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ASSESSMENT OF ADEQUACY OF PUBLIC SERVICES

FOR

116 YORK STREET
BAYVIEW OTTAWA HOLDINGS LTD.

CITY OF OTTAWA

PROJECT NO.: 18-1041

JULY 2018 – REV 1

ASSESSMENT OF ADEQUACY OF PUBLIC SERVICES
FOR
116 YORK STREET
BAYVIEW OTTAWA HOLDINGS LTD.

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FOR
116 YORK STREET
BAYVIEW OTTAWA HOLDINGS LTD.
JULY 2018 – REV 1

CITY OF OTTAWA
PROJECT NO.: 18-1041

1.0 INTRODUCTION

David Schaeffer Engineering Limited (DSEL) has been retained by Bayview Ottawa Holdings Ltd. to prepare an Assessment of Adequacy of Public Services report in support of the application for a Zoning By-law Amendment (ZBLA) at 116 York Street.

The subject property is located within the City of Ottawa urban boundary, in the Rideau-Vanier ward. As illustrated in ***Figure 1***, the subject property is located East of the Dalhousie Street and York Street intersection. Comprised of a single parcel of land, the subject property measures approximately ***0.10ha*** and is zoned Mixed Use Downtown, Second Density (MD).

Figure 1: Site Location

The proposed ZBLA would allow for the development of a 17-storey commercial/hotel building fronting onto York Street. The contemplated development would include approximately ***572m²*** of amenity space, a restaurant and café composed of approximately ***110 seats***, as well as, underground parking with access from York Street. The hotel component is comprised of ***224 rooms***. A copy of the conceptual site plan is included in ***Drawings/Figures***.

The objective of this report is to provide sufficient detail to demonstrate that the proposed re-zoning and contemplated development is supported by existing municipal services.

1.1 Existing Conditions

The existing site includes a paved surface parking lot with no vegetation. The elevations range between 61.4m and 60.2m with a grade change of approximately 1.2m from the Northeast to the Southwest corner of the property.

Sewer and watermain mapping collected from the City of Ottawa indicate that the following services exist across the property frontages within the adjacent municipal right-of-ways:

York Street:

- 203mm diameter PVC watermain;
- 152mm diameter PVC water lateral;
- 1200mm diameter concrete sanitary sewer tributary to the King Edward Avenue Collector;
- 675mm diameter concrete storm sewer tributary to the Ottawa River, which is located approximately 1400m downstream.

1.2 Required Permits / Approvals

The contemplated development is subject to the site plan control approval process. The City of Ottawa must approve the engineering design drawings and reports prior to the issuance of site plan control.

An Environmental Compliance Approval (ECA) through the Ministry of Environment, Conservation and Parks (MOECP) is not anticipated as the contemplated development is a single parcel, does not outlet to a combined sewer and it not zoned or proposed to be industrial; as such, the stormwater management system meets the exemption requirements under O.Reg 525/90.

1.3 Pre-consultation

Pre-consultation correspondence, along with the servicing guidelines checklist, is located in ***Appendix A***.

2.0 GUIDELINES, PREVIOUS STUDIES, AND REPORTS

The following studies were utilized in the preparation of this report:

- **Ottawa Sewer Design Guidelines**,
  City of Ottawa, *SDG002,* October 2012.
  (City Standards)

  - **Technical Bulletin ISTB-2018-01**
    City of Ottawa, March 21, 2018.
    (*ISTB-2018-01*)

  - **Technical Bulletin ISTB-2018-03**
    City of Ottawa, March 21, 2018.
    (*ISTB-2018-03*)

- **Ottawa Design Guidelines – Water Distribution**
  City of Ottawa, July 2010.
  (Water Supply Guidelines)

  - **Technical Bulletin ISD-2010-2**
    City of Ottawa, December 15, 2010.
    (*ISD-2010-2*)

  - **Technical Bulletin ISDTB-2014-02**
    City of Ottawa, May 27, 2014.
    (*ISDTB-2014-02*)

  - **Technical Bulletin ISDTB-2018-02**
    City of Ottawa, March 21, 2018.
    (*ISDTB-2018-02*)

- **Design Guidelines for Sewage Works,**
  Ministry of the Environment, 2008.
  (MOE* Design Guidelines*)

- **Stormwater Planning and Design Manual,**
  Ministry of the Environment, March 2003.
  (SWMP Design Manual)

- **Ontario Building Code Compendium**
  Ministry of Municipal Affairs and Housing Building Development Branch, January 1, 2010 Update.
  (OBC)

- **NFPA 13 – Standard for the Installation of Sprinkler Systems**
  National Fire Protection Association, 2016.
  (NFPA Standards)

3.0 WATER SUPPLY SERVICING

3.1 Existing Water Supply Services

The subject property lies within the City of Ottawa 1W pressure zone, as shown by the Pressure Zone map in ***Appendix B***. A local 203mm diameter watermain exists within the York Street right-of-way, as well as, a 152mm water service lateral from York Street to the subject property.

3.2 Water Supply Servicing Design

It is anticipated that the contemplated development will be serviced from the above mentioned existing 152mm service lateral connecting to the existing 203mm diameter watermain within the York Street right-of-way. The mechanical engineer will need to confirm service size once a fixture count can be completed.

In accordance with City of Ottawa technical bulletin ISDTB-2014-02, due to an anticipated design flow of greater than 50 m^3/day, it is anticipated that a redundant service connection will be required. Details of the redundant connection will be reviewed further at the detailed design stage.

Table 1*,* below, summarizes the ***Water Supply Guidelines*** employed in the preparation of the preliminary water demand estimate.

Table 1
Water Supply Design Criteria

Design Parameter	Value
Hotel	225 L/P/day
Restaurant	125 L/seat/day
Amenity Space	2.5 L/m^2/d
Commercial Maximum Daily Demand	1.5 x avg. day
Commercial Maximum Hour Demand	1.8 x max. day
Minimum Watermain Size	150mm diameter
Minimum Depth of Cover	2.4m from top of watermain to finished grade
During normal operating conditions desired operating pressure is within	350 kPa and 480kPa
During normal operating conditions pressure must not drop below	275 kPa
During normal operating conditions pressure must not exceed	552 kPa
During fire flow operating pressure must not drop below	140 kPa
Daily average based on Appendix 4-A from **Water Supply Guidelines -Table updated to reflect ISD-2010-2*	

Table 2, below***,*** summarizes the anticipated water supply demand for the contemplated development based on the ***Water Supply Guidelines***.

Table 2
Summary of Anticipated Water Demand and Boundary Conditions

Design Parameter	Proposed Demand[1] (L/min)	Boundary Condition[2] Connection 1 (m H_2O / kPa)
Average Daily Demand	63.0	54.2 / 531.7
Max Day + Fire Flow	94.6 + 4,150 = 4,244.6	24.2 / 237.4
Peak Hour	170.2	45.9 / 450.3

1) Water demand calculation per ***Water Supply Guidelines***. See ***Appendix B*** for detailed calculations.
2) Boundary conditions supplied by the City of Ottawa for the demands indicated in the correspondence; assumed ground elevation 60.8m.See ***Appendix B for detailed calculations.***

The City provided the anticipated minimum and maximum water pressures for the demands, as indicated by the correspondence included in ***Appendix B***. The minimum and maximum pressures fall within the required range identified in ***Table 1***. Based on the City of Ottawa boundary conditions, the existing municipal infrastructure is capable of providing ***21,000 L/min*** near the contemplated connection during fire flow demands at pressure above 140kPa. Fire flow requirements are to be determined in accordance with City of Ottawa ***Water Supply Guidelines*** and the Ontario Building Code.

For the purpose of estimating fire flow, the short method outlined within the National Fire Protection Association (NFPA) standards were utilized. As indicated by Section 11.2.2 from the ***NFPA Standards***, fire flow requirements are to be determined by combining the required flow rate for the sprinkler system, along with the anticipated hose stream. As indicated by Table 11.2.2.1 and Table 11.2.3.1.2 extracted from the ***NFPA Standards*** and included in ***Appendix B***, the anticipated fire flow requirements for the sprinkler system is ***3,200 L/min*** (850 gpm) and the anticipated internal and external total combined inside and outside hose stream demand is ***950 L/min*** (250 gpm).

As a result, the total fire flow is anticipated to be ***4,150 L/min*** (1,100 gpm). Based on the boundary conditions provided by the City of Ottawa, sufficient supply is available for fire flow. A certified fire protection system specialist will need to be employed to design the building fire suppression system and confirm the actual fire flow demand.

3.3 Water Supply Conclusion

The anticipated water demand under proposed conditions was submitted to the City of Ottawa for establishing boundary conditions. Based on the City's model, the municipal system is capable of delivering water within the ***Water Supply Guidelines*** required pressure range.

In accordance with ***NFPA Standards***, ***4,150 L/min*** of fire flow is required for the contemplated development. It was estimated that there is adequate flow available at the contemplated connection to existing infrastructure.

The anticipated water supply design conforms to all relevant City Guidelines and Policies.

4.0 WASTEWATER SERVICING

4.1 Existing Wastewater Services

The subject site lies within the King Edward Avenue Collector catchment area, as shown by the City sewer mapping included in ***Appendix C***. An existing 1200mm diameter sanitary sewer exists within the York Street right-of-way, as indicated in ***Section 1.1*** of this report. The King Edwards Sanitary Trunk is located approximately 285m downstream from the subject site.

4.2 Wastewater Design

It is anticipated that the contemplated development will connect to the existing 1200mm sanitary sewer within York Street, located approximately 2.9m below the surface.

Table 3*,* below, summarizes the ***City Standards*** employed in the design of the proposed wastewater sewer system.

Table 3
Wastewater Design Criteria

Design Parameter	Value
Hotel	225 L/P/day
Restaurant	110 L/seat/day (12-hour Operation)
Amenity Space	2.5 L/m^2/d (12-hour Operation)
Commercial Peaking Factor	1.5 x avg. day
Infiltration and Inflow Allowance	0.28 L/s/ha
Sanitary sewers are to be sized employing the Manning's Equation	$Q = \frac{1}{n} AR^{2/3} S^{1/2}$
Minimum Sewer Size	200 mm diameter
Minimum Manning's 'n'	0.013
Minimum Depth of Cover	2.5 m from crown of sewer to grade
Minimum Full Flowing Velocity	0.6 m/s
Maximum Full Flowing Velocity	3.0 m/s
Extracted from Sections 4 and 6 of the City of Ottawa Sewer Design Guidelines, October 2012.	

Table 4, below, demonstrates the anticipated peak flow from the contemplated development. See ***Appendix C*** for associated calculations.

Table 4
Summary of Estimated Peak Wastewater Flow

Design Parameter	Total Flow (L/s)
Estimated Average Dry Weather Flow	0.89
Estimated Peak Dry Weather Flow	1.33
Estimated Peak Wet Weather Flow	1.36

The estimated peak wet weather sanitary flow, based on the concept plan provided in ***Drawings/Figures,*** is ***1.36 L/s***, as demonstrated by ***Table 3*** and ***Table 4***.

Based on available City mapping the existing 1200mm diameter sanitary sewer, with an estimated slope of 0.06%, has a free flowing capacity of approximately 930 L/s. As a result, the estimated flow rate from the contemplated development represents less than 1.5% of the total capacity.

Due to the distance to the King Edward Collector and the complexity of the drainage area, the impacts from the anticipated flow from the site will need to be further reviewed by the City in order to confirm capacity and resulting HGL within the existing York Street sanitary sewer resulting from contributions from the contemplated development.

4.3 Wastewater Servicing Conclusions

The site is tributary to the King Edward Avenue Sanitary Trunk Collector sewer. Based on the distance to the Collector sewer and complexity of the drainage area, the anticipated flow of ***1.36 L/s***, representing less than 1.5% of the free flowing capacity, will need to be reviewed by the City to confirm capacity and resulting HGL as a result of the contemplated development.

The proposed wastewater design conforms to all relevant ***City Standards***.

5.0 STORMWATER MANAGEMENT

5.1 Existing Stormwater Services

Stormwater runoff from the subject property is tributary to the City of Ottawa sewer system and is located within the Ottawa Central sub-watershed. As such, approvals for contemplated developments within this area are under the approval authority of the City of Ottawa.

Flows that influence the watershed in which the subject property is located are further reviewed by the principal authority. The subject property is located within the Ottawa River watershed, and is therefore subject to review by the Rideau Valley Conservation Authority (RVCA). Consultation with the RVCA is located in ***Appendix A***.

Currently stormwater from 141 George Street, south of the subject site, runs overland towards the existing catch basins located north of the subject site along York Street. The development at 141 George Street received approval (D07-12-12-0199) to construct a 23 storey mixed use condominium in December 2014. Included in the detailed design for the site are stormwater management controls that will attenuate the majority of flow directed towards the subject site. As such, it is anticipated that surface runoff from 141 George Street will not be tributary to the site once developed. External drainage should be reviewed at the detailed design stage of the subject property to confirm conformance of stormwater management controls for 141 George Street.

It was assumed that the existing development contained no stormwater management controls for flow attenuation. The estimated pre-development peak flows for the 2, 5, and 100-year events are summarized in ***Table 5,*** below:

Table 5
Summary of Existing Peak Storm Flow Rates

City of Ottawa Design Storm	Estimated Peak Flow Rate (L/s)
2-year	29.4
5-year	40.2
100-year	76.9

5.2 Post-development Stormwater Management Target

City of Ottawa Standards were used to determine stormwater management requirements, where the development is required to:

- Meet an allowable release rate based on the lesser of either the existing calculated Rational Method Coefficient or 0.50, employing the City of Ottawa IDF parameters for a 5-year storm with a time of concentration equal to or greater than 10 minutes;

- Attenuate all storms up to and including the City of Ottawa 100-year design event on site;
- Based on coordination with the RVCA, quality controls are not required for the contemplated development; correspondence with the RVCA is included in ***Appendix A***.

Based on the above the allowable release rate for the contemplated development is ***14.8 L/s***.

5.3 Proposed Stormwater Management System

It is contemplated that the stormwater outlet from the contemplated development will be to the existing 675mm diameter storm sewer within York Street.

To meet the stormwater objectives, the contemplated development may use roof storage in combination with an internal cistern.

Table 6, below***,*** summarizes post-development flow rates. The following storage requirement estimate assumes that approximately 10% of the development area will be directed to the outlet without flow attenuation. These areas will be compensated for in areas with flow attenuation controls.

Table 6
Stormwater Flow Rate Summary

Control Area	5-Year Release Rate	5-Year Storage	100-Year Release Rate	100-Year Storage
	(L/s)	(m^3)	(L/s)	(m^3)
Unattenuated Areas	2.7	0.0	5.1	0.0
Attenuated Areas	5.1	13.3	9.7	25.2
Total	**7.8**	**13.3**	**14.8**	**25.2**

It is anticipated that approximately ***25.2 m^3*** of storage, provided via a combination of roof storage and an internal cistern, will be required on site to attenuate flow to the established release rate of ***14.8 L/s***; storage calculations are contained within ***Appendix D***.

Actual storage volumes will need to be confirmed at the detailed design stage based on a number of factors including, but not limited to, grading constraints and external drainage.

Quality controls are not required for the contemplated development as the site will be predominantly made up of roof area and no surface parking is proposed. Collaborating correspondence is included in ***Appendix A.***

5.4 Stormwater Servicing Conclusions

In accordance with City of Ottawa ***City Standards***, post development stormwater runoff will be required to be restricted to the allowable target release rate for storm events up to and including the 100-year storm. The post-development allowable release rate was

calculated as ***14.8 L/s***; it is estimated that ***25.2 m^3*** of storage provided via a combination of roof storage and an internal cistern will be required to meet the established release rate.

Quality controls are not required for the contemplated development as the site will be predominantly made up of roof area and no surface parking is proposed. Correspondence is included in ***Appendix A.***

The proposed stormwater design conforms to all relevant ***City Standards*** and Policies for approval.

6.0 UTILITIES

Utility servicing will be coordinated with the individual utility companies prior to site development.

7.0 CONCLUSION AND RECOMMENDATIONS

David Schaeffer Engineering Ltd. (DSEL) has been retained by Bayview Ottawa Holdings Ltd. to prepare an Assessment of Adequacy of Public Services report in support of the application for a Zoning By-law Amendment (ZBLA) at 116 York Street. The preceding report outlines the following:

- Based on boundary conditions provided by the City the existing municipal water infrastructure is capable of providing the contemplated development with water within the City's required pressure range;
- Fire flow requirements were estimated in accordance with ***NFPA Standards;*** based on the boundary conditions provided by the City of Ottawa, it is anticipated that sufficient flow is available to service the development during fire flow conditions;
- The contemplated development is anticipated to have a peak wet weather flow of ***1.36 L/s***, representing less than 1.5% of the free flowing capacity. Based on the distance to the Collector sewer and complexity of the drainage area, the anticipated flow from the site will need to be reviewed by the City to confirm capacity and resulting HGL;
- Based on the City of Ottawa's City Standards the contemplated development will be required to attenuate post development flows to an equivalent release rate of ***14.8 L/s*** for all storms up to and including the 100-year storm event;
- It is contemplated that stormwater objectives may be met through a combination of roof storage and an internal cistern, it is estimated that ***25.2 m^3*** of onsite storage will be required to attenuate flow to the established release rate;
- Based on the correspondence with the RVCA, stormwater quality controls are not required.

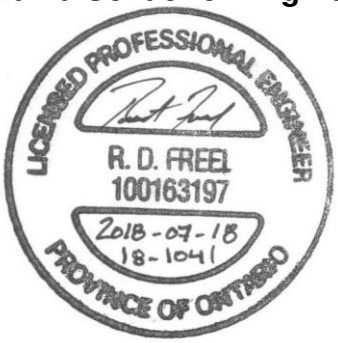
Prepared by,
David Schaeffer Engineering Ltd.

Per: Alison J. Gosling, EIT.

Reviewed by,
David Schaeffer Engineering Ltd.

Per: Adam D. Fobert, P.Eng.

Reviewed by,
David Schaeffer Engineering Ltd.



Per: Robert D. Freel, P.Eng.

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APPENDIX A

Pre-Consultation

DEVELOPMENT SERVICING STUDY CHECKLIST

18-1041 06/07/2018

4.1 General Content

☐	Executive Summary (for larger reports only).	N/A
☒	Date and revision number of the report.	Report Cover Sheet
☒	Location map and plan showing municipal address, boundary, and layout of proposed development.	Drawings/Figures
☒	Plan showing the site and location of all existing services.	Figure 1
☒	Development statistics, land use, density, adherence to zoning and official plan, and reference to applicable subwatershed and watershed plans that provide context to applicable subwatershed and watershed plans that provide context to which individual developments must adhere.	Section 1.0
☒	Summary of Pre-consultation Meetings with City and other approval agencies.	Section 1.3
☒	Reference and confirm conformance to higher level studies and reports (Master Servicing Studies, Environmental Assessments, Community Design Plans), or in the case where it is not in conformance, the proponent must provide justification and develop a defendable design criteria.	Section 2.1
☒	Statement of objectives and servicing criteria.	Section 1.0
☒	Identification of existing and proposed infrastructure available in the immediate area.	Sections 3.1, 4.1, 5.1
☐	Identification of Environmentally Significant Areas, watercourses and Municipal Drains potentially impacted by the proposed development (Reference can be made to the Natural Heritage Studies, if available).	N/A
☐	Concept level master grading plan to confirm existing and proposed grades in the development. This is required to confirm the feasibility of proposed stormwater management and drainage, soil removal and fill constraints, and potential impacts to neighbouring properties. This is also required to confirm that the proposed grading will not impede existing major system flow paths.	N/A
☐	Identification of potential impacts of proposed piped services on private services (such as wells and septic fields on adjacent lands) and mitigation required to address potential impacts.	N/A
☐	Proposed phasing of the development, if applicable.	N/A
☐	Reference to geotechnical studies and recommendations concerning servicing.	N/A
☐	All preliminary and formal site plan submissions should have the following information: -Metric scale -North arrow (including construction North) -Key plan -Name and contact information of applicant and property owner -Property limits including bearings and dimensions -Existing and proposed structures and parking areas -Easements, road widening and rights-of-way -Adjacent street names	N/A

4.2 Development Servicing Report: Water

☐	Confirm consistency with Master Servicing Study, if available	N/A
☒	Availability of public infrastructure to service proposed development	Section 3.1
☒	Identification of system constraints	Section 3.1
☒	Identify boundary conditions	Section 3.1, 3.2
☒	Confirmation of adequate domestic supply and pressure	Section 3.3

*Extracted from the City of Ottawa-Servicing Study Guidelines for Development Applications

☒	Confirmation of adequate fire flow protection and confirmation that fire flow is calculated as per the Fire Underwriter's Survey. Output should show available fire flow at locations throughout the development.	Section 3.2
☐	Provide a check of high pressures. If pressure is found to be high, an assessment is required to confirm the application of pressure reducing valves.	N/A
☐	Definition of phasing constraints. Hydraulic modeling is required to confirm servicing for all defined phases of the project including the ultimate design	N/A
☐	Address reliability requirements such as appropriate location of shut-off valves	N/A
☐	Check on the necessity of a pressure zone boundary modification	N/A
☒	Reference to water supply analysis to show that major infrastructure is capable of delivering sufficient water for the proposed land use. This includes data that shows that the expected demands under average day, peak hour and fire flow conditions provide water within the required pressure range	Section 3.2, 3.3
☐	Description of the proposed water distribution network, including locations of proposed connections to the existing system, provisions for necessary looping, and appurtenances (valves, pressure reducing valves, valve chambers, and fire hydrants) including special metering provisions.	N/A
☐	Description of off-site required feedermains, booster pumping stations, and other water infrastructure that will be ultimately required to service proposed development, including financing, interim facilities, and timing of implementation.	N/A
☒	Confirmation that water demands are calculated based on the City of Ottawa Design Guidelines.	Section 3.2
☐	Provision of a model schematic showing the boundary conditions locations, streets, parcels, and building locations for reference.	N/A

4.3 Development Servicing Report: Wastewater

☒	Summary of proposed design criteria (Note: Wet-weather flow criteria should not deviate from the City of Ottawa Sewer Design Guidelines. Monitored flow data from relatively new infrastructure cannot be used to justify capacity requirements for proposed infrastructure).	Section 4.2
☐	Confirm consistency with Master Servicing Study and/or justifications for deviations.	N/A
☐	Consideration of local conditions that may contribute to extraneous flows that are higher than the recommended flows in the guidelines. This includes groundwater and soil conditions, and age and condition of sewers.	N/A
☒	Description of existing sanitary sewer available for discharge of wastewater from proposed development.	Section 4.1
☒	Verify available capacity in downstream sanitary sewer and/or identification of upgrades necessary to service the proposed development. (Reference can be made to previously completed Master Servicing Study if applicable)	Section 4.2
☒	Calculations related to dry-weather and wet-weather flow rates from the development in standard MOE sanitary sewer design table (Appendix 'C') format.	Section 4.2, Appendix C
☒	Description of proposed sewer network including sewers, pumping stations, and forcemains.	Section 4.2
☐	Discussion of previously identified environmental constraints and impact on servicing (environmental constraints are related to limitations imposed on the development in order to preserve the physical condition of watercourses, vegetation, soil cover, as well as protecting against water quantity and quality).	N/A

*Extracted from the City of Ottawa-Servicing Study Guidelines for Development Applications

☐	Pumping stations: impacts of proposed development on existing pumping stations or requirements for new pumping station to service development.	N/A
☐	Forcemain capacity in terms of operational redundancy, surge pressure and maximum flow velocity.	N/A
☐	Identification and implementation of the emergency overflow from sanitary pumping stations in relation to the hydraulic grade line to protect against basement flooding.	N/A
☐	Special considerations such as contamination, corrosive environment etc.	N/A

4.4 Development Servicing Report: Stormwater Checklist

☒	Description of drainage outlets and downstream constraints including legality of outlets (i.e. municipal drain, right-of-way, watercourse, or private property)	Section 5.1
☒	Analysis of available capacity in existing public infrastructure.	Section 5.1, Appendix D
☒	A drawing showing the subject lands, its surroundings, the receiving watercourse, existing drainage patterns, and proposed drainage pattern.	Drawings/Figures
☒	Water quantity control objective (e.g. controlling post-development peak flows to pre-development level for storm events ranging from the 2 or 5 year event (dependent on the receiving sewer design) to 100 year return period); if other objectives are being applied, a rationale must be included with reference to hydrologic analyses of the potentially affected subwatersheds, taking into account long-term cumulative effects.	Section 5.2
☒	Water Quality control objective (basic, normal or enhanced level of protection based on the sensitivities of the receiving watercourse) and storage requirements.	Section 5.2
☒	Description of the stormwater management concept with facility locations and descriptions with references and supporting information	Section 5.3
☐	Set-back from private sewage disposal systems.	N/A
☐	Watercourse and hazard lands setbacks.	N/A
☒	Record of pre-consultation with the Ontario Ministry of Environment and the Conservation Authority that has jurisdiction on the affected watershed.	Appendix A
☐	Confirm consistency with sub-watershed and Master Servicing Study, if applicable study exists.	N/A
☒	Storage requirements (complete with calculations) and conveyance capacity for minor events (1:5 year return period) and major events (1:100 year return period).	Section 5.3
☐	Identification of watercourses within the proposed development and how watercourses will be protected, or, if necessary, altered by the proposed development with applicable approvals.	N/A
☒	Calculate pre and post development peak flow rates including a description of existing site conditions and proposed impervious areas and drainage catchments in comparison to existing conditions.	Section 5.1, 5.3
☐	Any proposed diversion of drainage catchment areas from one outlet to another.	N/A
☐	Proposed minor and major systems including locations and sizes of stormwater trunk sewers, and stormwater management facilities.	N/A
☐	If quantity control is not proposed, demonstration that downstream system has adequate capacity for the post-development flows up to and including the 100-year return period storm event.	N/A
☐	Identification of potential impacts to receiving watercourses	N/A
☐	Identification of municipal drains and related approval requirements.	N/A

*Extracted from the City of Ottawa-Servicing Study Guidelines for Development Applications

☒	Descriptions of how the conveyance and storage capacity will be achieved for the development.	Section 5.3
☐	100 year flood levels and major flow routing to protect proposed development from flooding for establishing minimum building elevations (MBE) and overall grading.	N/A
☐	Inclusion of hydraulic analysis including hydraulic grade line elevations.	N/A
☒	Description of approach to erosion and sediment control during construction for the protection of receiving watercourse or drainage corridors.	Section 6.0
☐	Identification of floodplains – proponent to obtain relevant floodplain information from the appropriate Conservation Authority. The proponent may be required to delineate floodplain elevations to the satisfaction of the Conservation Authority if such information is not available or if information does not match current conditions.	N/A
☐	Identification of fill constraints related to floodplain and geotechnical investigation.	N/A

4.5 Approval and Permit Requirements: Checklist

☒	Conservation Authority as the designated approval agency for modification of floodplain, potential impact on fish habitat, proposed works in or adjacent to a watercourse, cut/fill permits and Approval under Lakes and Rivers Improvement Act. The Conservation Authority is not the approval authority for the Lakes and Rivers Improvement ct. Where there are Conservation Authority regulations in place, approval under the Lakes and Rivers Improvement Act is not required, except in cases of dams as defined in the Act.	Section 1.2
☐	Application for Certificate of Approval (CofA) under the Ontario Water Resources Act.	N/A
☐	Changes to Municipal Drains.	N/A
☐	Other permits (National Capital Commission, Parks Canada, Public Works and Government Services Canada, Ministry of Transportation etc.)	N/A

4.6 Conclusion Checklist

☒	Clearly stated conclusions and recommendations	Section 8.0
☐	Comments received from review agencies including the City of Ottawa and information on how the comments were addressed. Final sign-off from the responsible reviewing agency.	
☐	All draft and final reports shall be signed and stamped by a professional Engineer registered in Ontario	

*Extracted from the City of Ottawa-Servicing Study Guidelines for Development Applications

Charlotte Kelly

From: Jamie Batchelor <jamie.batchelor@rvca.ca>
Sent: July 4, 2018 1:57 PM
To: Alison Gosling
Cc: Charlotte Kelly
Subject: Re: 18-1041 116 York Street - RVCA

Good Afternoon Alison,

Providing there are no surface parking spaces being provided, there would be no additional water quality measures required save and except best management practices.

From: Alison Gosling <AGosling@dsel.ca>
Sent: July 4, 2018 1:19 PM
To: Jamie Batchelor
Cc: Charlotte Kelly
Subject: 18-1041 116 York Street - RVCA

Good afternoon Jamie,

We wanted to touch base with you regarding a development we are working on located at 116 York Street.

The development proposes to construct a 17-storey hotel with associated underground parking. The development will discharge stormwater to the existing 675 mm diameter storm sewer within York Street and will travel approximately 1.4 km to a direct outlet into the Ottawa River.

At present, the site consists entirely as an uncontrolled parking lot. Proposed stormwater drainage for the development will almost entirely be from roof top drainage.

Can you provide a comment regarding quality controls that maybe required for the site?

Thank you,

Alison Gosling, E.I.T.
Project Coordinator / Junior Designer

DSEL
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APPENDIX B

Water Supply

Water Demand Design Flows per Unit Count
City of Ottawa - Water Distribution Guidelines, July 2010

Domestic Demand

Type of Housing	Per / Unit	Units	Pop
Single Family	3.4		0
Semi-detached	2.7		0
Townhouse	2.7		0
Apartment			0
Bachelor	1.4		0
1 Bedroom	1.4		0
2 Bedroom	2.1		0
3 Bedroom	3.1		0
Average	1.8		0

	Pop	Avg. Daily		Max Day		Peak Hour	
		m^3/d	L/min	m^3/d	L/min	m^3/d	L/min
Total Domestic Demand	0	0.0	0.0	0.0	0.0	0.0	0.0

Institutional / Commercial / Industrial Demand

			Avg. Daily		Max Day		Peak Hour	
Property Type	**Unit Rate**	**Units**	m^3/d	L/min	m^3/d *	L/min	m^3/d *	L/min
Hotel †	225 L/person/d	336	75.60	52.5	113.4	78.8	204.1	141.8
Restaurant	125 L/seat/day	110	13.75	9.5	20.6	14.3	37.1	25.8
Ammenities	2.5 $L/m^2/d$	572	1.43	1.0	2.1	1.5	3.9	2.7
Industrial - Light	35,000 L/gross ha/d		0.00	0.0	0.0	0.0	0.0	0.0
Industrial - Heavy	55,000 L/gross ha/d		0.00	0.0	0.0	0.0	0.0	0.0
		Total I/CI Demand	90.8	63.0	136.2	94.6	245.1	170.2
		Total Demand	**90.8**	**63.0**	**136.2**	**94.6**	**245.1**	**170.2**

† Assumes a rate of 1.5 persons/room
Flow rates per City of Ottawa Sewer Design Guidelins Appendix 4A
** ICI Peaking Factor of 1.5 and 1.8 for Max day and Peak Hour demands*

Bayview Ottawa Holdings Ltd.
116 York Street
Boundary Condition Results

Boundary Conditions Unit Conversion

	Height (m)	Elevation (m)	m H_2O	PSI	kPa
Avg. DD	115	60.8	54.2	77.1	531.7
Fire Flow	85	60.8	24.2	34.4	237.4
Peak Hour	106.7	60.8	45.9	65.3	450.3

Charlotte Kelly

From: Wu, John <John.Wu@ottawa.ca>
Sent: June 28, 2018 9:18 AM
To: Charlotte Kelly
Subject: RE: 18-1041 - 116 York Street
Attachments: 116 York June 2018.pdf

Here is the result:

The following are boundary conditions, HGL, for hydraulic analysis at 116 York (zone 1W) assumed to be connected to the 203mm on York (see attached PDF for location).

Minimum HGL = 106.7m

Maximum HGL = 115.0m

MaxDay + FireFlow (350 L/s) = 85.0m

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

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

John

From: Charlotte Kelly <CKelly@dsel.ca>
Sent: Monday, June 25, 2018 3:54 PM
To: Wu, John <John.Wu@ottawa.ca>
Cc: Alison Gosling <AGosling@dsel.ca>; Robert Freel <RFreel@dsel.ca>
Subject: 18-1041 - 116 York Street

Good afternoon John,

We would like to request water boundary conditions for York Street using the following proposed development demands:

1. Location of Service / Street Number: 116 York Street.

2. Type of development and the amount of fire flow required for the proposed development:

- The proposed development is a hotel consisting of 224 units as well as 680m^2 of amenity space and a 100 seat restaurant.

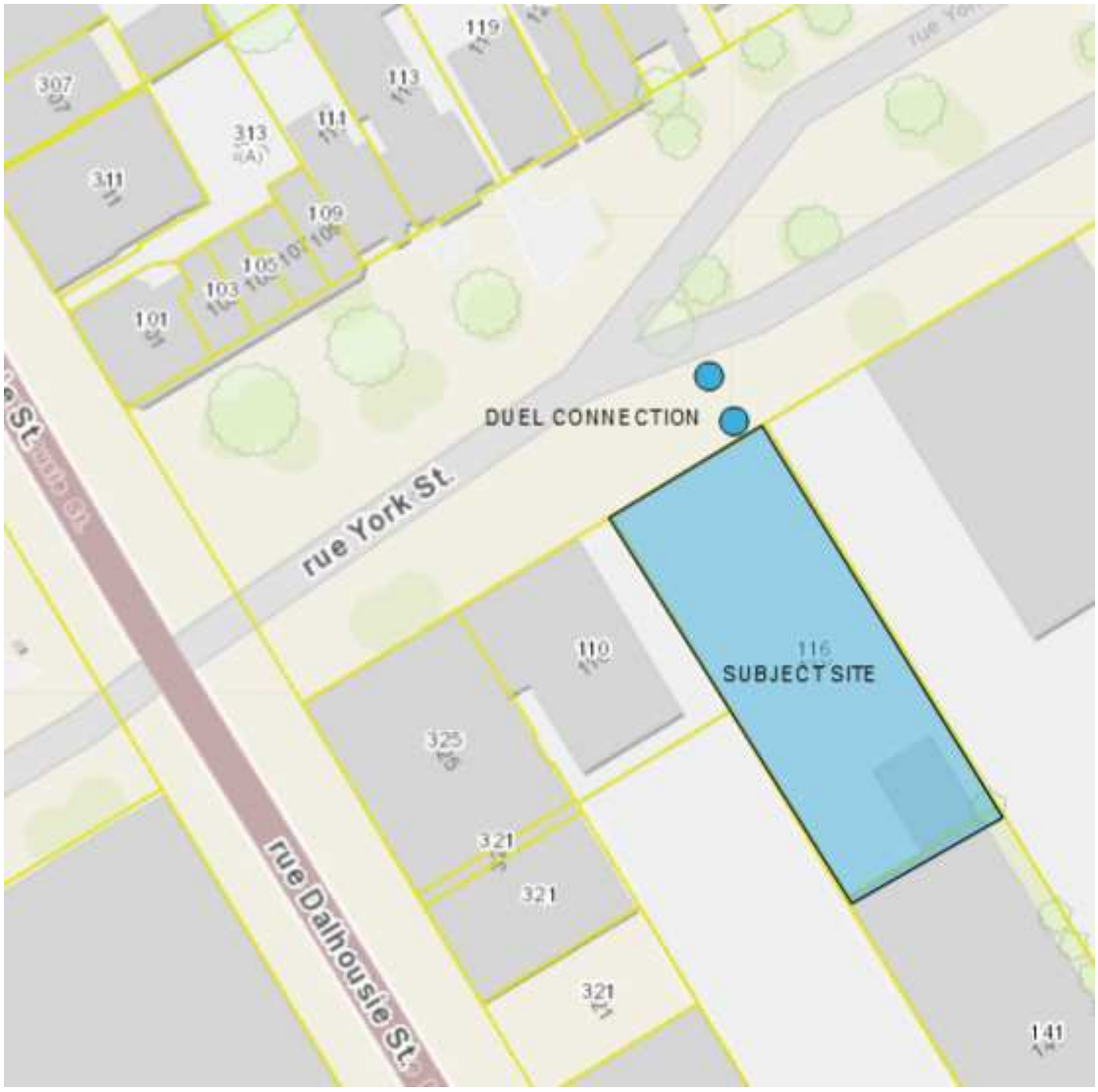
- It is anticipated that the development will have a duel connection to be serviced from the existing 203 mm diameter watermain within York Street using the existing 152mm diameter service lateral to the site, as shown by the attached map.

- Fire demand based on FUS was calculated to be ***21,000 L/min*** using the Technical Bulletin ISTB-2018-02. Calculations are attached above.

3. Estimated Demands

	L/min	L/s
Avg. Daily	63.2	1.05
Max Day	94.9	1.58
Peak Hour	170.8	2.85

If you have any questions please feel free to contact me.



Thank-you,

Charlotte Kelly, E.I.T.
Project Coordinator / Junior Designer

DSEL
david schaeffer engineering ltd.

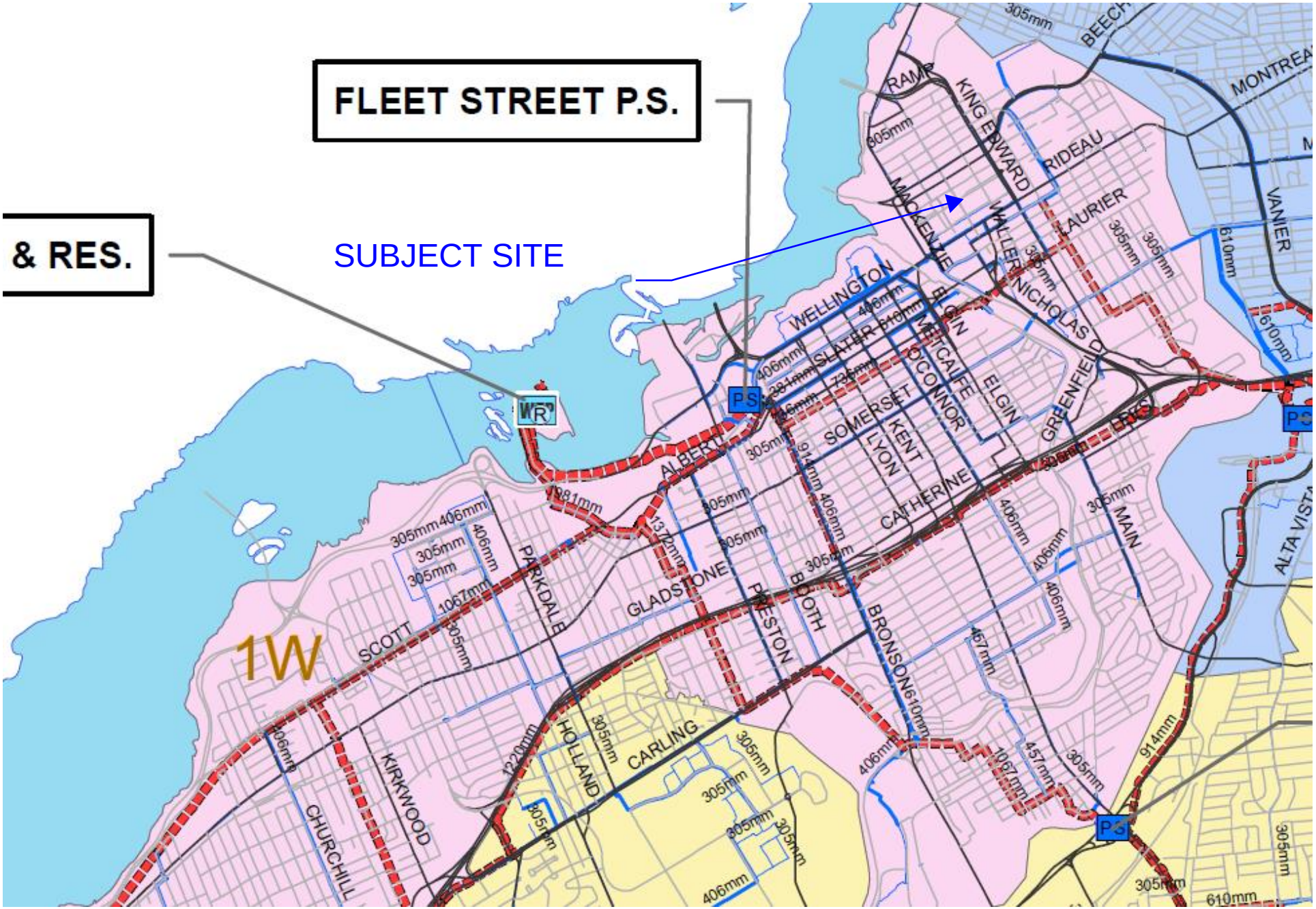
120 Iber Road, Unit 103
Stittsville, ON K2S 1E9

email: ckelly@dsel.ca

phone: (613) 836-0856 ext.511

'

'



City of Ottawa - Water Distribution System Facilities and Feedermains

National Fire Protection Association (NFPA) 13 – Standard for the Installation of Sprinkler Systems

Table 11.2.2.1, Table 11.2.3.1.2

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

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

APPENDIX C

Wastewater Collection

116 York Street
Proposed Site Conditions

Wastewater Design Flows per Unit Count
City of Ottawa Sewer Design Guidelines, 2004

Site Area 0.102 **ha**

Extraneous Flow Allowances

Infiltration / Inflow **0.03 L/s**

Domestic Contributions

Unit Type	Unit Rate	Units	Pop
Single Family	3.4		0
Semi-detached and duplex	2.7		0
Townhouse	2.7		0
Stacked Townhouse	2.3		0
Apartment			
Bachelor	1.4		0
1 Bedroom	1.4		0
2 Bedroom	2.1		0
3 Bedroom	3.1		0
Average	1.8		0

Total Pop **0**

Average Domestic Flow **0.00 L/s**

Peaking Factor **4.00**

Peak Domestic Flow **0.00 L/s**

Institutional / Commercial / Industrial Contributions

Property Type	Unit Rate	No. of Units	Avg Wastewater (L/s)
Hotel †	225 L/person/d	336	0.88
Restaurant *	125 L/seat/day	110	0.01
Ammenities *	2.5 L/m2/d	572	0.00

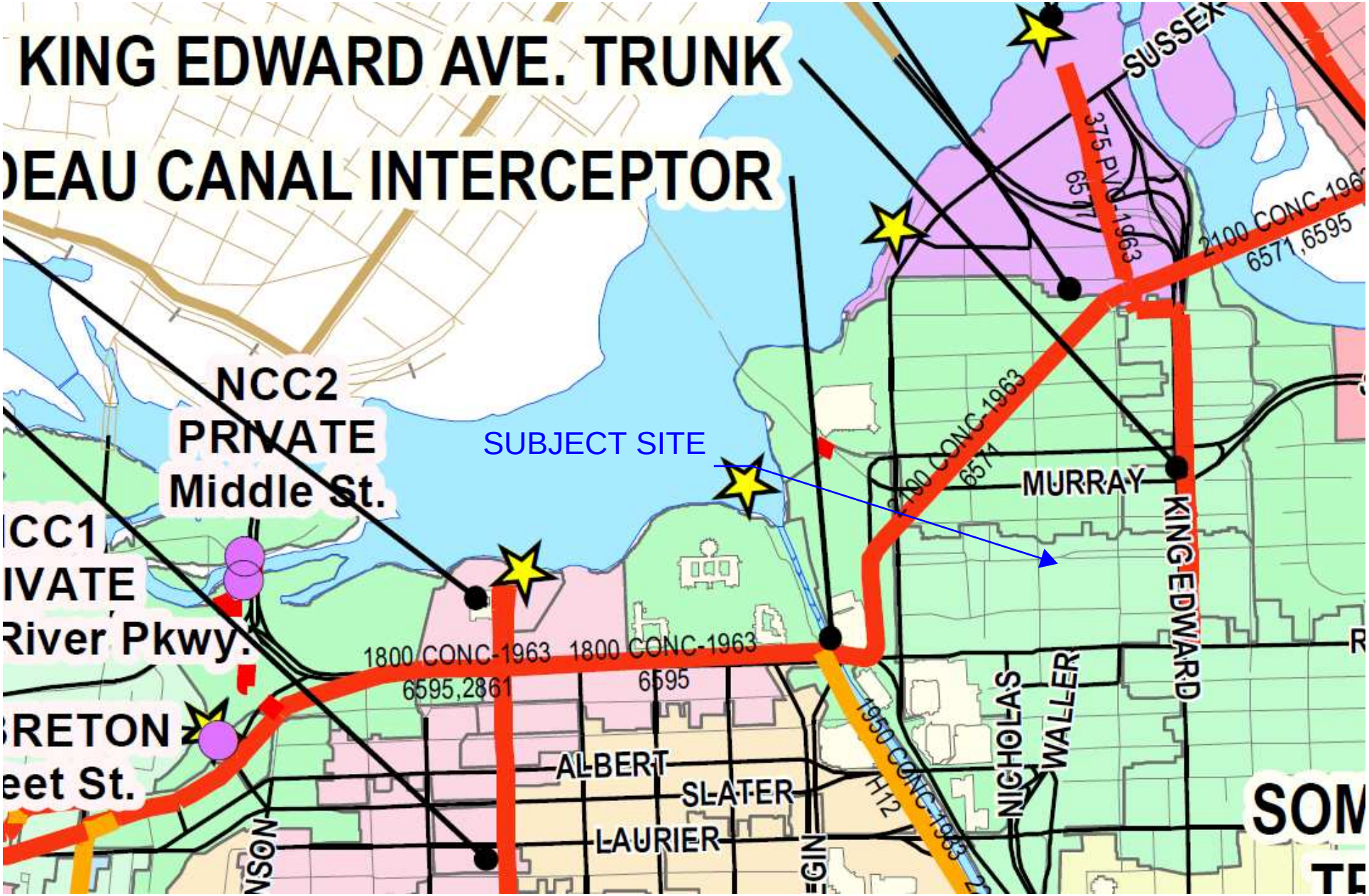
Average I/C/I Flow **0.89**

Peak Institutional / Commercial Flow †† 1.33

Peak I/C/I Flow **1.33**

** assuming a 12 hour commercial operation*
† Assumes a rate of 1.5 persons/room
†† Peaking factor per City of Ottawa Technical Bulletin ISTB-2018-01

Total Estimated Average Dry Weather Flow Rate	**0.89 L/s**
Total Estimated Peak Dry Weather Flow Rate	**1.33 L/s**
Total Estimated Peak Wet Weather Flow Rate	**1.36 L/s**



City of Ottawa - Sanitary Trunk Sewers and Collection Areas

APPENDIX D

Stormwater Management

Estimated Peak Stormwater Flow Rate
City of Ottawa Sewer Design Guidelines, 2012

Existing Drainage Charateristics From Internal Site

Area	0.102	ha
C	0.90	Rational Method runoff coefficient
L	55.48	m
Up Elev	61.52	m
Dn Elev	60.09	m
Slope	2.6	%
Tc	3.5	min

	Imp.	Perv.	Total
Area	0.102	0.000	0.102
C	0.9	0.2	0.90

1) Time of Concentration per Federal Aviation Administration

$$t_c = \frac{1.8(1.1-C)L^{0.5}}{S^{0.333}}$$

tc, in minutes
C, rational method coefficient, (-)
L, length in ft
S, average watershed slope in %

Estimated Peak Flow

	2-year	5-year	100-year	
i	115.9	158.4	272.6	mm/hr
Q	29.4	40.2	76.9	L/s

Note:
C value for the 100-year storm is increased by 25%, to a maximum of 1.0 per Ottawa Sewer Design Guidelines (5.4.5.2.1)

Stormwater - Proposed Development
City of Ottawa Sewer Design Guidelines, 2004

Target Flow Rate

Area 0.102 ha
C 0.50 Rational Method runoff coefficient
59.3 10.0 min

5-year
i 104.2 mm/hr
Q 14.8 L/s

Estimated Post Development Peak Flow from Unattenuated Areas

Total Area 0.010 ha
C 0.90 Rational Method runoff coefficient

	5-year					100-year				
t_c (min)	i (mm/hr)	Q_{actual} (L/s)	$Q_{release}$ (L/s)	Q_{stored} (L/s)	V_{stored} (m^3)	i (mm/hr)	Q_{actual}* (L/s)	$Q_{release}$ (L/s)	Q_{stored} (L/s)	V_{stored} (m^3)
10.0	104.2	2.7	2.7	0.0	0.0	178.6	5.1	5.1	0.0	0.0

Note:
C value for the 100-year storm is increased by 25%, to a maximum of 1.0 per Ottawa Sewer Design Guidelines (5.4.5.2.1)

Estimated Post Development Peak Flow from Attenuated Areas

Total Area 0.092 ha
C 0.90 Rational Method runoff coefficient

	5-year					100-year				
t_c (min)	i (mm/hr)	Q_{actual} (L/s)	$Q_{release}$ (L/s)	Q_{stored} (L/s)	V_{stored} (m^3)	i (mm/hr)	Q_{actual} (L/s)	$Q_{release}$ (L/s)	Q_{stored} (L/s)	V_{stored} (m^3)
10	104.2	23.9	5.1	18.8	11.3	178.6	45.5	9.7	35.8	21.5
15	83.6	19.2	5.1	14.1	12.7	142.9	36.4	9.7	26.7	24.1
20	70.3	16.1	5.1	11.0	13.2	120.0	30.6	9.7	20.9	25.1
25	60.9	14.0	5.1	8.9	13.3	103.8	26.5	9.7	16.8	25.2
30	53.9	12.4	5.1	7.3	13.1	91.9	23.4	9.7	13.7	24.7
35	48.5	11.1	5.1	6.0	12.6	82.6	21.1	9.7	11.4	23.8
40	44.2	10.1	5.1	5.0	12.0	75.1	19.2	9.7	9.5	22.7
45	40.6	9.3	5.1	4.2	11.3	69.1	17.6	9.7	7.9	21.3
50	37.7	8.6	5.1	3.5	10.5	64.0	16.3	9.7	6.6	19.8
55	35.1	8.1	5.1	2.9	9.6	59.6	15.2	9.7	5.5	18.2
60	32.9	7.6	5.1	2.4	8.7	55.9	14.3	9.7	4.6	16.4
65	31.0	7.1	5.1	2.0	7.7	52.6	13.4	9.7	3.7	14.5
70	29.4	6.7	5.2	1.6	6.7	49.8	12.7	9.7	3.0	12.6
75	27.9	6.4	5.2	1.2	5.6	47.3	12.1	9.7	2.3	10.6
80	26.6	6.1	5.2	0.9	4.5	45.0	11.5	9.7	1.8	8.5
85	25.4	5.8	5.2	0.7	3.4	43.0	11.0	9.7	1.3	6.4
90	24.3	5.6	5.2	0.4	2.2	41.1	10.5	9.7	0.8	4.2
95	23.3	5.3	5.2	0.2	1.1	39.4	10.1	9.7	0.4	2.0
100	22.4	5.1	5.2	0.0	0.0	37.9	9.7	9.7	0.0	0.0
105	21.6	5.0	5.2	0.0	0.0	36.5	9.3	9.7	0.0	0.0
110	20.8	4.8	5.2	0.0	0.0	35.2	9.0	9.7	0.0	0.0

Note:
C value for the 100-year storm is increased by 25%, to a maximum of 1.0 per Ottawa Sewer Design Guidelines (5.4.5.2.1)

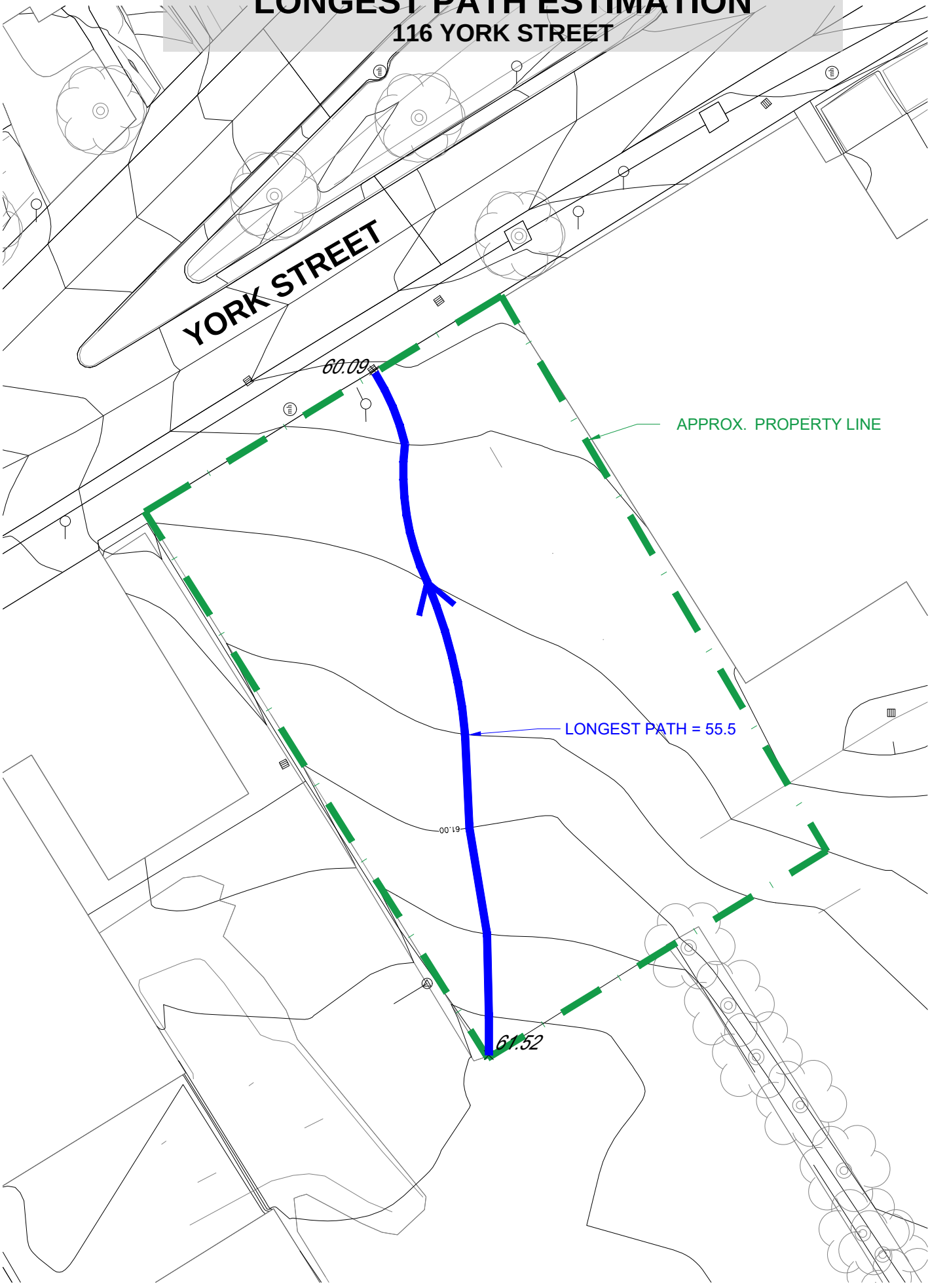
5-year $Q_{attenuated}$ 5.12 L/s **100-year $Q_{attenuated}$ 9.70 L/s**
5-year Max. Storage Required 13.3 m^3 **100-year Max. Storage Required 25.2 m^3**

Summary of Release Rates and Storage Volumes

Control Area	5-Year Release Rate (L/s)	5-Year Storage (m^3)	100-Year Release Rate (L/s)	100-Year Storage (m^3)
Unattenuated Areas	2.7	0.0	5.1	0.0
Attenutated Areas	5.1	13.3	9.7	25.2
Total	**7.8**	**13.3**	**14.8**	**25.2**

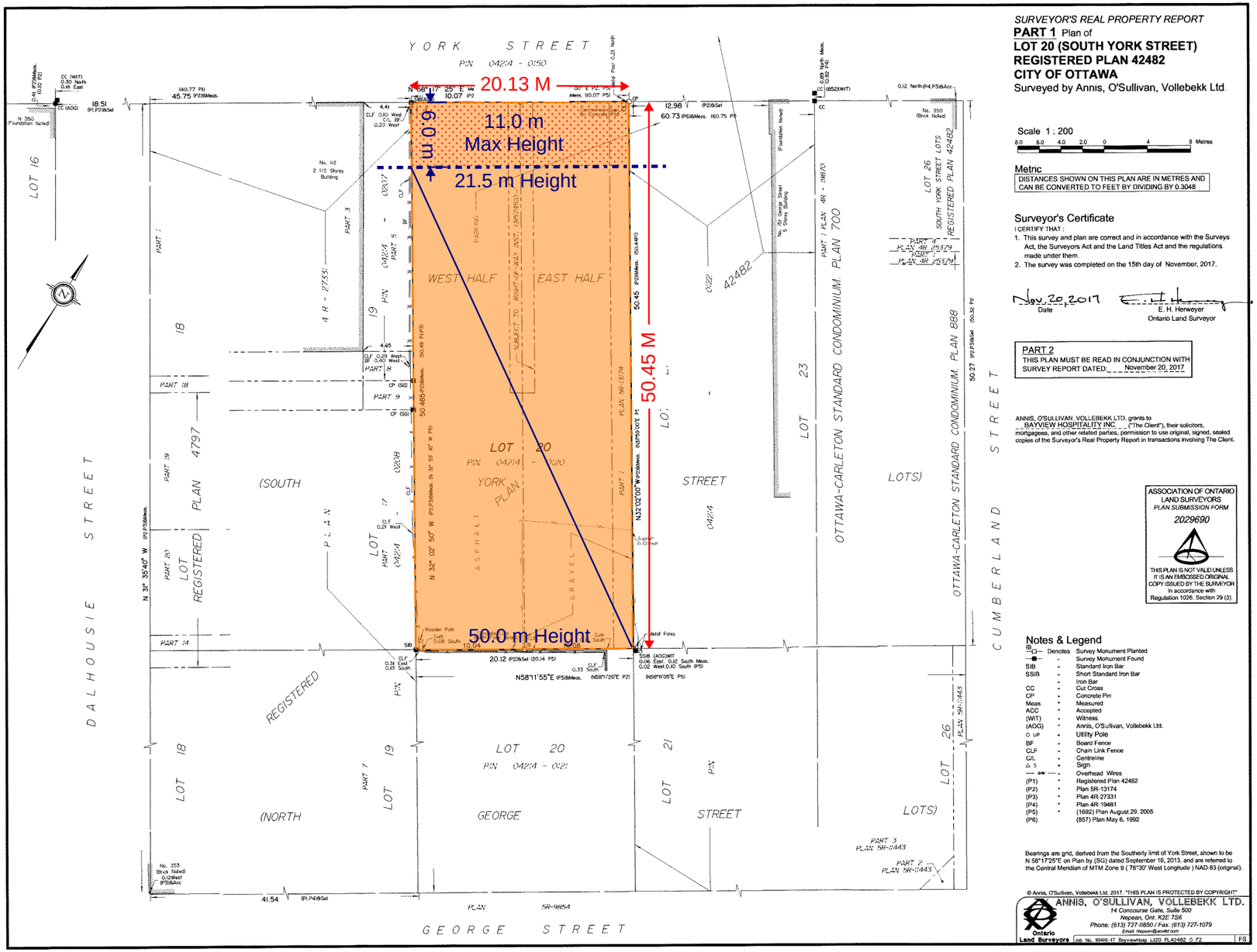
LONGEST PATH ESTIMATION

116 YORK STREET



2018-07-12

DRAWINGS / FIGURES



SURVEYOR'S REAL PROPERTY REPORT
PART 1 Plan of
LOT 20 (SOUTH YORK STREET)
REGISTERED PLAN 42482
CITY OF OTTAWA
Surveyed by Annis, O'Sullivan, Vollebekk Ltd.

Scale 1 : 200
8.0 6.0 4.0 2.0 0 4 8 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, the Surveyors Act and the Land Titles Act and the regulations made under them.
2. The survey was completed on the 15th day of November, 2017.

Nov. 20, 2017
Date

E. H. Herweyer
Ontario Land Surveyor

PART 2
THIS PLAN MUST BE READ IN CONJUNCTION WITH SURVEY REPORT DATED: November 20, 2017

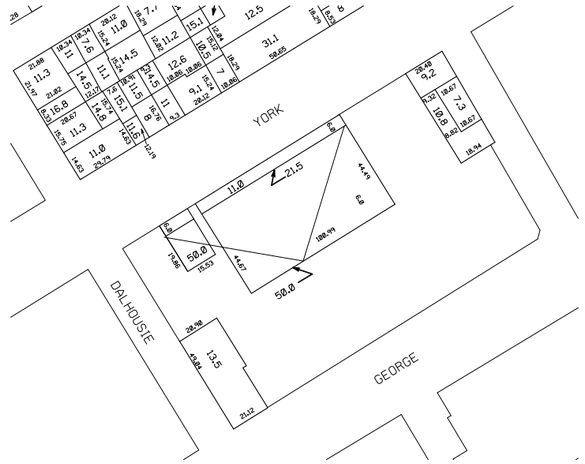
ANNIS, O'SULLIVAN, VOLLEBEKK LTD. grants to BAYVIEW HOSPITALITY INC. ("The Client"), their solicitors, mortgagees, and other related parties, permission to use original, signed, sealed copies of the Surveyor's Real Property Report in transactions involving The Client.

ASSOCIATION OF ONTARIO LAND SURVEYORS
PLAN SUBMISSION FORM
2029690
THIS PLAN IS NOT VALID UNLESS IT IS AN EMBOSSED ORIGINAL COPY ISSUED BY THE SURVEYOR In accordance with Regulation 1026, Section 29 (3)

Notes & Legend
IB Denotes Survey Monument Planted
Survey Monument Found
SIB - Standard Iron Bar
SSIB - Short Standard Iron Bar
Iron Bar
CC - Cut Cross
CP - Concrete Pin
Meas. - Measured
ACC - Accepted
(WIT) - Witness
(AOG) - Annis, O'Sullivan, Vollebekk Ltd.
UP - Utility Pole
BF - Board Fence
CLF - Chain Link Fence
C/L - Centreline
Sign
Overhead Wires
(P1) - Registered Plan 42482
(P2) - Plan 5R-13174
(P3) - Plan 4R-27331
(P4) - Plan 4R-19481
(P5) - (1692) Plan August 29, 2005
(P6) - (857) Plan May 6, 1992

Bearings are grid, derived from the Southerly limit of York Street, shown to be N 58°17'25"E on Plan by (SG) dated September 16, 2013, and are referred to the Central Meridian of MTM Zone 9 (76°30' West Longitude) NAD-83 (original).

ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
14 Concourse Gate, Suite 500
Nepean, Ont. K2E 7S6
Phone: (613) 727-0850 / Fax: (613) 727-1079
Email: Nepean@avbltd.com
Ontario Land Surveyors
Job No. 16416-17 BayviewHosp L120 PL42482 0 F2 FS



Schedule 74 to Zoning By-law 2008-250

PROJECT INFORMATON

SITE AREA	10931 sq.ft (1015.5m)
BUILDING HEIGHT	59.4m(194.8 ft) to T.O. MECH. PENTH. 17 STOREY BUILDING

PROJECT STATISTICS

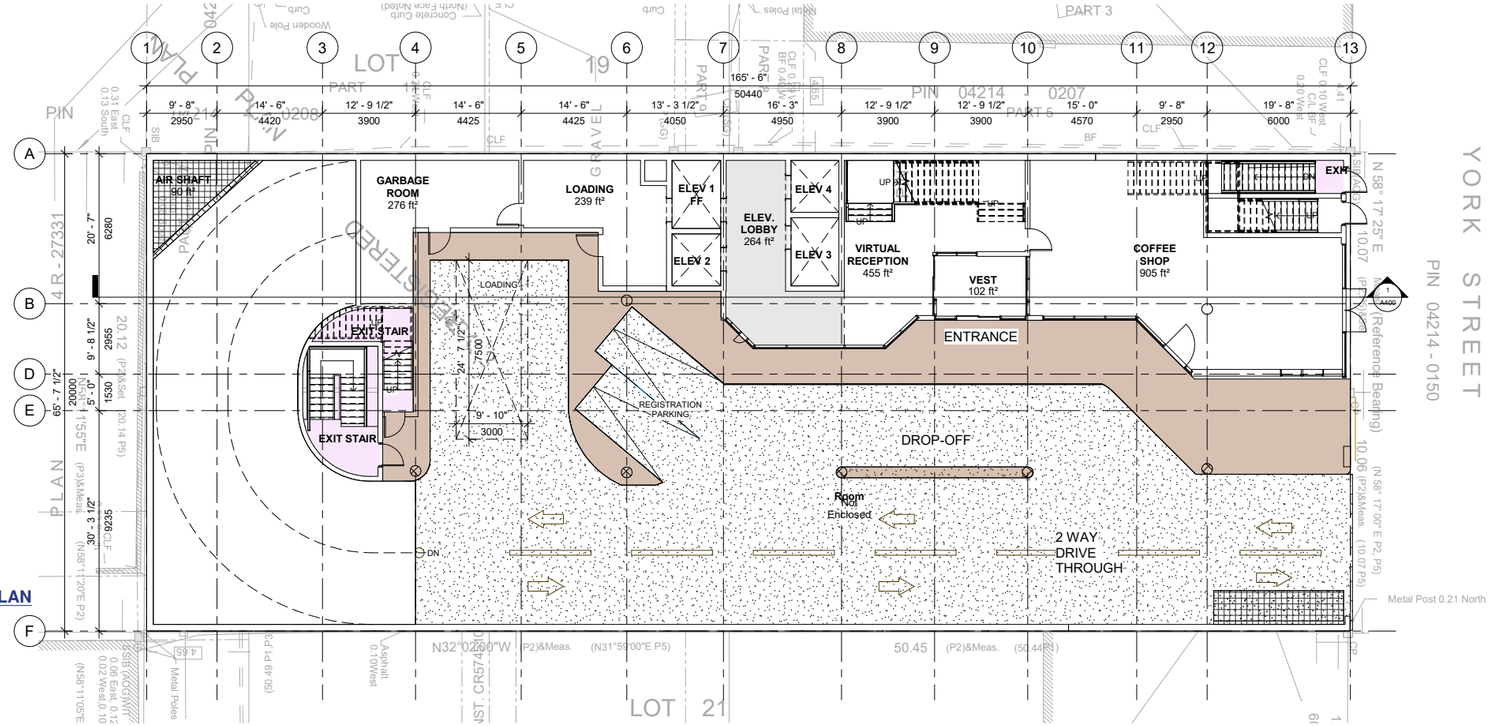
BUILDING HEIGHT	55.2m (181.1ft) to T.O. 17TH FLOOR
AMENITY SPACE	571.84 sq. m. 6155.3 sq. ft.

BUILDING GROSS AREA

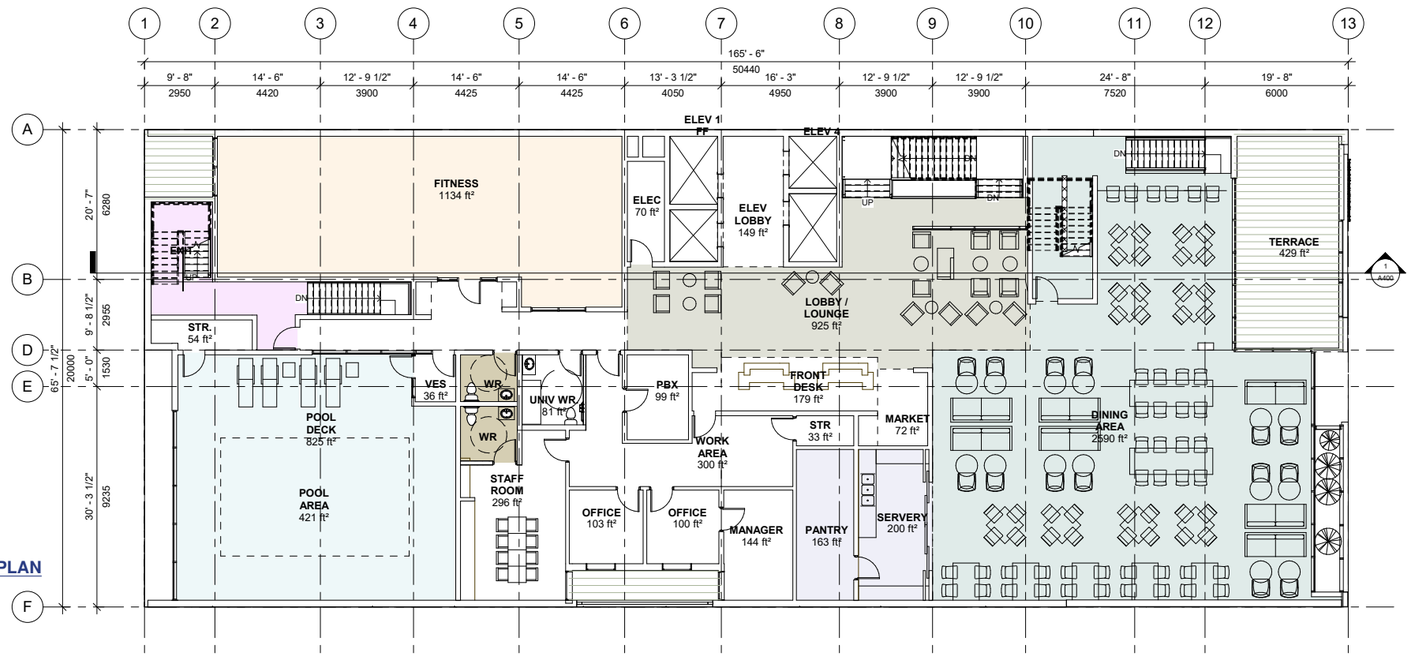
LEVEL P1,P2,P3	732 sqm 7879 sqft
GROUND FLOOR	623 sq.m. 6705.91 sq. ft.
2ND FLOOR	956 sq.m. 10290.3 sq. ft.
3RD FLOOR	958 sq.m. 10311.83 sq. ft.
4th & 5th FLOOR	2 x 806 sqm 2 x 8675.7 sqm
6th to 17th FLOOR	12 x 793 sqm 12x 8535.7 sqft
TOTAL AREA	14,379 sqm 154,774 sqft

CAR PARKINGS

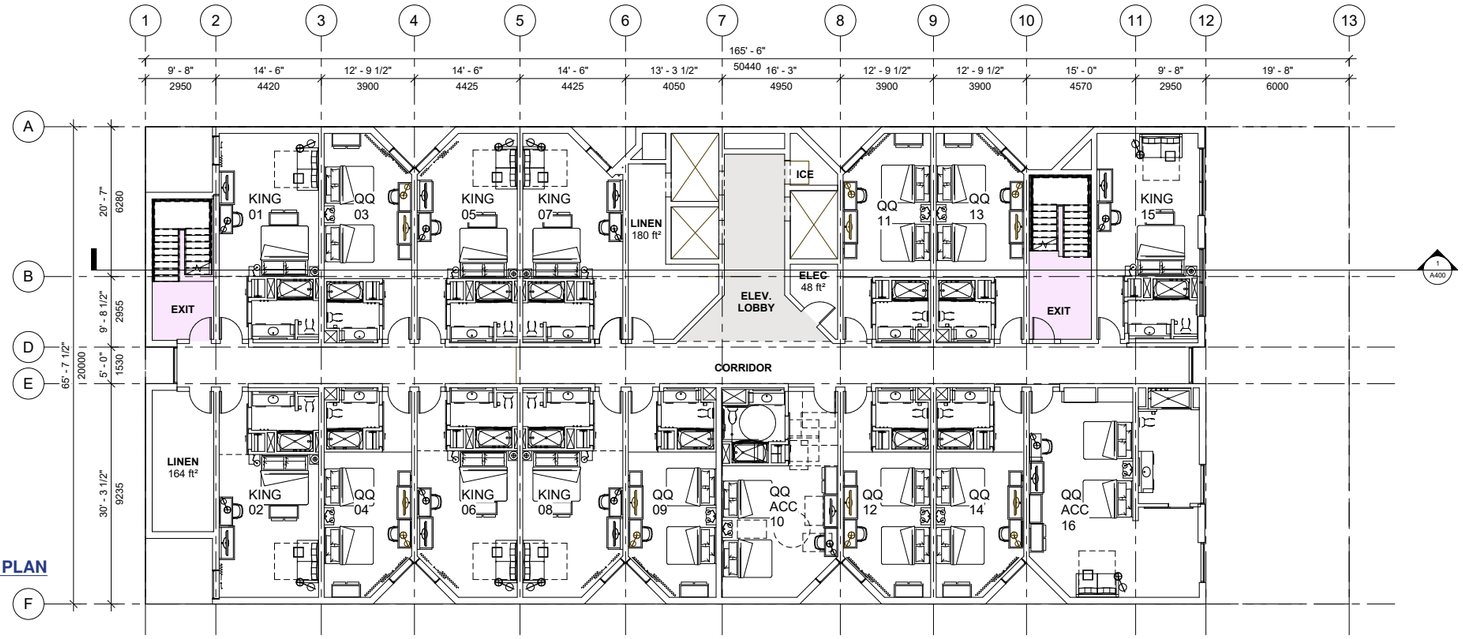
REQUIRED	**0**
PROVIDED	**63**



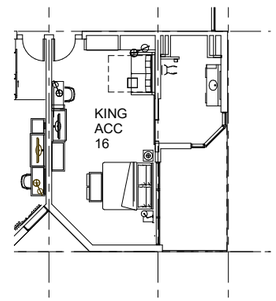
GROUND FLOOR PLAN



SECOND FLOOR PLAN



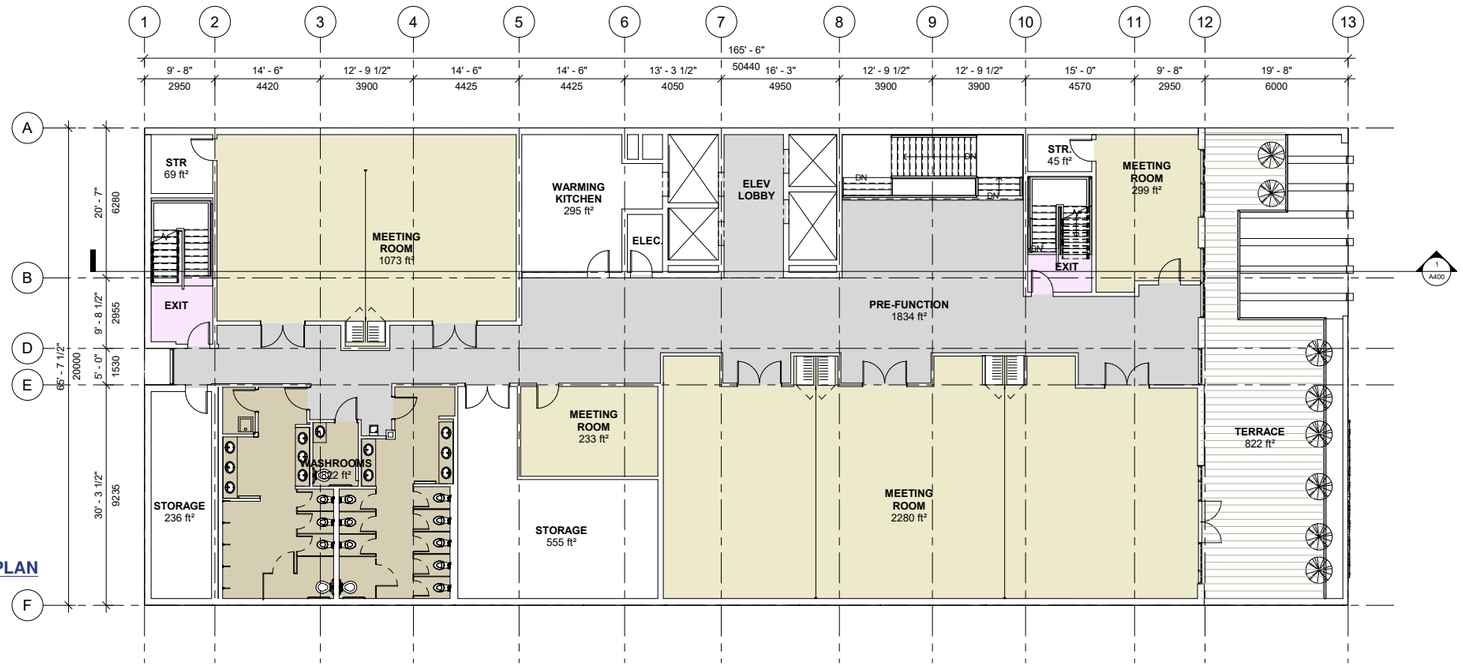
4TH& 5TH FLOOR PLAN



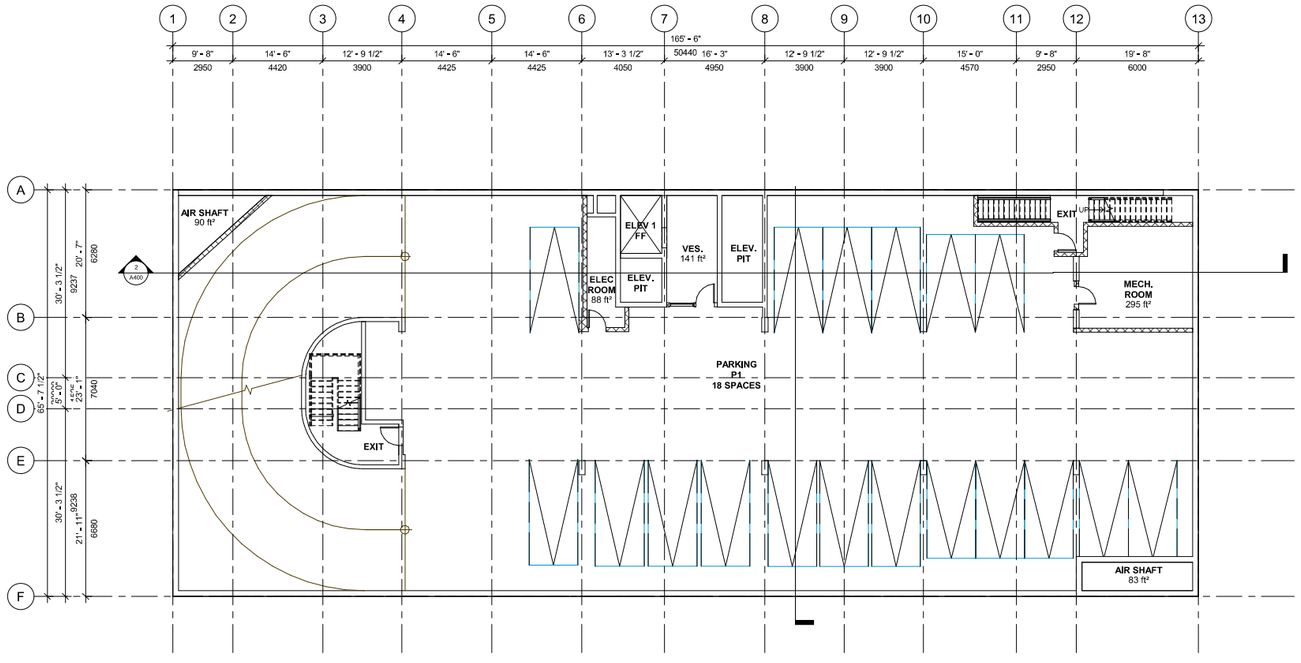
6TH TO 17TH FLOOR PLAN

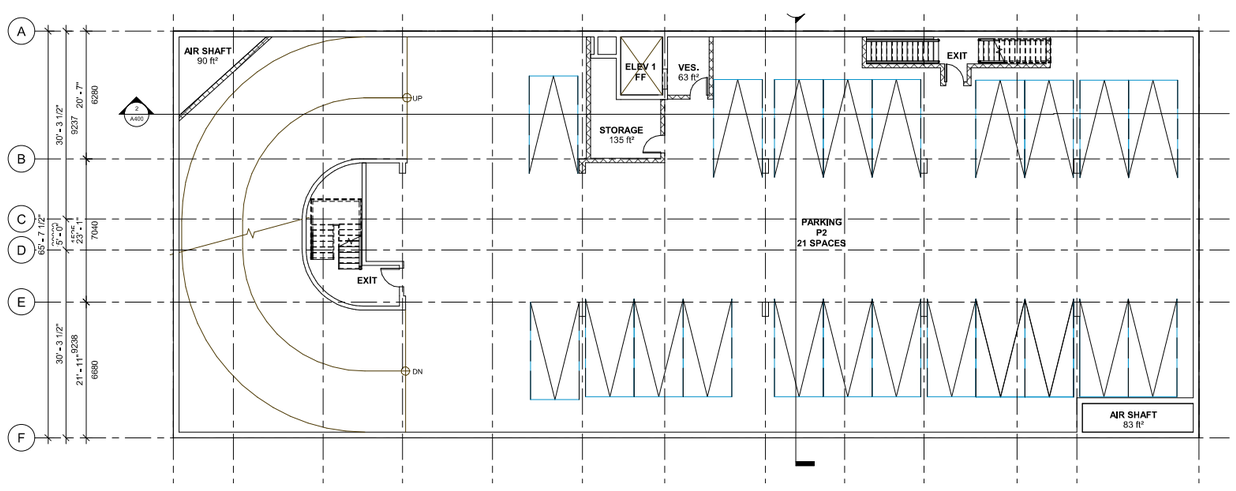
KING :7 PER FLOOR (LEVELS 4&9)
8 PER FLOOR (LEVELS 10-17)
TOTAL =106
QQ : 7 PER FLOOR,(LEVELS 4-17)
TOTAL = 98
ACC (QQ OR KING) : 1 PER FLOOR, (LEVELS 4-17)
TOTAL =14
QQ ACC: 1 PER FLOOR (LEVELS 4&5)
TOTAL = 2
KING ACC: 1 PER FLOOR (LEVELS 6-9)
TOTAL = 4

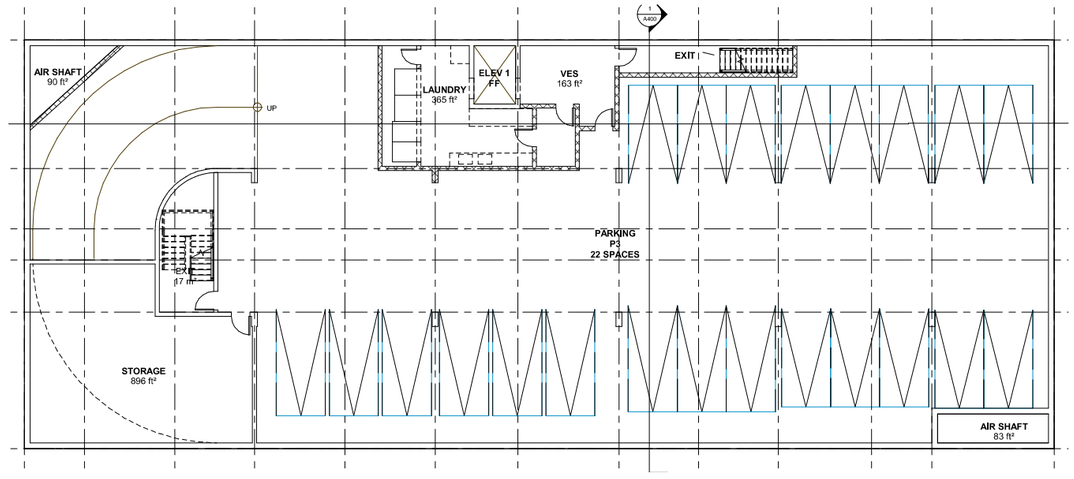
TOTAL :16 SUITES PER FLOOR
20 ACC SUITES
14 FLOORS X 16 SUITES = 224 SUITES



THIRD FLOOR PLAN





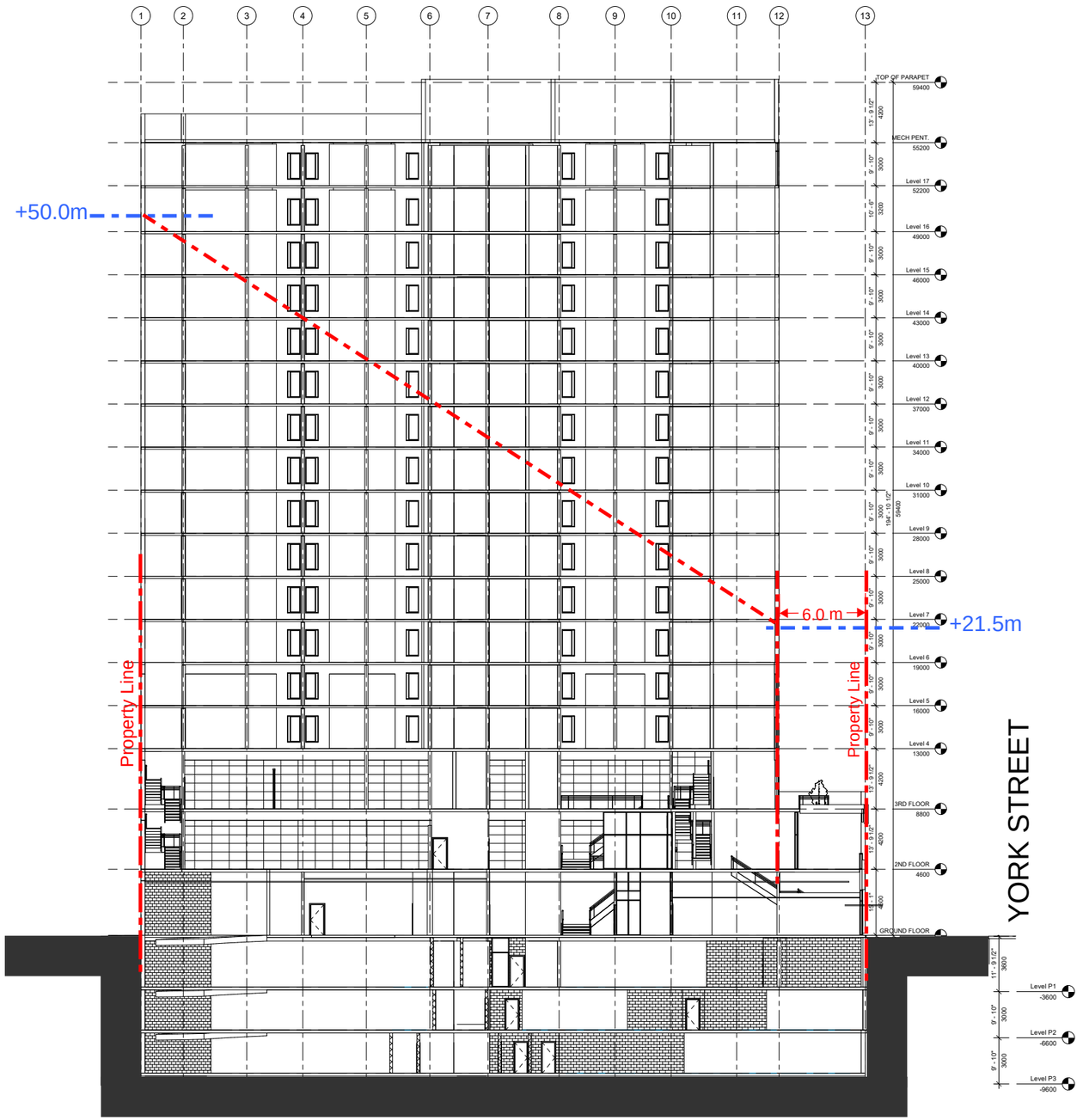


PROPOSED DEVELOPMENT
HOTEL - HAMPTON INN BY HILTON
116 YORK STREET, OTTAWA, ON.

FLOOR PLANS

09

BY : API & SAI FOR
BAYVIEW HOSPITALITY GROUP
June 18, 2018


1
2
3
4
5
6
7
8
9
10
11
12
13
+50.0m
6.0 m
+21.5m
Property Line
Property Line
YORK STREET
TOP OF PARAPET
59400
MECH PENT.
55200
Level 17
52200
Level 16
49000
Level 15
46000
Level 14
43000
Level 13
40000
Level 12
37000
Level 11
34000
Level 10
31000
Level 9
28000
Level 8
25000
Level 7
22000
Level 6
19000
Level 5
16000
Level 4
13000
3RD FLOOR
8800
2ND FLOOR
4600
GROUND FLOOR
Level P1
-3600
Level P2
-6600
Level P3
-9600

* BASE PICTURES ARE TAKEN FROM THE CITY OF OTTAWA WEBSITE AND GOOGLE EARTH

PROPOSED HOTEL @
116 YORK STREET,
BUILDING HEIGHT:
55.2m T.O. 17 TH FLOOR
59.4m T.O. MECH. PENTH.
17 STOREY

EXISTING
ANdAZ HOTEL
59.4m T.O
MECH.
PENTH.