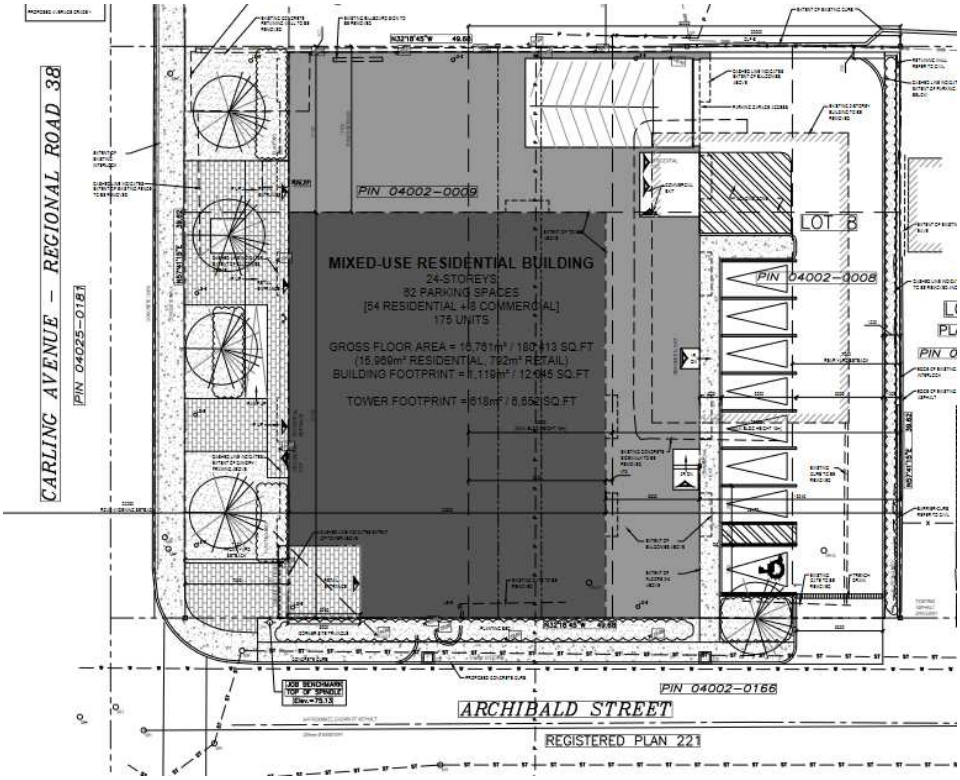
SERVICING & STORMWATER MANAGEMENT REPORT
1330 CARLING AVENUE & 815 ARCHIBALD STREET



Project No.: CO-22-1853

City File No.: D07-12-20-0063

Prepared for:

1343678 Ontario Ltd.
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March 22nd, 2022

McINTOSH PERRY

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1.0 PROJECT DESCRIPTION

1.1 Purpose

McIntosh Perry (MP) has been retained by 1343678 Ontario Ltd. to prepare this Servicing and Stormwater Management Report in support of the Zoning By-Law Amendment and Site Plan Control process for the proposed development located at 1330 Carling Avenue and 815 Archibald Street within the City of Ottawa (City File No. D07-12-20-0063).

The main purpose of this report is to demonstrate that the proposed servicing and stormwater management design for the development follows the recommendations and guidelines provided by the City of Ottawa (City), the Rideau Valley Conservation Authority (RVCA), and the Ministry of the Environment, Conservation and Parks (MECP). This report will address access to water, sanitary and storm servicing for the site, ensuring that existing services will adequately service the proposed development.

This report should be read in conjunction with the following drawings:

- CO-22-1853, C101 – Grading and Drainage Plan
- CO-22-1853, C102 – Site Servicing Plan
- CO-22-1853, C103 – Sediment & Erosion Control Plan
- CO-22-1853, PRE – Pre-Development Drainage Area Plan (***Appendix E***)
- CO-22-1853, POST – Post-Development Drainage Area Plan (***Appendix F***)

1.2 Site Description

Figure 1: Site Map

The subject property, herein referred to as the site, is located at 1330 Carling Avenue and 815 Archibald Street within the River Ward. The site covers approximately ***0.168 ha*** and is located at the intersection of Carling Avenue and Archibald Street. The site is zoned for Arterial Mainstreet use (AM10). See Site Location Plan in ***Appendix 'A'*** for more details.

1.3 Proposed Development and Statistics

The proposed development consists of a ***16,025 m²*** mixed-use building containing ***175*** residential units and ***786 m²*** of ground floor retail space. Surface parking is provided off the main drive aisle which also provides access to the underground parking garage. The drive aisle is accessible from Archibald Street. Refer to ***Site Plan*** prepared by figurr Architects Collective and included in ***Appendix B*** for further details.

1.4 Existing Conditions and Infrastructures

The site is currently developed as an auto sales dealership with associated asphalt parking lot, encompassing both property parcels. Storm services exist within the parking area and will be removed or relocated to accommodate the proposed development. Further details will be discussed in *Section 6.0*.

As coordinated with City staff, as part of the previous submission the local storm sewer system has a local spill point of 74.31 m located at the intersection of Archibald and Carling. To ensure the development is sufficiently protected, infrastructure and finished floor grades will be above this elevation.

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(s):

- Carling Avenue
  - 406 mm diameter PVC watermain,
  - 1220 mm diameter STC backbone watermain,
  - 900 mm diameter concrete Cave Creek Collector sanitary sewer,
  - 1800 mm diameter concrete Cave Creek Trunk Collector storm tunnel, and a
  - 2100 mm diameter concrete West Hintonburg storm tunnel.

- Archibald Street
  - 152 mm diameter UCI watermain,
  - 225 mm diameter concrete sanitary sewer tributary to the Cave Creek Collector,
  - 900 mm diameter concrete storm sewer tributary to both the Cave Creek storm tunnel and the West Hintonburg storm tunnel, and a
  - 675 mm diameter concrete storm sewer tributary to the West Hintonburg storm tunnel.

Based on coordination with City staff, remnants of abandoned storm and sanitary trunk sewers cross the site. The proposed development may require removal of these services.

1.5 Approvals

The proposed development is subject to the City of Ottawa site plan control approval process. Site plan control requires the City to review, provided concurrence and approve the engineering design package. Permits to construct can be requested once the City has issued a site plan agreement.

Based on coordination with City of Ottawa staff, an Environmental Compliance Approval (***ECA***) through the Ministry of Environment, Conservation and Parks (***MECP***) is not required for the development since the parcels of land are expected to be amalgamated into a single parcel. As a result, the stormwater management system meets the exemption requirements under O.Reg 525/90.

2.0 BACKROUND STUDIES, STANDARDS, AND REFERENCES

2.1 Background Reports / Reference Information

As-built drawings of existing services, provided by the City of Ottawa Information centre, within the vicinity of the proposed site were reviewed in order to identify infrastructure available to service the proposed development.

A topographic survey (20260-19) of the site was completed by Annis, O'Sullivan, Vollebekk Ltd and dated March 9th, 2020.

The Site Plan (A-105) was prepared by figurr Architects Collective and dated March 11th, 2022 (***Site Plan***).

2.2 Applicable Guidelines and Standards

City of Ottawa:

- Ottawa Sewer Design Guidelines, City of Ottawa, SDG002, October 2012. (***Ottawa Sewer Guidelines***)
  - Technical Bulletin ISTB-2014-01 City of Ottawa, February 2014***. (ISTB-2014-01)***
  - Technical Bulletin PIEDTB-2016-01 City of Ottawa, September 2016. ***(PIEDTB-2016-01)***
  - Technical Bulletin ISTB-2018-01 City of Ottawa, January 2018***. (ISTB-2018-01)***
  - Technical Bulletin ISTB-2018-03 City of Ottawa, March 2018. ***(ISTB-2018-03)***
  - Technical Bulletin ISTB-2019-01 City of Ottawa, January 2019. ***(ISTB-2019-01)***
  - Technical Bulletin ISTB-2019-02 City of Ottawa, February 2019. ***(ISTB-2019-02)***
- Ottawa Design Guidelines – Water Distribution City of Ottawa, July 2010. (***Ottawa Water Guidelines***)
  - Technical Bulletin ISD-2010-2 City of Ottawa, December 15, 2010. ***(ISD-2010-2)***
  - Technical Bulletin ISDTB-2014-02 City of Ottawa, May 2014. **(ISDTB-2014-02)**
  - Technical Bulletin ISTB-2018-02 City of Ottawa, March 2018. ***(ISTB-2018-02)***

Ministry of Environment, Conservation and Parks:

- Stormwater Planning and Design Manual, Ministry of the Environment, March 2003. ***(MECP Stormwater Design Manual)***
- Design Guidelines for Sewage Works, Ministry of the Environment, 2008. (***MECP Sewer Design Guidelines***)

3.0 PRE-CONSULTATION SUMMARY

A pre-consultation email was provided by City staff on December 30th, 2019 regarding the proposed site servicing. Specific design parameters to be incorporated within this design include the following:

- Pre-development and post-development flows shall be calculated using a time of concentration (Tc) no less than 10 minutes.
- Control 5 through 100-year post-development flows to the 2-year pre-development flows with a combined C value to a maximum of 0.50.
- Quality control are not required for this site due to the site's distance from the outlet, per RVCA requirements.

4.0 WATERMAIN

4.1 Existing Watermain

The site is located within the 2W2C pressure zone, as shown by the Water Distribution System figure included in ***Appendix C***. There is an existing 152 mm diameter watermain within Archibald Street and an existing 406 mm diameter watermain within Carling Avenue available to service the site.

4.2 Proposed Watermain

In accordance with Section 4.3.1 of the ***Ottawa Water Guidelines***, service areas with a basic day demand greater than 50 m^3/day require a dual connection to the municipal system. A dual connection to the 152 mm diameter watermain within Archibald Street is proposed to provide a redundant connection to the development.

It is proposed to connect two 150 mm diameter water services with a water valves located at the property line to the existing infrastructure. The water services are designed to have a minimum of 2.4 m cover. Refer to drawing ***C102*** for a detailed servicing layout.

The Fire Underwriters Survey 1999 (FUS) method was utilized to estimate the required fire flow for the site. Fire flow requirements were calculated per City of Ottawa Technical Bulletin ***ISTB-2018-02***. The following parameters were coordinated with the architect.

- Type of construction – Fire Resistive Construction (Modified)
- Occupancy Type – Limited Combustibility
- Sprinkler Protection – Fully Supervised Sprinkler System

The results of the calculations yielded a required fire flow of ***14,000 L/min*** (233.33 L/s). The detailed calculations for the FUS can be found in ***Appendix C***.

A required fire flow of ***9,000 L/min*** (150 L/s) was calculated using the Ontario Building Code (OBC) requirements. The detailed calculations for the OBC can be found in ***Appendix C***.

The water demands for the proposed building have been calculated to adhere to the ***Ottawa Water Guidelines*** and can be found in ***Appendix C***. The results have been summarized below:

Table 1: Water Supply Design Criteria and Water Demands

Site Area	0.197 ha
Residential Bachelor Apartment	1.4 persons/unit
Residential 1 Bedroom Apartment	1.4 persons/unit
Residential 2 Bedroom Apartment	2.1 persons/unit
Commercial Space	28,000 L/gross ha/day
Residential Maximum Daily Peaking Factor	3.6 x avg day
Residential Maximum Hour Peaking Factor	5.4 x avg day
Commercial Maximum Daily Peaking Factor	1.5 x avg day
Commercial Maximum Hour Peaking Factor	1.8 x max day
Average Day Demand (L/s)	1.01
Maximum Daily Demand (L/s)	3.57
Peak Hourly Demand (L/s)	5.37
FUS Fire Flow Requirement (L/s)	233.33 (14,000 L/min)
OBC Fire Flow Requirement (L/s)	150 (9,000 L/min)

The City provided the estimated water pressures at both for the average day scenario, peak hour scenario and the max day plus fire flow scenario for the demands indicated by the correspondence in ***Appendix C***. ***Table 2***, below, summarizes the available boundary condition results.

Table 2: Boundary Conditions Results

Scenario	Proposed Demands (L/s)	HGL (m H_2O)/kPa
Average Day Demand	1.01	60.8 / 596.3
Maximum Daily + Fire Flow Demand (233.3 L/s)	236.90	29.9 / 293.2
Maximum Daily + Fire Flow Demand (150 L/s)	153.57	44.0 / 431.5
Peak Hourly Demand	5.37	52.5 / 514.9
**Adjusted for an estimated ground elevation of 71.91m for Archibald St.*		

The normal operating pressure range is anticipated to be 515 kPa to 596 kPa and will not be less than 275 kPa (40 psi) or exceed 689 kPa (100 psi). The proposed watermains will meet the minimum required 20 psi (140 kPa) from the ***Ottawa Water Guidelines*** at the ground level under maximum day demand and fire flow conditions. A pressure reducing valve (PRV) is anticipated to be required for the site since the pressure is anticipated to exceed 552 kPa (80 psi) in the average day scenario. A pressure test is required during construction to confirm PRV requirements.

To confirm the adequacy of fire flow to protect the proposed development, public and private fire hydrants within 150 m of the proposed building were analysed per City of Ottawa ***ISTB 2018-02*** Appendix I Table 1. The results are summarized below.

Table 3: Fire Protection Confirmation

Building	Fire Flow Demand (L/min.)	Fire Hydrant(s) within 75m	Fire Hydrant(s) within 150m	Combined Fire Flow (L/min.)
1330 Carling Ave, 815 Archibald	14,000 (FUS) 9,000 (OBC)	2 public	2 public	18,600

Based on City guidelines (***ISTB-2018-02***), the existing and proposed hydrants can provide adequate fire protection to the proposed development.

5.0 SANITARY DESIGN

5.1 Existing Sanitary Sewer

The site is located within the Cave Creek Collector sewer catchment area. There is an existing 225 mm diameter concrete sanitary sewer within Archibald Street available to service the development. In addition, the Cave Creek Collector sewer is located within Carling Avenue.

5.2 Proposed Sanitary Sewer

A new 200 mm diameter gravity sanitary service will be connected to the existing 225 mm diameter sanitary sewer within Archibald Street. As previous noted, the municipal sanitary sewer is connected directly to the Cave Creek Collector sewer.

Table 4, below, summarizes the wastewater design criteria identified by the ***Ottawa Sewer Guidelines***.

Table 4: Sanitary Design Criteria

Design Parameter	Value
Site Area	0.197 ha
Residential Bachelor Apartment	1.4 persons/unit
Residential 1 Bedroom Apartment	1.4 persons/unit
Residential 2 Bedroom Apartment OR 1 Bedroom + Den	2.1 persons/unit
Residential 3 Bedroom Apartment OR 2 Bedroom + Den	3.1 persons/unit
Residential Unit Rate	280 L/person/day
Commercial Unit Rate	28,000 L/gross ha/day
Residential Peaking Factor	3.46
Commercial Peaking	1.0
Extraneous Flow Allowances	0.33 L/s/ha

Table 5, below, summarizes the estimated wastewater flow from the proposed development. The estimated peak wet weather flow for residential is ***3.40 L/s***, for commercial is ***0.03 L/s***, and for the extraneous flows is ***0.06 L/s***. Refer to ***Appendix D*** for detailed calculations.

Table 5: Summary of Estimated Sanitary Flow

Design Parameter	Total Flow (L/s)
Total Estimated Average Dry Weather Flow	1.02
Total Estimated Peak Dry Weather Flow	3.43
Total Estimated Peak Wet Weather Flow	3.49

As noted above, the development is proposed to be serviced by a connection to the existing 225 mm diameter sanitary sewer with Archibald Street which is connected directly to the Cave Creek Collector sewer. Based on coordination with City Asset Management staff, there are no flow or capacity concerns along Archibald and therefore the proposed demand can be accommodated. Refer to ***Appendix D*** for correspondence with City staff.

The full flowing capacity of a 200 mm diameter service at a 1% slope is estimated to be ***32.8 L/s***. Per ***Table 5***, a peak wet weather flow of ***3.49 L/s*** will be conveyed within the 200 mm diameter service and is therefore sufficient sized for the development.

Based on coordination with City staff, remnants of an abandoned sanitary trunk sewer cross the site. The proposed development may require removal of these services.

6.0 STORM SEWER DESIGN

6.1 Existing Storm Sewers

Stormwater runoff from the site is currently tributary to the Ottawa River within the Ottawa Central sub-watershed. There is an existing 675 mm and 900 mm diameter storm sewer within Archibald Street. In addition, the 1800 mm diameter Cave Creek collector storm tunnel and the 2100 mm diameter West Hintonburg storm tunnel are located adjacent to the site within Carling Avenue.

6.2 Proposed Storm Sewers

A new 250 mm diameter storm service is proposed to be extended from the existing 675 mm diameter storm sewer within Archibald Street. Runoff collected on the roof of the proposed building and within the rear yard parking area will be collected and controlled internally using an internal cistern unit. Roof drains will collect drainage, however, they are not proposed to provide flow attenuation. Parking lot drainage is proposed to be collected by a trench drain, which will offer a larger surface area for water collection compared to a standard drain.

Foundation drainage is proposed to be conveyed via the 250 mm storm service, downstream of cistern controls.

See CO-22-1853 - *POST* include in ***Appendix F*** of this report for more details. The Stormwater Management design for the subject property will be outlined in *Section 7.0* of this report.

Based on coordination with City staff, remnants of an abandoned storm trunk sewer cross the site. The proposed development may require removal of these services.

7.0 PROPOSED STORMWATER MANAGEMENT

7.1 Design Criteria and Methodology

Stormwater management for the proposed site will be maintained through the use of an internal storage unit and will collect runoff from the at-grade areas within the site. The flow will be directed to the existing 675 mm diameter storm sewer within Archibald Street.

In summary, the following design criteria have been employed in developing the stormwater management design for the site as directed by the City and the RVCA:

Quality Control

- Quality controls are not required for the development due to the distance to the outlet, in accordance with the pre-consultation with the RVCA conducted by DSEL on April 9th, 2020.

Quantity Control

- Any storm events greater than 5 year, up to 100 year, and including 100-year storm event must be detained on site.
- Post-development to be restricted to the 2-year storm event, based on a calculated time of concentration greater than 10 minutes and a rational method coefficient of 0.50. Refer to *Section 7.2* for further details.

7.2 Runoff Calculations

Runoff calculations presented in this report are derived using the Rational Method, given as:

$$Q = 2.78CIA \text{ (L/s)}$$

Where: C = Runoff coefficient
I = Rainfall intensity in mm/hr (City of Ottawa IDF curves)
A = Drainage area in hectares

It is recognized that the Rational Method tends to overestimate runoff rates. As a result, the conservative calculation of runoff ensures that any SWM facility sized using this method is expected to function as intended. The following coefficients were used to develop an average C for each area:

Roofs/Concrete/Asphalt	0.90
Undeveloped and Grass	0.20

As per the *City of Ottawa - Sewer Design Guidelines*, the 5-year balanced 'C' value must be increased by 25% for a 100-year storm event to a maximum of 1.0.

7.3 Pre-Development Drainage

It has been assumed that the existing development contained no stormwater management controls for flow attenuation. The estimated pre-development peak flows for the 5 and 100-year events are summarized below in ***Table 6***. See CO-22-1853 - *PRE* in ***Appendix E*** and ***Appendix G*** for calculations.

Table 6: Pre-Development Runoff Summary

Drainage Area	Area (ha)	Q (L/s)	
		5-Year	100-Year
A1	0.168	41.07	78.40

7.4 Post-Development Drainage

To meet the stormwater objectives the development will contain flow attenuation via internal cistern storage.

Based on the criteria listed in *Section 7.2.1*, the development will be required to restrict flow to the 2-year storm event. It is estimated that the target release rate during the 100-year event will be ***17.97 L/s***. See ***Appendix G*** for calculations.

The proposed site drainage limits are demonstrated on the Post-Development Drainage Area Plan. See CO-22-1853 - *POST* in ***Appendix F*** of this report for more details. A summary of the post-development runoff calculations can be found below.

Table 7: Post-Development Runoff Summary

Drainage Area	Area (ha)	5-year Peak Flow (L/s)	100-year Peak Flow (L/s)	100-year Storage Required (m^3)	100-year Storage Available (m^3)
B1	0.133	0.58	1.10	85.34	85.34
B2	0.035	8.85	16.87	-	-
Total	**0.168**	**9.42**	**17.97**	**85.34**	**85.34**

Runoff for area B1 will be collected by roof drains (uncontrolled) and a linear trench drain and conveyed to the internal cistern. The ***85.34 m^3*** (minimum) internal storage unit is anticipated to pump stormwater to the outlet at a maximum flow rate of ***1.10 L/s***. Flows in excess of the 100-year storm event will need to be directed towards Archibald Street via a cistern overflow. Storage unit details to be provided by building designers. Detailed calculations and cistern detail is included in ***Appendix G***.

The flow from Area B2 directed to the City's right of ways without restriction and will be compensated or in areas with attenuation.

Foundation drainage is proposed to be conveyed without flow attenuation via the 250 mm storm service, downstream of cistern controls.

As coordinated with City staff, as part of the previous submission the local storm sewer system has a local spill point of 74.31 m located at the intersection of Archibald and Carling. To ensure the development is sufficiently protected, the proposed trench drain has been set above this elevation at 74.35 m.

Based on available 1K mapping, the spill point for the area is located at the Merivale Road and Carling Avenue intersection at an elevation of 74.47 m. To ensure the development is sufficiently protected, the proposed finished floor elevation has been set at 74.77 m to provide 30 cm of freeboard.

8.0 EROSION AND SEDIMENT CONTROL

8.1 Temporary Measures

Before construction begins, temporary silt fence, straw bale or rock flow check dams will be installed at all-natural runoff outlets from the property. It is crucial that these controls be maintained throughout construction and inspection of sediment and erosion control will be facilitated by the Contractor or Contract Administration staff throughout the construction period.

Silt fences will be installed where shown on the final engineering plans, specifically along the downstream property limits. The Contractor, at their discretion or at the instruction of the City, Conservation Authority or the Contract Administrator shall increase the quantity of sediment and erosion controls on-site to ensure that the site is operating as intended and no additional sediment finds its way off site. The rock flow, straw bale & silt fence check dams and barriers shall be inspected weekly and after rainfall events. Care shall be taken to properly remove sediment from the fences and check dams as required. Fibre roll barriers are to be installed at all existing curb inlet catch basins and filter fabric is to be placed under the grates of all existing catch basins and manholes along the frontage of the site and any new structures immediately upon installation. The measures for the existing/proposed structures is to be removed only after all areas have been paved. Care shall be taken at the removal stage to ensure that any silt that has accumulated is properly handled and disposed of. Removal of silt fences without prior removal of the sediments shall not be permitted.

Although not anticipated, work through winter months shall be closely monitored for erosion along sloped areas. Should erosion be noted, the Contractor shall be alerted and shall take all necessary steps to rectify the situation. Should the Contractor's efforts fail at remediating the eroded areas, the Contractor shall contact the City and/or Conservation Authority to review the site conditions and determine the appropriate course of action. As the ground begins to thaw, the Contractor shall place silt fencing at all required locations as soon as ground conditions warrant. Please see the *Site Grading, Drainage and* Sediment *& Erosion Control Plan* for additional details regarding the temporary measures to be installed and their appropriate OPSD references.

8.2 Permanent Measures

It is expected that the Contractor will promptly ensure that all disturbed areas receive topsoil and seed/sod and that grass be established as soon as possible. Any areas of excess fill shall be removed or levelled as soon as possible and must be located a sufficient distance from any watercourse to ensure that no sediment is washed out into the watercourse. As the vegetation growth within the site provides a key component to the control of sediment for the site, it must be properly maintained once established. Once the construction is complete, it will be up to the landowner to maintain the vegetation and ensure that the vegetation is not overgrown or impeded by foreign objects.

9.0 SUMMARY

- A 24-storey residential/commercial building is proposed to be constructed at 1330 Carling Avenue & 815 Archibald Street.
- Dual 150 mm diameter water services are proposed to be connected to the existing 152 mm diameter watermain within Archibald Street. Pressure reducing valves may be required.
- A new 200 mm sanitary service is proposed to service the development via the 225 mm diameter sanitary sewer within Archibald Street tributary to the Cave Creek trunk.
- A new 250 mm storm service for rooftop, surface, and foundation drainage is proposed to service the development. The storm service will connect to the 675 mm diameter storm sewer within Archibald Street, tributary to the West Hintonburg storm tunnel within Carling Avenue.
- Storage for the 5- through 100-year storm events will be provided through internal cistern attenuation.
- Quality controls are not required for the development, as confirmed by the RVCA.

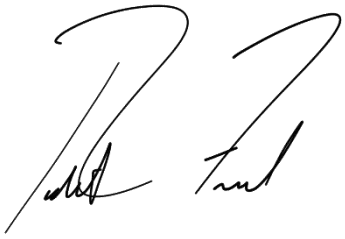
10.0 RECOMMENDATION

Based on the information presented in this report, we recommend that City of Ottawa approve this Servicing and Stormwater Management report in support of the proposed development at 1330 Carling Avenue and 815 Archibald Street.

This report is respectfully being submitted for approval.

Regards,

McIntosh Perry Consulting Engineers Ltd.



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11.0 STATEMENT OF LIMITATIONS

This report was produced for the exclusive use of 1343678 Ontario Ltd. The purpose of the report is to assess the existing stormwater management system and provide recommendations and designs for the post-construction scenario that are in compliance with the guidelines and standards from the Ministry of the Environment, Parks and Climate Change, City of Ottawa and local approval agencies. McIntosh Perry reviewed the site information and background documents listed in Section 2.0 of this report. While the previous data was reviewed by McIntosh Perry and site visits were performed, no field verification/measures of any information were conducted.

Any use of this review by a third party, or any reliance on decisions made based on it, without a reliance report is the responsibility of such third parties. McIntosh Perry accepts no responsibility for damages, if any, suffered by any third party as a result of decisions or actions made based on this review.

The findings, conclusions and/or recommendations of this report are only valid as of the date of this report. No assurance is made regarding any changes in conditions subsequent to this date. If additional information is discovered or becomes available at a future date, McIntosh Perry should be requested to re-evaluate the conclusions presented in this report, and provide amendments, if required.

APPENDIX A
KEY PLAN

McINTOSH PERRY

LEGEND

- Site Location
- Local Road
- Major Road
- Railroad
- Watercourse
- Waterbody
- Wooded Area

600 300 0 600

Scale 1:25,000 Metres

REFERENCE

GIS data provided by the Ontario Ministry of Natural Resources and Forestry, 2021.

CLIENT: 1343678 ONTARIO LTD.

PROJECT: 1330 CARLING AVENUE & 815 ARCHIBALD STREET

TITLE: SITE LOCATION PLAN

McINTOSH PERRY
115 Walgreen Road, RR3, Carp, ON K0A1L0
Tel: 613-836-2184 Fax: 613-836-3742
www.mcintoshperry.com

PROJECT NO:	CCO-22-1853
Date	Aug., 27, 2021
GIS	EU
Checked By	AG

FIGURE: 1

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APPENDIX B
BACKGROUND DOCUMENTS

McINTOSH PERRY

Site Plan Pre- Application Consultation Notes

Date: 30 Dec 2019
Site Location: 1330 Carling Ave, 815 Archibald St
Type of Development: ☒ **Residential (**☐ **townhomes,** ☐ **stacked,** ☐ **singles,** ☒ **apartments),** ☐ **Office Space,** ☒ **Commercial,** ☐ **Retail,** ☐ **Institutional,** ☐ **Industrial, Other:** N/A
Owner/Agent:
Project Manager:
Assigned Planner:
Attendees:

Infrastructure

Water

Water District Plan No: 364-027
Existing public services:

- Archibald St – 152mm UCI
- Carling Ave – 406mm PVC
- Carling Ave – 1200mm STC (backbone – connections not permitted)

Existing connection:

- Existing on-site water service must be shown on the plans. The existing on-site water services will be blanked at the watermain if it will not be reused.

Watermain Frontage Fees to be paid ($190.00 per metre) ☐ **Yes** ☒ **No**

- A water meter sizing questionnaire [water card] will have to be completed prior to receiving a water permit (water card will be provided post approval)
- Service areas with a basic demand greater than 50 m^3/day shall be connected with a minimum of two water services, separated by an isolation valve, to avoid creation of vulnerable service area.

Boundary conditions:
Civil consultant must request boundary conditions from the City's assigned Project Manager prior to first submission.

- Water boundary condition requests must include the location of the service(s) and the expected loads required by the proposed developments. Please provide all the following information:

- Location of service(s)
- Type of development and the amount of fire flow required (as per FUS, 1999).
- Average daily demand: ___ l/s.
- Maximum daily demand: ___l/s.
- Maximum hourly daily demand: ___ l/s.

- Fire protection (Fire demand, Hydrant Locations)
- A water meter sizing questionnaire [water card] will have to be completed prior to receiving a water permit (water card will be provided post approval)

Sanitary Sewer

Existing public services:

- Carling Ave – 900mm Concrete (trunk sewer)
- Archibald St – 225mm Concrete

Existing connection:

- Existing on-site sanitary service must be shown on the plans. If existing sanitary sewer is to be reused, provide CCTV inspection report along with consultant's assessment of the existing sewer conditions. Existing on-site sanitary sewer to be capped and abandoned to City of Ottawa standards at the property line if it will not be reused.

Is a monitoring manhole required on private property? ☒ **Yes** ☐ **No**

- The designer should be aware there may be limited capacity in the downstream sanitary sewer system to support the proposed change in use. The sanitary demand needs to be coordinated with the City Planning Dept. to determine if the existing sanitary sewer system has sufficient capacity to support the proposed rezoning. Provide sanitary demands to the City project manager for coordination.
- Any premise in which there is commercial or institutional food preparation shall install a grease and oil inceptor on all fixtures.
- Designers and contractors to be aware of potential abandoned sewers along Carling Ave and on-site.
- For concrete sewer pipe, maintenance holes shall be installed when the service is greater than 50% of the diameter of the mainline concrete pipe

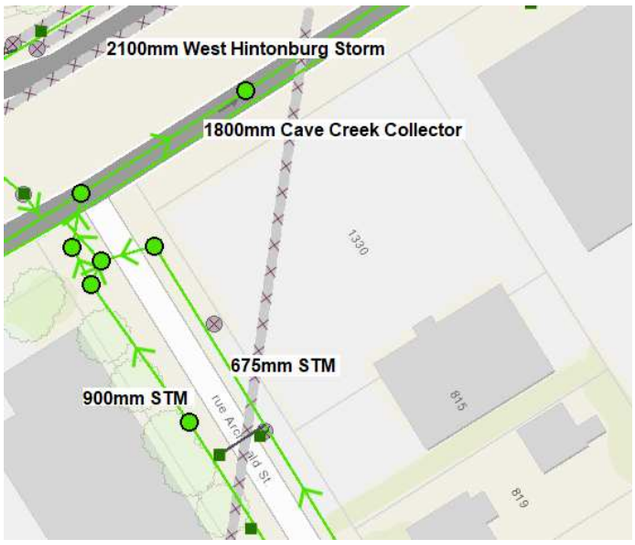
Storm Sewer

Existing public services:

- Carling Ave – 2100mm Concrete “West Hintonburg Storm Trunk” (deep sewer tunnel)
- Carling Ave – 1800mm Concrete “Cave Creek Trunk Collector”
- Archibald St – 675mm Concrete
- Archibald St – 900mm Concrete

Existing connection:

- Existing on-site storm service must be shown on the plans. If existing storm sewer is to be reused, provide CCTV inspection report along with consultant's assessment of the existing sewer conditions. Existing on-site storm sewer to be capped and abandoned to City of Ottawa standards at the property line if it will not be reused.



- There is a low point along Archibald Street that the designer should be cognizant of when preparing the grading design for the site. Ensure that the proposed drive lane entrance to the underground parking garage is protected from the major overland flow route within Archibald and Carling Ave.
- Designers and contractors to be aware of potential abandoned sewers along Carling Ave and on-site.
- The Environmental Site Assessment (ESA) may provide recommendations where site contamination may be present. The recommendations from the ESA need to be coordinated with the servicing report to ensure compliance with the Sewer Use By-Law.

Stormwater Management

Quality Control:

- Rideau Valley Conservation Authority to confirm quality control requirements.

Quantity Control:

- Master Servicing Study: N/A
- Allowable Runoff coefficient (C): C = the lesser of the existing pre-development conditions to a maximum of 0.5.
- Time of concentration (Tc): Tc = pre-development; maximum Tc = 10 min
- Allowable flowrate: Control the 100-year storm events to the 2-year storm event.

Ministry of Environment, Conservation and Parks (MECEP)

All development applications should be considered for an Environmental Compliance Approval, under MECP regulations.

a. Consultant determines if an approval for sewage works under Section 53 of OWRA is required. Consultant determines what type of application is required and the City's project manager confirms. (If the consultant is not clear if an ECA is required, they will work with the City to determine what is required. If unclear or there is a difference of opinion the City Project Manager will coordinate requirements with MECP).
b. The project will be either transfer of review (standard), transfer of review (additional), direct submission, or exempt as per O. Reg. 525/98.
c. Pre-consultation is not required if applying for standard or additional works (Schedule A of the Agreement) under Transfer Review.
d. Pre-consultation with local District office of MECP is recommended for direct submission.
e. Consultant completes an MECP request form for a pre-consultation. Sends request to moeccottawasewage@ontario.ca

NOTE: Site Plan Approval, or Draft Approval, is required before any Ministry of the Environment and Climate Change (MOECC) application is sent

General Service Design Comments

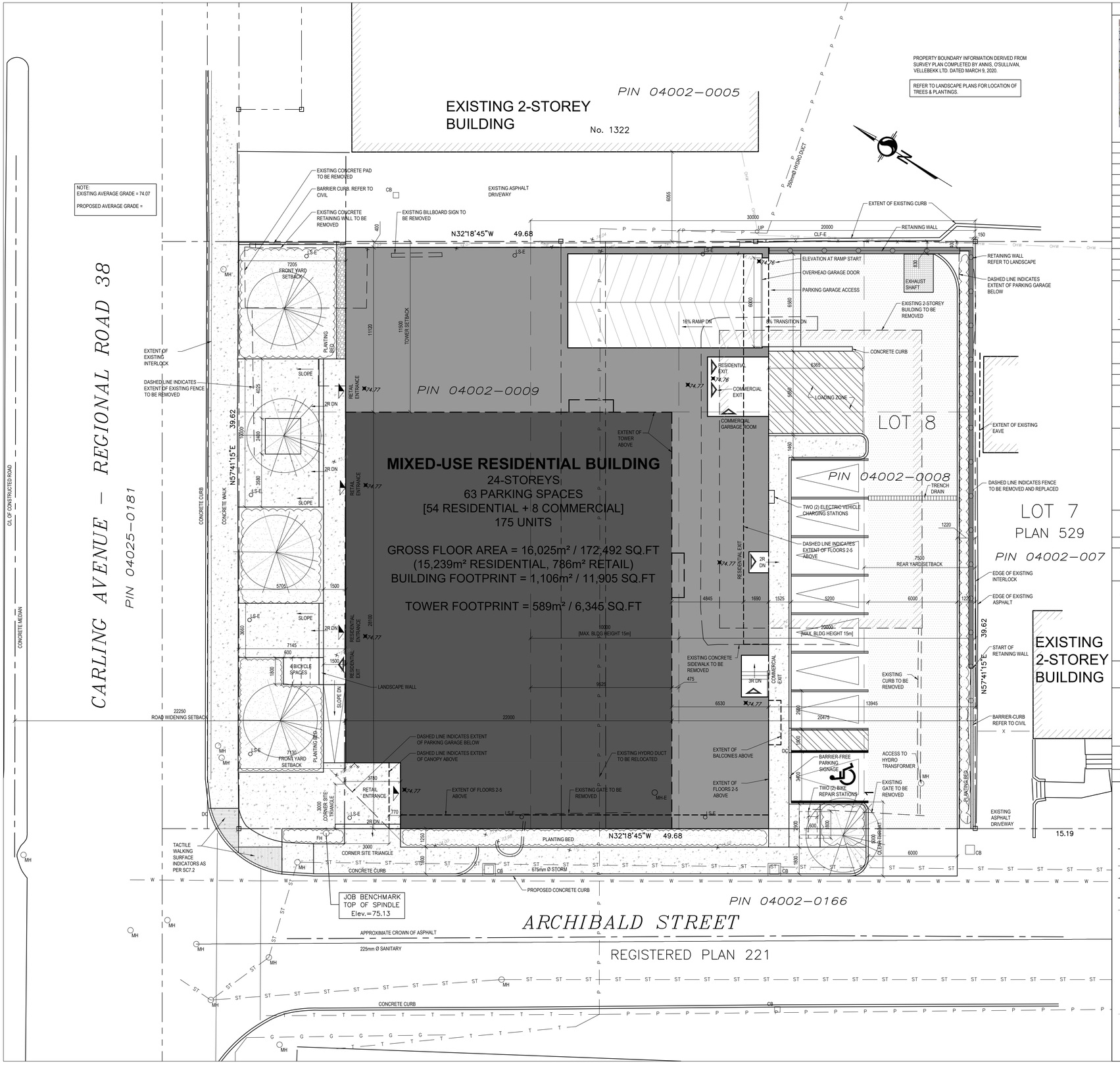
- The City of Ottawa requests that all new services be located within the existing service trench to minimize necessary road cuts.
- Monitoring manholes should be located within the property near the property line in an accessible location to City forces and free from obstruction (i.e. not a parking).
- Where service length is greater than 30 m between the building and the first maintenance hole / connection, a cleanout is required.
- Manholes are required for connections to sanitary or combined trunk sewers as per City of Ottawa Standards S13.
- The City of Ottawa Standard Detail Drawings should be referenced where possible for all work within the Public Right-of-Way.
- The upstream and downstream manhole top of grate and invert elevations are required for all new sewer connections.
- Services crossing the existing watermain or sewers need to clearly provide the obvert/invert elevations to demonstration minimum separation distances. A watermain crossing table may be provided.

Other

Are there are Capital Works Projects scheduled that will impact the application? ☐ **Yes** ☒ **No**

References and Resources

- As per section 53 of the Professional Engineers Act, O. Reg 941/40, R.S.O. 1990, all documents prepared by engineers must be signed and dated on the seal.
- All required plans are to be submitted on standard A1 size sheets (594mm x 841mm) sheets, utilizing a reasonable and appropriate metric scale as per City of Ottawa Servicing and Grading Plan Requirements: title blocks are to be placed on the right of the sheets and not along the bottom. Engineering plans may be combined, but the Site Plans must be provided separately. Plans shall include the survey monument used to confirm datum. Information shall be provided to enable a non-surveyor to locate the survey monument presented by the consultant.
- All required plans & reports are to be provided in *.pdf format (at application submission and for any, and all, re-submissions)
- Please find relevant City of Ottawa Links to Preparing Studies and Plans below: https://ottawa.ca/en/city-hall/planning-and-development/information-developers/development-application-review-process/development-application-submission/guide-preparing-studies-and-plans#standards-policies-and-guidelines
- To request City of Ottawa plan(s) or report information please contact the City of Ottawa Information Centre:
  InformationCentre@ottawa.ca<mailto:InformationCentre@ottawa.ca>
  (613) 580-2424 ext. 44455
- geoOttawa
  http://maps.ottawa.ca/geoOttawa/



KEY PLAN

PROPERTY DESCRIPTION

24-STOREY RESIDENTIAL BUILDING	
CITY OF OTTAWA PIN NUMBER	04002 0008
MUNICIPAL ADDRESS	1330 Carling Avenue
PART 1, PART OF BLOCK 8 REGISTERED PLAN 221 AND LOT 8 AND PART OF LOT 7 REGISTERED PLAN 529	

SITE INFORMATION

LOT AREA:	1,969m²
LOT FRONTAGE:	39.62m
LOT DEPTH:	49.68m

BUILDING INFORMATION

BUILDING AREA:	1,106m²
GROSS FLOOR AREA:	16,025m²
PROPOSED USE:	MIXED-USE RESIDENTIAL, HIGH-RISE

UNIT BREAKDOWN:

FLOORS 2:	9 UNITS	7- 1BD, 2- 2BD
FLOORS 3-5:	12 UNITS	1- STUDIO, 9- 1BD, 2- 2BD
FLOOR 6:	4 UNITS	1- STUDIO, 1- 1BD, 2- 2BD
TYPICAL FLOORS 7-24:	7 UNITS	2- STUDIO, 1- 1BD, 4- 2BD
TOTAL:	175 UNITS	40- STUDIO, 53- 1 BD, 82- 2 BD

ZONING TABLE — AM10

CITY OF OTTAWA ZONING BY-LAW No. 2008-250	REQUIRED	PROPOSED
LOT AREA	No minimum	
LOT WIDTH	No minimum	
FRONT YARD SETBACK	0m	0m (as per road widening)
MINIMUM INTERIOR SIDE YARD SETBACK	0m	0.4m
MINIMUM REAR YARD SETBACK	3m for the first 20m from Archibald; 7.5m otherwise	13.9m
MAXIMUM BUILDING HEIGHT	Within 20m of rear lot line: 18.5m Beyond 20m of rear lot line: 77m	Commercial Ground Floor 1(5.8m) Residential 23(70.6m) Total 24(76.4m) Within 20m of R4 zone: 18.3m 20-30m from R4 zone: 74.8m
GROUND FLOOR HEIGHT/GLAZING	4.5m & min. 50% glazing on Carling and Archibald	4.5m ground floor height 74% glazing on Carling Avenue 52% glazing on Archibald Street
MAXIMUM FLOOR SPACE INDEX	N/A	
LANDSCAPED AREA	15% = 295m² 3m buffer between parking lots and lot lines (10-99 parking spaces)	17.8% = 350.8m²
VEHICLE PARKING REQUIREMENTS (AREA Y, SCHEDULE 1A)	Residential: 0.22 spaces/unit [175 x 0.22 = 39] Residential visitor: 0.1/unit after first 12 units [163 x 0.1 = 16] Min. 2 and Max. 8 parking spaces for non-residential uses.	63 SPACES TOTAL VISITOR = 16 RESIDENTIAL = 39 COMMERCIAL = 8 PARKING AREA: 498m² LANDSCAPE AREA: 92m²
LOADING	1 space for 2,000-4,999m² non-residential GFA	1 SPACE
AMENITY AREA REQUIREMENTS	6m² per unit 50% communal and at least one area of min. 54m² Total = 1,050m²	COMMUNAL AMENITY: 525m² BALCONIES: 815m² TOTAL AMENITY: 1,362m²
BICYCLE PARKING SPACES	0.5 per dwelling unit =88 1/250m² non-residential GFA	172 SPACES + 4 EXTERIOR

LEGEND

- ASPHALT PAVING
- HEAVY DUTY ASPHALT
- CONCRETE
- EXISTING BUILDING ELEMENT TO BE REMOVED
- EXISTING FENCE
- NEW BOARD FENCE REFER TO LANDSCAPE
- LOT LINE
- SETBACK LINE
- DESIGNATED BUILDING ENTRANCE / EXIT
- FH — FIRE HYDRANT. REFER TO CIVIL
- CB — CATCH BASIN
- MH — MANHOLE
- FLOOR DRAIN
- UTILITY POLE
- OHW — OVERHEAD UTILITY WIRES
- LS. — LIGHT STANDARD
- DC — DEPRESSED CURB
- SOFT LANDSCAPING REFER TO LANDSCAPE
- UNIT PAVERS REFER TO LANDSCAPE
- EXISTING TREE TO REMAIN (REFER TO LANDSCAPE DRAWINGS)
- NEW TREE (REFER TO LANDSCAPE DRAWINGS)
- NEW SHRUBS (REFER TO LANDSCAPE DRAWINGS)
- NEW EVERGREEN SHRUB (REFER TO LANDSCAPE DRAWINGS)
- FIRE DEPARTMENT CONNECTION
- 77.70 — EXISTING GROUND ELEVATION [TO DETERMINE EXISTING AVERAGE GRADE]
- 58.84 — NEW GROUND ELEVATION REFER TO CIVIL

NOTE: 'X'-E INDICATES EXISTING TO REMAIN

No.	Date	Émis pour / Object
1	2020-01-24	PRECONSULTATION
2	2020-02-26	COORDINATION
3	2020-03-26	COORDINATION
4	2020-04-17	SITE PLAN CONTROL
5	2020-11-26	SITE PLAN CONTROL RESPONSE
6	2021-08-16	COORDINATION
7	2021-09-26	COORDINATION
8	2021-12-22	SITE PLAN CONTROL RESPONSE
9	2022-03-11	SITE PLAN CONTROL RESPONSE
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Ingénieur / Engineer
(Mécanique & Électricité / Mechanical & Electrical)

Ingénieur / Engineer
(Structure / Structure)

Architecte/ Architect
(paysagiste / Landscape)

Gino J. Aiello **landscape architect** www.GJALA.com
GINO@GJALA.com (613) 852 1345
110 Didsbury Road Unit #9 | Ottawa Ontario | K2T0C2

Ingénieur / Engineer
(Civil / Civil)

McINTOSH PERRY

Client / Client

Architecte / Architect
fig. 1
3550, Saint-Antoine O.
Montréal QC H4C 1A9
T. 514 861-5122

fig. 2
190 Somerset St W #206
Ottawa ON K2P 0J4
T. 613 695-6122

Collectif d'architectes / Architects Collective
figurr
www.figurr.ca

Sceau / Seal

ONTARIO ASSOCIATION OF ARCHITECTS
ROBERTO CAMPOS
LICENCE
7401

Note:
L'entrepreneur doit vérifier toutes les dimensions et informations sur le site et aviser immédiatement l'architecte de toutes erreurs ou omissions.

Contractor shall verify all information and dimensions on site and immediately report any errors or omissions to the architect.

Projet / Project

MIXED-USE RESIDENTIAL BUILDING

1330 Carling Avenue

Ottawa, ON

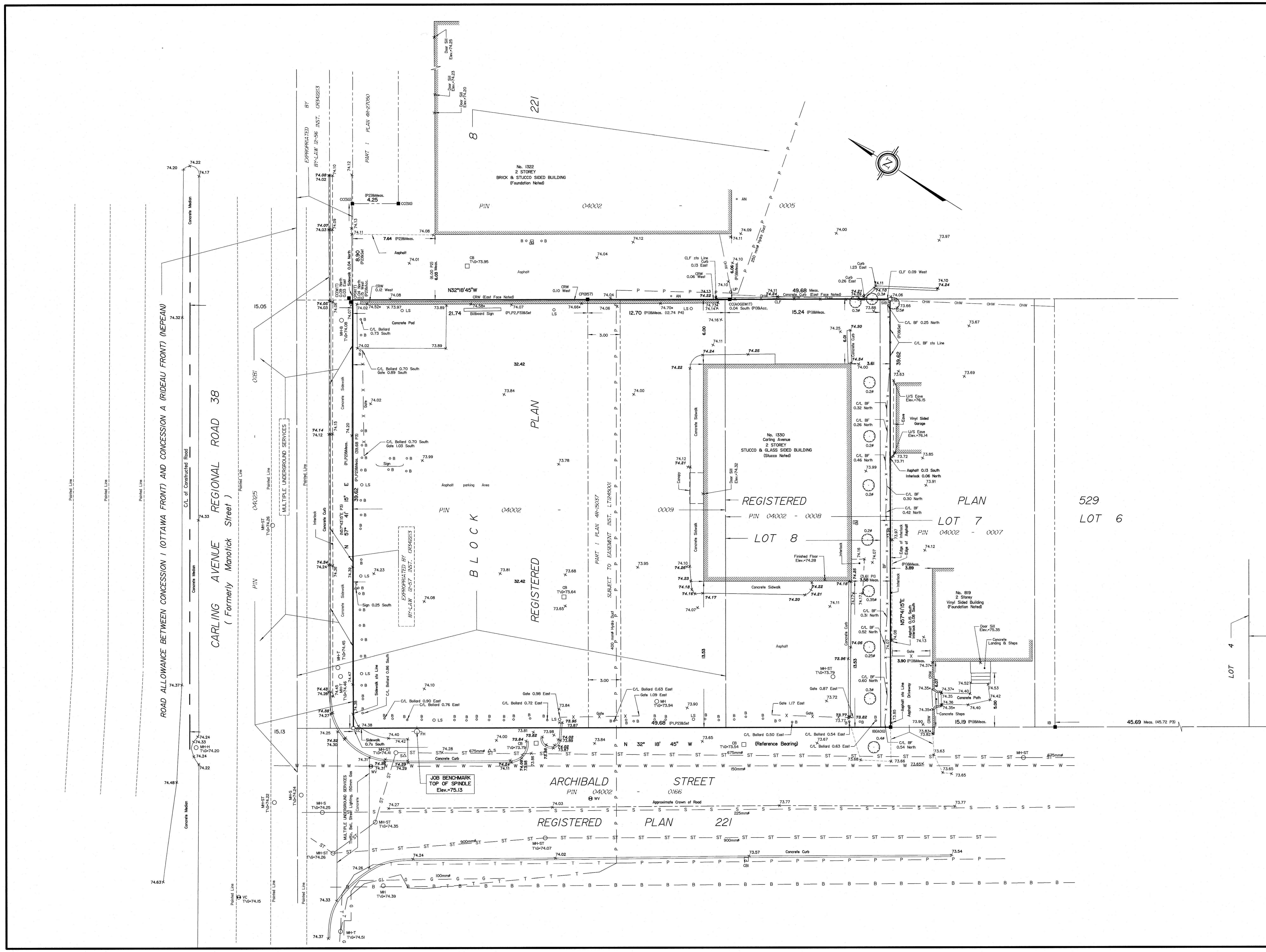
Titre / Title

SITE PLAN

Dessiné par / Drawn by: MD	No. projet / Project number: 1956
Vérifié par / Verified by: RC	No. dessin / Drawing number: A-105
Échelle / Scale: AS SHOWN	Révision / Revision: 0
Date de création du dessin / Drawing creation date: 2020-01-06	

D07-12-20-0063

#18182



Notes & Legend

	Denotes	
—□—	"	Survey Monument Planted
—■—	"	Survey Monument Found
SIB	"	Standard Iron Bar
SSIB	"	Short Standard Iron Bar
IB	"	Iron Bar
CC	"	Cut Cross
(WIT)	"	Witness
Meas.	"	Measured
(AOG)	"	Annis, O'Sullivan, Vollebekk Ltd.
(P1)	"	(AOG) Plan December 3, 2001
(P2)	"	Plan 4R-27050
(P3)	"	(725) Plan January 30, 1991
○ FH	"	Fire Hydrant
WV	"	Water Valve
VC	"	Valve Chamber (Watermain)
○ MH-ST	"	Maintenance Hole (Storm Sewer)
○ MH-S	"	Maintenance Hole (Sanitary)
○ MH-B	"	Maintenance Hole (Bell Telephone)
○ MH-T	"	Maintenance Hole (Traffic)
○ MH-H	"	Maintenance Hole (Hydro)
○ MH	"	Maintenance Hole (Unidentified)
—— OHW ——	"	Overhead Wires
□ CB	"	Catch Basin
□ CBI	"	Catch Basin Inlet
o UP	"	Utility Pole
◦ AN	"	Anchor
o LS	"	Light Standard
Ø	"	Diameter
+ 65.00	"	Location of Elevations
+ 65.00*	"	Top of Wall Elevations
+ 65.00	"	Top of Concrete Curb Elevation
C/L	"	Centreline
▭ GM	"	Gas Meter
o B	"	Bollard
△ S	"	Sign
	"	Deciduous Tree
	"	Coniferous Tree
CLF	"	Chain Link Fence
BF	"	Board Fence
CRW	"	Concrete Retaining Wall
T/G	"	Top of Grate
—— ST ——	"	Underground Storm Sewer
—— S ——	"	Underground Sanitary Sewer
—— W ——	"	Underground Water
—— P ——	"	Underground Power
—— G ——	"	Underground Gas
—— T ——	"	Underground Traffic
—— B ——	"	Underground Bell
U/S	"	Underside

SURVEYOR'S REAL PROPERTY REPORT

PART 1 Plan of PART OF BLOCK 8 REGISTERED PLAN 221 and LOT 8 and PART OF LOT 7 REGISTERED PLAN 529 CITY OF OTTAWA

Surveyed by Annis, O'Sullivan, Vollebekk Ltd.

Scale 1 : 150

6 4.5 3.0 1.5 0 3 6 Metres

Metric

DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

Surveyor's Certificate

I CERTIFY THAT :

1. This survey and plan are correct and in accordance with the Surveys Act, the Surveyors Act and the Land Titles Act and the regulations made under them.
2. The survey was completed on the 9th day of March, 2020.

MARCH 9 2020
Date

E. H. Herweyer
Ontario Land Surveyor

Carling Road Centreline of Construction Revised on March 11, 2020 Per City Comments.

PART 2
THIS PLAN MUST BE READ IN CONJUNCTION WITH SURVEY REPORT DATED: March 9, 2020

ANNIS, O'SULLIVAN, VOLLEBEKK LTD. grants to 1343678 ONTARIO LTD. ("The Client"), their solicitors, mortgagees, and other related parties, permission to use original, signed, sealed copies of the Surveyor's Real Property Report in transactions involving The Client.

Bearings are grid, derived from easterly limit of Archibald Street shown to be N 32°18'45" W on Plan 4R-27050 and are referred to the Central Meridian of MTM Zone 9 (76°30' West Longitude) NAD-83 (original).
For bearing comparisons, a rotation of 0°32'45" counter-clockwise was applied to bearings on P1 & P3.

ELEVATION NOTES

1. Elevations shown are geodetic and are referred to the CGVD28 geodetic datum, derived from City of Ottawa vertical control monument No. N-29 having an elevation of 77.347 metres.
2. It is the responsibility of the user of this information to verify that the job benchmark has not been altered or disturbed and that it's relative elevation and description agrees with the information shown on this drawing.

UTILITY NOTES

1. This drawing cannot be accepted as acknowledging all of the utilities and it will be the responsibility of the user to contact the respective utility authorities for confirmation.
2. Only visible surface utilities were located.
3. A field location of underground plant by the pertinent utility authority is mandatory before any work involving breaking ground, probing, excavating etc.
4. Underground services on Archibald Street are taken fro the City of Ottawa Engineering Plans F-05-22 and G-06-01, Services on Carling Avenue are not shown.

ASSOCIATION OF ONTARIO LAND SURVEYORS
PLAN SUBMISSION FORM
2114209

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

ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
14 Concourse Gate, Suite 500
Nepean, Ont. K2E 7S6
Phone: (613) 727-0850 / Fax: (613) 727-1079
Email: Nepean@aovltd.com
Ontario Land Surveyors

Job No. 20260-19 Pt Blk8 PL221 Pt Lt 7&8 PL529 T F | ig

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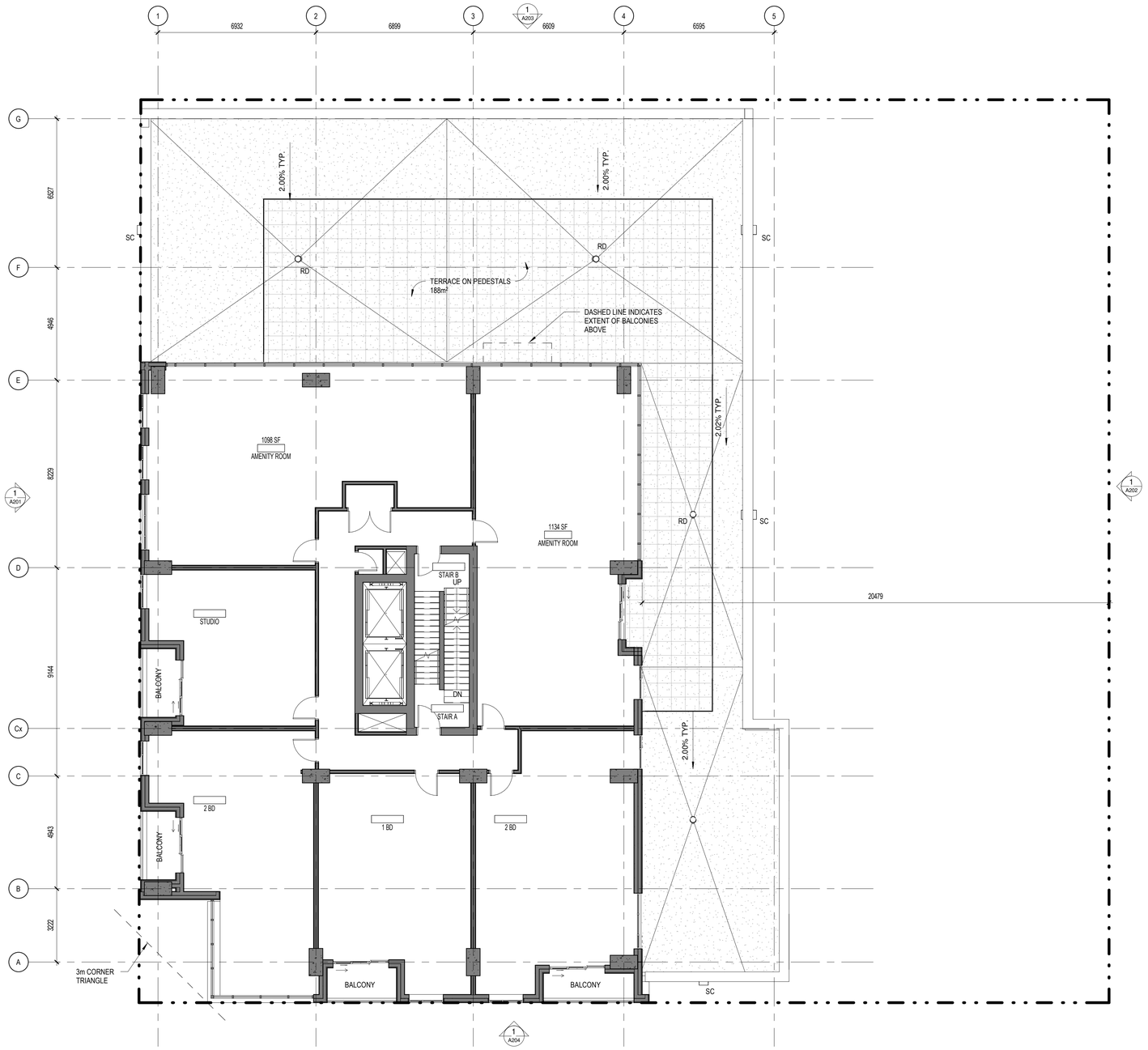
GENERAL NOTES



No.	Date	Émis pour / Object
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2	2020-04-17	SITE PLAN CONTROL
3	2020-11-26	SITE PLAN CONTROL RESPONSE
5	2021-09-26	COORDINATION
6	2021-12-22	SITE PLAN CONTROL RESPONSE
7	2022-03-11	SITE PLAN CONTROL RESPONSE

Ingénieur / Engineer
(Mécanique & Électricité / Mechanical & Electrical)

Ingénieur / Engineer
(Structure / Structure)

Architecte/ Architect
(Paysagiste / Landscape)

Gino J. Aiello **landscape architect** www.GJALA.com
GINO@GJALA.com (613) 852 1343
110 Didsbury Road Unit #9 | Ottawa Ontario | K2T0C2

Ingénieur / Engineer
(Civil / Civil)

McINTOSH PERRY

Client / Client

Architecte / Architect
fig. 1
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Montréal QC H4C 1A9
T. 514 861-5122

fig. 2
190 Somerset St W #206
Ottawa ON K2P 0J4
T. 613 695-6122

Collectif d'architectes
figurr
www.figurr.ca

Sceau / Seal

ONTARIO ASSOCIATION OF ARCHITECTS
ROBERTO CAMPOS
LICENCE
7401

Note:

L'entrepreneur doit vérifier toutes les dimensions et informations sur le site et aviser immédiatement l'architecte de toutes erreurs ou omissions.

Contractor shall verify all information and dimensions on site and immediately report any errors or omissions to the architect.

Projet / Project

24-STOREY MIXED-USE TOWER

1330 Carling Avenue
Ottawa, ON

Titre / Title

LEVEL 6 FLOOR PLAN

Dessiné par / Drawn by MD, LK	No. projet / Project number 1956	
Vérifié par / Verified by RC	No. dessin / Drawing number A124	Révision / Revision 7
Échelle / Scalle 1 : 100		
Date de création du dessin / Drawing creation date 03/04/20		

D07-12-20-0063

#18182

APPENDIX C
WATERMAIN CALCULATIONS

McINTOSH PERRY

1330 CARLING AVE, 815 ARCHIBALD ST
CITY OF OTTAWA WATER DISTRIBUTION SYSTEM MAPPING

SUBJECT SITE

PLANT & P.S. & RES.

ERGY MINES & ESOURCES P.S.

CARLINGTON HEIGHTS P.S. & RES.

BILLINGS BRIDGE P.S.

HURDMAN P.S.

CONROY RD ELEVATED TANK

Innes Re Backup P

SOUTH GLOUCESTER F

LEIT

Merivale Rd. Backup P.S.

OTTAWA SOUTH P.S & RES.

1W

ME

2W2C

3C

4C

WTP

PS

R

T

BPS

CARLING

BASELINE

WEST HUNT CLUB

RUSSELL

INNES

COVENTRY

TREMBLAY

INDUSTRIAL

SMYTH

HUNT CLUB

LEITRIM

CONROY

BANK

LESTER

TURN LANE

MERIVALE

COLONNADE

MEADOWLANDS

CENTREPOINTE

PRINCE OF WALES

FISHER

BROOKFIELD

RIVERSIDE

WALKLEY

MCCARTHY

AIRPORT

JOHNSTON

HAWTHORNE

RANSAYVILLE

CUMMINGS

VANIER

ALTA VISTA

RUSSELL

HOLLAND

CHURCHILL

KIRKWOOD

GOODROFFE

PARKDALE

GLADSTONE

PRESTON

BOOTH

BRONSON

CATHERINE

SOMERSET

KENT

LYON

ELGIN

MCLAREN

O'CONNOR

GREENFIELD

MAIN

ALBERT

SCOTT

WELLINGTON

LAURIER

NICHOLAS

MACKENZIE

RICHMOND

BAYSHORE

PINECREST

IRIS

MOODIE

McINTOSH PERRY

CCO-22-1853 - 1330 Carling Avenue, 815 Archibald Street - Water Demands

Project:	1330 Carling Avenue, 815 Archibald Street
Project No.:	CCO-22-1853
Designed By:	AJG/BGS
Checked By:	RDF
Date:	March 11, 2022
Site Area:	0.197 gross ha

Residential	**NUMBER OF UNITS**		**UNIT RATE**	
Single Family		homes		persons/unit
Semi-detached		homes		persons/unit
Townhouse		homes		persons/unit
Bachelor Apartment	**40**	**units**	**1.4**	**persons/unit**
1 Bedroom Apartment	**53**	**units**	**1.4**	**persons/unit**
2 Bedroom Apartment OR 1 Bedroom + Den	**82**	**units**	**2.1**	**persons/unit**
3 Bedroom Apartment OR 2 Bedroom + Den		units	3.1	persons/unit
Average Apartment		units		persons/unit

Total Population **303 persons**

Commercial	**786**	**m2**
Industrial - Light		m2
Industrial - Heavy		m2

AVERAGE DAILY DEMAND

DEMAND TYPE	AMOUNT	UNITS
Residential	280	L/c/d
Industrial - Light	35,000	L/gross ha/d
Industrial - Heavy	55,000	L/gross ha/d
Shopping Centres	2,500	L/(1000m^2 /d
Hospital	900	L/(bed/day)
Schools	70	L/(Student/d)
Trailer Parks no Hook-Ups	340	L/(space/d)
Trailer Park with Hook-Ups	800	L/(space/d)
Campgrounds	225	L/(campsite/d)
Mobile Home Parks	1,000	L/(Space/d)
Motels	150	L/(bed-space/d)
Hotels	225	L/(bed-space/d)
Tourist Commercial	28,000	L/gross ha/d
Othe Commercial	28,000	L/gross ha/d
AVERAGE DAILY DEMAND	**Residential**	**0.98**	**L/s**
	Commerical/Industrial/ Institutional	**0.03**	**L/s**

115 Walgreen Road, R.R.3. Carp, ON K0A 1L0 | T. 613-836-2184 | F. 613-836-3742
info@mcintoshperry.com | www.mcintoshperry.com

MAXIMUM DAILY DEMAND

DEMAND TYPE	AMOUNT		UNITS
Residential	3.6	x avg. day	L/c/d
Industrial	1.5	x avg. day	L/gross ha/d
Commercial	1.5	x avg. day	L/gross ha/d
Institutional	1.5	x avg. day	L/gross ha/d
MAXIMUM DAILY DEMAND	**Residential**	**3.54**	**L/s**
	Commerical/Industrial/ Institutional	**0.04**	**L/s**

MAXIMUM HOUR DEMAND

DEMAND TYPE	AMOUNT		UNITS
Residential	5.4	x avg. day	L/c/d
Industrial	1.8	x max. day	L/gross ha/d
Commercial	1.8	x max. day	L/gross ha/d
Institutional	1.8	x max. day	L/gross ha/d
MAXIMUM HOUR DEMAND	**Residential**	**5.30**	**L/s**
	Commerical/Industrial/ Institutional	**0.07**	**L/s**

WATER DEMAND DESIGN FLOWS PER UNIT COUNT
CITY OF OTTAWA - WATER DISTRIBUTION GUIDELINES, JULY 2010

AVERAGE DAILY DEMAND	1.01	L/s
MAXIMUM DAILY DEMAND	3.57	L/s
MAXIMUM HOUR DEMAND	5.37	L/s

McINTOSH PERRY

CCO-22-1853 - 1330 Carling Avenue, 815 Archibald Street - OBC Fire Calculations

Project:	1330 Carling Avenue, 815 Archibald Street
Project No.:	CCO-22-1853
Designed By:	AJG/BGS
Checked By:	RDF
Date:	March 11, 2022

Ontario 2006 Building Code Compendium (Div. B - Part 3)

Water Supply for Fire-Fighting - Residential

Building is classified as Group : C (from table 3.2.2.55)

Building is of noncombustible construction or of heavy timber construction conforming to Article 3.1.4.6. Floor assemblies are fire separations but with no fire-resistance rating. Roof assemblies, mezzanines, loadbearing walls, columns and arches do not have a fire-resistance rating.

From Div. B A-3.2.5.7. of the Ontario Building Code - 3. Building On-Site Water Supply:

(a) Q = K x V x Stot

where:

Q = minimum supply of water in litres

K = water supply coefficient from Table 1

V = total building volume in cubic metres

Stot = total of spatial coefficient values from the property line exposures on all sides as obtained from the formula:

Stot = 1.0 + [Sside1+Sside2+Sside3+…etc.]

K	**16**	(from Table 1 pg A-31) (Worst case occupancy {E / F2} 'K' value used)
V	**1,257,238**	(Total building volume in m^3.)
Stot	**2.0**	(From figure 1 pg A-32)
Q =	**40,231,628.80 L**	

			From Figure 1 (A-32)
Snorth	0	m	0.5
Seast	0.4	m	0.5
Ssouth	14	m	0.0
Swest	0	m	0.5

*approximate distances

From Table 2: Required Minimum Water Supply Flow Rate (L/s)

9000 L/min **if Q > 270,000 L**
2378 gpm

McINTOSH PERRY

CCO-22-1853 - 1330 Carling Avenue, 815 Archibald Street - Fire Underwriters Survey

Project:	1330 Carling Avenue, 815 Archibald Street
Project No.:	CCO-22-1853
Designed By:	AJG/BGS
Checked By:	RDF
Date:	March 11, 2022

From the Fire Underwriters Survey (1999)

From Part II – Guide for Determination of Required Fire Flow Copyright I.S.O.:
Updated per City of Ottawa Technical Bulletin ISTB-2018-02

A. BASE REQUIREMENT (Rounded to the nearest 1000 L/min)

F = 220 x C x √A Where:

F = Required fire flow in liters per minute
C = Coefficient related to the type of construction.
A = The total floor area in square meters (including all storey's, but excluding basements at least 50 percent below grade) in the building being considered.

Construction Type Fire-Resistive Construction **Modified Fire Resistive (Technical Bulletin ISTB-2018-02).*

C 0.6 **A** **16,025.0** m^2

Caluclated Fire Flow	**16,709.9 L/min**
	17,000.0 L/min

B. REDUCTION FOR OCCUPANCY TYPE (No Rounding)

From note 2, Page 18 of the Fire Underwriter Survey:

Limited Combustible -15%

Fire Flow	**14,450.0 L/min**

C. REDUCTION FOR SPRINKLER TYPE (No Rounding)

Fully Supervised Sprinklered -50%

Reduction	**-7,225.0 L/min**

D. INCREASE FOR EXPOSURE (No Rounding)

	Separation Distance (m)	Cons. of Exposed Wall	Length Exposed Adjacent Wall (m)	Height (Stories)	Length-Height Factor	
Exposure 1	>45	Non-Combustible	37	6	222.0	0%
Exposure 2	3.1 to 10	Wood frame	28	2	56.0	18%
Exposure 3	10.1 to 20	Wood frame	20	2	40.0	13%
Exposure 4	10.1 to 20	Non-Combustible	20	90	1800.0	15%
					% Increase*	**46%**

Increase*	**6,647.0 L/min**

E. Total Fire Flow (Rounded to the Nearest 1000 L/min)

Fire Flow	**13,872.0 L/min**
Fire Flow Required**	**14,000.0 L/min**

*In accordance with Part II, Section 4, the Increase for separation distance is not to exceed 75%
**In accordance with Section 4 the Fire flow is not to exceed 45,000 L/min or be less than 2,000 L/min

McINTOSH PERRY

CCO-22-1853 - 1330 Carling Avenue, 815 Archibald Street - Boundary Condition Unit Conve

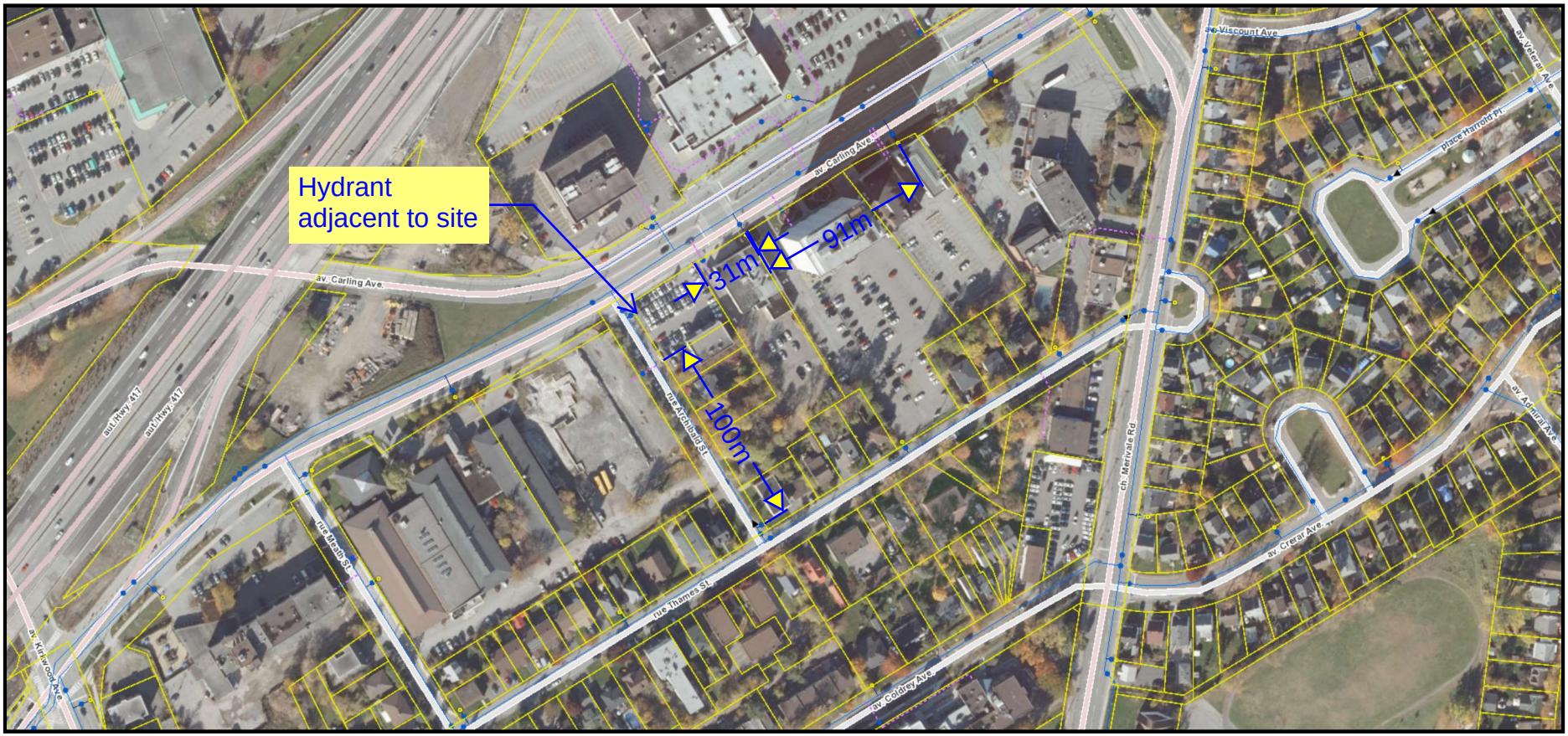
Project:	1330 Carling Avenue, 815 Archibald Street
Project No.:	CCO-22-1853
Designed By:	AJG/BGS
Checked By:	RDF
Date:	March 11, 2022

Boundary Conditions Unit Conversion

ARCHIBALD STREET

Scenario	Height (m)	Elevation (m)	m H_2O	PSI	kPa
Avg. DD	132.7	71.91	60.8	86.5	596.3
Fire Flow (233.3 L/s)	101.8	71.91	29.9	42.5	293.2
Fire Flow (150 L/s)	115.9	71.91	44.0	62.6	431.5
Peak Hour	124.4	71.91	52.5	74.7	514.9

1330 CARLING AVENUE & 815 ARCHIBALD STREET
HYDRANT COVERAGE FIGURE



2021-08-27

https://maps.ottawa.ca/geoOttawa/

Alison Gosling

From: Rasool, Rubina <Rubina.Rasool@ottawa.ca>
Sent: January 10, 2022 4:02 PM
To: Alison Gosling
Subject: RE: 1130 Carling & 815 Archibald
Attachments: 1330 Carling Avenue Revised January 2022.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Alison,

The following are boundary conditions, HGL, for hydraulic analysis at 1330 Carling Avenue (zone 2W2C) assumed to be a dual connection to the 152 mm on Archibald Street (see attached PDF for location).

Minimum HGL: 124.4 m

Maximum HGL: 132.7 m

Max Day + Fire Flow (233.3 L/s): 101.8 m

Max Day + Fire Flow (150 L/s): 115.9 m

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.

Rubina

Rubina Rasool, E.I.T.
Project Manager
Planning, Infrastructure and Economic Development Department - Services de la planification, de l'infrastructure et du développement économique
Development Review – East Branch
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West Ottawa, ON | 110, avenue Laurier Ouest. Ottawa (Ontario) K1P 1J1 rubina.rasool@ottawa.ca

From: Alison Gosling <a.gosling@mcintoshperry.com>
Sent: December 24, 2021 8:55 AM
To: Rasool, Rubina <Rubina.Rasool@ottawa.ca>
Subject: RE: 1130 Carling & 815 Archibald

Good morning Rubina,

There has been a couple revision to the site statistics for 1330 Carling. The original request is attached for your reference and the revised demands are below.

We would like to request boundary conditions for the proposed development at 1330 Carling Avenue & 815 Archibald Street. The proposed development consists of a 24-storey commercial/residential building with 175 residential units and 786 m² of retail space. The proposed connection (dual) will be to the existing 152mm dia. watermain within Archibald Street.

- The estimated fire flow is 14,000 L/min based on the FUS
- The estimated fire flow is 9,000 L/min based on the OBC
- Average daily demand: 1.01 L/s
- Maximum daily demand: 3.57 L/s
- Maximum hourly daily demand: 5.37 L/s

Attached is a map showing the proposed connection location along with the calculations prepared for the demands listed above.

Please let me know if you have any questions.

Thank you and hope you have a nice holiday,

Alison Gosling, P.Eng.
Project Engineer, Land Development
T. 613.714.4629
a.gosling@mcintoshperry.com | www.mcintoshperry.com
McINTOSH PERRY
Turning Possibilities Into Reality

From: Rasool, Rubina <Rubina.Rasool@ottawa.ca>
Sent: September 8, 2021 1:22 PM
To: Alison Gosling <a.gosling@mcintoshperry.com>
Subject: 1130 Carling & 815 Archibald

Good day Alison,

Please find the following information below:

Water Boundary Conditions
The following are boundary conditions, HGL, for hydraulic analysis at 1330 Carling Avenue (zone 2W2C) assumed to be a dual connection to the 152 mm on Archibald Street (see attached PDF for location).
Minimum HGL: 124.4 m
Maximum HGL: 132.7 m
Max Day + Fire Flow (200 L/s): 107.9 m
Max Day + Fire Flow (105 L/s): 121.5 m

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.

Sanitary Capacity
Asset Management is not aware of any issues with the proposed flow. There is capacity in both the sewers on Archibald and Carling. The 100-year HGL at the intersection of Carling and Archibald is 70.86m within the Carling pipe.

Please do not hesitate to contact me if you have any further questions.

Rubina

Rubina Rasool, E.I.T.
Project Manager
Planning, Infrastructure and Economic Development Department - Services de la planification, de l'infrastructure et du développement économique
Development Review – East Branch
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West Ottawa, ON | 110, avenue Laurier Ouest. Ottawa (Ontario) K1P 1J1
rubina.rasool@ottawa.ca

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Boundary Conditions for 1330 Carling Avenue

APPENDIX D
SANITARY CALCULATIONS

McINTOSH PERRY

McINTOSH PERRY

CCO-22-1853 - 1330 Carling Ave & 815 Archibald St - Sanitary Demands

Project:	1330 Carling Ave & 815 Archibald St		
Project No.:	CCO-22-1853		
Designed By:	AJG		
Checked By:	RDF		
Date:	December 22, 2021		
Site Area	*0.197*	*Gross ha*	
Bachelor	*40*		1.40 Persons per unit
1 Bedroom	*53*		1.40 Persons per unit
2 Bedroom	*82*		2.10 Persons per unit
3 Bedroom			3.10 Persons per unit
Total Population	*303*	*Persons*	
Commercial	*786*	*m^2*	

DESIGN PARAMETERS

Institutional/Commercial Peaking Factor	1.0	
Residential Peaking Factor	3.46	* *Using Harmon Formula =* 1+(14/(4+P^0.5))*0.8 *where P = population in thousands, Harmon's Correction Factor = 0.8*
Mannings coefficient (n)	0.013	
Demand (per capita)	280	L/day
Infiltration allowance	0.33	L/s/Ha

EXTRANEOUS FLOW ALLOWANCES

Infiltration / Inflow	Flow (L/s)
Dry	0.01
Wet	0.06
Total	**0.06**

AVERAGE DAILY DEMAND

DEMAND TYPE	AMOUNT	UNITS	POPULATION / AREA	Flow (L/s)
Residential	*280*	*L/c/d*	*303*	*0.98*
Industrial - Light**	35,000	L/gross ha/d		0
Industrial - Heavy**	55,000	L/gross ha/d		0
Commercial / Amenity	*2,800*	*L/(1000m^2/d)*	*786*	*0.03*
Hospital	900	L/(bed/day)		0
Schools	70	L/(Student/d)		0
Trailer Parks no Hook-Ups	340	L/(space/d)		0
Trailer Park with Hook-Ups	800	L/(space/d)		0
Campgrounds	225	L/(campsite/d)		0
Mobile Home Parks	1,000	L/(Space/d)		0
Motels	150	L/(bed-space/d)		0
Hotels	225	L/(bed-space/d)		0
Office	75	L/7.0m^2/d		0
Tourist Commercial	28,000	L/gross ha/d		0
Other Commercial	28,000	L/gross ha/d		0

AVERAGE RESIDENTIAL FLOW	0.98	L/s
PEAK RESIDENTIAL FLOW	3.40	L/s
AVERAGE ICI FLOW	0.03	L/s
PEAK INSTITUTIONAL/COMMERCIAL FLOW	0.03	L/s
PEAK INDUSTRIAL FLOW	0.00	L/s
TOTAL PEAK ICI FLOW	0.03	L/s

TOTAL SANITARY DEMAND

TOTAL ESTIMATED AVERAGE DRY WEATHER FLOW	1.02	L/s
TOTAL ESTIMATED PEAK DRY WEATHER FLOW	3.43	L/s
TOTAL ESTIMATED PEAK WET WEATHER FLOW	3.49	L/s

Alison Gosling

From: Alison Gosling
Sent: August 30, 2021 3:11 PM
To: Shillington, Jeffrey; Harrold, Eric
Subject: 22-1853 1330 Carling Avenue - Sanitary Capacity and HGL Request
Attachments: CO-22-1853 - Sanitary Demand - 2021-08-30.pdf

Good afternoon Jeff and Eric,

We would like to request a review of the existing sanitary sewer system to support the development at 1330 Carling Avenue & 815 Archibald Street. Can the City please review the sanitary demands below to confirm whether there is sufficient capacity in the receiving sewer (225mm sewer within Archibald St)? In addition, can the City please provide the resulting HGL elevation?

TOTAL ESTIMATED AVERAGE DRY WEATHER FLOW	1.13	L/s
TOTAL ESTIMATED PEAK DRY WEATHER FLOW	3.80	L/s
TOTAL ESTIMATED PEAK WET WEATHER FLOW	3.85	L/s

Please let me know if you have any questions.

Thank you,

Alison Gosling, P.Eng.
Project Engineer, Land Development
115 Walgreen Road, Carp, ON, K0A 1L0
T. 613.714.4629
a.gosling@mcintoshperry.com | www.mcintoshperry.com
McINTOSH PERRY
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Alison Gosling

From: Rasool, Rubina <Rubina.Rasool@ottawa.ca>
Sent: September 8, 2021 1:05 PM
To: Alison Gosling
Subject: 1330 Carling and 815 Archibald

Follow Up Flag: Follow up
Flag Status: Flagged

Good afternoon Alison,

Asset Management has confirmed that they do not see any flow issues and capacity exists along Archibald and Carling Avenue. The HGL at the intersection of Carling and Archibald is approximately 70.86m within the Carling pipe.

As a reminder the City would strongly recommend to avoid a road cut within Carling Ave.

Also, I am no longer in the South group and I will follow-up who will be the PM for the file moving forward.

Best,

Rubina

Rubina Rasool, E.I.T.
Project Manager
Planning, Infrastructure and Economic Development Department - Services de la planification, de l'infrastructure et du développement économique
Development Review – East Branch
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West Ottawa, ON | 110, avenue Laurier Ouest. Ottawa (Ontario) K1P 1J1 rubina.rasool@ottawa.ca

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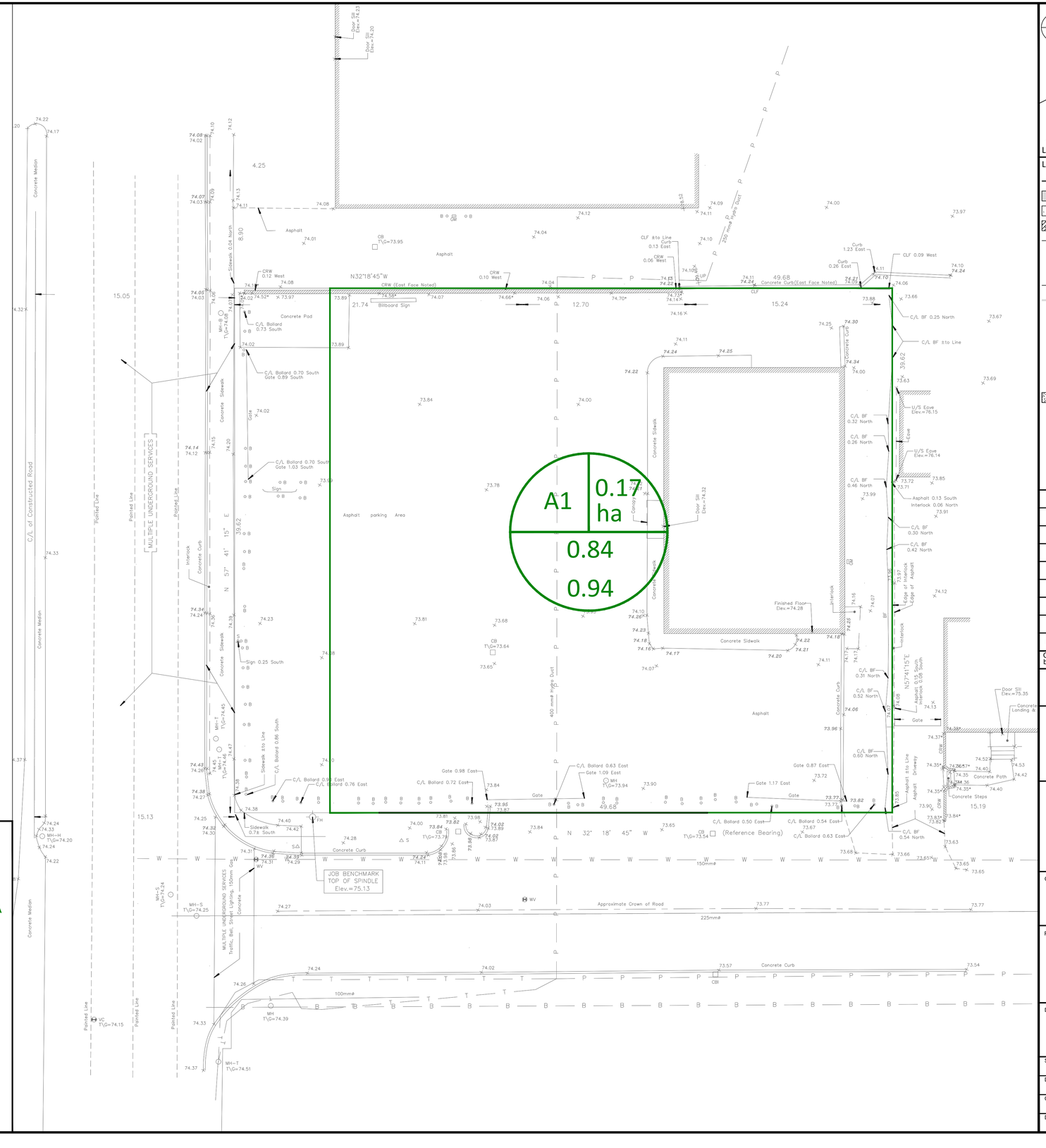
APPENDIX E
PRE-DEVELOPMENT DRAINAGE PLAN

McINTOSH PERRY

GENERAL NOTES

1. THE ORIGINAL TOPOGRAPHY, GROUND ELEVATION AND SURVEY DATA SHOWN ARE SUPPLIED FOR INFORMATION PURPOSES ONLY, AND IMPLY NO GUARANTEE OF ACCURACY. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL INFORMATION SHOWN.
2. THIS PLAN IS NOT A CADASTRAL SURVEY SHOWING LEGAL PROPERTY BOUNDARIES AND EASEMENTS. THE PROPERTY BOUNDARIES SHOWN HEREON HAVE BEEN DERIVED INFORMATION SUPPLIED BY (OR SHOWN ON) ANNIS, O'SULLIVAN, VOLLEBEKK LTD. SURVEY PLAN #2114209, DATED MARCH 9, 2020 AND CANNOT BE RELIED UPON TO BE ACCURATE OR COMPLETE. THE PRECISE LOCATION OF THE CURRENT PROPERTY BOUNDARIES AND EASEMENTS CAN ONLY BE DETERMINED BY AN UP-TO-DATE LAND TITLES SEARCH AND A SUBSEQUENT CADASTRAL SURVEY PERFORMED AND CERTIFIED BY AN ONTARIO LAND SURVEYOR.
3. THE CONTRACTOR IS TO OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY BEFORE COMMENCING CONSTRUCTION.
4. THE CONTRACTOR IS RESPONSIBLE FOR ALL LAYOUT.
5. THE CONTRACTOR IS TO DETERMINE THE EXACT LOCATION, SIZE, MATERIAL AND ELEVATION OF ALL EXISTING UTILITIES PRIOR TO COMMENCING CONSTRUCTION. PROTECT AND ASSUME ALL RESPONSIBILITY FOR EXISTING UTILITIES WHETHER OR NOT SHOWN ON THESE DRAWINGS. IF THERE IS ANY DISCREPANCY THE CONTRACTOR IS TO NOTIFY THE ENGINEER PROMPTLY.
6. RESTORE ALL TRENCHES AND SURFACES OF PUBLIC ROAD ALLOWANCES TO CONDITION EQUAL OR BETTER THAN ORIGINAL CONDITION AND TO THE SATISFACTION OF THE CITY AUTHORITIES.
7. EXCAVATE AND DISPOSE OF ALL EXCESS EXCAVATED MATERIAL, SUCH AS ASPHALT, CURBING AND DEBRIS, OFF SITE AS DIRECTED BY THE ENGINEER AND THE CITY.
8. TOPSOIL TO BE STRIPPED AND STOCKPILED FOR REHABILITATION. CLEAN FILL TO BE PLACED IN FILL AREAS AND COMPACTED TO 95% STANDARD PROCTOR DENSITY.
9. ALL DISTURBED AREAS TO BE RESTORED TO ORIGINAL CONDITION OR BETTER UNLESS OTHERWISE SPECIFIED.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL AND SAFETY MEASURES DURING THE CONSTRUCTION PERIOD, INCLUDING THE SUPPLY, INSTALLATION, AND REMOVAL OF ALL NECESSARY SIGNAGE, DELINEATORS, MARKERS AND BARRIERS.
11. DO NOT ALTER GRADING OF THE SITE WITHOUT PRIOR APPROVAL OF THE CITY.
12. ALL ROADWAY, PARKING LOT, AND GRADING WORKS TO BE UNDERTAKEN IN ACCORDANCE WITH CITY STANDARDS AND SPECIFICATIONS. THE CONTRACTOR IS TO PROVIDE POSITIVE DRAINAGE AWAY FROM THE BUILDING.
13. CONTACT THE CITY FOR INSPECTION OF ROUGH GRADING OF PARKING LOTS, ROADWAYS AND LANDSCAPED AREAS PRIOR TO PLACEMENT OF ASPHALT AND TOPSOIL. ALL DEFICIENCIES NOTED SHALL BE RECTIFIED TO THE CITY SATISFACTION PRIOR TO PLACEMENT OF ANY ASPHALT, TOPSOIL, SEED & MULCH AND/OR SOD.
14. ALL DIMENSIONS AND INVERTS MUST BE VERIFIED PRIOR TO CONSTRUCTION, IF THERE IS ANY DISCREPANCY THE CONTRACTOR IS TO NOTIFY THE ENGINEER PROMPTLY.
15. ELECTRICAL, GAS, TELEPHONE AND TELEVISION SERVICE LOCATIONS ARE SUBJECT TO THE INDIVIDUAL AGENCY:
    - ELECTRICAL SERVICE - HYDRO OTTAWA,
    - GAS SERVICE - ENBRIDGE,
    - TELEPHONE SERVICE - BELL CANADA,
    - TELEVISION SERVICE - ROGERS.
17. INSTALLATION TO BE IN ACCORDANCE WITH CURRENT CODES AND STANDARDS OF APPROVAL AGENCIES HYDRO OTTAWA, BELL AND THE CITY.
18. ALL PROPOSED CURB SHALL BE CONCRETE BARRIER CURB UNLESS SPECIFIED.
19. ALL EXISTING REDUNDANT PRIVATE APPROACHES FRONTING THIS DEVELOPMENT MUST BE REMOVED TO THE SATISFACTION OF THE CITY.
20. NO EXCESS DRAINAGE, EITHER DURING OR AFTER CONSTRUCTION, IS TO BE DIRECTED TOWARDS NEIGHBORING PROPERTIES.
21. NO ALTERATION OF EXISTING GRADES AND DRAINAGE PATTERNS ON PROPERTY BOUNDARIES.



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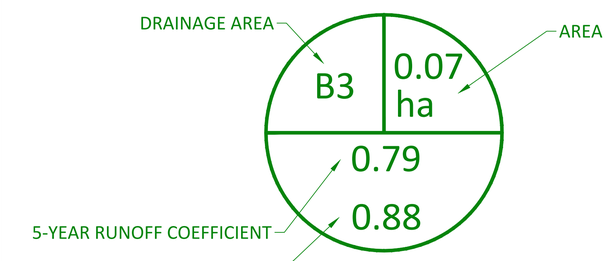

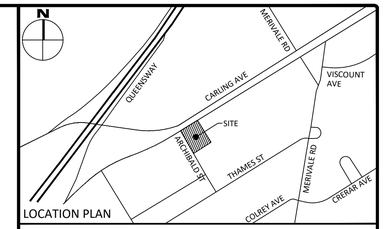

LOCATION PLAN

LEGEND

BARRIER CURB / CURB DEPRESION	CENTRELINE OF SWALE
HEAVY DUTY ASPHALT	SLOPING AT 3:1 UNLESS SPECIFIED
CONCRETE SIDEWALK	PROPOSED ELEVATION / EXISTING ELEVATION
PAVING STONE	SWALE ELEVATION
STORM MANHOLE	TOP OF WALL ELEVATION / BOTTOM OF WALL ELEVATION
CATCHBASIN OR DITCH INLET	EMERGENCY OVERLAND FLOW ROUTE
LANDSCAPE CATCHBASIN	SILT FENCE BARRIER (AS PER OPSD 219.130)
SANITARY MANHOLE	STRAW BALE CHECK DAM (AS PER OPSD 219.180)
PERFORATED PIPE	BUILDING ENTRANCE / OVERHEAD DOOR
WATER VAVLE/CHAMBER	REMOTE WATER METER
FIRE HYDRANT	WATER METER
CROSSING CONFLICT LOCATION	MISC. ROCK BOULDER
LANDSCAPE AREA	SEDIMENT CONTROL DEVICE
SIAMESE CONNECTION	PROPERTY LINE
OUTLINE OF ROADCUT AND REINSTATEMENT PER CITY R10	

FOR REVIEW ONLY
NOT FOR CONSTRUCTION

No.	Revisions	Date
02	ISSUED FOR REVIEW	MAR 22, 2022
01	ISSUED FOR REVIEW	DEC 24, 2021

Check and verify all dimensions before proceeding with the work — Do not scale drawings

SCALE 1 : 150
0 5 10 15 Metres

McINTOSH PERRY
115 Walgreen Road, RR3, Carp, ON K0A 1L0
Tel: 613-836-2184 Fax: 613-836-3742
www.mcintoshperry.com

Stamp: LICENSED PROFESSIONAL ENGINEER — A. J. GOSLING — 100226726 — PROVINCE OF ONTARIO

Client:
1343678 ONTARIO LTD
2775 MOODIE DRIVE, NEPEAN, ON, K2J 4S6

Project:
24 STOREY RESIDENTIAL BUILDING
1330 CARLING AVE

Drawing Title:
PRE DEVELOPMENT DRAINAGE PLAN

Scale: 1:150	Project Number: CCO-22-1853
Drawn By: B.G.S	
Checked By: R.D.F	Drawing Number: PRE
Designed By: B.G.S	

D07-12-20-0063

#18182

FILENAME: L:\Ottawa\01 Project - Proposals\2022 Jobs\CCO\CCO-22-1853 Fotenn - 1330 Carling - 815 Archibald\12 - Drawings\CCO-22-1853 - PRESENTATION.dwg
LAST SAVED: Monday, March 14, 2022 - LAST SAVED BY: r.robineau
LAST PLOTTED: Tuesday, March 22, 2022 - PLOTTED BY:

APPENDIX F
POST-DEVELOPMENT DRAINAGE PLAN

McINTOSH PERRY

GENERAL NOTES

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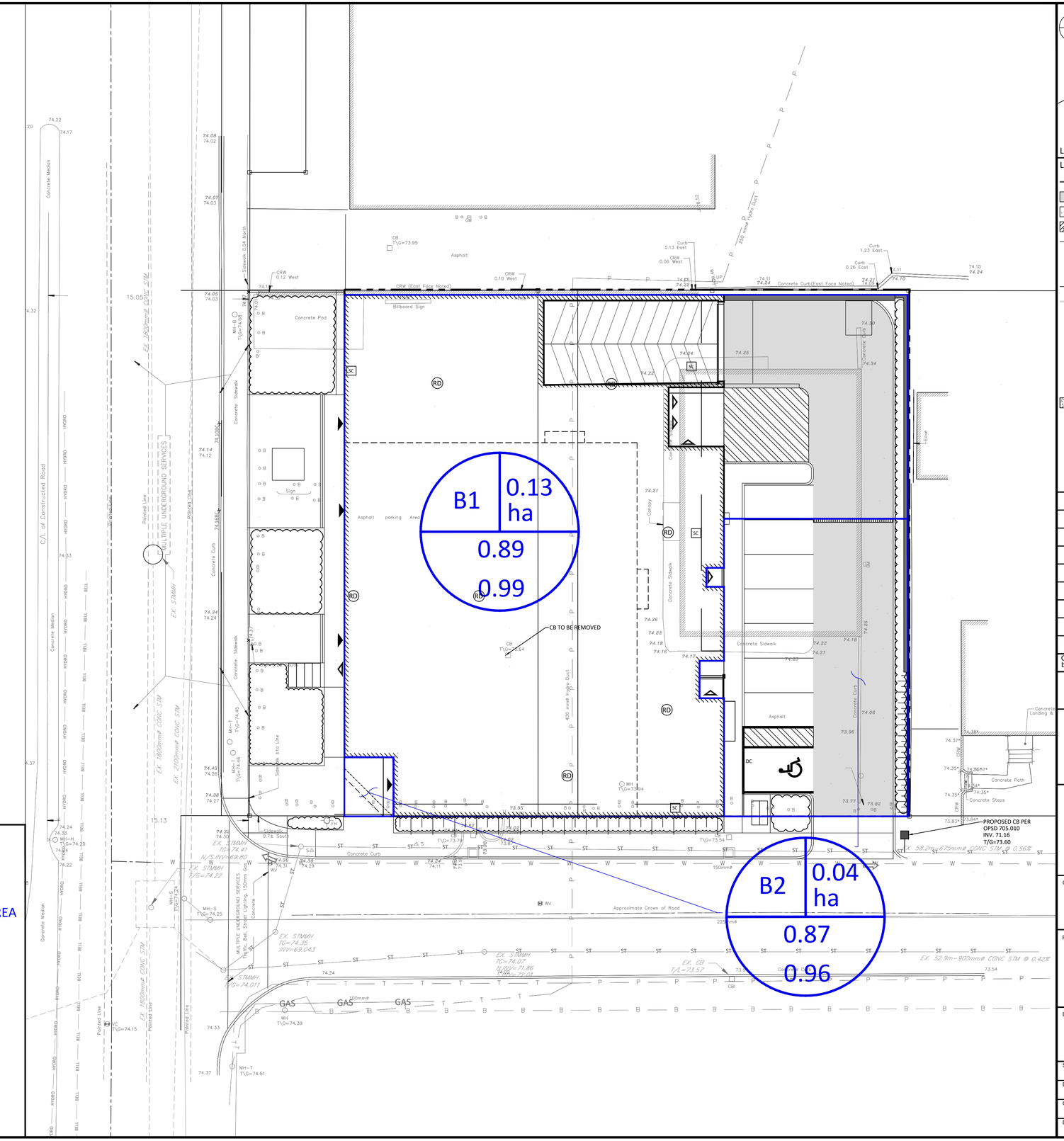

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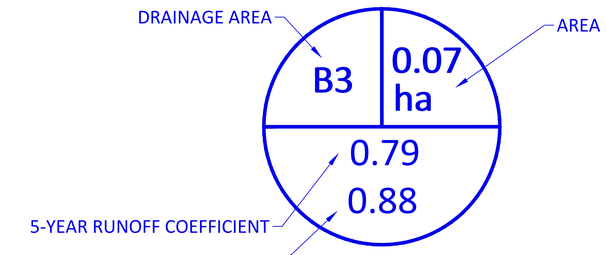
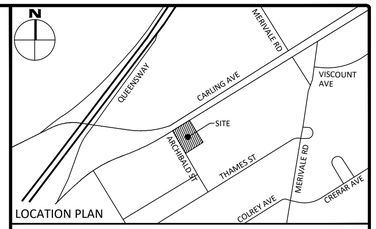




LOCATION PLAN

LEGEND

BARRIER CURB / CURB DEPRESION	CENTRELINE OF SWALE
HEAVY DUTY ASPHALT	SLOPING AT 3:1 UNLESS SPECIFIED
CONCRETE SIDEWALK	PROPOSED ELEVATION / EXISTING ELEVATION
PAVING STONE	SWALE ELEVATION
STORM MANHOLE	TOP OF WALL ELEVATION / BOTTOM OF WALL ELEVATION
CATCHBASIN OR DITCH INLET	EMERGENCY OVERLAND FLOW ROUTE
LANDSCAPE CATCHBASIN	SILT FENCE BARRIER (AS PER OPSD 219.130)
SANITARY MANHOLE	STRAW BALE CHECK DAM (AS PER OPSD 219.180)
PERFORATED PIPE	BUILDING ENTRANCE OVERHEAD DOOR
WATER VAVLE/CHAMBER	REMOTE WATER METER
FIRE HYDRANT	WATER METER
CROSSING CONFLICT LOCATION	MISC. ROCK BOULDER
LANDSCAPE AREA	SEDIMENT CONTROL DEVICE
SIAMESE CONNECTION	PROPERTY LINE
OUTLINE OF ROADCUT AND REINSTATEMENT PER CITY R10	ROOF DRAIN
	ROOF SCUPPER

FOR REVIEW ONLY
NOT FOR CONSTRUCTION

No.	Revisions	Date
02	ISSUED FOR REVIEW	MAR 22, 2022
01	ISSUED FOR REVIEW	DEC 24, 2021

Check and verify all dimensions before proceeding with the work — Do not scale drawings

SCALE 1 : 150

0 5 10 15 Metres

McINTOSH PERRY
115 Walgreen Road, RR3, Carp, ON K0A 1L0
Tel: 613-836-2184 Fax: 613-836-3742
www.mcintoshperry.com

Stamp: LICENSED PROFESSIONAL ENGINEER — A. J. GOSLING — 100226726 — PROVINCE OF ONTARIO

Client:
1343678 ONTARIO LTD
2775 MOODIE DRIVE, NEPEAN, ON, K2J 4S6

Project:
24 STOREY RESIDENTIAL BUILDING
1330 CARLING AVE

Drawing Title:
POST DEVELOPMENT DRAINAGE PLAN

Scale:	1:150	Project Number: CCO-22-1853
Drawn By:	B.G.S	
Checked By:	R.D.F	Drawing Number: POST
Designed By:	B.G.S	

D07-12-20-0063

#18182

FILENAME: I:\Ottawa\901 Project - Proposals\2022 Jobs\CCO\CCO-22-1853 Fotenn - 1330 Carling - 815 Archibald\12 - Drawings\CCO-22-1853 - PRESENTATION.dwg
LAST SAVED: Monday, March 14, 2022 AST SAVED BY: r.robineau
LAST PLOTTED: Tuesday, March 22, 2022 2:58 PM EDT

APPENDIX G
STORMWATER MANAGEMENT CALCULATIONS

McINTOSH PERRY

CCO-22-1853 - 1330 Carling Avenue - Runoff Calculations

Pre-Development Runoff Coefficient

Drainage Area	Area (ha)	Impervious Area (m^2)	C	Gravel Area (m^2)	C	Pervious Area (m^2)	C	C_{AVG} 2/5-Year	C_{AVG} 100-Year
A1	0.168	1,544.84	0.90	0.00	0.60	138.00	0.20	0.84	0.94

Pre-Development Runoff Calculations

Drainage Area	Area (ha)	C 2/5-Year	C 100-Year	Tc (min)	I (mm/hr)			Q (L/s)		
					2-Year	5-Year	100-Year	2-Year	5-Year	100-Year
A1	0.168	0.84	0.94	10	76.8	104.2	178.6	30.28	41.07	78.40
Total	0.168							30.28	41.07	78.40

Post-Development Runoff Coefficient

Drainage Area	Area (ha)	Impervious Area (m^2)	C	Gravel Area (m^2)	C	Pervious Area (m^2)	C	C_{AVG} 2/5-Year	C_{AVG} 100-Year	
B1	0.133	1,319.19	0.90	0.00	0.60	11.20	0.20	0.89	0.99	Controlled
B2	0.035	335.59	0.90	0.00	0.60	16.85	0.20	0.87	0.96	Uncontrolled

Post-Development Runoff Calculations

Drainage Area	Area (ha)	C 2/5-Year	C 100-Year	Tc (min)	I (mm/hr)		Q (L/s)	
					5-Year	100-Year	5-Year	100-Year
B1	0.133	0.89	0.99	10	104.2	178.6	34.46	65.62
B2	0.035	0.87	0.96	10	104.2	178.6	8.85	16.87
Total	0.168						43.30	82.49

Required Restricted Flow

Drainage Area	Area (ha)	C 5-Year	Tc (min)	I (mm/hr)	Q (L/s)
				2-Year	2-Year
A1	0.168	0.50	10	76.8	17.97
Total	0.168				17.97

Post-Development Restricted Runoff Calculations

Drainage Area	Unrestricted Flow (L/s)		Restricted Flow (L/s)		Storage Required (m^3)		Storage Provided (m^3)		
	5-Year	100-Year	5-Year	100-Year	5-Year	100-Year	5-Year	100-Year	
B1	34.46	65.62	0.58	1.10	31.06	85.34	31.06	85.34	Restricted
B2	8.85	16.87	8.85	16.87					Unrestrcted
Total	43.30	82.49	9.42	17.97	31.06	85.34	31.06	85.34	

Trench Drain In-Flow

Drainage Area	Catchment Area (ha)	C 2/5-Year	C 100-Year	Tc (min)	I (mm/hr)		Q (L/s)	
					5-Year	100-Year	5-Year	100-Year
B1	0.023	0.87	0.96	10	104.2	178.6	5.89	11.24

Storage Requirements for Area B1

5-Year Storm Event

Tc (min)	I (mm/hr)	Runoff (L/s) B1	Allowable Outflow (L/s)	Runoff to be Stored (L/s)	Storage Required (m^3)
10	104.2	34.46	0.58	33.88	20.33
15	83.6	27.63	0.58	27.05	24.35
20	70.3	23.23	0.58	22.65	27.18
25	60.9	20.14	0.58	19.56	29.34
30	53.9	17.83	0.58	17.26	31.06

Maximum Storage Required 5-year =	31.1	m^3

100-Year Storm Event

Tc (min)	I (mm/hr)	Runoff (L/s) B1	Allowable Outflow (L/s)	Runoff to be Stored (L/s)	Storage Required (m^3)
295	16.1	5.92	1.10	4.82	85.31
300	15.9	5.84	1.10	4.74	85.33
305	15.7	5.76	1.10	4.66	85.34
310	15.5	5.69	1.10	4.59	85.34
315	15.3	5.62	1.10	4.52	85.34
320	15.1	5.54	1.10	4.44	85.34
325	14.9	5.48	1.10	4.38	85.33
330	14.7	5.41	1.10	4.31	85.32
335	14.5	5.34	1.10	4.24	85.31
340	14.4	5.28	1.10	4.18	85.29

Maximum Storage Required 100-year =	85.3	m^3

5-Year Storm Event Storage Summary

Storage Available (m^3) = 31.1	*
Storage Required (m^3) = 31.1	

100-Year Storm Event Storage Summary

Storage Available (m^3) = 85.3	*
Storage Required (m^3) = 85.3	

Time of Concentration Pre-Development

Drainage Area ID	Sheet Flow Distance (m)	Slope of Land (%)	Tc (min) (5-Year)	Tc (min) (100-Year)
A1	42	0.88	6	4

* Therefore, a Tc of 10 can be used

Tc= (3.26(1.1-c)L^0.5/ S^0.33)

c= Balanced Runoff Coefficient

L= Length of Drainage Area

S= Average Slope of Watershed

STORM SEWER DESIGN SHEET

PROJECT: 24 Storey Residential Building
LOCATION: 1330 Carling Ave
CLIENT: Kevlar Developments

McINTOSH PERRY

LOCATION				CONTRIBUTING AREA (ha)				RATIONAL DESIGN FLOW									SEWER DATA								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
STREET	AREA ID	FROM MH	TO MH	C-VALUE	AREA	INDIV AC	CUMUL AC	INLET (min)	TIME IN PIPE	TOTAL (min)	i (5) (mm/hr)	i (10) (mm/hr)	i (100) (mm/hr)	5yr PEAK FLOW (L/s)	10yr PEAK FLOW (L/s)	100yr PEAK FLOW (L/s)	FIXED FLOW (L/s)	DESIGN FLOW (L/s)	CAPACITY (L/s)	LENGTH (m)	PIPE SIZE (mm)			SLOPE (%)	VELOCITY (m/s)	AVAIL CAP (5yr)	
																					DIA	W	H			(L/s)	(%)
Archibald Street	B1	BLDG	EX. STM	0.88	0.16	0.14	0.14	10.00	0.04	10.04	104.19	122.14	178.56	0.58				0.58	62.04	3.14	250			1.00	1.224	61.46	99.07%

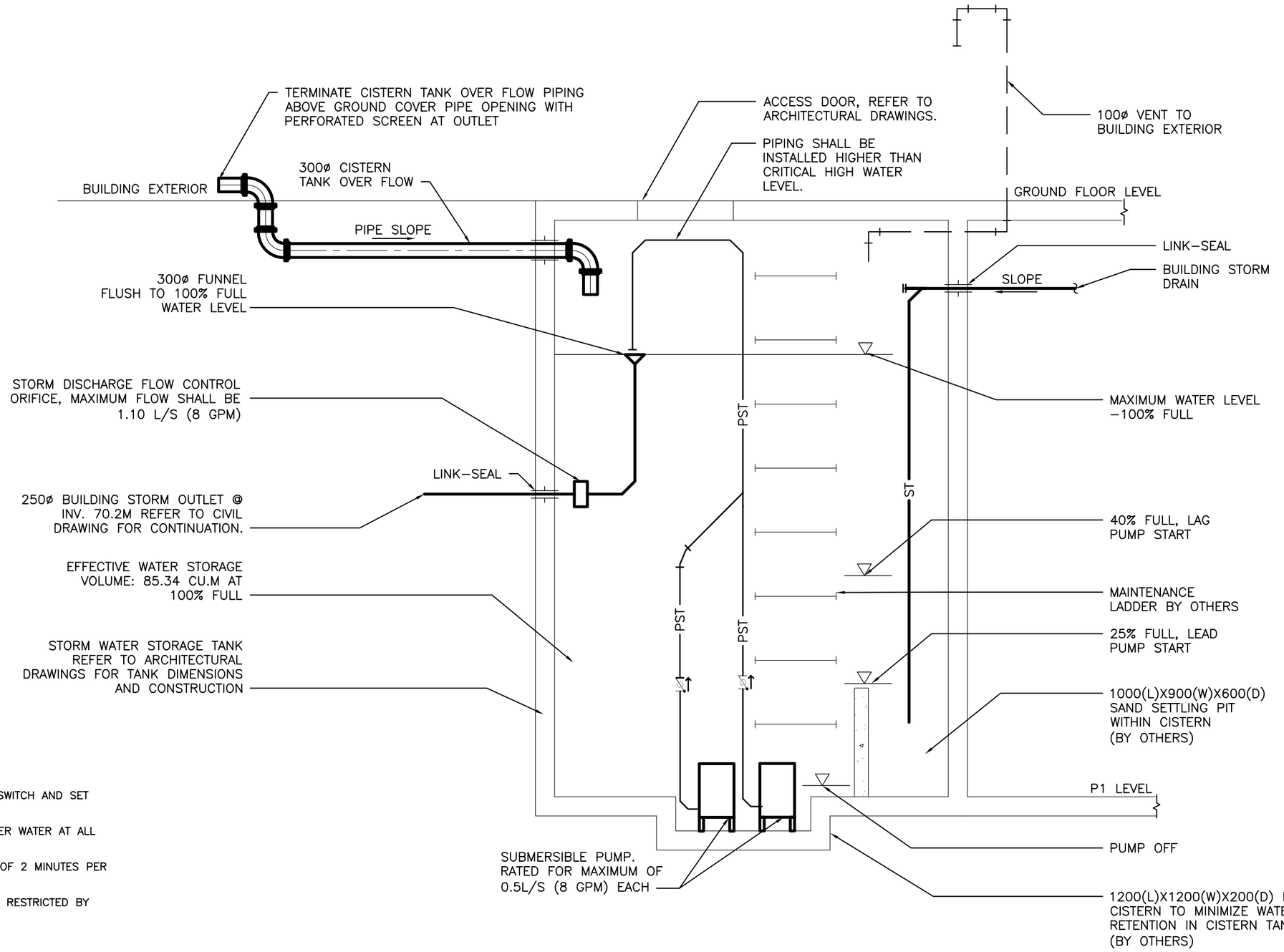
Definitions:
Q = 2.78CIA, where:
Q = Peak Flow in Litres per Second (L/s)
A = Area in Hectares (ha)
i = Rainfall intensity in millimeters per hour (mm/hr)
[i = 998.071 / (TC+6.053)^0.814] 5 YEAR
[i = 1174.184 / (TC+6.014)^0.816] 10 YEAR
[i = 1735.688 / (TC+6.014)^0.820] 100 YEAR

Notes:
1. Mannings coefficient (n) = 0.013

Designed: RRR
Checked: AJG
Project No.: CCO-22-1853

No.	Revision	Date
1.	ISSUED FOR REVIEW	2021-12-13

Date: 2015-05-21
Sheet No: 1 of 1



NOTES:

1. PROVIDE AND INSTALL PUMP CONTROL PANEL, FLOW LEVEL SWITCH AND SET ALARM LEVELS AS INDICATED.

2. SET OFF SWITCH TO ALLOW PUMP SUCTION TO REMAIN UNDER WATER AT ALL TIMES OR PUMP MAY BECOME AIR–LOCKED.

3. SET ON SWITCH TO ALLOW PUMP TO OPERATE A MINIMUM OF 2 MINUTES PER CYCLE.

4. PUMP MAXIMUM DISCHARGE RATE TO STORM MAIN SHALL BE RESTRICTED BY FLOW CONTROL DEVICE AND NOT EXCEED LIMIT.

Smith + Andersen

1100 – 100 Sheppard Ave. East, Toronto On, M2N 6N5
416 487 8151 f 416 487 9104 smithandandersen.com

PROJECT NAME: 1330 CARLING AVE. 24 STOREY RESIDENTIAL BUILDING

ISSUED FOR: **SITE PLAN APPROVAL**

DRAWING TITLE: CISTERN TANK DETAIL

DRAWING NO: **MSK-1**

DATE:	PROJECT NO:	SCALE:	REVISION No.:
2022-03-11	21595.000	N.T.S.	**00**

APPENDIX H
CITY OF OTTAWA DESIGN CHECKLIST

McINTOSH PERRY

City of Ottawa

4. Development Servicing Study Checklist

The following section describes the checklist of the required content of servicing studies. It is expected that the proponent will address each one of the following items for the study to be deemed complete and ready for review by City of Ottawa Infrastructure Approvals staff.

The level of required detail in the Servicing Study will increase depending on the type of application. For example, for Official Plan amendments and re-zoning applications, the main issues will be to determine the capacity requirements for the proposed change in land use and confirm this against the existing capacity constraint, and to define the solutions, phasing of works and the financing of works to address the capacity constraint. For subdivisions and site plans, the above will be required with additional detailed information supporting the servicing within the development boundary.

4.1 General Content

Criteria	Location (if applicable)
☐ Executive Summary (for larger reports only).	N/A
☐ Date and revision number of the report.	On Cover
☐ Location map and plan showing municipal address, boundary, and layout of proposed development.	Appendix A
☐ Plan showing the site and location of all existing services.	Site Servicing Plan (C102)
☐ Development statistics, land use, density, adherence to zoning and official plan, and reference to applicable sub-watershed and watershed plans that provide context to which individual developments must adhere.	1.1 Purpose 1.2 Site Description 6.0 Stormwater Management
☐ Summary of pre-consultation meetings with City and other approval agencies.	Appendix B
☐ 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.	1.1 Purpose 1.2 Site Description 6.0 Stormwater Management
☐ Statement of objectives and servicing criteria.	3.0 Pre-Consultation Summary

☐ Identification of existing and proposed infrastructure available in the immediate area.	N/A
☐ 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).	Site Grading Plan (C101)
☐ 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.	Site Grading Plan (C101)
☐ 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.	Section 2.0 Background Studies, Standards and References
☐ 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	Site Grading Plan (C101)

4.2 Development Servicing Report: Water

Criteria	Location (if applicable)
☐ Confirm consistency with Master Servicing Study, if available	N/A
☐ Availability of public infrastructure to service proposed development	N/A
☐ Identification of system constraints	N/A
☐ Identify boundary conditions	Appendix C
☐ Confirmation of adequate domestic supply and pressure	N/A
☐ 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.	Appendix C
☐ 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	Appendix C, Section 4.2

☐ 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.	Site Servicing Plan (C101)
☐ 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.	Appendix C
☐ 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

Criteria	Location (if applicable)
☐ 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).	N/A
☐ 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 5.2 Proposed Sanitary Sewer

☐ 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 5.3 Proposed Sanitary Design
☐ Calculations related to dry-weather and wet-weather flow rates from the development in standard MOE sanitary sewer design table (Appendix 'C') format.	N/A
☐ Description of proposed sewer network including sewers, pumping stations, and forcemains.	Section 5.2 Proposed Sanitary Sewer
☐ 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
☐ 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

Criteria	Location (if applicable)
☐ Description of drainage outlets and downstream constraints including legality of outlets (i.e. municipal drain, right-of-way, watercourse, or private property)	Section 6.0 Stormwater Sewer Design & Section 7.0 Proposed Stormwater Management
☐ Analysis of available capacity in existing public infrastructure.	N/A
☐ A drawing showing the subject lands, its surroundings, the receiving watercourse, existing drainage patterns, and proposed drainage pattern.	Pre & Post-Development Plans
☐ 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 6.0 Stormwater Sewer Design & Section 7.0 Proposed Stormwater Management
☐ Water Quality control objective (basic, normal or enhanced level of protection based on the sensitivities of the receiving watercourse) and storage requirements.	Section 6.0 Stormwater Sewer Design & Section 7.0 Proposed Stormwater Management
☐ Description of the stormwater management concept with facility locations and descriptions with references and supporting information.	Section 6.0 Stormwater Sewer Design & Section 7.0 Proposed Stormwater Management
☐ 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.	N/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).	Appendix G

☐ Identification of watercourses within the proposed development and how watercourses will be protected, or, if necessary, altered by the proposed development with applicable approvals.	Site Grading Plan (C101)
☐ 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 7.0 Proposed Stormwater Management Appendix G
☐ Any proposed diversion of drainage catchment areas from one outlet to another.	Section 6.0 Stormwater Sewer Design & Section 7.0 Proposed Stormwater Management
☐ Proposed minor and major systems including locations and sizes of stormwater trunk sewers, and stormwater management facilities.	Section 6.0 Stormwater Sewer Design & Section 7.0 Proposed Stormwater Management
☐ 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
☐ Descriptions of how the conveyance and storage capacity will be achieved for the development.	Section 6.0 Stormwater Sewer Design & Section 7.0 Proposed Stormwater Management
☐ 100-year flood levels and major flow routing to protect proposed development from flooding for establishing minimum building elevations (MBE) and overall grading.	Site Grading Plan (C101)
☐ 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 8.0 Sediment & Erosion Control
☐ 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

The Servicing Study shall provide a list of applicable permits and regulatory approvals necessary for the proposed development as well as the relevant issues affecting each approval. The approval and permitting shall include but not be limited to the following:

Criteria	Location (if applicable)
☐ 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 Act. 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.	N/A
☐ 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

Criteria	Location (if applicable)
☐ Clearly stated conclusions and recommendations	Section 9.0 Summary Section 10.0 Recommendations
☐ 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 are stamped
☐ All draft and final reports shall be signed and stamped by a professional Engineer registered in Ontario	All are stamped