EVENT
AREA A-1 Direct Runoff from Site

OTTAWA IDF CURVE

Area =	0.015	ha	Qallow =	3.5	L/s
C =	0.81		Vol(max) =	0.0	m^3

Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m^3)
5	141.18	4.75	1.24	0.37
10	104.19	3.50	0.00	0.00
15	83.56	2.81	-0.69	-0.62
20	70.25	2.36	-1.14	-1.37
25	60.90	2.05	-1.46	-2.18
30	53.93	1.81	-1.69	-3.04
35	48.52	1.63	-1.87	-3.93
40	44.18	1.49	-2.02	-4.84
45	40.63	1.37	-2.14	-5.77
50	37.65	1.27	-2.24	-6.71
55	35.12	1.18	-2.32	-7.67
60	32.94	1.11	-2.40	-8.63
65	31.04	1.04	-2.46	-9.60
70	29.37	0.99	-2.52	-10.57
75	27.89	0.94	-2.57	-11.55
80	26.56	0.89	-2.61	-12.53
85	25.37	0.85	-2.65	-13.52
90	24.29	0.82	-2.69	-14.51

Proposed Mixed-Use Development
Novatech Project No. 119210
REQUIRED STORAGE - 1:100 YEAR EVENT
AREA A-1 Direct Runoff from Site

OTTAWA IDF CURVE

Area =	0.015	ha	Qallow =	6.7	L/s
C =	0.90		Vol(max) =	0.0	m^3

Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m^3)
5	242.70	9.11	2.41	0.72
10	178.56	6.70	0.00	0.00
15	142.89	5.36	-1.34	-1.20
20	119.95	4.50	-2.20	-2.64
25	103.85	3.90	-2.80	-4.21
30	91.87	3.45	-3.25	-5.86
35	82.58	3.10	-3.60	-7.56
40	75.15	2.82	-3.88	-9.31
45	69.05	2.59	-4.11	-11.10
50	63.95	2.40	-4.30	-12.90
55	59.62	2.24	-4.46	-14.73
60	55.89	2.10	-4.60	-16.57
65	52.65	1.98	-4.73	-18.43
70	49.79	1.87	-4.83	-20.30
75	47.26	1.77	-4.93	-22.18
80	44.99	1.69	-5.01	-24.06
85	42.95	1.61	-5.09	-25.96
90	41.11	1.54	-5.16	-27.86

Proposed Mixed-Use Development
Novatech Project No. 119210
REQUIRED STORAGE - 1:5 YEAR EVENT
AREA A-2 Uncontrolled Runoff from Patio

OTTAWA IDF CURVE

Area =	0.002	ha	Qallow =	0.5	L/s
C =	0.90		Vol(max) =	0.0	m^3

Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m^3)
5	141.18	0.71	0.19	0.06
10	104.19	0.52	0.00	0.00
15	83.56	0.42	-0.10	-0.09
20	70.25	0.35	-0.17	-0.20
25	60.90	0.30	-0.22	-0.32
30	53.93	0.27	-0.25	-0.45
35	48.52	0.24	-0.28	-0.59
40	44.18	0.22	-0.30	-0.72
45	40.63	0.20	-0.32	-0.86
50	37.65	0.19	-0.33	-1.00
55	35.12	0.18	-0.35	-1.14
60	32.94	0.16	-0.36	-1.28
65	31.04	0.16	-0.37	-1.43
70	29.37	0.15	-0.37	-1.57
75	27.89	0.14	-0.38	-1.72
80	26.56	0.13	-0.39	-1.86
85	25.37	0.13	-0.39	-2.01
90	24.29	0.12	-0.40	-2.16

Proposed Mixed-Use Development
Novatech Project No. 119210
REQUIRED STORAGE - 1:100 YEAR EVENT
AREA A-2 Uncontrolled Runoff from Patio

OTTAWA IDF CURVE

Area =	0.002	ha	Qallow =	1.0	L/s
C =	1.00		Vol(max) =	0.0	m^3

Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m^3)
5	242.70	1.35	0.36	0.11
10	178.56	0.99	0.00	0.00
15	142.89	0.79	-0.20	-0.18
20	119.95	0.67	-0.33	-0.39
25	103.85	0.58	-0.42	-0.62
30	91.87	0.51	-0.48	-0.87
35	82.58	0.46	-0.53	-1.12
40	75.15	0.42	-0.57	-1.38
45	69.05	0.38	-0.61	-1.64
50	63.95	0.36	-0.64	-1.91
55	59.62	0.33	-0.66	-2.18
60	55.89	0.31	-0.68	-2.46
65	52.65	0.29	-0.70	-2.73
70	49.79	0.28	-0.72	-3.01
75	47.26	0.26	-0.73	-3.29
80	44.99	0.25	-0.74	-3.56
85	42.95	0.24	-0.75	-3.85
90	41.11	0.23	-0.76	-4.13

Proposed Mixed-Use Development
Novatech Project No. 119210
REQUIRED STORAGE - 1:2 YEAR EVENT
AREA R-1 Controlled Internal SWM Tank

OTTAWA IDF CURVE

Area =	0.236	ha	Qallow =	3.78	L/s
C =	0.90		Vol(max) =	38.6	m3

Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m3)
5	103.57	61.16	57.38	17.21
10	76.81	45.35	41.57	24.94
15	61.77	36.47	32.69	29.42
20	52.03	30.72	26.94	32.33
25	45.17	26.67	22.89	34.33
30	40.04	23.64	19.86	35.76
35	36.06	21.29	17.51	36.78
40	32.86	19.41	15.63	37.50
45	30.24	17.86	14.08	38.00
50	28.04	16.56	12.78	38.33
55	26.17	15.45	11.67	38.52
60	24.56	14.50	10.72	38.59
65	23.15	13.67	9.89	38.57
75	20.81	12.29	8.51	38.29
90	18.14	10.71	6.93	37.44
120	14.56	8.60	4.82	34.69
150	12.25	7.23	3.45	31.09
180	10.63	6.27	2.49	26.94
210	9.42	5.56	1.78	22.42
240	8.47	5.00	1.22	17.63

Proposed Mixed-Use Development
Novatech Project No. 119210
REQUIRED STORAGE - 1:5 YEAR EVENT
AREA R-1 Controlled Internal SWM Tank

OTTAWA IDF CURVE

Area =	0.236	ha	Qallow =	3.78	L/s
C =	0.90		Vol(max) =	57.1	m3

Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m3)
5	141.18	83.36	79.58	23.87
10	104.19	61.52	57.74	34.65
15	83.56	49.34	45.56	41.00
20	70.25	41.48	37.70	45.24
25	60.90	35.96	32.18	48.27
30	53.93	31.84	28.06	50.51
35	48.52	28.65	24.87	52.22
40	44.18	26.09	22.31	53.54
45	40.63	23.99	20.21	54.57
50	37.65	22.23	18.45	55.36
55	35.12	20.74	16.96	55.97
60	32.94	19.45	15.67	56.42
65	31.04	18.33	14.55	56.75
75	27.89	16.47	12.69	57.09
90	24.29	14.34	10.56	57.03
120	19.47	11.50	7.72	55.55
150	16.36	9.66	5.88	52.93
180	14.18	8.37	4.59	49.60
210	12.56	7.41	3.63	45.78
240	11.29	6.67	2.89	41.60

Proposed Mixed-Use Development
Novatech Project No. 119210
REQUIRED STORAGE - 1:100 YEAR EVENT
AREA R-1 Controlled Internal SWM Tank

OTTAWA IDF CURVE

Area =	0.236	ha	Qallow =	3.78	L/s
C =	1.00		Vol(max) =	129.0	m3

Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m3)
5	242.70	159.23	155.45	46.64
10	178.56	117.15	113.37	68.02
15	142.89	93.75	89.97	80.97
20	119.95	78.70	74.92	89.90
25	103.85	68.13	64.35	96.53
30	91.87	60.27	56.49	101.69
35	82.58	54.18	50.40	105.84
40	75.15	49.30	45.52	109.25
45	69.05	45.30	41.52	112.11
50	63.95	41.96	38.18	114.54
55	59.62	39.12	35.34	116.62
60	55.89	36.67	32.89	118.41
65	52.65	34.54	30.76	119.97
75	47.26	31.00	27.22	122.51
90	41.11	26.97	23.19	125.24
120	32.89	21.58	17.80	128.17
150	27.61	18.11	14.33	129.01
180	23.90	15.68	11.90	128.54
210	21.14	13.87	10.09	127.16
240	19.01	12.47	8.69	125.13

Proposed Mixed-Use Development
Novatech Project No. 119210
REQUIRED STORAGE - 1:100 YR + 20% IDF Increase
AREA R-1 Controlled Internal SWM Tank

OTTAWA IDF CURVE

Area =	0.236	ha	Qallow =	3.78	L/s
C =	1.00		Vol(max) =	162.4	m3

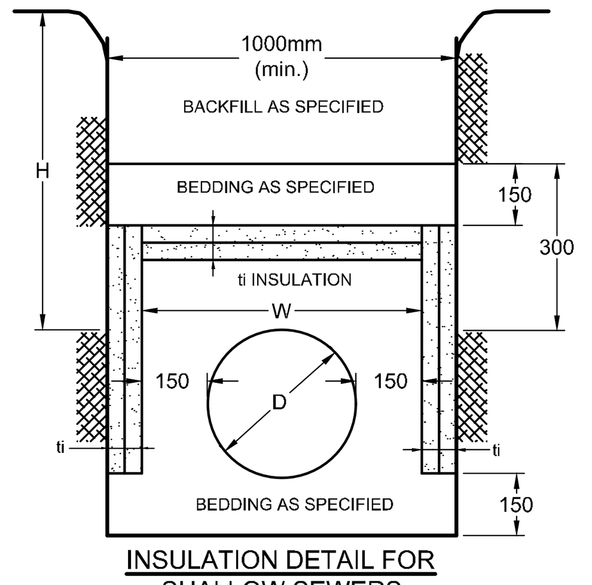
Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m3)
5	291.24	191.08	187.30	56.19
10	214.27	140.58	136.80	82.08
15	171.47	112.50	108.72	97.85
20	143.94	94.44	90.66	108.79
25	124.62	81.76	77.98	116.97
30	110.24	72.33	68.55	123.39
35	99.09	65.01	61.23	128.59
40	90.17	59.16	55.38	132.92
45	82.86	54.36	50.58	136.57
50	76.74	50.35	46.57	139.71
55	71.55	46.94	43.16	142.43
60	67.07	44.01	40.23	144.81
65	63.18	41.45	37.67	146.91
75	56.71	37.20	33.42	150.41
90	49.33	32.37	28.59	154.37
120	39.47	25.90	22.12	159.25
150	33.13	21.74	17.96	161.62
180	28.68	18.82	15.04	162.41
210	25.37	16.65	12.87	162.12
240	22.81	14.96	11.18	161.04

LEGEND

Symbol	Description	Symbol	Description
	PROPERTY LINE	OHW	*EXISTING OVERHEAD WIRES*
	PROPOSED SANITARY SERVICE		*EXISTING CONCRETE CURB*
	PROPOSED STORM SERVICE	SANMH	*EXISTING SANITARY MANHOLE & SEWER*
CBMH 01	PROPOSED CATCHBASIN MANHOLE	CBMH	*EXISTING CATCHBASIN MANHOLE*
CB 02	PROPOSED CATCHBASIN	STMMH	*EXISTING STORM MANHOLE & SEWER*
M RM	PROPOSED WATER METER AND REMOTE METER	CB	*EXISTING CATCHBASIN C/W CATCHBASIN LEAD*
	PROPOSED BARRIER CURB	HYD V&VB	*EXISTING HYDRANT & VALVE*
DC	PROPOSED DEPRESSED CURB		*EXISTING TREES / VEGETATION*
150mmØ	PROPOSED WATER SERVICE AND DIAMETER	EX UP	*EXISTING UTILITY POLE*
VB	PROPOSED VALVE & VALVE BOX		*EXISTING FENCE*
	PROPOSED CAP	300mmØ WM	*EXISTING WATERMAIN*
	PROPOSED BUILDING ENTRANCE	HYD	*EXISTING HYDRANT C/W VALVE & LEAD*
X	REMOVALS	FFE	FINISHED FLOOR ELEVATION
	THERMAL INSULATION FOR SHALLOW SEWERS	T/FND	TOP OF FOUNDATION WALL ELEVATION
		USF	UNDERSIDE OF FOOTING ELEVATION

GENERAL NOTES:

1. COORDINATE AND SCHEDULE ALL WORK WITH OTHER TRADES AND CONTRACTORS.
2. DETERMINE THE EXACT LOCATION, SIZE, MATERIAL AND ELEVATION OF ALL EXISTING UTILITIES PRIOR TO COMMENCING CONSTRUCTION. PROTECT AND ASSUME RESPONSIBILITY FOR ALL EXISTING UTILITIES WHETHER OR NOT SHOWN ON THIS DRAWING.
3. OBTAIN ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OF OTTAWA BEFORE COMMENCING CONSTRUCTION.
4. BEFORE COMMENCING CONSTRUCTION OBTAIN AND PROVIDE PROOF OF COMPREHENSIVE, ALL RISK AND OPERATIONAL LIABILITY INSURANCE FOR $5,000,000.00. INSURANCE POLICY TO NAME OWNERS, ENGINEERS AND ARCHITECTS AS CO-INSURED.
5. RESTORE ALL DISTURBED AREAS ON-SITE AND OFF-SITE, INCLUDING TRENCHES AND SURFACES ON PUBLIC ROAD ALLOWANCES TO EXISTING CONDITIONS OR BETTER TO THE SATISFACTION OF MUNICIPAL AUTHORITIES.
6. REMOVE FROM SITE ALL EXCESS EXCAVATED MATERIAL, ORGANIC MATERIAL AND DEBRIS UNLESS OTHERWISE INSTRUCTED BY ENGINEER. EXCAVATE AND REMOVE FROM SITE ANY CONTAMINATED MATERIAL. ALL CONTAMINATED MATERIAL SHALL BE DISPOSED OF AT A LICENSED LANDFILL FACILITY.
7. ALL ELEVATIONS ARE GEODETIC.
8. REFER TO GEOTECHNICAL INVESTIGATION REPORT (Ref.No. PG5044-1), DATED DEC. 3, 2019, PREPARED BY PATERSON GROUP FOR SUBSURFACE CONDITIONS, CONSTRUCTION RECOMMENDATIONS AND GEOTECHNICAL INSPECTION REQUIREMENTS. THE GEOTECHNICAL CONSULTANT IS TO REVIEW ON-SITE CONDITIONS AFTER EXCAVATION PRIOR TO PLACEMENT OF THE GRANULAR MATERIAL.
9. REFER TO ARCHITECT'S AND LANDSCAPE ARCHITECT'S DRAWINGS FOR BUILDING AND HARD SURFACED AREAS AND DIMENSIONS.
10. REFER TO THE 'DEVELOPMENT SERVICING STUDY AND STORMWATER MANAGEMENT REPORT' (R-2020-071) PREPARED BY NOVATECH.
11. SAW CUT AND KEYGRIND ASPHALT AT ALL ROAD CUTS AND ASPHALT TIE-IN POINTS AS PER CITY OF OTTAWA STANDARDS (R10).



INSULATION DETAIL FOR SHALLOW SEWERS

NOT TO SCALE

ti = THICKNESS OF INSULATION (mm)
h = DEPTH OF COVER
W = D + 300 (1000 min.)
W = WIDTH OF INSULATION (mm)
D = O.D OF PIPE (mm)

INSULATION NOTES:
1. THE THICKNESS OF SEWER INSULATION SHALL BE THE EQUIVALENT OF 25mm FOR EVERY 300mm REDUCTION IN THE REQUIRED DEPTH OF COVER LESS THAN 1500mm (SEE TABLE BESIDE)

COVER (mm)	INSULATION THICKNESS (mm)
1500-1200	75
1200-900	100
900-600	125

INTERNAL SWM STORAGE SYSTEM			
DESIGN EVENT	STORAGE SYSTEM CONTROLLED FLOW	STORAGE VOLUMES	
		REQUIRED	PROVIDED
1:2 YR	PUMPED FLOW RATE = 3.78 L/s	38.6 m³	> 163 m³
1:5 YR		57.1 m³	
1:100 YR		129.0 m³	
1:100+20%		162.4 m³	

NOTES:
1. ALL DRAINAGE FROM AREA R-1 (PROPOSED AMENITY AREA DECK DRAINS AND ALL ROOF DRAINS AS WELL AS THE PATIO OVERFLOW DRAIN) TO BE DIRECTED TO THE INTERNAL STORMWATER STORAGE SYSTEM. REFER TO ARCHITECTURAL AND MECHANICAL PLANS FOR DETAILS.
2. REFER TO ARCHITECTURAL AND STRUCTURAL PLANS FOR EXACT SIZE AND DETAILS OF INTERNAL STORMWATER STORAGE SYSTEM.
3. REFER TO ARCHITECTURAL AND MECHANICAL PLANS FOR LOCATION AND CONNECTIONS AND DETAILS OF THE INTERNAL STORMWATER STORAGE SYSTEM.

SEWER NOTES:

1. SUPPLY AND CONSTRUCT ALL SEWERS AND APPURTENANCES IN ACCORDANCE WITH THE MOST CURRENT CITY OF OTTAWA STANDARDS AND SPECIFICATIONS.
2. SPECIFICATIONS:

ITEM	SPEC. No.	
STORM / CATCHBASIN MANHOLE (1200mmØ)	701.010	OPSD
CATCHBASIN MH FRAME & COVER	401.010 Type 'B'	OPSD
CATCHBASIN (600x600)	705.010	OPSD
CATCHBASIN FRAME & COVER	S19	CITY OF OTTAWA
SEWER TRENCH	S6	CITY OF OTTAWA
SANITARY / STORM SEWER	PVC DR 35	

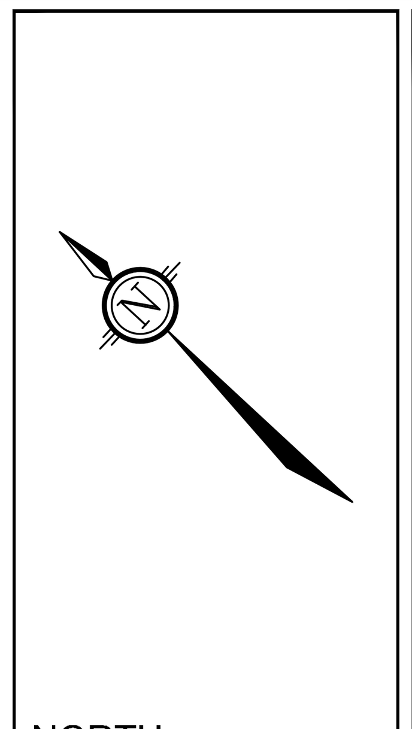
3. THE SANITARY SERVICE LATERAL SHALL BE EQUIPPED WITH BACKFLOW PREVENTERS WITHIN THE BUILDING FOOTPRINT AS PER CITY OF OTTAWA STANDARD DETAILS S14.1 OR S14.2. REFER TO MECHANICAL PLANS FOR DETAILS.
4. THE STORM SERVICE LATERAL SHALL BE EQUIPPED WITH A BACKFLOW PREVENTER WITHIN THE BUILDING FOOTPRINT AS PER CITY OF OTTAWA STANDARD DETAILS S14. REFER TO MECHANICAL PLANS FOR DETAILS.
5. SERVICES ARE TO BE CONSTRUCTED TO 1.0m FROM FACE OF BUILDING AT A MINIMUM SLOPE OF 1.0%.
6. PIPE BEDDING, COVER AND BACKFILL ARE TO BE COMPACTED TO AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. THE USE OF CLEAR CRUSHED STONE AS A BEDDING LAYER SHALL NOT BE PERMITTED.
7. INSULATE ALL PIPES (SAN / STM) THAT HAVE LESS THAN 1.5m COVER WITH HI-40 INSULATION PER INSULATION DETAIL FOR SHALLOW SEWERS. PROVIDE 150mm CLEARANCE BETWEEN PIPE AND INSULATION.
8. FLEXIBLE CONNECTIONS ARE REQUIRED FOR CONNECTING PIPES TO MANHOLES (FOR EXAMPLE KOR-N-SEAL, PSX: POSITIVE SEAL AND DURASEAL). THE CONCRETE CRADLE FOR THE PIPE CAN BE ELIMINATED.
9. TYPICAL STORM MANHOLES AND CATCHBASIN MANHOLES ARE TO HAVE 300mm SUMPS UNLESS OTHERWISE INDICATED.
10. THE CONTRACTOR IS TO TELEVISE (CCTV) ALL PROPOSED SEWERS, 200mmØ OR GREATER PRIOR TO BASE COURSE ASPHALT. UPON COMPLETION OF CONTRACT, THE CONTRACTOR IS RESPONSIBLE TO FLUSH AND CLEAN ALL SEWERS & APPURTENANCES. PROVIDE A COPY OF ALL CCTV INSPECTION REPORTS TO THE ENGINEER FOR REVIEW.
11. CONTRACTOR TO PROVIDE THE CONSULTANT WITH A GENERAL PLAN OF SERVICES INDICATING ALL APPLICABLE SERVICING AS-BUILT INFORMATION SHOWN ON THIS PLAN. AS-BUILT INFORMATION MUST INCLUDE: PIPE MATERIAL, SIZES, LENGTHS, SLOPES, INVERT AND T/G ELEVATIONS, STRUCTURE LOCATIONS AND ANY ALIGNMENT CHANGES, ETC.
12. THE OWNER SHALL REQUIRE THAT THE SITE SERVICING CONTRACTOR PERFORM FIELD TESTS FOR QUALITY CONTROL OF ALL SANITARY SEWERS. LEAKAGE TESTING SHALL BE COMPLETED IN ACCORDANCE WITH OPSS 410.07.16, 410.07.16.04 AND 407.07.24. DYE TESTING IS TO BE COMPLETED ON ALL SANITARY SERVICES TO CONFIRM PROPER CONNECTION TO THE SANITARY SEWER MAIN. THE FIELD TESTS SHALL BE PERFORMED IN THE PRESENCE OF A CERTIFIED PROFESSIONAL ENGINEER WHO SHALL SUBMIT A CERTIFIED COPY OF THE TEST RESULTS.

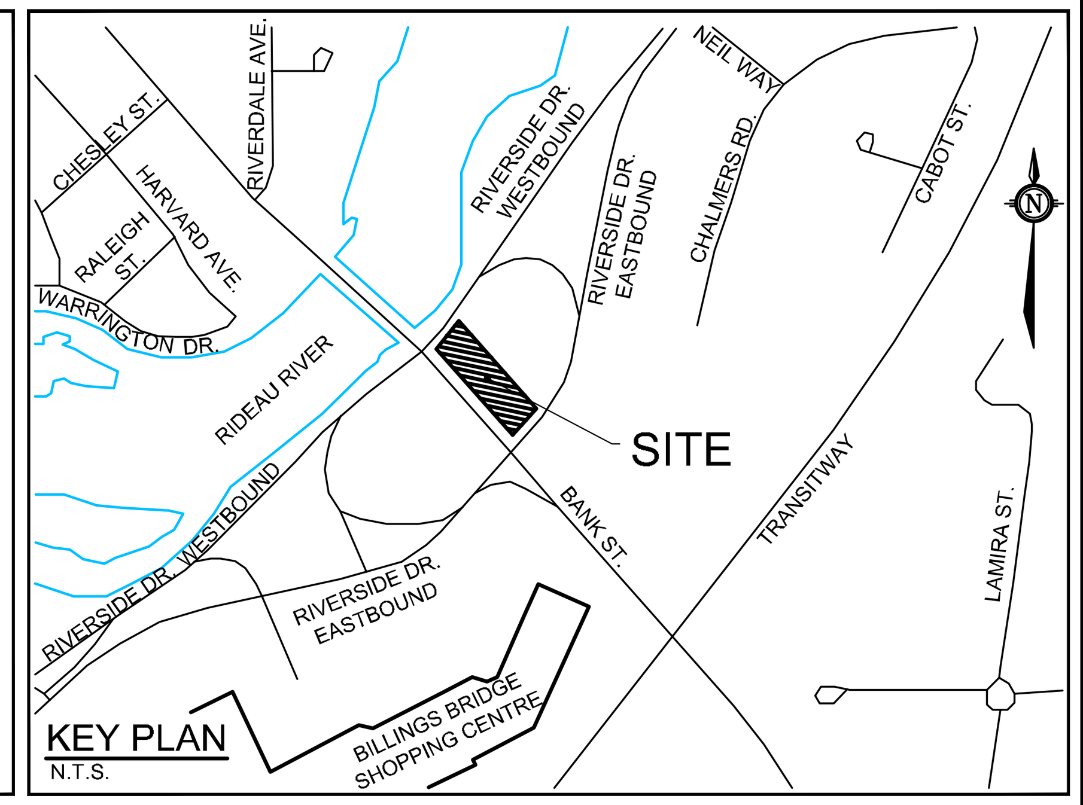
WATERMAIN NOTES:

1. SUPPLY AND CONSTRUCT ALL WATERMAIN AND APPURTENANCES IN ACCORDANCE WITH THE MOST CURRENT CITY OF OTTAWA STANDARDS AND SPECIFICATIONS.
2. SPECIFICATIONS:

ITEM	SPEC. No.	REFERENCE
WATERMAIN TRENCHING	W17	CITY OF OTTAWA
THERMAL INSULATION IN SHALLOW TRENCHES	W22	CITY OF OTTAWA
THERMAL INSULATION BY OPEN STRUCTURES	W23	CITY OF OTTAWA
VALVE BOX ASSEMBLY	W24	CITY OF OTTAWA
WATERMAIN CROSSING BELOW SEWERS	W25	CITY OF OTTAWA
CATHODIC PROTECTION FOR PVC WATERMAINS	W40	CITY OF OTTAWA
WATERMAIN MATERIAL	PVC DR 18 (100mm AND LARGER)	

3. EXCAVATION, INSTALLATION, BACKFILL AND RESTORATION OF ALL WATERMAINS BY THE CONTRACTOR. CONNECTIONS AND SHUT-OFFS AT THE MAIN AND CHLORINATION OF THE WATER SYSTEM SHALL BE PERFORMED BY CITY OFFICIALS. EXCAVATION, INSTALLATION OF SERVICE, BACKFILL AND RESTORATION BY THE CONTRACTOR.
4. WATERMAIN SHALL BE MINIMUM 2.4m DEPTH BELOW GRADE UNLESS OTHERWISE INDICATED.
5. PROVIDE MINIMUM 0.5m CLEARANCE BETWEEN OUTSIDE OF PIPES AT ALL CROSSINGS, UNLESS OTHERWISE INDICATED.
6. WATER SERVICE IS TO BE CONSTRUCTED TO WITHIN 1.0m OF FOUNDATION WALL AND CAPPED, UNLESS OTHERWISE INDICATED.





150mmØ WATER SERVICES			
STATION	SURFACE ELEVATION	T/WM ELEVATION	COMMENTS
0+00	59.48±	57.10± *	150mmØ WM CONNECTION TO UPGRADED 300mmØ PVC WM
0+01.5	59.47	57.15 **	CROSS BELOW EX. STM [INV=57.8±] (±0.6m CLEARANCE)
0+04.3	59.70	57.25	CROSS BELOW EX. HYDRO [U/S DUCT=58.5±] (±1.3m CLEARANCE)
0+07.4	59.78	57.35	PROPERTY LINE / 150mmØ V&VB
0+09.2	59.82	57.40	CAP 1.0m FROM FOUNDATION WALL
1+00	59.55±	57.15± *	150mmØ WM CONNECTION TO FUTURE 150mmØ PVC WM
1+04.4	59.55	57.15	CROSSING FUTURE BANK ST. RENEWAL STM [ELEVATION T.B.D.]
1+07.8	59.78	57.20	CROSS ABOVE EX. 900mmØ WM [T/WM=55.78] (±1.3m CLEARANCE)
0+08.0	59.79	57.20	CROSS BELOW EX. HYDRO [U/S DUCT=58.4±] (±1.2m CLEARANCE)
1+08.3	59.80	57.20	CROSS BELOW EX. 300mmØ STM [INV=57.78] (±0.6m CLEARANCE)
1+12.9	59.82	57.30	11.25° HORIZONTAL BEND
1+13.9	59.83	57.35	150mmØ V&VB
1+14.4	59.85	57.40	CAP 0.5m FROM FOUNDATION WALL

* CONNECTIONS TO UPGRADED 300mmØ AND FUTURE 150mmØ PVC WATERMAINS. EXACT ELEVATIONS T.B.D.

** PROVIDE THERMAL INSULATION AS PER CITY OF OTTAWA DETAIL W22 IN SHALLOW TRENCHES AND/OR CITY OF OTTAWA DETAIL W23 ADJACENT TO OPEN STRUCTURES.

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

OWNER INFORMATION
Lofty Riverside Development LP
206-900 boulevard de la Carriere
Gatineau, Quebec, J8Y 6T5
NAME: MR. MIKE WIEBE
PHONE: (819) 664-4144
EMAIL: mike@loftydevelopments.com

No.	REVISION	DATE	BY
2	REVISED PER CITY COMMENTS	DEC 20/21	FST
1	ISSUED FOR SITE PLAN APPROVAL	MAR 3/21	FST

SCALE 1:200

DESIGN SM / FST — CHECKED SM — DRAWN RB / SM — CHECKED SM / FST — APPROVED FST

FOR REVIEW ONLY

LICENSED PROFESSIONAL ENGINEER F.S. THAUVETTE 100041399 DEC.20, 2021 PROVINCE OF ONTARIO

NOVATECH
Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 1P6
Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

LOCATION
CITY OF OTTAWA
1335 & 1339 BANK STREET

DRAWING NAME
GENERAL PLAN OF SERVICES

PROJECT No. 119210
REV: REV # 2
DRAWING No. 119210-GP

D07-12-21-0031

PLAN #18435

LEGEND

- 59.75 — PROPOSED ELEVATION
- 59.55** — *APPOXIMATE R.O.W. ELEVATION ONLY (T.B.D. AS PART OF THE BANK STREET RENEWAL PROJECT)
- 60.05** — ** INTERNAL GRADING FOR INFORMATION PURPOSES ONLY (T.B.D. BY ARCHITECTURAL BUILDING DESIGN)
- 59.65 — EXISTING ELEVATION
- 2.0% — GRADE AND DIRECTION
- MAXIMUM 3:1 SIDESLOPE
- CBMH 01 — PROPOSED CATCHBASIN MANHOLE
- CB 02 — PROPOSED CATCHBASIN
- PROPOSED SILT FENCING (OPSD 219.110)
- DIRECTION OF MAJOR SYSTEM OVERLAND FLOW
- PAVED DRIVEWAY
- PROPERTY LINE

- EXISTING EDGE OF PAVEMENT
- VALVE — EXISTING VALVE & VALVE BOX
- SP — EXISTING SERVICE POST
- HYD — EXISTING HYDRANT
- COMB MH — EXISTING COMBINED MH
- CBMH — EXISTING CATCHBASIN
- CB — EXISTING CATCHBASIN MH
- EX UP — EXISTING UTILITY POLE C/W GUY WIRES
- EXISTING FENCE
- O/H WIRES — EXISTING OVERHEAD WIRES
- FFE — FINISHED FLOOR ELEVATION
- T/FND — TOP OF FOUNDATION WALL ELEVATION
- USF — UNDERSIDE OF FOOTING ELEVATION
- BUILDING ENTRANCE / EXIT

GENERAL NOTES:

1. COORDINATE AND SCHEDULE ALL WORK WITH OTHER TRADES AND CONTRACTORS.
2. DETERMINE THE EXACT LOCATION, SIZE, MATERIAL AND ELEVATION OF ALL EXISTING UTILITIES PRIOR TO COMMENCING CONSTRUCTION. PROTECT AND ASSUME RESPONSIBILITY FOR ALL EXISTING UTILITIES WHETHER OR NOT SHOWN ON THIS DRAWING.
3. OBTAIN ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OF OTTAWA BEFORE COMMENCING CONSTRUCTION.
4. BEFORE COMMENCING CONSTRUCTION OBTAIN AND PROVIDE PROOF OF COMPREHENSIVE, ALL RISK AND OPERATIONAL LIABILITY INSURANCE FOR $5,000,000.00. INSURANCE POLICY TO NAME OWNERS, ENGINEERS AND ARCHITECTS AS CO-INSURED.
5. RESTORE ALL DISTURBED AREAS ON-SITE AND OFF-SITE, INCLUDING TRENCHES AND SURFACES ON PUBLIC ROAD ALLOWANCES TO EXISTING CONDITIONS OR BETTER TO THE SATISFACTION OF THE CITY OF OTTAWA AND ENGINEER.
6. REMOVE FROM SITE ALL EXCESS EXCAVATED MATERIAL, ORGANIC MATERIAL AND DEBRIS UNLESS OTHERWISE INSTRUCTED BY ENGINEER. EXCAVATE AND REMOVE FROM SITE ANY CONTAMINATED MATERIAL. ALL CONTAMINATED MATERIAL SHALL BE DISPOSED OF AT A LICENSED LANDFILL FACILITY.
7. ALL ELEVATIONS ARE GEODETIC.
8. REFER TO GEOTECHNICAL INVESTIGATION REPORT (Ref.No. PG5044-1), DATED DEC. 3, 2019, PREPARED BY PATERSON GROUP FOR SUBSURFACE CONDITIONS, CONSTRUCTION RECOMMENDATIONS AND GEOTECHNICAL INSPECTION REQUIREMENTS. THE GEOTECHNICAL CONSULTANT IS TO REVIEW ON-SITE CONDITIONS AFTER EXCAVATION PRIOR TO PLACEMENT OF THE GRANULAR MATERIAL.
9. REFER TO ARCHITECT'S AND LANDSCAPE ARCHITECT'S DRAWINGS FOR BUILDING AND HARD SURFACED AREAS AND DIMENSIONS.
10. REFER TO THE 'DEVELOPMENT SERVICING STUDY AND STORMWATER MANAGEMENT REPORT' (R-2020-071) PREPARED BY NOVATECH.
11. SAW CUT AND KEY GRIND ASPHALT AT ALL ROAD CUTS AND ASPHALT TIE IN POINTS AS PER CITY OF OTTAWA STANDARDS (R10).

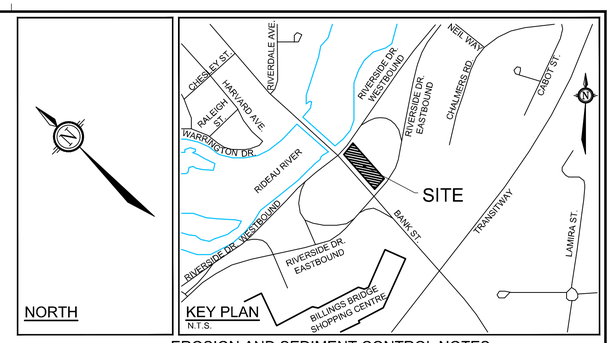
PAVEMENT STRUCTURE:

LIGHT DUTY PAVEMENT
50mm SUPERPAVE 12.5
150mm GRANULAR "A"
300mm GRANULAR "B" TYPE II
ASPHALT GRADE PG 58-34

HEAVY DUTY PAVEMENT
40mm SUPERPAVE 12.5
50mm SUPERPAVE 19.0
150mm GRANULAR "A"
400mm GRANULAR "B" TYPE II
ASPHALT GRADE PG 58-34

GRADING NOTES:

1. ALL TOPSOIL, ORGANIC OR DELETERIOUS MATERIAL MUST BE ENTIRELY REMOVED FROM BENEATH THE PROPOSED PAVED AREAS AS DIRECTED BY THE SITE ENGINEER OR GEOTECHNICAL ENGINEER.
2. EXPOSED SUBGRADES IN PROPOSED PAVED AREAS SHOULD BE PROOF ROLLED WITH A LARGE STEEL DRUM ROLLER AND INSPECTED BY THE GEOTECHNICAL ENGINEER PRIOR TO THE PLACEMENT OF GRANULARS.
3. ANY SOFT AREAS EVIDENT FROM THE PROOF ROLLING SHOULD BE SUB-EXCAVATED AND REPLACED WITH SUITABLE MATERIAL THAT IS FROST COMPATIBLE WITH THE EXISTING SOILS AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER.
4. THE GRANULAR BASE SHOULD BE COMPACTED TO AT LEAST 100% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY VALUE. ANY ADDITIONAL GRANULAR FILL USED BELOW THE PROPOSED PAVEMENT SHOULD BE COMPACTED TO AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY VALUE.
5. MINIMUM OF 2% GRADE FOR ALL GRASS AREAS UNLESS OTHERWISE NOTED.
6. MAXIMUM TERRACING GRADE TO BE 3:1 UNLESS OTHERWISE NOTED.
7. ALL GRADES BY CURBS ARE EDGE OF PAVEMENT GRADES UNLESS OTHERWISE INDICATED.
8. ALL CURBS SHALL BE BARRIER CURB (150mm) UNLESS OTHERWISE NOTED AND CONSTRUCTED AS PER CITY OF OTTAWA STANDARDS (SC1,1).
9. REFER TO LANDSCAPE PLAN FOR PLANTING AND OTHER LANDSCAPE FEATURE DETAILS.
10. CONTRACTOR TO PROVIDE THE CONSULTANT WITH A GRADING PLAN INDICATING THE AS-BUILT ELEVATIONS OF ALL DESIGN GRADES SHOWN ON THIS PLAN.

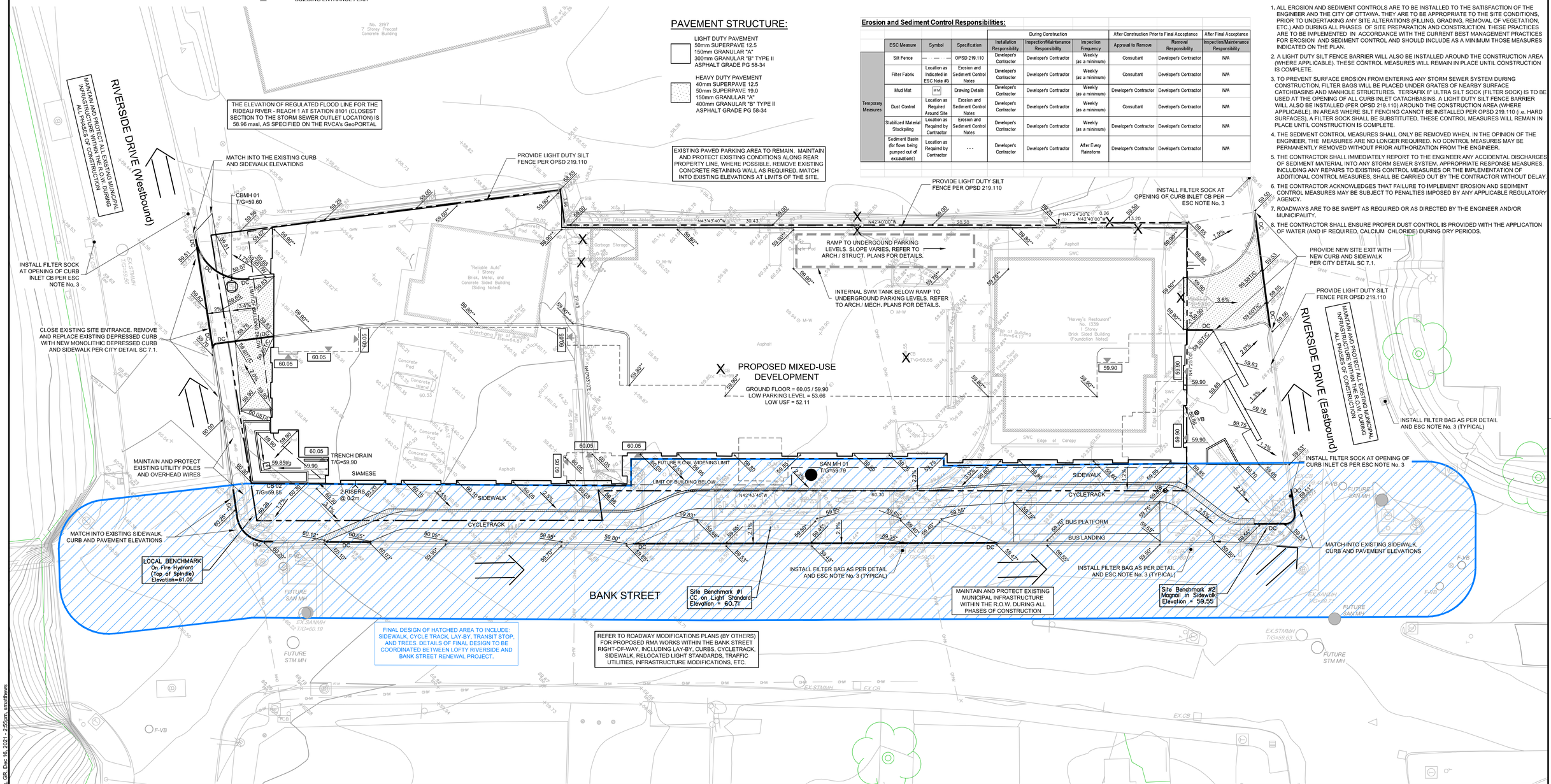


Erosion and Sediment Control Responsibilities:

	ESC Measure	Symbol	Specification	During Construction: Installation Responsibility	During Construction: Inspection/Maintenance Responsibility	During Construction: Inspection Frequency	After Construction Prior to Final Acceptance: Approval to Remove	After Construction Prior to Final Acceptance: Removal Responsibility	After Final Acceptance: Inspection/Maintenance Responsibility
Temporary Measures	Silt Fence		OPSD 219.110	Developer's Contractor	Developer's Contractor	Weekly (as a minimum)	Consultant	Developer's Contractor	N/A
	Filter Fabric	Location as Indicated in ESC Note #3	Erosion and Sediment Control Notes	Developer's Contractor	Developer's Contractor	Weekly (as a minimum)	Consultant	Developer's Contractor	N/A
	Mud Mat	M M	Drawing Details	Developer's Contractor	Developer's Contractor	Weekly (as a minimum)	Developer's Contractor	Developer's Contractor	N/A
	Dust Control	Location as Required Around Site	Erosion and Sediment Control Notes	Developer's Contractor	Developer's Contractor	Weekly (as a minimum)	Consultant	Developer's Contractor	N/A
	Stabilized Material Stockpiling	Location as Required by Contractor	Erosion and Sediment Control Notes	Developer's Contractor	Developer's Contractor	Weekly (as a minimum)	Developer's Contractor	Developer's Contractor	N/A
	Sediment Basin (for flows being pumped out of excavations)	Location as Required by Contractor	---	Developer's Contractor	Developer's Contractor	After Every Rainstorm	Developer's Contractor	Developer's Contractor	N/A

EROSION AND SEDIMENT CONTROL NOTES :

1. ALL EROSION AND SEDIMENT CONTROLS ARE TO BE INSTALLED TO THE SATISFACTION OF THE ENGINEER AND THE CITY OF OTTAWA. THEY ARE TO BE APPROPRIATE TO THE SITE CONDITIONS, PRIOR TO UNDERTAKING ANY SITE ALTERATIONS (FILLING, GRADING, REMOVAL OF VEGETATION, ETC.) AND DURING ALL PHASES OF SITE PREPARATION AND CONSTRUCTION. THESE PRACTICES ARE TO BE IMPLEMENTED IN ACCORDANCE WITH THE CURRENT BEST MANAGEMENT PRACTICES FOR EROSION AND SEDIMENT CONTROL AND SHOULD INCLUDE AS A MINIMUM THOSE MEASURES INDICATED ON THE PLAN.
2. A LIGHT DUTY SILT FENCE BARRIER WILL ALSO BE INSTALLED AROUND THE CONSTRUCTION AREA (WHERE APPLICABLE). THESE CONTROL MEASURES WILL REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETE.
3. TO PREVENT SURFACE EROSION FROM ENTERING ANY STORM SEWER SYSTEM DURING CONSTRUCTION, FILTER BAGS WILL BE PLACED UNDER GRATES OF NEARBY SURFACE CATCHBASINS AND MANHOLE STRUCTURES. TERRAFIX 8" ULTRA SILT SOCK (FILTER SOCK) IS TO BE USED AT THE OPENING OF ALL CURB INLET CATACHBASINS. A LIGHT DUTY SILT FENCE BARRIER WILL ALSO BE INSTALLED (PER OPSD 219.110) AROUND THE CONSTRUCTION AREA (WHERE APPLICABLE). IN AREAS WHERE SILT FENCING CANNOT BE INSTALLED PER OPSD 219.110 (i.e. HARD SURFACES), A FILTER SOCK SHALL BE SUBSTITUTED. THESE CONTROL MEASURES WILL REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETE.
4. THE SEDIMENT CONTROL MEASURES SHALL ONLY BE REMOVED WHEN, IN THE OPINION OF THE ENGINEER, THE MEASURES ARE NO LONGER REQUIRED. NO CONTROL MEASURES MAY BE PERMANENTLY REMOVED WITHOUT PRIOR AUTHORIZATION FROM THE ENGINEER.
5. THE CONTRACTOR SHALL IMMEDIATELY REPORT TO THE ENGINEER ANY ACCIDENTAL DISCHARGES OF SEDIMENT MATERIAL INTO ANY STORM SEWER SYSTEM. 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.
6. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.
7. ROADWAYS ARE TO BE SWEPT AS REQUIRED OR AS DIRECTED BY THE ENGINEER AND/OR MUNICIPALITY.
8. THE CONTRACTOR SHALL ENSURE PROPER DUST CONTROL IS PROVIDED WITH THE APPLICATION OF WATER (AND IF REQUIRED, CALCIUM CHLORIDE) DURING DRY PERIODS.



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

OWNER INFORMATION
Lofty Riverside Development LP
206-900 boulevard de la Carriere
Gatineau, Quebec, J8Y 6T5
NAME: MR. MIKE WIEBE
PHONE: (819) 664-4144
EMAIL: mike@loftydevelopments.com

No.	REVISION	DATE	BY
2	REVISED PER CITY COMMENTS	DEC 20/21	FST
1	ISSUED FOR SITE PLAN APPROVAL	MAR 3/21	FST

SCALE: 1:200 (1:200 0 2 4 6 8)

DESIGN: SM / FST
CHECKED: SM
DRAWN: RB / SM
CHECKED: SM / FST
APPROVED: FST

FOR REVIEW ONLY

LICENSED PROFESSIONAL ENGINEER — F.S. THAUVETTE — 100041399 — DEC.20,2021 — PROVINCE OF ONTARIO

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LOCATION
CITY OF OTTAWA
1335 & 1339 BANK STREET

DRAWING NAME
GRADING and EROSION & SEDIMENT CONTROL PLAN

PROJECT No. 119210
REV REV # 2
DRAWING No. 119210-GR

D07-12-21-0031

PLAN #18435

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LEGEND

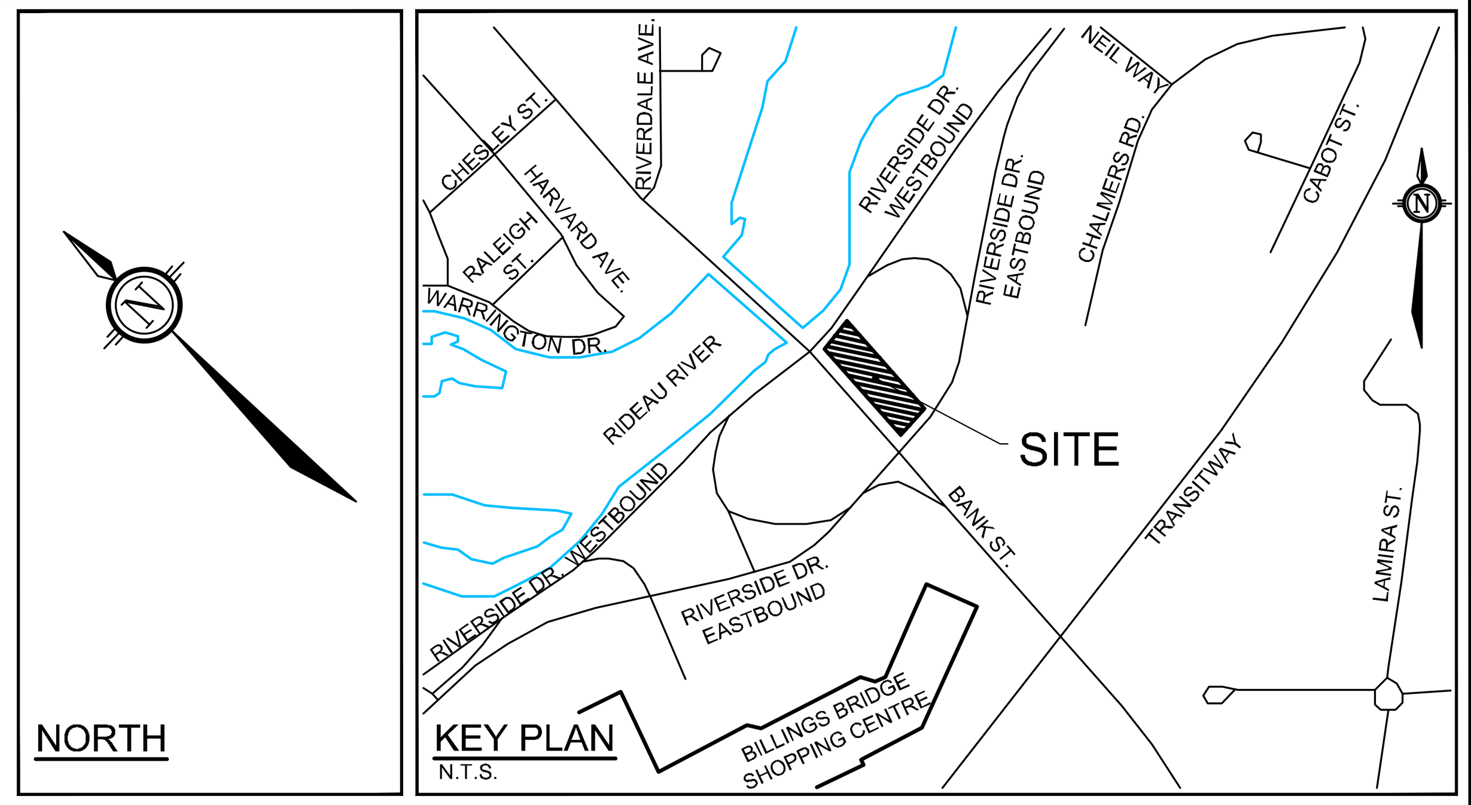
- PROPOSED BARRIER CURB
- DC — PROPOSED DEPRESSED CURB
- DRAINAGE AREA LIMITS
- A-1 — POST-DEVELOPMENT AREA ID
- 0.015 — POST-DEVELOPMENT DRAINAGE AREA (ha)
- 0.81 — 1:5 YEAR WEIGHTED RUNOFF COEFICIENT
- CBMH 01 — PROPOSED CATCHBASIN MANHOLE
- CB 02 — PROPOSED CATCHBASIN
- FFE — FINISHED FLOOR ELEVATION
- T/FND — TOP OF FOUNDATION WALL ELEVATION
- USF — UNDERSIDE OF FOOTING ELEVATION
- PROPOSED STORM SEWER AND FLOW DIRECTION
- EMERGENCY OVERLAND FLOW ROUTE
- PROPOSED BUILDING ENTRANCE / EXIT
- STM MH — EXISTING STORM MH & SEWER
- CB — EXISTING CATCHBASIN C/W CATCHBASIN LEAD

INTERNAL SWM STORAGE SYSTEM

DESIGN EVENT	STORAGE SYSTEM CONTROLLED FLOW	STORAGE VOLUMES	
		REQUIRED	PROVIDED
1:2 YR	PUMPED FLOW RATE = 3.78 L/s	38.6 m³	> 163 m³
1:5 YR		57.1 m³	
1:100 YR		129.0 m³	
1:100+20%		162.4 m³	

NOTES:

1. ALL DRAINAGE FROM AREA R-1 (PROPOSED AMENITY AREA DECK DRAINS AND ALL ROOF DRAINS AS WELL AS THE PATIO OVERFLOW DRAIN) TO BE DIRECTED TO THE INTERNAL STORMWATER STORAGE SYSTEM. REFER TO ARCHITECTURAL AND MECHANICAL PLANS FOR DETAILS.
2. REFER TO ARCHITECTURAL AND STRUCTURAL PLANS FOR EXACT SIZE AND DETAILS OF INTERNAL STORMWATER STORAGE SYSTEM.
3. REFER TO ARCHITECTURAL AND MECHANICAL PLANS FOR LOCATION AND CONNECTIONS AND DETAILS OF THE INTERNAL STORMWATER STORAGE SYSTEM.



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STORMWATER MANAGEMENT PLAN

PROJECT No. 119210
REV REV # 2
DRAWING No. 119210-SWM

D07-12-21-0031

PLAN #18435