

**ASSESSMENT OF ADEQUACY OF
PUBLIC SERVICES**

FOR

**RICHCRAFT GROUP OF COMPANIES
19 CENTREPOINTE DRIVE**

CITY OF OTTAWA

PROJECT NO.: 19-1145
CITY APPLICATION NO.: D07-12-XX-XXXX

NOVEMBER 2019 – REV 1
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1.0 INTRODUCTION

David Schaeffer Engineering Limited (DSEL) has been retained by Richcraft Group of Companies to prepare an Assessment of Adequacy of Public Services report in support of the application for a Zoning By-law Amendment (ZBLA) at 19 Centrepointe Drive.

The subject property is located within the City of Ottawa urban boundary, in the College Ward. As illustrated in **Figure 1**, below, the subject property is located south of the intersection of Centrepointe Drive and Gemini Way. Comprised of a single parcel, the subject property measures approximately **0.75 ha** and is zoned Mixed-Use Centre Zone.



Figure 1: Site Location

The proposed ZBLA would allow for the development of three, 24-storey residential towers fronting onto Centrepointe Drive. The contemplated development would include approximately **2001 m²** of communal amenity space and underground parking with access from Gemini Way. The residential component is comprised of approximately **667 units**. A copy of the conceptual Site Plan is included in **Drawings/Figures**.

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

1.1 Existing Conditions

The existing site is currently an undeveloped parcel. The elevations range between 82.91 m and 87.24 m, with a minimal grade change of approximate 0.42% from the Southwest to the Northeast 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:

Centrepointe Drive

- 305 mm diameter ductile iron watermain;
- 900 mm concrete storm sewer, tributary to the Pinecrest Creek;
- 250/300 mm diameter PVC sanitary sewer, tributary to the Woodroffe Diversion Trunk via the Woodroffe Diversion Forcemain; and
- 250/300 mm diameter PVC sanitary sewer, tributary to the Lynwood Collector.

Gemini Way

- 203 mm diameter ductile iron watermain;
- 375 mm concrete storm sewer, tributary to the Pinecrest Creek; and
- 300 mm diameter PVC sanitary sewer, tributary to the Woodroffe Diversion Trunk via the Woodroffe Diversion Forcemain.

1.2 Required Permits / Approvals

The contemplated development is subject to the zoning by-law amendment approval process. The City of Ottawa must approve the engineering report prior to the issuance of zoning by-law amendment.

The contemplated development is a single parcel; thus, the stormwater management system qualifies for an exemption under the OWRA.

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)

-
- ***Stormwater Management Guidelines for the Pinecrest Creek/Westboro Area***
J.F. Sabourin and Associates, Inc., June 2012.
(PCW SWM)

 - **CentrepoinTE Town Centre Functional Servicing Study**
Dillon Consulting Ltd., November 2008.
(DILLON FSS)

3.0 WATER SUPPLY SERVICING

3.1 Existing Water Supply Services

The subject property lies within the City of Ottawa 2W2C pressure zone, as shown by the Pressure Zone map in **Appendix B**. A local 305 mm diameter watermain is available to service the subject property within the Centrepointhe Drive right-of-way, as well as, a local 203 mm diameter watermain within the Gemini Way right-of-way. Based on City as-builts, an existing 152 mm diameter watermain stub, connecting to the existing watermain within Gemini Way, has been installed and is available to service the development.

3.2 Water Supply Servicing Design

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 m³/day. It is contemplated that the development will be serviced via an internal looped watermain network.

Based on as-built drawings provided by the City of Ottawa, it appears that there is an existing fire hydrant fronting the property along Gemini Way.

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 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	2.5 x Average Daily *
Residential Maximum Hourly	5.5 x Average Daily *
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	

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

Table 2
Water Demand and Boundary Conditions
Contemplated Conditions

Design Parameter	Anticipated Demand ¹ (L/min)	Boundary Condition ² (m H ₂ O / kPa) Gemini Way	Boundary Condition ² (m H ₂ O / kPa) Centrepointe Drive
Average Daily Demand	231.4	49.0 / 480.7	49.0 / 480.7
Max Day + Fire Flow	574.9+ 20,000= 20,575	16.5 / 161.9	36.0 / 353.2
Peak Hour	1262.8	42.0 / 412.0	42.0 / 412.0
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 85.5m. 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 coordinated with the architect:

- Type of construction – Non-Combustible Construction;
- Occupancy type – Limited Combustibility; and
- Sprinkler Protection – Fully supervised sprinklered System.

The above assumptions result in an estimated fire flow of approximately **20,000 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**.

3.3 Water Supply Conclusion

Anticipated water demand under proposed conditions was submitted to the City of Ottawa for establishing boundary conditions.

Based on boundary conditions provided by the City the existing municipal water infrastructure is capable of providing the contemplated development with water within the City's required pressure range.

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 is located on the border between the Woodroffe Diversion Trunk and the Lynwood Collector Trunk, as shown by the City sewer mapping included in **Appendix C**. An existing 300 mm diameter sanitary sewer within Gemini Way is available to service the contemplated development. The 300 mm diameter sanitary sewer is tributary to the Woodroffe Diversion Trunk, which is located approximately 550 m downstream of the site.

Based on City as-builts an existing 250 mm diameter sanitary stub, connecting to the existing sanitary sewer within Gemini Way, has been installed and is available to service the development.

4.2 Wastewater Design

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

Table 3
Wastewater Design Criteria

Design Parameter	Value
Residential 1 Bedroom Apartment	1.4 P/unit
Residential 2 Bedroom Apartment	2.1 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
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	$Q = \frac{1}{n} AR^{\frac{2}{3}} S^{\frac{1}{2}}$
Minimum Sewer Size	200 mm diameter
Minimum Manning's 'n'	0.013
Minimum Depth of Cover	2.5 m from crown of sewer to grade
Minimum Full Flowing Velocity	0.6 m/s
Maximum Full Flowing Velocity	3.0 m/s
Extracted from Sections 4 and 6 of the City of Ottawa Sewer Design Guidelines, October 2012.	

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

Table 4
Summary of Estimated Peak Wastewater Flow

Design Parameter	Total Flow (L/s)
Estimated Average Dry Weather Flow	4.07
Estimated Peak Dry Weather Flow	12.44
Estimated Peak Wet Weather Flow	12.65

The anticipated sanitary flow, based on the **Concept Site Plan** included in **Drawings/Figures**, results in a peak wet weather flow of **12.65 L/s**; detailed calculations are included in **Appendix C**.

Dillon Consulting Ltd. prepared a Functional Servicing Study for the CentrepoinTE Town Centre development in November 2008 (**DILLON FSS**). The analysis contemplated that the subject site would be developed to contain two residential towers. The anticipated peak flow rate for the subject site was estimated to be **5.96 L/s**, see **Appendix C** for associated excerpts.

The **Dillon FSS** reviewed the existing sanitary sewers from the subject site to the Woodroffe Diversion Trunk. **Dillon FSS**'s analysis suggested that the critical leg of sewer is between MHID's 16927 and 18693, with the remaining sewers to be upgraded to allow for the CentrepoinTE Town Centre to be developed. According to City as-built drawings, the critical leg is a 300 mm diameter sanitary sewer situated at a 0.20% slope with an available capacity of **43.2 L/s**. Based on the **DILLON FSS**, approximately **32.07 L/s** of wastewater flow is estimated to be conveyed by the critical leg of sanitary sewer. Therefore, the residual capacity is **11.13 L/s**.

As per the **Dillon FSS**, the anticipated peak flow rate for the contemplated development was **5.96 L/s**. Based on the site stats prepared by Roderick Lahey Architect Inc., the estimate peak wet weather flow rate for the development is **12.65 L/s**, resulting in an increase of approximately **6.69 L/s**. Based on the **DILLON FSS**, the residual capacity of the receiving sewer is **11.13 L/s**, therefore the existing sewer system has sufficient capacity to support the development.

4.3 Wastewater Servicing Conclusions

The site is tributary to the Woodroffe Diversion Trunk sanitary sewer. An existing 300 mm diameter sanitary sewer within Gemini Way is available to service the contemplated development.

Based on the **Dillon FSS**, sufficient capacity is available to accommodate the anticipated **12.65 L/s** peak wet weather flow from the contemplated development.

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

5.0 STORMWATER MANAGEMENT

5.1 Existing Stormwater Services

Stormwater runoff from the subject property is tributary to the City of Ottawa sewer system and is located within the Ottawa Central sub-watershed. As such, approvals for 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 Pinecrest 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**.

Based on City as-builts, an existing 375 mm diameter storm service stub, connecting to the existing storm sewer within Gemini Way, has been installed and is available to service the development.

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

Table 5
Summary of Existing Peak Storm Flow Rates

City of Ottawa Design Storm	Estimated Peak Flow Rate (L/s)
2-year	15.7
5-year	21.1
100-year	44.9

Based on the 1K mapping obtained from the City, it is anticipated that runoff collected within **0.492 ha** of the property to the East contributes stormwater to the subject site. Any external drainage determined to enter the site will be conveyed through a cut-off swale to maintain drainage patterns.

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:

- Meet an established release rate of **33.5 L/s/ha**, based on the **PCW SWM**;
- Attenuate all storms up to and including the City of Ottawa 100-year design event on site; and
- Provide quality controls to an enhanced level of treatment 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 development is **25.3 L/s**.

5.3 Proposed Stormwater Management System

To meet the stormwater objectives the proposed 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 5% of the development area will be directed to the outlet without flow attenuation. These areas will be compensated for in areas with flow attenuation controls.

Table 6
Stormwater Flow Rate Summary

Control Area	5-Year Release Rate	5-Year Storage	100-Year Release Rate	100-Year Storage
	(L/s)	(m ³)	(L/s)	(m ³)
Unattenuated Areas	7.6	0.0	16.4	0.0
Attenuated Areas	4.2	190.1	8.9	401.9
Total	11.9	190.1	25.3	401.9

It is estimated that approximately **402 m³** of storage will be required on site to attenuate flow to the established release rate of **25.3 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.

As discussed in Section 5.1, it is anticipated that runoff collected within **0.492 ha** of the property to the East contributes stormwater to the subject site. Stormwater is then conveyed towards an existing catch basin located at the northwest corner of the property. In order to maintain existing drainage patterns and flow rates, external drainage will be conveyed via a cut-off swale to pre-development flow rates. Further discussion and design details will be provided at the detailed design stage.

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 **PCW SWM**. The post-development allowable release rate was calculated as **25.3 L/s**. It is estimated that **402 m³** of storage will be required to meet this release rate.

Actual storage volumes will need to be confirmed at the detailed design stage based on a number of factors, including grading constraints.

Based on consultation with the RVCA, stormwater quality controls are required due to the distance to the outlet.

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

6.0 UTILITIES

Gas and Hydro services currently exist within the Gemini Way and CentrepoinTE Drive rights-of-way. Utility servicing will be coordinated with the individual utility companies prior to site development.

There is an existing Bell utility building located East of the subject site. Locations of existing Bell infrastructure are to be coordinated with Bell during the detailed design stage.

7.0 CONCLUSION AND RECOMMENDATIONS

David Schaeffer Engineering Ltd. (DSEL) has been retained by Richcraft Group of Companies to prepare an Assessment of Adequacy of Public Services Report in support of the application for a Zoning By-law Amendment (ZBLA) at 19 Centrepointe Drive. The preceding report outlines the following:

- Based on boundary conditions provided by the City the existing municipal water infrastructure is capable of providing the contemplated development with water within the City's required pressure range;
- The FUS method for estimating fire flow indicated **20,000 L/min** is required for the contemplated development;
- The contemplated development is anticipated to have a peak wet weather flow of **12.65 L/s**; Based on the **DILLON FSS** the existing municipal sewer infrastructure has sufficient capacity to support the development;
- Based on **PCW SWM**, the contemplated development will be required to attenuate post development flows to an equivalent release rate of **33.5 L/s/ha** 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. It is anticipated that **402 m³** of onsite storage will be required to attenuate flow to the established release rate above; and
- Based on consultation with the RVCA, stormwater quality controls are required due to the distance to the outlet.

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APPENDIX A

Pre-Consultation

DEVELOPMENT SERVICING STUDY CHECKLIST

19-1145

22/11/2019

4.1 General Content

<input type="checkbox"/>	Executive Summary (for larger reports only).	N/A
<input checked="" type="checkbox"/>	Date and revision number of the report.	Report Cover Sheet
<input checked="" type="checkbox"/>	Location map and plan showing municipal address, boundary, and layout of proposed development.	Drawings/Figures
<input checked="" type="checkbox"/>	Plan showing the site and location of all existing services.	Figure 1
<input checked="" type="checkbox"/>	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
<input checked="" type="checkbox"/>	Summary of Pre-consultation Meetings with City and other approval agencies.	Section 1.3
<input checked="" type="checkbox"/>	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 defensible design criteria.	Section 2.1
<input checked="" type="checkbox"/>	Statement of objectives and servicing criteria.	Section 1.0
<input checked="" type="checkbox"/>	Identification of existing and proposed infrastructure available in the immediate area.	Sections 3.1, 4.1, 5.1
<input type="checkbox"/>	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
<input type="checkbox"/>	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
<input type="checkbox"/>	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
<input type="checkbox"/>	Proposed phasing of the development, if applicable.	N/A
<input type="checkbox"/>	Reference to geotechnical studies and recommendations concerning servicing.	N/A
<input type="checkbox"/>	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

<input type="checkbox"/>	Confirm consistency with Master Servicing Study, if available	N/A
<input checked="" type="checkbox"/>	Availability of public infrastructure to service proposed development	Section 3.1
<input checked="" type="checkbox"/>	Identification of system constraints	Section 3.1
<input checked="" type="checkbox"/>	Identify boundary conditions	Section 3.1, 3.2
<input checked="" type="checkbox"/>	Confirmation of adequate domestic supply and pressure	Section 3.3

<input checked="" type="checkbox"/>	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
<input type="checkbox"/>	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
<input type="checkbox"/>	Definition of phasing constraints. Hydraulic modeling is required to confirm servicing for all defined phases of the project including the ultimate design	N/A
<input type="checkbox"/>	Address reliability requirements such as appropriate location of shut-off valves	N/A
<input type="checkbox"/>	Check on the necessity of a pressure zone boundary modification	N/A
<input checked="" type="checkbox"/>	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
<input type="checkbox"/>	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
<input type="checkbox"/>	Description of off-site required feeder mains, 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
<input checked="" type="checkbox"/>	Confirmation that water demands are calculated based on the City of Ottawa Design Guidelines.	Section 3.2
<input type="checkbox"/>	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

<input checked="" type="checkbox"/>	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
<input type="checkbox"/>	Confirm consistency with Master Servicing Study and/or justifications for deviations.	N/A
<input type="checkbox"/>	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
<input checked="" type="checkbox"/>	Description of existing sanitary sewer available for discharge of wastewater from proposed development.	Section 4.1
<input checked="" type="checkbox"/>	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
<input checked="" type="checkbox"/>	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
<input checked="" type="checkbox"/>	Description of proposed sewer network including sewers, pumping stations, and forcemains.	Section 4.2
<input type="checkbox"/>	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

<input type="checkbox"/>	Pumping stations: impacts of proposed development on existing pumping stations or requirements for new pumping station to service development.	N/A
<input type="checkbox"/>	Forcemain capacity in terms of operational redundancy, surge pressure and maximum flow velocity.	N/A
<input type="checkbox"/>	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
<input type="checkbox"/>	Special considerations such as contamination, corrosive environment etc.	N/A

4.4 Development Servicing Report: Stormwater Checklist

<input checked="" type="checkbox"/>	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
<input checked="" type="checkbox"/>	Analysis of available capacity in existing public infrastructure.	Section 5.1, Appendix D
<input checked="" type="checkbox"/>	A drawing showing the subject lands, its surroundings, the receiving watercourse, existing drainage patterns, and proposed drainage pattern.	Drawings/Figures
<input checked="" type="checkbox"/>	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
<input checked="" type="checkbox"/>	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
<input checked="" type="checkbox"/>	Description of the stormwater management concept with facility locations and descriptions with references and supporting information	Section 5.3
<input type="checkbox"/>	Set-back from private sewage disposal systems.	N/A
<input type="checkbox"/>	Watercourse and hazard lands setbacks.	N/A
<input checked="" type="checkbox"/>	Record of pre-consultation with the Ontario Ministry of Environment and the Conservation Authority that has jurisdiction on the affected watershed.	Appendix A
<input type="checkbox"/>	Confirm consistency with sub-watershed and Master Servicing Study, if applicable study exists.	N/A
<input checked="" type="checkbox"/>	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
<input type="checkbox"/>	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
<input checked="" type="checkbox"/>	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
<input type="checkbox"/>	Any proposed diversion of drainage catchment areas from one outlet to another.	N/A
<input type="checkbox"/>	Proposed minor and major systems including locations and sizes of stormwater trunk sewers, and stormwater management facilities.	N/A
<input type="checkbox"/>	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
<input type="checkbox"/>	Identification of potential impacts to receiving watercourses	N/A
<input type="checkbox"/>	Identification of municipal drains and related approval requirements.	N/A

<input checked="" type="checkbox"/>	Descriptions of how the conveyance and storage capacity will be achieved for the development.	Section 5.3
<input type="checkbox"/>	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
<input type="checkbox"/>	Inclusion of hydraulic analysis including hydraulic grade line elevations.	N/A
<input checked="" type="checkbox"/>	Description of approach to erosion and sediment control during construction for the protection of receiving watercourse or drainage corridors.	Section 6.0
<input type="checkbox"/>	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
<input type="checkbox"/>	Identification of fill constraints related to floodplain and geotechnical investigation.	N/A

4.5 Approval and Permit Requirements: Checklist

<input checked="" type="checkbox"/>	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
<input type="checkbox"/>	Application for Certificate of Approval (CofA) under the Ontario Water Resources Act.	N/A
<input type="checkbox"/>	Changes to Municipal Drains.	N/A
<input type="checkbox"/>	Other permits (National Capital Commission, Parks Canada, Public Works and Government Services Canada, Ministry of Transportation etc.)	N/A

4.6 Conclusion Checklist

<input checked="" type="checkbox"/>	Clearly stated conclusions and recommendations	Section 8.0
<input type="checkbox"/>	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.	
<input type="checkbox"/>	All draft and final reports shall be signed and stamped by a professional Engineer registered in Ontario	

19 Centrepointhe Drive
Pre-Consultation Meeting Follow Up

Location: Room 4103E, City Hall
Date: September 17, 3pm – 4pm

Attendee	Role	Organization
Mary Dickinson	Planner	City of Ottawa
Ahmed Elsayed	Project Manager (Engineer)	
Josiane Gervais	Project Manager (Transportation)	
Randolph Wang	Urban Designer	
Samantha Gatchene	Planning Assistant	
Brian Casagrande	Planner	Fotenn
Nick Sutherland	Planner	
Kevin Reid	Architect	Roderick Lahey Architects
Kevin Yemm	Owner's Representative	Richcraft
Tim Lee	Owner's Representative	

Information Provided by the Applicant

1. The applicant is proposing three residential high rise apartment buildings at 22, 24 and 28 storeys in total building height at 19 Centrepointhe Drive. The towers would be built above a 4-storey podium that would also be residential in nature.
2. Vehicle access is proposed via one access off Gemini Way. Parking will be provided in an underground parking garage.
3. In January 2012, a previous Zoning By-law Amendment application was approved to change the zoning to allow for three (3) fifteen-storey residential towers with an underground parking garage containing 467 parking spaces.
4. A new development concept is being proposed based on the site's location close to future LRT station at Baseline Road / Woodroffe Avenue.

Planning Comments

1. This is a pre-consultation for a Zoning By-law Amendment Application and Official Plan Amendment. Application form, timeline and fees can be found [here](#).
2. Staff have concerns with the height and density being proposed given the area context and the location of the property on the edge of the potential intensification zone around Baseline Station. The site is adjacent to a stable low-

rise residential neighbourhood that will likely not be identified for further intensification.

3. Staff have concerns that the proposed design and height does not adequately transition from the stable low rise residential neighbourhood to the west of the subject site, and heights in the range of 22 to 28 storeys at the edge of the intensification area leads to a question of how the area surrounding Baseline Station will transition up to the highest densities and heights closest to the station.
4. Staff have concerns that tower separations are not adequately being met between the towers and the property lines.
5. Further details are requested on the site layout, including drive aisles, access to underground parking garage, number of levels of underground parking and parking rate proposed for the building. Please note that this area remains under Area C parking requirements.
6. As discussed at the meeting, it remains our expectation that Fotenn will provide the city with a memo outlining the desired approach regarding the Secondary Plan. At this time, staff suggest that an OPA would be required as part of a request to permit heights and densities in the range of what is being proposed. Once the memo is provided, further direction can be given on how to structure the OPA. If the approach ends up being a request for a site specific amendment to the secondary plan policies, this request would need to be supported through a full analysis of the appropriateness of the proposal given the area context. In addition a proposed increase in height and density at the magnitude proposed will need to demonstrate clear conformance to the relevant High Rise Design Guidelines and zoning standards relating to tower separation etc.
7. It is suggested that you reach out to the Councillor's Office to discuss the proposal. As Councillor Chiarelli is technically on leave, please contact Councillor Chiarelli, Councillor Moffatt and Councillor Hubley.
8. It is suggested that you reach out to the CentrepoinTE Community Association to discuss the proposal in advance of an application being filed.
9. A zoning request to vary the development standards will be categorized as a Minor Rezoning. Please select this category in the application form if you file.
10. Current requirements relating to Section 37 and parkland dedication are in flux as a result of Bill 108. As more information becomes available, it will be shared in a subsequent email.

Engineering Comments

General

- Local Conservation Authority (RVCA) clearance is required.
- Please note that servicing and site works shall be in accordance with the following documents:
 - Ottawa Sewer Design Guidelines (October 2012)
 - Ottawa Design Guidelines-Water Distribution (July 2010)
 - Stormwater Management Planning and Design Manual, Ministry of the Environment, March 2003
 - Technical Bulletin PIEDTB-2016-01
 - Technical Bulletins ISTB-2018-01, ISTB-2018-02 and ISTB-2018-03.
 - Ottawa Design Guidelines – Water Distribution (2010)
 - Geotechnical Investigation and Reporting Guidelines for Development Applications in the City of Ottawa (2007)
 - City of Ottawa Accessibility Design Standards (2012)
 - Ottawa Standard Tender Documents (latest version)
 - Ontario Provincial Standards for Roads & Public Works (2013)

Stormwater Management Criteria:

- The project area is located with the Pinecrest Creek watershed. Any new development or redevelopment projects within the Pinecrest Creek Watershed are required to implement stormwater management measure that meet the criteria outlined in the *Stormwater Management Guidelines for the Pinecrest Creek/Westboro Area, JFSA, dated June 2012*.
- The drainage and stormwater management system shall be in accordance with the attached ***Stormwater Management Guidelines for the Pinecrest Creek/Westboro Area, JFSA, dated June 2012*** as the project is located with the Pinecrest Creek Watershed. These guidelines provide direction for the implementation of stormwater management measures (water quality, peak flow and volume control criteria) for redevelopment within the Pinecrest Creek/Westboro Area. Excerpts from this report are anticipated to be provided as supporting documentation.
- On site removal of 80% of TSS is required to be achieved and lot level /source control measures are required to be implemented in accordance with *Stormwater Management Guidelines for the Pinecrest Creek/Westboro Area, JFSA, dated June 2012*.
- As per *Technical Bulletin PIEDTB-2016-01 section 8.3.11.1 (p.12 of 14)* **there shall be no surface ponding on private parking areas during the 2-year storm rainfall event**. Depending on the SWM strategy proposed underground or additional underground storage may be required to satisfy this requirement.

- When using the modified rational method to calculate the storage requirements for the site any underground storage (pipe storage etc.) should not be included in the overall available storage. The modified rational method assumes that the restricted flow rate is constant throughout the storm which underestimates the storage requirement prior to the 1:100 year head elevation being reached. Please note that if you wish to utilize any underground storage as available storage, the $Q_{\text{(release)}}$ must be modified to compensate for the lack of head on the orifice. An assumed average release rate equal to 50% of the peak allowable rate shall be applied. Otherwise, disregard the underground storage as available storage or provide modeling to support SWM strategy.
- Please note that the minimum orifice dia. for a plug style ICD is 83mm and the minimum flow rate from a vortex ICD is 6 L/s in order to reduce the likelihood of plugging.
- Please provide a **Pre-Development Drainage Area Plan** as part of the engineering drawing set to define the pre-development drainage area(s)/patterns.
- A stress-test (100-year plus 20%) of the stormwater management system shall be preformed as per Section 8.3.12 of the City's sewer design guidelines. Drainage systems shall be stress tested using design storms calculated on the basis of a 20% increase in the City's IDF curves rainfall values.
- A stormwater summary table shall be provided in the report.

Sanitary:

- Analysis and demonstration that there is sufficient/adequate residual capacity to accommodate any increase in wastewater flows in the receiving and downstream wastewater systems are required to be provided.
- Please review the wastewater design flow parameters *in Technical Bulletin PIEDTB-2018-01*.

Water:

- The maximum fire flow capacity of a fire hydrant shall be reviewed and documented to ensure a sufficient number of fire hydrants are available to service the proposed development. Please review Technical Bulletin ISTB-2018-0. A **fire hydrant coverage plan** shall be provided.
- Please provide the following information to the City of Ottawa via email to request water distribution network boundary conditions for the subject site. Please note that once this information has been provided to the City of Ottawa it takes approximately 5-10 business days to receive boundary conditions.
 - Type of Development
 - Site Address

- A plan showing the proposed water service connection location(s).
- **Average Daily Demand** (L/s)
- **Maximum Daily Demand** (L/s)
- **Peak Hour Demand** (L/s)
- **Fire Flow** (L/min)

[Fire flow demand requirements shall be based on Fire Underwriters Survey (FUS) Water Supply for Public Fire Protection 1999]

- **FUS Fire Flow Calculations**

Geotechnical Investigation:

- A Geotechnical Study shall be prepared in support of this development proposal.
- Soil infiltration rates are to be provided to support proposed SWM infiltration measures.

Please note that these comments are considered preliminary based on the conceptual information provided to date and therefore maybe amended as additional details become available and presented to the City.

Transportation Comments

1. Follow Traffic Impact Assessment Guidelines:
 - Traffic Impact Assessment will be required.
 - Start this process asap.
 - Applicant advised that their application will not be deemed complete until the submission of the draft step 1-4, including the functional draft RMA package (if applicable) and/or monitoring report (if applicable).
 - Request base mapping asap if RMA is required. Contact Engineering Services (<https://ottawa.ca/en/city-hall/planning-and-development/engineering-services>)
2. Corner triangles as per OP Annex 1 - Road Classification and Rights-of-Way at the following locations on the final plan will be required (measure on the property line/ROW protected line; no structure above or below this triangle):
 - Collector Road to Collector Road: 5 m x 5 m
3. Sight triangle as per Zoning by-law is 6 m x 6 m measure on the curb line.
4. Noise Impact Study required for the following:
 - Road (within 100m from major collector)
 - Stationary, if there will be any exposed mechanical equipment due to the proximity to neighboring noise sensitive land uses
5. Minimum clear throat requirements, which are dependent on the number of units, should be met (TAC Table 8.9.3)

A few additional notes for the site plan:

6. 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.
7. Turning templates will be required for all accesses showing the largest vehicle to access the site; required for internal movements and at all accesses (entering and exiting and going in both directions).
8. Show all curb radii measurements; ensure that all curb radii are reduced as much as possible.
9. Show lane/aisle widths.
10. Sidewalk is to be continuous across access as per City Specification 7.1.
11. Grey out any area that will not be impacted by this application.

Urban Design Comments

1. Provide a thorough urban design analysis of the existing and planned context to demonstrate:
 - a. how does the proposed design respect and respond to the existing urban fabric?
 - b. how does the proposed design achieve the objectives of the Official Plan and the relevant design guidelines such as those for high-rise buildings and TODs, including those policies and guidelines with respect to the approach to transit-oriented development, transition, and compatibility?
2. Explore and illustrate possible built form design options that suite the proposed uses and functions. It will be useful to include a comparison with the previously approved design.
3. The project will be subject to UDRP formal review. Given the magnitude of change an addition visit to the UDRP for preconsultation is highly recommended. At the preconsultation, the focus should be on the options for site plan and built form design (rather than architecture details), including building placement, height and massing, relationship with the surroundings including transition, and site circulation.
4. The sketches circulated at the meeting were very draft. Therefore it is probably premature to provide any comment. A few points of caution:
 - a. The placement of the towers appears to create a rather imposing situation along CentrepoinTE Drive;
 - b. The tower separations barely meet the minimum requirements in the forthcoming new zoning. The City's expectation is to achieve a minimum separation of 23m and responsibilities for providing tower separations should be equally distributed amongst neighbouring properties.
 - c. The proposed heights including their distribution appear to be arbitrary.

Please refer to the links to "[Guide to preparing studies and plans](#)" and [fees](#) for general information. Additional information is available related to [building permits](#), [development charges](#), and the [Accessibility Design Standards](#). Be aware that other fees and permits

may be required, outside of the development review process. You may obtain background drawings by contacting informationcentre@ottawa.ca.

These pre-con comments are valid for one year. If you submit a development application(s) after this time, you may be required to meet for another pre-consultation meeting and/or the submission requirements may change. You are as well encouraged to contact us for a follow-up meeting if the plan/concept will be further refined.

Please contact me at mary.dickinson@ottawa.ca or at 613-580-2424 extension 13923 if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to be 'MD' followed by a long horizontal stroke.

Mary Dickinson MCIP RPP
Planner II
Development Review - West

Charlotte Kelly

From: Eric Lalande <eric.lalande@rvca.ca>
Sent: November 20, 2019 10:30 AM
To: Charlotte Kelly; Jamie Batchelor
Cc: Alison Gosling; Jamie Batchelor
Subject: RE: Quality Control Requirements - 19 Centrepointhe Drive

Hi Charlotte,

The RVCA will require enhanced water quality protection (Min. 80% TSS removal) for the proposed development. Opportunities to integrate best management practices and low impact design are encouraged. Please address how water quality will be achieved for this project within the Stormwater management report for this project.

Thank you,

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

From: Charlotte Kelly <CKelly@dsel.ca>
Sent: Tuesday, November 19, 2019 5:07 PM
To: Jamie Batchelor <jamie.batchelor@rvca.ca>; Eric Lalande <eric.lalande@rvca.ca>
Cc: Alison Gosling <AGosling@dsel.ca>
Subject: Quality Control Requirements - 19 Centrepointhe Drive

Good Afternoon Jamie and Eric,

We wanted to touch base with you regarding a development at 19 Centrepointhe Drive

The existing site conditions consist of a grassed and treed lot as demonstrated in **Figure 1**, below.

The development involves the construction of three 24-storey residential buildings including an access drive aisle, as shown in the contemplated site plan attached. Based on the information available, the development will discharge stormwater to the 375 mm diameter storm sewer within Gemini Way and will travel approximately **690 m** to an outlet within the Pinecrest Creek as shown by **Figure 2** below.

We anticipate that quality controls will be required as the development proposes to convert existing grassed area to buildings and a drive aisle and is located within the Pinecrest Creek sub-watershed. Can you please review and provide recommendations?

Please feel free to contact me to discuss.



Figure 1: Existing Site Limits

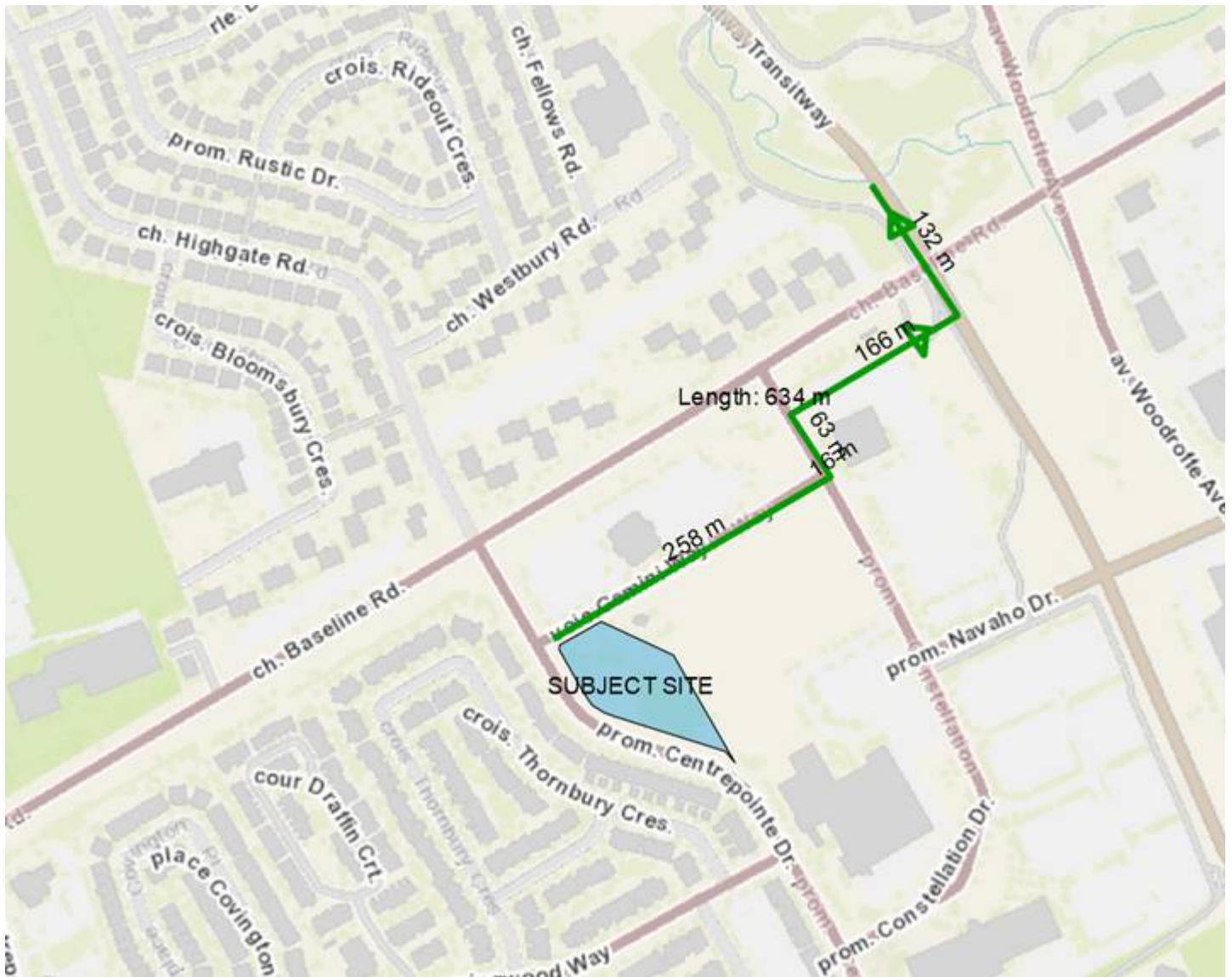


Figure 2: Distance to Outlet

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

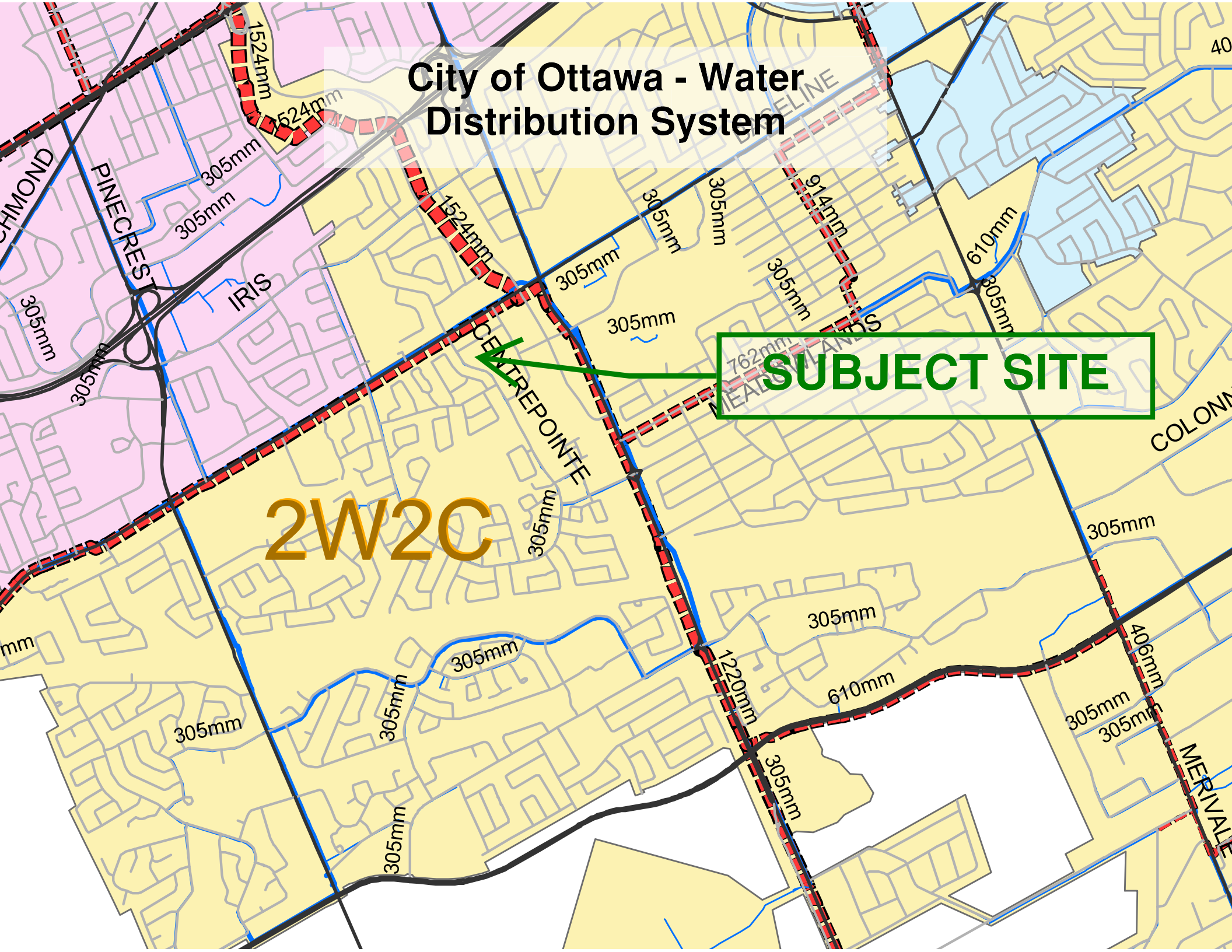
email: ckelly@dssel.ca

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APPENDIX B

Water Supply

City of Ottawa - Water Distribution System



SUBJECT SITE

2W2C

19 CENTREPOINTE DRIVE
EXISTING FIRE HYDRANT FIGURE



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	329	461
1 Bedroom + Den	2.1	81	171
2 Bedroom	2.1	257	540
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	1172	328.2	227.9	820.4	569.7	1804.9	1253.4

Institutional / Commercial / Industrial Demand

Property Type	Unit Rate	Units	Avg. Daily		Max Day		Peak Hour	
			m ³ /d	L/min	m ³ /d	L/min	m ³ /d	L/min
Amenity floor space	2.5 L/m ² /d	2,001	5.00	3.5	7.5	5.2	13.5	9.4
Total I/CI Demand			5.0	3.5	7.5	5.2	13.5	9.4
Total Demand			333.2	231.4	827.9	574.9	1818.4	1262.8

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:

Non-Combustible Construction

C 0.8

Type of Construction Coefficient per FUS Part II, Section 1

A 16506.0

m² Total floor area based on FUS Part II section 1

Fire Flow

22611.7 L/min

23000.0 L/min rounded to the nearest 1,000 L/min

Adjustments

2. Reduction for Occupancy Type

Limited Combustible

-15%

Fire Flow

19550.0 L/min

3. Reduction for Sprinkler Protection

Sprinklered - Supervised

-50%

Reduction

-9775 L/min

4. Increase for Separation Distance

Cons. of Exposed Wall

N Wood Frame

S.D

>45m

Lw

Ha

LH

EC

0 0%

S Non-Combustible

3.1m-10m

30

24

720 20%

E Wood Frame

10.1m-20m

11

1

11 12%

W Wood Frame

30.1m-45m

37.45

2

75 5%

% Increase

37% value not to exceed 75%

Increase

7233.5 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

17008.5 L/min

17000.0 L/min fire flow not to exceed 45,000 L/min nor be less than 2,000 L/min per FUS Section 1 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

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:

Non-Combustible Construction

C 0.8 Type of Construction Coefficient per FUS Part II, Section 1
A 34419.8 m² Total floor area based on FUS Part II section 1

Fire Flow	32652.5 L/min
	33000.0 L/min rounded to the nearest 1,000 L/min

Adjustments

2. Reduction for Occupancy Type

Limited Combustible -15%

Fire Flow	28050.0 L/min
-----------	----------------------

3. Reduction for Sprinkler Protection

Sprinklered - Supervised -50%

Reduction	-14025 L/min
-----------	---------------------

4. Increase for Separation Distance

Cons. of Exposed Wall	S.D	Lw	Ha	LH	EC	
N Non-Combustible	10.1m-20m	30	24	720	15%	
S Non-Combustible	>45m	0	0	0	0%	
E Wood Frame	>45m	0	0	0	0%	
W Wood Frame	30.1m-45m	72	2	144	5%	
	% Increase				20%	value not to exceed 75%

Increase	5610.0 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	19635.0 L/min	fire flow not to exceed 45,000 L/min nor be less than 2,000 L/min per FUS Section 4 rounded to the nearest 1,000 L/min
	20000.0 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

Connection 1 (Gemini Way)
Grnd Elev 85.5

	Height	m H ₂ O	PSI	kPa
Avg. Day	134.5	49	69.7	480.7
Peak Hour	127.5	42	59.8	412.0
Max Day + FF	102	16.5	23.5	161.9

Connection 1 (Centrepont Drive)
Grnd Elev 85.5

	Height	m H ₂ O	PSI	kPa
Avg. Day	134.5	49	69.7	480.7
Peak Hour	127.5	42	59.8	412.0
Max Day + FF	121.5	36	51.2	353.2

Charlotte Kelly

From: Alison Gosling
Sent: November 12, 2019 2:19 PM
To: Charlotte Kelly
Subject: FW: Boundary Condition Request - 19 Centrepont Drive (19-1045)
Attachments: 19 Centrepont Nov 2019.pdf

FYI

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
cell: (343) 542-9218
email: agosling@dsel.ca

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From: Elsayed, Ahmed <ahmed.elsayed@ottawa.ca>
Sent: November 12, 2019 1:53 PM
To: Alison Gosling <AGosling@dsel.ca>
Subject: FW: Boundary Condition Request - 19 Centrepont Drive (19-1045)

Hi Alison,

Attached is the boundary condition as requested.

Regards,

Ahmed Elsayed, P. Eng.

Project Manager, Infrastructure Approvals

Planning, Infrastructure and Economic Development Dept.

City of Ottawa

☎ 613.580.2400 ext. 21206

From: Khawam, Walid <Walid.Khawam@ottawa.ca>
Sent: November 12, 2019 1:04 PM
To: Elsayed, Ahmed <ahmed.elsayed@ottawa.ca>
Subject: RE: Boundary Condition Request - 19 Centrepont Drive (19-1045)

The following are boundary conditions, HGL, for hydraulic analysis at 19 Centrepointhe Drive (zone 2W) assumed to be connected to the 305mm on Centrepointhe and 203mm on Gemini Way (see attached PDF for location).

Minimum HGL = 127.5m

Maximum HGL = 134.5m

MaxDay + FireFlow (333L/s) = 102.0m at Gemini connection

MaxDay + FireFlow (333L/s) = 121.5m at Centrepointhe connection

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.

Walid Khawam, P.Eng.

Water Resources Engineer
Planning and Infrastructure Portfolio
City of Ottawa
P: 613-580-2424 Ext. 16658

From: Tousignant, Eric <Eric.Tousignant@ottawa.ca>
Sent: 2019/11/08 9:48 AM
To: Khawam, Walid <Walid.Khawam@ottawa.ca>
Cc: Elsayed, Ahmed <ahmed.elsayed@ottawa.ca>
Subject: FW: Boundary Condition Request - 19 Centrepointhe Drive (19-1045)

Hi Walid

Can you provide the water boundary conditions noted below?

Thanks
Eric

From: Elsayed, Ahmed <ahmed.elsayed@ottawa.ca>
Sent: November 08, 2019 9:45 AM
To: Tousignant, Eric <Eric.Tousignant@ottawa.ca>
Subject: FW: Boundary Condition Request - 19 Centrepointhe Drive (19-1045)

Good morning Eric,

For hereunder, can you please provide me with the boundary condition?

Also if you have any other concerns about the project please let me know.

Regards,

Ahmed Elsayed, P. Eng.

Project Manager, Infrastructure Approvals

Planning, Infrastructure and Economic Development Dept.

City of Ottawa

☎ 613.580.2400 ext. 21206

From: Charlotte Kelly <CKelly@dsel.ca>

Sent: November 06, 2019 5:50 PM

To: Elsayed, Ahmed <ahmed.elsayed@ottawa.ca>

Cc: Alison Gosling <AGosling@dsel.ca>

Subject: Boundary Condition Request - 19 Centrepont Drive (19-1045)

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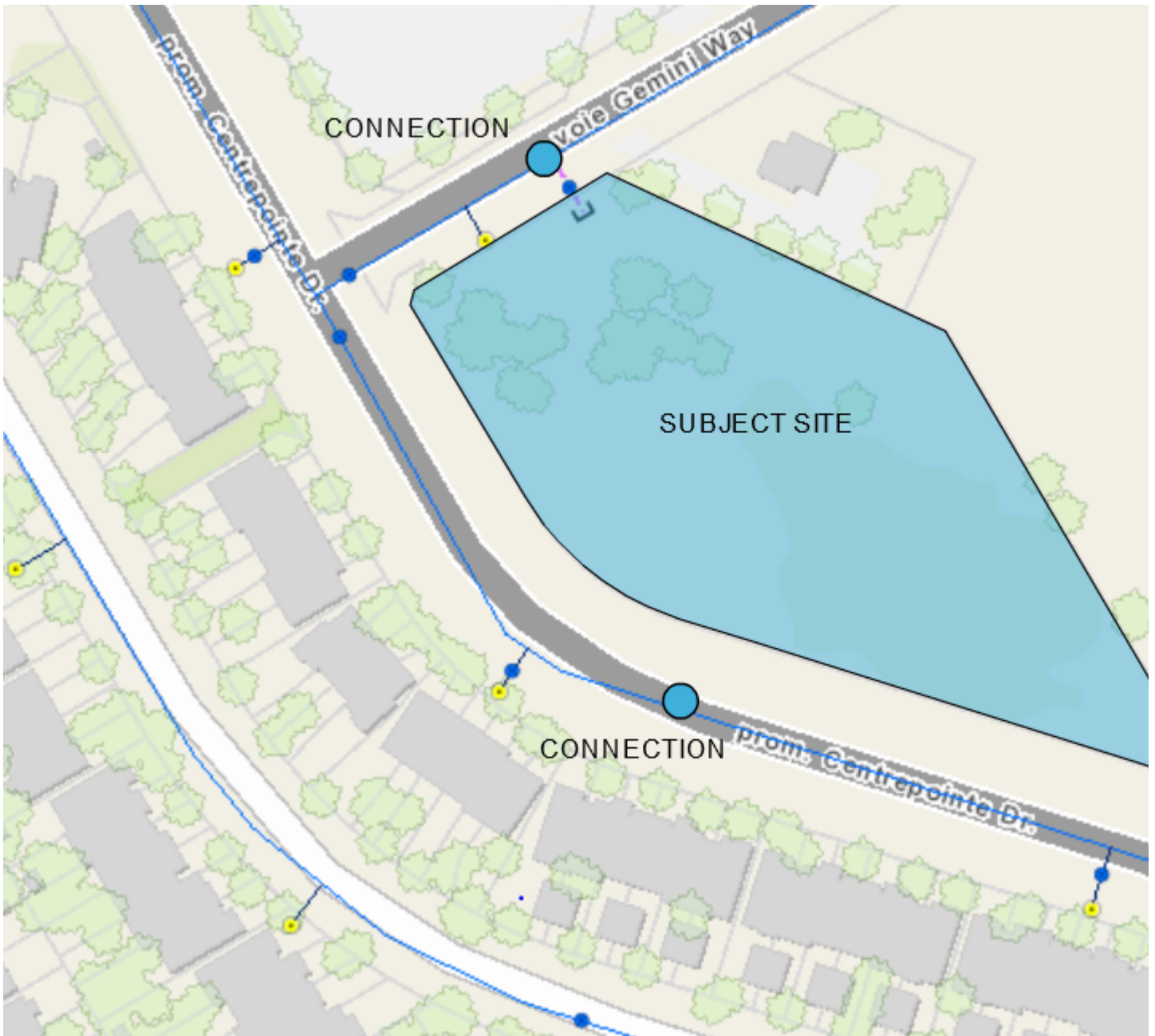
Good Afternoon Ahmed,

We would like to request water boundary conditions for 19 Centrepont Drive using the following contemplated development demands:

1. Location of Service / Street Number: Gemini Way / Centrepont Drive
2. Type of development and the amount of fire flow required for the proposed development:
 - The development would include approximately **2001 m²** of amenity space **667 units** divided between **three** 24-storey residential condominium / rental buildings.
 - It is anticipated that the development will have a dual connection to be serviced from the existing 203mm diameter watermain within Gemini Way and the existing 305mm diameter watermain within Centrepont Drive, 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 **20,000 L/min**. Refer to the attached for detailed calculations.

Demand	L/min	L/s
Avg. Daily	231.4	3.86
Max Day	574.9	9.58
Peak Hour	1262.8	21.05

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@dse.ca

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'

Boundary Condition for 19 Centrepointhe Drive

Legend

Pipe Ownership

Ownership

— Private

— Public

Legend

Pipe Ownership

Ownership

— Private

— Public

Legend

Pipe Ownership

Ownership

— Private

— Public

Legend

Pipe Ownership

Ownership

— Private

— Public

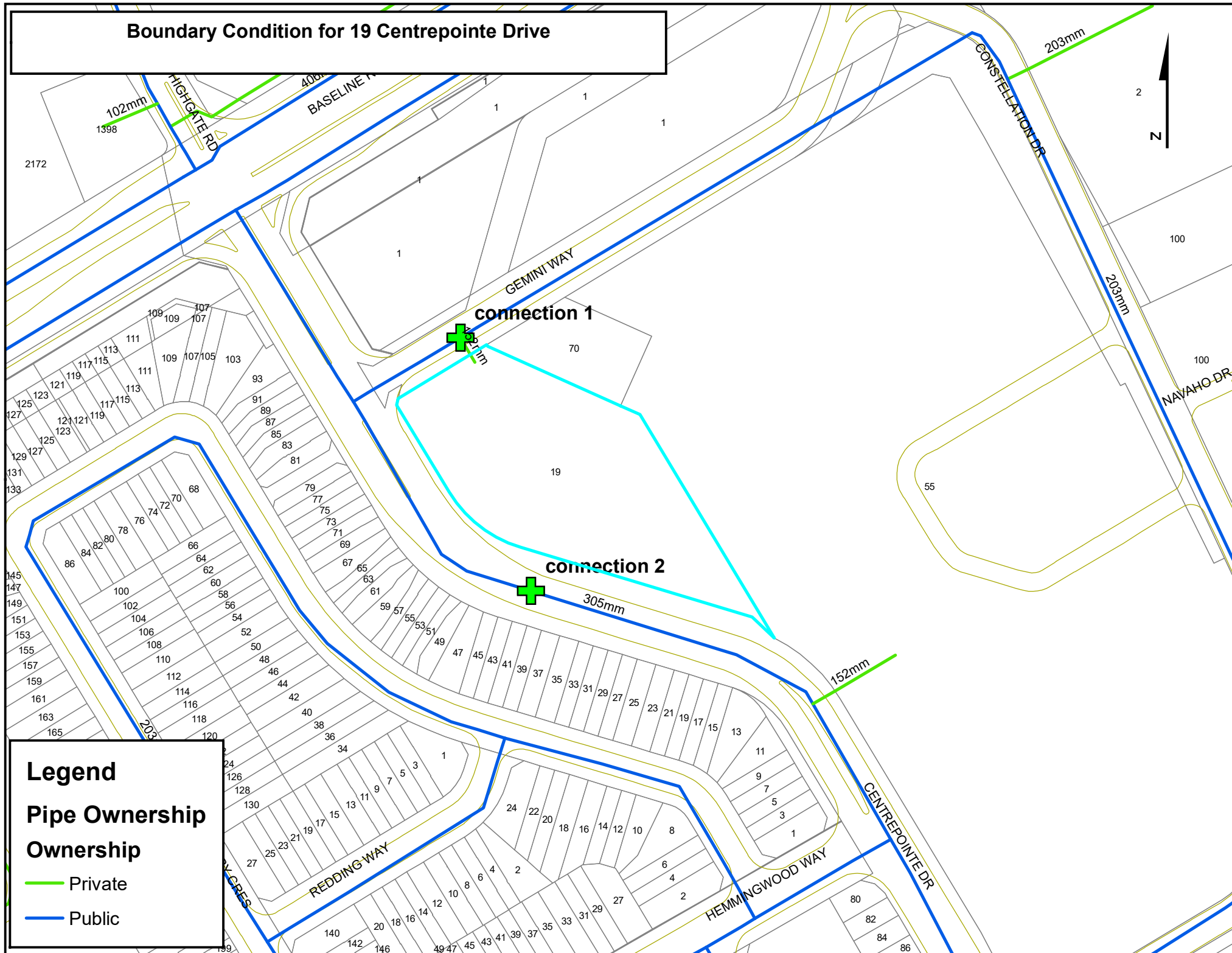
Legend

Pipe Ownership

Ownership

— Private

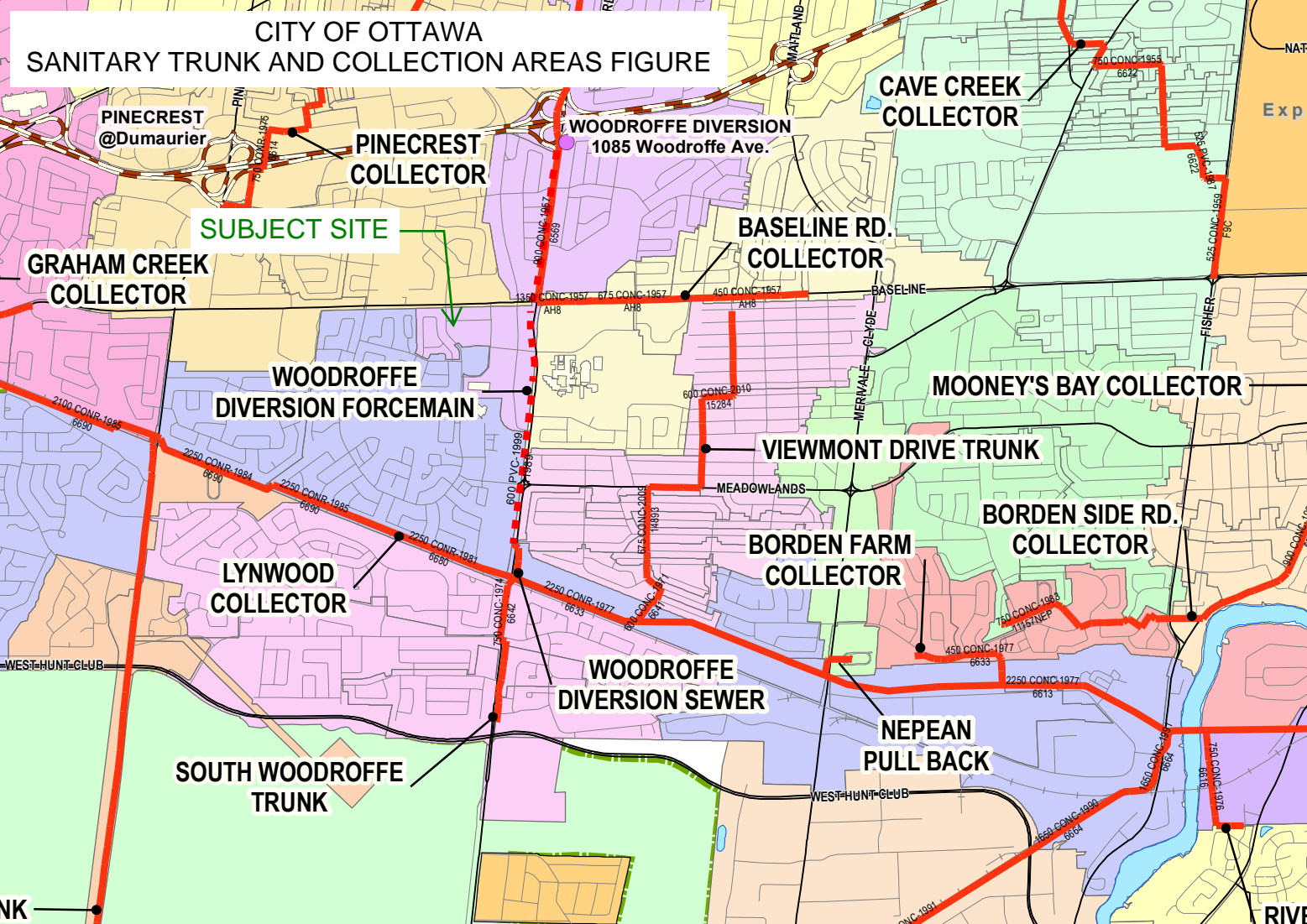
— Public



APPENDIX C

Wastewater Collection

CITY OF OTTAWA SANITARY TRUNK AND COLLECTION AREAS FIGURE



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



Site Area 0.755 ha

Extraneous Flow Allowances

Infiltration / Inflow (Dry)	0.04 L/s
Infiltration / Inflow (Wet)	0.21 L/s
Infiltration / Inflow (Total)	0.25 L/s

Domestic Contributions

Unit Type	Unit Rate	Units	Pop
Apartment			
1 Bedroom	1.4	329	461
1 Bedroom + Den	2.1	81	171
2 Bedroom	2.1	257	540
Total Pop			1172
Average Domestic Flow			3.80 L/s
Peaking Factor			3.20
Peak Domestic Flow			12.17 L/s

Institutional / Commercial / Industrial Contributions

Property Type	Unit Rate	No. of Units	Avg Wastewater (L/s)
Amenity Space*	5 L/m ² /d	2,001	0.23
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			0.23
Peak Institutional / Commercial Flow			0.23
Peak Industrial Flow**			0.00
Peak I/C/I Flow			0.23

* assuming a 12 hour commercial operation

Total Estimated Average Dry Weather Flow Rate	4.07 L/s
Total Estimated Peak Dry Weather Flow Rate	12.44 L/s
Total Estimated Peak Wet Weather Flow Rate	12.65 L/s

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



Site Area 0.755 ha

Extraneous Flow Allowances

Infiltration / Inflow 0.28 L/s/ha
Infiltration / Inflow 0.21 L/s

**Infiltration rate per Dillon FSS*

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	88	124
2 Bedroom	2.1	74	156
3 Bedroom	3.1	24	75
Average	1.8		0

Total Pop 355

Average Domestic Flow 1.44 L/s

**Residential flow rate per Dillon FSS*

Peaking Factor 4.00

**Harmon's Correction per Dillon FSS*

Peak Domestic Flow 5.75 L/s

Total Estimated Average Dry Weather Flow Rate	1.44 L/s
Total Estimated Peak Dry Weather Flow Rate	5.75 L/s
Total Estimated Peak Wet Weather Flow Rate	5.96 L/s

***CentrepoinTE Town Centre Functional Servicing Study
Excerpts***

Dillon Consulting Ltd., November 2008.
(DILLON FSS)

Project Name: CTC Functional Servicing Study
Project No: 08-9557

Using Harmon Formula=	Y	(Y or N)
From a Table=	N	
Value from table=		

184.700

or

Note:

- Dillon Consulting Limited

APPENDIX D

Stormwater Management

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



Existing Drainage Characteristics From Internal Site

Area	0.7548 ha
C	0.20 Rational Method runoff coefficient
L	169 m
Up Elev	86.06 m
Dn Elev	83.5 m
Slope	1.5 %
Tc	33.2 min

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	37.4	50.3	85.6 mm/hr
Q	15.7	21.1	44.9 L/s

Stormwater - Proposed Development
City of Ottawa Sewer Design Guidelines, 2012



Site Allowable Release Rate 0.755 ha
Q 33.5 L/s/ha
Q 25.3 L/s * Release rate as established by Stormwater Management Guidelines for the Pinecrest Creek/Westboro Area

Estimated Post Development Peak Flow from Unattenuated Areas

Total Area 0.038 ha
C 0.70 Rational Method runoff coefficient

t _c (min)	5-year					100-year				
	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	7.6	7.6	0.0	0.0	178.6	16.4	16.4	0.0	0.0

Estimated Post Development Peak Flow from Attenuated Areas

Total Area 0.717 ha
C 0.80 Rational Method runoff coefficient

t _c (min)	5-year					100-year				
	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	225.0	4.1	220.8	66.2	242.7	483.4	8.9	474.5	142.4
10	104.2	166.0	4.2	161.9	97.1	178.6	355.7	8.9	346.8	208.1
15	83.6	133.1	4.2	129.0	116.1	142.9	284.6	8.9	275.7	248.1
20	70.3	111.9	4.2	107.8	129.3	120.0	238.9	8.9	230.0	276.0
25	60.9	97.0	4.2	92.9	139.3	103.8	206.8	8.9	197.9	296.9
30	53.9	85.9	4.2	81.7	147.1	91.9	183.0	8.9	174.1	313.3
35	48.5	77.3	4.2	73.1	153.6	82.6	164.5	8.9	155.6	326.7
40	44.2	70.4	4.2	66.2	158.9	75.1	149.7	8.9	140.8	337.8
45	40.6	64.7	4.2	60.5	163.5	69.1	137.5	8.9	128.6	347.3
50	37.7	60.0	4.2	55.8	167.4	64.0	127.4	8.9	118.5	355.4
55	35.1	56.0	4.2	51.8	170.8	59.6	118.8	8.9	109.9	362.5
60	32.9	52.5	4.2	48.3	173.9	55.9	111.3	8.9	102.4	368.7
65	31.0	49.5	4.2	45.3	176.5	52.6	104.9	8.9	96.0	374.2
70	29.4	46.8	4.2	42.6	178.9	49.8	99.2	8.9	90.3	379.1
75	27.9	44.4	4.2	40.2	181.1	47.3	94.1	8.9	85.2	383.5
80	26.6	42.3	4.2	38.1	183.0	45.0	89.6	8.9	80.7	387.4
85	25.4	40.4	4.2	36.2	184.7	43.0	85.6	8.9	76.7	390.9
90	24.3	38.7	4.2	34.5	186.3	41.1	81.9	8.9	73.0	394.1
95	23.3	37.1	4.2	32.9	187.7	39.4	78.5	8.9	69.6	397.0
100	22.4	35.7	4.2	31.5	189.0	37.9	75.5	8.9	66.6	399.5
105	21.6	34.4	4.2	30.2	190.1	36.5	72.7	8.9	63.8	401.9

5-year Q_{attenuated} 4.21 L/s
5-year Max. Storage Required 190.1 m³
100-year Q_{attenuated} 8.91 L/s
100-year Max. Storage Required 401.9 m³

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	7.6	0.0	16.4	0.0
Attenuated Areas	4.2	190.1	8.9	401.9
Total	11.9	190.1	25.3	401.9

DRAWINGS / FIGURES



GROSS FLOOR AREA TOWER A		GROSS FLOOR AREA TOWER B		GROSS FLOOR AREA TOWER C	
GFA GROUND - LEVEL 3 :	11361x 3 = 34083 SQ. FT.	GFA GROUND - LEVEL 3 :	11557 x 3 = 34671 SQ. FT.	SIMILAR TO TOWER B	
	6930 x 10 = 69300 SQ. FT.	GFA LEVEL4-7 AND 19 -22 :	7160 x8= 57280 SQ. FT.		
	7170 x 9 = 64530 SQ. FT.	GFA LEVEL8-9 :	7391 x 2= 14782 SQ. FT.		
	4878 x 2 = 9756 SQ. FT.	GFA LEVEL 10-16 :	7635 x 7= 53445 SQ. FT.		
	GFA LEVEL 17-18 :	7404 x 2= 14808 SQ. FT.			
	GFA LEVEL 23-24 :	5130 x 2= 10260 SQ. FT.			
TOTAL GFA :	177669 SQ.FT.		185246 SQ. FT.	185246 SQ. FT.	
TOTAL GFA : 548161 SQ. FT.					
NUMBER OF CAR PARKING P1 - P2 - P3 - P4	45 x 4 = 180	NUMBER OF CAR PARKING P1 - P2 - P3 - P4	47 X 4 = 188	47 X 4 = 188	
TOTAL : 556					
NUMBER OF BYCICLE PARKING P1 - P2 - P3 - P4	34 x 4 = 136	NUMBER OF BYCICLE PARKING P1 - P2 - P3 - P4	60 X 4 = 240	60 X 4 = 240	
TOTAL : 616					
NUMBER OF 1 BEDROOMS	100	NUMBER OF 1 BEDROOMS	229		
NUMBER OF 1 BEDROOMS+DEN	24	NUMBER OF 1 BEDROOMS+DEN	57		
NUMBER OF 2 BEDROOMS	94	NUMBER OF 2 BEDROOMS	163		
NUMBER OF UNITS	218	NUMBER OF UNITS	449		
TOTAL NUMBER OF UNITS 667					