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Assessment of Adequacy of Public Services

359 Kent Street, 436 and 444 MacLaren Street

J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS

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1.0 INTRODUCTION

1.1 Background

In 2021, J.L. Richards & Associates Limited (JLR) was retained by 359 Kent Street Ltd., care of Taggart Realty Management, to prepare an Assessment of Adequacy of Public Services (AAPS) Report and functional-level drawings of municipal infrastructure in support of a high-rise residential development sited at 359 Kent Street, in the downtown area of the City of Ottawa. An AAPS Report was prepared and submitted (September 2, 2021) to the City of Ottawa. The Report was prepared based on a single tower concept sited at 359 Kent Street, although 359 Kent Street Ltd. also owns the two (2) adjoining properties at 436 and 444 MacLaren Street. Throughout the September 2021 AAPS Report, the client was referred to as Taggart Realty Management (TRM) given that they are acting as the development manager for the project.

This AAPS Report (October 2022) and functional level drawings was prepared to in support of an Official Plan Amendment (OPA) and a Zoning By-Law Amendment (ZBLA) and to address comments issued by the City of Ottawa (June 30, 2022). The AAPS also outlines the design objectives and criteria, servicing constraints and strategies for developing the subject lands with water, wastewater, storm and stormwater management services in accordance with:

i) the November 2009 Servicing Study Guidelines for Development Applications in the City of Ottawa (City)
ii) the Ottawa Sewer Design Guidelines (2012) and associated Technical Bulletins (Section 1.4)
iii) the discussions held during a pre-consultation meeting with City staff

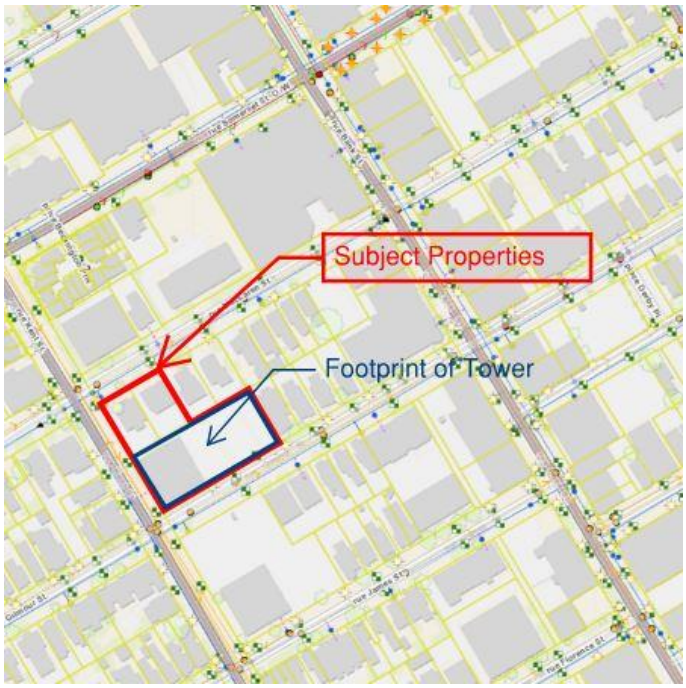
A copy of the Site Plan, Legal Plan and Topographical Survey is included in Appendix A while Appendix B includes a copy of the pre-consultation notes and Email correspondence.

1.2 Site Description and Background

The subject properties are located within the urban limits of the City of Ottawa, specifically in the northeastern quadrant of the Gilmour Street and Kent Street intersection. TRM is proposing to develop the subject properties into a single high-density residential tower.

As illustrated on Figure 1 (below), the subject site extends to include both 436 and 444 MacLaren Street; however, the single high-residential tower will be sited only on 359 Kent Street. The impacted property currently consists of a combination of asphalt and building which makes the subject site fully impervious.

Figure 1: Site Plan Location



The subject parcels (359 Kent Street, 436 and 444 MacLaren) accounts for ±0.36 ha. The façade of the existing building is fronting on Kent Street and access to the parking area is off Gilmour Street.

1.3 Existing Infrastructure

A review of existing services was carried out in the vicinity of the above-noted subject site to investigate the servicing requirements for the Condominium Tower. The following drawings and Legal Plan were reviewed for the purpose of identifying the infrastructure bounding the subject property (refer to Appendix C for copy of Drawings):

- City of Ottawa Utility Drawing 21-0725-UCC;
- Regional Municipality of Ottawa-Carleton Drawing 911-P (as-built); and
- Other Drawings in the vicinity of the Site.

Based on the review of the above information, the topographical survey and the information presented on “geoOttawa”, the following infrastructure has been identified to exist within the Kent Street and Gilmour Street Right-Of-Way (R.O.W.):

Watermains:

- 305 mm diameter ductile iron watermain located within Gilmour Street ROW
- 305 mm diameter cast iron watermain located within Kent Street ROW

Based on the review of "geoOttawa", the following four (4) hydrants are located within the prescribed distances of ISTB-2018-02, in close proximity of the subject property:

- one (1) hydrant is located within the property of 444 MacLaren;
- one (1) hydrant is located within 17 m from the south corner of the property at the Kent Street and Gilmour Street intersection;
- one (1) hydrant is located within 50 m from the east corner of the property in front of unit 428 Gilmour Street; and
- one (1) hydrant is located within 46 m from the north corner of the property in front of unit 404 MacLaren Street;

Combined Sewers:

- Two 225 mm diameter combined sewer located within Gilmour Street ROW (flowing east).
- 300 mm diameter combined sewer located within the MacLaren Street ROW (flowing east).
- 375 mm diameter combined sewer located within the Kent Street ROW (flowing south).
- 3000 mm diameter combined sewer located within the Kent Street ROW (flowing north).

Storm Sewers:

- There is an on-site catch basin (CB) in the parking area along the south property line from Gilmour Street. This CB appears to be connected to one of the Gilmour Street 225 mm diameter combined sewer.

Figure 2 below shows the existing infrastructure bounding the subject property.

Figure 2: Existing Infrastructure

1.4 Existing Conditions

The building is currently being serviced with sanitary, storm and water via connections to the infrastructure on Kent Street.

1.5 Functional Servicing

The existing servicing and connections to off-site linear infrastructure is summarized in Section 1.3 and 1.4. Based on the above-noted connections with existing infrastructure, the following proposed servicing is envisioned:

Water Servicing: Existing 100 mm diameter water service lateral connected to the existing Kent Street 305 mm diameter watermain to remain. Proposed 150 mm diameter water service lateral to connect to the existing Gilmour Street 305 mm diameter watermain. The service laterals will be sized for domestic and sprinkler system supply.

Wastewater: Proposed sanitary lateral to connect to the existing Kent Street 375 mm diameter combined sewer.

Storm: Proposed rooftop drains to be connected to the existing 225mm diameter combined sewer on Gilmour, underground cistern to be connected to the combined sewer on Gilmour as well.

1.6 Municipal Design Guidelines

This AAPS and functional-level drawings were prepared in support of the OPA/ZBLA in accordance with the following:

City of Ottawa Sewer Design Guidelines (October 2012) complete with the following Technical Bulletins;

- ISDTB-2012-01;
- ISDTB-2014-01;
- PIEDTB-2016-01;
- ISTB-2018-01;
- ISTB-2019-01; and
- ISTB-2019-02;

City of Ottawa Water Distribution Guidelines (July 2010) complete with the following Technical Bulletins:

- ISDTB-2010-02;
- ISDTB-2014-02;
- ISTB-2018-02; and
- ISTB-2021-03.

Detail Drawings as well as well as Sewer Material Specifications including:

- Sewer Connection (2003-513) and Sewer Use (2003-514) By-Laws
- Watermains/Services Material Specifications as well as Water and Road Standard Detail Drawings
- Water By-Law (2018-167)

1.7 Pre-Consultation, Permits and Approvals

A pre-consultation meeting was held with the City of Ottawa via a Teams Meeting on August 4th, 2021 (refer to Appendix B for copy of the notes and pertinent Emails).

Once the AAPS Report is approved under a ZBLA, the redevelopment of the above-referenced property will be subject to the municipal Site Plan control approval process with the City of Ottawa. At such time, the City of Ottawa Development Servicing Study Checklist and an Application to the Ministry of the Environment, Conservation and Parks (MECP) will be completed for an Environmental Compliance Approval (ECA).

2.0 WATER SERVICING

2.1 Water Supply and Design Criteria

A Hydraulic Network Analysis (HNA) was carried out for the proposed site to confirm that the existing watermain and water service can provide adequate supply while complying with both the Ottawa Design Guidelines for Water Distribution (July 2010) and Technical Bulletins ISDTB-2014-02 and ISTB-2018-02.

Section 4.2.2 of the Water Design Guidelines requires that all new development additions to the public water distribution system be designed such that the minimum and maximum water pressure, as well as the fire flow rates, conform to the following:

- Under maximum hourly demand conditions (peak hour), the pressures shall not be less than 276 kPa;
- During periods of maximum day and fire flow demand, the residual pressure at any point in the distribution system shall not be less than 140 kPa (20 psi);
- In accordance with the Ontario Building Code (OBC) in areas that may be occupied, the static pressure at any fixture shall not exceed 552 kPa (80 psi);
- The maximum pressure at any point in the distribution system in unoccupied areas shall not exceed 689 kPa (100 psi); and
- Feedermains, which have been provided primarily for the purpose of redundancy, shall meet, at a minimum, the basic day plus fire flow demand.

Table 2-1 summarizes the design criteria for water servicing, which will serve as the basis of the detailed design for the site.

Table 2-1: Water Design Criteria

Design Criteria	Design Value
Population > 500	
Residential average day demand	280 L/cap/day
Residential maximum day demand	2.5 x Avg Day
Residential peak hour demand	2.2 x Max Day
Density Studio & 1-Bedroom	1.4 persons/unit
Density 2-Bedroom	2.1 persons/unit
Commercial/Office	
Average Day consumption rate	2500 L/1000m^2/day
Commercial maximum day demand	1.5 x Avg Day
Commercial peak hour demand	1.8 x Max Day
Fire Flow Requirements	
City of Ottawa	FUS
Pressure/Flow	
Peak hour	>276 kPa (40 psi)
Maximum day plus fire flow	>140 kPa (20 psi)
Minimum hour (maximum HGL)	<552 kPa (80 psi)

2.2 Domestic Water Demands

The water demands presented in this section reflect the unit count proposed on the Site Plan. Domestic water demands were calculated for a 30-storey high-rise residential tower with commercial space. Overall, the building contains 322 residential units consisting of 33 studios, 159 1-bedroom and 130 2-bedroom apartment units. The 4,278 sqft (397 m^2) commercial space has also been accounted for in the demands.

The residential consumption rate for average day demand was set to 280 L/c/d as instructed by the City based on Technical Bulletin ISTB-2018-01. Since receiving the boundary conditions from the City on August 17, 2021 (see Appendix D), the site plan has been revised which reduced the total gross area of the building as well as the number of units. As a result, the boundary conditions provided by the City are expected to be conservative and remain applicable. Table 2-2 summarizes the water demands based on the proposed site details and the design criteria from Table 2-1 (refer to Appendix D for the water demand calculations).

Table 2-2: Water Consumption Rates

Demand Scenario	Water Demand (L/s)
Average Day	1.77
Maximum Day	4.41
Peak Hour	9.69

2.3 Proposed Water Service

Water supply to the high-rise residential building is proposed to be provided by a new 150 mm diameter water service lateral that is connected to the existing 305 mm diameter watermain on Gilmour Street. Section 4.3.1. of the Design Guidelines requires a redundant service lateral given that the average day demand will exceed 50 m^3/day. To meet this criterion, it is proposed to maintain the existing 100 mm diameter water service lateral connected to the existing Kent Street 305 mm diameter watermain. Both service laterals are sized for domestic and sprinkler system supply and there is an existing isolation valve in between them for redundancy.

A watermain roughness coefficient of 100 was used for the 150 mm and 100 mm diameter water services as presented in Section 4.2.12. of the Design Guidelines. Furthermore, the internal pipe diameter for the 150 mm water service was analyzed as 155 mm and the internal pipe diameter for the 100 mm water service was analyzed as 108 mm based on Section 4.3.5. of the Design Guidelines.

2.4 Required Fire Flow

Within the City of Ottawa, the required fire flow (RFF) must be calculated per the guidance of the Fire Underwriters Survey (FUS) for the given type of development in accordance with ISTB-2021-03. As part of the initial submission of the AAPS Report (September 2021), the RFF was calculated based on the 1999 FUS Guidelines. The RFF calculated for the previous submission was 500 L/s. Boundary conditions (BC) were subsequently generated by the City for the above-noted RFF (refer to Appendix D for E-Mail dated August 17, 2021).

Fire flow requirements were re-evaluated as part of this AAPS Report (March 2023) to reflect the revised Site Plan and the new unit breakdown while accounting for the latest guidance of the FUS Guidelines (2020) rather than the 1999 FUS Guideline. Based on the latest document and calculated exposures, the RFF was estimated at 250 L/s (refer to Appendix D). Although the revised RFF is substantially less than what was used by the City in 2021 to generate boundary conditions, they were maintained for this updated analysis given that it is more conservative. The boundary conditions received from the City are summarized in Table 2-3 and a copy of the email correspondence can be found in Appendix D.

Table 2-3: Hydraulic Boundary Conditions

Water Demand Scenario	HGL On Gilmour Street (m)	HGL On Kent Street (m)
Peak Hour	107.0	107.0
Maximum HGL	115.4	115.4
Max. Day + Fire Flow per FUS (500 L/s)	104.1	103.2
Max Day + Fire Flow per OBC (69.2 L/s)	109.5	109.5

2.5 Headloss Calculations

The proposed functional servicing was evaluated under the demand scenarios listed in Section 2.2. The existing 100 mm diameter water service (±12.5m) and the proposed 150 mm diameter water service (±10.0m) were assessed individually, assuming one water service supplies the site.

Headlosses were calculated along the water service laterals using the Hazen-Williams headloss equation. The operating pressures at the building (ground finished floor elevation) were analyzed under the water demand scenarios listed in Table 2-2. The Headloss Calculation Spreadsheet (Appendix D) summarizes the operating pressures estimated at the building's ground finished floor under peak hour, maximum pressure, and maximum day plus fire flow scenarios. Detailed calculations for the water demand scenarios are shown in Appendix D.

2.5.1 Peak Hour

The peak hour demand shown in Table 2-2 was applied to each water service lateral and using the boundary condition shown in Table 2-3, the anticipated pressure at the building was found to be a minimum of 332 kPa (48.2 psi). Based on the calculated results, the minimum pressure criterion of 276 kPa (40 psi) is exceeded with each service.

2.5.2 Maximum Day Plus Fire Flow

A total fire flow of 15,000 L/min (250 L/s) per the FUS is required for the site in accordance with ISTB-2021-03, which is achieved by the building's sprinkler system and the existing hydrants in the vicinity of the site.

The headloss calculation was, therefore, carried out for the maximum day plus sprinkler system flow requirement using NFPA 13 which is based on 4,150 L/min (69.2 L/s). As per NFPA 13, this sprinkler flow consists of the hose stream allowance (per Table 11.2.3.1.2 of NFPA) and sprinkler system allowance (per Table 11.2.2.1 of NFPA). Both tables are included at the end of Appendix D. Using the boundary conditions shown in Table 2-3, the pressure at the building's ground finished floor is estimated to be a minimum of 193 kPa (28.0 psi) which exceeds the Design Guidelines' requirement of 140 kPa (20 psi).

There are three (3) existing hydrants (refer to Appendix D for aerial image of hydrant location) located within 75 m of the proposed building (one on Bank Street (±32 m) and two on Gilmour Street (±17 m and ±50 m)). Based on ISTB-2018-02, each of these hydrants can supply 5,700 L/min (95 L/s) and the aggregate sum of the hydrant flow from these three (3) hydrants is 17,100 L/min (285 L/s), which exceeds the total fire flow requirement of 15,000 L/min (250 L/s) per the FUS. It is noted that the required fire flow from the existing municipal hydrants is only 10,848 L/min (180.8 L/s) as they supplement the sprinkler system flow.

2.5.3 Maximum HGL

The Water Design Guidelines require that a high-pressure check (maximum hydraulic grade elevation) be performed to ensure that the maximum pressure constraint of 552 kPa (80 psi) is not exceeded. Based on a zero (0 L/s) demand condition and the maximum HGL boundary condition (refer to Table 2-3), a maximum pressure of 417 kPa (60.5 psi) is expected. The result is below the maximum pressure constraint of 552 kPa (80 psi) and therefore no pressure reducing valve (PRV) is required.

Domestic and fire pumps as well as the sprinkler system will be designed at the detailed design stage by the Owner's mechanical engineer.

2.6 Summary and Conclusions

Based on the HNA presented above, it is expected that the proposed 150 mm diameter water service (with the redundant 100 mm diameter water service and isolation valve) can provide adequate water supply to the site. Furthermore, fire protection can be met recognizing that domestic and fire pumps will be sized at detailed design by the Owner's mechanical engineer.

3.0 WASTEWATER SERVICING

3.1 Existing Conditions

Currently, wastewater flows from the existing Building is collected by an internal piping system that converges into the basement of the building. Based on CCTV undertaken on behalf of the client, the existing wastewater lateral discharges to the Kent Street 375 mm diameter combined sewer.

Existing theoretical peak wastewater flows of 0.26 L/s are combined with rooftop stormwater peak flow (2-yr) of 5.99 L/s for a total existing peak flow of 6.25 L/s.

3.2 Design Criteria

The capacity of the existing sanitary service lateral for 359 Kent Street was verified based on the City of Ottawa Sewer Design Guidelines ((OSDG) - (October 2012)) and associated Technical Bulletins. Key design parameters have been summarized in Table 3-1.

Table 3-1: Wastewater Servicing Design Criteria

Design Criteria	Design Value	Reference
Residential average flow	280 L per capita/day	ISTB-2018-01
Residential peaking factor	Harmon Formula x 0.8	City Section 4.4.1
Commercial average flow	28,000 L/ha/day	ISTB-2018-01
Commercial peaking factor	1.0 (less than 20% contr. area)	ISTB-2018-01
Infiltration Allowance 0.05 L/s/ha (dry I/I) 0.28 L/s/ha (wet I/I)	0.33 L/s/ha	ISTB-2018-01
Minimum velocity	0.6 m/s	OSDG Section 6.1.2.2
Maximum velocity	3.0 m/s	OSDG Section 6.1.2.2
Manning Roughness Coefficient (for smooth wall pipes)	0.013	OSDG Section 6.1.8.2
Minimum allowable slopes	Varies	OSDG Table 6.2, Section 6.1.2.2

3.3 Theoretical Sanitary Peak Flow and Proposed Sanitary Servicing

Based on the proposed densities for apartment buildings (as recommended by the OSDG), the peak wastewater flow was calculated based on the design value of 280 L per capita per day and an overall population of 542 as per the design parameters listed in the above table and unit breakdown provided (refer to Section 2.2 for breakdown). Flows generated by a commercial space were also considered in the analysis.

A peak wastewater flow of 5.98 L/s was calculated (refer to Appendix E for Detailed Wastewater Flow Calculations) based on a Harmon's peaking factor of 3.36, a total infiltration allowance of 0.06 L/s and commercial allocation of 0.013 L/s, in accordance with the OSDG and ISTB-2018-01.

All sanitary flows are proposed to be directed towards the existing 150 mm sanitary lateral connected to the 375mm combined sewer on Kent Street.

3.4 Summary and Conclusions

Based on the above wastewater servicing details, it is recommended that the existing 150 mm service be used to provide wastewater servicing for the proposed building.

4.0 STORM SERVICING AND STORMWATER MANAGEMENT

4.1 Existing Conditions

It was determined through CCTV inspection that rooftop drainage is currently collected by a series of drains that connect to the Kent Street 375 mm diameter combined sewer. At the back of the property, there is a parking surface which is serviced by two interconnected catch basins (CBs) within the property's parking lot. The captured flows by the CBs are conveyed to the Gilmour Street 225 mm diameter combined sewer. The existing condition Drainage Plan included in Appendix F shows the drainage divides and runoff coefficients for the above-noted areas.

4.2 Storm Criteria

The storm design criteria used in this functional design is outlined below:

- The allowable peak flow shall be estimated based on a 1:2-year intensity which is to be calculated based on a Runoff Coefficient (C-Factor) of the lesser of the existing conditions and shall not exceed 0.40. Based on the Existing Condition Drainage Plan, areas tributary to both the Kent Street 375 mm diameter and Gilmour Street 225 mm diameter combined sewers exceed a C-Factor of 0.90. Consequently, the allowable peak flow for both outlets should be based on a C-Factor of 0.40.

- The allowable peak flow is to be calculated using the 1:2-year IDF statistics (per the Ottawa Sewer Design Guidelines – (OSDG)) based on the calculated time of concentration (Tc) reflecting existing condition. The calculated Tc shall not be less than a Tc of 10 mins.

- The post development flows are to be limited to the allowable peak flow for the site. Wastewater peak flow contribution is subtracted from the 1:2-year calculated peak flows as the receiving sewers are combined.

- The post-development peak flows shall be controlled up to the 1:100-year storm to the allowable peak flow by means of on-site storage. On-site measures would consist of rooftop storage, at grade ponding, underground cistern or a combination of these measures.

- The subject property is tributary to combined sewers and consists of rooftops and at grade amenity areas. As a result, there is typically no water quality control requirements given the proposed surfaces.

4.3 Allowable Release Rate

Storm servicing and stormwater management for the subject property is to be developed to limit the 1:100-year post-development flow from the subject property to the aggregate sum of the allowable peak flows set by the storm criteria. As both sewers are combined, projected

wastewater flows are included in the allowable release rates. Existing theoretical peak wastewater flows of 0.26 L/s are combined with rooftop stormwater peak flow of 5.99 L/s for a total existing peak flow of 6.25 L/s on Kent Street, while Gilmour Street consists only of stormwater peak flows.

To evaluate the allowable peak flows, the various areas were delineated based on their type and outlet locations. Pre-development drainage areas, and peak flow calculations are presented in Appendix F and summarized in the table below.

Table 4-1: Allowable Peak Flow Summary

Combined Sewer Outlet	Area (m2)	Allowable Release Rate (L/s)
375mm dia. Kent Street Sewer	875	6.25
225mm dia. Gilmour Street Sewer	2281	15.46

4.4 Storm Servicing Strategy

On site storage requirements were calculated based on the Modified Rational Method (MRM). In order to limit the post development peak flows to those presented in Table 4-1, flow restrictors will be implemented with on-site storage solutions. The final storage solution and servicing layout will be determined at detailed design; however, storage calculations for functional design were undertaken and are provided in Appendix F. A summary of the results is presented in the table below.

Table 4-2: Post-Development Flow Summary

Outlet	Type of Area	Post Development Tributary area (m^2)	Allowable Release Rate (L/s)	Required Storage (m^3)	Storage Provided (m^3)
225mm dia. Gilmour Street Sewer	Combined Rooftops	1966	3.78	89.3	176.9
	At Grade Site Drainage	1091	7.44	29.6	29.6
	Uncontrolled Fronting Gilmour	100	4.50	N/A	N/A

The results summarized in Table 4-2 are supported by calculations presented in Appendix F. These calculations demonstrate that adequate storage can be provided to respect the

stormwater management criteria described in Section 4.2 and meet the prescribed allowable peak flow.

It is proposed to utilize rooftop storage, where applicable and practical, and to supplement with an underground on-site cistern. It should be noted that this analysis excluded surface ponding along the at grade surface (1,091 m^2), which will be assessed at detailed design with the architect. The analysis presented above is meant to confirm that the site can be serviced and that the stormwater criteria can be met; however, they should not be interpreted as detailed design calculations. Surface ponding, if applicable, detailed calculations for the proposed cistern, number of and location of roof drains in accordance with the Ontario Building Code and ponding volumes for the rooftop will be provided during detailed design once the site plan is finalized, more information is available and coordination with the mechanical engineer can take place once a consultant is retained.

Any external runoff from adjacent properties will be accommodated via the stormwater management design to ensure that drainage from these surfaces is not adversely impacted.

Additionally, drainage areas from the front of the Maclaren properties are to remain unchanged and no increase in imperviousness is being proposed therefore calculations for this parcel have been excluded.

Climate Change

The SWM calculations shown in Appendix F also considered the climate change event (CCE). The project has been broken down into three (3) separate areas; i) Rooftop Areas, ii) At grade surface to cistern, and iii) uncontrolled area. Desktop calculations for these three (3) areas is as follows:

Rooftop: Based on the SWM Calculations, the rooftop will require ±89 m^3 of storage to contain the 1:100 year on the roof. Assuming that 60% of the roofs is used as storage with a maximum depth of 150 mm, storage of 177 m^3 can be generated. Under the CCE, a storage volume requirement of ±119 m^3 was estimated which is below the 177 m^3 provided by the above-noted rooftop assumptions. Alternatively, if the rooftop is designed to solely contain the 1:100-year, the increase in peak flows under the CCE can be accommodated by scuppers. Hence, the CCE can be contained.

Cistern: Based on the SWM Calculations, the cistern will need to provide ±30 m^3 of storage to contain the 1:100-year flows. The CCE calculations show that an overflow sewer capable of conveying the difference in peak flow of 9.5 L/s between the CCE and 1:100-year flow would need to be incorporated by the mechanical engineer as part of the cistern design.

Uncontrolled: The 1:100-year uncontrolled flow of 4.50 L/s was subtracted from the allowable post-development peak flow. During the CCE, the increase in uncontrolled peak flows of ±0.9 L/s can be accommodated over the wide frontage without creating inconvenience.

5.0 EROSION AND SEDIMENTATION CONTROL

At the on-set of the construction of the Condominium Towers, substantial excavation will be completed for the underground garage for the Tower. As a result, runoff from the site will mostly be contained in the excavation area. As such, appropriate erosion and sedimentation control measures, as outlined in the Ontario Ministry of Natural Resources (MNR) Guidelines on Erosion and Sediment Control for Urban Construction Sites, will be implemented to trap sediment on site. The following erosion and sedimentation control measures could be implemented during construction:

- Supply and installation of a silt fence barrier, as per OPSD 219.110, if required;
- Supply and installation of filter fabric between the frame and cover of catch basins and maintenance holes adjacent to the project area during construction, to prevent sediment from entering the sewer system. The filter fabric is to be inspected regularly and corrected as required;
- Stockpiling of material during construction is to be located offsite;

The proposed removal and reinstatement measure as well as the erosion control measures shall conform to the following documents:

- "Guidelines on Erosion and Sediment Control for Urban Construction Sites" published by Ontario Ministries of Natural Resources, Environment, Municipal Affairs, and Transportation & Communication, Association of Construction Authorities of Ontario and Urban Development Institute, Ontario, May 1987.
- "MTO Drainage Manual", Chapter F: "Erosion of Materials and Sediment Control", Ministry of Transportation & Communications, 1985.
- "Erosion and Sediment Control" Training Manual by Ministry of Environment, Spring 1998.
- Applicable Regulations and Guidelines of the Ministry of Natural Resources.

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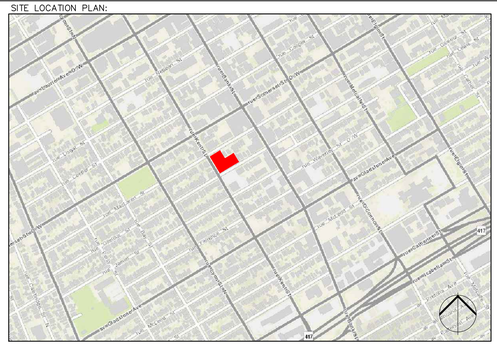
Appendix A

Site Plan

A1.00 SITE PLAN
A1.00 1 : 200

None
2:15

SITE LOCATION PLAN:



ZONING NOTES

CURRENT ZONING: NORTH PARCEL

LOT AREA : 3,606 m²

DEVELOPMENT STATS		REQUIRED	EXISTING BLDG.	PROPOSED
LOT WIDTH				MIN 33.2m MAX 66.5m
LOT DEPTH				MIN 36.4m MAX 72.0m
UNITS				
TOTAL UNITS				322
FRONT YARD SETBACK	KENT STREET		0 m	VARIES
REAR YARD SETBACK		7.5 MIN.		3.0 m
CORNER SIDE YARD SETBACK	GILMOUR AVE.		0 m	3.0 m
CORNER SIDE YARD SETBACK	MACLAREN AVE.			VARIES
BUILDING HEIGHTS				
PODIUM				24 m
34 STOREY TOWER				99 m
BUILDING AREA				
TOTAL GROSS				+/-320,744 sq.ft. (29,798 sq.m.)
TOTAL NET (RESIDENTIAL + COMMERCIAL/RETAIL				+/-250,271 sq.ft (23,251 sq.m.)
GROSS FLOOR AREA (city def.)				+/-250,271 sq.ft. (23,251 sq.m.)

NOTE: ALL EXISTING SITE INFORMATION AS PER SITE SURVEY PLAN DATED APRIL 16, 2021 AND PREPARED BY ANNIS O'SULLIVAN VOLLEBEK LTD

UNIT RATIOS	PROPOSED	
TOTAL UNIT COUNT		322
STUDIOS	33	10%
1 INTERNAL BEDROOM	2	1%
1 BEDROOM	106	33%
1 BEDROOM + DEN	51	16%
2 BEDROOM (1 INTERNAL)	17	5%
2 BEDROOM	110	34%
2 BEDROOM + DEN	3	1%

AMENITY SPACE REQUIREMENTS: 6 m² REQUIRED PER UNIT
(322 X 6 SQ.M. = 1,932 SQ.M. REQUIRED TO BE COMMON AMENITY SPACE)
(966 SQ.M. REQUIRED TO BE COMMON AMENITY SPACE)

PROVIDED AMENITY SPACE
2,894 SQ.M. TOTAL AMENITY PROVIDED 1,826 SQ.M. PROVIDED TO BE COMMON AMENITY SPACE

PARKING REQUIREMENTS: 322 units (*Reduced by 12) 310*0.5 = 155 + 310*0.1 = 31 = 186 (*all parking located below grade, required parking reduced by 10%) = 168 parking spaces required

PROVIDED RESIDENTIAL PARKING
185 RESIDENTIAL PARKING SPACES PROVIDED FOR 322 UNITS (0.57/UNIT)
PROVIDED VISITOR PARKING
31 VISITOR PARKING SPACES PROVIDED FOR 322 UNITS (0.10/UNIT)
216 TOTAL PARKING PARKING SPACES PROVIDED (*76 SHORT CAR PARKING SPACES (35% OF TOTAL PARKING)

BICYCLE PARKING REQUIREMENTS: 322 units * 0.5 = 161

PROVIDED BICYCLE PARKING
299 (152 VERTICAL + 147 HORIZONTAL) BICYCLE PARKING SPACES PROVIDED FOR 322 UNITS (0.93/UNIT) * LOCATED IN UNDERGROUND PARKING GARAGE AND AT GROUND LEVEL (INT.)

LEGEND:

- PROPOSED FIRE ROUTE
- PROPOSED BUILDING
- BUILDING TO BE DEMOLISHED
- MH EXISTING MAN HOLE
- TSF EXISTING TRAFFIC LIGHT
- FH EXISTING FIRE HYDRANT
- CONC. CURB DETAIL TO CITY OF OTTAWA STANDARDS
- BP BIKE PARKING SPACE
- EDGE OF SIDEWALK
- PROPERTY LINE
- SETBACK
- (DC) PROPOSED DEPRESSED CURB DETAIL TO CITY OF OTTAWA STANDARD SC-7
- CURB TO BE REBUILT
- ROLL CURB
- UP EXISTING UTILITY POLE
- EXTENT OF PARKING GARAGE BELOW
- CB EXISTING CATCH BASIN
- CB PROPOSED CATCH BASIN
- AS SIGNAGE FOR ACCESSIBLE PARKING SPACE
- FRS SIGNAGE FOR FIRE ROUTE ACCESS
- S EXISTING SIGN
- EXISTING LIGHT POLE
- NEW LIGHT POLE
- PROPOSED WALL MOUNTED LIGHT
- SL EXISTING STREET LIGHTING BOX
- TB EXISTING TRAFFIC SIGNAL BOX

0 5 10 15 20
SCALE 1 : 150

TAGGART REALTY MANAGEMENT

PROJECT TEAM

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ED HERWEYER
T 613-727-0850

no.	date	revision
3	23-03-10	ISSUED FOR REZONING
2	21-09-02	ISSUED FOR REZONING
1	21-06-16	CITY OF OTTAWA PRECONSULTATION

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HOBIN ARCHITECTURE

PROJECT/LOCATION:
359 KENT STREET
OTTAWA ON.

DRAWING TITLE:
SITE PLAN

DRAWN BY:	DATE:	SCALE:
PB	23-03-10	1:150

PROJECT: 2027

DRAWING NO.: A1.00

REVISION NO.:

SURVEYOR'S REAL PROPERTY REPORT

PART 1 Plan of

LOTS 32, 33
South MacLaren Street and
LOTS 32, 33, 34, 35
North Gilmour Street
REGISTERED PLAN 27292
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 14th day of April, 2021.

April 16, 2021 — E. H. Herweyer
Date — E. H. Herweyer
Ontario Land Surveyor

PART 2
THIS PLAN MUST BE READ IN CONJUNCTION WITH SURVEY REPORT DATED: APRIL 16, 2021

ANNIS, O'SULLIVAN, VOLLEBEKK LTD. grants to KENT MACLAREN STREET LTD. ("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
CC	-	Cut Cross
CP	-	Concrete Pin
(WIT)	-	Witness
Meas.	-	Measured
(AOG)	-	Annis, O'Sullivan, Vollebekk Ltd.
(P1)	-	(AOG) Plan March 23, 2005 (Ref. 6109-05)
(P2)	-	(AOG) Plan November 12, 1991 Lot 32 (Ref. 0-408-91)
(P3)	-	(AOG) Plan November 12, 1991 Lot 33 (Ref. 0-408-91)
(P4)	-	(AOG) Plan October 18, 2010 (Ref. 11122-10)
(P5)	-	Registered Plan 27292
(P6)	-	(857) Plan October 23, 1973
(P7)	-	Plan 4R-8263
○FH	-	Fire Hydrant
○ MH-H	-	Maintenance Hole (Hydro)
○ MH-S	-	Maintenance Hole (Sanitary)
○ MH-B	-	Maintenance Hole (Bell Telephone)
○ MH-T	-	Maintenance Hole (Traffic)
OHW	-	Overhead Wires
□ CB	-	Catch Basin
□ CBI	-	Catch Basin Inlet
GM	-	Gas Meter
HM	-	Hydro Meter
△ S	-	Sign
● B	-	Bollard
CLF	-	Chain Link Fence
BF	-	Board Fence
SRW	-	Stone Retaining Wall
CRW	-	Concrete Retaining Wall
BRW	-	Brick Retaining Wall
Fdn.	-	Foundation
□ AC	-	Air Conditioner
+ 60.00	-	Location of Elevations
+ 60.00T	-	Top of Wall Elevations
+ 60.00C	-	Top of Concrete Curb Elevation
C/L	-	Centreline
T/G	-	Top of Grate
Inv.	-	Invert
	-	Deciduous Tree
	-	Coniferous Tree
○ PO-W	-	Wood Pole
○ TSL	-	Traffic Light
○ UP	-	Utility Pole
○ AN	-	Anchor
○ LS	-	Light Standard
⊕ FP	-	Flag Pole
S	-	Underground Sanitary Sewer
W	-	Underground Water
P	-	Underground Power
G	-	Underground Gas
T	-	Underground Trafic
B	-	Underground Bell
TV	-	Underground Rogers
◆ BH	-	Proposed Borehole
⊙ GV	-	Gas Valve
⊖ VC	-	Valve Chamber (Watermain)
⊖ WV	-	Water Valve

Bearings are grid, derived from Can-Net 2016 Real Time Network GPS observations, MTM Zone 9 (76°30' West Longitude) NAD-83 (original).

For bearing comparisons, a rotation of 1°18'10" counter-clockwise was applied to bearings on plans P1, P2, P3, P7.

ELEVATION NOTES

1. Elevations shown are geodetic and are referred to the CGVD28 geodetic datum derived from vertical control monument No. 3623 having an elevation of 73.154 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. A field location of underground plant by the pertinent utility authority is mandatory before any work involving breaking ground, probing, excavating etc.
4. Maintenance Hole s marked by *, Underground services and inverts are taken from the City of Ottawa Engineering Plans E-12-17, E-12-22, Dwg. No. PP21 (Contract ISD14-2036), Plan No. 1655 (Sheet 2 of 2), Plan No. 2061 (Sheets 1 of 6), Plan No. 2062 (Sheets 2 of 6), Plan H11B-2.

ASSOCIATION OF ONTARIO LAND SURVEYORS
PLAN SUBMISSION FORM
V-11476

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

Ontario Land Surveyors
ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
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Email: Nepean@annvoll.com

Job No. 21457-D Tagged Ltr. 32_35 PL 27292 T F — 1

Appendix B

Email Correspondences

Pre-Application Consultation Follow-up Meeting Notes

Property Address: 359 Kent Street and 436, 444 MacLaren Street
PC2021-0231
Wednesday, August 4, 2021
10am-11:30am via Microsoft Teams

Attendees:

City of Ottawa
Kimberley Baldwin, File Lead
Holly Newitt, Student Planner
Randolph Wang, Urban Design
MacKenzie Kimm, Heritage
Reza Bakhit, Civil Engineering
Neeti Paudel, Transportation

Applicant Team
Alexandre Tourigny, JL Richards
Annie Williams, JL Richards
Daniela Correia, Lashley
Derek Howe, Taggart
Hugo Latreille, Hobin Architecture
Barry Hobin, Hobin Architecture
Kyle Kazda, Taggart
Matthew Mantel, Parsons
Miguel Tremblay, Fotenn
Paul Black, Fotenn
Tyler Yakichuk, Fotenn

Community Association
Shawn Barber, Centretown Community Association

Meeting Notes:

Opening & attendee introduction

- Introduction of meeting attendees

Applicant's overview of proposal

- Existing buildings on the lot: Mid-rise office building and two converted residential heritage buildings currently used as office space
- Site has frontages on three streets
- Proposal will seek to utilize the landmark building policies and will proceed with an engagement strategy

- Will apply for Zoning Bylaw Amendment (ZBLA) and Official Plan Amendments (OPA) for height
- Will apply for Site Plan Control after the ZBA and OPA processes are complete.
- Two heritage buildings on MacLaren to be retained
- Building offset by eastern property line and stepback from heritage buildings
- New building proposed at 35 storeys
    - 7-storey Podium
        - 3rd storey datum line responds to existing low-scale streetscape character along Gilmour
        - At corner of Kent and Gilmour - plaza with cantilevered amenity space above
            - Main residential entrance here as well.
        - Garage and office entrances along Gilmour
        - Possible small retail along Kent
    - Tower component
        - Notion of base, middle, top as per high rise design guidelines
        - Vertical fin element visually narrows tower
    - Materiality and design new building not confirmed at this time
    - Desire to resolve some of the massing and architecture at UDRP
    - Transition and impact to low-rise considered through setbacks and design
- Glass atrium connects new tower with heritage buildings – secondary entrance
    - Heritage building to include commercial use (retail or restaurant)
    - Second heritage building to have possible civic use

Technical Comments:

<u>Kimberley Baldwin, Development Review Planner</u>

- Development Applications required
    - Official Plan Amendment
    - Zoning Bylaw Amendment
    - Site Plan Control
    - Heritage Permit (see heritage comments below)

- Current zoning:
    - R4UD [479], with Heritage Overlay and Mature Neighbourhoods Overlay
        - Abutting zoning to east: GM - max height 18 m
        - South/West and North: R4 – max height 14.5m
        - Properties along Somerset St: TM14 - max height 14.5m
    - Parking: Area X
        - Approx. 800 m of major transit station

- OP: General Urban Area
    - See also references to Urban Design and Compatibility in Section 2.5.1 and 4.11
        - Policies regarding Views, Building Design, Massing and Scale
        - High-rise Building policies (14- 18)

- Centretown Secondary Plan
    - Within Central Character Area
    - Designated Mixed Use Residential Area in Schedule H1 - Land Use

- Greening Centretown - enhanced streetscaping recommended along Kent
- Current Height direction within Schedule H2
  - Max Height - generally up to 9 storeys may be permitted
  - Context:
    - West - across Kent Street and immediately east (along Gilmour) - max 14.5m (4 storeys)
    - South - max 9 storeys
    - North - max 9 storeys and 16 storeys on MacLaren block (between Kent and Bank)

- Notwithstanding the height limits provided in Schedule H2, the City may permit Landmark Buildings as per Policies provided in 3.9.5.5 of the Secondary Plan (see excerpt of policy below).
  - "Landmark Buildings" are those that make both significant and exceptional contributions to the public realm and overall identity of Centretown. They combine iconic architecture, extraordinary site design and a unique civic or national function to create a distinctive place that invites visitors to experience its qualities. Both the building and its landscape should be appreciated as much for their beauty as for their utility.
  - they will not set precedents for other development, they must be special.
  - Staff will require a thorough analysis of how this proposal will satisfy the unique "landmark buildings" policies. As currently presented, the proposal does not satisfy the criteria. See Planning staff's initial comments **in bold** below.

- Excerpt of Policy 3.9.5.5 in Centretown Secondary Plan (criteria for landmark buildings)

Landmark Buildings shall:

1. *Only be permitted on large corner lots with frontage on three streets, except in the Southern Character Area, where frontage on two streets is required;*
2. *Not be permitted in Residential, Traditional or Secondary Mainstreet designations;*
3. *In the Residential Mixed Use designation, only be considered on properties fronting O'Connor, Metcalfe and Kent Streets and only if the proposed development, along with any park/public open space component, is massed to those streets;*
   Proposal meets first three criteria.
4. *Provide and deliver a significant, publicly accessible and publicly owned open space and/or a significant public institutional use, such as a cultural or community facility, on the site. Where an institutional use is not proposed, the open space shall comprise a contiguous area that is a minimum of approximately 40% of the area of the subject site and have frontage on at least two streets;*
   Proposal does not appear to deliver a significant publicly open space or significant institutional use.
5. *Not result in a new net shadow impact on an existing public open space greater than that which would be created by the base height condition;*
   Further study required
6. *Conform to the built form policies of this Plan applicable to tall buildings (3.9.2.3 and 3.9.3.3) where the landmark includes a tall building element for residential uses incorporated into the design of a landmark building and only with respect to such uses;*

As per 3.9.2.3 and 3.9.3.3, please refer to the Built Form Guidelines in Centretown CDP and the *Urban Design Guidelines for High-rise Buildings* for direction.

For example, as per *Urban Design Guidelines*:

- **Review Guidelines 1.5, 1.7 and 1.8 for specific direction on designing Landmark Buildings**
- **Tower should be setback 20m minimum from adjacent low-rise. Proposals over 30m in height may require greater separation distances.**
- **Angular plane, typically 45 degrees from relevant property lines, should be used to provide a frame of reference for transition in scale from proposed high-rise to lower scale areas. Please include this analysis in your submission.**

7. *Not require the demolition of a designated heritage building and shall respect the cultural heritage value of the site and its setting through the retention of its significant heritage resources;*
   Planning staff defer to heritage staff for comment on this aspect.
8. *Demonstrate leadership and advances in sustainable design and energy efficiency;*
   Staff will review this element through the detailed site design and site plan control application
9. *Be subject to an architectural design competition that includes City representation on the selection jury and/or, at the City's discretion, be subject to the City's specialized design review process within the framework of the Urban Design Review Panel, process to exercise a detailed peer review of landmark buildings as per Policy 3.11.2.1;*
   See also Urban Design comments below.
10. *Be subject to the provisions of Section 37 of the Planning Act and in accordance with the Council-approved Section 37 Guidelines for determining value uplift, and as per Policy 3.9.5.4 with the public open space or institution taken into account when determining the appropriate Section 37 community benefit ;*
    To form part of the Zoning By-law Amendment process
11. *Fully respect the requirements of the Visual Integrity and Symbolic Primacy of the Parliament Buildings and Other National Symbols guidelines related to building height restrictions; and.*
12. *Not exceed a height of 27 storeys.*
    Proposal exceeds maximum height contemplated for a landmark building. An Official Plan Amendment and further analysis of the impact of height at this location will be required.

<u>Randolph Wang, Urban Design</u>

- The subject property is located in the Central Character Area identified in the Centretown Community Design Plan and Secondary Plan. The property is designated Residential Mixed Use which supports a range of housing types and small-scale commercial and institutional uses. The subject property is subject to a maximum height limit of 9 storeys. The applicant is exploring buildings much taller than this maximum height limit.
- The applicant intents to evoke policies under 3.9.5.5 of the Centretown Secondary Plan, known as "landmark buildings" policies, to support the proposed high-rise buildings. It is unclear at this

moment if the proposed design have met all the land use and functional conditions set out in 3.9.5.5. For example,

- One of the conditions is to (3.9.5.5.4) "*provide and deliver a significant, publicly accessible and publicly owned open space and/or a significant public institutional use, such as a cultural or community facility, on the site*". The applicant indicated that one of the heritage buildings on MacLaren would be used to accommodate a public institutional use. However, the applicant did not offer much information about this proposed use. The provision and delivery of such a use is a crucially important aspect of a landmark development in the context of the CDP and the Secondary. Therefore, details of this proposed use, including the programs, funding, partnership, the long-term operations, functional and spatial requirements such as floor spaces, etc, should be confirmed as part of the application.
- Confirmation of such details is also crucially important for design.

- With respect to the preliminary design presented, the Secondary Plan states that "*Landmark Buildings are those that make both significant and exceptional contributions to the public realm and overall identity of Centretown. They combine iconic architecture, extraordinary site design and a unique civic or national function to create a distinctive place that invites visitors to experience its qualities. Both the building and its landscape should be appreciated as much for their beauty as for their utility. While Landmark Buildings must respect the form and character of their surroundings, they may depart from the built form parameters established for Centretown, but in this regard they will not set precedents for other development, and to be different they must be special*." At the same time, the Plan also states (3.9.5.5.6) that such a building shall "*conform to the built form policies of this Plan applicable to tall buildings (3.9.2.3 and 3.9.3.3)*". 3.9.3.3 refers to the design guidelines for high-rise buildings included in the Centretown CDP as well as other applicable guidelines.
  - The preliminary design appears to have attempted to strike a balance between departing from and compatible with the general built form parameters and local context. Such attempts are appreciated. However, some of the "departing" elements, such as the angled the upper floor podium and the wedge shape panels on the tower, appear to be quite arbitrary. Aside from their visual effects, it is unclear if they are rooted in some deeper contextual, functional, cultural, or inspirational observations and considerations, which are typically associated with successful landmark buildings.
  - From the perspective of respecting the general parameters and responding to local context:
    - The podium of the proposed building appears to be too close to the property lines along both Gilmour and Kent. As a best practice, building setback along Gilmour should be consistent with the historic pattern on the street. On Kent Street, it is hard to see the value of the projecting upper floor podium.
    - Overall, the proposed 9-storey podium (in the context of a high-rise tower) is too tall at this location, particularly for Gilmour. Policy 3.9.5.5.5 states that a proposed landmark building shall "*not result in a new net shadow impact on an existing public open space greater than that which would be created by the base height condition*". A potential benefit of a tower, comparing with a wide 9-storey building that is supported by the Secondary Plan, is the opportunity to provide relief between the new development and the existing low-rise historic buildings. Unfortunately, the preliminary design fails to capture this opportunity. It is therefore difficult to appreciate the urban design benefits of proposal which simply adds many floors above the 9-storey maximum height limit.

    - It should be noted that the location of the proposed tower is not in conformity with policies of the CDP, which requires a tower to set a minimum 20m from the property lines when the proposed tower abuts a low-rise area.
    - The relationship between the proposed new building and the existing heritage building on site needs to be further resolved.
- With respect to the design process, the Secondary Plan states that the proposed development shall "*be subject to an architectural design competition that includes City representation on the selection jury and/or, at the City's discretion, be subject to the City's specialized design review process within the framework of the Urban Design Review Panel*". The applicant is highly encouraged to follow the Secondary Plan direction to solicit the best ideas possible through a competitive design process.
- A Design Brief is required. The Terms of Reference is attached for convenience. It is extremely important to:
    - Conduct a thorough and deep analysis of the context, including the characteristics of the broader neighbourhood, the streets, and the adjacent buildings.
    - Explore a few massing options with each options subject to wind and shadow studies to understand their impacts. One of such options should be the 9-storey option permitted by the Secondary Plan.
    - Provide clarify on architectural aspirations..

MacKenzie Kimm, Heritage

General:

- The property is located in the Centretown Heritage Conservation District and a heritage permit application under Part V of the Ontario Heritage Act would be required to facilitate this proposal. Please follow up directly with heritage staff to confirm the appropriate fee, type, and submission requirements.

- A Cultural Heritage Impact Statement and a Conservation Plan will be required. A Cultural Heritage Evaluation Report should be provided to evaluate the existing building at 359 Kent Street. Please contact heritage staff to discuss the scope.

- As you may be aware, the City is currently working on an update to the Centretown HCD Plan which will provide new policies and guidelines for how the area will develop and change into the future. Consultation on the draft is tentatively planned for early fall before bringing the plan forward to committee and council.
- Heritage staff have very significant concerns about the impact this proposal would have on the cultural heritage value of the Centretown Heritage Conservation District, particularly in this location in the core of the residential area of the HCD.
- Staff remain unconvinced that the proposal meets the objectives of the Centretown HCD guidelines.

Initial Comments

- The challenge from a heritage perspective with respect to satisfying the landmark policies is that by definition, landmark buildings should stand out. Whereas in the HCD, they should typically be background buildings. It will be very difficult for a project to balance meeting the landmark policies, while also remaining compatible, contextually sensitive and respectful of the HCD, particularly in this location.

- At this point, staff are of the opinion that the balance is not being achieved. It is unclear how this proposal respects the cultural heritage value of the HCD or is compatible with the character defining elements of the Centretown HCD. The proposed 35 storey height would be entirely out of context with the character of the Centretown HCD, particularly in this location. High quality materials that reflect the character of the area should also be incorporated.
- Meaningful transition to the neighboring residential streetscape—particularly the highly intact streetscapes on MacLaren and Gilmour must be provided. The proposed 7 storey podium does not provide such a transition to the low-rise historic buildings in this area.
- The two properties on MacLaren have all been identified as "contributing" properties proposed for the updated Centretown HCD plan. Their retention is positive, however, in order to be successful, they will need to be holistically incorporated into the project so that they are meaningfully enhanced and celebrated.
- Additionally, the proposal must recognize, incorporate and celebrate the history of the site and its setting. This should be achieved in an integrated plan for design of the building, landscaping, public art, high quality interpretation programs etc.
- The existing building at 359 Kent Street, constructed in 1956 as a headquarters for the Royal Canadian Legion, features elements of the late modern style that express a different layer of the history and development of Centretown. Its flat roof and general built form may lend itself for use as a podium element and should also be explored for retention.
- The adaptive reuse of this building may be an opportunity to add a new layer of history to build on Centretown's important development themes—perhaps exploring the connection to the Canadian Legion or other national headquarters in this area that would inform an iconic design for a building.

Neeti Paudel, Transportation

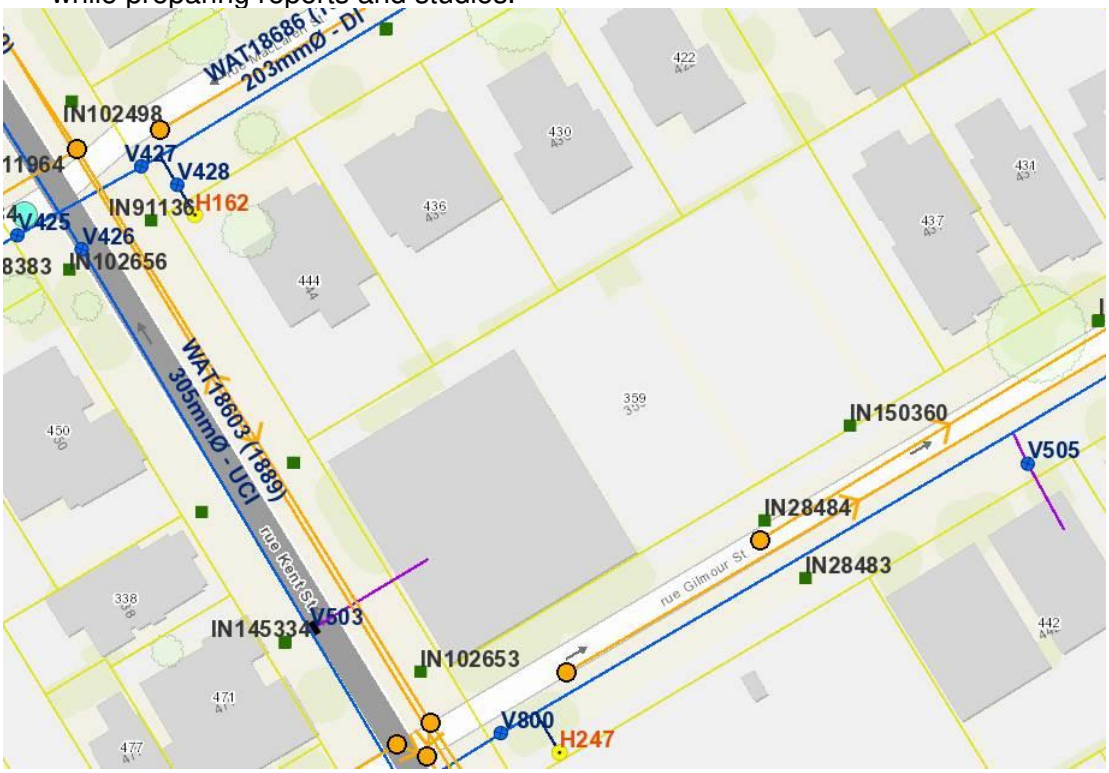
- Follow Traffic Impact Assessment Guidelines
    - Proceed to Step 3- forecasting.
    - Include the Gilmour and O'Connor intersection in the study area.
- ROW protection on Kent Street at this location is 20m. Please note
- maximum land requirement from property abutting existing ROW is 0.90 m.
- Corner triangles as per OP Annex 1 - Road Classification and Rights-of-Way at NE corner of Kent and Gilmour on the final plan will be required:
    - Local Road to arterial road: 3 metre x 3 metres
- The site is within 1 km of the LRT station and in close proximity to other frequent bus routes. It is highly recommended that the development provides as many TDM measures as possible and provide the minimum number of required parking.
- Sidewalks along the frontages must be upgraded to City standards.

Reza Bakhit, Engineer

General

- It is the sole responsibility of the consultant to investigate the location of existing underground utilities in the proposed servicing area and submit a request for locates to avoid conflict(s). The location of existing utilities and services shall be documented on an **Existing Conditions Plan**.
- Any easements on the subject site shall be identified and respected by any development proposal and shall adhere to the conditions identified in the easement agreement. A **legal survey plan** shall be provided, and all easements shall be shown on the engineering plans.

- An application to consolidate the parcels (359 Kent and 436 444 MacLaren St) of land will be required otherwise the proposed stormwater works will be servicing more than one parcel of land and thus does not meet the exemption set out in O.Reg. 525/98. This would mean an **ECA would be required** regardless of who owns the parcels.
- The subject site is located within a combined sewershed therefore the approval exemption under O.Reg. 525/98 **would not apply,** and an Environmental Compliance Approval **(ECA) application** will be required. (One ECA can cover both SWM and the connection to the combined sewer). Please note that the ECA for connection to the combined sewer system will be warranted regardless of consolidating the subject lots.
- Reference documents for information purposes:
    - Ottawa Sewer Design Guidelines (October 2012)
    - Technical Bulletin PIEDTB-2016-01
    - Technical Bulletins ISTB-2018-01, ISTB-2018-02 and ISTB-2018-03.
    - Ottawa Design Guidelines - Water Distribution (2010)
    - Geotechnical Investigation and Reporting Guidelines for Development Applications in the City of Ottawa (2007)
    - City of Ottawa Slope Stability Guidelines for Development Applications (revised 2012)
    - City of Ottawa Environmental Noise Control Guidelines (January 2016)
    - City of Ottawa Accessibility Design Standards (2012) (City recommends development be in accordance with these standards on private property)
    - Ottawa Standard Tender Documents (latest version)
    - Ontario Provincial Standards for Roads & Public Works (2013)
    - Record drawings and utility plans are also available for purchase from the City (Contact the City's Information Centre by email at InformationCentre@ottawa.ca or by phone at (613) 580-424 x.44455).
- Please note that this is the applicant responsibility to refer to the latest applicable guidelines while preparing reports and studies.



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The City of Ottawa does not guarantee the accuracy or completeness of the data and information contained on the above image(s) and does not assume any responsibility or liability with respect to any damage or loss arising from the use or interpretation of the image(s) provided. This image is for schematic purposes only

Stormwater Management Criteria and Information:

- **Water Quantity Control:** Please control post-development runoff from the subject site, up to and including the **100-year storm event**, to **a 2-year pre-development level.** The pre-development runoff coefficient will need to be determined **as per existing conditions** but in no case more than 0.4. [**If 0.4 applies it needs to be clearly demonstrated in the report that the pre-development runoff coefficient is greater than 0.4**]. The time of concentration (T_c) used to determine the pre-development condition should be calculated. *Tc should not be less than 10 min. since IDF curves become unrealistic at less than 10 min; T_c of 10 minutes shall be used for all post-development calculations*].
- Any storm events greater than the established **2-year allowable** release rate, up to and including the **100-year storm event**, shall be detained on-site. The SWM measures required to avoid impact on downstream sewer system will be subject to review.
- Please note that foundation drainage is to be independently connected to sewer main unless being pumped with appropriate back up power, sufficient sized pump and back flow prevention. **It is recommended that the foundation drainage system be drained by a sump pump connection to the storm sewer to minimize risk of basement flooding as it will provide the best protection from the uncontrolled sewer system compared to relying on the backwater valve.**
- **Water Quality Control:** Please consult with the local conservation authority (RVCA) regarding water quality criteria prior to submission of a Site Plan Control Proposal application to establish any water quality control restrictions, criteria and measures for the site. Correspondence and clearance shall be provided in the Appendix of the report.
- Please note that as per *Technical Bulletin PIEDTB-2016-01 section 8.3.11.1 (p.12 of 14)* **there shall be no surface ponding on private parking areas during the 5-year storm rainfall event**.
- **If Underground Storage proposed:** Please note that the Modified Rational Method for storage computation in the Sewer Design Guidelines was originally intended to be used for above ground storage (i.e. parking lot) where the change in head over the orifice varied from 1.5 m to 1.2 m (assuming a 1.2 m deep CB and a max ponding depth of 0.3 m). This change in head was small and hence the release rate fluctuated little, therefore there was no need to use an average release rate.
- When underground storage is used, the release rate fluctuates from a maximum peak flow based on maximum head down to a release rate of zero. This difference is large and has a significant impact on storage requirements. **We therefore require that an average release rate equal to 50% of the peak allowable rate shall be applied to estimate the required volume. Alternatively, the consultant may choose to use a submersible pump in the design to ensure a constant release rate.**
- In the event that there is a disagreement from the designer regarding the required storage, The City will require that the designer demonstrate their rationale utilizing dynamic modelling, that will then be reviewed by City modellers in the Water Resources Group.
- Please provide information on UG storage pipe. Provide required cover over pipe and details, chart of storage values, capacity etc. How will this pipe be cleaned of sediment and debris? (This to be discuss in SWM report)

- Provide information on type of underground storage system including product name and model, number of chambers, chamber configuration, confirm invert of chamber system, top of chamber system, required cover over system and details, interior bottom slope (for self-cleansing), chart of storage values, length, width and height, capacity, entry ports (maintenance) etc.
- Provide a cross section of underground chamber system showing invert and obvert/top, major and minor HWLs, top of ground, system volume provided during major and minor events. UG storage to provide actual 2- and 100-year event storage requirements.
- In regard to all proposed UG storage, ground water levels (and in particular HGW levels) will need to be reviewed to ensure that the proposed system does not become surcharged and thereby ineffective. (Please provide discussion in SWM report)
- Modeling can be provided to ensure capacity for both storm and sanitary sewers for the proposed development by City's Water Distribution Dept. – Modeling Group, through PM and upon request.
- Please note that the minimum orifice dia. for a plug style **ICD is 83mm and the minimum flow rate from a vortex ICD is 6 L/s** in order to reduce the likelihood of plugging.
- Post-development site grading shall match existing property line grades in order to minimize disruption to the adjacent residential properties. A **topographical plan of survey** shall be provided as part of the submission and a note provided on the plans.
- Please provide a **Pre-Development Drainage Area Plan** to define the pre-development drainage areas/patterns. **Existing drainage patterns shall be maintained and discussed as part of the proposed SWM solution**.
- **If rooftop control and storage is proposed** as part of the SWM solutions sufficient details (Cl. 8.3.8.4) shall be discussed and document in the report and on the plans. Roof drains are to be connected downstream of any incorporated ICDs within the SWM system and not to the foundation drain system. Provide a **Roof Drain Plan** as part of the submission.
- If **Window wells** are proposed, they are to be indirectly connected to the footing drains. A detail of window well with indirect connection is required, as is a note at window well location speaking to indirect connection.
- There must be at least **15cm of vertical clearance** between the spill elevation and the ground elevation at the building envelope that is in proximity of the flow route or ponding area. The exception in this case would be at reverse sloped loading dock locations. At these locations, a minimum of 15cm of vertical clearance must be provided below loading dock openings. Ensure to provide discussion in report and ensure grading plan matches if applicable.

Combined Sewers:

- Two 225mm dia. CONC combined sewer (1987) is available within Gilmour Street**.** (Not covering the entire frontage of the lot on Gilmour)
- Two 375mm dia. CLAY combined sewer (1935) is available within Kent Street.
- A 3000mm dia. CONC combined sewer is located at front of the lot on Kent street **(It's a sewer tunnel and no connection permitted)**
- A 300mm dia. CONC combined sewer (1982) is available within MacLaren Street.

Water:

- A 305 mm dia. UCI watermain (1889) is available within Kent Street**.**
- A 203mm dia. DI watermain (1988) is available within MacLaren Street.
- A 305mm dia. DI watermain (1988) is available within Gilmour St.
- Existing residential service to be blanked at the main. (If applicable, this has to be discuss in serving section of the report and to be shown and noted on the servicing plans)

- **Water Supply Redundancy:** Residential buildings with a basic day demand greater than 50m^3/day (0.57 L/s) are required to be connected to a minimum of two water services separated by an isolation valve to avoid a vulnerable service area as per the *Ottawa Design Guidelines - Water Distribution, WDG001, July 2010 Clause 4.3.1 Configuration.* The basic day demand for this site not expected to exceed 50m^3/day.
- Please **review Technical Bulletin ISTB-2018-0**, maximum fire flow hydrant capacity is provided in Section 3 Table 1 of Appendix I. A **hydrant coverage figure** shall be provided and **demonstrate there is adequate fire protection for the proposal**. Two or more public hydrants are anticipated to be required to handle fire flow.
- Boundary conditions are required to confirm that the require fire flows can be achieved as well as availability of the domestic water pressure on the City street in front of the development. Use Table 3-3 of the MOE Design Guidelines for Drinking-Water System to determine Maximum Day and Maximum Hour peaking factors for 0 to 500 persons and use Table 4.2 of the Ottawa Design Guidelines, Water Distribution for 501 to 3,000 persons. Please provide the following information to the City of Ottawa via email to request water distribution network boundary conditions for the subject site. Please note that once this information has been provided to the City of Ottawa it takes approximately 5-10 business days to receive boundary conditions.
    - Type of Development and Units
    - Site Address
    - A plan showing the proposed water service connection location.
    - **Average Daily Demand** (L/s)
    - **Maximum Daily Demand** (L/s)
    - **Peak Hour Demand** (L/s)
    - **Fire Flow** (L/min)
        - *Exposure separation distances shall be defined on a figure to support the FUS calculation and required fore flow (RFF).*
    - **Hydrant capacity shall be assessed to demonstrate the RFF can be achieved**.

Road Reinstatement

- Where servicing involves three or more service trenches, either a full road width or full lane width 40 mm asphalt overlay will be required, as per amended Road Activity By-Law 2003-445 and City Standard Detail Drawing R10. The amount of overlay will depend on condition of roadway and width of roadway(s).

Permits and Approvals:

- Please note that this project will be subject to an Environmental Compliance Approval (ECA).

Required Engineering Plans and Studies:

- Plans:
    - Existing Conditions and Removals Plan
    - Site Servicing Plan
    - Grade Control and Drainage Plan
    - Erosion and Sediment Control Plan
    - Roof Drainage Plan
    - Topographical survey
- Reports:
    - Site Servicing and Stormwater Management Report
    - Geotechnical Study/Investigation
    - Slope Stability Assessment Reports (if required, please see requirements below)

    - Noise Control Study
    - Phase I ESA
    - Phase II ESA (Depending on recommendations of the Phase I ESA)
    - Site lighting certificate
    - Wind study
- Please refer to the City of Ottawa Guide to Preparing Studies and Plans [Engineering]:
- Specific information has been incorporated into both the Guide to Preparing Studies and Plans for a site plan. The guide outlines the requirement for a statement to be provided on the plan about where the property boundaries have been derived from.
- Added to the general information for servicing and grading plans is a note that an O.L.S. should be engaged when reporting on or relating information to property boundaries or existing conditions. The importance of engaging an O.L.S. for development projects is emphasized.

Phase One Environmental Site Assessment:

- A Phase I ESA is required to be completed in accordance with Ontario Regulation 153/04 in support of this development proposal to determine the potential for site contamination. Depending on the Phase I recommendations a Phase II ESA may be required.
- The Phase I ESA shall provide all the required Environmental Source Information as required by O. Reg. 153/04. ERIS records are available to public at a reasonable cost and need to be included in the ESA report to comply with O.Reg. 153/04 and the Official Plan. The City will not be in a position to approve the Phase I ESA without the inclusion of the ERIS reports.
- Official Plan Section 4.8.4: https://ottawa.ca/en/city-hall/planning-and-development/official-plan-and-master-plans/official-plan/volume-1-official-plan/section-4-review-development-applications#4-8-protection-health-and-safety

Geotechnical Investigation:

- A Geotechnical Study/Investigation shall be prepared in support of this development proposal.
- Reducing the groundwater level in this area can lead to potential damages to surrounding structures due to excessive differential settlements of the ground. The impact of groundwater lowering on adjacent properties needs to be discussed and investigated to ensure there will be no short term and long term damages associated with lowering the groundwater in this area.
- Geotechnical Study shall be consistent with the **Geotechnical Investigation and Reporting Guidelines for Development Applications**. https://documents.ottawa.ca/sites/default/files/documents/cap137602.pdf

Slope Stability Assessment Reports

- A report addressing the stability of slopes, prepared by a qualified geotechnical engineer licensed in the Province of Ontario, should be provided wherever a site has slopes (existing or proposed) steeper than 5 horizontal to 1 vertical (i.e., 11 degree inclination from horizontal) and/or more than 2 metres in height.
- A report is also required for sites having retaining walls greater than 1 metre high, that addresses the global stability of the proposed retaining walls. https://documents.ottawa.ca/en/document/slope-stability-guidelines-development-applications

Noise Study:

- A Transportation Noise Assessment is required as the subject development is located within 100m proximity of an Arterial Road
- A Stationary Noise Assessment is required in order to assess the noise impact of the proposed sources of stationary noise (mechanical HVAC system/equipment) of the development onto the surrounding residential area to ensure the noise levels do not exceed allowable limits specified in the City Environmental Noise Control Guidelines. https://documents.ottawa.ca/sites/default/files/documents/enviro_noise_guide_en.pdf

Wind analysis:

- A wind analysis must be prepared, signed and stamped by an engineer who specializes in pedestrian level wind evaluation. Where a wind analysis is prepared by a company which do not have extensive experience in pedestrian level wind evaluation, an independent peer review may be required at the expense of the proponent
- Terms of Reference: Wind Analysis (ottawa.ca)

Gas pressure regulating station

- A gas pressure regulating station may be required depending on HVAC needs (typically for 12+ units). Be sure to include this on the Grading, Site Servicing, SWM and Landscape plans. This is to ensure that there are no barriers for overland flow routes (SWM) or conflicts with any proposed grading or landscape features with installed structures and has nothing to do with supply and demand of any product

Regarding Quantity Estimates:

- Please note that external Garbage and/or bicycle storage structures are to be added to QE under Landscaping as it is subject to securities. In addition, sump pumps for Sanitary and Storm laterals and/or cisterns are to be added to QE under Hard items as it is subject to securities, even though it is internal and is spoken to under SWM and Site Servicing Report and Plan.

CCTV sewer inspection

- CCTV sewer inspection required for pre and post construction conditions to ensure no damage to City Assets surrounding site.

Pre-Construction Survey

- Pre-Construction (Piling/Hoe Ramming or close proximity to City Assets) and/or Pre-Blasting (if applicable) Survey required for any buildings/dwellings in proximity of 75m of site and circulation of notice of vibration/noise to residents within 150 m of site. Conditions for Pre-Construction/ Pre-Blast Survey & Use of Explosives will be applied to agreements. Refer to City's Standard S.P. No. F-1201 entitled Use of Explosives, as amended.

Exterior Site Lighting:

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

Construction approach

- Please contact the Right-of-Ways Permit Office TMconstruction@ottawa.ca early in the Site Plan process to determine the ability to construct site and copy File Lead Kimberley.Baldwin@ottawa.caon this request.

City Surveyor, Bill Harper

- The determination of property boundaries, minimum setbacks and other regulatory constraints are a critical component of development. An Ontario Land Surveyor (O.L.S.) needs to be consulted at the outset of a project to ensure properties are properly defined and can be used as the geospatial framework for the development.
- Topographic details may also be required for a project and should be either carried out by the O.L.S. that has provided the Legal Survey or done in consultation with the O.L.S. to ensure that the project is integrated to the appropriate control network.

Questions regarding the above requirements can be directed to the City's Surveyor, Bill Harper, at Bill.Harper@ottawa.ca

Mark Richardson, Planning Forestry

Tree Conservation Report requirements:

- A Tree Conservation Report (TCR) must be supplied for review along with the suite of other plans/reports required by the City
    - An approved TCR is a requirement of Site Plan approval.
- As of January 1 2021, any removal of privately-owned trees 10cm or larger in diameter, or publicly (City) owned trees of any diameter requires a tree permit issued under the Tree Protection Bylaw (Bylaw 2020 – 340); the permit will be based on an approved TCR and made available at or near plan approval.
- The Planning Forester from Planning and Growth Management as well as foresters from Forestry Services will review the submitted TCR
    - If tree removal is required, both municipal and privately-owned trees will be addressed in a single permit issued through the Planning Forester
    - Compensation may be required for city owned trees – if so, it will need to be paid prior to the release of the tree permit
- The TCR must list all trees on site by species, diameter and health condition
- Please identify trees by ownership – private onsite, private on adjoining site, city owned, co-owned (trees on a property line)
- The TCR must list all trees on adjacent sites if they have a critical root zone that extends onto the development site
- If trees are to be removed, the TCR must clearly show where they are, and document the reason they cannot be retained
- All retained trees must be shown and all retained trees within the area impacted by the development process must be protected as per City guidelines available at Tree Protection Specification or by searching Ottawa.ca
    - the location of tree protection fencing must be shown on a plan
    - show the critical root zone of the retained trees
    - if excavation will occur within the critical root zone, please show the limits of excavation

- The City encourages the retention of healthy trees; if possible, please seek opportunities for retention of trees that will contribute to the design/function of the site.
- For more information on the process or help with tree retention options, contact Mark Richardson mark.richardson@ottawa.ca or on City of Ottawa

LP tree planting requirements:

- For additional information on the following please contact tracy.smith@Ottawa.ca
- Minimum Setbacks
    - Maintain 1.5m from sidewalk or MUP/cycle track.
    - Maintain 2.5m from curb
    - Coniferous species require a minimum 4.5m setback from curb, sidewalk or MUP/cycle track/pathway.
    - Maintain 7.5m between large growing trees, and 4m between small growing trees. Park or open space planting should consider 10m spacing.
    - Adhere to Ottawa Hydro's planting guidelines (species and setbacks) when planting around overhead primary conductors.
- Tree specifications
    - Minimum stock size: 50mm tree caliper for deciduous, 200cm height for coniferous.
    - Maximize the use of large deciduous species wherever possible to maximize future canopy coverage
    - Tree planting on city property shall be in accordance with the City of Ottawa's Tree Planting Specification; and include watering and warranty as described in the specification (can be provided by Forestry Services).
    - Plant native trees whenever possible
    - No root barriers, dead-man anchor systems, or planters are permitted.
    - No tree stakes unless necessary (and only 1 on the prevailing winds side of the tree)
- Hard surface planting
    - Curb style planter is highly recommended
    - No grates are to be used and if guards are required, City of Ottawa standard (which can be provided) shall be used.
    - Trees are to be planted at grade
- Soil Volume
    - Please ensure adequate soil volumes are met:

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

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

Community Association Comments

Shawn Barber, Centretown Citizens Community Association

- **Building site** - We have strong reservations about the precedent that will be set in considering that this site satisfies the criteria for a landmark building. A landmark building is only permitted on lots that front three streets. Presumably this is to ensure a building lot that is large enough at the ground level for a building of up to 27 stories. That is not the case here. The developer is using its ownership of the existing heritage buildings along as justification that the lot fronts three sides. Because they are heritage buildings and cannot be demolished the lot is effectively very small. This sets a precedent for other similar lots on Kent, Metcalfe or O'Connor (eg. corner of Somerset and O'Connor). We don't this interpretation of the landmark building guidelines is consistent with the intent which is to provide large spaces for the construction of buildings that are architecturally unique and accompanied by "extraordinary site design" (Centretown Secondary Plan).
- **Architecture** - the landmark building policy is quite specific in its setting a bar for architectural excellence. A landmark building must "make both significant and exceptional contributions to the public realm and overall identity of Centretown. They combine iconic architecture, extraordinary site design and a unique civic or national function to create a distinctive place that invites visitors to experience its qualities." This design clearly does not meet that standard.
- **Private Owned Public Space** - the proposal fails to provide a POPS as part of the design. In its place is a suggestion for using one of the heritage buildings as a community space. I would note that there is currently an abundance of vacant space in Centretown. In fact at lease one of those heritage buildings has been for rent for many months yet remains empty. Centretown does not need more community space. Centretown residents need more accessible greenspace as outlined in the draft Master Plan on Parks and Recreation. This Plan shows that of all residents in Ottawa, those who live in Centretown are the most disadvantaged with respect to access to green space. Consequently, we would like to see a large POPs as part of this proposal.

Next steps:

- We encourage the applicant to discuss the proposal with the local Councillor and the community association
- We will follow up with meeting minutes and a list of required documents for the submission

Alexandre Tourigny

From: Bakhit, Reza <reza.bakhit@ottawa.ca>
Sent: Tuesday, August 17, 2021 12:32 PM
To: Guy Forget
Cc: Derek Howe; Alexandre Tourigny; Baldwin, Kimberley; kyle.kazda@taggart.ca; Annie Williams; Mahad Musse
Subject: RE: 359 Kent and 436 444 MacLaren St - boundary conditions
Attachments: 359 Kent Street August 2021.pdf

Hi Guy,

Thanks for clarifications.

The following are boundary conditions, HGL, for hydraulic analysis at 359 Kent Street (zone 1W) assumed to be a dual connection to the 305 mm watermain on Gilmour Street OR the 305 on Kent Street (see attached PDF for location).

Minimum HGL: 107.0 m

Maximum HGL: 115.4 m

Max Day + FF (500 L/s): 104.1 m (Gilmour) and 103.2 m (Kent)

Max Day + FF (69.2 L/s): 109.5 m (Gilmour) and 109.5 m (Kent)

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, Infrastructure and Economic Development Department - Services de la planification, de l'infrastructure 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
613.580.2400 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: Guy Forget <gforget@jlrichards.ca>
Sent: Tuesday, August 17, 2021 11:39 AM
To: Bakhit, Reza <reza.bakhit@ottawa.ca>
Cc: Derek Howe <derek.howe@taggart.ca>; Alexandre Tourigny <atourigny@jlrichards.ca>; Baldwin, Kimberley <Kimberley.Baldwin@ottawa.ca>; kyle.kazda@taggart.ca; Annie Williams <awilliams@jlrichards.ca>; Mahad Musse <mmusse@jlrichards.ca>
Subject: FW: 359 Kent and 436 444 MacLaren St - boundary conditions

Hi Reza,

Thanks for taking my call and discuss the above-noted project and associated boundary conditions.

As discussed, Annie from our office requested boundary conditions in her email dated July 29, 2021 (see below). This email requested boundary conditions under domestic demands as well as for the maximum day plus fire flow condition. The email provided both the FUS requirement as well as the fire flow requirement under the Ontario Building Code (OBC), which is the provincial legislation on private property. I have highlighted in yellow this request for theta given fire flow.

As discussed with Annie and subsequently with me, Section 6.2 of the OBC (see attached excerpt) requires that buildings that are equipped with a sprinkler system be designed in accordance with NFPA 13. The required fire flow (RFF) based on NFPA 13 must account for two (2) components: i) the sprinkler system allowance, and ii) a hose stream allowance, both of which expressed in flow rates.

We understand that the City recommends the use of the FUS. However, within private property where a high-rise residential building equipped with a sprinkler system is proposed, the provincial regulation that applies is the Ontario Building Code.

I have attached excerpts extracted from NFPA 13; the chart associated with the sprinkler system allowance (Table 11.2.2.1) and also the chart for the hose stream allowance (Table 11.2.3.1.2). As per NFPA 13 and for the propose building classification, the RFF should consist of the following:

Sprinkler system flow = 3,200 L/min (Table 11.2.2.1) and a hose stream allowance 950 L/min (Table 11.2.3.1.2), which amounts to 4,150 L/min (69.2 L/s).

We, therefore, kindly request hydraulic boundary conditions for the above-noted project for a RFF of 69.2 L/s, the requirement under the OBC.

As I noted earlier to you, we have coordinated the use of the OBC (NFPA 13) approach for the Brigil high-rise condominium tower (28 storey) at 99 Parkdale in 2020. I have attached an excerpt of the boundary condition submitted to Shawn Wessel (page 72 of the Site Servicing Report) that shows that the Boundary Condition was calculated based on the OBC, which is provincial legislation. During the project, I had these discussions with the Water Resources Group (Walid Khawan).

As information to you and the water resource engineer on-file and as noted during my conversation, there are numerous high-rise condominium Towers in the downtown area that were approved using the OBC approach (NFPA 13), including:

151 Chapel Street (25 and 26 storey high rise Towers) – Trinity Development
505 Preston Street (45 storey high rise Tower) - Claridge Homes
201, 301 & 324 Lett Street (25 to 45 storey high rise Towers) Claridge (Lebreton Flats)
450 Lloyd Avenue (25 to 45 storey high-rise Towers) Claridge (Lebreton Flats)
133 Booth Street (25 to 45 storey high-rise Towers) Claridge (Lebreton Flats)
212 Slater (22 storey high-rise Tower) - 212 Slater
245 Rideau Street (19 storey high-rise Tower) - 245 Rideau
141 George Street, 325 Dalhousie and 110 York (15 storey, 22 storey 18 storey high rise Towers)
145 Loretta & 951 Gladstone (30, 35 and 40 high-rise towers) Trinity development

If you or the water resource engineer on file wishes to discuss, please do not hesitate to call me or Alex.

Regards,

Guy

Guy Forget, P.Eng., LEED AP
Senior Water Resources Engineer

J.L. Richards & Associates Limited
700 - 1565 Carling Avenue, Ottawa, ON K1Z 8R1
Direct: 343-804-5363

From: Alexandre Tourigny <atourigny@jlrichards.ca>
Sent: Tuesday, August 17, 2021 11:14 AM
To: Guy Forget <gforget@jlrichards.ca>
Subject: FW: 359 Kent and 436 444 MacLaren St - boundary conditions

---

From: Derek Howe <derek.howe@taggart.ca>
Sent: Tuesday, August 17, 2021 11:04 AM
To: Bakhit, Reza <reza.bakhit@ottawa.ca>; Alexandre Tourigny <atourigny@jlrichards.ca>
Cc: Baldwin, Kimberley <Kimberley.Baldwin@ottawa.ca>; Kyle Kazda <kyle.kazda@taggart.ca>; Annie Williams <awilliams@jlrichards.ca>; Mahad Musse <mmusse@jlrichards.ca>
Subject: RE: 359 Kent and 436 444 MacLaren St - boundary conditions

Dear Reza:

We did get the email and the work is on-going in terms of the analysis. However, we are still awaiting the boundary conditions to assist the process of the analysis.

Do you have an expected ETA for this information to be delivered to Taggart? My sincere thanks for your attention to this information. We are now some 20 days after our initial request that was made to the City of Ottawa.

Sincerely,

Derek Howe

Derek A. Howe, MBA | VP, Development
Taggart Realty Management
T | 613-234-7000 ext: 582 **M** | 613-883-2059
A | 225 Metcalfe Street, Suite 708, Ottawa, Ontario K2P 1P9
E | derek.howe@taggart.ca
W | https://www.taggart.ca/

Integrity. Quality. Community. Since 1948

From: Bakhit, Reza <reza.bakhit@ottawa.ca>
Sent: August 17, 2021 10:02 AM
To: Alexandre Tourigny <atourigny@jlrichards.ca>
Cc: Baldwin, Kimberley <Kimberley.Baldwin@ottawa.ca>; Kyle Kazda <kyle.kazda@taggart.ca>; Derek Howe <derek.howe@taggart.ca>; Annie Williams <awilliams@jlrichards.ca>; Mahad Musse <mmusse@jlrichards.ca>
Subject: RE: 359 Kent and 436 444 MacLaren St - boundary conditions

Hi Alexander,

I sent the attached email to Annie on July 29th . Also, I remember it was noted in the meeting that your team are working on it.

Regards,

Reza Bakhit, P.Eng, C.E.T
Project Manager
Planning, Infrastructure and Economic Development Department - Services de la planification, de l'infrastructure 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
613.580.2400 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: Alexandre Tourigny <atourigny@jlrichards.ca>
Sent: Tuesday, August 17, 2021 8:30 AM
To: Bakhit, Reza <reza.bakhit@ottawa.ca>
Cc: Baldwin, Kimberley <Kimberley.Baldwin@ottawa.ca>; Kyle Kazda <kyle.kazda@taggart.ca>; Derek Howe <derek.howe@taggart.ca>; Annie Williams <awilliams@jlrichards.ca>; Mahad Musse <mmusse@jlrichards.ca>
Subject: RE: 359 Kent and 436 444 MacLaren St - boundary conditions

Kindly following up on the Boundary condition request from July 29th.

Thank you.

Alexandre Tourigny, P.Eng.
Civil Engineer

J.L. Richards & Associates Limited
700 - 1565 Carling Avenue, Ottawa, ON K1Z 8R1
Direct: 343-803-4522

From: Annie Williams <awilliams@jlrichards.ca>
Sent: Thursday, July 29, 2021 10:26 AM
To: Bakhit, Reza <reza.bakhit@ottawa.ca>
Cc: Baldwin, Kimberley <Kimberley.Baldwin@ottawa.ca>; Kyle Kazda <kyle.kazda@taggart.ca>; Derek Howe <derek.howe@taggart.ca>; Alexandre Tourigny <atourigny@jlrichards.ca>
Subject: RE: 359 Kent and 436 444 MacLaren St - boundary conditions

Good morning Reza,

Here is our boundary condition request.

We are preparing a Servicing Brief in support of a zoning application for a redevelopment located at 359 Kent Street in Ottawa (see attached Location Plan). The redevelopment of the subject property consists of a 35-storey high-rise residential building.

The proposed building will warrant a dual connection to the existing distribution system for redundancy given that the overall average day demand will exceed 50 m^3. We intend to provide the dual water service connection to the existing Gilmour Street 305 mm diameter watermain with an isolation valve in between both laterals or alternatively to the existing Kent Street 305 mm diameter watermain.

We, therefore, request hydraulic boundary conditions for the subject site at two (2) locations on the Gilmour Street 305 mm diameter watermain and at one (1) location on the Kent Street 305 mm diameter watermain.

Based on the City Design Guidelines, the following theoretical demands were estimated:

Average Day = 2.20 L/s
Maximum Day = 5.49 L/s
Peak Hour = 12.06 L/s

Minimum hour = 0.89 L/s
Required Fire Flow (RFF per FUS) = 30,000 L/min (500 L/s)
Required Fire Flow (RFF per OBC) = 4,150 L/min (69.2 L/s)

The RFF was calculated in accordance with the Fire Underwriters Survey (FUS) and City Technical Bulletin ISTB-2018-02. We request a boundary condition under the typical scenarios for each of the 3 locations. The water demand and fire flow calculations are attached.

Note that the RFF was also calculated per OBC for the sprinkler system from NFPA 13, Table 11.2.2.1 (sprinkler) and Table 11.2.3.1.2 (hose allowances).

If we could receive the requested boundary conditions at your earliest convenience it would be much appreciated.

Should you have any questions or require anything further, please do not hesitate to ask.

Regards,
Annie

From: Derek Howe <derek.howe@taggart.ca>
Sent: Wednesday, July 28, 2021 12:43 PM
To: Bakhit, Reza <reza.bakhit@ottawa.ca>; Baldwin, Kimberley <Kimberley.Baldwin@ottawa.ca>
Cc: Annie Williams <awilliams@jlrichards.ca>; Kyle Kazda <kyle.kazda@taggart.ca>
Subject: RE: 359 Kent and 436 444 MacLaren St - boundary conditions

Dear Reza:

Your response is much appreciated! I have copied our consultant Ms. Annie Williams from JL Richard who will be able to answer your request in short order.

Let's see if we can get the information in our hands for the meeting – but at least we have started the process with your office and that of Ms. Baldwin.

Stay tuned!

Sincerely,

Derek Howe

_____

Derek A. Howe, MBA
Taggart Realty Management
M | 613-883-2059

From: Bakhit, Reza <reza.bakhit@ottawa.ca>
Sent: July 28, 2021 12:40 PM
To: Baldwin, Kimberley <Kimberley.Baldwin@ottawa.ca>; Derek Howe <derek.howe@taggart.ca>
Subject: RE: 359 Kent and 436 444 MacLaren St - boundary conditions

Hi Derek,

To request the boundary condition for you. I need the following information as well as a simple sketch that shows the approximate location of the connection to the City system. Once have the info I will send the request to the water resources team to calculate the boundary condition. It could take up to ten day for them to get back to us.

Type of Development:	
Location of Service:	
Amount of Fire Flow Required (FUS):	
Amount of Fire Flow Required (OBC):	
Average Daily Demand (L/sec):	
Maximum Daily Demand (L/sec):	
Maximum Hourly Demand (L/sec):	

Kind regards,

Reza Bakhit, P.Eng, C.E.T
Project Manager
Planning, Infrastructure and Economic Development Department - Services de la planification, de l'infrastructure 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
613.580.2400 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: Baldwin, Kimberley <Kimberley.Baldwin@ottawa.ca>
Sent: Wednesday, July 28, 2021 10:48 AM
To: Bakhit, Reza <reza.bakhit@ottawa.ca>
Subject: FW: 359 Kent and 436 444 MacLaren St - boundary conditions

Hi Reza,

As per Derek's request below, are you able to share the boundary conditions prior to next week's meeting?

Thanks
Kim

From: Derek Howe <derek.howe@taggart.ca>
Sent: July 27, 2021 4:36 PM
To: Baldwin, Kimberley <Kimberley.Baldwin@ottawa.ca>; James, Douglas <Douglas.James@ottawa.ca>
Cc: Kyle Kazda <kyle.kazda@taggart.ca>; Paul Black <black@fotenn.com>
Subject: RE: 359 Kent and 436 444 MacLaren St - pre-consult

ug:

Thank you very much for sending out the pre-consult invite – much appreciated. In order to make the meeting as fruitful as possible, would it be possible for the City's Engineer confirm the boundary conditions for the site? I would like to have the question provided to JL Richards before the meeting as they have completed their preliminary modelling for the services and this will allow for a better framework for their discussions and associated questions to the City's Engineer.

Under separate cover, Kyle will send you Kim the list of the other attendees/consultants from our team and we will forward your invite to them.

Thanks so much!

Sincerely,

Derek Howe

-----Original Appointment-----
From: Baldwin, Kimberley <Kimberley.Baldwin@ottawa.ca>
Sent: July 27, 2021 4:19 PM
To: Baldwin, Kimberley; Miguel Tremblay; Kyle Kazda; Derek Howe; Barry J. Hobin; pbisson@hobinarc.com
Subject: FW: 359 Kent and 436 444 MacLaren St - pre-consult
When: August 4, 2021 10:00 AM-11:00 AM (UTC-05:00) Eastern Time (US & Canada).
Where: Microsoft Teams Meeting

-----Original Appointment-----
From: Baldwin, Kimberley <Kimberley.Baldwin@ottawa.ca>
Sent: Monday, July 12, 2021 2:17 PM
To: Baldwin, Kimberley; Baldwin, Kimberley; Kimm, MacKenzie; Bakhit, Reza; Wang, Randolph; Paudel, Neeti; yakichuk@fotenn.com; Paul Black
Subject: 359 Kent and 436 444 MacLaren St - pre-consult
When: Wednesday, August 4, 2021 10:00 AM-11:00 AM (UTC-05:00) Eastern Time (US & Canada).
Where: Microsoft Teams Meeting

Microsoft Teams meeting

Join on your computer or mobile app
Click here to join the meeting

Or call in (audio only)

+1 613-319-1080,,864263282# Canada, Ottawa-Hull

Phone Conference ID: 864 263 282#

Find a local number | Reset PIN

Learn More | Meeting options

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This e-mail originates from the City of Ottawa e-mail system. Any distribution, use or copying of this e-mail or the information it contains by other than the intended recipient(s) is unauthorized. Thank you.

Le présent courriel a été expédié par le système de courriels de la Ville d'Ottawa. Toute distribution, utilisation ou reproduction du courriel ou des renseignements qui s'y trouvent par une personne autre que son destinataire prévu est interdite. Je vous remercie de votre collaboration.

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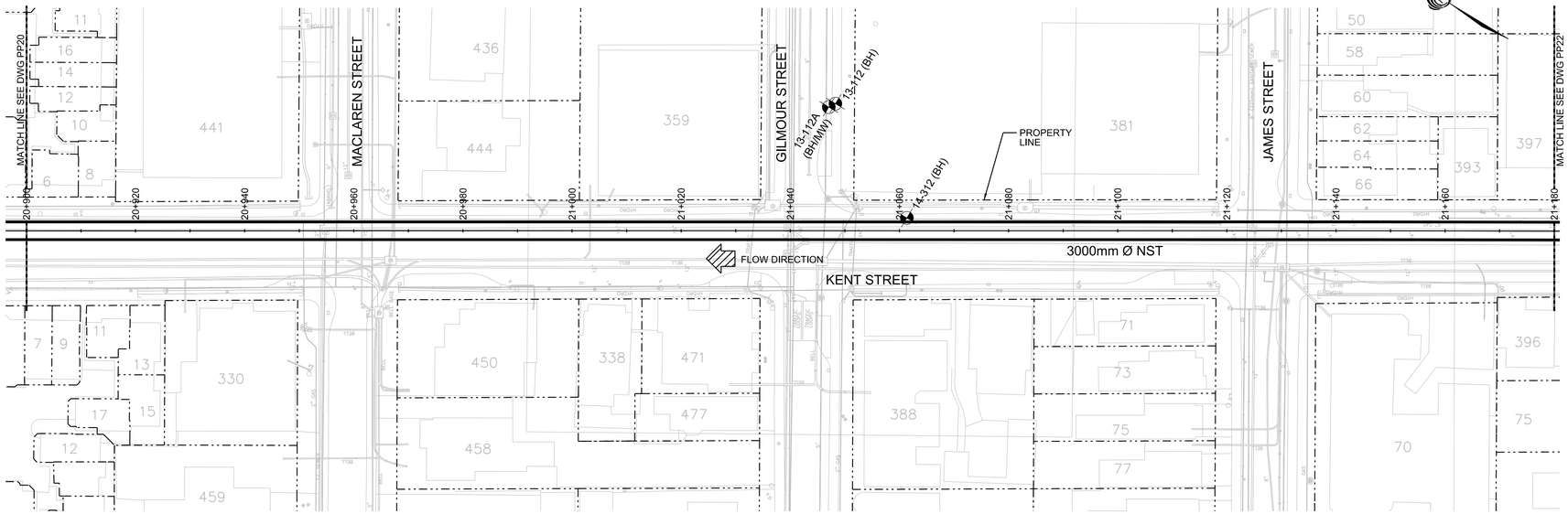
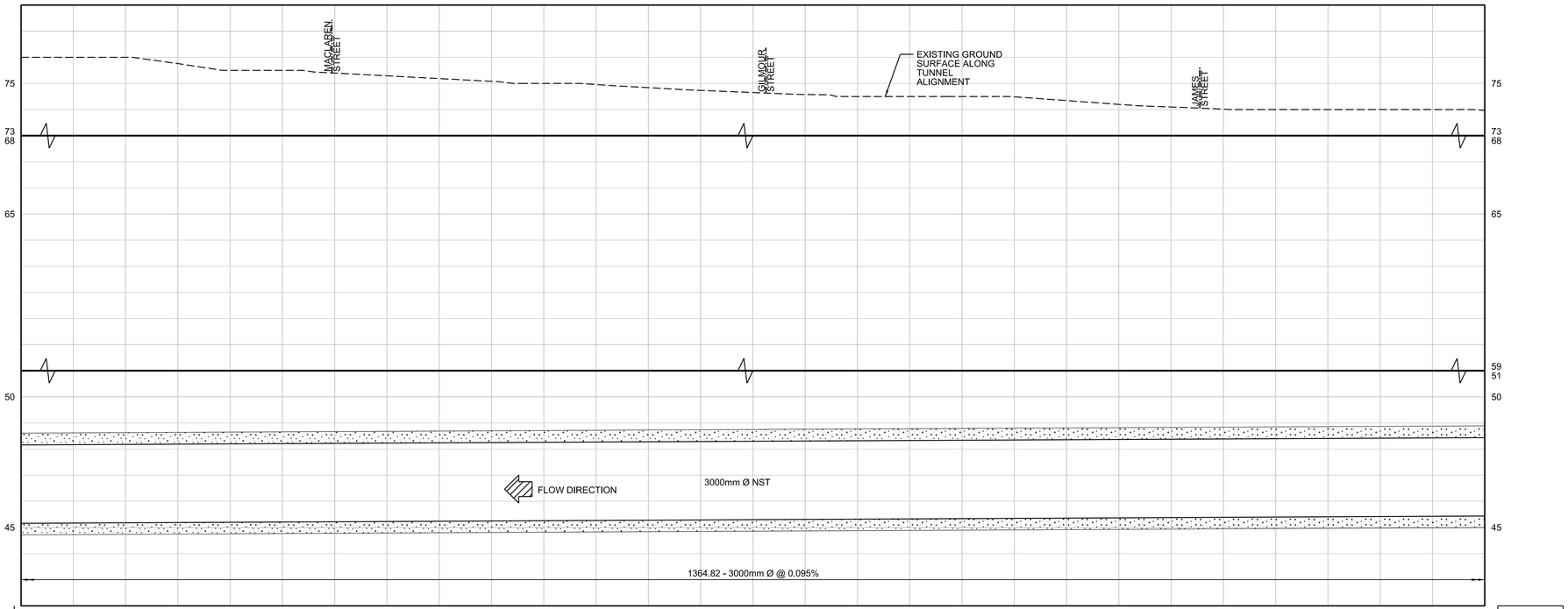
'

Appendix C

Background Drawings





EXISTING GRADE	74.00	74.00	73.50	73.40	73.19	73.00	72.84	72.65	72.50	72.50	72.34	72.10	72.00	72.00	71.97
INVERT ELEVATION	45.16	45.18	45.20	45.22	45.24	45.26	45.28	45.30	45.32	45.34	45.36	45.38	45.40	45.42	45.44
STATION	20+900.00	20+920.00	20+940.00	20+960.00	20+980.00	21+000.00	21+020.00	21+040.00	21+060.00	21+080.00	21+100.00	21+120.00	21+140.00	21+160.00	21+180.00

OTTAWA COMBINED SEWAGE STORAGE TUNNEL

CIVIL
PLAN AND PROFILE
STA 20+740 TO STA 21+040
NORTH-SOUTH TUNNEL

W. Newell, P. Eng.
General Manager, Infrastructure Services

R. Dempsey, P. Eng.
Senior Engineer, Infrastructure Services

Stantec CH2MHILL

LICENSED PROFESSIONAL ENGINEER C. QUINTERO 100012301 JUNE 30, 2016 PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER P. PITRE 100012758 JUNE 24 PROVINCE OF ONTARIO

Ottawa

Contract No.	Dwg. No.
ISD14-2036	PP21

Asset No.

Asset Group

Des.	Chk'd.
C. Quintero	P.Pitre
Dwn.	Chk'd.
J. Arico	C. Quintero
Utility Circ. No.	Index No.

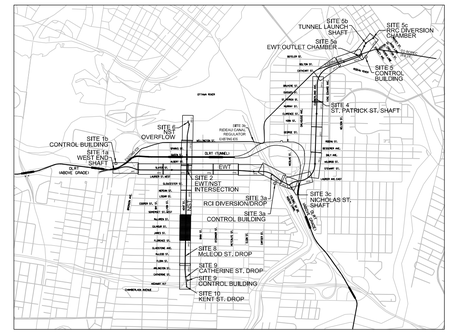
Const. Inspector

Scale:
HORIZONTAL 500
0m 5 10 20
0m 2 4
VERTICAL 100

NOTE: The location of 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.

REVISIONS

No.	Description	By	Date (dd/mm/yy)
2	ISSUED FOR CONSTRUCTION	D.L.	2016/06/30
1	ISSUED FOR TENDER	J.A.	2015/10/01
C	ISSUED FOR 95% DESIGN	J.A.	2015/02/27
B	ISSUED FOR 70% DESIGN	M.D.	2014/08/29
A	ISSUED FOR PRELIMINARY DESIGN	M.D.	2014/04/18



KEY PLAN

NOTE:

1. SEE NOTES ON DRAWING PP1.

Appendix D

Water Servicing Calculations

Water Demand Calculations

359 Kent Street

(JLR 31260)

Residential Unit Breakdown	No.	Person Per Unit (Table 4.1)
Studio	33	1.4
1 Bedroom	159	1.4
2 Bedroom	130	2.1
Total Population =	**542**	**ppl**
Average Day Consumption Rate	280	L/c/d (Ottawa)
Average Day Demand	**1.76**	**L/s**
Maximum Day Peaking Factor	2.50	x Avg Day (Ottawa)
Maximum Day Demand	**4.39**	**L/s**
Peak Hour Peaking Factor	2.20	x Max Day (Ottawa)
Peak Hour Demand	**9.66**	**L/s**

Commercial/Office Space		
Area	4278	sqft
	397	sqm
Average Day Consumption Rate	2500	L/(1000m2/d)
Average Day Demand	**0.01**	**L/s**
Maximum Day Peaking Factor	1.50	City of Ottawa
Maximum Day Demand	**0.02**	**L/s**
Peak Hour Peaking Factor	1.80	City of Ottawa
Peak Hour Demand	**0.03**	**L/s**

Total Demands for 359 Kent St.		
Average Day Demand	**1.77**	**L/s**
Maximum Day Demand	**4.41**	**L/s**
Peak Hour Demand	**9.69**	**L/s**

Mahad Musse

From: Bakhit, Reza <reza.bakhit@ottawa.ca>
Sent: August 17, 2021 12:32 PM
To: Guy Forget
Cc: Derek Howe; Alexandre Tourigny; Baldwin, Kimberley; kyle.kazda@taggart.ca; Annie Williams; Mahad Musse
Subject: RE: 359 Kent and 436 444 MacLaren St - boundary conditions
Attachments: 359 Kent Street August 2021.pdf

Hi Guy,

Thanks for clarifications.

The following are boundary conditions, HGL, for hydraulic analysis at 359 Kent Street (zone 1W) assumed to be a dual connection to the 305 mm watermain on Gilmour Street OR the 305 on Kent Street (see attached PDF for location).

Minimum HGL: 107.0 m

Maximum HGL: 115.4 m

Max Day + FF (500 L/s): 104.1 m (Gilmour) and 103.2 m (Kent)

Max Day + FF (69.2 L/s): 109.5 m (Gilmour) and 109.5 m (Kent)

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, Infrastructure and Economic Development Department - Services de la planification, de l'infrastructure 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
613.580.2400 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: Guy Forget <gforget@jlrichards.ca>
Sent: Tuesday, August 17, 2021 11:39 AM
To: Bakhit, Reza <reza.bakhit@ottawa.ca>
Cc: Derek Howe <derek.howe@taggart.ca>; Alexandre Tourigny <atourigny@jlrichards.ca>; Baldwin, Kimberley <Kimberley.Baldwin@ottawa.ca>; kyle.kazda@taggart.ca; Annie Williams <awilliams@jlrichards.ca>; Mahad Musse <mmusse@jlrichards.ca>
Subject: FW: 359 Kent and 436 444 MacLaren St - boundary conditions

Hi Reza,

Thanks for taking my call and discuss the above-noted project and associated boundary conditions.

As discussed, Annie from our office requested boundary conditions in her email dated July 29, 2021 (see below). This email requested boundary conditions under domestic demands as well as for the maximum day plus fire flow condition. The email provided both the FUS requirement as well as the fire flow requirement under the Ontario Building Code (OBC), which is the provincial legislation on private property. I have highlighted in yellow this request for theta given fire flow.

As discussed with Annie and subsequently with me, Section 6.2 of the OBC (see attached excerpt) requires that buildings that are equipped with a sprinkler system be designed in accordance with NFPA 13. The required fire flow (RFF) based on NFPA 13 must account for two (2) components: i) the sprinkler system allowance, and ii) a hose stream allowance, both of which expressed in flow rates.

We understand that the City recommends the use of the FUS. However, within private property where a high-rise residential building equipped with a sprinkler system is proposed, the provincial regulation that applies is the Ontario Building Code.

I have attached excerpts extracted from NFPA 13; the chart associated with the sprinkler system allowance (Table 11.2.2.1) and also the chart for the hose stream allowance (Table 11.2.3.1.2). As per NFPA 13 and for the propose building classification, the RFF should consist of the following:

Sprinkler system flow = 3,200 L/min (Table 11.2.2.1) and a hose stream allowance 950 L/min (Table 11.2.3.1.2), which amounts to 4,150 L/min (69.2 L/s).

We, therefore, kindly request hydraulic boundary conditions for the above-noted project for a RFF of 69.2 L/s, the requirement under the OBC.

As I noted earlier to you, we have coordinated the use of the OBC (NFPA 13) approach for the Brigil high-rise condominium tower (28 storey) at 99 Parkdale in 2020. I have attached an excerpt of the boundary condition submitted to Shawn Wessel (page 72 of the Site Servicing Report) that shows that the Boundary Condition was calculated based on the OBC, which is provincial legislation. During the project, I had these discussions with the Water Resources Group (Walid Khawan).

As information to you and the water resource engineer on-file and as noted during my conversation, there are numerous high-rise condominium Towers in the downtown area that were approved using the OBC approach (NFPA 13), including:

151 Chapel Street (25 and 26 storey high rise Towers) – Trinity Development
505 Preston Street (45 storey high rise Tower) - Claridge Homes
201, 301 & 324 Lett Street (25 to 45 storey high rise Towers) Claridge (Lebreton Flats)
450 Lloyd Avenue (25 to 45 storey high-rise Towers) Claridge (Lebreton Flats)
133 Booth Street (25 to 45 storey high-rise Towers) Claridge (Lebreton Flats)
212 Slater (22 storey high-rise Tower) - 212 Slater
245 Rideau Street (19 storey high-rise Tower) - 245 Rideau
141 George Street, 325 Dalhousie and 110 York (15 storey, 22 storey 18 storey high rise Towers)
145 Loretta & 951 Gladstone (30, 35 and 40 high-rise towers) Trinity development

If you or the water resource engineer on file wishes to discuss, please do not hesitate to call me or Alex.

Regards,

Guy

Guy Forget, P.Eng., LEED AP
Senior Water Resources Engineer

J.L. Richards & Associates Limited
700 - 1565 Carling Avenue, Ottawa, ON K1Z 8R1
Direct: 343-804-5363

From: Alexandre Tourigny <atourigny@jlrichards.ca>
Sent: Tuesday, August 17, 2021 11:14 AM
To: Guy Forget <gforget@jlrichards.ca>
Subject: FW: 359 Kent and 436 444 MacLaren St - boundary conditions

---

From: Derek Howe <derek.howe@taggart.ca>
Sent: Tuesday, August 17, 2021 11:04 AM
To: Bakhit, Reza <reza.bakhit@ottawa.ca>; Alexandre Tourigny <atourigny@jlrichards.ca>
Cc: Baldwin, Kimberley <Kimberley.Baldwin@ottawa.ca>; Kyle Kazda <kyle.kazda@taggart.ca>; Annie Williams <awilliams@jlrichards.ca>; Mahad Musse <mmusse@jlrichards.ca>
Subject: RE: 359 Kent and 436 444 MacLaren St - boundary conditions

Dear Reza:

We did get the email and the work is on-going in terms of the analysis. However, we are still awaiting the boundary conditions to assist the process of the analysis.

Do you have an expected ETA for this information to be delivered to Taggart? My sincere thanks for your attention to this information. We are now some 20 days after our initial request that was made to the City of Ottawa.

Sincerely,

Derek Howe

Derek A. Howe, MBA | VP, Development
Taggart Realty Management
T | 613-234-7000 ext: 582 **M** | 613-883-2059
A | 225 Metcalfe Street, Suite 708, Ottawa, Ontario K2P 1P9
E | derek.howe@taggart.ca
W | https://www.taggart.ca/

From: Bakhit, Reza <reza.bakhit@ottawa.ca>
Sent: August 17, 2021 10:02 AM
To: Alexandre Tourigny <atourigny@jlrichards.ca>
Cc: Baldwin, Kimberley <Kimberley.Baldwin@ottawa.ca>; Kyle Kazda <kyle.kazda@taggart.ca>; Derek Howe <derek.howe@taggart.ca>; Annie Williams <awilliams@jlrichards.ca>; Mahad Musse <mmusse@jlrichards.ca>
Subject: RE: 359 Kent and 436 444 MacLaren St - boundary conditions

Hi Alexander,

I sent the attached email to Annie on July 29th . Also, I remember it was noted in the meeting that your team are working on it.

Regards,

Reza Bakhit, P.Eng, C.E.T
Project Manager
Planning, Infrastructure and Economic Development Department - Services de la planification, de l'infrastructure 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
613.580.2400 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.

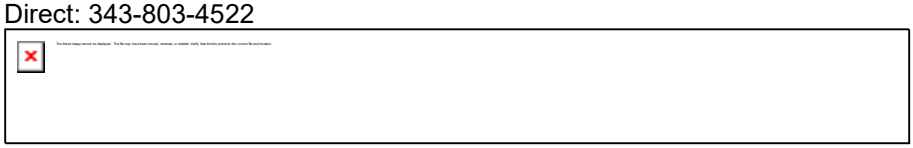
From: Alexandre Tourigny <atourigny@jlrichards.ca>
Sent: Tuesday, August 17, 2021 8:30 AM
To: Bakhit, Reza <reza.bakhit@ottawa.ca>
Cc: Baldwin, Kimberley <Kimberley.Baldwin@ottawa.ca>; Kyle Kazda <kyle.kazda@taggart.ca>; Derek Howe <derek.howe@taggart.ca>; Annie Williams <awilliams@jlrichards.ca>; Mahad Musse <mmusse@jlrichards.ca>
Subject: RE: 359 Kent and 436 444 MacLaren St - boundary conditions

Kindly following up on the Boundary condition request from July 29th.

Thank you.

Alexandre Tourigny, P.Eng.
Civil Engineer

J.L. Richards & Associates Limited
700 - 1565 Carling Avenue, Ottawa, ON K1Z 8R1
Direct: 343-803-4522



J.L. Richards & Associates Limited is proactively doing our part to protect the wellbeing of our staff and communities while improving our communication technology. ***We are pleased to announce that we have implemented direct phone lines for all of our staff, allowing you to connect with us regardless of whether we are working remotely or in the office.*** *We are dedicated to delivering quality services to you through value and commitment, as always. Please reach out to us if you have any questions about your project.*

From: Annie Williams <awilliams@jlrichards.ca>
Sent: Thursday, July 29, 2021 10:26 AM
To: Bakhit, Reza <reza.bakhit@ottawa.ca>
Cc: Baldwin, Kimberley <Kimberley.Baldwin@ottawa.ca>; Kyle Kazda <kyle.kazda@taggart.ca>; Derek Howe <derek.howe@taggart.ca>; Alexandre Tourigny <atourigny@jlrichards.ca>
Subject: RE: 359 Kent and 436 444 MacLaren St - boundary conditions

Good morning Reza,

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We are preparing a Servicing Brief in support of a zoning application for a redevelopment located at 359 Kent Street in Ottawa (see attached Location Plan). The redevelopment of the subject property consists of a 35-storey high-rise residential building.

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We, therefore, request hydraulic boundary conditions for the subject site at two (2) locations on the Gilmour Street 305 mm diameter watermain and at one (1) location on the Kent Street 305 mm diameter watermain.

Based on the City Design Guidelines, the following theoretical demands were estimated:

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Required Fire Flow (RFF per OBC) = 4,150 L/min (69.2 L/s)

The RFF was calculated in accordance with the Fire Underwriters Survey (FUS) and City Technical Bulletin ISTB-2018-02. We request a boundary condition under the typical scenarios for each of the 3 locations. The water demand and fire flow calculations are attached.

Note that the RFF was also calculated per OBC for the sprinkler system from NFPA 13, Table 11.2.2.1 (sprinkler) and Table 11.2.3.1.2 (hose allowances).

If we could receive the requested boundary conditions at your earliest convenience it would be much appreciated.

Should you have any questions or require anything further, please do not hesitate to ask.

Regards,
Annie

From: Derek Howe <derek.howe@taggart.ca>
Sent: Wednesday, July 28, 2021 12:43 PM
To: Bakhit, Reza <reza.bakhit@ottawa.ca>; Baldwin, Kimberley <Kimberley.Baldwin@ottawa.ca>
Cc: Annie Williams <awilliams@jlrichards.ca>; Kyle Kazda <kyle.kazda@taggart.ca>
Subject: RE: 359 Kent and 436 444 MacLaren St - boundary conditions

Dear Reza:

Your response is much appreciated! I have copied our consultant Ms. Annie Williams from JL Richard who will be able to answer your request in short order.

Let's see if we can get the information in our hands for the meeting – but at least we have started the process with your office and that of Ms. Baldwin.

Stay tuned!

Sincerely,

Derek Howe

_____

Derek A. Howe, MBA
Taggart Realty Management
M | 613-883-2059

From: Bakhit, Reza <reza.bakhit@ottawa.ca>
Sent: July 28, 2021 12:40 PM
To: Baldwin, Kimberley <Kimberley.Baldwin@ottawa.ca>; Derek Howe <derek.howe@taggart.ca>
Subject: RE: 359 Kent and 436 444 MacLaren St - boundary conditions

Hi Derek,

To request the boundary condition for you. I need the following information as well as a simple sketch that shows the approximate location of the connection to the City system. Once have the info I will send the request to the water resources team to calculate the boundary condition. It could take up to ten day for them to get back to us.

Type of Development:	
Location of Service:	
Amount of Fire Flow Required (FUS):	
Amount of Fire Flow Required (OBC):	
Average Daily Demand (L/sec):	
Maximum Daily Demand (L/sec):	
Maximum Hourly Demand (L/sec):	

Kind regards,

Reza Bakhit, P.Eng, C.E.T
Project Manager
Planning, Infrastructure and Economic Development Department - Services de la planification, de l'infrastructure et du développement économique
Development Review - Centeral Branch
City of Ottawa | Ville d'Ottawa
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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: Baldwin, Kimberley <Kimberley.Baldwin@ottawa.ca>
Sent: Wednesday, July 28, 2021 10:48 AM
To: Bakhit, Reza <reza.bakhit@ottawa.ca>
Subject: FW: 359 Kent and 436 444 MacLaren St - boundary conditions

Hi Reza,

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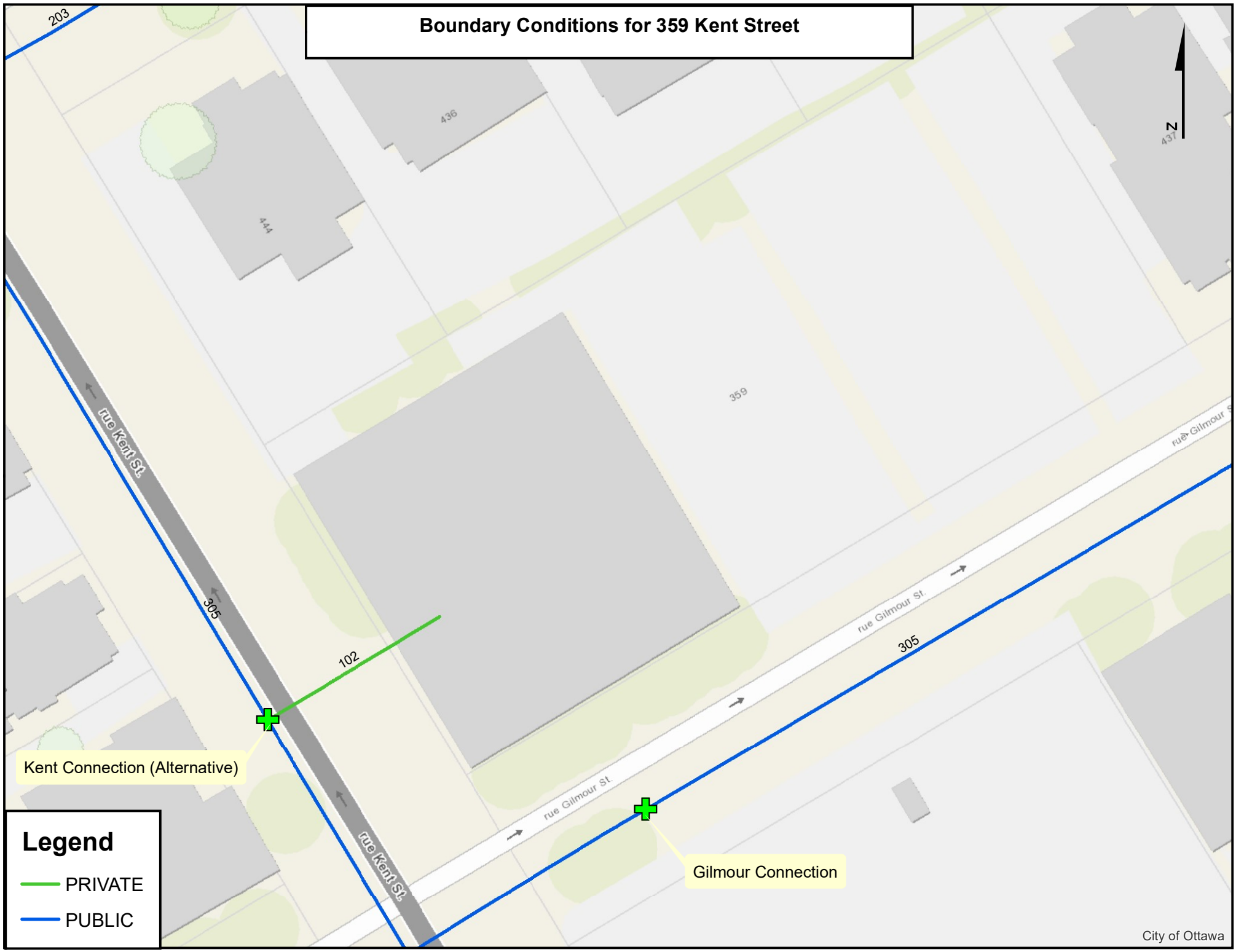
Thanks
Kim

From: Derek Howe <derek.howe@taggart.ca>
Sent: July 27, 2021 4:36 PM
To: Baldwin, Kimberley <Kimberley.Baldwin@ottawa.ca>; James, Douglas <Douglas.James@ottawa.ca>
Cc: Kyle Kazda <kyle.kazda@taggart.ca>; Paul Black <black@fotenn.com>
Subject: RE: 359 Kent and 436 444 MacLaren St - pre-consult


Boundary Conditions for 359 Kent Street
203
436
444
437
359
N
rue Kent St.
305
102
Kent Connection (Alternative)
rue Gilmour St.
305
Gilmour Connection
Legend
PRIVATE
PUBLIC
City of Ottawa

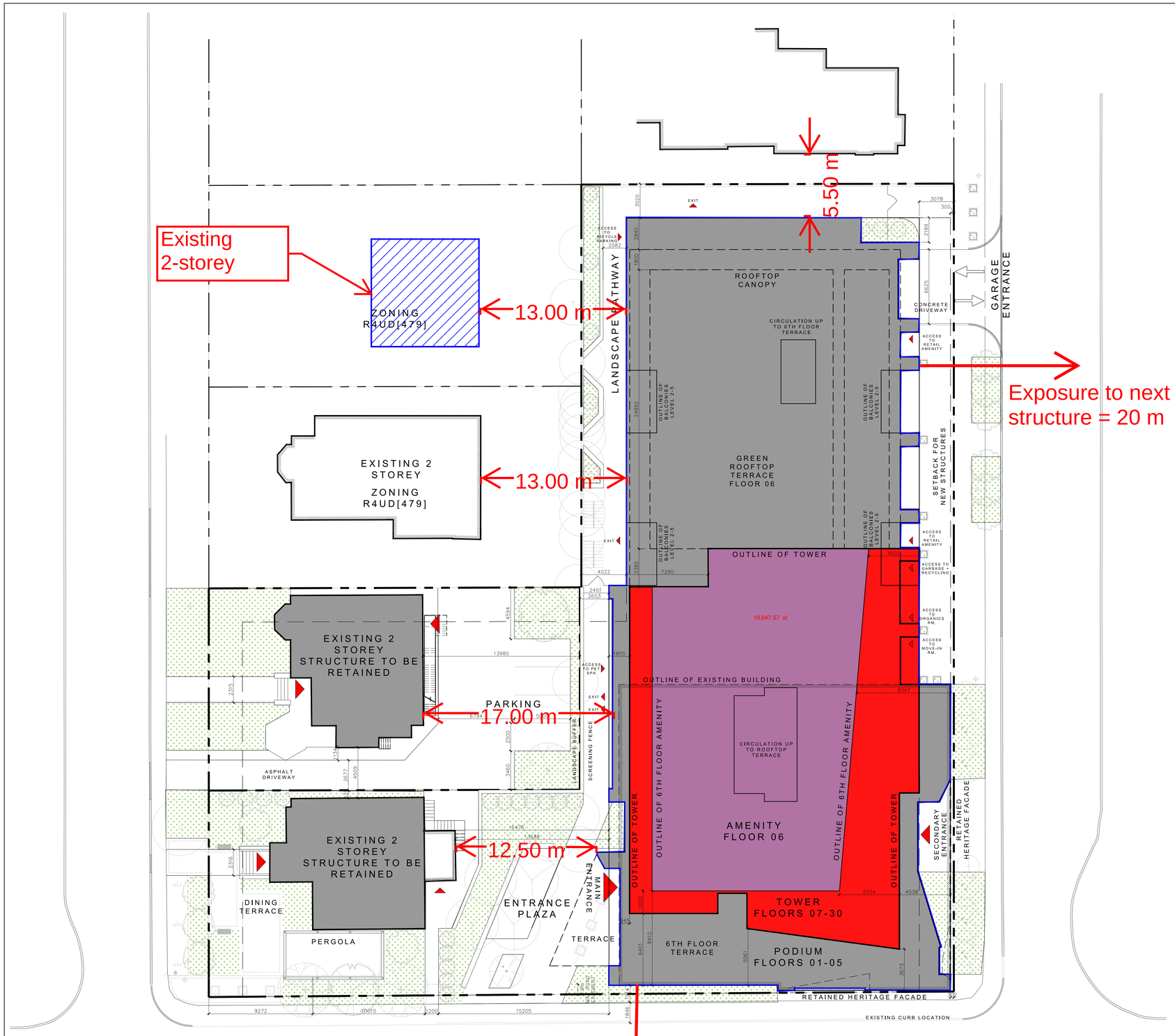
FUS Fire Flow Calculations

359 Kent St - High Rise Residential Development

(JLR 31260-000)

Step	Parameter	Value		Note
A	Type of Construction	Non-combustible		
	Coefficient (C)	0.8		
B	Sum of All Floors	23251	m^2	Area for all 30 storeys (only 10 storeys consider for FUS calculations)
C	Height in storeys	30	storeys	Basements are excluded.
	Total Floor Area	8101	m^2	Total Effective Area as per FUS (2020): consider the two largest floor areas plus 50% of all floors immediately above them up to a maximum of 8
D	Fire Flow Formula	F=220C√A		
	Fire Flow	15841	L/min	
	Rounded Fire Flow	16000	L/min	Flow rounded to nearest 1000 L/min.
E	Occupancy Class	Limited Combustible		Residential.
	Occupancy Charge	-15%		
	Occupancy Increase or Decrease	-2400		
	Fire Flow	13600	L/min	No rounding applied.
F	Sprinkler Protection	Automatic Fully Supervised		
	Sprinkler Credit	-50%		
	Decrease for Sprinkler	-6800	L/min	
G	*South Side Exposure*	**Gilmour St**		
	Exposing Wall:	Non-combustible		
	Exposed Wall:	Wood Frame		
	Length of Exposed Wall:	20.0	m	
	Height of Exposed Wall:	5	storeys	
	Length-Height Factor	100.0	m-storeys	
	Separation Distance	20	m	
	South Side Exposure Charge	15%		
	West Side Exposure	**Kent St**		
	Exposing Wall:	Non-combustible		
	Exposed Wall:	Wood Frame		
	Length of Exposed Wall:	30.0	m	
	Height of Exposed Wall:	2	storeys	
	Length-Height Factor	60.0	m-storeys	
	Separation Distance	15	m	
	West Side Exposure Charge	13%		
	North Side Exposure	**MacLaren St**		
	Exposing Wall:	Non-combustible		
	Exposed Wall:	Wood Frame		
	Length of Exposed Wall:	48.0	m	
	Height of Exposed Wall:	2	storeys	
	Length-Height Factor	96.0	m-storeys	
	Separation Distance	12.5	m	
	North Side Exposure Charge	15%		
	East Side Exposure	**Bank St Direction**		
	Exposing Wall:	Non-combustible		
	Exposed Wall:	Wood Frame		
	Length of Exposed Wall:	25.0	m	
	Height of Exposed Wall:	2	storeys	
	Length-Height Factor	50.0	m-storeys	
	Separation Distance	5.5	m	
	East Side Exposure Charge	18%		
	Total Exposure Charge	61%		The total exposure charge is below the maximum value of 75%.
	Increase for Exposures	8296	L/min	
H	Fire Flow	15096	L/min	
	Rounded Fire Flow	15000	L/min	Flow rounded to nearest 1000 L/min.
City Cap	**Required Fire Flow (RFF)**	**15000**	**L/min**	The City of Ottawa's cap does not apply since the building is a high rise building.
		250	**L/s**	

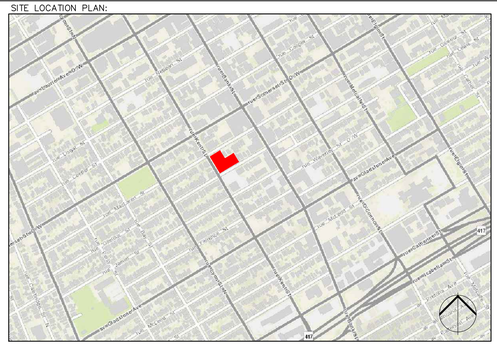
Fire Underwriters Survey (FUS) Fire Flow Calculations
In accordance with City of Ottawa Technical Bulletin ISTB-2018-02 dated March 21, 2018



A1.00 SITE PLAN
A1.00 1 : 200

None
2115

SITE LOCATION PLAN:



ZONING NOTES

CURRENT ZONING: NORTH PARCEL

LOT AREA : 3,606 m²

DEVELOPMENT STATS		REQUIRED	EXISTING BLDG.	PROPOSED
LOT WIDTH				MIN 33.2m MAX 66.5m
LOT DEPTH				MIN 36.4m MAX 72.0m
UNITS				
TOTAL UNITS				322
FRONT YARD SETBACK	KENT STREET		0 m	VARIES
REAR YARD SETBACK		7.5 MIN.		3.0 m
CORNER SIDE YARD SETBACK	GILMOUR AVE.		0 m	3.0 m
CORNER SIDE YARD SETBACK	MACLAREN AVE.			VARIES
BUILDING HEIGHTS				
PODIUM				24 m
34 STOREY TOWER				96 m
BUILDING AREA				
TOTAL GROSS				+/-320,744 sq.ft. (29,798 sq.m.)
TOTAL NET (RESIDENTIAL + COMMERCIAL/RETAIL				+/-250,271 sq.ft (23,251 sq.m.)
GROSS FLOOR AREA (city def.)				+/-250,271 sq.ft. (23,251 sq.m.)

NOTE: ALL EXISTING SITE INFORMATION AS PER SITE SURVEY PLAN DATED APRIL 16, 2021 AND PREPARED BY ANNIS O'SULLIVAN VOLLEBEK LTD

UNIT RATIOS	PROPOSED	
TOTAL UNIT COUNT		322
STUDIOS	33	10%
1 INTERNAL BEDROOM	2	1%
1 BEDROOM	106	33%
1 BEDROOM + DEN	51	16%
2 BEDROOM (1 INTERNAL)	17	5%
2 BEDROOM	110	34%
2 BEDROOM + DEN	3	1%

AMENITY SPACE REQUIREMENTS: 6 m² REQUIRED PER UNIT
(322 X 6 SQ.M. = 1,932 SQ.M. REQUIRED TO BE COMMON AMENITY SPACE)
(966 SQ.M. REQUIRED TO BE COMMON AMENITY SPACE)

PROVIDED AMENITY SPACE
2,894 SQ.M. TOTAL AMENITY PROVIDED 1,826 SQ.M. PROVIDED TO BE COMMON AMENITY SPACE

PARKING REQUIREMENTS: 322 units (*Reduced by 12) 310*0.5 = 155 + 310*0.1 = 31 = 186 (*all parking located below grade, required parking reduced by 10%) = 168 parking spaces required

PROVIDED RESIDENTIAL PARKING
185 RESIDENTIAL PARKING SPACES PROVIDED FOR 322 UNITS (0.57/UNIT)
PROVIDED VISITOR PARKING
31 VISITOR PARKING SPACES PROVIDED FOR 322 UNITS (0.10/UNIT)
216 TOTAL PARKING PARKING SPACES PROVIDED. (*76 SHORT CAR PARKING SPACES (35% OF TOTAL PARKING)

BICYCLE PARKING REQUIREMENTS: 322 units * 0.5 = 161

PROVIDED BICYCLE PARKING
299 (152 VERTICAL + 147 HORIZONTAL) BICYCLE PARKING SPACES PROVIDED FOR 322 UNITS (0.93/UNIT) * LOCATED IN UNDERGROUND PARKING GARAGE AND AT GROUND LEVEL (INT.)

LEGEND:

PROPOSED FIRE ROUTE
PROPOSED BUILDING
BUILDING TO BE DEMOLISHED
EXISTING MANHOLE
EXISTING TRAFFIC LIGHT
EXISTING FIRE HYDRANT
CONC. CURB DETAIL TO CITY OF OTTAWA STANDARDS
BIKE PARKING SPACE
EDGE OF SIDEWALK
PROPERTY LINE
SETBACK
PROPOSED DEPRESSED CURB DETAIL TO CITY OF OTTAWA STANDARD SC2.7
CURB TO BE REBUILT
ROLL CURB
EXISTING UTILITY POLE
EXISTING CATCH BASIN
PROPOSED CATCH BASIN
SIGNAGE FOR ACCESSIBLE PARKING SPACE
SIGNAGE FOR FIRE ROUTE ACCESS
EXISTING SIGN
EXISTING LIGHT POLE
NEW LIGHT POLE
PROPOSED WALL MOUNTED LIGHT
EXISTING STREET LIGHTING BOX
EXISTING TRAFFIC SIGNAL BOX

0 5 10 15 20
SCALE 1 : 150

TAGGART REALTY MANAGEMENT

PROJECT TEAM

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HOBIN ARCHITECTURE
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JOSHUA FOSTER
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SURVEYOR
ANNIS O'SULLIVAN VOLLEBEKL LTD.
ED HERWEYER
T 613-727-0850

no.	date	revision
1	21-09-02	ISSUED FOR REZONING
1	21-06-16	CITY OF OTTAWA PRECONSULTATION

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Ottawa, Ontario
Canada K1S 3K7
T: 613-238-7200
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E: mail@hobinarc.com
hobinarc.com

HOBIN ARCHITECTURE

PROJECT/LOCATION:
359 KENT STREET
OTTAWA ON.

DRAWING TITLE:
SITE PLAN

DRAWN BY:	DATE:	SCALE:
PB	23-02-28	1:150

PROJECT: 2027

DRAWING NO.: A1.00

REVISION NO.:

From: Patrick Bisson <pbisson@hobinarc.com>
Sent: July 14, 2021 8:38 AM
To: Annie Williams <awilliams@jlrichards.ca>; Kyle Kazda <kyle.kazda@taggart.ca>; Derek Howe <derek.howe@taggart.ca>
Cc: Alexandre Tourigny <atourigny@jlrichards.ca>; Lucie Dalrymple <ldalrymple@jlrichards.ca>
Subject: Re: 359 Kent - Questions in support of Water Analysis

Morning Annie,

See below in blue.

Cheers,

Patrick Bisson

Hobin Architecture Incorporated

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Canada K1S 3K7

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f 613-235-2005
e pbisson@hobinarc.com

hobinarc.com

On 2021-07-13 5:28 p.m., Annie Williams wrote:

> Good afternoon,
>
> It was nice to meet you all today. Following our discussion, here are our questions for Patrick to support the water servicing and boundary condition request:
>
> - Given the height and usage, we assumed that a sprinkler system (fully automatic) will be incorporated everywhere. Please confirm. Yes, building will be fully sprinlkerd
> - Please confirm the building construction type will be non-combustible as mentioned in the meeting. Yes, building will be non-combustible
> - Please confirm whether there will be windows on all 4 sides of both tower and podium. Yes, there will likely be windows on all sides of the podium.
> - Please confirm whether firewalls will be part of the building construction. Its one building from a use perspective so no fire walls. The building will have 2hr floor/floor fire separations along with a 1hr suite/suite fire separation.
> - Please confirm the unit statistics (1-bedroom, 2-bedroom, etc.) and the maximum number of units (and storeys) as we discussed. Total of 35 storeys, 411 units (267 or 65% 1-bedroom) (144 or 35% 2 bedroom)
> - Will there be commercial space in these buildings, if so, do you have an approximate area? **TAGGART to confirm** - Maybe assume 5000 sq.ft. of com/ret space at the ground floor flor now.
>
> We will complete our calculations based on the responses, and we will make assumptions for any information that cannot be confirmed at this time.
>
> Thank you,
> Annie

Annie Williams, P.Eng.
Civil Engineer

J.L. Richards & Associates Limited
700 - 1565 Carling Avenue, Ottawa, ON K1Z 8R1
Direct: 343-803-4523

J.L. Richards & Associates Limited is proactively doing our part to protect the wellbeing of our staff and communities while improving our communication technology. ***We are pleased to announce that we have implemented direct phone lines for all of our staff, allowing you to connect with us regardless of whether we are working remotely or in the office.*** *We are dedicated to delivering quality services to you through value and commitment, as always. Please reach out to us if you have any questions about your project.*

--
Patrick Bisson

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HEAD LOSS - HAZEN-WILLIAMS

359 Kent - High Rise Residential Development
(JLR 31260-000)

Updated Demands (March 2023)

Demand Scenario (Calculated March 2023)	Demand (L/s)
Average Day	1.77
Maximum Day	4.41
Required Fire Flow (FUS)	250.00
Required Fire Flow (NFPA)	69.20
Peak Hour	9.69

Boundary Conditions (Email from City -- August 17, 2021):

Water Demand Scenario	Demand (L/s)	Head (m) on Gilmour St. Connection	Head (m) on Kent St. Connection
Peak Hour	12.06	107.0	107.0
Maximum HGL	0	115.4	115.4
Max Day + Fire Flow (FUS)	500	104.1	103.2
Max Day + Fire Flow (NFPA)	69.12	109.5	109.5

Headloss Calculations (Hazen Williams Equation)

Hazen Williams equation (Mays, 1999; Streeter et al., 1998; Viessman and Hammer, 1993) where k=0.85 for meter and seconds units or 1.318 for feet and seconds units:

$$H = L\left[\frac{V}{kC}\left(\frac{4}{D}\right)^{0.63}\right]^{1/0.54} \qquad V = \frac{Q}{A} \qquad A = \frac{\pi}{4}D^2$$

Where,

HL = Headloss (m)

Q - Flow (m^3/s)
L - Pipe Length (m)
C - Hazen Williams "C"
D - Watermain Diameter (m)
V - Velocity (m/s)
A - Watermain Cross-Sectional Area (m^2)

Gilmour St. Connection Headloss Calculations

Water Demand Condition	Flow (Q) (L/s)	Flow (Q) (m^3/s)	Pipe Length (m)	C	D (m)	V (m/s)	A (m2)	Head Loss (m)	HGL (m) on Gilmour St.	Calculated HGL (m) at 359 Kent Tower	Elevation (m) at 359 Kent Tower	Pressure @ Node (m)	(kPa)	(psi)	ODG 4.2.2 Requirement	Criteria Acheived?
Peak Hour	9.69	0.00969	10.00	100	0.155	0.514	0.019	0.035	107.000	106.965	72.85	34.115	334	48.5	276 kPa	Yes
Maximum HGL	0.00	0.00000	10.00	100	0.155	0.000	0.019	0.000	115.400	115.400	72.85	42.550	417	60.5	552 kPa	Yes
Max Day + Fire Flow (NFPA)	73.61	0.07361	10.00	100	0.155	3.901	0.019	1.475	104.100	102.625	72.85	29.775	292	42.3	140 kPa	Yes

Kent St. Connection Headloss Calculations

Water Demand Condition	Flow (Q) (L/s)	Flow (Q) (m^3/s)	Pipe Length (m)	C	D (m)	V (m/s)	A (m2)	Head Loss (m)	HGL (m) on Kent St.	Calculated HGL (m) at 359 Kent Tower	Elevation (m) at 359 Kent Tower	Pressure @ Node (m)	(kPa)	(psi)	ODG 4.2.2 Requirement	Criteria Acheived?
Peak Hour	9.69	0.00969	12.50	100	0.108	1.058	0.009	0.251	107.000	106.749	72.85	33.899	332	48.2	276 kPa	Yes
Maximum HGL	0.00	0.00000	12.50	100	0.108	0.000	0.009	0.000	115.400	115.400	72.85	42.550	417	60.5	552 kPa	Yes
Max Day + Fire Flow (NFPA)	73.61	0.07361	12.50	100	0.108	8.035	0.009	10.713	103.200	92.487	72.85	19.637	193	27.9	140 kPa	Yes

11.2.2 Water Demand Requirements — Pipe Schedule Method.

11.2.2.1 Table 11.2.2.1 shall be used in determining the minimum water supply requirements for light and ordinary hazard occupancies protected by systems with pipe sized according to the pipe schedules of Section 23.7.

Table 11.2.2.1 Water Supply Requirements for Pipe Schedule Sprinkler Systems

Occupancy Classification	Minimum Residual Pressure Required		Acceptable Flow at Base of Riser (Including Hose Stream Allowance)		Duration (minutes)
	psi	bar	gpm	L/min	
Light hazard	15	1	500–750	1900-2850	30–60
Ordinary hazard	20	1.4	850–1500	3200-5700	60–90

11.2.2.2 Pressure and flow requirements for extra hazard occupancies shall be based on the hydraulic calculation methods of 11.2.3.

11.2.2.3 The pipe schedule method shall be permitted as follows:

(1) Additions or modifications to existing pipe schedule systems sized according to the pipe schedules of Section 23.7
(2) Additions or modifications to existing extra hazard pipe schedule systems
(3) New systems of 5000 ft^2 (465 m^2) or less
(4) New systems exceeding 5000 ft^2 (465 m^2) where the flows required in Table 11.2.2.1 are available at a minimum residual pressure of 50 psi (3.4 bar) at the highest elevation of sprinkler

11.2.2.4 Table 11.2.2.1 shall be used in determining the minimum water supply requirements.

11.2.2.5 The lower duration value of Table 11.2.2.1 shall be acceptable only where the sprinkler system waterflow alarm device(s) and supervisory device(s) are electrically supervised and such supervision is monitored at an approved, constantly attended location.

11.2.2.6* Residual Pressure.

11.2.2.6.1 The residual pressure requirement of Table 11.2.2.1 shall be met at the elevation of the highest sprinkler.

11.2.2.6.2 Friction Loss Due to Backflow Prevention Valves.

11.2.2.6.2.1 When backflow prevention valves are installed on pipe schedule systems, the friction losses of the device shall be accounted for when determining acceptable residual pressure at the top level of sprinklers.

11.2.2.6.2.2 The friction loss of this device [in psi (bar)] shall be added to the elevation loss and the residual pressure at the top row of sprinklers to determine the total pressure needed at the water supply.

11.2.2.7 The lower flow figure of Table 11.2.2.1 shall be permitted only where the building is of noncombustible construction or the potential areas of fire are limited by building size or compartmentation such that no open areas exceed 3000 ft^2 (280 m^2) for light hazard or 4000 ft^2 (370 m^2) for ordinary hazard.

11.2.3 Water Demand Requirements — Hydraulic Calculation Methods.

11.2.3.1 General.

11.2.3.1.1 The water demand for sprinklers shall be determined only from one of the following, at the discretion of the designer:

(1) Density/area curves of Figure 11.2.3.1.1 in accordance with the density/area method of 11.2.3.2
(2) The room that creates the greatest demand in accordance with the room design method of 11.2.3.3
(3) Special design areas in accordance with 11.2.3.4

11.2.3.1.2 The minimum water supply shall be available for the minimum duration specified in Table 11.2.3.1.2.

11.2.3.1.3 The lower duration values in Table 11.2.3.1.2 shall be permitted where the sprinkler system waterflow alarm device(s) and supervisory device(s) are electrically supervised and such supervision is monitored at an approved, constantly attended location.

11.2.3.1.4 Restrictions. When either the density/area method or room design method is used, the following shall apply:

(1)*For areas of sprinkler operation less than 1500 ft^2 (139 m^2) used for light and ordinary hazard occupancies, the density for 1500 ft^2 (139 m^2) shall be used.
(2) For areas of sprinkler operation less than 2500 ft^2 (232 m^2) for extra hazard occupancies, the density for 2500 ft^2 (232 m^2) shall be used.

11.2.3.1.5 Unsprinklered Combustible Concealed Spaces.

11.2.3.1.5.1* When using the density/area or room design method, unless the requirements of 11.2.3.1.5.2 are met for buildings having unsprinklered combustible concealed spaces, as described in 8.15.1.2 and 8.15.6, the minimum area of sprinkler operation for that portion of the building shall be 3000 ft^2 (280 m^2).

(A) The design area of 3000 ft^2 (280 m^2) shall be applied only to the sprinkler system or portions of the sprinkler system that are adjacent to the qualifying combustible concealed space.

(B) The term *adjacent* shall apply to any sprinkler system protecting a space above, below, or next to the qualifying concealed space except where a barrier with a fire resistance rating at least equivalent to the water supply duration completely separates the concealed space from the sprinklered area.

11.2.3.1.5.2 The following unsprinklered concealed spaces shall not require a minimum area of sprinkler operation of 3000 ft^2 (280 m^2):

(1) Noncombustible and limited-combustible concealed spaces with minimal combustible loading having no access. The space shall be considered a concealed space even with small openings such as those used as return air for a plenum.
(2) Noncombustible and limited-combustible concealed spaces with limited access and not permitting occupancy or storage of combustibles. The space shall be considered a concealed space even with small openings such as those used as return air for a plenum.
(3) Combustible concealed spaces filled entirely with noncombustible insulation.
(4)*Light or ordinary hazard occupancies where noncombustible or limited-combustible ceilings are directly attached

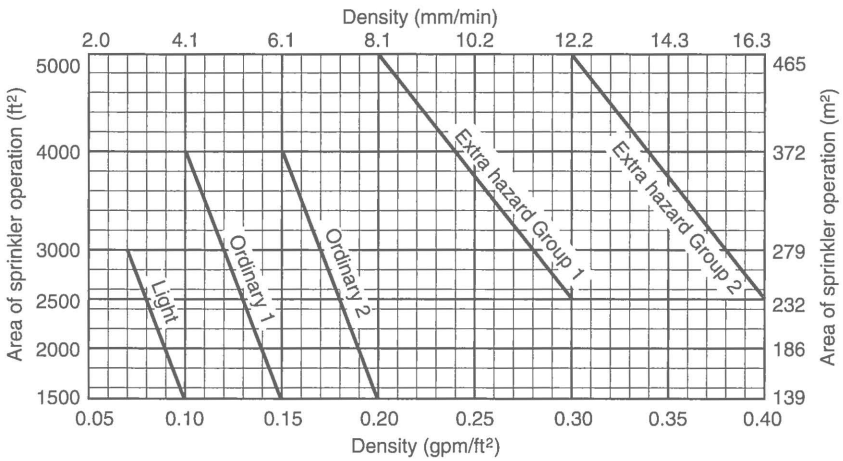


FIGURE 11.2.3.1.1 Density/Area Curves.

Table 11.2.3.1.2 Hose Stream Allowance and Water Supply Duration Requirements for Hydraulically Calculated Systems

Occupancy	Inside Hose		Total Combined Inside and Outside Hose		Duration (minutes)
	gpm	L/min	gpm	L/min	
Light hazard	0, 50, or 100	0, 190, or 380	100	380	30
Ordinary hazard	0, 50, or 100	0, 190, or 380	250	950	60–90
Extra hazard	0, 50, or 100	0, 190, or 380	500	1900	90–120

to the bottom of solid wood joists or solid limited-combustible construction or noncombustible construction so as to create enclosed joist spaces 160 ft^3 (4.5 m^3) or less in volume, including space below insulation that is laid directly on top or within the ceiling joists in an otherwise sprinklered concealed space.

(5) Concealed spaces where rigid materials are used and the exposed surfaces have a flame spread index of 25 or less and the materials have been demonstrated to not propagate fire more than 10.5 ft (3.2 m) when tested in accordance with ASTM E84, *Standard Test Method for Surface Burning Characteristics of Building Materials*, or ANSI/UL 723, *Standard for Test for Surface Burning Characteristics of Building Materials*, extended for an additional 20 minutes in the form in which they are installed in the space.

(6) Concealed spaces in which the exposed materials are constructed entirely of fire-retardant-treated wood as defined by NFPA 703.

(7) Concealed spaces over isolated small rooms not exceeding 55 ft^2 (5.1 m^2) in area.

(8) Vertical pipe chases under 10 ft^2 (0.9 m^2), provided that in multifloor buildings the chases are firestopped at each floor using materials equivalent to the floor construction, and where such pipe chases contain no sources of ignition, piping shall be noncombustible, and pipe penetrations at each floor shall be properly sealed.

(9) Exterior columns under 10 ft^2 (0.9 m^2) in area formed by studs or wood joists, supporting exterior canopies that are fully protected with a sprinkler system.

(10)*Light or ordinary hazard occupancies where noncombustible or limited-combustible ceilings are attached to the bottom of composite wood joists either directly or on to metal channels not exceeding 1 in. (25 mm) in depth, provided the adjacent joist channels are firestopped into volumes not exceeding 160 ft^3 (4.5 m^3) using materials equivalent to ½ in. (13 mm) gypsum board, and at least 3½ in. (90 mm) of batt insulation is installed at the bottom of the joist channels when the ceiling is attached utilizing metal channels.

11.2.3.2 Density/Area Method.

11.2.3.2.1 Water Supply.

11.2.3.2.1.1 The water supply requirement for sprinklers only shall be calculated from the density/area curves of Figure 11.2.3.1.1 or from Chapter 22 where density/area criteria are specified for special occupancy hazards.

11.2.3.2.1.2 When using Figure 11.2.3.1.1, the calculations shall satisfy any single point on the appropriate density/area curve.

11.2.3.2.1.3 When using Figure 11.2.3.1.1, it shall not be necessary to meet all points on the selected curves.

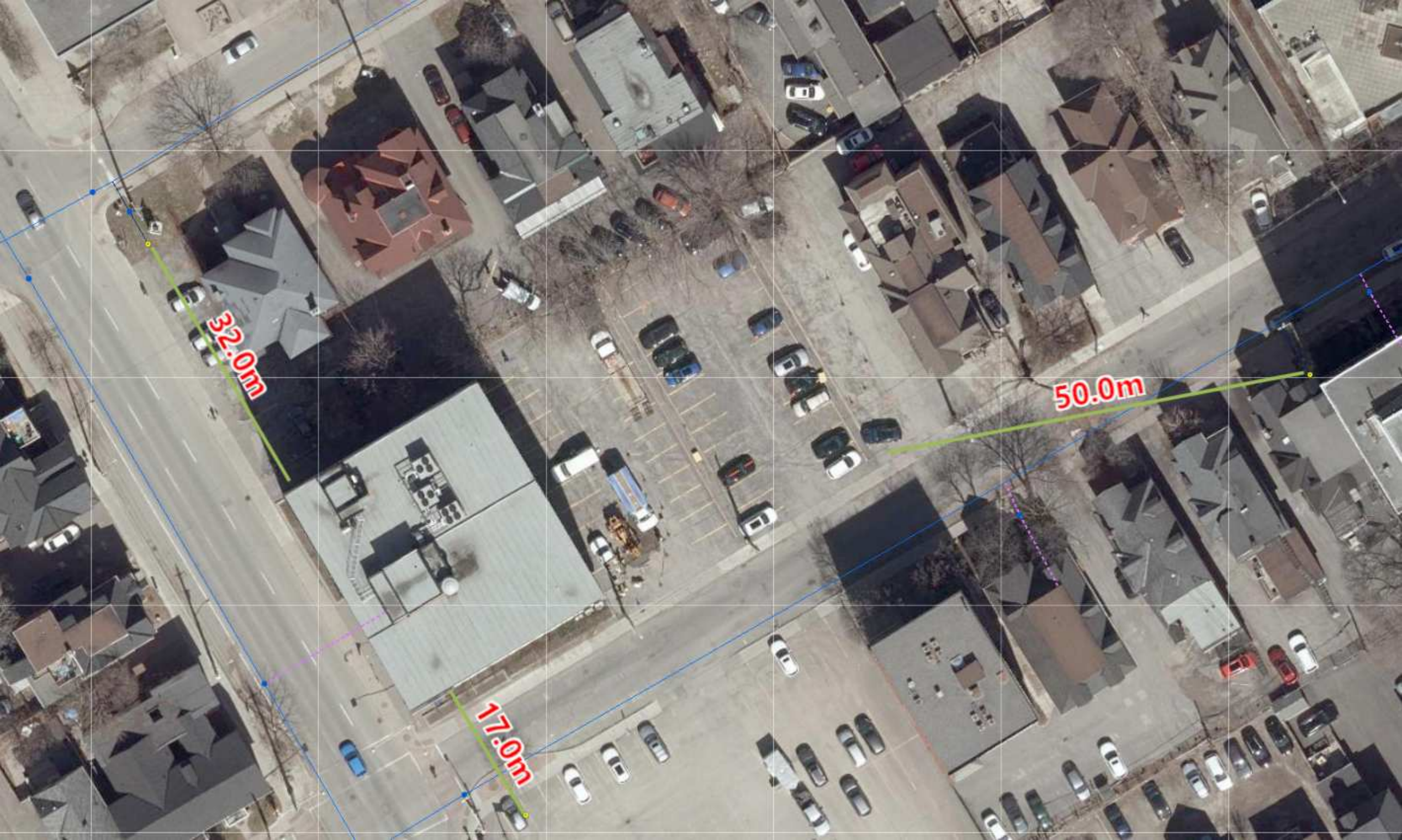
11.2.3.2.2 Sprinklers.

11.2.3.2.2.1 The densities and areas provided in Figure 11.2.3.1.1 shall be for use only with spray sprinklers.

11.2.3.2.2.2 Quick-response sprinklers shall not be permitted for use in extra hazard occupancies or other occupancies where there are substantial amounts of flammable liquids or combustible dusts.

11.2.3.2.2.3 For extended coverage sprinklers, the minimum design area shall be that corresponding to the hazard in Figure 11.2.3.1.1 or the area protected by five sprinklers, whichever is greater.

11.2.3.2.2.4 Extended coverage sprinklers shall be listed with and designed for the minimum flow corresponding to the density for the hazard as specified in Figure 11.2.3.1.1.


32.0m
50.0m
17.0m

Appendix E

Sanitary Peak Flow

Wastewater Calculations
359 Kent Street (JLR 31260-000)

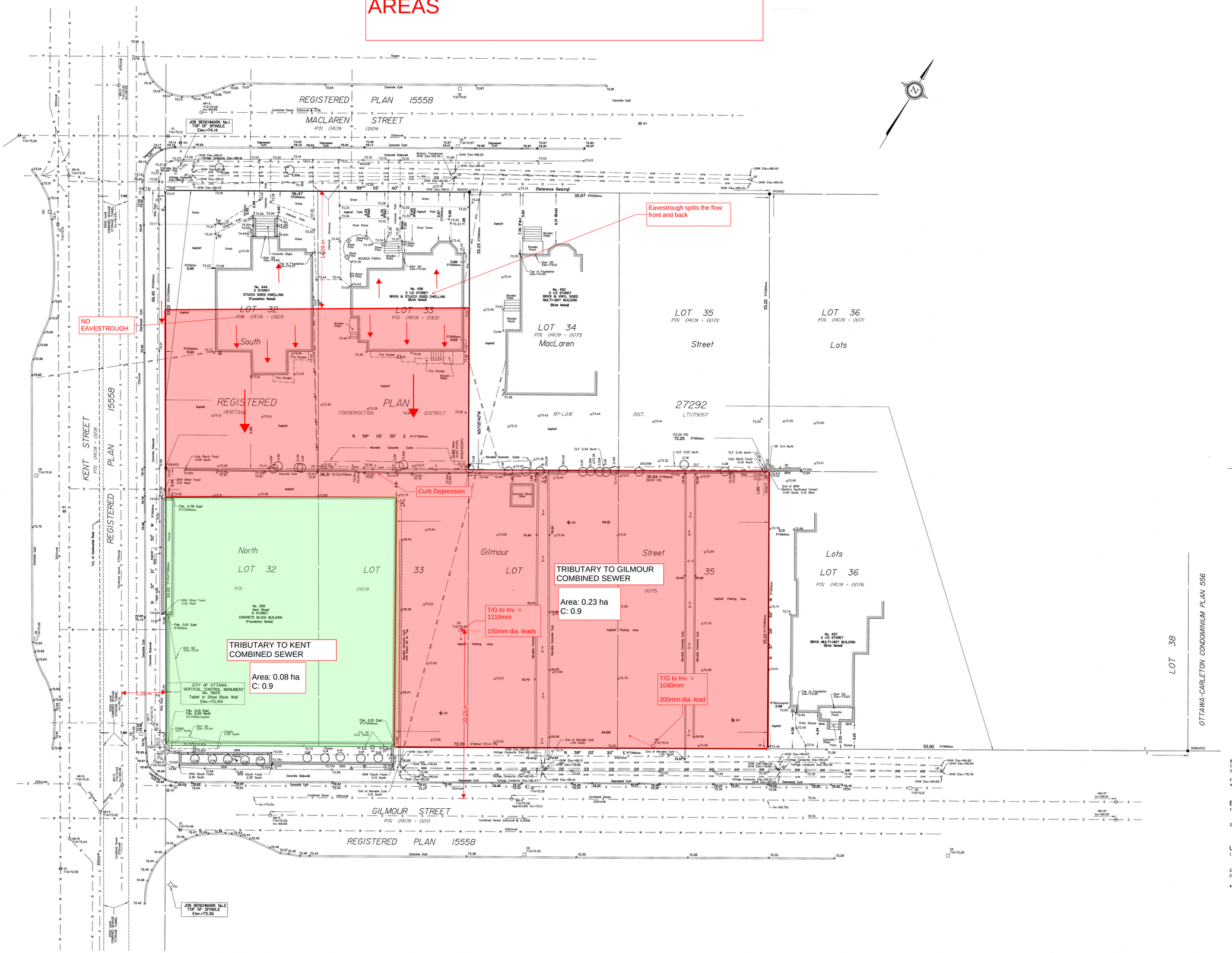
HIGH-RISE Tower	0.1788	Ha
Unit Breakdown	**No.**	**Person Per Unit (Table 4.1)**
Studio	33	1.4
1 Bedroom	159	1.4
2 Bedroom	130	2.1
Total Unit Count =	322	
Total Population	542	ppl
Theoretical Wastewater Flow	280	L/c/d
Average Wastewater Flow	1.76	L/s
Harmon Peaking Factor	3.36	
Peak Wastewater Flow	**5.91**	**L/s**
Comm. Theo. WW Flow	28000	L/ha/d
Commercial/Office Area (ha)	0.0397	
Commercial PF =	1	
Peak Flow (Comm) =	**0.013**	**L/s**
Dry & Wet I/I (0.33 L/s/ha)	**0.06**	**L/s**

Total Peak WW Flow (L/s)	**5.98**	**L/s**

Appendix F

Stormwater Management Calculations

PRE DEVELOPMENT DRAINAGE AREAS



SURVEYOR'S REAL PROPERTY REPORT

PART 1 Plan of
LOTS 32, 33
South MacLaren Street and
LOTS 32, 33, 34, 35
North Gilmour Street
REGISTERED PLAN 27292
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 14th day of April, 2021.

April 16, 2021
Date

E. H. Herweyer
Ontario Land Surveyor

PART 2
THIS PLAN MUST BE READ IN CONJUNCTION WITH SURVEY REPORT DATED: APRIL 16, 2021

ANNIS, O'SULLIVAN, VOLLEBEKK LTD. grants to KENT/ MACLAREN STREET LTD. ("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
CC	-	Cut Cross
CP	-	Concrete Pin
(WIT)	-	Witness
Meas.	-	Measured
(AOG)	-	Annis, O'Sullivan, Vollebekk Ltd.
(P1)	-	(AOG) Plan March 23, 2005 (Ref. 6109-05)
(P2)	-	(AOG) Plan November 12, 1991 Lot 32 (Ref. 0-408-91)
(P3)	-	(AOG) Plan November 12, 1991 Lot 33 (Ref. 0-408-91)
(P4)	-	(AOG) Plan October 18, 2010 (Ref. 11122-10)
(P5)	-	Registered Plan 27292
(P6)	-	(857) Plan October 23, 1973
(P7)	-	Plan 4R-8263
◯FH	-	Fire Hydrant
◯ MH-H	-	Maintenance Hole (Hydro)
◯ MH-S	-	Maintenance Hole (Sanitary)
◯ MH-B	-	Maintenance Hole (Bell Telephone)
◯ MH-T	-	Maintenance Hole (Traffic)
OHW	-	Overhead Wires
□ CB	-	Catch Basin
□ CBI	-	Catch Basin Inlet
GM	-	Gas Meter
HM	-	Hydro Meter
△ S	-	Sign
● B	-	Bollard
CLF	-	Chain Link Fence
BF	-	Board Fence
SRW	-	Stone Retaining Wall
CRW	-	Concrete Retaining Wall
BRW	-	Brick Retaining Wall
Fdn.	-	Foundation
□ AC	-	Air Conditioner
+ 60.00	-	Location of Elevations
+ 60.00T	-	Top of Wall Elevations
+ 60.00C	-	Top of Concrete Curb Elevation
C/L	-	Centreline
T/G	-	Top of Grate
Inv.	-	Invert
	-	Deciduous Tree
	-	Coniferous Tree
○ PO-W	-	Wood Pole
○ TSL	-	Traffic Light
○ UP	-	Utility Pole
○ AN	-	Anchor
○ LS	-	Light Standard
⊕ FP	-	Flag Pole
S	-	Underground Sanitary Sewer
W	-	Underground Water
P	-	Underground Power
G	-	Underground Gas
T	-	Underground Trafic
B	-	Underground Bell
TV	-	Underground Rogers
◆ BH	-	Proposed Borehole
⊖ GV	-	Gas Valve
⊖ VC	-	Valve Chamber (Watermain)
⊖ WV	-	Water Valve

Bearings are grid, derived from Can-Net 2016 Real Time Network GPS observations, MTM Zone 9 (76°30' West Longitude) NAD-83 (original).

For bearing comparisons, a rotation of 1°18'10" counter-clockwise was applied to bearings on plans P1, P2, P3, P7.

ELEVATION NOTES

1. Elevations shown are geodetic and are referred to the CGVD28 geodetic datum derived from vertical control monument No. 3623 having an elevation of 73.154 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. A field location of underground plant by the pertinent utility authority is mandatory before any work involving breaking ground, probing, excavating etc.
4. Maintenance Hole s marked by *, Underground services and Inverts are taken from the City of Ottawa Engineering Plans E-12-17, E-12-22, Dwg. No. PP21 (Contract ISD14-2036), Plan No. 1655 (Sheet 2 of 2), Plan No. 2061 (Sheets 1 of 6), Plan No. 2062 (Sheets 2 of 6), Plan H11B-2.

ASSOCIATION OF ONTARIO LAND SURVEYORS
PLAN SUBMISSION FORM
V-11476

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@annvk.com

Ontario Land Surveyors

Job No. 21452-D Tagged Ltb_32_35_PL_27292_T_F

J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS

359 Kent Street
Exisitng Peak Flow Calculations

Guidance on Approach to Estimate Allowable Peak Flow and SWM Calculations:

1 Allowable peak flow shall be estimated based on a 1:2 year intensity and based on a C-Factor = 0.4.
2 The 1:2-year Intensity to be calcuklated based on IDF statistics (per the OSDG)
3 Time of Concentration (Tc) of 15 min under Existing Condition or to be calculated based on current condition. Tc not to be less than 10 mins
4 1:100 year post development flows to be limited to the allowable peak flow (1:2 year) less the peak wastewater flows
5 Post-development peak flows shall be controlled on-site by means of on-site storage up to the 1:100 year storm.
6 SWM calculations to be complted using the Modified Rational Method (MRM) for rooftop and at grade storage
7 MRM calculations to estimate cistern storage, if required, to be estimated based on 50% of the peak flow rate per City requirement
8 All storm contributions to be relased to the combined sewer to be controlled by means of an inlet control device (ICD) or accounted as uncontrolled.
9 The subject property is within a combined area and consists of rooftop and limited amenity areas. No water quality control requirement is required within the combined area.

Pre-Development Area Breakdown:

Kent Street 375 mm dia. Combined Sewer

Type of Area	Area (m^2)	C-Factor	C-Factor (Eff)
Building	875	0.9	0.4

Time of Concentration (existing):

Flow path from rooftop to Kent Street 375 mm dia. Combined sewer
Assumed Inlet time on Roof = 15 mins
Sewer slope = ±1%; V= ±0.95 m/s
Tc (exist) = 15 mins + (5.5 m / 0.95 m/s)
Tc (exist) = 15.12 mins 15.10 mins
$Intensity_{(2yr)}$ = 61.54 mm/hr

Allowable Peak Flow (2 Yr) Calculations (C-Factor = 0.40)

$Q_{2yr} = 2.78CAI$
Q_{2yr} = (2.78) x (0.40) x (0.0823 ha) x 61.54 mm/hr
Q_{2yr} = 5.99 L/s

Gilmour Street 225mm dia. Combined Sewer

Type of Area	Area (m^2)	C-Factor	C-Factor (Eff)
Parking	2281	0.9	0.4

Time of Concentration (existing):

Flow path from parking surface to CB to storm sewer on Gilmour Street 225 mm dia. Combined
Assumed Inlet Time = 15 mins
Length of Sewers from CB to Gilmour Street Combined = ±14 m
Sewer slope = ±1%; V= ±0.95 m/s
Tc (exist) = 15 mins + (20.5 m / 0.95 m/s) mins
Tc (exist) = 108 secs or 1.8 mins, use Tc= 15.36
$Intensity_{(2yr)}$ = 60.93 mm/hr

Allowable Peak Flow (2 Yr) Calculations (C-Factor = 0.50)

$Q_{2yr} = 2.78CAI$
Q_{2yr} = (2.78) x (0.4) x (0.2881 ha) x 60.93 mm/h 60.93
Q_{2yr} = 15.46 L/s

Existing Sanitary Flow

Average Flow (L/ha/d)	28000
Gross Area: 0.08ha x 6 storeys	0.48
Peaking Factor	1.5
Commercial Flow (L/s)	0.23
Peak Extraneous Flow	0.03
Peak Design Flow (L/s)	0.26

Allowable Peak Flow at Kent 375mm dia. combined sewer

Q_{2yr}+Q_{san} = 6.25 L/s

Total Allowable Peak Flow

$Q_{2yr\ Gilmour}$+$Q_{2yr\ Kent}$+Q_{san} = 21.70 L/s

PROJECT NORTH

UNCONTROLLED TRIBUTARY TO GILMOUR COMBINED SEWER

ROOFTOP STORAGE TRIBUTARY TO GILMOUR STREET COMBINED SEWER
TOTAL STORAGE REQUIREMENT
176.9m³

CISTERN STORAGE TRUBUTARY TO GILMOUR STREET COMBINED SEWER
TOTAL STORAGE REQUIREMENT
29.56m³

ROOFTOP TERRACE FLOOR 06
390.75m²

CANOPY
408.59m²

UNCONTROLLED
100.00m²

TOWER FLOORS 07-30
827.53m²

EXTERIOR
1090.76m²

PODIUM FLOORS 01-05
338.91m²

LOT 36

LOT 35

LOT 34

27292

ZONING
R4UD[479]

EXISTING 2 STOREY ZONING
R4UD[479]

LANDSCAPE PATHWAY

GARAGE ENTRANCE

ROOFTOP CANOPY

CIRCULATION UP TO 6TH FLOOR TERRACE

GREEN ROOFTOP TERRACE FLOOR 06

OUTLINE OF BALCONIES LEVEL 5

OUTLINE OF BALCONIES LEVEL 6

OUTLINE OF BALCONIES LEVEL 7

OUTLINE OF TOWER

SETBACK FOR NEW STRUCTURES

ACCESS TO RETAIL AMENITY

ACCESS TO BICYCLE STORAGE

ACCESS TO LIVE-IN SUPERINTENDENT

OUTLINE OF EXISTING BUILDING

OUTLINE OF 6TH FLOOR AMENITY

CIRCULATION UP TO ROOFTOP TERRACE

AMENITY FLOOR 06

TOWER FLOORS 07-30

PODIUM FLOORS 01-05

SECONDARY ENTRANCE

RETAINED HERITAGE FACADE

EXISTING 2 STOREY STRUCTURE TO BE RETAINED

EXISTING 2 STOREY STRUCTURE TO BE RETAINED

ASPHALT DRIVEWAY

DINING TERRACE

PERGOLA

ENTRANCE PLAZA

MAIN ENTRANCE TERRACE

PLAN WORK

REGISTERED PLAN 15558

MACLAREN STREET

GILMOUR STREET

KENT STREET

REGISTERED PLAN 15558

EXISTING CURB LOCATION

JOB BENCHMARK NO.1 TOP OF SPINDLE Elev=72.36

JOB BENCHMARK NO.2 TOP OF SPINDLE Elev=72.36

No.	ISSUE / REVISION	DD/MM/YY
2.	RE-ISSUED FOR REZONING	08/03/23
1.	ISSUED FOR REZONING	02/09/21
0.	ISSUED FOR CLIENT REVIEW	26/08/21

VERIFY SHEET SIZE AND SCALES. THE BAR TO THE RIGHT IS 25mm IF THIS IS A FULL SIZE DRAWING. 0 25mm

SCALE: 1:200

0 1 2 5 10 15m

CLIENT:

TAGGART

CONSULTANT: www.jlrichards.ca

J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS

CONSULTANT:

PROFESSIONAL STAMP

PROFESSIONAL STAMP

PROJECT:

359 KENT STREET

DRAWING:

POST DEVELOPMENT
DRAINAGE PLAN & SWM

DESIGN: SP	
DRAWN: SP	DRAWING #:
CHECKED: AW / GF	F-DST
JLR #: 31260-000	

PLOT DATE: March 8, 2023 8:00:37 AM

File Location: P:\31000\31260-000 - 359 Kent - 2BLA - Civil and Traffic\5-Production\1-Civil\31260-000 C DST.dwg

J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS

359 Kent Street

Allowable Peak Flow & SWM Calculations for Gilmour Street

Allowable Peak Flow Calculation:

To combined sewers:

Allowable Peak Flow:		
Q_{pAllow} (1:2-year) =	21.70	L/s

POST DEVLEOPMENT DRAINAGE AREAS

Controlled Flow to Gilmour 225mm diameter combined sewer:

Type of Area	Area (m^2)	C-Factor
Combined rooftops (orange)	1965.78	0.9
At Grade Site Drainage	1090.76	0.7
Total =	3056.54	

Un-controlled Flow to Gilmour 225mm diameter combined sewer:

Type of Area	Area (m^2)	C-Factor
Area fronting Gilmour	100	0.9

Total area tributary to Gilmour 225mm diameter combined sewer = 3156.54 m^2

1:100 Year Peak Unctontrolled Flow Gilmour:		
Tc	10	min.
Intensity $_{100yr}$	179	mm/hr.
Q=2.8CAI	4.50	L/s

Summary of Flows	**Release Rate**	
Combined Rooftops	3.78	L/s
Cistern	7.44	L/s
Uncontrolled	4.50	L/s
Wastewater	5.98	L/s
Total Flow	**21.70**	**L/s**

Summary of Storage Requirements

Combined Rooftops	89.32	m^3
Cistern	29.56	m^3
Total	**118.88**	**m^3**

Summary of Storage Provided

Combined Rooftops	176.92	m^3
Cistern	29.56	m^3
Total	**206.48**	**m^3**

SWM Calcs:

Combined Roofs	
Roof (m2)	1966
C =	0.90
Sum of Roof Drains =	3.78
Required Storage Volume (m3)	89.32

Assuming Watts Ajustable Accutrol Weir (weir fully closed at 6" depth)
No. of Drains 12
Max Flow per drain closed: 0.315

Rooftop: 12 drains @ 0.315 L/s	3.78	L/s
Total Flow =	3.78	L/s

Time (min)	Intensity 1:100 Yr (mm/hr)	Qp 1:100 Yr (L/s)	Qp Rooftop ICD (L/s)	Qp stored (L/s)	Max Volume Requirement (m^3)	Qp CCE (L/s)	Qp stored (L/s)	Volume CCE Requirement (m^3)	Qp CCE - Qp100yr (L/s)
20	119.95	59.00	3.78	55.22	66.26	73.75	69.97	83.96	14.75
25	103.85	51.08	3.78	47.30	70.94	63.84	60.06	90.10	12.77
30	91.87	45.18	3.78	41.40	74.53	56.48	52.70	94.86	11.30
35	82.58	40.62	3.78	36.84	77.35	50.77	46.99	98.68	10.15
40	75.15	36.96	3.78	33.18	79.63	46.20	42.42	101.81	9.24
45	69.05	33.96	3.78	30.18	81.49	42.45	38.67	104.41	8.49
50	63.95	31.46	3.78	27.68	83.03	39.32	35.54	106.62	7.86
55	59.62	29.33	3.78	25.55	84.30	36.66	32.88	108.49	7.33
60	55.89	27.49	3.78	23.71	85.36	34.36	30.58	110.10	6.87
65	52.65	25.89	3.78	22.11	86.24	32.37	28.59	111.49	6.47
70	49.79	24.49	3.78	20.71	86.98	30.61	26.83	112.69	6.12
75	47.26	23.24	3.78	19.46	87.58	29.05	25.27	113.73	5.81
80	44.99	22.13	3.78	18.35	88.07	27.66	23.88	114.63	5.53
85	42.95	21.13	3.78	17.35	88.47	26.41	22.63	115.40	5.28
90	41.11	20.22	3.78	16.44	88.78	25.27	21.49	116.07	5.05
95	39.43	19.40	3.78	15.62	89.01	24.24	20.46	116.65	4.85
100	37.90	18.64	3.78	14.86	89.17	23.30	19.52	117.14	4.66
105	36.50	17.95	3.78	14.17	89.28	22.44	18.66	117.55	4.49
110	35.20	17.31	3.78	13.53	89.32	21.64	17.86	117.89	4.33
115	34.01	16.73	3.78	12.95	89.32	20.91	17.13	118.17	4.18
120	32.89	16.18	3.78	12.40	89.27	20.22	16.44	118.39	4.04
125	31.86	15.67	3.78	11.89	89.18	19.59	15.81	118.56	3.92
130	30.90	15.20	3.78	11.42	89.05	19.00	15.22	118.69	3.80
135	30.00	14.75	3.78	10.97	88.89	18.44	14.66	118.76	3.69
140	29.15	14.34	3.78	10.56	88.69	17.92	14.14	118.80	3.58
145	28.36	13.95	3.78	10.17	88.46	17.43	13.65	118.79	3.49
150	27.61	13.58	3.78	9.80	88.20	16.97	13.19	118.75	3.39
155	26.91	13.23	3.78	9.45	87.91	16.54	12.76	118.68	3.31
160	26.24	12.91	3.78	9.13	87.60	16.13	12.35	118.58	3.23

The following assumptions were made in regard to rooftop storage:

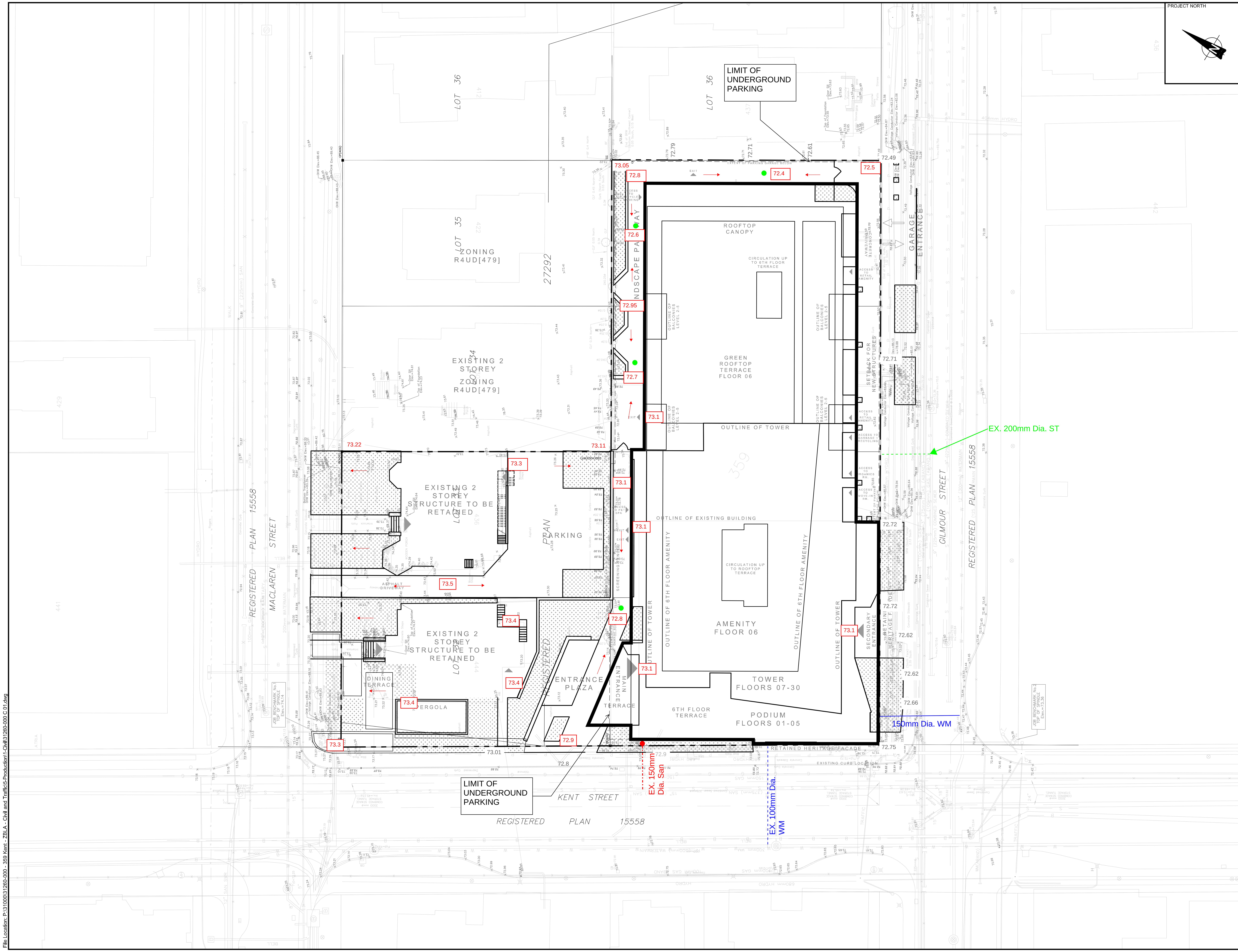
Towers		
Rooftop flow =	3.78	L/s
Roof	1966	m2
60% storage =	1179	m2
Vol. @ 6" ponding =	176.9	m3

Based on the above assumption (60% of rooftop used as storage), sufficient rooftop storage (176.9 m^3) will be provided to detain the 1:100 yr and CCE on the rooftop
Hence, the SWM target will, therefore, be met. There will not be any overtopping during the 1:100 year nor during the CCE

Cistern Storage	
Area (m2)	1091
C (average) =	0.70
Cistern ICD (50% of 7.44 L/s) =	3.72
Required volume (m3)	29.56

Time (min)	Intensity 1:100 Yr (mm/hr)	Qp 1:100 Yr (L/s)	Qp ICD (L/s)	Qp stored (L/s)	Max Volume Requirement (m^3)	Qp CCE (L/s)	Qp stored (L/s)	Volume CCE Requirement (m^3)	Qp CCE - Qp100yr (L/s)
10	178.56	37.90	3.72	34.18	20.51	47.38	43.66	26.19	9.48
15	142.89	30.33	3.72	26.61	23.95	37.91	34.19	30.77	7.58
20	119.95	25.46	3.72	21.74	26.09	31.83	28.10	33.73	6.37
25	103.85	22.04	3.72	18.32	27.48	27.55	23.83	35.75	5.51
30	91.87	19.50	3.72	15.78	28.40	24.38	20.65	37.18	4.88
35	82.58	17.53	3.72	13.81	28.99	21.91	18.19	38.20	4.38
40	75.15	15.95	3.72	12.23	29.35	19.94	16.22	38.92	3.99
45	69.05	14.66	3.72	10.94	29.53	18.32	14.60	39.42	3.66
50	63.95	13.58	3.72	9.85	29.56	16.97	13.25	39.74	3.39
55	59.62	12.66	3.72	8.93	29.48	15.82	12.10	39.92	3.16
60	55.89	11.86	3.72	8.14	29.31	14.83	11.11	39.99	2.97
65	52.65	11.17	3.72	7.45	29.07	13.97	10.25	39.96	2.79
70	49.79	10.57	3.72	6.85	28.76	13.21	9.49	39.85	2.64
75	47.26	10.03	3.72	6.31	28.39	12.54	8.82	39.67	2.51
80	44.99	9.55	3.72	5.83	27.98	11.94	8.22	39.44	2.39
85	42.95	9.12	3.72	5.40	27.52	11.40	7.68	39.14	2.28
90	41.11	8.73	3.72	5.00	27.03	10.91	7.19	38.81	2.18
95	39.43	8.37	3.72	4.65	26.50	10.46	6.74	38.43	2.09
100	37.90	8.05	3.72	4.32	25.94	10.06	6.34	38.01	2.01
105	36.50	7.75	3.72	4.03	25.36	9.68	5.96	37.56	1.94

Based on the above calculation, a cistern of 30 m^3 is required to detain the 1:100 yr flows from the 1091 m^2 surface without any surface ponding.
If a cistern of 30 m3 is provided, a sewer capable of conveying 9.48 L/s should be incorporated in the cistern design to convey the the difference in peak flows between the CCE & 100 yr


PROJECT NORTH
LIMIT OF UNDERGROUND PARKING
LOT 36
LOT 35
ZONING R4UD[479]
27292
EXISTING 2 STOREY
ZONING R4UD[479]
EXISTING 2 STOREY STRUCTURE TO BE RETAINED
PARKING
ASPHALT DRIVEWAY
EXISTING 2 STOREY STRUCTURE TO BE RETAINED
DINING TERRACE
PERGOLA
ENTRANCE PLAZA
MAIN ENTRANCE TERRACE
LANDSCAPE PATHWAY
ROOFTOP CANOPY
CIRCULATION UP TO 6TH FLOOR TERRACE
GREEN ROOFTOP TERRACE FLOOR 06
OUTLINE OF TOWER
OUTLINE OF EXISTING BUILDING
CIRCULATION UP TO ROOFTOP TERRACE
AMENITY FLOOR 06
OUTLINE OF 6TH FLOOR AMENITY
TOWER FLOORS 07-30
6TH FLOOR TERRACE
PODIUM FLOORS 01-05
SECONDARY ENTRANCE
RETAINED HERITAGE FACADE
EXISTING CURB LOCATION
SETBACK FOR NEW STRUCTURES
GARAGE ENTRANCE
EX. 200mm Dia. ST
150mm Dia. WM
EX. 150mm Dia. San
EX. 100mm Dia. WM
LIMIT OF UNDERGROUND PARKING
KENT STREET
REGISTERED PLAN 15558
MACLAREN STREET
REGISTERED PLAN 15558
GILMOUR STREET
REGISTERED PLAN 15558
359
73.05
72.8
72.4
72.5
72.49
72.61
72.71
72.79
72.6
72.95
72.7
73.1
72.71
73.22
73.11
73.3
73.1
73.1
73.5
73.4
72.8
73.4
73.4
73.1
72.72
72.72
72.62
72.62
72.66
72.75
72.9
73.3
73.01
72.8
72.9
73.1

Legend

Proposed grade	72.9
Existing grade	72.49
Catch basin pot	
Storm Maintenance hole	
Sanitary Maintenance hole	
Proposed WM	
Ex. WM (to be reused)	
Ex. Storm (to be reused)	
Flow Direction	

No.	ISSUE / REVISION	DD/MM/YY
2.	RE-ISSUED FOR REZONING	08/03/23
1.	ISSUED FOR REZONING	02/09/21
0.	ISSUED FOR CLIENT REVIEW	26/08/21

VERIFY SHEET SIZE AND SCALES. THE BAR TO THE RIGHT IS 25mm IF THIS IS A FULL SIZE DRAWING. 0 25mm

SCALE: 1:200
0 1 2 5 10 15m

CLIENT:
TAGGART

CONSULTANT: www.jlrichards.ca
J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS

CONSULTANT:

PROFESSIONAL STAMP

PROFESSIONAL STAMP

PROJECT:
359 KENT STREET

DRAWING:
FUNCTIONAL SERVICING & GRADING PLAN

DESIGN: SP
DRAWN: SP
CHECKED: AW / GF
JLR #: 31260-000

DRAWING #:
F-SG

PLOT DATE: March 1, 2023 3:18:42 PM

File Location: P:\31000\31260-000 - 359 Kent - ZBLA - Civil and Traffic\5-Production\1-Civil\31260-000 C 01.dwg

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