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ASSESSMENT OF ADEQUACY OF PUBLIC SERVICES

FOR

SURFACE DEVELOPMENTS 2050 SCOTT STREET

CITY OF OTTAWA

PROJECT NO.: 19-1142
CITY APPLICATION NO.: D07-12-XX-XXXX

APRIL 2020 – REV. 1

ASSESSMENT OF ADEQUACY OF PUBLIC SERVICES
FOR
2050 SCOTT STREET

SURFACE DEVELOPMENTS

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FOR
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SURFACE DEVELOPMENTS
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CITY OF OTTAWA
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1.0 INTRODUCTION

David Schaeffer Engineering Limited (DSEL) has been retained by Surface Developments to prepare an Assessment of Adequacy of Public Services report in support of the application for a Zoning By-law Amendment (ZBLA) at 2046 & 2050 Scott Street and 295, 299 & 301 Ashton Avenue.

The subject property is located within the City of Ottawa urban boundary, in the Kitchissippi Ward. As illustrated in ***Figure 1***, below, the subject property is located east of the intersection of Scott Street and Winona Avenue. Comprised of five parcels, the subject property measures approximately ***0.25 ha*** and is zoned Traditional Mainstreet (TM).

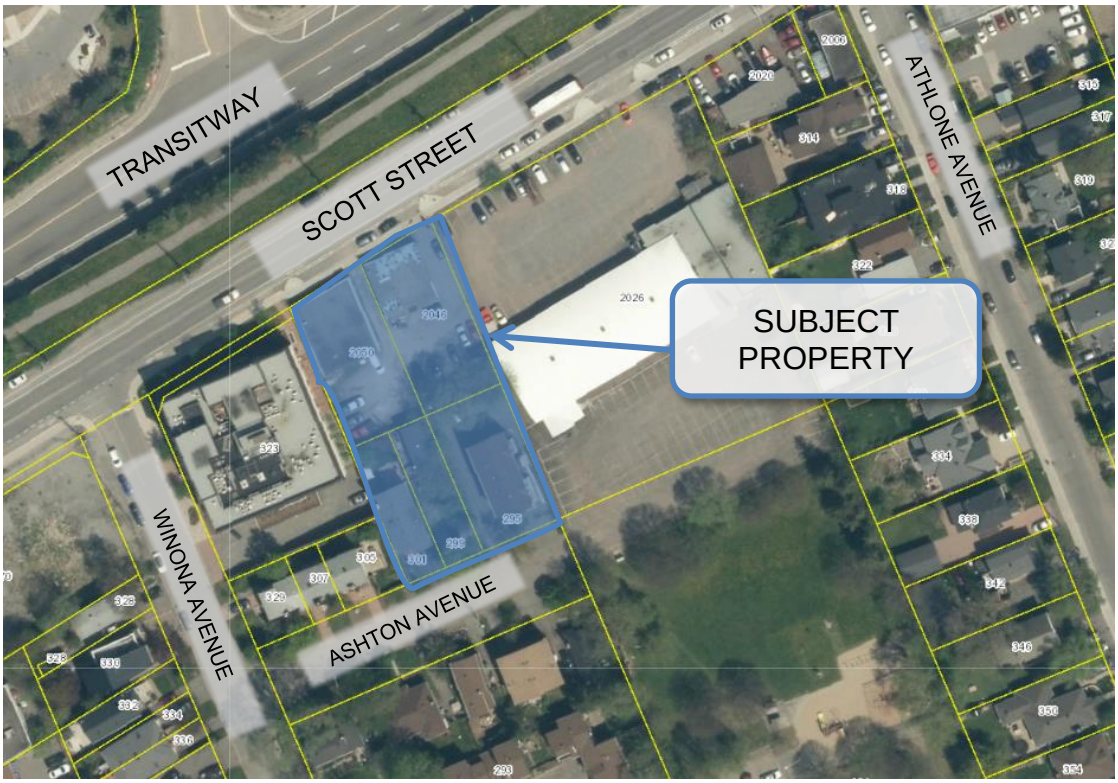

Figure 1: Site Location

The proposed ZBLA would allow for the development of a 30-storey residential/commercial building fronting onto Scott Street. The contemplated development would include approximately ***233 m²*** of ground level retail and underground parking, with access from Scott Street and Ashton Avenue. The residential component is comprised of approximately ***353 units*** and approximately ***1,830 m²*** of amenity space. 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 property parcels within 2046 & 2050 Scott Street contain commercial buildings consisting of asphalt parking lots and two commercial buildings. The elevations range between 63.78 m and 62.91 m with a minimal grade change of approximately 0.34% from the Northeast to the Southwest corner of the property.

The existing property parcels within 295, 199 & 301 Ashton Avenue contain three residential buildings. The elevations range between 63.25 m and 62.65 m with a minimal grade change of approximately 1.0% 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:

Scott Street

- 203 mm diameter PVC watermain;
- 900 mm diameter concrete storm sewer, tributary to Ottawa Central sub-watershed;
- 375 mm diameter PVC sanitary sewer, tributary to the West Nepean Collector;
- 1220 mm diameter transmission watermain; and
- 1500 mm diameter concrete West Nepean Collector sanitary trunk.

Ashton Avenue

- 152 mm diameter UCI watermain;
- 150 mm diameter concrete storm sewer, tributary to Ottawa Central sub-watershed; and
- 225 mm diameter concrete sanitary sewer, tributary to the West Nepean Collector.

1.2 Required Permits / Approvals

The development is subject to the zoning by-law amendment approval process. The City of Ottawa must approve the engineering design drawings and reports prior to the issuance of zoning by-law amendment.

Based on coordination with Surface Developments, the subject site is anticipated to be amalgamated into a single parcel of land, is not of industrial designation, and is not located within a combined sewershed. As a result, the stormwater management system is exempt from sections 53(1) and (3) of the Ontario Water Resources Act under Ontario Regulation 525/98.

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

2.1 Existing Studies, Guidelines, 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)

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 203 mm diameter watermain exists within the Scott Street right-of-way and a local 152 mm diameter watermain exists within the Ashton Avenue right-of-way. In addition to the local service, a 1200 mm diameter transmission main also exists within Scott Street.

3.2 Water Supply Servicing Design

A local 203 mm diameter watermain exists within the Scott Street right-of-way and a local 152 mm diameter watermain exists within the Ashton Avenue right-of-way. Based on As-built drawings provided by the City of Ottawa, it appears that there are two existing fire hydrants along Scott Street, fronting the subject site, and a fire hydrant along Ashton Avenue.

In accordance with City of Ottawa technical bulletin ISDTB-2014-02, redundant service connections will be required due to an estimated design flow of greater than 50 m^3/day.

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
Residential Bachelor/1 Bedroom Apartment	1.4 P/unit
Residential 2 Bedroom Apartment	2.1 P/unit
Residential Average Daily Demand	280 L/d/P***
Residential Maximum Daily Demand	3.0 x Average Daily *
Residential Maximum Hourly	4.5 x Average Daily *
Commercial/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	150 mm diameter
Minimum Depth of Cover	2.4 m from top of watermain to finished grade
During normal operating conditions desired operating pressure is within	350 kPa and 480 kPa
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*
*** Residential Max. Daily and Max. Hourly peaking factors per MOE Guidelines for Drinking-Water Systems Table 3-3 for 0 to 500 persons. -Table updated to reflect ISD-2010-2*
Daily consumption rate to align with the revised wastewater rates identified by City of Ottawa Technical Bulletin ISTB-2018-03. As a result, DSEL is submitting for a deviation from the ***Water Supply Guidelines

Table 2, below, summarizes the estimated water supply demand and boundary conditions for the development based on the ***Water Supply Guidelines***.

Table 2
Water Demand and Boundary Conditions
Contemplated Conditions

Design Parameter	Estimated Demand[1] (L/min)	Boundary Condition[2] Scott Street (m H_2O / kPa)	Boundary Condition[2] Ashton Avenue (m H_2O / kPa)
Average Daily Demand	114.6	51.4 / 504.3	52.2 / 511.6
Max Day + Fire Flow	282.9 + 10,000 = 10,282.9	38.6 / 378.8	2,400 L/min (@ 20 psi)
Peak Hour	620.3	45.1 / 442.5	45.4 / 444.9

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 63.4m within Scott Street and 62.7m within Ashton Avenue. See ***Appendix B.***

Fire flow requirements are to be determined in accordance with City of Ottawa ***Water Supply Guidelines*** and the Ontario Building Code.

Fire flow requirements were estimated per City of Ottawa Technical Bulletin ***ISTB-2018-02***. The following parameters were assumed:

- Type of construction – Fire-resistive Construction;
- Occupancy type – Limited Combustibility; and
- Sprinkler Protection – Fully Supervised Sprinklered System.

The above assumptions result in an estimated fire flow of approximately ***10,000 L/min***, noting that actual building materials selected will affect the estimated 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.

The City of Ottawa was contacted to obtain boundary conditions associated with the estimated water demand, as indicated in the boundary request correspondence included in ***Appendix B***.

The City provided both the anticipated minimum and maximum water pressures, as well as, the estimated water pressure during fire flow demand for the demands indicated by the correspondence in ***Appendix B***. As shown by ***Table 2,*** above, the minimum and maximum pressures fall within the required range identified in ***Table 1*** for the Scott Street connection. ***2,400 L/min*** is available within the Ashton Avenue watermain at the minimum pressure of 20 psi. Based on the estimated fire flow of ***10,000 L/min***, the Ashton Avenue watermain is not anticipated to be sufficiently sized for the secondary service.

3.3 Water Supply Conclusion

A local 203 mm diameter watermain exists within the Scott Street right-of-way and a local 152 mm diameter watermain exists within the Ashton Avenue right-of-way. Based on As-built drawings provided by the City of Ottawa, it appears that there are two existing fire hydrants along Scott Street, fronting the subject site, and a fire hydrant along Ashton Avenue.

Estimated water demands under contemplated conditions were submitted to the City of Ottawa for establishing boundary conditions. The City provided both the anticipated minimum and maximum water pressures, as well as, the estimated water pressure during fire flow. The minimum and maximum pressures fall within the required range identified in ***Table 1*** for the Scott Street connection. ***2,400 L/min*** is available within the Ashton Avenue watermain at the minimum pressure of 20 psi. Based on the estimated fire flow of ***10,000 L/min***, the Ashton Avenue watermain is not anticipated to be sufficiently sized for the secondary service.

As indicated in ***Table 1,*** DSEL employed a daily consumption rate of 280 L/person/day to align with the revised wastewater rates identified by City of Ottawa Technical Bulletin ISTB-2018-03. As a result, DSEL is submitting for a deviation from the ***Water Supply Guidelines***.

4.0 WASTEWATER SERVICING

4.1 Existing Wastewater Services

The subject site lies within the West Nepean Sewer catchment area, as shown by the City sewer mapping included in ***Appendix C***. The existing 375 mm diameter sanitary sewer within Scott Street and the existing 225 mm diameter sanitary sewer within Ashton Avenue are available to service the contemplated development.

2046 & 2050 Scott Street consist of two commercial buildings contributing wastewater to the local 375 mm diameter sanitary sewer. 295, 299 & 301 Ashton Avenue consist of three residential buildings contributing wastewater to the local 225 mm diameter sanitary sewer within Ashton Avenue. The existing 375 sanitary sewer within Scott Street and the existing 225 mm diameter sanitary sewer within Ashton Avenue are tributary to the West Nepean Collector, which is located approximately 200 m downstream of the subject site.

Table 3 demonstrates the anticipated peak flow from the existing buildings. See ***Appendix C*** for associated calculations.

Table 3
Summary of Estimated Peak Wastewater Flow

Design Parameter	Total Flow (L/s)
Estimated Average Dry Weather Flow	0.63
Estimated Peak Dry Weather Flow	0.81
Estimated Peak Wet Weather Flow	0.88

4.2 Wastewater Design

The existing 375 mm diameter sanitary sewer within Scott Street and the existing 225 mm diameter sanitary sewer within Ashton Avenue are available to service the contemplated development.

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

Table 4
Wastewater Design Criteria

Design Parameter	Value
Residential Single Family	3.4 P/unit
Residential Bachelor/1 Bedroom Apartment	1.4 P/unit
Residential 2 Bedroom Apartment	2.1 P/unit
Residential Average Apartment	1.8 P/unit
Average Daily Demand	280 L/d/per
Peaking Factor	Harmon's Peaking Factor. Max 4.0, Min 2.0 Harmon's Corrector Factor 0.8
Commercial/Amenity Floor Space	5 $L/m^2/d$
Infiltration and Inflow Allowance	0.05 L/s/ha (Dry Weather) 0.28 L/s/ha (Wet Weather) 0.33 L/s/ha (Total)
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 estimated peak flow from the contemplated development. See ***Appendix C*** for associated calculations.

Table 5
Summary of Estimated Peak Wastewater Flow

Design Parameter	Total Flow (L/s)
Estimated Average Dry Weather Flow	2.00
Estimated Peak Dry Weather Flow	6.35
Estimated Peak Wet Weather Flow	6.42

The estimated sanitary flow based on the conceptual Site Plan, included in ***Drawings/Figures,*** results in a peak wet weather flow of ***6.42 L/s***.

A sanitary analysis was conducted for the local Ashton Avenue municipal sanitary sewer, located across the frontage of the subject property, in order to assess the available capacity. The catchment area serviced by the Ashton Avenue sanitary sewer was identified and evaluated by reviewing existing development and zoning within the area. The analysis was conducted from the site to the upstream extents of the drainage area located near the intersection of Winona Avenue and Richmond Road, as shown by the sanitary drainage plan included in ***Appendix C.***

The City of Ottawa's Technical Bulletin ***ISTB-2018-01*** was employed to generate a conservative estimate of the existing wastewater flow conditions within the Ashton Avenue and Winona Avenue sewers.

Based on the sanitary analysis, the controlling section of the local sewer system is located within Ashton Avenue (section A-B) with an available residual capacity of ***29.1 L/s***; detailed calculations are included in ***Appendix C***.

The analysis above indicates that sufficient capacity is available in the Ashton Avenue sewer to accommodate the contemplated development.

Due to the complexity of the drainage area for the Scott Street sanitary sewer, the impacts from the estimated flow from the site require further review by the City in order to confirm available capacity and resulting HGL within the existing sanitary sewer.

4.3 Wastewater Servicing Conclusions

The existing 375 mm diameter sanitary sewer within Scott Street and the existing 225 mm diameter sanitary sewer within Ashton Avenue are available to service the contemplated development.

Based on the above sanitary analysis, sufficient capacity is available to accommodate the anticipated ***6.42 L/s*** peak wet weather flow from the contemplated development within the Ashton Avenue sanitary sewer. Due to the complexity of the drainage area associated with the Scott Street sewer, the existing capacity will need to be confirmed by City of Ottawa staff.

The wastewater design will conform 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 development 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***.

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 6
Summary of Existing Peak Storm Flow Rates

City of Ottawa Design Storm	Estimated Peak Flow Rate – Scott St (L/s)	Estimated Peak Flow Rate – Ashton Ave (L/s)	Total Flow (L/s)
2-year	25.0	16.4	41.4
5-year	33.9	22.3	56.2
100-year	64.5	47.8	112.3

5.2 Post-development Stormwater Management Target

Stormwater management requirements for the contemplated development were reviewed with the City of Ottawa, where the contemplated development is required to:

- Meet an allowable release rate based on a Rational Method Coefficient of 0.50, employing the City of Ottawa IDF parameters for a 5-year storm with a time of concentration equal to 10 minutes;
- Attenuate all storms up to and including the City of Ottawa 100-year design event on site; and
- Quality controls are not required for the contemplated development due to the site's distance from the outlet; correspondence with the RVCA is included in ***Appendix A***.

Based on the above the allowable release rate for the contemplated development is ***36.2 L/s***.

5.3 Stormwater Management System

It is contemplated to outlet to the existing 900 mm diameter storm sewer within Scott Street since it is anticipated that the required service size to support the development will be larger than the receiving sewer within Ashton Avenue.

To meet the stormwater objectives the contemplated development may contain a combination of roof top flow attenuation along with surface and subsurface storage.

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 7
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	3.6	0.0	7.7	0.0
Attenuated Areas	14.2	27.8	28.4	55.8
Total	**17.8**	**27.8**	**36.2**	**55.8**

It is anticipated that approximately ***56 m^3*** of storage will be required on site to attenuate flow to the established release rate of ***36.2 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 grading constraints.

5.4 Stormwater Servicing Conclusions

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 in accordance with City of Ottawa ***City Standards***. The post-development allowable release rate was calculated as ***36.2 L/s,*** based on consultation with the City of Ottawa. It is estimated that ***56 m^3*** of on-site storage will be required to meet this release rate.

Based on consultation with the RVCA, stormwater quality controls are not required.

The stormwater design will conform to all relevant ***City Standards*** and Policies for approval.

6.0 UTILITIES

Gas and Hydro services currently exist within the Scott Street right-of-way. 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 Surface Developments to prepare an Assessment of Adequacy of Public Services report in support of the application for a Zoning By-law Amendment (ZBLA) at 2046 & 2050 Scott Street and 295, 299 & 301 Ashton Avenue. The preceding report outlines the following:

- Based on boundary conditions provided by the City, the existing municipal water infrastructure within Scott Street is capable of providing the contemplated development with water within the City's required pressure range;
- The FUS method for estimating fire flow indicated ***10,000 L/min*** is required for the contemplated development;
- The contemplated development is anticipated to have a peak wet weather flow of ***6.24 L/s.*** Based on the above sanitary analysis, sufficient capacity is available to accommodate the development within the Ashton Avenue sanitary sewer. Due to the complexity of the drainage area, the capacity of the existing sanitary sewer will need to be confirmed by City of Ottawa staff;
- Based on the ***City Standards***, the contemplated development will be required to attenuate post development flows to an equivalent release rate of ***36.2 L/s*** for all storms up to and including the 100-year storm event;
- It is contemplated that stormwater objectives may be met through storm water retention via roof top, surface and subsurface storage, and it is anticipated that ***56 m³*** of onsite storage will be required to attenuate flow to the established release rate listed above;
- Based on consultation with the RVCA, stormwater quality controls are not required.

Prepared by,
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Per: Alison J. Gosling, EIT.

Reviewed by,
David Schaeffer Engineering Ltd.

Per: Adam D. Fobert, P.Eng.

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APPENDIX A

Pre-Consultation

DEVELOPMENT SERVICING STUDY CHECKLIST

19-1142 30/04/2020

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 7.0
☐	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

Formal Pre-Application Consultation Meeting Minutes
2050 Scott Street
Thursday, October 31, 3:00 p.m. – 4:00 p.m.

Attendees

City of Ottawa
Jean-Charles Renaud, File Lead
Christopher Moise, Urban Design
John Wu, Engineer
Mark Richardson, Forester
Neeti Paudel, Transportation
Urja Modi, Student Planner

Applicant Team
Alison Gosling
Kevin McMahon, Owner
Pierre Boulet, Owner
Jakub Ulak, Surface Condos
Jamie Posen, FoTenn
Brian Casagrande, FoTenn
Roderick Lahey, RLA Architecture

Notes: Community association representative was unable to attend but will be added to the pre-application consultation correspondence.

Proposal Overview

- To construct a 26-storey mixed use building with 42 underground parking spaces.
- On Scott street, near Winona and near Tweedsmuir
- West of curling club
- East to four-story condo done by phoenix
- Gone through initial discussion with Doug James
- Met with ward councillor - recognizing Scott street as high-rise feeding into Light Rail Transit
- Discussion with department for high-rise guidelines
- Don't meet all of the guidelines
    - Increased setback
    - Adjacent R4 to behind
- 10m setbacks to property to east and then deal with west, setback on upper floors
- Think they are meeting intent of the bylaw
- 6 or 7 floors of underground parking - total unit count of about 200 units; parking is about 40% of the units (resident and visitor) - councillor is okay with that
    - Parking meeting zoning
- 4 or 5 storey condo to the west will most likely never disappear.

Preliminary Comments from various disciplines

Jean-Charles Renaud, File Lead

- Great area for intensification due to its proximity to the transit system, but not at all costs
- Size of lot creates problems in term of separation distance and transitioning to the neighbours, particularly to the south
- While we are seeing more high rises in the area, this remains a small TM zoned site - angular plane starting at the 4th floor is a requirement - not being met in this proposal
- The high rise tower separation zoning provisions, still in period of appeal, will apply.
- Be cognizant of Curling Club tower placement as it may allow you to reposition this one toward the east.
- Put thought into the 5-storey condo site being redeveloped in the next 5-20 years; maybe high-rise building; anticipate how surrounding lots be developed in the future similar to yours
- Timelines of adjacent property should be considered
- Wind study required
- Shadow-sun study required
- TCR required
- Project will be subject to a Complex Site Plan Control and a rezoning (tower separation guidelines depending on when you apply)
- Trigger section 37

John Wu, Engineering

- Servicing study contact ISD group - issue that needs to be addressed
- Right of way protection - 26m
- Storm or water - no issue - remind team that there is a high pressure transmission that is 1.2m; 2metres down in site is all rock - blasting of concern - follow vibration monitoring program - liability insurance - watermain break 15m from property line - connect to big one, about 3m deep
- Noise and vibration study
- 5 year stormwater management
- Major concern is sanitary

Christopher Moise, Urban Design

- More analysis needs to happen to figure out how to get around issue of scale
- Analysis of elevations along Scott street - is a tall building appropriate for this site?
- Issue of asking neighbourhood properties to accommodate for setbacks
- Appears the site is big enough for a 9 storey building - concern of not accommodating for things that need to be accommodated for - design mitigation, without land how will you mitigate
- Your building setback could be used as precedent for the property to the west having a similar setback
    - Need a limiting distance agreement to resolve this issue
- Zoning guidelines and design guidelines do not support the height being proposed

- Dealing with properties to the south; largest push back against other tall high-rise buildings on Scott Street
- How are we building it up from LRT in all directions - transition needs to be looked at of Scott Street
- Go to UDRP earlier than later, before full submission - the sooner you start the better
- Go to formal UDRP session of adjacent high-rise dev
- Think about practicality of condo site being redeveloped. The City will not look at it's redevelopment as being impossible.

Neeti Paudel, Transportation

- Scott street functional design during Stage 2 detour is included in the Scoping Report (Appendix C)
- Section of roadway along subject site is going to be reconstructed next year
- If you have to do lane reduction for road modifications or construction of the development, you can't do it until post 2024
- Submit step 1 to 4 of TIA for application to be deemed complete
- ROW protection on Scott Street between Churchill and Bayview is 26m – show this on the site plan.
- Site plan comments:
    - Show all details of the roads abutting the site up to and including the opposite curb; include such items as pavement markings, accesses and/or sidewalks.
    - Turning templates will be required for all accesses showing the largest vehicle to access the site; required for internal movements and at all access (entering and exiting and going in both directions).
    - Show all curb radii measurements; ensure that all curb radii are reduced as much as possible
    - Show lane/aisle widths.
    - Sidewalk is to be continuous across access as per City Specification 7.1.
    - Clear throat requirements for Scott Street is 25m.

Mark Richardson, Forestry (absent from meeting)

- 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
- any removal of privately-owned trees 10cm or larger in diameter requires a tree permit issued under the Urban Tree Conservation Bylaw; the permit is based on the approved TCR
- any removal of City-owned trees will require the permission of Forestry Services who will also review the submitted TCR
- for this site, the TCR may be combined with the Landscape Plan provided all information is clearly displayed
    - if possible, please submit separate plans showing 1) existing tree inventory, and 2) a plan showing to be retained and to be removed trees with tree protection details
- tree locations are to be surveyed

- the TCR must list all trees on site by species, diameter and health condition – separate stands of trees may be combined using averages
- the TCR must address all trees with a critical root zone that extends into the developable area – all trees that could be impacted by the construction that are outside the developable area need to be addressed.
- trees with a trunk that crosses/touches a property line are considered co-owned by both property owners; permission from the adjoining property owner must be obtained prior to the removal of co-owned trees
- If trees are to be removed, the TCR must clearly show where they are, and document the reason they can not be retained – please provide a plan showing retained and removed treed areas
- All retained trees must be shown and all retained trees within the area impacted by the development process must be protected as per City guidelines listed on Ottawa.ca
    - the location of tree protection fencing must be shown on a plan
    - include distance indicators from the trunk of the retained tree to the nearest part of the tree protection fencing
    - show the critical root zone of the retained trees
    - if excavation will occur within the critical root zone, please show the limits of excavation and calculate the percentage of the area that will be disturbed
- 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.
- Please ensure newly planted trees have an adequate soil volume for their size at maturity
- For more information on the process or help with tree retention options, contact Mark Richardson mark.richardson@ottawa.ca

Gary Ludington, Community Association Representative (Absent from meeting)

- Last night we attended a meeting at the Granite Curling Club regarding their potential proposal. This 26 storey proposal is immediately to the west. We have heard that the mixed use development of the Granite location could be taller.
- Surface has proposed a nine storey further east on Scott. Still on Scott but on the west side of Clifton is a proposed 20+ storey development. At McRae a 20+ storey complex is underway. Just across McRae on Scott we expect more high-rise development.
- There's a five storey building at Winona and a proposed 23 storey between Winona and Churchill.
- So we see going from 9 storeys to 23 to 26 or more to 5 to 23 to 7 where Scott ends just west of Churchill. The impact to the residential housing to the immediate south of the development on Scott will be adverse. There will be a wall of tall buildings from just east of Clifton to Churchill. Scott Street will become a speedway.
- Extra height is being or has been sought due to the FUTURE LRT. Yet parking is being provided for financial reasons and doesn't seem to take into consideration the proximity of the LRT.
- In looking at all the proposals there appears to be little or no trees or green space. Can the concrete blow not be softened by requiring trees etc on the south side of Scott.
- We are looking for ways to make Lions Park more easily accessible to all neighbours especially to those north of Scott Street. How can this be achieved?

- Birds are a concern because of the amount of glass used in the construction of all Scott Street proposals. Put some thought to this issue.

Charlotte Kelly

Subject: FW: Quality Control Requirements - 2050 Scott Street

Hi Charlotte,

Based on the site plan provided, the RVCA will not require quality controls for the proposed development. Best management practices are encouraged to provide as much protection on site, where possible. Please ensure that the stormwater management report identifies water quality considerations. (as noted below).

Thank you,

Eric Lalande, MCIP, RPP
Planner, Rideau Valley Conservation Authority
613-692-3571 x1137

From: Charlotte Kelly <CKelly@dsel.ca>
Sent: Wednesday, December 18, 2019 11:40 AM
To: Jamie Batchelor <jamie.batchelor@rvca.ca>; Eric Lalande <eric.lalande@rvca.ca>
Cc: Alison Gosling <AGosling@dsel.ca>
Subject: Quality Control Requirements - 2050 Scott Street

Good Morning Jamie and Eric,

We wanted to touch base with you regarding a development at 2046/2050 Scott Street

The existing site conditions consist of a two commercial buildings and above-ground parking area, as demonstrated in ***Figure 1*** below.

The development involves the construction of a 26-storey residential building, as shown in the contemplated site plan attached. Based on the information available, the development will discharge stormwater to the 900 mm diameter storm sewer within Scott Street and will travel approximately ***3 km*** towards the Ottawa River. Refer to ***Figure 2*** below for further details.

We anticipate that quality controls will not be required due to the distance to the outlet and as the development proposes to convert existing buildings and parking into a building and landscaped area. Can you please review and provide recommendations?

Please feel free to contact me to discuss.

Figure 1: Existing Site Limits

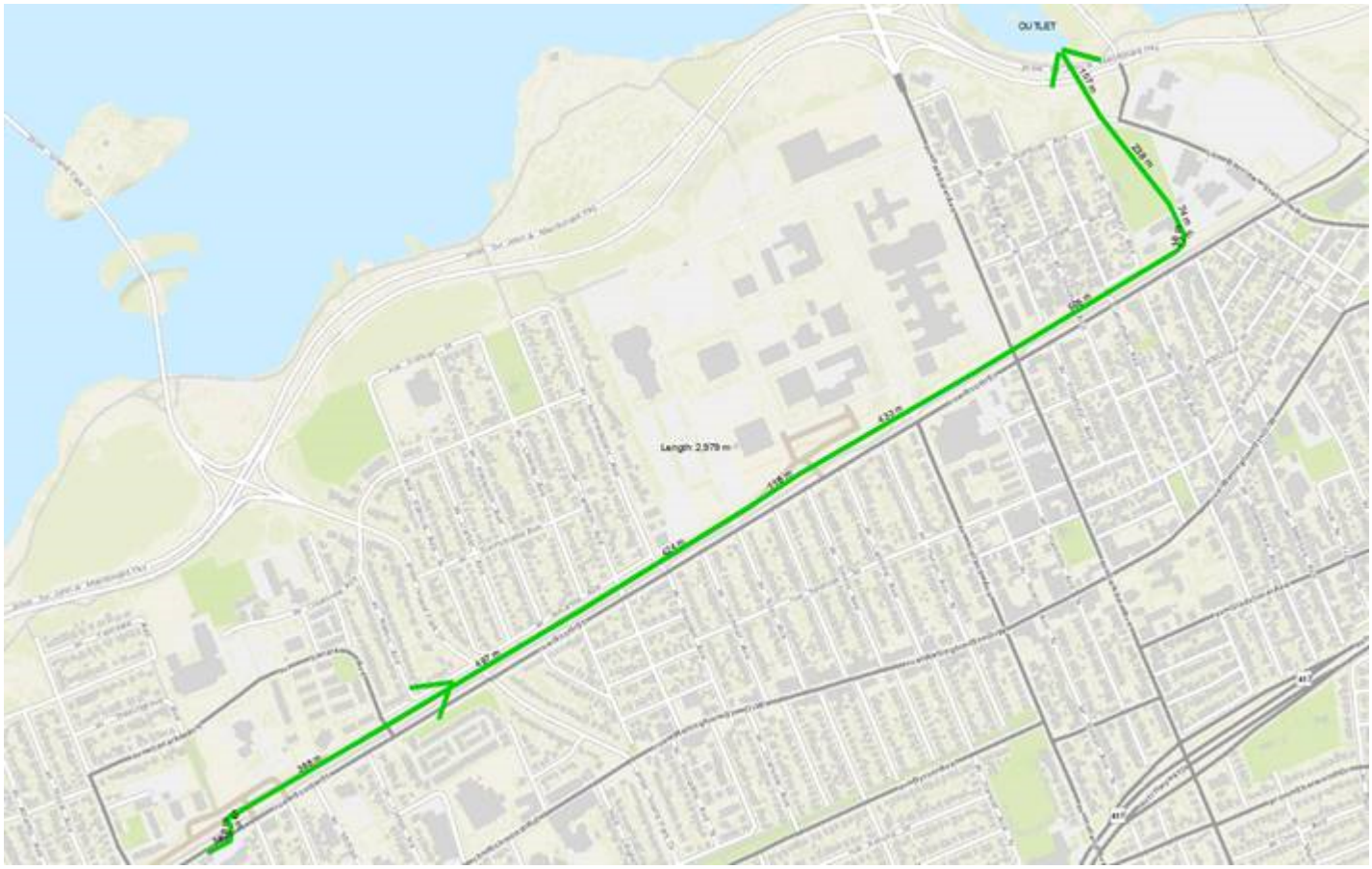


Figure 2: Distance to Outlet

Thank-you,

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

DSEL
david schaeffer engineering ltd.

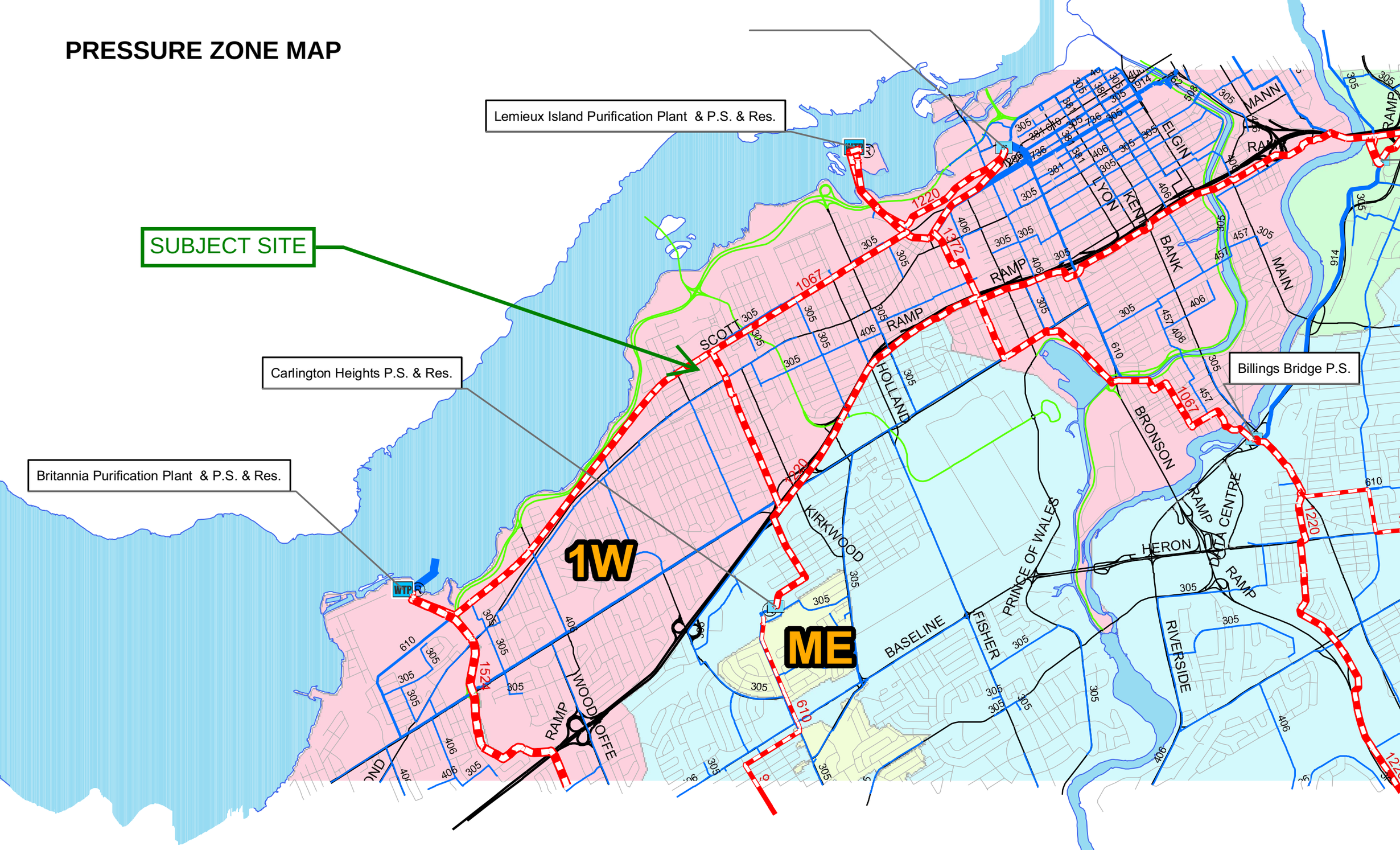
120 Iber Road, Unit 103
Stittsville, ON K2S 1E9

phone: (613) 836-0856 ext.511
email: ckelly@dsel.ca

APPENDIX B

Water Supply

PRESSURE ZONE MAP



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	30	42
1 Bedroom	1.4	214	300
2 Bedroom	2.1	109	229
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	571	159.9	111.0	399.7	277.6	879.3	610.7

Institutional / Commercial / Industrial Demand

Property Type	Unit Rate	Units	Avg. Daily m^3/d	Avg. Daily L/min	Max Day m^3/d	Max Day L/min	Peak Hour m^3/d	Peak Hour L/min
Commercial floor space	2.5 $L/m^2/d$	233	0.58	0.4	0.9	0.6	1.6	1.1
Amenity Space	2.5 $L/m^2/d$	1,830	4.58	3.2	6.9	4.8	12.4	8.6
Total I/CI Demand			5.2	3.6	7.7	5.4	13.9	9.7
Total Demand			**165.0**	**114.6**	**407.4**	**282.9**	**893.3**	**620.3**

Fire Flow Estimation per Fire Underwriters Survey

Water Supply For Public Fire Protection - 1999

Fire Flow Required

1. Base Requirement

$$F = 220C\sqrt{A}$$ L/min *Where **F** is the fire flow, **C** is the Type of construction and **A** is the Total floor area*

Type of Construction: Fire-Resistive Construction

C	0.6		*Type of Construction Coefficient per FUS Part II, Section 1*
A	7353.0	m^2	*Total floor area based on FUS Part II section 1*

Fire Flow	11319.0	L/min	
	11000.0	**L/min**	*rounded to the nearest 1,000 L/min*

Adjustments

2. Reduction for Occupancy Type

Limited Combustible	-15%	
Fire Flow	**9350.0**	**L/min**

3. Reduction for Sprinkler Protection

Sprinklered - Supervised	-50%	
Reduction	**-4675**	**L/min**

4. Increase for Separation Distance

	Cons. of Exposed Wall	S.D	Lw	Ha	LH	EC	
N	Wood Frame	>45m	0	0	0	0%	
S	Wood Frame	10.1m-20m	15	1	15	12%	
E	Non-Combustible	0m-3m	20	1	20	22%	
W	Non-Combustible	3.1m-10m	30	4	120	20%	
		% Increase				**54%**	*value not to exceed 75%*

Increase	**5049.0**	**L/min**	

Lw = Length of the Exposed Wall
Ha = number of storeys of the adjacent structure. Max 5 stories
LH = Length-height factor of exposed wall. Value rounded up.
EC = Exposure Charge

Total Fire Flow

Fire Flow	9724.0	L/min	*fire flow not to exceed 45,000 L/min nor be less than 2,000 L/min per FUS Section 4*
	10000.0	**L/min**	*rounded to the nearest 1,000 L/min*

Notes:
-Type of construction, Occupancy Type and Sprinkler Protection information provided by _____.
-Calculations based on Fire Underwriters Survey - Part II

Boundary Conditions Unit Conversion - Scott

Grnd Elev 63.4

	Height	m H_2O	PSI	kPa
Avg. Day	**114.8**	51.4	73.1	504.3
Peak Hour	**108.5**	45.1	64.2	442.5
Max Day + FF	**102.0**	38.6	54.9	378.8

Boundary Conditions Unit Conversion - Ashton

Grnd Elev 62.7 **Based on available 1K Mapping*

	Height	m H_2O	PSI	kPa
Avg. Day	**114.8**	52.2	74.2	511.6
Peak Hour	**108**	45.4	64.5	444.9

	L/s	L/min
Fire Flow @ 140kPa	40	2400

Charlotte Kelly

From: Wu, John <John.Wu@ottawa.ca>
Sent: April 27, 2020 12:24 PM
To: Charlotte Kelly
Subject: RE: Boundary Condition Request - 2046 Scott Street (19-1142)
Attachments: image005.emz; 2046 Scott April 2020.pdf

Here is the result.

The following are boundary conditions, HGL, for hydraulic analysis at 2046 Scott (zone 1W) assumed to be connected to the 203mm on Scott and 152mm on Ashton (see attached PDF for location).

	203mm on Scott	152mm on Ashton
Minimum HGL	108.5m	108.0m
Maximum HGL	114.8m	114.8m
Max Day + Fire Flow (167 L/s)	102.0m	Available flow @20pi = 40L/s

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

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

It looks clear, the connection on Ashton is not enough for the second water supply.

John

From: Charlotte Kelly <CKelly@dsel.ca>
Sent: April 20, 2020 8:32 AM
To: Wu, John <John.Wu@ottawa.ca>
Cc: Alison Gosling <AGosling@dsel.ca>
Subject: Boundary Condition Request - 2046 Scott Street (19-1142)

Good Morning John,

We would like to request water boundary conditions for 2046 Scott Street using the following development demands:

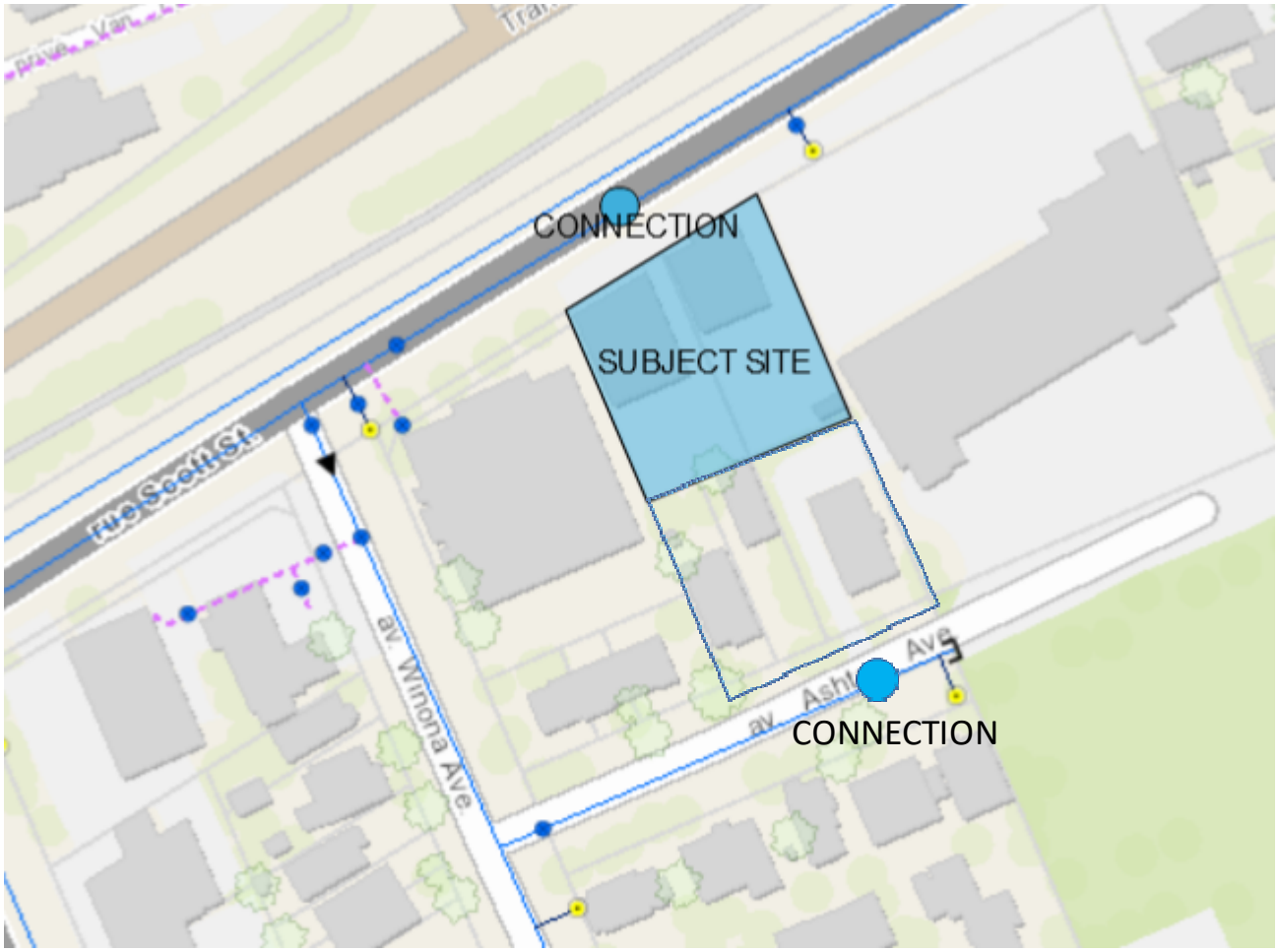
1. Location of Service: Scott Street / Ashton Avenue

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

- The development will include one 30-storey condominium building with approximately ***1,830 m²*** of amenity space, ***233 m²*** of commercial floor space and ***353 residential units***.
- It is anticipated that the development will have a dual connection to be serviced from the existing 203 mm diameter watermain within Scott Street and the existing 152 mm diameter watermain within Ashton Avenue, as shown by the attached map.
- Fire demand based on Technical Bulletin ISTB-2018-02 has been used to calculate an estimate the max fire demand of ***10,000 L/min***. Refer to the attached for detailed calculations.

Demand	L/min	L/s
Avg. Daily	114.6	1.91
Max Day	282.9	4.72
Peak Hour	620.3	10.34

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

phone: (613) 836-0856 ext.511
email: ckelly@dsel.ca

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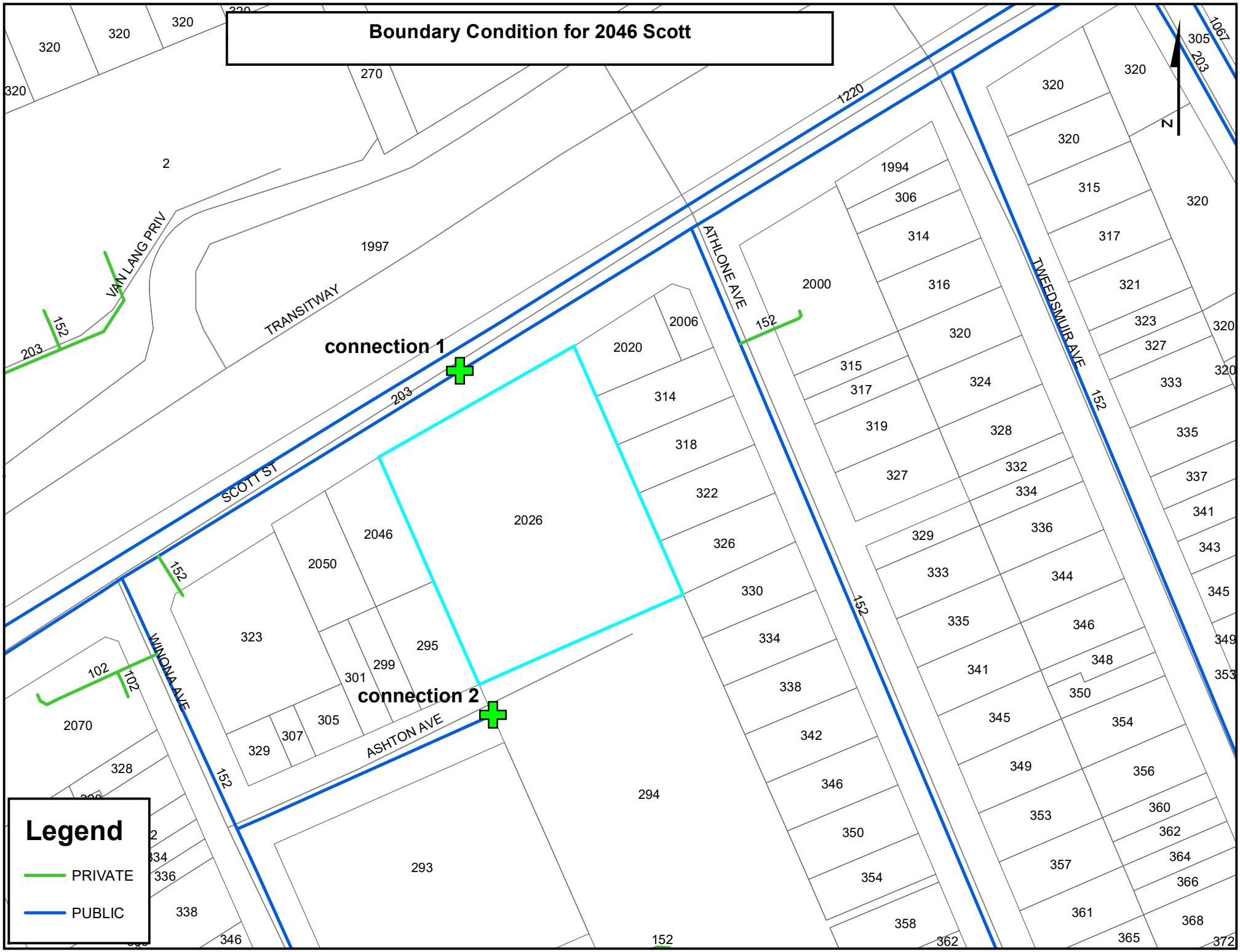
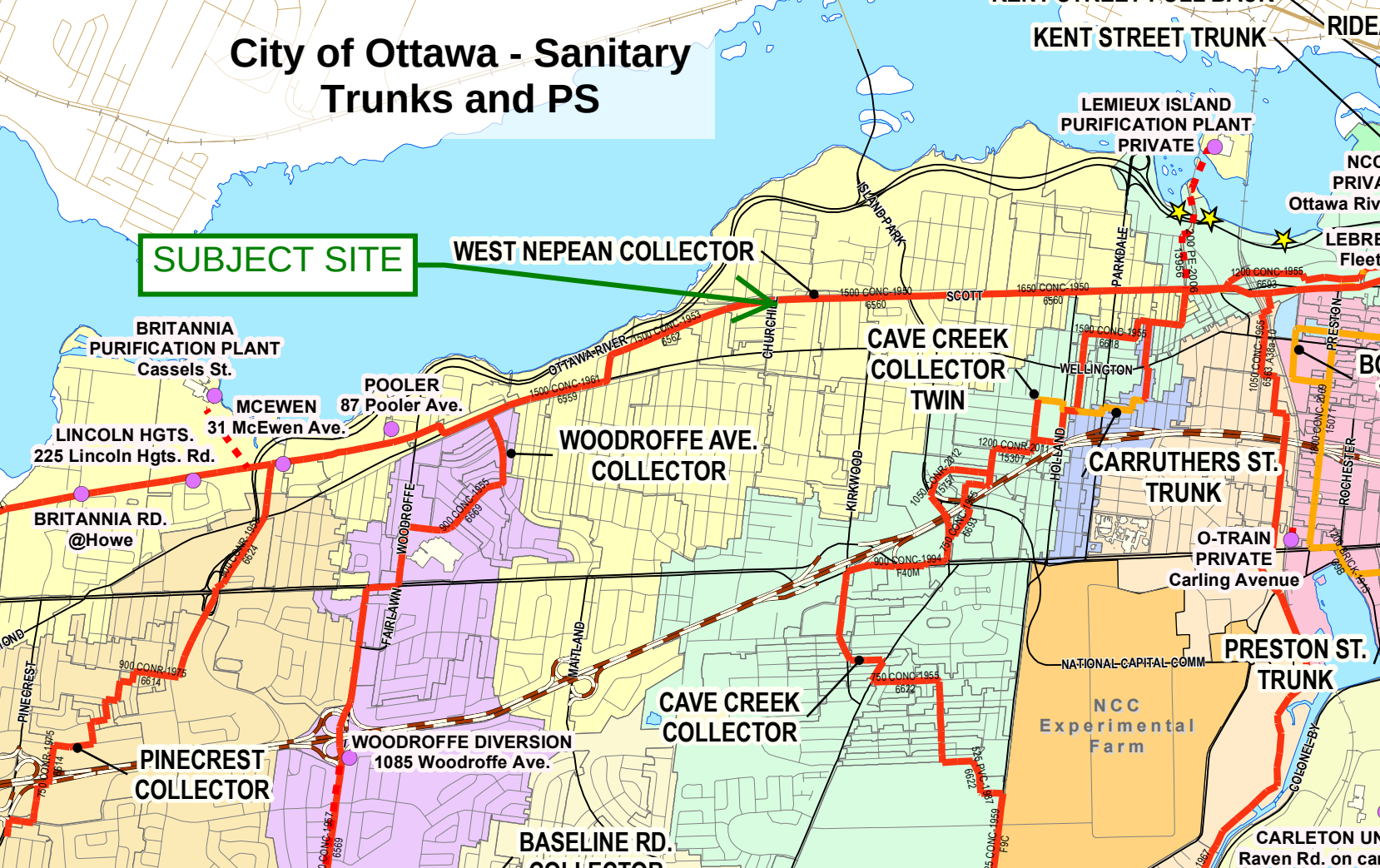

Boundary Condition for 2046 Scott
connection 1
connection 2
SCOTT ST
ASHTON AVE
WINONA AVE
ATHLONE AVE
TWEEDSMUIR AVE
TRANSITWAY
VAN LANG PRIV
2026
2046
2050
2020
2006
2000
1997
1994
2070
323
295
299
301
305
307
329
294
293
Legend
PRIVATE
PUBLIC

APPENDIX C

Wastewater Collection


City of Ottawa - Sanitary Trunks and PS
SUBJECT SITE
WEST NEPEAN COLLECTOR
KENT STREET TRUNK
LEMIEUX ISLAND PURIFICATION PLANT PRIVATE
BRITANNIA PURIFICATION PLANT
Cassels St.
MCEWEN
31 McEwen Ave.
POOLER
87 Pooler Ave.
LINCOLN HGTS.
225 Lincoln Hgts. Rd.
BRITANNIA RD.
@Howe
WOODROFFE AVE.
COLLECTOR
CAVE CREEK
COLLECTOR
TWIN
CARRUTHERS ST.
TRUNK
O-TRAIN
PRIVATE
Carling Avenue
PRESTON ST.
TRUNK
NCC
Experimental
Farm
CAVE CREEK
COLLECTOR
WOODROFFE DIVERSION
1085 Woodroffe Ave.
PINECREST
COLLECTOR
BASELINE RD.
SCOTT
WELLINGTON
CHURCH
KIRKWOOD
HOLLAND
PARKDALE
ISLAND PARK
WOODROFFE
FAIRLAWN
MAPLELAND
PINEGREST
ROCHESTER
PRESTON
COLONEL BY
NATIONAL CAPITAL COMM
OTTAWA RIVER

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

Site Area 0.250 **ha**

Extraneous Flow Allowances

Infiltration / Inflow (Dry)	**0.01**	**L/s**
Infiltration / Inflow (Wet)	**0.07**	**L/s**
Infiltration / Inflow (Total)	**0.08**	**L/s**

Domestic Contributions

Unit Type	**Unit Rate**	**Units**	**Pop**
Single Family	3.4	2	7
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	7	13

Total Pop	**20**	
Average Domestic Flow	**0.06**	**L/s**
Peaking Factor	**3.70**	
Peak Domestic Flow	**0.24**	**L/s**

Institutional / Commercial / Industrial Contributions

Property Type	**Unit Rate**		**No. of Units**	**Avg Wastewater (L/s)**
Commercial floor space	5	$L/m^2/d$	400	0.56
Hospitals	900	L/bed/d		0.00
School	70	L/student/d		0.00
Industrial - Light	35,000	L/gross ha/d		0.00
Industrial - Heavy	55,000	L/gross ha/d		0.00

Average I/C/I Flow	**0.56**
Peak Institutional / Commercial Flow	0.56
Peak Industrial Flow**	0.00
Peak I/C/I Flow	**0.56**

Total Estimated Average Dry Weather Flow Rate	**0.63**	**L/s**
Total Estimated Peak Dry Weather Flow Rate	**0.81**	**L/s**
Total Estimated Peak Wet Weather Flow Rate	**0.88**	**L/s**

Surface Development
2050 Scott Street
Proposed Site Conditions

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

Site Area 0.250 **ha**

Extraneous Flow Allowances

Infiltration / Inflow (Dry)	**0.01 L/s**
Infiltration / Inflow (Wet)	**0.07 L/s**
Infiltration / Inflow (Total)	**0.08 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	30	42
1 Bedroom	1.4	214	300
2 Bedroom	2.1	109	229
3 Bedroom	3.1		0
Average	1.8		0

Total Pop	**571**
Average Domestic Flow	**1.85 L/s**
Peaking Factor	**3.36**
Peak Domestic Flow	**6.21 L/s**

Institutional / Commercial / Industrial Contributions

Property Type	Unit Rate		No. of Units	Avg Wastewater (L/s)
Commercial floor space*	5	$L/m^2/d$	233	0.03
Amenity	5	$L/m^2/d$	1,830	0.11
School	70	L/student/d		0.00
Industrial - Light**	35,000	L/gross ha/d		0.00
Industrial - Heavy**	55,000	L/gross ha/d		0.00

Average I/C/I Flow	**0.13**
Peak Institutional / Commercial Flow	0.13
Peak Industrial Flow**	0.00
Peak I/C/I Flow	**0.13**

** assuming a 12 hour commercial operation*

*** peak industrial flow per City of Ottawa Sewer Design Guidelines Appendix 4B*

Total Estimated Average Dry Weather Flow Rate	**2.00 L/s**
Total Estimated Peak Dry Weather Flow Rate	**6.35 L/s**
Total Estimated Peak Wet Weather Flow Rate	**6.42 L/s**

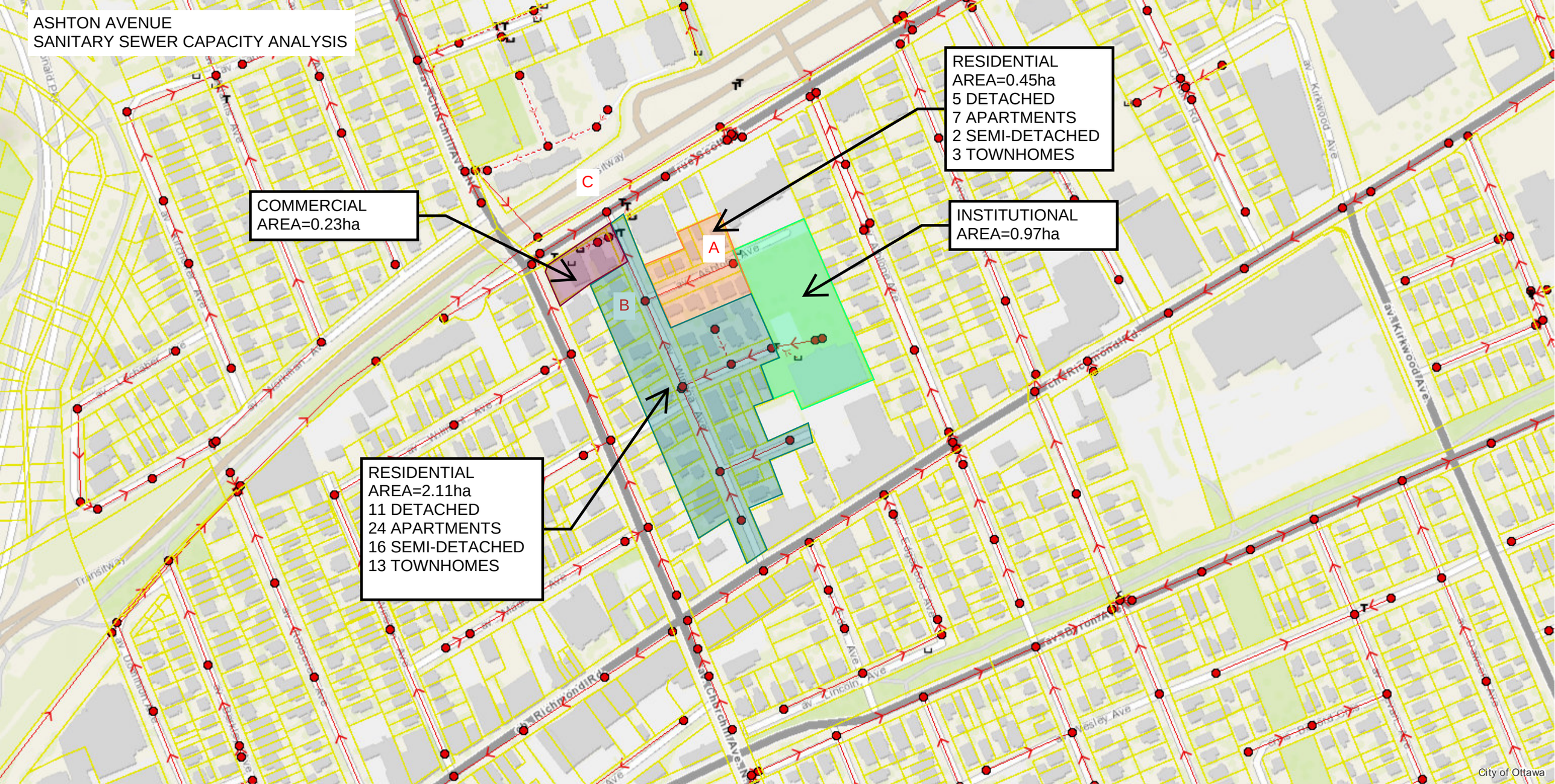
SANITARY SEWER CALCULATION SHEET

CLIENT: **SURFACE**
LOCATION: **2050 SCOTT ST**
FILE REF: **19-1142**
DATE:

DESIGN PARAMETERS

Avg. Daily Flow Res.	280	L/p/d	Peak Fact Res. Per Harmons: Min = 2.0, Max =4.0		Infiltration / Inflow	0.33	L/s/ha
Avg. Daily Flow Comm.	28,000	L/ha/d	Peak Fact. Comm.	1.5	Min. Pipe Velocity	0.60	m/s full flowing
Avg. Daily Flow Instit.	28,000	L/ha/d	Peak Fact. Instit.	1.5	Max. Pipe Velocity	3.00	m/s full flowing
Avg. Daily Flow Indust.	35,000	L/ha/d	Peak Fact. Indust. per MOE graph		Mannings N	0.013	

Location			Residential Area and Population									Commercial		Institutional		Industrial			Infiltration				Pipe Data							
Area ID	Up	Down	Area	Number of Units				Pop.	Cumulative		Peak.	Q_{res}	Area	Accu.	Area	Accu.	Area	Accu.	Q_{C+I+I}	Total	Accu.	Infiltration	Total	DIA	Slope	Length	$A_{hydraulic}$	R	Velocity	Q_{cap}	Q / Q full
				by type					Area	Pop.	Fact.			Area		Area		Area												
			(ha)	Singles	Semi's	Town's	Apt's		(ha)		(-)	(L/s)	(ha)	(ha)	(ha)	(ha)	(ha)	(ha)	(L/s)	(ha)	(ha)	(L/s)	(L/s)	(mm)	(%)	(m)	(m^2)	(m)	(m/s)	(L/s)	(-)
ASHTON AVE	A	B	0.450	5	2	3	7	43.0	0.450	43.0	4.00	0.56	0.00	0.00	0.97	0.97		0.00	0.8	1.420	1.420	0.469	1.87	225	0.48	80.0	0.040	0.056	0.78	30.9	0.06
WINONA AVE	B	C	2.110	11	16	13	24	159.0	2.560	202.0	4.00	2.62	0.23	0.23		0.97		0.00	1.0	2.340	3.760	1.241	4.90	225	1.59	81.0	0.040	0.056	1.42	56.6	0.09


ASHTON AVENUE
SANITARY SEWER CAPACITY ANALYSIS
RESIDENTIAL
AREA=0.45ha
5 DETACHED
7 APARTMENTS
2 SEMI-DETACHED
3 TOWNHOMES
INSTITUTIONAL
AREA=0.97ha
COMMERCIAL
AREA=0.23ha
RESIDENTIAL
AREA=2.11ha
11 DETACHED
24 APARTMENTS
16 SEMI-DETACHED
13 TOWNHOMES
A
B
C
City of Ottawa

APPENDIX D

Stormwater Management

Surface Developments
2050 Scott Street
Existing Site Conditions - Scott

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

Existing Drainage Charateristics From Internal Site

Area	0.13	ha	
C	0.90	Rational Method runoff coefficient	
L	55	m	
Up Elev	63.6	m	
Dn Elev	62.91	m	
Slope	1.3	%	
Tc	4.5	min	
Tc	10.0	min	**Adjusted to 10 minutes per City of Ottawa Guidelines*

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	76.8	104.2	178.6	mm/hr
Q	25.0	33.9	64.5	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)

Surface Developments
2050 Scott Street
Existing Site Conditions - Ashton

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

Existing Drainage Charateristics From Internal Site

Area	0.12	ha	
C	0.64	Rational Method runoff coefficient	
L	37	m	
Up Elev	63.25	m	
Dn Elev	62.75	m	
Slope	1.4	%	
Tc	8.2	min	
Tc	10.0	min	**Adjusted to 10 minutes per City of Ottawa Guidelines*

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	76.8	104.2	178.6	mm/hr
Q	16.4	22.3	47.8	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	0.250	ha
C	0.50	Rational Method runoff coefficient
Tc	10.0	min

5-year

i	104.2	mm/hr
Q	36.2	L/s

Estimated Post Development Peak Flow from Unattenuated Areas

Total Area	0.025	ha
C	0.50	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	3.6	3.6	0.0	0.0	178.6	7.7	7.7	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)

Estimated Post Development Peak Flow from Attenuated Areas

Total Area	0.225	ha
C	0.85	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	55.4	14.1	41.3	24.8	178.6	111.6	28.4	83.2	49.9
15	83.6	44.4	14.1	30.3	27.2	142.9	89.3	28.4	60.9	54.8
20	70.3	37.3	14.2	23.2	27.8	120.0	75.0	28.4	46.5	55.8
25	60.9	32.4	14.2	18.2	27.3	103.8	64.9	28.4	36.5	54.7
30	53.9	28.6	14.2	14.5	26.0	91.9	57.4	28.4	29.0	52.2
35	48.5	25.8	14.2	11.6	24.3	82.6	51.6	28.4	23.2	48.7
40	44.2	23.5	14.2	9.3	22.2	75.1	47.0	28.4	18.5	44.5
45	40.6	21.6	14.2	7.4	19.9	69.1	43.2	28.4	14.7	39.8
50	37.7	20.0	14.2	5.8	17.3	64.0	40.0	28.4	11.5	34.6
55	35.1	18.7	14.2	4.4	14.6	59.6	37.3	28.4	8.8	29.2
60	32.9	17.5	14.2	3.3	11.7	55.9	34.9	28.4	6.5	23.4
65	31.0	16.5	14.2	2.2	8.7	52.6	32.9	28.4	4.5	17.5
70	29.4	15.6	14.3	1.3	5.7	49.8	31.1	28.4	2.7	11.3
75	27.9	14.8	14.3	0.6	2.5	47.3	29.5	28.4	1.1	5.0
80	26.6	14.1	14.3	0.0	0.0	45.0	28.1	28.4	0.0	0.0
85	25.4	13.5	14.3	0.0	0.0	43.0	26.8	28.4	0.0	0.0
90	24.3	12.9	14.3	0.0	0.0	41.1	25.7	28.4	0.0	0.0
95	23.3	12.4	14.3	0.0	0.0	39.4	24.6	28.4	0.0	0.0
100	22.4	11.9	14.3	0.0	0.0	37.9	23.7	28.4	0.0	0.0
105	21.6	11.5	14.3	0.0	0.0	36.5	22.8	28.4	0.0	0.0
110	20.8	11.1	14.3	0.0	0.0	35.2	22.0	28.4	0.0	0.0

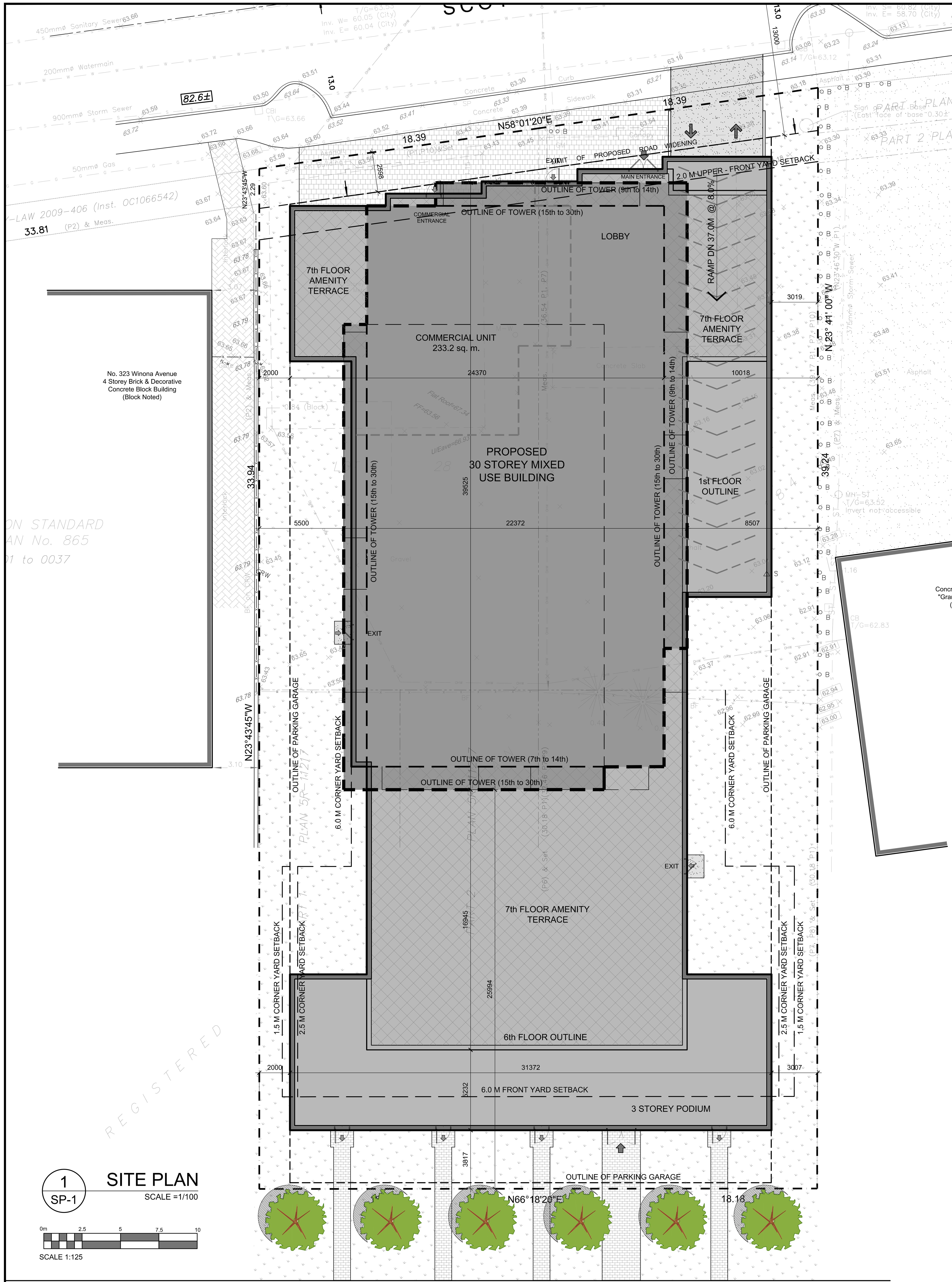
Note:
C value for the 100-year storm is increased by 25%, to a maximum of 1.0 per Ottawa Sewer Design Guidelines (5.4.5.2.1)

5-year $Q_{attenuated}$	**14.15 L/s**	**100-year $Q_{attenuated}$**	**28.43 L/s**
5-year Max. Storage Required	**27.8 m^3**	**100-year Max. Storage Required**	**55.8 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	3.6	0.0	7.7	0.0
Attenutated Areas	14.2	27.8	28.4	55.8
Total	**17.8**	**27.8**	**36.2**	**55.8**

DRAWINGS / FIGURES



1
SP-1

SITE PLAN

SCALE =1/100

0m 2.5 5 7.5 10

SCALE 1:125

DRAWING NOTES

SITE PLAN SYMBOLS

- CONCRETE UNIT PAVERS SURFACE
- DRIVING SURFACE SURFACE
- SOFT LANDSCAPING
- TWO WAY VEHICLE CIRCULATION
- MAIN ENTRANCE
- COMMERCIAL / FIRE EXIT
- PROPERTY LINE

PROPERTY OWNER

Surface Development
88 Spadina Avenue
Ottawa, Ontario, K1Y 2C1
Tel: (613) 225-5507
E-Mail: jakub@surfacedevelopments.com

URBAN PLANNER

FoTenn Consultants Inc.
223 McLeod Street
Ottawa, ON Canada, K2P 0Z8
Tel.: (613) 730-5709
Fax: (613) 730-1136
E-Mail: casagrande@fotenn.com

SURVEYOR

FARLEY, SMITH & DENIS SURVEYING LTD.
Ontario Land Surveyors
190 Colonnade Road
Ottawa, Ontario K2E 7J5
Tel: (613) 727-8226
Fax: (613) 727-1826
Email: ______

CIVIL ENGINEER

David Schaeffer Engineering ltd.
120 Iber Road, Unit 203
Stittsville, Ontario, K2S 1E9
Tel: (613) 836-0856
Fax: (613) 836-7183
Email: rfreel@DSEL.ca

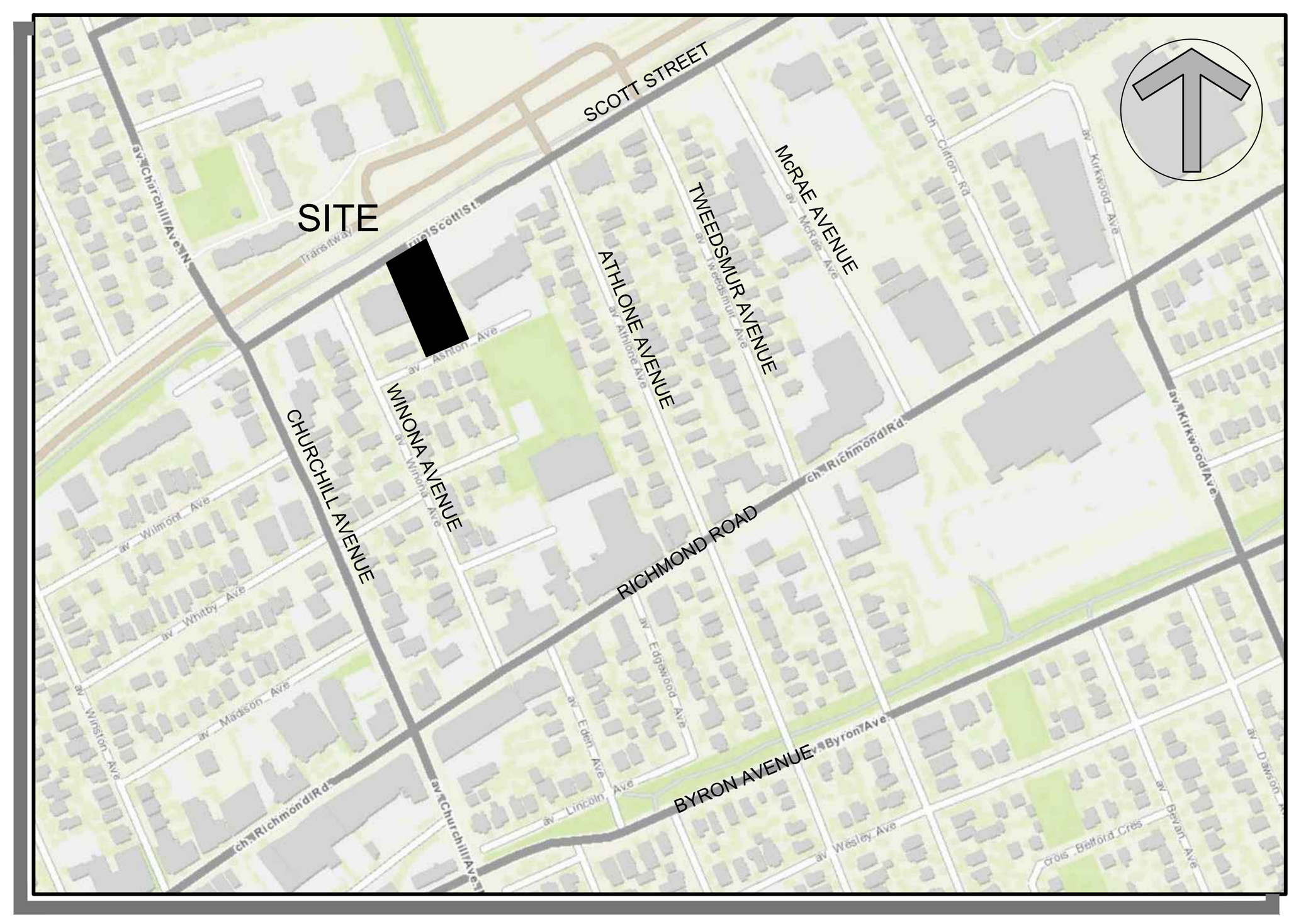
GEOTECHNICAL ENGINEER

Paterson Group
154 Colonnade Road South
Ottawa, Ontario, K2E 7J5
Tel: 613.226-7381
Email: kevin@ulra.ca

LEGAL DESCRIPTION

TOPOGRAPHIC PLAN OF SURVEY OF

LOTS 28 AND 29
REGISTERED PLAN 184
CITY OF OTTAWA



KEY MAP

PROJECT INFORMATION

ZONING BY-LAW 2008-250	TM (103) / R4G
SITE AREA	1,331.34 sq. m. 14,330 sq. ft.

TM (103) ZONING REQUIREMENT

BUILDING HEIGHT	TM (103) - 18 m. / R4G - 11 m.
AMENITY AREA - 6m² PER UNIT (354 units)	2,124 sq. m.
FRONT YARD SETBACK - TM (103)	4th storey or 15 m ht. + 2.0 m.
INTERIOR YARD SETBACK TM (103)	0.0 m.
FRONT YARD SETBACK - R4G	6.0 m.
INTERIOR YARD SETBACK - R4G	1.5 m. / 2.5 m. / 6.0 m.
LANDSCAPE AREA - ABUTTING RES.	3.0 m

PROJECT STATISTICS

GRADE (GEODETIC ELEVATION)	63.40 m. easl
BUILDING HEIGHT	92.0 m
REAR YARD SETBACK - ANGULAR PLANE @ 45°	74.5 m ht.
REAR YARD SETBACK	7.5 m.
TOWER FLOOR PLATE AREA	753.5 sq. m. 8,110 sq. ft.
STANDARD PARKING SPACE	2.6m X 5.2m
SMALL CAR PARKING SPACE	2.4m X 4.6m

GROSS BUILDING FLOOR AREA

(OTTAWA ZONING DEFINITION)

U/G PARKING LEVELS		000 sq. m. 000 sq. ft.
GROUND FLOOR		911.5 sq. m. 9,140 sq. ft.
2nd & 3rd FLOOR	2 x 1,268.4 sq. m. 2 x (13,653) sq. ft.	2,536.8 sq. m. 27,306 sq. ft.
4th FLOOR		1,080.1 sq. m. 11,626 sq. ft.
5th & 6th FLOOR	2 x 1,053.7 sq. m. 2 x (11,342) sq. ft.	2,107.4 sq. m. 22,684 sq. ft.
7th FLOOR - AMENITY		0.0 sq. m. 000 sq. ft.
8th FLOOR		565.6 sq. m. 6,088 sq. ft.
9th & 14th FLOOR	6 x 609.07 sq. m. 6 x (6,556) sq. ft.	3,654.4 sq. m. 39,336 sq. ft.
15th & 30th FLOOR	16 x 609,91 sq. m. 16 x (6,565) sq. ft.	9,758.5 sq. m. 105,040 sq. ft.
MECHANICAL PENTHOUSE		000.0 sq. m. 000 sq. ft.
TOTAL AREA ABOVE GRADE		20,552.0 sq. m. 221,220 sq. ft.

UNIT STATISTICS

STUDIO UNIT	30
1 BEDROOM UNIT	214
2 BEDROOM UNIT	109
TOTAL	353
COMMERCIAL RETAIL UNIT	233.2 sq. m. 2,510 sq. ft.

CAR PARKING

REQUIRED

RESIDENCE	- 0.5 PER DWELLING UNIT (AFTER 12 UNITS) (10% REDUCTION - ALL U/G)	154
VISITOR	- 0.1 PER DWELLING UNIT (AFTER 12 UNITS - MAX. 30)	30
TOTAL		188

PROVIDED

RESIDENCE	- 0.49 PER UNIT (353 UNITS)	174
VISITOR	- 0.1 PER UNIT (353 UNITS)	30
TOTAL		204

BICYCLE PARKING

REQUIRED

RESIDENCE	- 0.5 PER UNIT (353 UNITS)	177
COMMERCIAL RETAIL	- 1.0 PER 250m² OF G.F.A.	1
TOTAL		178

PROVIDED

BELOW GRADE LEVEL	292
GROUND FLOOR	0
TOTAL	292

AMENITY SPACE

AT GRADE EXTERIOR SIDE YARDS =	700.0 sq. m.
PRIVATE BALCONIES =	1,130.0 sq. m.
4th FLOOR - PRIVATE EXTERIOR =	197.0 sq. m.
7th FLOOR - INTERIOR =	592.0 sq. m.
7th FLOOR - EXTERIOR =	538.0 sq. m.
TOTAL =	3,157.0 sq. m.
TOTAL COMMUNAL =	1,830.0 sq. m.
REQUIRED - 6.0M² PER UNIT (353) =	2,118 sq. m.
REQUIRED COMMUNAL @ 50% =	1,059 sq. m.

LOT COVERAGE

PAVED SURFACE =	22.0 sq. m.	0.8%
BUILDING FOOTPRINT =	1,631.1 sq. m.	65.0%
LANDSCAPE OPEN SPACE =	859.0 sq. m.	34.2%
TOTAL =	2,512.1 sq. m.	100.0%

IT IS THE RESPONSIBILITY OF THE APPROPRIATE CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS ON SITE AND TO REPORT ALL ERRORS AND/OR OMISSIONS TO THE ARCHITECT.

ALL CONTRACTORS MUST COMPLY WITH ALL PERTINENT CODES AND BY-LAWS.

THIS DRAWING MAY NOT BE USED FOR CONSTRUCTION UNTIL SIGNED BY THE ARCHITECT.

DO NOT SCALE DRAWINGS.

NOTATION SYMBOLS:

- 00 — INDICATES DRAWING NOTES, LISTED ON EACH SHEET.
- 00 — INDICATES ASSEMBLIE TYPE; REFER TO TYPICAL ASSEMBLIES SCHEDUAL.
- 00 — INDICATES WINDOW TYPE; REFER TO WINDOW ELEVATIONS AND DETAILS ON A900 SERIES.
- 000 — INDICATES DOOR TYPE; REFER TO DOOR SCHEDULE AND DETAILS ON A900 SERIES.

DETAIL NUMBER
00 TITLE
A000 A000 SCALE
DETAIL REFERENCE PAGE
DETAIL CROSS REFERENCE PAGE

No.	DESCRIPTION	DATE
5		
4		
3	REVISED PROJECT DESIGN	Mar. 30, 20
2	ISSUED FOR PUBLIC MEETING	Jan. 27, 20
1	ISSUED FOR ZONING AMENDMENT	Jan. 21, 20

REVISIONS:

ARCHITECT SEAL: ONTARIO ASSOCIATION OF ARCHITECTS — RODERICK LAHEY LICENCE 4375

SEAL DATE: STAMP DATE

NORTH ARROW:

CLIENT: SURFACE

ARCHITECT:

RODERICKLAHEY
ARCHITECT INC
56 Beech Street, Ottawa, Ontario K1S 3J6
t.613.724.9932 f.613.724.1209 www.rodericklahey.ca

PROJECT TITLE:

2046 SCOTT STREET

OTTAWA ONTARIO

SHEET TITLE:

SITE PLAN

DRAWN:	CHECKED:
R.V.	K.R.
SCALE: 1:125	SHEET No. SP-1
PROJECT No. 1928	