



**Kollaard Associates**

Engineers

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Civil • Geotechnical •  
Structural • Environmental •  
Hydrogeology

(613) 860-0923

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**SERVICING FEASIBILITY REPORT**  
PROPOSED INDUSTRIAL WAREHOUSE DEVELOPMENT  
6622 BANK STREET  
CITY OF OTTAWA, ONTARIO

Prepared For:

CAMM Machinery and Rentals Inc.  
6622 Bank Street  
Ottawa, Ontario  
K0A 2P0

PROJECT #: 230156

DISTRIBUTION

City of Ottawa

CAMM Machinery and Rentals Inc.

Kollaard Associates

Rev 0 – Issued for Site Plan Approval

Rev 1 – Response to City Planner Comments

July 31, 2024

October 7, 2024



**Professional Engineers**  
Ontario

Authorized by the Association of Professional Engineers  
Of Ontario to offer professional engineering services



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## 1 INTRODUCTION

Kollaard Associates was retained by CAMM Warehousing and Rentals Inc. to complete a Servicing Feasibility Report for a proposed industrial development to be located at 6622 Bank Street, Ottawa, Ontario. This report will address the serviceability of the proposed industrial warehouse development with respect to the water and sanitary demands, as well as outline the proposed design to meet these requirements.

For the purposes of this report, Bank Street is considered to be oriented along a north-south axis. The proposed development site is located along the west side of Bank Street. The site is approximately rectangular in shape and extends about 250 metres from Bank Street. The site has a total area of 6.019 hectares and was formerly cleared for agricultural purposes.

### 1.1 Background

This site is the location of a previous development. The existing development consists of a warehouse building (Building #1) with a footprint of 2310 square metres and an attached office with a footprint of 191 square metres. This development also included on-site servicing works. A full description of these works is available in the previous combined Servicing Design and Stormwater Management Brief. Presently, the site is serviced by means of a private onsite septic system and a drilled well. In addition, fire water storage is provided with onsite cast in place tanks.

### 1.2 Proposed Development

The proposed further development of the site will contain a warehouse building (Building #2) with a total footprint of 2174 square metres which includes accessory office space at the front (east) of the building. This building will face Bank Street in the southeast corner of the property.

An additional warehouse building (Building #3) with a total footprint of 2174 square metres will be located on the south side of the property. This building will be located west of Building #2 and east of the hydro easement which crosses diagonally the southeast corner of the site.

### 1.3 Proposed Servicing

The proposed development will be serviced by means of a private onsite septic system, and a drilled well. Fire water storage is to be provided by underground storage tanks.

The existing septic system onsite is designed to provide services to Building #1 and does not have the capacity to service the additional construction. The existing drilled well does have sufficient capacity to service the additional construction.

## 2 SANITARY DESIGN

As previously indicated, the proposed development will be occupied by two buildings each having a footprint of 2323 square metres. Building #2 will have an accessory office space at the



front of the building. Building #3 is entirely for storage and will be serviced with a single water closet in the southeast corner of the building.

### 2.1 Septic Design

Sanitary sewage will be disposed of by an on-site Class 4 sewage system with a level IV treatment unit. The on-site system will include a shallow buried trench disposal field preceded by a Waterloo Biofilter treatment system.

### 2.2 Design Flows

The sanitary sewage flow for the development was calculated based on the Ontario Building Code (O.B.C Table 8.2.1.3B) for the proposed occupancy. The calculations are provided in Table 3.1 on the following page.

Table 3.1 Sanitary Flow Demand Calculations

	Establishment	Volume, L	Quantity	Flow
	<b>Office Building</b>			
	a ) per employee per 8 hour shift, or	75	8	600 L/day
x	b ) per each 9.3 m <sup>2</sup> of floor space	75	(105 m <sup>2</sup> / 9.3 m <sup>2</sup> )	900 L/day
	<b>Warehouse</b>			
x	a ) per water closet, and	950	1	950 L/day
x	a ) per loading bay	150	9	1350 L/day
<b>Total Daily Residential Sewage Design Flow =</b>				<b>3200 litres/day</b>

A sewage system application has been prepared for approval through the Ottawa Septic System Office. Details can be found on the septic design plan prepared by Kollaard Associates. The septic system design has been submitted to the Ottawa Septic Office for Permit.

## 3 WATER DEMAND

### 3.1 Commercial

The facility is to be serviced by the existing drilled well located as shown on Kollaard Associates Inc drawing 230156-SER. The Ministry of Environment Conservation and Parks (MECP) Well Record for this well indicates that the recommended pump rate for this well is 10 gpm (37.9 litres/minute). The water is currently in use for the existing development on the site and is known to be potable.



The water demand is calculated using the information from the sewage system daily design flow and the City of Ottawa Water Distribution Guidelines, 2010. The sewage design flows for the current development are calculated in Section 3 above and provide a total daily flow of 3200 litres/day. Also to be considered are the sewage flows for the existing development. According to the permit obtained for the existing development the design flow for the existing septic system is equal to 3250 litres/day. For convenience a reproduction of the approved permit has been attached to this document as Appendix A. The total septic design flow for the entire site will be 6450 litres/day.

Since septic system design is based on the maximum expected daily use, it is equivalent to the Average Daily Demand (ADD). The ADD is based on an eight hour operation schedule. This assumes that the full day usage occurs over an eight hour period rather than a twenty-four hour period.

The City of Ottawa calculates the Maximum Hour Demand (MHD) for commercial or industrial demand to be 1.8 x ADD. Calculations for ADD and MHD are presented below.

$$ADD = \frac{6450 \text{ litres}}{1 \text{ day}} \times \frac{1 \text{ day}}{8 \text{ hours}} \times \frac{1 \text{ hour}}{60 \text{ minutes}} \qquad ADD = 13.4 \frac{\text{litres}}{\text{minute}}$$

$$MHD = 1.8 \times 13.4 \frac{\text{litres}}{\text{minute}} \qquad MHD = 24.2 \frac{\text{litres}}{\text{minute}}$$

Based on the above calculations, the Maximum Hourly Demand of 24.2 litres/minute is well below the recommended pump rate of 37.9 litres/minutes. As such the existing pump will be more than sufficient to service the entire development.

To ensure proper servicing to the new construction, a seamless 1.25” polyethylene pipe rated at 160 psi shall be installed between the well and the building at a depth of at least 2.4m.

### 3.2 Water Demand for Fire Protection

There is no municipal water supply at the site. Fire protection will be provided by providing a fire access route and an onsite water supply for firefighting.

#### 3.2.1 Fire Water Storage Design Rationale

For the City of Ottawa, water demand requirements for fire protection are governed by Section 4.2.11 of the Ottawa Design Guidelines – Water Distribution. A revision to this section was published in Technical Bulletin ISTB-2021-03 which stated that “The requirements for levels of fire protection on private property in rural areas are based on the [Fire Underwriters Survey



(FUS)] method in all cases.” Since the publication of ISTB-2021-03, the City of Ottawa has undertaken a review of the applicability of the FUS calculation in the rural context.

On June 28<sup>th</sup>, 2024 the City of Ottawa circulated a draft memo which intended to support a forthcoming Technical Bulletin which would provide clarity on the applicability of FUS calculations in the rural context. This document, titled “Revision 2 – Memo accompanying forthcoming Rural fire technical bulletin”, contains guidance on the parameters which will determine whether fire storage should be calculated using FUS calculations or with calculations according to the Ontario Building Code (OBC). A copy of this memo is included with this report as Appendix B.

This memo is currently circulated as a draft, however indication was given to Kollaard Associates on July 10<sup>th</sup>, 2024 that calculations based on this draft information would be accepted for fire water storage requirements for this development. Email correspondence between the City of Ottawa and Kollaard Associates are attached as Appendix C of this report.

Guidance for sites located outside of a pressurized hydrant network is given on page 2 of the report. As this site does not meet the requirements for FUS Superior Tanker Shuttle, OBC method is recommended to calculate the fire flow. These calculations are discussed further in the next section. The result of those calculations indicates that the required flow rate is less than 9,000 litres per minute. This results in a storage volume requirement equal to the storage volume requirement as per OBC calculations.

### 3.2.2 OBC Fire Water Storage Requirements

As previously discussed, fire water storage requirements were determined using the OBC. The calculation sheet is attached in Appendix D of this report.

Each of the proposed buildings has a total footprint of 2174 square metres and a total building volume of 15,870 cubic metres. The type of construction and occupancy are identical. It is considered that it is unlikely that both buildings will be on fire simultaneously due to the amount of separation between them. According to the provided OBC calculations the minimum water supply requirement for firefighting purposes is 270,000 litres and the minimum flow rate is 6,300 litres per minute.

### 3.2.3 Fire Water Storage

Fire water storage will be provided by the existing fire water storage tank for the previous development which has a capacity of 270,000 litres. Additionally dry hydrants will be installed near the fire water storage tanks and near Building #3 ensuring sufficient capacity and flow are available for all firefighting scenarios. The location of this tank and the dry hydrants are shown on Kollaard Associates Inc drawing 230156-SER.

These dry hydrants will be connected by means of a supply main consisting of 200 mm PVC DR18 C900 Class 235 gasketed pressure pipe. Two dry hydrants will be connected to the supply



main using factory tees and 152 mm diameter leads. The proposed fire hydrants will be connected to the fire protection supply main in keeping with City of Ottawa STD W54.

#### 4 CONCLUSIONS

The water and sanitary demands for the proposed development will be met by private services.

The sanitary demand will be met with an onsite Class 4 sewage system with a level IV treatment unit. The onsite system will include a pressurized shallow buried trench system preceded by a Waterloo Biofilter treatment unit and an anaerobic digester. The daily design flow for the entire site is below 10,000 litres per day. Therefore an application will be made to the Ottawa Septic System Office for the construction of the septic system.

The domestic water demand will be met by the existing drilled well on site. The water demand for firefighting purposes will be met with underground water storage tanks.

We trust that this report provides sufficient information for your present purposes. If you have any questions concerning this report please do not hesitate to contact our office.

Sincerely,  
Kollaard Associates Inc.



---

Steve deWit, P.Eng.



## **Appendix A: Existing Septic Permit**





**Kollaard Associates**  
Engineers

210 Prescott Street Unit 1  
PO Box 189  
Kemptville, Ontario  
K0G 1J0

414  
**R.V.C.A. RECEIVED**  
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SEPTIC APPLICATION

2017-2017  
Civil • Geotechnical •  
Structural • Environmental •  
Hydrogeology  
**REQUIRED FOR ALL  
INQUIRIES**

**(613) 860-0923**

Fax (613) 258-0475  
www.kollaard.ca  
info@kollaard.ca

**Date:** June 6, 2017

File # 170035

**Attention:**

Mr. Terry Davidson, P.Eng  
Rideau Valley Conservation  
3889 Rideau Valley Drive  
Manotick, ON  
K4M 1A5

**Proposed Sewage System**

6622 Bank Street  
R. Plan 4R-25595, Parts 1 - 3  
Lot 13, Conc. 6  
Osgoode  
City of Ottawa

**Owner:** CAMM Warehousing and Rentals Inc

**Dear:** Mr. Davidson

Please find attached the onsite septic system application package for the above noted client and property.

Included in the package are the:  
Ontario Building Code Forms  
Relevant Schedules  
Relevant Drawings

**Yours Sincerely,**

Kaleb Lakew, P.Eng.

**\*\*COMMERCIAL\*\***

**SEPTIC PERMIT COPY**

APPLICANT

TOWNSHIP/CITY

FILE

OTHER *Kollaard*



Professional Engineers  
Ontario

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Ontario to offer Professional Engineering Services



Ottawa Septic System Office  
Bureau des systèmes septiques d'Ottawa

# Application for a Permit to Construct or Demolish

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

For use by Principal Authority

SEPTIC APPLICATION  
17-207  
REQUIRED FOR ALL INQUIRIES

**R.V.C.A. RECEIVED**  
JUN 12 2017  
REFER TO:

Application Number:	Permit Number (if different):
Date received:	Roll number:

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: <b>6622 Bank Street</b>		Unit number: <b>--</b>	Lot/con. <b>13 / 6</b>
Municipality <b>Osgoode</b>	Postal code: <b>--</b>	Plan number/other description <b>Parts 1 - 3 Plan 4R-25595</b>	
Project value est. \$		Area of work (m <sup>2</sup> )	

### B. Purpose of application

<input checked="" type="checkbox"/> New construction	<input type="checkbox"/> Addition to an existing building	<input type="checkbox"/> Alteration / repair	<input type="checkbox"/> Demolition	<input type="checkbox"/> Conditional Permit
Proposed use of Building <b>Light Industrial Building</b>		Current use of Building		

Description of proposed work  
**On-Site Septic System**

### C. Applicant

Applicant is: **Authorized agent of Owner**

Last name <b>--</b>	First name <b>--</b>	Corporation or partnership <b>Kollaard Associates Inc.</b>	
Street address <b>Box 189, 210 Prescott St.</b>		Unit number: <b>1</b>	Lot/con. <b>--</b>
Municipality <b>Kemptville</b>	Postal code: <b>K0G 1J0</b>	Province <b>ON</b>	E-mail <b>info@kollaard.ca</b>
Telephone number <b>(613) 860-0923</b>	Fax <b>(613) 258-0475</b>	Cell number <b>--</b>	

### D. Owner (if different from applicant)

Last name	First name	Corporation or partnership <b>CAMM Warehousing &amp; Rentals Inc</b>	
Street address <b>3460 Rideau Road</b>		Unit number:	Lot/con. <b>--</b>
Municipality <b>Ottawa</b>	Postal code: <b>K1G 3N4</b>	Province	E-mail
Telephone number <b>613-822-2073</b>	Fax	Cell number	



<b>E. Builder (optional)</b>				
Last name		First name		Corporation or partnership (if applicable)
Street address			Unit number:	Loft/cond.
Municipality	Postal code:	Province	E-mail	
Telephone number		City	Cell number	

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JUN 12 2017

DEFER TO:

SEPTIC APPLICATION


17-207

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<b>F. Tarion Warranty Corporation (Ontario New Home Warranty Program)</b>				
i. Is proposed construction for a new home as defined in the Ontario New Home Warranties Plan Act? If no, go to section G.		<input type="checkbox"/> Yes	<input type="checkbox"/> No	
ii. Is registration required under the <i>Ontario New Home Warranties Plan Act</i> ?		<input type="checkbox"/> Yes	<input type="checkbox"/> No	
iii. If yes to (ii) provide registration number(s): _____				

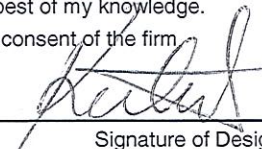
<b>G. Required Schedules</b>				
i. Attach Schedule 1 for each individual who reviews and takes responsibility for design activities.				
ii. Attach Schedule 2 where application is to construct on-site, install or repair a sewage system.				

<b>H. Completeness and compliance with applicable law</b>				
i. This application meets all the requirements of clauses 1.3.13 (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).		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Payment has been made of all fees that are required, under applicable by-law, resolution or regulation made under clause 7(1)(c) of <i>Building Code Act, 1992</i> , to be paid when the application is made.		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> 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 <i>Building Code Act, 1992</i>		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
iii. This application is accompanied by the information and documents prescribed by-law, resolution or regulation made under clause 7(1)(b) of the <i>Building Code Act, 1992</i> which enable the chief building official to determine whether the proposed building, construction or demolition will contravene any applicable law.		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
iv. The proposed building, construction or demolition will not contravene any applicable law.		<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	

<b>I. Declaration of applicant</b>				
I, <u>Kaleb Lakew, P.Eng.</u> declare that:				
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 authority to bind the corporation or partnership.				
<u>June 7/2017</u>				
Date		Signature of applicant		
<p>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</p>				

SEPTIC APPLICATION  
17-2017  
REQUIRED FOR ALL  
INQUIRIES

**P.O.C.A. RECEIVED**  
JUN 12 2017  
REFER TO:

<b>Schedule 1: Designer Information</b>			
Use one form for each individual who reviews and takes responsibility for design activities with respect to the project.			
<b>A. Project information.</b>			
Building number, street name: <b>9622 Bank Street</b>		Unit number: <b>--</b>	Lot/con. <b>13/6</b>
Municipality <b>Osgoode</b>	Postal code: <b>--</b>	Plan number/other description <b>Parts 1 - 3 Plan 4R-25595</b>	
<b>B. Individual who reviews and takes responsibility for design activities</b>			
Name <b>Kaleb Lakew, P.Eng.</b>		Firm <b>Kollaard Associates Inc.</b>	
Street address <b>Box 189, 210 Prescott St.</b>		Unit number: <b>1</b>	Lot/con. <b>--</b>
Municipality <b>Kemptville</b>	Postal code: <b>K0G 1J0</b>	Province <b>ON</b>	E-mail <b>info@kollaard.ca</b>
Telephone number <b>(613) 860-0923</b>	Fax <b>(613) 258-0475</b>	Cell number	
<b>C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 of Division C]</b>			
<input type="checkbox"/> House	<input type="checkbox"/> HVAC – House	<input type="checkbox"/> Building Structural	
<input type="checkbox"/> Small Buildings	<input type="checkbox"/> Building Services	<input type="checkbox"/> Plumbing – House	
<input type="checkbox"/> Large Buildings	<input type="checkbox"/> Detection, Lighting and Power	<input type="checkbox"/> Plumbing – All Buildings	
<input type="checkbox"/> Complex Buildings	<input type="checkbox"/> Fire Protection	<input checked="" type="checkbox"/> On-site Sewage Systems	
Description of designers work <b>Conventional ~ Fully Raised</b>			
<b>D. Declaration of Designer</b>			
I, <u><b>Kaleb Lakew, P.Eng.</b></u> <small>(print name)</small>		declare that (choose one as appropriate):	
<input type="checkbox"/> 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: _____			
<input type="checkbox"/> I review and take responsibility for the design work 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: _____			
<input checked="" type="checkbox"/> The design work is exempt from the registration and qualification requirements of the Building Code. Basis for exemption from registration and qualification: <b>Licensed Professional Engineer</b>			
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.			
<u>June 7/2017</u> Date		 Signature of Designer	
Note:			
1. For the purpose of this form, "individual" means the "person" referred to in Clause 3.2.4.7(1)d). 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 authorization, issued by the Ontario Association of Architects. Schedule 1 is also not required to be completed by a holder of a license to practice, a limited license to practice, or a certificate of authorization, issued by the Association of Professional Engineers of Ontario.			



SEPTIC APPLICATION  
17 JUN 2017  
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**Schedule 2: Sewage System Installer 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: 6622 Bank Street		Unit number: --	Lot/con. 13 / 6
Municipality Osgoode	Postal code: --	Plan number/other description Parts 1 - 3 Plan 4R-25595	

**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)	BCIN
---------------------------------	------

**E. Declaration of Applicant:**

I, Kaleb Lakew, P.Eng. declare that:  
(print name)

I am the applicant for the permit to construct the sewage system. If the installer is unknown at time of application, the owner 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:

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

June 7/2017      [Signature]  
 Date      Signature of applicant



Ottawa Septic System Office  
Bureau des systèmes septiques d'Ottawa

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**Do not Complete**  
Permit No \_\_\_\_\_  
Revision No \_\_\_\_\_  
Date \_\_\_\_\_

**SEPTIC APPLICATION**  
**17-207**  
**REQUIRED FOR ALL INQUIRIES**

**Schedule 4  
Proposed Services**

1. Engineered

Yes  
 No

2. Water Supply

Proposed  
 Existing

3. Type of work proposed

New Installation  
 Replacement  
 Alteration

4. Type of well

Dug/bored/Standpoint well  
 Drilled well  
 Municipal  
 Other

5. Residential Sewage Design Flow Info.

Bedrooms \_\_\_\_\_  
House (floor area) \_\_\_\_\_ m<sup>2</sup>  
People \_\_\_\_\_  
Total Fixture Units \_\_\_\_\_  
Residential Flow \_\_\_\_\_ L/day

6. Sewage Design Flow for Other Occupancies

Design Flow \_\_\_\_\_ 3250 L/day  
Detail sewage flow calculations:  
**Refer to Schedule 8**

7. Type of System

Treatment Unit  
Class 2 - Leaching Pit  
Class 3 - Cesspool  
Class 4 - Shallow Buried Trench  
  
Class 4 - Trench  
 Fully Raised  
 Partially Raised  
 In-ground  
  
Class 4 - Filter Media  
 Fully Raised  
 Partially Raised  
 In-ground

**Conventional**

Class 4 Area Bed  
Fully Raised  
Partially Raised  
In-ground  
  
Class 4 - Aerobic With Trench  
Fully Raised  
Partially Raised  
In-ground  
  
Class 4 - Aerobic with Filter Media  
Fully Raised  
Partially Raised  
In-ground  
  
Class 5 - Holding Tank





Ottawa Septic System Office Bureau des systèmes septiques d'Ottawa

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**JUN 12 2017**  
**REFER TO:**

**Do not Complete**  
 Permit No \_\_\_\_\_  
 Revision No 17-207  
 Date \_\_\_\_\_

**SEPTIC APPLICATION**  
**REQUIRED FOR ALL INQUIRIES**

**Schedule 5  
 Sewage System Details**

Type of System **Conventional ~ Fully Raised** (Schedule 4)

Septic / Holding **11250** Litres Conventional

Septic Tank Effluent Filter **Yes**

Treatment Unit - Make & Model **Conventional**  
 Number of Units

Refer to Typical Drawing **Conventional ~ Fully Raised**

**Mantle information**

Native or imported = 15 m in **1** direction(s)  
 Slope Subgrade **1.0** % slope  
**NE** direction(s)

Site to be Scarified (If in Clay) **NO** Yes / No

Clay Seal Required (If in bedrock) **NO** Yes / No

Minimum Required Contact Area **325** m<sup>2</sup> required

Pump(s) required **Yes**  
 Specified discharge rate required **449** L/15min  
 Note: Alarm required for all pumping systems

Trench Bed - Length of Distribution Pipe **132** m  
 - Proposed diameter of Tile **76** mm

Filter Media Bed - Stone m<sup>2</sup>  
 - Sand m<sup>2</sup>  
 - Filter Sand m<sup>2</sup>  
 - Pipe m  
 - Amount of Filter Media Sand Kg required

SBT - Length of Distribution Pipe m

Area Bed - Stone m<sup>2</sup>  
 - Sand m<sup>2</sup>  
 - Pipe m

Construction Notes: See construction notes on Kollaard Associates Drawing No. **170035-SEP**



Ottawa Septic System Office  
Bureau des systèmes  
septiques d'Ottawa

**R.V.C.A. RECEIVED**  
**JUN 12 2017**  
**REFER TO:**

**SEPTIC APPLICATION**

Do not Complete	
Permit No	<u>17-207</u>
Revision No	
Date	

**REQUIRED FOR ALL INQUIRIES**

**SCHEDULE 6**  
**Soil and Water Table Information**

(Minimum depth of test pit: 2 metres)

File # 170035

June 6, 2017

6622 Bank Street  
R. Plan 4R-25595, Parts 1 - 3  
Lot 13, Conc. 6  
Osgoode  
City of Ottawa

Inspector: Adam Dillon  
Date: June 13/17 @ 12:50pm  
Signature: [Signature]

Test Pit #	Elevation / (Depth) [m]	Soil Description	Test Pit #	Elevation / (Depth) [m]	Soil Description
TP1	94.75				
	0.0-0.3	TOPSOIL			
	0.3-1.0	Grey brown silty sand, gravel, cobbles and boulders			
	1.05	End of test pit			
TP2	94.40				
	0.0-0.25	TOPSOIL			
	0.25-1.0	Grey brown silty sand, gravel, cobbles and boulders			
	1.0	End of test pit			

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



Professional Engineers  
Ontario

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Engineers Ontario to offer Professional  
Engineering Services





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

**R.N.C.A. RECEIVED**  
**JUN 12 2017**  
 Schedule 8  
**REFER TO:**

**SEPTIC APPLICATION**

Do not Complete  
 Permit No 17-207  
 Revision No \_\_\_\_\_  
 Date \_\_\_\_\_  
**REQUIRED FOR ALL INQUIRIES**

**SEWAGE DESIGN FLOW CALCULATION (OTHER OCCUPANCIES)**

As per O.B.C. 8.2.1.3.(2)

File: 170035

Date: June 6, 2017

Establishment	Volume, L	Quantity	Flow
<b>Office Building</b>			
a ) per employee per 8 hour shift, or	75	8	600 L/day
x b ) per each 9.3 m <sup>2</sup> of floor space	75	(192.1 m <sup>2</sup> / 9.3 m <sup>2</sup> )	1550 L/day
<b>Warehouse</b>			
x a ) per water closet, and	950	1	950 L/day
x a ) per loading bay	150	5	750 L/day

**Total Daily Residential Sewage Design Flow = 3250 litres/day**

Note:  
 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.

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)).

Signature of Owner / Agent: [Signature]  
 Date: June 7 / 2017

Kollaard Associates  
 Engineers



File: 170035

**Conventional Bed ~Fully Raised~**  
 6622 Bank Street  
 R:Plan 4R-25595, Parts 1 - 3  
 Lot 13, Conc. 6  
 Osgoode  
 City of Ottawa  
 June 6, 2017

**Flow Rate**  
 Existing Soil Percolation  
 Rate (7)  
 Replacement Soil

3250 L/day  
 30 min/cm  
 8 min/cm

SEE KOLLAARD ASSOCIATES  
 TECHNICAL DRAWING 170035-SEP  
 FOR DETAILS

Pipe Length Min =  $\frac{3250 \times 8}{200}$  = 130 metres

Sand Loading Area =  $\frac{3250}{8}$  = 406.25 m<sup>2</sup>

Header Invert = 94.84  
 Footer Invert = 94.75

Slope Subgrade = 1.00 %

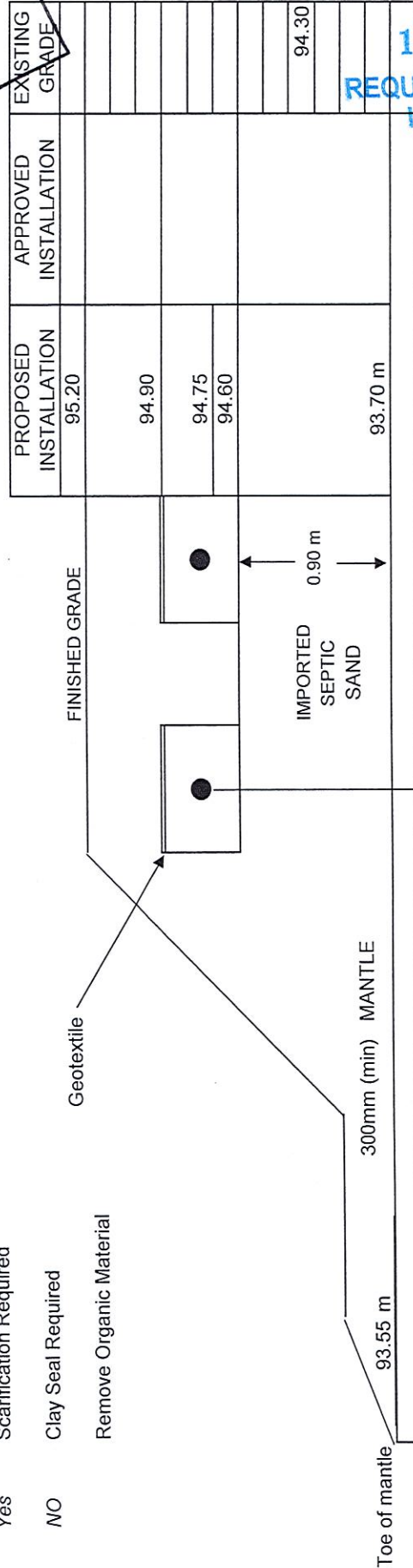
Mantle Required in NE Direction

Minimum Septic Tank Working Capacity  
 The greater of 3600 Litres or 3 x 3250 = 11250

- Yes Scarification Required
- NO Clay Seal Required
- Remove Organic Material

**R.V.C.A. RECEIVED**  
 JUN 12 2017  
 REFER TO:

6 RUNS AT 22.00m EACH AT 1.6m



SEPTIC APPLICATION

17-207  
 REQUIRED FOR ALL  
 INQUIRIES



Ottawa Septic Bureau des systèmes  
System Office septiques d'Ottawa

SEPTIC APPLICATION

Do Not Complete  
Permit No 17-207  
Revision No \_\_\_\_\_  
Date REQUIRED FOR ALL  
INQUIRIES  
Related Application \_\_\_\_\_

**Permit**  
Part 8 – Sewage System  
Ontario Building Code

**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: Adam Dillon Owner: CAmm Warehousing & Rentals Inc  
Inspection Date & Time: June 13/17 @ 12:50 pm Weather: overcast 3 24°C  
Civic Address: 6622 Bank St. Legal: \_\_\_\_\_

number of bedrooms: 5 fixture units: 1 water closet  
finished floor area: 192 m<sup>2</sup> office area Q: 3250 L/day

septic/holding tank/pretreatment tank 11,250 L weigh bills for filter media  yes  no  
effluent filter as per 8.6.2.1 (2) grain size analysis required  yes  no  
pump rate 449 L/15 min site to be scarified  yes  no  
treatment unit \_\_\_\_\_ clay seal inspection  yes  no  
number of units \_\_\_\_\_ 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 n/a  
loading area 456 m<sup>2</sup>  
total trench length 132 m  
trench configuration 6 @ 22m

**Dispersal Bed**

- BMEC  Type A  Type B

stone \_\_\_\_\_ m<sup>2</sup>  
sand \_\_\_\_\_ m<sup>2</sup>  
pipe \_\_\_\_\_  
linear loading \_\_\_\_\_ L/m<sup>2</sup>

**Shallow Buried Trench**

pipe length \_\_\_\_\_ m  
orifice spacing \_\_\_\_\_ m

**Filter Media Bed**

stone \_\_\_\_\_ m<sup>2</sup>  
extended base \_\_\_\_\_ m<sup>2</sup>  
pipe \_\_\_\_\_  
weight of filter media \_\_\_\_\_ kg  
loading area \_\_\_\_\_ m<sup>2</sup>

**Class 5 Holding Tank**

**Septic Tank Only**

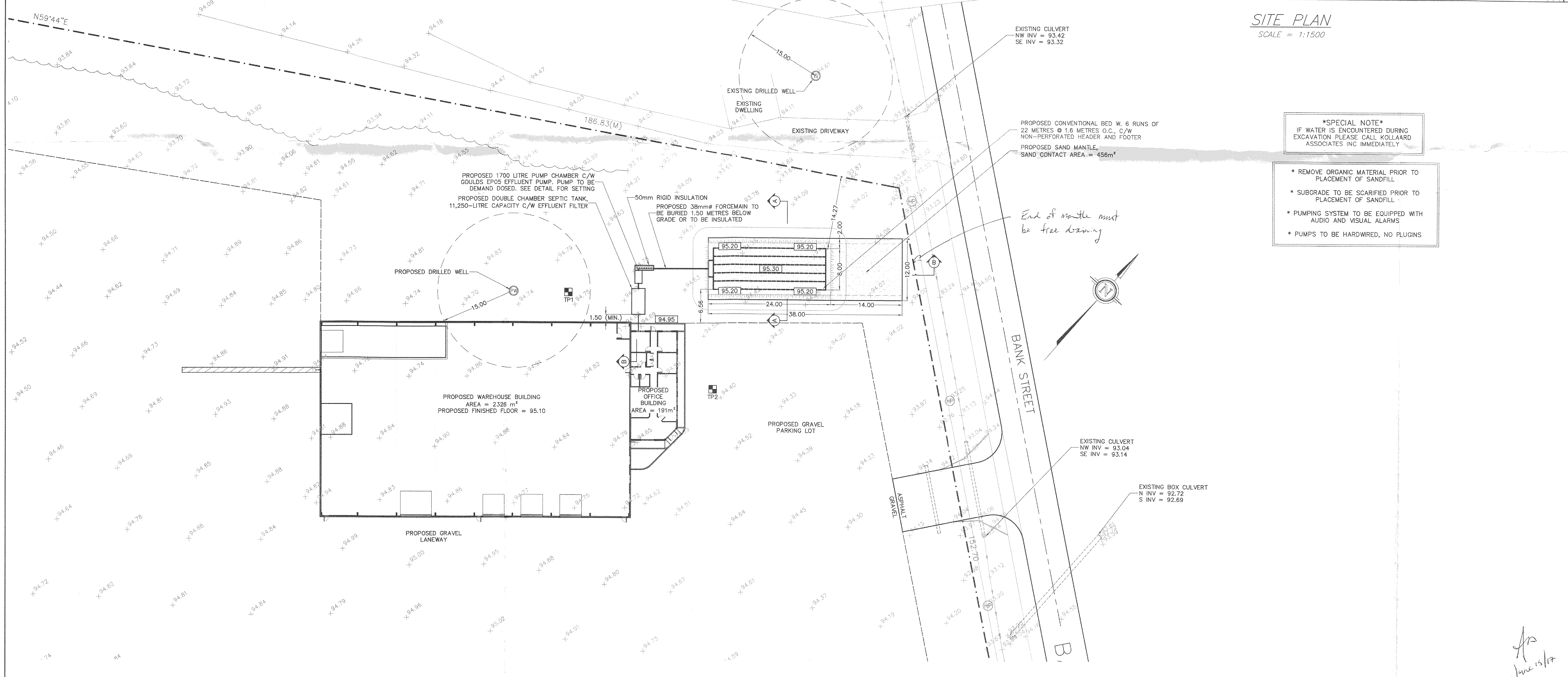
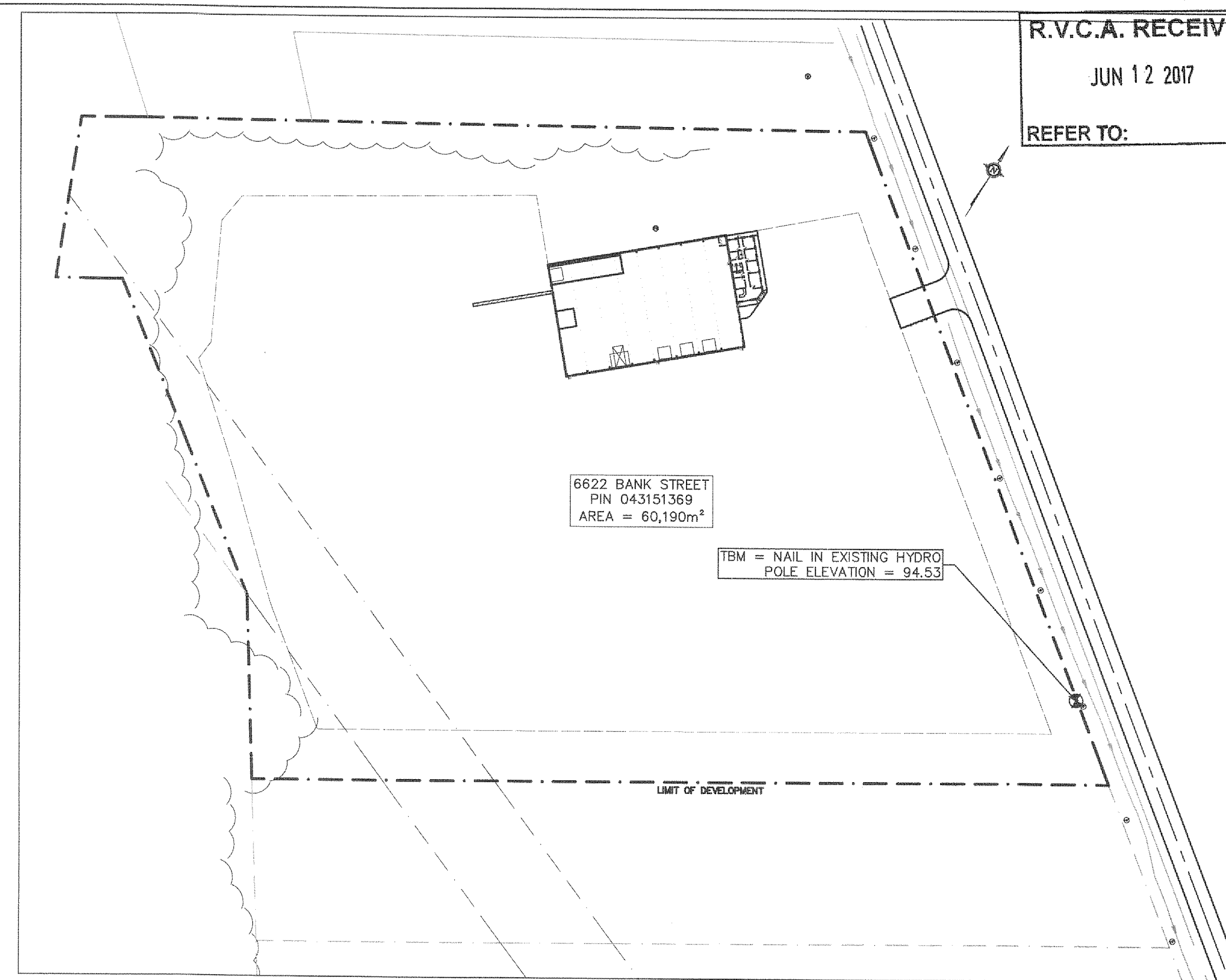
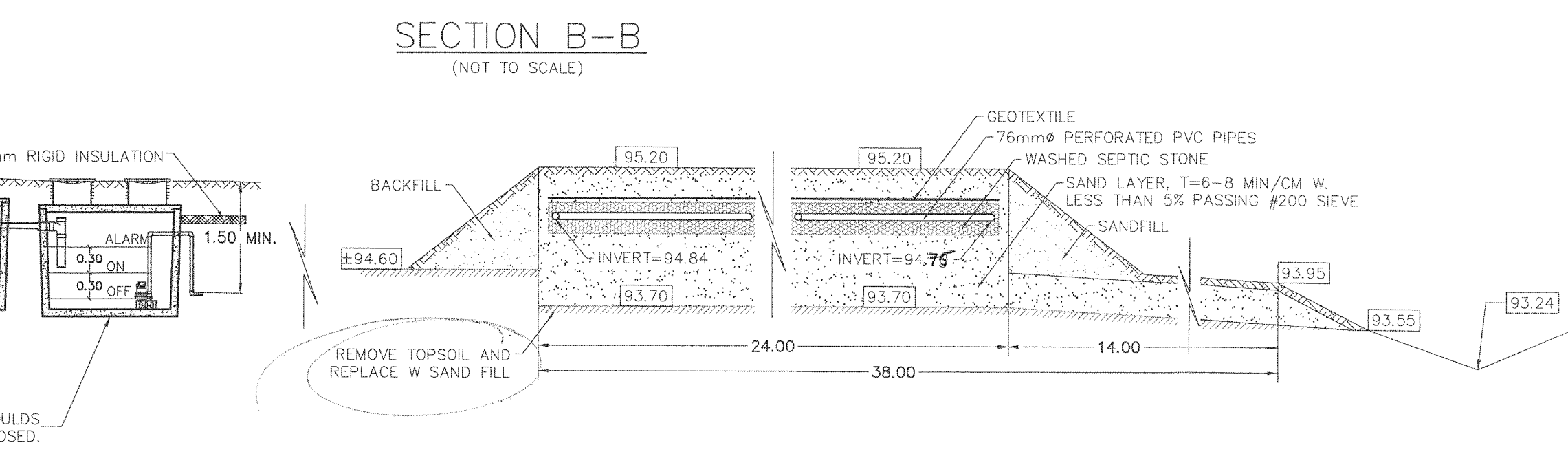
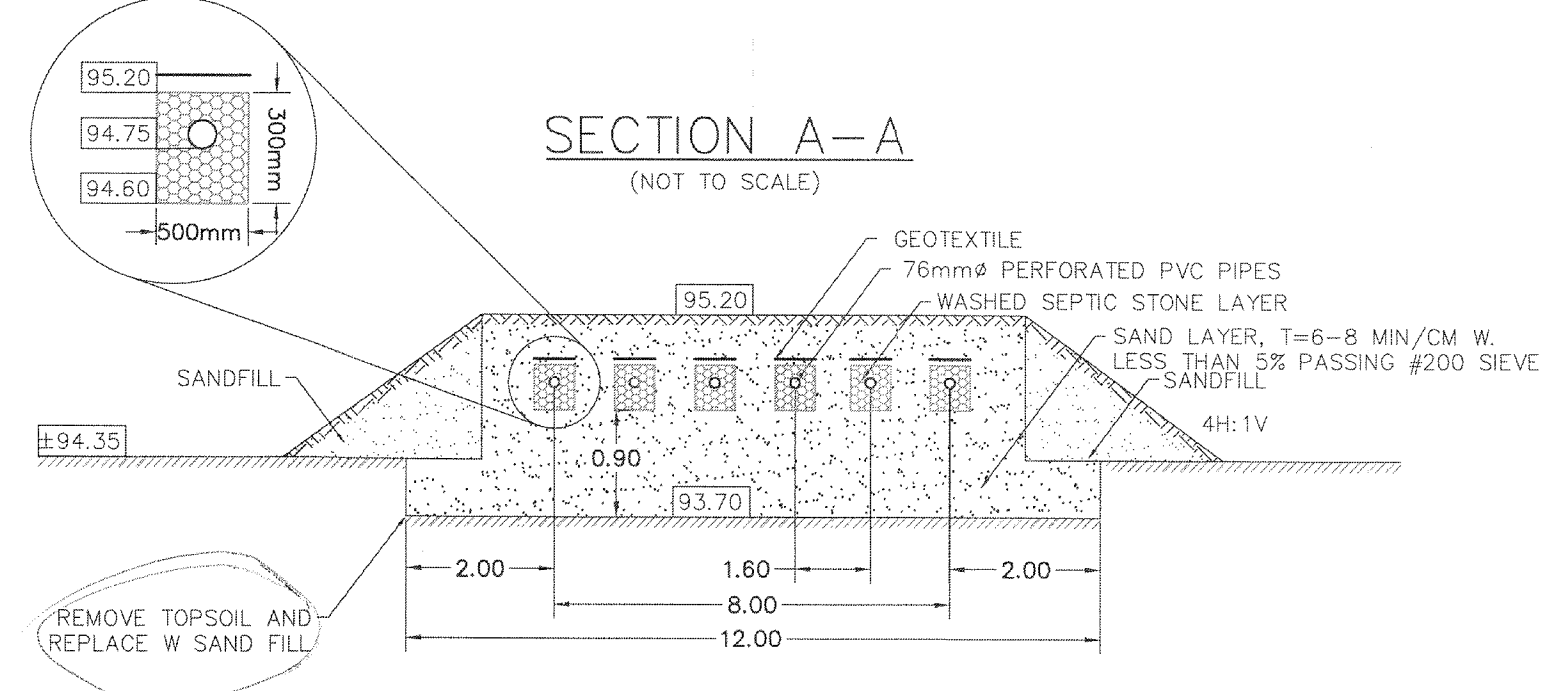
Manager, Septic System Approvals: [Signature] Permit Date: JUNE 15, 2017  
Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
 maintenance/pumping required  ESA permit # required  engineer to verify  
 Class 5 Holding Tank approval only valid for three years from date of issue  subgrade \_\_\_\_\_  
 squirt height \_\_\_\_\_  
Manager, Septic System Approvals: \_\_\_\_\_ Revision Date: \_\_\_\_\_  
Comments: \_\_\_\_\_  
\_\_\_\_\_

NOTE: For further details, refer to corresponding application.



**LEGEND**

	EXISTING ELEVATION
	PROPOSED ELEVATION
	DRAINAGE SLOPE
	OVERHEAD WIRE
	PROPERTY LINE
	EXISTING WELL
	PROPOSED DRILLED WELL
	TEST PIT
	TEMPORARY BENCHMARK



**\*SPECIAL NOTE\***  
IF WATER IS ENCOUNTERED DURING EXCAVATION PLEASE CALL KOLLAARD ASSOCIATES INC IMMEDIATELY

- REMOVE ORGANIC MATERIAL PRIOR TO PLACEMENT OF SANDFILL
- SUBGRADE TO BE SCARIFIED PRIOR TO PLACEMENT OF SANDFILL
- PUMPING SYSTEM TO BE EQUIPPED WITH AUDIO AND VISUAL ALARMS
- PUMPS TO BE HARDWARED, NO FLUIDS

- All dimensions and elevations are in metres. Do not scale drawing. This drawing is not a site grading plan. This drawing is not for construction until approved by the relevant authorities.
- TBM = Nail in existing hydro pole. Elevation = 94.03
- The sewage system envelope (leaching bed) as identified on the drawing must be maintained free of the deposit or disposal of any materials, structures, or equipment other than the material or equipment required for the construction of the leaching bed within the sewage system envelope.
- Topsoil (organic) to be removed from bed area and exposed subgrade. No wheeled vehicles to be allowed in leaching bed area.
- Percolation rate of any imported sand for bed to be 6 to 8 min/cm, with < 5% passing the #200 (0.080 mm) sieve.
- Stone layer to be washed septic stone, free of fine material, with gradation conforming to OBC Table 8.7.3.3.A.
- The septic system leaching bed is to be graded to provide positive drainage away from the septic system and topped with 75 to 100 mm permeable topsoil and seed. Grass growth is to be established.
- The following are not to be connected to the septic system: Water softener, swimming pool or filter system backwash, sump pump discharge.
- Septic system to be installed in accordance with the OBC.
- Septic tank to meet criteria described in the OBC.
- No silt, clay or clayey or silty material to be placed around or over leaching bed.
- All changes to this design must be verified and approved by Kollaard Associates Incorporated.
- Minimum clearance from treatment unit to:
  - structure = 1.5m
  - property line = 3m
  - detrital well = 15m
- Minimum clearance from distribution piping to:
  - structure = 7m
  - property line = 5m
  - detrital well = 17m

**Kollaard Associates Engineers**  
P.O. BOX 189, 210 PRESCOTT ST. (613) 860-0923  
KEMPVILLE, ONTARIO K0G 1J0 FAX (613) 258-0475  
http://www.kollaard.ca

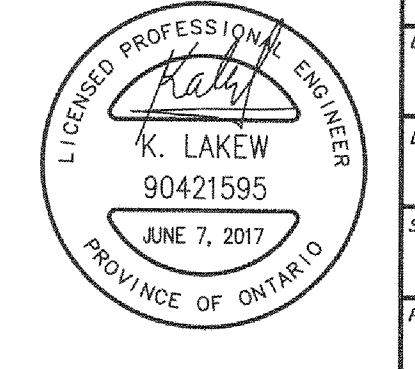
**CONSULTANTS:**  
SURVEYORS:  
H.A. KEN SHIPMAN SURVEYING LTD.  
P.O. BOX 53, North Gower,  
Ottawa, ONA 2T0

**CLIENT:**  
CANN WAREHOUSING AND RENTALS INC.

**PROJECT:**  
PROPOSED WAREHOUSE WITH OFFICE

**LOCATION:**  
6222 BANK STREET, OTTAWA, ON

DESIGNED BY:	ML	CHECKED BY:	PL
DRAWN BY:	ML	APPROVED BY:	KL
DATE:	MAY 29, 2017		
SCALE:	AS NOTED		
PROJECT NUMBER:	170035		



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KOLLAARD ASSOCIATES INCORPORATED



Kollaard Associates

Engineers

October 07, 2024

Servicing Feasibility Report  
Proposed Industrial Warehouse Development  
6622 Bank St., Ottawa, ON  
File No. 230156

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## **Appendix B: Draft Technical Memo – June 28, 2024**

# Memo accompanying Rural Fire Demand Tech Bulletin

## General

This memo is provided to support Technical Bulletin IWSTB-2024-05, regarding fire-fighting flow in the Rural area.

This bulletin clarifies the previous statement, found in IWSTB-2021-03, “the requirements for levels of fire protection on private property in rural areas are based on the Fire Underwriters Survey (FUS) method in all cases”.

There were some questions as to the applicability of the FUS, as amended, and that issue is addressed first; the City was of the opinion that it could ask for the FUS in Rural areas - regardless, the change in bulletin IWSTB-2024-05 establishes that it can, and does.

The definition of urban and rural herein is intended to only apply to the information carried herein and for Technical Bulletin IWSTB-2024-05 and is not intended for any other use.

The requirements of the Ontario Building Code (OBC), as amended OBC are found in Appendix A, Volume 2, of the OBC, as amended, section A-3.2.5.7 (page 44 of the 2024 version).

The references below are intended for buildings defined as Part 3 occupancies under the OBC (that is, applications that are applied for under Site Plan Control). Buildings defined as Part 9 occupancies under the OBC (that is applications that are applied for under residential Plan of Subdivision), generally do not apply for this criteria (except, possibly, exceptionally large dwellings). Residential Plans of Subdivision do not require fire-fighting review for the individual lots (again, except, very large dwellings), however, they may require a tank (or tanks) depending on several factors.

This memo makes no recommendations for changes around using FUS for watermain sizing.

## Direction

For fire flow calculations only, Ottawa Fire Services (OFS) will define **Urban** to solely mean pressurized hydrant system available for firefighting that meets OBC requirements and is independent of location within the City as it pertains to firefighting force (i.e.: full-time vs paid on-call are equivalent)

## Urban (Pressurized Hydrants)

For fire flow and water storage calculations (OBC Part 3 buildings), the following is required in Urban areas;

- OBC method for fire flows permitted until it reaches OBC maximum fire flow of 9000 L/min
- Once OBC maximum reached, applicant is to use FUS method for fire flow calculation

## **Memo accompanying Rural Fire Demand Tech Bulletin**

- Multi-hydrant approach as per the NRC method up to 150m (contained within the technical bulletin) is permitted to achieve required fire flows for both OBC or FUS method as required
- Confirmation that the water network is capable of delivering the required fire flows must be provided

Switching from the OBC to the FUS method at the 9,000 L/min threshold for an urban building design is necessary for several reasons. Once the building reaches a volume of  $Q > 270,000$  L, the highest flow rate is 9,000 L/min (

# Memo accompanying Rural Fire Demand Tech Bulletin

**Table 1**). Although this flow rate is difficult to achieve in fire area and vicinity, even a building 10 times larger would still be limited to 9,000 L/min. Therefore, it is essential to switch to the FUS method at this threshold for calculating fire flow. The FUS method is more conservative, requiring substantially more water for the same building, increasing the chances of a successful fire attack and better protection of surrounding properties. For both OBC and FUS methods, the NRC multi-hydrant approach can be used to achieve the required fire flows.

## Rural (No Pressurized Hydrants Available)

For fire flow calculations only, OFS will define rural to solely mean that there is no pressurized hydrant system available for firefighting (This is independent of location within the city as it pertains to firefighting force). OFS is certified under FUS for Superior Tanker Shuttle and can deliver 1,900 L/min within 5 minutes of arrival (refer to Figure 1). The OBC minimum for water storage is for 30 minutes, so for buildings that qualify under FUS, are permitting up to 57,000 L (From 30 minutes x 1900 L/min) of storage reduction (See **Sample Calculations**;

for more information).

Rural firefighting has many considerations, but one of the most important aspects is the ability for a fire department to respond with its own continuous water supply. Under the FUS, OFS is certified to Superior Tanker Shuttle levels which means we can deliver a minimum of 1900 L/min (Refer to Figure 1), but to qualify the building must be within 5 km of a fire station and 2.5 km of an approved water supply (refer to Figure 2). We wanted to give some storage reduction credit for our ability to shuttle water, while still staying within the general confines of the OBC minimum storage which leads to a few different scenarios for required on-site water storage.

In Rural areas, for fire flow and water storage calculations (OBC Part 3 buildings), the following criteria is required.

If the building meets FUS Superior Tanker Shuttle distance requirements ( $\leq 5$  km to fire station and  $\leq 2.5$  km to approved water supply):

- OBC method for fire flows permitted for all fire flows  $< 9,000$  L/min
  - o Storage Volume =  $Q - 57,000$  L
- If calculated fire flow = 9,000 L/min, applicant is to use the FUS method for fire flow calculation
  - o Storage Volume = (FUS fire flow x 30 minutes) – 57,000 L

If the building does **not** meet FUS Superior Tanker Shuttle distance requirements ( $\geq 5$  km to fire station **and/or**  $\geq 2.5$  km to approved water supply):

- OBC method for fire flows permitted for all fire flows  $< 9,000$  L/min
  - o Storage Volume = Q calculated by OBC
- If calculated fire flow = 9,000 L/min, applicant is to provide calculations for FUS fire flows, NFPA 1142, and Q calculated by OBC
  - o **Storage Volume = Special Evaluation**



# Memo accompanying Rural Fire Demand Tech Bulletin

- Minimum storage tank volume permitted for firefighting is 38,000 L (Equates to 10,00 U.S. gallons)
- OFS maximum flow rate from a single draft point is approximately 4,500 L/min
  - o OBC flow rates = 2,700 or, 3,600 or 4,500 L/min (and one draft point required)
  - o OBC flow rates = 5,400 or 6300 L/min (by connected storage and two draft points)
  - o OBC flow rate = 9,000 L/min change to FUS flow rate (by connected storage and two draft points)

The specifications and locations of storage and connection to be coordinated with OFS Engineer

Despite the foregoing criteria, an application may require additional water storage in excess of OBC calculation where, in the sole opinion of the OFS, additional protection is required – this is expected to be less than 10% of applications.

If there is a sprinkler system a special review will be required based upon NFPA 13.

## Sample Calculations:

**Example 1:** For a proposed building that meets the distance requirements of FUS and has a calculated OBC fire flow < 9000 L/min, a reduction in the storage value (Q) down to the minimum storage tank size of 38000 L. Storage Volume = Q – 57,000 > 38000 L

**Example 2:** For a proposed building that does **not** meet the distance requirements of FUS and has a calculated OBC fire flow < 9,000 L/min, a reduction in the Q storage value is not permitted; Storage Volume = Q.

**Example 3:** For a proposed building that meets the distance requirements of FUS and has a calculated OBC fire flow = 9,000 L/min, there is a hybrid solution. The flow rate is increased by requiring FUS fire flows for 30 minutes and allow a reduction in the calculated total for tanker shuttle. Storage Volume = (FUS fire flow x 30 minutes) – 57,000 L

**Example 4:** For a proposed building that does **not** meet the distance requirements of FUS and has a calculated OBC fire flow = 9,000 L/min, allow a reduction in the Q storage value is not permitted and will require an increase. Storage Volume = Special Calculation (possibly NFPA 1142 or FUS – to be discussed with OFS and Development Review).

Please refer to **Error! Reference source not found.** for examples of calculating storage volumes

# Memo accompanying Rural Fire Demand Tech Bulletin

**Table 1: OBC Fire Flows**

Part 3 Building under the Building Code	Required Minimum Water Supply Flow Rate, L/min
One-storey building with building area not exceeding 600 m <sup>2</sup>	1,800
All other buildings	2,700 (if Q ≤ 108,000 L) 3,600 (if Q > 108,000 L and ≤ 135,000 L) 4,500 (if Q > 135,000 L and ≤ 162,000 L) 5,400 (if Q > 162,000 L and ≤ 190,000 L) 6,300 (if Q > 190,000 L and ≤ 270,000 L) 9,000 (if Q > 270,000 L)

For commercial lines insurance, the Fire Department must be able to deliver a flow rate of not less than 1900 LPM (400 IGPM) within 5 minutes of arriving at the test site with the first major piece of apparatus (wheel stop).

*Figure 1. Superior Tanker Shuttle – Commercial Flow Rate*

*Figure 2. Superior Tanker Shuttle – Distances*

To be recognized for fire insurance grading purposes, the protected property must be located within;

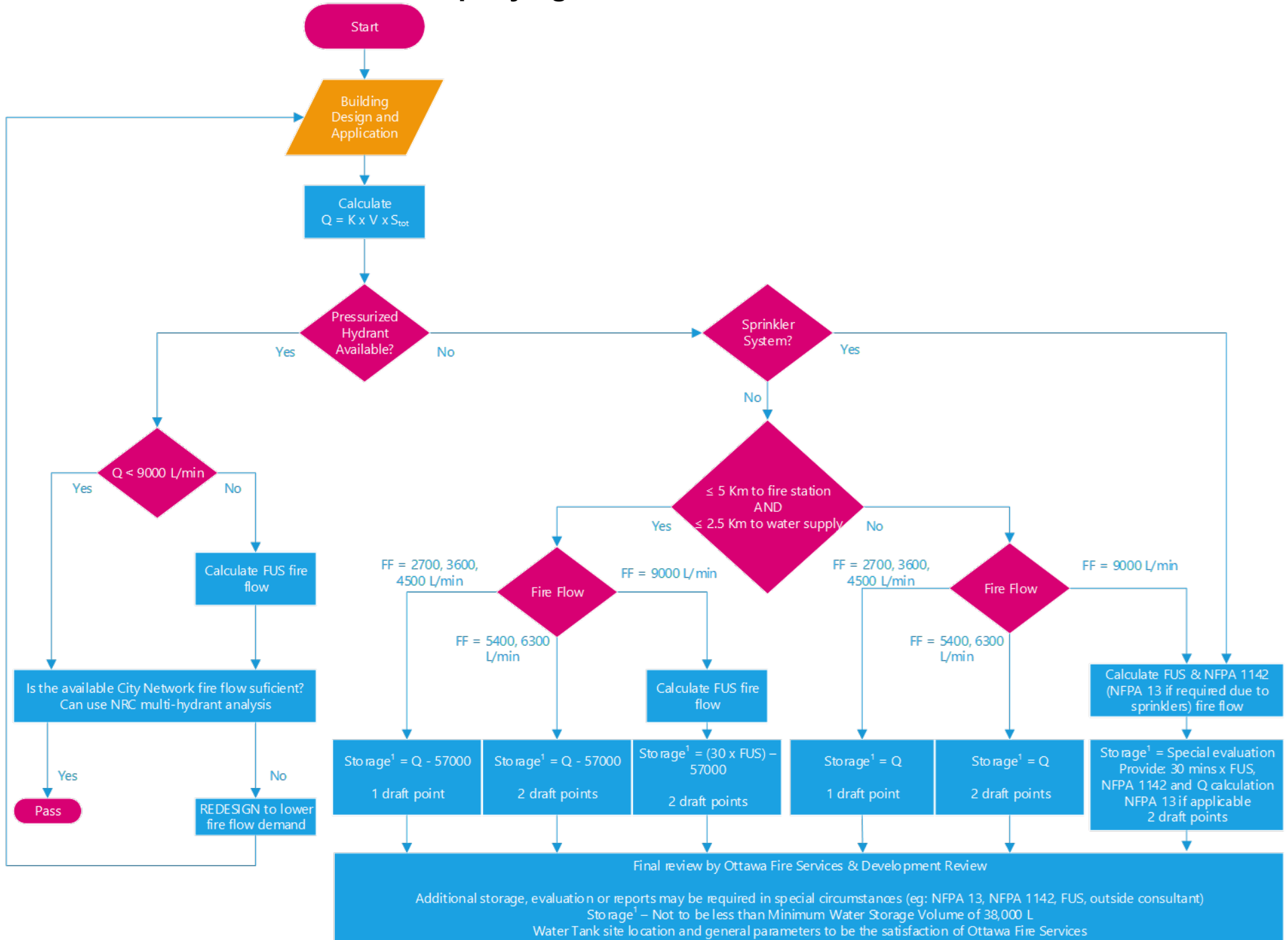
- Commercial Lines (PFPC) – 5 km of a fire station AND 2.5 km of an approved water supply point
- Personal Lines (DPG) – 8 km of a fire station AND 5 km of an approved supply point

# Memo accompanying Rural Fire Demand Tech Bulletin

Table 2 - Storage Calculation Examples

Calculated Q (L)	Meets Superior Tanker		Min OBC flow rate from table based on Q (L/min)	Required Storage Volume (L)	
	Fire Station within 5km	Approved Water Source within 2.5km		Q-57000 (min 38000)	Q or Special
85000	Yes	Yes	2700	28000 → 38000	85000
85000	Yes	No	2700	28000 → 38000	85000
121000	Yes	Yes	3600	64000	121000
121000	No	Yes	3600	108000	121000
255000	Yes	Yes	6300	198000	255000
255000	Yes	No	6300	189000	255000
325000	Yes	Yes	9000	270000	(FUS x 30)-57000
325000	No	Yes	9000	270000	Special

# Memo accompanying Rural Fire Demand Tech Bulletin



# Memo accompanying Rural Fire Demand Tech Bulletin

## Definition of Acronyms and Terms:

**OFS** – Ottawa Fire Services

**OBC** – Ontario Building Code

**NFPA** – National Fire Protection Association ([www.nfpa.org](http://www.nfpa.org))

**FUS** – Fire Underwriter Survey ([www.fireunderwriters.ca](http://www.fireunderwriters.ca))

**FF** = fire flow

**PFPC** – Public Fire Protection Classification – a part of FUS and Insurance Ratings

**DPG** = Dwelling Protection Grade – a part of FUS and Insurance Ratings

From the Ontario Building Code Appendix, A-3.2.5.7. Water Supply:

The designer needs to demonstrate choice/support/rationale for all parameters applied/selected.

$$Q = K \times V \times S_{tot} = \textit{Minimum supply of water in litres}$$

where,

$K$  = Water supply coefficient

$V$  = Total building volume in  $m^3$

$S_{tot}$  = Total of spatial coefficient values from property line exposures on all sides as obtained from the formula  $S_{tot} = 1.0 + [S_{side1} + S_{side2} + S_{side3} + \dots \textit{etc}]$ .



## **Appendix C: Correspondence with City of Ottawa**

**Subject:** Fwd: 24202 Re: 6622 Bank St. CAMM machinery firefighting water

**From:** William Kollaard <bill@kollaard.ca>

**Date:** 2024-10-03, 9:58 a.m.

**To:** "sandy@kollaard.ca" <sandy@kollaard.ca>

--  
William Kollaard, P.Eng.  
Kollaard Associates Inc.  
210 Prescott Street, Unit 1  
Kemptville, Ontario  
K0G 1J0  
CANADA  
TEL: (613) 860-0923  
CEL: (613) 913-0282  
[www.kollaard.ca](http://www.kollaard.ca)

----- Forwarded Message -----

**Subject:**RE: 24202 Re: 6622 Bank St. CAMM machinery firefighting water

**Date:**Wed, 10 Jul 2024 18:19:35 +0000

**From:**Whittaker, Damien <Damien.Whittaker@ottawa.ca>

**To:**Sean Bartlett <sbartlett@rjbartlett.com>

**CC:**bill@kollaard.ca <bill@kollaard.ca>, Andrew Charron <andrew@cam.net>, Benoît LeBlanc <bleblanc@rjbartlett.com>, Evans, Allan <Allan.Evans@ottawa.ca>

Hello Sean,

Please see a memo, that is not final, that can be used to understand the City's forthcoming approach to volume calculation and on-site fire-fighting connection requirements.

Bill,

You may also use this draft information for the other application you discussed.

Please note that the memo is not final and may be changed up until it is officially released.

Regards,

Damien Whittaker, P.Eng  
Senior Engineer - Infrastructure Applications ▪ Ingénieur principal - applications d'infrastructure  
Development Review, Rural Services Unit ▪ Examen des projets d'aménagement, Unité des services ruraux  
Planning, Development and Building Services Department (PDBS) ▪ Direction générale des services de la planification, de l'aménagement et du bâtiment (DGSPAB)  
**City of Ottawa | ville d'Ottawa**

\*\*\* Absence alert – please note that I will be on vacation July 11 and 12, and again August 6 through 9 (and the 5<sup>th</sup> is a holiday) \*\*\*

-----Original Appointment-----

**From:** Sean Bartlett <sbartlett@rjbartlett.com>

**Sent:** Wednesday, July 10, 2024 12:38 PM

**To:** Evans, Allan; Whittaker, Damien

**Cc:** bill@kollaard.ca; Andrew Charron; Benoît LeBlanc

**Subject:** RE: 24202 Re: 6622 Bank St. CAMM machinery firefighting water

**When:** July 10, 2024 1:30 PM-2:30 PM (UTC-05:00) Eastern Time (US & Canada).

**Where:**

**CAUTION:** This email originated from an External Sender. Please do not click links or open attachments unless you recognize the source.

**ATTENTION :** Ce courriel provient d'un expéditeur externe. Ne cliquez sur aucun lien et n'ouvrez pas de pièce jointe, excepté si vous connaissez l'expéditeur.

---

**From:** Evans, Allan <Allan.Evans@ottawa.ca>

**Date:** Wednesday, July 3, 2024 at 2:29 PM

**To:** Sean Bartlett <sbartlett@rjbartlett.com>, Whittaker, Damien <Damien.Whittaker@ottawa.ca>

**Cc:** bill@kollaard.ca <bill@kollaard.ca>, Benoît LeBlanc <bleblanc@rjbartlett.com>, Andrew Charron <andrew@cam.net>

**Subject:** RE: 24202 Re: 6622 Bank St. CAMM machinery firefighting water

**CAUTION:**This email originated from outside of RJ Bartlett Engineering Ltd. Do not reply with confidential information, click links, or open attachments unless you recognize the sender and know the content is safe.

Hi - I'm available:

9:00-1:00 on Monday July 8<sup>th</sup>

9:00-11:00 and 12:00-3:00 on Wednesday July 10<sup>th</sup>

9:00-3:00 on Thursday July 11<sup>th</sup>

*Allan Evans*

Fire Protection Engineer / Ingénieur de Protection d'Incendies  
Prevention Division / Prévention des Incendies  
Ottawa Fire Services / Service des Incendies d'Ottawa  
1445 Carling Avenue / 1445 Avenue Carling  
Ottawa, ON K1Z 7L9  
Allan.Evans@Ottawa.ca  
☎ (613) 913-2747 | 📠 (613) 580-2424 x24119 | 📞 (613) 580-2866 | ✉ Mail Code: 25-102 | @OFSFPE



An internationally accredited agency 2019-2024



**OTTAWA FIRE SERVICES**  
**SERVICE DES INCENDIES D'OTTAWA**

*Protecting Our Nation's Capital With Honour*  
*Protéger notre capitale nationale avec honneur*

---

**From:** Sean Bartlett <[sbartlett@rjbartlett.com](mailto:sbartlett@rjbartlett.com)>  
**Sent:** July 03, 2024 1:18 PM  
**To:** Evans, Allan <[Allan.Evans@ottawa.ca](mailto:Allan.Evans@ottawa.ca)>; Whittaker, Damien <[Damien.Whittaker@ottawa.ca](mailto:Damien.Whittaker@ottawa.ca)>  
**Cc:** [bill@kollaard.ca](mailto:bill@kollaard.ca); Benoît LeBlanc <[bleblanc@rjbartlett.com](mailto:bleblanc@rjbartlett.com)>; Andrew Charron <[andrew@cammm.net](mailto:andrew@cammm.net)>  
**Subject:** 24202 Re: 6622 Bank St. CAMM machinery firefighting water

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Good Morning Allan and Damien,

We've been retained by CAMM to assist with the fire protection water supply concept development for their proposed expansion. I am a fire protection engineer based out of NB, but licensed to practise in a number of jurisdictions, including ON. We've completed an initial review of the file, the correspondence and developed preliminary fire flow calculations under a few different recognized methodologies for this site.

Today I am reaching out to coordinate a meeting to discuss the below to better understand the specific requirements and considerations applicable in this jurisdiction.

Please let me know if we can schedule a TEAMS meeting to discuss in the coming week. I am available most of the day Monday (July 8) and Wednesday/Thursday (July 10/11) afternoon if that happened to suit your schedule.

Please advise.

Best Regards

Sean



**Sean Bartlett, M.E., P.Eng.**  
Fire Protection Engineer  
113-1133 Regent Street  
Fredericton, NB, E3B 3Z2  
[sbartlett@rjbartlett.com](mailto:sbartlett@rjbartlett.com)  
[www.rjbartlett.com](http://www.rjbartlett.com)  
[Email Disclaimer](#)  
Tel: (506) 459-3070, ext. 2237  
Fax: (506) 450-3731

Begin forwarded message:

**From:** "Evans, Allan" <[Allan.Evans@ottawa.ca](mailto:Allan.Evans@ottawa.ca)>  
**Date:** May 27, 2024 at 3:08:12 PM EDT  
**To:** [bill@kollaard.ca](mailto:bill@kollaard.ca), "Whittaker, Damien" <[Damien.Whittaker@ottawa.ca](mailto:Damien.Whittaker@ottawa.ca)>  
**Cc:** Steven deWit <[steve@kollaard.ca](mailto:steve@kollaard.ca)>, Andrew Charron <[andrew@cammm.net](mailto:andrew@cammm.net)>  
**Subject:** RE: FW: 6622 Bank St. CAMM machinery firefighting water

Hi Bill – I just wanted to reach out and follow up with where are you at in this process. We had a large meeting about a week ago with some key internal staff as well as some external representatives from the industry in regards to the FUS vs OBC method of fire flow calculations. There were a few different items to come out of that meeting, but the most important part to come out of that meeting was that for the time being OFS will be the authority for determining an "adequate" volume of storage water for firefighting. My expectation is that this will work very similar to the previous method I employed (OBC and FUS flows and total storage provided -> engineering analysis and experience used to determine a realistic final volume). This doesn't mean that there will never be a requirement for an outside



consultant (ie: for certain occupancies or high risk scenarios), but my rough estimate was 90-95% of the applications can be determined with the more simpler method. Additionally in parallel with this, we will be starting a technical advisory committee of both internal and external stakeholders with the end goal to have a formal process finalized within 2-3 months on how these will be handled moving forward (my expectation again is that it will be relatively similar to my previous methodology). All of this will still go through consultation with my building code compatriot as well of course.

Please let me know how you wish to proceed. If you'd like to take advantage of this temporary measure, I'll be happy to look at the calculations and review as soon as possible to get moving. I know you have an existing building and existing water supply volume – I'd still want to see the OBC and FUS for this site (adding a new building even if the same size, can still impact the FUS calculation due to exposures, etc), but could potentially be a much quicker solution.

Happy to discuss further.

A

## Allan Evans

Fire Protection Engineer / Ingénieur de Protection d'Incendies  
Prevention Division / Prévention des Incendies  
Ottawa Fire Services / Service des Incendies d'Ottawa  
1445 Carling Avenue / 1445 Avenue Carling  
Ottawa, ON K1Z 7L9  
Allan.Evans@Ottawa.ca  
☎ (613) 913-2747 | 📠 (613) 580-2424 x24119 | 📞 (613) 580-2866 | ✉ Mail Code: 25-102 | @OFSFPE



An internationally accredited agency 2019-2024



OTTAWA FIRE SERVICES  
SERVICE DES INCENDIES D'OTTAWA

Protecting Our Nation's Capital With Honour  
Protéger notre capitale nationale avec honneur

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**From:** William Kollaard <[bill@kollaard.ca](mailto:bill@kollaard.ca)>  
**Sent:** April 03, 2024 1:54 PM  
**To:** Whittaker, Damien <[Damien.Whittaker@ottawa.ca](mailto:Damien.Whittaker@ottawa.ca)>  
**Cc:** Evans, Allan <[Allan.Evans@ottawa.ca](mailto:Allan.Evans@ottawa.ca)>; Steven deWit <[steve@kollaard.ca](mailto:steve@kollaard.ca)>; Andrew Charron <[andrew@camn.net](mailto:andrew@camn.net)>  
**Subject:** Re: FW: 6622 Bank St. CAMM machinery firefighting water

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Hi Damien

Thanks for the response. We have been working with Sean Bartlett from NB who owns a firm ([rjbartlett.com](http://rjbartlett.com)) that primarily provides consulting services related to fire protection.

--

William Kollaard, P.Eng.  
Kollaard Associates Inc.  
210 Prescott Street, Unit 1  
Kemptville, Ontario  
K0G 1J0  
CANADA  
TEL: (613) 860-0923  
CEL: (613) 913-0282  
[www.kollaard.ca](http://www.kollaard.ca)

On 2024-04-03 10:35 a.m., Whittaker, Damien wrote:

Hello Bill,

Legal issues that were holding up the City's investigation of the FUS approach have, after a long discourse, been resolved.

Firstly, yes, the owner/consultant can investigate alternatives to the FUS;

1. This must be done by a consultant with a history of fire-fighting design experience (someone that has merely done a number of FUS calculations will be dismissed)
2. The OBC calculation remains insufficient (an owner/consultant putting forth the OBC as an alternative to the FUS for the Rural area will be dismissed)

Secondly, the City is pursuing an investigation of alternatives to the FUS. The City has a number of priorities and it is likely that an owner/consultant may be able to investigate alternatives to the FUS more rapidly).

3. Any alternatives reviewed and accepted an owner/consultant for 6622 Bank Street in place before the City's alternative-to-the-FUS is decided upon will be honoured for 6622 Bank Street, but any owner's/consultant FUS alternative for 6622 Bank Street will not carry precedent to other files once the City's alternative-to-the-FUS is decided upon

Regards,

Damien Whittaker, P.Eng  
Senior Engineer - Infrastructure Applications ▪ Ingénieur principal - applications d'infrastructure  
Development Review, Rural Services Unit ▪ Examen des projets d'éménagement, Unité des services ruraux  
Planning, Real Estate and Economic Development Department ▪ Direction générale de la planification, des biens immobiliers et du  
développement économique  
City of Ottawa | ville d'Ottawa ▪ [damien.whittaker@ottawa.ca](mailto:damien.whittaker@ottawa.ca) ▪ 01-14

---

**From:** William Kollaard <[bill@kollaard.ca](mailto:bill@kollaard.ca)>  
**Sent:** Tuesday, February 27, 2024 9:36 AM  
**To:** Evans, Allan <[Allan.Evans@ottawa.ca](mailto:Allan.Evans@ottawa.ca)>; Whittaker, Damien <[Damien.Whittaker@ottawa.ca](mailto:Damien.Whittaker@ottawa.ca)>  
**Subject:** Re: FW: 6622 Bank St. CAMM machinery firefighting water

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Hi Allan, Damien,

Please see the attached very preliminary site plan with the additional buildings on it for the purpose of today's discussion only.

Thx

--  
William Kollaard, P.Eng.  
Kollaard Associates Inc.  
210 Prescott Street, Unit 1  
Kemptville, Ontario  
K0G 1J0  
CANADA  
TEL: (613) 860-0923  
CEL: (613) 913-0282  
[www.kollaard.ca](http://www.kollaard.ca)

**Title:** FW: 6622 Bank St. CAMM machinery firefighting water  
**Location:** Microsoft Teams Meeting  
**When:** February 27, 2024 10:00 a.m. – 10:30 a.m.

**Organizer:** Evans, Allan <[Allan.Evans@ottawa.ca](mailto:Allan.Evans@ottawa.ca)>  
**Description:** Preliminary Teams discussion around site size increase and water storage options.

---

Microsoft Teams Need help?<<https://aka.ms/JoinTeamsMeeting?omkt=en-US>>  
Join the meeting now<[https://teams.microsoft.com//meetup-join/19%3ameeting\\_NzQ3MWI1ZTMtNjhjNC00MTQzLThmYjEtMjU2MTVjYjcyOTVj%40thread.v2/0?context=%7b%22Tid%22%3a%22dfcc033d-df87-4c6e-a1b8-8eaa73f1b72e%22%2c%22Oid%22%3a%222579a71b-22e3-4988-b37b-16a8db6bf708%22%7d](https://teams.microsoft.com//meetup-join/19%3ameeting_NzQ3MWI1ZTMtNjhjNC00MTQzLThmYjEtMjU2MTVjYjcyOTVj%40thread.v2/0?context=%7b%22Tid%22%3a%22dfcc033d-df87-4c6e-a1b8-8eaa73f1b72e%22%2c%22Oid%22%3a%222579a71b-22e3-4988-b37b-16a8db6bf708%22%7d)>  
Meeting ID: 239 517 222 832  
Passcode: eMoD8c

---

Dial-in by phone  
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Find a local number<<https://dialin.teams.microsoft.com/1f5fd6b6-7613-484d-aafe-996ac0e0cf16?id=815547626>>  
Phone conference ID: 815 547 626#  
Join on a video conferencing device  
Tenant key: [teams@vc.ottawa.ca](mailto:teams@vc.ottawa.ca)<<http://microsoft.com/>>  
Video ID: 115 066 255 5  
More info<<https://pexip.me/teams/vc.ottawa.ca/1150662555>>  
For organizers: Meeting options<[https://teams.microsoft.com/meetingOptions/?organizerId=2579a71b-22e3-4988-b37b-16a8db6bf708&tenantId=dfcc033d-df87-4c6e-a1b8-8eaa73f1b72e&threadId=19\\_meeting\\_NzQ3MWI1ZTMtNjhjNC00MTQzLThmYjEtMjU2MTVjYjcyOTVj@thread.v2&messageId=0&language=en-US](https://teams.microsoft.com/meetingOptions/?organizerId=2579a71b-22e3-4988-b37b-16a8db6bf708&tenantId=dfcc033d-df87-4c6e-a1b8-8eaa73f1b72e&threadId=19_meeting_NzQ3MWI1ZTMtNjhjNC00MTQzLThmYjEtMjU2MTVjYjcyOTVj@thread.v2&messageId=0&language=en-US)> | Reset dial-in PIN<<https://dialin.teams.microsoft.com/usp/pstnconferencing>>

---

**From:** Evans, Allan <[Allan.Evans@ottawa.ca](mailto:Allan.Evans@ottawa.ca)>  
**Sent:** February 16, 2024 3:06 PM  
**To:** [bill@kollaard.ca](mailto:bill@kollaard.ca)  
**Subject:** RE: FW: 6622 Bank St. CAMM machinery firefighting water

Hi – there are a few things in play around this and I won't have answers for another week or two for some of them.

I'm only a part of the equation, and the authority comes from the OBC not the fire code so I have limited ability to impact the outcome.

Let me work on my internal stuff here first and we will touch base back in like a week and a half once I have some further answers and we can loop in the building code representative for the discussion. I'll send you a teams invite for the rough timeframe and adjust as necessary if that works?

Allan Evans

Fire Protection Engineer / Ingénieur de Protection d'Incendies  
Prevention Division / Prévention des Incendies  
Ottawa Fire Services / Service des Incendies d'Ottawa  
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• (613) 913-2747 | • (613) 580-2424 x24119 | 6 (613) 580-2866 | • Mail Code: 25-102 | @OFSFPE

[\[cid:image001.jpg@01DA60EA.4361AF20\]](#)[\[cid:image002.jpg@01DA60EA.4361AF20\]](#)

From: William Kollaard <[bill@kollaard.ca](mailto:bill@kollaard.ca)>  
Sent: February 15, 2024 2:59 PM  
To: Evans, Allan <[Allan.Evans@ottawa.ca](mailto:Allan.Evans@ottawa.ca)>  
Subject: Re: FW: 6622 Bank St. CAMM machinery firefighting water

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Hi Alan,

Thanks for contacting me. Thom Fuller is good friend and I have met with Pall Hutt and Duncan McNaughton several times, but I don't think we have met.

We are working on a revision to the site plan that includes 2 more buildings of a similar size and use of the the existing building with appropriate spatial separation. The site that was constructed a few years ago includes 270,000 litres of water storage. The calculation was done as per the OBC at that time. If we use the FUS method, we are requiring at least 4 times that volume. We (Kollaard Assoc. and CAMM) are hoping that an exception can be made based on the fact that the building is non-combustible and the contents are mainly steel equipment, machines, etc. His existing warehouse is full - I was hoping we could have a meeting on site and come up with a plan that all parties are comfortable with. Please call my cell if you have any questions.

--

William Kollaard, P.Eng.

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On 2024-02-15 1:45 p.m., Evans, Allan wrote:

Hi Bill – not sure if we've ever had a meeting together, but I know I have with some others at your company. I can't find anything on 6622 Bank Street (other than the original application back in 2019/2020 timeframe which I was a part of). Have you been in contact with anyone from the city about this application yet? Do you have the FUS calculation prepared? Curious what stage this new addition or building is at and what info you have available for it.

Thanks,

Allan Evans  
Fire Protection Engineer / Ingénieur de Protection d'Incendies  
Prevention Division / Prévention des Incendies  
Ottawa Fire Services / Service des Incendies d'Ottawa  
1445 Carling Avenue / 1445 Avenue Carling  
Ottawa, ON K1Z 7L9  
[Allan.Evans@Ottawa.ca](mailto:Allan.Evans@Ottawa.ca)  
• (613) 913-2747 | • (613) 580-2424 x24119 | 6 (613) 580-2866 | • Mail Code: 25-102 | @OFSFPE

[\[cid:image001.jpg@01DA60EA.4361AF20\]](#)[\[cid:image002.jpg@01DA60EA.4361AF20\]](#)

From: Fuller, Tom <[Tom.Fuller@ottawa.ca](mailto:Tom.Fuller@ottawa.ca)>  
Sent: February 13, 2024 7:30 PM

Subject: 6622 Bank St. CAMM machinery firefighting water

Good Morning Chief

My friend Bill Kollaard is an engineer designing the firefighting water facilities for an expansion at the CAMM property on Bank St. in Greely. He would like to schedule a meeting with a fire chief who can apply some discretion to the required quantity of water to be stored on site.

Apparently, the method for calculating the amount needed has changed since the property owner built their first structure from Ontario Building Code requirements to the Fire Underwriters Survey method and this results in a significant increase to the amount required which will be quite an

expensive installation, for the new building.

Would it be appropriate for the owner and the engineer to meet with Alan Evans and Chief Miller at the site ? Can you either delegate this or advise me how to facilitate this for them ?

Thanks very much.

Thom

Thom Fuller  
Captain  
Ottawa Fire Services  
Station 56 B Platoon  
(613) 291-2041  
104892

[cid:image003.jpg@01DA60EA.4361AF20]

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**Attachments:** [about:blank](#)  
[about:blank](#)  
[about:blank](#)

**Attendees:** 1. [bill@kollaard.ca](mailto:bill@kollaard.ca) <[bill@kollaard.ca](mailto:bill@kollaard.ca)>  
2. Whittaker, Damien <[Damien.Whittaker@ottawa.ca](mailto:Damien.Whittaker@ottawa.ca)>

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— Attachments: —

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Revision 2 - Memo accompanying forthcoming Rural fire technical bulletin.docx

59.4 KB



## Appendix D: Fire Flow Demand Calculations Using OBC

**APPENDIX D: FIRE FLOW DEMAND CALCULATIONS USING OBC**

**Client:** CAMM Warehousing and Rentals  
**Job No.:** 230156  
**Location:** 6622 Bank St., Ottawa  
**Date:** October 7, 2024

## Fire Water Storage and Supply Flow Rate Requirements

The following equation from the latest version of the Ontario Building Code (2012) was used for calculation of the on-site supply rates required to be supplied by the hydrants.

Formulae:

$$Q = KVS_{Tot}$$

$$S_{Tot} = 1.0 + [S_{side1} + S_{side2} + S_{side3} + S_{side4} + \dots]$$

OBC Classification of Building Use	Group, Division	Residential Group C		
Assumed Type of Construction	Combustible with Fire Separations	Building is of Combustible construction with fire separations and fire resistance ratings provided in accordance with Subsection 3.2.2 including Loadbearing walls, columns and arches.		
Water Supply Coefficient (Table 1, OBC)	K	17		
Exposure Distance 1		>10	m	
Exposure Distance 2		>10	m	
Exposure Distance 3		>10	m	
Exposure Distance 4		>10	m	
Spatial Coefficient 1	Sside	0		
Spatial Coefficient 2	Sside	0		
Spatial Coefficient 3	Sside	0		
Spatial Coefficient 4	Sside	0		
Total Spatial Coefficient	Stot	1		
Average Building Height	H	7.3	m	
Building Footprint	A	2,174	sq.m	
Total Building Volume	V	15,870	cu.m	
Minimum Supply of Water	Q	269,793	L	
Required Fire Flow	Qf	6300	L/min	<i>per Table 2 on A-3.2.5.7 of the OBC</i>
		<b>105</b>	L/s	
		1664	US gpm	

OBC - Table 2 of A-3.2.5.7.

**REQUIRE MINIMUM WATER SUPPLY FLOW RATE (L/min)**

Qf =	2700	If Q ≤ 108 000 L
Qf =	3600	108 000L < Q ≤ 135 000 L
Qf =	4500	135 000L < Q ≤ 162 000 L
Qf =	5400	162 000L < Q ≤ 190 000 L
Qf =	6300	190 000L < Q ≤ 270 000 L
Qf =	9000	Q > 270 000 L