PROPOSED

FOUR STOREY APARTMENT BUILDING SITE

LOT 15 WEST CAMBRIDGE STREET NORTH

SOUTH OF STONE BOUNDARY

R-PLAN 33

370 CAMBRIDGE STREET NORTH

CITY OF OTTAWA

SERVICEABILITY REPORT

REPORT No. R-821-155A

T.L. MAK ENGINEERING CONSULTANTS LTD.

JULY 2022

REFERENCE FILE NUMBER 821-155

Introduction

The developer of this property is proposing to redevelop the existing residential lot described as Lot 15 West Cambridge Street North R-Plan 33 by constructing a four (4) storey residential apartment building consisting of two (2) bachelor apartments, ten (10) 1-bedroom apartments, six (6)-bedroom apartments and two (3)-bedroom apartments totalling 20 residential units.

The municipal address of this property is referenced as 370 Cambridge Street North and it is located in the City Ward (14 - Somerset). The site is situated on the north side of Cambridge Street North, north of Raymond Street and south of Arlington Avenue, see site plan and legal survey plan in Appendix A for details.

The area of this property is ±0.063 hectares. In addition to the (4)-storey residential building, the other development features will comprise of an interlock paver access to the front entrance way and interlock paver access along both the north and south side yard to the side entrances of the building, an amenity area in the rear yard, as well as visitor bicycle parking, (4) asphalt vehicle parking spaces including 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, Kollaard Associates, entitled Geotechnical Investigation Report (Project No. 220214) dated April 8, 2022.

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 property is currently occupied by a two storey residential building, which is a two (2)-storey brick and vinyl sided dwelling encompassed by concrete surfaces with asphalt parking area and wood sided garage located at the rear of the property. Vehicle access is via the existing Arthur Laneway along the rear of this property. For additional details of the site's pre-development conditions, refer to the coloured Google Image (2019) and aerial photography from (GeoOttawa 2021) in Appendix B.

The site is primarily hard impermeable surfaced that are covered with building roof areas, asphalt parking, concrete walkway surfaces, etc. The remainder of the lot is generally grass or landscape areas. Pre-development coefficient of runoff is estimated at C = 0.68.

The topography of the land is found to be gently sloping from west to east or (back to front) with an average slope of ±1.6 %.

The existing house water and sanitary service lateral currently servicing the existing dwelling on 370 Cambridge Street North 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 lot.

As for the availability of underground municipal services, there are existing municipal services along Cambridge Street North in front of this property consisting of a 375mm diameter combined sewer and a 200mm diameter watermain for development of this property. Refer to the City of Ottawa Cambridge Street North UCC drawing and As-Built plan and profile drawings included in Appendix C for details.

Because the site is located within a combined sewer shed, therefore, the approval exemption under Ontario Regulations 525/98 would not apply since storm water discharges from this site will outlet flow into a combined sewer and not a storm sewer. Thus, an Environmental Compliance Approval (ECA) application will be required to be submitted to the Ministry.

Proposed Residential Apartment Building Site

Vehicle access to this site will be via the existing Arthur Laneway located at the rear of this lot. There are (4) vehicle parking spaces provided for vehicle parking at the rear of the building. Interlock pavers are proposed at the front, as well as the north and south side of the new building for pedestrian access to the side entrances.

A. Water Supply

The proposed building located within Pressure Zone 1W at 370 Cambridge Street North is a 4-storey residential apartment building with a basement. The building contains twenty (20) total units, namely two (2) bachelor units, ten (10) 1-bedroom units, six (6) 2-bedroom units, and two (2) 3-bedroom units. The average floor area is approximately 340 m^2, for a total gross floor area of approximately 1,352 m^2 (excluding the basement). The building is to be serviced by the 200 mm diameter watermain along Cambridge Street North.

The ground elevation on the property is approximately 71.7 m, as obtained from geoOttawa elevation contours (**Figure 1** in Appendix D), and the Site Survey Plan provided to Stantec (see attached **Site Survey Plan** in Appendix D).

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). Maximum day (MXDY) demands were calculated by multiplying AVDY demands by a factor of 2.5. Peak hour (PKHR) demands were calculated by multiplying MXDY

by a factor of 2.2. Persons per unit (PPU) for each unit were estimated based on the City of Ottawa's Water Design Guidelines. **Table 1** shows the estimated domestic demands of the proposed building.

Table 1 : Estimated Domestic Demand

Unit Type	Unit Count	PPU	Consumption Rate (L/c/d)	AVDY		MXDY		PKHR	
				L/d	L/s	L/d	L/s	L/d	L/s
Apartment, Bachelor	2	1.4	280	784	0.01	1,960	0.02	4,312	0.05
Apartment, 1-Bedroom	10	1.4		3,920	0.05	9,800	0.11	21,560	0.25
Apartment, 2-Bedroom	6	2.1		3,528	0.04	8,820	0.10	19,404	0.22
Apartment, 3-Bedroom	2	3.1		1,736	0.02	4,340	0.05	9,548	0.11
Total	***20***			***9,968***	***0.12***	***24,920***	***0.29***	***54,824***	***0.63***

The City had previously indicated that the City's Fire Marshall and various City departments are currently reviewing fire flow requirements for low- and mid-rise buildings. As per the City of Ottawa's Water Design Guidelines, the FUS method is to be used for fire flow requirements affecting watermain sizing; with regards to fire protection on private property and not requiring new watermains, these are covered by the Ontario Building Code (OBC).

As such, the fire flow requirement was also determined following the OBC's Office of the Fire Marshal (OFM) method. The proposed building will be of wood frame construction, where floors are fire separations, but without fire-resistance ratings. The resulting total required fire flow (RFF) for a sprinklered building is 6,300 L/min (105 L/s) for a minimum duration of 40 min. Details are provided in the attached **OFM Fire Flow Calculations** in Appendix D. The proposed **Site Plan** attached in Appendix D was used to determine distances from the proposed building to the property lines. For street facing sides, **Figure 2** in Appendix D provides separation distances from the street.

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

- AVDY = 9,968 L/d (0.12 L/s)
- MXDY = 24,920 L/d (0.29 L/s);
- PKHR = 54,824 L/d (0.63 L/s); and,
- Fire Flow = 6,300 L/min (105 L/s).

Boundary Conditions

The hydraulic gradeline (HGL) boundary conditions for 370 Cambridge Street North, as presented in **Table 2**, were provided by the City on May 26, 2022 (see attached **Water Boundary Conditions** Email in Appendix D).

Table 2 : Boundary Conditions

Demand Scenario	Head (m)
Minimum HGL (Peak Hour)	107.0
Maximum HGL (Average Day)	115.2
Maximum Day + Fire Flow (105 L/s)	108.8

Hydraulic Analysis

Peak Hour & Average Day

During peak hour demands, the resulting minimum hydraulic gradeline of 107.0 m corresponds to a peak hour pressure of 346 kPa (50 psi). This value is above the minimum pressure objective of 276 kPa (40 psi) for residential buildings up to two storeys. The peak hour pressure exceeds this objective and is therefore considered acceptable. Given that this apartment building consists of a total of 4 storeys, further consideration will be needed to service the higher floors. Adding 5 psi per floor above two stories (i.e., 2 additional floors), a minimum pressure of 346 kPa (50 psi) would be required for the fourth floor. The peak hour pressure calculated is equal to this objective and is therefore considered acceptable.

During average day demands, the resulting maximum hydraulic gradeline of 115.2 m corresponds to a maximum pressure of 426 kPa (62 psi). This value is less than the maximum pressure objective of 552 kPa (80 psi) and is therefore considered acceptable**.**

Supporting hydraulic calculations are attached in Appendix D.

Maximum Day + Fire Flow

A maximum day plus fire flow hydraulic gradeline of 108.8 m corresponds to a residual pressure of 364 kPa (53 psi) at this location and is well above the minimum residual pressure requirements of 140 kPa (20 psi).

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, four (4) Class AA hydrants are located in the vicinity of the proposed building. Two (2) Class AA hydrants within 75 m from the site, each with a capacity contribution of up to 5,700 L/min. Two (2) other Class AA hydrants are within 150 m from the site, each with a capacity contribution of up to 3,800 L/min. As such, the combined hydrant flow coverage for the building is estimated to be 19,000 L/min, which is above the OFM required fire flow (RFF) of 6,300 L/min.

Hydrant coverage and classes are illustrated in **Figure 3** attached in Appendix D. A breakdown of available hydrant flow is summarized in **Table 3**.

Table 3 : Fire Hydrant Coverage

Building	Calculated Fire Flow Demand (L/min)	Fire Hydrants					Combined Hydrant Flow Coverage (L/min)
		Hydrant Class	Within 75 m		Between 76 m and 150 m		
			Quantity	Contrib. to RFF	Quantity	Contrib. to RFF	
370 Cambridge Street N	OFM: 6,300	AA	2	5,700	2	3,800	19,000
		A					
		B					
		C					

In conclusion, based on the boundary condition provided, the 200 mm diameter watermain on Cambridge Street North (intended service line connection) provides adequate fire flow capacity as per the OBC's Office of the Fire Marshal (OFM) method to the proposed development at 370 Cambridge Street North.

Anticipated demand flows meet the pressure objectives during average and peak demand conditions, as per the City of Ottawa's Drinking Water Design Guidelines.

B. Sanitary Flow

The peak sanitary flow for the proposed 20 residential units, which comprise of two (2) bachelor units, ten (10) 1-bedroom units, six (2)-bedroom units and two (2) 3-bedroom units, is estimated at Q = 0.44 L/s with an infiltration rate of 0.02 L/s. Please refer to Appendix E regarding sanitary flow calculations. This flow will enter the existing 375mm diameter combined sewer on Cambridge Street North via the proposed 150mm diameter PVC sanitary service lateral from the four (4)-storey residential apartment building.

Peak waste water flow from water usage is typical for an apartment building of this size. No additional amenities are proposed.

The existing peak sanitary flow of the site for single detached dwelling unit is Q = 0.06 L/s with an infiltration rate of 0.02 L/s. The net increase in flow from this proposed development is 0.38 L/.

The peak sanitary flow of 0.44 L/s will be subtracted from the net allowable controlled release rate regarding storm-water management controlled for this site into the existing combined sewer.

Waste water from the Cambridge Street North 375mm dia. combined sewer then in turn outlets further north into the existing 900mm dia. Gladstone Avenue concrete combined

collector sewer located north of this site. Waste water flow from this collector sewer then flows further west along Gladstone Avenue.

C. Storm Flow

The storm-water outlet for the proposed development property will be the existing 375mm diameter combined sewer located on Cambridge Street North. Stormwater attenuation on site will be accomplished by means of rooftop storage with controlled roof drains that regulate flow off site.

Two (2) roof drains are proposed for this apartment building that will restrict maximum flow to a rate of 0.95 L/s each or 2 x 0.95 L/s = 1.90 L/s under a head of 150mm into the Cambridge Street North combined sewer. The calculated net allowable controlled release rate from this site is estimated at 5.40 L/s under the 2 year pre-development event.

At this development site, for storm events up to the 100-year event the maximum post development flow draining off-site is the controlled roof top flow plus the 100-year uncontrolled flow from the site draining to the front and peak sanitary flow which totals to 10.34 L/s (1.90 L/s + 8.00 L/s + 0.44 L/s) and is 4.94 L/s greater than the allowable flow of 5.40 L/s.

Based on the residential site plan from the owner's architect, the average post-development runoff coefficient is estimated at C = 0.76 and A = 0.063 hectares.

An estimation of the 2-year pre-development flow condition was carried out using the criteria accepted by the City of Ottawa. If post-development C valve exceeds the lesser of the C_{pre} = 0.68 or C_{allow} = 0.4 (max) then SWM is required. So from our calculations, the C_{allow} = 0.4 value will be used at t_c = 10 minutes for pre-development allowable flow calculation off-site.

The pre-development flow rate calculated into a combined sewer for this residential area is the lesser of the two (2)-Year storm event where C_{allow} = 0.4 (max.) runoff value and t_c = 10 minutes or the average C_{pre} value which is 0.68 using t_c = 10 minutes. Because this site C_{post} = 0.76 and C_{allow} = 0.4 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 0.76 is greater than the C_{allow} = 0.4.

The storage volume for the two (2)-year and up to the 100-year storm event will be stored by means of flat rooftop on the top of the fourth floor of the apartment building. Also refer to the site storm drainage report (Report No. R-821-155) for further details.

To control the two (2)-Year storm-water release rate off-site from roof top to a rate of 1.90 L/s, a site storage volume of approximately 3.95 m^3 minimum is required during the two (2)-year event.

During the two (2)-year storm event for the flat rooftop storage, the ponding depth of Roof Area 1 and 2 is estimated at 100 mm at the drain and 0mm at the roof perimeter, assuming a 1.5% minimum roof pitch to the drain. The rooftop storage available at Roof Area 1 is 2.67 m^3 and the rooftop storage available at Roof Area 2 is 2.47 m^3, for a total of 5.14 m^3, which is greater than the required volume of 3.95 m^3.

To control the 100-year storm-water release rate off site from roof top to a rate of 1.90 L/s, a site storage volume of approximately 14.13 m^3 minimum is required during the 100-year event. During the 100-year storm event for the flat rooftop storage, the ponding depth of Roof Area 1 and 2 is estimated at 150 mm at the drain and 0 mm at the roof perimeter, assuming a 1.5% minimum roof pitch to the drain. The rooftop storage available at Roof Area 1 is 9.50 m^3 and the rooftop storage available at Roof Area 2 is 8.46 m^3, for a total of 17.96 m^3, which is greater than the required volume of 14.13 m^3.

Therefore, by means of flat building rooftop storage and grading the site to the proposed grades as shown on the Proposed Grading and Servicing Plan and Proposed Rooftop Stormwater Management Plan Dwg. 821-155 G-1 and 821-155 SWM-1 respectively, the desirable two (2)-year storm and 100-year storm event detention volume of 5.14 m^3 and 17.96 m^3 respectively will be available on site.

At this development site for storm events up to the 100-year event, the maximum post development flow draining off-site is the controlled roof top flow plus the 100-year uncontrolled flow from the site draining to the front and peak sanitary flow totals to 10.34 L/s (1.90 L/s + 8.00 L/s + 0.44 L/s) which is 4.94 L/s greater than the allowable flow of 5.40 L/s and considered acceptable by the City of Ottawa for a small site of this lot size.

In comparing the pre-development flow of the current site conditions to the post development flow as shown on Page No. 6 and 7 of the Storm Drainage Report (Report No. R-821-155), the SWM regulated flow plus uncontrolled flow from the proposed site under the post development conditions at the 2-year event = 5.09 L/s and the 100 year event = 10.34 L/s whereupon both of the post development flow events are less than current pre-development flow estimate for the site at 2-Year $_{Pre}$ = 9.18 L/s and 100-Year $_{Pre}$ = 23.77 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, where upon both laterals are connected directly to the existing Cambridge Street North 375mm

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 combined sewer system. Refer to the proposed site grading and servicing plan Dwg. 821-155 G-1 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 Cambridge Street North 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. #821-155 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

FOUR STOREY APARTMENT BUILDING SITE

LOT 15 WEST CAMBRIDGE STREET NORTH

SOUTH OF STONE BOUNDARY

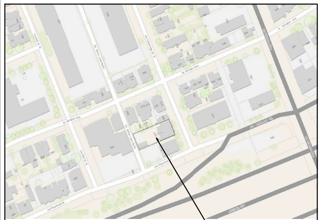
R-PLAN 33

370 CAMBRIDGE STREET NORTH

CITY OF OTTAWA

APPENDIX A

SITE PLAN AND LEGAL SURVEY PLAN



KEY PLAN
NOT TO SCALE

ADDRESS	370 CAMBRIDGE STREET NORTH OTTAWA, ON. K1R 7B7	
LEGAL DESCRIPTION	PART 1 Plan of LOT 15 WEST CAMBRIDGE STREET NORTH, SOUTH OF STONE BOUNDARY	REGISTERED PLAN 33 CITY OF OTTAWA WARD 14, SOMERSET
ZONING	ZONING BY-LAW 2008-250/2020-289 & INFILL PROVISIONS 2020-288 R4UD – MATURE NEIGHBOURHOODS OVERLAY	

LOW-RISE APARTMENT, 9 OR MORE UNITS	ZONING [REQ.]	PROPOSED
MIN. LOT WIDTH	15m	16.63m
MIN. LOT AREA	450m²	627.38m²
MAX. BUILDING HEIGHT	14.5m	14.5m
MIN. FRONT YARD SETBACK	1.5m*	1.57m
MIN. CORNER YARD SETBACK	4.5m	–
MIN. REAR YARD SETBACK	4.5m*	8.95m
MIN. INTERIOR YARD SETBACK	1.5m	1.60m

ZONE PROVISIONS

(8) Except for a lot of less than 450 square metres in area in the R4-UA, R4 UB, R4-UC and R4-UD zones, thirty percent of the lot area must be provided as landscaped area for a lot containing an apartment dwelling, low rise, stacked dwelling, or retirement home, or a planned unit development that contains any one or more of these dwelling types. (By-law 2020-290)

(9) The maximum height of any permitted use may not exceed that which is specified in Column VI of Table 162A, and in no case, may be greater than a maximum four storeys.

(15) In the case of a Three-unit Dwelling, Low-rise Apartment Dwelling or Stacked Dwelling in the R4-UA, R4-UB, R4-UC and R4-UD zones:

(a) Any part of the rear yard not occupied by accessory buildings and structures, permitted projections, bicycle parking and aisles, hardscaped paths of travel for waste and recycling management, pedestrian walkways, patios, and permitted driveways, parking aisles and parking spaces, must be softly landscaped.

(b) The minimum area of soft landscaping per (a) must be:
(i) in the case of a lot of less than 360 square metres in area, at least 35 square metres
(ii) in the case of a lot equal to or greater than 360 square metres but less than 450 square metres in area, at least 50 square metres
(iii) in the case of a lot 450 square metres or greater, at least 50 per cent of the rear yard
(iv) in all cases, must comprise at least one aggregated rectangular area of at least 25 square metres and whose longer dimension is not more than twice its shorter dimension, for the purposes of tree planting.

(c) Any part of any yard other than the rear yard not occupied by accessory buildings and structures, permitted projections, bicycle parking and aisles, hardscaped paths of travel for waste and recycling management, pedestrian walkways, permitted driveways and parking exclusion fixtures per (e) must be softly landscaped.

(d) The minimum area of soft landscaping in the front yard is per Table 161:
Table 161
Front Yard Setback | 1.5 metres -three metres
Minimum Aggregated Soft Landscaped Area (% of the Front Yard Area) | 20%

(e) The front yard and corner side yard must be equipped with solid, permanent fixtures sufficient to prevent motor vehicle parking in contravention of this By-law, and for greater clarity:
(i) such parking exclusion fixtures may include bicycle racks, benches, bollards, ornamental fences or garden walls, raised planters, trees, wheelchair lifting devices, wheelchair lifting devices or some combination thereof; and
(ii) raised planters are deemed to be soft landscaping for the purposes of (c) and (d).

(f) At least one principal entrance to a ground-floor unit or to a common interior corridor or stairwell must be located on the facade and provide direct access to the street, and furthermore:

(i) in the case of a corner lot, the principal entrance may be located on front or corner facade; and
(ii) in the case of a lot of 24 metres width or greater, one principal entrance is required for every 12 metres of lot width or part thereof.

(g) The front facade must comprise at least 25 per cent windows, and furthermore,
(i) any corner side facade must comprise at least 15 per cent windows;
(ii) windows located in doors may count towards the minimum fenestration requirement; and
(iii) Any window counted towards the minimum fenestration requirement, other than windows in doors or at the basement level, must have a lower sill no higher than 100 centimetres above the floor level.

(h) At least 20 per cent of the area of the front facade must be recessed an additional 0.6 metres from the front setback line.

(j) Despite (h), no additional recession of the front facade is required when balconies or porches are provided on the front or corner side facade as follows:
(i) in the case of a lot of less than 15 metres width, one balcony or porch for each storey at or above the first storey is provided;
(ii) in the case of a lot of 15 metres width or greater, one balcony or porch for every unit that faces a public street at or above the first storey; and
(iii) in any case each balcony or porch must have a horizontal area of at least two square metres.

(o) No rooftop amenity space is permitted within the area shown on Schedule 383. (By-law 2020-290)

(16) In the case of a Low-rise Apartment Dwelling or Stacked Dwelling in the R4-UA, R4-UB, R4-UC and R4-UD zones
(a) No motor vehicle parking is permitted on a lot less than 450 square metres in area.
(b) In the case of a lot of 450 square metres or greater
(i) at least 25 per cent of dwelling units must have at least two bedrooms; and
(ii) the calculation of (i) may be rounded down to the nearest whole number.

Section 135 — Through lots in Residential Zones
(1) In the case of a residentially-zoned through lot, or corner through lot, the minimum required front yard setback applies to both the front and rear lot lines, in accordance with the provisions of the Residential zone or zones in which such lot is located and the minimum required rear yard setback does not apply.

Section 137 — Amenity Area
Table 137 (11) – No amenity are required in R4-UA, R4-UB, R4-UC and R4-UD zones.

Section 139 — Front Yard and Corner Side Yard Landscaping
Table 139 – Minimum Required Aggregated Soft Land Landscaping
Front Yard Setback | 1.5 m – less than 3 m
Minimum Aggregated Soft Landscaped Area (% of the Front Yard Area) | 20%

Walkways
(4) A walkway located in a front yard or corner side yard is permitted subject to the following:
(c) The width of a walkway may not exceed:
(i) In the case of a rooming house, retirement home, stacked dwelling or low-rise apartment dwelling, 1.8 m;
(d) A walkway may traverse an area required for soft landscaping per Table 139(1), and may be included in the calculated area.

Section 144 — Front Yards and Corner Side Yard Setbacks
(1) The minimum front yard setbacks and minimum corner side yard setbacks are as follows:
(a) In the case of an interior lot or through lot, the yard setback must align with the average of the abutting lots corresponding yard setback abutting the street(s).
(d) Despite the foregoing, the minimum front and/or corner side yard setback need not exceed the minimum required in the Residential subzone in which the lot is located, and in no case may be less than 1.5 m.

MINOR VARIANCES REQUESTED:

A) TO PERMIT A TOTAL OF 4 PARKING SPACES, WHEREAS THE BY-LAW REQUIRES A MINIMUM OF 5 PARKING SPACES (4 RESIDENTS SPACES PLUS 1 VISITOR SPACE.)

VEHICLE PARKING:

SCHEDULE 1A | AREA X: INNER URBAN

SECTION 101 – MINIMUM PARKING SPACE RATES
(1) Within the areas shown as Areas B, C, D, X and Y on Schedule 1A, off-street motor vehicle parking must be provided for any land use at the rate set out in Table 101 below.
(3) Despite Subsection (1), within the area shown as Area X on Schedule 1A:
(a) In the case of a building containing residential uses, no off-street motor vehicle parking is required to be provided under this section for the first twelve dwelling units and the parking requirements under Table 101 apply only to dwelling units and rooming units in excess of 12.

Table 101– MINIMUM PARKING SPACE RATES | ROW R11
Land Use = Dwelling, Low-rise Apartment
Area X and Y on Schedule 1A = 0.5 per dwelling unit

SECTION 102 – MINIMUM VISITOR PARKING SPACE RATES
(1) Within the areas shown as Areas B, C, D, X, Y and Z on Schedule 1A, in addition to the parking required under Section 101, off-street visitor motor vehicle parking must be provided for dwelling units at the rate set out in Table 102.
(2) Despite (1), within Areas B, X, Y and Z, no visitor parking spaces are required for the first twelve dwelling units on a lot.

Table 102– MINIMUM VISITOR PARKING SPACE RATES
Land Use | Apartment dwelling, low-rise or mid-high-rise
Area X and Y on Schedule 1A | 0.1 per dwelling unit

SECTION 111 – BICYCLE PARKING SPACE RATES AND PROVISIONS

Table 111A – Bicycle parking space rates
Land use | (b) (i)) apartment building, low rise; apartment dwelling, mid rise; apartment dwelling, high rise, dwelling unit in the same building as a non-residential use; stacked dwelling without a garage or carport for each dwelling unit
Minimum number of spaces required | 0.50 per dwelling unit

LOT DETAILS:

LOT FRONTAGE (CAMBRIDGE): 16.64m
LOT DEPTH: 37.87m
LOT AREA: 627.38

TOTAL LANDSCAPED AREA: 201.3m² (32% OF LOT AREA)
[REQ. 30%]

FRONT YARD AREA: 24.9m²
AREA OF SOFT LANDSCAPING: 19.5m² (78.3% OF FRONT YARD AREA)
[REQ. 20%]

REAR YARD AREA: 149.1m²
AREA OF SOFT LANDSCAPING: 75.3m² (50.5% OF REAR YARD AREA) [REQ. 50%]

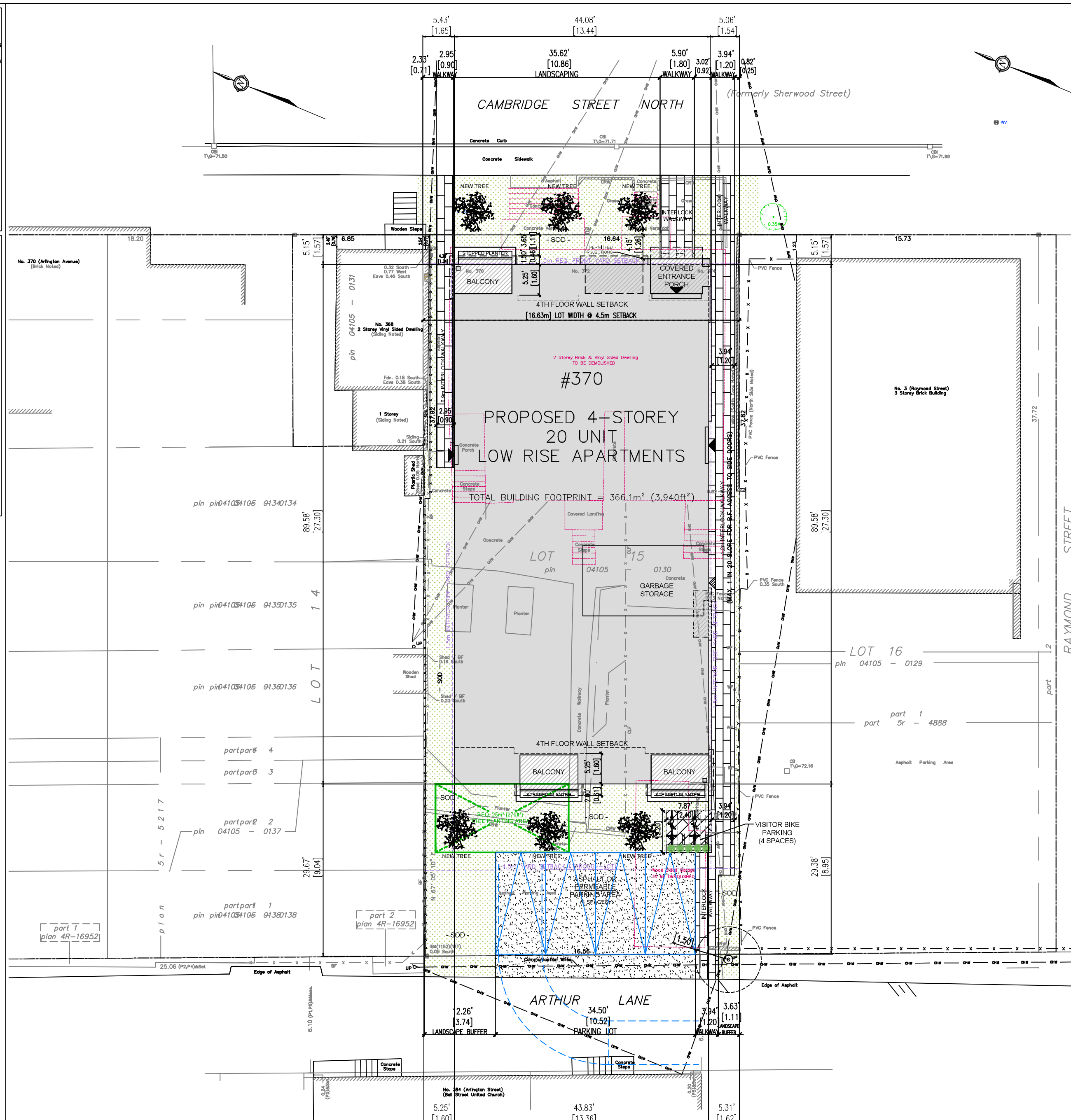
4 SURFACE PARKING SPACES ACCESSED FROM REAR LANE

BUILDING DETAILS:

BUILDING HEIGHT: 14.5m (4-STORIES)
BUILDING FOOTPRINT: 366.1m²
FEATURES:
FLUSH ENTRANCE, SPLIT-LEVEL MAIN FLOOR/BASEMENT
DOUBLE-SIDED ELEVATOR
INTERIOR GARBAGE ROOM
INTERIOR BIKE ROOMS (18 SPACES)
INDIVIDUAL BALCONIES ALL UNITS EXCEPT BACHELORS

UNIT DETAILS:

2: BACHELOR UNITS
10: 1-BEDROOM UNITS (2 B.F.)
8: 2-BEDROOM UNITS (1 B.F.)



PROPOSED SITE PLAN

SCALE: 1:100

MIROCA DESIGN
INCORPORATED SINCE 1986
CUSTOM HOME DESIGN
PROJECT MANAGEMENT
30 CONCOURSE GATE
UNIT 47
OTTAWA, ONTARIO
K2E 7V7
TEL: 613-274-2653
FAX: 613-274-7085
CONTACT@MIROCADESIGN.COM
WWW.MIROCADESIGN.COM

CELEBRATING 35 YEARS
DESIGN•BUILD

GENERAL NOTES:

1. THE GENERAL CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND REPORT ALL ERRORS AND OMISSIONS TO THE CONSULTANT.

2. ALL WORK AND MATERIALS TO BE IN COMPLIANCE WITH ALL CODES, REGULATIONS, AND BY-LAWS.

3. FOOTINGS DESIGNED FOR 2000 P.S.F. ASSUMED BEARING. BEARING STRATA, GRANULAR MATERIAL AND COMPACTION TO BE INSPECTED AND APPROVED BY SOILS CONSULTANT PRIOR TO POURING CONCRETE.

4. DO NOT SCALE THE DRAWINGS.

No.	DESCRIPTION & DATE
1	

REVISIONS

JOB TITLE:
370 CAMBRIDGE ST. NORTH
OTTAWA, ON.
PROPOSED 4-STOREY LOW-RISE APARTMENT BUILDING

SHEET TITLE:
PROPOSED SITE PLAN

SCALE:	AS SHOWN
DRAWN:	M.D.
CHECKED:	
DATE:	AUGUST 2022
PRINT DATE:	8/9/2022

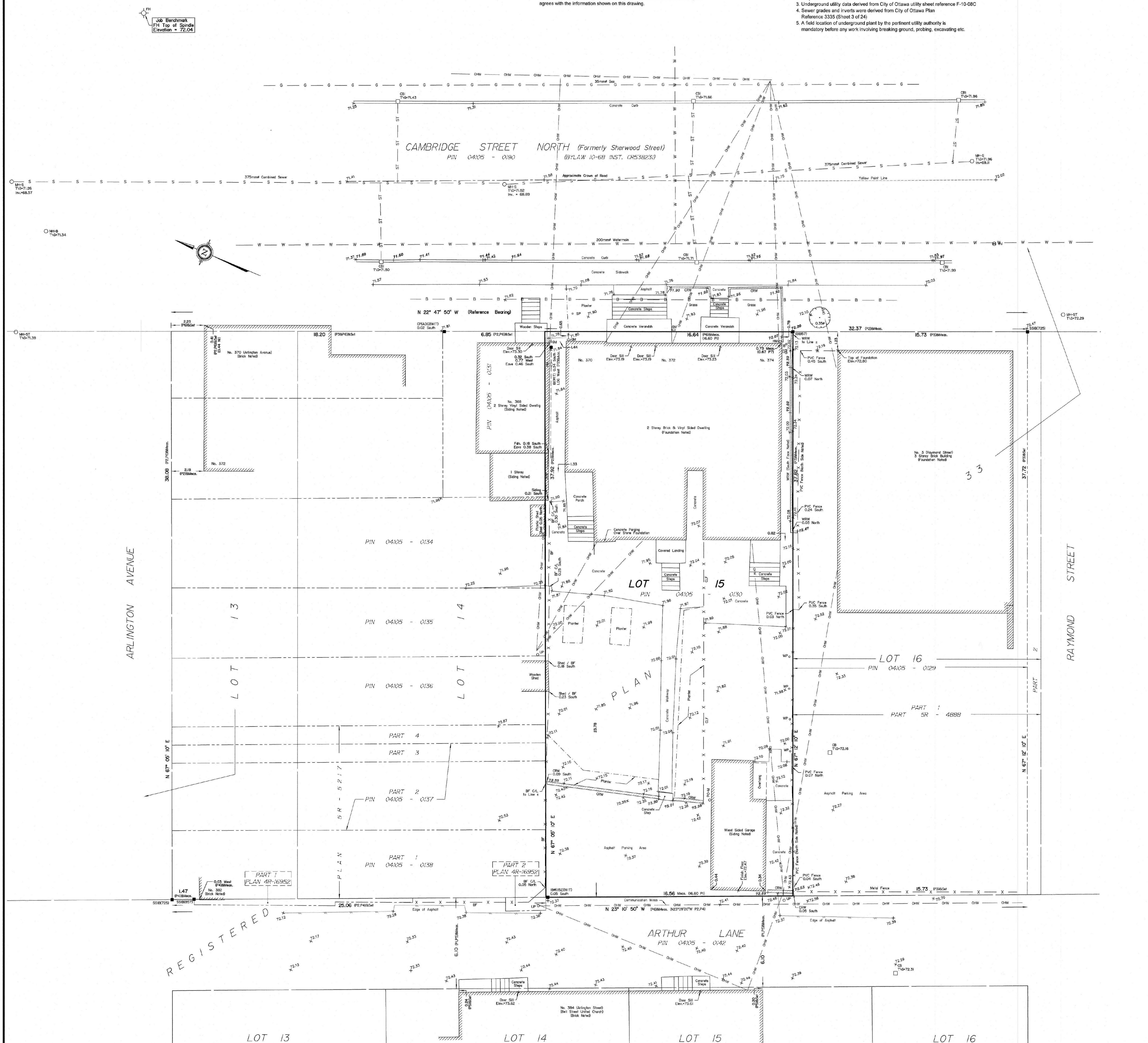
DWG NO.
S1.1

ELEVATION NOTES

1. Elevations shown are geodetic and are referred to the CGVD28 geodetic datum, derived from City of Ottawa vertical control monument No. 3603 having an elevation of 76.959 metres.
2. It is the responsibility of the user of this information to verify that the job benchmark has not been altered or disturbed and that it's relative elevation and description agrees with the information shown on this drawing.

UTILITY NOTES

1. This drawing cannot be accepted as acknowledging all of the utilities and it will be the responsibility of the user to contact the respective utility authorities for confirmation.
2. Only visible surface utilities were located.
3. Underground utility data derived from City of Ottawa utility sheet reference F-10-08C
4. Sewer grades and inverts were derived from City of Ottawa Plan Reference 3335 (Sheet 3 of 24)
5. A field location of underground plant by the pertinent utility authority is mandatory before any work involving breaking ground, probing, excavating etc.



SURVEYOR'S REAL PROPERTY REPORT

PART 1 Plan of LOT 15 WEST CAMBRIDGE STREET NORTH SOUTH OF STONE BOUNDARY REGISTERED PLAN 33 CITY OF OTTAWA

Surveyed by Annis, O'Sullivan, Vollebekk Ltd.

Scale 1 : 100

4 3 2 1 0 2 4 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 25th day of March, 2021.

April 19, 2021
Date

E. H. Herweyer
Ontario Land Surveyor

PART 2
THIS PLAN MUST BE READ IN CONJUNCTION WITH SURVEY REPORT DATED: April 19, 2021

ANNIS, O'SULLIVAN, VOLLEBEKK LTD. grants to 2250276 Ontario Inc. ("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
(WIT)	"	Witness
Meas.	"	Measured
(AOG)	"	Annis, O'Sullivan, Vollebekk Ltd.
(P1)	"	Registered Plan 33
(P2)	"	(AOG) Plan July 30, 2007
(P3)	"	Plan 5R-4888
(P4)	"	Plan 4R-16952
(P5)	"	(857) Plan February 2, 1995
(P6)	"	(671) Plan January 10, 1985
(P7)	"	(857) Plan June 8, 1972
(N1)	"	Field Notes (632) Field book 159-123
○ MH-ST	"	Maintenance Hole (Storm Sewer)
○ MH-S	"	Maintenance Hole (Sanitary)
— ST —	"	Underground Storm Sewer
— S —	"	Underground Sanitary Sewer
— W —	"	Underground Water
— G —	"	Underground Gas
— OHW —	"	Overhead Wires
— B —	"	Underground Bell
○ UP	"	Utility Pole
□ CBI	"	Catch Basin Inlet
○ FH	"	Fire Hydrant
Inv:	"	Invert
T/G	"	Top of Grate
▭ GM	"	Gas Meter
▭ HM	"	Hydro Meter
▭ GM	"	Gas Meter
▭ HM	"	Hydro Meter
◌	"	Deciduous Tree
○ B	"	Bollard
○ PO-M	"	Metal Pole
Ø	"	Diameter
+ 65.00	"	Location of Elevations
+ 65.00	"	Top of Concrete Curb / Retaining Wall Elevation
C/L	"	Centreline
CLF	"	Chain Link Fence
BF	"	Board Fence
PVC	"	Plastic Fence
CRW	"	Concrete Retaining Wall
WRW	"	Wooden Retaining Wall

Bearings are grid, derived from...and are referred to the Central Meridian of MTM Zone 9 (76°30' West Longitude) NAD-83 (original).
For bearing comparisons, a rotation of 0°30'50" counter-clockwise was applied to bearings on P2, P3, P4 & P6.

ASSOCIATION OF ONTARIO LAND SURVEYORS
PLAN SUBMISSION FORM
V-11460

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
Email: Nepean@aovltd.com
Ontario Land Surveyors

Job No. 21327-21 Lt 15 PL33 T F | FS

PROPOSED

FOUR STOREY APARTMENT BUILDING SITE

LOT 15 WEST CAMBRIDGE STREET NORTH

SOUTH OF STONE BOUNDARY

R-PLAN 33

370 CAMBRIDGE STREET NORTH

CITY OF OTTAWA

APPENDIX B

SITE PRE-DEVELOPMENT CONDITION

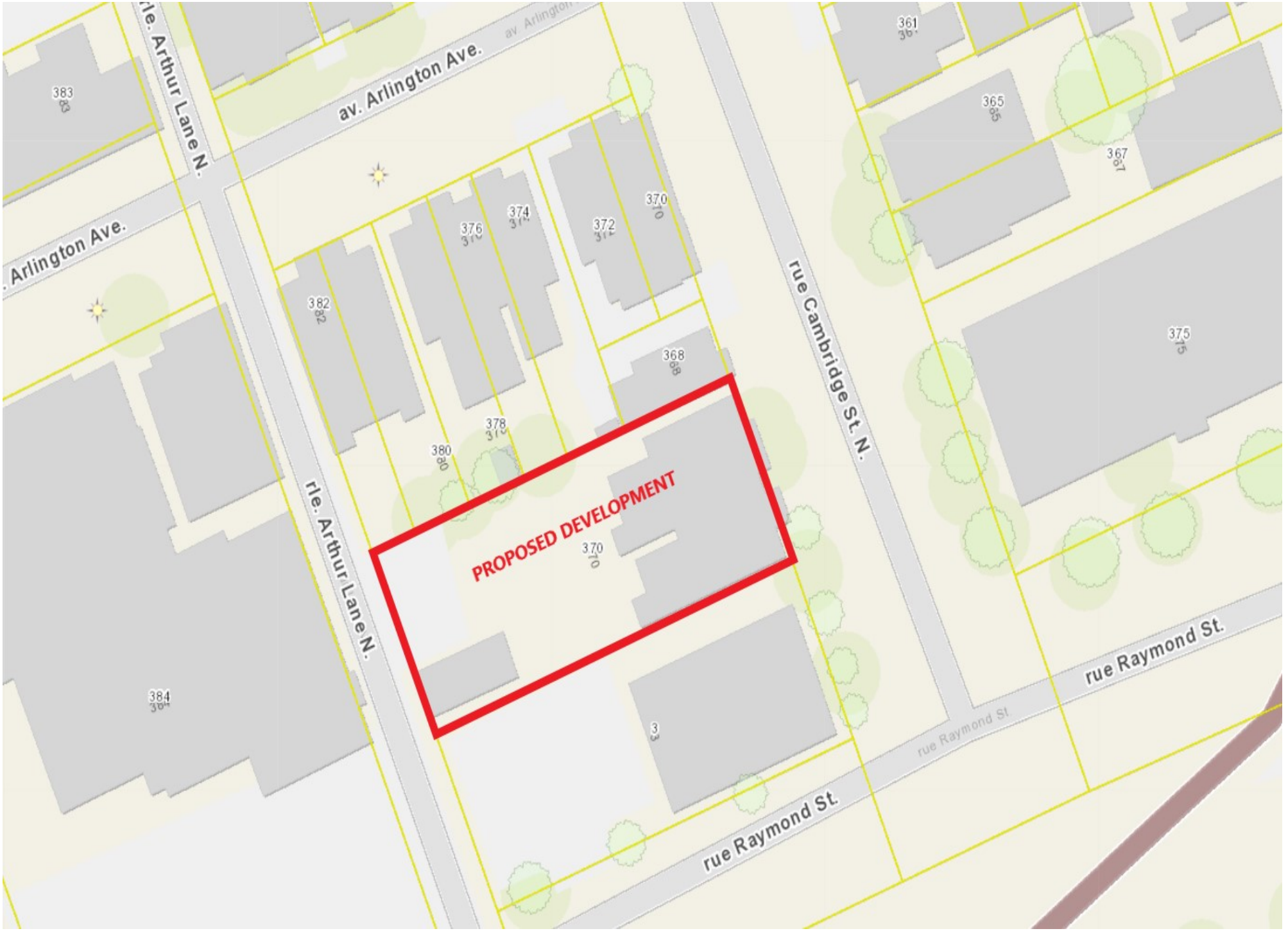
GOOGLE IMAGE (2019)

AND

AERIAL PHOTOGRAPHY 2021 (GEOOTTAWA)


Help us become guide dogs
GUIDE DOGS
1-800-563-2642
cnibguidedogs.ca
© 2021 Google

2019


av. Arlington Ave.
rle. Arthur Lane N.
rue Cambridge St. N.
rue Raymond St.
PROPOSED DEVELOPMENT
383
382
376
374
372
370
368
378
380
384
361
365
367
375

2021


av. Arlington Ave.
rle. Arthur Lane N.
rue Cambridge St. N.
rue Raymond St.
rue Raymond St.
PROPOSED DEVELOPMENT
383
382
376
374
372
370
368
378
380
370
384
3
361
365
367
375

2021

PROPOSED

FOUR STOREY APARTMENT BUILDING SITE

LOT 15 WEST CAMBRIDGE STREET NORTH

SOUTH OF STONE BOUNDARY

R-PLAN 33

370 CAMBRIDGE STREET NORTH

CITY OF OTTAWA

APPENDIX C

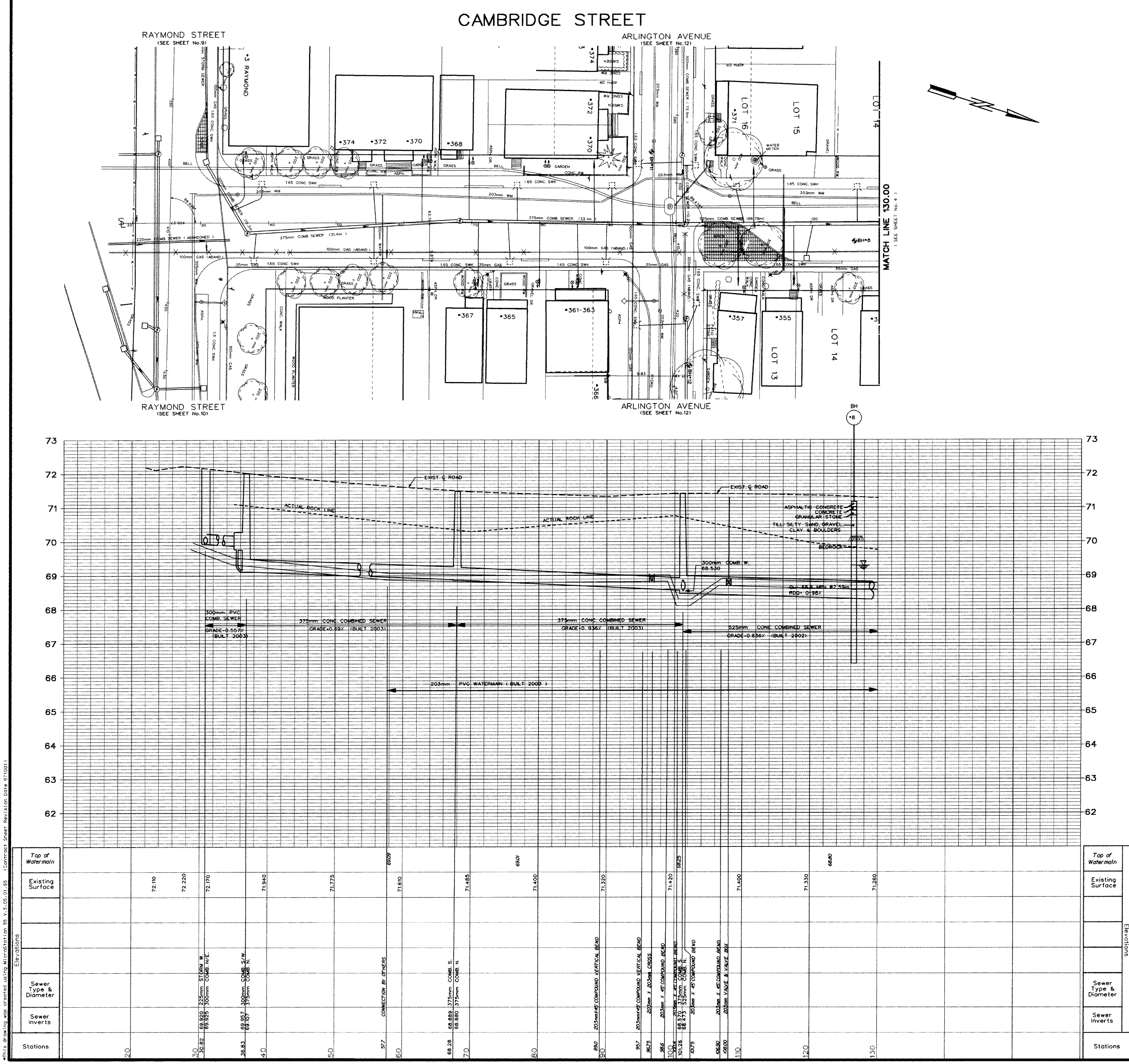
CAMBRIDGE STREET NORTH

CITY OF OTTAWA

PLAN AND PROFILE

AND

UCC DRAWINGS



Revisions:				
No.	Date	Description	Drawn By	Approved By

Design:

Designed By ISHWAR BHATIA P.ENG.	Date	Checked By	Date
Survey Detail By J. PINHEY J. FRANCE	Date	Field Checked By	Date
Drafting By K. LAROSE J. FRANCE R. LESTER	Date	Checked By	Date

LICENSED PROFESSIONAL ENGINEER I. BHATIA PROVINCE OF ONTARIO

ROAD & SEWER

Construction Services Manager
WAYNE BENNETT P.ENG.

Final Measurement & Asbuilt Information

Construction Type: Sewer, Watermain, Sidewalks, Road	Inspector: John France
Work Commenced: July 15,2002	Project Manager: Ishwar Bhatia
Work Completed: Sept./03	Field Book *
Contractor: GRAYDEX OTTAWA INC.	Date
Drafting Revisions: John France — Date: Jan/03	Checked By

As-Built Notes:

1. Soil information taken from : Neil Levac Engineering Ltd. (2001)
2. This plan supercedes (in whole or in part) plan *1855,1994,E05b,A06, B19,E07b,F39g>
3. While illustrations and utilities shown are taken from the best available information, they cannot be guaranteed.
4. The actual rock line was recorded during construction of the existing Sewer & Watermain
5. Boreholes taken prior to construction.
6. See typical cross sections for road structure material depths.
7. Ministry of Environment Approval* Sewer 0279-5AKJCT Water 5281-5AKJ5U

Legal Survey Notes:

Boundary information shown hereon has been compiled and calculated from Teranet data and not based on an actual survey.

Distances shown to survey monuments are for reference purposes only, survey monuments may not define property boundaries.

THIS IS NOT A PLAN OF SURVEY

This plan was compiled from plans and documents recorded in the Land Registry System and has been prepared for property indexing purposes only.

Ottawa

Transportation, Utilities and Public Works
Infrastructure Services Branch
110 LAURIER AVENUE WEST, OTTAWA, ONTARIO. K1P 1J1

Rosemarie Leclair General Manager	**Richard Hewitt, P.Eng.** Branch Director

CAMBRIDGE STREET

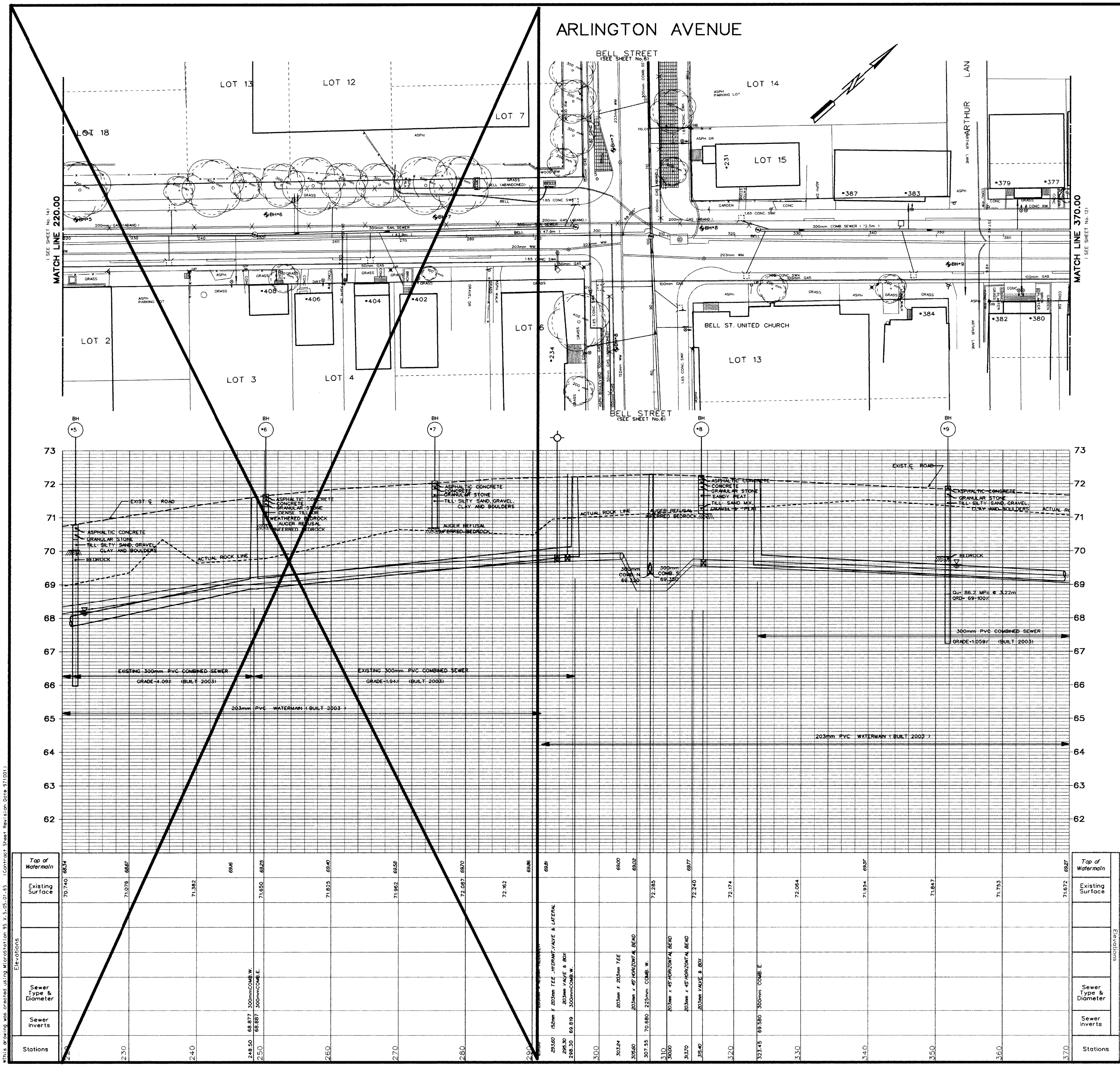
RAYMOND STREET TO STA. 130.00

Contract No:	Survey Books:	Scales: (See note)	Plan No:
02-3335		HOR. 1:250 VERT. 1:50	3335 Sheet 3 of 24

Filename: 3335S3C.DGN
Reference: OTTEBDR 3335B.DGN 3335P.DGN 3335BPC.DGN 3335PPC.DGN

*This drawing was created using MicroStation 95 V.5.05.01.65 (Contract Sheet Revision Date 971001)

3335 ARLINGTON AVENUE



Revisions:

No.	Date	Description	Drawn By	Approved By

Design:

Designed By ISHWAR BHATIA P.ENG.	Date	Checked By	Date
Survey Detail By J. PINHEY J. FRANCE	Date	Field Checked By	Date
Drafting By K. LAROSE J. FRANCE R. LESTER	Date	Checked By	Date

LICENSED PROFESSIONAL ENGINEER I. BHATIA PROVINCE OF ONTARIO
ROAD & SEWER

Construction Services Manager
WAYNE BENNETT P.ENG.

Final Measurement & Asbuilt Information

Construction Type: Sewer, Watermain, Sidewalks, Road	Inspector: John France
Work Commenced: July 15, 2002	Project Manager: Ishwar Bhatia
Work Completed: Sept./03	Field Book #
Contractor: GRAYDEX OTTAWA INC.	Date
Drafting Revisions: John France	Date: Jan/03 · Checked By

As-Built Notes:

1. Soil information taken from : Neil Levac Engineering Ltd. (2001)
2. This plan supercedes (in whole or in part) plan #1855, 1994, E05b, A06, B19, E07b, F39g
3. While illustrations and utilities shown are taken from the best available information, they cannot be guaranteed.
4. The actual rock line was recorded during construction of the existing Sewer & Watermain
5. Boreholes taken prior to construction.
6. See typical cross sections for road structure material depths.
7. Ministry of Environment Approval* Sewer 0279-5AKJCT; Water 5281-5AKJ5U

Ottawa
Transportation, Utilities and Public Works
Infrastructure Services Branch
110 LAURIER AVENUE WEST, OTTAWA, ONTARIO. K1P 1J1

Rosemarie Leclair, General Manager
Richard Hewitt, P.Eng., Branch Director

ARLINGTON AVENUE
STA.220.00 TO STA.370.00

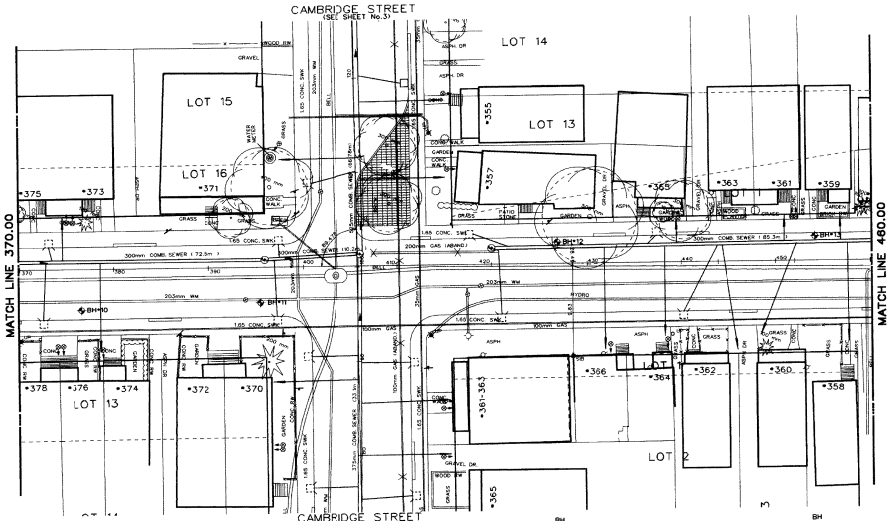
Contract No.	Survey Books	Scales (See note)	Plan No.
02-3335		HOR. 1:250 VERT. 1:50	3335 Sheet 11 of 24

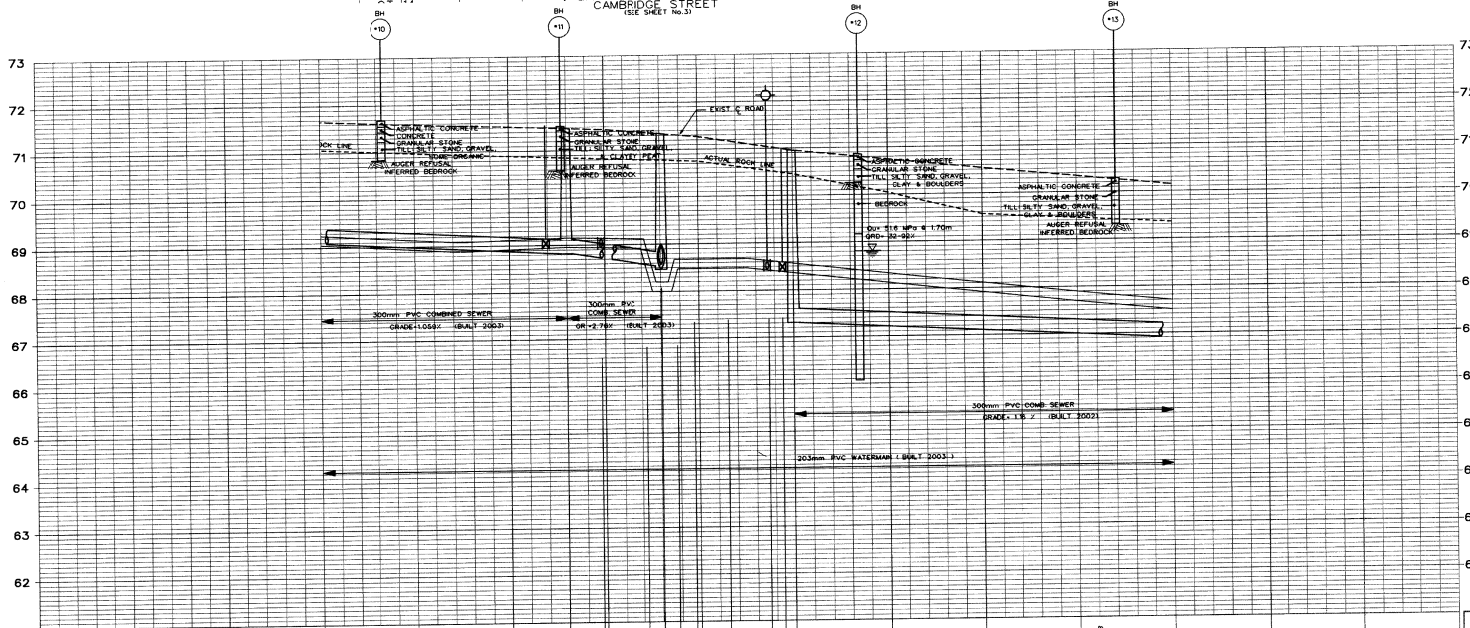
Filename:
Reference:

*This drawing was created using Microstation 95 V.5.05.01.65 (Contract Sheet Revision Date 97/10/01)

3335 ARLINGTON AVENUE

ARLINGTON AVENUE





Top of Watermain
Existing Surface
Elevations
Sewer Type & Diameter
Sewer Inverts
Stations

Top of Watermain
Existing Surface
Sewer Type & Diameter
Sewer Inverts
Stations

*this drawing was created using Microstation 95 V 5.05.01.65 (Contract Sheet Revision Date 9/1/00)

Revisions:

No	Date	Description	Drawn By	Approved By

Design:

Designed By: ISHWAR BHATIA P.ENG.	Date	Checked By	Date
Survey Detail By: J. FRANCE/ J. FRANCE	Date	Field Checked By	Date
Drafting By: K. AROSE J. FRANCE R. LESTER	Date	Checked By	Date

LICENCED PROFESSIONAL ENGINEER I. BHATIA PROVINCE OF ONTARIO

ROAD & SEWER

Construction Services Manager:
WAYNE BENNETT P.ENG.

Final Measurement & Asbuilt Information

Construction Type: Sewer, Watermain, Sidewalks, Road	Inspector: John France
Work Commenced: July 15,2002	Project Manager: Ishwar Bhatia
Work Completed: Sept./03	Field Book #
Contractor: GRAYDEC OTTAWA INC.	Date
Drafting Revisions: John France Date: 2003/03	Checked By

As-Built Notes:

1. Soil information taken from : Neil Levac Engineering Ltd. (2001)
2. This plan supercedes (in whole or in part) plan #1855,1994,E05b,A06, B19,E07b,F39g)2
3. While illustrations and utilities shown are taken from the best available information, they cannot be guaranteed.
4. The actual rock line was recorded during construction of the existing Sewer & Watermain
5. Boreholes taken prior to construction.
6. See typical cross sections for road structure material depths.
7. Ministry of Environment Approval* Sewer 0279-5AKJCT Water 5281-5AKJ5U

Legal Survey Notes:

Boundary information shown hereon has been compiled and calculated from Teranet data and not based on an actual survey.

Distances shown to survey monuments are for reference purposes only, survey monuments may not define property boundaries.

Ottawa

Transportation, Utilities and Public Works
Infrastructure Services Branch
110 LAURIER AVENUE WEST, OTTAWA, ONTARIO. K1P 1J1

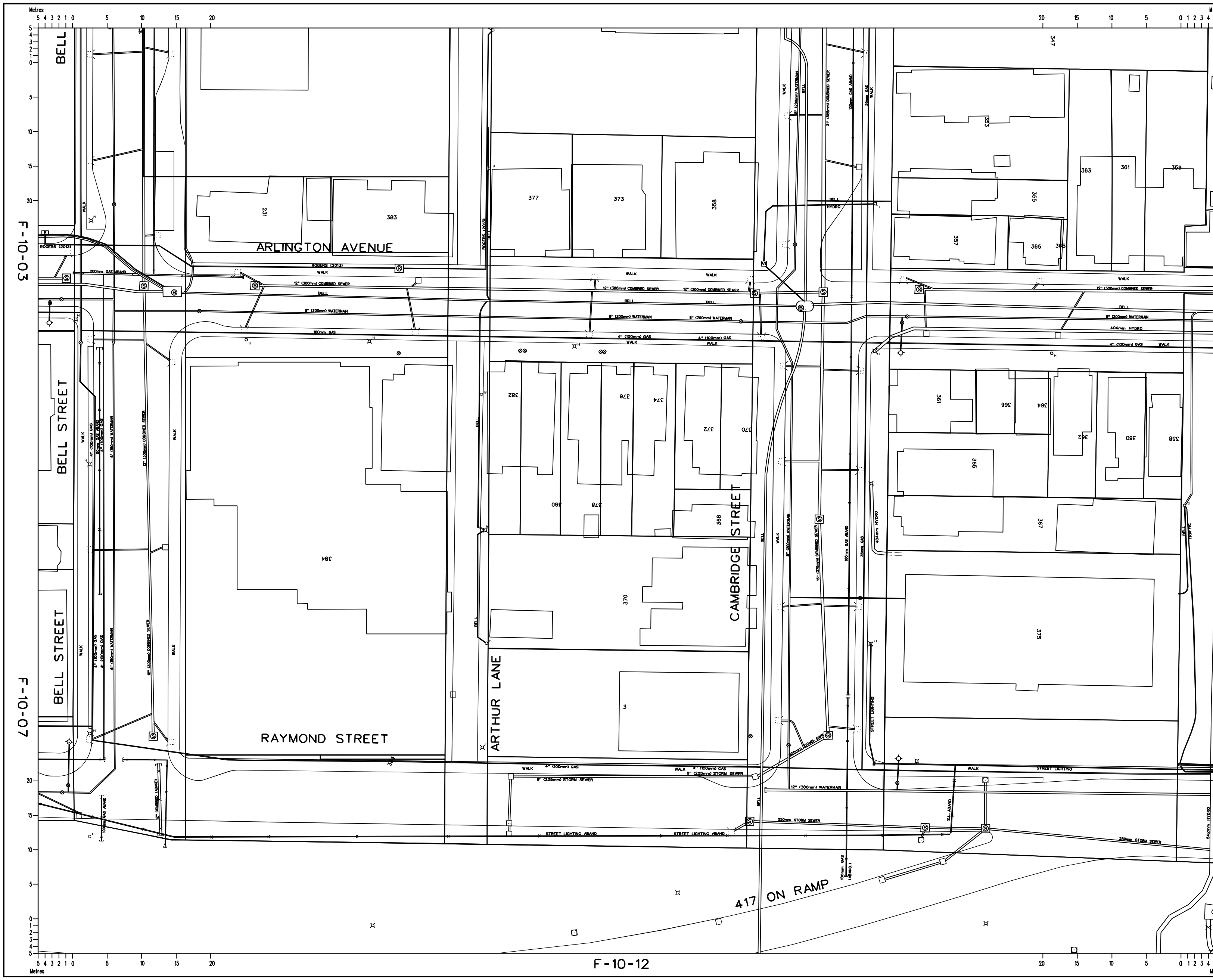
Rosemarie Leclair, General Manager
Richard Hewitt, P.Eng., Branch Director

ARLINGTON AVENUE

STA.370.00 TO STA.460.00

Contract No:	Survey Books:	Scales: (See note)	Plan No:
02-3335		HOR. 1:250 VERT. 1:50	3335
			Sheet 12 of 24

File name:
Reference:



REVISIONS / RÉVISIONS	DATE	BY
3335 - ARLINGTON (Booth to Bronson, DEC. 2003) SEWER, WATER, ROAD REV ON ARLINGTON	SEPT. 04	DC
3335 - CAMBRIDGE N. (Gladstone - Raymond, DEC. 2003) SEWER, WATER, ROAD REV ON CAMBRIDGE N.	SEPT. 04	DC
TU5417 - TRAFFIC (AUG. 1999) TRAFFIC REVIESED @ BRONSON & RAYMOND	SEPT. 04	DC
6.8109917-ENBRIDGE (APR 2012) GASMAIN ADDED/ABAND ON BRONSON	NOV 2016	JM
BEL11037-BELL (JUN 2013) BELL VERIFIED ON BRONSON	NOV 2016	JM
15829-BRONSON (FEB 2014) CITY SERVICES UPDATED ON BRONSON	NOV 2016	JM
HYDRO, BELL, ENBRIDGE, ROGERS, CITY SEWER, WATER, TRAFFIC, SL COMPILED/DIGITIZED FROM UTILITY/CITY DATA	NOV 2016	JM

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 Connect Box / Disconnect Box, SL Disconnect
- R.L Hand Hole, R.L Camera
- Scada: Hand Hole, Monitoring Panel
- Reducer
- Pipe, Duct, Conduit, Lateral
- Culvert
- Abandoned
- Capped
- Buried Cable
- Property Line
- Install Year (2015)

TELECOM GLOSSARY

A....Allstream
AT....Atria
B....Bell
BH....Birch Hill
F....Fibre Noir
G....Glocility
GT....Group Telecom
H....Hydro Ottawa
H1....Hydro One
L / L3....Level 3
P....Primus
P2P....Canadian P2P Fibre
R....Rogers
S....Sprint
SL....Street Lighting
T....Traffic
TO....Telecom Ottawa
TU....Telus
V....Videotron
Z....Zayo

GLOSSARY - OTHER

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

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 generale de la planification, de l'infrastructure et du developpement economique
100 Constellation Cres., 6th 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

UTILITY COORDINATING COMMITTEE UCC Ottawa CCSP

PRODUCED BY: GIS & DATA MANAGEMENT BRANCH INFORMATION CENTRE UNIT

SCALE: 1:250

SHEET NUMBER
F-10-08C

PROPOSED

FOUR STOREY APARTMENT BUILDING SITE

LOT 15 WEST CAMBRIDGE STREET NORTH

SOUTH OF STONE BOUNDARY

R-PLAN 33

370 CAMBRIDGE STREET NORTH

CITY OF OTTAWA

APPENDIX D

CITY OF OTTAWA

- **ELEVATION CONTOURS (FIGURE 1)**
- **SITE SURVEY PLAN**
- **SITE PLAN AND ARCHITECTURAL DRAWINGS**
- **OFM FIRE FLOW CALCULATIONS**
- **OFM EXPOSURE DISTANCES (FIGURE 2)**
- **WATER DATA BOUNDARY CONDITIONS**
- **SUPPORTING HYDRAULIC CALCULATIONS**
- **HYDRANT SPACING (FIGURE 3)**

ATTACHMENT 1 : FIGURE 1 – ELEVATION CONTOURS

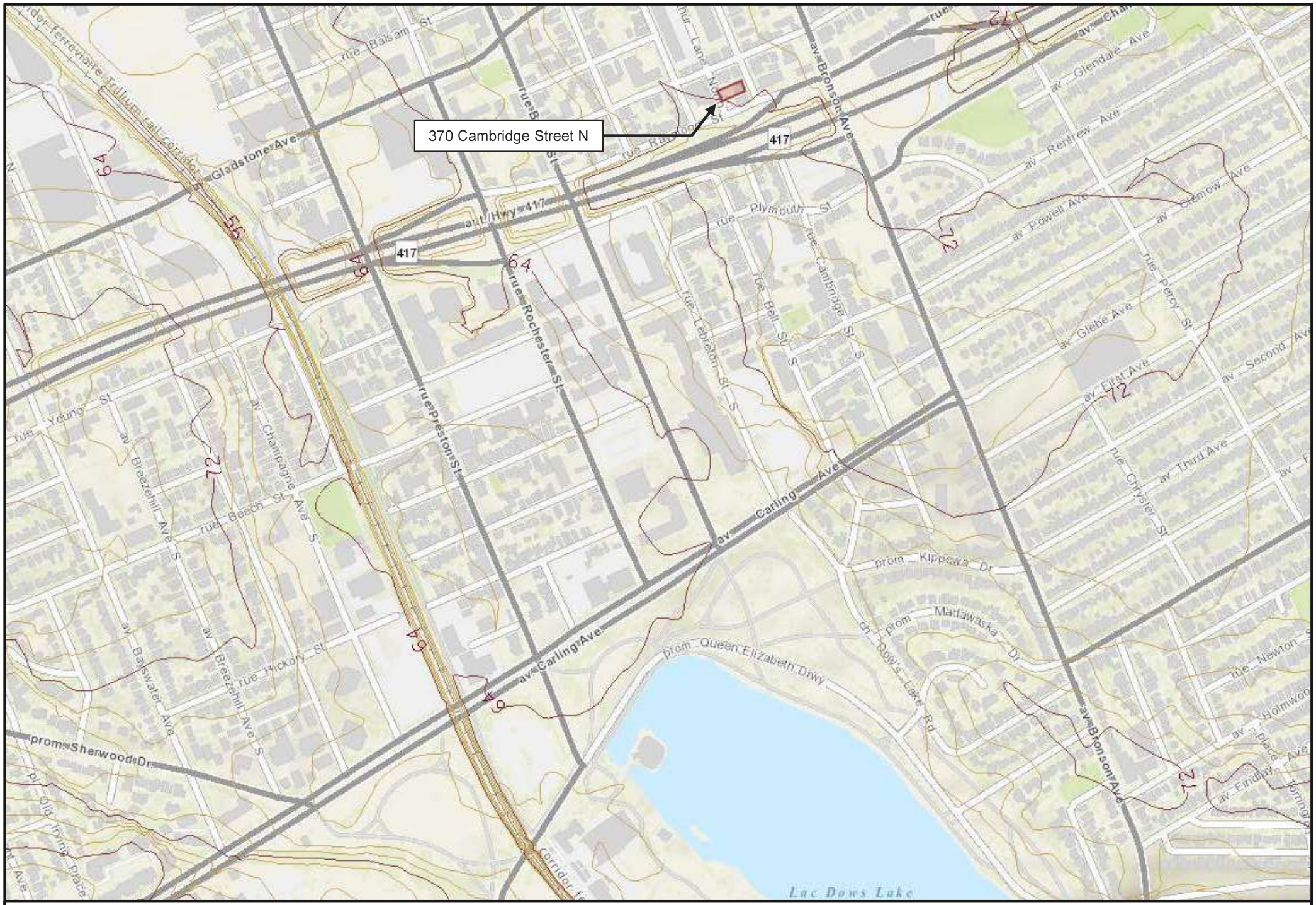


Figure 1: Elevation Contours

Source: geoOttawa 2022; *Contains information licensed under the Open Government Licence – City of Ottawa.*

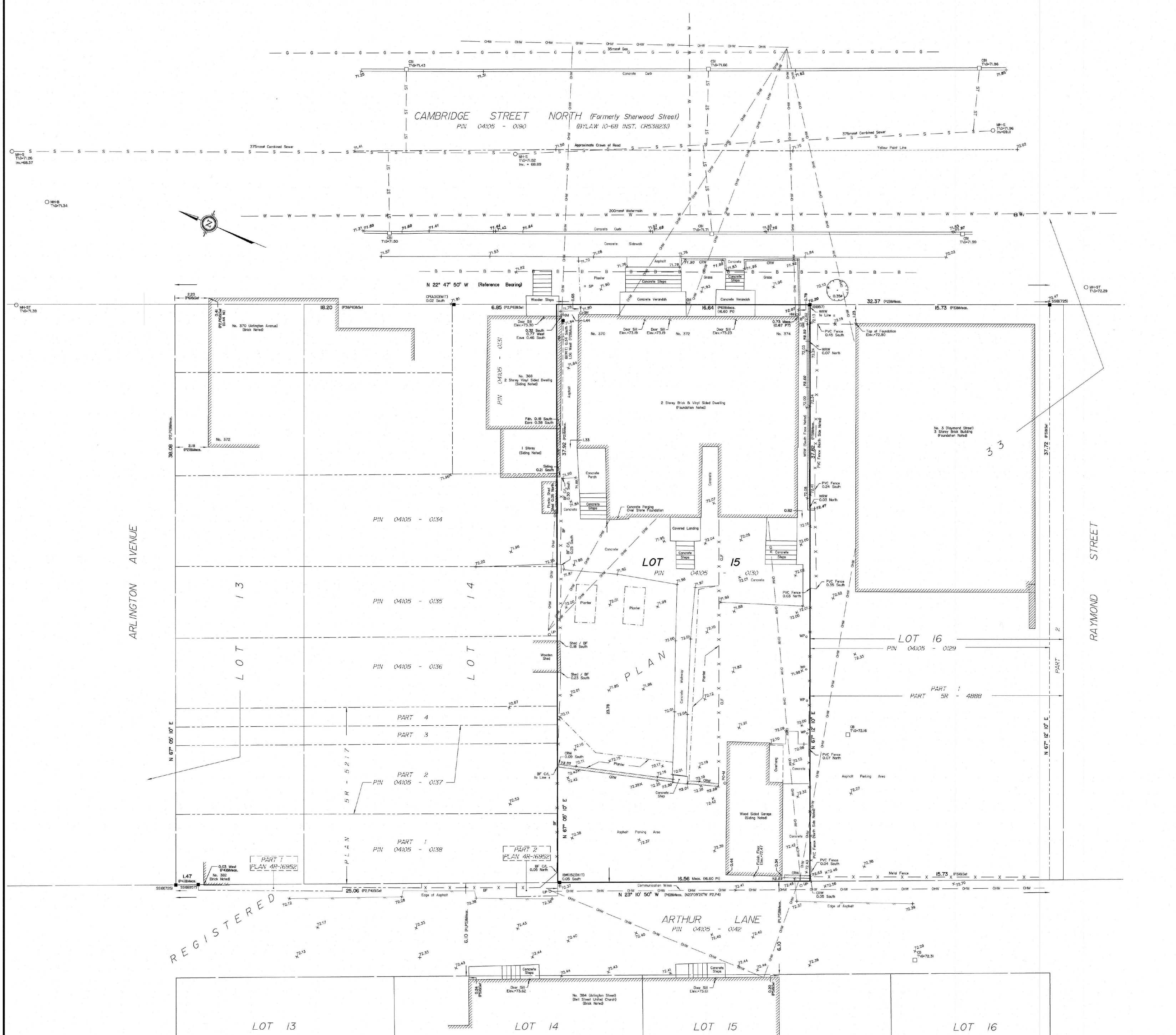
ATTACHMENT 2 : SITE SURVEY PLAN

ELEVATION NOTES

1. Elevations shown are geodetic and are referred to the CGVD28 geodetic datum, derived from City of Ottawa vertical control monument No. 3603 having an elevation of 76.959 metres.
2. It is the responsibility of the user of this information to verify that the job benchmark has not been altered or disturbed and that it's relative elevation and description agrees with the information shown on this drawing.

UTILITY NOTES

1. This drawing cannot be accepted as acknowledging all of the utilities and it will be the responsibility of the user to contact the respective utility authorities for confirmation.
2. Only visible surface utilities were located.
3. Underground utility data derived from City of Ottawa utility sheet reference F-10-08C
4. Sewer grades and inverts were derived from City of Ottawa Plan Reference 3335 (Sheet 3 of 24)
5. A field location of underground plant by the pertinent utility authority is mandatory before any work involving breaking ground, probing, excavating etc.



SURVEYOR'S REAL PROPERTY REPORT

PART 1 Plan of
LOT 15
WEST CAMBRIDGE STREET NORTH
SOUTH OF STONE BOUNDARY
REGISTERED PLAN 33
CITY OF OTTAWA

Surveyed by Annis, O'Sullivan, Vollebekk Ltd.

Scale 1 : 100

4 3 2 1 0 2 4 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 25th day of March, 2021.

April 19, 2021
Date

E. H. Herweyer
Ontario Land Surveyor

PART 2
THIS PLAN MUST BE READ IN CONJUNCTION WITH SURVEY REPORT DATED: April 19, 2021

ANNIS, O'SULLIVAN, VOLLEBEKK LTD. grants to 2250276 Ontario Inc. ("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
IB#	"	Round Iron Bar
(WIT)	"	Witness
Meas.	"	Measured
(AOG)	"	Annis, O'Sullivan, Vollebekk Ltd.
(P1)	"	Registered Plan 33
(P2)	"	(AOG) Plan July 30, 2007
(P3)	"	Plan 5R-4888
(P4)	"	Plan 4R-16952
(P5)	"	(657) Plan February 2, 1995
(P6)	"	(671) Plan January 10, 1985
(P7)	"	(657) Plan June 8, 1972
(N1)	"	Field Notes (632) Field book 159-123
○ MH-ST	"	Maintenance Hole (Storm Sewer)
○ MH-S	"	Maintenance Hole (Sanitary)
— ST —	"	Underground Storm Sewer
— S —	"	Underground Sanitary Sewer
— W —	"	Underground Water
— G —	"	Underground Gas
— OHW —	"	Overhead Wires
— B —	"	Underground Bell
○ UP	"	Utility Pole
□ CBI	"	Catch Basin Inlet
○ FH	"	Fire Hydrant
Inv.	"	Invert
T/G	"	Top of Grate
▭ GM	"	Gas Meter
▭ HM	"	Hydro Meter
▭ GM	"	Gas Meter
▭ HM	"	Hydro Meter
◌	"	Deciduous Tree
○ B	"	Bollard
○ PC-M	"	Metal Pole
Ø	"	Diameter
+ 65.00	"	Location of Elevations
+ 65.00	"	Top of Concrete Curb / Retaining Wall Elevation
C/L	"	Centreline
CLF	"	Chain Link Fence
BF	"	Board Fence
PVC	"	Plastic Fence
CRW	"	Concrete Retaining Wall
WRW	"	Wooden Retaining Wall

Bearings are grid, derived from...and are referred to the Central Meridian of MTM Zone 9 (76°30' West Longitude) NAD-83 (original).
For bearing comparisons, a rotation of 0°30'50" counter-clockwise was applied to bearings on P2, P3, P4 & P6.

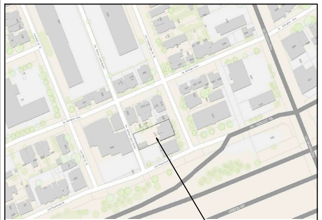
ASSOCIATION OF ONTARIO LAND SURVEYORS
PLAN SUBMISSION FORM
V-11460

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
Email: Nepean@aovltd.com
Ontario Land Surveyors

Job No. 21327-21 Lt 15 PL33 T F | FS

ATTACHMENT 3 : SITE PLAN AND ARCHITECTURAL DRAWINGS



KEY PLAN
NOT TO SCALE

LOCATION OF SUBJECT PROPERTY

ADDRESS	370 CAMBRIDGE STREET NORTH OTTAWA, ON. K1R 7B7	
LEGAL DESCRIPTION	PART 1 Plan of LOT 15 WEST CAMBRIDGE STREET NORTH, SOUTH OF STONE BOUNDARY	REGISTERED PLAN 33 CITY OF OTTAWA WARD 14, SOMERSET
ZONING	ZONING BY-LAW 2008-250/2020-289 & INFILL PROVISIONS 2020-288 R4UD – MATURE NEIGHBOURHOODS OVERLAY	

LOW-RISE APARTMENT, 9 OR MORE UNITS	ZONING [REQ.]	PROPOSED
MIN. LOT WIDTH	15m	16.63m
MIN. LOT AREA	450m²	627.38m²
MAX. BUILDING HEIGHT	14.5m	14.5m
MIN. FRONT YARD SETBACK	1.5m*	1.57m
MIN. CORNER YARD SETBACK	4.5m	–
MIN. REAR YARD SETBACK	4.5m*	8.95m
MIN. INTERIOR YARD SETBACK	1.5m	1.60m

ZONE PROVISIONS

(8) Except for a lot of less than 450 square metres in area in the R4–UA, R4 UB, R4–UC and R4–UD zones, thirty percent of the lot area must be provided as landscaped area for a lot containing an apartment dwelling, low rise, stacked dwelling, or retirement home, or a planned unit development that contains any one or more of these dwelling types. (By-law 2020–290)

(9) The maximum height of any permitted use may not exceed that which is specified in Column VI of Table 162A, and in no case, may be greater than a maximum four storeys.

(15) In the case of a Three-unit Dwelling, Low-rise Apartment Dwelling or Stacked Dwelling in the R4–UA, R4–UB, R4–UC and R4–UD zones:

(a) Any part of the rear yard not occupied by accessory buildings and structures, permitted projections, bicycle parking and aisles, hardscaped paths of travel for waste and recycling management, pedestrian walkways, patios, and permitted driveways, parking aisles and parking spaces, must be softly landscaped.

(b) The minimum area of soft landscaping per (a) must be:
(i) In the case of a lot of less than 360 square metres in area, at least 35 square metres
(ii) In the case of a lot equal to or greater than 360 square metres but less than 450 square metres in area, at least 50 square metres
(iii) in the case of a lot 450 square metres or greater, at least 50 per cent of the rear yard
(iv) In all cases, must comprise at least one aggregated rectangular area of at least 25 square metres and whose longer dimension is not more than twice its shorter dimension, for the purposes of tree planting.

(c) Any part of any yard other than the rear yard not occupied by accessory buildings and structures, permitted projections, bicycle parking and aisles, hardscaped paths of travel for waste and recycling management, pedestrian walkways, permitted driveways and parking exclusion fixtures per (e) must be softly landscaped.

(d) The minimum area of soft landscaping in the front yard is per Table 161:
Table 161
Front Yard Setback | 1.5 metres –three metres
Minimum Aggregated Soft Landscaped Area (% of the Front Yard Area) | 20%

(e) The front yard and corner side yard must be equipped with solid, permanent fixtures sufficient to prevent motor vehicle parking in contravention of this By-law, and for greater clarity:
(i) such parking exclusion fixtures may include bicycle racks, benches, bollards, ornamental fences or garden walls, raised planters, trees, wheelchair lifting devices, wheelchair lifting devices or some combination thereof; and
(ii) raised planters are deemed to be soft landscaping for the purposes of (c) and (d).

(f) At least one principal entrance to a ground-floor unit or to a common interior corridor or stairwell must be located on the facade and provide direct access to the street, and furthermore:

(i) In the case of a corner lot, the principal entrance may be located on front or corner facade; and
(ii) In the case of a lot of 24 metres width or greater, one principal entrance is required for every 12 metres of lot width or part thereof.

(g) The front facade must comprise at least 25 per cent windows, and furthermore,
(i) any corner side facade must comprise at least 15 per cent windows;
(ii) windows located in doors may count towards the minimum fenestration requirement; and
(iii) Any window counted towards the minimum fenestration requirement, other than windows in doors or at the basement level, must have a lower sill no higher than 100 centimetres above the floor level.

(h) At least 20 per cent of the area of the front facade must be recessed an additional 0.6 metres from the front setback line.

(j) Despite (h), no additional recession of the front facade is required when balconies or porches are provided on the front or corner side facade as follows:
(i) In the case of a lot of less than 15 metres width, one balcony or porch for each storey at or above the first storey is provided;
(ii) In the case of a lot of 15 metres width or greater, one balcony or porch for every unit that faces a public street at or above the first storey; and
(iii) In any case each balcony or porch must have a horizontal area of at least two square metres.

(o) No rooftop amenity space is permitted within the area shown on Schedule 383. (By-law 2020–290)

(16) In the case of a Low-rise Apartment Dwelling or Stacked Dwelling in the R4–UA, R4–UB, R4–UC and R4–UD zones
(a) No motor vehicle parking is permitted on a lot less than 450 square metres in area.
(b) In the case of a lot of 450 square metres or greater
(i) at least 25 per cent of dwelling units must have at least two bedrooms; and
(ii) the calculation of (i) may be rounded down to the nearest whole number.

Section 135 — Through lots in Residential Zones
(1) In the case of a residentially-zoned through lot, or corner through lot, the minimum required front yard setback applies to both the front and rear lot lines, in accordance with the provisions of the Residential zone or zones in which such lot is located and the minimum required rear yard setback does not apply.

Section 137 — Amenity Area
Table 137 (11) – No amenity are required in R4–UA, R4–UB, R4–UC and R4–UD zones.

Section 139 — Front Yard and Corner Side Yard Landscaping
Table 139 – Minimum Required Aggregated Soft Land Landscaping
Front Yard Setback | 1.5 m – less than 3 m
Minimum Aggregated Soft Landscaped Area (% of the Front Yard Area) | 20%

Walkways
(4) A walkway located in a front yard or corner side yard is permitted subject to the following:
(c) The width of a walkway may not exceed:
(i) In the case of a rooming house, retirement home, stacked dwelling or low-rise apartment dwelling, 1.8 m;
(d) A walkway may traverse an area required for soft landscaping per Table 139(1), and may be included in the calculated area.

Section 144 — Front Yards and Corner Side Yard Setbacks
(1) The minimum front yard setbacks and minimum corner side yard setbacks are as follows:
(a) In the case of an interior lot or through lot, the yard setback must align with the average of the abutting lots corresponding yard setback abutting the street(s).
(d) Despite the foregoing, the minimum front and/or corner side yard setback need not exceed the minimum required in the Residential subzone in which the lot is located, and in no case may be less than 1.5 m.

MINOR VARIANCES REQUESTED:

A) TO PERMIT A TOTAL OF 4 PARKING SPACES, WHEREAS THE BY-LAW REQUIRES A MINIMUM OF 5 PARKING SPACES (4 RESIDENTS SPACES PLUS 1 VISITOR SPACE.)

VEHICLE PARKING:

SCHEDULE 1A | AREA X: INNER URBAN

SECTION 101 – MINIMUM PARKING SPACE RATES
(1) Within the areas shown as Areas B, C, D, X and Y on Schedule 1A, off-street motor vehicle parking must be provided for any land use at the rate set out in Table 101 below.
(3) Despite Subsection (1), within the area shown as Area X on Schedule 1A:
(a) In the case of a building containing residential uses, no off-street motor vehicle parking is required to be provided under this section for the first twelve dwelling units and the parking requirements under Table 101 apply only to dwelling units and rooming units in excess of 12.

Table 101– MINIMUM PARKING SPACE RATES | ROW R11
Land Use = Dwelling, Low-rise Apartment
Area X and Y on Schedule 1A = 0.5 per dwelling unit

SECTION 102 – MINIMUM VISITOR PARKING SPACE RATES
(1) Within the areas shown as Areas B, C, D, X, Y and Z on Schedule 1A, in addition to the parking required under Section 101, off-street visitor motor vehicle parking must be provided for dwelling units at the rate set out in Table 102.
(2) Despite (1), within Areas B, X, Y and Z, no visitor parking spaces are required for the first twelve dwelling units on a lot.

Table 102– MINIMUM VISITOR PARKING SPACE RATES
Land Use | Apartment dwelling, low-rise or mid-high-rise
Area X and Y on Schedule 1A | 0.1 per dwelling unit

SECTION 111 – BICYCLE PARKING SPACE RATES AND PROVISIONS

Table 111A – Bicycle parking space rates
Land use | (b) (i)) apartment building, low rise; apartment dwelling, mid rise; apartment dwelling, high rise, dwelling unit in the same building as a non-residential use; stacked dwelling without a garage or carport for each dwelling unit
Minimum number of spaces required | 0.50 per dwelling unit

LOT DETAILS:

LOT FRONTAGE (CAMBRIDGE): 16.64m
LOT DEPTH: 37.87m
LOT AREA: 627.38

TOTAL LANDSCAPED AREA: 201.3m² (32% OF LOT AREA)
[REQ. 30%]

FRONT YARD AREA: 24.9m²
AREA OF SOFT LANDSCAPING: 19.5m² (78.3% OF FRONT YARD AREA)
[REQ. 20%]

REAR YARD AREA: 149.1m²
AREA OF SOFT LANDSCAPING: 75.3m² (50.5% OF REAR YARD AREA) [REQ. 50%]

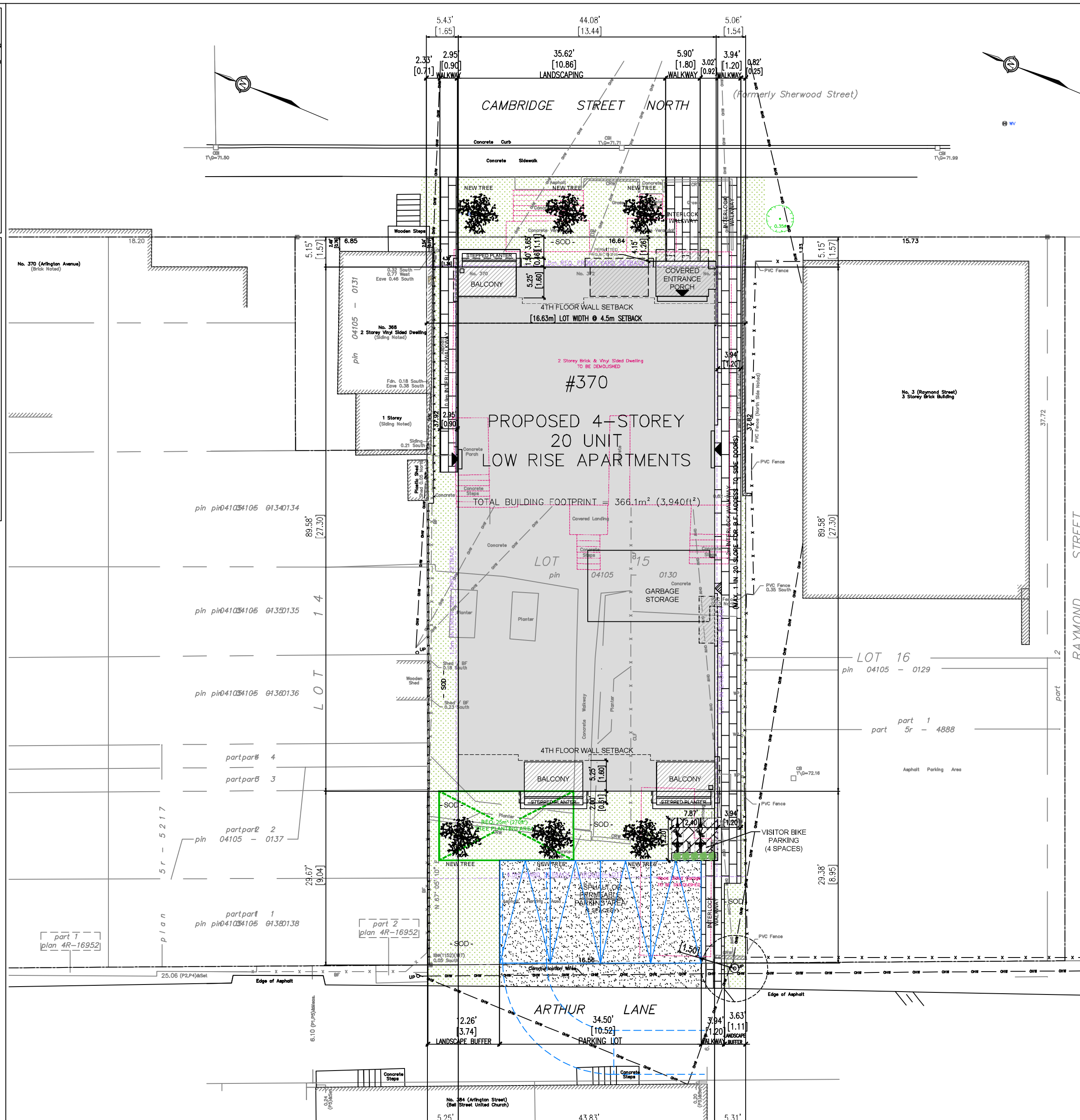
4 SURFACE PARKING SPACES ACCESSED FROM REAR LANE

BUILDING DETAILS:

BUILDING HEIGHT: 14.5m (4-STORIES)
BUILDING FOOTPRINT: 366.1m²
FEATURES:
FLUSH ENTRANCE, SPLIT-LEVEL MAIN FLOOR/BASEMENT
DOUBLE-SIDED ELEVATOR
INTERIOR GARBAGE ROOM
INTERIOR BIKE ROOMS (18 SPACES)
INDIVIDUAL BALCONIES ALL UNITS EXCEPT BACHELORS

UNIT DETAILS:

2: BACHELOR UNITS
10: 1-BEDROOM UNITS (2 B.F.)
8: 2-BEDROOM UNITS (1 B.F.)



PROPOSED SITE PLAN
SCALE: 1:100

MD
MIROCA DESIGN
INCORPORATED SINCE 1986
CUSTOM HOME DESIGN
PROJECT MANAGEMENT

30 CONCOURSE GATE
UNIT 47
OTTAWA, ONTARIO
K2E 7V7
TEL: 613-274-2653
FAX: 613-274-7085
CONTACT@MIROCADESIGN.COM
WWW.MIROCADESIGN.COM

CELEBRATING 35 YEARS
DESIGN•BUILD

GENERAL NOTES:

1. THE GENERAL CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND REPORT ALL ERRORS AND OMISSIONS TO THE CONSULTANT.
2. ALL WORK AND MATERIALS TO BE IN COMPLIANCE WITH ALL CODES, REGULATIONS, AND BY-LAWS.
3. FOOTINGS DESIGNED FOR 2000 P.S.F ASSUMED BEARING. BEARING STRATA, GRANULAR MATERIAL AND COMPACTION TO BE INSPECTED AND APPROVED BY SOILS CONSULTANT PRIOR TO POURING CONCRETE.
4. DO NOT SCALE THE DRAWINGS.

No.	Description & Date
1	

REVISIONS

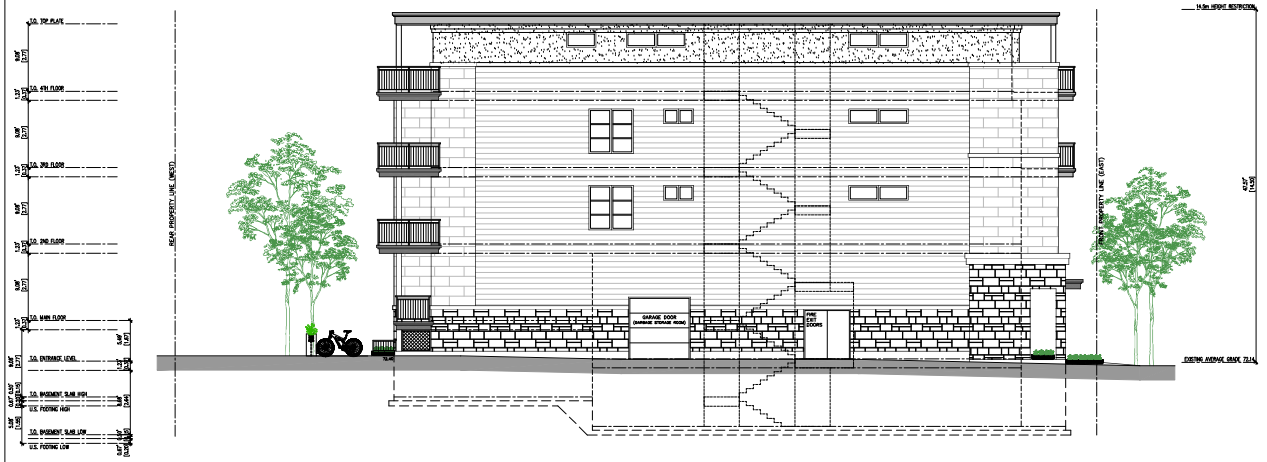
JOB TITLE:
370 CAMBRIDGE ST. NORTH
OTTAWA, ON.
PROPOSED 4-STOREY LOW-RISE APARTMENT BUILDING

SHEET TITLE:
PROPOSED SITE PLAN

SCALE: AS SHOWN	DWG NO.
DRAWN: M.D.	S1.1
CHECKED:	
DATE: AUGUST 2022	
PRINT DATE: 8/9/2022	

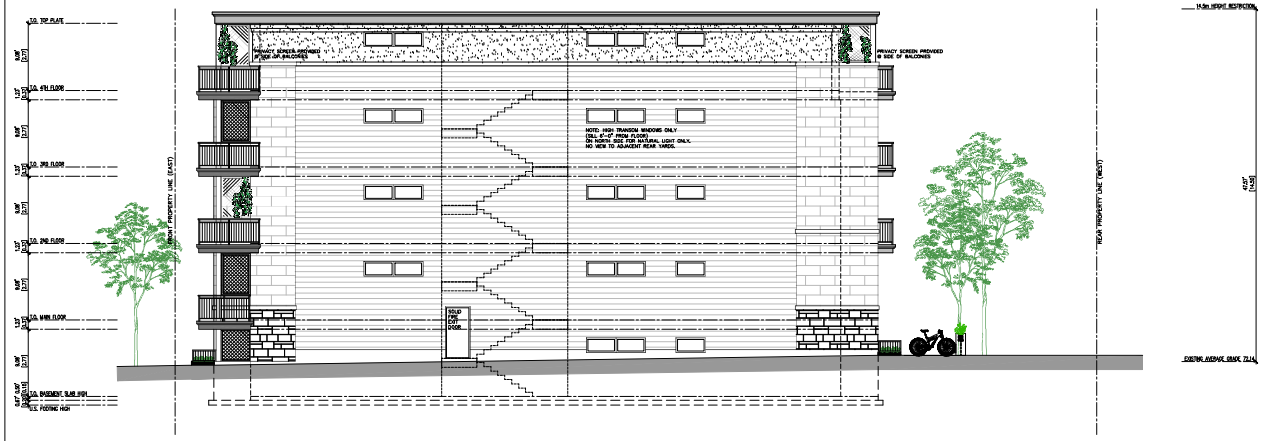
PRELIMINARY CONCEPT FOR REVIEW & COMMENTS

FRONT ELEVATION (EAST)
SCALE: 1/8" = 1'-0"



LEFT SIDE ELEVATION (SOUTH)
SCALE: 1/8" = 1'-0"

REAR ELEVATION (WEST)
SCALE: 1/8" = 1'-0"



RIGHT SIDE ELEVATION (NORTH)
SCALE: 1/8" = 1'-0"

MD
MIROCA DESIGN
INCORPORATED SINCE 1986
CUSTOM HOME DESIGN
PROJECT MANAGEMENT

30 CONCOURSE GATE
UNIT 47
OTTAWA, ONTARIO
K2E 7V7

TEL: 613-274-2653
FAX: 613-274-7085

CONTACT@MIROCADESIGN.COM
WWW.MIROCADESIGN.COM

GENERAL NOTES:

1. THE GENERAL CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND REPORT ALL ERRORS AND OMISSIONS TO THE CONSULTANT.

2. ALL WORK AND MATERIALS TO BE IN COMPLIANCE WITH ALL CODES, REGULATIONS, AND BYLAWS.

3. FOOTINGS DESIGNED FOR 2000 P.S.F. ASSUMED BEARING, BEARING STRATA, GRANULAR MATERIAL AND COMPACTION TO BE INSPECTED AND APPROVED BY SOILS CONSULTANT PRIOR TO POURING CONCRETE.

4. DO NOT SCALE THE DRAWINGS.

NO.	DESCRIPTION & DATE
1	

REVISIONS

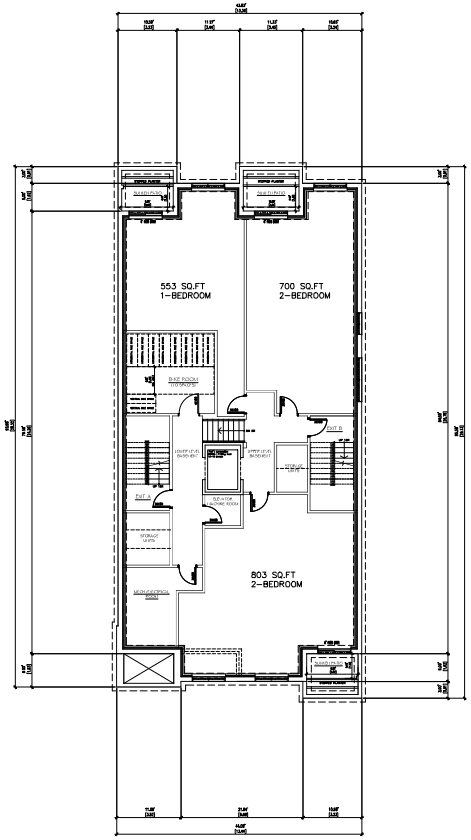
JOB TITLE:
370 CAMBRIDGE STREET NORTH
OTTAWA, ON.

PROPOSED 4-STOREY LOW-RISE APARTMENT BUILDING

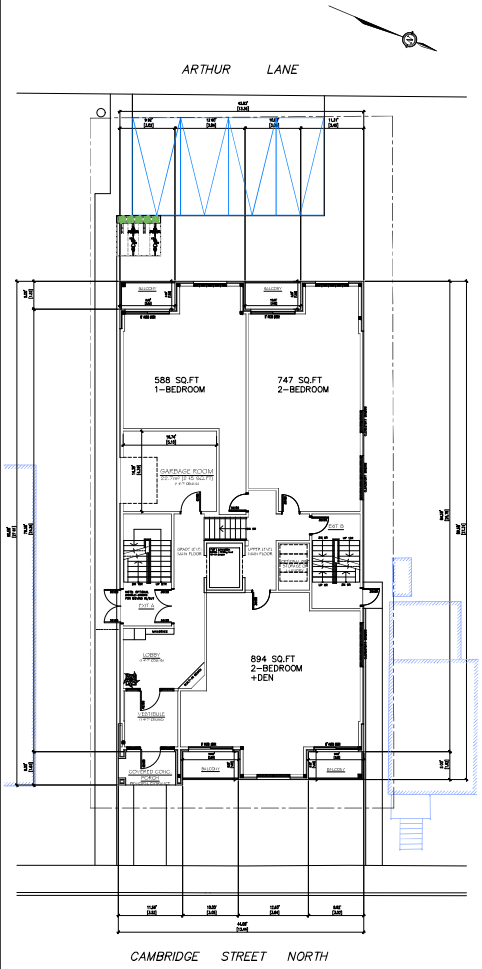
SHEET TITLE:
PROPOSED ELEVATIONS

SCALE: AS SHOWN	DWG NO.
DRAWN: M.D.	A1.2
CHECKED:	
DATE: DECEMBER 2021	
PRINT DATE:	

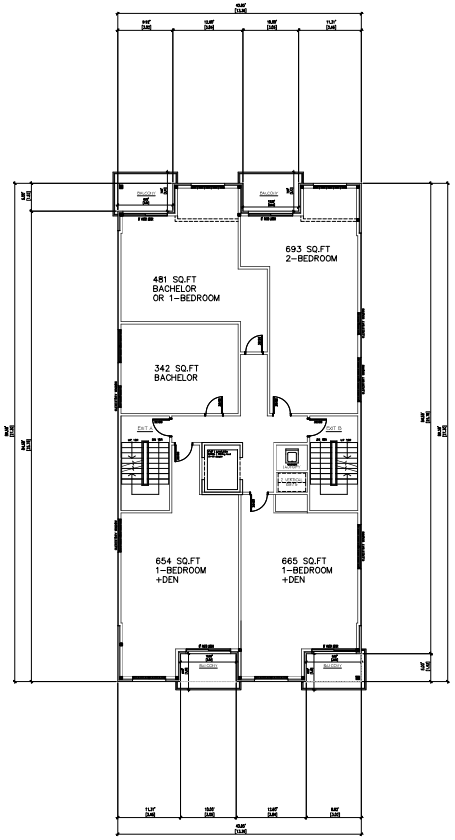
PRELIMINARY CONCEPT FOR REVIEW & COMMENTS



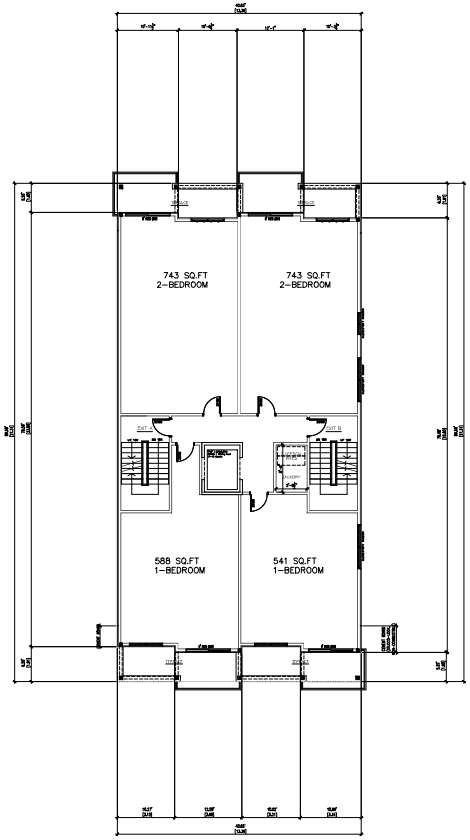
BASEMENT PLAN
SCALE: 3/32" = 1'-0"



GROUND FLOOR PLAN
SCALE: 3/32" = 1'-0"



2-3 FLOOR PLAN
SCALE: 3/32" = 1'-0"



4TH FLOOR PLAN
SCALE: 3/32" = 1'-0"

MIROCA DESIGN
INCORPORATED SINCE 1986
CUSTOM HOME DESIGN
PROJECT MANAGEMENT

30 CONCOURSE GATE
UNIT 47
OTTAWA, ONTARIO
K2E 7V7

TEL: 613-274-2653
FAX: 613-274-7085

CONTACT@MIROCADESIGN.COM
WWW.MIROCADESIGN.COM

GENERAL NOTES:

1. THE GENERAL CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND REPORT ALL ERRORS AND OMISSIONS TO THE CONSULTANT.

2. ALL WORK AND MATERIALS TO BE IN COMPLIANCE WITH ALL CODES, REGULATIONS, AND BYLAWS.

3. FOOTINGS DESIGNED FOR 2000 P.S.F ASSUMED BEARING, BEARING STRATA, GRANULAR MATERIAL AND COMPACTION TO BE INSPECTED AND APPROVED BY SOILS CONSULTANT PRIOR TO POURING CONCRETE.

4. DO NOT SCALE THE DRAWINGS.

NO.	DESCRIPTION & DATE
1	

REVISIONS

JOB TITLE:
370 CAMBRIDGE STREET NORTH
OTTAWA, ON.

PROPOSED 4-STOREY LOW-RISE APARTMENT BUILDING

SHEET TITLE:
PROPOSED FLOOR PLANS

SCALE: AS SHOWN	DWG NO.
DRAWN: M.D.	A2.2
CHECKED:	
DATE: DECEMBER 2021	
PRINT DATE:	

ATTACHMENT 4 : OFM FIRE FLOW CALCULATIONS

Stantec

OFM Fire Flow Calculation

Calculations based on *Fire Protection Water Supply Guideline for Part 3 in the Ontario Building Code* by the Office of the Fire Marshal (OFM 1999)

Stantec Project #: 163401084
Project Name: 370 Cambridge St. N
Date: May 19, 2022
Data inputted by: Alexandre Mineault-G., M.A.Sc., ing., P.Eng.
Data reviewed by: Kevin Alemany, M.A.Sc., P.Eng.

Fire Flow Calculation #: 1
Building Type/Description/Name: Residential

Table A: Office of the Fire Marshal Determination of Required Fire Protection Water Supply

Step	Task	Term	Options	Multiplier Associated with Option	Choose:	Value Used	Unit
1	**General Building Details**						
1.1	Enter Number of Storeys	Number of Floors/Storeys in the Unit (incl. basement):			5	5	Storeys
1.2	Choose Type of Housing (if TH, Enter Number of Units Per TH Block)	Type of Housing	Single Family	0	Other (Comm, Ind, Apt etc.)	20	Units
			Townhouse - indicate # of units	0			
			Other (Comm, Ind, Apt etc.)	20			
1.3	Choose Presence of Sprinklers	Sprinklers?			Yes	Yes	N/A
1.4	Choose Presence of Firewalls	Firewall separations?			None	None	N/A
1.5	Choose Presence of Stand-Pipe System	Stand-pipe system?			None	None	N/A
2	**Determining Water Supply Coefficient K**						
2.1	Choose Type of Construction	**Type of Construction**					
		Type of Construction	Non-combustible construction + fire separations + fire-resistance ratings in accordance with Section 3.2.2 of OBC	Type I	Type IV	N/A	N/A
			Non-combustible construction + fire separations + no fire-resistance rating	Type II			
			Combustible construction + fire separations + fire-resistance ratings in accordance with Section 3.2.2 of OBC	Type III			
			Combustible construction + fire separations + no fire-resistance rating	Type IV			
2.2	Choose Classification	**Building Classification**					
		Occupancy Classification (OBC)	A-2, B-1, B-2, B-3, C, D	23	C	A-2, B-1, B-2, B-3, C, D	N/A
			A-4, F-3	28			
			A-1, A-3	32			
			E, F-2	39			
			F-1	53			
2.3	Water Supply Coefficient (K)	Water Supply Coefficient K				23	N/A
3	**Determining Building Volume V**						
3.1	Enter Ground Floor Area of One Unit	**Floor Space Area**					
		Average Floor Area (A) :			340 Square Metres (m2)	340	Area in Square Meters (m^2)
3.2	Building Height (h)	**Building Height**					
		Bottom Elevation :			0.0 Meters (m)	15.7	Height in Meters (m)
		Top Elevation :			15.7 Meters (m)		
3.3	Building Volume (V)	Building Volume V = A * h				5,340	Volume in Meters Cube (m^3)
4	**Determining Spatial Coefficient S**						
4.1	Choose Exposure Distances from Building to Property Line	Exposure Distance from Building to Property Line in Meters (m)	**North Side**	1.5	0.50	1.22	Distance in Meters (m)
			Property Line to Street Centreline (Street Facing)	0			
			Total Exposure Distance	1.5			
			East Side	1.5	0.00		
			Property Line to Street Centreline (Street Facing)	9.8			
			Total Exposure Distance	11.3			
			South Side	1.5	0.50		
			Property Line to Street Centreline (Street Facing)	0			
			Total Exposure Distance	1.5			
			West Side	4.5	0.22		
			Property Line to Street Centreline (Street Facing)	3.3			
			Total Exposure Distance	7.8			
4.2	Total Spatial Coefficient	Total Spatial Coefficient $S_{tot} = 1 + \Sigma S_x$				2.00	N/A
5	**Determining Required Minimum Supply of Water Q and Fire Flow**						
5.1	Obtain Required Fire Volume, Flow & Duration	*Minimum Supply of Water, rounded to nearest 1,000 L; $Q = K*V*S_{tot}$*				246,000	L
		Required Minimum Water Supply Flow Rate (L/min)				6,300	L/min
		Required Minimum Water Supply Flow Rate (L/s)				105	L/s
		Required Minimum Duration of Fire Flow (min)				40	min

ATTACHMENT 5 : FIGURE 2 – OFM EXPOSURE DISTANCES

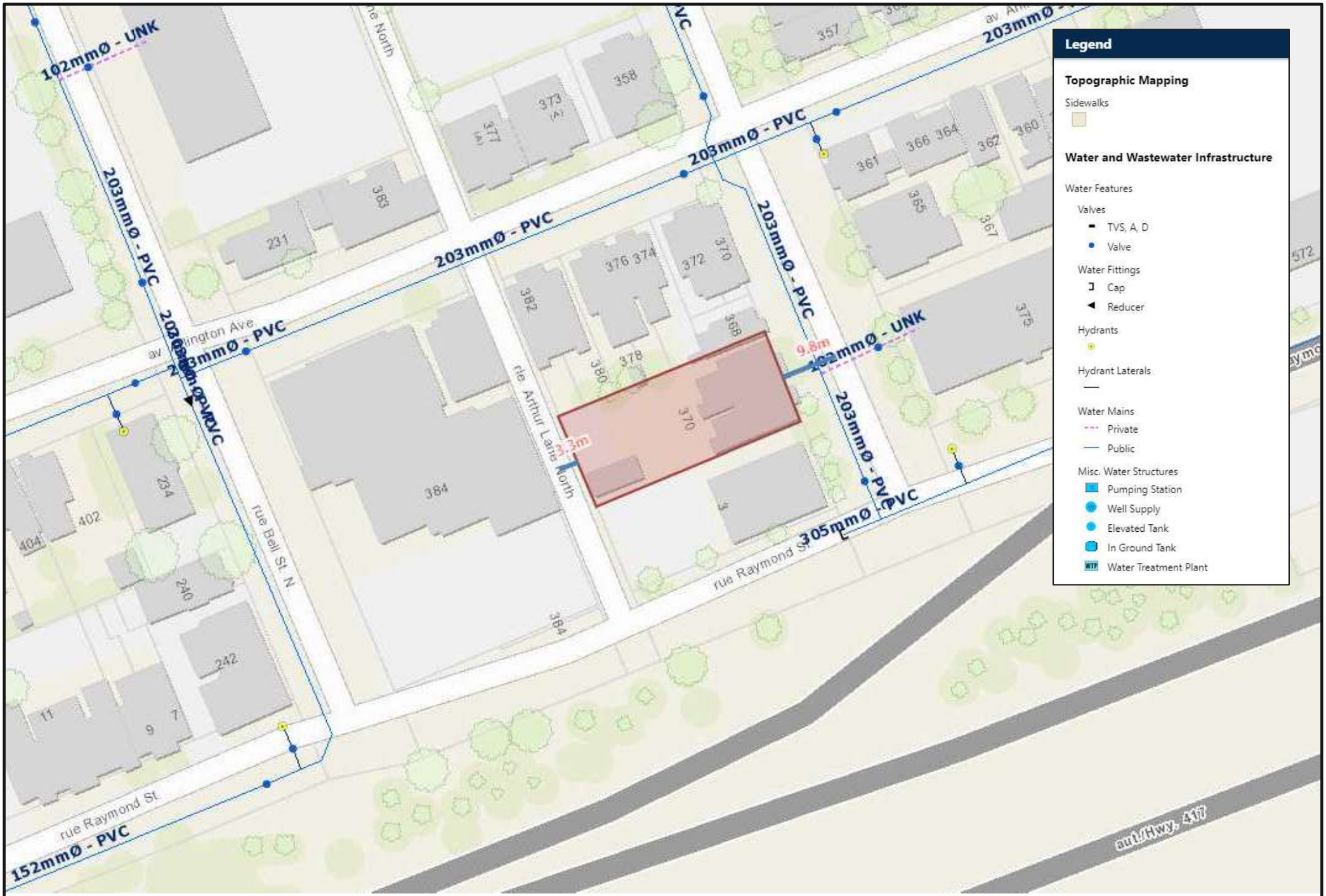


Figure 2: OFM Exposure Distances (Property Line to Street)

Source: geoOttawa 2022; *Contains information licensed under the Open Government Licence – City of Ottawa.*

ATTACHMENT 6 : WATER DATA BOUNDARY CONDITIONS

Mineault-Guitard, Alexandre

From: TL MaK <tlmakecl@bellnet.ca>
Sent: Thursday, May 26, 2022 10:35 AM
To: Alemany, Kevin
Cc: Mineault-Guitard, Alexandre
Subject: RE: 370 Cambridge Street North - Water Boundary Conditions Request
Attachments: 370 Cambridge Street North May 2022.pdf

Hi Kevin,

Attached please find water boundary conditions received today from the City of Ottawa regarding 370 Cambridge Street North.

Could you please proceed with your calculations at your earliest convenience for our serviceability report preparation.

Let us know if you have any questions or comments.

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: Bakhit, Reza [mailto:reza.bakhit@ottawa.ca]
Sent: May 26, 2022 8:46 AM
To: TL MaK
Subject: RE: 370 Cambridge Street North - Water Boundary Conditions Request

Hi Tony,

The following are boundary conditions, HGL, for hydraulic analysis at 370 Cambridge Street N (zone 1W) assumed to be connected to the 203 mm watermain on Cambridge Street North (see attached PDF for location).

Minimum HGL: 107.0 m

Maximum HGL: 115.2 m

Max Day + Fire Flow (105 L/s): 108.8 m

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

Disclaimer: The boundary condition information is based on current operation of the city water distribution system. The computer model simulation is based on the best information available at the time. The operation of the water distribution system can change on a regular basis, resulting in a variation in boundary conditions.

The physical properties of watermains deteriorate over time, as such must be assumed in the absence of actual field test data. The variation in physical watermain properties can therefore alter the results of the computer model simulation.

Regards,

Reza Bakhit, P.Eng, C.E.T
Project Manager
Planning, Real Estate and Economic Development Department / Direction générale de la planification, des biens immobiliers et du développement économique
Development Review - Centeral 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 19346, reza.bakhit@ottawa.ca
Please note: Given the current pandemic, I will be working from home until further notice; reaching me by email is the easiest. I will be checking my voicemail, just not as frequently as I normally would be.

From: TL MaK <tlmakecl@bellnet.ca>
Sent: Thursday, May 19, 2022 5:28 PM
To: Bakhit, Reza <reza.bakhit@ottawa.ca>
Subject: RE: 370 Cambridge Street North - Water Boundary Conditions Request

Hi Reza,

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 is located within Pressure Zone 1W at 370 Cambridge Street N is a 4-storey residential apartment building with a basement. The building contains twenty (20) total units, namely two (2) bachelor units, ten (10) 1-bedroom units, six (6) 2-bedroom units, and two (2) 3-bedroom units. The average floor area is approximately 338 m^2, for a total gross floor area of approximately 1,352 m^2 (excluding the basement). The building is to be serviced by the 200 mm diameter watermain along Cambridge Street N.

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). Maximum day (MXDY) demands were calculated by multiplying AVDY demands by a factor of 2.5. Peak hour (PKHR) demands were calculated by multiplying MXDY by a factor of 2.2. Persons per unit (PPU) for each unit were estimated based on the City of Ottawa's Water Design Guidelines. **Table 1** shows the estimated domestic demands of the proposed building.

Table 1: Estimated Domestic Demand

Unit Type	Unit Count	PPU	Consumption Rate (L/c/d)	AVDY		MXDY		PKHR	
				L/d	L/s	L/d	L/s	L/d	L/s
Apartment, Bachelor	2	1.4	280	784	0.01	1,960	0.02	4,312	0.05

Apartment, 1-Bedroom	10	1.4		3,920	0.05	9,800	0.11	21,560	0.25
Apartment, 2-Bedroom	6	2.1		3,528	0.04	8,820	0.10	19,404	0.22
Apartment, 3-Bedroom	2	3.1		1,736	0.02	4,340	0.05	9,548	0.11
Total	***20***			***9,968***	***0.12***	***24,920***	***0.29***	***54,824***	***0.63***

The City had previously indicated that the City's Fire Marshall and various City departments are currently reviewing fire flow requirements for low- and mid-rise buildings. As per the City of Ottawa's Water Design Guidelines, the FUS method is to be used for fire flow requirements affecting watermain sizing; with regards to fire protection on private property and not requiring new watermains, these are covered by the Ontario Building Code (OBC).

As such, the fire flow requirement was also determined following the OBC's Office of the Fire Marshal (OFM) method. The proposed building will be of wood frame construction, where floors are fire separations, but without fire-resistance ratings. The resulting total required fire flow (RFF) for a sprinklered building is 6,300 L/min (105 L/s) for a minimum duration of 40 min.

In summary:

- AVDY = 9,968 L/d (0.12 L/s);
- MXDY = 24,920 L/d (0.29 L/s);
- PKHR = 54,824 L/d (0.63 L/s); and
- Fire Flow = 6,300 L/min (105 L/s).

The City is requested to provide boundary conditions for the Average Day, Maximum Day, Peak Hour and Fire Flow conditions indicated above.

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

Have a good day.

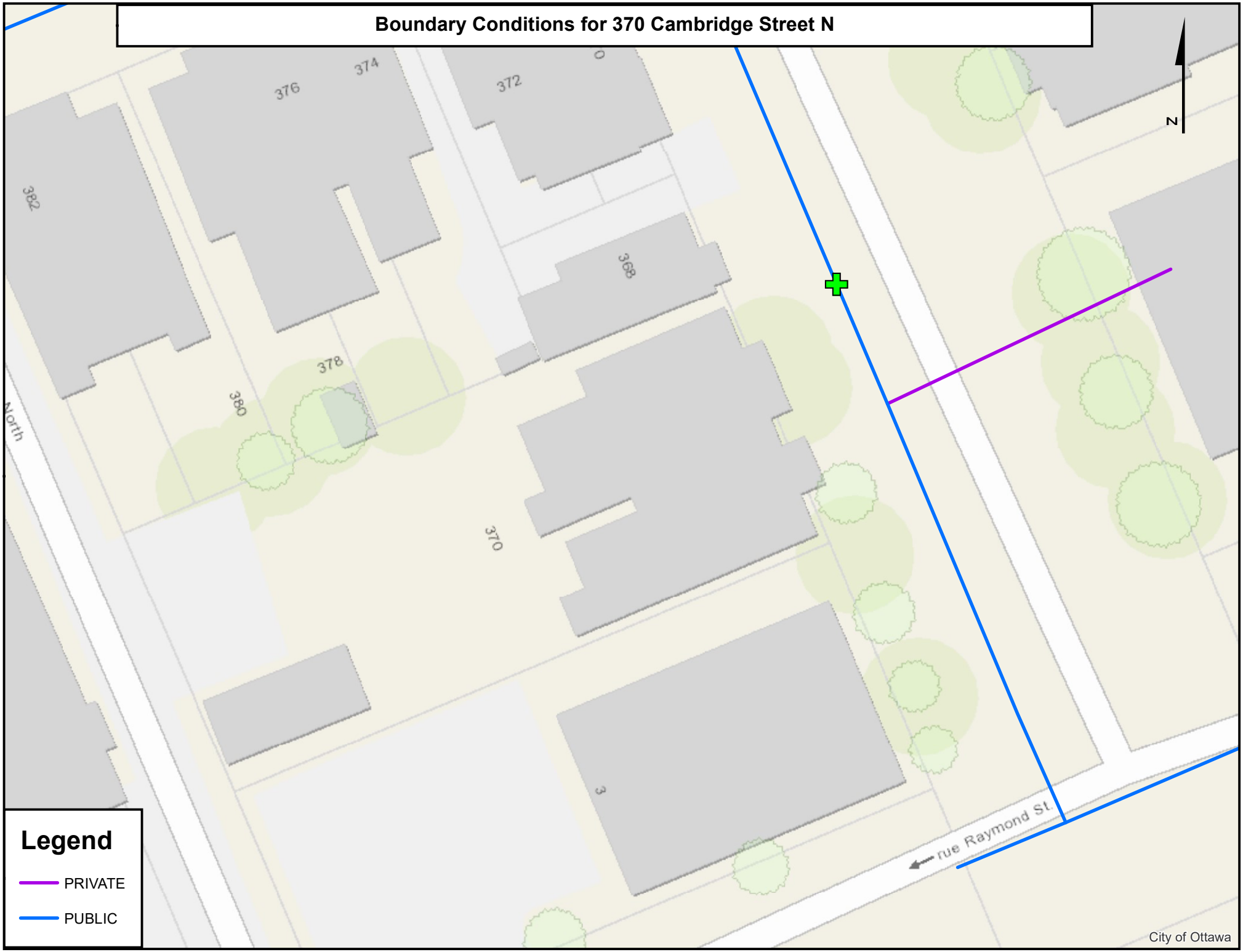
Regards,

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

'

'


Boundary Conditions for 370 Cambridge Street N
N
376
374
372
382
368
378
380
370
North
3
rue Raymond St
Legend
PRIVATE
PUBLIC
City of Ottawa

ATTACHMENT 7 : SUPPORTING HYDRAULIC CALCULATIONS

Supporting Hydraulic Calculations

Stantec Project #: 163401084
Project Name: 370 Cambridge Street N
Date: May 27, 2022
Data inputted by: Alexandre Mineault-G, M.A.Sc., ing., P.Eng.
Data reviewed by: Kevin Alemany, M.A.Sc., P.Eng.

Boundary Conditions provided by the City:

Scenario 1: Peak Hour (Min HGL): 107.0 m;
Scenario 2: Average Day (Max HGL): 115.2 m; and
Scenario 3: Maximum Day plus Fire Flow: 108.8 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) = 107 and hz (m) = 71.7.

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

hp (m) = HGL - hz
∴ hp = 107.0 - 71.7 m = 35.3 m.

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

P (kPa) = (ρ * 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 (P) as follow:

P (kPa) = (1000 * 9.81 * 35.3) / 1000
∴ P = 346 kPa.

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

P = 50 psi.

Applying the same procedures, the pressures under Scenario 2 and Scenario 3 are calculated as follows:
Scenario 2: P = 62 psi; and Scenario 3: P = 53 psi.

To summarize:

Scenario 1: Minimum Pressure under Peak Hour Demand: 346 kPa (50 psi)
Scenario 2: Maximum Pressure under Average Day Demand: 426 kPa (62 psi)
Scenario 3: Minimum Pressure under Maximum Day + Fire Flow Demand: 364 kPa (53 psi)

ATTACHMENT 8 : FIGURE 3 – HYDRANT SPACING

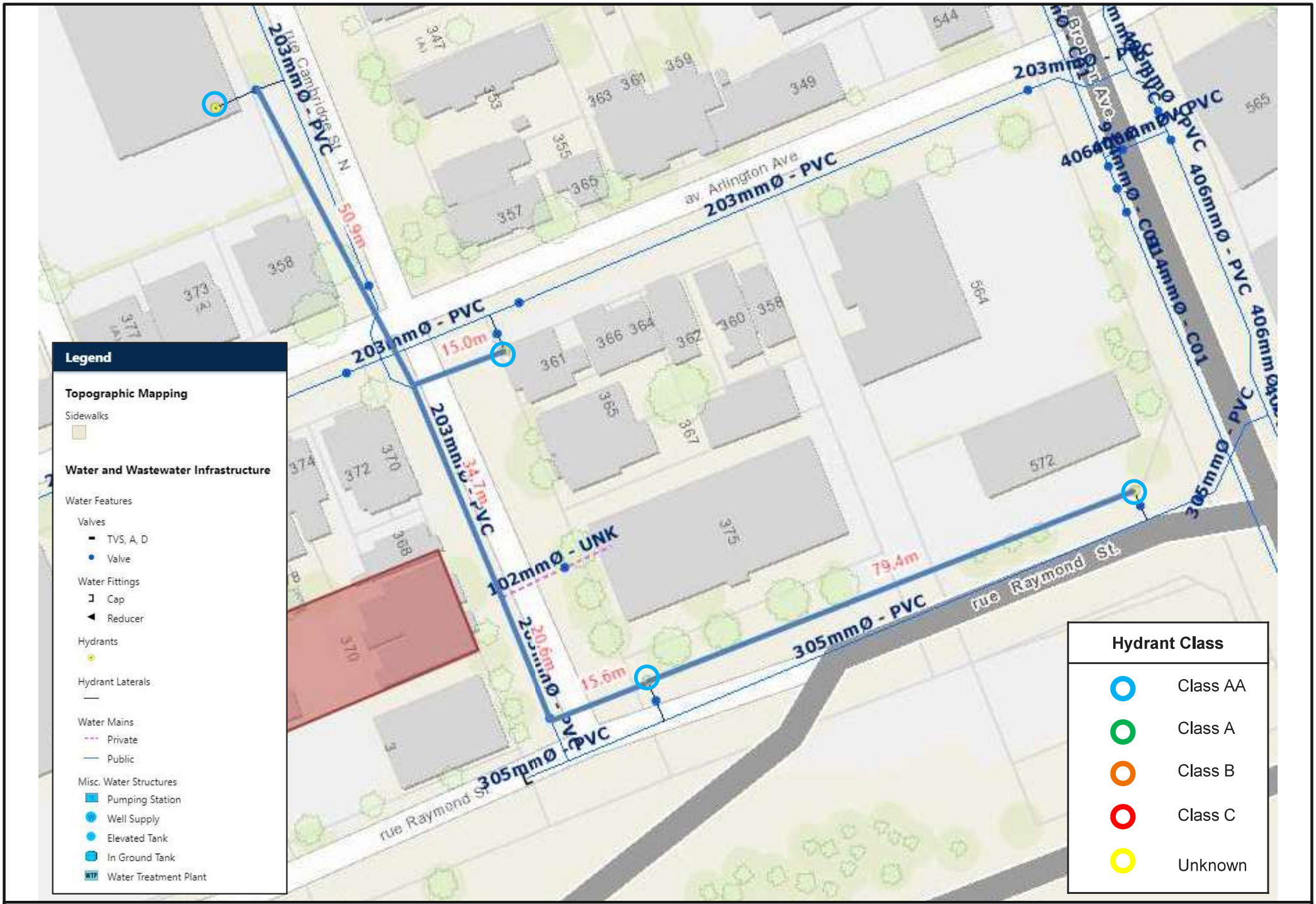


Figure 3: Hydrant Spacing

Source: geoOttawa 2022; *Contains information licensed under the Open Government Licence – City of Ottawa.*

PROPOSED

FOUR STOREY APARTMENT BUILDING SITE

LOT 15 WEST CAMBRIDGE STREET NORTH

SOUTH OF STONE BOUNDARY

R-PLAN 33

370 CAMBRIDGE STREET NORTH

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 4.0 (MAX)
Q (p) = peak population flow (L/s)
Q (I) = peak extraneous flow (L/s)
Q (d) = peak design flow

$M = 1 + \frac{14}{4 + \sqrt{P}} \times K$ where P population in 1000's K=0.8

$Q(p) = \frac{PqM}{86.4}$ (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)
#370 CAMBRIDGE STREET NORTH	SITE	EX-300ø COMBINED SEWER	35.6	0.063	35.6	0.063	3.67	0.42	0.02	0.44	14.5	150	PVC	1.0 (min)	19.8	1.12	

LICENCED PROFESSIONAL ENGINEER
08/08/22
TONY L. MAK
PROVINCE OF ONTARIO

	DESIGN TLM	PROJECT 370 CAMBRIDGE STREET NORTH	SHEET No.
FILE# 821-155	CHECKED TLM	PROPOSED FOUR STOREY APARTMENT	1 of 1
	DATE JULY 2022	BUILDING SITE - CITY OF OTTAWA	

PROPOSED

FOUR STOREY APARTMENT BUILDING SITE

LOT 15 WEST CAMBRIDGE STREET NORTH

SOUTH OF STONE BOUNDARY

R-PLAN 33

370 CAMBRIDGE STREET NORTH

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