PROPOSED

THREE STOREY APARTMENT BUILDING SITE

LOTS 191 AND 192

R-PLAN 441

304-308 DONALD STREET

CITY OF OTTAWA

SERVICEABILITY REPORT

REPORT R-824-63A

T.L. MAK ENGINEERING CONSULTANTS LTD.

JULY 2024

REFERENCE FILE NUMBER 824-63

Introduction

The developer of this site is proposing to redevelop the existing (2) residential lots described as Part of Lots 191 and 192 Registered Plan 441 City of Ottawa by constructing a (3) storey residential apartment building consisting of thirty one (31)-units, including eight (8) 2-bedroom units, ten (10) 1-bedroom units and thirteen (13) bachelor units with a vehicle access road at the west side of the site off Edith Avenue including rear yard parking.

The municipal address of the (2) properties are referenced as 304 and 308 Donald Street and it is located in the City Ward (Ward 13 - Rideau Rockcliffe). The site is situated on the south side of Donald Street, west of Lola Street and east of Edith Avenue. See site plan and legal survey plan in Appendix A for details.

The area of this property is ±0.1086 hectares. In addition to the three (3) storey residential apartment building, the other development features will comprise of a hard surface pathway to the front of lot from both the front entrance and east side yard, an amenity area is also located in the rear yard, as well as a vehicle access lane along the east side of the site off Edith Avenue including (10) proposed parking spaces at the rear of the building and landscaped areas throughout the site, etc., to meet the City of Ottawa's site plan requirements.

A site geotechnical report was prepared by the owner's soils engineer Paterson Group entitled Geotechnical Investigation – Proposed Development 304 & 308 Donald Street (Project No. PG7089-1) dated May 8, 2024 for this proposed development property.

The City of Ottawa requires the owner to apply and consolidate the parcels (304 and 308 Donald Street) of land into one ownership otherwise the proposed stormwater works will be servicing more than one parcel of land and thus does not meet the exemption set out in O.Reg. 525/98. This would mean an Environmental application for Certification of Approval (ECA) would be required regardless of who owns the parcels. The owner has confirmed that the two (2) properties at 304 and 308 Donald Street is under one ownership namely 1000832314 Ontario Inc. and therefore no ECA would be required for this site development.

This serviceability report will provide the City of Ottawa with our serviceability brief to address the proposed servicing scheme for this site.

Existing Site Conditions and Servicing

This amalgamated property is presently occupied by two residential buildings. Each of the building has its own asphalt driveway for vehicle access and parking. Approximately one-half of the existing site is currently hard surface covered and consisting of asphalt/gravel areas with the remaining one-half of the areas being roof area, porches, decks, sheds, grass and

landscaped areas. For additional details of the site's pre-development conditions, refer to the coloured Google Image and aerial photography from (GeoOttawa 2022) in Appendix B.

The existing topography of the land is found to be the split lot drainage type with approximately one-half of the site draining to the rear of the lot (south) and the remaining half draining to the front (north) and the site is currently sloping and draining both to the south to north across the site. The existing gradient of the (2) amalgamated lots are sloping at an approximate average gradient of 0.38%.

The existing water service and sanitary lateral currently servicing the existing dwelling on 304 and 308 Donald Street will be removed. The existing water services shall be blanked at the main and the existing house laterals shall be capped at the front property line for re-development of this site.

As for the availability of underground municipal services, there are existing municipal services along Donald Street in front of this property consisting of a 1200 mm diameter storm sewer, a 600 mm diameter sanitary sewer, and a 400mm diameter watermain for development of this property. Additionally, there are existing municipal services along Edith Avenue at the east side of this property consisting of 1350 mm diameter storm sewer, a 600 mm diameter sanitary sewer, and a 200 mm diameter watermain for development of this property. Refer to the City of Ottawa Donald Street UCC and As-Built plan and profile drawings included in Appendix C for details.

Because the site will be connecting to and outletting into the separated storm sewer system along Edith Avenue in the City of Ottawa, therefore, the approval exemption under Ontario Regulations 525/98 would apply since storm water discharges from this site will outlet flow into a downstream storm sewer. Thus, an Environmental Compliance Approval (ECA) application will not be required to be submitted to the Ministry.

Proposed Residential Apartment Building Site

Vehicle access to rear yard parking is available for this site via an access laneway along the west side of the site to the (10) vehicle parking spaces and bicycle parking area. A hard surface pathway is proposed at the front and along the east side of the lot for pedestrian access to the east side door. An amenity area is also provided in the rear yard.

A. Water Supply

The proposed building located within the City of Ottawa's Pressure Zone 1E at 304-308 Donald Street is a 3-storey residential multi-unit building with a basement. The building contains thirty-one (31) total units, eight (8) 2-bedroom, ten (10) 1-bedroom, and thirteen (13) bachelor units.

Each floor covers an area of around 5,547 ft^2, for a gross floor area of about 16,640 ft^2, excluding the basement. The building is to be serviced by the 400 mm diameter watermain along Donald Street. The ground elevation along Donald Street is approximately 60.6 m.

Demand Projections

The domestic demands were calculated using the City of Ottawa's Water Design Guidelines, where the residential consumption rate of 280 L/cap/d was used to estimate average day demands (AVDY). Persons per unit (PPU) for each unit were estimated based on the City of Ottawa's Water Design Guidelines.

Following discussions with the City, peaking factors are to be estimated from Table 3-3 of the MECP Design Guidelines for Drinking-Water Systems, given that the proposed development population is less than 500 people. Maximum day (MXDY) demands were calculated by multiplying AVDY demands by a factor of 8.7. Peak hour (PKHR) demands were calculated by multiplying AVDY by a factor of 13.2. Table 1 shows the estimated domestic demands of the proposed building.

Table 1: Estimated Domestic Demand

Unit Type	Unit Count	PPU	Consumption	AVDY		MXDY		PKHR	
				L/d	L/s	L/d	L/s	L/d	L/s
Apartment, 2-Bedroom	8	2.1	280	4,704	0.05	40,925	0.47	62,093	0.72
Apartment, 1-Bedroom	10	1.4		3,920	0.05	34,104	0.39	51,744	0.60
Apartment, Bachelor	13	1.4		5,096	0.06	44,335	0.51	67,267	0.78
Total	***31***			***13,720***	***0.16***	***119,364***	***1.38***	***181,104***	***2.10***

The fire flow required was determined following the Fire Underwriter Survey (FUS) method and is provided in the attached worksheet. The proposed building will be of wood frame construction. It is understood that the building will not be equipped with sprinklers, and that the basement is more than 50% below ground level. The resulting required fire flow is 18,000 L/min (300 L/s) for a duration of 4.00 hours.

Details are provided in the attached FUS Fire Flow Calculations. Figure 1 provides separation distances from adjacent buildings. The proposed Site Plan attached in Appendix D was used to determine distances from the proposed building to the property lines.

In summary, the estimated water demands for the proposed building are as follows:

- AVDY = 13,720 L/d (0.16 L/s)
- MXDY = 119,364 L/d (1.38 L/s);
- PKHR = 181,104 L/d (2.10 L/s); and,
- Fire Flow = 18,000 L/min (300 L/s)

Boundary Conditions

The hydraulic gradeline (HGL) boundary conditions for 304-308 Donald Street, as presented in **Table 2**, were provided by the City on June 13, 2024 (see attached **Water Boundary Conditions Email** in Appendix D).

Table 2: Boundary Conditions

Demand Scenario	Head (m)
Minimum HGL (Peak Hour)	109.9
Maximum HGL (Average Day)	118.5
Maximum Day + Fire Flow (300 L/s)	108.2

It should be noted boundary conditions for the available fire flow demand scenario are from a multi-hydrant analysis, considering local hydrants within 150 m of the property flowing simultaneously (refer to the **Water Boundary Conditions Email** in Appendix D). This value was considered in the hydraulic analysis to compare to the fire flow requirement for the proposed building.

Hydraulic Analysis

Peak Hour & Average Day

During peak hour demands, the resulting minimum hydraulic gradeline of 109.9 m corresponds to a peak hour pressure of 483 kPa (70 psi). This value is above the minimum pressure objective of 276 kPa (40 psi) for residential buildings up to two storeys. Adding 5 psi per floor above two stories, to account for headloss due to elevation and pipe losses, a minimum pressure of 310 kPa (45 psi) would be required for the third floor. The peak hour pressure at ground level is above this objective and therefore considered acceptable.

During average day demands, the resulting maximum hydraulic gradeline of 118.5 m corresponds to a maximum pressure of 568 kPa (82 psi). This value is above than the maximum pressure objective of 552 kPa (80 psi). As per the City guidelines, pressures exceeding 552 kPa (80 psi) require reduction mitigation, which could be achieved with a pressure reducing valve along the service line to the proposed building.

Supporting Hydraulic Calculations are attached in Appendix D.

Maximum Day + Fire Flow

A maximum day plus fire flow hydraulic gradeline of 108.2 m corresponds to a residual pressure of 467 kPa (68 psi) at this location, which is well above the minimal residual pressure

requirement of 140 kPa (20 psi). Hydrant coverage and classes in the vicinity of the proposed building are illustrated in **Figure 2** attached in Appendix D.

Based on Table 1 of Appendix I of the City of Ottawa Technical Bulletin ISTB-2018-02 and a desktop review (i.e., Google Street View) to confirm hydrant class, five (5) hydrants are located in the vicinity of the proposed building. Three (3) Class AA hydrants are within 75 m, both with a capacity contribution of up to 5,700 L/min. Two (2) others Class AA hydrants are within 150 m from the site, both with a capacity contribution of up to 3,800 L/min. The combined hydrant flow coverage for 304-308 Donald Street is therefore 24,700 L/min, which is above the FUS required fire flow of 18,000 L/min. A breakdown of the hydrant coverage is summarized in **Table 3** below.

Table 3: Fire Hydrant Coverage

Building	Fire Flow Demand (L/min)	Fire Hydrants					Combined Hydrant Flow Coverage (L/min)
		Hydrant Class	Within 75 m		Between 75 m and 150 m		
			Quantity	Max Contrib. to RFF	Quantity	Max Contrib. to RFF	
304-308 Donald Street	18,000 L/min (FUS)	AA	3	5,700	2	3,800	24,700
		A					
		B					
		C					

Conclusions

In conclusion, based on the boundary conditions provided, the local watermain network in the vicinity of the proposed building at 304-308 Donald Street provides adequate fire flow capacity as per the Fire Underwriters Survey (FUS) method. Anticipated demand flows meet the pressure objective during peak hour demand conditions, as per the City of Ottawa's Drinking Water Design Guidelines. During average day demand conditions, the anticipated maximum pressure at ground level exceeds the maximum pressure objective for residential buildings as per the City of Ottawa's Drinking Water Design Guidelines. This maximum pressure objective could be achieved with a pressure reducing valve along the service line to the proposed building as per building code recommendations.

B. Sanitary Flow

The peak sanitary flow for the 31 units, which comprise of eight (8) 2-bedroom units, ten (10) 1-bedroom units and thirteen (13) bachelor units, is estimated at Q = 0.67 L/s with an infiltration rate of 0.04 L/s. Refer to Appendix E sheet 1 of 1 regarding sanitary flow calculations. This flow will enter the existing 600 mm diameter sanitary sewer on Edith Avenue via the proposed 150 mm diameter PVC sanitary service lateral from the three (3)-storey residential apartment building.

The existing peak sanitary flow of the site for the (2) existing single detached dwelling units is Q = 0.13 L/s with an infiltration rate of 0.04 L/s. The net increase in flow from this proposed development is 0.54 L/s which is not expected to negatively impact the existing 600 mm dia. sanitary sewer.

Waste water from this site outlets to the existing Edith Avenue 600 mm dia. sanitary sewer which continues to flow south along Edith Avenue then west to Queen Mary Street and further outlets into the existing 1950 mm diameter trunk sanitary sewer at North River Road.

C. Storm Flow

Stormwater outlet for this proposed property will be the existing 1350 mm dia. concrete storm sewer located on Edith Avenue. The proposed residential apartment building rooftop is flat and will be able to provide on-site stormwater management (SWM) storage. Roof water from the building will be drained and controlled by five (5) roof drains each with a release rate of 0.95 L/s (15.0 US gal/min.) which then outlets directly into the existing 1350 mm dia. storm sewer via the proposed 150 mm dia. PVC storm pipe.

On-site drainage shall be graded and drained into a catch basin and a catch basin manhole and interconnected by underground storm water piping of 300 mm dia. in size for SWM purposes.

The building foundation weeping-tile drainage system shall have its own separate pipe for gravity flow where weeping-tile water is outletted via a 150mm diameter storm pipe to the existing 1350mm dia. Edith Avenue storm sewer. The stormwater outlet for the rooftop water from roof drains will be a separately designated proposed 150mm diameter PVC pipe that will also be outletted directly into the existing 1350 mm diameter storm sewer.

Five (5) roof drains are proposed for this apartment building to restrict flow at a rate of 0.95 L/s each or 5 x 0.95 L/s = 4.75 L/s into the Edith Avenue storm sewer. The calculated net allowable controlled release rate from this site is estimated at 5.32 L/s and the total allowable off-site flow is estimated at 11.64 L/s.

Based on the residential site plan from the owner's architect, the average post-development runoff coefficient is estimated at C = 0.70 and A = 0.1086 hectares.

An estimation of the pre-development flow condition was carried out using the criteria accepted by the City of Ottawa. If post-development C value exceeds the lesser of the C_{pre} = 0.57 or C_{allow} = 0.5 (max) then SWM is required. So from our calculations, the C_{allow} = 0.5 (max) value will be used at t_c = 10 minutes for pre-development allowable flow calculation off-site.

The pre-development flow rate calculation into the 1350 mm dia. Edith Avenue storm sewer for this residential area is the lesser of either the five (5)-year storm event where C_{allow} = 0.5 (max.) runoff value or the average C_{pre} value which is 0.57 using t_c = 10 minutes. Because this site C_{post} = 0.70 and C_{allow} = 0.5 (max) then SWM measures are required.

Therefore, based on our calculation, on-site retention is required for this proposed development site, because the site post-development C value of 0.70 is greater than the C_{allow} = 0.5 (max).

The storage volume for the five (5)-year and up to the 100-year storm event attenuation will be stored by means of flat rooftop at the top of the residential apartment building and by the asphalt parking lot surface area located at the rear of the building. Refer also to the site storm drainage report (Report No. R-824-63) for further details.

Conclusion

For development of this residential site (± 0.1086 ha. in size) and in controlling to the 2 year stormwater release rate off-site to a total allowable rate of 11.64 L/s with a net allowable controlled flow rate of 5.32 L/s from this site, a site storage volume of approximately 7.87 m^3 (min.) is required during the 5 year event. We estimate that approximately 7.40 m^3 (min.) of rooftop storage and 0.47 m^3 (min.) from the proposed parking lot surface storage and underground storm piping at the rear of lot are necessary to attenuate the 5 year post development storm event.

During the 5 year storm event for the flat rooftop storage, the ponding depth on this rooftop is estimated at 120 mm at the drain and 0 mm at the roof perimeter assuming a 1.8% (min.) roof pitch to the drain. The rooftop storage available at Roof Area #1 is 2.76 m^3, Roof Area #2 is 2.58 m^3, Roof Area #3 is 3.16 m^3, Roof Area #4 is 2.64 m^3, and 2.93 m^3 at Roof Area #5 for a total of 14.07 m^3 which is greater than the required volume of 7.40 m^3.

As for the remaining storage volume of 0.47 m^3 (min.) required from the controlled site development area, during the 5 year storm event, the estimated H.W.L. of 60.30 m will provide a total available storage volume of 0.84 m^3 consisting of the rear parking lot surface storage and underground storm piping. In total the 5 year available site storage volume is approximately 14.91 m^3 which is greater than the required site storage volume of 7.87 m^3.

In order to control the 100 year stormwater release rate off-site to a net allowable controlled rate of 5.32 L/s, a site storage volume of approximately 21.82 m^3 (min.) is required during the 100 year event. We estimate that approximately 19.02 m^3 (min.) of rooftop storage and 2.80 m^3 (min.) from the proposed parking lot stormwater ponding area at CB#2 and underground

storm piping between CB/MH#1 and CB#2 are necessary to attenuate the 100 year post development storm event.

During the 100 year storm event for the flat rooftop storage, the ponding depth on this rooftop is estimated at 150 mm at the drain and 0 mm at the roof perimeter assuming a 1.8% (min.) roof pitch to the drain. The rooftop storage available at Roof Area #1 is 5.80 m^3, Roof Area #2 is 5.28 m^3, Roof Area #3 is 6.23 m^3, Roof Area #4 is 5.46 m^3, and 5.44 m^3 at Roof Area #5 for a total of 28.21 m^3 which is greater than the required volume of 19.02 m^3.

As for the remaining storage volume of 2.80 m^3 (min.) required from the controlled site development area, during the 100 year storm event, the estimated H.W.L. of 60.35 m will provide a total available storage volume of 3.18 m^3 consisting of the proposed parking lot stormwater ponding area at CB#2 and underground storm piping between CB/MH#1 and CB#2 are necessary to attenuate the 100-Year post development flow. In total the 100 year available site storage volume is 31.39 m^3 which is greater than the required site storage volume of 21.82 m^3.

Therefore by means of flat building rooftop storage, grading the site to the proposed grades and constructing the proposed underground storm piping and drainage structures as shown on the Proposed Site Grading and Servicing Plan (Dwg. No. 824-63, G-1) and Proposed Stormwater Management Plan (Dwg. No. 824-63, SWM-1), the desirable 5 year and 100 year storm event detention volume of 14.91 m^3 and 31.39 m^3 respectively will be available on-site.

An inlet control device (ICD) will be installed at the outlet of CB/MH #1 in the 300 mm diameter storm pipe (outlet pipe) with Q = 6.0 L/s minimum ICD size required by the City of Ottawa under a head of 1.10 m. A rooftop drain with a maximum release rate of 0.95 L/s will be installed at Roof Drain #1 to Roof Drain #5 inclusive on the proposed residential building flat rooftop as depicted on Dwg. No. 824-63, G-1 and Dwg. No. 824-63, SWM-1.

The ICD type recommended is a Hydrovex Regulator (No. 75 VHV-1) or equivalent.

In comparing the pre-development flow of the current site conditions to the post development flow, the SWM regulated flow plus uncontrolled flow from the proposed site under the post development conditions at the 2-Year event = 13.13 L/s (4.75 L/s + 6.0 L/s + 2.38 L/s) and the 100-Year event = 17.08 L/s (4.75 L/s + 6.0 L/s + 6.33 L/s) where both of the post development flow events are less than current pre-development flow estimate for the site at 2-Year $_{pre}$ = 13.27 L/s and 100-Year $_{pre}$ = 34.51 L/s. Therefore with this proposed development, stormwater flow is improved from that of the existing condition.

The building weeping tile drainage will outlet via its separate 150mm diameter PVC storm lateral. The roof drains will be outletted also via a separate 150mm PVC storm lateral, whereupon both laterals are connected directly to the existing Edith Avenue 1350mm diameter storm sewer. The City of Ottawa recommends that pressurized drain pipe material be used in the building for the roof drain leader pipe in the event of surcharging in the City Storm sewer system. Refer to the proposed grading and servicing plan Dwg. 824-63 G-1 for details.

For water quality control, to achieve a minimum 60 percent TSS removal, a Stormceptor structure (Model No. EFO4) is proposed to be installed for site development of this property. This Stormceptor structure shall be located downstream of the proposed CB/MH#1, which houses the site's inlet control device (ICD). Based on the Stormceptor system that is proposed for this site, size of lot and impervious ratio, a greater than 60 percent TSS removal is estimated for all rainfall events including large storms. (See Appendix "D" of the **Storm Drainage Report [Report No. R-824-63]** for details).

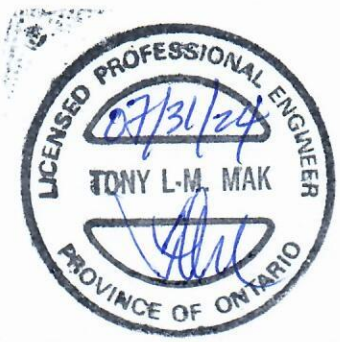
Erosion and Sediment Control

The contractor shall implement Best Management Practices to provide for protection of the receiving storm sewer during construction activities. These practices are required to ensure no sediment and/or associated pollutants are released to the receiving watercourse. These practices include installation of a "siltsack" catch basin sediment control device or equal in catch basins as recommended by manufacturer on-site and off-site within the Donald Street and Edith Avenue road right of way adjacent to this property. Siltsack shall be inspected every 2 to 3 weeks and after major storm. The deposits will be disposed of as per the requirements of the contract. See Dwg. #824-63 ESC-1 for details.

Refer to Appendix F for the summary of the Development Servicing Study Checklist that is applicable to this development.

PREPARED BY T.L. MAK ENGINEERING CONSULTANTS LTD.

TONY L. MAK, P.ENG



PROPOSED

THREE STOREY APARTMENT BUILDING SITE

LOTS 191 AND 192

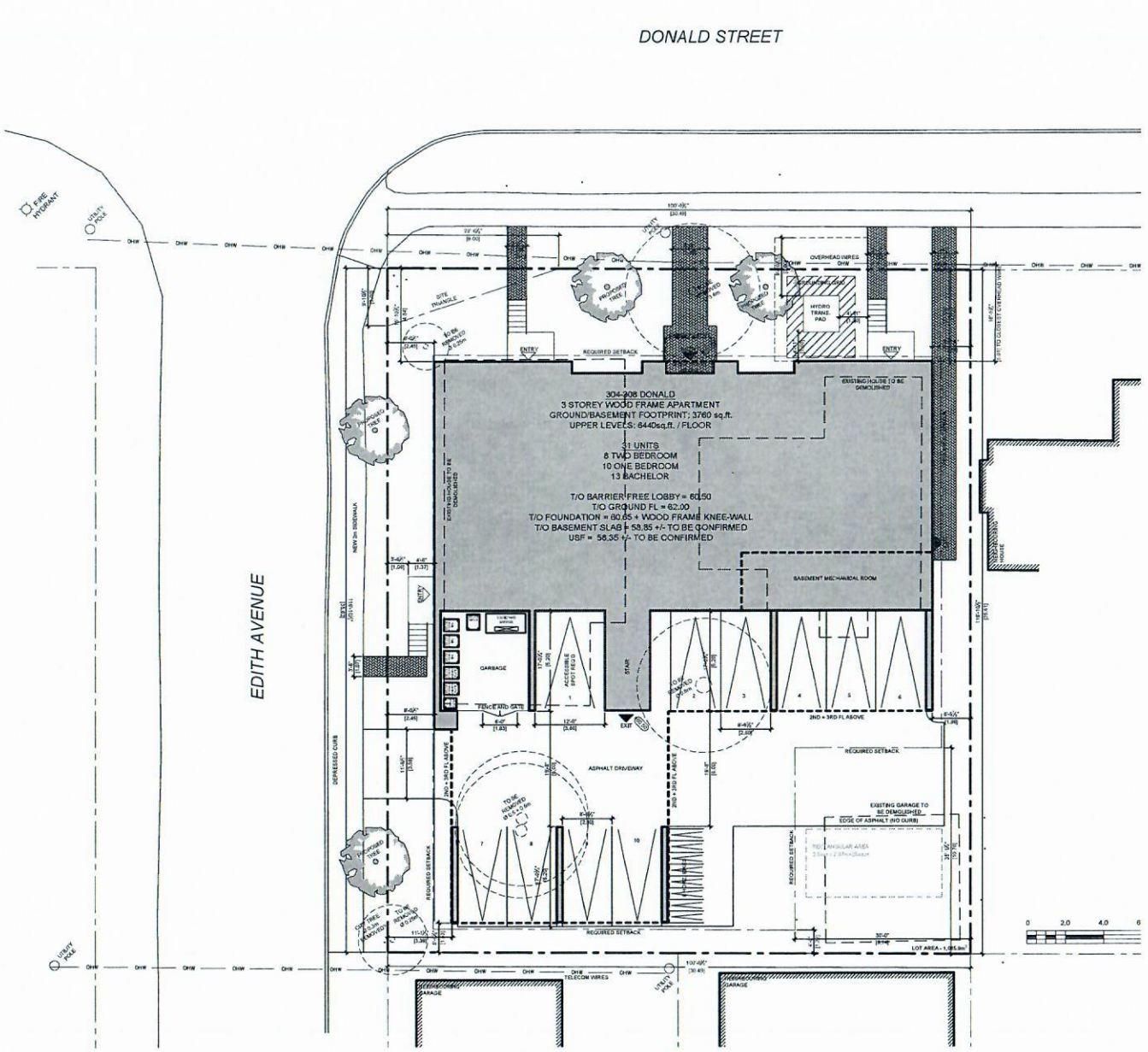
R-PLAN 441

304-308 DONALD STREET

CITY OF OTTAWA

APPENDIX A

SITE PLAN AND LEGAL SURVEY PLAN



NOTES

- R4UC ZONING DESIGNATION
- AREA A AS PER SCHEDULE 1A

ZONING (8-UNIT+ APARTMENT):

- 15m MIN., LOT WIDTH, PROVIDED
- 450m² MIN., LOT AREA, PROVIDED
- 1070m² MAX. LOT AREA (108m² PROVIDED) [T.1429(12)], **VARIANCE REQ'D**
- 11m MAX., HEIGHT, PROVIDED
- 1.5m MIN. SIDE YARD SETBACK, PROVIDED
- 4.5m MIN., FRONT YARD SETBACK, PROVIDED
- 2.4m MIN., CORNER SIDE YARD SETBACK (MATCHING NEIGHBOUR THAT FACES THE SAME STREET) [S.213(4b)], PROVIDED
- 30% OF LOT DEPTH MIN., REAR YARD SETBACK [T. 144A], PROVIDED
- 1.2m MIN. REAR YARD SETBACK ON A CORNER LOT IF ENTRANCES ARE FACING BOTH STREETS [S.144(5a)], PROVIDED
- 30% OF LOT WIDTH MIN. INTERIOR YARD AREA ON A CORNER LOT [S.144(6)], PROVIDED
- 1 MBL. PRINCIPAL ENTRANCE TO A GROUND FLOOR UNIT OR COMMON INTERIOR CORRIDOR/STAIRWELL MUST BE LOCATED ON THE FACADE PROVIDING DIRECT STREET ACCESS [S.161(15f)], PROVIDED
- 1 MBL. PRINCIPAL ENTRANCE FOR EVERY 12m OF LOT WIDTH FOR LOTS OF 24m WIDE OR GREATER [S.161(15f)(a)], PROVIDED
- 20% MIN. GLAZING ON FRONT FACADE [S.161(15g)], PROVIDED
- 20% MIN. OF FRONT FACADE MUST BE RECESSED AN ADDITIONAL 0.6m FROM THE FRONT SETBACK LINE, PROVIDED (UNLESS ONE BALCONY OR PORCH OF 2m² PER UNIT THAT FACES A STREET AT OR ABOVE THE FIRST STOREY IS PROVIDED) [S.161(15h,j)], PROVIDED
- 25% MIN., DWELLING UNITS MUST HAVE AT LEAST 2 BEDROOMS [S.161(16b)], PROVIDED
- NO AMENITY AREA REQUIREMENTS BEYOND WHAT IS REQUIRED FOR SOFT LANDSCAPING AND/OR BALCONIES

PARKING REQUIREMENTS

- NO PARKING REQUIRED FOR A RESIDENTIAL BUILDING OF FOUR OR FEWER STOREYS [S.101(4a)], PROVIDED
- 0.5 MBL. PARKING SPACES PER DWELLING UNIT IN EXCESS OF 12 UNITS [S.101(3a)], PROVIDED
- 0.1 MBL. VISITOR PARKING SPACES PER DWELLING UNIT IN EXCESS OF 12 UNITS [S.102(2)], PROVIDED

BICYCLE PARKING REQUIREMENTS

- 0.5 MIN. BICYCLE PARKING SPACES PER DWELLING UNIT, PROVIDED
- 50% OF REQUIRED BIKE PARKING SPACES, OR 15 BIKE PARKING SPACES, WHICHEVER IS GREATER, MAY BE LOCATED IN A LANDSCAPED AREA

SOFT LANDSCAPING REQUIREMENTS

- ANY PART OF THE FRONT AND REAR YARDS NOT OCCUPIED BY ACCESSORY BUILDINGS/STRUCTURES, PERMITTED PROJECTIONS, BIKE PARKING/AISLES, PATHS OF TRAVEL, WALKWAYS, PATIOS, AND PERMITTED DRIVEWAYS, PARKING AISLES AND PARKING SPACES MUST BE SOFTLY LANDSCAPED, PROVIDED
- 40% MIN., SOFT LANDSCAPING IN THE FRONT YARD [T.161], PROVIDED
- 50% MIN., SOFT LANDSCAPING IN THE REAR YARD [S.161(15b,d)], PROVIDED
- 25m² MIN., AGGREGATED RECTANGULAR AREA WHOSE LONGER DIMENSION IS NOT MORE THAN TWICE ITS (SHORTER DIMENSION [S.161(15b,e)], PROVIDED
- FRONT YARD AND CORNER SIDE YARD MUST HAVE PARKING PROHIBITORS [S.161(15a)], PROVIDED

EXISTING:

- TWO SINGLE-FAMILY DETACHED HOME

PROPOSED:

- APARTMENT BUILDING WITH PARKING

RJH
ARCHITECTURE + PLANNING
414 Churchill Avenue North
Ottawa, Ontario, K1Z 5C6
613-853-5022 rosaline@rjhill.ca rjhill.ca

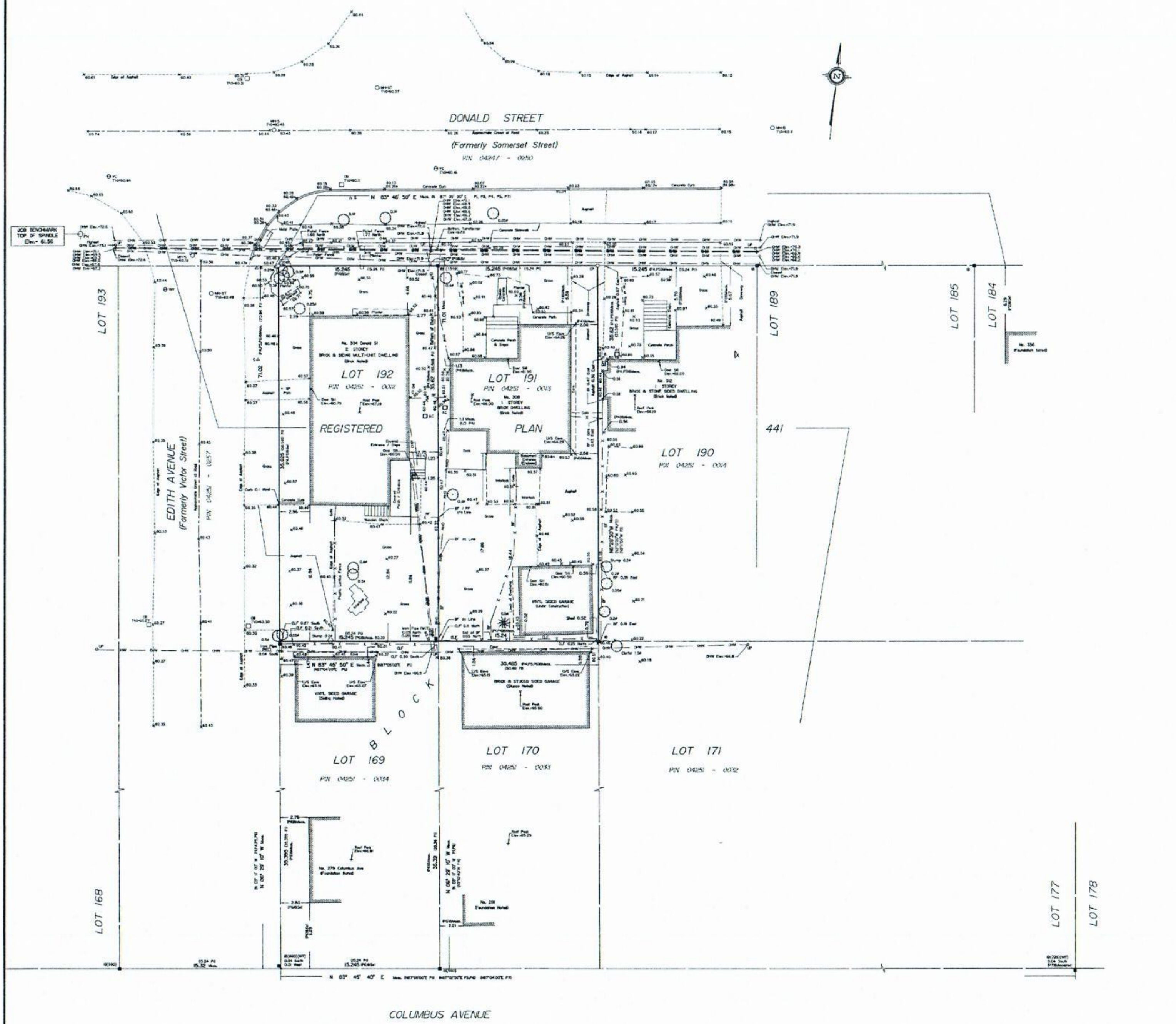
PRELIMINARY COORDINATION APR 10 2024

No.	Y / M / D	REVISION
1.	YYYY-MO	XXXXXXX

DONALD / EDITH APARTMENTS
304-308 Donald St, Ottawa, Ontario

SITE PLAN

Drawn By	Date	
AW	APR. 2024	A1.0
Project No. 24XX	Scale 1:125	



SURVEYOR'S REAL PROPERTY REPORT

PART 1 Plan of
LOTS 191 and 192
REGISTERED PLAN 441
CITY OF OTTAWA
Surveyed by Annis, O'Sullivan, Vollebekk Ltd.

Scale 1 : 150

0 4.5 3.0 1.5 0 3 6 Metres

Metric

DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

Surveyor's Certificate

I CERTIFY THAT:

1. This survey and plan are correct and in accordance with the Surveys Act and the Surveyors Act and the regulations made under them.
2. The survey was completed on the 27th day of March, 2024.

April 1, 2024
Date

V. Andrew Shelp
Ontario Land Surveyor

PART 2
THIS PLAN MUST BE READ IN CONJUNCTION WITH SURVEY REPORT DATED April 1, 2024

ANNIS, O'SULLIVAN, VOLLEBEKK LTD. grants to UPSCALE HOMES ("The Client"), their solicitors, mortgagees, and other related parties, permission to use original signed, sealed copies of the Surveyor's Real Property Report in transactions involving The Client.

Notes & Legend

	Denotes	
—□—	-	Survey Monument Planted
—■—	-	Survey Monument Found
SIB	-	Standard Iron Bar
SSIB	-	Short Standard Iron Bar
IB	-	Iron Bar
CP	-	Concrete Pin
IBØ	-	Round Iron Bar
Meas.	-	Measured
(AOG)	-	Annis, O'Sullivan, Vollebekk Ltd.
(P1)	-	Registered Plan 441
(P2)	-	(1267) Plan September 30, 2015 (Ref. 434-15)
(P3)	-	(AOG) Plan September 20, 2019 (Ref. 19608-17)
(P4)	-	(1319) Plan September 14, 1994 (Ref. 11-441)
(P5)	-	(1319) Plan October 9, 1996 (Ref. 6-441)
(P6)	-	(900) Plan July 12, 1985
(P7)	-	(AOG) Plan November 28, 2018 (Ref. 18004-18)
FH	-	Fire Hydrant
WV	-	Water Valve
MH-ST	-	Maintenance Hole (Storm Sewer)
MH-S	-	Maintenance Hole (Sanitary)
SP	-	Water Stand Post
VC	-	Valve Chamber (Watermain)
— OW —	-	Overhead Wires
CB	-	Catch Basin
	-	Gas Meter
AC	-	Air Conditioner
UP	-	Utility Pole
B	-	Bollard
S	-	Sign
CLF	-	Chain Link Fence
BF	-	Board Fence
Ø	-	Diameter
65.00	-	Location of Elevations
65.00	-	Top of Concrete Curb Elevation
C/L	-	Centreline
———	-	Property Line
T/G	-	Top of Grate
Inv.	-	Invert
U/S	-	Underside
○	-	Deciduous Tree
✳	-	Coniferous Tree

Bearings are grid, derived from Can-Net 2018 Real Time Network GPS observations, MTM Zone 9 (76°30' West Longitude) NAD-83 (original).

For comparison purposes, bearings shown on Plans P1, P3, P4, P5, P6, P7 are astronomic bearings.

ELEVATION NOTES

1. Elevations shown are geodetic, derived from Vertical Control Monument G-7 (Index No. 306) having an elevation of 58.44 metres and are referred to the CGVD28 geodetic datum.
2. It is the responsibility of the user of this information to verify that the job benchmark has not been altered or disturbed and that it's relative elevation and description agrees with the information shown on this drawing.

UTILITY NOTES

1. This drawing cannot be accepted as acknowledging all of the utilities and it will be the responsibility of the user to contact the respective utility authorities for confirmation.
2. Only visible surface utilities were located.
3. A field location of underground plant by the pertinent utility authority is mandatory before any work involving breaking ground, probing, excavating etc.

ASSOCIATION OF ONTARIO LAND SURVEYORS
PLAN SUBMISSION FORM
V-75327

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

ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
14 Concourse Gate, Suite 500
Nepean, Ont. K2E 7S6
Phone: (613) 727-0850 / Fax: (613) 727-1079
Ontario Land Surveyors

Job No. 24087-24 Upscale Lts 191 & 192 PL 441 D-E F

PROPOSED

THREE STOREY APARTMENT BUILDING SITE

LOTS 191 AND 192

R-PLAN 441

304-308 DONALD STREET

CITY OF OTTAWA

APPENDIX B

SITE PRE-DEVELOPMENT CONDITION

GOOGLE IMAGE (2021)

AND

AERIAL PHOTOGRAPHY 2022 (GEOOTTAWA)


rue Donald St.
rue Donald St.
av. Edith Ave.
PROPOSED
DEVELOPMENT SITE
296
304
308
312
322
324
289
267
279
281
285
289
293
324

2022


rue Donald St
av. Edith Ave
PROPOSED
DEVELOPMENT SITE
296
304
308
312
322
324
289
267
279
281
285
289
293
296
304
308
312
322
324

2022

2021

PROPOSED

THREE STOREY APARTMENT BUILDING SITE

LOTS 191 AND 192

R-PLAN 441

304-308 DONALD STREET

CITY OF OTTAWA

APPENDIX C

DONALD STREET

CITY OF OTTAWA

PLAN AND PROFILE

AND

UCC DRAWINGS

NO.	REVISIONS	BY	DATE
1	PRELIMINARY CIRCULATION	JNB	01/19/07
2	ISSUED FOR TENDER	JNB	03/27/08
3	ISSUED FOR CONSTRUCTION	JNB	06/02/08
4	AS BUILT	MJM	02/04/14

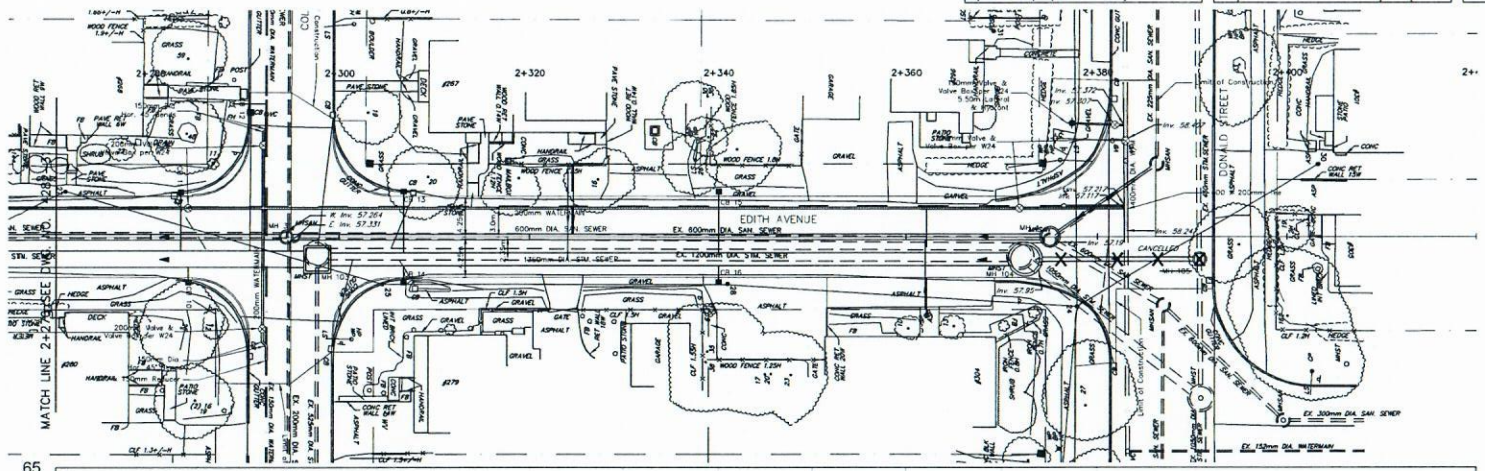
NOTE:
The location of the utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned.
The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

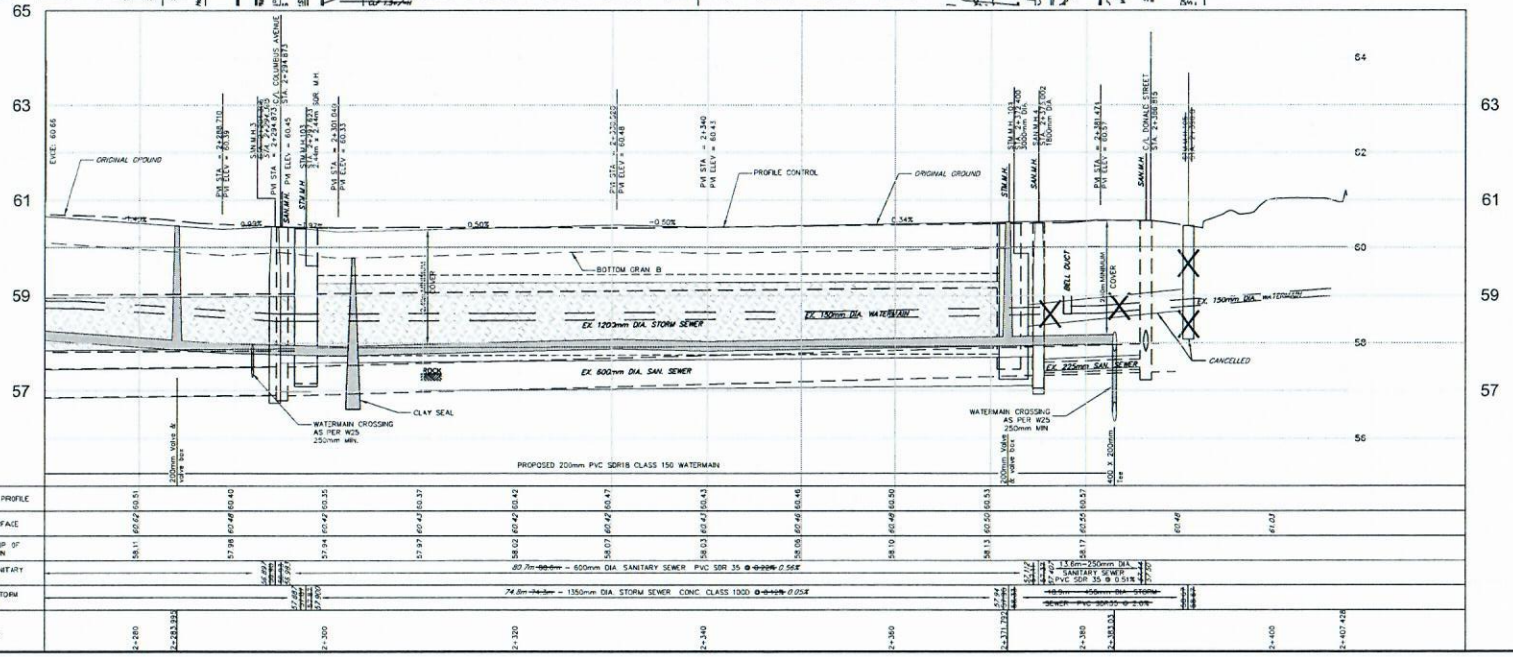
PART B
GLYNN AVENUE & EDITH AVENUE
ROAD RECONSTRUCTION

EDITH AVENUE
PLAN AND PROFILE
STA. 2+270 TO STA. 2+390

Ottawa
CONTRACT NO. ISB05-5260
DWG. NO. 14282-32
Date: January 2008
Scale: HORIZONTAL 1:250 VERTICAL 1:50

W.R. NEWELL P.ENG. Director Infrastructure Services	W. BENNETT, P.ENG. Manager Construction Services East
Dwn: L. Huijer / Chkd: J. Boadway	Dwn: L. Huijer / Chkd: J. Boadway





NOTES:

1. EXACT LOCATION OF UTILITIES TO BE DETERMINED BY CONTRACTOR. CONTRACTOR SHALL PROVE THE LOCATION OF THE UTILITIES AND SHALL BE RESPONSIBLE FOR THEIR PROTECTION AND IMPLEMENTATION OF ANY NECESSARY PROCEDURES CALLED FOR IN THE APPROPRIATE STANDARD AND REGULATIONS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE TO DETERMINE THE EXACT LOCATION AND ELEVATION OF THE EXISTING WATERMAIN AS REQUIRED FOR ALL CONNECTIONS, RELOCATINGS AND BLANKINGS TO BE MADE BY CITY FORCES, BY EXPOSING THE EXISTING PIPES.
3. LOCATION OF SERVICES AND CURB STOPS IS APPROXIMATE ONLY. EXACT LOCATION SHALL BE DETERMINED BY THE CONTRACTOR.
4. CONTRACTOR TO DETERMINE THE EXACTION LOCATION AND ELEVATION OF SEWERS AS REQUIRED.
5. SURFACE REINSTATEMENT SHALL MATCH EXISTING CONDITIONS OR BETTER AND SHALL BE CARRIED OUT IN ACCORDANCE WITH CITY STANDARDS.
6. DETERMINE ELEVATION OF SANITARY AND STORM SERVICES LATERALS FOR CONFLICTS PRIOR TO CONSTRUCTION WORK.
7. SANITARY SERVICES - 135mm PVC DR28 WITH A MINIMUM GRADE OF 1.0%.
8. ANY CROSSING OF HYDRO OTTAWA UNDERGROUND PLANT ARE TO BE CARRIED OUT IN CONJUNCTION WITH HYDRO OTTAWA ENGINEERING SPECIFICATION No. UDS0013. PRIOR TO UNDERTAKING ANY WORK THE CONTRACTOR TO CONTACT HYDRO OTTAWA A MINIMUM OF 7 WORKING DAYS PRIOR TO PROPOSED DATE OF EXCAVATION.
9. SITE PREPARATION FOR PIPELINES, UTILITIES AND ASSOCIATED STRUCTURES AS PER OPSS 503.
10. SITE RESTORATION FOLLOWING INSTALLATION OF PIPELINES, UTILITIES AND ASSOCIATED STRUCTURES AS PER OPSS 507.
11. TRENCHING, BACKFILLING AND COMPACTING AS PER OPSS 514.
12. EXCAVATION, BACKFILLING AND COMPACTING FOR MANHOLES AS PER OPSS 516.
13. SEWER TRENCH, BEDDING AND COVER MATERIAL AS PER CITY OF OTTAWA STANDAR DWG S6.
14. SANITARY SERVICES TO BE REPLACED UP TO THE PROPERTY LINE.

AS CONSTRUCTED

THIS DRAWING HAS BEEN REVISED TO INCORPORATE CHANGES INDICATED ON THE CITY OF OTTAWA MARKED-UP DRAWINGS.

AINLEY GROUP DOES NOT TAKE RESPONSIBILITY FOR INFORMATION ON THIS DRAWING THAT IS IN CONFLICT WITH EXISTING CONDITIONS, DUE TO INACCURATE OR MISSING INFORMATION ON THE MARKED-UP DRAWINGS PROVIDED.

Ainley CONSULTING ENGINEERS PLANNERS

NO.	REVISIONS	BY	DATE
A	AS CONSTRUCTED	JMcE	FEB 02/07
4	ISSUED FOR CONSTRUCTION	JMcE	MAY 12/06
3	ISSUED FOR TENDER	GTP	JAN 6/06
2	ISSUED FOR 90% CIRCULATION	CD	NOV 09/05
1	ISSUED FOR 60% CIRCULATION	CD	OCT 18/05

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

DONALD STREET SEWER REHABILITATION

DONALD STREET SANITARY SEWER, STORM SEWER AND WATERMAIN REPLACEMENT

W. NEWELL, P.ENG. Director Infrastructure Services — Des: AVH Chkd: CD

W. BENNETT, P.ENG Manager Construction Services - East — Des: CD Chkd: GP

Ottawa

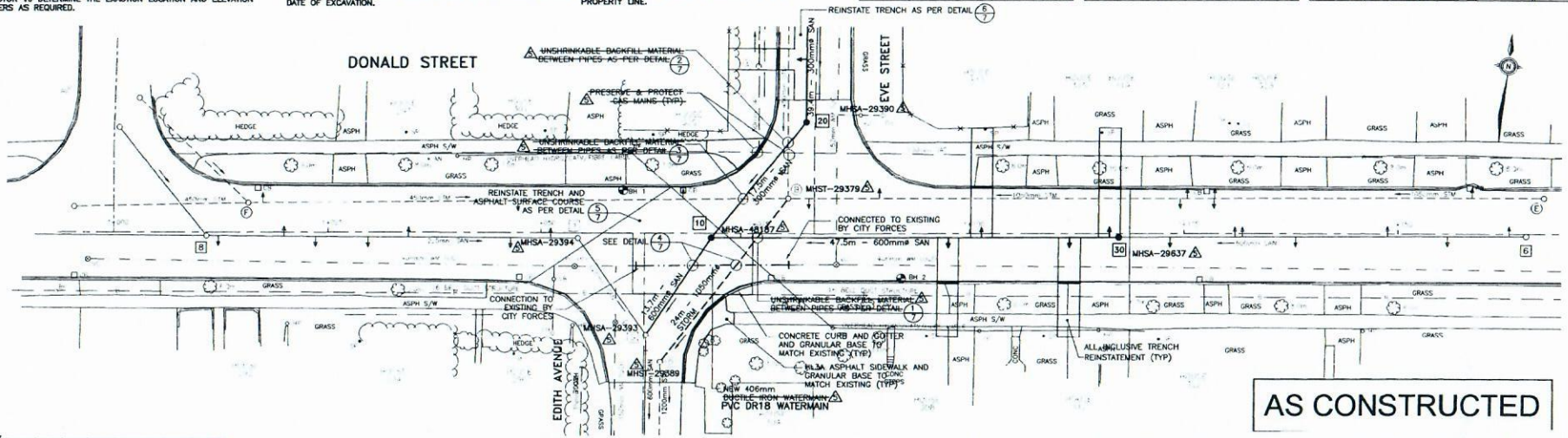
CONTRACT NO. ISB06-5034

DWG. NO. 5034-05

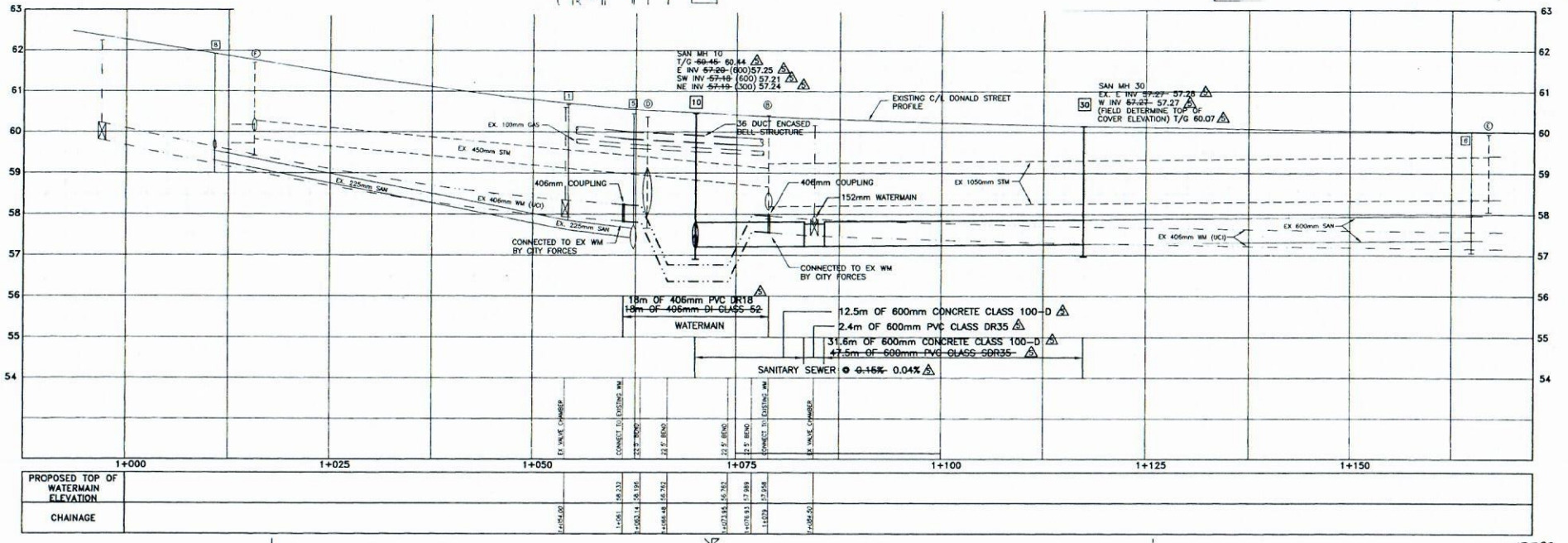
SHEET 5 OF 7

DATE OCTOBER 2005

SCALE Hor 0m 5m, Vert 0m 1m



AS CONSTRUCTED



Feb 23, 2007 I:\DRAWINGS\05039 Donald\As Constructed\Plans.dwg

13798

REVISIONS / RÉVISIONS	DATE	BY
SEWER RE-HAB ON DONALD ST.	NOV. 05/08	KJ
ROAD CURRENTLY UNDER CONSTRUCTION	AUG 2009	LV
PLAT BELL PLAN REVISED	AUG 2009	LV
SANITARY SEWER VERIFIED	AUG 2018	EW
APPLIED SEWER/WATER/ROAD ON COLUMBUS	AUG 2018	JF
APPLIED SEWERS & WAT ON QUEEN MARY	OCT 2018	JC
DIGITIZED FROM CITY/UTILITY DATA RECEIVED	JUN 2024	DC

LEGEND

Water Valve, Valve Chamber, Fire Hydrant
Sewer Manhole, Catch Basin Manhole
Catch Basin / Drainage, Wing Wall, Head Wall
Pole, Pole w/light, Demarcation, Lawn Light
Power Supply: Panel, Pedestal, Transformer, Tower, Regulator
Amp, Hand Hole, Vault, Gas Valve
OC Transpo: Bus Shelter-No Power, Energized, Isolated
Streetscape: Planter Box, Grate Square, Eng, Bull
Traffic Control Box / Disconnect Box, SL Disconnect
Red Light Hand Hole, Red Light Camera
Scadic Hand Hole, Monitoring Panel
Restrictor
Pipe, Duct, Conduit: Lateral
Culvert
Ditch
Abandoned
Capped
Bolted Cable
Property Line
Install Year (2015)

TELECOM GLOSSARY

A: Allstream	P: Primus
AT: Aliant	P2P: Canadian P2P Fibre
B: Bell	R: Rogers
BH: Birch Hill	S: Saint
F: Fibre Noir	SL: Street Lighting
G: Glentay	T: Traffic
GT: Group Telecom	TO: Telecom Ottawa
H: Hydro Ottawa	TU: Telus
HH: Hydro One	V: Videotron
L / L3: Level 3	Z: Zayo

GLOSSARY - OTHER

DD: Dept. of Defence	PED: Pedestal (owner unknown)
MH: Manhole (owner unknown)	PW: Public Works
OOC: OCTranspo	UP: Utility Pole (owner unknown)
SCD: Scadic	

CAUTION/ATTENTION

Although utility locations are established using the best available information, they cannot be guaranteed.
Property lines were compiled from plans and documents recorded in the Land Registry System and are for indexing purposes only.

Bien que l'emplacement des services publics soient établis en utilisant la meilleure information disponible, ils ne peuvent pas être garantis.
Des lignes de propriété ont été compilées en utilisant des plans et des documents enregistrés dans le système de cadastre et sont pour l'indexation seulement.

Ottawa

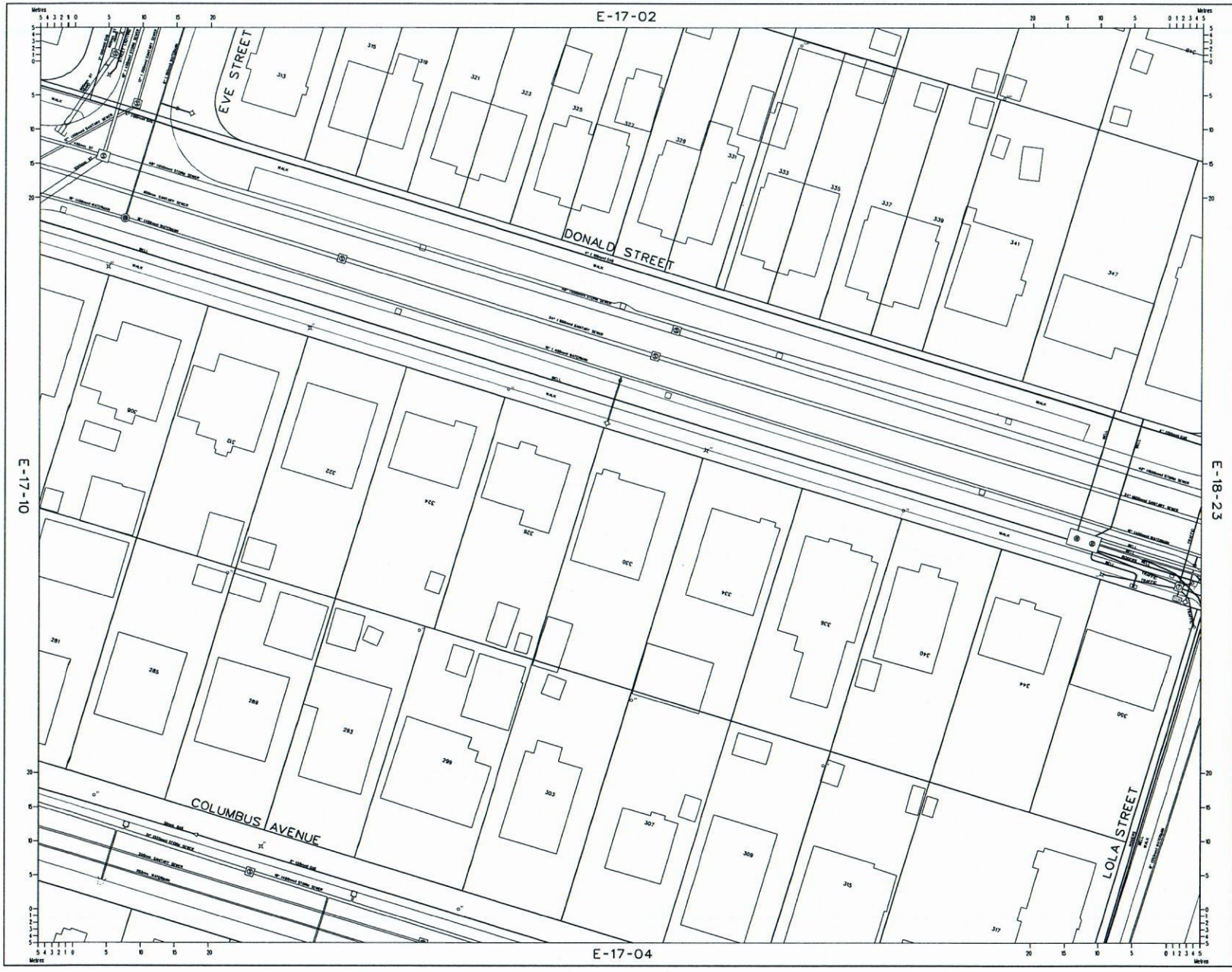
Right of Way, Heritage, and Urban Design Services / Gestionnaire, Services des emprises, du patrimoine, et du design urbain
Planning, Infrastructure and Economic Development Department /
Direction générale de la planification, de l'infrastructure et du développement économique
100 Constellation Cres., 9th Floor East / 6ème Étage Est, Ottawa, ON K2G 6J8

OTTAWA UTILITY COORDINATING COMMITTEE
CENTRAL REGISTRY
COMITÉ DE COORDINATION DES SERVICES PUBLICS D'OTTAWA
ENREGISTREMENT CENTRAL

PRODUCED BY GIS DATA MANAGEMENT BRANCH
BY SMARTCENTRE INC

SCALE: 1:250

SHEET NUMBER
E-17-10



REVISIONS / RÉVISIONS	DATE	BY
REDRAWN FROM VOIDED UTILITY PLAN E-17-03	AUG 2009	LV
SEWER REHAB ON DONALD ST	NOV. 05/08	KJ
PEDESTAL AND CONDUIT ADDED BY LOLA	AUG 2009	LV
APPLIED SEWER/WATER/ROAD ON COLUMBUS	AUG 2016	JF
SANITARY SEWER VERIFIED	AUG 2016	EW
DIGITIZED FROM CITY/UTILITY DATA RECEIVED	JUN 2024	DC

LEGEND

Water Valve, Valve Chamber, Fire Hydrant
Sewer Manhole, Catch Basin Manhole
Catch Basin / Drainage, Wing Wall, Head Wall
Pole, Pole w/ light, Decorative, Lawn Light
Power Supply: Panel, Pedestal, Transformer, Tower, Regulator
Amp, Hand Hole, Vault, Gas Valve
OC Transpo: Bus Shelter-No Power, Energized, Isolated
Streetscape: Planter Box, Grate Square, Eng. Soil
Traffic Control Box / Disconnect Box, SL Disconnect
Red Light Hand Hole, Red Light Camera
Scada: Hand Hole, Monitoring Panel
Restrictor
Pipe, Duct, Conduit, Lateral
Culvert
Ditch
Abandoned
Capped
Buried Cable
Property Line
Install Year (2016)

TELECOM GLOSSARY

A	Allstream	P	Primus
AT	Aliant	P2P	Canadian P2P Fibre
B	Bell	R	Rogers
BH	Bell Hut	S	Sprint
F	Fibre Noir	SL	Street Lighting
G	Globility	T	Traffic
GT	Group Telecom	TO	Telecom Ottawa
H	Hydro Ottawa	TU	Telus
HT	Hydro One	V	Videotron
L / L1	Level 3	Z	Zayo

GLOSSARY - OTHER

DD	Dept. of Defence	PED	Pedestal (owner unknown)
MH	Manhole (owner unknown)	PW	Public Works
OOC	OC Transpo	UP	Utility Pole (owner unknown)
SCD	Scada		

CAUTION/ATTENTION

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Des lignes de propriété ont été compilées en utilisant des plans et des documents enregistrés dans le système de cadastre et sont pour l'indexation seulement.

Ottawa

Right of Way, Heritage, and Urban Design Services / Gestionnaire, Services des emprises, du patrimoine, et du design urbain
Planning, Infrastructure and Economic Development Department /
Direction générale de la planification, de l'infrastructure et du développement économique
100 Constellation Cres., 4th Floor East / 4ème Étage Est, Ottawa, ON K2G 6J8

OTTAWA UTILITY COORDINATING COMMITTEE
CENTRAL REGISTRY
COMITÉ DE COORDINATION DES SERVICES PUBLICS D'OTTAWA
ENREGISTREMENT CENTRAL

UCC Ottawa CCSP

PRODUCED BY: GIS & DATA MANAGEMENT BRANCH
INFORMATION CENTRE UNIT

SCALE: 1:250

SHEET NUMBER
E-17-03

PROPOSED

THREE STOREY APARTMENT BUILDING SITE

LOTS 191 AND 192

R-PLAN 441

304-308 DONALD STREET

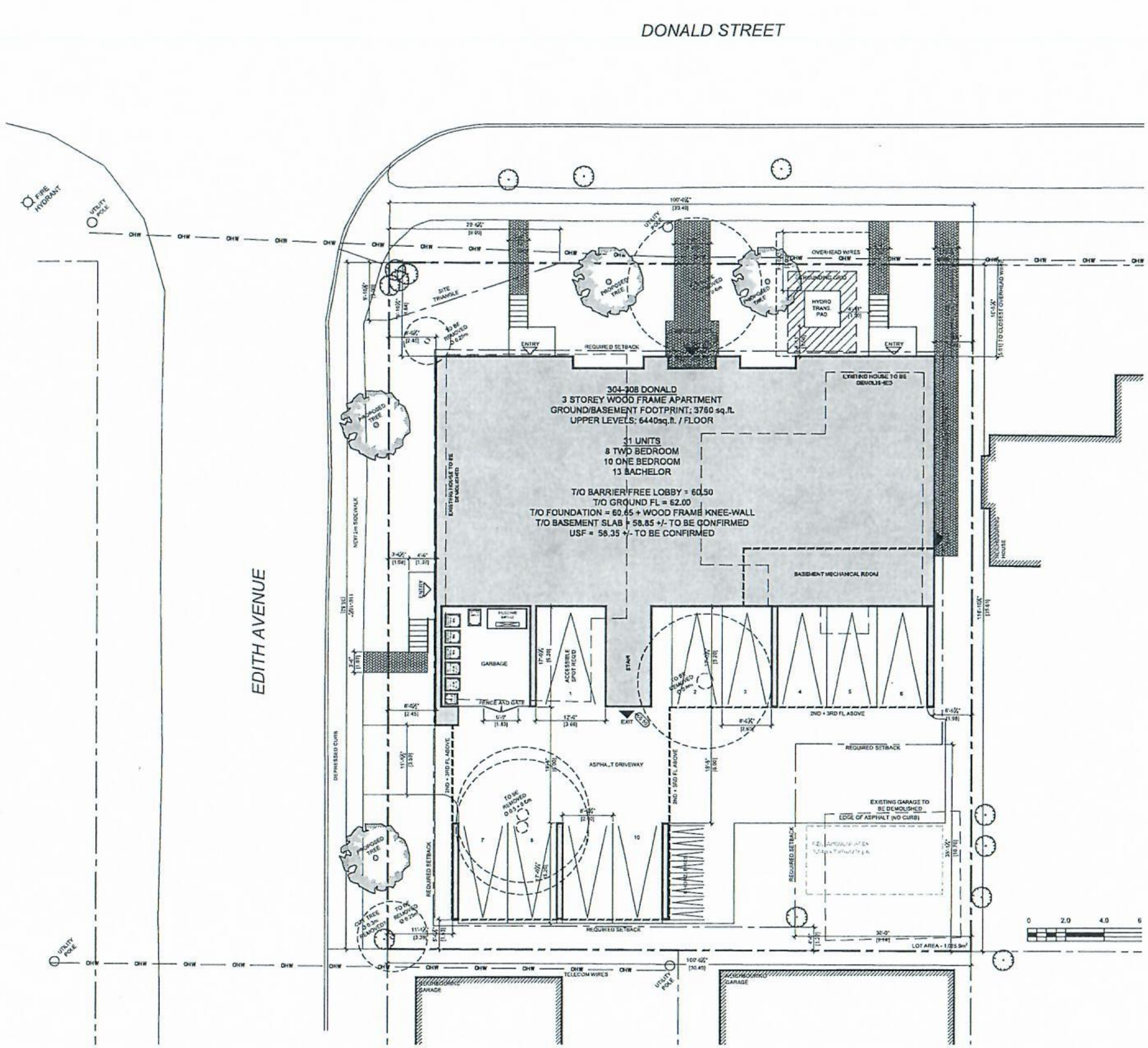
CITY OF OTTAWA

APPENDIX D

CITY OF OTTAWA

- **SITE PLAN**
- **FUS FIRE FLOW CALCULATION**
- **FUS EXPOSURE DISTANCES (FIGURE 1)**
- **WATER BOUNDARY CONDITIONS**
- **SUPPORTING HYDRAULIC CALCULATIONS**
- **HYDRANT SPACING (FIGURE 2)**

ATTACHMENT 1: SITE PLAN



RJH ARCHITECTURE + PLANNING
414 Churchill Avenue North
Ottawa, Ontario, K1Z 5C6
613-853-8822 rosalind@rjhill.ca rjhill.ca

NOTES:
- R4UC ZONING DESIGNATION
- AREA X AS PER SCHEDULE 1A

ZONING (9-UNIT+ APARTMENT):
- 15m MIN. LOT WIDTH, PROVIDED
- 450m² MIN. LOT AREA, PROVIDED
- 1070m² MAX. LOT AREA (1084m² PROVIDED) [T.162B(12)], VARIANCE REQ'D
- 11m MAX. HEIGHT, PROVIDED
- 1.5m MIN. SIDE YARD SETBACK, PROVIDED
- 4.5m MIN. FRONT YARD SETBACK, PROVIDED
- 2.4m MIN. CORNER SIDE YARD SETBACK (MATCHING NEIGHBOUR THAT FACES THE SAME STREET) [S.123(4a)], PROVIDED
- 30% OF LOT DEPTH MIN. REAR YARD SETBACK [T. 144A], PROVIDED
- 1.2m MIN. REAR YARD SETBACK ON A CORNER LOT IF ENTRANCES ARE FACING BOTH STREETS [S.144(5b)], PROVIDED
- 30% OF LOT WIDTH MIN. INTERIOR YARD AREA ON A CORNER LOT [S.144(6)], PROVIDED
- 1 MIN. PRINCIPAL ENTRANCE TO A GROUND FLOOR UNIT OR COMMON INTERIOR CORRIDOR STAIRWELL MUST BE LOCATED ON THE FACADE PROVIDING DIRECT STREET ACCESS [S.161(15f)], PROVIDED
- 1 MIN. PRINCIPAL ENTRANCE FOR EVERY 12m OF LOT WIDTH FOR LOTS OF 24m WIDE OR GREATER [S.161(15f.ii)], PROVIDED
- 25% MIN. GLAZING ON FRONT FACADE [S.161(15g)], PROVIDED
- 20% MIN. OF FRONT FACADE MUST BE RECESSED AN ADDITIONAL 0.6m FROM THE FRONT SETBACK LINE, PROVIDED (UNLESS ONE BALCONY OR PORCH OF 2m² PER UNIT THAT FACES A STREET AT OR ABOVE THE FIRST STOREY IS PROVIDED) [S.161(15h)], PROVIDED
- 25% MIN. DWELLING UNITS MUST HAVE AT LEAST 2 BEDROOMS [S.161(16a)], PROVIDED
- NO AMENITY AREA REQUIREMENTS BEYOND WHAT IS REQUIRED FOR SOFT LANDSCAPING AND/OR BALCONIES

PARKING REQUIREMENTS
- NO PARKING REQUIRED FOR A RESIDENTIAL BUILDING OF FOUR OR FEWER STOREYS [S.101(4a)], PROVIDED
- 0.5 MIN. PARKING SPACES PER DWELLING UNIT IN EXCESS OF 12 UNITS [S.101(3a)], PROVIDED
- 0.1 MIN. VISITOR PARKING SPACES PER DWELLING UNIT IN EXCESS OF 12 UNITS [S.102(2)], PROVIDED

BICYCLE PARKING REQUIREMENTS
- 0.5 MIN. BICYCLE PARKING SPACES PER DWELLING UNIT, PROVIDED
- 50% OF REQUIRED BIKE PARKING SPACES, OR 15 BIKE PARKING SPACES, WHICHEVER IS GREATER, MAY BE LOCATED IN A LANDSCAPED AREA

SOFT LANDSCAPING REQUIREMENTS
- ANY PART OF THE FRONT AND REAR YARDS NOT OCCUPIED BY ACCESSORY BUILDINGS/STRUCTURES, PERMITTED PROJECTIONS, BIKE PARKING/AISLES, PATHS OF TRAVEL, WALKWAYS, PATIOS, AND PERMITTED DRIVEWAYS, PARKING AISLES AND PARKING SPACES MUST BE SOFTLY LANDSCAPED, PROVIDED
- 40% MIN. SOFT LANDSCAPING IN THE FRONT YARD [T.161], PROVIDED
- 50% MIN. SOFT LANDSCAPING IN THE REAR YARD [S.161(15e.ii)], PROVIDED
- 25m² MIN. AGGREGATED RECTANGULAR AREA WHOSE LONGER DIMENSION IS NOT MORE THAN TWICE ITS SHORTER DIMENSION [S.161(15b.iv)], PROVIDED
- FRONT YARD AND CORNER SIDE YARD MUST HAVE PARKING PROHIBITORS [S.161(15e)], PROVIDED

EXISTING:
- TWO SINGLE-FAMILY DETACHED HOME

PROPOSED:
- APARTMENT BUILDING WITH PARKING

PRELIMINARY COORDINATION APR 10 2024

No	Y/M/D	REVISION
1.	YYYY-MM-DD	XXXXXXXX

DONALD / EDITH APARTMENTS
304-308 Donald St, Ottawa, Ontario

SITE PLAN

Drawn By	Date	
AW	APR. 2024	A1.0
Project No.	Scale	
24XX	1:125	

ATTACHMENT 2: FUS FIRE FLOW CALCULATION

Stantec

FUS Fire Flow Calculation - Long Method

Calculations based on: "*Water Supply for Public Fire Protection*" by Fire Underwriters' Survey, 2020

Stantec Project #: 163401084
Project Name: 304-308 Donald Street Water Servicing Analysis
Fire Flow Calculation #: 1
Date: May 3, 2024
Building Type/Description/Name: Residential
Data inputted by: Melissa Nelson
Data reviewed by: Alexandre Mineault-Guitard, P.Eng

Notes: *The building is 3-storey residential multi-unit building consisting of 31 residential units with a basement that is more than 50% below grade. The building contains eight (8) Two Bedroom Units, ten (10) One Bedroom Units, and thirteen (13) Bachelor Units. The building will be wood frame construction with no sprinkler system. The average floor area is 5,547 sq.ft, for a gross floor area of 16,640 sq.ft.*

Fire Underwriters Survey Determination of Required Fire Flow - Long Method

Step	Task	Term	Options	Multiplier Associated with Option	Choose:	Value Used	Unit	Total Fire Flow (L/min)
1	Choose Frame Used for Construction of Unit	**Framing Material**						
		Coefficient related to type of construction (C)	Type V - Wood Frame	1.5	Type V - Wood Frame	1.5	m	
			Type IV-A - Mass Timber	0.8				
			Type IV-B - Mass Timber	0.9				
			Type IV-C - Mass Timber	1				
			Type IV-D - Mass Timber	1.5				
			Type III - Ordinary construction	1				
			Type II - Non-combustible construction	0.8				
			Type I - Fire resistive construction	0.6				
2	Choose Type of Housing (if TH, Enter Number of Units Per TH Block)	**Floor Space Area**						
		Type of Housing	Single Family	0	Other (Comm, Ind, Apt etc.)	31	Units	
			Townhouse - indicate # of units	0				
			Other (Comm, Ind, Apt etc.)	31				
2.2	# of Storeys	Number of Floors/Storeys in the Unit (do not include basement if 50% below grade):			3	3	Storeys	
3	Enter Ground Floor Area of One Unit	Average Floor Area (A) based on total floor area of all floors for one unit (non-fire resistive construction):			5,547 Square Feet (ft2)	5,547	Area in Square Metres (m^2)	
3.1	Obtain Total Effective Building Area	Total Effective Building Area (# of Storeys x # of Units (if single family or townhouse) x Average Floor Area):			1,546	1546		
4	Obtain Required Fire Flow without Reductions	Required Fire Flow (without reductions or increases per FUS) ($F = 220 * C * \sqrt{A}$) Round to nearest 1,000 L/min						13,000
5	Apply Factors Affecting Burning	**Reductions/Increases Due to Factors Affecting Burning**						
5.1	Choose Combustibility of Building Contents	Occupancy Content Hazard Reduction or Surcharge	Non-combustible	-0.25	Limited combustible	-0.15	N/A	11,050
			Limited combustible	-0.15				
			Combustible	0				
			Free burning	0.15				
			Rapid burning	0.25				
5.2	Choose Reduction Due to Presence of Sprinklers	Sprinkler Reduction	Adequate Sprinkler conforms to NFPA13	-0.3	None	0	N/A	0
			None	0				
		Water Supply Credit	Water supply is standard for sprinkler and fire dept. hose line	-0.1	Water supply is not standard or N/A	0	N/A	0
			Water supply is not standard or N/A	0				
		Sprinkler Supervision Credit	Sprinkler system is fully supervised	-0.1	Sprinkler not fully supervised or N/A	0	N/A	0
			Sprinkler not fully supervised or N/A	0				
5.3	Choose Presence of Sprinklers for Exposures within 30m	Sprinkler Conforms to NFPA13	Adequate sprinkler for exposures conforms to NFPA13		None for exposures	0	N/A	0
			None for exposures					
		Water Supply	Water supply is standard for sprinkler and fire dept. hose line of exposures		Water supply is not standard or N/A for exposures		N/A	
			Water supply is not standard or N/A for exposures					
		Sprinkler Supervision	Sprinkler system of exposures is fully supervised		Sprinkler not fully supervised or N/A for exposures		N/A	
			Sprinkler not fully supervised or N/A for exposures					
5.4	Choose Separation Distance Between Units	Exposure Distance Between Units	North Side	30.1m or greater	0	0.6	m	6,630
			East Side	0 to 3.0m	0.25			
			South Side	0 to 3.0m	0.25			
			West Side	20.1 to 30.1m	0.1			
6	Obtain Required Fire Flow, Duration & Volume	*Total Required Fire Flow, rounded to nearest 1,000 L/min, with max/min limits applied:*						18,000
		Total Required Fire Flow (above) in L/s:						300
		Required Duration of Fire Flow (hrs)						4.00
		Required Volume of Fire Flow (m^3)						4,320

ATTACHMENT 3: FIGURE 1 – FUS EXPOSURE DISTANCES

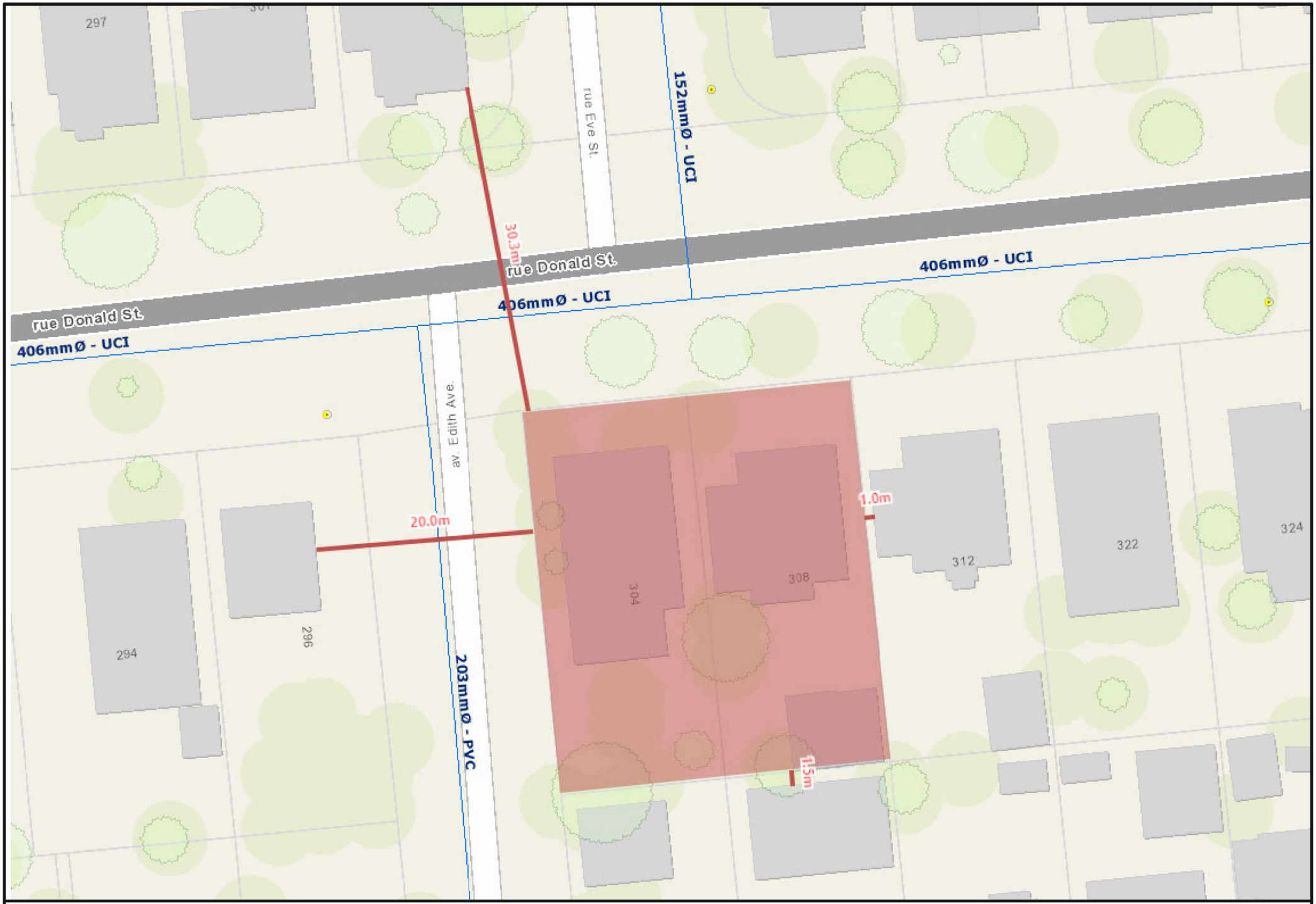


Figure 1: FUS Exposure Distances (Property Line to Adjacent Buildings)

Source: geoOttawa 2024; *Contains information licensed under the Open Government License – City of Ottawa.*

ATTACHMENT 4: WATER BOUNDARY CONDITIONS

Mineault-Guitard, Alexandre

From: TL MaK <tlmakecl@bellnet.ca>
Sent: Friday, June 14, 2024 10:53 AM
To: Mineault-Guitard, Alexandre
Cc: Alemany, Kevin; 'Alfred Abboud'
Subject: RE: 304-308 Donald Street - Water Boundary Conditions Request
Attachments: 304-308 Donald Street Multi-Hydrant Analysis June 2024.pdf

Hi Alex,

Attached please find the Water Boundary Conditions received from the City on June 13, 2024 for your calculation use.

Thank you,

Tony Mak

T.L. Mak Engineering Consultants Ltd.
1455 Youville Drive, Suite 218
Ottawa, ON. K1C 6Z7
Tel. 613-837-5516 | Fax: 613-837-5277
E-mail: tlmakecl@bellnet.ca

From: Duquette, Vincent [mailto:Vincent.Duquette@ottawa.ca]
Sent: June 13, 2024 12:00 PM
To: TL MaK
Cc: 'Alfred Abboud'; Chetrar, Anton
Subject: RE: 304-308 Donald Street - Water Boundary Conditions Request

Hi Tony,

See below boundary condition results from the multi hydrant analysis.

The following are boundary conditions, HGL, for hydraulic analysis at 304-308 Donald Street (zone 1E) assumed to be connected to the 406mm watermain on Donald Street (see attached PDF for location).

Minimum HGL: 109.9 m

Maximum HGL: 118.5 m *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.*

Max Day+ Fire Flow (300 L/s): 108.2 m

A multi-hydrant analysis was performed with five existing hydrants within 150 m of the property. **The total aggregate flow assuming the three identified hydrants running simultaneously provides the required fire flow for the site.**

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

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

Best Regards,

Vincent Duquette, E.I.T
Project Manager, Infrastructure Approvals | Gestionnaire de projet, Projets d'infrastructure
Development Review – All Ward | Direction de l'examen des projets d'aménagement - Tous les quartiers
Planning, Development and Building Services Department (PDBS)| Direction générale des services de la planification, de l'aménagement et du bâtiment (DGSPAB)
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West | 110 avenue Laurier Ouest
Ottawa, ON K1P 1J1
613.580.2424 ext./poste 14048, vincent.duquette@ottawa.ca

From: Duquette, Vincent
Sent: June 12, 2024 4:02 PM
To: TL MaK <tlmakecl@bellnet.ca>
Cc: 'Alfred Abboud' <alfredabboud@gmail.com>; Chetrar, Anton <anton.chetrar@ottawa.ca>
Subject: RE: 304-308 Donald Street - Water Boundary Conditions Request

Hi Tony,

I followed up with our Drinking Water Department which had some concerns with the elevated requested fire flow, as well as the multi hydrant analysis with 5 fire hydrants. We cleared up those concerns with the Fire Department engineer. Drinking Water department is now processing the multi hydrant analysis. I will provide results when available. Thank you for your continued patience on this item.

As for the stormwater quality control requirements, prior to Bill 23, the RVCA used to provide comments on the quality control requirements for a specific site. As a result of changes made through Bill 23 and starting in 2023, the quality control comments were deferred to municipalities. The target quality control for sites discharging to the natural watercourse (Rideau River in this case) is enhanced protection of 80% TSS removal. However given the recent findings about the performance of Oil Grit Separators (OGS) not being able to meet 80% TSS removal target and the size of the proposed parking area, we will allow a quality control target of 60% (basic protection) TSS removal for this project only. Please note that only the parking area, covered and uncovered, is considered to generate suspended solids. Roof water is considered clean and can be directed to the storm system with no quality control measures.

Best Regards,

Vincent Duquette, E.I.T
Project Manager, Infrastructure Approvals | Gestionnaire de projet, Projets d'infrastructure
Development Review – All Ward | Direction de l'examen des projets d'aménagement - Tous les quartiers
Planning, Development and Building Services Department (PDBS)| Direction générale des services de la planification, de l'aménagement et du bâtiment (DGSPAB)
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West | 110 avenue Laurier Ouest

Ottawa, ON K1P 1J1
613.580.2424 ext./poste 14048, vincent.duquette@ottawa.ca

From: TL MaK <tlmakecl@bellnet.ca>
Sent: June 11, 2024 10:54 AM
To: Duquette, Vincent <Vincent.Duquette@ottawa.ca>
Cc: 'Alfred Abboud' <alfredabboud@gmail.com>
Subject: RE: 304-308 Donald Street - Water Boundary Conditions Request

Hi Vincent,

Further to our telephone conversation today and our e-mail request of May 3, 2024 for water boundary conditions, could you please follow-up with Water Works Department so that we could ascertain the results for the water boundary conditions and so that we can complete our servicing report in the near future.

Thank you for your help.

Regards,

Tony Mak

T.L. Mak Engineering Consultants Ltd.
1455 Youville Drive, Suite 218
Ottawa, ON. K1C 6Z7
Tel. 613-837-5516 | Fax: 613-837-5277
E-mail: tlmakecl@bellnet.ca

From: TL MaK [mailto:tlmakecl@bellnet.ca]
Sent: May 3, 2024 10:11 AM
To: 'Duquette, Vincent'
Subject: 304-308 Donald Street - Water Boundary Conditions Request

Hi Vincent,

Regarding this site, we are requesting for water boundary conditions from the City of Ottawa to be provided for our hydraulic analysis. The particulars are as follows:

The proposed building located within Pressure Zone 1E at 304-308 Donald Street is a 3-storey residential multi-unit building with a basement. The building contains thirty-one (31) total units, eight (8) 2-bedroom, ten (10) 1-bedroom, and thirteen (13) bachelor units. Each floor covers an average area of around 5,547 sq.ft, for a gross floor area of 16,640 sq. ft, excluding the basement. The building is to be serviced by the 400 mm diameter watermain along Donald Street.

The domestic demands were calculated using the City of Ottawa's Water Design Guidelines, where the residential consumption rate of 280 L/cap/d was used to estimate average day demands (AVDY). Persons per unit (PPU) for each unit were estimated based on the City of Ottawa's Water Design Guidelines. Following discussions with the City, peaking factors are to be estimated from Table 3-3 of the MECP Design Guidelines for Drinking-Water Systems, given that the

proposed development population is less than 500 people. Maximum day (MXDY) demands were calculated by multiplying AVDY demands by a factor of 8.7. Peak hour (PKHR) demands were calculated by multiplying AVDY by a factor of 13.2. Table 1 shows the estimated domestic demands of the existing building.

Table 1: Estimated Domestic Demand

Unit Type	Unit Count	PPU	Consumption	AVDY		MXDY		PKHR	
				L/d	L/s	L/d	L/s	L/d	L/s
Apartment, 2-Bedroom	8	2.1	280	4,704	0.05	40,925	0.47	62,093	0.72
Apartment, 1-Bedroom	10	1.4		3,920	0.05	34,104	0.39	51,744	0.60
Apartment, Bachelor	13	1.4		5,096	0.06	44,335	0.51	67,267	0.78
Total	***31***			***13,720***	***0.16***	***119,364***	***1.38***	***181,104***	***2.10***

The fire flow required was determined following the Fire Underwriter Survey (FUS) method and is provided in the attached worksheet. The proposed building will be of wood frame construction. It is understood that the building will not be equipped with sprinklers, and that the basement is more than 50% below ground level. The resulting required fire flow is 18,000 L/min (300 L/s) for a duration of 4.00 hours.

It is recommended to consider flow from multiple hydrants (as per ISTB-2018-02) to assess whether the distribution network can deliver the required fire flow. Our desktop review, which included Google Street view, identified three (3) Class AA hydrants within 75 metres of the proposed building. Additionally, there are two (2) extra Class AA hydrants located within 150 m from the building. The attached figure, extracted from GeoOttawa, provides a visual representation of these hydrants. Given this information, we kindly request a multi-hydrant analysis from the City.

In summary:

- AVDY = 13,720 L/d (0.16 L/s);
- MXDY = 119,364 L/d (1.38 L/s);
- PKHR = 181,104 L/d (2.10 L/s); and,
- Fire Flow = 18,000 L/min (300 L/s).

The City is requested to provide boundary conditions for the Average Day, Maximum Day, Peak Hour and Fire Flow conditions (multi-hydrant analysis) indicated above.

Thank you for your prompt attention to this matter. Please forward the boundary conditions as soon as possible.

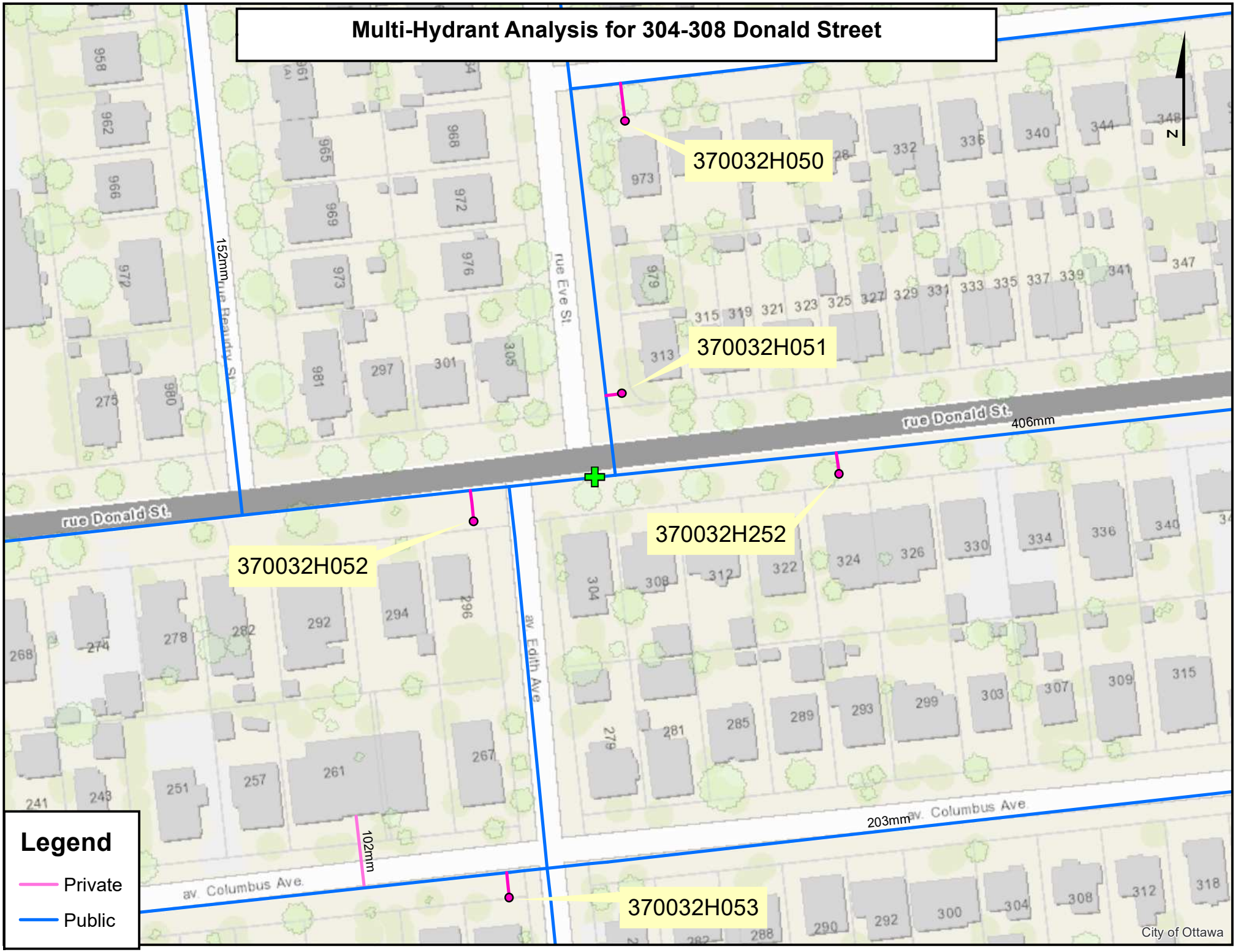
Have a great weekend.

Regards,

Tony Mak

T.L. Mak Engineering Consultants Ltd.
1455 Youville Drive, Suite 218
Ottawa, ON. K1C 6Z7
Tel. 613-837-5516 | Fax: 613-837-5277

E-mail: tlmakecl@bellnet.ca


Multi-Hydrant Analysis for 304-308 Donald Street
370032H050
370032H051
370032H252
370032H052
370032H053
rue Donald St.
rue Donald St.
406mm
av. Columbus Ave.
av. Columbus Ave.
203mm
102mm
152mm
rue Eve St.
av. Edith Ave
N
Legend
Private
Public
City of Ottawa

ATTACHMENT 5: SUPPORTING HYDRAULIC CALCULATIONS

Stantec

Supporting Hydraulic Calculations

Stantec Project #: 163401084
Project Name: 304-308 Donald Street
Date: June 17, 2024
Data inputted by: Alexandre Mineault-G, P.Eng.
Data reviewed by: Alexandre Mineault-G, P.Eng.

Boundary Conditions provided by the City:

Scenario 1: Peak Hour (Min HGL): 109.9 m;
Scenario 2: Average Day (Max HGL): 118.5 m; and
Scenario 3: Maximum Day plus Fire Flow: 108.2 m.

Sample Calculations

$HGL\ (m) = hp + hz$ *(1)*

where: hp = Pressure Head (m); and hz = Elevation Head (m), estimated from topography.

For Scenario 1, we have:

HGL(m) = 109.9 and hz (m) = 60.6.

Rearranging Equation 1, we can calculate the Pressure Head (hp) as follow:

$hp\ (m) = HGL - hz$

$\therefore$ hp = 109.9 - 60.6 m = 49.3 m.

To convert from Pressure Head (m) to a pressure value (kPa), the following equation can be used:

$P\ (kPa) = (\rho * g * hp) / 1000$ *(2)*

where: ρ = density of water = 1000 kg/m^3; and g = gravitational acceleration = 9.81 m/s^2.

Using Equation 2, we can calculate the Pressure Head (hp) as follow:

P (kPa) = (1000 * 9.81 * 49.3) / 1000

$\therefore$ P = 483 kPa.

Considering that 1 kPa = 0.145 psi, the pressure under Scenario 1 is equal to:

P = 70 psi.

Applying the same procedures, the pressures under Scenario 2 and Scenario 3 are calculated as follows:
Scenario 2: P = 82 psi; and Scenario 3: P = 68 psi.

To summarize:

Scenario 1: Minimum Pressure under Peak Hour Demand: 483 kPa (70 psi)
Scenario 2: Maximum Pressure under Average Day Demand: 568 kPa (82 psi)
Scenario 3: Minimum Pressure under Maximum Day + Fire Flow Demand: 467 kPa (68 psi)

ATTACHMENT 6: FIGURE 2 – HYDRANT SPACING

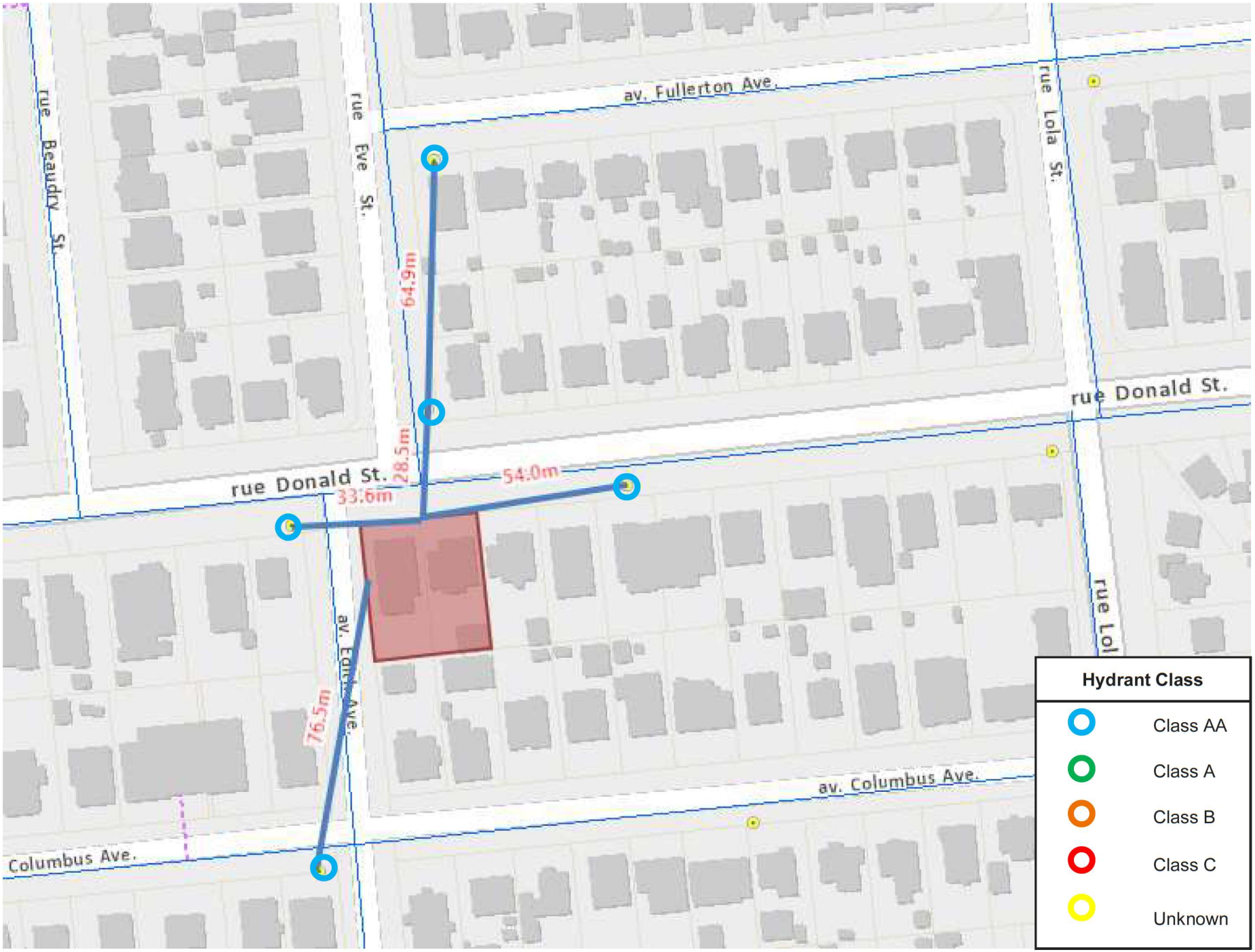


Figure 2: Hydrant Spacing

Source: geoOttawa 2024; *Contains information licensed under the Open Government License – City of Ottawa.*

PROPOSED

THREE STOREY APARTMENT BUILDING SITE

LOTS 191 AND 192

R-PLAN 441

304-308 DONALD STREET

CITY OF OTTAWA

APPENDIX E

CITY OF OTTAWA

SANITARY SEWER DESIGN SHEET

SHEET No. 1 OF 1

SANITARY SEWER DESIGN SHEET

q = average daily per capita flow (280 L/cap. d)
I = unit of peak extraneous flow (0.33 L/ha. s)
M = peaking factor 4 (MAX.)
Q (p) = peak population flow (L/s)
Q (i) = peak extraneous flow (L/s)
Q (d) = peak design flow

RESIDENTIAL DENSITY
2 BEDROOM – 2.1 ppu
1 BEDROOM – 1.4 ppu

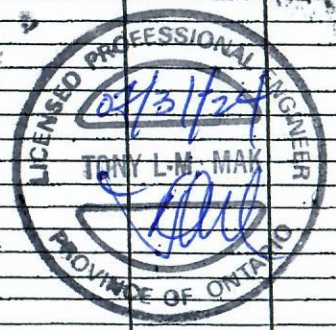
$M = 1 + \frac{14}{4 + \sqrt{P}}$ where P population in 1000's

$Q(p) = \frac{PqM}{86.4}$ (L/s)

Q(i) = IA (L/s) where A = area in hectares

Q(d) = Q(p) + Q(i) (L/s)

LOCATION			INDIVIDUAL		CUMULATIVE		Peaking factor M	Pop. flow Q(p) (L/s)	Peak extraneous flow Q(i) (L/s)	Peak design flow Q(d) (L/s)	PROPOSED SEWER						
STREET	FROM	TO	Pop.	Area A (hectares)	Pop.	Area A (hectares)					Length (m)	Pipe size (mm)	Type of pipe	Grade %	Capacity (L/s) n=0.013	Full flow velocity (m/s)	Actual velocity at Q(d)
304-308 DONALD STREET	SITE	EX. 600Ø SANITARY SEWER	49	0.1086	49	0.1086	4	0.635	0.036	0.67	19.0	150	PVC	1.0 (min.)	19.8	1.12	



DESIGN TLM	PROJECT 304-308 DONALD STREET	SHEET No.
CHECKED TLM	PROPOSED 3 STOREY APARTMENT	1 of 1
DATE JULY 2024	BUILDING SITE – CITY OF OTTAWA	

(FILE # 824-63)

PROPOSED

THREE STOREY APARTMENT BUILDING SITE

LOTS 191 AND 192

R-PLAN 441

304-308 DONALD STREET

CITY OF OTTAWA

APPENDIX F

DEVELOPMENT SERVICING STUDY CHECKLIST SUMMARY

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