SERVICING & STORMWATER MANAGEMENT REPORT
5646-5650 MANOTICK MAIN STREET

Project No.:CCO-22-2383
City of Ottawa File No.: D07-12-22-0048

Prepared for:

Hawkins Properties
650a Eagleson Road
Ottawa, ON

Prepared by:

McIntosh Perry Consulting Engineers Ltd.
115 Walgreen Road
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Rev04: July 12, 2024

McINTOSH PERRY

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1.0 PROJECT DESCRIPTION

1.1 Purpose

McIntosh Perry (MP) has been retained by Hawkins Properties to prepare this Servicing and Stormwater Management Report in support of the Site Plan Control process for the proposed development located at 5646-5650 Manotick Main Street within the City of Ottawa.

The main purpose of this report is to present a servicing and stormwater management design for the development in accordance with 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 the water, sanitary and storm sewer servicing for the development, ensuring that existing and proposed services will adequately service the proposed development.

1.2 Site Description

The subject property, herein referred to as the site, is located at 5646-5650 Manotick Main within the Rideau-Jock Ward. The site covers approximately *0.41 ha* and is located at the intersection of Manotick Main Street and Mahogany Harbour Lane. The site is zoned Rural Commercial (RC1). See Site Location Plan in *Appendix 'A'* for more details.

1.3 Proposed Development and Statistics

The proposed development proposes a new 1-storey drive-through restaurant in addition to the existing carwash, complete with new drive aisles and parking areas with access from Manotick Main Street. Refer to *Site Plan* prepared by Rossman Architecture for reference.

1.4 Existing Conditions and Infrastructure

The site is currently developed containing a 2-storey commercial building and attached carwash at 5646 Manotick Main street, and an existing residential dwelling at 5650 Manotick Main Street. The existing buildings are serviced by on-site wells and septic systems.

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):

- Manotick Main Street
  - 305 mm diameter PVC watermain,

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, provide concurrence and approve the engineering design package. Permits to construct can be requested once the City has issued a site plan agreement.

An Environmental Compliance Approval (*ECA*) through the Ministry of Environment, Conservation and Parks (*MECP*) is not anticipated to be required for the development since the development is does not outlet to a combined sewershed and does not propose industrial usage.

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 site were reviewed in order to identify infrastructure available to service the proposed development.

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*)

Other:

- Water Supply for Public Fire Protection, Fire Underwriters Survey, 2020. (*FUS Guidelines*)

3.0 PRE-CONSULTATION SUMMARY

A pre-consultation meeting was held with City staff on July 21st, 2022, regarding the proposed site servicing. Specific design parameters to be incorporated include:

- Control 5 through 100-year post-development flows to the 2-year pre-development level.
- Enhanced water quality protection will be required for the development per the RVCA

4.0 WATERMAIN

4.1 Existing Watermain

The site is located within the 3SW pressure zone, as per the Water Distribution System mapping included in *Appendix C*. There is an existing 305 mm diameter watermain located within Manotick Main Street, and two municipal fire hydrants along Manotick Main Street available to service the development.

The site is currently serviced by on-site water wells that will be decommissioned as part of the development.

4.2 Proposed Watermain

It is proposed to service the new building and existing car wash with a shared 50 mm diameter water service connection to the 305 mm diameter watermain within Manotick Main Street.

The Ontario Building Code method was used to estimate the required fire flow for the site. The following parameters were utilized for the proposed building based on the OBC matrix provided by Rossman Architecture:

Restaurant:

- K Value – 39 (Combustible Construction)
- Occupancy Type – Group E

The following parameters were assumed to provide a worst-case estimate of the required fire flow for the existing car wash:

Car Wash:

- K Value – 39 (Combustible Construction)
- Occupancy Type – F-2

The results of the OBC calculations yielded a required fire flow of *2,700 L/min* (45 L/s) for both buildings. The detailed calculations for the OBC can be found in *Appendix C*.

Table 1, below, summarizes the water supply design criteria obtained from the *Ottawa Water Guidelines* and utilized for the water analysis.

Table 1: Water Supply Design Criteria and Water Demands

Site Area	0.41 ha
Commercial	28,000 L/gross ha/d
Commercial Area	362 m^2
Max Day Peaking Factor (Commercial)	1.5 x avg. day
Peak Hour Peaking Factor (Commercial)	1.8 x max day

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*. The resulting pressures for the boundary conditions results are shown in *Tables 2 and 3*, below. Boundary conditions have been provided for the current pressure zone (3SW) as well as the future pressure zone (SUC).

Note the estimated water demand has decreased slightly from the values presented in the boundary condition request based on updates to the commercial area. Due to the decrease being minor, the validity of the boundary condition results is not anticipated to be impacted.

Table 2: Boundary Conditions Results – Current 3SW Pressure Zone

Scenario	Estimated Demands (L/s)	HGL (m H_2O)*/kPa
Average Day Demand	0.01	69.7 / 688.3
Maximum Daily + Fire Flow Demand (OBC)	0.02 + 45	58.7 / 576.2
Peak Hourly Demand	0.03	52.9 / 519.3
**Adjusted for an estimated ground elevation of 87.4m above the connection point.*		

The normal operating pressure range for the current pressure zone is anticipated to be 519.3 kPa to 688.3 kPa and will not be less than 275kPa (40 psi) or exceed 689 kPa (100 psi). The 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. It is anticipated that pressure reducing valves will be required as pressure is expected to exceed 80 psi in the average day condition.

Table 3: Boundary Conditions Results – Future SUC Pressure Zone

Scenario	Estimated Demands (L/s)	HGL (m H_2O)*/kPa
Average Day Demand	0.01	60.3 / 591.1
Maximum Daily + Fire Flow Demand (OBC)	0.02 + 45	53.4 / 524.2
Peak Hourly Demand	0.03	54.9 / 539.0
**Adjusted for an estimated ground elevation of 87.4m above the connection point.*		

The normal operating pressure range for the future pressure zone is anticipated to be 539.0 kPa to 591.1 kPa and will not be less than 275kPa (40 psi) or exceed 689 kPa (100 psi). The 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. It is anticipated that pressure reducing valves will be required as pressure is expected to exceed 80 psi in the average day condition. Requirements will need to be confirmed by the site servicing contractor following installation of the water service.

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

Table 4: Fire Protection Confirmation

Building	Fire Flow Demand (L/min.)	Fire Hydrant(s) within 75m (5,700 L/min)	Fire Hydrant(s) within 150m (3,800 L/min)	Combined Fire Flow (L/min.)
5646-5650 Manotick Main Street	2,700	1 Public	1 Public	9,500

Based on City guidelines (*ISTB-2018-02*), the existing hydrants provide adequate protection for the proposed development. A hydrant coverage figure can be found in *Appendix C*.

5.0 SANITARY DESIGN

5.1 Existing Sanitary Sewer

There is no existing sanitary sewer within Manotick Main Street available to service the proposed development. The subject site is currently serviced by on-site septic systems which will be removed as part of the development.

5.2 Proposed Sanitary Sewer

A new septic system located in the rear yard landscaped area will be installed and sized to accommodate the development. The proposed system will treat wastewater flows from the existing car wash and proposed restaurant. McIntosh Perry will coordinate with the Ottawa Septic System Office for the required permits and approvals.

Private Sewage Systems

- Approval for on-site septic treatment will be governed by the OBC as it is understood that the Daily Design Flow for the proposed buildings will be less than 10,000 litres per day.
- Septic systems will be constructed with all appropriate setbacks, treatment units and stipulations as per applicable Ontario Regulations.

For further design information pertaining to the on-site sewage system, please refer to the septic system application.

6.0 STORM SEWER DESIGN

6.1 Existing Storm Sewers

Stormwater runoff from the site is currently tributary to the Rideau River within the Lower Rideau River sub-watershed. There is no existing storm sewer available to service the proposed development, however there is an existing catch basin fronting the subject site. The existing catch basin outlets through existing culverts to the existing municipal ditch northwest of the site.

6.2 Proposed Storm Sewers

The proposed development will be serviced through a new 250-300 mm diameter storm service. The proposed storm service will discharge runoff to the existing municipal catch basin fronting the subject site. The municipal catch basin will convey runoff through existing culverts to the municipal ditch along Manotick Main Street. Runoff will travel approximately 200m before discharging to the Rideau River.

Runoff collected on the roof of the proposed restaurant will be stored and controlled internally using 2 roof drains. The roof drains will be used to limit the flow from the roof to the specified allowable release rate. Controlled roof flow will outlet to surface and be directed towards a proposed catch basin. For calculation purposes a Watts Accutrol roof drain in the ¼ Open position was used to estimate a reasonable roof flow. Other products may be specified at detailed building design provided release rates and storage volumes are respected.

Roof drainage from the peaked roof of the existing car wash will outlet to surface without restriction and be collected by a proposed catch basin. A Tempest LMF85 ICD located within the outlet of CB4 will be used to control runoff to the allowable release rate.

Runoff from the drive aisle and parking lot will be collected by a series of catch basins and catch basin maintenance holes. A 74mm orifice within the outlet of CBMH2 will restrict flow to the allowable release rate. Restricted flow will be directed to an Oil & Grit Separator unit, and then to the municipal catch basin fronting the subject site.

Runoff from the side and rear yard landscaped areas will be unrestricted and will be compensated for in areas with flow attenuation.

Foundation drainage is not anticipated to be required based on the Geotechnical Report prepared by Terrapex Environmental Ltd.

See CCO-22-2383 - *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.

7.0 PROPOSED STORMWATER MANAGEMENT

7.1 Design Criteria and Methodology

Stormwater management for the site will be provided through roof storage and surface storage. The controlled stormwater flow will be directed to the existing municipal catch basin fronting the subject site. The quantitative and qualitative properties of the storm runoff for both the pre- and post-development flows are further detailed below.

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

Quality Control

- Quality controls are required up to an enhanced level of treatment (80% TSS removal)

Quantity Control

- Post-development runoff to be restricted to the 2-year storm event, based on a calculated time of concentration of at least 10 minutes. 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
Gravel	0.60
Undeveloped and Grass	0.20

As per the *City of Ottawa - Sewer Design Guidelines*, the 2/5-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 2-, 5-, and 100-year events

are summarized below in *Table 5*. A pre-development drainage area plan can be found in *Appendix E*.

Table 5: Pre-Development Runoff Summary

Drainage Area	Area (ha)	Q (L/s)	
		2-Year	100-Year
A1	0.41	38.94	104.23

7.4 Post-Development Drainage

To meet the stormwater objectives the development will employ flow attenuation with a combination of roof and surface storage.

Based on the criteria listed in *Section 7.2*, 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 *38.94 L/s*. See *Appendix G* for calculations.

The proposed site drainage limits are demonstrated on the Post-Development Drainage Area Plan. See CCO-22-2383 - *POST* in *Appendix F* of this report for more details. A summary of the post-development runoff calculations can be found below.

Table 6: Post-Development Controlled Runoff Summary

Drainage Area	Area (ha)	2-year Peak Flow (L/s)	100-year Peak Flow (L/s)	100-year Storage Required (m^3)	100-year Storage Available (m^3)
B1	0.05	7.39	7.93	7.93	8.42
B2	0.02	1.01	1.70	7.82	8.05
B3	0.05	12.62	14.07	57.39	60.53
B4	0.03				
B5	0.03				
B6	0.09				
B7	0.13	5.84	16.87		
Total	0.41	25.85	38.87	73.13	77.00

Runoff from the existing car wash and surrounding drive aisle and parking lot *(Area B1)* will outlet to surface and be directed towards a proposed catch basin. A Tempest LMF85 ICD located within the outlet of CB4 will be used to restrict runoff to a maximum release rate of *7.93 L/s* during the 100-year event, resulting in a ponding depth of *0.18m* and a design head of *1.51m*. A surface storage volume of *7.93 m^3* will be required during the 100-year event.

Runoff from the proposed restaurant *(Area B2)* will be controlled and stored on the roof of the proposed building using 2 roof drains. The roof drains will be used to limit the flow from the roof to the allowable release rate. For calculation purposes a Watts Accutrol roof drain in the ¼ Open position was used to estimate a reasonable roof flow. Controlled runoff from area *B2* will outlet to surface and be controlled within areas *B3-B6*.

As seen in *Table 7* below, roof runoff from area B2 will be restricted to a maximum release rate of 1.70 L/s, allowing for a proposed 7.82 m^3 of roof storage. Emergency roof scuppers have been proposed to ensure roof ponding does not exceed 150mm.

Table 7: Controlled Roof Drainage Summary

Drainage Area	Area (ha)	# of Roof Drains	Storage Depth (mm)		Flow Per Roof Drain (L/s)		Total Flow Rate (L/s)	
			2-Year	100-Year	2-Year	100-Year	2-Year	100-Year
B2	0.02	2	40	120	0.50	0.85	1.01	1.70

Runoff for drive aisles and parking lot *(Areas B3-B6)* will be collected by a series of catch basins and catch basin maintenance holes before discharging to the existing municipal catch basin fronting the subject site. A *74mm* orifice at the outlet of CBMH2 will be used to restrict runoff to a maximum release rate of *14.07 L/s* during the 100-year event, resulting in a ponding depth of *0.15m – 0.30m* and a design head of *1.54m*. A surface storage volume of *57.39 m^3* will be required during the 100-year event.

Runoff from area *B7* will be directed to the adjacent right-of-way without restriction and will be compensated for in areas with flow attenuation.

7.5 Quality Control

As noted in *Section 7.1*, quality controls are required for the development up to an enhanced level of treatment (80% TSS removal). Per drawing *C102*, an oil & grit separator is proposed to be installed at the downstream end of the proposed storm servicing. The oil & grit separator structure will provide an enhanced level of treatment (80% TSS removal) for areas B1-B6.

8.0 SUMMARY

- A 1-storey drive-through restaurant is proposed to be constructed at 5646-5650 Manotick Main Street. The development is proposed within *0.41 ha* of the site.
- The existing car wash will be retained as part of the development.
- It is proposed to service the new restaurant and existing car wash through a new 50 mm diameter shared water service connection to the existing 305 mm diameter watermain within Manotick Main Street.
- Wastewater flows will be treated by a proposed on-site septic system.
- It is proposed to service the development area via roof storage and surface storage. The storm system will discharge controlled runoff to the existing municipal catch basin within Manotick Main Street.
- Quality controls will be provided by an Oil & Grit Separator unit.

9.0 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 5646-5650 Manotick Main Street.

This report is respectfully being submitted for approval.

Regards,

McIntosh Perry Consulting Engineers Ltd.

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10.0 STATEMENT OF LIMITATIONS

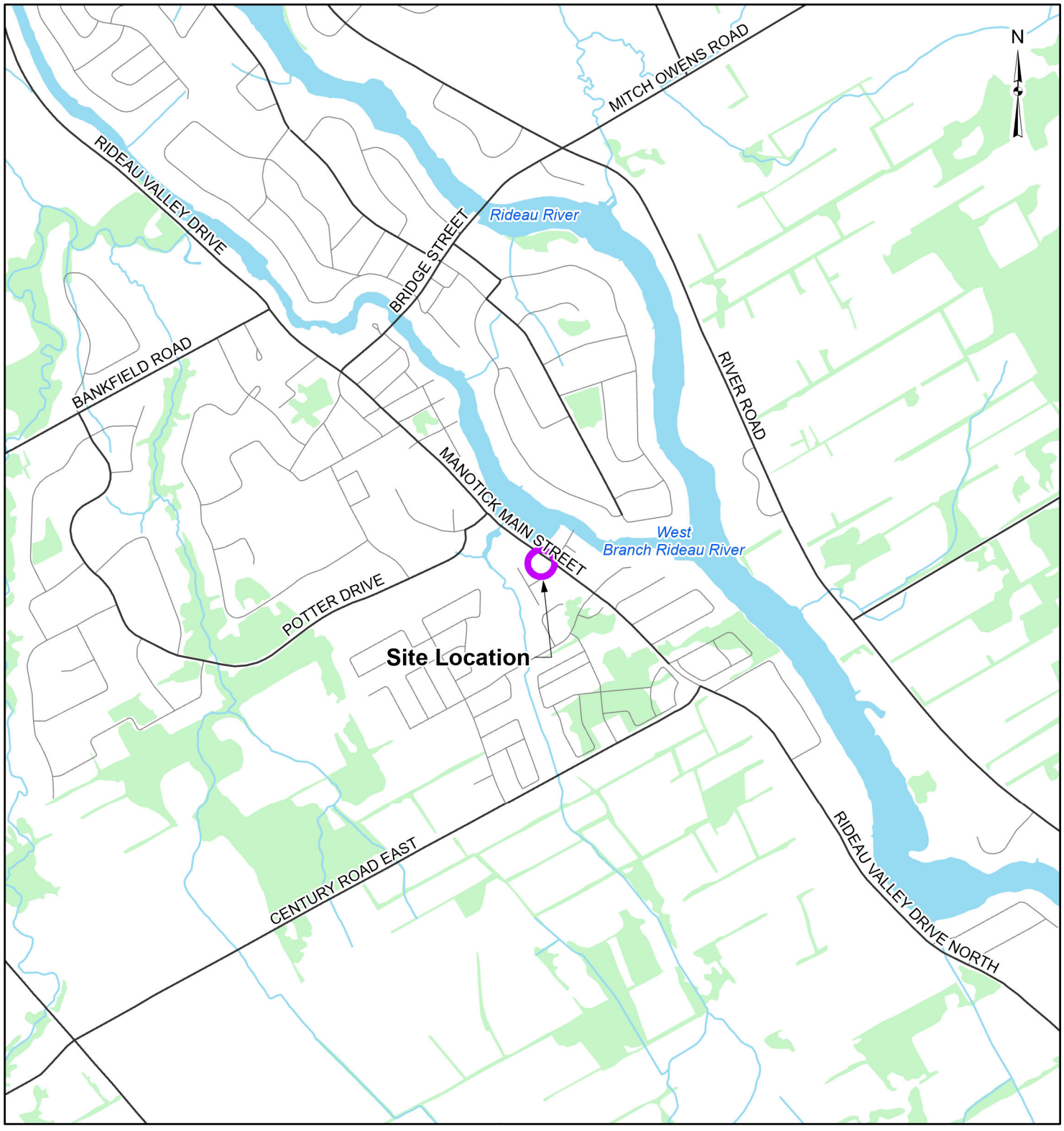
This report was produced for the exclusive use of Hawkins Properties. The purpose of the report is to assess the existing stormwater management system and provide recommendations and designs for the post-construction scenario that are in compliance with the guidelines and standards from the Ministry 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



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LEGEND

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

REFERENCE

GIS data provided by the Ontario Ministry of Northern Development, Mines, Natural Resources and Forestry, 2022.

CLIENT: HAWKINS PROPERTIES

PROJECT: 5646-5650 MANOTICK MAIN

TITLE: SITE LOCATION

McINTOSH PERRY
115 Walgreen Road, RR3, Carp, ON K0A1L0
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www.mcintoshperry.com

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APPENDIX B
BACKGROUND DOCUMENTS

McINTOSH PERRY

Site Plan Pre-Application Consultation

5646 and 5650 Manotick Main Street

Meeting Date: July 21, 2022

PC2022-0111

Applicant: McIntosh Perry.

Ward 5- West Carleton - March

Proposal Summary: Demolish the existing buildings at 5646 and 5650 Manotick Main Street and redevelop the land with a car was hand drive-thru restaurant.

Attendees:

Sean Harrigan, File Lead, City of Ottawa

Brian Morgan, Infrastructure Project Manager, City of Ottawa

Mark Elliot, Environmental Planner, City of Ottawa

Patrick McMahon, Transportation Project Manager, City of Ottawa

Tessa Di Iorio, Hydrogeologist, City of Ottawa

Jasdeep Brar, Planning Student, City of Ottawa

Consultation Team

Bridgette Alchawa, Planner, McIntosh Perry

Mimmo Laduca – Project Manager

Peter Cai – Architect

Curtis Melanson – Engineer

Jade Hawkins

Regrets

Eric Lalande, Rideau Valley Conservation Authority

Meeting Minutes

Proposal Details

- Demolish the existing two storey building with retail commercial use with an attached car wash on the ground floor with residential units above.
- Construct a 304 square metre restaurant with a drive-thru and new 223 square metre four bay carwash.
- Restaurant requires a Zoning By-law Amendment and Site Plan Control.

Planning Comments

Provided by Sean Harrigan

- The subject site is designated Village by Schedule B9 of the Official Plan. As per Official Plan section 9.4, villages are to be considered as rural neighbourhoods that should evolve into 15-minute neighbourhoods. Development should also maintain the rural and village character and facilitate the use of active transportation for short trips within each village.
- The site is further designated Mixed Residential-Commercial by Schedule A of the Village of Manotick Secondary Plan (Official Plan, Volume 2). The permitted uses include a variety of residential uses and a limited range of commercial and retail uses which would not compete with uses located in the Village Core. The Mud Creek Subwatershed Study (2015) will be used to evaluated any proposed development.
- Active transportation is a main objective/goal for Villages, as per the Official Plan and Secondary Plan. This should be reflected in the development design, Site Plan, and Planning Justification Report.
- The subject site is zoned RC1[152r] – Rural Commercial Zone, Subzone 1, exception 152. The exception prohibits a restaurant/bar and will have to be removed through a Zoning By-law Amendment for the proposed development.
- A **Planning Justification Report** will be required. This report must discuss how the proposed development and Zoning By-law Amendment adheres to the Official Plan, including the Village Secondary Plan. The report should also address the Secondary Plan's direction that this area should consist of residential development with limited commercial/retail, particularly when municipal wastewater services are extended to this area (the City does not have a timeframe for the extension at this point).
- A **Site Plan** is required and must show the property boundaries, dimensions of existing and proposed structures, zoning table, and other requirements listed in the Site Plan section within the Guide to preparing studies and plans | City of Ottawa.
- As per Zoning By-law Section 101, the parking requirements are:
    - 10 spots per 100m^2 of gross floor area for the restaurant (31 spots required for the 304 m^2 restaurant)
    - 0 spots for the car wash

Please ensure the **Site Plan** lists the required and provided parking spaces per land use. In addition to the required vehicle parking, I would strongly recommend bicycle parking to help achieve the Official Plan's active transportation goal.

- Official Plan policy 4.7.2(9) provides guidance that new development that relies upon private sewage system should maintain a minimum area of 800m^2 of undeveloped land for the sewage system. The intent of this policy is to maintain sufficient space for the required septic system as well as a backup location should the proposed system fail anytime in the future. Please ensure the **Site Plan** illustrates the total undeveloped land maintained for the sewage system. The Hydrogeological Report should provide justification if the proposed development does not achieve the 800m^2.
- A **Landscape Plan** is required and should clearly illustrate the location and details of any existing and proposed vegetation. This plan may be combined with the **Tree Conservation Report** provided the details are clearly visible. I strongly recommend planting additional trees adjacent to parking and along the street frontage, and potentially between noise/visual nuisance generators and adjacent properties (i.e. visual buffer between drive thru menu and adjacent residential properties).
- Through preliminary review, I anticipate that the proposed rezoning to permit a restaurant with a drive thru might be appropriate development given the applicable policies (i.e. a drive thru is prohibit in the village core, so limited competition with village core uses. Although, restaurants in general may compete with village core uses). However, this will have to be thoroughly discussed in the **Planning Justification Report**. Also, while the proposed rezoning might be appropriate, I have significant concerns with the scale of development and limitations imposed by lot size. In particular, I anticipate significant challenges in finding a site layout that achieves minimum parking requirements, sufficient space for a septic system, clear throat requirements, and adequate stormwater management.

Engineering Comments

Provided by Brian Morgan

- Based on the City's Official Plan "4.4.1 – Seriving in Public Service Area" and Section 2.3.2, staff would strongly recommend connecting to municipal water services. This would negate the need for a well.
- The **Septic Impact Assessment** should discuss the existing system: location, size, age, condition, and capacity. Please include a calculation of the proposed outflow requirements. Note that septic flows above 10,000 litres/day require eCA approval from the MECP. Records at the OSSO office indicate that a septic permit was applied for in 19990, but no record of its completion or inspection. If it was installed, please provide proof of the installation and when this was done.
- It is understood that the car wash facility includes an oil/grit separator and holding tank. Please provide whatever information you have on this facility. Staff are concerned about excessive or contaminated runoff being directed towards

neighbouring lots or City streets. Please confirm if a permit was issued for the car wash.

- City records do not indicate the outlet for the catch basin located in the right-of-way. The outlet of this feature should be indicated on the Site Plan.
- The City will require proof that the fuel tank was removed.
- This application will require a **Phase 1 ESA.**
- The **Site Plan** should provide information on the existing site including: water, sewer and servicing locations, parking layout, surface types, building locations, basic grading.
- During the Pre-Application Consultation, the applicant's engineer consultant asked for confirmation regarding some of the requirements for the site. I have consulted with the Senior Engineer and can confirm that:
    - The stormwater management criteria for this site is 100-year post to 2-year pre-development.
    - Stormwater management control will be required for this site
    - The 'C' values to be used on this project are given on Table 5.7 as provided in the Sewer Design Guidelines, Second Edition, Document SDG002, October 2012, City of Ottawa (Guidelines) including technical bulletins ISDTB-2014-01, PIEDTB-2016-01, ISTB 2018-01, and ISTB-2018-04.

Table 5.7 Runoff Coefficients for Various Soil Conditions

Topography and Vegetation	Soil Texture		
	Open Sandy Loam	Clay and Silt Loam	Tight Clay
Woodland			
Flat 0-5 % Slope	0.10	0.30	0.40
Rolling 5-10 % Slope	0.25	0.35	0.50
Hilly 10-30 % Slope	0.30	0.50	0.60
Pasture			
Flat 0-5 % Slope	0.10	0.30	0.40
Rolling 5-10 % Slope	0.16	0.36	0.55
Hilly 10-30 % Slope	0.22	0.42	0.60
Cultivated			
Flat 0-5 % Slope	0.30	0.50	0.60
Rolling 5-10 % Slope	0.40	0.60	0.70
Hilly 10-30 % Slope	0.53	0.72	0.82

For paved areas and roofs use: 0.9
For Gravel Surfaces use: 0.25 to 0.7
For Road shoulders use: 0.7

    - The City will require a Noise Report regarding the car wash bays.

Guide to preparing City of Ottawa Studies and Plans: [Guide to preparing studies and plans | City of Ottawa]

To request City of Ottawa plan(s) or report information please contact the ISD Information Centre: Information Centre(613) 580-2424 ext. 44455

Transportation Comments

Provided by Patrick McMahon

- Submit a **TIA Screening Form**. After review, a TIA may be required. Please start this process as soon as possible. Communication with the City is required after every submission.
- On site plan/survey:
    - Show the ROW protection along the frontage.
    - Show lane/aisle widths.
- The clear throat requirement for a restaurant greater than 200 m2 off of an arterial road is 40m. The site layout is not compatible and should be re-oriented to maximize this as much as possible.
- Indicate how many queueing spaces are intended to be provided for the drive-thru. At least seven before the menu board and a total of 11 are required.
- As the proposed site is commercial and for general public use, AODA legislation applies. Provide a pathway for pedestrians to Manotick Main from the restaurant use.
- Manotick Main Street is to be resurfaced in the next 1-2 years fronting this development, which will come with paved shoulders.
- No corner triangle is required.
- A stationary noise study is required for the car wash.

Hydrogeology Comments

Provided by Tessa Di Iorio

- The site is located within the Mud Creek Subwatershed Study (SWS) and all development is expected to comply with the regulations within that document.
- A **Hydrogeological and Terrain Analysis** will be required to assess the well and septic suitability
- Well:
    - Please confirm the water quantity requirement for the new development and compare the existing requirement (including all uses for the well; proposed restaurant, car wash, etc.). If the new development has a greater requirement for water, then a Well Pump test will be required to confirm the change in use can be supported by the existing well.
    - Water quality sampling is required to confirm quality meets Ontario Drinking Water Standards, Objectives and Guidelines. Note that the City of Ottawa has Hydrogeological and Terrain Analysis Guidelines (March 2021) that are in full effect. City Guidelines identify that the ‘subdivision suite’ of parameters needs to be assessed as well as metals. In addition, since the site was previously a gas station, testing should also include petroleum hydrocarbons, VOCs, and BTEX.

    - If the existing well will be used as the supply well, the well should be inspected to ensure it meets current standards outlined in O. Reg. 903 under the Ontario Water Resources Act.
    - The **Hydrogeological Report** should also indlcude an assessment of potential contaminant sources (including the previous activities onsite) and discuss how the well will be protected from contamination in the long term.
    - Please confirm if the former buried gas tanks were decommissioned and removed.
    - As a proposed restaurant, the well would be servicing the public and would fall under O. Reg. 319 (Small Drinking Water Systems) under the Health Protection and Promotion Act administered by Ottawa Public Health (OPH). OPH will need to be notified that the system will be servicing the public (see section 5 of O. Reg. 319). It is understood that OPH will conduct a risk assessment and the owner will need to complete the requirements outlined by OPH prior to the provision of water.
    - Please note that if this site is connected to municipal water , the well assessments (i.e. pump test and water quality sampling) will not be required. However, the potential impact of proposed activities onsite on adjacent wells and best management practices to protect local well users will still need to be addressed in a **Hydrogeological Report**.
- Septic:
    - If there is an increase in septic volume required (based on current standards), then a **Septic Impact Assessment** will be required. If the septic flow is greater than 10,000 L/day then the assessment should be done based on MECP Guideline D-5-4 and City Guidelines.

The hydrogeological consultant is welcome to contact the City's Hydrogeologist (Tessa Di iorio: tessa.diiorio@ottawa.ca) if they would like to discuss the requirements related to the Hydrogeological or Septic Impact Assessment.

Environmental Comments

Provided by Mark Elliot

- The site is located within the Mud Creek Subwatershed Study (SWS) and all development is expected to comply with the regulations within that document.
- The nearest heritage features are more than 120 metres away and therefore do not trigger the need for an Environmental Impact Statement (EIS) under the requirements of the Old OP (section 4.7.8.7) or the new OP (section 5.6.4.1.4). These conditions are reiterated but not substantively altered in the Mud Creek SWS.
- Stormwater would be a concern for this site due to the expansion of impervious surface. The SWS encourages the use of lot-level retention through low-impact design measures in section 4.5.1 but does not require any specific measures. The Stormwater Management Report noted by staff engineers would be a sufficient vehicle through which to address these concerns.

- A **Tree Conservation Report** (TCR) will be required. As noted in the previous discussions for this site, attention should be paid to trees along the property line and their critical root zones. We ask that the applicant seek higher tree coverage pursuant to Urban Forest Canopy Goals in section 4.8.2 of the New OP. The applicant is encouraged to combine tree plantings with on-site stormwater retention through low-impact design measures.
- I have no concerns about endangered species on site other than Butternut which would be addressed in the TCR.

Rideau Valley Conservation Authority Comments

Provided by Eric Lalande

- The RVCA will require enhanced water quality protection for the development on site.

To request City of Ottawa plan(s) or report information please contact the City of Ottawa Information Centre:
informationcentre@ottawa.ca OR (613) 580-2424 ext. 44455

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.

Application Submission Information

Application Type**: Site Plan Control – Rural Small**

For information on Site Plan Control Applications, including fees, please visit: https://ottawa.ca/en/city-hall/planning-and-development/information-developers/development-application-review-process/development-application-submission/fees-and-funding-programs/development-application-fees

The application processing timeline generally depends on the quality of the submission. For more information on standard processing timelines, please visit: https://ottawa.ca/en/city-hall/planning-and-development/information-developers/development-application-review-process/development-application-submission/development-application-forms#site-plan-control

Prior to submitting a formal application, it is recommended that you pre-consult with the Ward Councillor.

Application Submission Requirements

For information on the preparation of Studies and Plans and the City's requirements, please visit: https://ottawa.ca/en/city-hall/planning-and-development/information-developers/development-application-review-process/development-application-submission/guide-preparing-studies-and-plans

Please provide electronic copy (PDF) of all plans and studies required.

All identified required plans are to be submitted on standards A1 size sheets and use an appropriate metric scale as per City of Ottawa Servicing and Grading Plan Requirements**, and shall note the survey monument used to establish datum (beyond the local benchmark) on the plans with sufficient information to enable a layperson to locate the document.**

Note that many of the plans and studies collected with this application must be signed, sealed and dated by a qualified engineer, architect, surveyor, planner or designated specialist.

APPENDIX C
WATERMAIN CALCULATIONS

McINTOSH PERRY

McINTOSH PERRY

CCO-22-2383 - 5646-5650 Manotick Main Street - Water Demands

Project:	5646-5650 Manotick Main Street
Project No.:	CCO-22-2383
Designed By:	FV
Checked By:	CJM
Date:	February 26, 2024
Site Area:	0.41 gross ha

Commercial 362 m2 28000 L/gross ha/d

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/(1000m² /d
Hospital	900	L/(bed/day)
Schools	70	L/(Student/d)
Trailer Park with no Hook-Ups	340	L/(space/d)
Trailer Park with Hook-Ups	800	L/(space/d)
Campgrounds	225	L/(campsite/d)
Restaurant	125	L/seat/d
Motels	150	L/(bed-space/d)
Hotels	225	L/(bed-space/d)
Tourist Commercial	28,000	L/gross ha/d
Other Commercial	28,000	L/gross ha/d

AVERAGE DAILY DEMAND	Residential	0.00	L/s
	Commercial/Industrial/ Institutional	0.01	L/s

MAXIMUM DAILY DEMAND

DEMAND TYPE	AMOUNT		UNITS
Residential	9.5	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	0.00	L/s
	Commercial/Industrial/ Institutional	0.02	L/s

MAXIMUM HOUR DEMAND

DEMAND TYPE	AMOUNT		UNITS
Residential	14.3	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	0.00	L/s
	Commercial/Industrial/ Institutional	0.03	L/s

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

AVERAGE DAILY DEMAND	0.01	L/s
MAXIMUM DAILY DEMAND	0.02	L/s
MAXIMUM HOUR DEMAND	0.03	L/s

McINTOSH PERRY

CCO-22-2383 - 5646-5650 Manotick Main Street - OBC Fire Calculations - Restaurant

Project:	5646-5650 Manotick Main Street
Project No.:	CCO-22-2383
Designed By:	FV
Checked By:	CJM
Date:	February 26, 2024

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

Water Supply for Fire-Fighting - Drive-Through Restaurant

Building is classified as Group : Group E

Building is of combustible construction. Floor assemblies are fire separations but with no fire-resistance ratings. Roof assemblies, mezzanies, 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	39	
V	1,184	(Total building volume in m³.)
Stot	1.1	(From figure 1 pg A-32)
Q =	50,772.15 L	

→

From Figure 1 (A-32)

Snorth	8.7	m	0.1
Seast	10.1	m	0.0
Ssouth	33.2	m	0.0
Swest	46.1	m	0.0

*approximate distances

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

2700 L/min if Q < 108,000 L

713 gpm

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

McINTOSH PERRY

CCO-22-2383 - 5646-5650 Manotick Main Street - OBC Fire Calculations - SE Building

Project:	5646-5650 Manotick Main Street
Project No.:	CCO-22-2383
Designed By:	FV
Checked By:	CJM
Date:	February 26, 2024

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

Water Supply for Fire-Fighting - Car Wash

Building is classified as Group : Group F-2

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	39	
V	625	(Total building volume in m³.)
Stot	1.5	(From figure 1 pg A-32)
Q =	36,562.50	L

→

			From Figure 1 (A-32)
Snorth	18.8	m	0.0
Seast	42.8	m	0.0
Ssouth	16.6	m	0.0
Swest	3.0	m	0.5

*approximate distances

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

2700 L/min if Q < 108,000 L

713 gpm

McINTOSH PERRY

CCO-22-2383 - 5646 Manotick Main Street - Boundary Condition Unit Conversion

Project:	5646 Manotick Main Street
Project No.:	CCO-22-2383
Designed By:	FV
Checked By:	CJM
Date:	February 26, 2024

Boundary Conditions Unit Conversion

Manotick Main - Curent Pressure Zone (3SW)

Scenario	Height (m)	Elevation (m)	m H_2O	PSI	kPa
Avg. DD	157.1	87.4	69.7	99.1	683.3
Max Day + Fire Flow (45 L/s or 2,700 L/min)	146.1	87.4	58.7	83.6	576.2
Peak Hour	140.3	87.4	52.9	75.3	519.3

Manotick Main - Future Pressure Zone (SUC)

Scenario	Height (m)	Elevation (m)	m H_2O	PSI	kPa
Avg. DD	147.7	87.4	60.3	85.7	591.1
Max Day + Fire Flow (45 L/s or 2,700 L/min)	140.8	87.4	53.4	76.0	524.2
Peak Hour	142.3	87.4	54.9	78.2	539.0

Boundary Conditions for 5646Manotick Main

Information Provided:

Date provided: Dec 2022

Scenario	Demand	
	L/min	L/s
Average Daily Demand	3	0.05
Maximum Daily Demand	4.2	0.07
Peak Hour	7.2	0.12
Fire Flow Demand #1	2700	45.0
Fire Flow Demand #2	4000	66.7

Location:

Results:

Current Pressure Zone 3SW

Connection 1 - Manotick Main

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	157.1	99.1
Peak Hour	140.3	75.3
Max Day plus Fire #1	146.1	83.6
Max Day plus Fire #2	142.4	78.3

[1] Ground Elevation = 87.4m

Future Pressure Zone SUC (2024)

Connection 1 - Manotick Main

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	147.7	85.7
Peak Hour	142.3	78.2
Max Day plus Fire #1	140.8	76.0
Max Day plus Fire #2	137.3	71.1

[1] Ground Elevation = 87.4m

Notes:

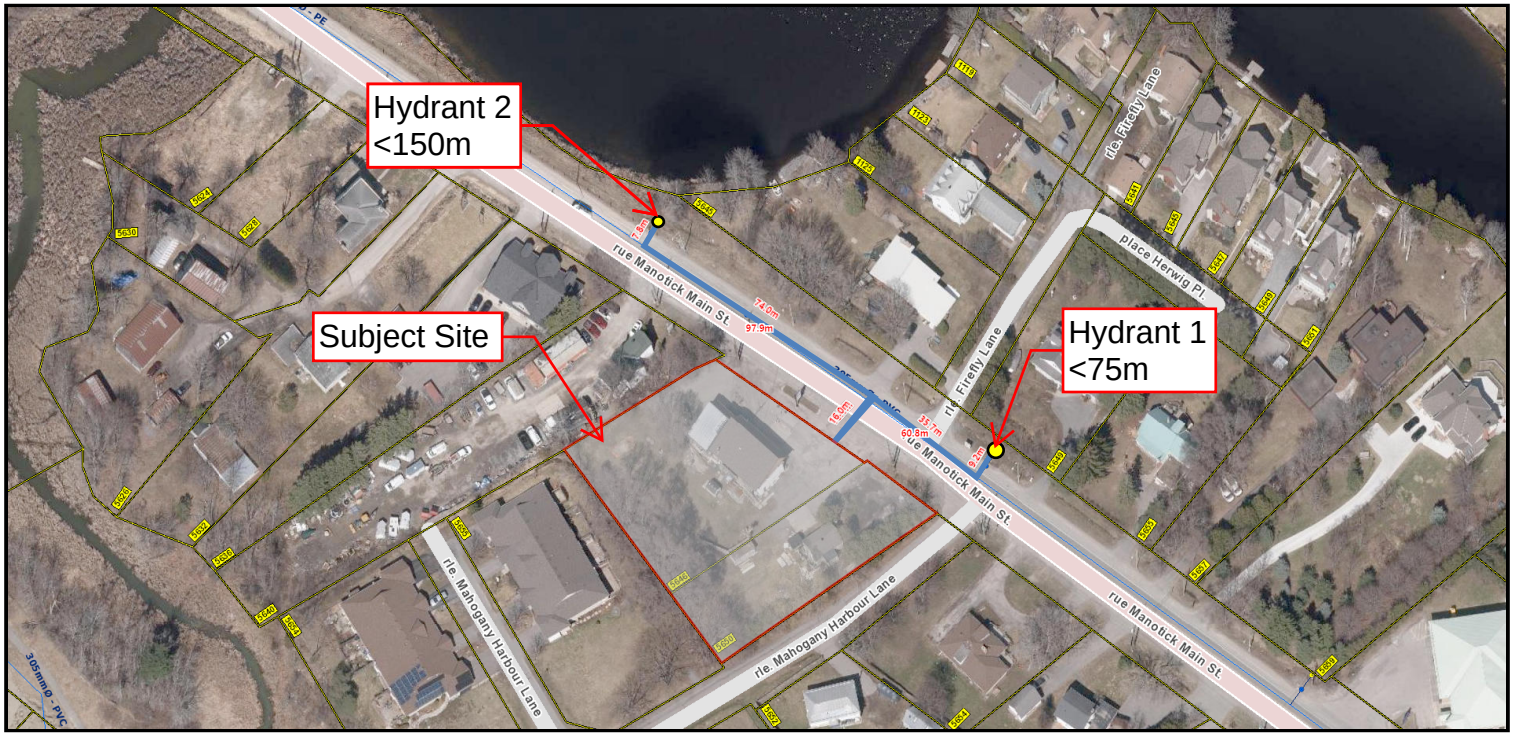
1) As per the Ontario Building Code in areas that may be occupied, the static pressure at any fixture shall not exceed 552 kPa (80 psi.) Pressure control measures to be considered are as follows, in order of preference:
   a) If possible, systems to be designed to residual pressures of 345 to 552 kPa (50 to 80 psi) in all occupied areas outside of the public right-of-way without special pressure control equipment.
   b) Pressure reducing valves to be installed immediately downstream of the isolation valve in the home/ building, located downstream of the meter so it is owner maintained.

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. Fire Flow analysis is a reflection of available flow in the watermain; there may be additional restrictions that occur between the watermain and the hydrant that the model cannot take into account.

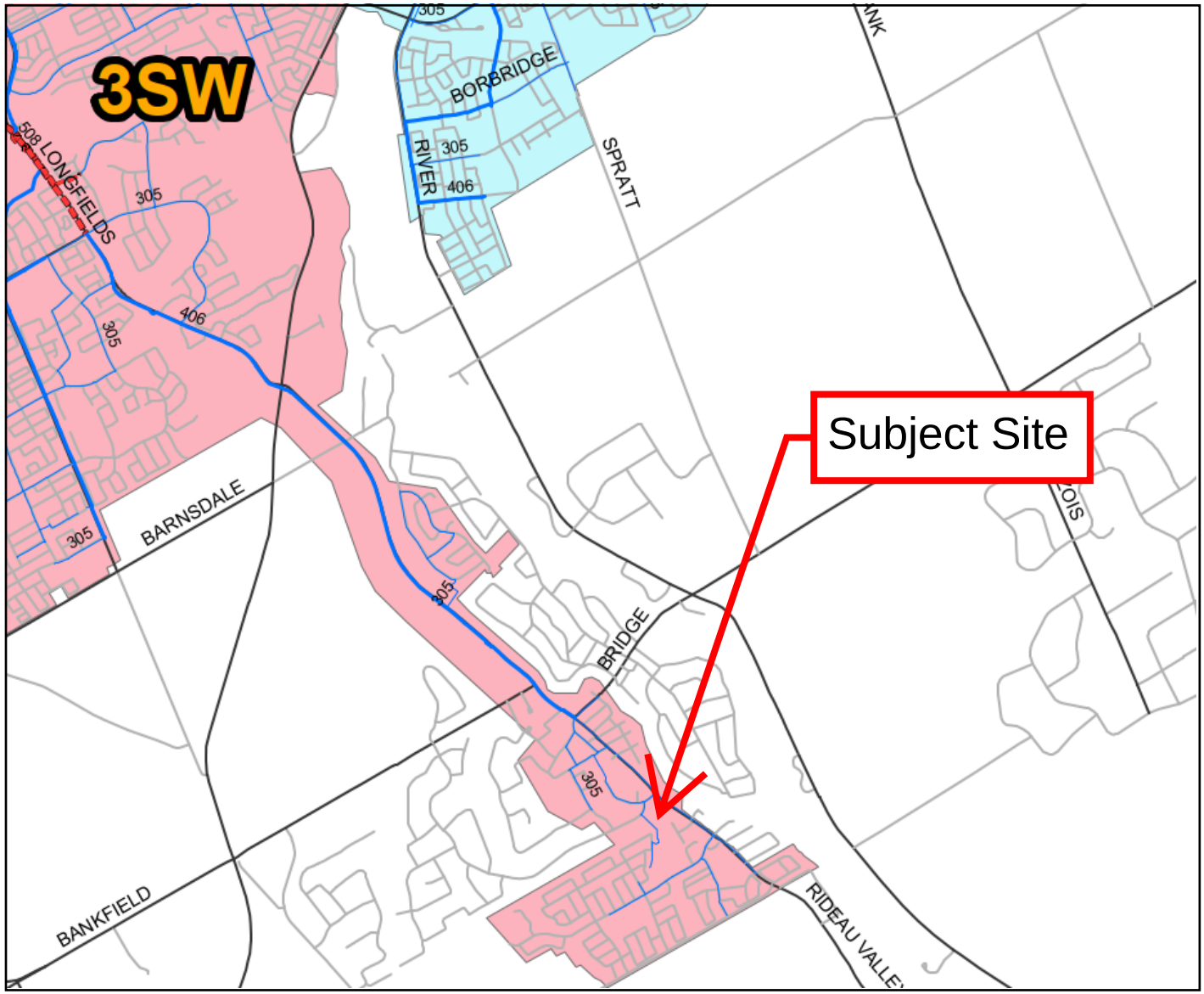
5646-5650 Manotick Main

Hydrant Coverage Figure



5646-5650 Manotick Main

Pressure Zone Figure



APPENDIX D
SANITARY CALCULATIONS

McINTOSH PERRY

NON-RESIDENTIAL
☐ Commercial
☐ Industrial
☐ Institutional

PO Box 599, 3889 Rideau Valley Drive, Manotick, Ontario K4M 1A5
T (613) 692-3571 ext 4 F (613) 692-1507 septic@rvca.ca info@rvca.ca www.rvca.ca
SEPTIC OFFICE

SEPTIC PACKAGE
IMPORTANT INFORMATION - PLEASE READ

Attached is your Septic Sewage Permit package. A **minimum of two (2) inspections are required** before your proposed Septic system can be approved for use (additional inspections may be required for clay soils/bedrock and/or re-inspections).

- All inspections must be requested by writing/email.
- It is the responsibility of the Homeowner/Installer to provide a copy of the Part 8 permit to the plan examiner at client service/building department.
- All construction documents must be received prior to issuing the Certificate of Completion.

Special Note

- A permit is valid for **12 months** from the original date of issuance noted in the "permit date".
- If lapsed, it **may be renewed only once** for a period of 12 months *from the date of expiry*.
- No person shall make a material change or cause a material change to be made to a plan, specification, document, or other information based on which the permit was issued without notifying / filing detail with and obtaining the authorization of the Chief Building Official. (Building Code Act 1992, c23, s.8 (12))

Septic Sewage System Permit Construction/Inspection Requirements

If you submit early, and an inspector arrives before you are finished, you could be subject to a $200.00 re-inspection fee.

1. **Subgrade/Scarification/Clay Soils/Bedrock (if stated on permit)** – In Clay soils/Bedrock, a site preparation inspection is required. The total contact area must be properly prepared. Scarification must be done under dry conditions prior to importing leaching bed fill.
2. **Installation Inspection – 2nd inspection**

When the septic system is substantially completed (i.e. before the final fill is placed over the septic tank and leaching bed system) an Installation inspection is always required. Prior to any inspection request, the following documents are **mandatory and must** be submitted;

- As-built components page and As-built drawings
- Engineers Letter – if the system is engineered
- Weigh bill
- Grain Size Analysis
- Maintenance Agreement
- ESA Permit number
- Schedule 2 – Installer information

3. **Final Grading Inspection – 3rd Inspection**

When construction of the Septic System is complete, a final grading inspection is required. Before a Certificate of Completion can be issued, the following is **mandatory and must** be completed:

- The leaching bed and Septic tank must be covered with sand fill, topsoil and graded accordingly
- All conditions of the Septic permit & comments on the installation inspection report must be met
- The depth of cover & material type must be identified by inspection pipes or holes placed over trenches at four (4) corners of the bed
- The four (4) corners of the bed must be stake.

Car wash

Application for a Permit to Construct or Demolish

This form is authorized under subsection 8(1.1) of the *Building Code Act, 1992*

For use by Principal Authority

Application number:	Permit number (if different): SEPTIC FILE #
Date received: R.V.C.A. RECEIVED MAR - 6 2024	Roll number: 24-031 OTTAWA

Application submitted to: OTTAWA SEPTIC SYSTEM OFFICE
(Name of municipality, upper-tier municipality, board of health or conservation authority)

A. Project information

Building number, street name: 5646-5650 Manotick Main Street		Unit number	Lot/con.
Municipality: Ottawa	Postal code: K4M 0T6	Plan number/other description	
Project value est. $		Area of work (m^2)	

B. Purpose of application

✓ New construction | Addition to an existing building | Alteration/repair | Demolition | Conditional Permit

Proposed use of building: Existing 2-Bay Car Wash	Current use of building: Existing 2-Bay Car Wash (to remain)

Description of proposed work

Design of new Class 4 on-site sewage disposal system to service existing 2-bay car wash portion of redeveloped property. All existing sanitary infrastructure from existing dwelling and car wash to be decommissioned and replaced.

C. Applicant

Applicant is: Owner or (Authorized agent of owner)

Last name: Leblanc	First name: Patrick	Corporation or partnership: Egis	
Street address: 115 Walgreen Road, R.R. #3		Unit number	Lot/con.
Municipality: Carp	Postal code: K0A 1L0	Province: Ontario	E-mail: patrick.leblanc@egis-group.com
Telephone number: (613) 714-4586	Fax: ( )		Cell number: (613) 229-5863

D. Owner (if different from applicant)

Last name: Hawkings	First name: Jade	Corporation or partnership: Hawkins Properties	
Street address: 650a Eagleson Road		Unit number	Lot/con.
Municipality: Kanata	Postal code: K2M 1H4	Province: ON	E-mail: jade@hawkinsproperties.org
Telephone number: (613) 859-2819	Fax: ( )		Cell number: ( )

E. Builder (optional)

Last name	First name	Corporation or partnership (if applicable)	
Street address		Unit number	Lot/con.
Municipality	Postal code	Province	E-mail
Telephone number ( )	Fax ( )	Cell number ( )	

R.V.C.A. RECEIVED
MAR - 6 2024
SEPTIC FILE # 24-031
OTTAWA

F. Tarion Warranty Corporation (Ontario New Home Warranty Program)

i. Is proposed construction for a new home as defined in the *Ontario New Home Warranties Plan Act*? If no, go to section G.	Yes	No ✓
ii. Is registration required under the *Ontario New Home Warranties Plan Act*?	Yes	No ✓

iii. If yes to (ii) provide registration number(s): _____

G. Required Schedules

i) Attach Schedule 1 for each individual who reviews and takes responsibility for design activities.

ii) Attach Schedule 2 where application is to construct on-site, install or repair a sewage system.

H. Completeness and compliance with applicable law

i) This application meets all the requirements of clauses 1.3.1.3 (5) (a) to (d) of Division C of the Building Code (the application is made in the correct form and by the owner or authorized agent, all applicable fields have been completed on the application and required schedules, and all required schedules are submitted).	Yes ✓	No
Payment has been made of all fees that are required, under the applicable by-law, resolution or regulation made under clause 7(1)(c) of the *Building Code Act, 1992*, to be paid when the application is made.	Yes ✓	No
ii) This application is accompanied by the plans and specifications prescribed by the applicable by-law, resolution or regulation made under clause 7(1)(b) of the *Building Code Act, 1992.*	Yes ✓	No
iii) This application is accompanied by the information and documents prescribed by the applicable by-law, resolution or regulation made under clause 7(1)(b) of the *Building Code Act, 1992* which enable the chief building official to determine whether the proposed building, construction or demolition will contravene any applicable law.	Yes ✓	No
iv) The proposed building, construction or demolition will not contravene any applicable law.	Yes ✓	No

I. Declaration of applicant

I Patrick Leblanc declare that:
(print name)

1. The information contained in this application, attached schedules, attached plans and specifications, and other attached documentation is true to the best of my knowledge.
2. If the owner is a corporation or partnership, I have the authority to bind the corporation or partnership.

Mar 4, 2024
Date

Signature of applicant

Personal information contained in this form and schedules is collected under the authority of subsection 8(1.1) of the *Building Code Act, 1992*, and will be used in the administration and enforcement of the *Building Code Act, 1992*. Questions about the collection of personal information may be addressed to: a) the Chief Building Official of the municipality or upper-tier municipality to which this application is being made, or, b) the inspector having the powers and duties of a chief building official in relation to sewage systems or plumbing for an upper-tier municipality, board of health or conservation authority to whom this application is made, or, c) Director, Building and Development Branch, Ministry of Municipal Affairs and Housing 777 Bay St., 2nd Floor. Toronto, M5G 2E5 (416) 585-6666.

Schedule 1: Designer Information

Use one form for each individual who reviews and takes responsibility for design activities with respect to the project.

A. Project Information

Building number, street name		Unit no.	Lot/con.
5646-5650 Manotick Main Street			
Municipality	**Postal code**	**Plan number/ other description**	
Ottawa	K4M 0T6		

SEPTIC FILE # 24-031

B. Individual who reviews and takes responsibility for design activities

Name		Firm	
Patrick Leblanc, P.Eng.		Egis	
Street address		**Unit no.**	**Lot/con.**
115 Walgreen Road, R.R. #3			
Municipality	**Postal code**	**Province**	**E-mail**
Carp	K0A 1L0	Ontario	patrick.leblanc@egis-group.com
Telephone number	**Fax number**		**Cell number**
(613) 714-4586	( )		(613) 229-5863

OTTAWA

C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1. of Division C]

House	HVAC – House	Building Structural
Small Buildings	Building Services	Plumbing – House
Large Buildings	Detection, Lighting and Power	Plumbing – All Buildings
Complex Buildings	Fire Protection	On-site Sewage Systems

Description of designer's work

Design of new Class 4 on-site sewage disposal system to service car wash portion of redeveloped property.

D. Declaration of Designer

I Patrick Leblanc, P.Eng. declare that (choose one as appropriate):
(print name)

I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4.of Division C, of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories.

Individual BCIN: _____

Firm BCIN: _____

I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5.of Division C, of the Building Code.

Individual BCIN: _____

Basis for exemption from registration: _____

The design work is exempt from the registration and qualification requirements of the Building Code.

Basis for exemption from registration and qualification: P.Eng. (Licence #100141438)

I certify that:

1. The information contained in this schedule is true to the best of my knowledge.
2. I have submitted this application with the knowledge and consent of the firm.

Date Mar 4, 2024 Signature of Designer

NOTE:

1. For the purposes of this form, "individual" means the "person" referred to in Clause 3.2.4.7(1) (c).of Division C, Article 3.2.5.1. of Division C, and all other persons who are exempt from qualification under Subsections 3.2.4. and 3.2.5. of Division C.
2. Schedule 1 is not required to be completed by a holder of a license, temporary license, or a certificate of practice, issued by the Ontario Association of Architects. Schedule 1 is also not required to be completed by a holder of a license to practise, a limited license to practise, or a certificate of authorization, issued by the Association of Professional Engineers of Ontario.

Schedule 2: Sewage System Installer Information

A. Project Information

Building number, street name		Unit number	Lot/con.
5646-5650 Manotick Main Street			
Municipality	**Postal code**	**Plan number/ other description**	
Ottawa	K4M 0T6		

B. Sewage system installer

Is the installer of the sewage system engaged in the business of constructing on-site, installing, repairing, servicing, cleaning or emptying sewage systems, in accordance with Building Code Article 3.3.1.1, Division C?

Yes (Continue to Section C) No (Continue to Section E) ✓ Installer unknown at time of application (Continue to Section E)

C. Registered installer information (where answer to B is "Yes")

Name			BCIN	
Street address			Unit number	Lot/con.
Municipality	Postal code	Province	E-mail	
Telephone number ( )	Fax ( )		Cell number ( )	

R.V.C.A. RECEIVED
MAR - 6 2024

SEPTIC FILE # 24-031

D. Qualified supervisor information (where answer to section B is "Yes")

Name of qualified supervisor(s)	Building Code Identification Number (BCIN)

OTTAWA

E. Declaration of Applicant:

I Patrick Leblanc (print name) declare that:

I am the applicant for the permit to construct the sewage system. If the installer is unknown at time of application, I shall submit a new Schedule 2 prior to construction when the installer is known;

OR

I am the holder of the permit to construct the sewage system, and am submitting a new Schedule 2, now that the installer is known.

I certify that:

1. The information contained in this schedule is true to the best of my knowledge.
2. If the owner is a corporation or partnership, I have the authority to bind the corporation or partnership.

Date Mar 4, 2024 Signature of applicant

Ottawa Septic System Office | Bureau des systèmes septiques d'Ottawa

R.V.C.A. RECEIVED
MAR - 6 2024

Do Not Complete
Permit No
Revision No
Date 24-031
SEPTIC FILE #
OTTAWA

Schedule 4
Proposed Services
Complete Sections 1 thru 7

1. **Engineered**
   - ■ Yes
   - ☐ No

2. **Water supply**
   - ■ Proposed
   - ☐ Existing

3. **Type of work proposed**
   - ■ New Installation
   - ☐ Replacement
   - ☐ Alteration

4. **Type of Well**
   - ☐ Dug/bored/Sandpoint well
   - ☐ Drilled well
   - ■ Municipal
   - ☐ Other

5. **Residential** Sewage Design Flow Info.
   Bedrooms _____
   House (floor area) _____ **m²**
   People _____
   Total Fixture Units _____ **(Schedule 8)**
   Residential Flow _____ **L/day**

6. Sewage Design Flow **Other Occupancies**
   Design Flow 4,750 L/day
   Detailed sewage flow calculations:
   Based on flows extracted from usage data for existing 2-Bay Car Wash (see next page for breakdown)

7. **Type of System**
   - ■ Treatment Unit Eljen GSF
   - ☐ Class 2 – Leaching Pit
   - ☐ Class 3 – Cesspool
   - ☐ Class 4 – Shallow Buried Trench
   - ☐ Class 4 – Trench **(Schedule 9)**
     - ☐ Fully raised
     - ☐ Partially raised
     - ☐ In-ground
   - ☐ Class 4 – Filter Media **(Schedule 10)**
     - ☐ Fully raised
     - ☐ Partially raised
     - ☐ In-ground
   - ■ Class 4 – BMEC Area Bed **(Schedule 11)**
     - ■ Fully raised
     - ☐ Partially raised
     - ☐ In-ground
   - ☐ Class 4 – "Type A" Dispersal **(Schedule 13)**
     - ☐ Fully raised
     - ☐ Partially raised
     - ☐ In-ground
   - ☐ Class 4 – "Type B" Dispersal **(Schedule 14)**
     - ☐ Fully raised
     - ☐ Partially raised
     - ☐ In-ground
   - ☐ Class 5 – Holding Tank (9000L min)
   - ☐ Tank/TreatmentUnit/PumpChamber ONLY
   - ☐ Effluent Filter/Risers ONLY

Design Flow Determination for Car Wash at 5646-5650 Manotick Main Street (Rev.1, March 4, 2024)

Month	Days	# of Car washes	Washes/day (average)	Minutes/ Wash (min)	Pressure Washer Flow (L/min)	Volume/ Wash (L)	Volume/ day (L)	# of Wash Bays	Volume/ Wash Bay (L/day)	Max # of Wash Bays @ Design Daily Flow of 4,750 L
Jun-19	30	200	7	4	15	60	420	2	210.0	22.6
Jul-19	31	113	4	4	15	60	240	2	120.0	39.6
Aug-19	31	155	5	4	15	60	300	2	150.0	31.7
Sep-19	30	129	5	4	15	60	300	2	150.0	31.7
Oct-19	M	M	M	M	M	M	M	M	M	M
Nov-19	30	216	8	4	15	60	480	2	240.0	19.8
Dec-19	M	M	M	M	M	M	M	M	M	M
Jan-20	31	314	11	4	15	60	660	2	330.0	14.4
Feb-20	M	M	M	M	M	M	M	M	M	M
Mar-20	31	385	13	4	15	60	780	2	390.0	12.2
Apr-20	M	M	M	M	M	M	M	M	M	M
May-20	31	258	9	4	15	60	540	2	270.0	17.6
Jun-20	30	322	11	4	15	60	660	2	330.0	14.4
Jul-20	31	277	9	4	15	60	540	2	270.0	17.6
Aug-20	31	246	8	4	15	60	480	2	240.0	19.8
Sep-20	30	256	9	4	15	60	540	2	270.0	17.6
Oct-20	31	341	11	4	15	60	660	2	330.0	14.4
Nov-20	30	481	17	4	15	60	1020	2	510.0	9.3
Dec-20	31	371	12	4	15	60	720	2	360.0	13.2
Jan-21	M	M	M	M	M	M	M	M	M	M
Feb-21	M	M	M	M	M	M	M	M	M	M
Mar-21	M	M	M	M	M	M	M	M	M	M
Apr-21	30	505	17	4	15	60	1020	2	510.0	9.3
May-21	M	M	M	M	M	M	M	M	M	M
Jun-21	M	M	M	M	M	M	M	M	M	M
Jul-21	M	M	M	M	M	M	M	M	M	M
Aug-21	M	M	M	M	M	M	M	M	M	M
Sep-21	M	M	M	M	M	M	M	M	M	M
Oct-21	M	M	M	M	M	M	M	M	M	M
Nov-21	M	M	M	M	M	M	M	M	M	M
Dec-21	M	M	M	M	M	M	M	M	M	M
Jan-22	M	M	M	M	M	M	M	M	M	M
Feb-22	M	M	M	M	M	M	M	M	M	M
Mar-22	M	M	M	M	M	M	M	M	M	M
Apr-22	M	M	M	M	M	M	M	M	M	M
May-22	M	M	M	M	M	M	M	M	M	M
Jun-22	M	M	M	M	M	M	M	M	M	M
Jul-22	M	M	M	M	M	M	M	M	M	M
Aug-22	M	M	M	M	M	M	M	M	M	M
Sep-22	30	357	12	4	15	60	720	2	360.0	13.2
Oct-22	31	413	14	4	15	60	840	2	420.0	11.3
Nov-22	30	456	16	4	15	60	960	2	480.0	9.9
Dec-22	31	441	15	4	15	60	900	2	450.0	10.6
Jan-23	31	596	20	4	15	60	1200	2	600.0	7.9
Feb-23	28	918	33	4	15	60	1980	2	990.0	4.8
Mar-23	31	828	27	4	15	60	1620	2	810.0	5.9

egis

CCO-22-2383
5646-5650 Manotick Main Street

Apr-23	30	800	27	4	15	60	1620	2	810.0	5.9
May-23	31	724	24	4	15	60	1440	2	720.0	6.6
Jun-23	30	655	22	4	15	60	1320	2	660.0	7.2
Jul-23	31	502	17	4	15	60	1020	2	510.0	9.3
Aug-23	31	433	14	4	15	60	840	2	420.0	11.3
Sep-23	30	591	20	4	15	60	1200	2	600.0	7.9
Oct-23	31	442	15	4	15	60	900	2	450.0	10.6
Nov-23	30	772	26	4	15	60	1560	2	780.0	6.1
Dec-23	31	887	29	4	15	60	1740	2	870.0	5.5

Notes:

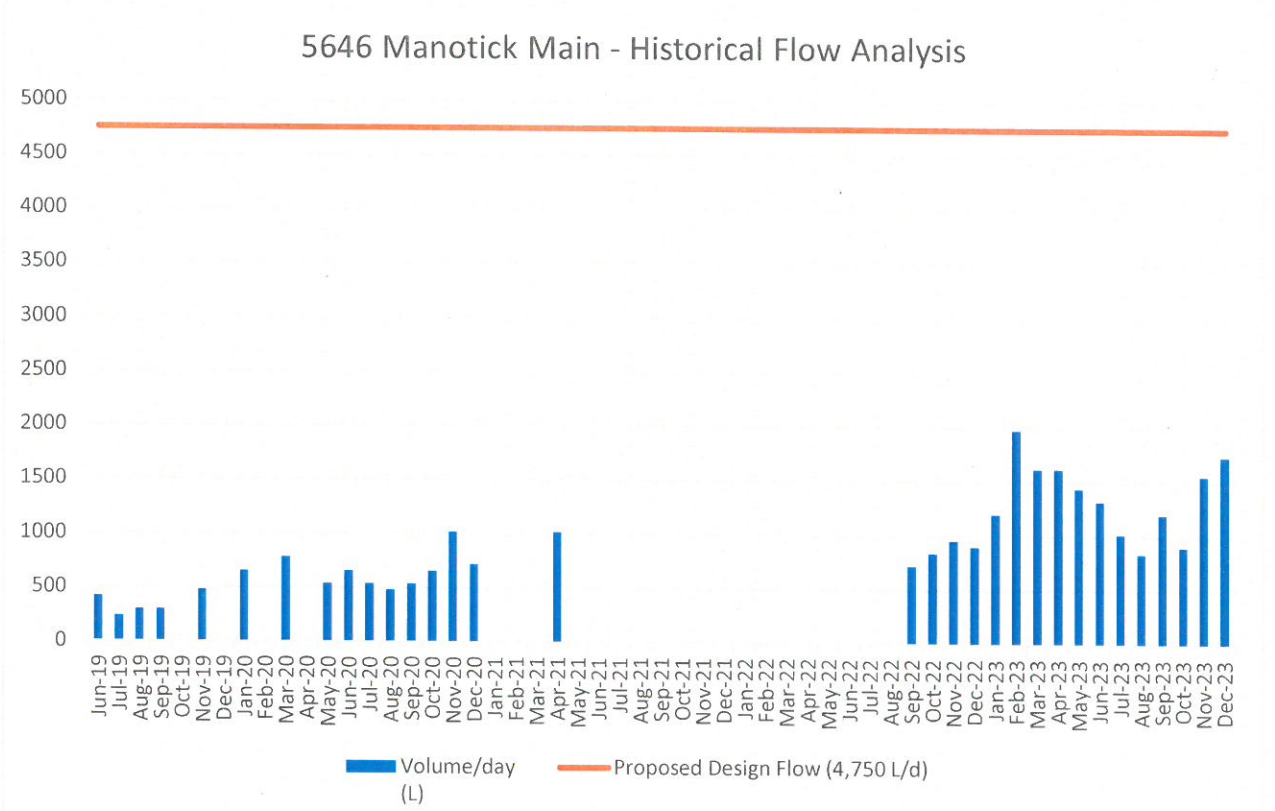
M missing data

Average	913	L/day	
Max	1980	L/day	
Min	240	L/day	

Total Months = 55

Months with Data = 32

Missing months = 23



CHASE
J.P.Morgan

Statement Period 1-Nov-2023 - 30-Nov-2023
Company Number [redacted]
1029822 Ontario Inc.

Deposit Summary by Location

GST: [redacted]
QST:

6393840 COIN CAR WASH
Card Type Summary

Card Type	Number of Sales	Sales	Number of Credits	Credits	Total Number of Items	Net Sales	Average Ticket
VISA*	517	$2,129.00	0	$0.00	517	$2,129.00	$4.12
MASTERCARD*	255	$1,054.00	0	$0.00	255	$1,054.00	$4.13
Totals	772	$3,183.00	0	$0.00	772	$3,183.00	

*Funded by Chase Paymentech Canada

If you have any questions regarding your statement, please contact: 1-800-265-5158

CHASE
J.P.Morgan

Statement Period 1-Dec-2023 - 31-Dec-2023
Company Number [redacted]
1029822 Ontario Inc.

Deposit Summary by Location

GST: [redacted]
QST:

SEPTIC FILE #
24 - 031
OTTAWA

Total

6393840 COIN CAR WASH
Card Type Summary

Card Type	Number of Sales	Sales	Number of Credits	Credits	Total Number of Items	Net Sales	Average Ticket
VISA*	564	$2,438.00	0	$0.00	564	$2,438.00	$4.32
MASTERCARD*	323	$1,211.00	0	$0.00	323	$1,211.00	$3.75
Totals	887	$3,649.00	0	$0.00	887	$3,649.00	

*Funded by Chase Paymentech Canada

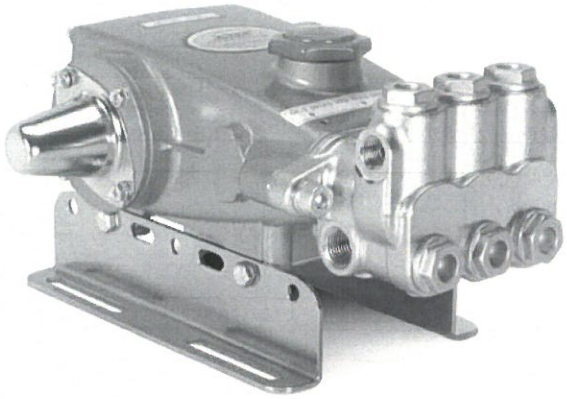
If you have any questions regarding your statement, please contact: 1-800-265-5158

DATA SHEET
5 FRAME PLUNGER PUMPS

CAT PUMPS®
The Pumps with Nine Lives

Standard Models: **310, 340, 350**

Special Brass Models: **310B, 340B, 350B**



Model 310 Shown
(Rails and Shaft Protector Sold Separately)

FEATURES

- Triplex design offers high efficiency and low pulsation.
- Durable high pressure seals are lubricated and cooled by pumped liquid.
- Pre-set Lo-Pressure Seals provide secondary protection against external leaks and require no packing adjustment.
- Alternate crankshaft strokes offers flexibility with belt, clutch or direct-drive installation.
- Standard NBR seals with alternative options for temperature and chemical compatibility
  - FPM – .0110
  - EPDM – .0220
  - High Temp, 190°F – .3000

COMMON SPECIFICATIONS

	U.S.	Metric
Bore	0.787"	20 mm
Standard Liquid Temperature	160°F	71°C
Above 130°F call Cat Pumps for inlet conditions and elastomer recommendations.		
Crankcase Capacity	18 oz.	0.55 l
Inlet Ports (2)	1/2" NPT(F)	1/2" NPT(F)
Discharge Ports (2)	3/8" NPT(F)	3/8" NPT(F)
Shaft Diameter	0.787"	20 mm
Weight	19.8 lbs.	9 kg
Dimensions	11.73 x 10.0 x 5.24"	298 x 254 x 133 mm

SPECIFICATIONS	U.S. Measure	Metric Measure
310, 310B Belt Drive		
Flow	4.0 gpm	15 lpm
Pressure Range	100 to 2200 psi	7 to 152 bar
Pump RPM	950 rpm	950 rpm
Inlet Pressure Range	-5 to 60 psi	-0.35 to 4 bar
Stroke	0.709"	18 mm
340, 340B Direct Drive		
Flow	4.0 gpm	15 lpm
Pressure Range	100 to 1800 psi	7 to 124 bar
Pump RPM	1725 rpm	1725 rpm
Inlet Pressure Range	Flooded to 60 psi	Flooded to 4 bar
Stroke	0.394"	10 mm
350, 350B Direct Drive		
Flow	5.0 gpm	19 lpm
Pressure Range	100 to 1500 psi	7 to 103 bar
Pump RPM	1725 rpm	1725 rpm
Inlet Pressure Range	Flooded to 60 psi	Flooded to 4 bar
Stroke	0.472"	12 mm

ALTERNATE SPECIFICATIONS	U.S. Measure	Metric Measure
310, 310B		
Flow	5.0 gpm	19 lpm
Pressure Range	100 to 1500 psi	7 to 105 bar
Pump RPM	1190 rpm	1190 rpm

ELECTRIC HORSEPOWER REQUIREMENTS

MODELS	FLOW		PRESSURE					MOTOR PULLEY SIZE	
			psi 1200	psi 1500	psi 1800	psi 2000	psi 2200	Using 1725 RPM Motor & Std. 8" Pump Pully	
	U.S. gpm	lpm	bar 82	bar 103	bar 124	bar 138	bar 152	RPM	Pulley O.D.
310	4.0	15	3.3	4.1	5.0	5.5	6.0	950	4.4
Alternate	5.0	19	4.1	5.1	N/A	N/A	N/A	1190	5.5
340	4.0	15	3.3	4.1	5.0	N/A	N/A	1725	Direct Drive
350	5.0	19	4.1	5.1	N/A	N/A	N/A	1725	Direct Drive

DETERMINING THE PUMP R.P.M. $\frac{\text{Rated gpm}}{\text{Rated rpm}} = \frac{\text{"Desired" gpm}}{\text{"Desired" rpm}}$

DETERMINING THE REQUIRED H.P. $\frac{\text{gpm x psi}}{1460} = \frac{\text{Electric Brake}}{\text{H. P. Required}}$

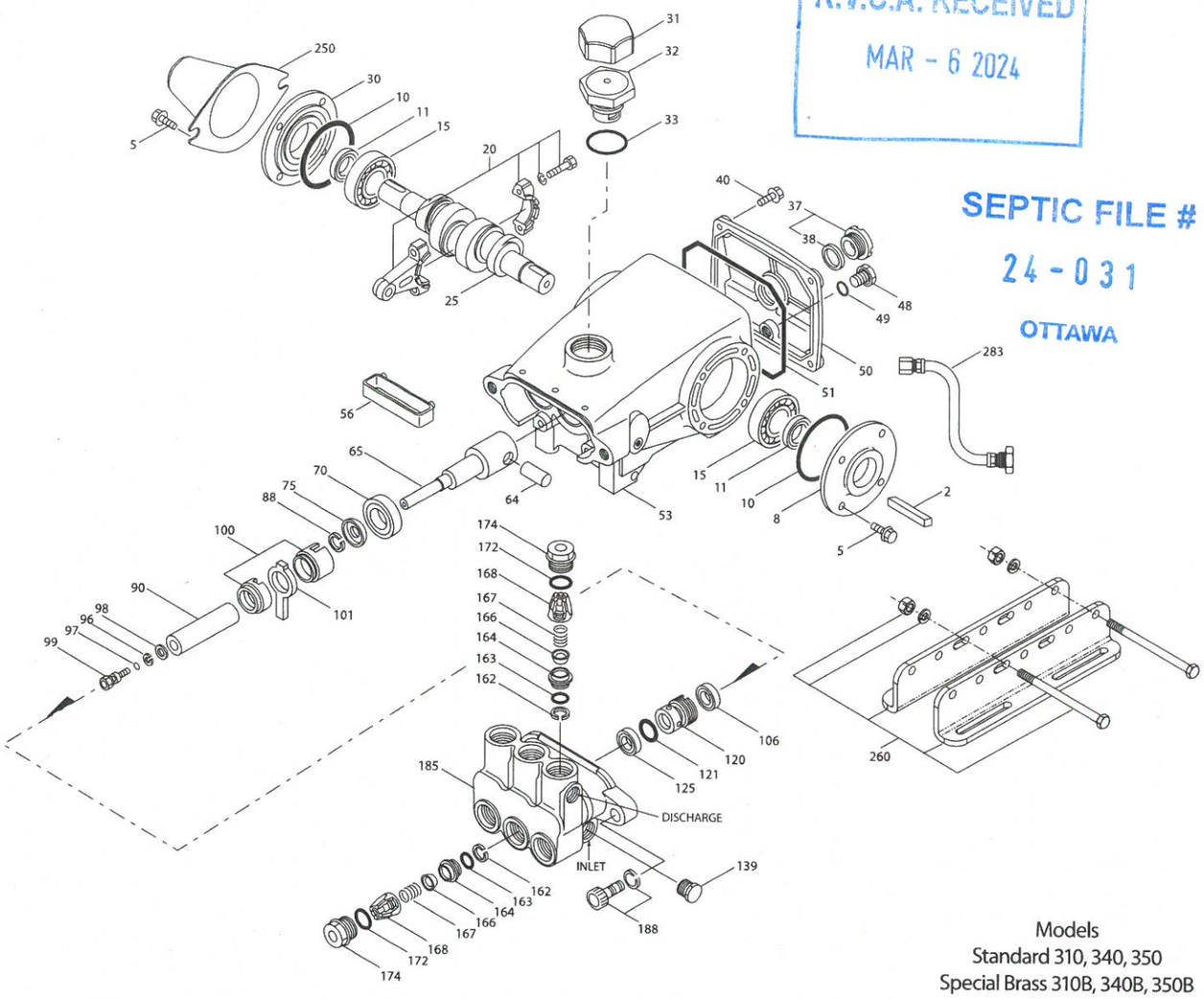
DETERMINING MOTOR PULLEY SIZE $\frac{\text{Motor Pulley O.D.}}{\text{Pump rpm}} = \frac{\text{Pump Pulley O.D.}}{\text{Motor rpm}}$

See complete Drive Packages [Inclds: Pulleys, Belts, Hubs, Key] Tech Bulletin 003.
Refer to pump **Service Manual** for repair procedure and additional technical information.

PARTS LIST

ITEM	PART NUMBERS				DESCRIPTION	QTY
	310, 340 350	MATL	310B, 340B 350B	MATL		
2	*30057*	*STL*	*30057*	*STL*	*Key (M6x6x25)*	*1*
5	125824	STCP R	125824	STCP R	Screw, HHC, Sems (M6x16)	8
8	43344	AL	43344	AL	Cover, Bearing	2/1/2
10	43343	NBR	43343	NBR	O-Ring, Bearing Cover - 70D	2
11	43222	NBR	43222	NBR	Seal, Oil, Crankshaft	2/1/2
15	14480	STL	14480	STL	Bearing, Ball	2
20	45883	HS	45883	HS	Rod, Connecting Assy [09/05]	3
25	**43342**	FCM	**43342**	FCM	Crankshaft, Dual End - M18, 310, 310B	1
	44945	FCM	**44945**	FCM	Crankshaft, Single End -M10, 340, 340B	1
	43838	FCM	**43838**	FCM	Crankshaft, Dual End - M12, 350, 350B	1
30	44949	AL	44949	AL	Cover, Blind Shaft - 340, 340B	1
31	*828710*	—	*828710*	—	*Protector, Oil Cap w/Foam Gasket*	*1*
32	43211	ABS	43211	ABS	Cap, Oil Filler	1
33	14177	NBR	14177	NBR	O-Ring, Filler Cap - 70D	1
37	92241	—	92241	—	Gauge, Oil, Bubble w/Gasket	1
38	44428	NBR	44428	NBR	Gasket, Flat, Oil Gauge - 80D	1
40	126541	STCP R	126541	STCP R	Screw, HHC, Sems (M6x20)	4
48	25625	STCP	25625	STCP	Plug, Drain (1/4"x19 BSP)	1
49	23170	NBR	23170	NBR	O-Ring, Drain Plug - 70D	1
50	48772	AL	48772	AL	Cover, Rear [10/01] (See Tech Bulletin 090)	1
51	48773	NBR	48773	NBR	O-Ring, Rear Cover [10/01] (See Tech Bulletin 090)	1
53	48769	AL	48769	AL	Crankcase [05/02] (See Tech Bulletin 090)	1
56	43355	POP	43355	POP	Pan, Oil	1
64	43351	CM	43351	CM	Pin, Crosshead	3
65	43365	ZZCP	43365	ZZCP	Rod, Plunger	3
70	43228	NBR	43228	NBR	Seal, Oil, Crankcase	3
75	43328	S	43328	S	Slinger, Barrier	3
88	45697	S	45697	S	Washer, Keyhole (M18 x 10)	3
90	43367	CC	43367	CC	Plunger (M20x72)	3
96	43235	PTFE	43235	PTFE	Back-up-Ring, Plunger Retainer	3
97	17399	NBR	17399	NBR	O-Ring, Plunger Retainer - 80D	3
	14160	*FPM*	*14160*	*FPM*	*O-Ring, Plunger Retainer - 80D*	*3*
	◆ *46204*	*EPDM*	◆ *46204*	*EPDM*	*O-Ring, Plunger Retainer - 70D*	*3*
98	45891	CU	45891	CU	Gasket	3
99	104360	S	104360	S	Retainer, Plunger w/Stud	3
100	45688	PVDF	45688	PVDF	Retainer, Seal, 2-Pc [04/06] (See Tech Bulletin 105)	3
101	43302	—	43302	—	Wick, Long Tab	3
106	43305	NBR	43305	NBR	Seal, LPS w/S-Spg	3
	45153	*FPM*	*45153*	*FPM*	*Seal, LPS w/SS-Spg*	*3*
	◆ *48429*	*EPDM*	◆ *48429*	*EPDM*	*Seal, LPS w/SS-Spg*	*3*
	76305	*ST2*	*76305*	*ST2*	*Seal, LPS w/S-Spg*	*3*
120	45679	BB	45679	BB	Case, Seal	3
121	14200	NBR	14200	NBR	O-Ring, Seal Case - 70D	3
	11719	*FPM*	*11719*	*FPM*	*O-Ring, Seal Case*	*3*
	◆ *48907*	*EPDM*	◆ *48907*	*EPDM*	*O-Ring, Seal Case*	*3*
125	43307	SNG	43307	SNG	Seal, HPS w/S	3
	44936	*FPM*	*44936*	*FPM*	*Seal, HPS w/SS*	*3*
	46667	*HT*	*46667*	*HT*	*Seal, HPS "Hi-Temp", 2-Pc w/S-Support*	*3*
139	22179	BBCP	22179	BBCP	Plug, Inlet [1/2" NPT(M)]	1
162	48361	D	48361	D	Back-up-Ring, Seat	6
163	43358	NBR	43358	NBR	O-Ring, Seat - 70D	6
	44938	*FPM*	*44938*	*FPM*	*O-Ring, Seat - 70D*	*6*
	◆ *48908*	*EPDM*	◆ *48908*	*EPDM*	*O-Ring, Seat*	*6*
164	43725	S	43725	S	Seat	6
166	43723	S	43723	S	Valve	6
167	43750	S	43750	S	Spring, Valve	6
168	44565	PVDF	44565	PVDF	Retainer, Valve Spring	6
172	17615	NBR	17615	NBR	O-Ring, Valve Plug - 75D	6
	15855	*FPM*	*15855*	*FPM*	*O-Ring, Valve Plug -70D*	*6*
	◆ *48431*	*EPDM*	◆ *48431*	*EPDM*	*O-Ring, Valve Plug -75D*	*6*
174	43849	BBCP	43849	BBCP	Plug, Valve	6
185	**44837**	BBCP	**49721**	SBCP	Head, Manifold	1
188	126520	STCP R	126520	STCP R	Screw, HSH, Sems (M10x35)	2
250	*118672*	*STCP*	*118672*	*STCP*	*Protector, Shaft (Belt Drive Only)*	*1*
255	*30243*	*STZP*	*30243*	*STZP*	*Mount, Direct (Belt Drive Only)*	*1*
260	*30611*	*STZP*	*30611*	*STZP*	*Mounting, Angle Rail (Belt Drive Only)*	*1*
265	*30659*	—	*30659*	—	*Mount, Assy (Incldes: 30611, 30633, 118672) (Belt Drive Only)*	*1*
270	*30633*	*STL*	*30633*	*STL*	*Assy, Pulley & Key (Incldes: 30058, 30057) (Belt Drive Only)*	*1*
275	*30944*	*STL*	*30944*	*STL*	*Assy, Hub & Key (Incldes: 30057, 30945) (Belt Drive Only)*	*1*

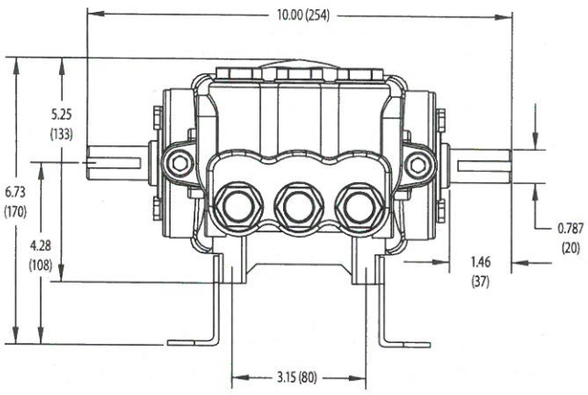
EXPLODED VIEW

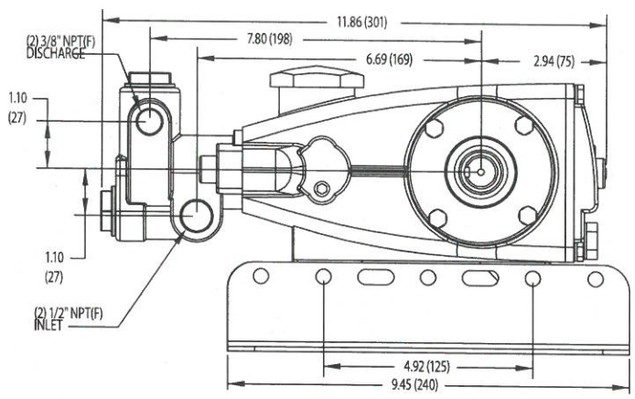


Models
Standard 310, 340, 350
Special Brass 310B, 340B, 350B
May 2015

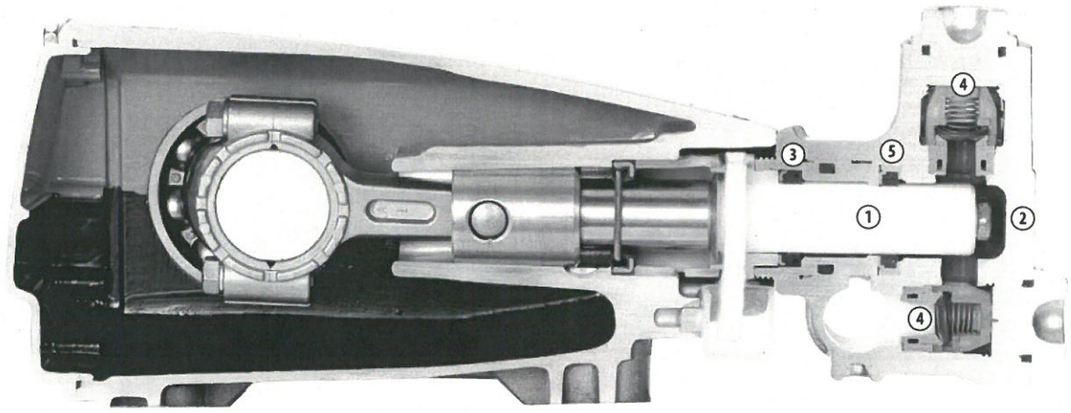
ITEM	PART NUMBERS 310, 340 350	MATL	310B, 340B 350B	MATL	DESCRIPTION	QTY
283	*34334*	—	*34334*	—	*Kit, Oil Drain (3/8" x 24") (See Individual Data Sheet)*	*1*
	76334	—	*76334*	—	*Kit, Oil Indicator, (3/8" x 24) (See Individual Data Sheet)*	*1*
299	**810027**	BBCP	**818471**	SBCP	*Head, Complete* ***Standard***	*1*
300	*30623*	*NBR*	*30623*	*NBR*	*Kit, Seal (Incldс: 97, 101, 106, 121, 125)* ***Standard***	*1*
	34155	*FPM*	*34155*	*FPM*	*Kit, Seal (Incldс: 97, 101, 106, 121, 125)* ***.0110***	*1*
	33623	*HT*	*33623*	*HT*	*Kit, Seal, "Hi-Temp" (Incldс: 97, 101, 106, 121, 125)* ***.3000***	*1*
	◆ *31163*	*EPDM**	◆ *31163*	*EPDM**	*Kit, Seal (Incldс: 97, 101, 106, 121, 125)* ***.0220***	*1*
310	*30821*	*NBR*	*30821*	*NBR*	*Kit, Valve, Preassembled (Incldс: 162-164, 166-168, 172)* ***Standard, .3000***	*2*
	31821	*FPM*	*31821*	*FPM*	*Kit, Valve, Preassembled (Incldс: 162-164, 166-168, 172)* ***.0110***	*2*
	◆ *31162*	*EPDM*	◆ *31162*	*EPDM*	*Kit, Valve, Preassembled (Incldс: 162-164, 166-168, 172)* ***.0220***	*2*
350	*30696*	*STZP*	*30696*	*STZP*	*Plier, Reverse*	*1*
351	*33004*	*STZP*	*33004*	*STZP*	*Socket, Seal Case (1/2" Drive)*	*1*
—	*6107*	—	*6107*	—	*Oil, Bottle (21 oz.) ISO-68 Hydraulic (Fill to specified crankcase capacity prior to start-up)*	*1*

Bold print part numbers are unique to a particular pump model. *Italics are optional items.* ◆ Silicone oil/grease required.
R Components comply with RoHS Directive. [ ] Date of latest production change. *Review individual parts in each kit for material code identification.
View Tech Bulletins 002, 003, 008, 024, 027, 032, 035, 036, 043, 045, 046, 049, 052, 053, 054, 073, 074, 077, 079, 083, 090, 105 for additional information.
MATERIAL CODES (Not Part of Part Number): ABS=ABS Plastic AL=Aluminum BB=Brass BBCP=Brass/Chrome Plated CC=Ceramic CM=Chrome-moly CU=Copper D=Acetal EPDM=Ethylene Propylene Diene Monomer FCM=Forged Chrome-moly FPM=Fluorocarbon HS=High Strength HT=High Temp (EPDM Alternative) NBR=Medium Nitrile (Buna-N) POP=Polypropylene PTFE=Pure Polytetrafluoroethylene PVDF=Polyvinylidene Fluoride S=304SS SBCP=Special Brass/Chrome Plated SNG=Special Blend (Buna) ST2=Special PTFE 2 STL=Steel STCP=Steel/Chrome Plated STZP=Steel/Zinc Plated ZZCP=Chrome Plated/Steel - Zamak





Models 310, 340, 350, 310B, 340B, 350B



1. Special concentric, high-density, polished, solid ceramic **plungers** provide a true wear surface and extended seal life.
2. **Manifolds** are a high tensile strength forged brass or special brass for long life, continuous duty and compatibility.
3. 100% wet **seal** design adds to service life by allowing pumped liquids to cool and lubricate on both sides.
4. Stainless steel **valves, seats and springs** provide corrosion-resistance, ultimate seating and extended life.
5. Specially formulated, Cat Pumps exclusive, **Hi-Pressure Seals** offer unmatched performance and seal life.

⚠ CAUTIONS AND WARNINGS

All High Pressure Systems require a primary pressure regulating device (i.e. regulator, unloader) and a secondary pressure relief device (i.e. pop-off valve, relief valve). Failure to install such relief devices could result in personal injury or damage to pump or property. Cat Pumps does not assume any liability or responsibility for the operation of a customer's high pressure system.

Read all CAUTIONS and WARNINGS before commencing service or operation of any high pressure system. The CAUTIONS and WARNINGS are included in each service manual and with each Accessory Data sheet. CAUTIONS and WARNINGS can also be viewed online at www.catpumps.com/cautions-warnings or can be requested directly from Cat Pumps.

WARRANTY

View the Limited Warranty on-line at www.catpumps.com/warranty.

The Pumps with Nine Lives

CAT PUMPS
1681 - 94TH LANE N.E. MINNEAPOLIS, MN 55449-4324
PHONE (763) 780-5440 — FAX (763) 780-2958
e-mail: techsupport@catpumps.com
www.catpumps.com

For International Inquiries go to www.catpumps.com and navigate to the "Contact Us" link.

PN 993111 Rev N 5/15

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SEPTIC FILE # 24-031
OTTAWA

Schedule 5
Sewage System Details

Type of System: Class 4 Eljen GSF system (Schedule 4)

Septic/Holding Tank Size: Min. 14,250 Litres Make: Boyd Bros

Septic Tank Effluent Filter Make: _____ Model: Boyd Bros 27650L oversized tank

Treatment Unit – Make & Model: Eljen GSF BMEC leaching bed

Number of Units: 50 Eljen GSF units Other: _____

Refer to Typical Drawing # C Pump(s) required Yes

Mantle Information: Pump Rate Max 500 L/15min

Native or imported =15m in n/a direction(s) **Note:** Alarm required for all pumping systems

Slope subgrade 1% (min.) % slope

North-west direction(s)

Site to be Scarified (If clay) (YES) / NO

Clay Seal Required (If bedrock) YES (NO)

☐ **Trench**

Distribution Pipe Length _____ m

Loading Area 540.7 m^2

Type of Chamber _____

Length of Chamber _____ m

☑ **BMEC Area Bed**

☐ **Type A**

☐ **Type B**

Stone _____ m^2

Sand _____ m^2

Pipe _____ m

Linear Loading _____ L/m^2

☐ **Shallow Buried Trench**

Pipe Length _____ m

☐ **Filter Media Bed**

Stone _____ m^2

Extended Base _____ m^2

Pipe _____ m

Weight of Filter Media _____ Kg

Loading Area _____ m^2

☐ **Tank/Treatment Unit/Pump Chamber Replacement** ONLY

☐ **Effluent Filter & Riser** ONLY

Construction Notes:

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Schedule 6

Soil and Water Table Information
(Minimum depth of test pit: 2 metres)

Refer to plan CCO-22-2383 SSD-001 for test pit locations

Name of Applicant/Agent: Egis
Date: Oct.11.2022 Time:
Applicant/Agent Signature:

Inspector:
Date: Time:
Inspector Signature:

MW109 EG (89.60....) Soil Description	T	EG (.....) Soil Description	
.5m 1.0 m 1.5m 2.0 m Refer to attached Borehole Log for MW109 from Geotech Report	50 min/cm	.5m 1 1.5m 2.0 m Test pits not available for inspection. Engineer assumes all liability for soil and HGWT info/elev's.	
BH103 EG (89.45....) Soil Description	T	EG (.....) Soil Description	T
0.15m .5m 1.0 m 1.5m 2.0 m Refer to attached Borehole Log for BH103 from Geotech Report	50 min/cm	.5m 1.0 m 1.5m 2.0 m	

LEGEND

BR = Bedrock
GWT = Ground water table
HGWT = High ground water table
M = metres
EG = Existing grade
T = percolation rate

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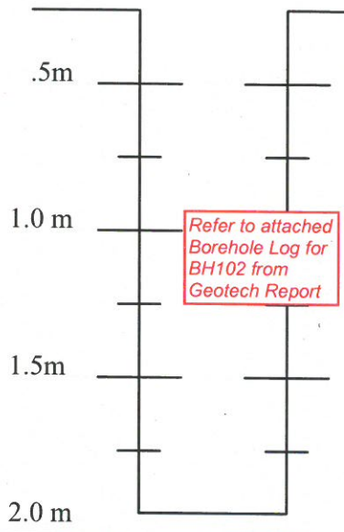
Schedule 6
Soil and Water Table Information
(Minimum depth of test pit: 2 metres)

Refer to plan CCO-22-2383 SSD-001 for test pit locations

Name of Applicant/Agent: Egis
Date: Oct.11.2022 Time:
Applicant/Agent Signature:

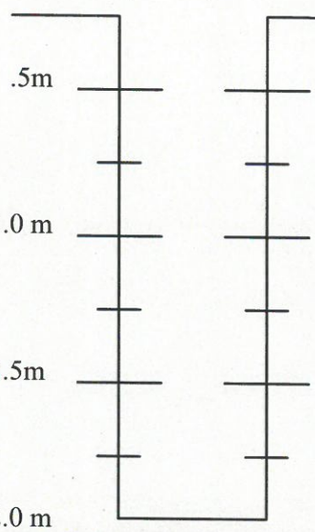
Inspector:
Date: Time:
Inspector Signature:

BH102 EG (89.60...) Soil Description | T

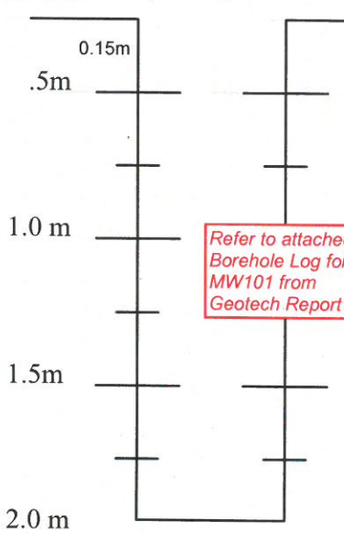


50 min/cm

EG (……..) Soil Description

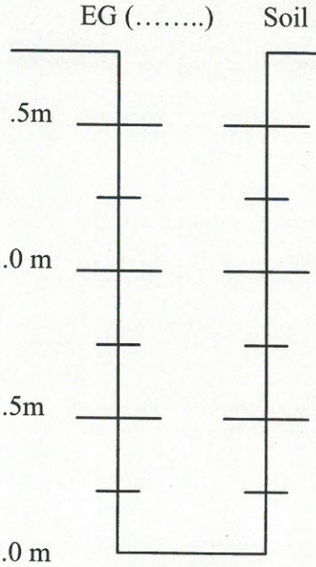


MW101 EG (89.45...) Soil Description | T



50 min/cm

EG (……..) Soil Description | T



LEGEND

BR = Bedrock
GWT = Ground water table
HGWT = High ground water table
M = metres
EG = Existing grade
T = percolation rate

Elevations edited by Egis to correspond to same local datum of site topographic survey

CLIENT: Hawkins Properties	PROJECT NO.: CO884.01	**RECORD OF: MW109**
ADDRESS: 5646/5650 Manotick Main Street.		
CITY/PROVINCE: Ottawa,ON	NORTHING (m):	EASTING (m): ELEV. (m) 88.66
CONTRACTOR: Strata Drilling Group	METHOD: 7822 DT Geoprobe equipped with hollow stem augers	
BOREHOLE DIAMETER (cm): 9.5	WELL DIAMETER (cm): 5.08	SCREEN SLOT #: 10 SAND TYPE: No-2 SEALANT TYPE: Bentonite

SAMPLE TYPE: AUGER | DRIVEN | CORING | DYNAMIC CONE | SHELBY | SPLIT SPOON

GWL (m)	SOIL SYMBOL	SOIL DESCRIPTION	DEPTH (m)	ELEVATION (m)	SHEAR STRENGTH (kPa) 40 80 120 160 N-VALUE (Blows/300mm) 20 40 60 80	WATER CONTENT (%) PL W.C. LL 20 40 60 80	SAMPLE NO.	SAMPLE TYPE	RECOVERY (%)	SV/TOV (ppm or %LEL) (new title)	LABORATORY TESTING	WELL INSTALLATION	REMARKS
		Topsoil	0	88.3	6	24.2	1		100	<10	M+I		
		firm, moist, brown CLAYEY SILT trace sand	0.5										
			1	87.8	2	24.6	2		100	<10			
			1.5	87.3									
			2	86.8	2 60 70/50	40.3	3		100	<10			
			2.5	86.3									
		firm to soft, moist SILTY CLAY	3	85.8									
			3.5	85.3	2 60	46.4	4		2	<10	BTEX F1-F4		
			4	84.8	100/80								
			4.5	84.3	80/50								
			5	83.8	4 50	42	5		100	<10			
		olive brown ---- grey	5.5	83.3									
			6	82.8									
			6.5	82.3	25	38	6		100	<10			
			7	81.8									
			7.5	81.3									
			8	80.8	0	43	7		100	<10			
			8.5	80.3									
		END OF BOREHOLE BOREHOLE TERMINATED ON ASSUMED BEDROCK											

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SEPTIC FILE # 24-031 OTTAWA

TERRAPEX

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REVIEWED BY: JM	PAGE 1 OF 1

Elevations edited by Egis to correspond to same local datum of site topographic survey

CLIENT: Hawkins Properties	PROJECT NO.: CO884.01	**RECORD OF: BH103**
ADDRESS: 5646/5650 Manotick Main Street.		
CITY/PROVINCE: Ottawa,ON	NORTHING (m):	EASTING (m): ELEV. (m) 89.40
CONTRACTOR: Strata Drilling Group	METHOD: 7822 DT Geoprobe equipped with hollow stem augers	
BOREHOLE DIAMETER (cm): 9.5	WELL DIAMETER (cm): 5.08	SCREEN SLOT #: 10 SAND TYPE: No-2 SEALANT TYPE: Bentonite

SAMPLE TYPE: AUGER | DRIVEN | CORING | DYNAMIC CONE | SHELBY | SPLIT SPOON

GWL (m)	SOIL SYMBOL	SOIL DESCRIPTION	DEPTH (m)	ELEVATION (m)	SHEAR STRENGTH (kPa) 40 80 120 160 N-VALUE (Blows/300mm) 20 40 60 80	WATER CONTENT (%) PL W.C. LL 20 40 60 80	SAMPLE NO.	SAMPLE TYPE	RECOVERY (%)	SV/TOV (ppm or %LEL) (new title)	LABORATORY TESTING	WELL INSTALLATION	REMARKS
		Topsoil	0	89.4									
		dark brown clayey silt trace sand trace organics FILL	0.5	88.9	2		1		100	<10			
		saturated grey silty clay FILL											
		Topsoil	1	88.4	4		2		100	<10			
		firm, brown, CLAYEY SILT trace rootlets sand and gravel	1.5	87.9									
		firm to soft, grey SILTY CLAY	2	87.4	38 2 50+		3		100	<10			
			2.5	86.9									
			3	86.4									
			3.5	85.9	4		4		100	<10	BTEX F1-F4		
			4	85.4	50+								
			4.5	84.9									
			5	84.4	50+								
			5.5	83.9	5		5		100	<10			
		moist ----- very wet	6	83.4									
			6.5	82.9	1		6		100	<10			
			7	82.4									
			7.5	81.9									
			8	81.4	0		7		100	<10			
			8.5	80.9									
			9	80.4									

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CLIENT: Hawkins Properties	PROJECT NO.: CO884.01	**RECORD OF: BH103**
ADDRESS: 5646/5650 Manotick Main Street.		
CITY/PROVINCE: Ottawa,ON	NORTHING (m):	EASTING (m): ELEV. (m) 89.40
CONTRACTOR: Strata Drilling Group	METHOD: 7822 DT Geoprobe equipped with hollow stem augers	
BOREHOLE DIAMETER (cm): 9.5	WELL DIAMETER (cm): 5.08	SCREEN SLOT #: 10 SAND TYPE: No-2 SEALANT TYPE: Bentonite

SAMPLE TYPE: AUGER | DRIVEN | CORING | DYNAMIC CONE | SHELBY | SPLIT SPOON

GWL (m)	SOIL SYMBOL	SOIL DESCRIPTION	DEPTH (m)	ELEVATION (m)	SHEAR STRENGTH (kPa) 40 80 120 160 N-VALUE (Blows/300mm) 20 40 60 80	WATER ▲ CONTENT (%) PL W.C. LL 20 40 60 80	SAMPLE NO.	SAMPLE TYPE	RECOVERY (%)	SV/TOV (ppm or %LEL) (new title)	LABORATORY TESTING	WELL INSTALLATION	REMARKS
		pieces of limestone					8			<10			
		END OF BOREHOLE BOREHOLE TERMINATED ON ASSUMED BEDROCK											

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CLIENT: Hawkins Properties	PROJECT NO.: CO884.01	**RECORD OF: BH102**
ADDRESS: 5646/5650 Manotick Main Street.		
CITY/PROVINCE: Ottawa,ON	NORTHING (m):	EASTING (m): ELEV. (m) 89.60
CONTRACTOR: Strata Drilling Group	METHOD: 7822 DT Geoprobe equipped with hollow stem augers	
BOREHOLE DIAMETER (cm): 9.5	WELL DIAMETER (cm): 5.08	SCREEN SLOT #: 10 SAND TYPE: No-2 SEALANT TYPE: Bentonite

SAMPLE TYPE: AUGER | DRIVEN | CORING | DYNAMIC CONE | SHELBY | SPLIT SPOON

GWL (m)	SOIL SYMBOL	SOIL DESCRIPTION	DEPTH (m)	ELEVATION (m)	SHEAR STRENGTH (kPa) / N-VALUE (Blows/300mm)	WATER CONTENT (%) PL W.C. LL	SAMPLE NO.	SAMPLE TYPE	RECOVERY (%)	SV/TOV (ppm or %LEL) (new title)	LABORATORY TESTING	WELL INSTALLATION	REMARKS
		Topsoil	0										
		moist, dark brown clayey silt trace sand with organics FILL	0.5	89.1	2	32.3	1		100	<10			
			1	88.6	1	24.4	2		100	<10			
		firm to soft SILTY CLAY	1.5	88.1	4 / 100	37.3	3		100	<10	pH		
			2	87.6									
			2.5	87.1	50+								
			3	86.6									
			3.5	86.1	5 / 75	38.2	4		100	<10	BTEX F1-F4		
		olive brown ---- grey	4	85.6	50+								
			4.5	85.1									
			5	84.6	50+								
			5.5	84.1									
			6	83.6									
			6.5	83.1	1	37.8	5		100	<10			
			7	82.6									
		wet ----- very wet	7.5	82.1									
			8	81.6	0	30.3	6			<10			
			8.5	81.1									
			9	80.6									
		END OF BOREHOLE											

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CLIENT: Hawkins Properties		PROJECT NO.: CO884.01	**RECORD OF: BH102**
ADDRESS: 5646/5650 Manotick Main Street.			
CITY/PROVINCE: Ottawa,ON	NORTHING (m):	EASTING (m):	ELEV. (m) 89.60
CONTRACTOR: Strata Drilling Group	METHOD: 7822 DT Geoprobe equipped with hollow stem augers		
BOREHOLE DIAMETER (cm): 9.5	WELL DIAMETER (cm): 5.08	SCREEN SLOT #: 10	SAND TYPE: No-2	SEALANT TYPE: Bentonite

SAMPLE TYPE: AUGER | DRIVEN | CORING | DYNAMIC CONE | SHELBY | SPLIT SPOON

GWL (m)	SOIL SYMBOL	SOIL DESCRIPTION	DEPTH (m)	ELEVATION (m)	SHEAR STRENGTH (kPa) 40 80 120 160 ~~N-VALUE~~ (Blows/300mm) 20 40 60 80	WATER ▲ CONTENT (%) PL W.C. LL 20 40 60 80	SAMPLE NO.	SAMPLE TYPE	RECOVERY (%)	(new title) SV/TOV (ppm or %LEL)	LABORATORY TESTING	WELL INSTALLATION	REMARKS
		BOREHOLE TERMINATED ON ASSUMED BEDROCK											

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CLIENT: Hawkins Properties	PROJECT NO.: CO884.01	**RECORD OF: MW101**
ADDRESS: 5646/5650 Manotick Main Street.		
CITY/PROVINCE: Ottawa,ON	NORTHING (m):	EASTING (m): ELEV. (m) 89.45
CONTRACTOR: Strata Drilling Group	METHOD: 7822 DT Geoprobe equipped with hollow stem augers	
BOREHOLE DIAMETER (cm): 9.5	WELL DIAMETER (cm): 5.08	SCREEN SLOT #: 10 SAND TYPE: No-2 SEALANT TYPE: Bentonite

SAMPLE TYPE: AUGER | DRIVEN | CORING | DYNAMIC CONE | SHELBY | SPLIT SPOON

GWL (m)	SOIL SYMBOL	SOIL DESCRIPTION	DEPTH (m)	ELEVATION (m)	SHEAR STRENGTH (kPa) / N-VALUE (Blows/300mm)	WATER CONTENT (%) PL W.C. LL	SAMPLE NO.	SAMPLE TYPE	RECOVERY (%)	SV/TOV (ppm or %LEL) (new title)	LABORATORY TESTING	WELL INSTALLATION	REMARKS
		asphaltic concrete and crusher run limestone FILL	0	89.3	12	20.1	1		55	<10			
		firm, moist, brown CLAYEY SILT trace sand some rootlets	0.5	88.8	4	25.1	2		56	<10			
		firm to soft SILTY CLAY	1	88.3	5	100	34.6	3		100	<10	BTEX F1-F4 pH	
		moist	1.5	87.8									
		brown	2	87.3									
		grey	2.5	86.8									
			3	86.3	2	50	43.6	4		100	<10		
			3.5	85.8	50+								
			4	85.3									
			4.5	84.8	50+								
			5	84.3	3		56.4	5		100	<10		
		wet	5.5	83.8									
		very wet	6	83.3	0		36.9	6		100	<10		
			6.5	82.8									
			7	82.3									
			7.5	81.8	100		32.2	7			<10		
			8	81.3									
		END OF BOREHOLE BOREHOLE TERMINATED ON ASSUMED BEDROCK											

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Scale: 1Block = _____

Schedule 7
Layout Section

N

See CCO-22-2383 SSD-01.Rev.1

○Dug Well ●Drilled Well ▲Neighbouring Homes ◊Benchmark ---Tile Drainage —Property Line

Elevations (metric only)
B.M 90.92 m
B.M Description Top of Spindle on Fire Hydrant
(refer to attached drawing C101 (Grading and Drainage Plan))
Exact Location On East side of Manotick Main Street,
opposite south-east corner of subject property

Min. of 5 elevations in proposed system area (in X pattern)

X_1 _____ X_2 _____
X_3 _____ X_4 _____
X_5 _____ $X_{6\ (toe)}$ _____
X_7 X_8

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Schedule 8
Fixture unit count

OTTAWA

Fixtures	# Existing	+	# Proposed	X	unit count	=	Fixture Count
Bathroom							
Bathroom group (toilet, sink and tub or shower) with flush tank		+		X	6	=	
Bathtub with/without overhead shower		+		X	1.5	=	
Shower stall		+		X	1.5	=	
Wash basin (1½inch trap)		+		X	1.5	=	
Watercloset (toilet) tank operated		+		X	4	=	
Bidet		+		X	1	=	
Kitchen							
Dishwasher	N/A			X	1	=	
Sink with/without garbage grinder(s), domestic and other small type single, double or 2 single with a common trap		+		X	1.5	=	
Other							
Domestic washing machine		+		X	1.5	=	
Combination sink and laundry tray single or double (Installed on 1½ trap)		+		X	1.5	=	

***Total:**

***Insert the TOTAL in section 5 of Schedule 4** (0.Reg 151/13 Table 7.4.9.3)

1. Sump pumps and floor drains are not to be connected to the sewage system. Connection of such fixtures to a sewage system may lead to a hydraulic failure of the said system. The above mentioned fixtures should be discharged separately to an approved Class 2 (leaching pit) sewage system.
2. Where laundry waste is not more than 20% of the total daily design sanitary sewage flow, it may discharge to a sewage system (Part 8, OBC, 8.1.3.1(2)).

Agent/Owner signature

Mar 4, 2024
Date

OSSO version June 2014

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24 - 031
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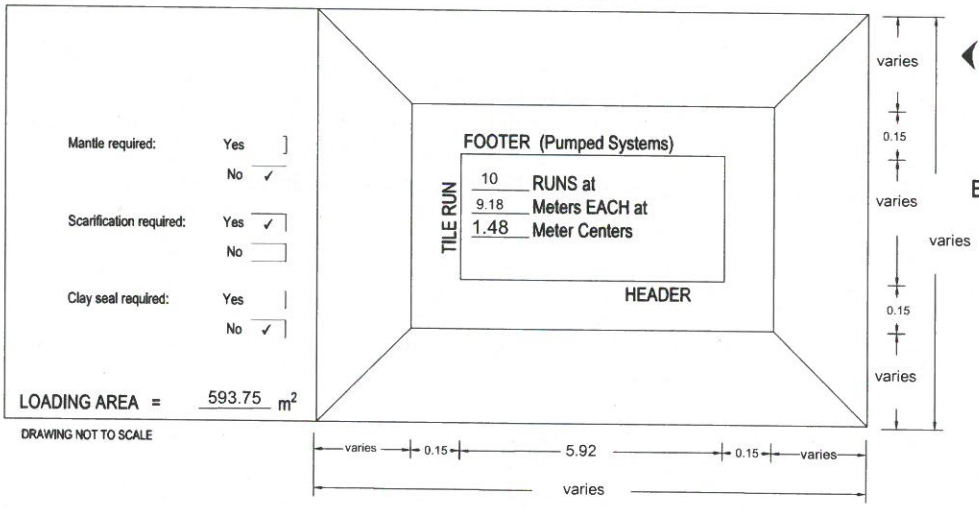
Plan View



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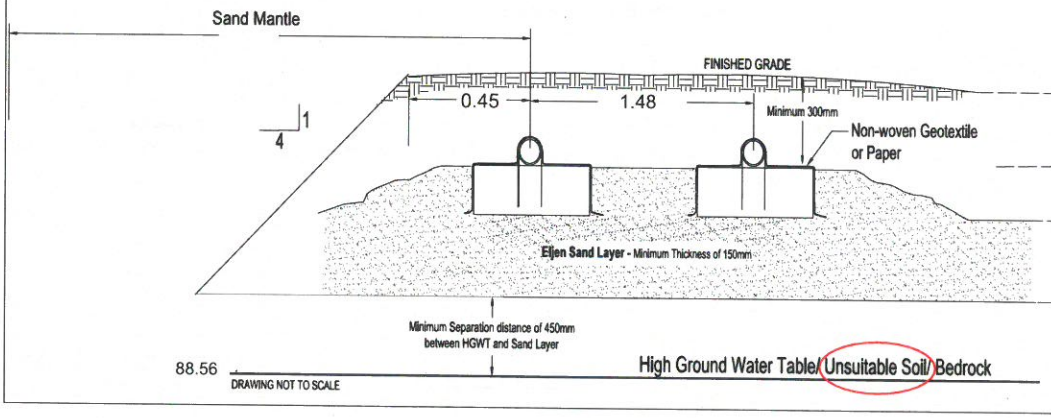
TYPICAL DRAWING C
BURIED OR RAISED BED - BMEC ELJEN System

March 26/24

Cross-Section Profile



	Proposed Installation Grades	Approved Installation Grades	Existing Grade
Finished Grade	89.99		
Top of Eljen Module	89.69		
Bottom of Eljen Module	89.51		
Bottom of Eljen Sand	89.36		88.56(+/-)

GENERAL

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL OTHER APPLICABLE CONTRACT DRAWINGS AND PERMITS.
2. ORIGINAL TOPOGRAPHY, GROUND ELEVATION AND SURVEY DATA SHOWN ARE PROVIDED FOR INFORMATION PURPOSES ONLY AND IMPLY NO GUARANTEE OF ACCURACY. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL INFORMATION OBTAINED FROM THEM PRIOR TO CONSTRUCTION.
3. CONTRACTOR TO CONFIRM AT ONSET OF CONSTRUCTION THAT THE SOIL IN THE PROPOSED LEACHING BED AREA IS CONSISTENT WITH THE SOIL DESCRIBED IN THE TEST HOLE LOGS. (I.E. CLAYEY SILT). IF THIS SOIL DOES NOT MATCH THE TEST HOLE LOGS, THE CONTRACTOR SHALL CONTACT THE DESIGNER PRIOR TO THE PLACEMENT OF LEACHING BED MATERIALS.
4. NATIVE SOIL TO BE SCARIFIED BEFORE PLACEMENT OF IMPORTED LEACHING BED SAND FILL.

CONSTRUCTION NOTES

1. THIS SYSTEM IS NOT DESIGNED FOR THE USE OF A GARBAGE DISPOSAL.
2. THIS SYSTEM IS NOT DESIGNED TO RECEIVE BACKWASH FROM A DOMESTIC WATER TREATMENT DEVICE.
3. ANY FILL MATERIAL REQUIRED TO MEET 600mm VERTICAL SETBACK BETWEEN THE HIGH GROUND WATER ELEVATION/BEDROCK AND THE 150mm OF SPECIFIED SAND SHALL BE ASTM C33 SAND OR IMPORTED SAND WITH A PERCOLATION TIME OF AT LEAST 6 AND NOT MORE THAN 10 min/cm, WITH NOT MORE THAN 5% FINES PASSING THE "200 SIEVE".
4. ALL FILL MATERIAL SHALL BE CLEAN AND PERMEABLE AND MEET ELJEN DESIGN MANUAL REQUIREMENTS. THE 150mm OF SPECIFIED SAND UNDERNEATH AND SURROUNDING THE GSF MODULES SHALL COMPLY WITH ASTM C33 SAND.
5. BACKFILL MATERIAL CAN BE NATIVE TOPSOIL WITH NO STONES LARGER THAN 50mm IN ANY DIMENSION TO A MAXIMUM DEPTH OF 30cm OVER THE GSF MODULES AND SHALL INCLUDE A MINIMUM 150mm OF CLEAN LOAM.
6. ANY ELJEN GSF SYSTEM THAT IS MORE THAN 450mm BELOW FINISHED GRADE AS MEASURED FROM THE TOP OF THE MODULE SHALL BE VENTED.
7. THIS DESIGN COMPLIES WITH AND MUST BE INSTALLED IN ACCORDANCE WITH CURRENT ELJEN GSF SYSTEM DESIGN AND INSTALLATION MANUAL.
8. INSTALLATION TO BE BY AUTHORIZED ELJEN INSTALLER WITH VALID BCIN
9. ELJEN GSF PRODUCT SHALL BE SUPPLIED BY AN ONTARIO AUTHORIZED ELJEN GSF DISTRIBUTOR
10. ENSURE POSITIVE DRAINAGE AWAY LEACHING BEDS AND BUILDINGS.
11. FORCEMAINS TO EITHER BE FREE-DRAINING BACK TO PUMP OR FROST-PROTECTED AS PER CITY OF OTTAWA STANDARD W22.
12. THIS PLAN IS TO BE READ IN CONJUNCTION WITH OBC SEPTIC PERMIT APPLICATION, AND ANY OTHERS WHICH MAY APPLY.

DESIGN CRITERIA

RESTAURANT SEWAGE SYSTEM:

- RESTAURANT SEWAGE SYSTEM DESIGN FLOW Q_{MIN} = 4,375 L/day
- OVERSIZED WATERLOO BIOFILTER LEVEL 4 TREATMENT (WITH RECIRCULATION) DISCHARGING TO ELJEN GSF LEACHING BED
- MIN. NUMBER OF ELJEN MODULES = Q/95 = 4,375/95 = 47 UNITS
- ACTUAL ELJEN UNITS IN DESIGN= 10 RUNS X 5 UNITS = 50
- NATIVE T-TIME = 50 min/cm (CLAYEY SILT)
- MIN. INFILTRATION AREA = Q*T/400 = 4,375*50/400 = 546.9 m²

CAR WASH SEWAGE SYSTEM:

- CAR WASH SEWAGE SYSTEM DESIGN FLOW Q_{MIN} = 4,750 L/day
- MIN. NUMBER OF ELJEN MODULES = Q/95 = 4,690/95 = 50 UNITS
- ACTUAL ELJEN UNITS IN DESIGN= 10 RUNS X 5 UNITS = 50
- NATIVE T-TIME = 50 min/cm (CLAYEY SILT)
- MIN. INFILTRATION AREA = Q*T/400 = 4,750*50/400 = 593.75m²

PK March 26/24

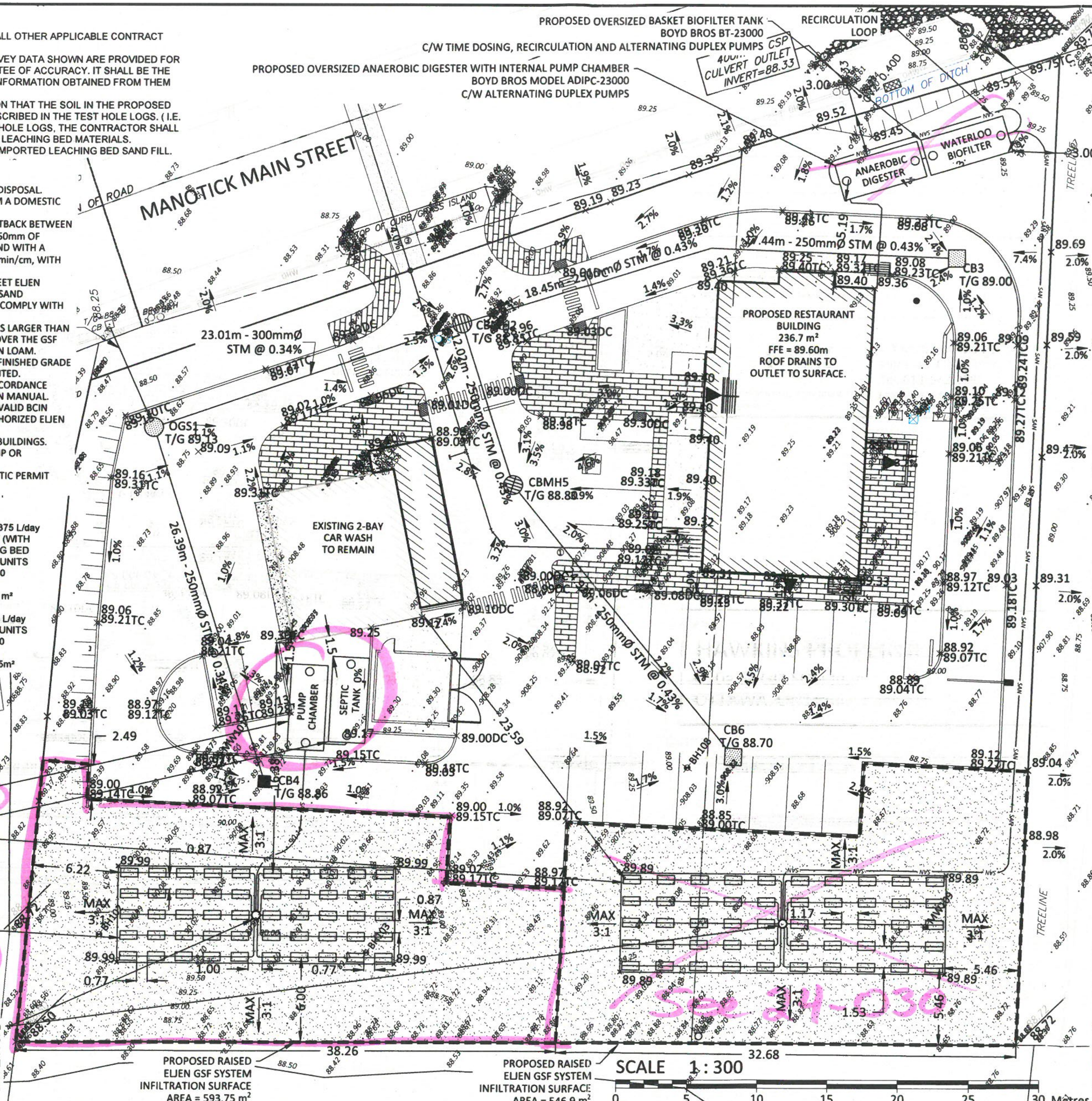
PROPOSED 27650 L BALANCING/PUMP CHAMBER C/W TIMED-DOSING ALTERNATING DUPLEX PUMPS

PROPOSED OVERSIZED 27650 L SEPTIC TANK

PROPOSED RAISED ELJEN GSF SYSTEM
~~6 ROWS/CLUSTERS OF 8 ELJEN UNITS~~
TOP OF ELJEN UNITS = 89.59
BOTTOM OF ELJEN UNITS = 89.41
BOTTOM OF SPECIFIED SAND = 89.26
MINIMUM 600mm SAND LEACHING BED FILL BETWEEN BOTTOM OF SPECIFIED SAND AND NATIVE SOIL

PROPOSED RAISED ELJEN GSF SYSTEM
50 Eljen
10 ROWS OF 5 ELJEN UNITS
TOP OF ELJEN UNITS = 89.69
BOTTOM OF ELJEN UNITS = 89.51
BOTTOM OF SPECIFIED SAND = 89.36
MINIMUM 600mm SAND LEACHING BED FILL BETWEEN BOTTOM OF SPECIFIED SAND AND NATIVE SOIL

DISTRIBUTION BOXES OUTLET INV. MUST BE MIN. 50mm ABOVE TOP OF GSF MODULES
- CONTRACTOR TO SELECT AN OVERSIZED DISTRIBUTION BOX
- PROVIDE VELOCITY REDUCTION IN DISTRIBUTION BOX WITH A TEE OR BAFFLE
- DO NOT USE FLOW EQUALIZERS OR OTHER RESTRICTING DEVICES IN THE OUTLETS OF THE DISTRIBUTION BOX



No.	Revision/Issue	Date
1	UPDATED DESIGN/SITE PLAN	MAR/04/2024

egis
info.north-america@egis-group.com
www.egis-group.com
1-1329 Gardiners Road
Kingston, ON K7P 0L8
Tel: 613-542-3788
Fax: 613-542-7583

Stamp:

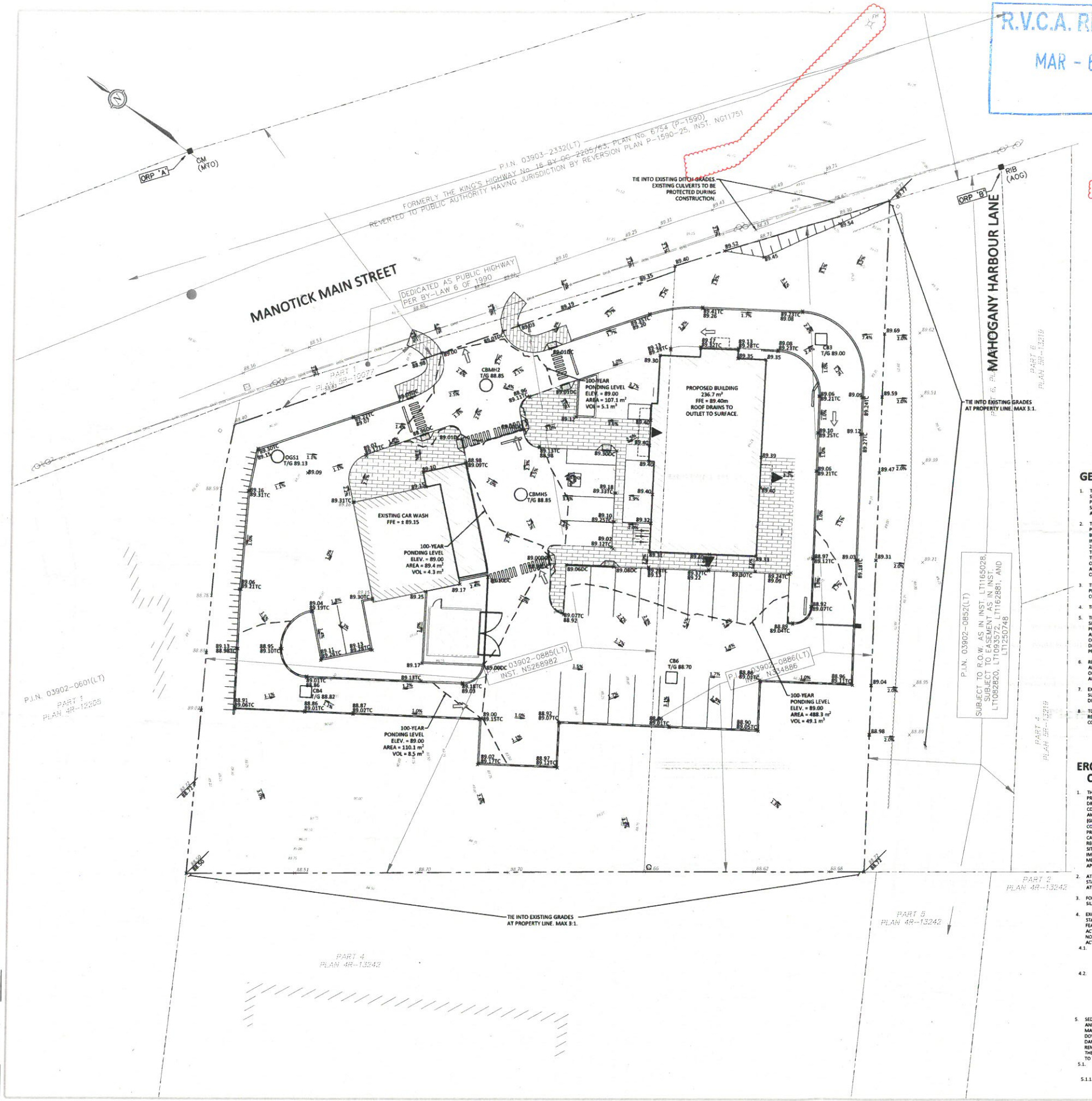
Client:
HAWKINS PROPERTIES
650a EAGLESON ROAD,
OTTAWA, ONTARIO, K2M 1H4

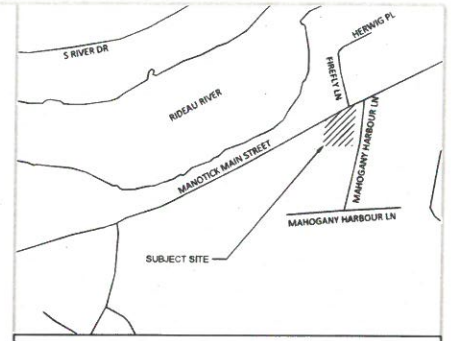
Project:
MANOTICK MAIN STREET
5646-5650 MANOTICK MAIN STREET

Drawing Title:
SEWAGE SYSTEM DESIGN

Scale: 1:300	Project Number: CCO-22-2383
Drawn by: P.L.	
Checked By: P.L.	Drawing Number: SSD-01
Designed By: P.L.	
Date: JAN/24/2024	

SEPTIC FILE #
24 - 031
OTTAWA





BENCHMARK INFORMATION

BENCHMARKS:
BENCHMARK INFORMATION DERIVED FROM FIELD SURVEY BY McINTOSH PERRY SURVEYING INC. (MPSI). THIS FIELD WORK WAS COMPLETED ON THE 6TH DAY OF APRIL, 2022.

ELEVATIONS WITHIN TOPOGRAPHIC SURVEY ARE GEODETIC (CGVD 28/78) BY GNSS OBSERVATIONS REFERENCED TO THE CANADA HT_2 GEOID MODEL.

TEMPORARY SITE BENCHMARK - TOP OF SPINDLE ON FIRE HYDRANT, HAVING AN ELEVATION OF 90.92m.

BEARING & DISTANCES:

OBSERVED REFERENCE POINTS (ORP'S) DERIVED FROM GPS OBSERVATIONS USING REAL-TIME NETWORK (RTN) SERVICE. NAD83 (CSRS-2010) UTM ZONE 18N.

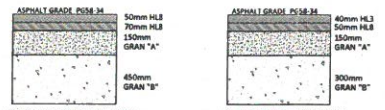
COORDINATES TO URBAN ACCURACY PER SEC. 14(2) OF O.REG 216/10:

POINT ID	NORTHING	EASTING
ORP 'A'	5007879.46	446872.25
ORP 'B'	5007809.58	446920.83

*COORDINATES CANNOT, IN THEMSELVES, BE USED TO RE-ESTABLISH CORNERS OR BOUNDARIES SHOWN ON THIS PLAN.

REFER TO TOPOGRAPHIC SURVEY COMPLETED BY McINTOSH PERRY SURVEYING INC. (MPSI) FOR ADDITIONAL INFORMATION ON BEARINGS & DISTANCES.

PAVEMENT CROSS SECTIONS
N.T.S.



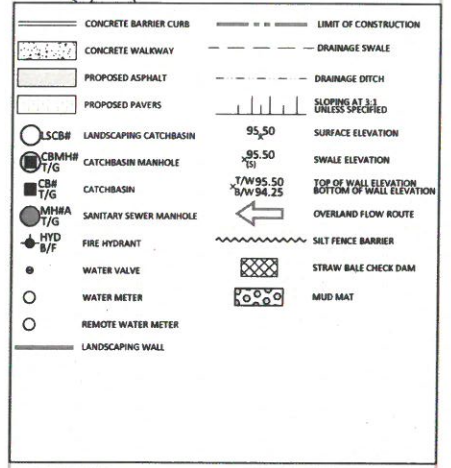
ASPHALT CROSS-SECTIONS TO CONFORM TO GEOTECHNICAL REPORT COMPLETED BY TERRAPEX ENVIRONMENTAL LTD.

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) MPSI DRAWING 22-3130, DATED MAY 20, 2022, 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 ENGINEER/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'S 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 ONE.
    - GAS SERVICE - ENBRIDGE.
    - TELEPHONE SERVICE - BELL CANADA.
    - TELEMSIVN SERVICE - ROGERS.
16. INSTALLATION TO BE IN ACCORDANCE WITH CURRENT CODES AND STANDARDS OF APPROVAL AGENCIES HYDRO ONE, BELL AND THE CITY.
17. CONTRACTOR TO ENSURE ALL APPLICABLE OPS SPECIFICATIONS ARE FOLLOWED DURING CONSTRUCTION
18. ALL PROPOSED CURB TO BE CONCRETE BARRIER CURB UNLESS OTHERWISE SPECIFIED.
19. THIS PLAN MUST BE READ IN CONJUNCTION WITH THE GEOTECHNICAL INVESTIGATION COMPLETED BY TERRAPEX ENVIRONMENTAL LTD.

EROSION AND SEDIMENT CONTROL

1. THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES, TO PROVIDE FOR PROTECTION OF THE AREA DRAINAGE SYSTEM AND THE RECEIVING WATERCOURSE, DURING CONSTRUCTION ACTIVITIES. THIS INCLUDES LIMITING THE AMOUNT OF EXPOSED SOIL, TEMPORARY SEDIMENT CONTROL (GEOSOCK INSERTS WITH AN OVERFLOW UNDER GRATE OR COVER) TO BE IMPLEMENTED DURING CONSTRUCTION ON ALL PROPOSED ROAD CATCHBASINS, REARYARD CATCHBASINS AND CATCHBASIN MANHOLES AND OTHER SEDIMENT TRAPS. NO RECYCLED GEOSOCK MATERIAL SHALL BE PERMITTED FOR USE ON SITE. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.
2. AT THE DISCRETION OF THE PROJECT MANAGER OR MUNICIPAL STAFF, ADDITIONAL SILT CONTROL DEVICES SHALL BE INSTALLED AT DESIGNATED LOCATIONS.
3. FOR SILT FENCE BARRIER, USE OPSD 219.110. GEOTEXTILE FOR SILT FENCE AS PER OPSS 1860, TABLE 3.
4. EXCEPT AS PROVIDED IN PARAGRAPHS 4.1., and 4.2. BELOW, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS FEASIBLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY HAS TEMPORARILY OR PERMANENTLY CEASED.
   - 4.1. WHERE THE INITIATION OF STABILIZATION MEASURES BY THE 14TH DAY AFTER CONSTRUCTION ACTIVITY TEMPORARILY OR PERMANENTLY CEASE IS PRECLUDED BY SNOW COVER, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS FEASIBLE.
   - 4.2. WHERE CONSTRUCTION ACTIVITY WILL RESUME ON A PORTION OF THE SITE WITHIN 21 DAYS FROM WHEN ACTIVITIES CEASED. (E.G. THE TOTAL TIME PERIOD THAT CONSTRUCTION ACTIVITY IS TEMPORARILY CEASED IS LESS THAN 21 DAYS) THEN STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF SITE BY THE 14TH DAY AFTER CONSTRUCTION ACTIVITY TEMPORARILY CEASED.
5. SEDIMENT THAT IS ACCUMULATED BY THE TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED IN A MANNER THAT AVOIDS ESCAPE OF THE SEDIMENT TO THE DOWNSTREAM SIDE OF THE CONTROL MEASURE AND AVOIDS DAMAGE TO THE CONTROL MEASURE. SEDIMENT SHALL BE REMOVED TO THE LEVEL OF THE GRADE EXISTING AT THE TIME THE CONTROL MEASURE WAS CONSTRUCTED AND BE ACCORDING TO THE FOLLOWING:
   - 5.1. FOR LIGHT-DUTY SEDIMENT BARRIERS, ACCUMULATED SEDIMENT SHALL BE REMOVED ONCE IT REACHES THE LESSER OF THE FOLLOWING:
     - 5.1.1. A DEPTH OF ONE-HALF THE EFFECTIVE HEIGHT OF THE CONTROL MEASURE.
     - 5.1.2. A DEPTH OF 300 MM IMMEDIATELY UPSTREAM OF THE CONTROL MEASURE.
   - 5.2. FOR ALL CONTROL MEASURES, ACCUMULATED SEDIMENT SHALL BE REMOVED AS NECESSARY TO PERFORM MAINTENANCE MEDIAN.
   - 5.3. ACCUMULATED SEDIMENT SHALL BE REMOVED PRIOR TO THE REMOVAL OF THE CONTROL MEASURE.
   - 5.4. ACCUMULATED SEDIMENT IS TO BE REMOVED AND DISPOSED OF AS PER OPSS 180.
6. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MONITORED TO ENSURE THEY ARE IN EFFECTIVE WORKING ORDER. THE CONDITION OF THE CONTROL MEASURES SHALL BE MONITORED PRIOR TO ANY FORECAST STORM EVENT AND FOLLOWING A STORM EVENT.
7. DUST CONTROL MEASURES SHOULD BE CONSIDERED PRIOR TO CLEARING AND GRADING. THE USE OF WATER, CALCIUM CHLORIDE FLAKES/SOLUTION OR MAGNESIUM CHLORIDE FLAKES/SOLUTION SHALL BE USED AS DUST SUPPRESSANTS AS PER OPSS 506. THIS IS TO LIMIT WIND EROSION OF SOILS WHICH MAY TRANSPORT SEDIMENTS OFFSITE, WHERE THEY MAY BE WASHED INTO THE RECEIVING WATER BY THE NEXT RAINSTORM
8. ALL 'GREEN AREAS' TO BE TREATED WITH 150mm TOPSOIL AND SOD AS SOON AS FEASIBLE, AS PER OPSS 570.
9. ALL DISTURBED AREAS TO BE RESTORED TO ORIGINAL CONDITION OR BETTER UNLESS OTHERWISE SPECIFIED.
10. STOCKPILED MATERIAL IS TO BE STORED AWAY FROM POTENTIAL RECEIVERS (E.G. STORM CATCHBASINS, MANHOLES), AND BE SURROUNDED BY EROSION CONTROL MEASURES WHERE MATERIAL IS LEFT IN PLACE IN EXCESS OF 14 DAYS.
11. IF REQUIRED, DEWATERING/SETTLING BASINS SHALL BE CONSTRUCTED AS PER OPSD 219.240 AND LOCATED ON FLAT GRADE UPSTREAM OF OTHER EXISTING MITIGATION MEASURES. WATERCOURSES SHALL NOT BE DIVERTED, OR BLOCKED, AND TEMPORARY WATERCOURSES CROSSINGS SHALL NOT BE CONSTRUCTED OR UTILIZED, UNLESS OTHERWISE SPECIFIED IN THE CONTRACT. IF CLOSURE OF ANY PERMANENT WATER PASSAGE IS NECESSARY, THE CONTRACTOR SHALL RELEASE ANY STRANDED FISH TO THE OPEN PORTION OF THE WATERCOURSE WITHOUT HARM.
12. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL CONFORM TO OPSS 577
13. WHERE DEWATERING IS REQUIRED, THE DISCHARGED WATER SHALL BE CONTROLLED IN ACCORDANCE WITH OPSS 518.
14. ALL SETTLING/FILTRATION BASINS SHALL BE EQUIPPED WITH TERRAFIX 270R GEOTEXTILE (OR APPROVED EQUIVALENT) AND SHALL BE CLEANED AND REPLACED AS REQUIRED.



BENCHMARKS

No.	DESCRIPTION	ELEVATION
TEMP.	TOP OF SPINDLE OF FIRE HYDRANT	90.92m

SCALE 1 : 200

0 10 20 Metres

No.	Revision/Issue	Date
03	REISSUED FOR SITE PLAN CONTROL	MAR. 01, 2024
02	REISSUED FOR SITE PLAN CONTROL	NOV. 24, 2023
01	ISSUED FOR SITE PLAN CONTROL	JUNE 6, 2023

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

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

Stamp: Stamp:

Client:
HAWKINS PROPERTIES
650a EAGLESON ROAD,
OTTAWA, ONTARIO, K2M 1H4

Project:
5646 - 5650 MANOTICK MAIN STREET
MANOTICK MAIN STREET
OTTAWA ONTARIO

Drawing Title:
GRADING AND DRAINAGE PLAN

Scale:	1:200	Project Number:	CCO-22-2383
Drawn by:	M.D.		
Checked by:	C.H.	Drawing Number:	C101
Designed by:	F.V.		

D07-12-22-0048

FILENAME: U:\Ottawa\21 Project - Proposal\2022 Jobs\CCO-22-2383 Hawkins Properties_ZBLA_5646 Manotick Main St\12 - Drawings\CCO-22-2383 - Manotick Main Street - Design.dwg
LAYOUT: C101
LAST PLOTTED: Thursday, February 29, 2024 BY: CHERIE FORD

Rideau Valley Conservation Authority

Permit
Part 8 – Sewage System
Ontario Building Code

Do Not Complete
Permit No 24-031
Revision No
Date
Related Application

A copy of this permit must be posted on the property at all time during construction. OBC, Division C — Part 1, Section 1.3.2.1

This permit verifies that the on-site sewage system was reviewed and approved for construction under the *Ontario Building Code* and *O.Reg. 323/12* as amended by *O.Reg. 151/13.*

Inspected & Recommended by: JASON HUTTON
Owner: Hawkins Properties
Inspection Date & Time:
Weather:
Address: 5646 Manotick Main St
Legal:
In the former Township/City of Rideau

Design Flow for Commercial / Institutional / Industrial (as per Table 8.2.1.3.B)

Q: 4750 L/day

septic tank 27650 L
effluent filter install appropriately sized effluent filter
pump rate time dosed L/15 MIN
treatment unit Eljen GSF A42
number of units 50

weigh bills for Eljen Sand	■ yes	❒ no
grain size analysis required	■ yes	❒ no
site to be scarified	■ yes	❒ no
clay seal inspection	❒ yes	■ no
mantle required	❒ yes	■ no
sub-grade inspection	■ yes	❒ no

ELEVATION ☐ In Ground ☐ Partially Raised ☒ Fully Raised

TYPE OF SYSTEM

❒ **Trench**
◯ **Pipe and Stone or** ◯ **Chambers**
type of chamber
loading area m^2
total trench length m
trench configuration

■ **Dispersal Bed**
◉ BMEC ◯ Type A ◯ Type B
stone - m^2
sand 593.75 m^2
pipe 5 rows of 10 Eljen
weight of sand - kg

❒ **Shallow Buried Trench**
pipe length m
orifice spacing m

❒ **Filter Media Bed**
stone m^2
extended base m^2
pipe
weight of filter media kg
loading area m^2

❒ **Class 5 Holding Tank**

❒ **Septic Tank Only**

Manager, Septic System Approvals: Jeff Davidson Permit Date: March 27, 2024
Comments: 1. An oil/grit separator is strongly recommended prior to discharging to septic tank

■ maintenance/pumping required ■ ESA permit # required ■ engineer to verify ■ subgrade ❒ squirt height
❒ Class 5 Holding Tank approval only valid for three years from date of issue

Manager, Septic System Approvals: Revision Date:
Comments:

NOTE: For further details, refer to corresponding application.

November 20116
Docket: 2K14-1801-0SS0

NON-RESIDENTIAL
☒ Commercial
☐ Industrial
☐ Institutional

PO Box 599, 3889 Rideau Valley Drive, Manotick, Ontario K4M 1A5
T (613) 692-3571 ext 4 F (613) 692-1507 septic@rvca.ca info@rvca.ca www.rvca.ca

Rideau Valley Conservation Authority

SEPTIC OFFICE

SEPTIC FILE #
24-030

SEPTIC PACKAGE
IMPORTANT INFORMATION - PLEASE READ

OTTAWA

Attached is your Septic Sewage Permit package. A **minimum of two (2) inspections are required** before your proposed Septic system can be approved for use (additional inspections may be required for clay soils/bedrock and/or re-inspections).

- All inspections must be requested by writing/email.
- It is the responsibility of the Homeowner/Installer to provide a copy of the Part 8 permit to the plan examiner at client service/building department.
- All construction documents must be received prior to issuing the Certificate of Completion.

Special Note

- A permit is valid for **12 months** from the original date of issuance noted in the "permit date".
- If lapsed, it **may be renewed only once** for a period of 12 months *from the date of expiry.*
- No person shall make a material change or cause a material change to be made to a plan, specification, document, or other information based on which the permit was issued without notifying / filing detail with and obtaining the authorization of the Chief Building Official. (Building Code Act 1992, c23, s.8 (12))

Septic Sewage System Permit Construction/Inspection Requirements

If you submit early, and an inspector arrives before you are finished, you could be subject to a $200.00 re-inspection fee.

1. **Subgrade/Scarification/Clay Soils/Bedrock (if stated on permit)** – In Clay soils/Bedrock, a site preparation inspection is required. The total contact area must be properly prepared. Scarification must be done under dry conditions prior to importing leaching bed fill.
2. **Installation Inspection – 2nd inspection**

When the septic system is substantially completed (i.e. before the final fill is placed over the septic tank and leaching bed system) an Installation inspection is always required. Prior to any inspection request, the following documents are **mandatory and must** be submitted;

- As-built components page and As-built drawings
- Engineers Letter – if the system is engineered
- Weigh bill
- Grain Size Analysis
- Maintenance Agreement
- ESA Permit number
- Schedule 2 – Installer information

3. **Final Grading Inspection – 3rd Inspection**

When construction of the Septic System is complete, a final grading inspection is required. Before a Certificate of Completion can be issued, the following is **mandatory and must** be completed:

- The leaching bed and Septic tank must be covered with sand fill, topsoil and graded accordingly
- All conditions of the Septic permit & comments on the installation inspection report must be met
- The depth of cover & material type must be identified by inspection pipes or holes placed over trenches at four (4) corners of the bed
- The four (4) corners of the bed must be stake.

Restaurant

Application for a Permit to Construct or Demolish

This form is authorized under subsection 8(1.1) of the *Building Code Act, 1992*

For use by Principal Authority

Application number:	Permit number (if different):
Date received: R.V.C.A. RECEIVED MAR - 6 2024	Roll number: SEPTIC FILE # 24-030 OTTAWA

Application submitted to: OTTAWA SEPTIC SYSTEM OFFICE

(Name of municipality, upper-tier municipality, board of health or conservation authority)

A. Project information

Building number, street name	Unit number	Lot/con.
5646-5650 Manotick Main Street		

Municipality	Postal code	Plan number/other description
Ottawa	K4M 0T6	

Project value est. $	Area of work (m^2)

B. Purpose of application

✓ New construction | Addition to an existing building | Alteration/repair | Demolition | Conditional Permit

Proposed use of building	Current use of building
Restaurant (not 24 hour)	Residential/Car Wash (to be demolished)

Description of proposed work

Design of new Class 4 on-site sewage disposal system to service Restaurant building portion of redeveloped property. All existing sanitary infrastructure from existing dwelling and car wash o be decommissioned and replaced.

C. Applicant

Applicant is: Owner or (Authorized agent of owner)

Last name	First name	Corporation or partnership	
Leblanc	Patrick	Egis	
Street address		**Unit number**	**Lot/con.**
115 Walgreen Road, R.R. #3			
Municipality	**Postal code**	**Province**	**E-mail**
Carp	K0A 1L0	Ontario	patrick.leblanc@egis-group.com
Telephone number	**Fax**		**Cell number**
(613) 714-4586	( )		(613) 229-5863

D. Owner (if different from applicant)

Last name	First name	Corporation or partnership	
Hawkings	Jade	Hawkins Properties	
Street address		**Unit number**	**Lot/con.**
650a Eagleson Road			
Municipality	**Postal code**	**Province**	**E-mail**
Kanata	K2M 1H4	ON	jade@hawkinsproperties.org
Telephone number	**Fax**		**Cell number**
(613) 859-2819	( )		( )

E. Builder (optional)

Last name	First name	Corporation or partnership (if applicable)	
Street address		Unit number	Lot/con.
Municipality	Postal code	Province	Email
Telephone number ( )	Fax ( )	Cell number ( )	

SEPTIC FILE # 24-030

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F. Tarion Warranty Corporation (Ontario New Home Warranty Program)

i. Is proposed construction for a new home as defined in the *Ontario New Home Warranties Plan Act*? If no, go to section G.	Yes	No ✓
ii. Is registration required under the *Ontario New Home Warranties Plan Act*?	Yes	No ✓

iii. If yes to (ii) provide registration number(s): _____

G. Required Schedules

i) Attach Schedule 1 for each individual who reviews and takes responsibility for design activities.

ii) Attach Schedule 2 where application is to construct on-site, install or repair a sewage system.

H. Completeness and compliance with applicable law

i) This application meets all the requirements of clauses 1.3.1.3 (5) (a) to (d) of Division C of the Building Code (the application is made in the correct form and by the owner or authorized agent, all applicable fields have been completed on the application and required schedules, and all required schedules are submitted).	Yes ✓	No
Payment has been made of all fees that are required, under the applicable by-law, resolution or regulation made under clause 7(1)(c) of the *Building Code Act, 1992*, to be paid when the application is made.	Yes ✓	No
ii) This application is accompanied by the plans and specifications prescribed by the applicable by-law, resolution or regulation made under clause 7(1)(b) of the *Building Code Act, 1992*.	Yes ✓	No
iii) This application is accompanied by the information and documents prescribed by the applicable by-law, resolution or regulation made under clause 7(1)(b) of the *Building Code Act, 1992* which enable the chief building official to determine whether the proposed building, construction or demolition will contravene any applicable law.	Yes ✓	No
iv) The proposed building, construction or demolition will not contravene any applicable law.	Yes ✓	No

I. Declaration of applicant

I Patrick Leblanc declare that:
(print name)

1. The information contained in this application, attached schedules, attached plans and specifications, and other attached documentation is true to the best of my knowledge.
2. If the owner is a corporation or partnership, I have the authority to bind the corporation or partnership.

Mar 04, 2024
Date

Signature of applicant

Personal information contained in this form and schedules is collected under the authority of subsection 8(1.1) of the *Building Code Act, 1992*, and will be used in the administration and enforcement of the *Building Code Act, 1992*. Questions about the collection of personal information may be addressed to: a) the Chief Building Official of the municipality or upper-tier municipality to which this application is being made, or, b) the inspector having the powers and duties of a chief building official in relation to sewage systems or plumbing for an upper-tier municipality, board of health or conservation authority to whom this application is made, or, c) Director, Building and Development Branch, Ministry of Municipal Affairs and Housing 777 Bay St., 2nd Floor. Toronto, M5G 2E5 (416) 585-6666.

Schedule 1: Designer Information

Use one form for each individual who reviews and takes responsibility for design activities with respect to the project.

A. Project Information

Building number, street name		Unit no.	Lot/con.
5646-5650 Manotick Main Street			
Municipality	**Postal code**	**Plan number/ other description**	
Ottawa	K4M 0T6		

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B. Individual who reviews and takes responsibility for design activities

Name		Firm	
Patrick Leblanc, P.Eng.		Egis	
Street address		**Unit no.**	**Lot/con.**
115 Walgreen Road, R.R. #3			
Municipality	**Postal code**	**Province**	**E-mail**
Carp	K0A 1L0	Ontario	patrick.leblanc@egis-group.com
Telephone number	**Fax number**		**Cell number**
(613) 714-4586	( )		(613) 229-5863

C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1. of Division C]

House	HVAC – House	Building Structural
Small Buildings	Building Services	Plumbing – House
Large Buildings	Detection, Lighting and Power	Plumbing – All Buildings
Complex Buildings	Fire Protection	On-site Sewage Systems

Description of designer's work

Design of new Class 4 on-site sewage disposal system to service Restaurant building portion of redeveloped property.

D. Declaration of Designer

I Patrick Leblanc, P.Eng. declare that (choose one as appropriate):
(print name)

I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4.of Division C, of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories.

Individual BCIN: _____

Firm BCIN: _____

I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5.of Division C, of the Building Code.

Individual BCIN: _____

Basis for exemption from registration: _____

The design work is exempt from the registration and qualification requirements of the Building Code.

Basis for exemption from registration and qualification: P.Eng. (Licence #100141438)

I certify that:

1. The information contained in this schedule is true to the best of my knowledge.
2. I have submitted this application with the knowledge and consent of the firm.

Date Mar 04, 2024 Signature of Designer

NOTE:

1. For the purposes of this form, "individual" means the "person" referred to in Clause 3.2.4.7(1) (c).of Division C, Article 3.2.5.1. of Division C, and all other persons who are exempt from qualification under Subsections 3.2.4. and 3.2.5. of Division C.
2. Schedule 1 is not required to be completed by a holder of a license, temporary license, or a certificate of practice, issued by the Ontario Association of Architects. Schedule 1 is also not required to be completed by a holder of a license to practise, a limited license to practise, or a certificate of authorization, issued by the Association of Professional Engineers of Ontario.

Schedule 2: Sewage System Installer Information

A. Project Information				
Building number, street name 5646-5650 Manotick Main Street			Unit number	Lot/con.
Municipality Ottawa	Postal code K4M 0T6	Plan number/ other description		

B. Sewage system installer

Is the installer of the sewage system engaged in the business of constructing on-site, installing, repairing, servicing, cleaning or emptying sewage systems, in accordance with Building Code Article 3.3.1.1, Division C?

Yes (Continue to Section C) No (Continue to Section E) ✓ Installer unknown at time of application (Continue to Section E)

C. Registered installer information (where answer to B is "Yes")				
Name			BCIN	
Street address			Unit number	Lot/con.
Municipality	Postal code	Province	E-mail	
Telephone number ( )	Fax ( )		Cell number ( )	

D. Qualified supervisor information (where answer to section B is "Yes")	
Name of qualified supervisor(s)	Building Code Identification Number (BCIN)

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E. Declaration of Applicant:

I Patrick Leblanc (print name) declare that:

I am the applicant for the permit to construct the sewage system. If the installer is unknown at time of application, I shall submit a new Schedule 2 prior to construction when the installer is known;

OR

I am the holder of the permit to construct the sewage system, and am submitting a new Schedule 2, now that the installer is known.

I certify that:

1. The information contained in this schedule is true to the best of my knowledge.
2. If the owner is a corporation or partnership, I have the authority to bind the corporation or partnership.

Date Mar 04, 2024 Signature of applicant

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Schedule 4
Proposed Services
Complete Sections 1 thru 7

1. **Engineered**
   - ■ Yes
   - ☐ No

2. **Water supply**
   - ■ Proposed
   - ☐ Existing

3. **Type of work proposed**
   - ■ New Installation
   - ☐ Replacement
   - ☐ Alteration

4. **Type of Well**
   - ☐ Dug/bored/Sandpoint well
   - ☐ Drilled well
   - ■ Municipal
   - ☐ Other

5. **Residential** Sewage Design Flow Info.
   Bedrooms _____
   House (floor area) _____ **m²**
   People _____
   Total Fixture Units _____ **(Schedule 8)**
   Residential Flow _____ **L/day**

6. Sewage Design Flow **Other Occupancies**
   Design Flow 4,375 L/day
   Detailed sewage flow calculations:
   Restaurant (not 24-hour) per seat = 35 seats * 125 = 4,375 L/day
   TOTAL = 4,375 L/day

7. **Type of System**
   - ■ Treatment Unit Waterloo BT-23000
   - ☐ Class 2 – Leaching Pit
   - ☐ Class 3 – Cesspool
   - ☐ Class 4 – Shallow Buried Trench
     - ☐ Class 4 – Trench **(Schedule 9)**
       - ☐ Fully raised
       - ☐ Partially raised
       - ☐ In-ground
     - ☐ Class 4 – Filter Media **(Schedule 10)**
       - ☐ Fully raised
       - ☐ Partially raised
       - ☐ In-ground
     - ■ Class 4 – BMEC Area Bed **(Schedule 11)**
       - ■ Fully raised
       - ☐ Partially raised
       - ☐ In-ground
     - ☐ Class 4 – "Type A" Dispersal **(Schedule 13)**
       - ☐ Fully raised
       - ☐ Partially raised
       - ☐ In-ground
     - ☐ Class 4 – "Type B" Dispersal **(Schedule 14)**
       - ☐ Fully raised
       - ☐ Partially raised
       - ☐ In-ground
   - ☐ Class 5 – Holding Tank (9000L min)
   - ☐ Tank/TreatmentUnit/PumpChamber ONLY
   - ☐ Effluent Filter/Risers ONLY

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Schedule 5
Sewage System Details

Type of System: Class 4 Level 4 treatment (Waterloo Biofilter) to Eljen GSF leaching bed (Schedule 4)

Septic/Holding Tank Size: Min. 13,125 Litres Make: Boyd Bros Anaerobic Digester

Septic Tank Effluent Filter Make: Model: Boyd Bros ADIPC-23000

Treatment Unit – Make & Model: Waterloo Biofilter BT-23000 discharging to Eljen GSF BMEC leaching bed

Number of Units: 50 Eljen GSF units Other:

Refer to Typical Drawing # C Pump(s) required Yes

Mantle Information: Pump Rate Max 500 L/15min

Native or imported =15m in n/a direction(s) **Note:** Alarm required for all pumping systems

Slope subgrade 1% (min.) % slope

South-east direction(s)

Site to be Scarified (If clay) (YES) / NO

Clay Seal Required (If bedrock) YES (NO)

☐ **Trench**

Distribution Pipe Length _____ m

Loading Area 546.9 m^2

Type of Chamber _____

Length of Chamber _____ m

☐ **Shallow Buried Trench**

Pipe Length _____ m

☐ **Filter Media Bed**

Stone _____ m^2

Extended Base _____ m^2

Pipe _____ m

Weight of Filter Media _____ Kg

Loading Area _____ m^2

☑ **BMEC Area Bed**

☐ **Type A**

☐ **Type B**

Stone _____ m^2

Sand _____ m^2

Pipe _____ m

Linear Loading _____ L/m^2

☐ **Tank/Treatment Unit/Pump Chamber Replacement** ONLY

☐ **Effluent Filter & Riser** ONLY

Construction Notes:

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Schedule 6
Soil and Water Table Information
(Minimum depth of test pit: 2 metres)

****Refer to plan CCO-22-2383 SSD-001 for test pit locations****

Name of Applicant/Agent: Egis
Date: Oct.11.2022 Time:
Applicant/Agent Signature:

Inspector:
Date: Time:
Inspector Signature:

MW109 EG (88.66....) Soil Description | T

.5m
1.0 m
1.5m
2.0 m

Refer to attached Borehole Log for MW109 from Geotech Report

50 min/cm

EG (.....) Soil Description

Test pits not available for inspection. Engineer assumes all liability for soil and HGWT info/elev's.

1.5m
2.0 m

BH103 EG (89.40.....) Soil Description | T

0.15m
.5m
1.0 m
1.5m
2.0 m

Refer to attached Borehole Log for BH103 from Geotech Report

50 min/cm

EG (.....) Soil Description | T

.5m
1.0 m
1.5m
2.0 m

LEGEND

BR = Bedrock
GWT = Ground water table
HGWT = High ground water table
M = metres
EG = Existing grade
T = percolation rate

Elevations edited by Egis to correspond to same local datum of site topographic survey

CLIENT: Hawkins Properties | PROJECT NO.: CO884.01 | **RECORD OF: MW109**

ADDRESS: 5646/5650 Manotick Main Street.

CITY/PROVINCE: Ottawa,ON | NORTHING (m): | EASTING (m): | ELEV. (m) 88.66

CONTRACTOR: Strata Drilling Group | METHOD: 7822 DT Geoprobe equipped with hollow stem augers

BOREHOLE DIAMETER (cm): 9.5 | WELL DIAMETER (cm): 5.08 | SCREEN SLOT #: 10 | SAND TYPE: No-2 | SEALANT TYPE: Bentonite

SAMPLE TYPE: AUGER | DRIVEN | CORING | DYNAMIC CONE | SHELBY | SPLIT SPOON

GWL (m)	SOIL SYMBOL	SOIL DESCRIPTION	DEPTH (m)	ELEVATION (m)	SHEAR STRENGTH (kPa) 40 80 120 160 / N-VALUE (Blows/300mm) 20 40 60 80	WATER CONTENT (%) PL W.C. LL 20 40 60 80	SAMPLE NO.	SAMPLE TYPE	RECOVERY (%)	SV/TOV (ppm or %LEL) (new title)	LABORATORY TESTING	WELL INSTALLATION	REMARKS
		Topsoil	0	88.3	6	24.2	1		100	<10	M+I		
		firm, moist, brown CLAYEY SILT trace sand	0.5	87.8	2	24.6	2		100	<10			
			1	87.3	2 60 70/50	40.3	3		100	<10			
			1.5	86.8									
			2	86.3									
			2.5	85.8									
		firm to soft, moist SILTY CLAY	3	85.3	2 60 100/80	46.4	4		2	<10	BTEX F1-F4		
			3.5	84.8									
			4	84.3	80/50								
			4.5	83.8									
			5	83.3	4 50	42	5		100	<10			
		olive brown ---- grey	5.5	82.8									
			6	82.3	25	38	6		100	<10			
			6.5	81.8									
			7	81.3									
			7.5	80.8	0	43	7		100	<10			
			8	80.3									
			8.5										
		END OF BOREHOLE BOREHOLE TERMINATED ON ASSUMED BEDROCK											

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INPUT BY: UB | MONITORING DATE: 27-10-2022

REVIEWED BY: JM | PAGE 1 OF 1

Elevations edited by Egis to correspond to same local datum of site topographic survey

CLIENT: Hawkins Properties	PROJECT NO.: CO884.01	**RECORD OF: BH103**
ADDRESS: 5646/5650 Manotick Main Street.		
CITY/PROVINCE: Ottawa,ON	NORTHING (m):	EASTING (m): ELEV. (m) 89.40
CONTRACTOR: Strata Drilling Group	METHOD: 7822 DT Geoprobe equipped with hollow stem augers	
BOREHOLE DIAMETER (cm): 9.5	WELL DIAMETER (cm): 5.08	SCREEN SLOT #: 10 SAND TYPE: No-2 SEALANT TYPE: Bentonite

SAMPLE TYPE: AUGER | DRIVEN | CORING | DYNAMIC CONE | SHELBY | SPLIT SPOON

GWL (m)	SOIL SYMBOL	SOIL DESCRIPTION	DEPTH (m)	ELEVATION (m)	SHEAR STRENGTH (kPa) / N-VALUE (Blows/300mm)	WATER CONTENT (%) PL W.C. LL	SAMPLE NO.	SAMPLE TYPE	RECOVERY (%)	SV/TOV (ppm or %LEL) (new title)	LABORATORY TESTING	WELL INSTALLATION	REMARKS
		Topsoil	0	89.4									
		dark brown clayey silt trace sand trace organics FILL	0.5	88.9	2		1		100	<10			
		saturated grey silty clay FILL											
		Topsoil	1	88.4	4		2		100	<10			
		firm, brown, CLAYEY SILT trace rootlets sand and gravel	1.5	87.9	38								
		firm to soft, grey SILTY CLAY	2	87.4	2 50+		3		100	<10			
			2.5	86.9									
			3	86.4									
			3.5	85.9	4		4		100	<10	BTEX F1-F4		
			4	85.4	50+								
			4.5	84.9									
			5	84.4	50+								
			5.5	83.9	5		5		100	<10			
		moist ----- very wet	6	83.4									
			6.5	82.9	1		6		100	<10			
			7	82.4									
			7.5	81.9									
			8	81.4	0		7		100	<10			
			8.5	80.9									
			9	80.4									

TERRAPEX

LOGGED BY: JM	DRILLING DATE: 12-Oct-2022
INPUT BY: UB	MONITORING DATE:
REVIEWED BY: JM	PAGE 1 OF 2

CLIENT: Hawkins Properties		PROJECT NO.: CO884.01	**RECORD OF: BH103**
ADDRESS: 5646/5650 Manotick Main Street.			
CITY/PROVINCE: Ottawa,ON	NORTHING (m):	EASTING (m):	ELEV. (m) 89.40
CONTRACTOR: Strata Drilling Group	METHOD: 7822 DT Geoprobe equipped with hollow stem augers		
BOREHOLE DIAMETER (cm): 9.5	WELL DIAMETER (cm): 5.08	SCREEN SLOT #: 10	SAND TYPE: No-2	SEALANT TYPE: Bentonite
SAMPLE TYPE: AUGER ■ DRIVEN ◪ CORING ☒ DYNAMIC CONE ☐ SHELBY ▯ SPLIT SPOON			

GWL (m)	SOIL SYMBOL	SOIL DESCRIPTION	DEPTH (m)	ELEVATION (m)	SHEAR STRENGTH (kPa) 40 80 120 160 / N-VALUE (Blows/300mm) 20 40 60 80	WATER CONTENT (%) ▲ PL W.C. LL 20 40 60 80	SAMPLE NO.	SAMPLE TYPE	RECOVERY (%)	(new title) SV/TOV (ppm or %LEL)	LABORATORY TESTING	WELL INSTALLATION	REMARKS
		pieces of limestone END OF BOREHOLE BOREHOLE TERMINATED ON ASSUMED BEDROCK					8			<10			

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INPUT BY: UB	MONITORING DATE:
REVIEWED BY: JM	PAGE 2 OF 2

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Scale: 1Block = _____

Schedule 7
Layout Section

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Revision No _____
Date _____

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24-030

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N

See CCO-22-2383 SSD-01.Rev.1

○Dug Well ●Drilled Well ▲Neighbouring Homes ◊Benchmark ---Tile Drainage —Property Line

Elevations (metric only)
B.M 90.92 m
B.M Description Top of Spindle on Fire Hydrant
(refer to attached drawing C101 (Grading and Drainage Plan))
Exact Location On East side of Manotick Main Street,
opposite south-east corner of subject property

Min. of 5 elevations in proposed system area (in X pattern)

X_1 _____ X_2 _____
X_3 _____ X_4 _____
X_5 _____ $X_{6\ (toe)}$ _____
X_7 X_8

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Schedule 8
Fixture unit count

Fixtures	# Existing	+	# Proposed	X	unit count	=	Fixture Count
Bathroom							
Bathroom group (toilet, sink and tub or shower) with flush tank		+		X	6	=	
Bathtub with/without overhead shower		+		X	1.5	=	
Shower stall		+		X	1.5	=	
Wash basin (1½inch trap)		+		X	1.5	=	
Watercloset (toilet) tank operated		+		X	4	=	
Bidet		+		X	1	=	
Kitchen							
Dishwasher	N/A			X	1	=	
Sink with/without garbage grinder(s), domestic and other small type single, double or 2 single with a common trap		+		X	1.5	=	
Other							
Domestic washing machine		+		X	1.5	=	
Combination sink and laundry tray single or double (Installed on 1½ trap)		+		X	1.5	=	

***Total:**

***Insert the TOTAL in section 5 of Schedule 4** (0.Reg 151/13 Table 7.4.9.3)

1. Sump pumps and floor drains are not to be connected to the sewage system. Connection of such fixtures to a sewage system may lead to a hydraulic failure of the said system. The above mentioned fixtures should be discharged separately to an approved Class 2 (leaching pit) sewage system.
2. Where laundry waste is not more than 20% of the total daily design sanitary sewage flow, it may discharge to a sewage system (Part 8, OBC, 8.1.3.1(2)).

Agent/Owner signature

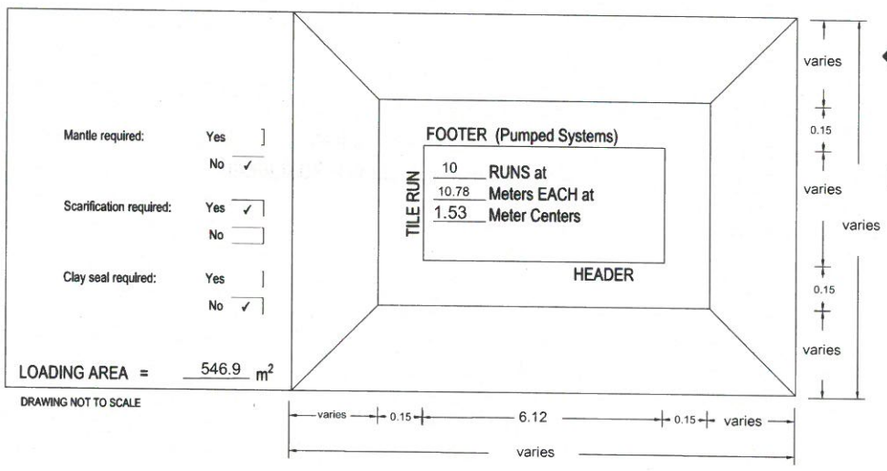
Mar 04, 2024
Date

OSSO version June 2014

SEPTIC FILE #
24-030
OTTAWA

Do Not Complete
Permit # _____
Revision # _____
Date _____

Plan View



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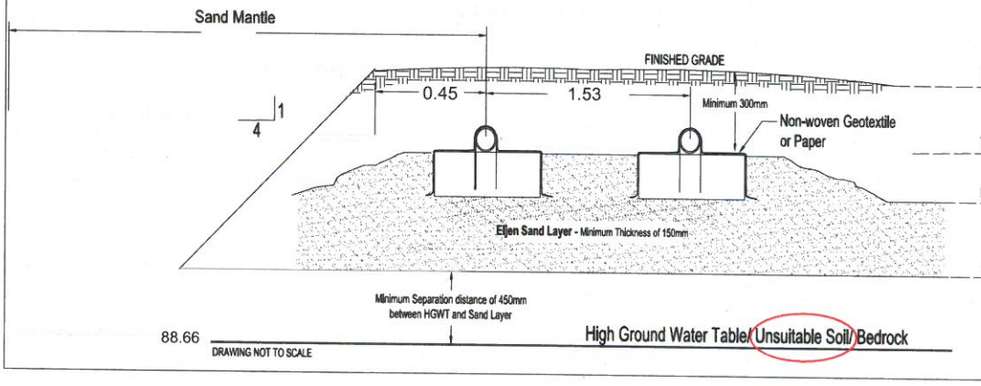
TYPICAL DRAWING C
BURIED OR RAISED BED - BMEC ELJEN System

March 26/24

Cross-Section Profile



	Proposed Installation Grades	Approved Installation Grades	Existing Grade
Finished Grade	89.89		
Top of Eljen Module	89.59		
Bottom of Eljen Module	89.41		
Bottom of Eljen Sand	89.26		88.66

FILENAME: U:\Ottawa\01 Project - Proposals\2022 Jobs\CCO\CCO-22-2383 Hawkins Properties_ZBLA_5646 Manotick Main St\12 - Drawings\CCO-22-2383 - Manotick Main Street - Design.Septic.Feb.26.2024.dwg
LAST SAVED: Monday, March 04, 2024 LAST SAVED BY: p.leblanc
LAST PLOTTED: Monday, March 04, 2024

GENERAL

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL OTHER APPLICABLE CONTRACT DRAWINGS AND PERMITS.
2. ORIGINAL TOPOGRAPHY, GROUND ELEVATION AND SURVEY DATA SHOWN ARE PROVIDED FOR INFORMATION PURPOSES ONLY AND IMPLY NO GUARANTEE OF ACCURACY. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL INFORMATION OBTAINED FROM THEM PRIOR TO CONSTRUCTION.
3. CONTRACTOR TO CONFIRM AT ONSET OF CONSTRUCTION THAT THE SOIL IN THE PROPOSED LEACHING BED AREA IS CONSISTENT WITH THE SOIL DESCRIBED IN THE TEST HOLE LOGS. (I.E. CLAYEY SILT). IF THIS SOIL DOES NOT MATCH THE TEST HOLE LOGS, THE CONTRACTOR SHALL CONTACT THE DESIGNER PRIOR TO THE PLACEMENT OF LEACHING BED MATERIALS.
4. NATIVE SOIL TO BE SCARIFIED BEFORE PLACEMENT OF IMPORTED LEACHING BED SAND FILL.

CONSTRUCTION NOTES

1. THIS SYSTEM IS NOT DESIGNED FOR THE USE OF A GARBAGE DISPOSAL.
2. THIS SYSTEM IS NOT DESIGNED TO RECEIVE BACKWASH FROM A DOMESTIC WATER TREATMENT DEVICE.
3. ANY FILL MATERIAL REQUIRED TO MEET 600mm VERTICAL SETBACK BETWEEN THE HIGH GROUND WATER ELEVATION/BEDROCK AND THE 150mm OF SPECIFIED SAND SHALL BE ASTM C33 SAND OR IMPORTED SAND WITH A PERCOLATION TIME OF AT LEAST 6 AND NOT MORE THAN 10 min/cm, WITH NOT MORE THAN 5% FINES PASSING THE "200 SIEVE".
4. ALL FILL MATERIAL SHALL BE CLEAN AND PERMEABLE AND MEET ELJEN DESIGN MANUAL REQUIREMENTS. THE 150mm OF SPECIFIED SAND UNDERNEATH AND SURROUNDING THE GSF MODULES SHALL COMPLY WITH ASTM C33 SAND.
5. BACKFILL MATERIAL CAN BE NATIVE TOPSOIL WITH NO STONES LARGER THAN 50mm IN ANY DIMENSION TO A MAXIMUM DEPTH OF 30cm OVER THE GSF MODULES AND SHALL INCLUDE A MINIMUM 150mm OF CLEAN LOAM.
6. ANY ELJEN GSF SYSTEM THAT IS MORE THAN 450mm BELOW FINISHED GRADE AS MEASURED FROM THE TOP OF THE MODULE SHALL BE VENTED.
7. THIS DESIGN COMPLIES WITH AND MUST BE INSTALLED IN ACCORDANCE WITH CURRENT ELJEN GSF SYSTEM DESIGN AND INSTALLATION MANUAL.
8. INSTALLATION TO BE BY AUTHORIZED ELJEN INSTALLER WITH VALID BCIN
9. ELJEN GSF PRODUCT SHALL BE SUPPLIED BY AN ONTARIO AUTHORIZED ELJEN GSF DISTRIBUTOR
10. ENSURE POSITIVE DRAINAGE AWAY LEACHING BEDS AND BUILDINGS.
11. FORCEMAINS TO EITHER BE FREE-DRAINING BACK TO PUMP OR FROST-PROTECTED AS PER CITY OF OTTAWA STANDARD W22.
12. THIS PLAN IS TO BE READ IN CONJUNCTION WITH OBC SEPTIC PERMIT APPLICATION, AND ANY OTHERS WHICH MAY APPLY.

DESIGN CRITERIA

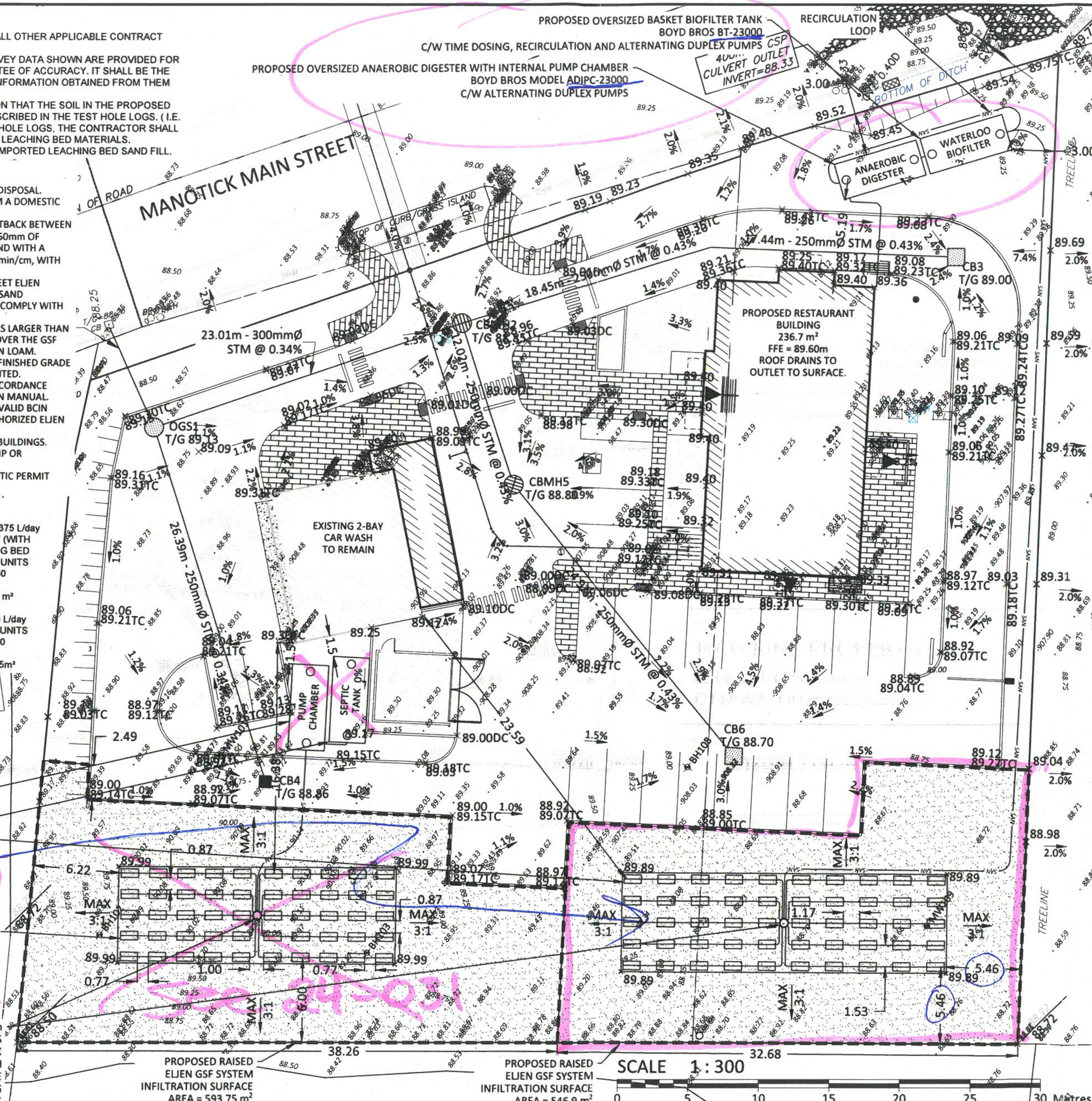
RESTAURANT SEWAGE SYSTEM:

- RESTAURANT SEWAGE SYSTEM DESIGN FLOW Q_{MIN} = 4,375 L/day
- OVERSIZED WATERLOO BIOFILTER LEVEL 4 TREATMENT (WITH RECIRCULATION) DISCHARGING TO ELJEN GSF LEACHING BED
- MIN. NUMBER OF ELJEN MODULES = Q/95 = 4,375/95 = 47 UNITS
- ACTUAL ELJEN UNITS IN DESIGN= 10 RUNS X 5 UNITS = 50
- NATIVE T-TIME = 50 min/cm (CLAYEY SILT)
- MIN. INFILTRATION AREA = Q*T/400 = 4,375*50/400 = 546.9 m²

CAR WASH SEWAGE SYSTEM:

- CAR WASH SEWAGE SYSTEM DESIGN FLOW Q_{MIN} = 4,750 L/day
- MIN. NUMBER OF ELJEN MODULES = Q/95 = 4,690/95 = 50 UNITS
- ACTUAL ELJEN UNITS IN DESIGN= 10 RUNS X 5 UNITS = 50
- NATIVE T-TIME = 50 min/cm (CLAYEY SILT)
- MIN. INFILTRATION AREA = Q*T/400 = 4,750*50/400 = 593.75m²

PM March26/24



R.V.C.A. RECEIVED
MAR - 6 2024

SEPTIC FILE #
24-030
OTTAWA

No.	Revision/Issue	Date
1	UPDATED DESIGN/SITE PLAN	MAR/04/2024

egis
1-1329 Gardiners Road
Kingston, ON K7P 0L8
Tel: 613-542-3788
Fax: 613-542-7583
info.north-america@egis-group.com
www.egis-group.com

Stamp:

LICENSED PROFESSIONAL ENGINEER
P.M.R. LEBLANC
100141438
Mar. 4, 2024
PROVINCE OF ONTARIO

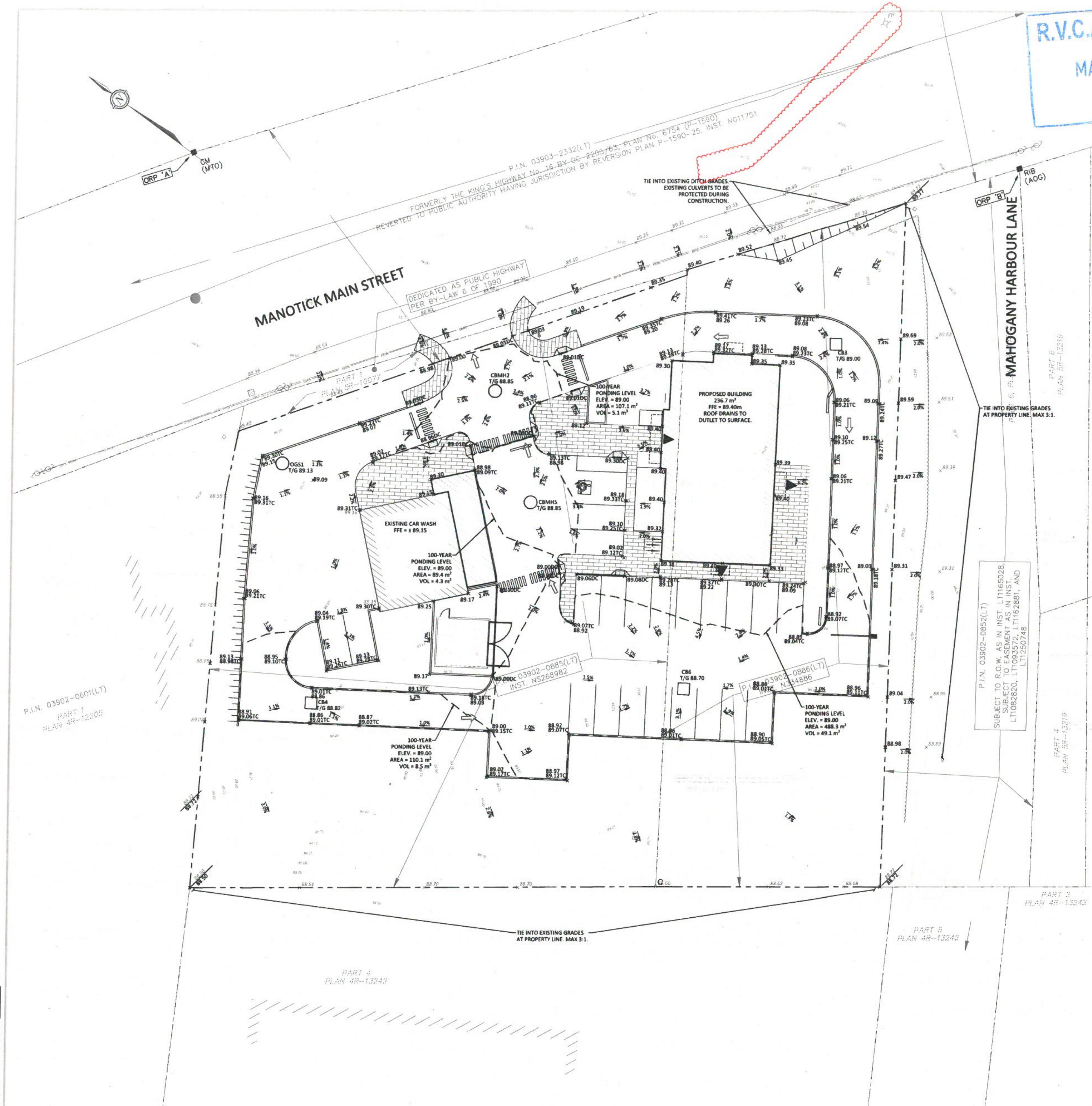
Client:
HAWKINS PROPERTIES
650a EAGLESON ROAD,
OTTAWA, ONTARIO, K2M 1H4

Project:
MANOTICK MAIN STREET
5646-5650 MANOTICK MAIN STREET

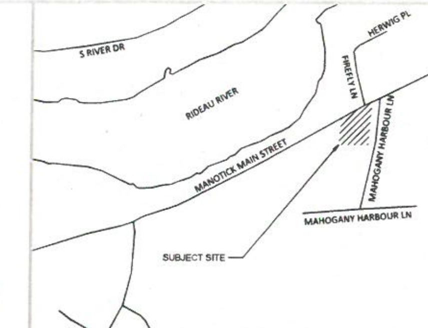
Drawing Title:
SEWAGE SYSTEM DESIGN

Scale:	1:300	Project Number:	CCO-22-2383
Drawn by:	P.L.		
Checked By:	P.L.	Drawing Number:	SSD-01
Designed By:	P.L.		
Date:	JAN/24/2024		

FILENAME: U:\Ottawa\01 Project - Proposals\2022 Jobs\CCO\CCO-22-2383 Hawkins Properties_ZBLA_5646 Manotick Main St\12 - Drawings\CCO-22-2383 - Manotick Main Street - Design.dwg
LAST SAVED: Thursday, February 29, 2024 LAST SAVED BY: F. Valenti
LAST PLOTTED: Thursday, February 29, 2024 CTB FILE USED: ---



SEPTIC FILE #
24-030
OTTAWA



BENCHMARK INFORMATION

BENCHMARKS:

BENCHMARK INFORMATION DERIVED FROM FIELD SURVEY BY McINTOSH PERRY SURVEYING INC. (MPSI). THIS FIELD WORK WAS COMPLETED ON THE 6TH DAY OF APRIL, 2022.

ELEVATIONS WITHIN TOPOGRAPHIC SURVEY ARE GEODETIC (CGVD 28/78) BY GNSS OBSERVATIONS REFERENCED TO THE CANADA HT_2 GEOID MODEL.

TEMPORARY SITE BENCHMARK - TOP OF SPINDLE ON FIRE HYDRANT, HAVING AN ELEVATION OF 90.92m.

BEARING & DISTANCES:

OBSERVED REFERENCE POINTS (ORP'S) DERIVED FROM GPS OBSERVATIONS USING REAL-TIME NETWORK (RTN) SERVICE. NAD83 (CSRS-2010) UTM ZONE 18N.

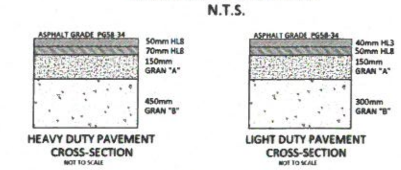
COORDINATES TO URBAN ACCURACY PER SEC. 14(2) OF O.REG 216/10:

POINT ID	NORTHING	EASTING
ORP 'A'	5007679.46	446872.25
ORP 'B'	5007609.58	446920.83

*COORDINATES CANNOT, IN THEMSELVES, BE USED TO RE-ESTABLISH CORNERS OR BOUNDARIES SHOWN ON THIS PLAN.

REFER TO TOPOGRAPHIC SURVEY COMPLETED BY McINTOSH PERRY SURVEYING INC. (MPSI) FOR ADDITIONAL INFORMATION ON BEARINGS & DISTANCES.

PAVEMENT CROSS SECTIONS
N.T.S.



HEAVY DUTY PAVEMENT CROSS-SECTION
NOT TO SCALE

LIGHT DUTY PAVEMENT CROSS-SECTION
NOT TO SCALE

ASPHALT CROSS-SECTIONS TO CONFORM TO GEOTECHNICAL REPORT COMPLETED BY TERRAPEX ENVIRONMENTAL LTD.

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) MPSI DRAWING 22-3130, DATED MAY 20, 2022, 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 ENGINEER/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'S 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 ONE,
    - GAS SERVICE - ENBRIDGE,
    - TELEPHONE SERVICE - BELL CANADA,
    - TELEVISION SERVICE - ROGERS.
16. INSTALLATION TO BE IN ACCORDANCE WITH CURRENT CODES AND STANDARDS OF APPROVAL AGENCIES HYDRO ONE, BELL AND THE CITY.
17. CONTRACTOR TO ENSURE ALL APPLICABLE OPS SPECIFICATIONS ARE FOLLOWED DURING CONSTRUCTION
18. ALL PROPOSED CURB TO BE CONCRETE BARRIER CURB UNLESS OTHERWISE SPECIFIED.
19. THIS PLAN MUST BE READ IN CONJUNCTION WITH THE GEOTECHNICAL INVESTIGATION COMPLETED BY TERRAPEX ENVIRONMENTAL LTD.

EROSION AND SEDIMENT CONTROL

1. THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES, TO PROVIDE FOR PROTECTION OF THE AREA DRAINAGE SYSTEM AND THE RECEIVING WATERCOURSE, DURING CONSTRUCTION ACTIVITIES. THIS INCLUDES LIMITING THE AMOUNT OF EXPOSED SOIL, TEMPORARY SEDIMENT CONTROL (GEOSOCK INSERTS WITH AN OVERFLOW UNDER GRATE OR COVER) TO BE IMPLEMENTED DURING CONSTRUCTION ON ALL PROPOSED ROAD CATCHBASINS, REARYARD CATCHBASINS AND CATCHBASIN MANHOLES AND OTHER SEDIMENT TRAPS. NO RECYCLED GEOSOCK MATERIAL SHALL BE PERMITTED FOR USE ON SITE. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.
2. AT THE DISCRETION OF THE PROJECT MANAGER OR MUNICIPAL STAFF, ADDITIONAL SILT CONTROL DEVICES SHALL BE INSTALLED AT DESIGNATED LOCATIONS.
3. FOR SILT FENCE BARRIER, USE OPSD 219.110. GEOTEXTILE FOR SILT FENCE AS PER OPSS 1860, TABLE 3.
4. EXCEPT AS PROVIDED IN PARAGRAPHS 4.1., and 4.2. BELOW, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS FEASIBLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY HAS TEMPORARILY OR PERMANENTLY CEASED.
   - 4.1. WHERE THE INITIATION OF STABILIZATION MEASURES BY THE 14TH DAY AFTER CONSTRUCTION ACTIVITY TEMPORARILY OR PERMANENTLY CEASE IS PRECLUDED BY SNOW COVER, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS FEASIBLE.
   - 4.2. WHERE CONSTRUCTION ACTIVITY WILL RESUME ON A PORTION OF THE SITE WITHIN 21 DAYS FROM WHEN ACTIVITIES CEASED, (E.G. THE TOTAL TIME PERIOD THAT CONSTRUCTION ACTIVITY IS TEMPORARILY CEASED IS LESS THAN 21 DAYS) THEN STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF SITE BY THE 14TH DAY AFTER CONSTRUCTION ACTIVITY TEMPORARILY CEASED.
5. SEDIMENT THAT IS ACCUMULATED BY THE TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED IN A MANNER THAT AVOIDS ESCAPE OF THE SEDIMENT TO THE DOWNSTREAM SIDE OF THE CONTROL MEASURE AND AVOIDS DAMAGE TO THE CONTROL MEASURE. SEDIMENT SHALL BE REMOVED TO THE LEVEL OF THE GRADE EXISTING AT THE TIME THE CONTROL MEASURE WAS CONSTRUCTED AND BE ACCORDING TO THE FOLLOWING:
   - 5.1. FOR LIGHT-DUTY SEDIMENT BARRIERS, ACCUMULATED SEDIMENT SHALL BE REMOVED ONCE IT REACHES THE LESSER OF THE FOLLOWING:
     - 5.1.1. A DEPTH OF ONE-HALF THE EFFECTIVE HEIGHT OF THE CONTROL MEASURE.
     - 5.1.2. A DEPTH OF 300 MM IMMEDIATELY UPSTREAM OF THE CONTROL MEASURE.
   - 5.2. FOR ALL CONTROL MEASURES, ACCUMULATED SEDIMENT SHALL BE REMOVED AS NECESSARY TO PERFORM MAINTENANCE REPAIRS.
   - 5.3. ACCUMULATED SEDIMENT SHALL BE REMOVED PRIOR TO THE REMOVAL OF THE CONTROL MEASURE.
   - 5.4. ACCUMULATED SEDIMENT IS TO BE REMOVED AND DISPOSED OF AS PER OPSS 180.
6. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MONITORED TO ENSURE THEY ARE IN EFFECTIVE WORKING ORDER. THE CONDITION OF THE CONTROL MEASURES SHALL BE MONITORED PRIOR TO ANY FORECAST STORM EVENT AND FOLLOWING A STORM EVENT.
7. DUST CONTROL MEASURES SHOULD BE CONSIDERED PRIOR TO CLEARING AND GRADING. THE USE OF WATER, CALCIUM CHLORIDE FLAKES/SOLUTION OR MAGNESIUM CHLORIDE FLAKES/SOLUTION SHALL BE USED AS DUST SUPPRESSANTS AS PER OPSS 506. THIS IS TO LIMIT WIND EROSION OF SOILS WHICH MAY TRANSPORT SEDIMENTS OFFSITE, WHERE THEY MAY BE WASHED INTO THE RECEIVING WATER BY THE NEXT RAINSTORM.
8. ALL 'GREEN AREAS' TO BE TREATED WITH 150mm TOPSOIL AND SOD AS SOON AS FEASIBLE, AS PER OPSS 570.
9. ALL DISTURBED AREAS TO BE RESTORED TO ORIGINAL CONDITION OR BETTER UNLESS OTHERWISE SPECIFIED.
10. STOCKPILED MATERIAL IS TO BE STORED AWAY FROM POTENTIAL RECEIVERS (E.G. STORM CATCHBASINS, MANHOLES), AND BE SURROUNDED BY EROSION CONTROL MEASURES WHERE MATERIAL IS LEFT IN PLACE IN EXCESS OF 14 DAYS.
11. IF REQUIRED, DEWATERING/SETTLING BASINS SHALL BE CONSTRUCTED AS PER OPSD 219.240 AND LOCATED ON FLAT GRADE UPSTREAM OF OTHER EXISTING MITIGATION MEASURES. WATERCOURSES SHALL NOT BE DIVERTED, OR BLOCKED, AND TEMPORARY WATERCOURSES CROSSINGS SHALL NOT BE CONSTRUCTED OR UTILIZED, UNLESS OTHERWISE SPECIFIED IN THE CONTRACT. IF CLOSURE OF ANY PERMANENT WATER PASSAGE IS NECESSARY, THE CONTRACTOR SHALL RELEASE ANY STRANDED FISH TO THE OPEN PORTION OF THE WATERCOURSE WITHOUT HARM.
12. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL CONFORM TO OPSS 577
13. WHERE DEWATERING IS REQUIRED, THE DISCHARGED WATER SHALL BE CONTROLLED IN ACCORDANCE WITH OPSS 518.
14. ALL SETTLING/FILTRATION BASINS SHALL BE EQUIPPED WITH TERRAFIX 270R GEOTEXTILE (OR APPROVED EQUIVALENT) AND SHALL BE CLEANED AND REPLACED AS REQUIRED.

LEGEND

- CONCRETE BARRIER CURB
- CONCRETE WALKWAY
- PROPOSED ASPHALT
- PROPOSED PAVERS
- LSCB# LANDSCAPING CATCHBASIN
- CBMH# T/G CATCHBASIN MANHOLE
- CB# T/G CATCHBASIN
- MH#A T/G SANITARY SEWER MANHOLE
- HYD B/F FIRE HYDRANT
- WATER VALVE
- WATER METER
- REMOTE WATER METER
- LANDSCAPING WALL
- LIMIT OF CONSTRUCTION
- DRAINAGE SWALE
- DRAINAGE DITCH
- SLOPING AT 3:1 UNLESS SPECIFIED
- 95.50 SURFACE ELEVATION
- 95.50 (S) SWALE ELEVATION
- T/W 95.50 B/W 94.25 TOP OF WALL ELEVATION BOTTOM OF WALL ELEVATION
- OVERLAND FLOW ROUTE
- SILT FENCE BARRIER
- STRAW BALE CHECK DAM
- MUD MAT

SCALE 1 : 200
0 10 20 Metres

No.	Revision/Issue	Date
03	REISSUED FOR SITE PLAN CONTROL	MAR. 01, 2024
02	REISSUED FOR SITE PLAN CONTROL	NOV. 24, 2023
01	ISSUED FOR SITE PLAN CONTROL	JUNE 6, 2023

Check and verify all dimensions before proceeding with the work

Do not scale drawings

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

Stamp:

Stamp:

Client:
HAWKINS PROPERTIES
650a EAGLESON ROAD,
OTTAWA, ONTARIO, K2M 1H4

Project:
5646 - 5650 MANOTICK MAIN STREET
MANOTICK MAIN STREET

OTTAWA ONTARIO

Drawing Title:
GRADING AND DRAINAGE PLAN

Scale:	1:200	Project Number:	CCO-22-2383
Drawn by:	M.D.		
Checked By:	C.H.	Drawing Number:	C101
Designed By:	F.V.		

D07-12-22-0048

Rideau Valley Conservation Authority

Permit
Part 8 – Sewage System
Ontario Building Code

Do Not Complete
Permit No 24-030
Revision No
Date
Related Application

A copy of this permit must be posted on the property at all time during construction. OBC, Division C — Part 1, Section 1.3.2.1

This permit verifies that the on-site sewage system was reviewed and approved for construction under the *Ontario Building Code* and *O.Reg. 323/12* as amended by *O.Reg. 151/13.*

Inspected & Recommended by: JASON HUTTON
Owner: Hawkins Properties
Inspection Date & Time:
Weather:
Address: 5650 Manotick Main St
Legal:
In the former Township/City of Rideau

Design Flow for Commercial / Institutional / Industrial (as per Table 8.2.1.3.B)

Q: 4375 L/day

septic tank ADIPC-23000 L
effluent filter -
pump rate L/15 MIN
treatment unit WB BT-23000
number of units 1

weigh bills for Eljen Sand	■ yes	❒ no
grain size analysis required	■ yes	❒ no
site to be scarified	■ yes	❒ no
clay seal inspection	❒ yes	■ no
mantle required	❒ yes	■ no
sub-grade inspection	■ yes	❒ no

ELEVATION ☐ In Ground ☐ Partially Raised ☒ Fully Raised

TYPE OF SYSTEM

❒ **Trench**
○ **Pipe and Stone or** ○ **Chambers**
type of chamber
loading area m^2
total trench length m
trench configuration

■ **Dispersal Bed**
◉ BMEC ○ Type A ○ Type B
stone - m^2
sand 546.9 m^2
pipe 5 rows of 10 Eljen
weight of sand - kg

❒ **Shallow Buried Trench**
pipe length m
orifice spacing m

❒ **Filter Media Bed**
stone m^2
extended base m^2
pipe
weight of filter media kg
loading area m^2

❒ **Class 5 Holding Tank**

❒ **Septic Tank Only**

Manager, Septic System Approvals: Jeff Davidson Permit Date: March 27, 2024

Comments: 1. All kitchen waste shall pass through an operating grease interceptor prior to discharging to anaerobic digester tank (OBC DIV.B 8.1.3.1.(4))

■ maintenance/pumping required ■ ESA permit # required ■ engineer to verify
■ subgrade
❒ squirt height

❒ Class 5 Holding Tank approval only valid for three years from date of issue

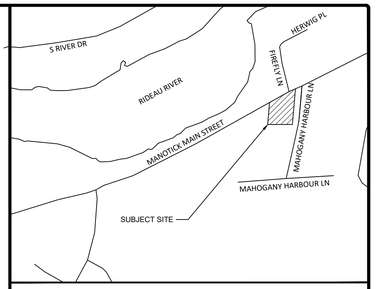
Manager, Septic System Approvals: Revision Date:

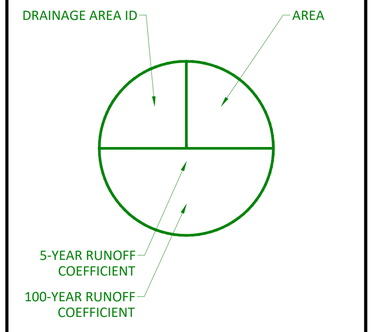
Comments:

NOTE: For further details, refer to corresponding application.

APPENDIX E
PRE-DEVELOPMENT DRAINAGE PLAN

McINTOSH PERRY





BENCHMARKS:

No.	DESCRIPTION	ELEVATION
TBM#1	TOP SPINDLE OF FIRE HYDRANT	90.92m

SCALE 1 : 150

0 3 6 9 12 15 Metres

No.	Revision/Issue	Date
00	ISSUED FOR SITE PLAN CONTROL	JUNE 1, 2023

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

McINTOSH PERRY
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Stamp:

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NOT FOR CONSTRUCTION

Client:
HAWKINS PROPERTIES
650a EAGLESON ROAD,
OTTAWA, ONTARIO, K2M 1H4

Project:
5646 - 5650 MANOTICK MAIN STREET
MANOTICK MAIN STREET
OTTAWA ONTARIO

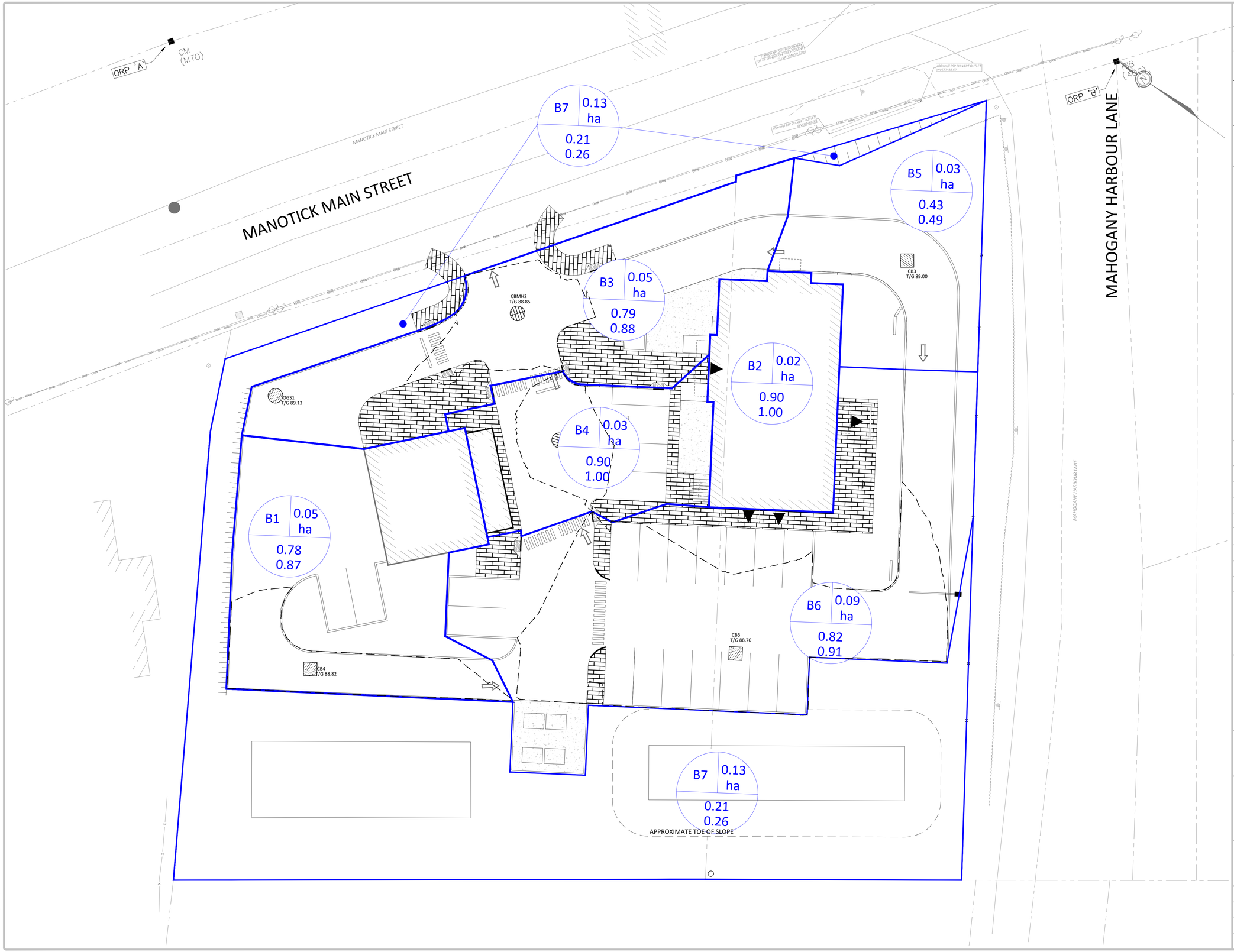
Drawing Title:
PRE-DEVELOPMENT DRAINAGE AREA PLAN

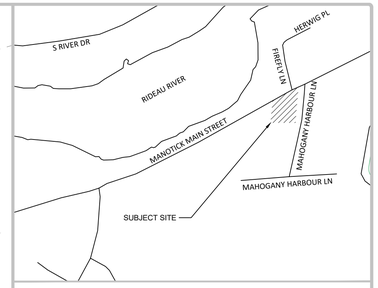
Scale:	1:150	Project Number:	CCO-22-2383
Drawn by:	M.D.		
Checked By:	C.M.	Drawing Number:	PRE
Designed By:	M.D.		

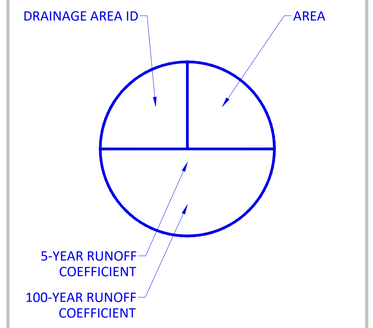
FILENAME: \\Ottawa\01 Project - Projects\2022 Jobs\CCO\CCO-22-2383 Hawkins Properties_2Bch_5646 Manotick Main St\12 - Drawings\CCO-22-2383 - Manotick Main Street - Design.dwg
LAST SAVED: Thursday, June 01, 2023 LAST SAVED BY: I Valeri
LAST PLOTTED: Thursday, June 01, 2023 CTB FILE USED: ----

APPENDIX F
POST-DEVELOPMENT DRAINAGE PLAN

McINTOSH PERRY







BENCHMARKS:

No.	DESCRIPTION	ELEVATION
TBM#1	TOP SPINDLE OF FIRE HYDRANT	90.92m

SCALE 1 : 150

0 3 6 9 12 15 Metres

No.	Revision/Issue	Date
03	REISSUED FOR SITE PLAN CONTROL	JULY 12, 2024
02	REISSUED FOR SITE PLAN CONTROL	APR. 19, 2024
01	REISSUED FOR SITE PLAN CONTROL	NOV. 16, 2023
00	ISSUED FOR SITE PLAN CONTROL	JUNE 2, 2023

Check and verify all dimensions before proceeding with the work

Do not scale drawings

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Project:
5646 - 5650 MANOTICK MAIN STREET
MANOTICK MAIN STREET
OTTAWA ONTARIO

Drawing Title:
POST-DEVELOPMENT DRAINAGE AREA PLAN

Scale: 1:150	Project Number: CCO-22-2383
Drawn by: M.D.	
Checked By: C.M.	Drawing Number: POST
Designed By: F.V.	

FILENAME: U:\Ottawa\01 Project - Proposals\2022 jobs\CCO\CCO-22-2383 Hawkins Properties_2BLA_5646 Manotick Main St\12 - Drawings\CCO-22-2383 - Manotick Main Street - Design.dwg
LAST SAVED: Friday, July 12, 2024 LAST SAVED BY: F.Valenti
LAST PLOTTED: Friday, July 12, 2024 CTB FILE USED: ----

APPENDIX G
STORMWATER MANAGEMENT CALCULATIONS

McINTOSH PERRY

Tc (min)	Intensity (mm/hr)		
	2-Year	5-Year	100-Year
20	52.0	70.3	120.0
10	76.8	104.2	178.6

C-Values	
Impervious	0.90
Gravel	0.60
Pervious	0.20

Pre-Development Runoff Coefficient

Drainage Area	Impervious Area (m^2)	Gravel (m^2)	Pervious Area (m^2)	Average C (2/5-year)	Average C (100-year)
A1	1,441	0	2,634	0.45	0.52

Pre-Development Runoff Calculations

Drainage Area	Area (ha)	C 2/5-Year	C 100-Year	Tc (min)	Q (L/s)	
					2-Year	100-Year
A1	0.41	0.45	0.52	10	38.94	104.23
Total	0.41				38.94	104.23

Post-Development Runoff Coefficient

Drainage Area	Impervious Area (m^2)	Gravel (m^2)	Pervious Area (m^2)	Average C (2/5-year)	Average C (100-year)	
B1	405	0	86	0.78	0.87	Car Wash Area
B2	237	0	0	0.90	1.00	Restaurant Roof
B3	440	0	81	0.79	0.88	Front Drive Aisle
B4	265	0	0	0.90	1.00	Center Parking Area
B5	105	0	218	0.43	0.49	Drive-Through (East)
B6	821	0	107	0.82	0.91	Rear Parking Area
B7	16	0	1,297	0.21	0.26	Unrestricted

Post-Development Runoff Calculations

Drainage Area	Area (ha)	C 2/5-Year	C 100-Year	Tc (min)	Q (L/s)		
					2-Year	100-Year	
B1	0.05	0.78	0.87	10	8.14	21.15	Car Wash Area
B2	0.02	0.90	1.00	10	4.55	11.75	Restaurant Roof
B3	0.05	0.79	0.88	10	8.80	22.84	Front Drive Aisle
B4	0.03	0.90	1.00	10	5.09	13.14	Center Parking Area
B5	0.03	0.43	0.49	10	2.94	7.90	Drive-Through (East)
B6	0.09	0.82	0.91	10	16.24	42.08	Rear Parking Area
B7	0.13	0.21	0.26	10	5.84	16.87	Unrestricted
Total	0.41				51.59	135.73	

Required Restricted Flow

Drainage Area	Area (ha)	C 2/5-Year	Tc (min)	Q (L/s)
				2-Year
A1	0.41	0.45	10	38.94

Post-Development Restricted Runoff Calculations

Drainage Area	Unrestricted Flow (L/S)		* Restricted Flow (L/S)		Storage Required (m^3)		Storage Provided (m^3)	
	2-year	100-Year	2-Year	100-Year	2-Year	100-Year	2-Year	100-Year
B1	8.14	21.15	7.39	7.93	0.45	7.93	0.73	8.42
B2	4.55	11.75	*1.01*	*1.70*	2.49	7.82	2.68	8.05
B3	8.80	22.84	12.62	14.07	12.94	57.39	12.95	60.53
B4	5.09	13.14						
B5	2.94	7.90						
B6	16.24	42.08						
B7	5.84	16.87	5.84	16.87				
Total	51.59	135.73	25.85	38.87	15.88	73.13	16.36	77.00

*Restricted roof flow from area B2 will be controlled within areas B3-B6, and thus isn't counted towards the Total Release Rate

Storage Requirements for Area B1

2-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	76.81	8.14	7.39	0.75	0.45
20	52.0	5.51	7.39	-1.88	-2.25

*Outflow controlled by Tempest LMF85 ICD

Maximum Storage Required 2-year =	0.5 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)
10	178.6	21.15	7.93	13.22	7.93
20	120.0	14.21	7.93	6.28	7.54
30	91.9	10.88	7.93	2.95	5.32
40	75.1	8.89	7.93	0.96	2.31
50	64.0	7.58	7.93	-0.35	-1.05

*Outflow controlled by Tempest LMF85 ICD

Maximum Storage Required 100-year =	7.9 m^3

100-Year Storm Event Storage Summary

		Water Elev. (m) =		89.00		
Location	T/G	INV. (out)	Area (m^2)	Depth (m)	Head (m)	Volume (m^3)
CB4	88.82	87.45	110.0	0.18	1.51	8.4

Storage Available (m^3) =	8.4
Storage Required (m^3) =	7.9

2-Year Ponding within Area B1

	Maximum Storage Required 2-year =	0.45	m^3

*Storage requirement determined based on ICD release rate at proposed T/G elevation.

Storage within Structures:

Structure:	Invert Out	Bottom of Sump	Inner Diameter (m)	**Inner Area (m2)**	Height (Sump to T/G)	Volume
CB3	87.45	86.85	-	0.37	1.97	0.73
Total	-	-	-	-	-	0.73

Storage Required within Storm System (m3):	0.45
Storage Available within Storm System (m3):	0.73

Therefore, there will be no surface ponding during the 2-year event in area B1

2-Year Storm Event

Tc (min)	I (mm/hr)	B2 Runoff (L/s)	Allowable Outflow (L/s)	Runoff to be Stored (L/s)	Storage Required (m^3)
10	76.8	4.55	1.01	3.54	2.12
20	52.0	3.08	1.01	2.07	2.49
30	40.0	2.37	1.01	1.36	2.45
40	32.9	1.95	1.01	0.94	2.25
50	28.0	1.66	1.01	0.65	1.95
60	24.6	1.45	1.01	0.44	1.60
70	21.9	1.30	1.01	0.29	1.21
80	19.8	1.17	1.01	0.16	0.79

Maximum Storage Required 2-Year (m^3) =	2.49

100-Year Storm Event

Tc (min)	I (mm/hr)	B2 Runoff (L/s)	Allowable Outflow (L/s)	Runoff to be Stored (L/s)	Storage Required (m^3)
10	178.6	11.75	1.70	10.05	6.03
20	120.0	7.89	1.70	6.19	7.43
30	91.9	6.05	1.70	4.34	7.82
40	75.1	4.94	1.70	3.24	7.78
50	64.0	4.21	1.70	2.50	7.51
60	55.9	3.68	1.70	1.97	7.11
70	49.8	3.28	1.70	1.57	6.61
80	45.0	2.96	1.70	1.26	6.03

Maximum Storage Required 100-Year (m^3) =	7.82

Storage Parameters	
Roof Area (m^2)	236.70
Usable Roof Area (%)	85%
Usable Roof Area (m^2)	201.20

2-Year Storage Summary	
Storage Available (m^3)	2.68
Storage Required (m^3)	2.49
Max. Ponding Depth (m)	0.04

100-Year Storage Summary	
Storage Available (m^3)	8.05
100-Year Storage Required (m^3)	7.82
Max. Ponding Depth (m)	0.120

Roof Drain Flow (B2)

Roof Drains Summary		
Type of Control Device	Watts Drainage - Accutrol Weir	
Number of Roof Drains	2	
Roof Drain Position	1/4 Open	
	2-Year	100-Year
Rooftop Storage Available (m^3)	2.68	8.05
Rooftop Storage Required (m^3)	2.49	7.82
Storage Depth (m)	0.040	0.120
Flow (Per Roof Drain) (L/s)	0.50	0.85
Total Flow (L/s)	1.01	1.70

Flow Rate Vs. Build-Up (Individual Drain)	
Depth (mm)	Flow (L/s)
0	0.00
5	0.06
10	0.13
15	0.19
20	0.25
25	0.32
30	0.38
35	0.44
40	0.50
45	0.57
50	0.63
55	0.65
60	0.66
65	0.68
70	0.69
75	0.71
80	0.73
85	0.74
90	0.76
95	0.77
100	0.79
105	0.80
110	0.82
115	0.84
120	0.85
125	0.87
130	0.88
135	0.90
140	0.91
145	0.93
150	0.95

*Roof Drain model to be Accutrol Weirs, See attached sheets
*Roof Drain Flow information taken from Watts Drainage website

	Roof Drain Flow		
	Individual Flow (l/s)	Storage Depth (mm)	Cumulative Flow (l/s)
	0.00	0	0.00
	0.06	5	0.13
	0.13	10	0.25
	0.19	15	0.38
	0.25	20	0.50
	0.32	25	0.63
	0.38	30	0.76
	0.44	35	0.88
2-Year	0.50	40	1.01
	0.57	45	1.14
	0.63	50	1.26
	0.65	55	1.29
	0.66	60	1.32
	0.68	65	1.36
	0.69	70	1.39
	0.71	75	1.42
	0.73	80	1.45
	0.74	85	1.48
	0.76	90	1.51
	0.77	95	1.55
	0.79	100	1.58
	0.80	105	1.61
	0.82	110	1.64
	0.84	115	1.67
100-Year	0.85	120	1.70
	0.87	125	1.73
	0.88	130	1.77
	0.90	135	1.80
	0.91	140	1.83
	0.93	145	1.86
	0.95	150	1.89

Note: The flow leaving through a restricted roof drain is based on flow vs. head information

Storage Requirements for Areas B3-B6

2-Year Storm Event

Tc (min)	I (mm/hr)	Runoff (L/s) B3-B6*	Allowable Outflow (L/s)**	Runoff to be Stored (L/s)	Storage Required (m^3)
10	76.81	34.07	12.62	21.45	12.87
20	52.0	23.41	12.62	10.78	12.94
30	40.0	18.25	12.62	5.62	10.12
40	32.9	15.16	12.62	2.53	6.08
50	28.0	13.08	12.62	0.46	1.37

*Includes restricted runoff from Area B2
**Outflow controlled by 74mm orifice

Maximum Storage Required 2-year =	12.9	m^3

100-Year Storm Event

Tc (min)	I (mm/hr)	Runoff (L/s) B3-B6*	Allowable Outflow (L/s)**	Runoff to be Stored (L/s)	Storage Required (m^3)
10	178.6	87.69	14.07	73.62	44.17
20	120.0	59.47	14.07	45.41	54.49
30	91.9	45.95	14.07	31.88	57.39
40	75.1	37.86	14.07	23.79	57.10
50	64.0	32.51	14.07	18.45	55.35
60	55.9	28.61	14.07	14.55	52.38
70	49.8	25.68	14.07	11.61	48.77

*Includes restricted runoff from Area B2
**Outflow controlled by 74mm orifice

Maximum Storage Required 100-year =	57.4	m^3

100-Year Storm Event Storage Summary

		Water Elev. (m) =		89.00		
Location	T/G	INV. (out)	Area (m^2)	Depth (m)	Head (m)	Volume (m^3)
CMH2	88.85	87.42	104.2	0.15	1.54	5.0
CBMH5	88.85	87.49	72.1	0.15		3.7
CB6	88.70	87.60	460.9	0.30		51.9

Storage Available (m^3) =	60.5
Storage Required (m^3) =	57.4

2-Year Ponding within Areas B3-B6

	Maximum Storage Required 2-year =	12.94	m^3

*Storage requirement determined based on ICD release rate at lowest proposed T/G elevation.

Storage within Structures:

Structure:	Invert Out	Bottom of Sump	Inner Diameter (m)	**Inner Area (m2)**	Height (Sump to Lowest T/G)	Volume
CBMH2	87.42	86.82	1.50	1.77	1.88	3.32
CB3	87.57	86.97	-	0.37	1.73	0.64
CBMH5	87.49	86.89	1.50	1.77	1.81	3.20
CB6	87.60	87.00	-	0.37	1.70	0.63
Total	-	-	-	-	-	7.80

Storage within Pipes:

Pipe (Start - End)	Inner Diameter (m)	Cross-Sectional Area (m2)	Pipe Length (m)	**Volume (m3)**
CBMH2-CB3	0.300	0.07	35.9	2.54
CBMH2-CBMH5	0.300	0.07	12.0	0.85
CBMH5-CB6	0.300	0.07	24.9	1.76
Total	-	-	-	5.15

Storage Required within Storm System (m3):	12.94
Storage Available within Storm System (m3):	12.95

Therefore, there will be no surface ponding during the 2-year event in areas B3-B6

For Orifice Flow, C= 0.60
For Weir Flow, C= 1.84

	Orifice 1	Orifice 2	Weir 1	Weir 2
invert elevation	87.42	X	X	X
center of crest elevation	87.46	X	X	X
orifice width / weir length	74 mm	X	X	X
weir height				X
orifice area (m^2)	0.004	X	x	X

Elevation Discharge Table - Storm Routing - CBMH2

Elevation	Orifice 1		Orifice 2		Weir 1		Weir 2		Total	
	H [m]	Q [m^3/s]	H [m]	Q [m^3/s]	H [m]	Q [m^3/s]	H [m]	Q [m^3/s]	Q [L/s]	
88.70	1.24	0.0126	x	x	x	x	x	x	12.62	2-Year
88.71	1.25	0.0127	x	x	x	x	x	x	12.67	
88.72	1.26	0.0127	x	x	x	x	x	x	12.73	
88.73	1.27	0.0128	x	x	x	x	x	x	12.78	
88.74	1.28	0.0128	x	x	x	x	x	x	12.83	
88.75	1.29	0.0129	x	x	x	x	x	x	12.88	
88.76	1.30	0.0129	x	x	x	x	x	x	12.93	
88.77	1.31	0.0130	x	x	x	x	x	x	12.97	
88.78	1.32	0.0130	x	x	x	x	x	x	13.02	
88.79	1.33	0.0131	x	x	x	x	x	x	13.07	
88.80	1.34	0.0131	x	x	x	x	x	x	13.12	
88.81	1.35	0.0132	x	x	x	x	x	x	13.17	
88.82	1.36	0.0132	x	x	x	x	x	x	13.22	
88.83	1.37	0.0133	x	x	x	x	x	x	13.27	
88.84	1.38	0.0133	x	x	x	x	x	x	13.32	
88.85	1.39	0.0134	x	x	x	x	x	x	13.36	
88.86	1.40	0.0134	x	x	x	x	x	x	13.41	
88.87	1.41	0.0135	x	x	x	x	x	x	13.46	
88.88	1.42	0.0135	x	x	x	x	x	x	13.51	
88.89	1.43	0.0136	x	x	x	x	x	x	13.55	
88.90	1.44	0.0136	x	x	x	x	x	x	13.60	
88.91	1.45	0.0136	x	x	x	x	x	x	13.65	
88.92	1.46	0.0137	x	x	x	x	x	x	13.70	
88.93	1.47	0.0137	x	x	x	x	x	x	13.74	
88.94	1.48	0.0138	x	x	x	x	x	x	13.79	
88.95	1.49	0.0138	x	x	x	x	x	x	13.84	
88.96	1.50	0.0139	x	x	x	x	x	x	13.88	
88.97	1.51	0.0139	x	x	x	x	x	x	13.93	
88.98	1.52	0.0140	x	x	x	x	x	x	13.97	
88.99	1.53	0.0140	x	x	x	x	x	x	14.02	
89.00	1.54	0.0141	x	x	x	x	x	x	14.07	100-Year
89.01	1.55	0.0141	x	x	x	x	x	x	14.11	
89.02	1.56	0.0142	x	x	x	x	x	x	14.16	
89.03	1.57	0.0142	x	x	x	x	x	x	14.20	
89.04	1.58	0.0142	x	x	x	x	x	x	14.25	
89.05	1.59	0.0143	x	x	x	x	x	x	14.29	
89.06	1.60	0.0143	x	x	x	x	x	x	14.34	
89.07	1.61	0.0144	x	x	x	x	x	x	14.38	

Notes:
1. For Orifice Flow, User is to Input an Elevation Higher than Crown of Orifice.
2. Orifice Equation: $Q = cA(2gh)^{1/2}$
3. Weir Equation: $Q = CLH^{3/2}$
4. These Computations Do Not Account for Submergence Effects Within the Pond Riser.
5. H for orifice equations is depth of water above the centroide of the orifice.
6. H for weir equations is depth of water above the weir crest.

STORM SEWER DESIGN SHEET

PROJECT: CCO-22-2383
LOCATION: 5646-5650 Manotick Main Street
CLIENT: Hawkins Properties

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	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)	ROOF 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)	(%)
Rear Parking Area	B6	CB6	CBMH5	0.82	0.09	0.08	0.08	10.00	0.52	10.52	104.19	122.14	178.56	22.02		22.02	58.82	24.92	300			0.34	0.806	36.80	62.56%
Center Parking Area	B4+B6	CBMH5	CBMH2	0.90	0.03	0.02	0.10	10.52	0.25	10.76	101.55	119.03	173.98	28.19		28.19	58.82	12.02	300			0.34	0.806	30.63	52.08%
Restraurant Roof + Drive Aisle	B2+B5	CB3	CBMH2	*0.63*	*0.06*	0.04	0.04	10.00	0.74	10.74	104.19	122.14	178.56	10.16		10.16	58.82	35.89	300			0.34	0.806	48.66	82.72%
Restraurant Roof, Drive Aisle, Restaurant Parking Areas	B2 - B6	CBMH2	OGS1	0.79	0.05	0.04	0.18	10.76	0.48	11.24	100.32	117.59	171.87	49.13		49.13	58.82	23.01	300			0.34	0.806	9.70	16.48%
Car Wash Roof + Car Wash Parking Area	B1	CB4	OGS1	0.78	0.05	0.04	0.04	10.00	0.51	10.51	104.19	122.14	178.56	11.04		11.04	40.78	24.80	250			0.43	0.805	29.73	72.92%
Full Site Minus Unrestricted	B1-B6	OGS1	EX. CB				0.21	11.24	0.13	11.37	98.07	114.93	167.97	58.42		58.42	71.33	7.67	300			0.50	0.978	12.92	18.11%

**C value for areas B2+B5 based on weighted average of individual areas*

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:
FV

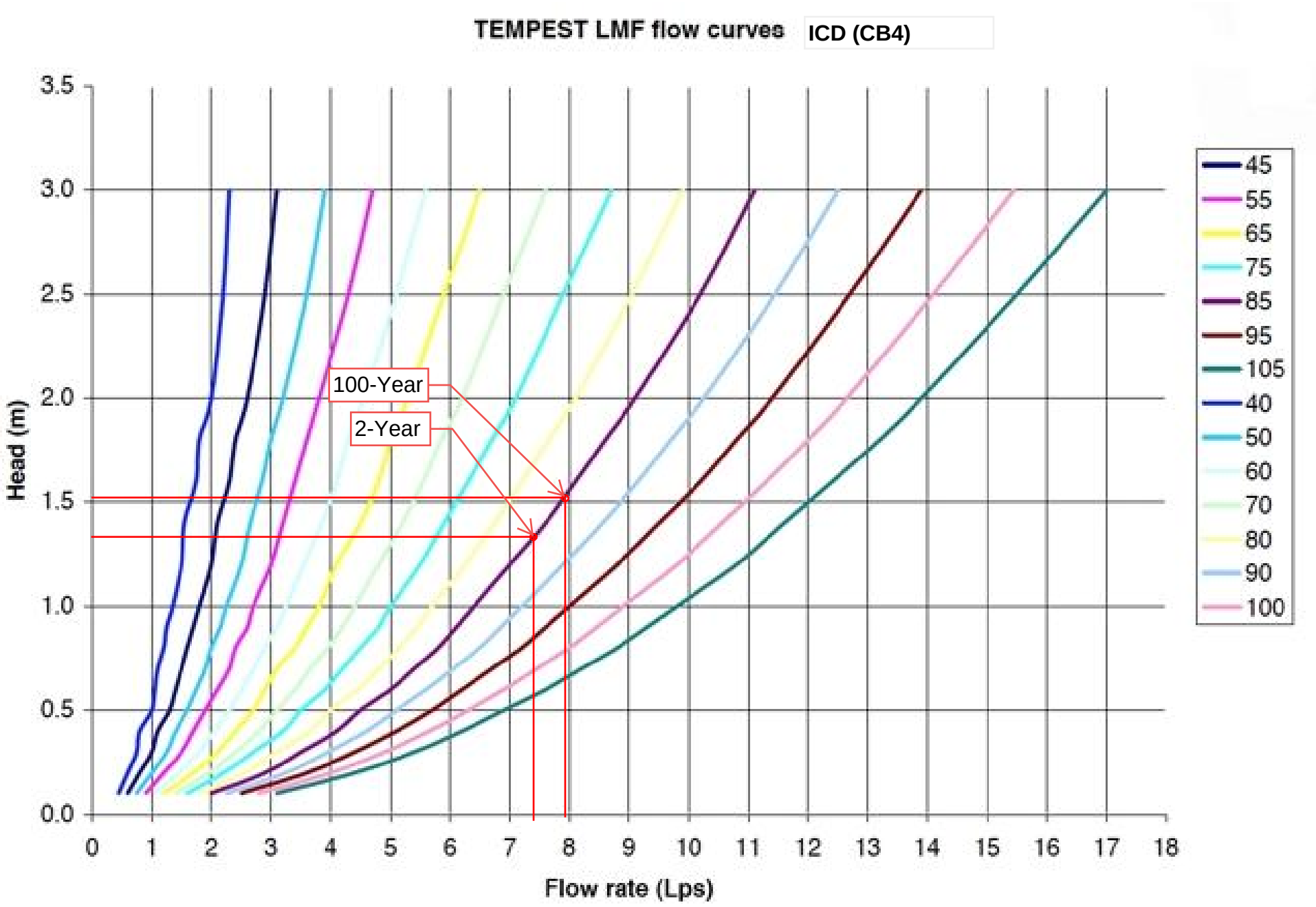
Checked:
CH

Project No.:
CCO-22-2383

No.	Revision	Date
1.	ISSUED FOR SITE PLAN CONTROL	2023.06.02
2.	REISSUED FOR SITE PLAN CONTROL	2023.10.24
3.	REISSUED FOR SITE PLAN CONTROL	2024.04.19

Date: 2023.10.24

Sheet No: 1 of 1


TEMPEST LMF flow curves
ICD (CB4)
Head (m)
Flow rate (Lps)
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
100-Year
2-Year
45
55
65
75
85
95
105
40
50
60
70
80
90
100

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 subwatershed 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: o Metric scale o North arrow (including construction North) o Key plan o Name and contact information of applicant and property owner o Property limits including bearings and dimensions o Existing and proposed structures and parking areas o Easements, road widening and rights-of-way o 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
☐ 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