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SERVICING STUDY AND STORMWATER MANAGEMENT REPORT

FOR

FIRST CAPITAL
1980 OGILVIE ROAD – PHASE 1

CITY OF OTTAWA

PROJECT NO.: 19-1117
CITY APPLICATION NO.: D07-12-XX-XXXX

SEPTEMBER 2019 – REV. 1

SERVICING STUDY AND STORMWATER MANAGEMENT REPORT
FOR
1980 OGILVIE ROAD – PHASE 1
FIRST CAPITAL

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1.0 INTRODUCTION

David Schaeffer Engineering Limited (DSEL) has been retained by First Capital to prepare an Servicing Study and Stormwater Management Report in support of the application for a Zoning By-law Amendment (ZBLA) at 1980 Ogilvie Road.

The subject property is located within the City of Ottawa urban boundary, in Beacon Hill – Cyrville Ward. As illustrated in ***Figure 1***, below, the subject property is located west of the intersection of Blair Road and Regional Road 174. Comprised of a single parcel of land, the total subject property measures approximately ***9.8 ha*** and is zoned Mixed-Use Central zone (MC). The contemplated Phase 1 development is located within approximately ***0.55 ha*** of the total site.

Figure 1: Phase 1 Site Location

The proposed ZBLA would allow for the development of a commercial-residential building fronting onto the future Gloucester Light Rail Transit (LRT) Station. The contemplated development would include approximately ***1749 m²*** of retail space, ***1,019 m²*** of office space and underground parking, with access from the existing internal Gloucester Centre drive aisles. The residential component is comprised of approximately ***356 units*** and ***1,068 m²*** of amenity space. A copy of the 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 are both supported by existing municipal services.

1.1 Existing Conditions

The existing site within the Phase 1 limit, includes a bus transfer building and an asphalt parking lot with few vegetated areas. The elevations range between 74.80 m and 76.71 m with a minimal grade change of approximately 1.15% from the Northeast to the Southwest corner of the subject 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 rights-of-way:

Internal Site Infrastructure

- 203 mm diameter iron watermain;
- 750 mm diameter storm sewer tributary to Greens Creek, located approximately 1.0 km downstream; and
- 200 mm diameter sanitary sewer, tributary to the Maxime Relief Trunk.

Transit Way (Sewers replaced as part of LRT development)

- 152 mm diameter PVC watermain;
- 900 mm diameter concrete storm sewer, tributary to Greens Creek located approximately 0.8 km downstream; and
- 250 mm diameter PVC sanitary sewer, tributary to the Maxime Relief Trunk.

1.2 Required Permits / Approvals

The proposed 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 (MECP) 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

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 1E pressure zone, as shown by the Pressure Zone map in ***Appendix B***. An internal private looped 203 mm diameter watermain exists within the Gloucester Centre property fronting the subject site. The existing looped private watermain connects to both local watermains within Ogilvie Road and City Park Drive. In addition to the private service, an existing private 152 mm diameter watermain exists within the Transit Way right-of-way.

The estimated existing water demand on the internal looped watermain is summarized in ***Table 1***, below.

Table 1
Summary of Existing Water Demand

Design Parameter	Existing Demand[1] (L/min)
Average Daily Demand	110.9
Max Day	166.3
Peak Hour	299.4
1.0 Water demand calculation per ***Water Supply Guidelines***. See ***Appendix B*** for detailed calculations.	

3.2 Water Supply Servicing Design

It is anticipated that the contemplated Phase 1 site will connect to the existing 203 mm dimeter watermain within the subject parcel. This watermain connects to the existing 610 mm diameter watermain within the Ogilvie Road right-of-way and the existing 305 mm diameter watermain within the City Park Drive right-of-way.

In accordance with City of Ottawa technical bulletin ISDTB-2014-02, due to an anticipated design flow of greater than 50 m^3/day, a redundant service connection will be required. The redundant connection can be satisfied via the existing looped watermain.

Table 2, below, summarizes the ***Water Supply Guidelines*** employed in the preparation of the preliminary water demand estimate.

Table 2
Water Supply Design Criteria

Design Parameter	Value
Residential 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	2.2 x Average Daily *
Residential Maximum Hourly	5.5 x Average Daily *
Commercial Retail / Amenity Space	2.5 L/m^2/d
Commercial Office	75 L/9.3m^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	350kPa and 480kPa
During normal operating conditions pressure must not drop below	275kPa
During normal operating conditions pressure must not exceed	552kPa
During fire flow operating pressure must not drop below	140kPa

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 3, below, summarizes the anticipated water supply demand and boundary conditions for the contemplated development based on the ***Water Supply Guidelines***.

Table 3
Water Demand and Boundary Conditions
Proposed Conditions

Design Parameter	Anticipated Demand[1] (L/min)	Boundary Condition[2] OGILVIE ROAD (m H_2O / kPa)	Boundary Condition[3] CITY PARK DRIVE (m H_2O / kPa)
Average Daily Demand	124.4	40.5 / 397.3	41.6 / 407.6
Max Day + Fire Flow	300.0 + 11,000= 11,300.0	35.0 / 343.4	34.6 / 338.9
Peak Hour	653.4	33.7 / 330.6	34.8 / 340.9

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 76.5m. See ***Appendix B.***
3. Boundary conditions supplied by the City of Ottawa for the demands indicated in the correspondence; assumed ground elevation 75.5m. See ***Appendix B.***

Fire flow requirements are to be determined in accordance with Local Guidelines (**ISDTB-2018-02**), City of Ottawa ***Water Supply Guidelines***, and the Ontario Building Code.

Using the Technical Bulletin **ISDTB-2018-02** method, a conservative estimation of fire flow had been established. As coordinated with the building architect, the following assumptions were made:

- Type of construction – Fire-Resistant Construction;
- Occupancy type – Non-Combustible; and
- Sprinkler Protection – Sprinklered - Supervised.

The above assumptions result in an estimated fire flow of approximately ***11,000 L/min***, noting that actual building materials selected will affect the estimated flow.

The City provided both the anticipated minimum and maximum water pressures, as well as, the estimated water pressure during fire flow demand for the Phase 1 demands as indicated by the correspondence in ***Appendix B***. As shown by ***Table 3***, the minimum and maximum pressures fall within the required range identified in ***Table 2***.

3.2.1 EPANet Water Modelling

EPANet was utilized to determine the availability of pressures throughout the 203 mm diameter internal watermain during average day demand, max day plus fire flow, and peak hour demands. The static model determines pressures based on the available head obtained from the boundary conditions provided by the City of Ottawa.

The model utilizes the Hazen-Williams equation to determine pressure drop, while the pipe properties, including friction factors, have been selected in accordance with Table 4.4 of the ***Water Supply Guidelines***. The model was prepared to assess the available pressure to the proposed building for the contemplated demands, as well as, the pressures the watermain provided the fire hydrant during fire flow conditions.

Table 4, below***,*** summarizes the output reports. Detailed calculations and model schematics for each scenario are included in ***Appendix B***. The model indicates that pressures during average day, max day and peak hour are within the **Water Supply Guidelines** required range.

Table 4
Model Simulation Output Summary

Location	Average Day (kPa)	Max Day + Fire Flow (kPa)	Peak Hour (kPa)
MOXIES	416.6	323.0	349.5
C1	418.8	323.2	351.7
BANK	424.8	326.8	357.7
C4	437.6	329.1	370.5
7	442.1	332.5	375.0
FH3	442.6	213.8	375.0
FH2	438.3	177.6	370.3
PROP.C	435.2	173.5	366.9
FH1/C3	431.4	169.4	363.4
LCBO	422.5	204.9	354.6
C5	425.9	326.9	358.8
C2	419.2	294.6	351.9
13	415.8	322.7	348.8

3.3 Water Supply Conclusion

The anticipated water demand under proposed conditions was submitted to the City of Ottawa for establishing boundary conditions. As demonstrated by ***Table 3***, based on the City's model, and the EPANET model summarized in ***Table 4***, the municipal system is capable of delivering water within the ***Water Supply Guidelines*** pressure range.

As indicated in ***Table 2***, 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-2018-01***. 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 Maxime Relief Trunk catchment area, as shown by the City sewer mapping included in ***Appendix C***. An existing 200 mm diameter sanitary sewer exists within the Gloucester Centre property and an existing 250 mm diameter sanitary sewer exists within the Transit Way right-of-way, as indicated in ***Section 1.1*** of this report. The Maxime Relief Trunk is located approximately 200 m downstream from the subject site.

4.2 Wastewater Design

It is anticipated that the contemplated development will connect to either the 200 mm the internal sanitary sewer or the 250 mm diameter sanitary sewer within the vicinity of the Blair Station.

Table 5, below***,*** summarizes the ***City Standards*** employed in the design of the proposed wastewater sewer system.

Table 5
Wastewater Design Criteria

Design Parameter	Value
Residential 1 Bedroom Apartment	1.4 P/unit
Residential 2 Bedroom Apartment	2.1 P/unit
Average Daily Demand	280 L//day/P
Peaking Factor	Harmon's Peaking Factor. Max 4.0, Min 2.0 Harmon's Corrector Factor 0.8
Commercial Floor Space	5 L/m^2/d
Commercial Office Space	75 L/9.3m^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 6, below, demonstrates the anticipated peak flow from the contemplated development. See ***Appendix C*** for associated calculations.

Table 6
Summary of Estimated Peak Wastewater Flow

Design Parameter	Total Flow (L/s)
Estimated Average Dry Weather Flow	2.37
Estimated Peak Dry Weather Flow	6.81
Estimated Peak Wet Weather Flow	6.97

The estimated sanitary flow based on the ***Proposed Site Plan***, provided in ***Drawings/Figures,*** anticipates a peak wet weather flow of ***6.97 L/s***.

The City of Ottawa Technical Bulletin ***ISTB-2018-01*** was employed to generate an estimate of the existing wastewater flow conditions within the sewers.

In order to assess the available capacity of the internal sanitary network, a sanitary analysis was conducted for the private sanitary sewers north of the Phase 1 area of the subject property. The catchment area serviced by the 200 mm diameter 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 at the outlet of the internal network, as shown by the ***Sanitary Drainage Plan,*** included along with this report. The internal network is tributary to the 1050 mm diameter sanitary sewer within City Park Drive right-of-way.

Based on the sanitary analysis, the controlling section of the private internal sewer system is located at the outlet of the 200 mm diameter internal sewer between nodes (ONSITE SAN 2 and ONSITE SAN 3) with an available residual capacity of ***20.4 L/s***; detailed calculations are included in ***Appendix C***.

The analysis, above, indicates that sufficient capacity is available in the internal sewer network to accommodate the contemplated development.

In order to assess the available capacity for the local 250 mm diameter municipal sanitary sewers located within Transit-Way, across the frontage of the subject property, a sanitary analysis was conducted. The catchment area serviced by the Transit-Way 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 where the local sewer discharges into Maxime Relief Trunk, as shown by the ***Sanitary Drainage Plan*** in ***Appendix C***.

Based on the sanitary analysis, the controlling section of the local Transit Way sewer system is located between sections SAN2-SAN3 with an available residual capacity of ***22.9 L/s***; detailed calculations are included in ***Appendix C***.

The analysis above indicates that sufficient capacity is available in the local Transit Way sewers to accommodate the contemplated development.

4.3 Wastewater Servicing Conclusions

The site is tributary to the Maxime Relief Trunk. Based on the above sanitary analysis, sufficient capacity is available to accommodate the anticipated ***6.97 L/s*** peak wet weather flow from the contemplated development in both the internal sewer network and the Transit Way sanitary sewer network.

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 River watershed. As such, approvals for proposed 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 Green's Creek sub-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 7,*** below:

Table 7
Summary of Existing Peak Storm Flow Rates

City of Ottawa Design Storm	Estimated Peak Flow Rate (L/s)
2-year	80.5
5-year	109.0
100-year	233.2

5.2 Post-development Stormwater Management Target

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

- Control post-development to estimated pre-development stormwater flows for the 5-year and 100-year storm events with a time of concentration equal to 10 minutes;
- Attenuate storms up to and including the City of Ottawa 100-year design event on site; and
- Quality controls are not anticipated to be required for the contemplated development as an existing parking lot is to be converted to a building, improving stormwater quality. Final confirmation from the RVCA was not received at the time of publication, however initial correspondence is included in ***Appendix A***.

Based on the parameters above, the allowable 5-year and 100-year release rates for the proposed development are ***122.2 L/s*** and ***209.4 L/s*** respectively.

5.3 Proposed Stormwater Management System

It is contemplated that the stormwater outlet from the proposed development will be to the internal 750 mm diameter storm sewer within subject site, tributary to a 1050 mm diameter storm sewer within the City Park Drive right-of-way.

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

Table 8, 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 8
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	14.4	0.0	27.3	0.0
Attenuated Areas	95.4	24.4	182.1	46.5
Total	**109.8**	**24.4**	**209.4**	**46.5**

It is contemplated that a total of ***46.5 m^3*** of storage is required to attenuate flow to a release rate of ***122.2 L/s*** for the 5-year event and ***209.4 L/s*** for the 100-year event. 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***.

Based on consultation with the City of Ottawa, the post-development allowable release rate was calculated as ***122.2 L/s*** for the 5-year event and ***209.4 L/s*** for the 100-year event. It is estimated that ***46.5 m^3*** of storage will be required to meet these release rates.

As stormwater quality is proposed be improved via the Phase I Site Plan, it is anticipated that quality controls will not be required. Final confirmation from the RVCA was not received at the time of publication.

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 First Capital to prepare a Servicing Study and Stormwater Management Report in support of the application for a Zoning By-law Amendment (ZBLA) at 1980 Ogilvie Road. The preceding report outlines the following:

- Based on boundary conditions provided by the City and the hydraulic model, the existing municipal water infrastructure is capable of providing the contemplated development with water within the City's required pressure range;
- The FUS method for estimating fire flow indicated ***11,000 L/min*** is required for the contemplated development;
- The contemplated development is anticipated to have a peak wet weather flow of ***6.97 L/s***. Based on the sanitary analysis conducted the private internal sanitary sewer and the existing municipal sewer infrastructure both have sufficient capacity to support the development;
- Based on consultation with City staff, the proposed development will attenuate flow to the pre-development 5-year and 100-year release rates of ***122.2 L/s*** and ***209.4 L/s***;
- It is contemplated that stormwater objectives will be met through storm water retention via roof top, surface and/or subsurface storage. It is estimated that ***46.5 m^3*** of onsite storage will be required to attenuate flow to the established release rate above;
- Based on the development improving stormwater quality, it is anticipated that stormwater quality controls are not required. Final confirmation from the RVCA was not received at the time of publication.

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APPENDIX A

Pre-Consultation

DEVELOPMENT SERVICING STUDY CHECKLIST

19-1117 11/09/2019

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: Murshid, Shoma <Shoma.Murshid@ottawa.ca>
Sent: January 25, 2019 2:56 PM
To: Stephanie Morris
Cc: Wood, Mary Ellen; Young, Mark; Wong, Isaac; Giampa, Mike; Giles, Peter; 'Mona Poon'; Gratton, Dennis; Korol-Paradis, Andre; Rejane Padaratz
Subject: 1980 Ogilvie - Pre-consultation follow-up (Tower 1) - Zoning & Site Plan Control
Attachments: Preconsultation Park Comments_Jan23_2019.pdf

Stephanie,

Thank you for meeting with us last Friday, January 17, 2019 to discuss an amended version of the earlier pre-consultation from December 4, 2018. This pre-consultation is for the first 30-storey tower redevelopment at 1980 Ogilvie, that is to directly abut the LRT station.

This redevelopment – that is to be the first phase of many phases - will trigger Zoning By-law Amendment and Site Plan Control development applications.

Note that the height and densities being proposed may trigger Section 37 policies. Section 37 benefits will get detailed further within the Zoning Amendment process. Determination of Section 37 will be required within the required Planning Rationale (i.e. as of right GFA and difference).

We will delay the UDRP presentation until the submission of the Site Plan Control application, which we understand you wish to stagger a few months past the submission of the Zoning By-law Amendment application.

The boundaries you have depicted for the current site plan/zoning of the first tower will need to be extended. Please note that under this 30-storey tower proposal, the City wishes the walking/pedestrian links/scape to be enhanced between the LRT station, the proposed MUP (south of 2280 City Park Drive), this site, and to City Park Drive. Concrete and delineated walkways, etc. need to be proposed linking the proposed tower, LRT skywalk entry into this site, all the way to City Park Drive. Part of this enhancement phase shall also include creating a more active and engaging façade along Walmart's southern façade.

Please note that the Composite Utility Plan is still being required. Composite Utility Plan (CUP) for each phase (3 copies +PDF). This is required as the site has multiple adjacent property owners and easements, and we will need sign-off acknowledging the works. The CUP plan may be submitted at a later date within the site plan control process, but must be approved prior to site plan approval. Therefore it will not be a requirement for initial submission. On the CUP plan, please extend the visual limits of the site to show the works in relation to the utilities and trunk sewer.
Also note:

- The 200mm sanitary pipe south of the proposed site is **public**.
- The 150mm water pipe south of the proposed site is **private**.

The following are the required fees and plans/reports that will be needed to deem each respective application complete.

Site Plan Control – Revision of an Existing Application, Manager Approval, Public Consultation (Submission Fee $20, 287.13)

Site Plan (14 copies +PDF)
Landscape Plan (14 copies +PDF)
Grade Control and Drainage Plan (14 copies +PDF)
Site Servicing Plan (14 copies +PDF)
Survey Plan (3 copies +PDF)
Wind Study (3 copies + PDF)
Screening/Scoping for Transportation – Network TIA (PDF)
Site Servicing Study (5 copies)
Stormwater Management Report (5 copies +PDF)

Geotechnical Study (3 copies + PDF) – cover blasting from a geotechnical perspective, particularly along large watermain, trunk sewer locations.
Erosion & Sediment Control Plan (7 copies +PDF)
Noise/Vibration Study (3 copies +PDF) – stationary and from transportation networks
Confederation Line Proximity Study (9 copies + PDF)
Planning Rationale, including Design Statement and Integrated Environmental Review Statement, Zoning Request details, How site fits into Cycling Plan with proposed connections, etc., and Section 37 Request Breakdown (As of Right Zoning being established and Current GFA discussions) (5 copies +PDF)
Elevations (with indicated colour, heights) (4 copies +PDF)
Sample board of materials for façade
Plan Showing Parking Garage Layout (applicable in a phase where there is an underground parking lot being proposed) (3 copies +PDF)
Phase 1 ESA (4 copies +PDF)
Sun Shadow Study (applicable for each phase where buildings/additions higher than 8 stories are being proposed) (3 copies +PDF)
Urban Design Review Panel – Submission Package

Zoning By-law Amendment (Major) (Planning Fee $16,545.30 + Initial Conservation Authority Fee of $360.00)

Required Plans/Studies:

Survey Plan (3 copies +PDF)
Wind Study (3 copies + PDF)
Screening/Scoping for Transportation – Network TIA (PDF)
Site Servicing Study (6 copies +PDF)
Preliminary Geotechnical Investigation (5 copies + PDF)
Stormwater Management Report (5 copies +PDF)
Noise/Vibration Study (3 copies +PDF)
Confederation Line Proximity Study (9 copies + PDF)
Planning Rationale, including Design Statement and Integrated Environmental Review Statement, How site fits into Cycling Plan with proposed connections, etc., Zoning Request details (5 copies +PDF)
Section 37 Memo (Section 37 Request Breakdown - As of Right Zoning being established and Current GFA discussions) (5 copies +PDF)
Elevations (with indicated colour, heights) (4 copies +PDF)
Phase 1 ESA (4 copies +PDF)

Sun Shadow Study (applicable for each phase where buildings/additions higher than 8 stories are being proposed) (3 copies +PDF)

Please note that Parks comments are also attached. PFP will not be accepting the parkette as proposed parkland dedication, details in the attached note.

Please do not hesitate to contact me should there be any other concerns or questions.

Cheers,

Shoma Murshid, MCIP, RPP
File Lead, Planner II
Responsable de dossier, urbaniste II
City of Ottawa/ Ville d'Ottawa
Development Review (Suburban Services, East)/ Examen des projets d'aménagement (Services suburbains Est)
Planning, Infrastructure, and Economic Development Department/ Service de la planification, de l'infrastructure et du développement économique
110 Laurier Avenue West, 4th Floor, Ottawa ON K1P 1J1/ 110, avenue Laurier Ouest, 4e étage, Ottawa (Ontario) K1P 1J1
Mail Code/ Code de courrier : 01-14
Tel/ Tél: (613) 580-2424 ext. 15430
Fax/ Téléc. : (613) 580-4751
e-mail/ courriel : shoma.murshid@ottawa.ca
www.ottawa.ca

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Charlotte Kelly

Subject: FW: 19-1117 1980 Ogilvie Road - Stormwater Servicing Criteria

From: Curry, William <William.Curry@ottawa.ca>
Sent: September 5, 2019 11:50 AM
To: Alison Gosling <AGosling@dsel.ca>
Subject: Fw: 19-1117 1980 Ogilvie Road - Stormwater Servicing Criteria

Alison

What you propose is ok except use a TC of 10 minutes.

Will

Sent: September 05, 2019 10:12 AM
To: Mashaie, Sara <sara.mashaie@ottawa.ca>
Cc: Robert Freel <RFreel@dsel.ca>
Subject: 19-1117 1980 Ogilvie Road - Stormwater Servicing Criteria

Good morning Sara,

We would like to confirm Stormwater Management criteria for the contemplated Phase I development.

Storm:

- There is an existing 750 mm diameter internal storm sewer within the Gloucester Centre parking lot, out letting to a 1050mm diameter storm sewer within the City Park Drive right-of-way.
- It is contemplated that the proposed development will connect to the existing private storm sewer network.
- The development contemplates converting an existing parking lot to a building. The pre-development rational method coefficient is proposed to increase in the post development conditions, from approximately 0.78 to 0.82. Due to this slight change in hardscape, it is proposed to control post-development 5-year and 100-year storm event release rates to the pre-development 5-year and 100-year storm event release rates, at a calculated time of concentration.

Can you please review and confirm the criteria above?

Please let us know if you have any questions.

Thank you,

Alison Gosling, E.I.T.
Junior Project Manager

DSEL
david schaeffer engineering ltd.

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

phone: (613) 836-0856 ext.542

email: agosling@dsel.ca

Charlotte Kelly

From: Charlotte Kelly
Sent: September 5, 2019 4:12 PM
To: jamie.batchelor (jamie.batchelor@rvca.ca)
Cc: Robert Freel
Subject: FW: Quality Control Requirements - 1980 Ogilvie Road - Phase 1
Attachments: 1911-package20190827.pdf

Hi Jamie,

After further internal discussion, we just wanted to specify that the existing approximately 88 space parking lot will be converted to a building and approximately 5 surface parking spaces. The building is expected to take up the majority of the Phase 1 site area. As the building parking garage footprint is underneath the hardscape on the site, it is anticipated that runoff from the hardscape will be collected within the building's internal cistern. As the development is improving quality controls it is our understanding that in common circumstances quality controls would not be required. I am in the process of following up with the architect to confirm surface material of the site. As this is at the rezoning stage it is possible for the site plan to be updated further. Please see the latest site plan attached that specifies the parking garage footprint and demonstrates the reduced surface parking area.

Please let us know if you have any further questions or would like to discuss this further.

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

From: Charlotte Kelly
Sent: August 27, 2019 11:39 AM
To: jamie.batchelor (jamie.batchelor@rvca.ca) <jamie.batchelor@rvca.ca>
Cc: Alison Gosling <AGosling@dsel.ca>
Subject: Quality Control Requirements - 1980 Ogilvie Road - Phase 1

Good morning Jamie,

We wanted to touch base with you regarding a development at 1980 Ogilvie Road (Gloucester Centre).

The existing site conditions consist of paved surface parking lots and a small transit transfer area as demonstrated in ***Figure 1,*** below.

The development involves the construction of a 30-storey commercial/office/residential building and additional landscaped areas. In addition, the development proposes to convert above-ground parking areas to an underground parking garage, as shown in the proposed site plan attached. Based on the information available, the development will discharge stormwater to the 600 mm diameter internal Gloucester Centre storm sewer. The internal sewer outlets to the 1350mm diameter storm sewer within City Park Drive and will travel approximately ***995 m*** to an outlet within the Greens Creek Stormwater pond, as shown by ***Figure 2*** below.

We do not anticipate that quality controls will be required as the development proposes to convert an existing parking area to a building and outlets to a stormwater pond. Can you please review and provide recommendations?

Please feel free to contact me to discuss.

Figure 1: Existing Site Limits

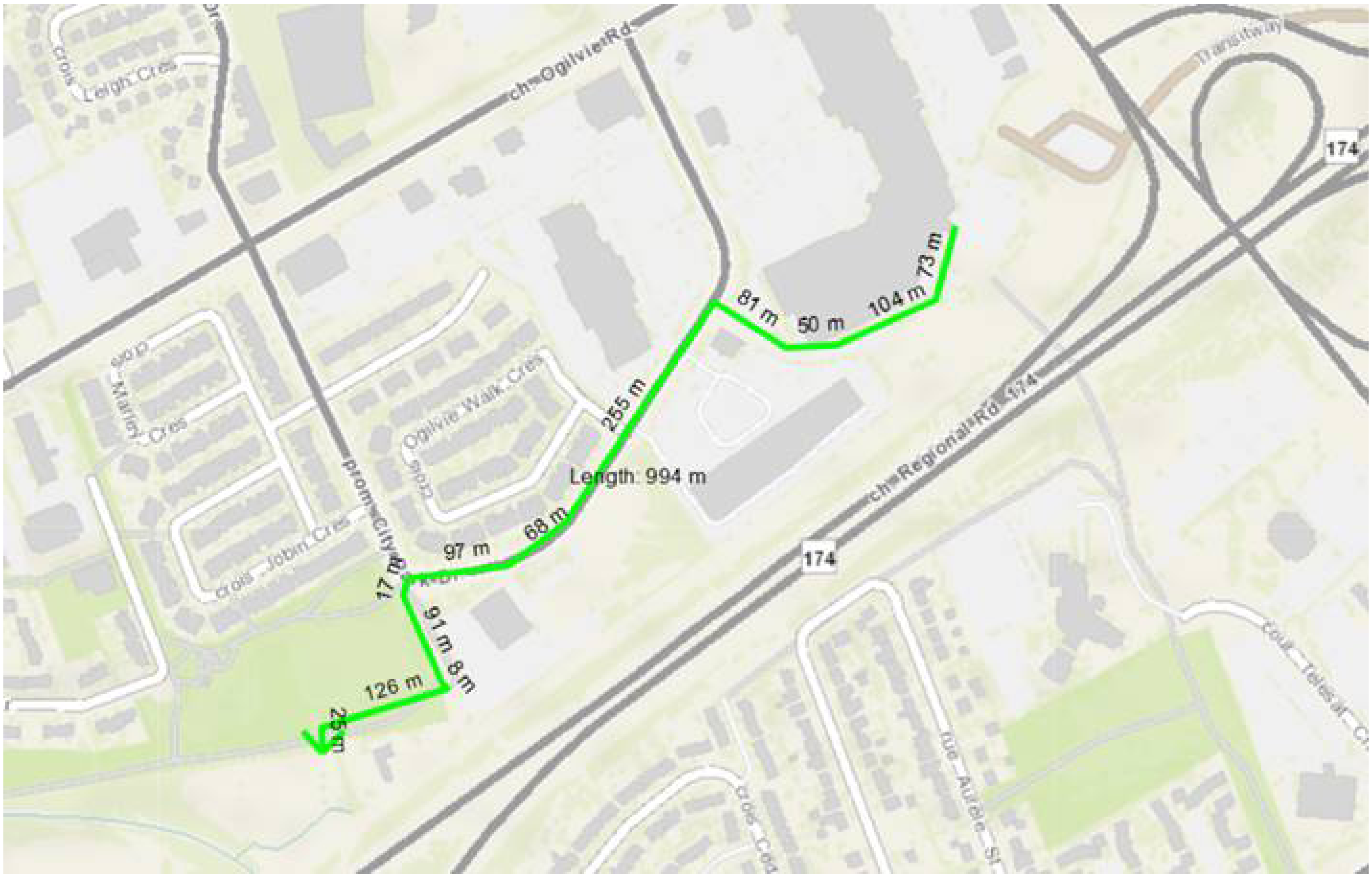


Figure 2: Distance to Outlet

Thank-you,

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

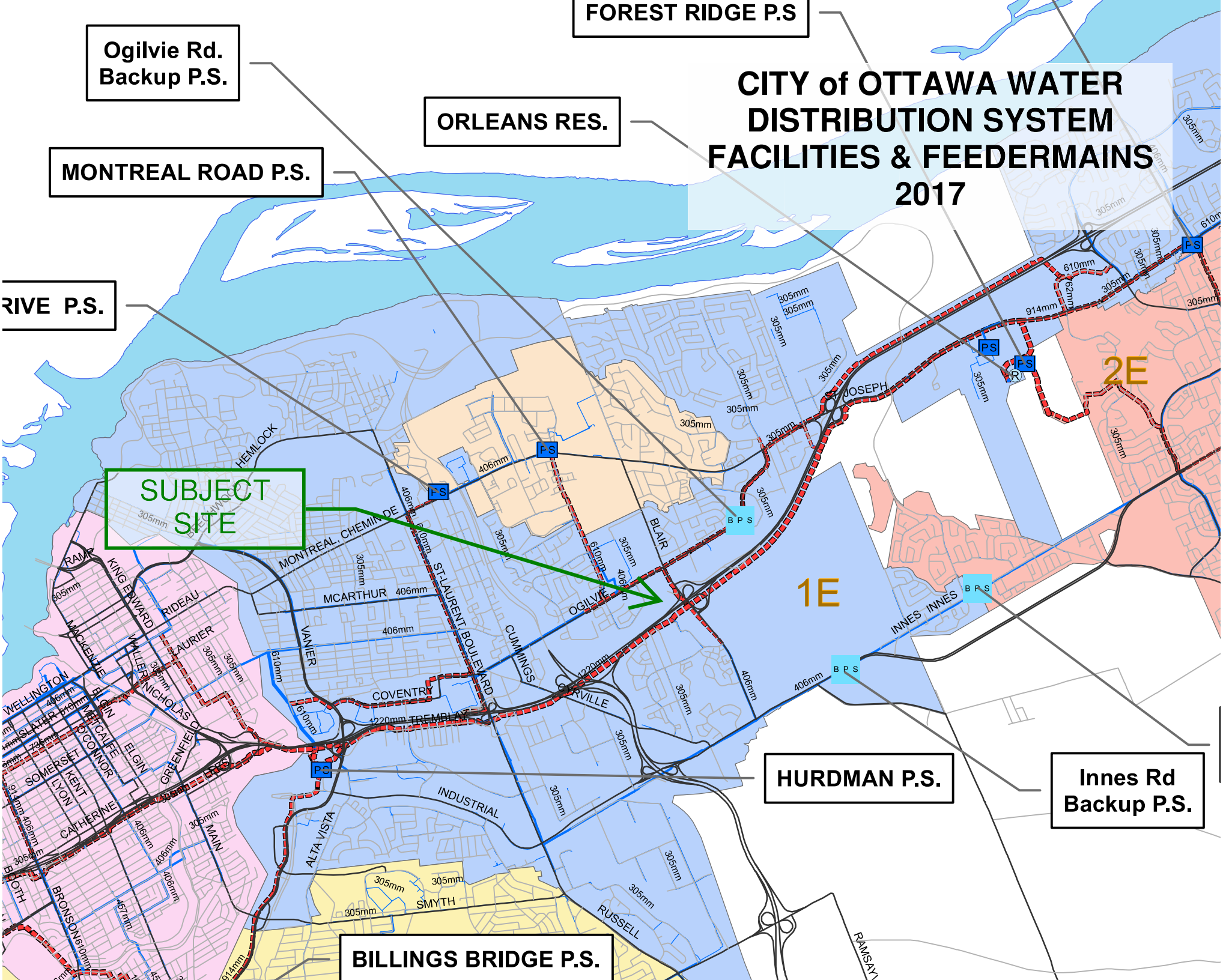
DSEL
david schaeffer engineering ltd.

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

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

APPENDIX B

Water Supply


FOREST RIDGE P.S
Ogilvie Rd.
Backup P.S.
ORLEANS RES.
MONTREAL ROAD P.S.
RIVE P.S.
CITY of OTTAWA WATER
DISTRIBUTION SYSTEM
FACILITIES & FEEDERMAINS
2017
SUBJECT
SITE
2E
1E
HURDMAN P.S.
Innes Rd
Backup P.S.
BILLINGS BRIDGE P.S.
HEMLOCK
MONTREAL, CHEMIN DE
MCARTHUR
ST-LAURENT BOULEVARD
BLAIR
JOSEPH
INNES
OGILVIE
CUMMINGS
VANIER
COVENTRY
TREMBLAY
INDUSTRIAL
ALTA VISTA
SMYTH
RUSSELL
RAMSAY
KING EDWARD
RIDEAU
LAURIER
WELLINGTON
SOMERSET
KENT
LYON
CATHERINE
GREENFIELD
ELGIN
O'CONNOR
MACKENZIE
MAIN
BRONSON
PS
BPS

First Capital
1980 Ogilvie Road
Existing Site Conditions

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
Commercial floor space	2.5 $L/m^2/d$	61298	153.25	106.4	229.9	159.6	413.8	287.3
LCBO/TIMS	2.5 $L/m^2/d$	1391	3.48	2.4	5.2	3.6	9.4	6.5
MOXIES	2.5 $L/m^2/d$	512	1.28	0.9	1.9	1.3	3.5	2.4
Bank	2.5 $L/m^2/d$	661	1.65	1.1	2.5	1.7	4.5	3.1
Total I/CI Demand			159.7	110.9	239.5	166.3	431.1	299.4
Total Demand			**159.7**	**110.9**	**239.5**	**166.3**	**431.1**	**299.4**

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	236	331
2 Bedroom	2.1	120	252
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	583	163.2	113.4	408.1	283.4	897.8	623.5

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
Commercial floor space	2.5 $L/m^2/d$	1,749	4.37	3.0	6.6	4.6	11.8	8.2
Office	75 $L/9.3m^2/d$	1,019	8.22	5.7	12.3	8.6	22.2	15.4
Ammenity Space	2.5 $L/m^2/d$	1,348	3.37	2.3	5.1	3.5	9.1	6.3
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			16.0	11.1	23.9	16.6	43.1	29.9
Total Demand			**179.2**	**124.4**	**432.0**	**300.0**	**940.9**	**653.4**

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	23634.7	m^2	*Total floor area based on FUS Part II section 1*

Fire Flow	20293.1	L/min	
	20000.0	**L/min**	*rounded to the nearest 1,000 L/min*

Adjustments

2. Reduction for Occupancy Type

Non-Combustible -25%

Fire Flow	**15000.0**	**L/min**

3. Reduction for Sprinkler Protection

Sprinklered - Supervised -50%

Reduction	**-7500**	**L/min**

4. Increase for Separation Distance

	Cons. of Exposed Wall	S.D	Lw	Ha	LH	EC	
N	Non-Combustible	>45m	0	0	0	0%	
S	Non-Combustible	30.1m-45m	50	2	100	5%	
E	Non-Combustible	20.1m-30m	20	1	20	8%	
W	Non-Combustible	20.1m-30m	70	2	140	10%	
		% Increase				**23%**	*value not to exceed 75%*

Increase	**3450.0**	**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	10950.0	L/min	*fire flow not to exceed 45,000 L/min nor be less than 2,000 L/min per FUS Section 4*
	11000.0	**L/min**	*rounded to the nearest 1,000 L/min*

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

Boundary Conditions Unit Conversion

Ogilvie
Grnd Elev 76.5

	Height (m)	m H_2O	PSI	kPa
Avg. Day	**117**	40.5	57.6	397.3
Peak Hour	**110.2**	33.7	47.9	330.6
Max Day + FF	**111.5**	35	49.8	343.4

City Park Drive
Grnd Elev 75.45

	Height (m)	m H_2O	PSI	kPa
Avg. Day	**117**	41.55	59.1	407.6
Peak Hour	**110.2**	34.75	49.4	340.9
Max Day + FF	**110**	34.55	49.2	338.9

Minor Loss Coefficients

Fitting	Loss Coefficient
Globe valve, fully open	10
Angle valve, fully open	5
Swing check valve, fully open	2.5
Gate valve, fully open	0.2
Short-radius elbow	0.9
Medium-radius elbow	0.8
Long-radius elbow	0.6
45 degree elbow	0.4
Closed return bend	2.2
Standard tee - flow through run	0.6
Standard tee - flow through branch	1.8
Square Entrance	0.5
Exit	1

*Minor loss coefficients based on EPANET 2 USERS MANUAL, dated September 2000

Pipe Diameter vs. "C" Factor

Pipe Diameter (m)	C-Factor
150	100
200 to 250	110
300 to 600	120
Over 600	130

Node Pressures

Kpa	Pressure (kPa)	Pressure (m H20)
Max	552	56.3
Rec Max	480	49.0
Rec Min	350	35.7
Min	275	28.1

Location	Average Day (kPa)	Max Day + Fire Flow (kPa)	Peak Hour (kPa)
MOXIES	416.6	323.0	349.5
C1	418.8	323.2	351.7
BANK	424.8	326.8	357.7
C4	437.6	329.1	370.5
7	442.1	332.5	375.0
FH3	442.6	213.8	375.0
FH2	438.3	177.6	370.3
PROP.C	435.2	173.5	366.9
FH1/C3	431.4	169.4	363.4
LCBO	422.5	204.9	354.6
C5	425.9	326.9	358.8
C2	419.2	294.6	351.9
13	415.8	322.7	348.8

Charlotte Kelly

From: Mashaie, Sara <sara.mashaie@ottawa.ca>
Sent: August 27, 2019 3:26 PM
To: Charlotte Kelly
Subject: RE: 1980 Ogilvie Road - Boundary Condition Request
Attachments: 1980 Ogilvie Aug 2019.pdf

Hi Charlotte,

Please see below and find attached the information pertaining to the boundary conditions for the above-noted site.

The following are boundary conditions, HGL, for hydraulic analysis at 1980 Ogilvie (zone 1E) assumed to be connected to the 610mm on Ogilvie (Connection 1) and 305mm on City Park (Connection 2). See attached PDF for locations.

	Connection 1 (Ogilvie)	Connection 2 (City Park)
Min HGL	110.2m	110.2m
Max HGL	117.0m	117.0m
Max day + FireFlow (250 L/s)	111.5m	110.0m

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.

Regards,

Sara Mashaie, P.Eng., ing.
Project Manager | Gestionnaire de Projet
Development Review, East Branch | Examen des projets d'aménagement, Secteur est
Planning, Infrastructure and Economic Development Department | Services de la planification, de l'infrastructure et du développement économique
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West. Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1

613.580.2424 ext./poste 27885, sara.mashaie@ottawa.ca

From: Charlotte Kelly <CKelly@dsel.ca>
Sent: August 23, 2019 10:35 AM
To: Curry, William <William.Curry@ottawa.ca>; Mashaie, Sara <sara.mashaie@ottawa.ca>
Cc: Alison Gosling <AGosling@dsel.ca>; Robert Freel <RFreel@dsel.ca>
Subject: FW: 1980 Ogilvie Road - Boundary Condition Request

Good Morning Sara and William,

We would like to request water boundary conditions for City Park Drive and Ogilvie Road using the following proposed development demands:

1. Location of Service / Street Number: 1980 Ogilvie Road

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

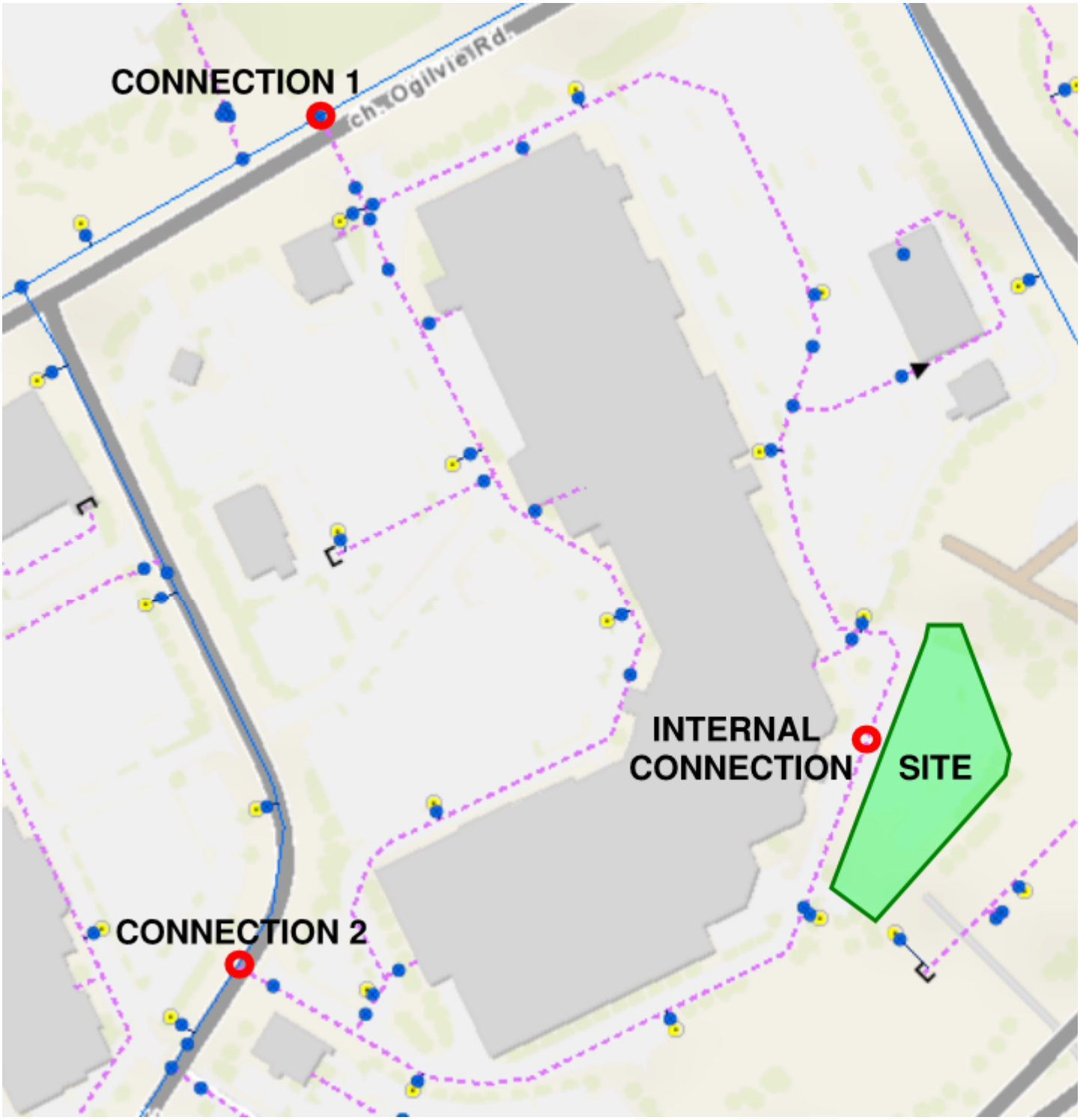
- The development would include approximately ***3097 m²*** of commercial/amenity space (***1,749 m²*** commercial and ***1,348 m²*** amenity), ***1,019 m²*** of office space and, a ***356 unit,*** 30-storey condominium with underground parking. Please refer to the site plan attached.

- It is anticipated that the development will have a single connection to be serviced from the existing 203mm diameter private looped watermain within the Gloucester Centre parcel, as shown by the attached map. The internal watermain connects to the 610mm diameter watermain within Ogilvie Road (Connection 1) and the 305mm dimeter watermain within City Park Drive (Connection 2).

- Fire demand based on Technical Bulletin ISTB-2018-02 has been used to calculate an estimate the max fire demand of ***15,000 L/min***. The demands provided below do not include the existing mall and are solely the expected increase in demands based on the contemplated development. The existing mall is to be retained at this time. Refer to the attached for detailed calculations.

Additional Demand	L/min	L/s
Avg. Daily	124.4	2.07
Max Day	300.0	5.00
Peak Hour	653.4	10.89

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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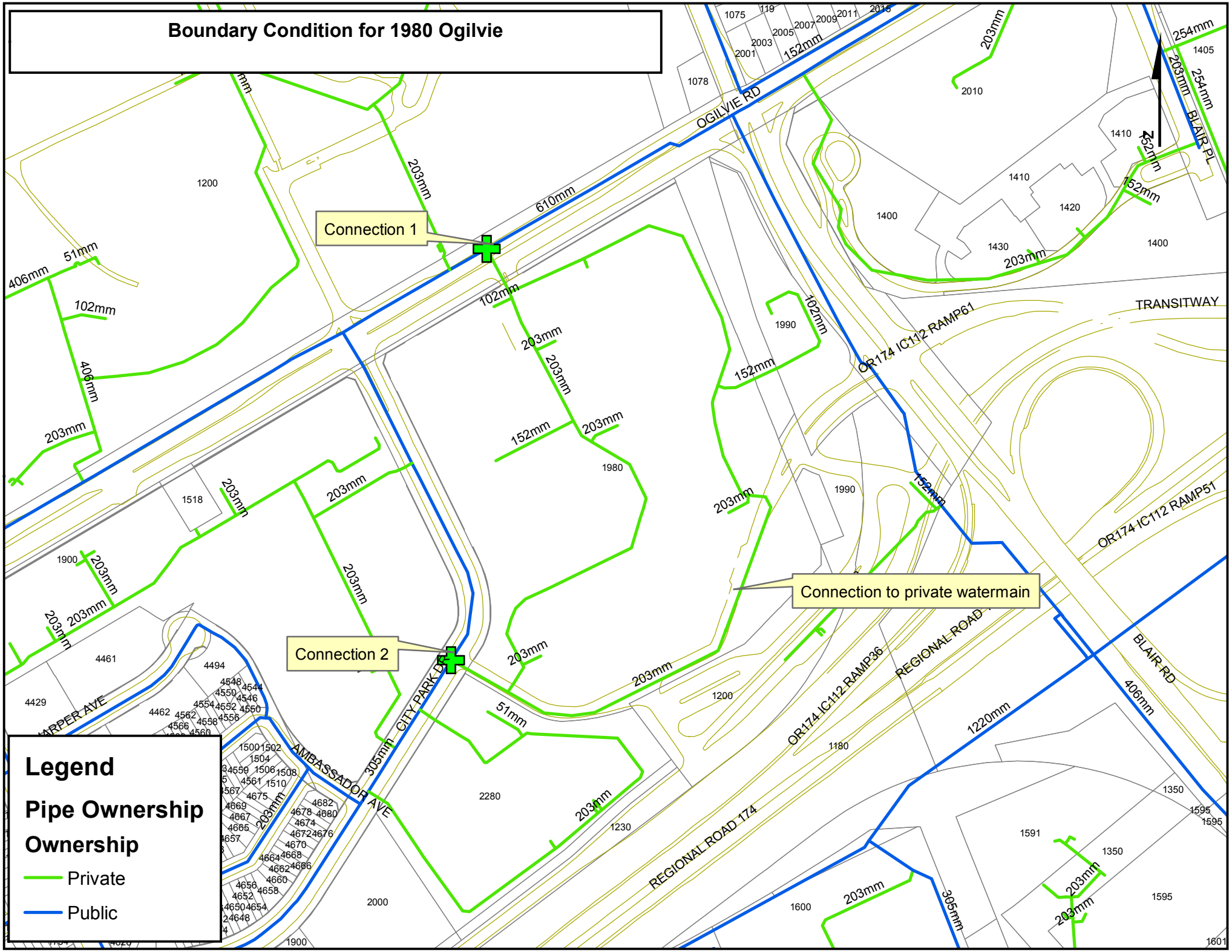
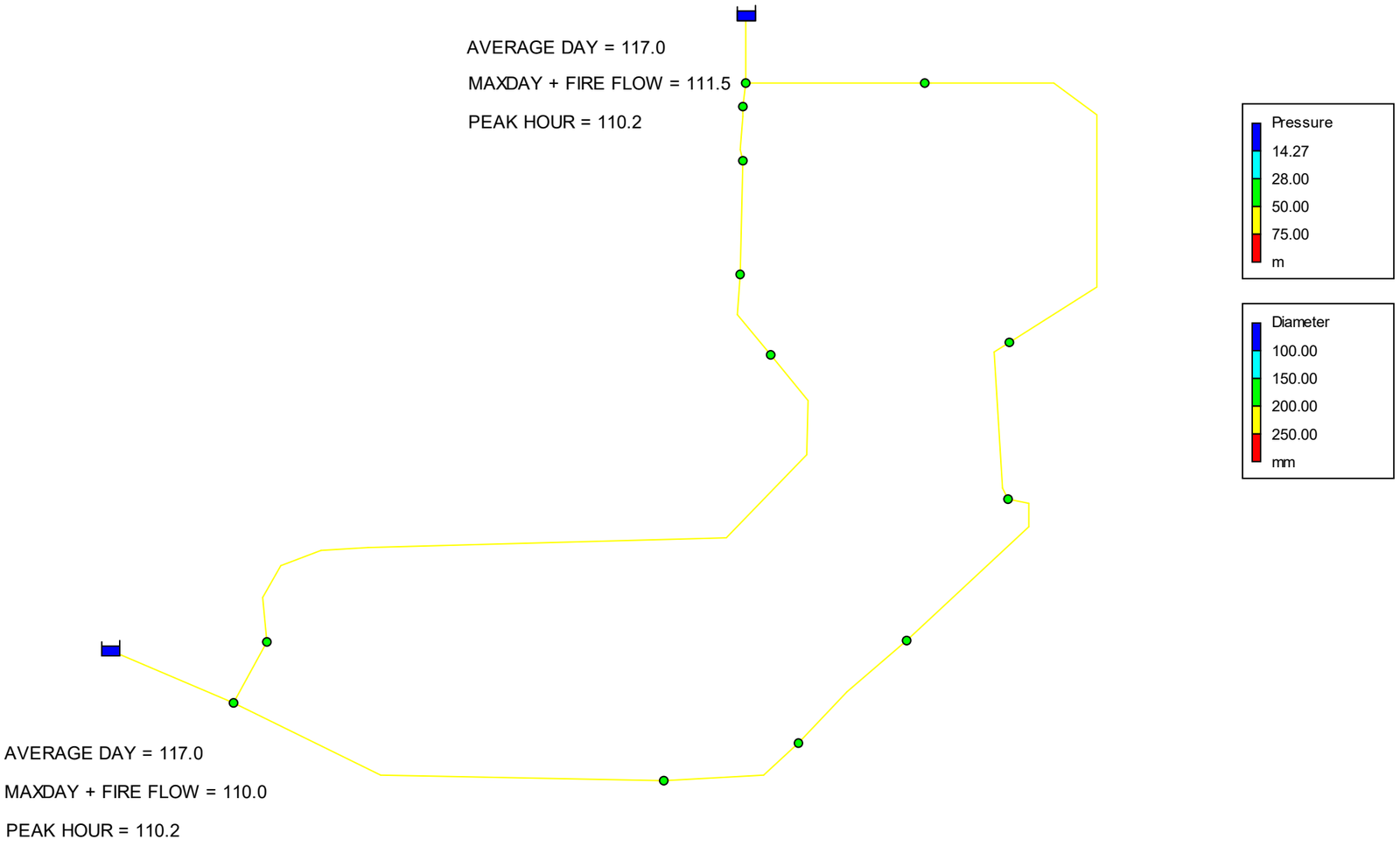

Boundary Condition for 1980 Ogilvie
Connection 1
Connection 2
Connection to private watermain
OGILVIE RD
BLAIR PL
BLAIR RD
TRANSITWAY
OR174 IC112 RAMP61
OR174 IC112 RAMP51
OR174 IC112 RAMP36
REGIONAL ROAD 174
REGIONAL ROAD
CITY PARK DR
AMBASSADOR AVE
HARPER AVE
610mm
305mm
254mm
406mm
203mm
152mm
102mm
51mm
1220mm
Legend
Pipe Ownership
Ownership
Private
Public

1980 OGILVIE ROAD - AVERAGE DAY DEMAND

Day 1, 12:00 AM



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******************************************************************
*                          E P A N E T                           *
*                   Hydraulic and Water Quality                  *
*                   Analysis for Pipe Networks                   *
*                         Version 2.0                            *
******************************************************************
```

Input File: AVERAGE-DAY-MAP.net

Link - Node Table:

Link ID	Start Node	End Node	Length m	Diameter mm
1	13	MOXIES	5	200
2	MOXIES	C1	47	200
3	C1	BANK	67	200
4	BANK	C5	22	200
5	C5	C4	272	200
6	C4	7	27	200
7	7	CITYPARK	54	200
8	7	FH3	137	200
9	FH3	FH2	72	200
10	FH2	PROP.C	64	200
11	PROP.C	FH1/C3	69	200
12	FH1/C3	LCBO	102	200
13	LCBO	C2	223	200
14	13	C2	68	200
15	13	OGILVIE	42	200

Node Results:

Node ID	Demand LPM	Head m	Pressure m	Quality
MOXIES	0.90	117.00	42.47	0.00
C1	21.30	117.00	42.69	0.00
BANK	1.10	117.00	43.30	0.00
C4	21.30	117.00	44.61	0.00
7	0.00	117.00	45.07	0.00
FH3	0.00	116.99	45.12	0.00
FH2	0.00	116.99	44.68	0.00
PROP.C	124.40	116.99	44.36	0.00
FH1/C3	21.30	116.99	43.98	0.00
LCBO	2.40	116.99	43.07	0.00
C5	21.30	117.00	43.41	0.00
C2	21.30	117.00	42.73	0.00

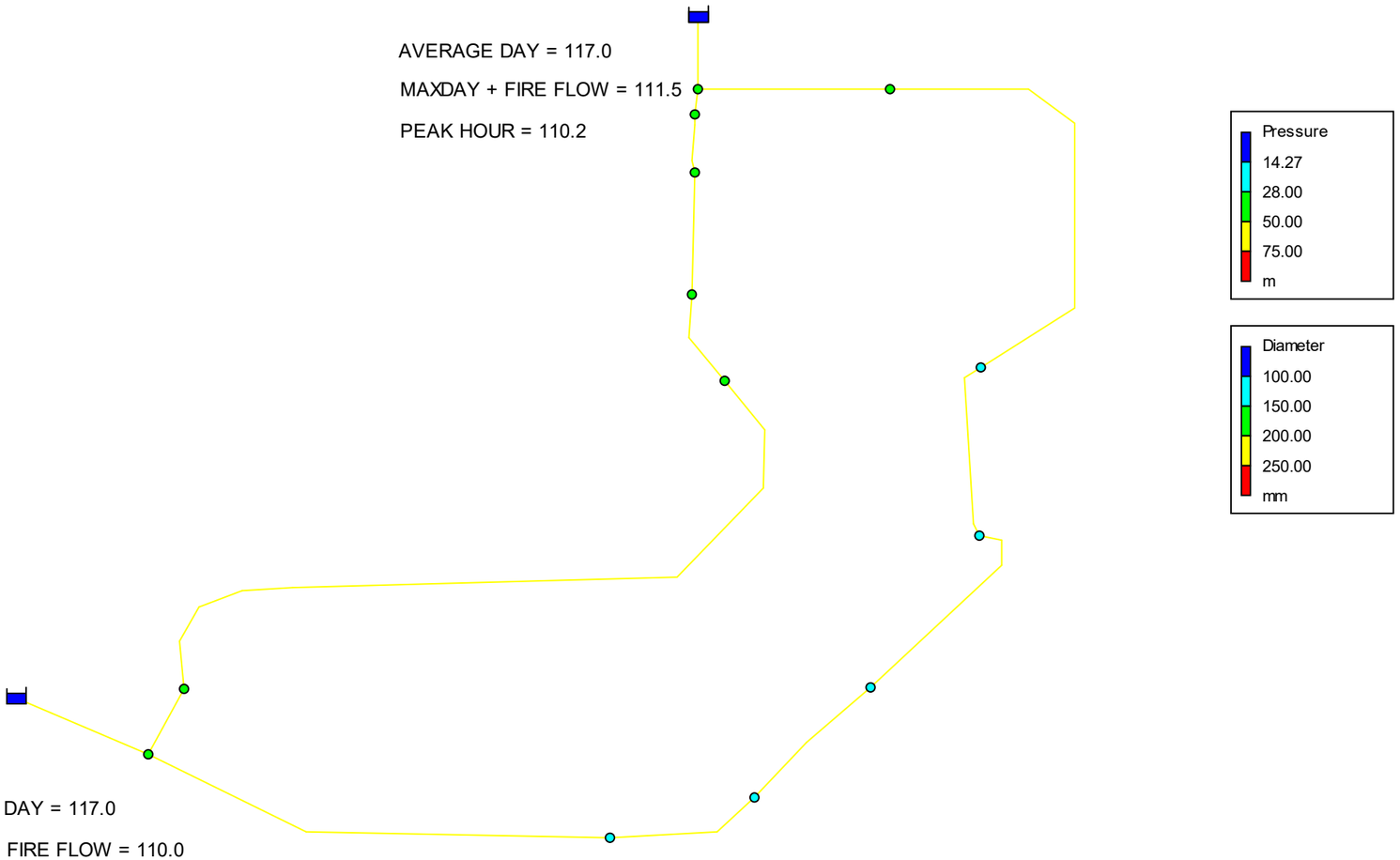
13	0.00	117.00	42.39	0.00	
OGILVIE	-121.69	117.00	0.00	0.00	Reservoir
CITYPARK	-113.61	117.00	0.00	0.00	Reservoir

Link Results:

Link ID	Flow LPM	VelocityUnit m/s	Headloss m/km	Status
1	36.58	0.02	0.01	Open
2	35.68	0.02	0.01	Open
3	14.38	0.01	0.00	Open
4	13.28	0.01	0.00	Open
5	-8.02	0.00	0.00	Open
6	-29.32	0.02	0.00	Open
7	-113.61	0.06	0.05	Open
8	84.29	0.04	0.03	Open
9	84.29	0.04	0.02	Open
10	84.29	0.04	0.02	Open
11	-40.11	0.02	0.01	Open
12	-61.41	0.03	0.01	Open
13	-63.81	0.03	0.01	Open
14	85.11	0.05	0.03	Open
15	-121.69	0.06	0.06	Open

1980 OGILVIE ROAD - MAXDAY + FIRE FLOW DEMAND

Day 1, 12:00 AM



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******************************************************************
*                          E P A N E T                           *
*                  Hydraulic and Water Quality                   *
*                  Analysis for Pipe Networks                    *
*                        Version 2.0                             *
******************************************************************
```

Input File: FIRE-FLOW-MAP.net

Link - Node Table:

Link ID	Start Node	End Node	Length m	Diameter mm
1	13	MOXIES	5	200
2	MOXIES	C1	47	200
3	C1	BANK	67	200
4	BANK	C5	22	200
5	C5	C4	272	200
6	C4	7	27	200
7	7	CITYPARK	54	200
8	7	FH3	137	200
9	FH3	FH2	72	200
10	FH2	PROP.C	64	200
11	PROP.C	FH1/C3	69	200
12	FH1/C3	LCBO	102	200
13	LCBO	C2	223	200
14	13	C2	68	200
15	13	OGILVIE	42	200

Node Results:

Node ID	Demand LPM	Head m	Pressure m	Quality
MOXIES	1.30	107.46	32.93	0.00
C1	31.90	107.26	32.95	0.00
BANK	1.70	107.01	33.31	0.00
C4	31.90	105.94	33.55	0.00
7	0.00	105.82	33.89	0.00
FH3	2000.00	93.66	21.79	0.00
FH2	4000.00	90.41	18.10	0.00
PROP.C	300.00	90.32	17.69	0.00
FH1/C3	5031.90	90.28	17.27	0.00
LCBO	3.60	94.81	20.89	0.00
C5	31.90	106.91	33.32	0.00
C2	31.90	104.30	30.03	0.00

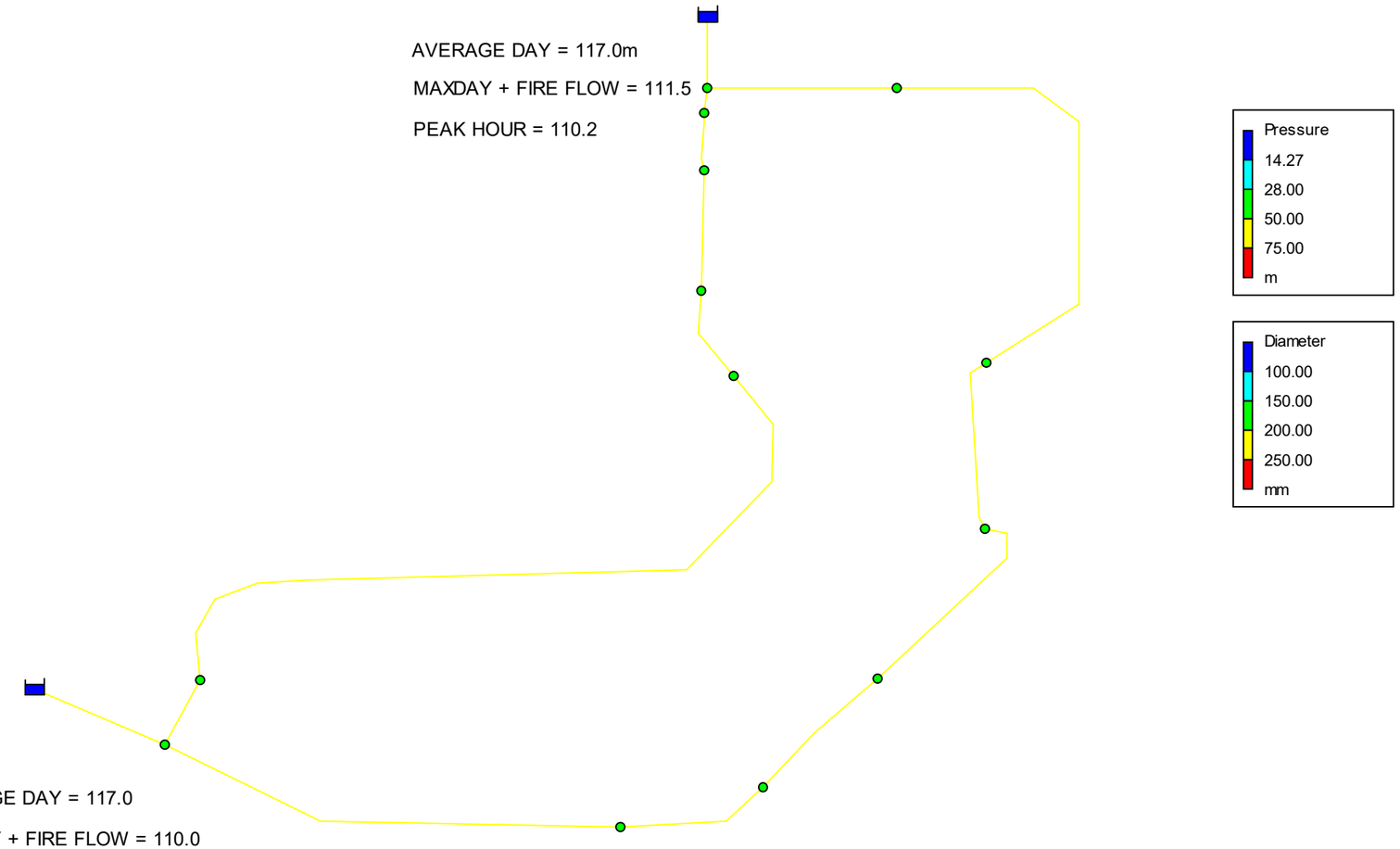
13	0.00	107.51	32.90	0.00	
OGILVIE	-5919.87	111.50	0.00	0.00	Reservoir
CITYPARK	-5546.23	110.00	0.00	0.00	Reservoir

Link Results:

Link ID	Flow LPM	VelocityUnit m/s	Headloss m/km	Status
1	1292.17	0.69	9.42	Open
2	1290.87	0.68	4.28	Open
3	1258.97	0.67	3.70	Open
4	1257.27	0.67	4.52	Open
5	1225.37	0.65	3.58	Open
6	1193.47	0.63	4.38	Open
7	-5546.23	2.94	77.42	Open
8	6739.70	3.58	88.72	Open
9	4739.70	2.51	45.25	Open
10	739.70	0.39	1.41	Open
11	439.70	0.23	0.56	Open
12	-4592.20	2.44	44.39	Open
13	-4595.80	2.44	42.59	Open
14	4627.70	2.46	47.14	Open
15	-5919.87	3.14	95.05	Open

1980 OGILVIE ROAD - PEAK HOUR DEMAND

Day 1, 12:00 AM



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*********************************************************************
*                            E P A N E T                            *
*                     Hydraulic and Water Quality                   *
*                     Analysis for Pipe Networks                    *
*                           Version 2.0                             *
*********************************************************************
```

Input File: PEAK-HOUR-MAP.net

Link - Node Table:

Link ID	Start Node	End Node	Length m	Diameter mm
1	13	MOXIES	5	200
2	MOXIES	C1	47	200
3	C1	BANK	67	200
4	BANK	C5	22	200
5	C5	C4	272	200
6	C4	7	27	200
7	7	CITYPARK	54	200
8	7	FH3	137	200
9	FH3	FH2	72	200
10	FH2	PROP.C	64	200
11	PROP.C	FH1/C3	69	200
12	FH1/C3	LCBO	102	200
13	LCBO	C2	223	200
14	13	C2	68	200
15	13	OGILVIE	42	200

Node Results:

Node ID	Demand LPM	Head m	Pressure m	Quality
MOXIES	2.40	110.16	35.63	0.00
C1	57.50	110.16	35.85	0.00
BANK	3.10	110.16	36.46	0.00
C4	57.50	110.16	37.77	0.00
7	0.00	110.16	38.23	0.00
FH3	0.00	110.10	38.23	0.00
FH2	0.00	110.06	37.75	0.00
PROP.C	653.40	110.03	37.40	0.00
FH1/C3	57.50	110.05	37.04	0.00
LCBO	6.50	110.07	36.15	0.00
C5	57.50	110.16	36.57	0.00
C2	57.50	110.14	35.87	0.00

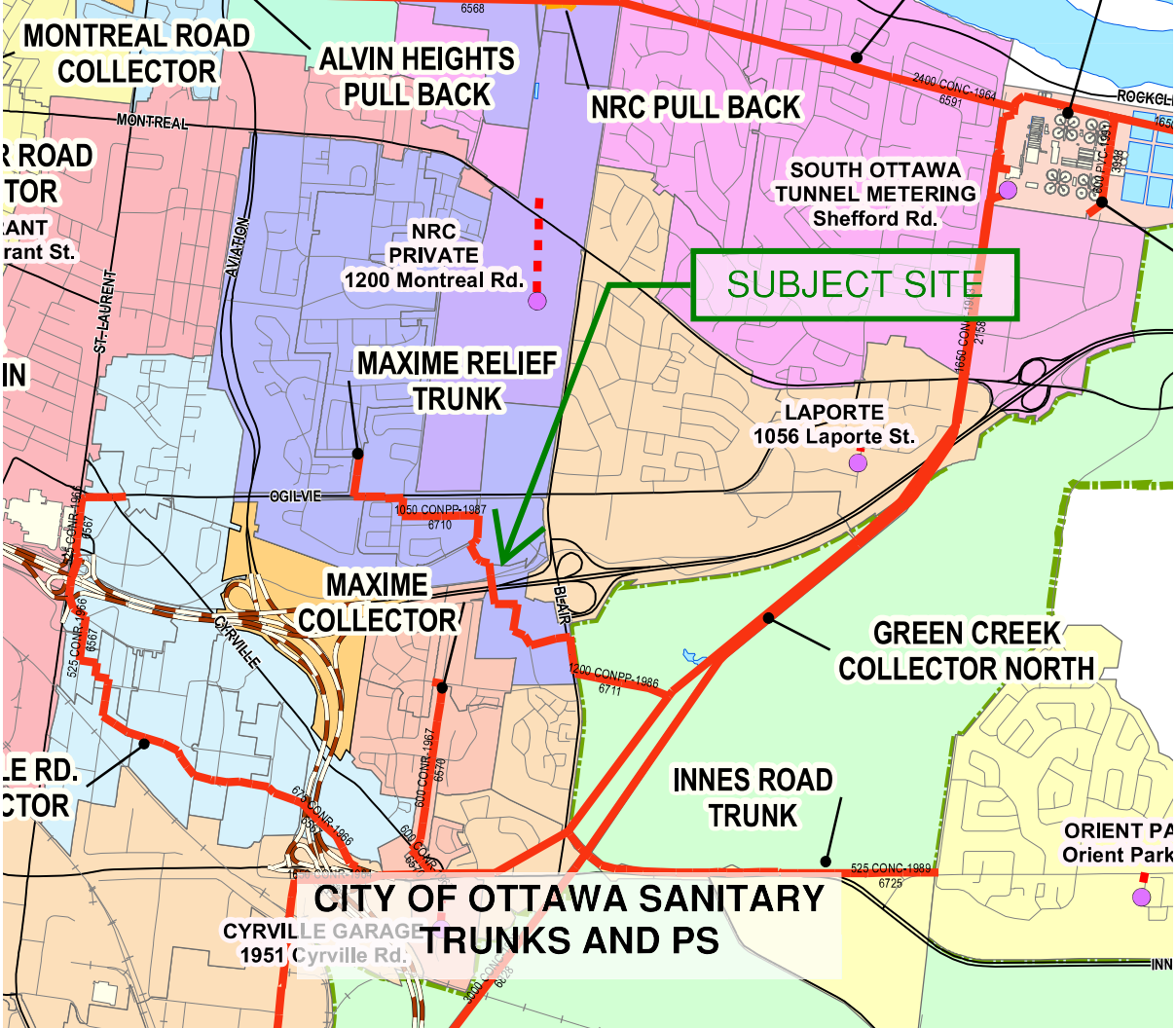
13	0.00	110.17	35.56	0.00	
OGILVIE	-488.00	110.20	0.00	0.00	Reservoir
CITYPARK	-464.90	110.20	0.00	0.00	Reservoir

Link Results:

Link ID	Flow LPM	VelocityUnit m/s	Headloss m/km	Status
1	120.54	0.06	0.09	Open
2	118.14	0.06	0.05	Open
3	60.64	0.03	0.01	Open
4	57.54	0.03	0.01	Open
5	0.04	0.00	0.00	Open
6	-57.46	0.03	0.01	Open
7	-464.90	0.25	0.71	Open
8	407.44	0.22	0.47	Open
9	407.44	0.22	0.47	Open
10	407.44	0.22	0.46	Open
11	-245.96	0.13	0.19	Open
12	-303.46	0.16	0.28	Open
13	-309.96	0.16	0.28	Open
14	367.46	0.19	0.41	Open
15	-488.00	0.26	0.83	Open

APPENDIX C

Wastewater Collection


MONTREAL ROAD COLLECTOR
ALVIN HEIGHTS PULL BACK
NRC PULL BACK
SOUTH OTTAWA TUNNEL METERING Shefford Rd.
NRC PRIVATE 1200 Montreal Rd.
SUBJECT SITE
MAXIME RELIEF TRUNK
LAPORTE 1056 Laporte St.
MAXIME COLLECTOR
GREEN CREEK COLLECTOR NORTH
INNES ROAD TRUNK
CITY OF OTTAWA SANITARY TRUNKS AND PS
CYRVILLE GARAGE 1951 Cyrville Rd.
MONTREAL
ST-LAURENT
AVIATION
OGILVIE
CYRVILLE
BLEAIR

First Capital
1980 Ogilvie Road
Proposed Site Conditions

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

Site Area	0.551	**ha**

Extraneous Flow Allowances

Infiltration / Inflow (Dry)	**0.03**	**L/s**
Infiltration / Inflow (Wet)	**0.15**	**L/s**
Infiltration / Inflow (Total)	**0.18**	**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	236	331
2 Bedroom	2.1	120	252
3 Bedroom	3.1		0
Average	1.8		0

Total Pop	**583**	
Average Domestic Flow	**1.89**	**L/s**
Peaking Factor	**3.35**	
Peak Domestic Flow	**6.33**	**L/s**

Institutional / Commercial / Industrial Contributions

Property Type	**Unit Rate**		**No. of Units**	**Avg Wastewater (L/s)**
Commercial floor space*	5	$L/m^2/d$	1,749	0.20
Office	75	L/9.3m2/d	1,019	0.10
Ammenity	5	$L/m^2/d$	1,348	0.16
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	**0.45**
Peak Institutional / Commercial Flow	0.45
Peak Industrial Flow**	0.00
Peak I/C/I Flow	**0.45**

** 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	**2.37**	**L/s**
Total Estimated Peak Dry Weather Flow Rate	**6.81**	**L/s**
Total Estimated Peak Wet Weather Flow Rate	**6.97**	**L/s**

SANITARY SEWER CALCULATION SHEET

CLIENT: **First Capital**
LOCATION: **1980 OGILVIE ROAD**
FILE REF: **19-1117**
DATE: **10-Sep-19**

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			Commercial		Institutional		Industrial			Infiltration				Pipe Data							
Area ID	Up	Down	Area	Accu. Area	Area	Accu. Area	Area	Accu. Area	Q_{C+I+I}	Total Area	Accu. Area	Infiltration Flow	Total Flow	DIA	Slope	Length	$A_{hydraulic}$	R	Velocity	Q_{cap}	Q / Q full
			(ha)	(ha)	(ha)	(ha)	(ha)	(ha)	(L/s)	(ha)	(ha)	(L/s)	(L/s)	(mm)	(%)	(m)	(m^2)	(m)	(m/s)	(L/s)	(-)
	ONSITE SAN 1	ONSITE SAN 2	10.82	10.82		0.00	0.00	0.00	9.4	10.820	10.820	3.030	12.42	200	2.00	151.6	0.031	0.050	1.48	46.4	0.27
	ONSITE SAN 2	ONSITE SAN 3		10.82		0.00		0.00	9.4	0.000	10.820	3.030	12.42	200	1.00	103.1	0.031	0.050	1.04	32.8	0.38

*Slope Calculated using GeoOttawa where applicable
**Minimum slope of 1.0% assumed when connecting into a truck sewer. Contractor / surveyor to confirm prior to detailed design.

SANITARY SEWER CALCULATION SHEET

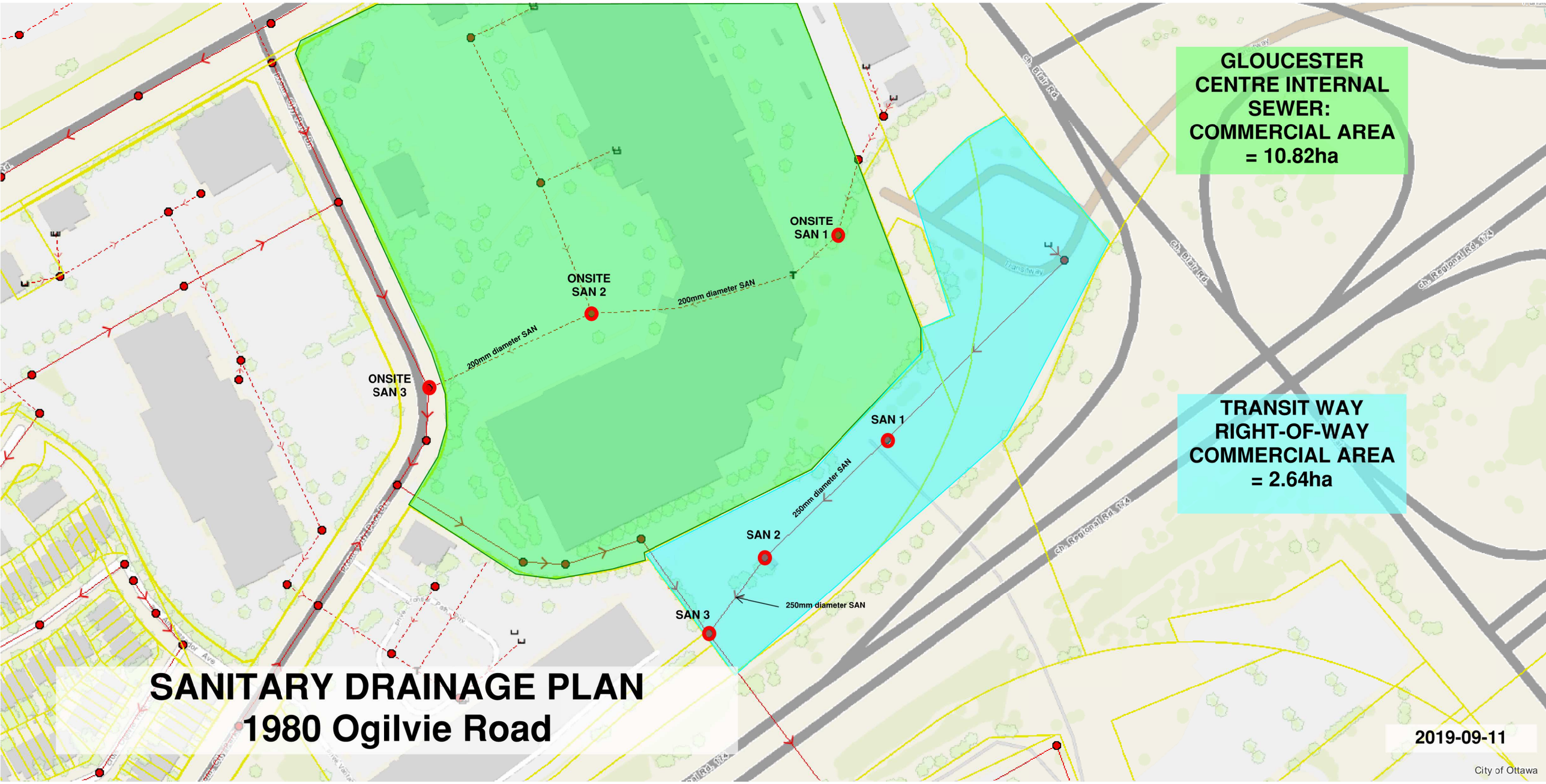
CLIENT: **First Capital**
LOCATION: **1980 OGILVIE ROAD**
FILE REF: **19-1117**
DATE: **10-Sep-19**

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			Commercial		Institutional		Industrial			Infiltration				Pipe Data							
Area ID	Up	Down	Area	Accu. Area	Area	Accu. Area	Area	Accu. Area	Q_{C+I+I}	Total Area	Accu. Area	Infiltration Flow	Total Flow	DIA	Slope	Length	$A_{hydraulic}$	R	Velocity	Q_{cap}	Q / Q full
			(ha)	(ha)	(ha)	(ha)	(ha)	(ha)	(L/s)	(ha)	(ha)	(L/s)	(L/s)	(mm)	(%)	(m)	(m^2)	(m)	(m/s)	(L/s)	(-)
	SAN 1	SAN 2	2.64	2.64		0.00		0.00	2.3	2.640	2.640	0.739	3.03	250	0.52	97.0	0.049	0.063	0.87	42.7	0.07
	SAN 2	SAN 3		2.64		0.00		0.00	2.3	0.000	2.640	0.739	3.03	250	0.19	55.0	0.049	0.063	0.53	25.9	0.12

*Slope Calculated using GeoOttawa where applicable
**Minimum slope of 1.0% assumed


GLOUCESTER CENTRE INTERNAL SEWER: COMMERCIAL AREA = 10.82ha
TRANSIT WAY RIGHT-OF-WAY COMMERCIAL AREA = 2.64ha
ONSITE SAN 1
ONSITE SAN 2
ONSITE SAN 3
200mm diameter SAN
200mm diameter SAN
SAN 1
SAN 2
SAN 3
250mm diameter SAN
250mm diameter SAN
Ch. Blair Rd.
Ch. Regional Rd. 174
Transitway
Prince of Wales Dr.
Alexander Ave
SANITARY DRAINAGE PLAN
1980 Ogilvie Road
2019-09-11
City of Ottawa

APPENDIX D

Stormwater Management

First Capital
1980 Ogilvie Road
Existing Site Conditions

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

Existing Drainage Charateristics From Internal Site

Area	0.551	ha
C	0.77	Rational Method runoff coefficient
L	144	m
Up Elev	76.56	m
Dn Elev	74.89	m
Slope	1.2	%
Tc	12.4	min

	Imp.	Perv.	Total
Area	0.446	0.105	0.551
C	0.9	0.2	0.77

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	68.6	92.9	159.1	mm/hr
Q	80.5	109.0	233.2	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	0.551	ha
C	0.77	Rational Method runoff coefficient
Tc	10.0	min

	5-year		100-year	
i	104.2	mm/hr	178.6	mm/hr
Q	122.2	L/s	209.4	L/s

Estimated Post Development Peak Flow from Unattenuated Areas

Total Area	0.055	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	14.4	14.4	0.0	0.0	178.6	27.3	27.3	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	0.496	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)
5	141.2	175.0	95.3	79.7	23.9	242.7	334.3	182.1	152.2	45.7
6	131.6	163.1	95.4	67.7	24.4	226.0	311.3	182.1	129.2	46.5
7	123.3	152.9	95.5	57.4	24.1	211.7	291.6	182.1	109.5	46.0
8	116.1	143.9	95.5	48.4	23.2	199.2	274.4	182.1	92.3	44.3
9	109.8	136.1	95.6	40.5	21.9	188.3	259.3	182.1	77.2	41.7
10	104.2	129.2	95.6	33.5	20.1	178.6	246.0	182.1	63.9	38.3
11	99.2	123.0	95.7	27.3	18.0	169.9	234.0	182.1	51.9	34.3
12	94.7	117.4	95.7	21.7	15.6	162.1	223.3	182.1	41.2	29.7
13	90.6	112.4	95.8	16.6	12.9	155.1	213.7	182.1	31.5	24.6
14	86.9	107.8	95.8	12.0	10.1	148.7	204.9	182.1	22.8	19.1
15	83.6	103.6	95.8	7.8	7.0	142.9	196.8	182.1	14.7	13.3
16	80.5	99.7	95.9	3.9	3.7	137.5	189.5	182.1	7.4	7.1
17	77.6	96.2	95.9	0.3	0.3	132.6	182.7	182.1	0.6	0.6
18	75.0	92.9	95.9	0.0	0.0	128.1	176.4	182.1	0.0	0.0
19	72.5	89.9	96.0	0.0	0.0	123.9	170.6	182.1	0.0	0.0
20	70.3	87.1	96.0	0.0	0.0	120.0	165.2	182.1	0.0	0.0
21	68.1	84.5	96.0	0.0	0.0	116.3	160.2	182.1	0.0	0.0
22	66.1	82.0	96.0	0.0	0.0	112.9	155.5	182.1	0.0	0.0
23	64.3	79.7	96.1	0.0	0.0	109.7	151.1	182.1	0.0	0.0
24	62.5	77.5	96.1	0.0	0.0	106.7	146.9	182.1	0.0	0.0
25	60.9	75.5	96.1	0.0	0.0	103.8	143.0	182.1	0.0	0.0

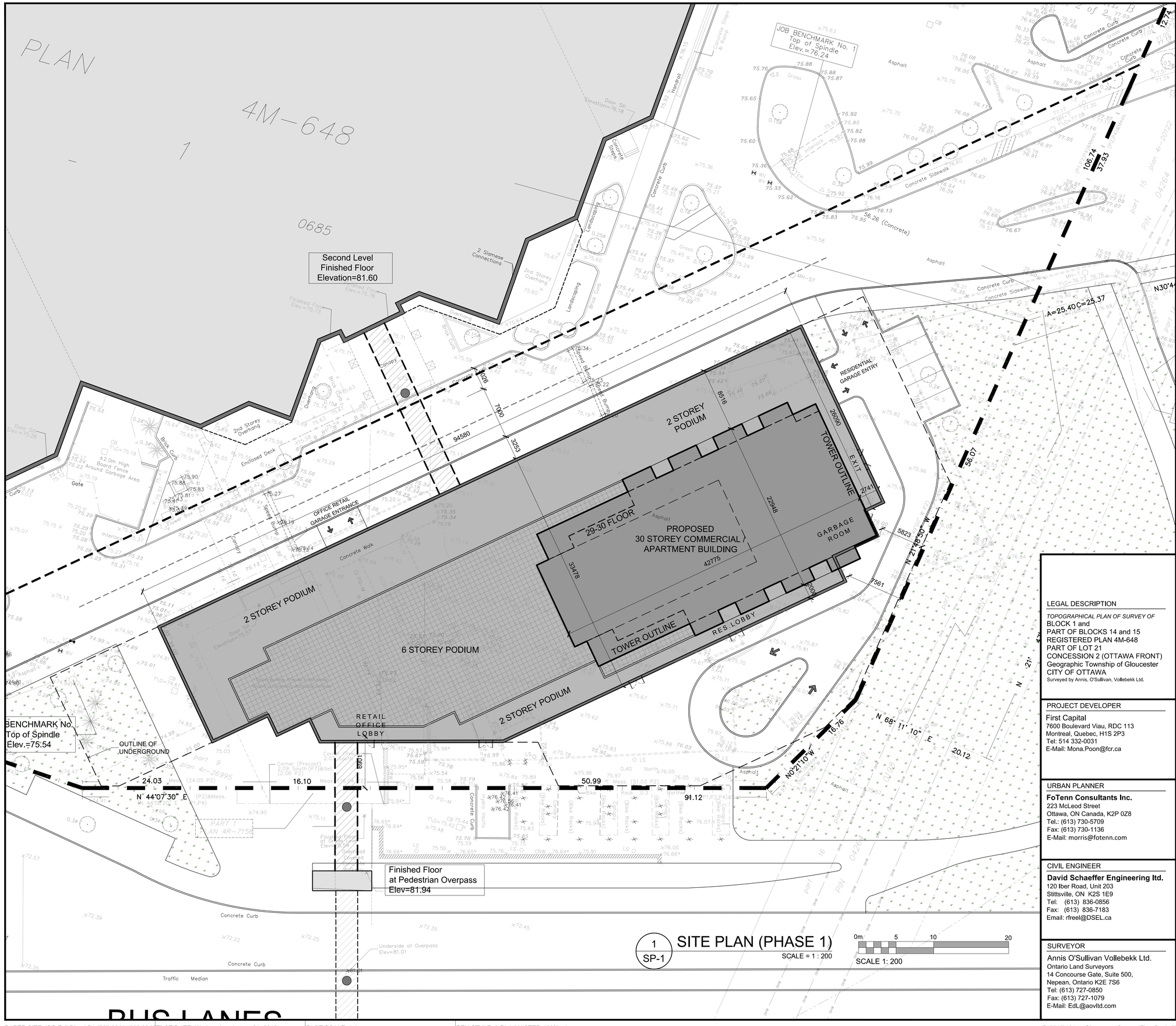
Note:
C value for the 100-year storm is increased by 25%, to a maximum of 1.0 per Ottawa Sewer Design Guidelines (5.4.5.2.1)

5-year $Q_{attenuated}$	**95.41 L/s**	**100-year $Q_{attenuated}$**	**182.11 L/s**
5-year Max. Storage Required	**24.4 m^3**	**100-year Max. Storage Required**	**46.5 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	14.4	0.0	27.3	0.0
Attenutated Areas	95.4	24.4	182.1	46.5
Total	**109.8**	**24.4**	**209.4**	**46.5**

DRAWINGS / FIGURES



1 SP-1 SITE PLAN (PHASE 1)

SCALE = 1 : 200

0m 5 10 20

SCALE 1: 200

PROJECT INFORMATION

ZONING	MC[1333] F(2.0) H(48)
SITE AREA	97,860.9 sq. m. (1,053,366) sq. ft.
PHASE 1 AREA	11,206.2 sq. m. (120,622 sq. ft.)

PROJECT STATISTICS

GROSS BUILDING AREAS

(CITY OF OTTAWA'S DEFINITION)

PARKING LEVEL		0,0 sq. m. (000) sq. ft.
GROUND FLOOR		583,5 sq. m. (6,281) sq. ft.
1st FLOOR		0,0 sq. m. (000) sq. ft.
2nd FLOOR		2,183,9 sq. m. (23,507) sq. ft.
3rd - 6th FLOOR	4 x 1,393.9 sq. m. 4 x (15,004) sq. ft.	5,575,7 sq. m. (60,016) sq. ft.
7th FLOOR		0,0 sq. m. (000) sq. ft.
8th - 28th FLOOR	21 x 674.4 sq. m. 21 x (7,259) sq. ft.	14,162,0 sq. m. (152,439) sq. ft.
29th & 30th FLOOR	2 x 564.8 sq. m. 2 x (6,079) sq. ft.	1,129,6 sq. m. (12,158) sq. ft.
MECHANICAL FLOOR		0,0 sq. m. (000) sq. ft.
TOTAL AREA		23,634,7 sq. m. (254,402) sq. ft.

UNIT STATISTICS

1 BEDROOM UNIT	236
2 BEDROOM UNIT	120
TOTAL	356
COMMERCIAL RETAIL	1,746,5 sq. m. (18,821) sq. ft.
COMMERCIAL OFFICE	1,018,9 sq. m. (10,967) sq. ft.

CAR PARKING

REQUIRED by ZONING BY-LAW

RESIDENCE	- 0,5 PER UNIT (344 UNITS) AFTER 12 UNITS	172
VISITOR	- 0,1 PER UNIT (344 UNITS) AFTER 12 UNITS	34
COMMERCIAL RETAIL (SHOPPING CENTRE)	- 1,7 PER 100m² OF G.F.A.	30
COMMERCIAL OFFICE	- 1,0 PER 100m² OF G.F.A.	10
TOTAL		246

PROVIDED

PARKING P2		113
PARKING P1		107
GROUND	39+5	44
LEVEL 2		46
TOTAL		310

BICYCLE PARKING

REQUIRED

RESIDENCE	- 0,5 PER UNIT (356 UNITS)	178
COMMERCIAL RETAIL	- 1,0 PER 250m² OF G.F.A.	9
COMMERCIAL OFFICE	- 1,0 PER 250m² OF G.F.A.	4
TOTAL		191

PROVIDED

P1+P2	---
L1+L2	---
TOTAL	191

AMENITY SPACE

COMMUNAL EXTERIOR @ GRADE =	324,5 sq. m.
3rd FLOOR COMMUNAL INTERIOR =	1,023,5 sq. m.
3rd FLOOR COMMUNAL EXTERIOR =	000,0 sq. m.
30th FLOOR COMMUNAL INTERIOR =	000,0 sq. m.
30th FLOOR COMMUNAL EXTERIOR =	000,0 sq. m.
PRIVATE DECKS =	430,8 sq. m.
PRIVATE BALCONIES =	946,0 sq. m.
TOTAL =	2,724,8 sq. m.
TOTAL COMMUNAL =	1,348,0 sq. m.
REQUIRED - 6,0M² PER UNIT (356) =	2,136,0 sq. m.
REQUIRED COMMUNAL @ 50% =	1,068,0 sq. m.

GROSS BUILDING AREAS

(FLOOR FOOTPRINT AREA)

PARKING LEVEL

GROUND FLOOR

2nd FLOOR

3rd FLOOR

4th - 28th FLOOR

29th & 30th FLOOR

MECHANICAL FLOOR

TOTAL AREA

TOTAL AREA ABOVE GRADE

LEGAL DESCRIPTION

TOPOGRAPHICAL PLAN OF SURVEY OF
BLOCK 1 and
PART OF BLOCKS 14 and 15
REGISTERED PLAN 4M-648
PART OF LOT 21
CONCESSION 2 (OTTAWA FRONT)
Geographic Township of Gloucester
CITY OF OTTAWA
Surveyed by Annis, O'Sullivan, Vollebekk Ltd.

PROJECT DEVELOPER

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URBAN PLANNER

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E-Mail: morris@fotenn.com

CIVIL ENGINEER

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SURVEYOR

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NOTATION SYMBOLS:

- (00) INDICATES DRAWING NOTES, LISTED ON EACH SHEET.
- ◇00 INDICATES ASSEMBLIE TYPE; REFER TO TYPICAL ASSEMBLIES SCHEDULE.
- (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.
- 00 DETAIL NUMBER
- 00 TITLE / SCALE — DETAIL REFERENCE PAGE
- DETAIL CROSS REFERENCE PAGE

No.	DESCRIPTION	DATE
1	ISSUED FOR ZONING AMENDMENT	May 9, 19

REVISIONS:

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

SEAL DATE: STAMP DATE

NORTH ARROW:

CLIENT:

FIRST CAPITAL
Vos achats au quotidien

ARCHITECT:

rla/architecture
roderick lahey architect inc.
56 beech street, ottawa, ontario K1S 3J6
t. 613.724.9932 f. 613.724.1209 rlaarchitecture.ca

PROJECT TITLE:

GLOUCESTER CENTER
1980 OGILVIE ROAD
OTTAWA ONTARIO

SHEET TITLE:

SITE PLAN
PHASE 1

DRAWN:	CHECKED:
RV	R.V.
SCALE: 1:200	SHEET No. SP-1
PROJECT No. 1911	