

**Site Servicing and Stormwater
Management Report – 3-
Storey Apartment Building, 27
Monk Street**

Job #160401526



Prepared for:
Art Construction

Prepared by:
Stantec Consulting Ltd.

November 29, 2019

Sign-off Sheet

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**SITE SERVICING AND STORMWATER MANAGEMENT REPORT – 3-STOREY APARTMENT BUILDING, 27
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SITE SERVICING AND STORMWATER MANAGEMENT REPORT – 3-STOREY APARTMENT BUILDING, 27 MONK STREET

Introduction
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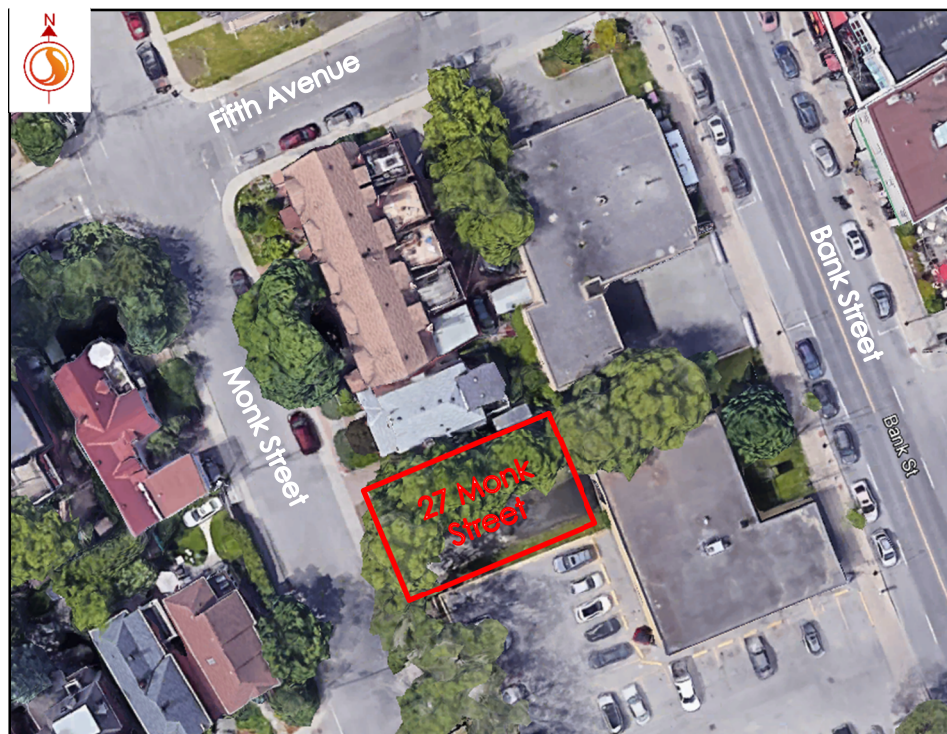
1.0 INTRODUCTION

Stantec Consulting Ltd. has been commissioned by Art Construction to prepare a site servicing and stormwater management (SWM) report in support of their site plan control application for their proposed development located on 27 Monk Street in the city of Ottawa. The site is situated in the south-eastern quadrant of the intersection of Monk Street and Fifth Avenue. The site location is shown in **Figure 1** below.

The proposed development will replace an existing three-storey dwelling with a 3-storey apartment building, comprised of 7 residential units (see site plan in **Appendix F**). The 0.03 ha site is presently zoned R4T (Residential Fourth Density Zone), which permits the proposed development plan.

The intent of this report is to provide a servicing scenario for the site that is free of conflicts, provides on-site servicing in accordance with City of Ottawa design guidelines, and utilizes the existing local infrastructure in accordance with the guidelines outlined per consultation with City of Ottawa staff.

Figure 1: Location Plan



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Background
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2.0 BACKGROUND

Documents referenced in preparation of the servicing and SWM design for the proposed 27 Monk Street development include:

- Geotechnical Desktop Review – Proposed Residential Building 27 Monk Street – Ottawa, Ontario, Paterson Group, October 7, 2019
- Phase I Environmental Site Assessment –27 Monk Street Ottawa, Ontario, Paterson Group, September 23, 2019
- *City of Ottawa Sewer Design Guidelines*, 2nd Ed., City of Ottawa, October 2012
- Technical Bulletin ISTB-2014-02 Revision to Ottawa Design Guidelines – Water, City of Ottawa, May 2014
- Technical Bulletin PIETB-2016-01 Revisions to Ottawa Design Guidelines – Sewer, City of Ottawa, September 2016
- Technical Bulletin ISTB-2018-01 Revision to Ottawa Design Guidelines – Sewer, City of Ottawa, March 2018
- City of Ottawa Water Distribution Design Guidelines, City of Ottawa, October 2012
- Technical Bulletin ISTB-2018-02 Revision to Ottawa Design Guidelines – Water Distribution, City of Ottawa, March 2018

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Water Supply Servicing
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3.0 WATER SUPPLY SERVICING

3.1 BACKGROUND

The proposed development consists of one 3-storey residential apartment building complete with associated infrastructure and access areas. The proposed building consists of three 1-bedroom apartments, three 2-bedroom apartments, one 3-bedroom apartments, a garbage room, a mechanical room, and a bike room. The site will be serviced via a 50mm building service connection to the existing 150mm dia. watermain within the Monk Street ROW at the western boundary of the site.

The property is located within the City's Pressure Zone 1W. Average ground elevations of the proposed site are approximately 70.20 m. Under normal operating conditions, hydraulic gradelines vary from approximately 105.0 m to 114.7 m, and under maximum day plus fire flow, the hydraulic gradeline is approximately 100.0 m as confirmed through boundary conditions provided by the City of Ottawa (see **Appendix A.3**).

3.2 WATER DEMANDS

Water demands for the development were estimated using the Ministry of Environment's Design Guidelines for Drinking Water Systems (2008) and the Ottawa Design Guidelines – Water Distribution (2010). A daily rate of 350 L/cap/day has been applied for the population of the proposed site. Population densities have been assumed as 1.4 persons/one bedroom unit, 2.1 persons/two bedroom apartment unit, and 3.1 persons/three bedroom apartment unit. See **Appendix A.1** for detailed domestic water demand estimates.

The average day demand (AVDY) for the entire site was determined to be 0.06 L/s. The maximum daily demand (MXDY) is 2.5 times the AVDY for residential areas, which results in 0.14 L/s. The peak hour demand (PKHR) is 2.2 times the MXDY for residential areas totaling 0.30 L/s.

The OBC Guidelines were used to determine the fire flow required for the proposed site given that there is no watermain design and that the proposed development only involves a water service connection (see Presentation #3, Question #3 of the document titled Technical Bulletins to Sewer and Water Design Guidelines Q&A from Sessions included in **Appendix A.4**). Under the OBC guidelines the type of building construction was considered to be combustible without fire-resistance ratings and as a residential apartment building it falls under Building Class C. Based on calculations per the OBC Guidelines (see **Appendix A.2**), the minimum required fire flows for this development are 45 L/s (2,700 L/min).

SITE SERVICING AND STORMWATER MANAGEMENT REPORT – 3-STOREY APARTMENT BUILDING, 27 MONK STREET

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3.3 PROPOSED WATER SERVICING

Per the City's site boundary conditions and based on an approximate elevation of 70.20 m, adequate domestic water flows are available with a pressure range of 34.8 m (49.5 psi) to 44.5 m (63.3 psi). This pressure range is within the guidelines of 40-80 psi specified in the City of Ottawa Design Guidelines for Water Distribution.

The 100.0 m HGL provided for the proposed development under maximum day and fire flow demands of 45 L/s (2,700 L/min) results in a residual pressure of 29.8 m (42.4 psi), which is greater than the minimum allowable residual pressure of 20 psi under maximum day and fire flow conditions. An existing hydrant is located approximately 44 m north of the subject site on Monk Street.

3.4 SUMMARY OF FINDINGS

The proposed development is serviced by the City of Ottawa's water distribution system. The available water supply is sufficient to meet both domestic and fire protection requirements.

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Wastewater Servicing
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4.0 WASTEWATER SERVICING

4.1 BACKGROUND

The site will be serviced via an existing 300 mm diameter combined sewer situated within the Monk Street ROW at the western boundary of the site (see **Drawing SSP-1**). It is proposed to connect a 150mm diameter sanitary service lateral directly to the existing sewer to service the proposed site.

4.2 DESIGN CRITERIA

As outlined in the City of Ottawa Sewer Design Guidelines and the MOE Design Guidelines for Sewage Works, the following criteria were used to calculate estimated wastewater flow rates and to size the sanitary sewers:

- Minimum Velocity – 0.6 m/s (0.8 m/s for upstream sections)
- Maximum Velocity – 3.0 m/s
- Manning roughness coefficient for all smooth wall pipes – 0.013
- Minimum size – 200mm dia. for residential areas
- Average Wastewater Generation – 280L/cap/day
- Peak Factor – 4.0 (Harmon's)
- Extraneous Flow Allowance – 0.33 L/s/ha
- Manhole Spacing – 120 m
- Minimum Cover – 2.5m
- Population density of 1.4 persons/one bedroom apartment, 2.1 persons/2-bedroom apartment and 3.1 persons/3-bedroom apartment

4.3 PROPOSED SERVICING

The proposed site will be serviced by a gravity sewer which will direct the proposed wastewater peak flows (approx. 0.18 L/s with allowance for infiltration) to the existing 300 mm diameter combined sewer. A sanitary sewer design sheet for the proposed service lateral is included in **Appendix B.1**. A full port backwater valves is to be installed on the sanitary service within the site to prevent any surcharge from the downstream sewer main from impacting the proposed property.

The sanitary peak flow was accounted for when calculating the allowable stormwater peak flow from the site given that both the proposed storm and sanitary sewers will discharge into the combined sewer on Monk Street.

SITE SERVICING AND STORMWATER MANAGEMENT REPORT – 3-STOREY APARTMENT BUILDING, 27 MONK STREET

Stormwater Management
November 29, 2019

5.0 STORMWATER MANAGEMENT

5.1 OBJECTIVES

The objective of this stormwater management plan is to determine the measures necessary to control the quantity of stormwater released from the proposed development to the allowable release rate obtained from the criteria established during the pre-consultation process, and to provide sufficient detail for approval and construction.

5.2 SWM CRITERIA AND CONSTRAINTS

Criteria were established by combining current design practices outlined by the City of Ottawa Design Guidelines (2012), and through consultation with City of Ottawa staff. The following summarizes the criteria, with the source of each criterion indicated in brackets:

General

- Wherever feasible and practical, site-level measures should be used to reduce and control the volume and rate of runoff. (City of Ottawa)
- Assess impact of 100 year event outlined in the City of Ottawa Sewer Design Guidelines on major & minor drainage system (City of Ottawa)
- The proposed site is not subject to quality control criteria given that stormwater is discharged into a combined sewer (RVCA).

Storm Sewer & Inlet Controls

- Size storm sewers to convey 2-year storm event under free-flow conditions using City of Ottawa I-D-F parameters (City of Ottawa).
- Site discharge rates for all storm events up to and including the 100-year storm to be restricted to the 2-year storm with a maximum pre-development runoff coefficient (C) of 0.40 (City of Ottawa).
- Peak storm discharge rates from the site during wet weather events to be further reduced by subtracting the site peak sanitary discharge rate from the overall allowable stormwater discharge from the site (City of Ottawa).
- Proposed site to discharge into the existing 300 mm diameter combined sewer within the Monk Street ROW (City of Ottawa).
- 100-year Storm HGL to be a minimum of 0.30 m below building foundation footing (City of Ottawa). However, this is not a concern for this site since the storm and sanitary service laterals will be equipped with full port backwater valves.

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Stormwater Management
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Surface Storage & Overland Flow

- Maximum depth of flow under either static or dynamic conditions shall be less than 0.35 m (City of Ottawa).
- Provide adequate emergency overflow conveyance off-site (City of Ottawa).

The outlet for the sanitary and storm systems for this site is a combined sewer within the Monk Street ROW. The City of Ottawa requires separate connections for each of the services to the combined sewer. As such, separate sanitary and storm service connections have been proposed.

5.3 STORMWATER MANAGEMENT

The Modified Rational Method was employed to assess the rate and volume of runoff generated during existing and post-development conditions. The site was subdivided into subcatchments (subareas) tributary to stormwater controls as defined by the location of inlet control devices. A summary of subareas and runoff coefficients is provided in **Appendix C.2** and **Drawing SD-1** in **Appendix G** indicates the stormwater management subcatchments.

5.3.1 Allowable Release Rate

Based on consultation with City of Ottawa staff, the peak post-development discharge from the subject site up to the 100-year storm is to be limited to that of the 2-year event discharge under pre-development conditions, to a maximum runoff coefficient C of 0.40, and reduced further by the estimated peak sanitary discharge from the site.

The predevelopment release rate for the site has been determined using the rational method based on the criteria above. The time of concentration for the predevelopment area of approximately 7 minutes was calculated using the airport method as shown in the detailed calculations included in **Appendix C.3**. Peak flow rates have been calculated using the rational method as follows:

$$Q = 2.78 C I A$$

Where: Q = peak flow rate, L/s

A = drainage area, ha

I = rainfall intensity, mm/hr (per Ottawa IDF curves)

C = site runoff coefficient

Detailed peak flow calculations are provided in **Appendix C.2**. The target release rate for the site is summarized in **Table 1** below.

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Table 1: Storm Target Release Rate

Design Storm	2-year Peak Flow Rate (L/s)	Site Sanitary Peak Flow (L/s)	Site Storm Target Peak Outflow (L/s)
up to 100-year storm	2.67	0.18	2.49

5.3.2 Storage Requirements

The site requires quantity control measures to meet the restrictive stormwater release criteria. It is proposed that rooftop storage in combination with subsurface storage in the proposed catchbasin and subdrain system be used to reduce the site's peak outflow to the target release rate.

5.3.2.1 Rooftop Storage

It is proposed to retain stormwater on the building rooftop by installing restricted flow roof drains. Restricted roof runoff will be discharged along with foundation drainage from the proposed building through the proposed 100 mm diameter service lateral as shown on **Drawing SD-1**, and will outlet to the proposed building's stormwater service connection. The following calculations assume the roof will be equipped with two standard Watts Model R1100 Accutrol Roof Drains.

Watts Drainage "Accutrol" roof drain weir data has been used to calculate a practical roof release rate and detention storage volume for the rooftops. It should be noted that the "Accutrol" weir has been used as an example only, and that other products may be specified for use, provided that the total roof drain release rate is restricted to match the maximum rate of release indicated in **Table 2**, and that sufficient roof storage is provided to meet (or exceed) the resulting volume of detained stormwater. Proposed drain release rates have been calculated based on the "Accutrol" weir setting at the closed setting, see detailed calculations in **Appendix C.2**. The storage volume and controlled release rate are summarized in **Table 2**.

Table 2: Roof Control Area (BLDG)

Design Storm	Depth (mm)	Discharge (L/s)	Volume Stored (m³)
2-Year	91.8	0.63	1.43
100-Year	146.3	0.63	5.57

5.3.2.2 Uncontrolled Areas

Due to grading restrictions, the area fronting the proposed building and part of the sides could not be graded to enter the site storm system and it sheet flows uncontrolled towards Monk Street. Peak discharges from the uncontrolled area have been considered in the overall SWM plan and have been balanced through overcontrolling proposed site discharge rates to meet

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Stormwater Management
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the target peak outflow. **Table 3** below summarizes the 2-year and 100-year peak flows from the uncontrolled area.

Table 3: Uncontrolled Non-Tributary Area (UNC-1)

Design Storm	Discharge (L/s)
2-Year	0.27
100-Year	0.79

5.3.2.3 Subsurface Storage

Per the modified rational method calculations included in **Appendix C.2**, runoff from subcatchment CB-1 will be restricted through an IPEX Tempest LMF model 55 inlet control device (ICD) installed in the proposed catchbasin CB-1 as shown on **Drawing-SSP1**. In order to control the 100-year peak discharge rate from the subject site to within the target level, 0.53 m³ of storage are required. The required storage is available in the proposed catchbasin and within the proposed 250 mm diameter subdrain pipe which combined provide 0.60 m³ of storage.

Table 4 summarizes the storage volume required and controlled release rate for the site during the 100-year storm based on the Modified Rational Method (MRM). Detailed MRM calculations are included in **Appendix C.2**, while the storm sewer design sheet is included in **Appendix C.1**.

Table 4: 100-Year Storage Requirements and ICD Characteristics

Areas Tributary to Proposed ICD	ICD Type	ICD Invert (m)	Required 100-Year Volume (m ³)	100-Year Head (m)	Peak Discharge - 100 Year storm (L/s)
CB-1	IPEX Tempest LMF55	69.22	0.53	0.20	1.24

5.3.3 Results

Table 5 provides a summary of the peak discharge rates based on the proposed stormwater management measures with the intent of demonstrating adherence to the target peak outflow rate for the site.

Table 5: Summary of Overall Site 2-Year and 100-Year Event Release Rates

	2-Year Peak Discharge (L/s)	100-Year Peak Discharge (L/s)
Uncontrolled – Surface	0.27	0.79
Controlled – Subsurface MRM	0.81	1.24
Controlled – Roof	0.63	0.63

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Stormwater Management
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	2-Year Peak Discharge (L/s)	100-Year Peak Discharge (L/s)
Total Overall Site Peak Discharge	1.71	2.66
Target Release Rate	2.49	

*Flows from the roof will be directed to building storm service connection.

As can be seen in the table above, the total 100-year release rate from the site is approximately 2.66 L/s which exceeds the target release rate by 0.17 L/s, which is considered negligible.

5.4 QUALITY CONTROL

It was determined through correspondence with the RVCA, included in **Appendix C.4**, that no onsite water quality control is required given that the proposed site outlets to a combined sewer where downstream treatment is provided.

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Grading and Drainage
November 29, 2019

6.0 GRADING AND DRAINAGE

The proposed development site measures approximately 0.03 ha in area. The topography across the site is relatively flat, and currently drains from east to west, with overland flow generally being directed to the adjacent Monk Street ROW (see **Drawing EX-1**). A detailed grading plan (see **Drawing GP-1**) has been provided to satisfy the stormwater management requirements, adhere to any geotechnical restrictions (see **Section 10.0**) for the site, and provide for minimum cover requirements for storm and sanitary sewers where possible. Site grading has been established to provide emergency overland flow routes required for stormwater management in accordance with City of Ottawa requirements.

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Utilities

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7.0 UTILITIES

As the subject site lies within a mature developed residential community, Hydro, Bell, Gas and Cable servicing for the proposed development should be readily available within subsurface plant and adjacent overhead utility lines within the Monk Street ROW. Exact size, location and routing of utilities, along with determination of any off-site works required for redevelopment, will be finalized after design circulation.

SITE SERVICING AND STORMWATER MANAGEMENT REPORT – 3-STOREY APARTMENT BUILDING, 27 MONK STREET

Approvals
November 29, 2019

8.0 APPROVALS

Pre-consultation with Ontario Ministry of Environment, Conservation and Parks (MECP) staff concerning Environmental Compliance Approval (ECA) under the Ontario Water Resources Act is forthcoming. It is expected that a direct submission ECA will be required for approval of the proposed building service connections and stormwater management system, as they connect directly to an existing combined sewer.

If the anticipated pumping volumes exceed 400,000 L/day of ground and/or surface water, a temporary Ministry of the Environment, Conservation and Parks (MECP) permit to take water (PTTW) will be required for this project during the construction phase. A minimum of 4 to 5 months should be allowed for completion of the PTTW application package and issuance of the permit by the MECP.

Requirement for a MECP posting on the Environmental Activity Sector Registry (EASR) for water taking associated with sewer construction and building footing excavation will be confirmed by the geotechnical consultant.

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Erosion Control During Construction
November 29, 2019

9.0 EROSION CONTROL DURING CONSTRUCTION

Erosion and sediment controls must be in place during construction. The following recommendations to the contractor will be included in contract documents.

1. Implement best management practices to provide appropriate protection of the existing and proposed drainage system and the receiving water course(s).
2. Limit extent of exposed soils at any given time.
3. Re-vegetate exposed areas as soon as possible.
4. Minimize the area to be cleared and grubbed.
5. Protect exposed slopes with plastic or synthetic mulches.
6. Provide sediment traps and basins during dewatering.
7. Install sediment traps (such as SiltSack® by Terrafix) between catch basins and frames.
8. Plan construction at proper time to avoid flooding.

The contractor will, at every rainfall, complete inspections and guarantee proper performance. The inspection is to include:

9. Verification that water is not flowing under silt barriers.
10. Clean and change silt traps at catch basins.

Refer to **Drawing EC DS-1** for the proposed location of silt fences and other erosion control structures.

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Geotechnical Investigation and Environmental Assessment
November 29, 2019

10.0 GEOTECHNICAL INVESTIGATION AND ENVIRONMENTAL ASSESSMENT

A geotechnical Investigation report was prepared by Paterson Group on October 7, 2019 regarding conditions within the subject area and construction recommendations. For details which are not summarized below, please see the original Paterson Group Report located in **Appendix D**.

Subsurface soil conditions within the subject area were determined based on available subsurface information from nearby sites completed by Paterson. The subsoil profile is expected to consist of silty sand fill overtop of a compacted silty sand deposit, hitting bedrock from a range of 15-25 m below the surface. The groundwater table is expected to be encountered at a depth of 6m to 7m below the existing grades and are subject to seasonal fluctuation.

An Environmental Site Assessment (Phase 1-ESA) report was prepared by Paterson Group on September 23, 2019 regarding past and current use of the site and outlining any environmental concerns, for the full report see **Appendix E**. In the report it was determined that with respect to the proposed site's civil work there were no actionable concerns set out as a part of the Phase 1-ESA.

11.0 CONCLUSIONS

11.1 WATER SERVICING

Based on the supplied boundary conditions for existing watermain and estimated domestic and fire flow demands for the subject site, it is anticipated that the proposed servicing in this development will provide sufficient capacity to sustain both the required domestic demands and emergency fire flow demands of the proposed site.

11.2 SANITARY SERVICING

The proposed sanitary sewer network is sufficiently sized to provide gravity drainage of the site. The proposed site will be serviced by a gravity sewer service lateral which will direct wastewater flows (approx. 0.18 L/s) to the existing 300 mm diameter combined sewer within the Monk Street ROW at the western boundary of the property.

11.3 STORMWATER SERVICING

The proposed stormwater management plan is in compliance with the goals specified through consultation with the City of Ottawa. Rooftop storage and controlled roof release, and subsurface storage combined with a catchbasin ICD will limit 100-year post development peak flows from the site to the target peak outflow. The combined storm and sanitary flows from the site will be controlled to the target peak outflow.

11.4 GRADING

Grading for the site has been designed to provide an emergency overland flow route and reflects the recommendations in the Geotechnical Investigation Report prepared by Paterson Group. Erosion and sediment control measures will be implemented during construction to reduce the impact on existing infrastructure and adjacent properties.

11.5 UTILITIES

Utility infrastructure exists within overhead lines and subsurface plant within the Monk Street ROW at the western boundary of the proposed site. It is anticipated that existing infrastructure will be sufficient to provide a means of distribution for the proposed site. Exact size, location and routing of utilities will be finalized after design circulation.

SITE SERVICING AND STORMWATER MANAGEMENT REPORT – 3-STOREY APARTMENT BUILDING, 27 MONK STREET

Conclusions
November 29, 2019

11.6 APPROVALS/PERMITS

An MECP Environmental Compliance Approval is expected to be required for the subject site as the on-site sewers and stormwater management system will connect and directly discharge to an existing combined sewer. Requirement for registration on the Environmental Activity Sector Registry (EASR) for water taking associated with sewer construction and building footing excavation will be confirmed by the geotechnical consultant. No other approval requirements from other regulatory agencies are anticipated.

Appendix A **WATER SUPPLY SERVICING**

A.1 DOMESTIC WATER DEMAND ESTIMATE

27 Monk Street

- Based on Susan Smith's Architectes' Site Plan 10/18/2019 (160401526)

Building ID	Area (m ²)	Population	Daily Rate of Demand ¹	Avg Day Demand		Max Day Demand ²		Peak Hour Demand ²	
				(L/min)	(L/s)	(L/min)	(L/s)	(L/min)	(L/s)
BLDG		14	350	3.3	0.06	8.3	0.14	18.2	0.30
Total Site :				3.3	0.06	8.3	0.14	18.2	0.30

- 1 Population counts based on a density of 1.4 persons/1 Bedroom Apt., 2.1 Persons/2 Bedroom Apt. and 3.1 persons/3 bedroom apartment
- 2 Average day water demand for residential areas equal to 350 L/cap/d
- 3 The City of Ottawa water demand criteria used to estimate peak demand rates for residential areas are as follows:
- maximum day demand rate = 2.5 x average day demand rate
 - peak hour demand rate = 2.2 x maximum day demand rate
- Referenced from the City of Ottawa Sewer Design Guidelines (October 2012) and the Ottawa Design Guidelines: Water Distribution (July 2010)

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Appendix A Water Supply Servicing
November 29, 2019

A.2 FIRE FLOW REQUIREMENTS PER OBC GUIDELINES

Fire Flow Calculations as per OBC 2006 (Appendix A)

Job# 160401526
 Date 28-Nov-19
 Description: 27 Monk Street

Designed by: CO
 Checked by: AMP

$$Q = KVS_{\text{tot}}$$

Q = Volume of water required (L)
 V = Total building volume (m³)
 K = Water supply coefficient from Table 1
 S_{tot} = Total of spatial coefficient values from property line exposures on all sides
 $S_{\text{tot}} = 1.0 + [S_{\text{side1}} + S_{\text{side2}} + S_{\text{side3}} + S_{\text{side4}}]$

1	Type of construction	Building Classification		Water Supply Coefficient
	combustible without Fire-Resistance Ratings	A-2, B-1, B-2, B-3, C, D		23
2	Area of one floor (m ²)	number of floors	hieght of ceiling (m)	Total Building Volume (m ³)
	140	4	2.74	1,534
3	Side	Exposure Distance (m)	Spatial Coefficient	Total Spatial Coeffiecient
	North	1.2	0.5	2
	East	5.2	0.48	
	South	1.2	0.5	
	West	21.6	0	
4	Total Volume 'Q' (L)			
				70,564
				Minimum Required Fire Flow (L/min)
				2,700

**SITE SERVICING AND STORMWATER MANAGEMENT REPORT – 3-STOREY APARTMENT BUILDING, 27
MONK STREET**

Appendix A Water Supply Servicing
November 29, 2019

A.3 BOUNDARY CONDITIONS

Odam, Cameron

From: Valic, Jessica <jessica.valic@ottawa.ca>
Sent: Wednesday, November 06, 2019 9:09 AM
To: Odam, Cameron
Cc: Kilborn, Kris
Subject: RE: 27 Monk Street - Boundary Conditions Request
Attachments: 27 Monk Nov 2019.pdf

Good Morning,

The following are boundary conditions, HGL, for hydraulic analysis at 27 Monk (zone 1W) assumed to be connected to the 152mm on Monk (see attached PDF for location).

Minimum HGL = 105.0m

Maximum HGL = 114.7m

MaxDay + FireFlow (45 L/s) = 100.0m

These are for current conditions and are based on computer model simulation.

Disclaimer: The boundary condition information is based on current operation of the city water distribution system. The computer model simulation is based on the best information available at the time. The operation of the water distribution system can change on a regular basis, resulting in a variation in boundary conditions. The physical properties of watermain 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.

Please do not hesitate to contact me with any questions/concerns.

Regards,

Jessica Valic, E.I.T.

Engineering Intern

Planning, Infrastructure and Economic Development Department - Services de la planification, de l'infrastructure et du développement économique

Development Review - Central

City of Ottawa | Ville d'Ottawa

110 Laurier Avenue West Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1

613.580.2424 ext./poste 15672

jessica.valic@ottawa.ca

I will be away from the office November 18-22.

From: Odam, Cameron <Cameron.Odam@stantec.com>
Sent: October 31, 2019 10:17 AM
To: Valic, Jessica <jessica.valic@ottawa.ca>
Cc: Kilborn, Kris <kris.kilborn@stantec.com>
Subject: 27 Monk Street - Boundary Conditions Request

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.

Hi Jessica,

Would you be able to provide me with watermain hydraulic boundary conditions for the proposed site 27 Monk Street? The site consists of a proposed 3 storey and basement residential apartment building located at 27 Monk Street with water servicing that will connect to the existing 150mm watermain on Monk Street adjacent to the site.

A site location map with the approximate proposed connection point is also attached

Estimated domestic demands and fire flow requirements for the site are as follows:

Average Day Demand	– 0.05 L/s
Max Day Demand	- 0.13 L/s
Peak Hour Demand	- 0.28 L/s

Fire Flow Requirement per OBC guidelines – 45 L/s (2,700 L/min)

Thanks,

Cameron

Cameron Odam

Direct: +16137244353
Fax: +16137222799
Cameron.Odam@stantec.com

Stantec
400 - 1331 Clyde Avenue
Ottawa ON K2C 3G4



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**SITE SERVICING AND STORMWATER MANAGEMENT REPORT – 3-STOREY APARTMENT BUILDING, 27
MONK STREET**

Appendix A Water Supply Servicing
November 29, 2019

**A.4 TECHNICAL BULLETINS TO SEWER AND WATER DESIGN
GUIDELINES Q AND A FROM SESSIONS**

Technical Bulletins to Sewer and Water Design Guidelines

Q&A from sessions

Session #1 – October 29th, 2018 – City Hall (staff only)

Session #2 – November 2nd, 2018 – Ben Franklin (industry + staff)

Presentation #1 Changes to Sewer Design Guidelines ISTB-2018-01 Presented by Eric Tousignant			
Question		Answer	
Session #1			
Q1	In looking at the revised design flows, can you detail if catchment sizes captured in extraneous flows? Specifically Acres Road pumping station	A1	The extraneous flows presented in the bulletin are for design flows, and for all drainage areas sizes, in new developments. In the analysis of older existing areas, monitored parameters would be used, similar to the existing guidelines. Asset management should be contacted if the analysis of existing areas is required since this would mostly be done by that group.
Q2	What is the definition of Greenfield?	A2	Definition is outside core- new development versus existing areas. Discussion of application of HGL e.g. 70's area in Orleans would be existing. Anything designed without HGL requirement. City's philosophy: HGL down as first line of defense, 2 nd line of defense is backwater valves.
Session #2			
Q3	For the 3-way catchbasin, will there be an approved product added to the listing?	A3	HDPE is approved, so if there is an HDPE 3-way CB available, it can be used. On page 5 of technical bulletin ISTB-2018-03, there are fittings listed that have been approved for use.
Presentation #2 Changes to Sewer Design Guidelines - Sump Pumps ISTB-2018-04 and MECP Transfer of Review Presented by Charles Warnock			
Question		Answer	
Session #1			

Q1	Regarding the memo for engineers to sign off for sump pumps – is it the same engineer who does the initial design? Has there been any pushback?	A1	Could be the same engineer who does initial design could also possibly be the geotechnical engineer. None of the current applications have made it to this point yet.
Q2	Can you detail if there was any effect based on power outages during the recent hurricane?	A2	No news to detail
Q3	Regarding ingress – does that consider just ground water or during storm event?	A3	Effects of water from storm plus groundwater. Charles to check if it is the 100 year storm that is used,
Q4	Is the requirement that the entire development is on sump pumps, or is there a possibility to have a mix?	A4	For current developments under review, all are on full sump pumps.
Q5	Has there been revision to master servicing study for developments on sump pumps?	A5	For Mattamy ½ Moon Bay, the consultant provided a document to update the MSS (as a separate report) For Arcadia development, the consultant has been told that an update is required (not sure of the status of the update). An update to the MSS is part of the criteria to be met. As an aside, speaking to Richmond, there has always been an allowance for sump pumps (based on village classification)
Q6	Is there a requirement for eavestroughing?	A6	Charles will check conditions. Builders do not want to put in based on warranty issues.
Q7	What is the trigger to ensure that the engineer's memo is received? Especially if everything else (as required by Building Code) is in place? Essentially, the developers agreements are combined with building code – who will inform building code that the engineer's memo is required for occupancy permit?	A7	Charles indicated he will speak to Matt about how to ensure this is done. Perhaps add requirement to grading plan to ensure it does not get missed.
<i>Session #2</i>			
Q8	Is the letter of confirmation to confirm that the installation has been done per detail (alarm, gooseneck, cap around foundation ,etc)?	A8	Yes
Q9	Does the letter of confirmation include the requirement to check the electrical connections?	A9	No

Q10	Could building code inspectors sign off?	A10	No, they would not be looking at areas/requirements above and beyond building code requirements.
Q11	For the pilot agreement currently in place, do changes that you noted apply?	A11	We are bound to the existing agreement, so current requirements apply. The pilot expires in February of 2019, so we will see what changes will take effect at that time. We may wish to suggest a similar process for EASR's (currently for noise, air, PTTW).
Q12	In terms of consent, is the easement agreement ample to meet the consent requirements?	A12	It could potentially be ample – it depends on what the easement is set up for.
Presentation #3 Changes to Water Design Guidelines ISTB-2018-02 Presented by Christopher Rogers			
Question		Answer	
Session #1			
Q1	Under Appendix I, site plan examples show residential, cul-de-sacs, etc. Can this apply to other types of site plans? Institutional and commercial sites, for example?	A1	Yes
Q2	In terms of the maximum depth of valves, has anything been added to the standard to address?	A2	Operations can speak to extensions – there are no standard products (it is rare to have depth > 2.4m)
Q3	Regarding 6 unit apartment buildings, the application goes straight to building permit. For areas where smaller buildings/residential are introduced, is the envelope the controlling factor (versus the number of units)? How can we address this scenario? Under the building permit process, does design of building take into account?	A3	“Fire area” is the controlling factor, where the fire area is equal to the building area (i.e. building footprint times number of floors, excluding basement) unless there are 2-hr fire walls which would serve to subdivide the fire area. Zoning permissions should be basis for watermain design at subdivision stage. If site plan only involves service connection (i.e. no watermain design), then OBC method would be used as basis for fire flow requirements.
Q4	NRC reviewed a snapshot in time – are there any changes proposed for the next 2-5 years?	A4	No. However, it would be reasonable for DRS staff to consider NFPA 1 hydrant capacity table in reviewing hydrant spacing.
Q5	FUS was developed in the 1960's when different materials for construction were typical (e.g. solid wood versus engineered	A5	We are lacking data to modify parameters. Perhaps we could look at occupancy factors in a smaller study. FUS is conservative. The proposed Ottawa method is less

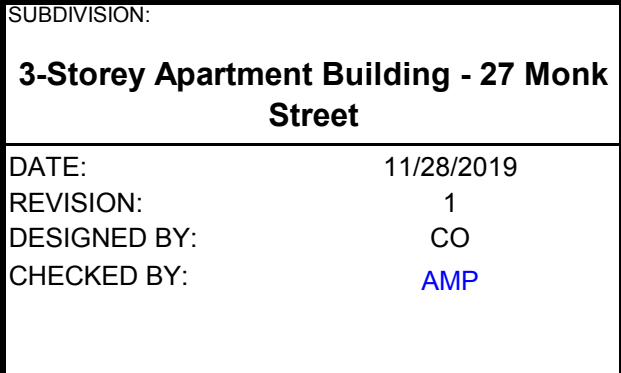
	products). Has this been taken into account (e.g. burn rates)?		empirical, resulting in lower numbers than FUS. However, there are no plans to implement this method due to lack of validation data.
<i>Session #2</i>			
Q6	Is the driver for the hydrant tee configuration air removal?	A6	Yes
Q7	If you do not have a dead end main and if you are not splitting flows to optimize, do we still assume that the hydrant can provide max 5700 L/min?	A7	Yes
Q8	How do you determine the length from hydrant?	A8	Assume the line fire services would take – keep on the ROW
Q9	The hydrant is shown at 45m from the dead end. Do we have to put a hydrant at the dead end?	A9	No, not required to do so. Please note that the example does not show the 50mm domestic line past the last hydrant.
Q10	Does building code still govern for all private sites?	A10	Any watermain (public or private) should be sized using FUS. On site, use building code requirements.

**SITE SERVICING AND STORMWATER MANAGEMENT REPORT – 3-STOREY APARTMENT BUILDING, 27
MONK STREET**

Appendix B Wastewater Servicing
November 29, 2019

Appendix B WASTEWATER SERVICING

B.1 SANITARY SEWER DESIGN SHEET



FILE NUMBER: 160401526

DESIGN PARAMETERS					
MAX PEAK FACTOR (RES.)=	4.0	AVG. DAILY FLOW / PERSON	280 L/p/day	MINIMUM VELOCITY	0.60 m/s
MIN PEAK FACTOR (RES.)=	2.0	COMMERCIAL	28,000 L/ha/day	MAXIMUM VELOCITY	3.00 m/s
PEAKING FACTOR (INDUSTRIAL):	2.4	INDUSTRIAL (HEAVY)	55,000 L/ha/day	MANNINGS n	0.013
PEAKING FACTOR (ICI >20%):	1.5	INDUSTRIAL (LIGHT)	35,000 L/ha/day	BEDDING CLASS	B
PERSONS / 3 BEDROOM	3.1	INSTITUTIONAL	28,000 L/ha/day	MINIMUM COVER	2.50 m
PERSONS / 1 BEDROOM	1.4	INFILTRATION	0.33 L/s/ha	HARMON CORRECTION FACTOR	0.8
PERSONS / 2 BEDROOM	2.1				

LOCATION			RESIDENTIAL AREA AND POPULATION								COMMERCIAL		INDUSTRIAL (L)		INDUSTRIAL (H)		INSTITUTIONAL		GREEN / UNUSED		C+H	INFILTRATION			TOTAL	PIPE							
AREA ID NUMBER	FROM M.H.	TO M.H.	AREA (ha)	3 BEDROOM	1 BEDROOM	2 BEDROOM	POP. AREA	CUMULATIVE POP.	PEAK FACT.	PEAK FLOW (L/s)	AREA (ha)	ACCU. AREA (ha)	AREA (ha)	ACCU. AREA (ha)	AREA (ha)	ACCU. AREA (ha)	AREA (ha)	ACCU. AREA (ha)	PEAK FLOW (L/s)	TOTAL AREA (ha)	ACCU. AREA (ha)	INFILT. FLOW (L/s)	FLOW (L/s)	LENGTH (m)	DIA (mm)	MATERIAL	CLASS	SLOPE (%)	CAP. (FULL) (l/s)	CAP. V PEAK FLOW (%)	VEL. (FULL) (m/s)	VEL. (ACT.) (m/s)	
BLDG	BLDG	TEE	0.026	1	3	3	14	0.03	14	4.00	0.18	0.000	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.026	0.03	0.01	0.18	11.4	150	PVC	DR 28	1.00	15.3	1.21%	0.86	0.25


**SITE SERVICING AND STORMWATER MANAGEMENT REPORT – 3-STOREY APARTMENT BUILDING, 27
MONK STREET**

Appendix C Stormwater Management
November 29, 2019

B.2

Appendix C STORMWATER MANAGEMENT

C.1 STORM SEWER DESIGN SHEET

	3-Storey Apartment Building - 27 Monk Street			STORM SEWER DESIGN SHEET (City of Ottawa) FILE NUMBER: 1604-01526								DESIGN PARAMETERS																		
	DATE: 28-Nov-2019											I = a / (t+b) ^C (As per City of Ottawa Guidelines, 2012)																		
	REVISION: 1											1:2 yr		1:100 yr		MANNING'S n = 0.013		BEDDING CLASS = B												
	DESIGNED BY: CO											732.951		1735.688		MINIMUM COVER: 2.00 m														
	CHECKED BY: AMP											6.199		6.014		TIME OF ENTRY 10 min														
LOCATION			DRAINAGE AREA																	PIPE SELECTION										
AREA ID	FROM	TO	AREA	AREA	AREA	C	ACCUM.	A x C	ACCUM.	ACCUM.	A x C	ACCUM.	T of C	I ₅ -YEAR	I ₁₀ -YEAR	Q _{CONTROL}	ACCUM.	Q _{ACT}	LENGTH	PIPE WIDTH	PIPE	PIPE	MATERIAL	CLASS	SLOPE	Q _{CAP}	% FULL	VEL.	VEL.	TIME OF
NUMBER	M.H.	M.H.	(2-YEAR)	(10-YEAR)	(ROOF)	(-)	AREA (2YR)	(2-YEAR)	AxC (2YR)	AREA (100YR)	(100-YEAR)	AxC (100YR)	(min)	(mm/h)	(mm/h)	(L/s)	Q _{CONTROL}	(CIA/360)	(m)	OR DIAMETER	HEIGHT	SHAPE	(-)	(-)	%	(FULL)	(-)	(FULL)	(ACT)	FLOW
			(ha)	(ha)	(ha)		(ha)	(ha)	(ha)	(ha)	(ha)	(ha)					(L/s)	(L/s)		(mm)	(mm)	(-)	(-)			(L/s)	(-)	(m/s)	(m/s)	(min)
CB-1	CB-1	MAIN	0.008	0.00	0.000	0.30	0.01	0.002	0.002	0.00	0.000	0.000	10.00	76.81	178.56	0.00	0.0	0.51	29.1	200	200	CIRCULAR	PVC	SDR 35	1.00	33.3	1.54%	1.05	0.32	1.50
BLDG	BLDG	MAIN	0.000	0.00	0.014	0.90	0.00	0.000	0.000	0.00	0.000	0.000	10.00	76.81	178.56	0.63	0.6	0.63	11.5	100	100	CIRCULAR	PVC	DR 28	7.00	14.0	4.50%	1.75	0.75	0.26

**SITE SERVICING AND STORMWATER MANAGEMENT REPORT – 3-STOREY APARTMENT BUILDING, 27
MONK STREET**

Appendix C Stormwater Management
November 29, 2019

C.2 RATIONAL METHOD CALCULATIONS

Stormwater Management Calculations

File No: 160401526
Project: 27 Monk Street
Date: 08-Nov-19

SWM Approach:
Post-development to Pre-development flows with a C=0.40

Post-Development Site Conditions:

Overall Runoff Coefficient for Site and Sub-Catchment Areas

Runoff Coefficient Table								
Sub-catchment Area		Area (ha)		Runoff Coefficient "C"		"A x C"		Overall Runoff Coefficient
Catchment Type	ID / Description		"A"					
Controlled - Tributary	CB-1	Hard	0.001		0.9	0.001		
		Soft	0.007		0.2	0.001		
	Subtotal			0.008			0.0024	0.300
Roof	BLDG	Hard	0.014		0.9	0.013		
		Soft	0.000		0.2	0.000		
	Subtotal			0.014			0.0126	0.900
Uncontrolled - Non-Tributary	UNC-1	Hard	0.001		0.9	0.001		
		Soft	0.003		0.2	0.001		
	Subtotal			0.004			0.00128	0.320
Total				0.026			0.016	
Overall Runoff Coefficient= C:								0.63

Total Roof Areas	0.014 ha
Total Tributary Surface Areas (Controlled and Uncontrolled)	0.008 ha
Total Tributary Area to Outlet	0.022 ha
Total Uncontrolled Areas (Non-Tributary)	0.004 ha
Total Site	0.026 ha

Stormwater Management Calculations

Project #160401526, 27 Monk Street
Modified Rational Method Calculatons for Storage

2 yr Intensity
City of Ottawa

$I = a/(t + b)^c$

a = 732.951

b = 6.199

c = 0.81

t (min)

I (mm/hr)

10

76.81

20

52.03

30

40.04

40

32.86

50

28.04

60

24.56

70

21.91

80

19.83

90

18.14

100

16.75

110

15.57

120

14.56

2 YEAR Predevelopment Target Release from Portion of Site

Subdrainage Area: Predevelopment Site Area

Area (ha): 0.0260

C: 0.40

Time of Concentration as calculated using the Airport Methodd

tc (min)	I (2 yr) (mm/hr)	Qtarget (L/s)
6.7	92.37	2.67

2 YEAR Modified Rational Method for Entire Site

Subdrainage Area: CB-1

Area (ha): 0.008

C: 0.30

Controlled - Tributary

tc (min)	I (2 yr) (mm/hr)	Qactual (L/s)	Qrelease (L/s)	Qstored (L/s)	Vstored (m^3)
10	76.81	1.14	0.81	0.33	0.20
20	52.03	0.98	0.81	0.16	0.20
30	40.04	0.90	0.79	0.10	0.19
40	32.86	0.85	0.78	0.07	0.18
50	28.04	0.82	0.76	0.06	0.17
60	24.56	0.79	0.75	0.05	0.17
70	21.91	0.78	0.74	0.04	0.16
80	19.83	0.76	0.73	0.03	0.16
90	18.14	0.75	0.72	0.03	0.15
100	16.75	0.69	0.67	0.02	0.13
110	15.57	0.65	0.63	0.02	0.11
120	14.56	0.60	0.59	0.01	0.09

Orifice Diameter: LMF55

Invert Elevation 69.22 m

T/G Elevation 71.22 m

Max Storage Depth 0.08 m

Downstream W/L 67.24 m

Stage	Head (m)	Discharge (L/s)	Vreq (cu. m)	Vavail (cu. m)	Volume Check
2-year Water Level	69.30	0.08	0.81	0.20	0.60 OK

Subdrainage Area: BLDG

Area (ha): 0.014

C: 0.90

Roof

Maximum Storage Depth: 150 mm

tc (min)	I (2 yr) (mm/hr)	Qactual (L/s)	Qrelease (L/s)	Qstored (L/s)	Vstored (m^3)	Depth (mm)
10	76.81	2.69	0.63	2.06	1.24	87.1 0.00
20	52.03	1.82	0.63	1.19	1.43	91.8 0.00
30	40.04	1.40	0.63	0.77	1.39	90.8 0.00
40	32.86	1.15	0.63	0.52	1.25	87.4 0.00
50	28.04	0.98	0.63	0.35	1.05	82.6 0.00
60	24.56	0.86	0.63	0.23	0.83	77.0 0.00
70	21.91	0.77	0.63	0.14	0.57	66.9 0.00
80	19.83	0.69	0.63	0.06	0.31	54.1 0.00
90	18.14	0.64	0.63	0.01	0.03	25.0 0.00
100	16.75	0.59	0.58	0.00	0.03	23.1 0.00
110	15.57	0.55	0.54	0.00	0.02	21.5 0.00
120	14.56	0.51	0.51	0.00	0.02	20.1 0.00

Storage: Roof Storage

Depth (mm)	Head (m)	Discharge (L/s)	Vreq (cu. m)	Vavail (cu. m)	Discharge Check
2-year Water Level	91.83	0.09	0.63	1.43	5.95 0.00

Project #160401526, 27 Monk Street
Modified Rational Method Calculatons for Storage

100 yr Intensity
City of Ottawa

$I = a/(t + b)$

a = 1735.688

b = 6.014

c = 0.820

t (min)

I (mm/hr)

10

178.56

20

119.95

30

91.87

40

75.15

50

63.95

60

55.89

70

49.79

80

44.99

90

41.11

100

37.90

110

35.20

120

32.89

100 YEAR Predevelopment Target Release from Portion of Site

Subdrainage Area: Predevelopment Site Area

Area (ha): 0.0260

C: 0.40

(L/s)

2-Year Pre Development Discharge 2.67 L/s

Less Peak Sanitary Discharge of 0.18 L/s

Target Release Rate 2.49 L/s

100 YEAR Modified Rational Method for Entire Site

Subdrainage Area: CB-1

Area (ha): 0.008

C: 0.38

Controlled - Tributary

tc (min)	I (100 yr) (mm/hr)	Qactual (L/s)	Qrelease (L/s)	Qstored (L/s)	Vstored (m^3)
10	178.56	2.12	1.24	0.88	0.53
20	119.95	1.63	1.21	0.42	0.51
30	91.87	1.40	1.15	0.25	0.45
40	75.15	1.26	1.09	0.17	0.40
50	63.95	1.16	1.05	0.12	0.36
60	55.89	1.10	1.01	0.09	0.32
70	49.79	1.05	0.97	0.07	0.30
80	44.99	1.01	0.94	0.06	0.29
90	41.11	0.97	0.92	0.05	0.28
100	37.90	0.95	0.90	0.05	0.27
110	35.20	0.92	0.88	0.04	0.27
120	32.89	0.91	0.87	0.04	0.26

Orifice Diameter: LMF55

Invert Elevation 69.22 m

T/G Elevation 71.22 m

Max Storage Depth 0.20 m

Downstream W/L 67.24 m

Available volume in CB's 0.36 m3/m

Stage	Head (m)	Discharge (L/s)	Vreq (cu. m)	Vavail (cu. m)	Volume Check
100-year Water Level	69.42	0.20	1.24	0.53	0.60 OK

0.07

Subdrainage Area: BLDG

Area (ha): 0.014

C: 1.00

Roof

Maximum Storage Depth: 150 mm

tc (min)	I (100 yr) (mm/hr)	Qactual (L/s)	Qrelease (L/s)	Qstored (L/s)	Vstored (m^3)	Depth (mm)
10	178.56	6.95	0.63	6.32	3.79	128.5 0.00
20	119.95	4.67	0.63	4.04	4.85	139.0 0.00
30	91.87	3.58	0.63	2.94	5.30	143.5 0.00
40	75.15	2.92	0.63	2.29	5.51	145.6 0.00
50	63.95	2.49	0.63	1.86	5.57	146.3 0.00
60	55.89	2.18	0.63	1.54	5.56	146.11 0.00
70	49.79	1.94	0.63	1.31	5.49	145.4 0.00
80	44.99	1.75	0.63	1.12	5.38	144.3 0.00
90	41.11	1.60	0.63	0.97	5.23	142.9 0.00
100	37.90	1.48	0.63	0.84	5.07	141.2 0.00
110	35.20	1.37	0.63	0.74	4.88	139.3 0.00
120	32.89	1.28	0.63	0.65	4.68	137.3 0.00

Storage: Roof Storage

Depth (mm)	Head (m)	Discharge (L/s)	Vreq (cu. m)	Vavail (cu. m)	Discharge Check
100-year Water Level	146.26	0.15	0.63	5.57	5.95 0.00

Stormwater Management Calculations

Project #160401526, 27 Monk Street
Modified Rational Method Calculatons for Storage

Subdrainage Area:		UNC-1		Uncontrolled - Non-Tributary	
Area (ha):		0.004			
C:		0.32			
tc (min)	I (2 yr) (mm/hr)	Qactual (L/s)	Qrelease (L/s)	Qstored (L/s)	Vstored (m^3)
10	76.81	0.27	0.27		
20	52.03	0.19	0.19		
30	40.04	0.14	0.14		
40	32.86	0.12	0.12		
50	28.04	0.10	0.10		
60	24.56	0.09	0.09		
70	21.91	0.08	0.08		
80	19.83	0.07	0.07		
90	18.14	0.06	0.06		
100	16.75	0.06	0.06		
110	15.57	0.06	0.06		
120	14.56	0.05	0.05		

SUMMARY TO OUTLET				Vrequired	Vavailable*	
Tributary Area		0.022 ha				
Total 2yr Flow to Sewer		1.45 L/s		1.6	6.5 m ³	Ok
Non-Tributary Area		0.004 ha				
Total 2yr Flow Uncontrolled		0.27 L/s				
Total Area		0.026 ha				
Total 2yr Flow		1.72 L/s				
Target		2.49 L/s				

Project #160401526, 27 Monk Street
Modified Rational Method Calculatons for Storage

Subdrainage Area:		UNC-1		Uncontrolled - Non-Tributary	
Area (ha):		0.004			
C:		0.40			
tc (min)	I (100 yr) (mm/hr)	Qactual (L/s)	Qrelease (L/s)	Qstored (L/s)	Vstored (m^3)
10	178.56	0.79	0.79		
20	119.95	0.53	0.53		
30	91.87	0.41	0.41		
40	75.15	0.33	0.33		
50	63.95	0.28	0.28		
60	55.89	0.25	0.25		
70	49.79	0.22	0.22		
80	44.99	0.20	0.20		
90	41.11	0.18	0.18		
100	37.90	0.17	0.17		
110	35.20	0.16	0.16		
120	32.89	0.15	0.15		

SUMMARY TO OUTLET				Vrequired	Vavailable*	
Tributary Area		0.022 ha				
Total 100yr Flow to Sewer		1.87 L/s		6.1	6.5 m ³	Ok
Non-Tributary Area		0.004 ha				
Total 100yr Flow Uncontrolled		0.79 L/s				
Total Area		0.026 ha				
Total 100yr Flow		2.66 L/s				
Target		2.49 L/s				

Roof Drain Design Calculation Sheet

Project #160401526, 27 Monk Street
Roof Drain Design Sheet, Area BLDG
Standard Watts Model R1100 Accutrol Roof Drain

Rating Curve				Volume Estimation				Water Depth (m)
Elevation (m)	Discharge Rate (cu.m/s)	Outlet Discharge (cu.m/s)	Storage (cu. m)	Elevation (m)	Area (sq. m)	Volume (cu. m)		
						Increment	Accumulated	
0.000	0.0000	0.0000	0	0.000	0	0	0	0.000
0.025	0.0003	0.0006	0	0.025	3	0	0	0.025
0.050	0.0003	0.0006	0	0.050	13	0	0	0.050
0.075	0.0003	0.0006	1	0.075	30	1	1	0.075
0.100	0.0003	0.0006	2	0.100	53	1	2	0.100
0.125	0.0003	0.0006	3	0.125	83	2	3	0.125
0.150	0.0003	0.0006	6	0.150	119	3	6	0.150

Drawdown Estimate			
Total Volume (cu.m)	Total Time (sec)	Vol (cu.m)	Detention Time (hr)
0.0	0.0	0.0	0
0.2	305.6	0.2	0.084898
0.7	829.6	0.5	0.315335
1.7	1615.5	1.0	0.764081
3.4	2663.4	1.7	1.503905
5.9	3973.2	2.5	2.607578

Rooftop Storage Summary

Total Building Area (sq.m)	140	
Assume Available Roof Area (sq.m)	85%	119
Roof Imperviousness		0.99
Roof Drain Requirement (sq.m/Notch)		232
Number of Roof Notches*		2
Max. Allowable Depth of Roof Ponding (m)	0.15	* As per Ontario Building Code section OBC 7.4.10.4.(2)(c).
Max. Allowable Storage (cu.m)		6
Estimated 100 Year Drawdown Time (h)		2.5

* Note: Number of drains can be reduced if multiple-notch drain used.

From Watts Drain Catalogue

Head (m) L/s					
		Open	75%	50%	25% Closed
0.025	0.3155	0.31545	0.31545	0.31545	0.31545
0.050	0.6309	0.6309	0.6309	0.6309	0.31545
0.075	0.9464	0.86749	0.78863	0.70976	0.31545
0.100	1.2618	1.10408	0.94635	0.78863	0.31545
0.125	1.5773	1.34067	1.10408	0.86749	0.31545
0.150	1.8927	1.57726	1.2618	0.94635	0.31545

Calculation Results

	2yr	100yr	Available
Qresult (cu.m/s)	0.0006	0.0006	-
Depth (m)	0.092	0.146	0.150
Volume (cu.m)	1.4	5.6	6.0
Draintime (hrs)	0.6	2.5	

C.3 PRE-DEVELOPMENT TIME OF CONCENTRATION CALCULATION

Job # 160401526

Date: 28-Nov-19

PRE-DEVELOPMENT CONDITIONS

Calculation of Time of Concentration and Peak Flow

Runoff Coefficient Calculation

	Area (ha)	C	Description	A x C
	0.026	0.40		0.0104
	0.026			0.0104

Composite C-Factor 0.40

Diff. Elev. 0.31 m

Length 14.4 m (longest overland flow path)

Overland Flow Time of Concentration

Bransby Williams (C>0.40)

$tc = 0.057 \times L / (S_w^{0.2} \times A^{0.1})$

L	14	m (longest flow path)
S _w	2.2%	
A	0.0260	ha
t _c	1.0	min
	0.02	hrs

Airport (C<0.40)

$tc = [3.26 \times (1.1-C) \times L^{0.5}] / S_w^{0.33}$

L	14.4	m
S _w	2.2%	
C	0.40	
t _c	6.7	min

**SITE SERVICING AND STORMWATER MANAGEMENT REPORT – 3-STOREY APARTMENT BUILDING, 27
MONK STREET**

Appendix C Stormwater Management
November 29, 2019

C.4 MVCA WATER QUALITY CRITERIA CORRESPONDENCE

Odam, Cameron

From: Eric Lalande <eric.lalande@rvca.ca>
Sent: Wednesday, November 20, 2019 1:36 PM
To: Odam, Cameron
Cc: Jamie Batchelor; Kilborn, Kris; Paerez, Ana
Subject: RE: Water quality control criteria - Proposed 27 Monk Street Site Plan

Hi Cameron,

The RVCA will rely on municipal infrastructure to provide water quality protection where an combined sewer exists. Best management practices are encouraged to be provided where possible on site.

Thank you,

Eric Lalande, MCIP, RPP

Planner, Rideau Valley Conservation Authority
613-692-3571 x1137

From: Odam, Cameron <Cameron.Odam@stantec.com>
Sent: Wednesday, November 20, 2019 1:05 PM
To: Eric Lalande <eric.lalande@rvca.ca>
Cc: Jamie Batchelor <jamie.batchelor@rvca.ca>; Kilborn, Kris <kris.kilborn@stantec.com>; Paerez, Ana <Ana.Paerez@stantec.com>
Subject: Water quality control criteria - Proposed 27 Monk Street Site Plan

Hi Eric,

I hope this email finds you well. We are working on a proposed site located at 27 Monk Street that consists of a 3 storey residential apartment building, that will be serviced by the 300mm combined sewer within the Monk Street right of way. Can you please provide us with confirmation on whether onsite water quality control is required and if so, can you please provide us with the onsite water quality control criteria? I have attached the preliminary site servicing plan and grading plan for you to reference.

Please let me know if you have any questions.

Thanks in advance,

Cameron

Cameron Odam

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**SITE SERVICING AND STORMWATER MANAGEMENT REPORT – 3-STOREY APARTMENT BUILDING, 27
MONK STREET**

Appendix D Geotechnical Investigation
November 29, 2019

Appendix D **GEOTECHNICAL INVESTIGATION**

October 7, 2019
File: PG5051-LET.01

Art Properties and Construction
11 Rosemount Avenue, Suite 101
Ottawa, Ontario
K1Y 4R8

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Geotechnical Engineering
Environmental Engineering
Hydrogeology
Geological Engineering
Materials Testing
Building Science
Archaeological Services

www.patersongroup.ca

Attention: **Mr. Alireza Taheri**

Subject: **Geotechnical Desktop Review
Proposed Residential Building
27 Monk Street - Ottawa, Ontario**

Dear Sir,

Further to your request, Paterson Group (Paterson) prepared the current geotechnical desktop review for the proposed residential building to be located at 27 Monk Street.

1.0 Background Information

Details of the proposed development were not available at the time of writing this report, however, it is understood that a residential dwelling with a basement level is proposed to be constructed at the aforementioned site.

The subject site is currently occupied by an existing residential building with a segmental retaining wall supporting the front porch and steps leading to the front entrance. An attached building is located along the south side of the subject building with the front entrance located at a lower elevation than the front entrance of the main building. The ground surface across the subject site is relatively flat with a slight slope towards the south. A tree line is located along the south boundary line separating the subject site and the neighbouring property to the south. The site is bordered by residential dwellings to the north and east, Monk Street to the west and a commercial building to the south. A minor slope (minimum 3H:1V) is located along the south property line, beyond the tree line, to accommodate a loading dock ramp.

Based on available subsurface information from nearby sites completed by Paterson, the subsoil profile is expected to consist of silty sand fill followed by a compact to dense silty sand deposit. According to the available geological mapping, the subject site is located in an area where the bedrock consists of interbedded limestone and shale or shale from the Verulam and Billings formations, respectively. The overburden drift thickness is expected to range from 15 to 25 m.

Upon reviewing the existing groundwater data collected from wells installed within nearby sites, the groundwater table is expected to be at a depth ranging between 6 and 7 m below existing grade. It should be noted that groundwater levels are subject to seasonal fluctuations, therefore the groundwater levels could vary at the time of construction.

2.0 Discussion

2.1 Geotechnical Assessment

From a geotechnical perspective, the subject site is considered satisfactory for the anticipated development. It is expected that the proposed building will be founded over conventional style shallow footings placed over an undisturbed, compact silty sand bearing surface.

The above and other considerations are discussed in the following sections.

2.2 Site Grading and Preparations

Stripping Depth

All topsoil and deleterious fill, such as those containing organic materials and construction debris, should be stripped from under any buildings, paved areas, pipe bedding and other settlement sensitive structures.

In areas where existing silty sand fill, free of deleterious and organic materials, is encountered below the proposed building footprint and outside of the lateral support zone of the footings, it is recommended to sub-excavate at least 500 mm below underside of slab and compact using a vibratory drum roller making several passes, under dry conditions and above freezing temperatures. The fill should be approved by Paterson at the time of construction. Any poor performing areas should be removed and replaced with an approved engineered fill. Upon successful completion of compacting the silty sand fill subgrade and approved by Paterson personnel, the sub-excavation should be topped with OPSS Granular A or Granular B Type II placed in maximum 300 mm loose lifts and compacted to 98% of the material's SPMDD.

Existing foundation walls and other construction debris should be entirely removed from within the proposed buildings' perimeter. Under paved areas, existing construction remnants such as foundation walls should be excavated to a minimum of 1 m below final grade.

Fill Placement

Fill used for grading beneath the building footprint, unless otherwise specified, should consist of clean imported granular fill, such as Ontario Provincial Standard Specifications (OPSS) Granular A or Granular B Type II. The fill should be tested and approved prior to delivery to the site. It should be placed in lifts no greater than 300 mm thick and compacted using suitable compaction equipment for the lift thickness. Fill placed beneath the building areas should be compacted to at least 98% of its standard Proctor maximum dry density (SPMDD).

Site-excavated soil, free of construction debris, can be used as general landscaping fill where settlement of the ground surface is of minor concern. These materials should be spread in thin lifts and at least compacted by the tracks of the spreading equipment to minimize voids. If these materials are to be used to build up the subgrade level for areas to be paved, they should be compacted in thin lifts to a minimum density of 95% of their respective SPMDD. Site-excavated soils are not suitable for use as backfill against foundation walls unless a composite drainage blanket connected to a perimeter drainage system is provided.

2.3 Foundation Design

Bearing Resistance Values

Footings placed on an undisturbed, compact silty sand bearing surface or engineered fill placed over a compact silty sand bearing surface can be designed using a bearing resistance value at serviceability limit states (SLS) of **120 kPa** and a factored bearing resistance value at ultimate limit states (ULS) of **200 kPa**. A geotechnical resistance factor of 0.5 was applied to the bearing resistance value at ULS.

If the silty sand subgrade is found in a loose state of compactness, the material should be proof rolled using suitable vibratory equipment making several passes under dry conditions and above freezing temperatures and approved by Paterson at the time of construction.

An undisturbed soil bearing surface consists of one from which all topsoil and deleterious materials, such as loose, frozen or disturbed soil, have been removed prior to the placement of concrete for footings.

Settlement

Footings designed using the bearing resistance value at SLS will be subjected to potential post-construction total and differential settlements of 25 and 20 mm, respectively.

Lateral Support

The bearing medium under footing-supported structures is required to be provided with adequate lateral support with respect to excavations and different foundation levels. Adequate lateral support is provided to a compact silty sand above the groundwater table, when a plane extending down and out from the bottom edge of the footing at a minimum of 1.5H:1V passes only through in situ soil or engineered granular fill, as described above.

2.4 Design for Earthquakes

The site class for seismic site response can be taken as **Class D** for the foundations considered. Due to the compactness of the silty sand deposit and the long term groundwater level, soils underlying the subject site are not susceptible to liquefaction. Refer to the latest revision of the 2012 Ontario Building Code for a full discussion on the earthquake design requirements.

2.5 Temporary Shoring and Excavation Side Slopes

Excavation Side Slopes

The side slopes of excavations in the soil and fill overburden materials should either be excavated to acceptable slopes or retained by shoring systems from the beginning of the excavation until the structure is backfilled. Sufficient room should be available in selected areas of the excavation to be completed by open-cut methods (i.e. unsupported excavations).

The excavation side slopes above the groundwater level extending to a maximum depth of 3 m should be excavated at 1H:1V or shallower. A shallower slope is required for excavation below groundwater level. The subsurface soil is considered to be mainly a Type 2 and 3 soil according to the Occupational Health and Safety Act and Regulations for Construction Projects.

Excavated soil should not be stockpiled directly at the top of excavations and heavy equipment should be maintain safe working distance from the excavation sides. Slopes in excess of 3 m in height should be periodically inspected by the geotechnical consultant in order to detect if the slopes are exhibiting signs of distress.

A trench box should be installed at all times to protect personnel working in trenches with steep or vertical sides. Services are expected to be installed by “cut and cover” methods and excavations should not be remain open for extended periods of time.

Underpinning

Due to the close proximity of the neighbouring buildings along the north and east boundary lines, underpinning may be required. It is recommended that the footings of the existing buildings be exposed to verify the depth of the founding level of each building in order to provide proper underpinning recommendations, if required.

2.6 Groundwater Control

Infiltration levels are anticipated to be low through the excavation face, based on the local groundwater table. The groundwater infiltration is anticipated to be controllable with open sumps and pumps. The contractor should be prepared to direct water away from all bearing surfaces and subgrades, regardless of the source, to prevent disturbance to the founding medium.

If the anticipated pumping volumes exceed 400,000 L/day of ground and/or surface water, a temporary Ministry of the Environment, Conservation and Parks (MECP) permit to take water (PTTW) will be required for this project during the construction phase. A minimum of 4 to 5 months should be allowed for completion of the PTTW application package and issuance of the permit by the MECP.

For typical ground or surface water volumes, being pumped during the construction phase, between 50,000 to 400,000 L/day, it is required to register on the Environmental Activity and Sector Registry (EASR). A minimum of two to four weeks should be allotted for completion of the EASR registration and the Water Taking and Discharge Plan to be prepared by a Qualified Person as stipulated under O.Reg. 63/16. If a project qualifies for a PTTW based upon anticipated conditions, an EASR will not be allowed as a temporary dewatering measure while awaiting the MECP review of the PTTW application.

2.7 Winter Construction

Precautions must be taken if winter construction is considered for this project.

The subsoil conditions at this site consist of frost susceptible materials. In the presence of water and freezing conditions, ice could form within the soil mass. Heaving and settlement upon thawing could occur.

In the event of construction during below zero temperatures, the founding stratum should be protected from freezing temperatures by the use of straw, propane heaters and tarpaulins or other suitable means. In this regard, the base of the excavations should be insulated from sub-zero temperatures immediately upon exposure and until such time as heat is adequately supplied to the building and the footings are protected with sufficient soil cover to prevent freezing at founding level.

Trench excavations and pavement construction are also difficult activities to complete during freezing conditions without introducing frost in the subgrade or in the excavation walls and bottoms. Precautions should be taken if such activities are to be carried out during freezing conditions. Additional information could be provided, if required.

3.0 Recommendations

It is a requirement for the foundation design data provided herein to be applicable that the following material testing and observation program be performed by the geotechnical consultant.

- ☐ Site specific investigation, consisting of test pits or boreholes, should be completed prior to construction to confirm our design recommendations which are based on nearby investigations.
- ☐ Observation of all bearing surfaces prior to the placement of concrete.
- ☐ Sampling and testing of the concrete and fill materials used.
- ☐ Periodic observation of the condition of unsupported excavation side slopes in excess of 3 m in height, if applicable.
- ☐ Observation of all subgrades prior to backfilling.
- ☐ Field density tests to determine the level of compaction achieved.
- ☐ Sampling and testing of the bituminous concrete including mix design reviews.

A report confirming that these works have been conducted in general accordance with our recommendations could be issued upon the completion of a satisfactory inspection program by the geotechnical consultant.

4.0 Statement of Limitations

The recommendations made in this report are in accordance with our present understanding of the project. We request that we be permitted to review the drawings and specifications once available.

Further, as noted in Section 3.0, a site specific investigation consisting of test pits or boreholes should be completed prior to construction to confirm our design recommendations which are based on nearby investigations.

The present report applies only to the project described in this document. Use of this report for purposes other than those described herein or by person(s) other than Art Properties and Construction or their agent(s) is not authorized without review by Paterson Group for the applicability of our recommendations to the altered use of the report.

Paterson Group Inc.

We trust that this information satisfies your requirements.

Best Regards,

Paterson Group Inc.



Faisal I. Abou-Seido, P.Eng.



Scott S. Dennis, P.Eng.

Attachments:

- ☐ Drawing PG5051-1 - Site Plan

**SITE SERVICING AND STORMWATER MANAGEMENT REPORT – 3-STOREY APARTMENT BUILDING, 27
MONK STREET**

Appendix E PHASE 1 Environmental Site Assessment
November 29, 2019

Appendix E PHASE 1 ENVIRONMENTAL SITE ASSESSMENT

Geotechnical
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Environmental
Engineering

Hydrogeology

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Phase I Environmental Site Assessment

27 Monk Street
Ottawa, Ontario

Prepared For

Art Properties and Construction

September 23, 2019

Report: PE4714-1

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Drawing PE4714-2 – Surrounding Land Use Plan

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Appendix 1 Plan of Survey
 Aerial Photographs
 Site Photographs

Appendix 2 MECP Freedom of Information Request
 City of Ottawa HLUI Request
 Water Well Records
 TSSA Correspondence

Appendix 3 Qualifications of Assessors

EXECUTIVE SUMMARY

Assessment

Paterson Group was retained by Art Properties and Construction to conduct a Phase I Environmental Site Assessment (Phase I-ESA) of 27 Monk Street, in the City of Ottawa, Ontario. The purpose of this Phase I – Environmental Site Assessment was to research the past and current use of the site and study area and to identify any environmental concerns with the potential to have impacted the subject properties.

The subject site was shown as undeveloped on the 1912 fire insurance plan and first recorded as developed on the 1925 fire insurance plan. The site has remained unchanged since that date. No PCAs/APECs were identified on the subject site during the historical review.

In the subject area, commercial operations including various retail fuel outlets, garages and drycleaners, two printers and an electricity sub-station have mostly been identified on the properties fronting on to Bank Street. Though numerous PCAs have been identified, only the property neighbouring the subject site to the east has been identified as representing an APEC. Though this property has historically hosted various RFOs and service garages, subsequent investigation by Paterson has shown the soils neighbouring the subject site have not been impacted by these historical activities.

Following the historical review, a site visit was conducted. No additional PCAs or APECs were noted during the site visit.

Based on the results of the Phase I - Environmental Site Assessment, it is our opinion that **a Phase II - Environmental Site Assessment is not required for the subject site.**

Recommendations

Based on the age of the subject building, asbestos-containing materials (ACMs) are potentially present in the subject structure. The potential ACMs include drywall joint compound, plaster, and stippling around the fireplace, as well as exterior stucco finishes. Both wall materials and floor coverings in the building were in generally in good condition. An asbestos survey of the building must be conducted in accordance with Ontario Regulation 278/05, under the Occupational Health and Safety Act, prior to the disturbance of these materials.

Lead-based paint may be present on any remaining original surfaces within the building. It is recommended that original paint is tested for lead content prior to its disturbance.

Major work involving lead-based paint or other lead-containing products must be done in accordance with Ontario Regulation 843, under the Occupational Health and Safety Act.

If the subject building is going to be demolished, the above-noted testing programs should be completed as part of a designated substance survey.

1.0 INTRODUCTION

At the request of Art Properties and Construction, Paterson Group (Paterson) conducted a Phase I Environmental Site Assessment (Phase I ESA) for 27 Monk Street, in the City of Ottawa, Ontario. The purpose of this Phase I ESA was to research the past and current use of the site and study area and to identify any environmental concerns with the potential to have impacted the subject property.

This report has been prepared specifically and solely for the above-noted project which is described herein. It contains all our findings and results of the environmental conditions at this site.

This Phase I-ESA report has been prepared in general accordance with the requirements of Ontario Regulation 153/04, as amended, under the Environmental Protection Act and also complies with the requirements of CSA Z768-01. The conclusions presented herein are based on information gathered from a limited historical review and field inspection program. The findings of the Phase I - ESA are based on a review of readily available geological, historical and regulatory information and a cursory review made at the time of the field assessment. The historical research relies on information supplied by others, such as local, provincial and federal agencies and was limited within the scope-of-work, time and budget of the project herein.

2.0 PHASE I PROPERTY INFORMATION

Address:	27 Monk Street, Ottawa, Ontario.
Legal Description:	Part of Lot 24 in Block 5, North side of Holmwood Avenue, Registered Plan 26085, City of Ottawa.
Property Identification Number:	04140-0203.
Location:	The subject site is situated 30m south of the intersection between Monk Street and Thornton Avenue, in the City of Ottawa.
Latitude and Longitude:	45° 24' 01" N, 75° 41' 15" W;
Site Description:	
Configuration:	Trapezoid.
Site Area:	325 m ² (approximate).
Zoning:	R4T – Residential 4 th Density.
Current Use:	The subject site is currently occupied by a two storey house.
Services:	The subject site is located in a municipally serviced area.

3.0 SCOPE OF INVESTIGATION

The scope of work for this Phase I – Environmental Site Assessment was as follows:

- Determine the historical activities on the subject site and study area by conducting a review of readily available records, reports, photographs, plans, mapping, databases and regulatory agencies;
- Investigate the existing conditions present at the subject site and study area by conducting site reconnaissance;
- Conduct interviews with persons knowledgeable of current and historic operations on the subject property and if warranted, neighbouring properties;
- Present the results of our findings in a comprehensive report in general accordance with the requirements of Ontario Regulation 269/11 amending O.Reg. 153/04 made under the Environmental Protection Act and in compliance with the requirements of CSA Z768-01;
- Provide a preliminary environmental site evaluation based on our findings;
- Provide preliminary remediation recommendations and further investigative work if contamination is suspected or encountered.

4.0 RECORDS REVIEW

4.1 General

Phase I-ESA Study Area Determination

A radius of approximately 250 m was determined to be appropriate as a Phase I ESA study area for this assignment. Properties outside the 250 m radius are not considered to have impacted the subject land, based on their significant distance from the site.

First Developed Use Determination

Based on the available sources, the property was first developed for residential purposes between 1912 and 1925.

Fire Insurance Plans

Fire insurance plans (FIP) were reviewed for the subject site and surrounding area. The subject site was shown as vacant land in the 1912 FIP and developed with a residential building in the 1925 FIP.

The subject area was shown as sparsely developed with largely residential properties in the 1912 FIP. By 1925, the FIP shows the area to be more densely developed, with the majority of land west of Monk Street comprising residential properties but with commercial properties fronting onto Bank Street, east of the subject site. These included two retail fuel outlets (RFO) at the intersections of Bank Street and Holmwood Avenue and Bank Street and Fifth Avenue. Additionally, at 115 Holmwood Avenue, an electricity substation is labelled. Due to the separation distance and anticipated groundwater flow direction, these Potentially Contaminating Activities (PCAs) do not represent areas of potential environmental concern (APECs). The remainder of the area east of Bank Street largely consisted of residential properties.

In the 1956 FIP, increased commercial development was noted, fronting onto Bank Street. Of particular significance was an RFO, immediately east of the subject site. This RFO is considered to be a PCA, however, it is not considered to be an APEC due to our involvement in the redevelopment of this neighbouring property (refer to Previous Engineering Reports section). Several other automobile garages, RFOs and dry cleaners were also labelled along Bank Street, however, due to the separation distances, these features are not considered to represent APECs.

City of Ottawa Street Directories

City directories at the National Archives were reviewed in approximate 10-year intervals from 1931 to 2011 as part of the Phase I ESA.

A summary of PCAs in the Phase I study area is provided in the table below.

Table 1: City Directories – Potentially Contaminating Activities (PCA) in Phase I Study Area			
Address	Listed Activity (years listed)	Distance / Orientation from site	APEC
890 Bank Street	Ratcliffe Joseph T Service Station (1960) Texaco Service Station (1970) Custom Muffler Repair (1980-1990) Mr. Muffler (2011)	Immediately east	No
860 Bank Street	Ottawa Motor Sales Ltd. (1941) Motosport Plus (1970)	40m north	No
875 Bank Street	Keith's Auto Sales (1950) United Car Market Garage Repairs (1960) Foerster Frank Ltd Volkswagen Service (1970-1980)	45m east	No
891 Bank Street	Excel Garage Body Repair Shop (1960) Excel Radiator (1950-1970) Lansdown Printing (1980)	45m east	No
885 Bank Street	Excel Radiator (1941)	45m east	No
912 Bank Street	McDonald Service Station (1941) Supertest Petroleum Corp. (1941-1950) MacLennan's Supertest Service Station (1960) Barry's Supertest Service Station (1960)	50m south	No
856 Bank Street	Browns Cleaners (2011)	80m north	No
852 Bank Street	Cities Service Oil Service Station (1931) Luciano Nicholas Service Station (1941) Noels Cities Service Station (1950-1960) McKale BP Service Station (1970-1980) McKale Petro Canada Service Station (1990) McKale's Service Centre Ltd. (1999) Auto Pro (1999)	85m north	No
855 Bank Street	Bank and Fifth Garage (1941-1950) Keith's Auto Sales; new & used (1960) Toilet Laundries Ltd. (1960)	90m north	No
844 Bank Street	Capitol Cleaners and Tailors (1931) Blackwell Lyle Cleaners and Tailors (1950)	145m north	No
837 Bank Street	Vern's Cleaners and Tailors (1970) Glebe Photo Inc. (1999)	165m north	No
829 Bank Street	Glebe Fashion Cleaners (1970-1999)	175m north	No
831 Bank Street	Fashion Cleaners (1960-1999)	175m north	No

Table 1: City Directories – Potentially Contaminating Activities (PCA) in Phase I Study Area			
Address	Listed Activity (years listed)	Distance / Orientation from site	APEC
821 Bank Street	The Walsh Press (1960)	185m north	No

The site was already developed with the existing residential building in the earliest directory referred to (1931). No PCAs or APECs were identified on the subject site.

Numerous PCAs were identified in the subject area. These mostly comprised RFOs, garages and cleaners. Due to the separation distance and known groundwater flow direction, none are considered to represent an APEC.

Current Plan of Survey

A plan of survey, dated 31 July 2019, prepared by Annis, O’Sullivan, Vollebekk Ltd. was provided to Paterson for review. A copy of the provided plan of survey is included in Appendix 2.

4.2 Environmental Source Information

Environment and Climate Change Canada

A search of the National Pollutant Release Inventory (NPRI) was conducted electronically on August 9, 2019. The subject site was not listed in the NPRI database. No records of pollutant release were listed in the database for properties located within the Phase I Study Area.

PCB Inventory

A search of national PCB waste storage sites was conducted. No PCB waste storage sites were identified on the subject site or within a 250m radius.

Ontario Ministry of Environment (MECP) Instruments

A request was submitted to the MECP Freedom of Information office for information with respect to certificates of approval, permits to take water, certificates of property use or any other similar MECP issued instruments for the site. At the time of issuance of this report, a response had not been received. A copy of the response will be forwarded to the client, should it contain any pertinent information.

MECP Coal Gasification Plant Inventory

The Ontario Ministry of Environment document titled "Municipal Coal Gasification Plant Site Inventory, 1991" was reviewed to reference the locations of former plants with respect to the site. No coal gasification plants were identified within the Phase I study area.

MECP Incident Reports

A request was submitted to the MECP Freedom of Information office for information with respect to records concerning environmental incidents, orders, offences, spills, discharges of contaminants or inspections maintained by the MECP for the site or adjacent properties. At the time of issuance of this report, a response had not been received. A copy of the response will be forwarded to the client, should it contain any pertinent information.

MECP Waste Management Records

A request was submitted to the MECP Freedom of Information office for information with respect to waste management records. At the time of issuance of this report, a response had not been received. A copy of the response will be forwarded to the client, should it contain any pertinent information.

MECP Submissions

A request was submitted to the MECP Freedom of Information office for information with respect to reports related to environmental conditions have been submitted to the MECP. At the time of issuance of this report, a response had not been received. A copy of the response will be forwarded to the client, should it contain any pertinent information.

MECP Brownfields Environmental Site Registry

A search of the MECP Brownfields environmental site registry was conducted electronically on August 9, 2019. Three (3) record of site condition (RSC) sites were listed in the data base for properties within a 250 m radius of the subject site.

The nearest RSC property to the subject site is located at 852 Bank Street, a former RFO, approximately 85m north of the subject site.

The remaining two RSC are filed for 945 Bank Street, approximately 135m south of the subject site.

Based on the information contained in the MOE Brownfields environmental site registry, these properties are not considered to have had any potential to impact the subject property.

MECP Waste Disposal Site Inventory

The Ontario Ministry of Environment document titled "Waste Disposal Site Inventory in Ontario, 1991" was reviewed as part of the historical research. This document includes all recorded active and closed waste disposal sites, industrial manufactured gas plants and coal tar distillation plants in the Province of Ontario. No waste disposal sites were identified within the Phase I study area.

Areas of Natural and Scientific Interest (ANSI)

A search for areas of natural significance and features within the Phase I study area was conducted on the web site of the Ontario Ministry of Natural Resources (MNR) on August 9, 2019. The search did not reveal any natural features or areas of natural significance within the Phase I study area.

Technical Standards and Safety Authority (TSSA)

The TSSA, Fuels Safety Branch in Toronto, was contacted on August 9, 2019, to inquire about current and former underground/aboveground storage tanks, spills and incidents for the subject and neighbouring properties. No records were found for the subject site or neighbouring properties.

City of Ottawa Landfill Document

The document entitled "Old Landfill Management Strategy, Phase I – Identification of Sites, City of Ottawa", was reviewed. No former waste disposal sites were located within the Phase I study area.

City of Ottawa Historical Land Use Inventory

A search of the City's Historical Land Use Inventory (HLUI 2005) database for the subject property was conducted as part of the Phase I ESA. At the time of issuance of this report, a response had not been received. A copy of the response will be forwarded to the client, should it contain any pertinent information.

Previous Engineering Reports

No historical reports have been conducted at the subject site to our knowledge.

Paterson conducted an investigation and monitored the remediation of the land at 890 Bank Street, which is located immediately east of the subject site. The

remediation involved the removal of petroleum hydrocarbon impacted soils from the site. No groundwater contamination was present on the adjacent land (the groundwater was determined to flow eastward). Based on our knowledge of this adjacent site, it has not impacted the subject land and therefore the former PCA at 890 Bank Street does not represent an APEC.

4.3 Physical Setting Sources

Aerial Photographs

Historical air photos from the National Air Photo Library were reviewed in approximate ten (10) year intervals. The review period dates back to the first available air photos for the site. Based on the review, the following observations have been made:

- | | |
|------|---|
| 1928 | The subject site is occupied with the existing residential building at this time. The western portion of the subject area surrounding the site is developed with residences while immediately southeast of the site appears to be within the grounds of a large house. Residential/Commercial properties occupy land to the east of the subject area. |
| 1958 | No significant changes have been made to the subject site. The previously vacant land to the southeast of the site appears to be occupied by cars. A retail fuel outlet (RFO) can be seen immediately east of the subject site fronting on to bank street. Commercial buildings have also been constructed fronting onto Bank Street, east of the subject site. |
| 1965 | No significant changes have been made to the subject site. To the southeast a commercial building has been constructed, with an associated parking lot. |
| 1976 | No significant changes have been made to the subject site. The RFO east of the subject site is no longer present. |
| 1991 | No significant changes have been made to the subject site. A commercial building has been constructed east of the subject site, in the location of the former RFO. |
| 2002 | No significant changes have been made to the subject site or surrounding properties. |

- | | |
|------|--|
| 2011 | No significant changes have been made to the subject site or surrounding properties. |
| 2017 | No significant changes have been made to the subject site or surrounding properties. |

Laser copies of selected aerial photographs reviewed are included in Appendix 1.

Topographic Maps

Topographic maps were obtained from Natural Resources Canada - The Atlas of Canada website. The topographic maps indicate that the subject site and surrounding area slopes down gently to the east and southeast. An illustration of the referenced topographic map is present in Figure 2 - Topographic Map following the body of this report.

Physiographic Maps

A Physiographic Map was reviewed from the Natural Resources Canada - The Atlas of Canada website. According to this physiographic map, the site is located in the St. Lawrence Lowlands. According to the mapping description provided: "The lowlands are plain-like areas that were all affected by the Pleistocene glaciations and are therefore covered by surficial deposits and other features associated with the ice sheets." The subject site is located in the Central St. Lawrence Lowland, "where the land is rarely more than 150 m above sea level, except for the Monteregian Hills, which consist of intrusive igneous rocks".

Geological Maps

The Geological Survey of Canada website on the Urban Geology of the National Capital Area was consulted as part of this assessment. Based on the information from NRCAN, bedrock in the area of the site consists of limestone, dolostone, shale and arkose of the Ottawa Group. Based on the maps, the thickness of overburden is anticipated to be around 9-10 m and consists of fine grained glacio-marine sediments.

Water Well Records

A search of the MECP's web site for all drilled well records within 250 m of the subject site was conducted on August 9, 2019. The search identified eleven (11) records in the subject area, dating from 2010 to 2015. All eleven records detailed drilling or abandonment of observation/monitoring wells.

The nearest well is located approximately 75m south of the subject site. No indication of contamination was recorded in any of the records. Given the municipally supplied area, potable water wells are not expected in the subject area.

Water Bodies and Areas of Natural Significance

There are no waterbodies or areas of natural and scientific interest on the subject site or within the study area.

5.0 INTERVIEWS

Property Owner Representative

As part of this assessment, Mr. Oskar Velazquez, a representative for Art Properties and Construction, met with Paterson personnel to provide access and answer questions. Mr. Velazquez was unaware of any environmental issues with regard to the subject or neighbouring properties and confirmed that no renovations had yet been completed.

6.0 SITE RECONNAISSANCE

6.1 General Requirements

The site assessment was conducted on September 11, 2019. Weather conditions were cloudy, with a temperature of approximately 20 °C. Mr. Philip Price from the Environmental Department of Paterson Group conducted the site visit. In addition to the site, the uses of neighbouring properties within the Phase I study area were also assessed at the time of the site reconnaissance.

6.2 Specific Observations at the Phase I Property

Buildings and Structures

The subject site is occupied by a two storey detached residential house with a single storey basement. A standalone garage was located to the rear of the house.

The main building was constructed on a stone foundation, finished with brick and stucco and with a sloped shingled mansard roof. Relict structures suggested the building was historically heated with coal however is now heated through a combination of gas fired furnace and electric base board heating.

Site Features

The site is occupied by the subject building which occupies around 80% of the property. The remainder of the site is set to landscaping. Adjacent properties are approximately at grade with respect to the subject site however the driveway into the garage fronting onto Monk Street stands approximately 1 m lower than the rest of the property, with the change in elevation accommodated by a retaining wall. Site drainage consists of infiltration and runoff towards Monk Street.

Below Ground Structures

No below ground structures were identified at the time of the site visit.

Potable Water Source

The subject property is municipally serviced.

Potential Environmental Concerns

☐ **Waste Management**

Residential waste is stored at the rear (east) of the property and is collected by the city on a weekly basis.

☐ **Wastewater Discharge**

Wastewater is discharged to the municipal sewer system.

☐ **Potable Wells**

No potable wells were observed on the subject site.

☐ **Railway Lines**

No railway lines were observed on the subject site or within the Phase I ESA study area.

☐ **Polychlorinated Biphenyls (PCBs)**

No transformers were observed on the subject site.

☐ **Unidentified Substances**

There were no unidentified substances on the exterior of the subject property at the time of this assessment.

Interior Assessment

A general assessment of the building interior is as follows:

- ☐ The floors consisted of concrete, ceramic tiles, and hardwood.
- ☐ The walls and ceilings consisted of plaster (lathe), drywall and wooden panelling.
- ☐ Lighting throughout the building was of incandescent and fluorescent fixtures.

Potentially Hazardous Building Products

☐ **Asbestos Containing Materials (ACMs)**

Based on the approximate age of the building, asbestos-containing materials may have been used during construction and may still be present within the structure. These materials include drywall joint compound, plaster, and stippling around the fire place, as well as exterior stucco finishes. A survey should be conducted prior to the demolition of the building.

☐ **Lead-Based Paint**

Based on the age of the building, there is the potential for lead-based paints to be present. Painted surfaces were generally in good condition. A survey should be conducted prior to the demolition of the building.

☐ **Polychlorinated Biphenyls (PCBs)**

No potentially PCB containing materials were observed during our site inspection.

☐ **Urea Formaldehyde Foam Insulation (UFFI)**

No signs of UFFI were noted at the time of the site visit, however it should be noted that interior wall and ceiling cavities were not inspected for insulation type at the time of the site visit.

Other Potential Environmental Concerns

☐ **Wastewater Drainage**

Wastewater drainage from the building is expected to drain into the City of Ottawa sewer system. No sump was noted in the building.

☐ **Ozone Depleting Substances (ODSs)**

Potential sources of ODSs observed on site include fire extinguishers. These appliances should be regularly serviced by a licensed contractor.

Neighbouring Properties

An inspection of the neighbouring properties was conducted from publicly accessible roadways at the time of the site inspection. Land use adjacent to the subject site was as follows:

- ☐ North - Residential land followed by Thornton Avenue with residential land fronting onto Monk Street and Commercial retail properties fronting on to Bank Street.
- ☐ East - Vacant land (under development) followed by Bank Street with mixed commercial and residential land beyond.
- ☐ South - Vacant land (under development) followed by residential land with Holmwood Avenue and residential land beyond.
- ☐ West - Monk Street Followed by residential land.

Land use within the Phase I study area is shown on Drawing PE4714-2 - Surrounding Land Use Plan. No additional PCAs were noted during the site visit.

7.0 REVIEW AND EVALUATION OF INFORMATION

7.1 Land Use History

Potentially Contaminating Activities (PCAs) and Areas of Potential Environmental Concern (APEC)

No PCAs were identified on the subject site.

A total of seventeen (17) PCAs were identified outside of the subject property but within the Phase I study area. These comprised various retail fuel outlets, garages and drycleaners, two printers and an electricity sub-station. Based on the separation distance from the Phase I property and the known groundwater flow direction to the east, none are considered to represent an APEC on the subject site.

The off-site PCAs are shown on Drawing PE4714-2 Surrounding Land Use Plan.

Contaminants of Potential Concern (CPC)

No contaminants of potential concern (CPCs) were identified on the subject site as no APECs were identified on the subject property.

7.2 Conceptual Site Model

Geological and Hydrogeological Setting

Based on the information from NRCAN, bedrock in the area of the site consists of limestone, dolostone, shale and arkose of the Ottawa Group. Based on the maps, the thickness of overburden is anticipated to be around 9-10 m and consists of fine grained glacio-marine sediments.

Contaminants of Potential Concern

No contaminants of potential concern were identified on the subject property.

Existing Buildings and Structures

The subject site is occupied by a two storey residential dwelling constructed prior to 1925.

Water Bodies

There are no waterbodies on the subject property or within the Phase I ESA study area.

Areas of Natural Significance

There are no areas of natural and scientific interest on the subject property or within the Phase I ESA study area.

Drinking Water Wells

Records of eleven (11) water wells were found in the study area, all comprising observation/monitoring wells, dating from 2010 to 2015.

The nearest well is located approximately 75m south of the subject site. No indication of contamination was recorded in any of the records. Given the municipally supplied area, potable water wells are not expected in the subject area.

Neighbouring Land Use

Neighbouring land use in the Phase I study area consists of residential and commercial properties. Land use is shown on Drawing PE4714-2 Surrounding Land Use Plan.

Potentially Contaminating Activities and Areas of Potential Environmental Concern

Potentially Contaminating Activities (PCAs) within the Phase I ESA study area are shown on Drawing PE4714-2 - Surrounding Land Use Plan. None of these PCAs were considered to have resulted in APECs on the subject site.

Assessment of Uncertainty and/or Absence of Information

The information available for review as part of the preparation of this Phase I ESA is considered to be sufficient to conclude that there are no areas of potential environmental concern on the subject site. The presence of potentially contaminating activities was confirmed by a variety of independent sources, and as such, the conclusions of this report are not affected by uncertainty which may be present with respect to the individual sources.

8.0 CONCLUSIONS

Assessment

Paterson Group was retained by Art Properties and Construction to conduct a Phase I Environmental Site Assessment (Phase I-ESA) of 27 Monk Street, in the City of Ottawa, Ontario. The purpose of this Phase I – Environmental Site Assessment was to research the past and current use of the site and study area and to identify any environmental concerns with the potential to have impacted the subject properties.

The subject site was shown as undeveloped on the 1912 fire insurance plan and first recorded as developed on the 1925 fire insurance plan as a residential dwelling. The site has remained unchanged since that date. No PCAs/APECs were identified on the subject site during the historical review.

In the subject area, commercial operations including various retail fuel outlets, garages and drycleaners, two printers and an electricity sub-station have mostly been identified on the properties fronting on to Bank Street. Though numerous PCAs have been identified, only the property neighbouring the subject site to the east was identified as representing a potential risk, however, this property has subsequently been investigated by investigation by Paterson which has shown the soils neighbouring the subject site have not been impacted by the historical activities on this adjacent property.

Following the historical review, a site visit was conducted. No additional PCAs APECs were noted during the site visit.

Based on the results of the Phase I - Environmental Site Assessment, it is our opinion that **a Phase II - Environmental Site Assessment is not required for the subject site.**

Recommendations

Based on the age of the subject building, asbestos-containing materials (ACMs) are potentially present in the subject structure. The potential ACMs include drywall joint compound, plaster, and stippling around the fireplace, as well as exterior stucco finishes. Both wall materials and floor coverings in the building were in generally in good condition. An asbestos survey of the building must be conducted in accordance with Ontario Regulation 278/05, under the Occupational Health and Safety Act, prior to the disturbance of these materials.

Lead-based paint may be present on any remaining original surfaces within the building. It is recommended that original paint is tested for lead content prior to its disturbance. Major work involving lead-based paint or other lead-containing products must be done in accordance with Ontario Regulation 843, under the Occupational Health and Safety Act.

If the subject building is going to be demolished, the above-noted testing programs should be completed as part of a designated substance survey.

9.0 STATEMENT OF LIMITATIONS

This Phase I - Environmental Site Assessment report has been prepared in general accordance with O.Reg. 153/04, as amended, and meets the requirements of CSA Z768-01. The conclusions presented herein are based on information gathered from a limited historical review and field inspection program. The findings of the Phase I - ESA are based on a review of readily available geological, historical and regulatory information and a cursory review made at the time of the field assessment. The historical research relies on information supplied by others, such as local, provincial and federal agencies and was limited within the scope-of-work, time and budget of the project herein.

Should any conditions be encountered at the subject site and/or historical information that differs from our findings, we request that we are notified immediately in order to allow for a reassessment.

This report was prepared for the sole use of Art Properties and Construction. Permission and notification from the above-noted party and Paterson will be required to release this report to any other party.

Paterson Group Inc.



Philip Price, BSc.



Mark S. D'Arcy, P.Eng.



Report Distribution:

- Art Properties and Construction
- Paterson Group

10.0 REFERENCES

Federal Records

Air photos at the Energy Mines and Resources Air Photo Library.
National Archives.
Maps and photographs (Geological Survey of Canada surficial and subsurface mapping).
Natural Resources Canada – The Atlas of Canada.
Environment Canada, National Pollutant Release Inventory.
PCB Waste Storage Site Inventory.

Provincial Records

MECP Freedom of Information and Privacy Office.
MECP Municipal Coal Gasification Plant Site Inventory, 1991.
MECP document titled “Waste Disposal Site Inventory in Ontario”.
MECP Brownfields Environmental Site Registry.
Office of Technical Standards and Safety Authority, Fuels Safety Branch.
MNR Areas of Natural Significance.
MECP Water Well Inventory.

Municipal Records

The City of Ottawa Historical Land Use Inventory.
The City of Ottawa geoOttawa website.

Local Information Sources

Personal Interviews.

Public Information Sources

Google Earth.
Google Maps/Street View

FIGURES

FIGURE 1 – KEY PLAN

FIGURE 2 – TOPOGRAPHIC MAP

DRAWING PE4714-1 – SITE PLAN

DRAWING PE4714-2 – SURROUNDING LAND USE PLAN

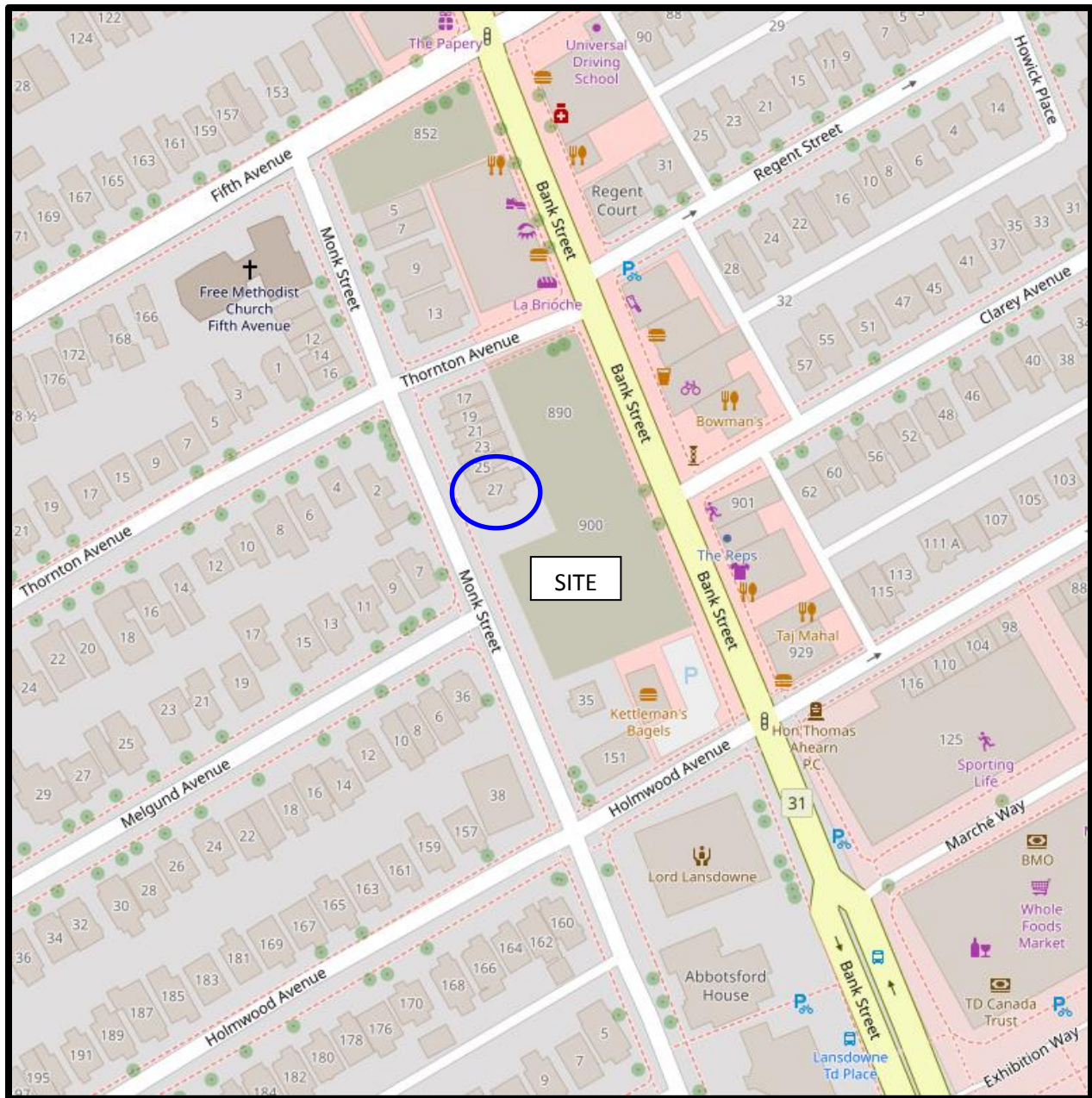


FIGURE 1
KEY PLAN

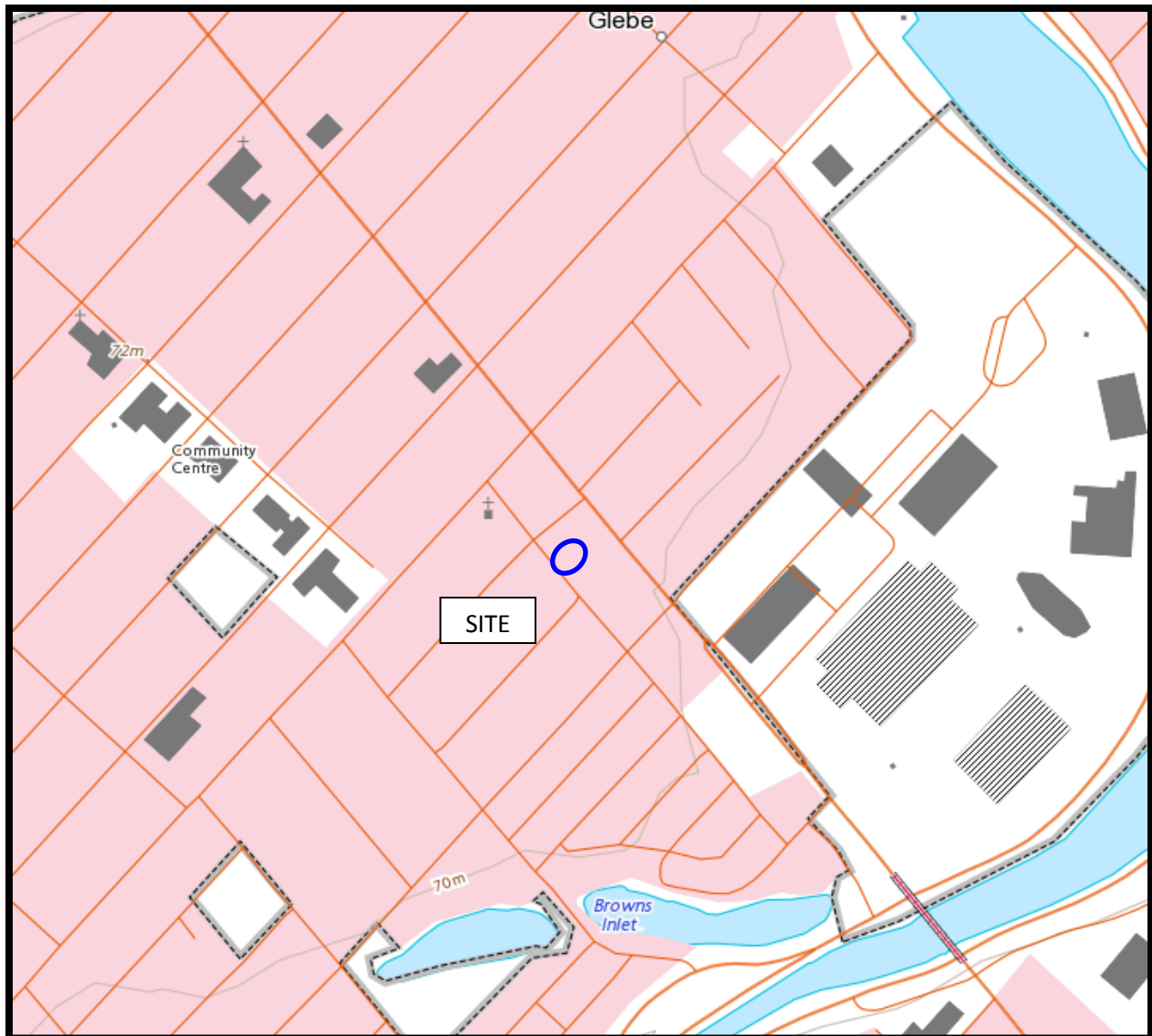
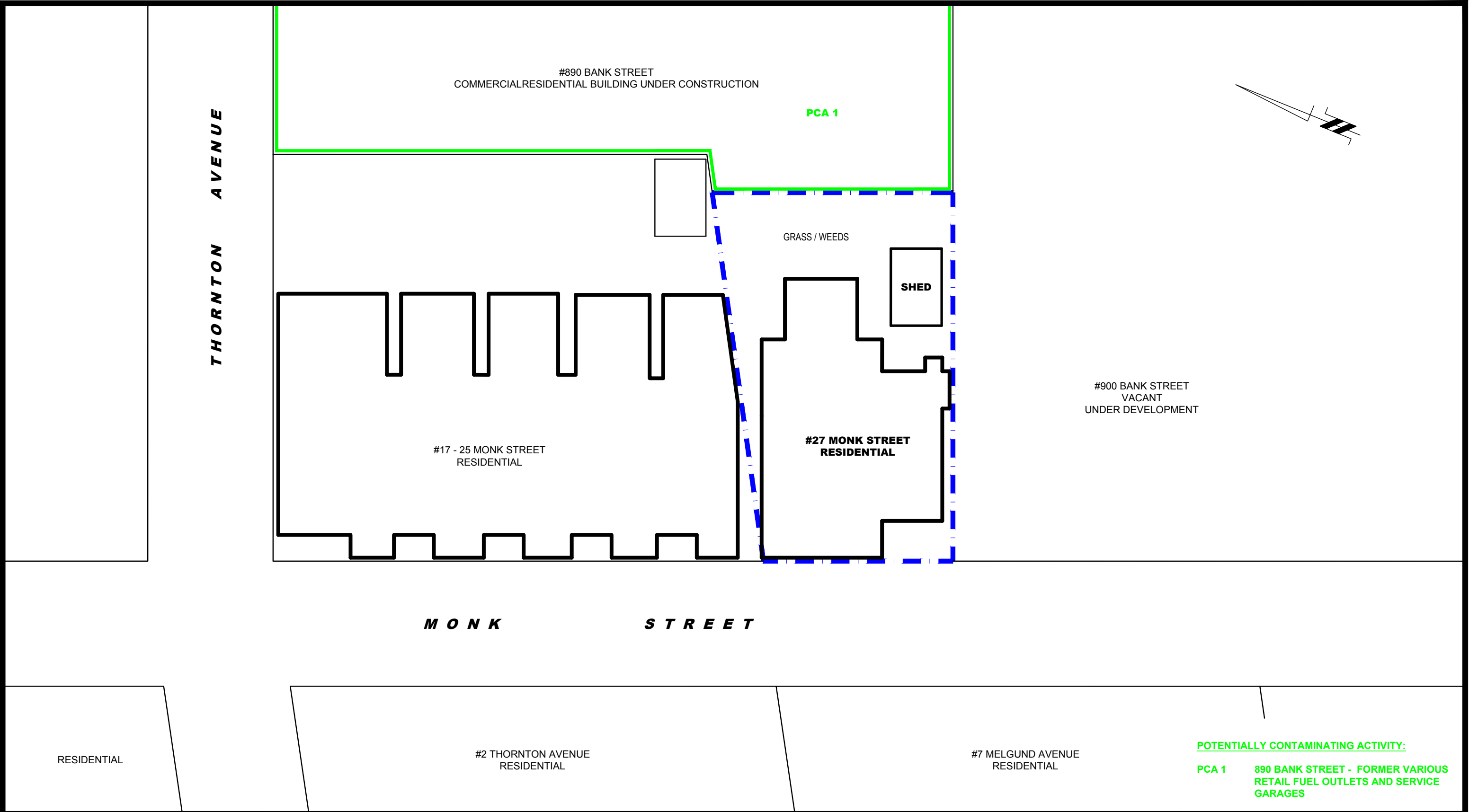


FIGURE 2
TOPOGRAPHIC MAP



patersongroup
consulting engineers

154 Colonnade Road South
Ottawa, Ontario K2E 7J5
Tel: (613) 226-7381 Fax: (613) 226-6344

0			
NO.	REVISIONS	DATE	INITIAL

ART PROPERTIES AND CONSTRUCTION
PHASE I - ENVIRONMENTAL SITE ASSESSMENT
27 MONK STREET

OTTAWA,
Title:

ONTARIO

SITE PLAN

Scale:	1:200	Date:	09/2019
Drawn by:	MPG	Report No.:	PE4714-1
Checked by:	PP	PE4714-1	Revision No.:
Approved by:	MSD		



POTENTIALLY CONTAMINATING ACTIVITIES:

1. 890 BANK STREET - VARIOUS RETAIL FUEL OUTLETS AND SERVICE GARAGES
2. 860 BANK STREET - AUTOMOBILE SALES AND SERVICE
3. 912 BANK STREET - VARIOUS RETAIL FUEL OUTLETS
4. 852 BANK STREET - VARIOUS RETAIL FUEL OUTLETS
5. 855 BANK STREET - TOILET LAUNDRIES LTD.
6. 855 BANK STREET - VARIOUS SERVICE GARAGES
7. 879 BANK STREET - VARIOUS SERVICE GARAGES
8. 885 BANK STREET - VARIOUS SERVICE GARAGES
9. 911 BANK STREET - DRY CLEANERS
10. 115 HOLMWOOD AVE. - ELECTRICITY SUB-STATION
11. 844 BANK STREET - VARIOUS DRY CLEANERS
12. 891 BANK STREET - VARIOUS SERVICE GARAGES
13. 891 BANK STREET - LANDSDOWN PRINTING
14. 837 BANK STREET - VARIOUS DRY CLEANERS
15. 821 BANK STREET - THE WALSH PRESS
16. 829-831 BANK STREET - DRY CLEANERS
17. 856 BANK STREET - DRY CLEANERS

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0			
NO.	REVISIONS	DATE	INITIAL

ART PROPERTIES AND CONSTRUCTION
PHASE I - ENVIRONMENTAL SITE ASSESSMENT
27 MONK STREET
OTTAWA, ONTARIO
Title:
SURROUNDING LAND USE PLAN

Scale: 1:3000
Drawn by: MPG
Checked by: PP
Approved by: MSD

Date: 09/2019
Report No.: PE4714-1
PE4714-2
Revision No.:

APPENDIX 1

PLAN OF SURVEY

AERIAL PHOTOGRAPHS

SITE PHOTOGRAPHS

SURVEYOR'S REAL PROPERTY REPORT
PART 1 Plan of

PART OF LOT 24
IN
BLOCK 5
NORTH SIDE OF HOLMWOOD AVENUE
REGISTERED PLAN 26085
CITY OF OTTAWA

Surveyed by Annis, O'Sullivan, Vollebek Ltd.

Metric

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



PART 2
THIS PLAN MUST BE READ IN CONJUNCTION WITH
SURVEY REPORT DATED: September 6, 2019

Surveyor's Certificate

I CERTIFY THAT:
1. This survey and plan are correct and in accordance with the Surveys
Act, the Surveyors Act and the Land Titles Act and the regulations
made under them.
2. The survey was completed on the 13th day of August, 2019.

September 6, 2019
Date
Katherine Bui
Katherine M. Bui
Ontario Land Surveyor

Notes & Legend

- Denotes
- Survey Monument Planted
 - Survey Monument Found
 - Standard Iron Bar
 - Short Standard Iron Bar
 - Iron Bar
 - Cut Cross
 - Concrete Pin
 - Round Iron Bar
 - Spike & Washer
 - SSIB*
 - Short Standard Iron Bar (0.3 Long)
 - Iron Bar (0.3 Long)
 - Witness
 - Measured
 - Annis, O'Sullivan, Vollebek Ltd.
 - Plan 4R-30474
 - Plan 5R-3971
 - Plan 5R-3489
 - (657) Plan, September 26, 1972
 - (647) Field Notes dated December 13, 1979
 - Location of Elevations
 - Top of Concrete Curb and Retaining Wall Elevation
 - Elevation of OHW
 - Centreline
 - Board Fence
 - Chainlink Fence
 - Air Conditioning Unit
 - Bollard
 - Gas Metre
 - Catch Basin
 - Maintenance Hole - Sanitary
 - Maintenance Hole - Storm
 - Valve Control
 - Top of Grade
 - Timber Retaining Wall
 - Stone Retaining Wall
 - Concrete Retaining Wall
 - Concrete Sidewalk
 - Overhead Wires
 - Utility Pole
 - Underside
- Site Area = 249.4 sq.m.



ELEVATION NOTES

1. Elevations shown are geodetic and are referred to the CGVD25 geodetic datum.
2. It is the responsibility of the user of this information to verify that the job benchmark
has not been altered or disturbed and that it's relative elevation and description
agrees with the information shown on this drawing.

UTILITY NOTES

1. This drawing cannot be accepted as acknowledging all of the utilities and it will
be the responsibility of the user to contact the respective utility authorities for
confirmation.
2. Only visible surface utilities were located.
3. A field location of underground plant by the pertinent utility authority is
mandatory before any work involving breaking ground, probing, excavating etc.



AERIAL PHOTOGRAPH
1928



AERIAL PHOTOGRAPH
1958



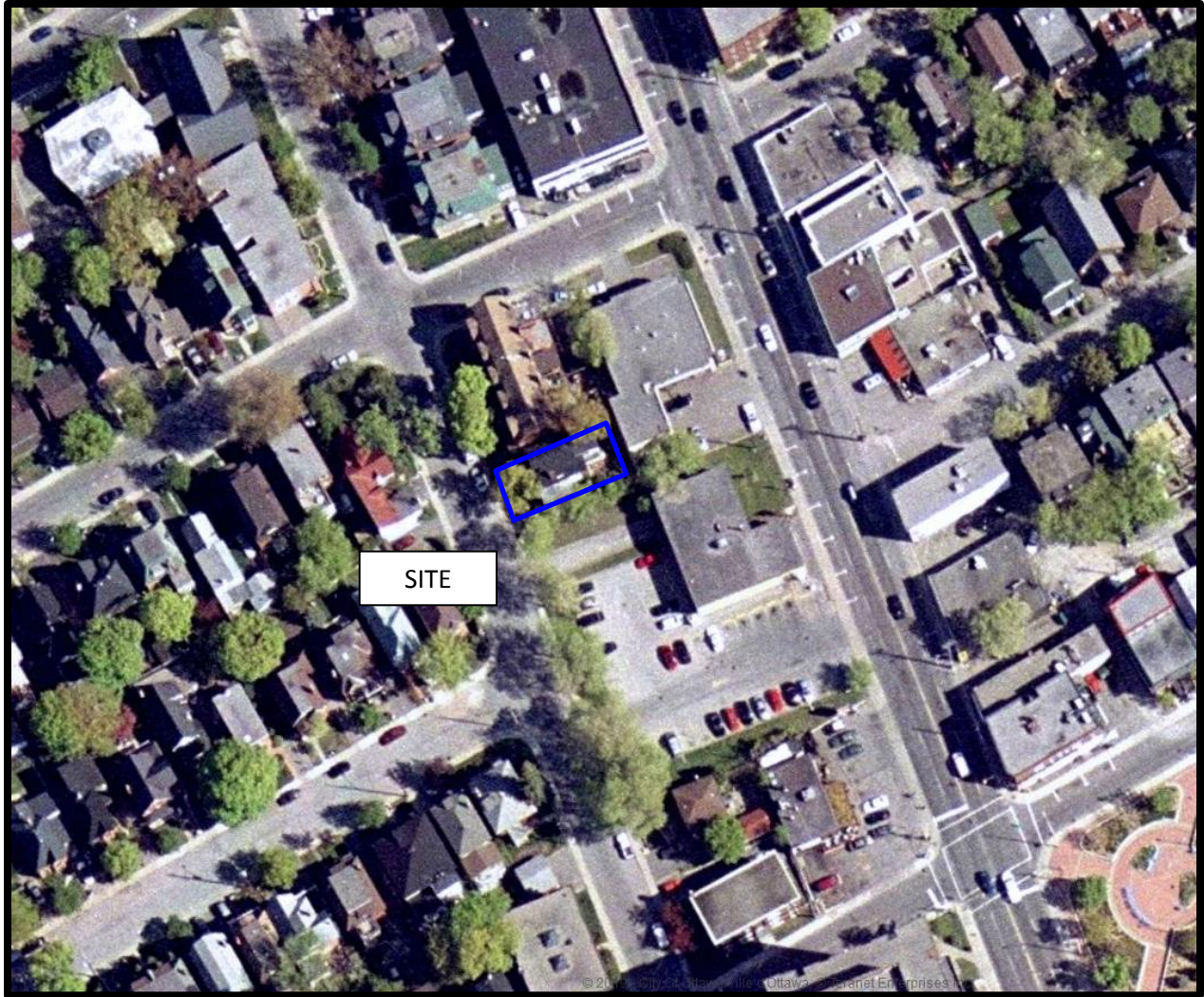
AERIAL PHOTOGRAPH
1965



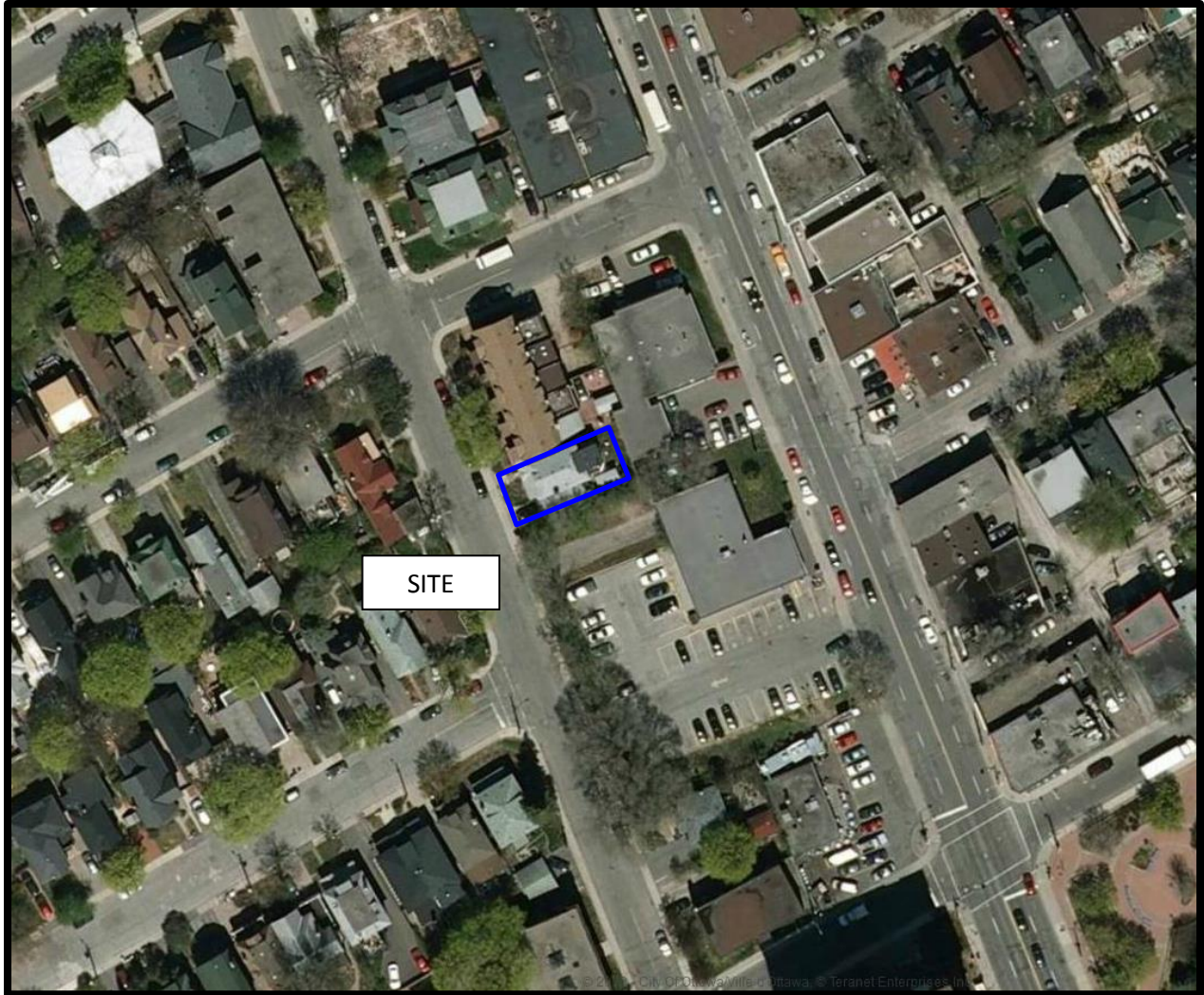
AERIAL PHOTOGRAPH
1976



AERIAL PHOTOGRAPH
1991



AERIAL PHOTOGRAPH
2002



AERIAL PHOTOGRAPH
2011



AERIAL PHOTOGRAPH 2017

Site Photographs

PE4714-1

27 Monk Street, Ottawa

September 23, 2019



Photograph 1: Exterior of the property. Facing east.

Site Photographs

PE4714-1

27 Monk Street, Ottawa

September 23, 2019



Photograph 2: Stippled finish on the first floor fireplace.

Site Photographs

PE4714-1

27 Monk Street, Ottawa

September 23, 2019



Photograph 3: Basement utility room.

Site Photographs

PE4714-1

27 Monk Street, Ottawa

September 23, 2019



Photograph 4: Basement furnace.

APPENDIX 2

MECP FREEDOM OF INFORMATION REQUEST

CITY OF OTTAWA HLUI REQUEST

WATER WELL RECORDS

TSSA CORRESPONDENCE

Ministry of the Environment,
Conservation and Parks

Access and Privacy Office

12th Floor
40 St. Clair Avenue West
Toronto ON M4V 1M2
Tel: (416) 314-4075
Fax: (416) 314-4285

Ministère de l'Environnement, de
la Protection de la nature et des
Parcs

Bureau de l'accès à l'information et
de la protection de la vie privée

12^e étage
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Toronto ON M4V 1M2
Tél.: (416) 314-4075
Télec.: (416) 314-4285

Ontario



September 5, 2019

Philip Price
Paterson Group Inc.
154 Colonnade Road
Ottawa, ON K3E 7J5

Dear Philip Price:

RE: ***Freedom of Information and Protection of Privacy Act Request***
Our File # A-2019-05978, Your Reference PE4714

The Ministry is in receipt of your request made pursuant to the *Freedom of Information and Protection of Privacy Act* and has received your payment in the amount of \$5.00 (non-refundable application fee), along with your \$30.00 deposit.

The search is being conducted on the following: 27 Monk Street, Ottawa. If there is any discrepancy please contact us immediately.

You may expect a reply or additional communication as your request is processed. For your information, the Ministry charges for search, copying and preparation time.

If you have any questions regarding this matter, please contact Dany Briollais at dany.briollais@ontario.ca.

Yours truly,

Janet Dadufalza
Manager, Access and Privacy

Office Use Only

Application Number:	Ward Number:	Application Received: (dd/mm/yyyy):
Client Service Centre Staff:	Fee Received:	\$



Historic Land Use Inventory

Application Form

Notice of Public Record

All information and materials required in support of your application shall be made available to the public, as indicated by Section 1.0.1 of *The Planning Act*, R.S.O. 1990, C.P.13.

Municipal Freedom of Information and Protection Act

Personal information on this form is collected under the authority the *Planning Act*, RSO 1990, c. P. 13 and will be used to process this application. Questions about this collection may be directed by mail to Manager, Business Support Services, Planning Infrastructure and Economic Development Department, 110 Laurier Avenue West, Ottawa, K1P 1J1, or by phone at (613) 580-2424, ext. 24075

Background Information

***Site Address or Location:**

27 Monk Street, Ottawa, ON

**Mandatory Field*

Applicant/Agent Information:

Name:	Paterson Group		
Mailing Address:	154 Colonnade Road, Ottawa, ON		
Telephone:	613 226 7381	Email Address:	pprice@patersongroup.ca

Registered Property Owner Information:

☐ Same as above

Name:	Art Properties and Construction (Alireza Taheri)		
Mailing Address:	Suite 201 B, 889 Bank Street, Ottawa, ON		
Telephone:	613 262 8767	Email Address:	ataheri@artproperties.ca

Site Details

Legal Description
and PIN:

04140 0203

What is the land
currently used for?

Residential property

Lot frontage:

m

Lot depth:

m

Lot area:

m²

OR

Lot area: (irregular lot)

325

m²

Does the site have Full Municipal Services:

☒ Yes

☐ No

Required Fees

Please don't hesitate to visit [the Historic Land Use Inventory website](#) more information. Fees must be paid in full at the time of application submission.

Planning Fee

\$105.00

Submittal Requirements

The following are required to be submitted with this application:

- 1. Consent to Disclose Information:** Consultants and other third parties may make requests for information on behalf of an individual or corporation. However, if the requester is not the owner of the property, **the requester must provide the City of Ottawa with a 'consent to disclose information' letter, signed by the property owner.** This will authorize the City of Ottawa to release any relevant information about the property or its owner(s) to the requester. Consent for disclosure is required in the event that personal information or proprietary company information is found concerning the property and its owner. All consents must clearly indicate the name of the property owner as well as the name of the requester, and must be signed and dated.
- 2. Disclaimer:** Requesters must read and understand the conditions included in the attached disclaimer and submit a signed disclaimer to the City of Ottawa's Planning, Infrastructure and Economic Development Department. This disclaimer is related to the Historic Land Use Inventory and must be received by the City of Ottawa, signed and dated by the requestor, before the process can begin.
- 3. A site plan or key plan of the property, its location and particular features.**
- 4. Any significant dates or time frames that you would like researched.**

Disclaimer
For use with HLUI Database

CITY OF OTTAWA ("the City") is the owner of the Historical Land Use Inventory ("HLUI"), a database of information on the type and location of land uses within the geographic area of Ottawa, which had or have the potential to cause contamination in soil, groundwater or surface water.

The City, in providing information from the HLUI, to Paterson Group _____ ("the Requester") does so only under the following conditions and understanding:

1. The HLUI may contain erroneous information given that such records and sources of information may be flawed. Changes in municipal addresses over time may have introduced error in such records and sources of information. The City is not responsible for any errors or omissions in the HLUI and reserves the right to change and update the HLUI without further notice. The City does not, however, make any commitment to update the HLUI. Accordingly, all information from the HLUI is provided on an "as is" basis with no representation or warranty by the City with respect to the information's accuracy or exhaustiveness in responding to the request.
2. City staff will perform a search of the HLUI based on the information given by the Requester. City staff will make every effort to be accurate, however, the City does not provide an assurance, guarantee, warranty, representation (express or implied), as to the availability, accuracy, completeness or currency of information which will be provided to the Requester. The HLUI in no way confirms the presence or absence of contamination or pollution of any kind. The information provided by the City to the Requester is provided on the assumption that it will not be relied upon by any person whatsoever. The City denies all liability to any such persons attempting to rely on any information provided from the HLUI database.
3. The City, its employees, servants, agents, boards, officials or contractors take no responsibility for any actions, claims, losses, liability, judgments, demands, expenses, costs, damages or harm suffered by any person whatsoever including negligence in compiling or disseminating information in the HLUI.
4. Copyright is reserved to the City.
5. Any use of the information provided from the HLUI which a third party makes, or any reliance on or decisions to be based on it, are the responsibilities of such third parties. The City, its employees, servants, agents, boards, officials or contractors accept no responsibility for any damages, if any, suffered by a third party as a result of decisions made as a result of an information search of the HLUI.
6. Any use of this service by the Requestor indicates an acknowledgement, acceptance and limits of this disclaimer.
7. All information collected under this request and all records provided in response to this request are subject to the provisions of the Municipal Freedom of Information and Protection of Privacy Act, R.S.O. 1990, c. M.56, as amended.

Signed: _____

Dated (dd/mm/yyyy): 11/09/2019 _____

Per: Philip Price _____

(Please print name)

Title: Environmental Scientist _____

Company: Paterson Group _____

Master Well Owner's and Land Owner's Information

First Name: City of Ottawa Last Name: _____ E-mail Address: _____

Mailing Address (Street Number/Name, RR): 110 Laurier Avenue West Municipality: Ottawa Province: ON Postal Code: K1P1J1 Telephone No. (inc. area code): 613 580 2400

Location and Construction of the Master Well in the Cluster

Address of Well Location (Street Number/Name, RR): 1015 Bank Street Township: _____ Lot: _____ Concession: _____

County/District/Municipality: Ottawa City/Town/Village: _____ Province: Ontario Postal Code: _____

UTM Coordinates: Zone: 18 Easting: 4463325037 Northing: 605605 GPS Unit Make: Garmin Model: etrex

Mode of Operation: ☐ Undifferentiated ☒ Averaged ☐ Differentiated, specify _____

Overburden and Bedrock Materials (see instructions on the back of this form)

General Colour	Most Common Material	Other Materials	General Description	Depth (Metres) From To
Brown	Topsoil			0 0.01
"	Fill; sand + silt, trace clay + gravel			0.01 3.8
"	Silty sand fine to med. grained			3.8 6.8
Gray	Silty sand + gravel wet e 8.0			6.8 9.75
	Pieces of rock at 8.7m			

Hole Details

Depth (Metres) From To	Diameter (Centimetres)
0 9.7	20

Water Use

☐ Public ☐ Industrial ☐ Not used ☐ Other, specify _____

☐ Domestic ☐ Commercial ☐ Dewatering

☐ Livestock ☐ Municipal ☒ Monitoring

☐ Irrigation ☐ Test Hole ☐ Cooling & Air Conditioning

Method of Construction

☐ Cable Tool ☐ Air Percussion ☐ Digging

☐ Rotary (Conventional) ☐ Diamond ☐ Boring

☐ Rotary (Reverse) ☐ Jetting ☒ Other, specify HSA

☐ Rotary (Air) ☐ Driving

Status of Well

☒ Test Hole ☐ Abandoned, insufficient supply

☐ Replacement Well ☐ Abandoned, poor water quality

☐ Dewatering Well ☐ Other, specify _____

☐ Alteration (Construction) ☐ Abandoned, other, specify _____

No Casing and Screen Used ☐ Yes ☒ No

Static Water Level Test

Open Hole ☐ Yes ☒ No _____ Metres

Screen

☐ Galvanized ☐ Steel ☐ Fibreglass ☐ Concrete ☒ Plastic

Outside Diameter (Centimetres): 5.8 Slot No.: 10

Water Details

Water found at Depth: _____ Kind of Water: ☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals

Water found at Depth: _____ Kind of Water: ☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals

Water found at Depth: _____ Kind of Water: ☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals

Disinfected ☐ Yes ☒ No If no, provide reason: _____ Date Master Well Completed (yyyy/mm/dd): 2010/03/10

Monitoring well

Cluster Information (Please also fill out the additional Cluster Well Information for Well Construction for each parcel of land and cluster.)

Total Wells in Cluster: 17 Please indicate Number of Cluster Well Information Log Sheets Submitted: 2

Total Wells on this Property: unknown

Location of Well Cluster

Detailed Map must be provided as an attachment no larger than legal size (8.5" x 14"). Sketches are not allowed.

☒ Check box to confirm detailed map is provided as per Section 11.1 (3)

Consent to release additional information concerning the cluster to:

Well Contractor and Well Technician Information

Business Name of Well Contractor: George Downing Estate Drilling Ltd. Well Contractor's Licence No.: 18144

Business Address (Street No./Name, number, RR): 410 Rue Principale Grenville Sud la Rouge Municipality: _____

Province: QC Postal Code: J0V1B0 Business E-mail Address: downingc@shaw.ca

Bus. Telephone No. (inc. area code): 819 242 6479 Name of Well Technician (Last Name, First Name): Downing, Bruce

Well Technician's Licence No.: 21173 Signature of Technician: _____ Date Submitted (yyyy/mm/dd): 2010/04/23

Ministry Use Only

Audit No.: M 05580 Well Contractor No.: _____

Date Received (yyyy/mm/dd): SEP 22 2010 Date of Inspection (yyyy/mm/dd): _____

Remarks: _____

Property Owner's Information

First Name City of Ottawa	Last Name	Mailing Address (Street No./Name, RR) 110 Laurier Avenue West	Municipality Ottawa
Province Ontario	Postal Code K1P1J1	E-mail Address	Telephone No. (inc. area code) 613 580 2400

Cluster Well Information

Address of Well Location (Street Number/Name, RR) 1015 Bank Street	Lot	Concession	Township	County/District/Municipality
City/Town/Village Ottawa	Province Ontario	Postal Code	GPS Unit Make Garmin	Model Etrex
Unit Mode of Operation <input type="checkbox"/> Undifferentiated <input checked="" type="checkbox"/> Averaged				

Signature of Technician/Contractor <i>Bruce Downing</i>	Date (yyyy/mm/dd) 2010/04/22
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Well # on Sketch	Zone	UTM Coordinates Easting Northing	Full Depth of Hole (metres)	Hole Diameter (cm)	Method of Construction	Casing Material	Casing Length (metres)	Screen Interval (metres) From To	Annular Space Sealant Used	Static Water Level (metres)	Abandonment Sealant Used	Comments	Date of Completion (yyyy/mm/dd)
10-8		18 44 64 62 50 27 31 0	8.2	20	HSA	PVC	5.2	5.2 8.2	Bentonite				2010/03/01
10-9		18 44 64 61 45 02 73 88	8.2				5.2	5.2 8.2					2010/03/01
10-10		18 44 64 64 50 27 16 08	7.6				4.6	4.6 7.6					2010/03/01
10-11		18 44 64 68 50 27 56 3	7.6				4.6	4.6 7.6					2010/03/02
10-12		18 44 64 67 45 02 76 46	7.6				4.6	4.6 7.6					2010/03/02
10-13		18 44 64 64 50 27 16 08	5.1				2.1	2.1 5.1					2010/03/02
10-15		18 44 64 48 05 02 77 01	7.6				4.6	4.6 7.6					2010/03/03
10-16		18 44 64 71 95 02 77 04	7.6				4.6	4.6 7.6					2010/03/04
10-17		18 44 64 73 50 27 55 5	7.6				4.6	4.6 7.6					2010/03/04
10-18		18 44 64 69 05 02 77 16	4.5				1.5	1.5 4.5					2010/03/04

Well Contractor and Well Technician Information

Business Name of Well Contractor George Downing Estate Drilling	Business Address (Street Number/Name, RR) 410 Rue Principale	Municipality Grenville Sud de la Rive	Province QC
Postal Code J0V 1S0	Business Telephone No. (inc. area code) 819 242 6469	Well Contractor's Licence No. 1844	Business E-mail Address downing@hawk.igs.net
Name of Well Technician (First Name, Last Name) Bruce Downing	Well Technician's Licence No. 21173	Date Submitted (yyyy/mm/dd) 2010/04/22	Signature of Technician <i>Bruce Downing</i>

Date 1st Well in Cluster Constructed (yyyy/mm/dd) 2010/03/01	Date Last Well in Cluster Constructed (yyyy/mm/dd) 2010/03/19
Ministry Use Only	
Date Received (yyyy/mm/dd) SEP 22 2010	Date Inspected (yyyy/mm/dd)
Audit No. c 06199	Remarks m05580

A090648

Property Owner's Information

First Name City of Ottawa	Last Name	Mailing Address (Street No./Name, RR) 110 Laurier Avenue West	Municipality Ottawa
Province Ontario	Postal Code K1P 1J1	E-mail Address	Telephone No. (inc. area code) 613 580 2400

Cluster Well Information

Address of Well Location (Street Number/Name, RR) 1015 Bank Street	Lot	Concession	Township	County/District/Municipality
City/Town/Village Ottawa	Province Ontario	Postal Code	GPS Unit Make Garmin	Model Etrex
Unit Mode of Operation <input type="checkbox"/> Undifferentiated <input checked="" type="checkbox"/> Averaged		<input type="checkbox"/> Differentiated, specify:		

Signature of Technician/Contractor <i>Benoit Durand</i>	Date (yyyy/mm/dd) 2010/04/23
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Well # on Sketch	Zone	UTM Coordinates Easting Northing	Full Depth of Hole (metres)	Hole Diameter (cm)	Method of Construction	Casing Material	Casing Length (metres)	Screen Interval (metres) From To	Annular Space Sealant Used	Static Water Level (metres)	Abandonment Sealant Used	Comments	Date of Completion (yyyy/mm/dd)
MW 10-19		184464580 50271722	7.6	20	HSA	PRC	4.6	4.6 7.6	Benlante				2010/03/04
MW 10-20		184464833 5027693	7.0				4.0	4.0 7.0					2010/03/04
MW 10-21		1844636150 27619	9.1				6.1	6.1 9.1					2010/03/04
MW 10-22		1844647850 27616	7.6				4.6	4.6 7.6					2010/03/05
MW 10-23		1844629950 27578	9.7				6.7	6.7 9.7					2010/03/19
MW 10-24		1844640250 27632	8.2				5.2	5.2 8.2					2010/03/18
MW 10-25		1844644750 27633	7.6				4.6	4.6 7.6					2010/03/18
MW 10-26		1844638550 27391	8.8				5.8	5.8 8.8					2010/03/19
MW 10-27		1844633250 27597	7.9				5.9	4.9 7.9					2010/03/18
MW 10-28		1844670350 27584	5.1				2.1	2.1 5.1					2010/03/18

Well Contractor and Well Technician Information


Business Name of Well Contractor George Downing Estate Drilling Ltd.	Business Address (Street Number/Name, RR) 410 Rue Principale Grenville	Municipality Sas de Rouge	Province QC
Postal Code J0V 1B0	Business Telephone No. (inc. area code) 819 242 6469	Well Contractor's Licence No. 1844	Business E-mail Address downingc@shaw.ca
Name of Well Technician (First Name, Last Name) Bruce Downing	Well Technician's Licence No. 21713	Date Submitted (yyyy/mm/dd) 2010/04/23	Signature of Technician <i>Benoit Durand</i>

Date 1st Well in Cluster Constructed (yyyy/mm/dd) 2010/03/01	Date Last Well in Cluster Constructed (yyyy/mm/dd) 2010/03/19
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Ministry Use Only	
Date Received (yyyy/mm/dd) SEP 22 2010	Date Inspected (yyyy/mm/dd)
Audit No. c06200	Remarks moss80

A090648

Property Owner's Information									
First Name		Last Name		Mailing Address (Street No./Name, RR)			Municipality		
City of Ottawa				110 Laurier Ave. West			Ottawa		
Province		Postal Code		E-mail Address			Telephone No. (inc. area code)		
ONTARIO		K1P1J1					613 580 2400		
Cluster Well Information									
Address of Well Location (Street Number/Name, RR)				Lot	Concession	Township		County/District/Municipality	
1015 Bank Street									
City/Town/Village		Province	Postal Code	GPS Unit Make	Model	Unit Mode of Operation		<input type="checkbox"/> Undifferentiated	<input checked="" type="checkbox"/> Averaged
Ottawa		Ontario		Garmin	Etrex	<input type="checkbox"/> Differentiated, specify:			

Signature of Technician/Contractor	Date (yyyy/mm/dd)
	2010/04/23

[illegible]

Well Contractor and Well Technician Information				
Business Name of Well Contractor		Business Address (Street Number/Name, RR)	Municipality	Province
George Downing Estate Drilling Ltd.		410 Rue Principale	Grenville	QC
Postal Code	Business Telephone No. (inc. area code)	Well Contractor's Licence No.	Business E-mail Address	
J1C 4V 1B3	0 819 242 6469	18 44	downing@hawk.195.net	
Name of Well Technician (First Name, Last Name)		Well Technician's Licence No.	Date Submitted (yyyy/mm/dd)	Signature of Technician
Bruce Downing		2173	2010/04/23	
1991 (11/2006)		Ministry of the Environment		

Date 1st Well in Cluster Constructed (yyyy/mm/dd) 2010/03/01	Date Last Well in Cluster Constructed (yyyy/mm/dd) 2010/03/19
Ministry Use Only	
Date Received (yyyy/mm/dd) SEP 22 2010	Date Inspected (yyyy/mm/dd)
Audit No. C 07988	Remarks 105580

Measurements recorded in: ☒ Metric ☐ Imperial

N/A

Page of

Well Owner's Information

First Name [Redacted]	Last Name / Organization [Redacted] City of Ottawa	E-mail Address [Redacted]	<input type="checkbox"/> Well Constructed by Well Owner	
Mailing Address (Street Number/Name) 110 Laurier Ave	Municipality Ottawa	Province ON	Postal Code K1P1J1	Telephone No. (inc. area code) [Redacted]

Well Location

Address of Well Location (Street Number/Name) 1015 Bank St				Township		Lot		Concession	
County/District/Municipality				City/Town/Village Orissa				Province Ontario	
UTM Coordinates		Zone Easting		Northing		Municipal Plan and Sublot Number			
NAD 83		18 446330		5027603					
				Other					

Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form)[illegible]

Annular Space

Depth Set at (m/ft)		Type of Sealant Used (Material and Type)	Volume Placed (m ³ /ft ³)
From	To		
0	.31	bentonite chips	
.31	2.13	bentonite slurry	

Results of Well Yield Testing

After test of well yield, water was:		Draw Down		Recovery	
<input type="checkbox"/> Clear and sand free <input type="checkbox"/> Other, <i>specify</i> _____		Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
If pumping discontinued, give reason:	Static Level				
	1		1		
Pump intake set at (m/ft)	2		2		
Pumping rate (l/min / GPM)	3		3		
Duration of pumping _____ hrs + _____ min	4		4		
	5		5		
Final water level end of pumping (m/ft)	10		10		
If flowing give rate (l/min / GPM)	15		15		
Recommended pump depth (m/ft)	20		20		
	25		25		
	30		30		
Recommended pump rate (l/min / GPM)	40		40		
Well production (l/min / GPM)	50		50		
	60		60		
Disinfected?					
<input type="checkbox"/> Yes <input type="checkbox"/> No					

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft)		<input type="checkbox"/> Water Supply <input type="checkbox"/> Replacement Well <input type="checkbox"/> Test Hole <input type="checkbox"/> Recharge Well <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Observation and/or Monitoring Hole <input type="checkbox"/> Alteration (Construction) <input type="checkbox"/> Abandoned,
			From	To	
5.20	PVC	.390			

Status of Well

☐ Water Supply
☐ Replacement Well
☐ Test Hole
☐ Recharge Well
☐ Dewatering Well
☐ Observation and/or Monitoring Hole
☐ Alteration (Construction)
☐ Abandoned, Insufficient Supply
☐ Abandoned, Poor Water Quality
☒ Abandoned, other *specify*
Not Needed
☐ Other, *specify*

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft)		<input type="checkbox"/> Abandoned, Poor Water Quality <input checked="" type="checkbox"/> Abandoned, other <i>specify</i> <i>Not Needed</i> <input type="checkbox"/> Other, <i>specify</i>
			From	To	
6.03	PVC	10			

Water Details

Water found at Depth _____ Kind of Water: ☐ Fresh ☐ Untested
(m/ft) ☐ Gas ☐ Other, *specify* _____

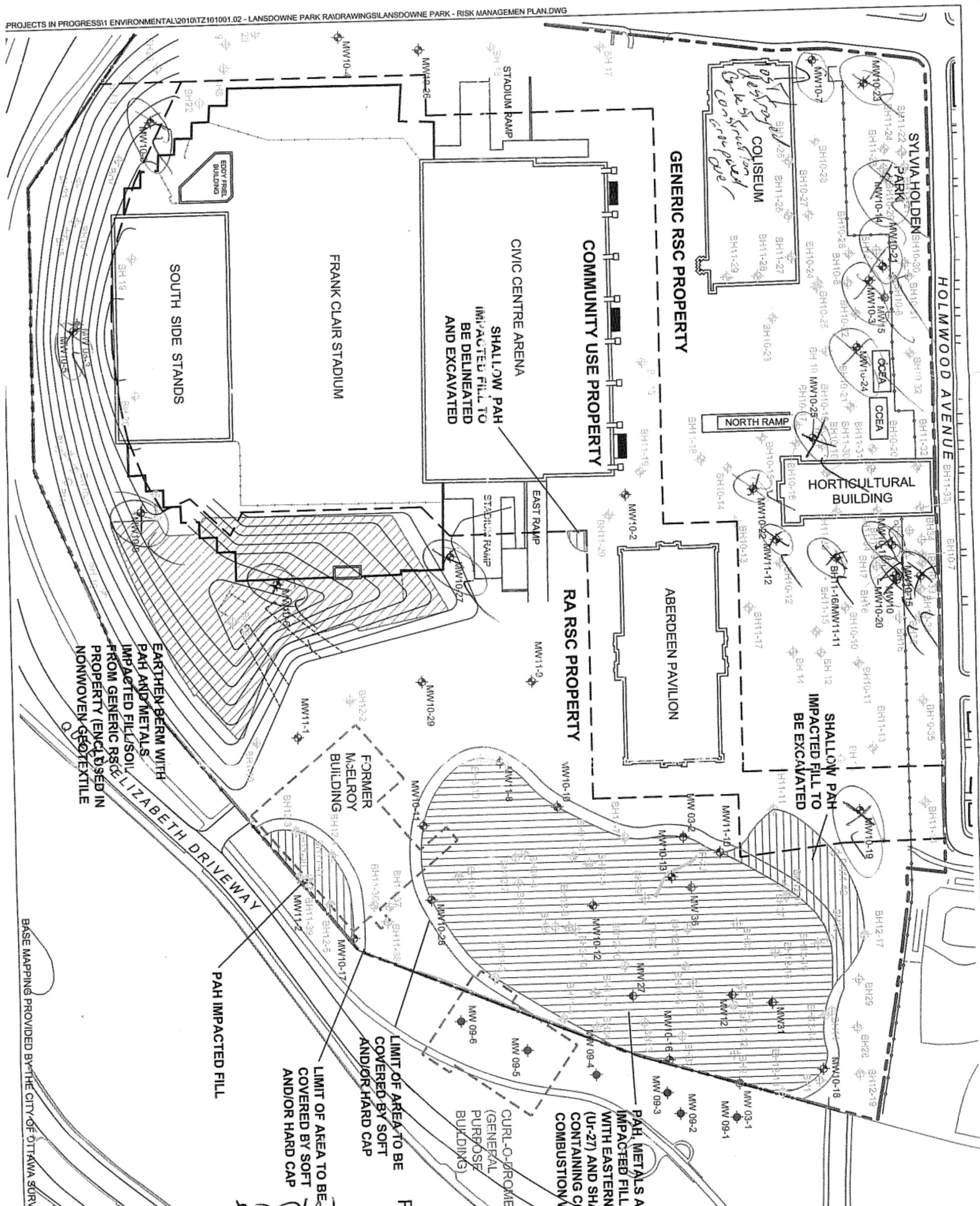
Hole Diameter

Depth (m/ft)		Diameter (cm/in)
From	To	
0	2.13	11.43

Map of Well Location

Please provide a map below following instructions on the back.

See Map
MW 10-17



Measurements recorded in: ☒ Metric ☐ Imperial

N/A

Page of

Well Owner's Information

First Name [Redacted]	Last Name / Organization [Redacted] / City of Ottawa	E-mail Address [Redacted]	<input type="checkbox"/> Well Constructed by Well Owner	
Mailing Address (Street Number/Name) 110 Laurier Ave.	Municipality Ottawa	Province ON	Postal Code K1P 1J1	Telephone No. (inc. area code) [Redacted]

Well Location

Address of Well Location (Street Number/Name) 1015 Bank St.				Township		Lot		Concession		
County/District/Municipality				City/Town/Village Oshawa				Province Ontario		
UTM Coordinates		Zone	Easting	Northing	Municipal Plan and Sublot Number				Postal Code	
NAD 83		18	446423	5927634						
					Other					

Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form)

[illegible]

Annular Space

Depth Set at (m/ft)		Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
From	To		
0	.31	bentonite chips	
.31	2.13	bentonite slurry	

Method of Construction

<input type="checkbox"/> Cable Tool	<input type="checkbox"/> Diamond	<input type="checkbox"/> Public	<input type="checkbox"/> Commercial	<input type="checkbox"/> Not used
<input type="checkbox"/> Rotary (Conventional)	<input type="checkbox"/> Jetting	<input type="checkbox"/> Domestic	<input type="checkbox"/> Municipal	<input type="checkbox"/> Dewatering
<input type="checkbox"/> Rotary (Reverse)	<input type="checkbox"/> Driving	<input type="checkbox"/> Livestock	<input type="checkbox"/> Test Hole	<input type="checkbox"/> Monitoring
<input type="checkbox"/> Boring	<input type="checkbox"/> Digging	<input type="checkbox"/> Irrigation	<input type="checkbox"/> Cooling & Air Conditioning	
<input type="checkbox"/> Air percussion		<input type="checkbox"/> Industrial		
<input type="checkbox"/> Other, <i>specify</i> _____		<input type="checkbox"/> Other, <i>specify</i> _____		

Well Use

<input type="checkbox"/> Cable Tool	<input type="checkbox"/> Diamond	<input type="checkbox"/> Public	<input type="checkbox"/> Commercial	<input type="checkbox"/> Not used
<input type="checkbox"/> Rotary (Conventional)	<input type="checkbox"/> Jetting	<input type="checkbox"/> Domestic	<input type="checkbox"/> Municipal	<input type="checkbox"/> Dewatering
<input type="checkbox"/> Rotary (Reverse)	<input type="checkbox"/> Driving	<input type="checkbox"/> Livestock	<input type="checkbox"/> Test Hole	<input type="checkbox"/> Monitoring
<input type="checkbox"/> Boring	<input type="checkbox"/> Digging	<input type="checkbox"/> Irrigation	<input type="checkbox"/> Cooling & Air Conditioning	
<input type="checkbox"/> Air percussion		<input type="checkbox"/> Industrial		
<input type="checkbox"/> Other, <i>specify</i> _____		<input type="checkbox"/> Other, <i>specify</i> _____		

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft)		<input type="checkbox"/> Water Supply <input type="checkbox"/> Replacement Well <input type="checkbox"/> Test Hole <input type="checkbox"/> Recharge Well <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Observation and/or Monitoring Hole <input type="checkbox"/> Alteration (Construction) <input type="checkbox"/> Abandoned,
			From	To	
5.20	PVC	.390			

Status of Well

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft)		<input type="checkbox"/> Water Supply <input type="checkbox"/> Replacement Well <input type="checkbox"/> Test Hole <input type="checkbox"/> Recharge Well <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Observation and/or Monitoring Hole <input type="checkbox"/> Alteration (Construction) <input type="checkbox"/> Abandoned,
			From	To	
5.20	PVC	.390			

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft)		<input type="checkbox"/> Abandoned, Poor Water Quality <input checked="" type="checkbox"/> Abandoned, other, specify <i>Not Needed</i> <input type="checkbox"/> Other, specify
			From	To	
6.03 PVC		18			

Water Details

Water found at Depth	Kind of Water: <input type="checkbox"/> Fresh <input type="checkbox"/> Untested
(m/ft) <input type="checkbox"/> Gas <input type="checkbox"/> Other, <i>specify</i>	

Hole Diameter

Water found at Depth (m/ft) <input type="checkbox"/> Gas	Kind of Water: <input type="checkbox"/> Fresh <input type="checkbox"/> Untested <input type="checkbox"/> Other, specify _____	Depth (m/ft) From _____ To _____	Diameter (cm/in) _____
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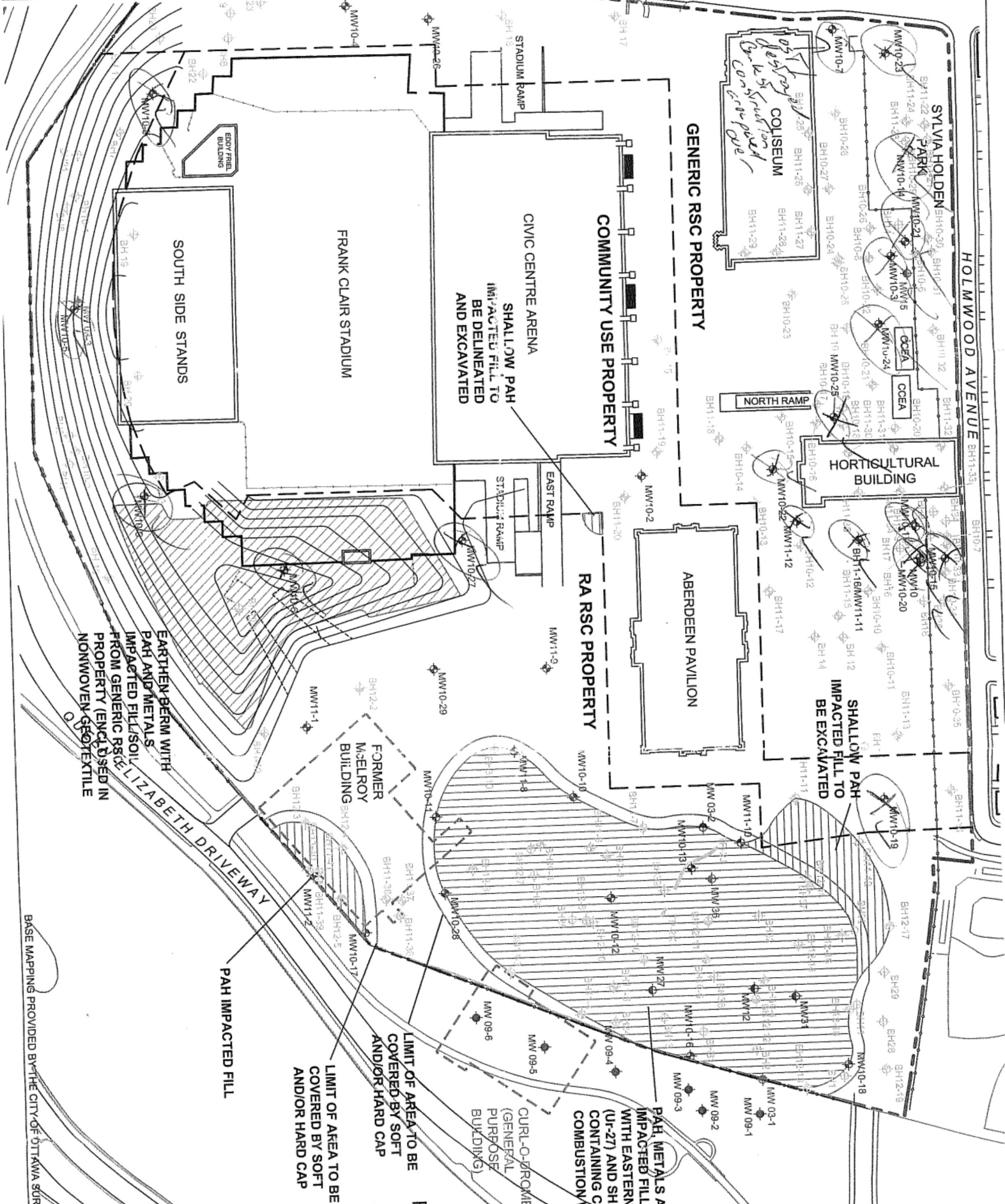
Results of Well Yield Testing

After test of well yield, water was:		Draw Down		Recovery	
<input type="checkbox"/> Clear and sand free <input type="checkbox"/> Other, <i>specify</i> _____		Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
If pumping discontinued, give reason:		Static Level			
		1		1	
Pump intake set at (m/ft)		2		2	
Pumping rate (l/min / GPM)		3		3	
Duration of pumping _____ hrs + _____ min		4		4	
Final water level end of pumping (m/ft)		5		5	
		10		10	
If flowing give rate (l/min / GPM)		15		15	
		20		20	
Recommended pump depth (m/ft)		25		25	
		30		30	
Recommended pump rate (l/min / GPM)		40		40	
		50		50	
Well production (l/min / GPM)		60		60	
Disinfected?					
<input type="checkbox"/> Yes <input type="checkbox"/> No					

Map of Well Location

Please provide a map below following instructions on the back.

See Map
MW 10-24



Measurements recorded in: ☒ Metric ☐ Imperial

N/A

Page of

Well Owner's Information

First Name [Redacted]	Last Name / Organization [Redacted] / City of Ottawa	E-mail Address		<input type="checkbox"/> Well Constructed by Well Owner
Mailing Address (Street Number/Name) 110 Laurier Ave.	Municipality Ottawa	Province ON	Postal Code K1P1J1	Telephone No. (inc. area code)

Well Location

Address of Well Location (Street Number/Name) 1015 Bank St				Township		Lot		Concession	
County/District/Municipality				City/Town/Village Ottawa				Province Ontario	
UTM Coordinates		Zone Easting		Northing		Municipal Plan and Sublot Number			
NAD 83		18Q446367502		7620		Other			

Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form)

[illegible]

Annular Space

Depth Set at (m/ft)		Type of Sealant Used (Material and Type)	Volume Placed (m ³ /ft ³)
From	To		
0	.31	bentonite chips	
.31	2.13	bentonite slurry	

Results of Well Yield Testing

After test of well yield, water was:		Draw Down		Recovery	
<input type="checkbox"/> Clear and sand free <input type="checkbox"/> Other, <i>specify</i> _____		Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
If pumping discontinued, give reason:		Static Level			
		1		1	
Pump intake set at (m/ft)		2		2	
Pumping rate (l/min / GPM)		3		3	
Duration of pumping _____ hrs + _____ min		4		4	
Final water level end of pumping (m/ft)		5		5	
If flowing give rate (l/min / GPM)		10		10	
Recommended pump depth (m/ft)		15		15	
		20		20	
		25		25	
Recommended pump rate (l/min / GPM)		30		30	
Well production (l/min / GPM)		40		40	
Disinfected?		50		50	
<input type="checkbox"/> Yes <input type="checkbox"/> No		60		60	

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft)		<input type="checkbox"/> Water Supply <input type="checkbox"/> Replacement Well <input type="checkbox"/> Test Hole <input type="checkbox"/> Recharge Well <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Observation and/or Monitoring Hole <input type="checkbox"/> Alteration (Construction) <input type="checkbox"/> Abandoned,
			From	To	
5.20	PVC	.390			

Status of Well

☐ Water Supply
☐ Replacement Well
☐ Test Hole
☐ Recharge Well
☐ Dewatering Well
☐ Observation and/or Monitoring Hole
☐ Alteration (Construction)
☐ Abandoned, Insufficient Supply
☐ Abandoned, Poor Water Quality
☒ Abandoned, other, *specify*
Not Needed
☐ Other, *specify*

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft)		<input type="checkbox"/> Abandoned, Poor Water Quality <input checked="" type="checkbox"/> Abandoned, other, specify <i>Not Needed</i> <input type="checkbox"/> Other, specify
			From	To	
6.03	PVC	10			

Water Details

Water found at Depth (m/ft) <input type="checkbox"/> Gas	Kind of Water: <input type="checkbox"/> Fresh <input type="checkbox"/> Untested <input type="checkbox"/> Other, <i>specify</i> _____
---	---

Hole Diameter

Depth (m/ft)		Diameter (cm/in)
From	To	

Map of Well Location

Please provide a map below following instructions on the back.

See Map
Mw/0-3

BASE MAPPING PROVIDED BY THE CITY OF OTTAWA SUR

Measurements recorded in: ☒ Metric ☐ Imperial

Page of

Well Owner's Information

First Name [REDACTED]	Last Name / Organization [REDACTED] / City of Ottawa	E-mail Address		<input type="checkbox"/> Well Constructed by Well Owner
Mailing Address (Street Number/Name) 110 Laurier Ave.		Municipality Ottawa	Province ON	Postal Code K1P1J1
		Telephone No. (inc. area code)		

Well Location

Address of Well Location (Street Number/Name) 1015 Bank St.		Township	Lot	Concession	
County/District/Municipality		City/Town/Village Orono		Province Ontario	Postal Code
UTM Coordinates NAD 8 3	Zone 18	Easting 496360	Northing 5027617	Municipal Plan and Sublot Number	
				Other	

Overburden and Bedrock Materials/Abandonment Sealing Record *(see instructions on the back of this form)*[illegible]

Annular Space

Depth Set at (m/ft)		Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
From	To		
0	.31	bentonite chips	
.31	2.13	bentonite slurry	

Results of Well Yield Testing

After test of well yield, water was: <input type="checkbox"/> Clear and sand free <input type="checkbox"/> Other, <i>specify</i> _____	Draw Down		Recovery	
	Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
If pumping discontinued, give reason:	Static Level			
	1		1	
Pump intake set at (m/ft)	2		2	
Pumping rate (l/min / GPM)	3		3	
	4		4	
Duration of pumping _____ hrs + _____ min	5		5	
Final water level end of pumping (m/ft)	10		10	
	15		15	
If flowing give rate (l/min / GPM)	20		20	
	25		25	
Recommended pump depth (m/ft)	30		30	
	40		40	
Recommended pump rate (l/min / GPM)	50		50	
Well production (l/min / GPM)	60		60	
Disinfected? <input type="checkbox"/> Yes <input type="checkbox"/> No				

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft)		
			From	To	
3.45	PVC	.356			<input type="checkbox"/> Water Supply <input type="checkbox"/> Replacement Well <input type="checkbox"/> Test Hole <input type="checkbox"/> Recharge Well <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Observation and/or Monitoring Hole <input type="checkbox"/> Alteration (Construction) <input type="checkbox"/> Abandoned,

Status of Well

☐ Water Supply
☐ Replacement Well
☐ Test Hole
☐ Recharge Well
☐ Dewatering Well
☐ Observation and/or Monitoring Hole
☐ Alteration (Construction)
☐ Abandoned, Insufficient Supply
☐ Abandoned, Poor Water Quality
☒ Abandoned, other, *specify*
Not Used
☐ Other, *specify*

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft)		<input type="checkbox"/> Abandoned, Poor Water Quality <input checked="" type="checkbox"/> Abandoned, other, specify <input type="checkbox"/> Other, specify
			From	To	
4.21	PVC	10			Not Used

Map of Well Location

Please provide a map below following instructions on the back.

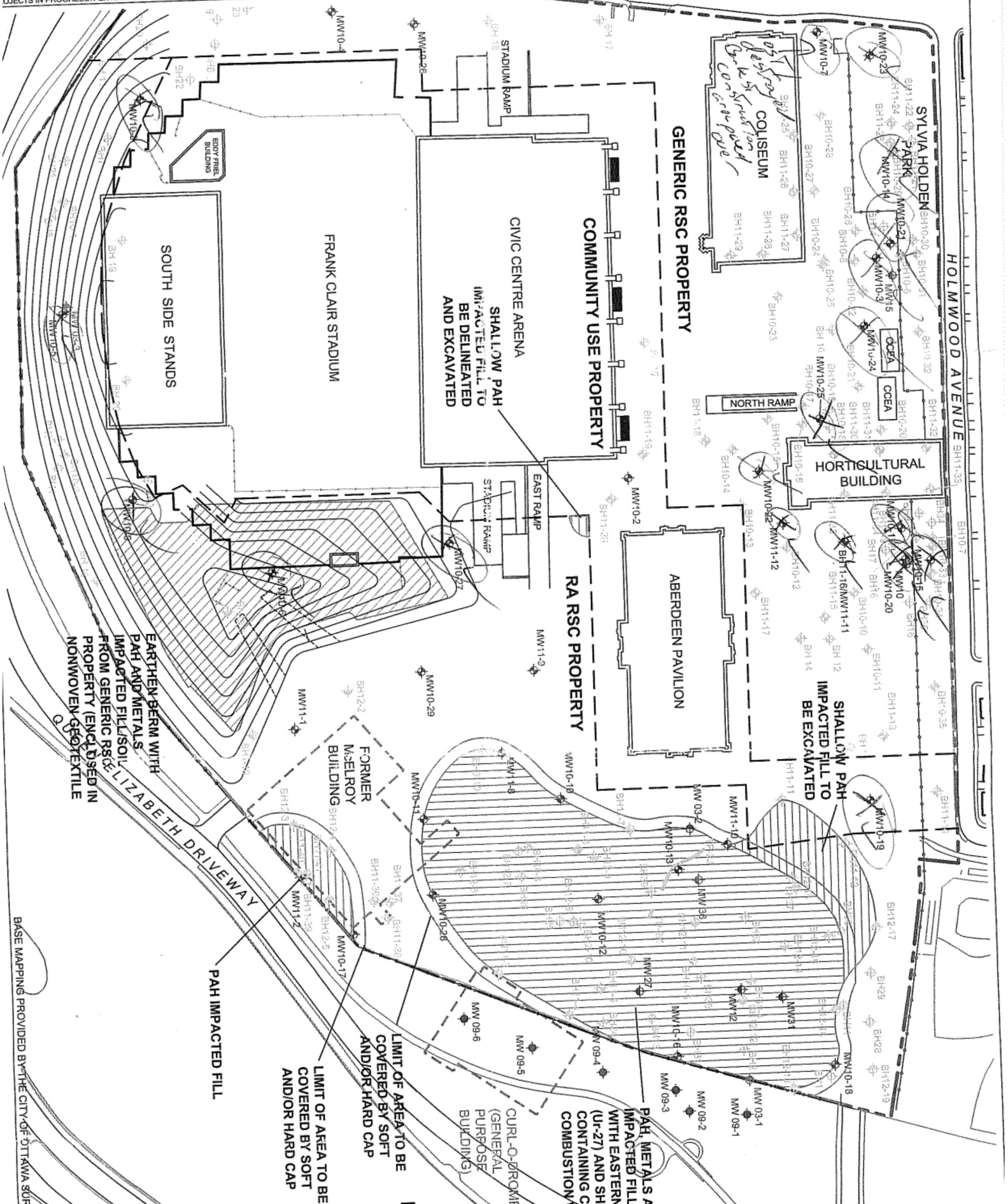
See Map
NW 10-21

Water Details

Water found at Depth _____ Kind of Water: ☐ Fresh ☐ Untested
(m/ft) ☐ Gas ☐ Other, specify _____

Hole Diameter

Depth (m/ft)		Diameter (cm/in)
From	To	
0	2.13	11.43



Philip Price

From: Public Information Services <publicinformationsservices@tssa.org>
Sent: August-12-19 9:31 AM
To: Philip Price
Subject: RE: TSSA Records Search, PE4714 - Ottawa, ON

NO RECORD FOUND (FUEL STORAGE TANKS ONLY)

Hello. Thank you for your request for confirmation of public information.

We confirm that there are no records in our database of any fuel storage tanks at the subject addresses.

For a further search in our archives please complete our release of public information form found at https://www.tssa.org/en/about-tssa/release-of-public-information.aspx?_mid_=392 and email the completed form to publicinformationsservices@tssa.org or through mail along with a fee of \$56.50 (including HST) per location. The fee is payable with credit card (Visa or MasterCard) or with a Cheque made payable to TSSA.

Although TSSA believes the information provided pursuant to your request is accurate, please note that TSSA does not warrant this information in any way whatsoever.

Kind regards,

Gaya

From: Philip Price <PPrice@Patersongroup.ca>
Sent: August 9, 2019 11:49 AM
To: Public Information Services <publicinformationsservices@tssa.org>
Subject: TSSA Records Search, PE4714 - Ottawa, ON

Good morning,

Could you please conduct a search of your records for underground storage tanks, historical spills and other incidents/infractions for the following addresses for properties located in Ottawa, Ontario:

13 Monk Street
23 Monk Street
25 Monk Street
27 Monk Street

856 Bank Street
890 Bank Street
900 Bank Street

2 Thornton Avenue

7 Melgund Avenue

Thank you very much,

Philip Price

patersongroup
solution oriented engineering
over 60 years servicing our clients

154 Colonnade Road South
Ottawa, Ontario, K2E 7J5
Tel: (613) 226-7381 Ext. 250
Cell: (343) 999 7255

This electronic message and any attached documents are intended only for the named recipients. This communication from the Technical Standards and Safety Authority may contain information that is privileged, confidential or otherwise protected from disclosure and it must not be disclosed, copied, forwarded or distributed without authorization. If you have received this message in error, please notify the sender immediately and delete the original message.

APPENDIX 3

QUALIFICATIONS OF ASSESSORS

Philip Price
BSc.
FGS

**Environmental
Engineering**

**Geotechnical
Engineering**

**Materials Testing
Quality Control**

Building Sciences

Hydrogeology

**Archaeological
Services**

POSITION

Intermediate Environmental Scientist

EDUCATION

Kingston University, London, England, BSc (Hons), 2005
Geology

EXPERIENCE

2018 - Present:

Paterson Group Inc.

Consulting Engineers

Environmental Division

Intermediate Environmental Scientist

2016 - 2018

Harrison Group Environmental Ltd.

Consulting Engineers

Senior Environmental Engineer

2013 - 2016

Harrison Group Environmental Ltd.

Consulting Engineers

Environmental Engineer

2009 – 2011

AP Geotechnics Ltd.

Consulting Engineers

Geotechnical Engineer

2006 - 2009

Harrison Group Environmental Ltd.

Consulting Engineers

Junior Environmental Engineer

SELECT LIST OF PROJECTS

Remediation Supervision – Residential Development, Arnprior

Remediation Supervision – Residential Development, Ottawa

Remediation Supervision – Commercial Development, Ottawa

Phase I & II ESA – Commercial Development, Bells Corners, Ottawa

Groundwater Monitoring and Sampling – Various Location, Ottawa

Phase I ESA – Various Locations, Ontario

Geotechnical
Engineering

Environmental
Engineering

Hydrogeology

Geological
Engineering

Materials Testing

Building Science

Archaeological
Services

POSITION

Associate and Supervisor of the Environmental Division
Senior Environmental/Geotechnical Engineer

EDUCATION

Queen's University, B.A.Sc.Eng, 1991
Geotechnical / Geological Engineering

MEMBERSHIPS

Ottawa Geotechnical Group
Professional Engineers of Ontario

EXPERIENCE

1991 to Present

Paterson Group Inc.

Associate and Senior Environmental/Geotechnical Engineer
Environmental and Geotechnical Division
Supervisor of the Environmental Division

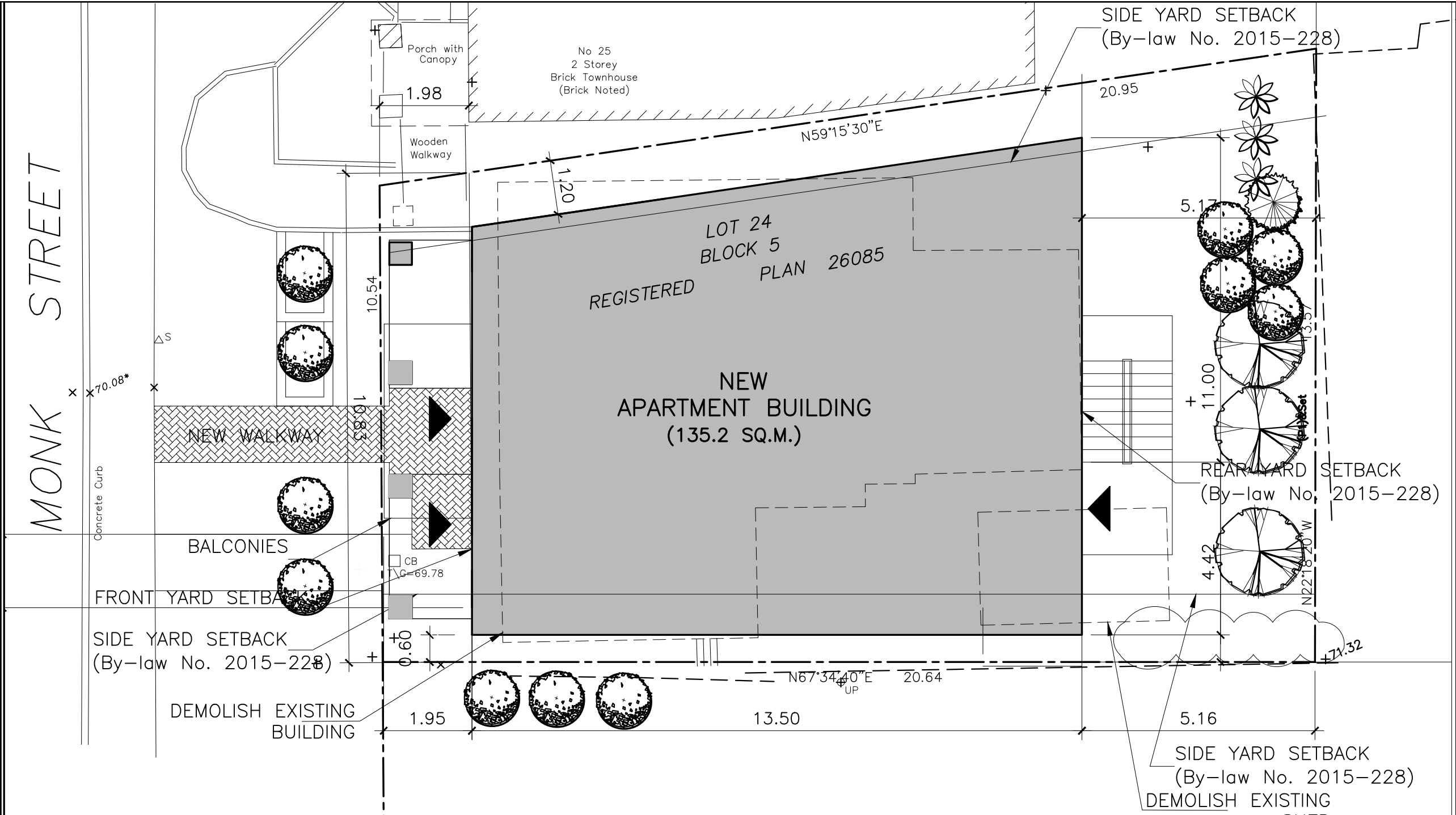
SELECT LIST OF PROJECTS

Mary River Exploration Mine Site - Northern Baffin Island
Agricultural Supply Facilities - Eastern Ontario
Laboratory Facility – Edmonton (Alberta)
Ottawa International Airport - Contaminant Migration Study - Ottawa
Richmond Road Reconstruction - Ottawa
Billings Hurdman Interconnect - Ottawa
Bank Street Reconstruction - Ottawa
Environmental Review – Various Laboratories across Canada - CFIA
Dwyer Hill Training Centre – Ottawa
Nortel Networks Environmental Monitoring - Carling Campus – Ottawa
Remediation Program - Block D Lands – Kingston
Investigation of former landfill sites – City of Ottawa
Record of Site Condition for Railway Lands – North Bay
Commercial Properties – Guelph and Brampton
Brownfields Remediation – Alcan Site - Kingston
Montreal Road Reconstruction - Ottawa
Appleford Street Residential Development - Ottawa
Remediation Program - Ottawa Train Yards
Remediation Program - Bayshore and Heron Gate
Gladstone Avenue Reconstruction – Ottawa
Somerset Avenue West Reconstruction - Ottawa

**SITE SERVICING AND STORMWATER MANAGEMENT REPORT – 3-STOREY APARTMENT BUILDING, 27
MONK STREET**

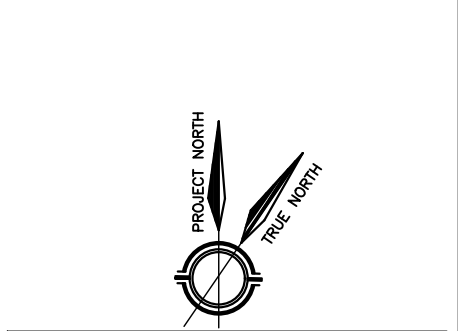
Appendix F Site Plan
November 29, 2019

Appendix F SITE PLAN



NEW APARTMENT BUILDING
27 MONK ST.
OTTAWA, ONTARIO
K1S 3Y5

CLIENT:
ART CONSTRUCTION

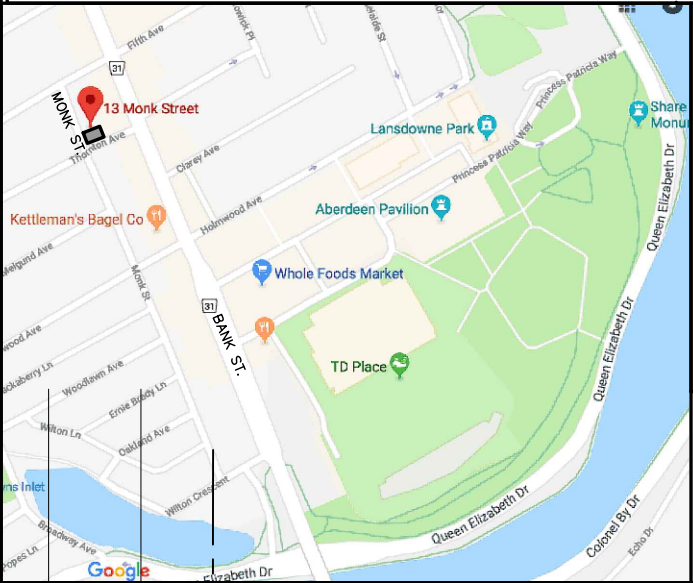


CIVIL ENGINEER AND LANDSCAPE ARCHITECT
STANTEC
400 - 1331 Clyde Avenue
Ottawa ON K2C 3G4
Phone: (613) 724-4337
Cell: (613) 297-0571
Fax: (613) 722-2799

GEOTECHNICAL
HOULE CHEVRIER ENGINEERING LTD.
180 WESCAR LANE
OTTAWA, ONTARIO
K0A 1L0
613-836-1422

SURVEYOR
ANNIS, O'SULLIVAN, VOLLEBEKK Ltd.
14 Concourse Gate, Suite 500
Nepean, Ont. K2E 7S6
Phone: (613) 727-0850
Fax: (613) 727-1079

SUSAN D. SMITH ARCHITECT
941 MERIVALE RD
OTTAWA, ONTARIO
K1Y 3H5
613-722-5327
sds@magma.ca



PROPERTY DESCRIPTION:
Legal Description: Part of lot 24 registered plan 26085 City of Ottawa, Block 5

Based on survey prepared by Surveyed by Annis, O'Sullivan, Vollebekk Ltd.

DEVELOPMENT DATA:

Site Zoning Designation: R4T
Site area: 249.4 m²
Frontage as per survey: 10.54 m.
Depth as per survey: 20.73 m.
Site Plan Control Approval for: 3 storey storey apartment
Building Area (Footprint): 127.1 m²
Gross Floor Area : 382.1 m²

LEGEND:

- ENTRANCE
- PROPERTY LINE
- SETBACK LINE
- REMOVE EXISTING WALL
- NEW BUILDING
- LANDSCAPE AREA
- INTERLOCKING WALKWAY
- CAST-IN-PLACE CONCRETE
- RIVER ROCK

0 1 2 3 4 5 6 7 8 9 10 12
0.5

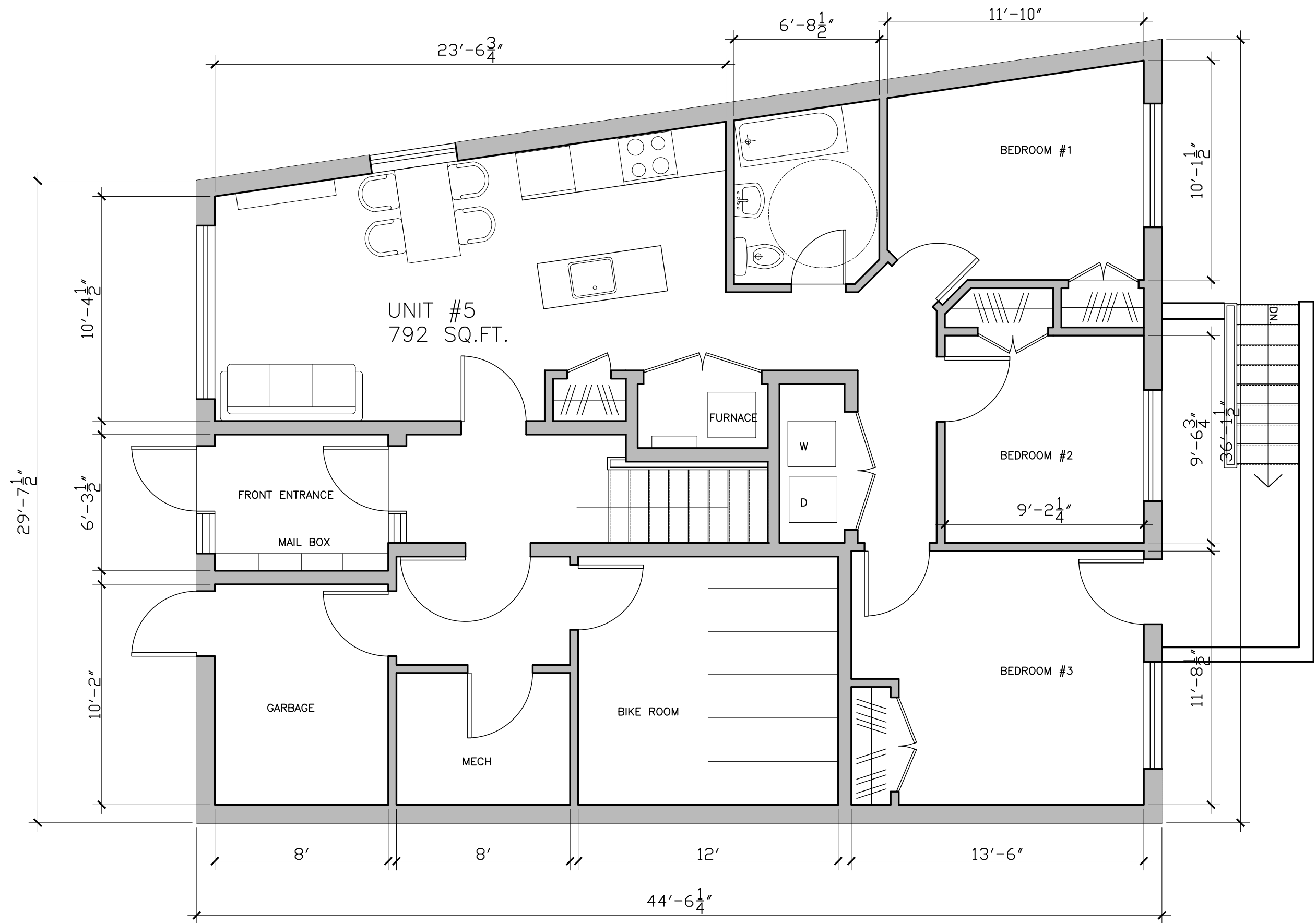
City of Ottawa Zoning By-law No. 2008-250 and Revised By-law No. 2015-228		
R4T		
PRINCIPAL DWELLING TYPE	REQUIRED FOR LOW RISE APARTMENT	PROPOSED 4 STOREY, 8 UNIT
MINIMUM LOT WIDTH	15m	10.83m (MINOR VARIANCE)
MINIMUM LOT AREA	450m ²	249.4m ² (MINOR VARIANCE)
MAXIMUM BUILDING HEIGHT	14.5m	11 m
MINIMUM FRONT YARD SETBACK	Average of neighboring buildings	1.98m
MINIMUM CORNER SIDE YARD SETBACK	N/A	N/A
MINIMUM REAR YARD SETBACK	25% lot depth.	5.16m (25% lot depth)
MINIMUM INTERIOR SIDE YARD SETBACK	1.5m	1.2m (MINOR VARIANCE) 0.6m (MINOR VARIANCE)
MINIMUM LANDSCAPE AREA	30% (74.82 m ²)	31% (87.35 m ²)
AMENITY SPACE (at rear yard)	7 units @15m ² =105m ²	48.6 m ² (MINOR VARIANCE)
MINIMUM BALCONY PROJECTION	1m (FROM FRONT PROPERTY LINE)	0 (MINOR VARIANCE)
MAXIMUM EXTERIOR STAIRS PROJECTION	1.5M FROM SETBACK	2m (MINOR VARIANCE)
Parking Rate		
Motor Vehicle	0	0
Bicycle Parking (0.5/unit)	8/2=4 spaces	6 spaces

3		
2		
1		
0	ISSUED FOR REVIEW	NOV. 07/2019
No.	REVISION	DATE

NOTES:
1. All dimensions are to be checked on site. Discrepancies or ambiguities should be reported prior to work on site or ordering of materials.
2. All work to be in accordance with the Ontario Building Code, latest edition.

SITE PLAN

Scale	1:150	SP
Drawn	TD	
Checked	SDS	
Date	OCT/2019	
Job #	1992	



NEW 7 UNIT
APARTMENT BUILDING
27 MONK ST.
OTTAWA, ONTARIO
K1S 3Y5

CLIENT:

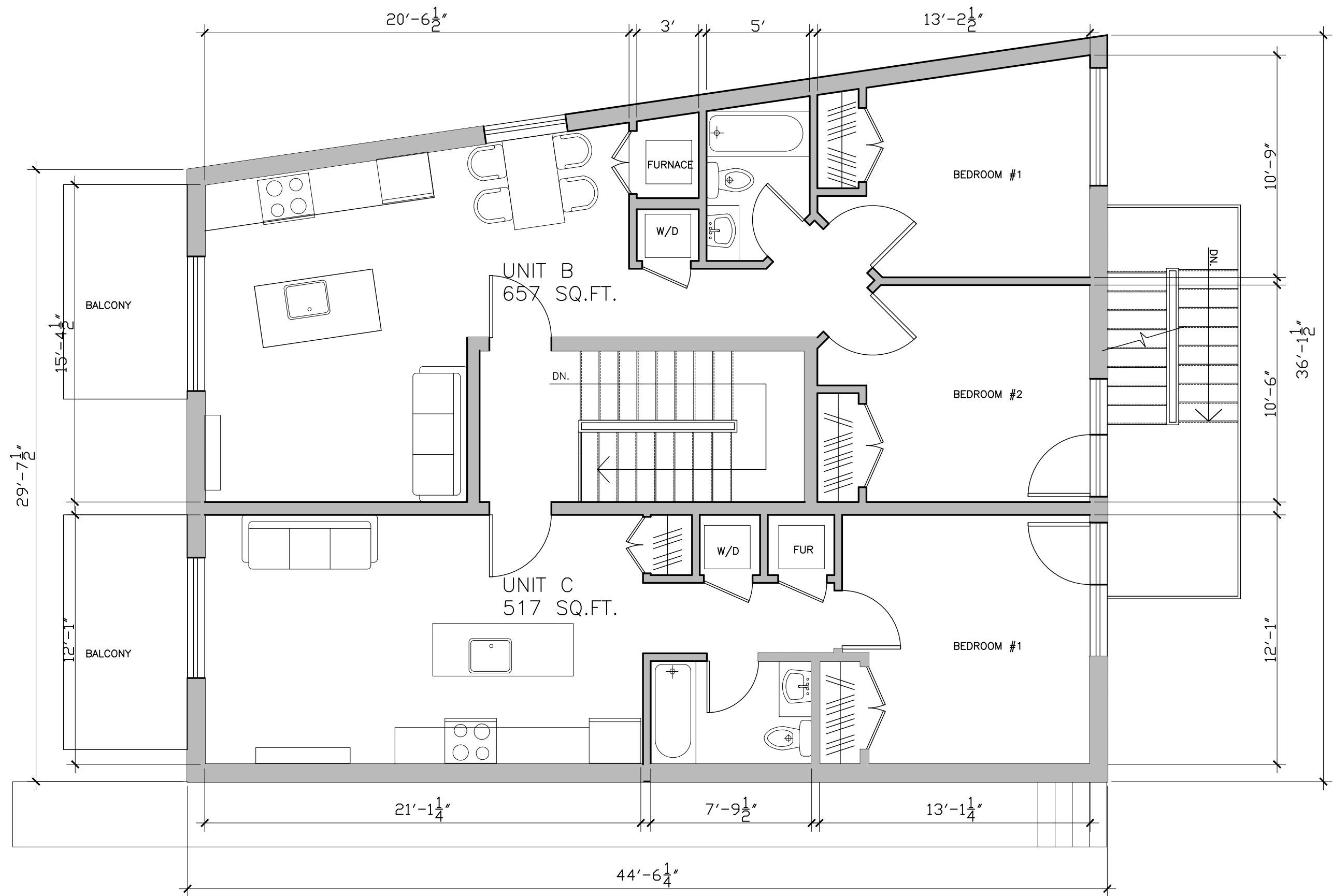
ALIREZA TAHERI

SUSAN D. SMITH ARCHITECT
941 MERIVALE RD.
Ottawa, Ontario
K1Z 8L2
613-722-5327
sds@magma.ca

BASEMENT
FLOOR PLAN

DRAWN BY: T.D.
JOB # 1992
DATE OCT/2019

A1



NEW 7 UNIT
APARTMENT BUILDING
27 MONK ST.
OTTAWA, ONTARIO
K1S 3Y5

CLIENT:

ALIREZA TAHERI

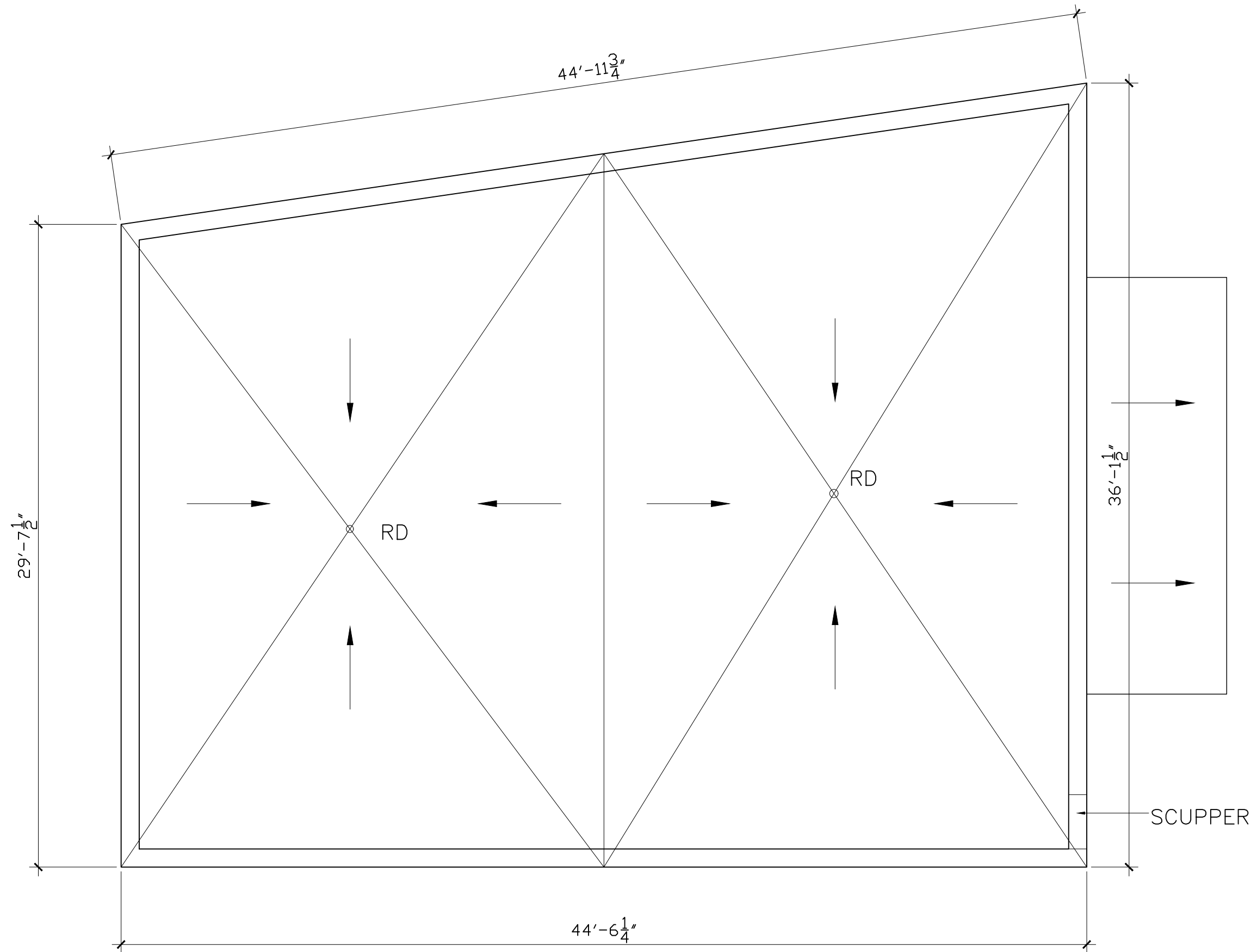
SUSAN D. SMITH ARCHITECT

941 MERIVALE RD.
OTTAWA, ONTARIO
K1Y 3H5
613-722-5327
S.SMITH@SDSARCH.CA

TYP. FLOOR PLAN

DRAWN BY: T.D.
JOB # 1992
DATE OCT/2019

A2



NEW 7 UNIT
APARTMENT BUILDING
27 MONK ST.
OTTAWA, ONTARIO
K1S 3Y5

CLIENT:

ALIREZA TAHERI

SUSAN D. SMITH ARCHITECT

941 MERIVALE RD.
OTTAWA, ONTARIO
K1Y 3H5
613-722-5327
S.SMITH@SDSARCH.CA

ROOF PLAN

DRAWN BY: T.D.

JOB # 1992

DATE OCT/2019

A4

**SITE SERVICING AND STORMWATER MANAGEMENT REPORT – 3-STOREY APARTMENT BUILDING, 27
MONK STREET**

Appendix G Drawings
November 29, 2019

Appendix G DRAWINGS