



July 15, 2026

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Attention: **Scott Stinson**

Subject: **Hydrogeological Assessment and Terrain Analysis**  
Proposed Industrial Development  
301 Somme Street, Ottawa, Ontario

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## INTRODUCTION

Further to your request, Paterson has conducted a Hydrogeological Assessment and Terrain Analysis in support of a Site Plan Control Application (hereby referred to as a Site Plan application) for the proposed industrial development located at 301 Somme Street in Ottawa. Please refer to the Figure 1 - Key Plan attached for the approximate site location.

The purpose of this work has been to determine the suitability of the water supply aquifer underlying the site to support the Site Plan application as well as determining the suitability of the subject site to attenuate sewage system impacts. A Hydrogeological Assessment for a different Site Plan application for the same property was completed in 2022 by GHD Ltd (GHD) and was titled Hydrogeological and Impact Assessment Report (HIAR) dated September 22, 2022. The GHD HIAR has been used to support this assessment. Supplemental hydrogeological fieldwork was performed by Paterson to confirm the water quality which was encountered in the GHD HIAR report.

The Subject Site consists of a 6.09 ha lot which is largely brush-covered, with a engineered pad extending across the central portion of the site. The property is generally flat until the northern and western property boundaries, where it then slopes into abutting ditches. A mapped watercourse (GeoOttawa) flows from southwest to northeast along the northern property boundary.



The suitability of the aquifer to supply the subject site was assessed using the methodology provided in City of Ottawa Hydrogeological and Terrain Analysis Guidelines (HTAG).

## **HYDROGEOLOGICAL PRE-CONSULTATION**

A Hydrogeological pre-consultation was completed with a City of Ottawa Hydrogeologist on July 11, 2025. It was proposed to use the data collected as part of GHD's HIAR to support this site plan application. During the Hydrogeological pre-consultation, the City Hydrogeologist indicated that the collection and submission of a water quality sample would be required to confirm the water quality encountered in the GHD HIAR. The intent behind the additional sampling is to confirm that the water quality is still similar to the water quality from the pumping test completed in support of the GHD HIAR.

## **DESCRIPTION OF SUBJECT SITE**

The subject site is an approximately 6.09 ha undeveloped lot which is covered with grassed areas and brush. An engineered pad is located in the area of the proposed building from the previous Site Plan application. Please refer to Figure-1 Key Plan and Hobin Architecture Drawing No. A1.00 Vehicle Service & Storage Yard Site Plan attached for the proposed site location and site layout.

The subject site is currently vacant and will be serviced by a private water supply and sewage system. A drilled well was installed onsite on July 27, 2022, and is hereafter referred to as Test Well 1 (TW1). TW1 is the well which will be the service well for the proposed development.

The site is bordered to the north by Rideau Road, to the east by vacant properties, and to the south and west by Somme Street. The properties to the west of Somme Street remain undeveloped, while the property south of Somme Street consist of an industrial development. The subject site itself and the surrounding industrial areas are zoned RH for Rural Heavy Industrial Zone (GeoOttawa).

## **POTENTIAL KARST**

Based on available Ontario Geological Survey (OGS) mapping (GRS005), the subject site is not within an area of known, potential or inferred karst.

## **RAISIN-SOUTH NATION SOURCE PROTECTION PLAN**

The Raisin-South Nation Source Protection Plan (RSNSPP) provides guidance as to which policies apply to a given property, municipality or specific activity and if there are specific designations that apply to the area. The subject site and surrounding areas have been designated as a Highly Vulnerable Aquifer (HVA within the RSNSPP), Significant Groundwater Recharge Area (SGRA) and Intake Protection Zone 3 (IPZ 3) and is identified as three of four groundwater related vulnerable areas identified within the Clean



Water Act (2006). The four vulnerable areas consist of SGRA, HVA, IPZ, and wellhead protection area (WHPA).

Based upon the designation, the RSNSPP provides a list of activities that are prohibited, managed or encouraged to change/educate dependent upon the vulnerable area type. There are no restrictions of land uses on the subject site based upon its proposed usage.

Therefore, there are no related requirements for an HVA, SGRA or IPZ 3 at this location.

## **LOCAL HYDROGEOLOGY**

Bedrock aquifer mapping, provided by Natural Resources Canada Urban Geology of the National Capital Region mapping, was reviewed as part of this assessment. Using this tool, it was found that the subject site primarily accesses the Nepean formation aquifer system.

Shallow groundwater flow in the vicinity of the subject site is expected to reflect local topography. Regional groundwater flow in the bedrock is considered to be in an easterly direction.

Due to the depth of the bedrock aquifer encountered in TW1 (bedrock encountered at 16 m below ground surface (bgs) according to the Water Well Record (WWR)), interactions between the aquifer accessed by the proposed supply well and any local surface water features is not anticipated.

As per the discussion above under the heading RSNSPP, the site is in an area which is mapped to consist of a SGRA. A SGRA typically represents an area where groundwater will generally flow vertically towards the underlying bedrock.

## **FIELDWORK PROGRAM**

### **Well Testing – GHD HIAR – August 9, 2022**

As a means to demonstrate the adequacy of the aquifer underlying the subject lands with respect to water quality and quantity, TW1 was installed in July of 2022 and submitted to a pumping test as part of GHD's HIAR. TW1 has a Water Well Record (WWR) Well ID of A342117. TW1 has a 152.4 mm diameter steel casing that extends to 15.9 m below ground surface (bgs) with a 0.7 m stick up. The well itself extends to a depth of 42.7 m bgs. Based on available geological mapping, the drift thickness at TW1 varies from 0 to 2 m. Refer to Hobin Architecture Drawing A1.00 Vehicle Service & Storage Yard Site Plan, attached, for the approximate location of TW1 (referred to as existing well).

As a means to evaluate the water supply aquifer intercepted by the well, the well was subjected to a 12-hour constant rate pumping test at a rate of 38 L/min. The pumping test was conducted on August 9, 2022 by GHD. Details of the pumping test can be found in the Hydrogeological and Impact Assessment completed by GHD (September 22, 2022).



The selected rate of 38 L/min provides approximately 6.7 times the Total Daily Design Sanitary Sewage Flow (TDDSSF) volume of 4,077 L/day during the 12-hour pumping test performed by GHD. Recovery data was collected from the well following the completion of the pumping in 2022. The well was noted to have achieved 100% recovery approximately 7 hours after the completion of the 12-hour pumping test.

### **Supplemental Well Testing – August 12, 2025**

On August 12, 2025, Paterson completed supplemental geochemical testing on TW1 where TW1 was purged at a rate of 38 L/min for 6 hours, after which a water sample was obtained. The purpose of the supplemental testing was to confirm that the water quality of the aquifer accessed by TW1 is consistent with the results from the pumping test performed by GHD in 2022.

A submersible pump was installed by Air Rock Drilling Co Ltd and used for the 6-hour purge. The well purge was carried out at a pumping rate of 38 L/min for a duration of 6 hours. The water was discharged in a manner where the discharge water would not flow back towards the well. During the well purging, the pumping rate was measured using the timed volume correlation method. The pumping rate was maintained within 5% of the selected pumping rate. An electric datalogger (VanEssen TD-Diver) was installed in the test well prior to the start of the well purge, and the static water level was periodically recorded manually.

The selected rate of 38 L/min provides approximately 3.4 times the Total Daily Design Sanitary Sewage Flow (TDDSSF) volume of 4,077 L/day, and equates to approximately 22 well volumes.

A series of field tests of the pumped water were carried out at the well head at the end of the 6-hour well purge. The parameters tested at the well head included: pH, total dissolved solids, conductivity, turbidity, true colour, hydrogen sulfide, and temperature. Calibration / confirmation of calibration of all field-testing equipment was performed in Paterson's laboratory the day prior to the pumping test. Values are then confirmed again onsite prior to the start of the pumping test.

The following field equipment was used during the pumping test:

- ☐ Free Chlorine – HACH Pocket Colorimeter II;
- ☐ TDS/Conductivity/pH – Hanna Instruments 2328 BW combo pH/EC/TDS Tester;
- ☐ Colour – HACH DR 900 Colorimeter;
  - True Colour – Maple Lab Systems Nylon Syringe 0.45 µm Filter;
- ☐ Turbidity – Hanna Instruments HI98703 Turbidimeter
- ☐ Hydrogen Sulfide – HACH Hydrogen Sulfide Test Kit CAT. No. 2537800

Groundwater samples were collected at 6 hours after the start of the purging. Prior to collection of the groundwater samples, the free chlorine residual was verified as non-detectable. The water samples were submitted for comprehensive testing of





bacteriological, chemical, and physical water quality parameters consistent with the standard “Subdivision Supply” suite of parameters plus trace metals, and Volatile Organic Compounds (VOCs).

All samples were collected unfiltered and unchlorinated and were placed directly into clean bottles supplied by the analytical laboratory. Samples were placed immediately into a cooler with ice and were transported directly to Environmental Testing Canada Inc. (Eurofins) laboratory in Ottawa. All samples were received by the laboratory within 24 hours of collection.

## Aquifer Analysis

The parameters encountered in the samples collected by Paterson after the well purge are similar to those found in GHD’s HIAR (2022). Based on a comparison of the water quality results, there are no significant changes in water quality compared to the pumping test performed in 2022 by GHD as part of the HIAR, and therefore the pumping test completed by GHD in support of the HIAR can be considered representative for this assessment.

## Water Quantity

Pumping test data was analyzed by GHD and is presented below:

| <b>Table 1: SUMMARY OF WATER SUPPLY AQUIFER CHARACTERISTICS OF TW1<br/>GHD HIAR – AUGUST 9, 2022 PUMPING TEST</b> |                           |
|-------------------------------------------------------------------------------------------------------------------|---------------------------|
| <b>AQUIFER PARAMETER</b>                                                                                          | <b>RESULT OF ANALYSIS</b> |
| Transmissivity (m <sup>2</sup> /day)                                                                              | 26.7                      |
| Pumping Rate (L/min)                                                                                              | 38                        |
| Pre-test Static Water Level (m)                                                                                   | 7.9                       |
| Post-test Static Water Level (m)                                                                                  | 8.7                       |
| Available Drawdown (m)                                                                                            | 31.5                      |
| % Drawdown During Pumping Test (%)                                                                                | 2.5                       |
| Specific Capacity (L/min/m drawdown)                                                                              | 48.5                      |

The drawdown data was analyzed in GHD’s HIAR and aquifer transmissivity was estimated to be 33.4 m<sup>2</sup>/day based on the drawdown and 26.7 m<sup>2</sup>/day based on the recovery.

The pumping test results from GHD’s HIAR shows that TW1 has a high yield to support the water demands that may be required. Overall maximum drawdown at a constant pumping rate of 38 L/min, for a period of 12 hours was approximately 0.8 m (2.5% of the available drawdown). Full Recovery was attained within 7 hours after pumping ceased.



The total volume of water pumped during the 12-hour pumping event was approximately 27,360 L. This is approximately 6.7 times the maximum total daily design volume of water (4,077 L/d) required to support the Site Plan Control Application.

Based on the information summarized in Table 1, it is readily apparent that the water supply well has intercepted an adequately strong water supply aquifer which has sufficient quantity to service the proposed Site Plan Control Application.

The suitability of the aquifer to supply the proposed Site Plan Application for the proposed industrial development was assessed using the methodology provided in the City of Ottawa Hydrogeological and Terrain Analysis Guidelines (HTAG).

Given the analyses presented and summarized above, it is our opinion that there is an adequate supply of water to support the proposed Site Plan Control Application. Available water well records (WWR) of the neighboring properties on the MECP Well Record mapping website indicated that the wells were screened in limestone. Surrounding WWRs are attached to this report.

## **Water Quality**

### ***Field Data***

Turbidity, electrical conductivity, total dissolved solids (TDS), pH, true color and temperature were measured at the wellhead at the end of the 6 hour well purge prior to collecting the geochemical sample. The measurements for each of these parameters are as follows:

- ☐ Turbidity: 0.86 NTU
- ☐ Electrical conductivity: 1,240  $\mu\text{S}$
- ☐ Total dissolved solids (TDS): 813 mg/L
- ☐ pH: 8.04
- ☐ True color: 0 TCU
- ☐ Temperature: 11.4  $^{\circ}\text{C}$

In addition, a HACH Pocket Colorimeter II chlorine reader was used to measure the free chlorine residual level. No chlorine residual was detected in the discharge water prior to the collection of the water samples. If hydrogen sulfide was detected olfactorily, then field testing of hydrogen sulfide would be completed. This is because the detection limit of the hydrogen sulfide test is the olfactory detection limit. Hydrogen Sulfide was not detected.

The field water quality was measured to be similar to that which was encountered in the original pumping test completed by GHD.

### ***Laboratory Data***

During Paterson's well purge, a total of 13,680 L was discharged. This is approximately 3.4 times the TDDSSF, and equates to approximately 22 well volumes.



A HACH Pocket Colorimeter II chlorine reader was used to measure the free chlorine residual level. No chlorine residual was detected in the discharge water prior to the collection of the water sample at the end of Paterson's well purge.

Hydrogen sulfide was not detected olfactorily during Paterson's well purge. Hydrogen sulfide levels were measured using the HACH Hydrogen Sulfide Test Kit, Model HS-C, (# 2537800).

The Subdivision Package suite of parameters and trace metals laboratory water quality obtained from the 12-hour pumping test sample collected by GHD (HIAR), along with the geochemical results from the sample collected at the end of Paterson's well purge (August 12, 2025), are presented in Tables 3a and 3b below. The laboratory analyses reports can be found attached. VOC laboratory analytical testing was completed on the sample collected at the end of Paterson's well purge and was found to be non-detect in the sample results. All laboratory test results can be found attached to this report.

**TABLE 3a: GROUNDWATER MICROBIOLOGY & GENERAL GEOCHEMISTRY**

| PARAMETER                               | UNITS    | ODWS      |        | TW1            |                |
|-----------------------------------------|----------|-----------|--------|----------------|----------------|
|                                         |          | LIMIT     | TYPE   | A342117 (12hr) | TW1 GW1 (6 hr) |
|                                         |          |           |        | 2022-08-09     | 2025-08-12     |
| MICROBIOLOGICAL                         |          |           |        |                |                |
| Escherichia Coli (E.Coli)               | ct/100mL | 0         | MAC    | 0              | 0              |
| Total Coliforms                         | ct/100mL | 0         | MAC    | 3              | 0              |
| GENERAL CHEMICAL - HEALTH RELATED       |          |           |        |                |                |
| Fluoride (F)                            | mg/L     | 1.5       | MAC    | -              | 0.35           |
| Ammonia (N-NH <sub>3</sub> )            | mg/L     | -         | -      | 0.17           | 0.240          |
| Nitrite (N-NO <sub>2</sub> )            | mg/L     | 1         | MAC    | <0.003         | <0.5           |
| Nitrate (N-NO <sub>3</sub> )            | mg/L     | 10        | MAC    | <0.006         | <0.5           |
| Total Kjeldahl Nitrogen                 | mg/L     | -         | -      | 0.16           | 0.332          |
| Turbidity (Field)                       | NTU      | 1.0 (5.0) | MAC/AO | -              | 0.86           |
| Turbidity (Laboratory)                  | NTU      | 1.0 (5.0) | MAC/AO | 4.21           | 2.3            |
| GENERAL CHEMICAL - AESTHETIC RELATED    |          |           |        |                |                |
| Alkalinity (as CaCO3)                   | mg/L     | 30-500    | OG     | 261            | 306            |
| Chloride (Cl)                           | mg/L     | 250       | AO     | 68             | 79             |
| Colour (Laboratory - True)              | TCU      | 5         | AO     | <2             | <2             |
| Colour (Field - True)                   | TCU      | 5         | AO     | -              | 0              |
| Conductivity                            | uS/cm    | -         | -      | 1350           | 1,210          |
| Dissolved Organic Carbon                | mg/L     | 5         | AO     | 2              | 2.2            |
| Hardness (as CaCO3)                     | mg/L     | 100       | OG     | 511            | 567            |
| Ion Balance                             | unitless | -         | -      | -              | 1.01           |
| pH                                      | unitless | 6.5-8.5   | AO     | 8.23           | 8.2            |
| Phenols                                 | mg/L     | -         | -      | -              | <0.001         |
| Sulphate (SO <sub>4</sub> )             | mg/L     | 500       | AO     | 400            | 285            |
| Sulphide (S <sub>2</sub> <sup>-</sup> ) | mg/L     | 0.05      | AO     | <0.02          | <0.01          |
| Tannin & Lignin                         | mg/L     | -         | -      | 0.4            | 0.10           |
| Total Dissolved Solids                  | mg/L     | 500       | AO     | 914            | 787            |

1. ODWS identifies the following types of parameters:

MAC = Maximum Allowable Concentration

AO = Aesthetic Objective

OG = Operational Guideline

2. Shaded Concentration Indicates an Exceedance of the ODWS Objective



| TABLE 3b: GROUNDWATER GEOCHEMISTRY - METALS |       |       |      |                              |                              |
|---------------------------------------------|-------|-------|------|------------------------------|------------------------------|
| PARAMETER                                   | UNITS | ODWS  |      | TW1                          |                              |
|                                             |       | LIMIT | TYPE | A342117 (12hr)<br>2022-08-09 | TW1 GW1 (6 hr)<br>2025-08-12 |
| METALS                                      |       |       |      |                              |                              |
| Aluminum (Al)                               | mg/L  | 0.1   | OG   | <0.001                       | <0.01                        |
| Antimony (Sb)                               | mg/L  | 0.006 | IMAC | <0.0009                      | <0.0005                      |
| Arsenic (As)                                | mg/L  | 0.01  | IMAC | 0.0004                       | <0.001                       |
| Barium (Ba)                                 | mg/L  | 1.0   | MAC  | 0.0988                       | 0.09                         |
| Beryllium (Be)                              | mg/L  | -     | -    | 0.000011                     | <0.0005                      |
| Boron (B)                                   | mg/L  | 5.0   | IMAC | 0.216                        | 0.24                         |
| Cadmium (Cd)                                | mg/L  | 0.005 | MAC  | 0.00002                      | <0.0001                      |
| Calcium (Ca)                                | mg/L  | -     | -    | 117                          | 128                          |
| Chromium (Cr)                               | mg/L  | 0.05  | MAC  | <0.00008                     | <0.001                       |
| Cobalt (Co)                                 | mg/L  | -     | -    | 0.000082                     | <0.0002                      |
| Copper (Cu)                                 | mg/L  | 1.0   | AO   | <0.0002                      | <0.001                       |
| Iron (Fe)                                   | mg/L  | 0.3   | AO   | 0.48                         | 0.55                         |
| Lead (Pb)                                   | mg/L  | 0.01  | MAC  | <0.00009                     | <0.001                       |
| Magnesium (Mg)                              | mg/L  | -     | -    | 53.5                         | 60                           |
| Manganese (Mn)                              | mg/L  | 0.05  | AO   | 0.171                        | 0.18                         |
| Mercury (Hg)                                | mg/L  | 0.001 | MAC  | <0.00001                     | <0.0001                      |
| Molybdenum (Mo)                             | mg/L  | -     | -    | 0.03188                      | 0.018                        |
| Nickel (Ni)                                 | mg/L  | -     | -    | 0.0012                       | <0.005                       |
| Potassium (K)                               | mg/L  | -     | -    | 7.39                         | 8                            |
| Selenium (Se)                               | mg/L  | 0.05  | MAC  | 0.00011                      | <0.001                       |
| Silver (Ag)                                 | mg/L  | -     | -    | <0.00005                     | <0.0001                      |
| Sodium (Na)                                 | mg/L  | 200   | AO   | 57                           | 65                           |
| Strontium (Sr)                              | mg/L  | -     | -    | 5.92                         | 6.25                         |
| Thallium (Tl)                               | mg/L  | -     | -    | <0.000005                    | <0.0001                      |
| Uranium (U)                                 | mg/L  | 0.02  | MAC  | 0.000219                     | <0.001                       |
| Vanadium (V)                                | mg/L  | -     | -    | 0.00009                      | <0.001                       |
| Zinc (Zn)                                   | mg/L  | 5.0   | AO   | <0.002                       | <0.01                        |

- ODWS identifies the following types of parameters:
  - MAC = Maximum Acceptable Concentration
  - IMAC = Interim Maximum Acceptable Concentration
  - AO = Aesthetic Objective
  - OG = Operational Guideline
- Shaded Concentration Indicates an Exceedance of the ODWS Objective

The bacteriological test results from Paterson's Well purge (Certificate of Analysis – Report No. 4432589) indicated that the test samples at the 6-hour point were non-detect (0 ct/100 mL) for E.Coli and Total Coliforms.

The water quality of the subject water supply well meets all the Ontario Drinking Water Standards Maximum Acceptable Concentrations (MAC), as discussed below. The water meets all of the Aesthetic Objectives (AO) and Operational Guidelines (OG) with the exception of the following:

- ☐ Hardness (as CaCO<sub>3</sub>)
- ☐ Total Dissolved Solids (TDS)
- ☐ Iron (Fe)
- ☐ Manganese (Mn)



Each of these groundwater parameters are discussed in detail below. Should any water treatment be desired by the owner, it is recommended that a water treatment specialist be retained to ensure that water treatment occurs in a safe manner.

### **Hardness as $\text{CaCO}_3$**

Hardness, expressed as calcium carbonate, is an operational guideline and does not appear in the ODWS. Rather, it appears in the Technical Support Documents for Ontario Drinking Water Standards, Objectives and Guidelines as a parameter with an operational guideline at 100 mg/L. At the measured concentrations of 567 mg/L, the water is considered to be very hard, and it is above the Ontario Drinking Water Objective (ODWO) of 500 mg/L specified in Table 3 of the MOECC guidance document Procedure D-5-5 (1996).

The Langelier Saturation Index (LSI) calculation provided an LSI of 0.5. Based on the evaluation of the result, the water is super saturated and tends to precipitate a scale layer of calcium carbonate (slightly scale forming and slightly corrosive). Based on the range of stability in the positive direction, there are no mitigative measures needed. See Langelier Saturation Index Calculation attached for calculation details.

It is recommended that water hardness be treated using conventional technologies such as water softening or reverse osmosis, if desired by the owner. Without treating hardness, scaling can occur which can result in discolouration and residue buildup on water fixtures, or reduction in boiler efficiency due to scale build-up. According to Health Canada's *Guidelines for Canadian Drinking Water Quality - Summary Tables*, "Although hardness may have significant aesthetic effects, a guideline has not been established because public acceptance of hardness may vary considerably according to the local conditions; major contributors to hardness (calcium and magnesium) are not of direct public health concern".

### **Total Dissolved Solids (TDS)**

Total Dissolved Solids (TDS) refers to the concentration of inorganic substances dissolved in water. The main constituents are typically chloride, sulphates, calcium, magnesium, and bicarbonates. The TDS concentration of 787 mg/L exceeds the Aesthetic Objective of 500 mg/L. At concentrations above 500 mg/L, some consumers may find the taste objectionable, however, as the objective is an aesthetic objective, no treatment is required. It is recommended that a point of use reverse osmosis unit be installed, if the owner desires, for drinking purposes. As such, no taste problems will occur when the system is used.

The Langelier calculation provided an LSI of 0.5. Based on the evaluation of the result, the water is super saturated and tends to precipitate a scale layer of calcium carbonate (slightly scale forming and slightly corrosive). Based on the range of stability in the positive direction, there are no mitigative measures needed for TDS. See Langelier Saturation Index Calculation attached for calculation details.





## **Iron**

Concentrations of iron above 0.3 mg/L can contribute to staining of fixtures and a metallic taste at higher concentrations. Precipitation of iron can promote the growth of iron bacteria in pipes. The concentration of iron in the groundwater in TW1 was measured to be 0.55 mg/L. The concentration of iron in the groundwater is considered to be reasonably treatable in accordance with Procedure D-5-5. It is recommended that a water softener or manganese greensand filter be used to reduce the levels of iron and reduce the potential for excessive precipitate occurring in the water supply system, if desired by the property owner. If treatment is not used, negative impacts such as discolouration of water fixtures, precipitation of iron and staining may occur.

## **Manganese**

The manganese concentration results from the laboratory test samples yielded a value of 0.18 mg/L in the onsite well, which is above the aesthetic objectives in the ODWSOG of 0.05 mg/L. The Health Canada Federal Drinking Water Guidelines have suggested a health related MAC of 0.12 mg/L due to potential adverse effects on the central nervous system particularly in infants due to chronic exposure, however this guideline has not been implemented by Ontario as of the writing of this report. Furthermore, this is an industrial development that is not raising infants.

According to the Guidelines for Canadian Drinking Water Quality: Guideline Technical Document – Manganese, section 3: “Specific guidance related to the implementation of drinking water guidelines should be obtained from the appropriate drinking water authority in the affected jurisdiction.”. The applicable regulations which apply to the development approval process for this site are the HTAG and MECP Procedure D-5-5, which does not have a MAC for manganese.

Procedure D-5-5 gives a maximum concentration considered reasonably treatable for manganese as 1.0 mg/L. It is recommended that a reverse osmosis system, ion exchange, water softeners and / or an oxidizing filter be used to reduce the manganese concentration, if desired by the owner.

As the concentration of manganese is elevated above the Health Canada Federal Drinking Water Guidelines, a notice regarding the elevated levels of manganese in the aquifer accessed by TW1 is recommended to be registered on title so that future owners are made aware.

The City of Ottawa (Ottawa Public Health) has prepared a Manganese in drinking Water Factsheet, which can be found attached to this report.

## **Sodium**

Sodium (Na), an aesthetic parameter, was detected in the laboratory test sample at concentrations of 65 mg/L, which does not exceed the ODWS aesthetic objective of 200 mg/L. Although sodium is not toxic and no maximum acceptable concentration has



been set, concentrations above 20 mg/L require that the Medical Officer of Health be notified of the water quality results, so that this information may be passed on to local physicians for use in treatment of those requiring a sodium-restricted diet. It should be noted that some water treatment technologies, such as water softeners, can increase the sodium concentration so care should be given if such treatment technologies are used.



## **Terrain Analysis**

### **Surficial Geology**

A series of boreholes were put down on the subject parcel to delineate the subsurface soil conditions. Onsite investigations were completed by Paterson in 2025, 2021 and 2019 with further investigations completed by others in 2021, 2020, and 2008. The boreholes were distributed in a manner to provide general coverage of the subject site, taking into consideration underground services and available site access. The locations of the test holes on the property are delineated on the Test Hole Location Plan, drawing PG7327-1, attached.

The borehole locations were recorded and the subsurface conditions, including the soil morphology and depth to the groundwater table (if encountered), were carefully observed and recorded. The soils encountered were classified texturally in the field and later reviewed in the laboratory.

Generally, the subsurface profile at the borehole locations were observed to consist of topsoil followed by an approximate 2.3 to 10 m thickness of fill material followed by a layer of clayey silt to silty clay and/or silty sand. Generally, the fill material consisted of silty sand and/or silty clay with varying amounts of organics, gravel, asphalt, concrete and bedrock fragments. The boreholes were advanced to a maximum depth of 14.3 m below ground surface (bgs).

Reference should be made to the test pit logs appended to this report for the details of the soil profiles encountered at each test hole location. The client should be aware that any information pertaining to soils are furnished as a matter of general information only and borehole descriptions are not to be interpreted as descriptive of conditions at locations other than those described by the boreholes themselves.

### **Hydrogeological Sensitivity of the Site**

The subject site is currently vacant and undeveloped aside from an engineered pad. The subject site is to be serviced by a private well and sewage system. The site is bordered by Rideau Road to the north, by vacant lands to the east, and by Somme Street to the west and south. All surrounding properties are on private services.

The overburden at the test hole locations generally consists of topsoil followed by an approximate 2.3 to 10 m thickness of fill material followed by a layer of clayey silt to silty clay and/or silty sand overlying bedrock. The WWR for TW1 indicates that bedrock was encountered at 14.0 m bgs. According to available geological mapping, the drift thickness within the site varies from 0 to 2 m bgs.

According to the geotechnical field investigation, the overburden thickness was observed to be greater than 2 m. As such, the site is not considered to be hydrogeologically sensitive and, therefore, mitigating measures are not required.



## **Conceptual Lot Development Plan**

A vehicle service building, a storage building, a cardlock fueling area and propane storage tanks along with infrastructure is proposed to be constructed onsite. The location of the proposed structure can be found on the attached Hobin Architecture Drawing A1.00 Vehicle Servicing & Storage Yard Site Plan, attached to this report.

## **Proposed Sewage System**

A sewage system design was completed by Paterson and submitted to the Ottawa Septic System Office (OSSO) for a Sewage System Installation Permit (SSIP). The sewage flows for the proposed development are based on Part 8 of the Ontario Building Code (OBC). The Total Daily Design Sanitary Sewage Flow (TDDSSF) volume was calculated to be 4,077 L/day.

The approved OSSO SSIP includes an Advantex AX25-RT treatment system, which is an NSF 245 approved sewage treatment system capable of reducing total nitrogen levels by at least 50 %.

The OSSO approved SSIP will be submitted separately as part of the Site Plan application.

## **Predictive Nitrate Impact Assessment**

Nitrate is considered to be a critical parameter of concern when assessing impacts to groundwater quality downgradient of an onsite sewage system. The City's HTAG, including the annotated MECP Procedure D-5-4 applies for the proposed development. For the purpose of this guideline, the Ontario Drinking Water Objective of 10 mg/L of nitrate is used as an indicator of groundwater impact potential.

Under this guideline, where the average lot size is one hectare or larger and the minimum lot size is 0.8 ha or greater, a detailed impact assessment may not be required. It has been the City of Ottawa's policy that where the lot size of 0.8 ha or larger, a detailed assessment is typically not required since it is considered to be a low-risk development.

The subject site is located within the Hawthorne Industrial Park industrial subdivision (Golder Associates 08-1122-0215-3, September 2011). The subject site is 6.09 ha in size, while the industrial subdivision has an average lot size of 3.15 ha, with lot sizes ranging from 0.8 – 11.04 ha. As such, a detailed nitrate impact assessment (NIA) would not typically be necessary. An NIA was completed below to corroborate our opinion that the property can adequately support the proposed development without having adverse impacts on the underlying bedrock aquifer should the minimum separation distances, well construction, and sewage system be completed as per the recommendations of this report and the OBC. The values shown in the Predictive Nitrate Impact Assessment attached to this report are summarized below.



|                                                                                                                                                                                                                 |                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| <input type="checkbox"/> Site area                                                                                                                                                                              | 6.09 ha               |
| <input type="checkbox"/> Impervious area (%)                                                                                                                                                                    | 80 %                  |
| <input type="checkbox"/> Daily sewage flow                                                                                                                                                                      | 4.1 m <sup>3</sup> /d |
| <input type="checkbox"/> Concentration of nitrate in effluent with treatment<br>(Value based on nitrate reduction system (Advantex AX25RT Series) with 50 % nitrate reduction)                                  | 20 mg/L               |
| <input type="checkbox"/> Surplus Water<br>(The surplus water value was estimated based on Environment Canada Climate Office values with a soil type comprised of clay (Urban Lawns) and anthropogenic sources.) | 361 mm/yr             |
| <input type="checkbox"/> Combined infiltration factor based on:                                                                                                                                                 | 0.50                  |
| • Topography infiltration factor                                                                                                                                                                                | 0.20                  |
| • Soil texture infiltration factor                                                                                                                                                                              | 0.20                  |
| • Cover infiltration factor                                                                                                                                                                                     | 0.10                  |

The topography infiltration factor of 0.20 is based upon a rolling land with an average slope of 2.8 to 3.8 m/km. The soil texture infiltration factor was based upon a material which consisted of a silty sand to silty clay, which is a medium combination of clay and loam with a value of 0.2. This is a reasonable generalization of the overburden. The “cover infiltration factor” was calculated at 0.10 based upon a conservative cultivated land type cover.

There are numerous tertiary treatment technologies that are NSF/ANSI 245 and/or BNQ certified for 50% nitrate reduction, resulting in an effluent nitrate concentration of less than 20 mg/L. The proposed sewage system consists of an Advantex AX25-RT treatment system, which is NSF 245 certified and is therefore capable of providing a minimum of 50 % nitrate reduction. When using an effluent nitrate concentration of 20 mg/L, the predicted nitrate concentration at the property boundary is **8.09 mg/L**. This is below the limit of 10 mg/L of nitrate at the property boundary.

Based on the results of the predicted nitrate impact assessment, it is our opinion that the property can adequately support the proposed industrial development without having an adverse impact on the underlying bedrock aquifer, provided that a NSF/ANSI 245 and/or BNQ certified 50% nitrate reduction technology is used in the sewage system.



## CONCLUSIONS

Based on the information contained within the body of this report the following conclusions can be drawn:

1. The water supply aquifer intercepted by the existing well is considered to be adequate to support the water quantity demands for the proposed industrial development.
2. The groundwater contains elevated concentrations of hardness, TDS, iron and manganese. The noted parameters can be treated to functional concentrations with current readily available water conditioning equipment, if desired by the owner.
3. Elevated concentrations of manganese were encountered in the water supply intercepted by TW1. Although only regulated for aesthetic reasons in Ontario (AO of 0.05 mg/L), the federal government of Canada has a MAC of 0.12 mg/L due to potential adverse effects on the central nervous system primarily in infants due to chronic exposure. This guideline has not been implemented by Ontario as of the writing of this report. As the concentration of manganese is elevated above the Health Canada Federal Drinking Water Guidelines, a notice regarding the elevated levels of manganese in the aquifer accessed by TW1 is recommended to be registered on title so that future owners are made aware.
4. If desired by the property owner, a residential grade water softener can be used to facilitate the reduction of the hardness concentration and reduce scaling. If a water softener is used for the proposed development, the owner should be made aware that additional sodium will be added to the water to reduce hardness. Note that elevated hardness is above the ODWO, however, the ODWO for hardness is related to aesthetic reasons. If desired, a point-of-use reverse osmosis system can be used to provide a drinking tap source without increasing sodium levels.
5. The sodium concentration was measured to be above the 20 mg/L reporting limit and, as such, the Medical Officer of Health for the City of Ottawa should be informed to assist area physicians in the treatment of local residents on sodium reduced diets. It should be noted that some water treatment equipment may further increase the sodium concentration.
6. The predicted nitrate concentrations at the property boundary is calculated to be below the required 10 mg/L threshold when an NSF/ANSI 245 and/or certified BNQ system with a minimum of 50 % nitrate reduction tertiary treatment system is used.



7. A Sewage System Permit and Building Permit need to be issued prior to the commencement of construction on the proposed industrial building or the proposed sewage system.
8. The results of the Hydrogeological Assessment and Terrain Analysis have provided satisfactory evidence that the subject site can support the proposed building addition with respect to water quantity and sewage system placement.

We trust that the current submission satisfies your immediate requirements.

Best Regards,

**Paterson Group Inc.**

Alexander Schopf, PhD, EIT



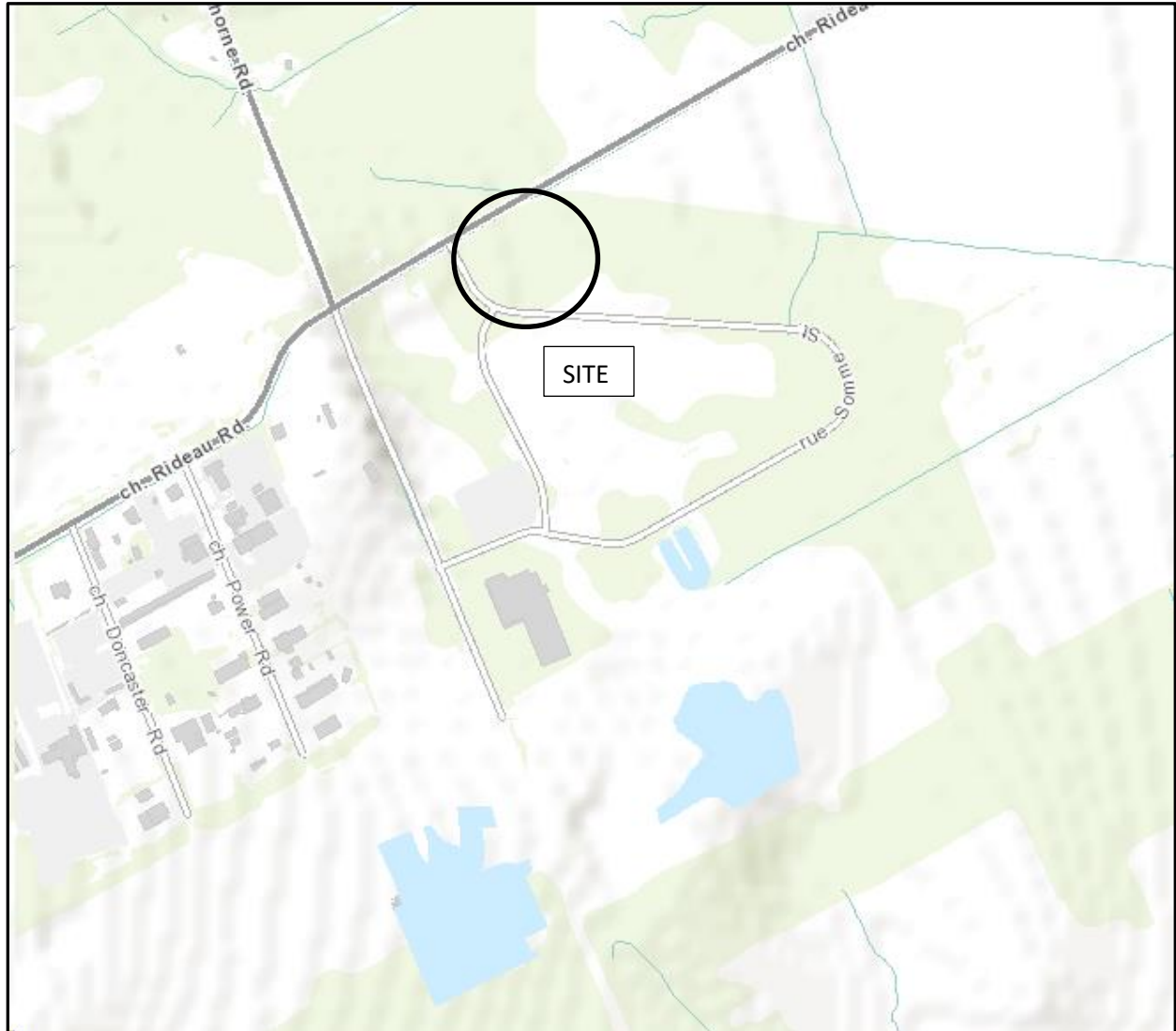
Erik Ardley, P.Geo

**Attachments:**

- ☐ Key Plan
- ☐ Hobin Architecture A1.00 Vehicle Service & Storage Yard Site Plan
- ☐ MECP Water Well Records
- ☐ Eurofins Certificate of Analysis
- ☐ Paterson Borehole Logs
- ☐ Nitrate Impact Assessment Calculations
- ☐ Langelier Saturation Index (LSI) Calculation
- ☐ City of Ottawa Manganese in Drinking Water Factsheet
- ☐ Paterson Drawing PG7567-1 - Test Hole Location Plan
- ☐ GHD Ltd. *Hydrogeological and Impact Assessment Report*, September 22, 2022



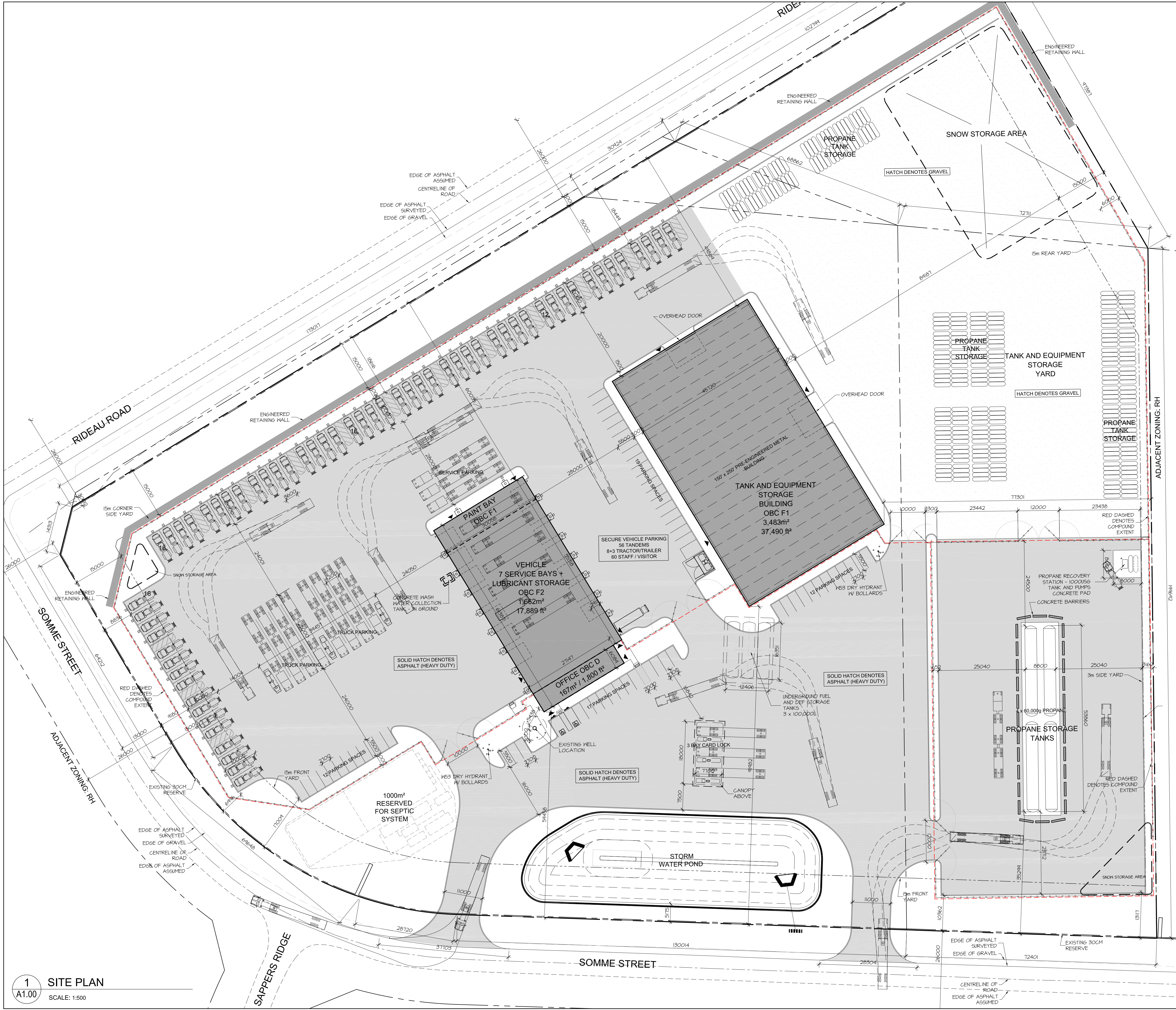




**FIGURE 1**

**KEY PLAN**





LEGAL DESCRIPTION:  
PART OF LOT 26; CONCESSION 6 (RIDEAU FRONT)  
GEOGRAPHIC TOWNSHIP OF CHEROKEE  
and PARK OF BLOCKS 5 AND 14, REGISTERED PLAN 4M-1368  
CITY OF OTTAWA

CIVIL ADDRESS:  
301 SOMME STREET, OTTAWA

ZONING NOTES:  
OFFICIAL PLAN DESIGNATION: RURAL  
ZONING - RH - RURAL HEAVY INDUSTRIAL  
ABUTTING - RH - RURAL HEAVY INDUSTRIAL

Owner  
W. O. STINSON & SON LTD.  
4128 Bank Street, Ottawa, ON K1T 3K7  
Attn: Scott Stinson - 613-822-1400

Architect/Agent  
HOBIN ARCHITECTURE INC.  
63 Pamela Street, Ottawa, ON K1S 3K7  
Attn: Doug van den Ham - 613-238-1200 x 115

Survey  
ANNIS O'SULLIVAN VOLLEBEKK LTD  
113 Prescott Street, Box 1340, Kemptville, Ontario K0G1J0  
Attn: Emmett Ketchum - 613-258-1111

Civil  
STANTEC OTTAWA  
300 - 1351 Clyde Avenue Ottawa ON K2C 3G4  
Attn: Peter Moroz P.Eng - 613-214-2851

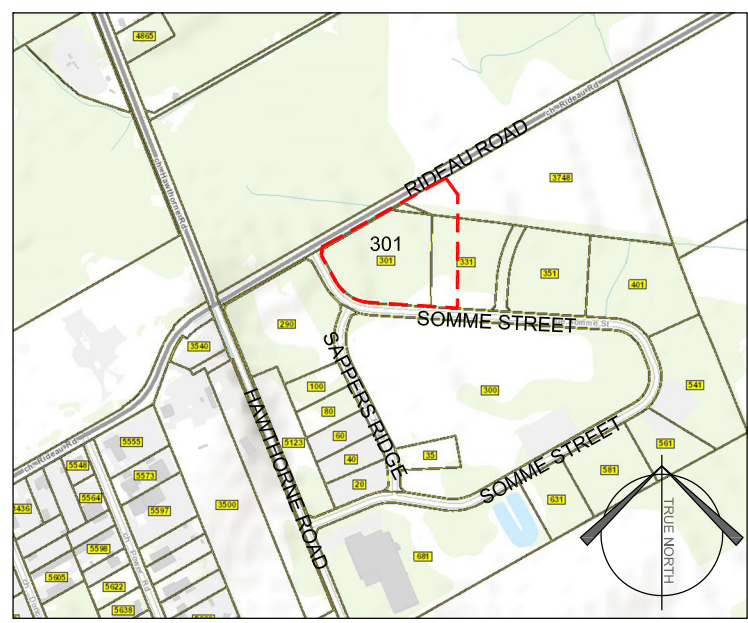
Structural  
NOT YET CONTRACTED

Electrical  
NOT YET CONTRACTED

Landscape  
NOT YET CONTRACTED

Traffic  
PARSONS ENGINEERING  
1223 Michael St., Suite 100, Ottawa, ON K1J 7T2  
Attn: Jake Benise - 613-641-0862

| ZONE: RH                                                                | REQUIRED                                                                                                                                         | PROVIDED           |
|-------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| PERMITTED USE (AMONG OTHERS)                                            | AUTOMOBILE SERVICE STATION, DRIVE-THROUGH FACILITY, GAS BAR/PARKING LOT, SERVICE & REPAIR SHOP, STORAGE YARD, WAREHOUSE                          | ALL PERMITTED USES |
| MIN. LOT AREA                                                           | 8,000 sq.m.                                                                                                                                      | 60,843sq.m.        |
| MIN. LOT WIDTH                                                          | 50m                                                                                                                                              | 100m               |
| MIN. FRONT YARD SETBACK                                                 | 15 m                                                                                                                                             | 15 m               |
| MIN. REAR YARD SETBACK                                                  | 15 m                                                                                                                                             | 15 m               |
| MIN. INTERIOR SIDE YARD SETBACK (I) ABUTTING INDUSTRIAL ZONE (II) OTHER | 3m<br>10m                                                                                                                                        | 3m<br>10m          |
| MIN. CORNER SIDE YARD SETBACK                                           | 15m                                                                                                                                              | 15m                |
| MAX. PRINCIPAL BUILDING HEIGHT                                          | 15m                                                                                                                                              | 15m                |
| MAX. LOT COVERAGE (%)                                                   | 50%                                                                                                                                              | 8.7%               |
| PARKING SPACES (STAFF)                                                  | 00 / 100 = 00                                                                                                                                    | 60                 |
| BICYCLE PARKING                                                         | 1 / 1500 = 2                                                                                                                                     | 2 PROVIDED INDOORS |
| OUTDOOR STORAGE                                                         | NOT PERMITTED IN ANY REQUIRED FRONT OR CORNER SIDE YARD. MUST BE SCREENED FROM ADJACENT RESIDENTIAL OR PUBLIC ROADS BY A 1.8M HIGH OPAQUE SCREEN |                    |



LEGEND:

|                                                                                       |  |
|---------------------------------------------------------------------------------------|--|
| B.F. PARKING STALL<br>c/w B.F. SIGNAGE                                                |  |
| DEPRESSED CURB c/w<br>TWSI                                                            |  |
| 150mm DIA., 6mm THK.<br>GALV. STEEL BOLLARD<br>(MIN. 1.5m HIGH & 1.5m<br>BELOW GRADE) |  |
| 300mm DIA., 6mm THK.<br>GALV. STEEL BOLLARD<br>(MIN. 1.5m HIGH & 1.5m<br>BELOW GRADE) |  |
| PRECAST CONCRETE<br>PAVING                                                            |  |
| CAST IN PLACE<br>CONCRETE SIDEWALK/<br>REFER TO GEOTECH.<br>REPORT                    |  |
| HEAVY DUTY ASPHALT                                                                    |  |
| ASPHALT SIDEWALK                                                                      |  |
| PAINTED LINE STOP<br>BAR                                                              |  |
| ROLLED CONCRETE<br>CURB                                                               |  |
| SITE SIGNAGE                                                                          |  |
| PAINTED LINES                                                                         |  |
| BIKE RACK                                                                             |  |
| EXTERIOR LIGHTING/<br>REFER TO ELEC. DWGS.<br>FOR TYPES                               |  |
| CHAIN LINK FENCE                                                                      |  |
| FIRE ROUTE SIGNAGE                                                                    |  |

|     |               |                           |
|-----|---------------|---------------------------|
| 8   | AUG 13, 2025  | ISSUED FOR COORDINATION   |
| 7   | JULY 17, 2025 | ISSUED FOR COORDINATION   |
| 6   | JULY 16, 2025 | ISSUED FOR CONCEPT REVIEW |
| 5   | MAY 28, 2025  | SITEPLAN - EXISTING WELL  |
| 4   | APR 15, 2025  | SITEPLAN PRE-CONSULTATION |
| 3   | MAR 20, 2025  | ISSUED FOR CONCEPT REVIEW |
| 2   | MAR 06, 2025  | ISSUED FOR CONCEPT REVIEW |
| 1   | FEB 27, 2025  | ISSUED FOR CONCEPT REVIEW |
| no. | date          | revision                  |

It is the responsibility of the appropriate contractor to check and verify all dimensions on site and report all errors and/or omissions to the architect.

All contractors must comply with all pertinent codes and by-laws.

Do not scale drawings.

This drawing may not be used for construction until signed.

Copyright reserved.

Hobin Architecture Incorporated

63 Pamela Street  
Ottawa, Ontario  
Canada K1S 3K7  
T: 613-238-7200  
F: 613-235-2005  
E: mail@hobinarc.com  
hobinarc.com



PROJECT/LOCATION:

W.O. Stinson & Son Ltd.  
Somme Street Truck Yard  
301 Somme Street

DRAWING TITLE:

VEHICLE SERVICE &  
STORAGE YARD  
SITE PLAN

DRAWN BY:

DV

DATE:

FEB 2025

SCALE:

AS NOTED

PROJECT:

2502

DRAWING NO.:

A1.00

REVISION NO.:

1

SITE PLAN

A1.00

SCALE: 1:500



Page of

### Well Location

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

### Results of Well Yield Testing

### Map of Well Location

Please provide a map below following instructions on the back.

Rideau Road

150m

100ft

301 SOMME STREET

N

S

Comments:

Comments: 1 HP-266m Set @ 100 FT

|                                                                                                                                   |                                     |                                                                |
|-----------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|----------------------------------------------------------------|
| Well owner's<br>information<br>package<br>delivered<br><br><input checked="" type="checkbox"/> Yes<br><input type="checkbox"/> No | Date Package Delivered<br>2-22-2022 | Ministry Use Only<br>Audit No. 2379047<br>Received NOV 22 2022 |
|                                                                                                                                   | Date Work Completed<br>2-22-2022    |                                                                |

UTM 1182 4564010 E

9R 50168710 N

Elev. 9R 0290

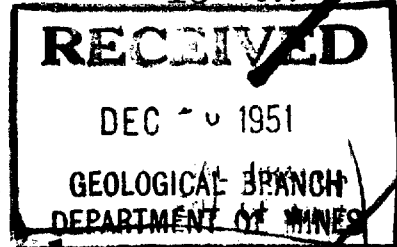
Basin 25



ONTARIO

The Well Drillers Act  
Department of Mines, Province of Ontario

15 No 2342



# Water Well Record

County of CARLETON Township, Village, Town or City Gloucester  
Town or City Leitrim  
Date Completed 20 (day) 10 (month) 50 (year) Cost of well (excluding pump) 50

## Pipe and Casing Record

## Pumping Test

|                                                             |                                                 |
|-------------------------------------------------------------|-------------------------------------------------|
| Casing diameter(s) <u>5"</u>                                | Date <u>13</u>                                  |
| Length(s) of casing(s) <u>WELL DEEPENED FROM 27' TO 57'</u> | Static level <u>13'</u>                         |
| Type of screen <u>WELL DEEPENED FROM 27' TO 57'</u>         | Pumping level <u>18'</u>                        |
| Length of screen <u>WELL DEEPENED FROM 27' TO 57'</u>       | Pumping rate <u>8 GPM</u>                       |
| Distance from top of screen to ground level <u>57'</u>      | Duration of test <u>30 MIN</u>                  |
| Is well a gravel-wall type?                                 | Distance from cylinder or bowls to ground level |

## Water Record

| Kind (fresh or mineral)                                            | Depth(s) to Water Horizon(s) | Kind of Water | No. of Water F |
|--------------------------------------------------------------------|------------------------------|---------------|----------------|
| <u>Fresh</u>                                                       | <u>57</u>                    | <u>Fresh</u>  | <u>44'</u>     |
| Quality (hard, soft, contains iron, sulphur, etc.) <u>hard</u>     |                              |               |                |
| Appearance (clear, cloudy, coloured) <u>clear</u>                  |                              |               |                |
| For what purpose(s) is the water to be used? <u>Farm supply</u>    |                              |               |                |
| How far is well from possible source of contamination? <u>45'</u>  |                              |               |                |
| What is the source of contamination? <u>low stable</u>             |                              |               |                |
| Enclose a copy of any mineral analysis that has been made of water |                              |               |                |

## Well Log

### Overburden and Bedrock Record

From

To

Previous well

0 ft.

27 ft.

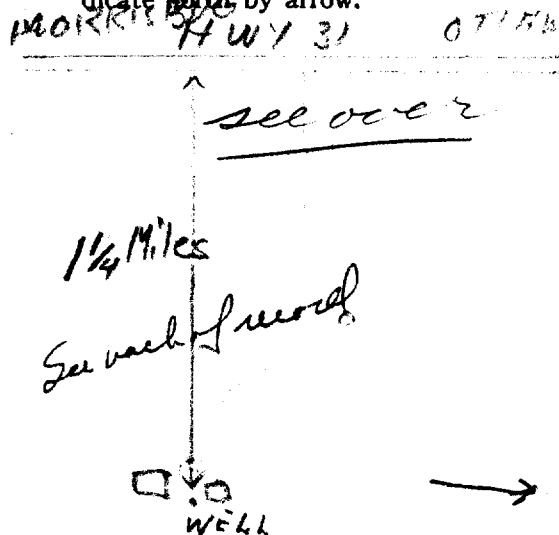
SANDSTONE

27'

57'

## Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



Situation: Is well on upland, in valley, or on hillside? hillside  
Drilling Firm F. H. McNamee & Son  
Address 1815 TIMES ST  
Name of Driller M. RENFLEW Address   
Date Nov 20/51 Licence Number





## The Ontario Water Resources Act

1527048

MUNICIP  
15002

CON. CON. 06

1. PRINT ONLY IN SPACES PROVIDED  
2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

11

|                           |  |                                               |  |                                 |  |           |  |
|---------------------------|--|-----------------------------------------------|--|---------------------------------|--|-----------|--|
| COUNTY OR DISTRICT        |  | TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE        |  | CON. BLOCK, TRACT, SURVEY, ETC. |  | LOT       |  |
| Ottawa Carleton           |  | Gloucester                                    |  | 6                               |  | 26        |  |
| OWNER (SURNAME FIRST)     |  | ADDRESS                                       |  | DATE COMPLETED                  |  | 48-53     |  |
| Beaver Road Builders Ltd. |  | P.O. Box 4208 st. "E" Ottawa, Ontario K1S 5B2 |  | DAY 19 MO 4 YR 93               |  |           |  |
| UT ZONE                   |  | EASTING                                       |  | NORTHING                        |  | RC        |  |
| 21                        |  |                                               |  |                                 |  |           |  |
| ELEVATION                 |  | RC                                            |  | BASIN CODE                      |  | II III IV |  |
| 26                        |  | 30                                            |  | 31                              |  |           |  |

## LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

[illegible]

Row 31: A horizontal number line with tick marks labeled 1 through 10.

Row 32: A horizontal number line with tick marks labeled 1 through 10. The numbers 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10 are all present.

| CASING & OPEN HOLE RECORD |                                                                                                                                                                                                 |                             |              |     |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|--------------|-----|
| INSIDE<br>DIAM<br>INCHES  | MATERIAL                                                                                                                                                                                        | WALL<br>THICKNESS<br>INCHES | DEPTH - FEET |     |
|                           |                                                                                                                                                                                                 |                             | FROM         | TO  |
| 6 1/4                     | <input checked="" type="checkbox"/> STEEL<br><input type="checkbox"/> GALVANIZED<br><input type="checkbox"/> CONCRETE<br><input type="checkbox"/> OPEN HOLE<br><input type="checkbox"/> PLASTIC | .188                        | 0            | 31  |
| 6 1/8                     | <input type="checkbox"/> STEEL<br><input type="checkbox"/> GALVANIZED<br><input type="checkbox"/> CONCRETE<br><input type="checkbox"/> OPEN HOLE<br><input type="checkbox"/> PLASTIC            |                             | 31           | 75  |
| 6                         | <input type="checkbox"/> STEEL<br><input type="checkbox"/> GALVANIZED<br><input type="checkbox"/> CONCRETE<br><input type="checkbox"/> OPEN HOLE<br><input type="checkbox"/> PLASTIC            |                             | 75           | 135 |

|        |                                  |       |                           |       |        |       |
|--------|----------------------------------|-------|---------------------------|-------|--------|-------|
| SCREEN | SIZE(S) OF OPENING<br>(SLOT NO.) | 31-33 | DIAMETER                  | 34-38 | LENGTH | 39-40 |
|        | INCHES                           |       |                           | FEET  |        |       |
|        | MATERIAL AND TYPE                |       | DEPTH TO TOP<br>OF SCREEN | 41-44 | FEET   |       |

| 61                  |       | PLUGGING & SEALING RECORD                                |  |
|---------------------|-------|----------------------------------------------------------|--|
| DEPTH SET AT - FEET |       | MATERIAL AND TYPE<br>(CEMENT GROUT<br>LEAD PACKER, ETC.) |  |
| FROM                | TO    |                                                          |  |
| 10-13               | 14-17 | Grouted - Cement (18)                                    |  |
| 31                  | 0     |                                                          |  |
| 18-21               | 22-25 |                                                          |  |
| 26-29               | 30-33 | 80                                                       |  |

|                                                                           |                                                                                 |                                  |                     |                                                                       |                              |                                                                                      |
|---------------------------------------------------------------------------|---------------------------------------------------------------------------------|----------------------------------|---------------------|-----------------------------------------------------------------------|------------------------------|--------------------------------------------------------------------------------------|
| 71                                                                        | PUMPING TEST METHOD                                                             |                                  | PUMPING RATE        |                                                                       | DURATION OF PUMPING          |                                                                                      |
|                                                                           | 1 <input checked="" type="checkbox"/> PUMP    2 <input type="checkbox"/> BAILER |                                  | 15-20 GPM           |                                                                       | 1 15:16 17:13<br>HOURS MINS. |                                                                                      |
|                                                                           | STATIC LEVEL                                                                    | WATER LEVEL<br>END OF<br>PUMPING | WATER LEVELS DURING |                                                                       |                              | 1 <input type="checkbox"/> PUMPING<br>2 <input checked="" type="checkbox"/> RECOVERY |
|                                                                           | 19-21                                                                           | 22-24                            | 15 MINUTES<br>26-28 | 30 MINUTES<br>29-31                                                   | 45 MINUTES<br>32-34          | 60 MINUTES<br>35-37                                                                  |
|                                                                           | 31 FEET                                                                         | 130 FEET                         | 40 FEET             | 32 FEET                                                               | 31 FEET                      | 31 FEET                                                                              |
| IF FLOWING,<br>GIVE RATE                                                  |                                                                                 | PUMP INTAKE SET AT               |                     | WATER AT END OF TEST                                                  |                              |                                                                                      |
| GPM                                                                       |                                                                                 | FEET                             |                     | 1 <input type="checkbox"/> CLEAR    2 <input type="checkbox"/> CLOUDY |                              |                                                                                      |
| RECOMMENDED PUMP TYPE                                                     |                                                                                 | RECOMMENDED<br>PUMP<br>SETTING   |                     | RECOMMENDED<br>PUMPING<br>RATE                                        |                              |                                                                                      |
| <input type="checkbox"/> SHALLOW <input checked="" type="checkbox"/> DEEP |                                                                                 | 125 FEET                         |                     | 5 GPM                                                                 |                              |                                                                                      |
| \$0.53                                                                    |                                                                                 |                                  |                     |                                                                       |                              |                                                                                      |

|                                                 |                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                       |
|-------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>34</div> <div>FINAL STATUS OF WELL</div>   | <div>1 <input checked="" type="checkbox"/> WATER SUPPLY</div> <div>2 <input type="checkbox"/> OBSERVATION WELL</div> <div>3 <input type="checkbox"/> TEST HOLE</div> <div>4 <input type="checkbox"/> RECHARGE WELL</div>                                                               | <div>5 <input type="checkbox"/> ABANDONED, INSUFFICIENT SUPPLY</div> <div>6 <input type="checkbox"/> ABANDONED POOR QUALITY</div> <div>7 <input type="checkbox"/> UNFINISHED</div> <div><input type="checkbox"/> DEWATERING</div>                                     |
| <div>55-56</div> <div>WATER USE</div>           | <div>1 <input checked="" type="checkbox"/> DOMESTIC</div> <div>2 <input type="checkbox"/> STOCK</div> <div>3 <input type="checkbox"/> IRRIGATION</div> <div>4 <input type="checkbox"/> INDUSTRIAL</div> <div><input type="checkbox"/> OTHER _____</div>                                | <div>5 <input type="checkbox"/> COMMERCIAL</div> <div>6 <input type="checkbox"/> MUNICIPAL</div> <div>7 <input type="checkbox"/> PUBLIC SUPPLY</div> <div>8 <input type="checkbox"/> COOLING OR AIR CONDITIONING</div> <div>9 <input type="checkbox"/> NOT USED</div> |
| <div>57</div> <div>METHOD OF CONSTRUCTION</div> | <div>1 <input type="checkbox"/> CABLE TOOL</div> <div>2 <input type="checkbox"/> ROTARY (CONVENTIONAL)</div> <div>3 <input type="checkbox"/> ROTARY (REVERSE)</div> <div>4 <input type="checkbox"/> ROTARY (AIR)</div> <div>5 <input checked="" type="checkbox"/> AIR PERCUSSION</div> | <div>6 <input type="checkbox"/> BORING</div> <div>7 <input type="checkbox"/> DIAMOND</div> <div>8 <input type="checkbox"/> JETTING</div> <div>9 <input type="checkbox"/> DRIVING</div> <div><input type="checkbox"/> DIGGING <input type="checkbox"/> OTHER</div>     |

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE  
INDICATE NORTH BY ARROW.

HAWTHORNE RD.

Rideau Rd.

0.5 Km

Test well for  
Proposed Industrial  
Park.

130025

DRILLERS REMARKS

|            |                                           |  |                                  |  |
|------------|-------------------------------------------|--|----------------------------------|--|
| CONTRACTOR | NAME OF WELL CONTRACTOR                   |  | WELL CONTRACTOR'S LICENCE NUMBER |  |
|            | Capital Water Supply Ltd.                 |  | 1558                             |  |
|            | ADDRESS                                   |  |                                  |  |
|            | P.O. Box 490 Stittsville, Ontario K2S 1A6 |  |                                  |  |
|            | NAME OF WELL TECHNICIAN                   |  | WELL TECHNICIAN'S LICENCE NUMBER |  |
|            | S. Miller                                 |  | T0097                            |  |
|            | SIGNATURE OF TECHNICIAN/CONTRACTOR        |  | SUBMISSION DATE                  |  |
|            | [Signature]                               |  | DAY 20 MO. 4 YR. 93              |  |

|                 |                    |               |                     |       |
|-----------------|--------------------|---------------|---------------------|-------|
| OFFICE USE ONLY | DATA SOURCE        | 58 CONTRACTOR | 59 62 DATE RECEIVED | 63 68 |
|                 |                    | 1558          | MAY 06 1993         |       |
|                 | DATE OF INSPECTION | INSPECTOR     |                     |       |
|                 | REMARKS            |               |                     |       |







# WATER WELL RECORD

106

2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

1 2

TOWNSHIP, BOROUGH CITY TOWN VILLAGE

CON BLOCK TRACT SURVEY ETC

|     |       |
|-----|-------|
| LOT | 25-27 |
|-----|-------|

Ottawa Carleton

## Gloucester

6

26

Box 4208 stn "B" Ottawa, Ontario K1S 5B2

DATE COMPLETED \_\_\_\_\_

DAY 16 MO 8 YR 93

DAY 16 MO 8 YR 93

DAY 16 MO 8 YR 93

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

|    |  |  |  |  |  |  |
|----|--|--|--|--|--|--|
| 31 |  |  |  |  |  |  |
| 32 |  |  |  |  |  |  |

i    2                  10         14   15                  21                  32                  43                  54                  65

|        |                                   |       |          |                           |        |       |
|--------|-----------------------------------|-------|----------|---------------------------|--------|-------|
| SCREEN | SIZE (S) OF OPENING<br>(SLOT NO.) | 31-33 | DIAMETER | 34-38                     | LENGTH | 39-40 |
|        | MATERIAL AND TYPE                 |       |          | INCHES                    | FEET   |       |
|        |                                   |       |          | DEPTH TO TOP<br>OF SCREEN | 41-44  | 45    |
|        |                                   |       |          |                           | FEET   | 46    |

|                   |       |                                                       |  |
|-------------------|-------|-------------------------------------------------------|--|
| 61                |       | PLUGGING & SEALING RECORD                             |  |
| DEPTH SET AT FEET |       | MATERIAL AND TYPE (CEMENT GROUT<br>LEAD PACKER, ETC.) |  |
| FROM              | TO    |                                                       |  |
| 10-13             | 14-17 |                                                       |  |
| 20'8"             | 0     | Grouted cement (3)                                    |  |
| 18-21             | 22-25 |                                                       |  |
| 26-29             | 30-33 | 80                                                    |  |

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE INDICATE NORTH BY ARROW.

Rideau Road

Hawthorne Road

250 meters

135944

DRILLERS REMARKS

|                                                        |                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                   |
|--------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>34</p> <p><b>FINAL<br/>STATUS<br/>OF WELL</b></p>   | <p>1 <input checked="" type="checkbox"/> WATER SUPPLY</p> <p>2 <input type="checkbox"/> OBSERVATION WELL</p> <p>3 <input type="checkbox"/> TEST HOLE</p> <p>4 <input type="checkbox"/> RECHARGE WELL</p>                                                           | <p>5 <input type="checkbox"/> ABANDONED INSUFFICIENT SUPPLY</p> <p>6 <input type="checkbox"/> ABANDONED POOR QUALITY</p> <p>7 <input type="checkbox"/> UNFINISHED</p> <p><input type="checkbox"/> DEWATERING</p>                                  |
| <p>55-56</p> <p><b>WATER<br/>USE</b></p>               | <p>1 <input checked="" type="checkbox"/> DOMESTIC</p> <p>2 <input type="checkbox"/> STOCK</p> <p>3 <input type="checkbox"/> IRRIGATION</p> <p>4 <input type="checkbox"/> INDUSTRIAL</p> <p><input type="checkbox"/> OTHER _____</p>                                | <p>5 <input type="checkbox"/> COMMERCIAL</p> <p>6 <input type="checkbox"/> MUNICIPAL</p> <p>7 <input type="checkbox"/> PUBLIC SUPPLY</p> <p>8 <input type="checkbox"/> COOLING OR AIR CONDITIONING</p> <p>9 <input type="checkbox"/> NOT USED</p> |
| <p>57</p> <p><b>METHOD<br/>OF<br/>CONSTRUCTION</b></p> | <p>1 <input type="checkbox"/> CABLE TOOL</p> <p>2 <input type="checkbox"/> ROTARY (CONVENTIONAL)</p> <p>3 <input type="checkbox"/> ROTARY (REVERSE)</p> <p>4 <input type="checkbox"/> ROTARY (AIR)</p> <p>5 <input checked="" type="checkbox"/> AIR PERCUSSION</p> | <p>6 <input type="checkbox"/> BORING</p> <p>7 <input type="checkbox"/> DIAMOND</p> <p>8 <input type="checkbox"/> JETTING</p> <p>9 <input type="checkbox"/> DRIVING</p> <p><input type="checkbox"/> DIGGING <input type="checkbox"/> OTHER</p>     |

|            |                                                                                    |  |                                     |  |
|------------|------------------------------------------------------------------------------------|--|-------------------------------------|--|
| CONTRACTOR | NAME OF WELL CONTRACTOR                                                            |  | WELL CONTRACTOR'S<br>LICENCE NUMBER |  |
|            | Capital Water Supply Ltd.                                                          |  | 1558                                |  |
|            | ADDRESS                                                                            |  |                                     |  |
|            | Box 490 Stittsville, Ontario K2S 1A6                                               |  |                                     |  |
| CONTRACTOR | NAME OF WELL TECHNICIAN                                                            |  | WELL TECHNICIAN'S<br>LICENCE NUMBER |  |
|            | S. Miller/T. Harrison                                                              |  | T0097/T2251                         |  |
|            | SIGNATURE OF TECHNICIAN/CONTRACTOR                                                 |  | SUBMISSION DATE                     |  |
|            |  |  | DAY 18 MO. 8 YR. 93                 |  |

|                 |                    |    |            |       |               |       |    |
|-----------------|--------------------|----|------------|-------|---------------|-------|----|
| OFFICE USE ONLY | DATA SOURCE        | 58 | CONTRACTOR | 58.62 | DATE RECEIVED | 63-68 | 80 |
|                 |                    |    | 1558       |       | SEP 21 1993   |       |    |
|                 | DATE OF INSPECTION |    | INSPECTOR  |       |               |       |    |
| REMARKS         |                    |    |            |       |               |       |    |

A018916  
A018916

Instructions for Completing Form

- For use in the Province of Ontario only. This document is a permanent legal document. Please retain for future reference.
- All Sections must be completed in full to avoid delays in processing. Further instructions and explanations are available on the back of this form.
- Questions regarding completing this application can be directed to the Water Well Management Coordinator at 416-235-6203.
- All metre measurements shall be reported to 1/10<sup>th</sup> of a metre.
- Please print clearly in blue or black ink only.

Well Owner's Information and Location of Well Information

Ministry Use Only

MUN 15/00 CON 01 LOT 10

RR#/Street Number/Name: 3500 RIDEAU ROAD  
City/Town/Village: GLOUCESTER  
Site/Compartment/Block/Tract etc.: 2 S  
GPS Reading: NAD 83 Zone 18 Easting 456298 Northing 5016953  
Unit Make/Model: MARELAN  
Mode of Operation: ☐ Undifferentiated ☒ Averaged ☐ Differentiated, specify

Log of Overburden and Bedrock Materials (see instructions)

| General Colour | Most common material             | Other Materials | General Description | Depth From | Metres To |
|----------------|----------------------------------|-----------------|---------------------|------------|-----------|
|                | GRAVEL + EARTH                   |                 |                     | 0          | 1.21      |
|                | GREY + WHITE SANDSTONE           |                 |                     | 1.21       | 35.05     |
|                | GREY LIMESTONE w/ GREY SANDSTONE |                 |                     | 35.05      | 42.67     |

| Hole Diameter |           |                      | Construction Record     |                                                                                                                                                                                      |                            |            | Test of Well Yield |                     |                    |                    |                   |                    |
|---------------|-----------|----------------------|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|------------|--------------------|---------------------|--------------------|--------------------|-------------------|--------------------|
| Depth From    | Metres To | Diameter Centimetres | Inside diam centimetres | Material                                                                                                                                                                             | Wall thickness centimetres | Depth From | Metres To          | Pumping test method | Draw Down Time min | Water Level Metres | Recovery Time min | Water Level Metres |
| 0             | 42.67     | 15.23                | 15.88                   | <input checked="" type="checkbox"/> Steel <input type="checkbox"/> Fibreglass <input type="checkbox"/> Plastic <input type="checkbox"/> Concrete <input type="checkbox"/> Galvanized | .48                        | 0          | 6.70               | Subpump             |                    |                    |                   |                    |
|               |           |                      | Casing                  |                                                                                                                                                                                      |                            |            |                    |                     |                    |                    |                   |                    |
|               |           |                      | Screen                  |                                                                                                                                                                                      |                            |            |                    |                     |                    |                    |                   |                    |
|               |           |                      | No Casing or Screen     |                                                                                                                                                                                      |                            |            |                    |                     |                    |                    |                   |                    |
|               |           |                      | Open hole               |                                                                                                                                                                                      |                            |            |                    |                     |                    |                    |                   |                    |

| Water Record       |               | Test of Well Yield |                    |
|--------------------|---------------|--------------------|--------------------|
| Water found metres | Kind of Water | Time min           | Water Level Metres |
| 36.26              | NOT TESTED    | 1                  | 14.18              |
| 37.92              | NOT TESTED    | 2                  | 15.26              |
|                    |               | 3                  | 15.31              |
|                    |               | 4                  | 15.35              |
|                    |               | 5                  | 15.39              |
|                    |               | 10                 | 15.42              |
|                    |               | 15                 | 15.57              |
|                    |               | 20                 | 15.64              |
|                    |               | 25                 | 15.69              |
|                    |               | 30                 | 15.72              |
|                    |               | 40                 | 15.74              |
|                    |               | 50                 | 15.78              |
|                    |               | 60                 | 15.85              |

Plugging and Sealing Record

Depth set at - Metres From To: 6.09 0

Material and type (bentonite slurry, neat cement slurry) etc.: NEAT CEMENT SLURRY

Volume Placed (cubic metres): .1362

Method of Construction

☐ Cable Tool ☐ Rotary (air) ☐ Diamond ☐ Digging

☐ Rotary (conventional) ☒ Air percussion ☐ Jetting ☐ Other

☐ Rotary (reverse) ☐ Boring ☐ Driving

Water Use

☒ Domestic ☐ Industrial ☐ Public Supply ☐ Other

☐ Stock ☐ Commercial ☐ Not used

☐ Irrigation ☐ Municipal ☐ Cooling & air conditioning

Final Status of Well

☒ Water Supply ☐ Recharge well ☐ Unfinished ☐ Abandoned, (Other)

☐ Observation well ☐ Abandoned, insufficient supply ☐ Dewatering

☐ Test Hole ☐ Abandoned, poor quality ☐ Replacement well

Well Contractor/Technician Information

Name of Well Contractor: AIR ROCK DRILLING CO. LTD

Business Address (street name, number, city etc.): RR#1 RICHMOND, ONT

Name of Well Technician (last name, first name): HOGAN DAN

Signature of Technician/Contractor: [Signature]

Well Contractor's Licence No.: 1119

Well Technician's Licence No.: T3058

Date Submitted: 2004 11 16

Location of Well

In diagram below show distances of well from road, lot line, and building. Indicate north by arrow.

3500 RIDEAU ROAD

HAUTBOURNE ROAD

350'

0.3KM

Audit No.: Z 19099

Date Well Completed: 2004 10 27

Was the well owner's information package delivered? ☒ Yes ☐ No

Date Delivered: 2004 10 28

Ministry Use Only

Data Source: Contractor

Date Received: NOV 26 2004

Date of Inspection: 2004 11 16

Remarks:

Well Record Number: 1535203



Address of Well Location (Street Number/Name)

Township

TW #5 - Rideau  
County/District/Municipality

Gloucester  
City/Town/Village

26

6

Province  
**Ontario**

Postal Code

Ottawa Carleton

Gloucester

UTM Coordinates Zone Easting Northing

Municipal Plan and Sublot Number

Other

NAD 83 18 4 5 7 0 4 3 5 0 1 6 8 4 8

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

| General Colour | Most Common Material | Other Materials | General Description | Depth (m/ft) |       |
|----------------|----------------------|-----------------|---------------------|--------------|-------|
|                |                      |                 |                     | From         | To    |
| Brown          | Soil                 | Stones          | Fill                | 0            | 1.21  |
| Gray           | Sandy Soil           | Stones          | Wet                 | 1.21         | 3.96  |
| Gray           | Sandstone            |                 | Very Hard           | 3.96         | 29.86 |
|                |                      |                 |                     |              |       |
|                |                      |                 |                     |              |       |
|                |                      |                 |                     |              |       |
|                |                      |                 |                     |              |       |
|                |                      |                 |                     |              |       |
|                |                      |                 |                     |              |       |

| Annular Space       |                                          |                        |  |
|---------------------|------------------------------------------|------------------------|--|
| Depth Set at (m/ft) | Type of Sealant Used (Material and Type) | Volume Placed (m³/ft³) |  |
| From To             |                                          |                        |  |
| 12.80 0             | Grouted Cement                           | .525m³                 |  |
|                     |                                          |                        |  |
|                     |                                          |                        |  |
|                     |                                          |                        |  |

| Method of Construction                                   |                                  | Well Use                                       |                                                     |
|----------------------------------------------------------|----------------------------------|------------------------------------------------|-----------------------------------------------------|
| <input type="checkbox"/> Cable Tool                      | <input type="checkbox"/> Diamond | <input type="checkbox"/> Public                | <input checked="" type="checkbox"/> Commercial      |
| <input type="checkbox"/> Rotary (Conventional)           | <input type="checkbox"/> Jetting | <input checked="" type="checkbox"/> Domestic   | <input type="checkbox"/> Municipal                  |
| <input checked="" type="checkbox"/> Rotary (Reverse) Air | <input type="checkbox"/> Driving | <input type="checkbox"/> Livestock             | <input type="checkbox"/> Test Hole                  |
| <input type="checkbox"/> Boring                          | <input type="checkbox"/> Digging | <input type="checkbox"/> Irrigation            | <input type="checkbox"/> Cooling & Air Conditioning |
| <input checked="" type="checkbox"/> Air percussion       |                                  | <input checked="" type="checkbox"/> Industrial |                                                     |
| <input type="checkbox"/> Other, specify                  |                                  | <input type="checkbox"/> Other, specify        | Test Well                                           |

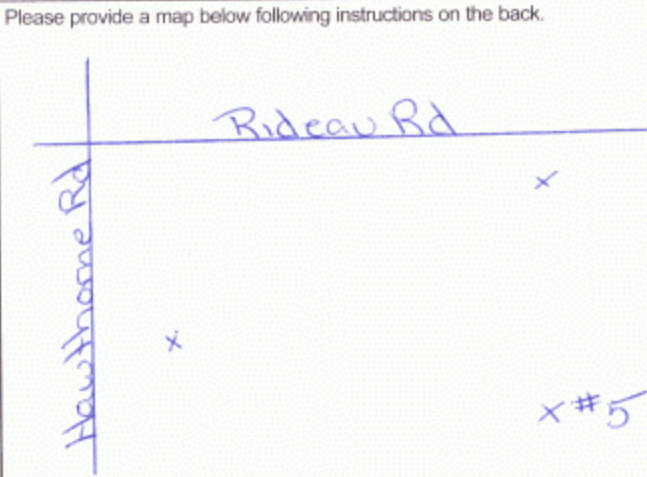
| Construction Record - Casing |                                                                          |                        |              | Status of Well |    |
|------------------------------|--------------------------------------------------------------------------|------------------------|--------------|----------------|----|
| Inside Diameter (cm/in)      | Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel) | Wall Thickness (cm/in) | Depth (m/ft) | From           | To |
| 15.86                        | Steel                                                                    | .48                    | +4.45        | 12.80          |    |
|                              |                                                                          |                        |              |                |    |
|                              |                                                                          |                        |              |                |    |
|                              |                                                                          |                        |              |                |    |
|                              |                                                                          |                        |              |                |    |
|                              |                                                                          |                        |              |                |    |

| Construction Record - Screen |                                       |          |              | Status of Well |    |
|------------------------------|---------------------------------------|----------|--------------|----------------|----|
| Outside Diameter (cm/in)     | Material (Plastic, Galvanized, Steel) | Slot No. | Depth (m/ft) | From           | To |
|                              |                                       |          |              |                |    |
|                              |                                       |          |              |                |    |
|                              |                                       |          |              |                |    |
|                              |                                       |          |              |                |    |
|                              |                                       |          |              |                |    |
|                              |                                       |          |              |                |    |

| Water Details                                                                    |                                                                                            | Hole Diameter |                  |
|----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|---------------|------------------|
| Water found at Depth                                                             | Kind of Water: <input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested | Depth (m/ft)  | Diameter (cm/in) |
| 27.12(m/ft) <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify |                                                                                            | From To       |                  |
| Water found at Depth                                                             | Kind of Water: <input type="checkbox"/> Fresh <input type="checkbox"/> Untested            | 0 12.80       | 15.86            |
| (m/ft) <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify      |                                                                                            | 12.80 29.86   | 15.23            |
| 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, specify      |                                                                                            |               |                  |

| Well Contractor and Well Technician Information |             |                                                 |  |
|-------------------------------------------------|-------------|-------------------------------------------------|--|
| Business Name of Well Contractor                |             | Well Contractor's Licence No.                   |  |
| Capital Water Supply Ltd.                       |             | 1 5 5 8                                         |  |
| Business Address (Street Number/Name)           |             | Municipality                                    |  |
| Box 490                                         |             | Stittsville                                     |  |
| Province                                        | Postal Code | Business E-mail Address                         |  |
| Ontario                                         | K 2 S 1 A 6 | office@capitalwater.ca                          |  |
| Bus. Telephone No. (inc. area code)             |             | Name of Well Technician (Last Name, First Name) |  |
| 6 1 3 8 3 6 1 7 6 6                             |             | Miller, Stephen                                 |  |
| Well Technician's Licence No.                   |             | Signature of Technician and/or Contractor       |  |
| 0 0 9 7                                         |             | Date Submitted                                  |  |
|                                                 |             | 2008/10/10                                      |  |

| Results of Well Yield Testing                                       |  |              |                    |
|---------------------------------------------------------------------|--|--------------|--------------------|
| After test of well yield, water was:                                |  | Draw Down    |                    |
| <input checked="" type="checkbox"/> Clear and sand free             |  | Time (min)   | Water Level (m/ft) |
| <input type="checkbox"/> Other, specify                             |  |              |                    |
| If pumping discontinued, give reason:                               |  | Static Level |                    |
| Pump intake set at (m/ft)                                           |  | 1            | 8.03               |
| Pumping rate (l/min / GPM)                                          |  | 2            | 8.35               |
| Duration of pumping                                                 |  | 3            | 8.60               |
| 6 hrs + min                                                         |  | 4            | 8.76               |
| Final water level end of pumping (m/ft)                             |  | 5            | 8.88               |
| If flowing give rate (l/min / GPM)                                  |  | 10           | 9.20               |
| Recommended pump depth (m/ft)                                       |  | 15           |                    |
| 22.85                                                               |  | 20           | 9.49               |
| Recommended pump rate                                               |  | 25           | 9.62               |
| (l/min / GPM)                                                       |  | 30           | 9.68               |
| Well production (l/min / GPM)                                       |  | 40           | 9.82               |
| Disinfected?                                                        |  | 50           | 9.91               |
| <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |  | 60           | 9.99               |
|                                                                     |  |              | 7.69               |

| Map of Well Location                                                                 |  |
|--------------------------------------------------------------------------------------|--|
| Please provide a map below following instructions on the back.                       |  |
|  |  |
| Comments:                                                                            |  |

| Well owner's information               |  | Ministry Use Only           |  |
|----------------------------------------|--|-----------------------------|--|
| Date Package Delivered                 |  | Audit No. <b>84410</b>      |  |
| 2008/10/07                             |  | Received <b>DEC 02 2008</b> |  |
| Date Work Completed                    |  |                             |  |
| 2008/09/26                             |  |                             |  |
| <input type="checkbox"/> Yes           |  |                             |  |
| <input checked="" type="checkbox"/> No |  |                             |  |



Address of Well Location (Street Number/Name)

TW #6 - Rideau Rd.

County/District/Municipality

Ottawa Carleton

UTM Coordinates Zone Easting Northing

NAD 83 18 4 5 7 1 0 2 5 0 1 7 6 9 0

Township

Gloucester

City/Town/Village

Gloucester

Municipal Plan and Sublot Number

26

6

Province

Ontario

Postal Code

Other

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

| General Colour | Most Common Material | Other Materials | General Description | Depth (m/ft) |       |
|----------------|----------------------|-----------------|---------------------|--------------|-------|
| From           | To                   |                 |                     | From         | To    |
| Brown          | Clay                 |                 | Packed              | 0            | 3.65  |
| Gray           | Clay                 | Stones          | Sticky              | 3.65         | 9.14  |
| Gray           | Shale                |                 | Soft                | 9.14         | 42.66 |
| Gray           | Limestone            |                 | Medium Soft         | 42.66        | 83.20 |
|                |                      |                 |                     |              |       |
|                |                      |                 |                     |              |       |
|                |                      |                 |                     |              |       |
|                |                      |                 |                     |              |       |
|                |                      |                 |                     |              |       |
|                |                      |                 |                     |              |       |

## Annular Space

| Depth Set at (m/ft) | Type of Sealant Used (Material and Type) | Volume Placed (m³/ft³) |
|---------------------|------------------------------------------|------------------------|
| From                | To                                       |                        |
| 17.67               | 0                                        | Grouted Cement         |
|                     |                                          |                        |
|                     |                                          |                        |
|                     |                                          |                        |

## Results of Well Yield Testing

| After test of well yield, water was:                                |  | Draw Down    |                    | Recovery   |                    |
|---------------------------------------------------------------------|--|--------------|--------------------|------------|--------------------|
|                                                                     |  | Time (min)   | Water Level (m/ft) | Time (min) | Water Level (m/ft) |
| <input checked="" type="checkbox"/> Clear and sand free             |  | Static Level | 3.18               |            |                    |
| <input type="checkbox"/> Other, specify                             |  | 1            | 3.24               | 1          |                    |
| If pumping discontinued, give reason:                               |  | 2            | 4.23               | 2          |                    |
| Pump intake set at (m/ft)                                           |  | 3            | 5.19               | 3          |                    |
| 79.24                                                               |  | 4            |                    | 4          |                    |
| Pumping rate (l/min / GPM)                                          |  | 5            | 6.53               | 5          |                    |
| 13.65                                                               |  | 10           | 8.06               | 10         |                    |
| Duration of pumping                                                 |  | 15           | 9.99               | 15         | 22.80              |
| 6 hrs + min                                                         |  | 20           | 11.53              | 20         | 19.40              |
| Final water level end of pumping (m/ft)                             |  | 25           | 12.92              | 25         | 17.12              |
| 30.57                                                               |  | 30           | 14.08              | 30         | 15.13              |
| If flowing give rate (l/min / GPM)                                  |  | 40           |                    | 40         | 11.82              |
| Recommended pump depth (m/ft)                                       |  | 50           |                    | 50         | 9.47               |
| 60.95                                                               |  | 60           |                    | 60         | 7.94               |
| Recommended pump rate (l/min / GPM)                                 |  |              |                    |            |                    |
| 13.65                                                               |  |              |                    |            |                    |
| Well production (l/min / GPM)                                       |  |              |                    |            |                    |
| Disinfected?                                                        |  |              |                    |            |                    |
| <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |  |              |                    |            |                    |

## Method of Construction

|                                                          |                                  |                                                |                                                     |                                     |
|----------------------------------------------------------|----------------------------------|------------------------------------------------|-----------------------------------------------------|-------------------------------------|
| <input type="checkbox"/> Cable Tool                      | <input type="checkbox"/> Diamond | <input type="checkbox"/> Public                | <input checked="" type="checkbox"/> Commercial      | <input type="checkbox"/> Not used   |
| <input type="checkbox"/> Rotary (Conventional)           | <input type="checkbox"/> Jetting | <input checked="" type="checkbox"/> Domestic   | <input type="checkbox"/> Municipal                  | <input type="checkbox"/> Dewatering |
| <input checked="" type="checkbox"/> Rotary (Reverse Air) | <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 checked="" type="checkbox"/> Air percussion       |                                  | <input checked="" type="checkbox"/> Industrial |                                                     |                                     |
| <input type="checkbox"/> Other, specify                  |                                  | <input type="checkbox"/> Other, specify        | Test Well                                           |                                     |

## 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    |
| 15.86                   | Steel                                                                    | .48                    | + .60        | 17.67 |
|                         |                                                                          |                        |              |       |
|                         |                                                                          |                        |              |       |
|                         |                                                                          |                        |              |       |

## Status of Well

|                                                             |
|-------------------------------------------------------------|
| <input checked="" 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, Insufficient Supply     |
| <input type="checkbox"/> Abandoned, Poor Water Quality      |
| <input type="checkbox"/> Abandoned, other, specify          |
| <input type="checkbox"/> Other, specify                     |

## Construction Record - Screen

| Outside Diameter (cm/in) | Material (Plastic, Galvanized, Steel) | Slot No. | Depth (m/ft) |    |
|--------------------------|---------------------------------------|----------|--------------|----|
|                          |                                       |          | From         | To |
|                          |                                       |          |              |    |
|                          |                                       |          |              |    |
|                          |                                       |          |              |    |

## Water Details

| Water found at Depth (m/ft) | Kind of Water:                                                       | Depth (m/ft) | Diameter (cm/in) |
|-----------------------------|----------------------------------------------------------------------|--------------|------------------|
|                             | <input type="checkbox"/> Fresh <input type="checkbox"/> Untested     | From         | To               |
|                             | <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify | 0            | 17.67            |
|                             | <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify | 17.67        | 83.20            |
|                             | <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify |              | 15.23            |

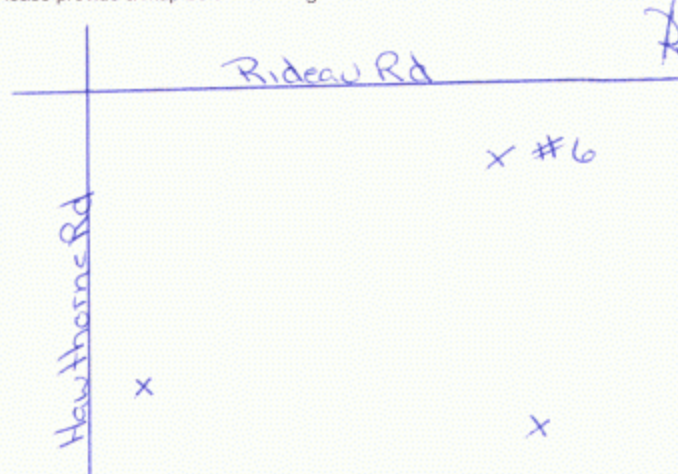
## Hole Diameter

## Well Contractor and Well Technician Information

|                                       |                                                 |
|---------------------------------------|-------------------------------------------------|
| Business Name of Well Contractor      | Well Contractor's Licence No.                   |
| Capital Water Supply Ltd.             | 1 5 5 8                                         |
| Business Address (Street Number/Name) | Municipality                                    |
| Box 490                               | Stittsville                                     |
| Province                              | Postal Code                                     |
| Ontario                               | K 2 S 1 A 6                                     |
| Bus. Telephone No. (inc. area code)   | Business E-mail Address                         |
| 6 1 3 8 3 6 1 7 6 6                   | office@capitalwater.ca                          |
| Well Technician's Licence No.         | Name of Well Technician (Last Name, First Name) |
| 0 0 9 7                               | Miller, Stephen                                 |
|                                       | Signature of Technician and/or Contractor       |
|                                       | Date Submitted                                  |
|                                       | 2008/10/10                                      |

## Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well owner's information package delivered

☐ Yes ☒ No

Date Package Delivered

2 0 0 8 1 0 0 6

Date Work Completed

2 0 0 8 0 9 2 6

Ministry Use Only

Audit No. Z 84412

DEC 02 2008

Received



## Master Well Owner's and Land Owner's Information

|                                                |              |                            |             |                                |
|------------------------------------------------|--------------|----------------------------|-------------|--------------------------------|
| First Name                                     | Last Name    |                            |             |                                |
| Orgaworld Canada Real Estate via Services Inc. |              | Tomlinson Environmental E- |             |                                |
| Mailing Address (Street Number/Name, RR)       | Municipality | Province                   | Postal Code | Telephone No. (inc. area code) |
| 5597 Power Road                                | Ottawa       | ON                         | K1G3N4      | 613 822 1867                   |

### Location and Construction of the Master Well in the Cluster

|                                                   |                   |          |          |             |
|---------------------------------------------------|-------------------|----------|----------|-------------|
| Address of Well Location (Street Number/Name, RR) |                   | Township | Lot      | Concession  |
| Hawthorne Road at Rideau Road                     |                   |          | 26, 27   | 6           |
| County/District/Municipality                      | City/Town/Village |          | Province | Postal Code |
|                                                   |                   |          |          |             |

|                 |      |         |          |               |       |                                                                                                           |
|-----------------|------|---------|----------|---------------|-------|-----------------------------------------------------------------------------------------------------------|
| UTM Coordinates | Zone | Easting | Northing | GPS Unit Make | Model | Mode of Operation: <input type="checkbox"/> Undifferentiated <input checked="" type="checkbox"/> Averaged |
| NAD 83          | 18   | 456400  | 5116859  | Garmin        | Etrex | <input type="checkbox"/> 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  |
| Grey/Brown     | very fine sand + silt               |                 | dense, moist        | 0              | 0.8 |
| Brown          | Fill - sand / silt / clay / gravels |                 |                     | 0.8            | 4.7 |
| Grey/Brown     | Sand with silt                      |                 | compact oxidized    | 4.7            | 6.0 |
| Brown          | Till - silty sand, gravel           |                 |                     | 6.0            | 7.6 |

### Hole Details

| Depth (Metres) |     | Diameter<br>(Centimetres) |
|----------------|-----|---------------------------|
| From           | To  |                           |
| 0              | 7.6 | 20                        |
|                |     |                           |
|                |     |                           |
|                |     |                           |

### Water Use

|                                     |                                     |                                                     |                                               |
|-------------------------------------|-------------------------------------|-----------------------------------------------------|-----------------------------------------------|
| <input type="checkbox"/> Public     | <input type="checkbox"/> Industrial | <input type="checkbox"/> Not used                   | <input type="checkbox"/> Other, specify _____ |
| <input type="checkbox"/> Domestic   | <input type="checkbox"/> Commercial | <input type="checkbox"/> Dewatering                 |                                               |
| <input type="checkbox"/> Livestock  | <input type="checkbox"/> Municipal  | <input checked="" type="checkbox"/> Monitoring      |                                               |
| <input type="checkbox"/> Irrigation | <input type="checkbox"/> Test Hole  | <input type="checkbox"/> Cooling & Air Conditioning |                                               |

### Method of Construction

☐ Cable Tool      ☐ Air Percussion      ☐ Digging  
☐ Rotary (Conventional)      ☐ Diamond      ☐ Boring  
☐ Rotary (Reverse)      ☐ Jetting      ☒ Other, specify  
☐ Rotary (Air)      ☐ Driving      HSA

## Status of Well

|                                                    |                                                           |
|----------------------------------------------------|-----------------------------------------------------------|
| <input checked="" type="checkbox"/> Test Hole      | <input type="checkbox"/> Abandoned, Insufficient Supply   |
| <input type="checkbox"/> Replacement Well          | <input type="checkbox"/> Abandoned, Poor Water Quality    |
| <input type="checkbox"/> Dewatering Well           | <input type="checkbox"/> Other, <i>specify</i>            |
| <input type="checkbox"/> Alteration (Construction) | <input type="checkbox"/> Abandoned, other, <i>specify</i> |

### No Casing and Screen Used

Open Hole ☐ Yes ☒ No  Metres

### Static Water Level Test

1.7 Metres

## Screen

|                                                                                                                                                                                      |                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <input type="checkbox"/> Galvanized <input type="checkbox"/> Steel <input type="checkbox"/> Fibreglass <input type="checkbox"/> Concrete <input checked="" type="checkbox"/> Plastic |                |
| Outside Diameter (Centimetres)<br>5.8                                                                                                                                                | Slot No.<br>10 |

### Water Details

|                                                                 |                                                                                                                                                   |
|-----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Water found at Depth<br>    Metres <input type="checkbox"/> Gas | Kind of Water<br><input type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals |
| Water found at Depth<br>    Metres <input type="checkbox"/> Gas | Kind of Water<br><input type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals |
| Water found at Depth<br>    Metres <input type="checkbox"/> Gas | Kind of Water<br><input type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals |

## Annular Space/Abandonment Sealing Record

[illegible]

|                                                                                                        |                                            |
|--------------------------------------------------------------------------------------------------------|--------------------------------------------|
| Disinfected <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If no, provide reason: | Date Master Well Completed<br>(yyyy/mm/dd) |
|--------------------------------------------------------------------------------------------------------|--------------------------------------------|

|                |            |
|----------------|------------|
| Monitoring wel | 2008/07/14 |
|----------------|------------|

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<br>10            | Please indicate Number of Cluster Well Information Log Sheets Submitted |
| Total Wells on this Property<br>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 the Director upon request

|                                                                                                                             |                                 |
|-----------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| Signature of Technician/Contractor<br> | Date (yyyy/mm/dd)<br>2008/10/20 |
| Master Well Owner's/ll and Owner's consent to use Cluster Form                                                              |                                 |

### Well Contractor and Well Technician Information

|                                                |                                                 |                               |  |
|------------------------------------------------|-------------------------------------------------|-------------------------------|--|
| Business Name of Well Contractor               |                                                 | Well Contractor's Licence No. |  |
| George Downing Estate Drilling                 |                                                 | 1   8   4   4                 |  |
| Business Address (Street No./Name, number, RR) |                                                 | Municipality                  |  |
| 410 Rue Principale Grenville-sur-la-Rouge      |                                                 |                               |  |
| Province                                       | Postal Code                                     | Business E-mail Address       |  |
| QC                                             | J0V1B0                                          | downing@xplornet.com          |  |
| Phone No. (inc. area code)                     | Name of Well Technician (Last Name, First Name) |                               |  |
| 126469                                         | Downing, Bruce                                  |                               |  |
| Phone No.                                      | Signature of Technician                         | Date Submitted (yyyy/mm/dd)   |  |
|                                                | Bruce Downing                                   | 2008/10/20                    |  |

## Ministry Use Only

|                                                  |                                 |
|--------------------------------------------------|---------------------------------|
| Audit No.<br><b>M 02897</b>                      | Well Contractor No.             |
| Date Received (yyyy/mm/dd)<br><b>NOV 26 2008</b> | Date of Inspection (yyyy/mm/dd) |
| Remarks                                          |                                 |



## Property Owner's Information

|                                                   |                                                               |                                                                 |                                                     |
|---------------------------------------------------|---------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------|
| First Name<br><b>Orgaworld Canada Real Estate</b> | Last Name<br><b>via Tomlinson Environmental Services Inc.</b> | Mailing Address (Street No./Name, RR)<br><b>5597 Power Road</b> | Municipality<br><b>Ottawa</b>                       |
| Province<br><b>Ontario</b>                        | Postal Code<br><b>K1G3N4</b>                                  | E-mail Address<br><b>rtomlinson@tomlinsongroup.com</b>          | Telephone No. (inc. area code)<br><b>6138221867</b> |

## Cluster Well Information

|                                                                                                                                                            |                            |                              |                          |                              |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|------------------------------|--------------------------|------------------------------|
| Address of Well Location (Street Number/Name, RR)<br><b>Hawthorne Road at Rideau Road</b>                                                                  | Lot<br><b>26127</b>        | Concession<br><b>6</b>       | Township                 | County/District/Municipality |
| City/Town/Village<br><b>Ottawa</b>                                                                                                                         | Province<br><b>Ontario</b> | Postal Code<br><b>K1G3N4</b> | GPS Unit Make<br><b></b> | Model<br><b></b>             |
| Unit Mode of Operation<br><input type="checkbox"/> Undifferentiated <input type="checkbox"/> Averaged<br><input type="checkbox"/> Differentiated, specify: |                            |                              |                          |                              |

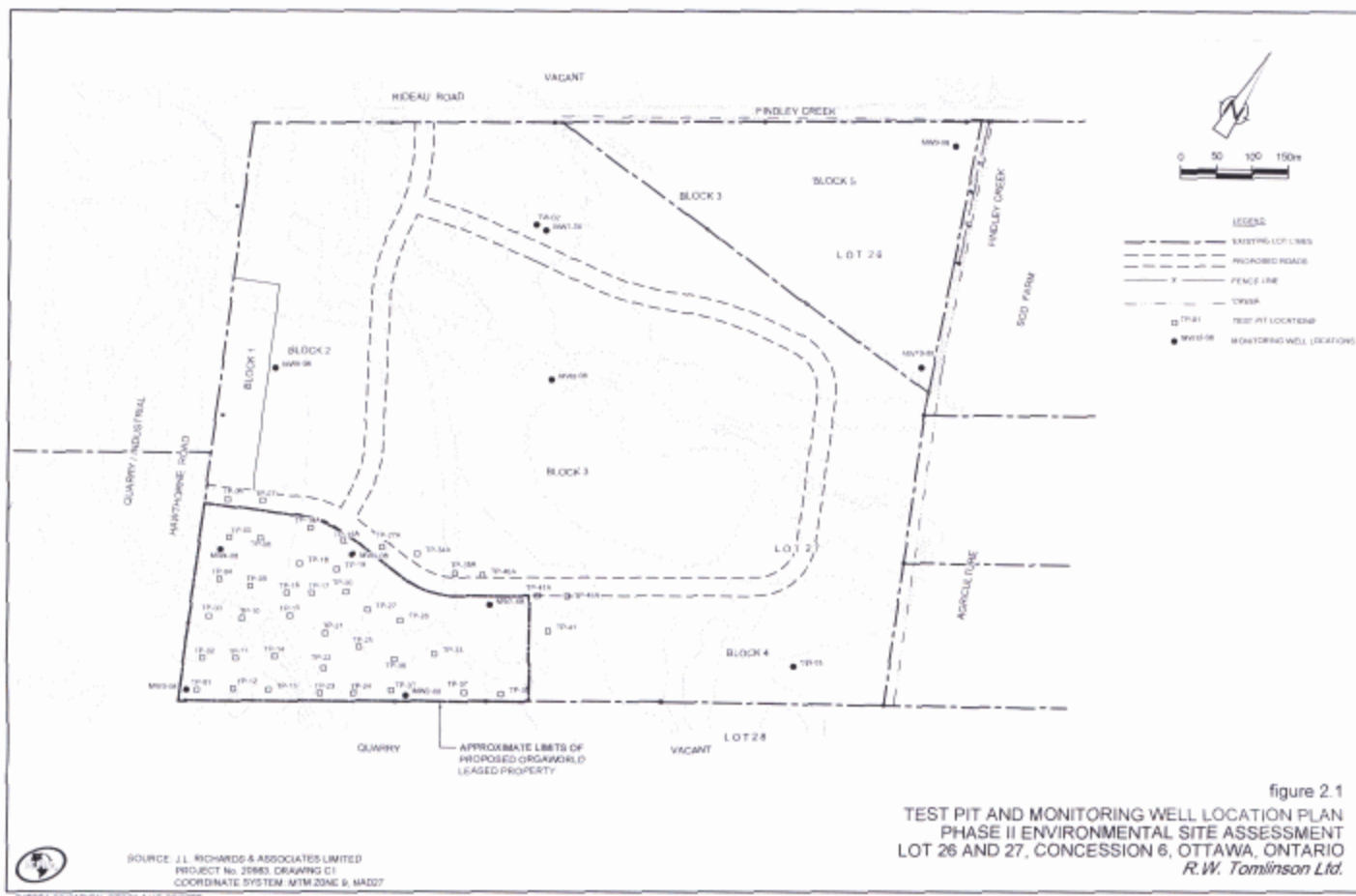
| Well #<br>on Sketch | Zone | UTM Coordinates<br>Easting Northing | Full Depth of<br>Hole (metres) | Hole Diameter<br>(cm) | Method of<br>Construction | Casing Material | Casing Length<br>(metres) | Screen Interval (metres)<br>From To | Annular Space<br>Sealant Used | Static Water<br>Level (metres) | Abandonment<br>Sealant Used | Comments                  | Date of Completion<br>(yyyy/mm/dd) |
|---------------------|------|-------------------------------------|--------------------------------|-----------------------|---------------------------|-----------------|---------------------------|-------------------------------------|-------------------------------|--------------------------------|-----------------------------|---------------------------|------------------------------------|
| MW 1-08             |      | 184568315016712                     | 2.97                           | 20                    | HSA                       | PVC             | 1.5                       | 1.5 2.97                            | Bentonite                     | 1.3                            |                             |                           | 2008/07/07                         |
| MW 2-08             |      | 184567995016553                     | 2.77                           | 10                    | DiA                       |                 | 0.6                       | 0.6 2.77                            |                               | 1.6                            |                             | overburden from 0 to 0.18 | 2008/07/08                         |
| MW 3-08             |      | 184565335016411                     | 17.37                          | 10                    | DiA                       |                 | 2.13                      | 2.13 17.37                          |                               | 13.2                           |                             | " " 0 to 0.30             | 2008/07/09                         |
| MW 4-08             |      | 184564745016604                     | 2.84                           | 10/20                 | HSA/DIA                   |                 | 1.22                      | 1.22 2.8                            |                               | 0.7                            |                             |                           | 2008/07/08                         |
| MW 5-08             |      | 184565985016675                     | 2.77                           | 20                    | HSA                       |                 | 1.5                       | 1.5 2.77                            |                               | 1.0                            |                             |                           | 2008/07/07                         |
| MW 7-08             |      | 184566225017219                     | 6.98                           | 20                    | HSA                       |                 | 3.0                       | 3.0 6.10                            |                               | 3.6                            |                             |                           | 2008/07/14                         |
| MW 8-08             |      | 184566875017036                     | 4.72                           | 20                    | HSA                       |                 | 3.0                       | 3.0 4.2                             |                               | 3.0                            |                             |                           | 2008/07/15                         |
| MW 9-08             |      | 184570865017625                     | 3.66                           | 20                    | HSA                       |                 | 1.5                       | 1.5 3.0                             |                               | 1.7                            |                             |                           | 2008/07/15                         |
| MW 10-08            |      | 184572065017303                     | 2.90                           | 20                    | HSA                       |                 | 1.37                      | 1.37 2.90                           |                               | 1.6                            |                             |                           | 2008/07/15                         |

## Well Contractor and Well Technician Information

|                                                                                |                                                                        |                                                  |                                                        |
|--------------------------------------------------------------------------------|------------------------------------------------------------------------|--------------------------------------------------|--------------------------------------------------------|
| Business Name of Well Contractor<br><b>George Downing Estate Drilling Ltd.</b> | Business Address (Street Number/Name, RR)<br><b>410 Rue Principale</b> | Municipality<br><b>Grenville-sur-la-Rouge</b>    | Province<br><b>QC</b>                                  |
| Postal Code<br><b>J0V1B0</b>                                                   | Business Telephone No. (inc. area code)<br><b>8192426469</b>           | Well Contractor's Licence No.<br><b>1844</b>     | Business E-mail Address<br><b>downing@xplornet.com</b> |
| Name of Well Technician (First Name, Last Name)<br><b>Bruce Downing</b>        | Well Technician's Licence No.<br><b>2173</b>                           | Date Submitted (yyyy/mm/dd)<br><b>2008/10/20</b> | Signature of Technician<br><i>Bruce Downing</i>        |

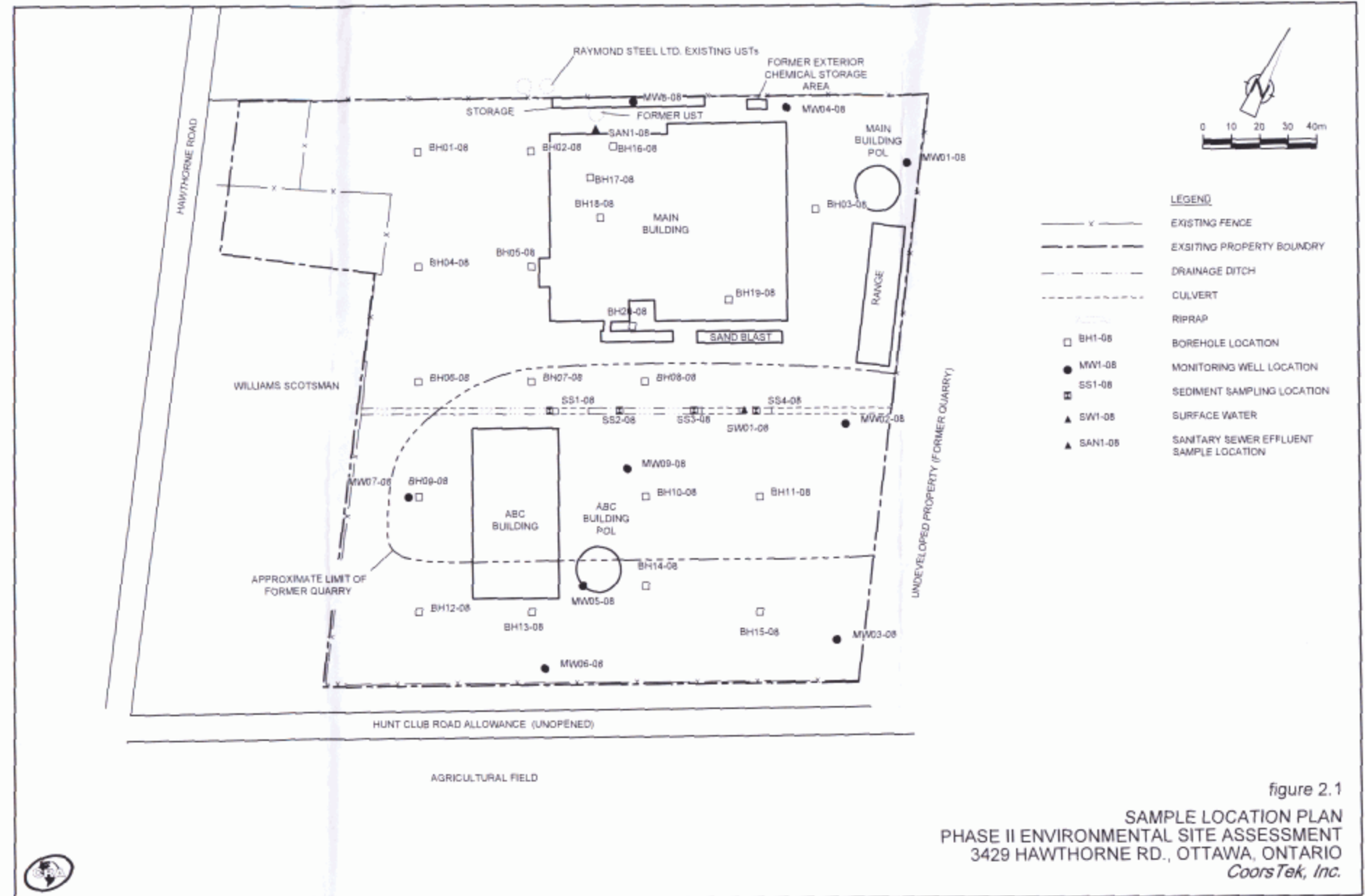
|                                                                        |                                                                         |
|------------------------------------------------------------------------|-------------------------------------------------------------------------|
| Date 1st Well in Cluster Constructed (yyyy/mm/dd)<br><b>2008/07/07</b> | Date Last Well in Cluster Constructed (yyyy/mm/dd)<br><b>2008/07/15</b> |
|------------------------------------------------------------------------|-------------------------------------------------------------------------|

|                                                  |                             |
|--------------------------------------------------|-----------------------------|
| Ministry Use Only                                |                             |
| Date Received (yyyy/mm/dd)<br><b>NOV 26 2008</b> | Date Inspected (yyyy/mm/dd) |
| Audit No.<br><b>C 01984</b>                      | Remarks<br><b>m02897</b>    |



C-1844 m02897 c01984

NOV 26 2008



053403-04(007)GN-OT001 AUG 20/2008

NOV 26 2008

C-18441 m02888 03068



## Master Well Owner's and Land Owner's Information

|                                                             |                                         |                |                       |                                                |
|-------------------------------------------------------------|-----------------------------------------|----------------|-----------------------|------------------------------------------------|
| First Name<br>Orgaworld Canada Real Estate via              | Last Name<br>Tomlinson Environmental E- |                |                       |                                                |
| Mailing Address (Street Number/Name, RR)<br>5597 Power Road | Municipality<br>Ottawa                  | Province<br>ON | Postal Code<br>K1G3N4 | Telephone No. (inc. area code)<br>613 822 1867 |

### Location and Construction of the Master Well in the Cluster

|                                                   |                   |          |          |             |
|---------------------------------------------------|-------------------|----------|----------|-------------|
| Address of Well Location (Street Number/Name, RR) |                   | Township | Lot      | Concession  |
| Hawthorne Road at Rideau Road                     |                   |          | 26, 27   | 6           |
| County/District/Municipality                      | City/Town/Village |          | Province | Postal Code |
|                                                   |                   |          |          |             |

|                 |      |         |          |               |       |                                                                                                           |
|-----------------|------|---------|----------|---------------|-------|-----------------------------------------------------------------------------------------------------------|
| UTM Coordinates | Zone | Easting | Northing | GPS Unit Make | Model | Mode of Operation: <input type="checkbox"/> Undifferentiated <input checked="" type="checkbox"/> Averaged |
| NAD 83          | 18   | 456400  | 5116859  | Garmin        | Etrex | <input type="checkbox"/> 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  |
| Grey/Brown     | very fine sand + silt               |                 | dense, moist        | 0              | 0.8 |
| Brown          | Fill - sand / silt / clay / gravels |                 |                     | 0.8            | 4.7 |
| Grey/Brown     | Sand with silt                      |                 | compact oxidized    | 4.7            | 6.0 |
| Brown          | Till - silty sand, gravel           |                 |                     | 6.0            | 7.6 |

### Hole Details

| Depth (Metres) |     | Diameter<br>(Centimetres) |
|----------------|-----|---------------------------|
| From           | To  |                           |
| 0              | 7.6 | 20                        |
|                |     |                           |
|                |     |                           |
|                |     |                           |

### Water Use

|                                     |                                     |                                                     |                                               |
|-------------------------------------|-------------------------------------|-----------------------------------------------------|-----------------------------------------------|
| <input type="checkbox"/> Public     | <input type="checkbox"/> Industrial | <input type="checkbox"/> Not used                   | <input type="checkbox"/> Other, specify _____ |
| <input type="checkbox"/> Domestic   | <input type="checkbox"/> Commercial | <input type="checkbox"/> Dewatering                 |                                               |
| <input type="checkbox"/> Livestock  | <input type="checkbox"/> Municipal  | <input checked="" type="checkbox"/> Monitoring      |                                               |
| <input type="checkbox"/> Irrigation | <input type="checkbox"/> Test Hole  | <input type="checkbox"/> Cooling & Air Conditioning |                                               |

### Method of Construction

☐ Cable Tool      ☐ Air Percussion      ☐ Digging  
☐ Rotary (Conventional)      ☐ Diamond      ☐ Boring  
☐ Rotary (Reverse)      ☐ Jetting      ☒ Other, specify  
☐ Rotary (Air)      ☐ Driving      HSA

## Status of Well

|                                                    |                                                           |
|----------------------------------------------------|-----------------------------------------------------------|
| <input checked="" type="checkbox"/> Test Hole      | <input type="checkbox"/> Abandoned, Insufficient Supply   |
| <input type="checkbox"/> Replacement Well          | <input type="checkbox"/> Abandoned, Poor Water Quality    |
| <input type="checkbox"/> Dewatering Well           | <input type="checkbox"/> Other, <i>specify</i>            |
| <input type="checkbox"/> Alteration (Construction) | <input type="checkbox"/> Abandoned, other, <i>specify</i> |

### No Casing and Screen Used

Open Hole ☐ Yes ☒ No  Metres

### Static Water Level Test

| Screen                                      |                                   |
|---------------------------------------------|-----------------------------------|
| <input type="checkbox"/> Galvanized         | <input type="checkbox"/> Steel    |
| <input type="checkbox"/> Fibreglass         | <input type="checkbox"/> Concrete |
| <input checked="" type="checkbox"/> Plastic |                                   |
| Outside Diameter (Centimetres)              | Slot No.                          |
| 5.8                                         | 10                                |

### Construction Details

| Inside Diameter<br>(Centimetres) | Material<br>(steel, plastic, fibreglass, concrete, galvanized) | Wall<br>Thickness | Depth (Metres) |     |
|----------------------------------|----------------------------------------------------------------|-------------------|----------------|-----|
|                                  |                                                                |                   | From           | To  |
| 5.1                              | PVC                                                            | Sched<br>40       | 0              | 3.0 |
|                                  |                                                                |                   |                |     |
|                                  |                                                                |                   |                |     |
|                                  |                                                                |                   |                |     |

## Annular Space/Abandonment Sealing Record

[illegible]

Water Details

|                                                             |                                                                                                                                                   |
|-------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Water found at Depth<br>Metres <input type="checkbox"/> Gas | Kind of Water<br><input type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals |
| Water found at Depth<br>Metres <input type="checkbox"/> Gas | Kind of Water<br><input type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals |
| Water found at Depth<br>Metres <input type="checkbox"/> Gas | Kind of Water<br><input type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals |

|                                                                                                        |                                            |
|--------------------------------------------------------------------------------------------------------|--------------------------------------------|
| Disinfected <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If no, provide reason: | Date Master Well Completed<br>(yyyy/mm/dd) |
| Monitoring Well                                                                                        | 2008/07/14                                 |

## 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<br>10            | Please indicate Number of Cluster Well Information Log Sheets Submitted |
| Total Wells on this Property<br>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 the Director upon request

|                                                              |                   |
|--------------------------------------------------------------|-------------------|
| Signature of Technician/Contractor                           | Date (yyyy/mm/dd) |
| <i>Bruce D...</i>                                            | 2008/10/20        |
| Master Well Owner's/ and Owner's consent to use Cluster Form |                   |

### Well Contractor and Well Technician Information

|                                                |                                                 |                               |  |
|------------------------------------------------|-------------------------------------------------|-------------------------------|--|
| Business Name of Well Contractor               |                                                 | Well Contractor's Licence No. |  |
| George Downing Estate Drilling                 |                                                 | 1   8   4   4                 |  |
| Business Address (Street No./Name, number, RR) |                                                 | Municipality                  |  |
| 410 Rue Principale Grenville-sur-la-Rouge      |                                                 |                               |  |
| Province                                       | Postal Code                                     | Business E-mail Address       |  |
| QC                                             | J0V1B0                                          | downing@xplornet.com          |  |
| Phone No. (inc. area code)                     | Name of Well Technician (Last Name, First Name) |                               |  |
| 26469                                          | Downing, Bruce                                  |                               |  |
| Phone No.                                      | Signature of Technician                         | Date Submitted (yyyy/mm/dd)   |  |
|                                                | Bruce Downing                                   | 2008/10/20                    |  |

## Ministry Use Only

|                                                  |                                 |
|--------------------------------------------------|---------------------------------|
| Audit No.<br><b>M 02897</b>                      | Well Contractor No.             |
| Date Received (yyyy/mm/dd)<br><b>NOV 26 2008</b> | Date of Inspection (yyyy/mm/dd) |
| Remarks                                          |                                 |



## Property Owner's Information

|                                                   |                                                               |                                                                 |                                                     |
|---------------------------------------------------|---------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------|
| First Name<br><b>Orgaworld Canada Real Estate</b> | Last Name<br><b>via Tomlinson Environmental Services Inc.</b> | Mailing Address (Street No./Name, RR)<br><b>5597 Power Road</b> | Municipality<br><b>Ottawa</b>                       |
| Province<br><b>Ontario</b>                        | Postal Code<br><b>K1H3N4</b>                                  | E-mail Address<br><b>rtomlinson@tomlinsongroup.com</b>          | Telephone No. (inc. area code)<br><b>6138221867</b> |

## Cluster Well Information

|                                                                                                                                                            |                            |                              |                          |                              |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|------------------------------|--------------------------|------------------------------|
| Address of Well Location (Street Number/Name, RR)<br><b>Hawthorne Road at Rideau Road</b>                                                                  | Lot<br><b>26127</b>        | Concession<br><b>6</b>       | Township                 | County/District/Municipality |
| City/Town/Village<br><b>Ottawa</b>                                                                                                                         | Province<br><b>Ontario</b> | Postal Code<br><b>K1H3N4</b> | GPS Unit Make<br><b></b> | Model<br><b></b>             |
| Unit Mode of Operation<br><input type="checkbox"/> Undifferentiated <input type="checkbox"/> Averaged<br><input type="checkbox"/> Differentiated, specify: |                            |                              |                          |                              |

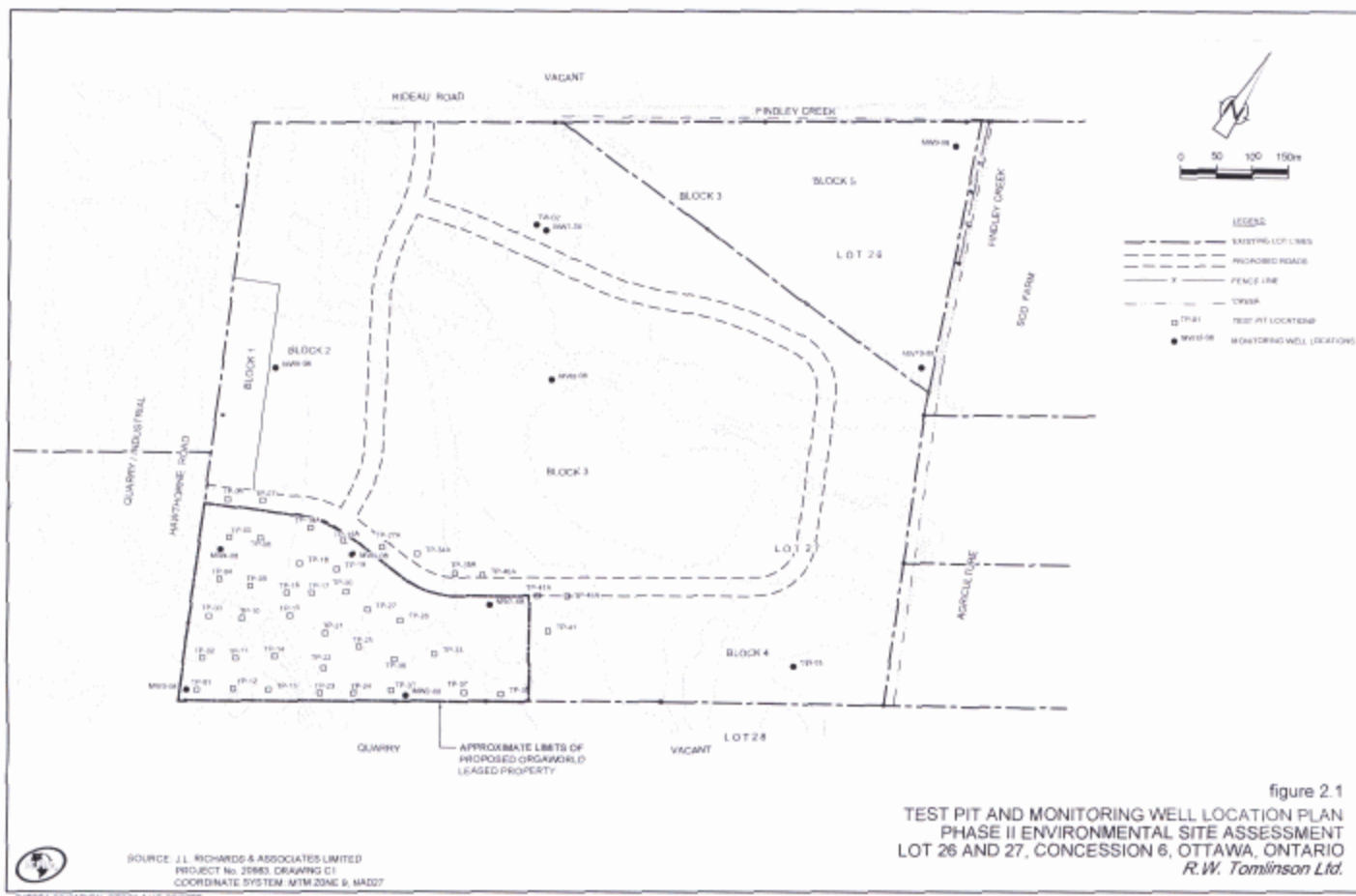
| Well #<br>on Sketch | Zone | UTM Coordinates<br>Easting Northing | Full Depth of<br>Hole (metres) | Hole Diameter<br>(cm) | Method of<br>Construction | Casing Material | Casing Length<br>(metres) | Screen Interval (metres)<br>From To | Annular Space<br>Sealant Used | Static Water<br>Level (metres) | Abandonment<br>Sealant Used | Comments                  | Date of Completion<br>(yyyy/mm/dd) |
|---------------------|------|-------------------------------------|--------------------------------|-----------------------|---------------------------|-----------------|---------------------------|-------------------------------------|-------------------------------|--------------------------------|-----------------------------|---------------------------|------------------------------------|
| MW 1-08             |      | 184568315016712                     | 2.97                           | 20                    | HSA                       | PVC             | 1.5                       | 1.5 2.97                            | Bentonite                     | 1.3                            |                             |                           | 2008/07/07                         |
| MW 2-08             |      | 184567995016553                     | 2.77                           | 10                    | DiA                       |                 | 0.6                       | 0.6 2.77                            |                               | 1.6                            |                             | overburden from 0 to 0.18 | 2008/07/08                         |
| MW 3-08             |      | 184565335016411                     | 17.37                          | 10                    | DiA                       |                 | 2.13                      | 2.13 17.37                          |                               | 13.2                           |                             | " " 0 to 0.30             | 2008/07/09                         |
| MW 4-08             |      | 184564745016604                     | 2.84                           | 10/20                 | HSA/DIA                   |                 | 1.22                      | 1.22 2.8                            |                               | 0.7                            |                             |                           | 2008/07/08                         |
| MW 5-08             |      | 184565985016675                     | 2.77                           | 20                    | HSA                       |                 | 1.5                       | 1.5 2.77                            |                               | 1.0                            |                             |                           | 2008/07/07                         |
| MW 7-08             |      | 184566225017219                     | 6.98                           | 20                    | HSA                       |                 | 3.0                       | 3.0 6.10                            |                               | 3.6                            |                             |                           | 2008/07/14                         |
| MW 8-08             |      | 184566875017036                     | 4.72                           | 20                    | HSA                       |                 | 3.0                       | 3.0 4.2                             |                               | 3.0                            |                             |                           | 2008/07/15                         |
| MW 9-08             |      | 184570865017625                     | 3.66                           | 20                    | HSA                       |                 | 1.5                       | 1.5 3.0                             |                               | 1.7                            |                             |                           | 2008/07/15                         |
| MW 10-08            |      | 184572065017303                     | 2.90                           | 20                    | HSA                       |                 | 1.37                      | 1.37 2.90                           |                               | 1.6                            |                             |                           | 2008/07/15                         |

## Well Contractor and Well Technician Information

|                                                                                |                                                                        |                                                  |                                                        |
|--------------------------------------------------------------------------------|------------------------------------------------------------------------|--------------------------------------------------|--------------------------------------------------------|
| Business Name of Well Contractor<br><b>George Downing Estate Drilling Ltd.</b> | Business Address (Street Number/Name, RR)<br><b>410 Rue Principale</b> | Municipality<br><b>Grenville-sur-la-Rouge</b>    | Province<br><b>QC</b>                                  |
| Postal Code<br><b>J0V1B0</b>                                                   | Business Telephone No. (inc. area code)<br><b>8192426469</b>           | Well Contractor's Licence No.<br><b>1844</b>     | Business E-mail Address<br><b>downing@xplornet.com</b> |
| Name of Well Technician (First Name, Last Name)<br><b>Bruce Downing</b>        | Well Technician's Licence No.<br><b>2173</b>                           | Date Submitted (yyyy/mm/dd)<br><b>2008/10/20</b> | Signature of Technician<br><i>Bruce Downing</i>        |

|                                                                        |                                                                         |
|------------------------------------------------------------------------|-------------------------------------------------------------------------|
| Date 1st Well in Cluster Constructed (yyyy/mm/dd)<br><b>2008/07/07</b> | Date Last Well in Cluster Constructed (yyyy/mm/dd)<br><b>2008/07/15</b> |
|------------------------------------------------------------------------|-------------------------------------------------------------------------|

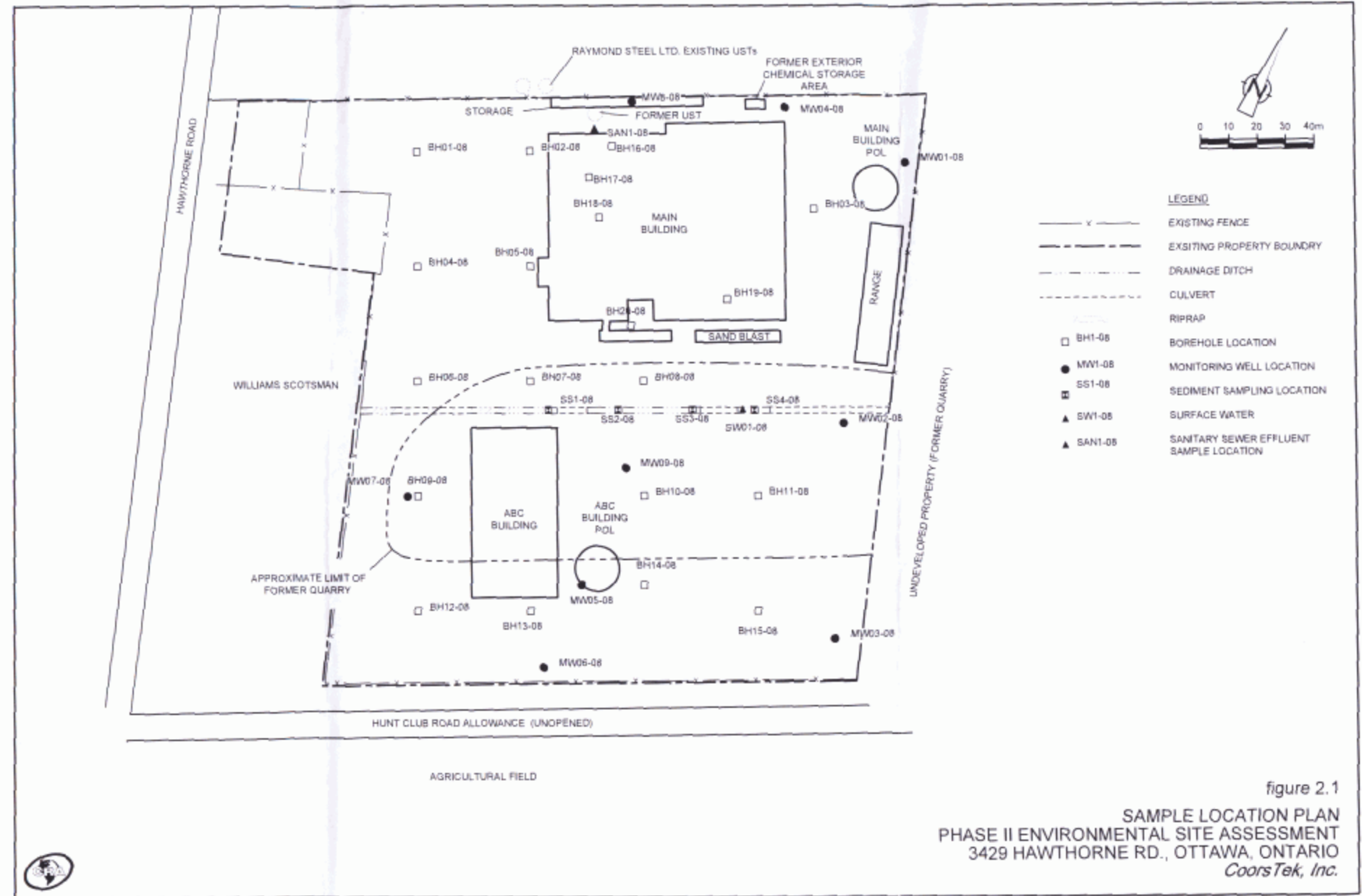
|                                                  |                             |
|--------------------------------------------------|-----------------------------|
| Ministry Use Only                                |                             |
| Date Received (yyyy/mm/dd)<br><b>NOV 26 2008</b> | Date Inspected (yyyy/mm/dd) |
| Audit No.<br><b>C 01984</b>                      | Remarks<br><b>m02897</b>    |



C-1844 m02897 c01984

NOV 26 2008





053403-04(007)GN-OT001 AUG 20/2008

NOV 26 2008

C-18441 m02888 03068



Measurements recorded in: ☒ Metric ☐ Imperial

Page \_\_\_\_\_ of \_\_\_\_\_

## Well Owner's Information

|                                                                    |                                       |                                                |                                                         |
|--------------------------------------------------------------------|---------------------------------------|------------------------------------------------|---------------------------------------------------------|
| First Name                                                         | Last Name / Organization<br>Orgaworld | E-mail Address                                 | <input type="checkbox"/> Well Constructed by Well Owner |
| Mailing Address (Street Number/Name)<br>c/o 400-179 Colonnade Road | Municipality<br>Ottawa                | Province<br>Ontario                            | Postal Code<br>K2E 7J4                                  |
|                                                                    |                                       | Telephone No. (inc. area code)<br>613 727 0510 |                                                         |

## Well Location

|                                                                       |                                 |                     |                 |
|-----------------------------------------------------------------------|---------------------------------|---------------------|-----------------|
| Address of Well Location (Street Number/Name)<br>TW #7 Hawthorne Road | Township<br>Gloucester          | Lot<br>27           | Concession<br>6 |
| County/District/Municipality<br>Ottawa Carleton                       | City/Town/Village<br>Gloucester | Province<br>Ontario | Postal Code     |
| UTM Coordinates<br>NAD 83 18 456879                                   | Eastings<br>5016752             | Northings           |                 |
| Municipal Plan and Sublot Number                                      |                                 | Other               |                 |

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

| General Colour | Most Common Material | Other Materials | General Description | Depth (m/ft)<br>From | To    |
|----------------|----------------------|-----------------|---------------------|----------------------|-------|
| Brown          | Soil Stones          |                 | Packed              | 0                    | 4.26  |
| Grey & White   | Sandstone            |                 | Very Hard           | 4.26                 | 29.86 |
|                |                      |                 |                     |                      |       |
|                |                      |                 |                     |                      |       |
|                |                      |                 |                     |                      |       |
|                |                      |                 |                     |                      |       |
|                |                      |                 |                     |                      |       |
|                |                      |                 |                     |                      |       |
|                |                      |                 |                     |                      |       |
|                |                      |                 |                     |                      |       |

| Annular Space               |    |                                             |                           |
|-----------------------------|----|---------------------------------------------|---------------------------|
| Depth Set at (m/ft)<br>From | To | Type of Sealant Used<br>(Material and Type) | Volume Placed<br>(m³/ft³) |
| 6.40                        | 0  | Grouted Cement                              | .21m³                     |
|                             |    |                                             |                           |
|                             |    |                                             |                           |
|                             |    |                                             |                           |

| Method of Construction                               |                                  | 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 checked="" type="checkbox"/> Rotary (Reverse) | <input type="checkbox"/> Driving | <input type="checkbox"/> Livestock      | <input type="checkbox"/> Test Hole                  | <input checked="" type="checkbox"/> Monitoring |
| <input type="checkbox"/> Boring                      | <input type="checkbox"/> Digging | <input type="checkbox"/> Irrigation     | <input type="checkbox"/> Cooling & Air Conditioning |                                                |
| <input checked="" type="checkbox"/> Air percussion   |                                  | <input type="checkbox"/> Industrial     |                                                     |                                                |
| <input type="checkbox"/> Other, specify              |                                  | <input type="checkbox"/> Other, specify |                                                     |                                                |

| Construction Record - Casing |                                                                          |                        |                      | Status of Well |                                                                        |
|------------------------------|--------------------------------------------------------------------------|------------------------|----------------------|----------------|------------------------------------------------------------------------|
| Inside Diameter (cm/in)      | Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel) | Wall Thickness (cm/in) | Depth (m/ft)<br>From | To             |                                                                        |
| 15.86                        | Steel                                                                    | .48                    | +4.45                | 6.40           | <input checked="" 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 checked="" type="checkbox"/> Observation and/or Monitoring Hole |
|                              |                                                                          |                        |                      |                | <input type="checkbox"/> Alteration (Construction)                     |
|                              |                                                                          |                        |                      |                | <input type="checkbox"/> Abandoned, Insufficient Supply                |
|                              |                                                                          |                        |                      |                | <input type="checkbox"/> Abandoned, Poor Water Quality                 |
|                              |                                                                          |                        |                      |                | <input type="checkbox"/> Abandoned, other, specify                     |
|                              |                                                                          |                        |                      |                | <input type="checkbox"/> Other, specify                                |

| Construction Record - Screen |                                       |          |                      | Status of Well |  |
|------------------------------|---------------------------------------|----------|----------------------|----------------|--|
| Outside Diameter (cm/in)     | Material (Plastic, Galvanized, Steel) | Slot No. | Depth (m/ft)<br>From | To             |  |
|                              |                                       |          |                      |                |  |
|                              |                                       |          |                      |                |  |
|                              |                                       |          |                      |                |  |
|                              |                                       |          |                      |                |  |

| Water Details               |                                                                                            | Hole Diameter        |       |                  |
|-----------------------------|--------------------------------------------------------------------------------------------|----------------------|-------|------------------|
| Water found at Depth (m/ft) | Kind of Water: <input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested | Depth (m/ft)<br>From | To    | Diameter (cm/in) |
| 9.14-12.19                  | <input type="checkbox"/> Gas <input checked="" type="checkbox"/> Other, specify            | 0                    | 6.40  | 15.86            |
| 18.28-21.33                 | <input type="checkbox"/> Gas <input checked="" type="checkbox"/> Other, specify            | 6.40                 | 29.86 | 15.23            |
|                             | <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify                       |                      |       |                  |

| Well Contractor and Well Technician Information               |                                                                    |                                          |                                                   |
|---------------------------------------------------------------|--------------------------------------------------------------------|------------------------------------------|---------------------------------------------------|
| Business Name of Well Contractor<br>Capital Water Supply Ltd. | Well Contractor's Licence No.<br>1 5 5 8                           | Municipality<br>Stittsville              |                                                   |
| Business Address (Street Number/Name)<br>Box 490              | Province<br>Ontario                                                | Postal Code<br>K2S 1A6                   | Business E-mail Address<br>office@capitalwater.ca |
| Bus. Telephone No. (inc. area code)<br>613 836 1766           | Name of Well Technician (Last Name, First Name)<br>Miller, Stephen | Well Technician's Licence No.<br>0 0 9 7 | Date Submitted<br>2 0 1 0 0 5 2 8                 |

| Results of Well Yield Testing                                                                                                              |  |              |                    |
|--------------------------------------------------------------------------------------------------------------------------------------------|--|--------------|--------------------|
| After test of well yield, water was:<br><input checked="" type="checkbox"/> Clear and sand free<br><input type="checkbox"/> Other, specify |  | Draw Down    |                    |
| If pumping discontinued, give reason:                                                                                                      |  | Time (min)   | Water Level (m/ft) |
| Pump intake set at (m/ft)<br>24.38                                                                                                         |  | Static Level | 4.41               |
| Pumping rate (l/min / GPM)<br>27.3                                                                                                         |  | 1            | 5.20               |
| Duration of pumping<br>6 hrs + min                                                                                                         |  | 2            | 5.57               |
| Final water level end of pumping (m/ft)<br>7.01                                                                                            |  | 3            | 5.78               |
| If flowing give rate (l/min / GPM)                                                                                                         |  | 4            | 5.94               |
| Recommended pump depth (m/ft)<br>24.38                                                                                                     |  | 5            | 6.05               |
| Recommended pump rate (l/min / GPM)<br>27.3                                                                                                |  | 10           | 6.37               |
| Well production (l/min / GPM)                                                                                                              |  | 15           | 6.52               |
| Disinfected?<br><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                                        |  | 20           | 6.60               |
|                                                                                                                                            |  | 25           | 6.68               |
|                                                                                                                                            |  | 30           | 6.72               |
|                                                                                                                                            |  | 40           | 6.81               |
|                                                                                                                                            |  | 50           | 6.86               |
|                                                                                                                                            |  | 60           | 6.89               |

| Map of Well Location                                           |
|----------------------------------------------------------------|
| Please provide a map below following instructions on the back. |
|                                                                |
| Comments:                                                      |

|                                                                                                                      |                                           |                                        |
|----------------------------------------------------------------------------------------------------------------------|-------------------------------------------|----------------------------------------|
| Well owner's information package delivered<br><input type="checkbox"/> Yes<br><input checked="" type="checkbox"/> No | Date Package Delivered<br>2 0 1 0 0 5 2 7 | Date Work Completed<br>2 0 1 0 0 5 2 5 |
| Ministry Use Only                                                                                                    |                                           |                                        |
| Audit No.<br>Z 101832                                                                                                |                                           |                                        |
| Received<br>AUG 04 2010                                                                                              |                                           |                                        |









Measurements recorded in: ☒ Metric ☐ Imperial

A296142

Tag#: A296142

S-25542

HILL EQUITY PARTNERS LTD

Address of Well Location (Street Number/Name)

60 Sappers Ridge

Township

Lot

Concession

County/District/Municipality

City/Town/Village

Province

Postal Code

Ottawa

Ontario

UTM Coordinates Zone Easting

Northing

Municipal Plan and Sublot Number

Other

NAD 83 184565215016904

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

| General Colour | Most Common Material | Other Materials | General Description | Depth (m/ft)<br>From | Depth (m/ft)<br>To |
|----------------|----------------------|-----------------|---------------------|----------------------|--------------------|
| GRY            | gravel               | sand            | 100g                | 0                    | .31                |
| BRN            | sand                 | silt, stones    | dense               | .31                  | 2.44               |
| BLK            | peat                 | sand, silt      | soft                | 2.44                 | 4.57               |
|                |                      |                 |                     |                      |                    |
|                |                      |                 |                     |                      |                    |
|                |                      |                 |                     |                      |                    |
|                |                      |                 |                     |                      |                    |
|                |                      |                 |                     |                      |                    |
|                |                      |                 |                     |                      |                    |

| Annular Space                     |      |                                             |                           | Results of Well Yield Testing                                                                                                         |              |                    |            |                    |
|-----------------------------------|------|---------------------------------------------|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------|--------------|--------------------|------------|--------------------|
| Depth Set at (m/ft)<br>From<br>To |      | Type of Sealant Used<br>(Material and Type) | Volume Placed<br>(m³/ft³) | After test of well yield, water was:<br><input type="checkbox"/> Clear and sand free<br><input type="checkbox"/> Other, specify _____ | Draw Down    |                    | Recovery   |                    |
| 0                                 | .31  | concrete/push mount                         |                           | If pumping discontinued, give reason:                                                                                                 | Time (min)   | Water Level (m/ft) | Time (min) | Water Level (m/ft) |
| .31                               | 1.22 | benzoinite                                  |                           |                                                                                                                                       | Static Level |                    |            |                    |
| 1.22                              | 4.57 | filter sand                                 |                           | Pump intake set at (m/ft)                                                                                                             | 1            |                    | 1          |                    |
|                                   |      |                                             |                           |                                                                                                                                       | 2            |                    | 2          |                    |
|                                   |      |                                             |                           |                                                                                                                                       | 3            |                    | 3          |                    |
|                                   |      |                                             |                           |                                                                                                                                       | 4            |                    | 4          |                    |
|                                   |      |                                             |                           |                                                                                                                                       | 5            |                    | 5          |                    |
|                                   |      |                                             |                           |                                                                                                                                       | 6            |                    | 6          |                    |
|                                   |      |                                             |                           |                                                                                                                                       | 7            |                    | 7          |                    |
|                                   |      |                                             |                           |                                                                                                                                       | 8            |                    | 8          |                    |
|                                   |      |                                             |                           |                                                                                                                                       | 9            |                    | 9          |                    |
|                                   |      |                                             |                           |                                                                                                                                       | 10           |                    | 10         |                    |
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|                                   |      |                                             |                           |                                                                                                                                       | 19           |                    | 19         |                    |
|                                   |      |                                             |                           |                                                                                                                                       | 20           |                    | 20         |                    |
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|                                   |      |                                             |                           |                                                                                                                                       | 22           |                    | 22         |                    |
|                                   |      |                                             |                           |                                                                                                                                       | 23           |                    | 23         |                    |
|                                   |      |                                             |                           |                                                                                                                                       | 24           |                    | 24         |                    |
|                                   |      |                                             |                           |                                                                                                                                       | 25           |                    | 25         |                    |
|                                   |      |                                             |                           |                                                                                                                                       | 26           |                    | 26         |                    |
|                                   |      |                                             |                           |                                                                                                                                       | 27           |                    | 27         |                    |
|                                   |      |                                             |                           |                                                                                                                                       | 28           |                    | 28         |                    |
|                                   |      |                                             |                           |                                                                                                                                       | 29           |                    | 29         |                    |
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|                                   |      |                                             |                           |                                                                                                                                       | 31           |                    | 31         |                    |
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|                                   |      |                                             |                           |                                                                                                                                       | 33           |                    | 33         |                    |
|                                   |      |                                             |                           |                                                                                                                                       | 34           |                    | 34         |                    |
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|                                   |      |                                             |                           |                                                                                                                                       | 38           |                    | 38         |                    |
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|                                   |      |                                             |                           |                                                                                                                                       | 41           |                    | 41         |                    |
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|                                   |      |                                             |                           |                                                                                                                                       | 44           |                    | 44         |                    |
|                                   |      |                                             |                           |                                                                                                                                       | 45           |                    | 45         |                    |
|                                   |      |                                             |                           |                                                                                                                                       | 46           |                    | 46         |                    |
|                                   |      |                                             |                           |                                                                                                                                       | 47           |                    | 47         |                    |
|                                   |      |                                             |                           |                                                                                                                                       | 48           |                    | 48         |                    |
|                                   |      |                                             |                           |                                                                                                                                       | 49           |                    | 49         |                    |
|                                   |      |                                             |                           |                                                                                                                                       | 50           |                    | 50         |                    |
|                                   |      |                                             |                           |                                                                                                                                       | 51           |                    | 51         |                    |
|                                   |      |                                             |                           |                                                                                                                                       | 52           |                    | 52         |                    |
|                                   |      |                                             |                           |                                                                                                                                       | 53           |                    | 53         |                    |
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|                                   |      |                                             |                           |                                                                                                                                       | 55           |                    | 55         |                    |
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|                                   |      |                                             |                           |                                                                                                                                       | 57           |                    | 57         |                    |
|                                   |      |                                             |                           |                                                                                                                                       | 58           |                    | 58         |                    |
|                                   |      |                                             |                           |                                                                                                                                       | 59           |                    | 59         |                    |
|                                   |      |                                             |                           |                                                                                                                                       | 60           |                    | 60         |                    |
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|                                   |      |                                             |                           |                                                                                                                                       | 65           |                    | 65         |                    |
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|                                   |      |                                             |                           |                                                                                                                                       | 77           |                    | 77         |                    |
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|                                   |      |                                             |                           |                                                                                                                                       | 79           |                    | 79         |                    |
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|                                   |      |                                             |                           |                                                                                                                                       | 81           |                    | 81         |                    |
|                                   |      |                                             |                           |                                                                                                                                       | 82           |                    | 82         |                    |
|                                   |      |                                             |                           |                                                                                                                                       | 83           |                    | 83         |                    |
|                                   |      |                                             |                           |                                                                                                                                       | 84           |                    | 84         |                    |
|                                   |      |                                             |                           |                                                                                                                                       | 85           |                    | 85         |                    |
|                                   |      |                                             |                           |                                                                                                                                       | 86           |                    | 86         |                    |
|                                   |      |                                             |                           |                                                                                                                                       | 87           |                    | 87         |                    |
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|                                   |      |                                             |                           |                                                                                                                                       | 90           |                    | 90         |                    |
|                                   |      |                                             |                           |                                                                                                                                       | 91           |                    | 91         |                    |
|                                   |      |                                             |                           |                                                                                                                                       | 92           |                    | 92         |                    |
|                                   |      |                                             |                           |                                                                                                                                       | 93           |                    | 93         |                    |
|                                   |      |                                             |                           |                                                                                                                                       | 94           |                    | 94         |                    |
|                                   |      |                                             |                           |                                                                                                                                       | 95           |                    | 95         |                    |
|                                   |      |                                             |                           |                                                                                                                                       | 96           |                    | 96         |                    |
|                                   |      |                                             |                           |                                                                                                                                       | 97           |                    | 97         |                    |
|                                   |      |                                             |                           |                                                                                                                                       | 98           |                    | 98         |                    |
|                                   |      |                                             |                           |                                                                                                                                       | 99           |                    | 99         |                    |
|                                   |      |                                             |                           |                                                                                                                                       | 100          |                    | 100        |                    |

| Method of Construction                             |                                  | 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 checked="" 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 checked="" type="checkbox"/> Air percussion |                                  | <input type="checkbox"/> Industrial     |                                                     |                                     |
| <input type="checkbox"/> Other, specify            |                                  | <input type="checkbox"/> Other, specify |                                                     |                                     |

| Construction Record - Casing |                                                                          |                        | Status of Well       |      |
|------------------------------|--------------------------------------------------------------------------|------------------------|----------------------|------|
| Inside Diameter (cm/in)      | Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel) | Wall Thickness (cm/in) | Depth (m/ft)<br>From | To   |
| 5.20                         | PVC                                                                      | .390                   | 0                    | 1.52 |
|                              |                                                                          |                        |                      |      |
|                              |                                                                          |                        |                      |      |
|                              |                                                                          |                        |                      |      |
|                              |                                                                          |                        |                      |      |
|                              |                                                                          |                        |                      |      |
|                              |                                                                          |                        |                      |      |
|                              |                                                                          |                        |                      |      |
|                              |                                                                          |                        |                      |      |

|                                                    |                                                         |                                                                        |
|----------------------------------------------------|---------------------------------------------------------|------------------------------------------------------------------------|
| <input type="checkbox"/> Water Supply              | <input type="checkbox"/> Replacement Well               | <input checked="" type="checkbox"/> Test Hole                          |
| <input type="checkbox"/> Recharge Well             | <input type="checkbox"/> Dewatering Well                | <input checked="" type="checkbox"/> Observation and/or Monitoring Hole |
| <input type="checkbox"/> Alteration (Construction) | <input type="checkbox"/> Abandoned, Insufficient Supply | <input type="checkbox"/> Abandoned, Poor Water Quality                 |
| <input type="checkbox"/> Abandoned, other, specify |                                                         |                                                                        |
| <input type="checkbox"/> Other, specify            |                                                         |                                                                        |

| Construction Record - Screen |                                       |          | Status of Well       |      |
|------------------------------|---------------------------------------|----------|----------------------|------|
| Outside Diameter (cm/in)     | Material (Plastic, Galvanized, Steel) | Slot No. | Depth (m/ft)<br>From | To   |
| 6.03                         | PVC                                   | 10       | 1.52                 | 4.57 |
|                              |                                       |          |                      |      |
|                              |                                       |          |                      |      |
|                              |                                       |          |                      |      |
|                              |                                       |          |                      |      |
|                              |                                       |          |                      |      |
|                              |                                       |          |                      |      |
|                              |                                       |          |                      |      |
|                              |                                       |          |                      |      |

|                                                    |                                                         |                                                                        |
|----------------------------------------------------|---------------------------------------------------------|------------------------------------------------------------------------|
| <input type="checkbox"/> Water Supply              | <input type="checkbox"/> Replacement Well               | <input checked="" type="checkbox"/> Test Hole                          |
| <input type="checkbox"/> Recharge Well             | <input type="checkbox"/> Dewatering Well                | <input checked="" type="checkbox"/> Observation and/or Monitoring Hole |
| <input type="checkbox"/> Alteration (Construction) | <input type="checkbox"/> Abandoned, Insufficient Supply | <input type="checkbox"/> Abandoned, Poor Water Quality                 |
| <input type="checkbox"/> Abandoned, other, specify |                                                         |                                                                        |
| <input type="checkbox"/> Other, specify            |                                                         |                                                                        |

| Water Details                                                                                    |                                                                                 | Hole Diameter        |      |
|--------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|----------------------|------|
| Water found at Depth (m/ft) <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify | Kind of Water: <input type="checkbox"/> Fresh <input type="checkbox"/> Untested | Depth (m/ft)<br>From | To   |
| Water found at Depth (m/ft) <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify | Kind of Water: <input type="checkbox"/> Fresh <input type="checkbox"/> Untested | 0                    | 4.57 |
| Water found at Depth (m/ft) <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify | Kind of Water: <input type="checkbox"/> Fresh <input type="checkbox"/> Untested |                      |      |
| Water found at Depth (m/ft) <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify | Kind of Water: <input type="checkbox"/> Fresh <input type="checkbox"/> Untested |                      |      |

|       |  |
|-------|--|
| 11.43 |  |
|-------|--|

| Well Contractor and Well Technician Information |                                                 |                         |  |
|-------------------------------------------------|-------------------------------------------------|-------------------------|--|
| Business Name of Well Contractor                | Well Contractor's Licence No.                   |                         |  |
| Strata Drilling Group                           | 7241                                            |                         |  |
| Business Address (Street Number/Name)           | Municipality                                    |                         |  |
| 129 Ringwood Dr.                                | Stonerville                                     |                         |  |
| Province                                        | Postal Code                                     | Business E-mail Address |  |
| ON                                              | L4A8C1                                          | wrecorder@stratasol.com |  |
| Bus. Telephone No. (inc. area code)             | Name of Well Technician (Last Name, First Name) |                         |  |
| 905 940 7919                                    | McGoy, James                                    |                         |  |
| Well Technician's Licence No.                   | Signature of Technician and/or Contractor       | Date Submitted          |  |
| 7101                                            | [Signature]                                     | 2020 09 04              |  |

| Map of Well Location                                           |  |  |  |
|----------------------------------------------------------------|--|--|--|
| Please provide a map below following instructions on the back. |  |  |  |
|                                                                |  |  |  |
| Comments:                                                      |  |  |  |

| Well owner's information package delivered |                             | Date Package Delivered |         | Ministry Use Only |             |
|--------------------------------------------|-----------------------------|------------------------|---------|-------------------|-------------|
| <input type="checkbox"/> Yes               | <input type="checkbox"/> No | Y Y Y Y                | M M D D | Audit No.         | 2333475     |
|                                            |                             | Date Work Completed    |         |                   |             |
|                                            |                             | 20200867               |         |                   |             |
|                                            |                             |                        |         | Received          | OCT 06 2020 |

SIGNAL HILL EQUITY PARTNERS LTD.

|                                                                   |      |                             |                     |                                  |
|-------------------------------------------------------------------|------|-----------------------------|---------------------|----------------------------------|
| Address of Well Location (Street Number/Name)<br>60 Sappers Ridge |      | Township                    | Lot                 | Concession                       |
| County/District/Municipality                                      |      | City/Town/Village<br>Oshawa | Province<br>Ontario | Postal Code                      |
| UTM Coordinates                                                   | Zone | Easting                     | North               | Municipal Plan and Sublot Number |
| NAD 83                                                            | 18   | 456497                      | 5016652             |                                  |

| Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form) |                      |                 |                     |                         |
|---------------------------------------------------------------------------------------------------------|----------------------|-----------------|---------------------|-------------------------|
| General Colour                                                                                          | Most Common Material | Other Materials | General Description | Depth (m/ft)<br>From To |
| GRY                                                                                                     | gravel               | sand            | loose               | 0 .31                   |
| BRN                                                                                                     | sand                 | silt, stones    | dense               | .31 2.44                |
| BLK                                                                                                     | peat                 | sand, silt      | soft                | 2.44 4.57               |
|                                                                                                         |                      |                 |                     |                         |
|                                                                                                         |                      |                 |                     |                         |
|                                                                                                         |                      |                 |                     |                         |
|                                                                                                         |                      |                 |                     |                         |
|                                                                                                         |                      |                 |                     |                         |
|                                                                                                         |                      |                 |                     |                         |

| Annular Space                  |                                             |                           | Results of Well Yield Testing                                                                                                   |  |                                            |    |
|--------------------------------|---------------------------------------------|---------------------------|---------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------|----|
| Depth Set at (m/ft)<br>From To | Type of Sealant Used<br>(Material and Type) | Volume Placed<br>(m³/ft³) | After test of well yield, water was:<br><input type="checkbox"/> Clear and sand free<br><input type="checkbox"/> Other, specify |  | Draw Down<br>Time (min) Water Level (m/ft) |    |
| 0 .31                          | concrete flush mount                        |                           | If pumping discontinued, give reason:<br>Static Level                                                                           |  | 1                                          | 1  |
| .31 1.22                       | bentonite                                   |                           |                                                                                                                                 |  | 2                                          | 2  |
| 1.22 4.57                      | filter sand                                 |                           | Pump intake set at (m/ft)                                                                                                       |  | 3                                          | 3  |
|                                |                                             |                           | Pumping rate (l/min / GPM)                                                                                                      |  | 4                                          | 4  |
|                                |                                             |                           | Duration of pumping<br>hrs + min                                                                                                |  | 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 |
|                                |                                             |                           | Recommended pump rate<br>(l/min / GPM)                                                                                          |  | 25                                         | 25 |
|                                |                                             |                           | Well production (l/min / GPM)                                                                                                   |  | 30                                         | 30 |
|                                |                                             |                           | Disinfected?<br><input type="checkbox"/> Yes <input type="checkbox"/> No                                                        |  | 40                                         | 40 |
|                                |                                             |                           |                                                                                                                                 |  | 50                                         | 50 |
|                                |                                             |                           |                                                                                                                                 |  | 60                                         | 60 |

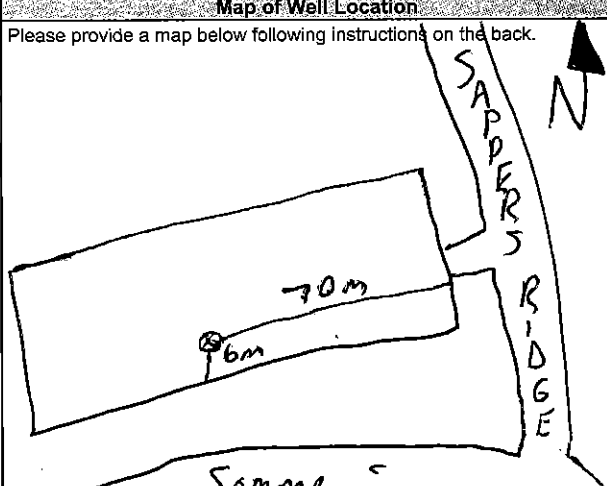
| Method of Construction                             |                                  | Well Use                                |                                                     |
|----------------------------------------------------|----------------------------------|-----------------------------------------|-----------------------------------------------------|
| <input type="checkbox"/> Cable Tool                | <input type="checkbox"/> Diamond | <input type="checkbox"/> Public         | <input type="checkbox"/> Commercial                 |
| <input type="checkbox"/> Rotary (Conventional)     | <input type="checkbox"/> Jetting | <input type="checkbox"/> Domestic       | <input type="checkbox"/> Municipal                  |
| <input type="checkbox"/> Rotary (Reverse)          | <input type="checkbox"/> Driving | <input type="checkbox"/> Livestock      | <input type="checkbox"/> Test Hole                  |
| <input type="checkbox"/> Boring                    | <input type="checkbox"/> Digging | <input type="checkbox"/> Irrigation     | <input type="checkbox"/> Cooling & Air Conditioning |
| <input checked="" type="checkbox"/> Air percussion |                                  | <input type="checkbox"/> Industrial     |                                                     |
| <input type="checkbox"/> Other, specify            |                                  | <input type="checkbox"/> Other, specify |                                                     |

| Construction Record - Casing |                                                                          |                        | Status of Well          |                                                                        |
|------------------------------|--------------------------------------------------------------------------|------------------------|-------------------------|------------------------------------------------------------------------|
| Inside Diameter (cm/in)      | Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel) | Wall Thickness (cm/in) | Depth (m/ft)<br>From To | <input type="checkbox"/> Water Supply                                  |
| 5.20                         | PVC                                                                      | 340                    | 0 1.52                  | <input checked="" type="checkbox"/> Replacement Well                   |
|                              |                                                                          |                        |                         | <input type="checkbox"/> Test Hole                                     |
|                              |                                                                          |                        |                         | <input type="checkbox"/> Recharge Well                                 |
|                              |                                                                          |                        |                         | <input type="checkbox"/> Dewatering Well                               |
|                              |                                                                          |                        |                         | <input checked="" type="checkbox"/> Observation and/or Monitoring Hole |
|                              |                                                                          |                        |                         | <input type="checkbox"/> Alteration (Construction)                     |
|                              |                                                                          |                        |                         | <input type="checkbox"/> Abandoned, Insufficient Supply                |
|                              |                                                                          |                        |                         | <input type="checkbox"/> Abandoned, Poor Water Quality                 |
|                              |                                                                          |                        |                         | <input type="checkbox"/> Abandoned, other, specify                     |
|                              |                                                                          |                        |                         | <input type="checkbox"/> Other, specify                                |

| Construction Record - Screen |                                       |          |                         |
|------------------------------|---------------------------------------|----------|-------------------------|
| Outside Diameter (cm/in)     | Material (Plastic, Galvanized, Steel) | Slot No. | Depth (m/ft)<br>From To |
| 6.03                         | PVC                                   | 10       | 1.52 4.57               |
|                              |                                       |          |                         |
|                              |                                       |          |                         |

| Water Details                                                                                    |                                                                                 | Hole Diameter           |                  |
|--------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|-------------------------|------------------|
| Water found at Depth (m/ft) <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify | Kind of Water: <input type="checkbox"/> Fresh <input type="checkbox"/> Untested | Depth (m/ft)<br>From To | Diameter (cm/in) |
| Water found at Depth (m/ft) <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify | Kind of Water: <input type="checkbox"/> Fresh <input type="checkbox"/> Untested | 0 4.57                  | 11.43            |
| Water found at Depth (m/ft) <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify | Kind of Water: <input type="checkbox"/> Fresh <input type="checkbox"/> Untested |                         |                  |

| Well Contractor and Well Technician Information           |                                                                 |                                                           |                             |
|-----------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------|-----------------------------|
| Business Name of Well Contractor<br>Strata Drilling Group | Well Contractor's Licence No.<br>7241                           | Business Address (Street Number/Name)<br>129 Ringwood Dr. | Municipality<br>Stouffville |
| Province<br>ON                                            | Postal Code<br>L4A 8C1                                          | Business E-mail Address<br>wrecords@strata501.com         |                             |
| Bus. Telephone No. (inc. area code)<br>905 940 7919       | Name of Well Technician (Last Name, First Name)<br>McLoy, James | Well Technician's Licence No.<br>7107                     | Date Submitted<br>20200904  |

| Map of Well Location                                                                 |  |  |  |
|--------------------------------------------------------------------------------------|--|--|--|
| Please provide a map below following instructions on the back.                       |  |  |  |
|  |  |  |  |
| Comments:<br>Same                                                                    |  |  |  |

| Well owner's information package delivered |                             | Date Package Delivered      | Ministry Use Only    |                      |
|--------------------------------------------|-----------------------------|-----------------------------|----------------------|----------------------|
| <input type="checkbox"/> Yes               | <input type="checkbox"/> No | Y Y Y Y M M D D<br>20200917 | Audit No.<br>2333474 | Received<br>20200917 |



Well Tag No. (Place Sticker and/or Print Below)  
**A296140**

Well Record

Regulation 903 Ontario Water Resources Act

Measurements recorded in: ☒ Metric ☐ Imperial

Page **525542** of

SIGNAL HILL EQUITY PARTNERS LTD.

Address of Well Location (Street Number/Name) **60 Sappers Ridge**  
County/District/Municipality **St. Lawrence** City/Town/Village **St. Lawrence** Province **Ontario** Postal Code   
UTM Coordinates Zone **18** Easting **456436** Northing **5016842** Municipal Plan and Sublot Number  Other

| Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form) |                      |                 |                     |                         |
|---------------------------------------------------------------------------------------------------------|----------------------|-----------------|---------------------|-------------------------|
| General Colour                                                                                          | Most Common Material | Other Materials | General Description | Depth (m/ft)<br>From To |
| GRY                                                                                                     | gravel               | sand            | 100x                | 0 .3)                   |
| BRN                                                                                                     | sand                 | silt, stones    | dense               | .3) 1.52                |
| GRY                                                                                                     | silt                 | sand            | 50ft                | 1.52 4.57               |
| BRN                                                                                                     | silt                 | clay            | 50ft                | 4.57 5.18               |
|                                                                                                         |                      |                 |                     |                         |
|                                                                                                         |                      |                 |                     |                         |
|                                                                                                         |                      |                 |                     |                         |
|                                                                                                         |                      |                 |                     |                         |
|                                                                                                         |                      |                 |                     |                         |

| Annular Space                  |                                             |                           |
|--------------------------------|---------------------------------------------|---------------------------|
| Depth Set at (m/ft)<br>From To | Type of Sealant Used<br>(Material and Type) | Volume Placed<br>(m³/ft³) |
| 0 .3)                          | concrete/plushmox                           |                           |
| .3) 1.83                       | bentonite                                   |                           |
| 1.83 5.18                      | filter sand                                 |                           |

| Method of Construction                             |                                  | Well Use                                |                                                     |
|----------------------------------------------------|----------------------------------|-----------------------------------------|-----------------------------------------------------|
| <input type="checkbox"/> Cable Tool                | <input type="checkbox"/> Diamond | <input type="checkbox"/> Public         | <input type="checkbox"/> Commercial                 |
| <input type="checkbox"/> Rotary (Conventional)     | <input type="checkbox"/> Jetting | <input type="checkbox"/> Domestic       | <input type="checkbox"/> Municipal                  |
| <input type="checkbox"/> Rotary (Reverse)          | <input type="checkbox"/> Driving | <input type="checkbox"/> Livestock      | <input checked="" type="checkbox"/> Test Hole       |
| <input type="checkbox"/> Boring                    | <input type="checkbox"/> Digging | <input type="checkbox"/> Irrigation     | <input checked="" type="checkbox"/> Monitoring      |
| <input checked="" type="checkbox"/> Air percussion |                                  | <input type="checkbox"/> Industrial     | <input type="checkbox"/> Cooling & Air Conditioning |
| <input type="checkbox"/> Other, specify            |                                  | <input type="checkbox"/> Other, specify |                                                     |

| Construction Record - Casing |                                                                          |                        | Status of Well          |                                                                        |
|------------------------------|--------------------------------------------------------------------------|------------------------|-------------------------|------------------------------------------------------------------------|
| Inside Diameter (cm/in)      | Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel) | Wall Thickness (cm/in) | Depth (m/ft)<br>From To |                                                                        |
| 5.20                         | PVC                                                                      | .390                   | 0 2.13                  | <input checked="" 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 checked="" type="checkbox"/> Observation and/or Monitoring Hole |
|                              |                                                                          |                        |                         | <input type="checkbox"/> Alteration (Construction)                     |
|                              |                                                                          |                        |                         | <input type="checkbox"/> Abandoned, Insufficient Supply                |
|                              |                                                                          |                        |                         | <input type="checkbox"/> Abandoned, Poor Water Quality                 |
|                              |                                                                          |                        |                         | <input type="checkbox"/> Abandoned, other, specify                     |
|                              |                                                                          |                        |                         | <input type="checkbox"/> Other, specify                                |

| Construction Record - Screen |                                       |          |                         |
|------------------------------|---------------------------------------|----------|-------------------------|
| Outside Diameter (cm/in)     | Material (Plastic, Galvanized, Steel) | Slot No. | Depth (m/ft)<br>From To |
| 6.03                         | PVC                                   | 10       | 2.13 5.18               |

| Water Details               |                                                                                                                                                      | Hole Diameter           |                  |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|------------------|
| Water found at Depth (m/ft) | Kind of Water: <input type="checkbox"/> Fresh <input type="checkbox"/> Untested <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify | Depth (m/ft)<br>From To | Diameter (cm/in) |
| Water found at Depth (m/ft) | Kind of Water: <input type="checkbox"/> Fresh <input type="checkbox"/> Untested <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify | 0 5.18                  | 11.43            |
| Water found at Depth (m/ft) | Kind of Water: <input type="checkbox"/> Fresh <input type="checkbox"/> Untested <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify |                         |                  |

Well Contractor and Well Technician Information

Business Name of Well Contractor **Stake Drilling Group** Well Contractor's Licence No. **72411**

Business Address (Street Number/Name) **129 Ringwood Dr.** Municipality **St. Lawrence**

Province **ON** Postal Code **L4A2C1** Business E-mail Address **wrcor@stakeoil.com**

Bus. Telephone No. (inc. area code) **9059407919** Name of Well Technician (Last Name, First Name) **M. JAMES**

Well Technician's Licence No. **7107** Signature of Technician and/or Contractor **[Signature]** Date Submitted **20200904**

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

Map of Well Location

Please provide a map below following instructions on the back.

Comments:

Well owner's information package delivered ☐ Yes ☐ No

Date Package Delivered **20200917**

Date Work Completed **20200917**

Ministry Use Only

Audit No. **2333473**

Received **OCT 06 2020**



Measurements recorded in: ☒ Metric ☐ Imperial

A251312 MWI

Page 1 of 1

## Well Owner's Information

|                                                            |                                                    |                                                |                                                                    |
|------------------------------------------------------------|----------------------------------------------------|------------------------------------------------|--------------------------------------------------------------------|
| First Name                                                 | Last Name / Organization<br>R.W. TOMLINSON LIMITED | E-mail Address                                 | <input checked="" type="checkbox"/> Well Constructed by Well Owner |
| Mailing Address (Street Number/Name)<br>100 CITIGATE DRIVE | Municipality<br>OTTAWA                             | Province<br>ON                                 | Postal Code<br>K2J6K7                                              |
|                                                            |                                                    | Telephone No. (inc. area code)<br>613 822 1867 |                                                                    |

## Well Location

|                                                                   |                             |                     |                                  |
|-------------------------------------------------------------------|-----------------------------|---------------------|----------------------------------|
| Address of Well Location (Street Number/Name)<br>300 SOMME STREET | Township                    | Lot                 | Concession                       |
| County/District/Municipality                                      | City/Town/Village<br>OTTAWA | Province<br>Ontario | Postal Code                      |
| UTM Coordinates Zone<br>NAD 83                                    | Easting<br>18456685         | Northing<br>5017423 | Municipal Plan and Sublot Number |
|                                                                   |                             |                     | Other                            |

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

| General Colour | Most Common Material | Other Materials | General Description | Depth (m/ft)<br>From | To   |
|----------------|----------------------|-----------------|---------------------|----------------------|------|
|                | BACKFILL             |                 |                     | 0                    | 4.62 |
|                |                      |                 |                     |                      |      |
|                |                      |                 |                     |                      |      |
|                |                      |                 |                     |                      |      |
|                |                      |                 |                     |                      |      |
|                |                      |                 |                     |                      |      |
|                |                      |                 |                     |                      |      |
|                |                      |                 |                     |                      |      |
|                |                      |                 |                     |                      |      |
|                |                      |                 |                     |                      |      |

| Annular Space               |     |                                                       |
|-----------------------------|-----|-------------------------------------------------------|
| Depth Set at (m/ft)<br>From | To  | Type of Sealant Used (Material and Type)<br>BENTONITE |
| 0                           | 2.4 |                                                       |
|                             |     | Volume Placed (m³/ft³)                                |
|                             |     |                                                       |

| Method of Construction                                                                                                                                                                                                                                                     | Well Use                                                                                                                                                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> Cable Tool<br><input type="checkbox"/> Rotary (Conventional)<br><input type="checkbox"/> Rotary (Reverse)<br><input type="checkbox"/> Boring<br><input type="checkbox"/> Air percussion<br><input checked="" type="checkbox"/> Other, specify HSA | <input type="checkbox"/> Diamond<br><input type="checkbox"/> Jetting<br><input type="checkbox"/> Driving<br><input type="checkbox"/> Digging<br><input type="checkbox"/> Public<br><input type="checkbox"/> Domestic<br><input type="checkbox"/> Livestock<br><input type="checkbox"/> Irrigation<br><input type="checkbox"/> Industrial<br><input type="checkbox"/> Other, specify |
|                                                                                                                                                                                                                                                                            | <input type="checkbox"/> Commercial<br><input type="checkbox"/> Municipal<br><input type="checkbox"/> Test Hole<br><input type="checkbox"/> Cooling & Air Conditioning<br><input checked="" type="checkbox"/> Not used<br><input type="checkbox"/> Dewatering<br><input checked="" type="checkbox"/> Monitoring                                                                     |

| Construction Record - Casing |                                                                          |                        |                      | Status of Well |  |
|------------------------------|--------------------------------------------------------------------------|------------------------|----------------------|----------------|--|
| Inside Diameter (cm/in)      | Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel) | Wall Thickness (cm/in) | Depth (m/ft)<br>From | To             |  |
| 5.08                         | PVC                                                                      | SCHED 40               | 0                    | 3.05           |  |
|                              |                                                                          |                        |                      |                |  |
|                              |                                                                          |                        |                      |                |  |
|                              |                                                                          |                        |                      |                |  |
|                              |                                                                          |                        |                      |                |  |
|                              |                                                                          |                        |                      |                |  |
|                              |                                                                          |                        |                      |                |  |
|                              |                                                                          |                        |                      |                |  |

| Construction Record - Screen |                                       |          |                      |      |
|------------------------------|---------------------------------------|----------|----------------------|------|
| Outside Diameter (cm/in)     | Material (Plastic, Galvanized, Steel) | Slot No. | Depth (m/ft)<br>From | To   |
| 5.88                         | PVC                                   | 25       | 3.05                 | 4.57 |
|                              |                                       |          |                      |      |
|                              |                                       |          |                      |      |
|                              |                                       |          |                      |      |
|                              |                                       |          |                      |      |
|                              |                                       |          |                      |      |
|                              |                                       |          |                      |      |
|                              |                                       |          |                      |      |

| Water Details                       |                                                                                                                                                         | Hole Diameter        |      |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|------|
| Water found at Depth<br>2.34 (m/ft) | Kind of Water: <input type="checkbox"/> Fresh <input type="checkbox"/> Untested<br><input type="checkbox"/> Gas <input type="checkbox"/> Other, specify | Depth (m/ft)<br>From | To   |
|                                     |                                                                                                                                                         | 0                    | 4.62 |
|                                     |                                                                                                                                                         |                      |      |
|                                     |                                                                                                                                                         |                      |      |
|                                     |                                                                                                                                                         |                      |      |
|                                     |                                                                                                                                                         |                      |      |
|                                     |                                                                                                                                                         |                      |      |
|                                     |                                                                                                                                                         |                      |      |
|                                     |                                                                                                                                                         |                      |      |

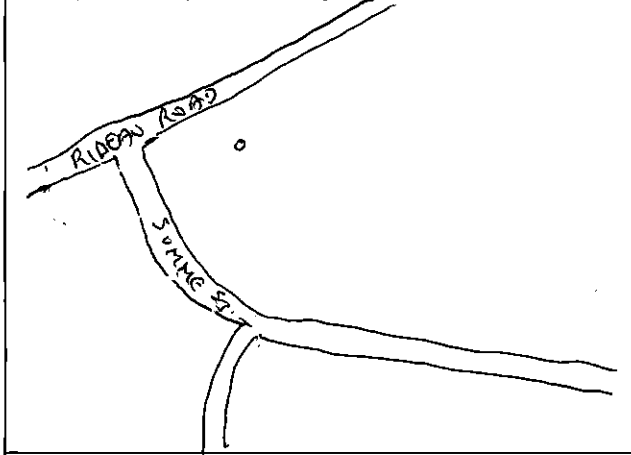
| Well Contractor and Well Technician Information |                      |  |  |
|-------------------------------------------------|----------------------|--|--|
| By<br>George Downing Estate Drilling #1844      | Since No.            |  |  |
| By<br>410 rue Principale Grenville-sur-la-Rouge |                      |  |  |
| Pr<br>QC J0V 1B0                                | downing@hawk.igs.net |  |  |
| By<br>(819) 242-6469                            | Downing, Stephen     |  |  |

|                                       |                                           |                            |
|---------------------------------------|-------------------------------------------|----------------------------|
| Well Technician's Licence No.<br>3326 | Signature of Technician and/or Contractor | Date Submitted<br>20200918 |
|---------------------------------------|-------------------------------------------|----------------------------|

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

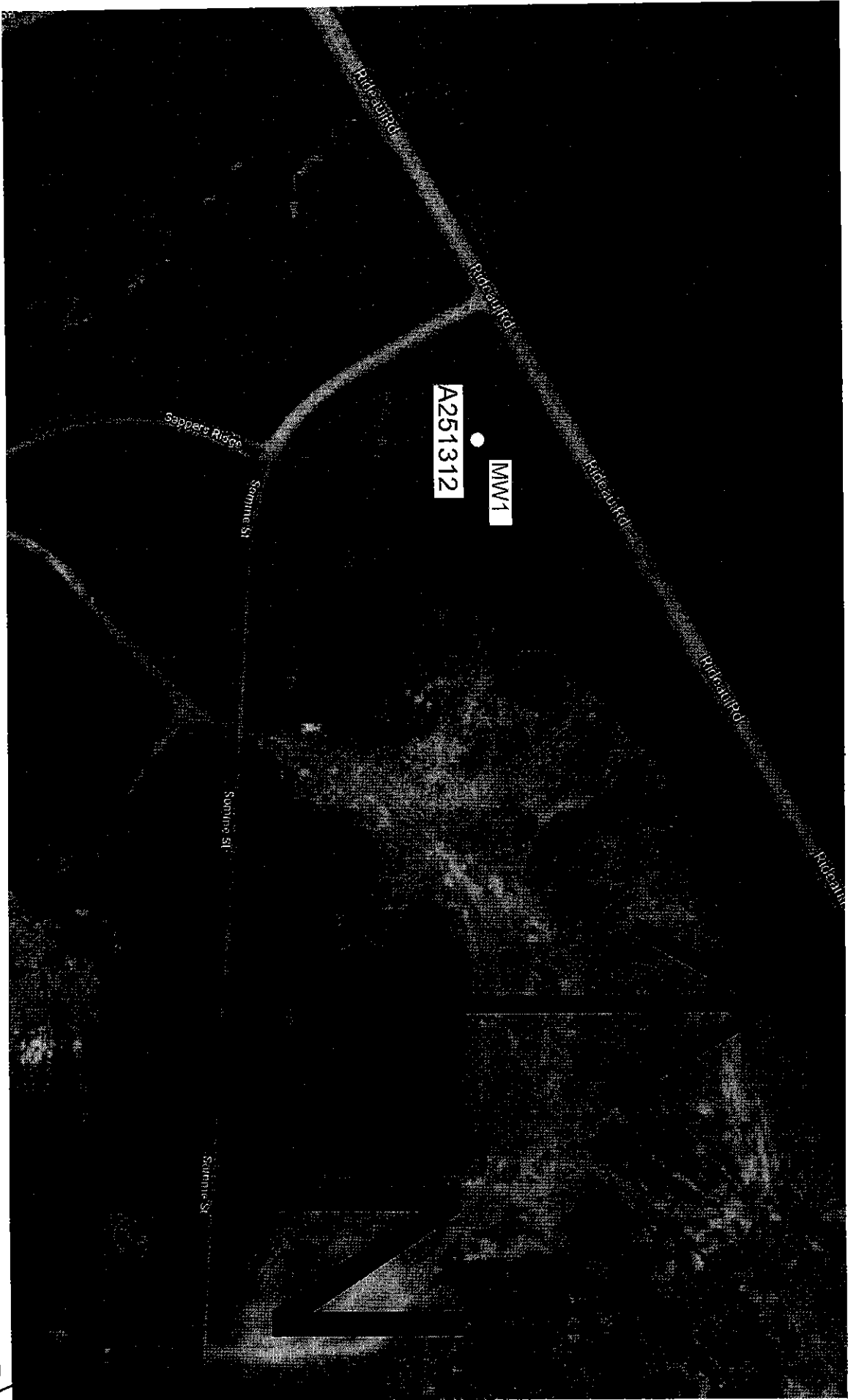
## Map of Well Location

Please provide a map below following instructions on the back.



Comments:  
SEE ATTACHED

| Well owner's information package delivered                             | Date Package Delivered          | Ministry Use Only    |
|------------------------------------------------------------------------|---------------------------------|----------------------|
| <input type="checkbox"/> Yes<br><input checked="" type="checkbox"/> No | Y Y Y Y M M D D<br>20200509     | Audit No. 2340902    |
|                                                                        | Date Work Completed<br>20200509 | Received OCT 16 2020 |



OCT 16 2020  
C-1844  
E340902

Measurements recorded in: ☐ Metric ☒ Imperial

Page \_\_\_\_\_ of \_\_\_\_\_

Well Owner's Information

First Name \_\_\_\_\_ Last Name/Organization **TECHO-BLOC INC.** E-mail Address \_\_\_\_\_ ☐ Well Constructed by Well Owner

Mailing Address (Street Number/Name) **#5255 Albert Millichamp** Municipality **Saint-Hubert** Province **Quebec** Postal Code **J3H 8Z8** Telephone No. (inc. area code) \_\_\_\_\_

Well Location

Address of Well Location (Street Number/Name) **5123 Hawthorne Road** Township **Gloucester** Lot **27** Concession **6**

County/District/Municipality **Ottawa Carleton** City/Town/Village **Ottawa** Province **Ontario** Postal Code \_\_\_\_\_

UTM Coordinates Zone **18** Easting **457054** Northing **5016813** Municipal Plan and Sublot Number **4M-1388 Part 23-4/4R-32280 Block 2** Other \_\_\_\_\_

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

| General Colour | Most Common Material | Other Materials | General Description | Depth (m)    |
|----------------|----------------------|-----------------|---------------------|--------------|
|                | Sandy clay & Gravel  |                 |                     | 0' to 15'    |
| Grey           | Limestone            |                 |                     | 15' to 80'   |
| Grey & White   | Sandstone            |                 |                     | 80' to 83'   |
| Grey & White   | Sandstone            |                 |                     | 83' to 116'  |
| Grey & White   | Sandstone            |                 |                     | 116' to 122' |

| Annular Space    |                                          |                                 |
|------------------|------------------------------------------|---------------------------------|
| Depth Set at (m) | Type of Sealant Used (Material and Type) | Volume Placed (m <sup>3</sup> ) |
| 41' to 31'       | Neat cement                              | 18.7                            |
| 31' to 0'        | Bentonite slurry                         | 10.8                            |

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

| Construction Record - Casing |                                                                          |                     | Status of Well |                                                             |
|------------------------------|--------------------------------------------------------------------------|---------------------|----------------|-------------------------------------------------------------|
| Inside Diameter (cm)         | Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel) | Wall Thickness (cm) | Depth (m)      |                                                             |
| 6 1/4"                       | Steel                                                                    | 1.88                | 41'            | <input checked="" type="checkbox"/> Water Supply            |
| 6"                           | Open Hole                                                                |                     | 41' to 122'    | <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, Insufficient Supply     |
|                              |                                                                          |                     |                | <input type="checkbox"/> Abandoned, Poor Water Quality      |
|                              |                                                                          |                     |                | <input type="checkbox"/> Abandoned, other, specify _____    |
|                              |                                                                          |                     |                | <input type="checkbox"/> Other, specify _____               |

| Construction Record - Screen |                                       |          |           |
|------------------------------|---------------------------------------|----------|-----------|
| Outside Diameter (cm/in)     | Material (Plastic, Galvanized, Steel) | Slot No. | Depth (m) |
|                              |                                       |          | From To   |

| Water Details            |                                                                                            | Hole Diameter |                  |
|--------------------------|--------------------------------------------------------------------------------------------|---------------|------------------|
| Water found at Depth (m) | Kind of Water: <input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested | Depth (m)     | Diameter (cm/in) |
| 83                       | <input type="checkbox"/> Gas <input checked="" type="checkbox"/> Other, specify _____      | From To       |                  |
| 116                      | <input type="checkbox"/> Gas <input checked="" type="checkbox"/> Other, specify _____      | 0' to 41'     | 9 3/4"           |
|                          | <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____                 | 41' to 122'   | 6"               |

Well Contractor and Well Technician Information

Business Name of Well Contractor **Air Rock Drilling Co. Ltd.** Well Contractor's Licence No. **7881**  
Business Address (Street Number/Name) **6659 Franktown Road** Municipality **Richmond**  
Province **ON** Postal Code **K0A 2Z0** Business E-mail Address **air-rock@sympatico.ca**  
Bus. Telephone No. (inc. area code) **613-838-2170** Name of Well Technician (Last Name, First Name) **Hogan, Dan**  
Well Technician's Licence No. **T3058** Signature of Technician and/or Contractor *[Signature]* Date Submitted **2020 08 31**

| Results of Well Yield Testing                                                                           |  |              |                 |
|---------------------------------------------------------------------------------------------------------|--|--------------|-----------------|
| After test of well yield, water was:                                                                    |  | Draw Down    |                 |
| <input type="checkbox"/> Clear and sand free                                                            |  | Time (min)   | Water Level (m) |
| <input type="checkbox"/> Other, specify _____                                                           |  | Time (min)   | Water Level (m) |
| If pumping discontinued, give reason: <b>Not tested</b>                                                 |  | Static Level | 26.5'           |
| Pump intake set at (m) <b>100</b>                                                                       |  | 1            | 26.5            |
| Pumping rate (l/min) <b>15 GPM</b>                                                                      |  | 2            | 26.5            |
| Duration of pumping <b>20</b> hrs + min                                                                 |  | 3            | 26.5            |
| Final water level end of pumping (m) <b>33.5'</b>                                                       |  | 4            | 26.5            |
| If flowing give rate (l/min/GPM) <b>20</b>                                                              |  | 5            | 26.5            |
| Recommended pump depth (m) <b>100'</b>                                                                  |  | 10           | 26.5            |
| Recommended pump rate (l/min/GPM) <b>20</b>                                                             |  | 15           | 26.5            |
| Well production (l/min/GPM) <b>20</b>                                                                   |  | 20           | 26.5            |
| <input checked="" type="checkbox"/> Disrupted? <input type="checkbox"/> Yes <input type="checkbox"/> No |  | 25           | 26.5            |
|                                                                                                         |  | 30           | 26.5            |
|                                                                                                         |  | 40           | 26.5            |
|                                                                                                         |  | 50           | 26.5            |
|                                                                                                         |  | 60           | 26.5            |

Map of Well Location

Please provide a map below following instructions on the back of this form.

**#5123 HAWTHORNE ROAD**

**Somme Street**

**150 ft**

**6 km**

| Comments:                                                                                                      |                                          | Ministry Use Only                     |                             |
|----------------------------------------------------------------------------------------------------------------|------------------------------------------|---------------------------------------|-----------------------------|
| <b>3/4 HP - 15 GPM Set @ 100 ft</b>                                                                            |                                          | Audit No. <b>2344019</b>              |                             |
| Well owner's information package delivered <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Date Package Delivered <b>2020 08 27</b> | Date Work Completed <b>2020 08 20</b> | Received <b>OCT 30 2020</b> |



Measurements recorded in: ☐ Metric ☒ Imperial

A305146

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Well Owner's Information

|                                                                               |                                         |                        |                                                         |
|-------------------------------------------------------------------------------|-----------------------------------------|------------------------|---------------------------------------------------------|
| First Name                                                                    | Last Name/Organization<br><b>COPART</b> | E-mail Address         | <input type="checkbox"/> Well Constructed by Well Owner |
| Mailing Address (Street Number/Name)<br><b>14185 Dallas Parkway Suite 300</b> | Municipality<br><b>Dallas, Texas</b>    | Province<br><b>USA</b> | Postal Code<br><b>75254</b>                             |

Well Location

|                                                                          |                                        |                                                    |             |
|--------------------------------------------------------------------------|----------------------------------------|----------------------------------------------------|-------------|
| Address of Well Location (Street Number/Name)<br><b>300 Somme Street</b> | Township<br><b>Gloucester</b>          | Lot<br><b>P11 269 27 6 R.F.</b>                    | Concession  |
| County/District/Municipality<br><b>Ottawa Carleton</b>                   | City/Town/Village<br><b>Gloucester</b> | Province<br><b>Ontario</b>                         | Postal Code |
| UTM Coordinates Zone Easting<br><b>NAD 83 18 456627</b>                  | Northing<br><b>5017085</b>             | Municipal Plan and Sublot Number<br><b>4M-1388</b> | Other       |

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

| General Colour | Most Common Material | Other Materials       | General Description | Depth From (m) | Depth To (m) |
|----------------|----------------------|-----------------------|---------------------|----------------|--------------|
|                | Sand                 | Clay                  | + Gravel            | 0'             | 13'          |
| Grey & White   | Sandstone            | w/ Grey limestone mix |                     | 13'            | 103'         |
| Grey & White   | Sandstone            | w/ Grey limestone mix |                     | 103'           | 134'         |
| Grey & White   | Sandstone            | w/ Grey Limestone mix |                     | 134'           | 140'         |

| Annular Space    |      |    |                                          |
|------------------|------|----|------------------------------------------|
| Depth Set at (m) | From | To | Type of Sealant Used (Material and Type) |
| 60'              | 50'  |    | Neat cement                              |
| 50'              | 0'   |    | Bentonite slurry                         |

| Method of Construction                             |                                  | Well Use                                     |                                                     |
|----------------------------------------------------|----------------------------------|----------------------------------------------|-----------------------------------------------------|
| <input type="checkbox"/> Cable Tool                | <input type="checkbox"/> Diamond | <input type="checkbox"/> Public              | <input type="checkbox"/> Commercial                 |
| <input type="checkbox"/> Rotary (Conventional)     | <input type="checkbox"/> Jetting | <input checked="" type="checkbox"/> Domestic | <input type="checkbox"/> Municipal                  |
| <input type="checkbox"/> Rotary (Reverse)          | <input type="checkbox"/> Driving | <input type="checkbox"/> Livestock           | <input type="checkbox"/> Test Hole                  |
| <input type="checkbox"/> Boring                    | <input type="checkbox"/> Digging | <input type="checkbox"/> Irrigation          | <input type="checkbox"/> Cooling & Air Conditioning |
| <input checked="" type="checkbox"/> Air percussion |                                  | <input type="checkbox"/> Industrial          |                                                     |
| <input type="checkbox"/> Other, specify            |                                  | <input type="checkbox"/> Other, specify      |                                                     |

| Construction Record - Casing |                                                                          |                     |           | Status of Well |      |
|------------------------------|--------------------------------------------------------------------------|---------------------|-----------|----------------|------|
| Inside Diameter (cm)         | Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel) | Wall Thickness (cm) | Depth (m) | From           | To   |
| 6 1/4"                       | Steel                                                                    | .188                | +2'       | 60'            |      |
| 6 1/8"                       | Open Hole                                                                |                     |           | 60'            | 140' |

| Construction Record - Screen |                                       |          |           | Status of Well |    |
|------------------------------|---------------------------------------|----------|-----------|----------------|----|
| Outside Diameter (cm/in)     | Material (Plastic, Galvanized, Steel) | Slot No. | Depth (m) | From           | To |
|                              |                                       |          |           |                |    |

| Water Details                   |                                                                                            | Hole Diameter |                  |
|---------------------------------|--------------------------------------------------------------------------------------------|---------------|------------------|
| Water found at Depth<br>103 (m) | Kind of Water: <input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested | Depth (m)     | Diameter (cm/in) |
| Water found at Depth<br>134 (m) | Kind of Water: <input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested | 8' 60"        | 9 3/4"           |
| Water found at Depth<br>(m/ft)  | Kind of Water: <input type="checkbox"/> Fresh <input type="checkbox"/> Untested            | 60' 140'      | 6 1/8"           |

|                                                                       |                               |                                                                      |  |
|-----------------------------------------------------------------------|-------------------------------|----------------------------------------------------------------------|--|
| Business Name of Well Contractor<br><b>Air Rock Drilling Co. Ltd.</b> |                               | Well Contractor's Licence No.<br><b>7681</b>                         |  |
| Business Address (Street Number/Name)<br><b>6659 Franktown Road</b>   |                               | Municipality<br><b>Richmond</b>                                      |  |
| Province<br><b>ON</b>                                                 | Postal Code<br><b>K0A 2Z0</b> | Business E-mail Address<br><b>air-rock@sympatico.ca</b>              |  |
| Bus. Telephone No. (inc. area code)<br><b>6138382170</b>              |                               | Name of Well Technician (Last Name, First Name)<br><b>Hogan, Dan</b> |  |
| Well Technician's Licence No.<br><b>T3058</b>                         |                               | Date Submitted<br><b>2020 09 30</b>                                  |  |

| Results of Well Yield Testing                                       |              |                    |                    |
|---------------------------------------------------------------------|--------------|--------------------|--------------------|
| After test of well yield, water was:                                | Draw Down    | Recovery           |                    |
| <input type="checkbox"/> Clear and sand free                        | Time (min)   | Water Level (m/ft) | Time (min)         |
| <input type="checkbox"/> Other, specify <b>Not tested</b>           | Static Level |                    | Water Level (m/ft) |
| If pumping discontinued, give reason:                               | 1            | 27.6               | 1                  |
|                                                                     | 2            | 28                 | 2                  |
| Pump intake set at (m)                                              | 3            | 28.2               | 3                  |
| 100                                                                 | 4            | 28.3               | 4                  |
| Pumping rate (l/min/GPM)                                            | 5            | 28.4               | 5                  |
| 20                                                                  | 10           | 28.6               | 10                 |
| Duration of pumping<br>hrs + min                                    | 15           | 28.7               | 15                 |
| Final water level end of pumping (m/ft)                             | 20           | 28.8               | 20                 |
| 30' 8"                                                              | 25           | 28.9               | 25                 |
| If flowing give rate (l/min/GPM)                                    | 30           | 30                 | 30                 |
| X                                                                   | 40           | 30.2               | 40                 |
| Recommended pump depth (m)                                          | 50           | 30.5               | 50                 |
| 100'                                                                | 60           | 30' 8"             | 60                 |
| Recommended pump rate (l/min/GPM)                                   |              |                    |                    |
| 20                                                                  |              |                    |                    |
| Well production (l/min/GPM)                                         |              |                    |                    |
| 20                                                                  |              |                    |                    |
| Disinfected?                                                        |              |                    |                    |
| <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |              |                    |                    |

Map of Well Location

Please provide a map below following instructions on the back.

#300 SOMME STREET

Sappers Ridge

250 ft

|                                                |                                                                                                                |                                             |                                                              |
|------------------------------------------------|----------------------------------------------------------------------------------------------------------------|---------------------------------------------|--------------------------------------------------------------|
| Comments:<br><b>3/4 HP 15 GPM Set @ 100 ft</b> | Well owner's information package delivered <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Date Package Delivered<br><b>2020 09 03</b> | Ministry Use Only<br>Audit No. <b>2344053</b><br>OCT 30 2020 |
|                                                | Date Work Completed<br><b>2020 09 02</b>                                                                       |                                             | Received                                                     |

Measurements recorded in: ☐ Metric ☒ Imperial

Page \_\_\_\_\_ of \_\_\_\_\_

Well Owner's Information

|                                      |                        |                |                                                         |
|--------------------------------------|------------------------|----------------|---------------------------------------------------------|
| First Name                           | Last Name/Organization | E-mail Address | <input type="checkbox"/> Well Constructed by Well Owner |
| Paul Lalonde Holdings Inc            |                        |                |                                                         |
| Mailing Address (Street Number/Name) | Municipality           | Province       | Postal Code                                             |
| 5146 Bank Street                     | Ottawa                 | ON             | K1X 1G8                                                 |

Well Location

|                                               |                   |          |                                  |
|-----------------------------------------------|-------------------|----------|----------------------------------|
| Address of Well Location (Street Number/Name) | Township          | Lot      | Concession                       |
| 5123 Hawthorne Road                           | Gloucester        | 27       | 6                                |
| County/District/Municipality                  | City/Town/Village | Province | Postal Code                      |
| Ottawa Carleton                               | Ottawa            | Ontario  |                                  |
| UTM Coordinates Zone                          | Easting           | Northing | Municipal Plan and Sublot Number |
| NAD 83                                        | 18                | 456956   | 5016788                          |
|                                               |                   |          | 4M-1388                          |
|                                               |                   |          | Parts 2,3,4                      |

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

| General Colour | Most Common Material | Other Materials | General Description | Depth From | Depth To |
|----------------|----------------------|-----------------|---------------------|------------|----------|
|                | Sandy Till           | Boulders        |                     | 0'         | 8'       |
| Grey           | Limestone            |                 |                     | 8'         | 45'      |
| Grey & White   | Sandstone            |                 |                     | 45'        | 60'      |
| Grey & White   | Sandstone            |                 |                     | 60'        | 96'      |
| Grey & White   | Sandstone            |                 |                     | 96'        | 153'     |
| Grey & White   | Sandstone            |                 |                     | 153'       | 159'     |

| Annular Space     |     |                                          |                    |
|-------------------|-----|------------------------------------------|--------------------|
| Depth Set at From | To  | Type of Sealant Used (Material and Type) | Volume Placed (m³) |
| 40'               | 30' | Neat cement                              | 9.36               |
| 30'               | 0'  | Bentonite slurry                         | 16.8               |

| Method of Construction                             |                                  | Well Use                                     |                                                     |
|----------------------------------------------------|----------------------------------|----------------------------------------------|-----------------------------------------------------|
| <input type="checkbox"/> Cable Tool                | <input type="checkbox"/> Diamond | <input type="checkbox"/> Public              | <input type="checkbox"/> Commercial                 |
| <input type="checkbox"/> Rotary (Conventional)     | <input type="checkbox"/> Jetting | <input checked="" type="checkbox"/> Domestic | <input type="checkbox"/> Municipal                  |
| <input type="checkbox"/> Rotary (Reverse)          | <input type="checkbox"/> Driving | <input type="checkbox"/> Livestock           | <input type="checkbox"/> Test Hole                  |
| <input type="checkbox"/> Boring                    | <input type="checkbox"/> Digging | <input type="checkbox"/> Irrigation          | <input type="checkbox"/> Cooling & Air Conditioning |
| <input checked="" type="checkbox"/> Air percussion |                                  | <input type="checkbox"/> Industrial          |                                                     |
| <input type="checkbox"/> Other, specify            |                                  | <input type="checkbox"/> Other, specify      |                                                     |

| Construction Record - Casing |                                                                          |                        |              | Status of Well |    |
|------------------------------|--------------------------------------------------------------------------|------------------------|--------------|----------------|----|
| Inside Diameter (cm/in)      | Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel) | Wall Thickness (cm/in) | Depth (m/ft) | From           | To |
| 6 1/4"                       | Steel                                                                    | .188"                  | +2'          | 40'            |    |
| 6"                           | Open Hole                                                                |                        | 40'          | 159'           |    |

|                                                        |                                                             |
|--------------------------------------------------------|-------------------------------------------------------------|
| <input checked="" 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, Insufficient Supply     |
| <input type="checkbox"/> Abandoned, Poor Water Quality | <input type="checkbox"/> Abandoned, other, specify          |
| <input type="checkbox"/> Other, specify                |                                                             |

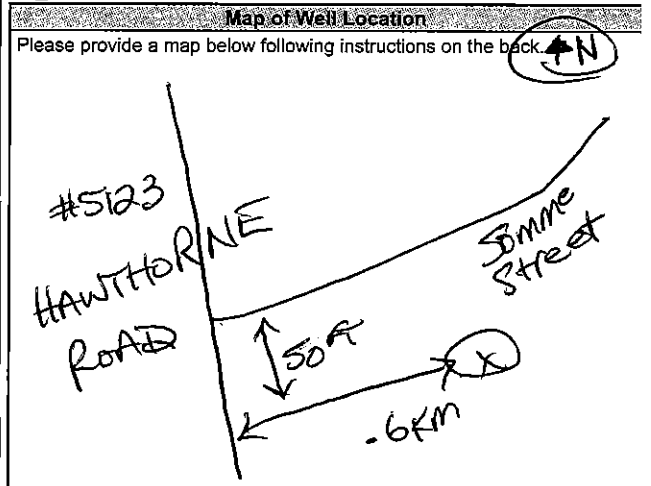
| Construction Record - Screen |                                       |          |              |
|------------------------------|---------------------------------------|----------|--------------|
| Outside Diameter (cm/in)     | Material (Plastic, Galvanized, Steel) | Slot No. | Depth (m/ft) |
|                              |                                       |          | From To      |

| Water Details                            |                                                                                            | Hole Diameter |                  |
|------------------------------------------|--------------------------------------------------------------------------------------------|---------------|------------------|
| Water found at Depth                     | Kind of Water: <input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested | Depth (m/ft)  | Diameter (cm/in) |
| 80' (m/ft) <input type="checkbox"/> Gas  | <input type="checkbox"/> Other, specify                                                    | From To       |                  |
| Water found at Depth                     | Kind of Water: <input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested | 0' 40'        | 9 3/4"           |
| 86' (m/ft) <input type="checkbox"/> Gas  | <input type="checkbox"/> Other, specify                                                    | 40' 159'      | 6"               |
| Water found at Depth                     | Kind of Water: <input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested |               |                  |
| 154' (m/ft) <input type="checkbox"/> Gas | <input type="checkbox"/> Other, specify                                                    |               |                  |

|                                       |                               |                         |
|---------------------------------------|-------------------------------|-------------------------|
| Business Name of Well Contractor      | Well Contractor's Licence No. |                         |
| Air Rock Drilling Co. Ltd.            | 7881                          |                         |
| Business Address (Street Number/Name) | Municipality                  |                         |
| 6659 Franktown Road                   | Richmond                      |                         |
| Province                              | Postal Code                   | Business E-mail Address |
| ON                                    | K0A 2Z0                       | air-rock@sympatico.ca   |

|                                     |                                                 |                |
|-------------------------------------|-------------------------------------------------|----------------|
| Bus. Telephone No. (inc. area code) | Name of Well Technician (Last Name, First Name) |                |
| 6138382170                          | Hogan, Dan                                      |                |
| Well Technician's Licence No.       | Signature of Technician and/or Contractor       | Date Submitted |
| T3058                               |                                                 | 2020 08 31     |

| Results of Well Yield Testing                                       |                                         |              |                             |
|---------------------------------------------------------------------|-----------------------------------------|--------------|-----------------------------|
| After test of well yield, water was:                                |                                         | Draw Down    |                             |
| <input type="checkbox"/> Clear and sand free                        | <input type="checkbox"/> Other, specify | Time (min)   | Water Level (m/ft)          |
| Not tested                                                          |                                         | Static Level | 27'5"                       |
| If pumping discontinued, give reason:                               |                                         | Time (min)   | Recovery Water Level (m/ft) |
| X                                                                   |                                         | 1            | 29                          |
| Pump intake set at (m/ft)                                           |                                         | 2            | 29.2                        |
| 140                                                                 |                                         | 3            | 29.3                        |
| Pumping rate (l/min/GPM)                                            |                                         | 4            | 29.4                        |
| 20                                                                  |                                         | 5            | 29.5                        |
| Duration of pumping                                                 |                                         | 10           | 30.1                        |
| 1 hrs + 0 min                                                       |                                         | 15           | 30.5                        |
| Final water level end of pumping (m/ft)                             |                                         | 20           | 30.8                        |
| 32'8"                                                               |                                         | 25           | 31                          |
| If flowing give rate (l/min/GPM)                                    |                                         | 30           | 31.3                        |
| X                                                                   |                                         | 40           | 31.9                        |
| Recommended pump depth (m/ft)                                       |                                         | 50           | 32.3                        |
| 100'                                                                |                                         | 60           | 32'8"                       |
| Recommended pump rate (l/min/GPM)                                   |                                         |              | 27'5"                       |
| 20                                                                  |                                         |              |                             |
| Well production (l/min/GPM)                                         |                                         |              |                             |
| 20                                                                  |                                         |              |                             |
| Disinfected?                                                        |                                         |              |                             |
| <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |                                         |              |                             |



|                                                                                                                |                            |                   |
|----------------------------------------------------------------------------------------------------------------|----------------------------|-------------------|
| Comments:                                                                                                      | Date Package Delivered     | Ministry Use Only |
| 1 HP - 20 GPM SET @ 100 FT                                                                                     | Y Y 2020 M 08 D 26         | Audit No. 2344069 |
| Well owner's information package delivered <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Date Work Completed        | Received          |
|                                                                                                                | Y Y Y Y M M D D 2020 08 26 | OCT 30 2020       |

Well Owner's Information

First Name  
CONSOLIDATED WATER (OTTAWA)

Last Name/ Organization  
(P/O) TOMLINSON

E-mail Address

☐ Well Constructed by Well Owner

Mailing Address (Street Number/Name)  
100 CITIGARE DRIVE

Municipality  
OTTAWA

Province  
ON

Postal Code  
K2J 6K7

Telephone No. (inc. area code)

Well Location

Address of Well Location (Street Number/Name)  
301 SOURCE ST.

Township  
GLoucester (RF)

Lot  
26

Concession  
6

County/District/Municipality  
OTTAWA

City/Town/Village  
OTTAWA

Province  
Ontario

Postal Code  
K1G 3N4

JTM Coordinates  
NAD 83

Zone  
18N

Easting  
576666

Northing  
576666

Municipal Plan and Sublot Number

Other

| Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form) |                      |                        |                     |              |                         |
|---------------------------------------------------------------------------------------------------------|----------------------|------------------------|---------------------|--------------|-------------------------|
| General Colour                                                                                          | Most Common Material | Other Materials        | General Description |              | Depth (m/ft)<br>From To |
| WELL                                                                                                    | DIA                  | STATIC WATER LEVEL (m) | GPS EASTING         | GPS NORTHING | DEPTH (m)               |
|                                                                                                         | (mm)                 |                        |                     |              |                         |
| 1                                                                                                       | 50mm                 | 3.13                   | 18456635            | 5017304      | 6.07                    |
| 2                                                                                                       | 50mm                 | 3.34                   | 18456521            | 5017225      | 6.03                    |
| 3                                                                                                       | 150mm                | 6.74                   | 18456613            | 5017210      | 36.2m                   |
| 4                                                                                                       | 50mm                 | 6.70                   | 18456604            | 5017214      | 6.70                    |

Annular Space

Depth Set at (m/ft)  
From To

Type of Sealant Used  
(Material and Type)  
PEZ PLUG & HOLE PLUG  
BENTONITE GROUT

Volume Placed  
(m<sup>3</sup>/ft<sup>3</sup>)  
0.90

Results of Well Yield Testing

After test of well yield, water was:  
☐ Clear and sand free  
☐ Other, specify

Draw Down  
Time (min) Water Level (m/ft)

Recovery  
Time (min) Water Level (m/ft)

If pumping discontinued, give reason  
Static Level

1 1

2 2

3 3

4 4

5 5

10 10

15 15

20 20

25 25

30 30

40 40

50 50

60 60

Pump intake set at (m/ft)

Pumping rate (l/min / GPM)

Duration of pumping  
hrs + min

Final water level end of pumping (m/ft)

If flowing give rate (l/min/GPM)

Recommended pump depth (m/ft)

Recommended pump rate (l/min/GPM)

Well production (l/min/GPM)

Disinfected?  
☐ Yes ☐ No

Method of Construction

☐ Cable Tool  
☐ Rotary (Conventional)  
☐ Rotary (Reverse)  
☐ Boring  
☐ Air percussion  
☐ Other, specify

☐ Diamond  
☐ Jetting  
☐ Driving  
☐ Digging

☐ Public  
☐ Domestic  
☐ Livestock  
☐ Irrigation  
☐ Industrial  
☐ Other, specify

☐ Commercial  
☐ Municipal  
☐ Test Hole  
☒ Monitoring  
☐ Cooling & Air Conditioning  
☐ Not used  
☐ Dewatering

Well Use

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

See above

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  
☐ Other, specify

Construction Record - Screen

Outside Diameter (cm/in)

Material  
(Plastic, Galvanized, Steel)

Slot No.

Depth (m/ft)  
From To

See above

Water Details

Water found at Depth (m/ft)

Kind of Water:  
☐ Fresh ☐ Untested  
☐ Gas ☐ Other, specify

Hole Diameter

Depth (m/ft)  
From To

Diameter (cm/in)

See above

Well Contractor and Well Technician Information

Business Name of Well Contractor  
STANTON DRILLING INC

Well Contractor's Licence No.  
4875

Business Address (Street Number/Name)  
157 FIVE ARCHES DR, BOX 29

Municipality  
PAKENHAM

Province  
ON

Postal Code  
K0A 2X0

Business E-mail Address  
stanton.drilling@bell.net

Bus Telephone No. (inc. area code)  
(613) 694-5622

Name of Well Technician (Last Name, First Name)  
STANTON, PETER

Well Technician's Licence No.  
0086

Signature of Technician and/or Contractor  
[Signature]

Date Submitted  
20220710

Comments:  
Final auto off below grade by Tomlinson

Well owner's information package delivered  
☒ Yes ☐ No

Date Package Delivered  
Y Y Y Y M M D D  
20220625

Date Work Completed  
20220625

Ministry Use Only

Audit No.  
3375700

Received  
JUL 18 2022



**OFFICIAL CERTIFICATE OF ANALYSIS : 4432589**
**WORK REQUEST : 100377108**
**Report Date : 2025-08-20**
**Paterson Group**

9 Auriga Dr  
Nepean, Ontario  
K2E 7T9  
Attention : Alex Schopf

Reception Date : 2025-08-12  
Project : PH5075  
Sampler : NA  
PO Number : 63782  
Temperature : 9 °C

| Analysis                                     | Quantity | External Method                        |
|----------------------------------------------|----------|----------------------------------------|
| Alkalinity (Water, Automated)                | 1        | Modified from SM 2320 B                |
| Ammonia, Total (Water, Colorimetry)          | 1        | Modified from EPA 350.1                |
| Chloride (Water, IC)                         | 1        | Modified from SM 4110 B and C          |
| Colour, True (Water, Spectrophotometry)      | 1        | Modified from SM 2120 C                |
| Conductivity (Water, Automated)              | 1        | Modified from SM 2510 B                |
| DOC (Water, IR)                              | 1        | Modified from SM 5310 B                |
| Escherichia coli (DC Plate)                  | 1        | Modified from MECP E3407               |
| Fluoride (Water, Auto/ISE)                   | 1        | Modified from SM 4500-F A and 4500-F C |
| Hardness (Water, Calculation Only)           | 1        | SM 2340 B                              |
| Ion Balance (Water, Calculation)             | 1        | Modified from SM1030 E                 |
| Metals Scan (Water, ICP/MS)                  | 1        | Modified from EPA 200.8                |
| Metals Scan (Water, ICP/OES)                 | 1        | Modified from SM 3120 B                |
| Nitrate (Water, IC)                          | 1        | Modified from SM 4110 B and C          |
| Nitrite (Water, IC)                          | 1        | Modified from SM 4110 B and C          |
| pH (25°C) (Water, Automated)                 | 1        | Modified from SM 4500-H+ B             |
| Phenols (Water, Colorimetry)                 | 1        | Modified from EPA 420.2                |
| Sulphate (Water, IC)                         | 1        | Modified from SM 4110 B and C          |
| Sulphide (Water, Colorimetry)                | 1        | Modified from SM 4500-S2 D             |
| Tannin and Lignin (Water, Spec)              | 1        | Modified from SM 5550 B                |
| TDS (Estimated)                              | 1        | Modified from SM 2510 A                |
| Total Coliforms (DC Plate)                   | 1        | Modified from MECP E3407               |
| Total Kjeldahl Nitrogen (Water, Colorimetry) | 1        | Modified from EPA 351.2                |
| Turbidity (Water, Turbidimeter)              | 1        | Modified from SM 2130 B                |
| VOCs (Water, GC/MS)                          | 1        | Modified from EPA 8260                 |

**Criteria :**

**A :** Ontario Regulation 169/03 (Non-Regulated Drinking Water)

**Sample status upon receipt :**

8908634

**Compliant**

**Certificate Comments :**

**Revision 1:** This is an amendment and supersedes certificate 4431403. Full VOC scan added as per client's request.

8908634

**N-NO2 and N-NO3 MRL increased due to matrix interference, dilution was done.**

**Notes :**

- All analysis is completed at Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) unless otherwise stated.
- Eurofins Environment Testing Canada Inc. is accredited by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025 for tests which appear on the scope of accreditation. The scope is available at <https://directory.cala.ca/>
- Please note: Field data, where presented on the report, has been provided by the client and is presented for informational purposes only. Guideline or regulatory limits listed on this report are provided for ease of use (informational purposes) only. Eurofins recommends consulting the official guideline or regulation as required. Unless otherwise stated, measurement uncertainty is not taken into account when determining guideline or regulatory exceedances.

**Legend :**

RL : Reporting limit

N/A : Not applicable

\* : Analysis conducted by external subcontracting

QC : Reference material (QC)

1 : Results in annex

^ : Analysis not accredited

**OFFICIAL CERTIFICATE OF ANALYSIS - EXCEEDENCE SUMMARY**

Client : Paterson Group

Project : PH5075

Reception Date : 2025-08-12

| Eurofins<br>Sample No              | Client Sample<br>Identification | Analyte                         | Result | Units | Exceeded Criteria |   |   |
|------------------------------------|---------------------------------|---------------------------------|--------|-------|-------------------|---|---|
|                                    |                                 |                                 |        |       | A                 | B | C |
| Hardness (Water, Calculation Only) |                                 |                                 |        |       |                   |   |   |
| 8908634                            | TW1 - GW1                       | Hardness as CaCO3 (Calculation) | 567    | mg/L  | 80-100            |   |   |
| Metals Scan (Water, ICP/MS)        |                                 |                                 |        |       |                   |   |   |
| 8908634                            | TW1 - GW1                       | Iron                            | 0.55   | mg/L  | 0.3               |   |   |
| 8908634                            | TW1 - GW1                       | Manganese                       | 0.18   | mg/L  | 0.05              |   |   |
| TDS (Estimated)                    |                                 |                                 |        |       |                   |   |   |
| 8908634                            | TW1 - GW1                       | TDS (Estimated)^                | 787    | mg/L  | 500               |   |   |

## OFFICIAL CERTIFICATE OF ANALYSIS - RESULTS

Client : Paterson Group  
Project : PH5075

Reception Date: 2025-08-12

|          |     |      | Eurofins Sample No : <b>8908634</b>      |   |   |      |  |  |  |
|----------|-----|------|------------------------------------------|---|---|------|--|--|--|
|          |     |      | Matrix : Groundwater                     |   |   |      |  |  |  |
|          |     |      | Sampling Date : 2025-08-12               |   |   |      |  |  |  |
|          |     |      | Client Sample Identification : TW1 - GW1 |   |   |      |  |  |  |
| Anions   | RL  | Unit | Criteria                                 |   |   |      |  |  |  |
|          |     |      | A                                        | B | C |      |  |  |  |
| Chloride | 0.5 | mg/L | 250                                      |   |   | 78.8 |  |  |  |
| Sulphate | 1   | mg/L | 500                                      |   |   | 285  |  |  |  |

|                            |     |      | Eurofins Sample No : <b>8908634</b>      |  |  |  |  |  |  |
|----------------------------|-----|------|------------------------------------------|--|--|--|--|--|--|
|                            |     |      | Matrix : Groundwater                     |  |  |  |  |  |  |
|                            |     |      | Sampling Date : 2025-08-12               |  |  |  |  |  |  |
|                            |     |      | Client Sample Identification : TW1 - GW1 |  |  |  |  |  |  |
| Calculations               | RL  | Unit |                                          |  |  |  |  |  |  |
| Ion Balance (Calculation)^ | 0.1 |      | 1.01                                     |  |  |  |  |  |  |

|                                 |       |       | Eurofins Sample No : <b>8908634</b>      |   |   |        |  |  |  |
|---------------------------------|-------|-------|------------------------------------------|---|---|--------|--|--|--|
|                                 |       |       | Matrix : Groundwater                     |   |   |        |  |  |  |
|                                 |       |       | Sampling Date : 2025-08-12               |   |   |        |  |  |  |
|                                 |       |       | Client Sample Identification : TW1 - GW1 |   |   |        |  |  |  |
| General Chemistry               | RL    | Unit  | Criteria                                 |   |   |        |  |  |  |
|                                 |       |       | A                                        | B | C |        |  |  |  |
| Alkalinity (as CaCO3)           | 5     | mg/L  | 500                                      |   |   | 306    |  |  |  |
| Colour (True)                   | 2     | TCU   |                                          |   |   | <2     |  |  |  |
| Conductivity @ 25°C             | 5     | µS/cm |                                          |   |   | 1210   |  |  |  |
| Dissolved Organic Carbon        | 0.5   | mg/L  | 5                                        |   |   | 2.2    |  |  |  |
| Fluoride                        | 0.1   | mg/L  | 1.5                                      |   |   | 0.35   |  |  |  |
| Hardness as CaCO3 (Calculation) | 1     | mg/L  | 80-100                                   |   |   | 567    |  |  |  |
| pH @ 25°C                       | 1     |       | 6.5-8.5                                  |   |   | 8.20   |  |  |  |
| Phenols-4AAP                    | 0.001 | mg/L  |                                          |   |   | <0.001 |  |  |  |
| Sulphide (S2-)                  | 0.01  | mg/L  | 0.05                                     |   |   | <0.01  |  |  |  |
| Tannin and Lignin               | 0.1   | mg/L  |                                          |   |   | 0.1    |  |  |  |
| TDS (Estimated)^                | 5     | mg/L  | 500                                      |   |   | 787    |  |  |  |
| Turbidity                       | 0.1   | NTU   | 5                                        |   |   | 2.3    |  |  |  |



## OFFICIAL CERTIFICATE OF ANALYSIS - RESULTS

Client : Paterson Group  
Project : PH5075

Reception Date: 2025-08-12

|                                |        |           |          |   |   |             |  |  |  |  |
|--------------------------------|--------|-----------|----------|---|---|-------------|--|--|--|--|
| Eurofins Sample No :           |        |           |          |   |   | 8908634     |  |  |  |  |
| Matrix :                       |        |           |          |   |   | Groundwater |  |  |  |  |
| Sampling Date :                |        |           |          |   |   | 2025-08-12  |  |  |  |  |
| Client Sample Identification : |        |           |          |   |   | TW1 - GW1   |  |  |  |  |
| Metals                         | RL     | Unit      | Criteria |   |   |             |  |  |  |  |
|                                |        |           | A        | B | C |             |  |  |  |  |
| Metals Scan (Water, ICP/MS)    |        |           |          |   |   |             |  |  |  |  |
| Aluminum                       | 0.01   | mg/L      | 0.1      |   |   | <0.01       |  |  |  |  |
| Antimony                       | 0.0005 | mg/L      | 0.006    |   |   | <0.0005     |  |  |  |  |
| Arsenic                        | 0.001  | mg/L      | 0.01     |   |   | <0.001      |  |  |  |  |
| Barium                         | 0.001  | mg/L      | 1        |   |   | 0.087       |  |  |  |  |
| Beryllium                      | 0.0005 | mg/L      |          |   |   | <0.0005     |  |  |  |  |
| Boron                          | 0.01   | mg/L      | 5        |   |   | 0.24        |  |  |  |  |
| Cadmium                        | 0.0001 | mg/L      | 0.005    |   |   | <0.0001     |  |  |  |  |
| Chromium                       | 0.001  | mg/L      | 0.05     |   |   | <0.001      |  |  |  |  |
| Cobalt                         | 0.0002 | mg/L      |          |   |   | <0.0002     |  |  |  |  |
| Copper                         | 0.001  | mg/L      | 1        |   |   | <0.001      |  |  |  |  |
| Iron                           | 0.03   | mg/L      | 0.3      |   |   | 0.55        |  |  |  |  |
| Lead                           | 0.001  | mg/L      | 0.01     |   |   | <0.001      |  |  |  |  |
| Manganese                      | 0.01   | mg/L      | 0.05     |   |   | 0.18        |  |  |  |  |
| Mercury                        | 0.0001 | mg/L      | 0.001    |   |   | <0.0001     |  |  |  |  |
| Molybdenum                     | 0.005  | mg/L      |          |   |   | 0.018       |  |  |  |  |
| Nickel                         | 0.005  | mg/L      |          |   |   | <0.005      |  |  |  |  |
| Selenium                       | 0.001  | mg/L      | 0.05     |   |   | <0.001      |  |  |  |  |
| Silver                         | 0.0001 | mg/L      |          |   |   | <0.0001     |  |  |  |  |
| Strontium                      | 0.001  | mg/L      |          |   |   | 6.25        |  |  |  |  |
| Thallium                       | 0.0001 | mg/L      |          |   |   | <0.0001     |  |  |  |  |
| Uranium                        | 0.001  | mg/L      | 0.02     |   |   | <0.001      |  |  |  |  |
| Vanadium                       | 0.001  | mg/L      |          |   |   | <0.001      |  |  |  |  |
| Zinc                           | 0.01   | mg/L      | 5        |   |   | <0.01       |  |  |  |  |
| Metals Scan (Water, ICP/OES)   |        |           |          |   |   |             |  |  |  |  |
| Calcium                        | 1      | mg/L      |          |   |   | 128         |  |  |  |  |
| Magnesium                      | 1      | mg/L      |          |   |   | 60          |  |  |  |  |
| Potassium                      | 1      | mg/L      |          |   |   | 8           |  |  |  |  |
| Sodium                         | 1      | mg/L      | 200      |   |   | 65          |  |  |  |  |
| Eurofins Sample No :           |        |           |          |   |   | 8908634     |  |  |  |  |
| Matrix :                       |        |           |          |   |   | Groundwater |  |  |  |  |
| Sampling Date :                |        |           |          |   |   | 2025-08-12  |  |  |  |  |
| Client Sample Identification : |        |           |          |   |   | TW1 - GW1   |  |  |  |  |
| Microbiology                   | RL     | Unit      | Criteria |   |   |             |  |  |  |  |
|                                |        |           | A        | B | C |             |  |  |  |  |
| Escherichia coli (DC)          | 0      | CFU/100mL | 0        |   |   | 0           |  |  |  |  |
| Total Coliforms (DC)           | 0      | CFU/100mL | 0        |   |   | 0           |  |  |  |  |

## OFFICIAL CERTIFICATE OF ANALYSIS - RESULTS

Client : Paterson Group  
Project : PH5075

Reception Date: 2025-08-12

|                              |      |      | Eurofins Sample No :           |   |   | 8908634     |  |  |  |  |
|------------------------------|------|------|--------------------------------|---|---|-------------|--|--|--|--|
|                              |      |      | Matrix :                       |   |   | Groundwater |  |  |  |  |
|                              |      |      | Sampling Date :                |   |   | 2025-08-12  |  |  |  |  |
|                              |      |      | Client Sample Identification : |   |   | TW1 - GW1   |  |  |  |  |
| Nutrients                    | RL   | Unit | Criteria                       |   |   |             |  |  |  |  |
|                              |      |      | A                              | B | C |             |  |  |  |  |
| Ammonia (Total, as Nitrogen) | 0.02 | mg/L |                                |   |   | 0.240       |  |  |  |  |
| Nitrate (as Nitrogen)        | 0.1  | mg/L | 10.0                           |   |   | <0.5        |  |  |  |  |
| Nitrite (as Nitrogen)        | 0.1  | mg/L | 1.0                            |   |   | <0.5        |  |  |  |  |
| Total Kjeldahl Nitrogen      | 0.1  | mg/L |                                |   |   | 0.332       |  |  |  |  |

## OFFICIAL CERTIFICATE OF ANALYSIS - RESULTS

Client : Paterson Group  
Project : PH5075

Reception Date: 2025-08-12

|                                  |     |      |          |   |   |             |  |  |  |  |
|----------------------------------|-----|------|----------|---|---|-------------|--|--|--|--|
| Eurofins Sample No :             |     |      |          |   |   | 8908634     |  |  |  |  |
| Matrix :                         |     |      |          |   |   | Groundwater |  |  |  |  |
| Sampling Date :                  |     |      |          |   |   | 2025-08-12  |  |  |  |  |
| Client Sample Identification :   |     |      |          |   |   | TW1 - GW1   |  |  |  |  |
| Volatile Organic Compounds       | RL  | Unit | Criteria |   |   |             |  |  |  |  |
|                                  |     |      | A        | B | C |             |  |  |  |  |
| VOCs (Water, GC/MS)              |     |      |          |   |   |             |  |  |  |  |
| 1,1,1,2-Tetrachloroethane        | 0.5 | ug/L |          |   |   | <0.5        |  |  |  |  |
| 1,1,1-Trichloroethane            | 0.4 | ug/L |          |   |   | <0.4        |  |  |  |  |
| 1,1,2,2-Tetrachloroethane        | 0.5 | ug/L |          |   |   | <0.5        |  |  |  |  |
| 1,1,2-Trichloroethane            | 0.4 | ug/L |          |   |   | <0.4        |  |  |  |  |
| 1,1-Dichloroethane               | 0.4 | ug/L |          |   |   | <0.4        |  |  |  |  |
| 1,1-Dichloroethene               | 0.5 | ug/L | 14       |   |   | <0.5        |  |  |  |  |
| 1,2,4-Trichlorobenzene           | 0.5 | ug/L |          |   |   | <0.5        |  |  |  |  |
| 1,2-Dibromoethane                | 0.2 | ug/L |          |   |   | <0.2        |  |  |  |  |
| 1,2-Dichlorobenzene              | 0.4 | ug/L | 200      |   |   | <0.4        |  |  |  |  |
| 1,2-Dichloroethane               | 0.2 | ug/L | 5        |   |   | <0.2        |  |  |  |  |
| 1,2-dichloroethene, cis + trans^ | 0.5 | ug/L |          |   |   | <0.5        |  |  |  |  |
| 1,2-Dichloropropane              | 0.5 | ug/L |          |   |   | <0.5        |  |  |  |  |
| 1,3,5-Trimethylbenzene           | 0.3 | ug/L |          |   |   | <0.3        |  |  |  |  |
| 1,3-Dichlorobenzene              | 0.4 | ug/L |          |   |   | <0.4        |  |  |  |  |
| 1,3-Dichloropropene, cis + trans | 0.5 | ug/L |          |   |   | <0.5        |  |  |  |  |
| 1,4-Dichlorobenzene              | 0.4 | ug/L | 5        |   |   | <0.4        |  |  |  |  |
| Acetone                          | 5   | ug/L |          |   |   | <5          |  |  |  |  |
| Benzene                          | 0.5 | ug/L | 1        |   |   | <0.5        |  |  |  |  |
| Bromodichloromethane             | 0.3 | ug/L |          |   |   | <0.3        |  |  |  |  |
| Bromoform                        | 0.4 | ug/L |          |   |   | <0.4        |  |  |  |  |
| Bromomethane                     | 0.5 | ug/L |          |   |   | <0.5        |  |  |  |  |
| Carbon tetrachloride             | 0.2 | ug/L | 2        |   |   | <0.2        |  |  |  |  |
| Chloroethane                     | 0.5 | ug/L |          |   |   | <0.5        |  |  |  |  |
| Chloroform                       | 0.5 | ug/L |          |   |   | <0.5        |  |  |  |  |
| Chloromethane                    | 0.2 | ug/L |          |   |   | <0.2        |  |  |  |  |
| cis-1,2-Dichloroethene           | 0.4 | ug/L |          |   |   | <0.4        |  |  |  |  |
| cis-1,3-Dichloropropene          | 0.5 | ug/L |          |   |   | <0.5        |  |  |  |  |
| Dibromochloromethane             | 0.3 | ug/L |          |   |   | <0.3        |  |  |  |  |
| Dichlorodifluoromethane          | 0.5 | ug/L |          |   |   | <0.5        |  |  |  |  |
| Dichloromethane                  | 4   | ug/L | 50       |   |   | <4          |  |  |  |  |
| Diethyl ether                    | 5   | ug/L |          |   |   | <5          |  |  |  |  |
| Ethylbenzene                     | 0.5 | ug/L | 140      |   |   | <0.5        |  |  |  |  |
| Hexane                           | 5   | ug/L |          |   |   | <5          |  |  |  |  |
| m/p-Xylene                       | 0.4 | ug/L |          |   |   | <0.4        |  |  |  |  |
| Methyl butyl ketone (MBK)        | 5   | ug/L |          |   |   | <5          |  |  |  |  |
| Methyl ethyl ketone (MEK)        | 2   | ug/L |          |   |   | <2          |  |  |  |  |
| Methyl isobutyl ketone (MIBK)    | 5   | ug/L |          |   |   | <5          |  |  |  |  |
| Methyl tert-butyl ether (MTBE)   | 2   | ug/L |          |   |   | <2          |  |  |  |  |
| Monochlorobenzene                | 0.5 | ug/L | 80       |   |   | <0.5        |  |  |  |  |
| o-Xylene                         | 0.4 | ug/L |          |   |   | <0.4        |  |  |  |  |
| Styrene                          | 0.5 | ug/L |          |   |   | <0.5        |  |  |  |  |
| Tetrachloroethylene (PCE)        | 0.3 | ug/L | 10       |   |   | <0.3        |  |  |  |  |
| Toluene                          | 0.4 | ug/L | 60       |   |   | <0.4        |  |  |  |  |
| trans-1,2-dichloroethene         | 0.4 | ug/L |          |   |   | <0.4        |  |  |  |  |
| trans-1,3-dichloropropene        | 0.5 | ug/L |          |   |   | <0.5        |  |  |  |  |



## OFFICIAL CERTIFICATE OF ANALYSIS - RESULTS

Client : Paterson Group  
Project : PH5075

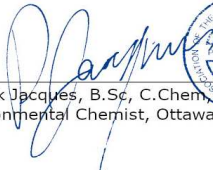
Reception Date: 2025-08-12

|                                   |     |      | Eurofins Sample No : <b>8908634</b>      |   |   |      |  |  |  |
|-----------------------------------|-----|------|------------------------------------------|---|---|------|--|--|--|
|                                   |     |      | Matrix : Groundwater                     |   |   |      |  |  |  |
|                                   |     |      | Sampling Date : 2025-08-12               |   |   |      |  |  |  |
|                                   |     |      | Client Sample Identification : TW1 - GW1 |   |   |      |  |  |  |
| Volatile Organic Compounds        | RL  | Unit | Criteria                                 |   |   |      |  |  |  |
|                                   |     |      | A                                        | B | C |      |  |  |  |
| Trichloroethylene (TCE)           | 0.3 | ug/L | 5                                        |   |   | <0.3 |  |  |  |
| Trichlorofluoromethane            | 0.5 | ug/L |                                          |   |   | <0.5 |  |  |  |
| Vinyl chloride                    | 0.2 | ug/L | 1                                        |   |   | <0.2 |  |  |  |
| Xylene (Total)                    | 0.5 | ug/L | 90                                       |   |   | <0.5 |  |  |  |
| 1,2-dichloroethane-d4 (surrogate) | 0   | %    |                                          |   |   | 85   |  |  |  |
| 4-bromofluorobenzene (surrogate)  | 0   | %    |                                          |   |   | 111  |  |  |  |
| Toluene-d8 (surrogate)            | 0   | %    |                                          |   |   | 115  |  |  |  |

Approved by :

  
Addrine Thomas,  
Inorganic supervisor, Ottawa

Approved by :

  
Patrick Jacques, B.Sc, C.Chem,  
Environmental Chemist, Ottawa

## OFFICIAL CERTIFICATE OF ANALYSIS - QUALITY CONTROL

Client : Paterson Group

Project : PH5075

Reception Date: 2025-08-12

| Parameter                                                                                        | Unit      | RL   | Blank  | QC         |         | Matrix Spike |         | Duplicate                                          |         |
|--------------------------------------------------------------------------------------------------|-----------|------|--------|------------|---------|--------------|---------|----------------------------------------------------|---------|
|                                                                                                  |           |      |        | Recovery % | Range % | Recovery %   | Range % | RPD %                                              | Range % |
| Alkalinity (Water, Automated)                                                                    |           |      |        |            |         |              |         |                                                    |         |
| Method : Alkalinity (water, titration to pH 4.5, automated). Internal method: OTT-I-AT-WI45398.  |           |      |        |            |         |              |         |                                                    |         |
| Alkalinity (as CaCO3)                                                                            | mg/L      | 5    | <5     | 97         | 95-105  |              |         | 2                                                  | 0-20    |
| Associated Samples : 8908634                                                                     |           |      |        |            |         |              |         | Prep Date: 2025-08-15<br>Analysis Date: 2025-08-18 |         |
| Ammonia, Total (Water, Colorimetry)                                                              |           |      |        |            |         |              |         |                                                    |         |
| Method : Ammonia (Water, Colorimetry). Internal method: OTT-I-NUT-WI46201.                       |           |      |        |            |         |              |         |                                                    |         |
| Ammonia (Total, as Nitrogen)                                                                     | mg/L      | 0.02 | <0.020 | 98         | 80-120  | 105          | 80-120  | 2                                                  | 0-20    |
| Associated Samples : 8908634                                                                     |           |      |        |            |         |              |         | Prep Date: 2025-08-13<br>Analysis Date: 2025-08-13 |         |
| Chloride (Water, IC)                                                                             |           |      |        |            |         |              |         |                                                    |         |
| Method : Anions (Water, Ion Chromatography). Internal method: OTT-I-IC-WI45985.                  |           |      |        |            |         |              |         |                                                    |         |
| Chloride                                                                                         | mg/L      | 0.5  | <0.5   | 106        | 80-120  | 106          | 80-120  | 2                                                  | 0-20    |
| Associated Samples : 8908634                                                                     |           |      |        |            |         |              |         | Prep Date: 2025-08-14<br>Analysis Date: 2025-08-14 |         |
| Colour, True (Water, Spectrophotometry)                                                          |           |      |        |            |         |              |         |                                                    |         |
| Method : Colour (Water, Spectrophotometric). Internal method: OTT-I-SPEC-WI45980.                |           |      |        |            |         |              |         |                                                    |         |
| Colour (True)                                                                                    | TCU       | 2    | <2     | 91         | 78-116  |              |         | -                                                  | 0-40    |
| Associated Samples : 8908634                                                                     |           |      |        |            |         |              |         | Prep Date: 2025-08-13<br>Analysis Date: 2025-08-13 |         |
| Conductivity (Water, Automated)                                                                  |           |      |        |            |         |              |         |                                                    |         |
| Method : Conductivity (Water, Autotitrator). Internal Method: OTT-I-AT-WI45398.                  |           |      |        |            |         |              |         |                                                    |         |
| Conductivity @ 25°C                                                                              | uS/cm     | 5    | <5     | 99         | 98-102  |              |         | 1                                                  | 0-20    |
| Associated Samples : 8908634                                                                     |           |      |        |            |         |              |         | Prep Date: 2025-08-15<br>Analysis Date: 2025-08-18 |         |
| DOC (Water, IR)                                                                                  |           |      |        |            |         |              |         |                                                    |         |
| Method : Organic carbon (water, IR, combustion). Internal method: OTT-I-DEM-WI46148.             |           |      |        |            |         |              |         |                                                    |         |
| Dissolved Organic Carbon                                                                         | mg/L      | 0.5  | <0.5   | 96         | 88-112  | 92           | 80-120  | -                                                  | 0-15    |
| Associated Samples : 8908634                                                                     |           |      |        |            |         |              |         | Prep Date: 2025-08-13<br>Analysis Date: 2025-08-14 |         |
| Escherichia coli (DC Plate)                                                                      |           |      |        |            |         |              |         |                                                    |         |
| Method : Total Coliforms and E.Coli by MF (Water, DC plate). Internal method: OTT-M-BAC-WI45296. |           |      |        |            |         |              |         |                                                    |         |
| Escherichia coli (DC)                                                                            | CFU/100mL | 0    | 0      |            |         |              |         | -                                                  | 0-30    |
| Associated Samples : 8908634                                                                     |           |      |        |            |         |              |         | Prep Date: 2025-08-12<br>Analysis Date: 2025-08-13 |         |
| Fluoride (Water, Auto/ISE)                                                                       |           |      |        |            |         |              |         |                                                    |         |
| Method : Fluoride by autotitrator, ion selective electrode. Internal method: OTT-I-AT-WI45398.   |           |      |        |            |         |              |         |                                                    |         |
| Fluoride                                                                                         | mg/L      | 0.1  | <0.10  | 96         | 90-110  |              |         | 1                                                  | 0-20    |
| Associated Samples : 8908634                                                                     |           |      |        |            |         |              |         | Prep Date: 2025-08-15<br>Analysis Date: 2025-08-18 |         |

## OFFICIAL CERTIFICATE OF ANALYSIS - QUALITY CONTROL

Client : Paterson Group  
Project : PH5075

Reception Date: 2025-08-12

| Parameter                                                                       | Unit | RL     | Blank   | QC         |         | Matrix Spike |         | Duplicate                                          |         |
|---------------------------------------------------------------------------------|------|--------|---------|------------|---------|--------------|---------|----------------------------------------------------|---------|
|                                                                                 |      |        |         | Recovery % | Range % | Recovery %   | Range % | RPD %                                              | Range % |
| Metals Scan (Water, ICP/MS)                                                     |      |        |         |            |         |              |         |                                                    |         |
| Method : Metals (Water, ICP/MS). Internal method: AMMTFQE1.                     |      |        |         |            |         |              |         |                                                    |         |
| Aluminum                                                                        | mg/L | 0.01   | <0.01   | 100        | 80-120  | 103          | 70-130  | 9                                                  | 0-20    |
| Antimony                                                                        | mg/L | 0.0005 | <0.0005 | 86         | 80-120  | 80           | 70-130  | -                                                  | 0-20    |
| Arsenic                                                                         | mg/L | 0.001  | <0.001  | 99         | 80-120  | 92           | 70-130  | -                                                  | 0-20    |
| Barium                                                                          | mg/L | 0.001  | <0.001  | 100        | 80-120  | 71           | 70-130  | 8                                                  | 0-20    |
| Beryllium                                                                       | mg/L | 0.0005 | <0.0005 | 105        | 80-120  | 109          | 70-130  | -                                                  | 0-20    |
| Boron                                                                           | mg/L | 0.01   | <0.01   | 100        | 80-120  | 110          | 70-130  | -                                                  | 0-20    |
| Cadmium                                                                         | mg/L | 0.0001 | <0.0001 | 104        | 80-120  | 95           | 70-130  | -                                                  | 0-20    |
| Chromium                                                                        | mg/L | 0.001  | <0.001  | 110        | 80-120  | 95           | 70-130  | -                                                  | 0-20    |
| Cobalt                                                                          | mg/L | 0.0002 | <0.0002 | 104        | 80-120  | 89           | 70-130  | -                                                  | 0-20    |
| Copper                                                                          | mg/L | 0.001  | <0.001  | 100        | 80-120  | 84           | 70-130  | 12                                                 | 0-20    |
| Iron                                                                            | mg/L | 0.03   | <0.03   | 100        | 80-120  | 81           | 70-130  | 11                                                 | 0-20    |
| Lead                                                                            | mg/L | 0.001  | <0.001  | 100        | 80-120  | 86           | 70-130  | -                                                  | 0-20    |
| Manganese                                                                       | mg/L | 0.01   | <0.01   | 100        | 80-120  | 91           | 70-130  | -                                                  | 0-20    |
| Mercury                                                                         | mg/L | 0.0001 | <0.0001 | 107        | 80-120  | 100          | 70-130  | -                                                  | 0-20    |
| Molybdenum                                                                      | mg/L | 0.005  | <0.005  | 90         | 80-120  | 90           | 70-130  | -                                                  | 0-20    |
| Nickel                                                                          | mg/L | 0.005  | <0.005  | 100        | 80-120  | 88           | 70-130  | -                                                  | 0-20    |
| Selenium                                                                        | mg/L | 0.001  | <0.001  | 100        | 80-120  | 94           | 70-130  | -                                                  | 0-20    |
| Silver                                                                          | mg/L | 0.0001 | <0.0001 | 92         | 80-120  | 92           | 70-130  | -                                                  | 0-20    |
| Strontium                                                                       | mg/L | 0.001  | <0.001  | 100        | 80-120  | 88           | 70-130  | 7                                                  | 0-20    |
| Thallium                                                                        | mg/L | 0.0001 | <0.0001 | 104        | 80-120  | 86           | 70-130  | -                                                  | 0-20    |
| Uranium                                                                         | mg/L | 0.001  | <0.001  | 100        | 80-120  | 86           | 70-130  | -                                                  | 0-20    |
| Vanadium                                                                        | mg/L | 0.001  | <0.001  | 100        | 80-120  | 95           | 70-130  | -                                                  | 0-20    |
| Zinc                                                                            | mg/L | 0.01   | <0.01   | 110        | 80-120  | 90           | 70-130  | -                                                  | 0-20    |
| Associated Samples : 8908634                                                    |      |        |         |            |         |              |         | Prep Date: 2025-08-13<br>Analysis Date: 2025-08-13 |         |
| Metals Scan (Water, ICP/OES)                                                    |      |        |         |            |         |              |         |                                                    |         |
| Method : Metals (Water, ICP/OES). Internal method: OTT-I-MET-WI48491.           |      |        |         |            |         |              |         |                                                    |         |
| Calcium                                                                         | mg/L | 1      | <1      | 103        | 86-115  | 100          | 70-130  | 0                                                  | 0-20    |
| Magnesium                                                                       | mg/L | 1      | <1      | 100        | 91-109  | 103          | 70-130  | 7                                                  | 0-20    |
| Potassium                                                                       | mg/L | 1      | <1      | 101        | 87-113  | 106          | 70-130  | -                                                  | 0-20    |
| Sodium                                                                          | mg/L | 1      | <1      | 103        | 85-115  | 102          | 70-130  | -                                                  | 0-20    |
| Associated Samples : 8908634                                                    |      |        |         |            |         |              |         | Prep Date: 2025-08-13<br>Analysis Date: 2025-08-12 |         |
| Nitrate (Water, IC)                                                             |      |        |         |            |         |              |         |                                                    |         |
| Method : Anions (Water, Ion Chromatography). Internal method: OTT-I-IC-WI45985. |      |        |         |            |         |              |         |                                                    |         |
| Nitrate (as Nitrogen)                                                           | mg/L | 0.1    | <0.1    | 107        | 80-120  | 109          | 80-120  | -                                                  | 0-20    |
| Associated Samples : 8908634                                                    |      |        |         |            |         |              |         | Prep Date: 2025-08-14<br>Analysis Date: 2025-08-14 |         |
| Nitrite (Water, IC)                                                             |      |        |         |            |         |              |         |                                                    |         |
| Method : Anions (Water, Ion Chromatography). Internal method: OTT-I-IC-WI45985. |      |        |         |            |         |              |         |                                                    |         |
| Nitrite (as Nitrogen)                                                           | mg/L | 0.1    | <0.1    | 104        | 80-120  | 115          | 80-120  | -                                                  | 0-20    |
| Associated Samples : 8908634                                                    |      |        |         |            |         |              |         | Prep Date: 2025-08-14<br>Analysis Date: 2025-08-14 |         |
| pH (25°C) (Water, Automated)                                                    |      |        |         |            |         |              |         |                                                    |         |
| Method : pH (Water, Automated Meter). Internal method: OTT-I-AT-WI45398.        |      |        |         |            |         |              |         |                                                    |         |
| pH @ 25°C                                                                       |      | 1      | 7.25    | 100        | 97-103  |              |         | 1                                                  | 0-20    |
| Associated Samples : 8908634                                                    |      |        |         |            |         |              |         | Prep Date: 2025-08-15<br>Analysis Date: 2025-08-18 |         |

## OFFICIAL CERTIFICATE OF ANALYSIS - QUALITY CONTROL

Client : Paterson Group

Project : PH5075

Reception Date: 2025-08-12

| Parameter                                                                                        | Unit      | RL    | Blank  | QC         |         | Matrix Spike |         | Duplicate                                          |         |
|--------------------------------------------------------------------------------------------------|-----------|-------|--------|------------|---------|--------------|---------|----------------------------------------------------|---------|
|                                                                                                  |           |       |        | Recovery % | Range % | Recovery %   | Range % | RPD %                                              | Range % |
| Phenols (Water, Colorimetry)                                                                     |           |       |        |            |         |              |         |                                                    |         |
| Method : Phenols (Water, Colorimetry). Internal method: OTT-I-4AAP-WI46150.                      |           |       |        |            |         |              |         |                                                    |         |
| Phenols-4AAP                                                                                     | mg/L      | 0.001 | <0.001 | 104        | 75-125  | 106          | 70-130  | -                                                  | 0-20    |
| Associated Samples : 8908634                                                                     |           |       |        |            |         |              |         | Prep Date: 2025-08-14<br>Analysis Date: 2025-08-15 |         |
| Sulphate (Water, IC)                                                                             |           |       |        |            |         |              |         |                                                    |         |
| Method : Anions (Water, Ion Chromatography). Internal method: OTT-I-IC-WI45985.                  |           |       |        |            |         |              |         |                                                    |         |
| Sulphate                                                                                         | mg/L      | 1     | <1     | 100        | 90-110  | 98           | 80-120  | 2                                                  | 0-20    |
| Associated Samples : 8908634                                                                     |           |       |        |            |         |              |         | Prep Date: 2025-08-14<br>Analysis Date: 2025-08-14 |         |
| Sulphide (Water, Colorimetry)                                                                    |           |       |        |            |         |              |         |                                                    |         |
| Method : Sulphide, S2- (Water, Colorimetry). Internal method: OTT-I-SPEC-WI45931.                |           |       |        |            |         |              |         |                                                    |         |
| Sulphide (S2-)                                                                                   | mg/L      | 0.01  | <0.01  | 94         | 80-120  |              |         | -                                                  | 0-20    |
| Associated Samples : 8908634                                                                     |           |       |        |            |         |              |         | Prep Date: 2025-08-13<br>Analysis Date: 2025-08-13 |         |
| Tannin and Lignin (Water, Spec)                                                                  |           |       |        |            |         |              |         |                                                    |         |
| Method : Tannin and Lignin (Water, Spec), Internal method: OTT-I-SPEC-WI57693.                   |           |       |        |            |         |              |         |                                                    |         |
| Tannin and Lignin                                                                                | mg/L      | 0.1   | <0.1   | 94         | 80-120  |              |         | -                                                  | 0-20    |
| Associated Samples : 8908634                                                                     |           |       |        |            |         |              |         | Prep Date: 2025-08-19<br>Analysis Date: 2025-08-19 |         |
| Total Coliforms (DC Plate)                                                                       |           |       |        |            |         |              |         |                                                    |         |
| Method : Total Coliforms and E.Coli by MF (Water, DC plate). Internal method: OTT-M-BAC-WI45296. |           |       |        |            |         |              |         |                                                    |         |
| Total Coliforms (DC)                                                                             | CFU/100mL | 0     | 0      |            |         |              |         | -                                                  | 0-30    |
| Associated Samples : 8908634                                                                     |           |       |        |            |         |              |         | Prep Date: 2025-08-12<br>Analysis Date: 2025-08-13 |         |
| Total Kjeldahl Nitrogen (Water, Colorimetry)                                                     |           |       |        |            |         |              |         |                                                    |         |
| Method : TKN (Water, colorimetry). Internal method: OTT-I-NUT-WI46201.                           |           |       |        |            |         |              |         |                                                    |         |
| Total Kjeldahl Nitrogen                                                                          | mg/L      | 0.1   | <0.100 | 98         | 70-130  | 95           | 70-130  | -                                                  | 0-20    |
| Associated Samples : 8908634                                                                     |           |       |        |            |         |              |         | Prep Date: 2025-08-13<br>Analysis Date: 2025-08-13 |         |
| Turbidity (Water, Turbidimeter)                                                                  |           |       |        |            |         |              |         |                                                    |         |
| Method : Turbidity (Water, Turbidimeter). Internal method: OTT-I-TUR-WI46288.                    |           |       |        |            |         |              |         |                                                    |         |
| Turbidity                                                                                        | NTU       | 0.1   | <0.1   | 102        | 80-120  |              |         | 4                                                  | 0-30    |
| Associated Samples : 8908634                                                                     |           |       |        |            |         |              |         | Prep Date: 2025-08-14<br>Analysis Date: 2025-08-15 |         |



## OFFICIAL CERTIFICATE OF ANALYSIS - QUALITY CONTROL

Client : Paterson Group

Project : PH5075

Reception Date: 2025-08-12

| Parameter                                                                      | Unit | RL  | Blank | QC         |         | Matrix Spike |         | Duplicate |         |
|--------------------------------------------------------------------------------|------|-----|-------|------------|---------|--------------|---------|-----------|---------|
|                                                                                |      |     |       | Recovery % | Range % | Recovery %   | Range % | RPD %     | Range % |
| VOCs (Water, GC/MS)                                                            |      |     |       |            |         |              |         |           |         |
| Method : Volatile Organic Compounds (Water, GC/MS). Internal method: AMVOMSE8. |      |     |       |            |         |              |         |           |         |
| 1,1,1,2-Tetrachloroethane                                                      | ug/L | 0.5 | <0.5  | 112        | 70-130  | 112          | 70-130  | -         | 0-30    |
| 1,1,1-Trichloroethane                                                          | ug/L | 0.4 | <0.4  | 119        | 70-130  | 119          | 70-130  | -         | 0-30    |
| 1,1,2,2-Tetrachloroethane                                                      | ug/L | 0.5 | <0.5  | 130        | 70-130  | 130          | 70-130  | -         | 0-30    |
| 1,1,2-Trichloroethane                                                          | ug/L | 0.4 | <0.4  | 121        | 70-130  | 121          | 70-130  | -         | 0-30    |
| 1,1-Dichloroethane                                                             | ug/L | 0.4 | <0.4  | 87         | 70-130  | 87           | 70-130  | -         | 0-30    |
| 1,1-Dichloroethene                                                             | ug/L | 0.5 | <0.5  | 70         | 70-130  | 70           | 70-130  | -         | 0-30    |
| 1,2,4-Trichlorobenzene                                                         | ug/L | 0.5 | <0.5  | 91         | 70-130  | 91           | 70-130  | -         | 0-30    |
| 1,2-Dibromoethane                                                              | ug/L | 0.2 | <0.2  | 121        | 70-130  | 121          | 70-130  | -         | 0-30    |
| 1,2-Dichlorobenzene                                                            | ug/L | 0.4 | <0.4  | 86         | 70-130  | 86           | 70-130  | -         | 0-30    |
| 1,2-Dichloroethane                                                             | ug/L | 0.2 | <0.2  | 91         | 70-130  | 91           | 70-130  | -         | 0-30    |
| 1,2-dichloroethene, cis + trans^                                               | ug/L | 0.5 | <0.5  |            |         |              | -       |           | -       |
| 1,2-Dichloropropane                                                            | ug/L | 0.5 | <0.5  | 121        | 70-130  | 121          | 70-130  | -         | 0-30    |
| 1,3,5-Trimethylbenzene                                                         | ug/L | 0.3 | <0.3  | 119        | 70-130  | 119          | 70-130  | -         | 0-30    |
| 1,3-Dichlorobenzene                                                            | ug/L | 0.4 | <0.4  | 117        | 70-130  | 117          | 70-130  | -         | 0-30    |
| 1,3-Dichloropropene, cis + trans                                               | ug/L | 0.5 | <0.5  |            |         |              | -       |           | -       |
| 1,4-Dichlorobenzene                                                            | ug/L | 0.4 | <0.4  | 111        | 70-130  | 130          | 70-130  | -         | 0-30    |
| Acetone                                                                        | ug/L | 5   | <5    | 101        | 70-130  | 101          | 70-130  | -         | 0-30    |
| Benzene                                                                        | ug/L | 0.5 | <0.5  | 109        | 70-130  | 109          | 70-130  | -         | 0-30    |
| Bromodichloromethane                                                           | ug/L | 0.3 | <0.3  | 112        | 70-130  | 112          | 70-130  | -         | 0-30    |
| Bromoform                                                                      | ug/L | 0.4 | <0.4  | 112        | 70-130  | 112          | 70-130  | -         | 0-30    |
| Bromomethane                                                                   | ug/L | 0.5 | <0.5  | 119        | 70-130  | 119          | 70-130  | -         | 0-30    |
| Carbon tetrachloride                                                           | ug/L | 0.2 | <0.2  | 130        | 70-130  | 130          | 70-130  | -         | 0-30    |
| Chloroethane                                                                   | ug/L | 0.5 | <0.5  | 129        | 70-130  | 129          | 70-130  | -         | 0-30    |
| Chloroform                                                                     | ug/L | 0.5 | <0.5  | 79         | 70-130  | 79           | 70-130  | -         | 0-30    |
| Chloromethane                                                                  | ug/L | 0.2 | <0.2  | 81         | 70-130  | 81           | 70-130  | -         | 0-30    |
| cis-1,2-Dichloroethene                                                         | ug/L | 0.4 | <0.4  | 100        | 70-130  | 100          | 70-130  | -         | 0-30    |
| cis-1,3-Dichloropropene                                                        | ug/L | 0.5 | <0.5  | 100        | 70-130  | 100          | 70-130  | -         | 0-30    |
| Dibromochloromethane                                                           | ug/L | 0.3 | <0.3  | 112        | 70-130  | 112          | 70-130  | -         | 0-30    |
| Dichlorodifluoromethane                                                        | ug/L | 0.5 | <0.5  | 102        | 70-130  | 102          | 70-130  | -         | 0-30    |
| Dichloromethane                                                                | ug/L | 4   | <4    | 119        | 70-130  | 119          | 70-130  | -         | 0-30    |
| Diethyl ether                                                                  | ug/L | 5   | <5    | 117        | 70-130  | 117          | 70-130  | -         | 0-30    |
| Ethylbenzene                                                                   | ug/L | 0.5 | <0.5  | 127        | 70-130  | 127          | 70-130  | -         | 0-30    |
| Hexane                                                                         | ug/L | 5   | <5    | 121        | 70-130  | 121          | 70-130  | -         | 0-30    |
| m/p-Xylene                                                                     | ug/L | 0.4 | <0.4  | 100        | 70-130  | 100          | 70-130  | -         | 0-30    |
| Methyl butyl ketone (MBK)                                                      | ug/L | 5   | <5    | 120        | 70-130  | 120          | 70-130  | -         | 0-30    |
| Methyl ethyl ketone (MEK)                                                      | ug/L | 2   | <2    | 102        | 70-130  | 102          | 70-130  | -         | 0-30    |
| Methyl isobutyl ketone (MIBK)                                                  | ug/L | 5   | <5    | 119        | 70-130  | 119          | 70-130  | -         | 0-30    |
| Methyl tert-butyl ether (MTBE)                                                 | ug/L | 2   | <2    | 130        | 70-130  | 130          | 70-130  | -         | 0-30    |
| Monochlorobenzene                                                              | ug/L | 0.5 | <0.5  | 118        | 70-130  | 118          | 70-130  | -         | 0-30    |
| o-Xylene                                                                       | ug/L | 0.4 | <0.4  | 100        | 70-130  | 100          | 70-130  | -         | 0-30    |
| Styrene                                                                        | ug/L | 0.5 | <0.5  | 71         | 70-130  | 71           | 70-130  | -         | 0-30    |
| Tetrachloroethylene (PCE)                                                      | ug/L | 0.3 | <0.3  | 85         | 70-130  | 85           | 70-130  | -         | 0-30    |
| Toluene                                                                        | ug/L | 0.4 | <0.4  | 96         | 70-130  | 96           | 70-130  | -         | 0-30    |
| trans-1,2-dichloroethene                                                       | ug/L | 0.4 | <0.4  | 100        | 70-130  | 100          | 70-130  | -         | 0-30    |
| trans-1,3-dichloropropene                                                      | ug/L | 0.5 | <0.5  | 100        | 70-130  | 100          | 70-130  | -         | 0-30    |
| Trichloroethylene (TCE)                                                        | ug/L | 0.3 | <0.3  | 102        | 70-130  | 102          | 70-130  | -         | 0-30    |
| Trichlorofluoromethane                                                         | ug/L | 0.5 | <0.5  | 112        | 70-130  | 112          | 70-130  | -         | 0-30    |

## OFFICIAL CERTIFICATE OF ANALYSIS - QUALITY CONTROL

Client : Paterson Group

Project : PH5075

Reception Date: 2025-08-12

| Parameter                                                                      | Unit | RL  | Blank | QC         |         | Matrix Spike |         | Duplicate                                          |         |
|--------------------------------------------------------------------------------|------|-----|-------|------------|---------|--------------|---------|----------------------------------------------------|---------|
|                                                                                |      |     |       | Recovery % | Range % | Recovery %   | Range % | RPD %                                              | Range % |
| VOCs (Water, GC/MS)                                                            |      |     |       |            |         |              |         |                                                    |         |
| Method : Volatile Organic Compounds (Water, GC/MS). Internal method: AMVOMSE8. |      |     |       |            |         |              |         |                                                    |         |
| Vinyl chloride                                                                 | ug/L | 0.2 | <0.2  | 130        | 70-130  | 130          | 70-130  | -                                                  | 0-30    |
| Xylene (Total)                                                                 | ug/L | 0.5 | <0.5  |            |         |              | -       |                                                    | -       |
| Associated Samples : 8908634                                                   |      |     |       |            |         |              |         | Prep Date: 2025-08-20<br>Analysis Date: 2025-08-20 |         |

Where RPD % is reported as "-" the calculation is not available because one or both of the duplicates is within 5 times the RL.



## CLIENT INFORMATION

|            |  |           |
|------------|--|-----------|
| Company:   |  | Fax:      |
| Contact:   |  | Email: #1 |
| Address:   |  | Email: #2 |
| Telephone: |  | PO #:     |

1. The first step is to identify the problem or question that needs to be addressed. This involves understanding the context and the specific requirements of the task.

2. Next, it is essential to gather relevant information and data. This can be done through research, consultation with experts, or by analyzing existing resources.

3. Once the information is gathered, the next step is to analyze it. This involves identifying patterns, trends, and key factors that influence the outcome.

4. After analysis, a plan or strategy should be developed. This plan should outline the steps to be taken, the resources required, and the timeline for completion.

5. The final step is to implement the plan. This involves executing the tasks, monitoring progress, and making adjustments as needed.

6. Finally, the results should be evaluated. This involves comparing the actual outcomes with the expected results and identifying areas for improvement.

**Printed On :** 2025-08-12 17:11:44

REGULATION/GUIDELINESanitary Sewer, City: Uttawa

Storm Sewer, City: Ottawa

|                                     |        |                          |    |
|-------------------------------------|--------|--------------------------|----|
| <input checked="" type="checkbox"/> | ODWSOG | <input type="checkbox"/> | yp |
| <input type="checkbox"/>            | PWQO   | <input type="checkbox"/> | Ex |

**\*For results reported after rush due date, surcharges will apply: before 12:00 - 100%, after 12:00 - 50%**

|  |                          |      |
|--|--------------------------|------|
|  | <input type="checkbox"/> | None |
|--|--------------------------|------|

The optimal temperature conditions during transport should be less than 10°C. Samples cannot be frozen, unless otherwise indicated or agreed upon with the laboratory. Note that this COC is not to be used for drinking water samples. The COC must be complete upon submission of the samples, there will be a \$25 surcharge if required information is missing (required fields are shaded in grey).

| Sample Details       |  |  |  |  |  |  |  |  |  | Sample Analysis Required |  |  |  |  |  |  |  |  |  | RM# |
|----------------------|--|--|--|--|--|--|--|--|--|--------------------------|--|--|--|--|--|--|--|--|--|-----|
| Field Filtered -->   |  |  |  |  |  |  |  |  |  |                          |  |  |  |  |  |  |  |  |  |     |
| O.Reg.133 parameters |  |  |  |  |  |  |  |  |  |                          |  |  |  |  |  |  |  |  |  |     |

|                                            |  |
|--------------------------------------------|--|
| Sample Matrix                              |  |
| # of Containers                            |  |
| PHC F1 - F4                                |  |
| BTEX                                       |  |
| VOCs                                       |  |
| PAHs                                       |  |
| PCBs                                       |  |
| Metals + Inorganics                        |  |
| Metals only                                |  |
| See attached page                          |  |
| Subdivision Supply<br>Bacti 2 (Ec/TC only) |  |
| TSS                                        |  |
| pH                                         |  |
| Total Metals                               |  |
| Hg                                         |  |
| True Colour                                |  |
|                                            |  |
|                                            |  |
|                                            |  |

[illegible]

## SIGN

DATE/TIMETEMP /°COMMENTS:

## Total and Trace Metals, True Colour

*[Signature]*

August 12, 2025

|  |  |
|--|--|
|  |  |
|  |  |

1. *Chlorophyll a* (Chl *a*)

August 12, 2025

Q

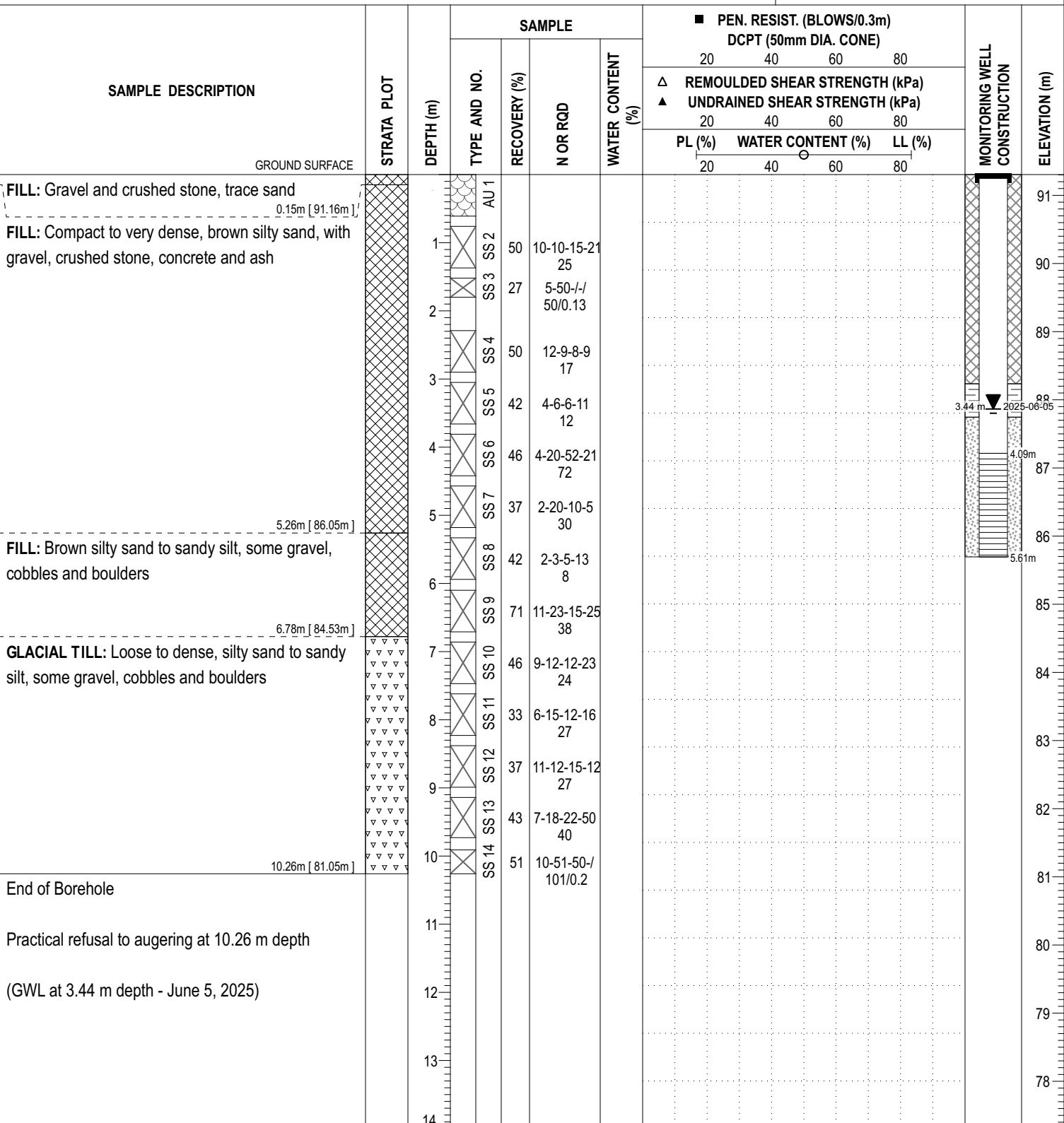
2

10/10/2023

|  |  |
|--|--|
|  |  |
|--|--|

**CUSTODY SEAL:** ☐ YES ☐ NO ☐ Ice packs submitted

|                                                 |                           |                             |                           |
|-------------------------------------------------|---------------------------|-----------------------------|---------------------------|
| <b>COORD. SYS.:</b> MTM ZONE 9                  | <b>EASTING:</b> 379013.78 | <b>NORTHING:</b> 5019022.56 | <b>ELEVATION:</b> 91.31   |
| <b>PROJECT:</b> Proposed Commercial Development |                           |                             | <b>FILE NO. :</b> PG7567  |
| <b>ADVANCED BY:</b> CME-55 Low Clearance Drill  |                           |                             | <b>HOLE NO. :</b> BH 1-25 |
| <b>REMARKS:</b>                                 |                           |                             |                           |
| <b>DATE:</b> June 2, 2025                       |                           |                             |                           |



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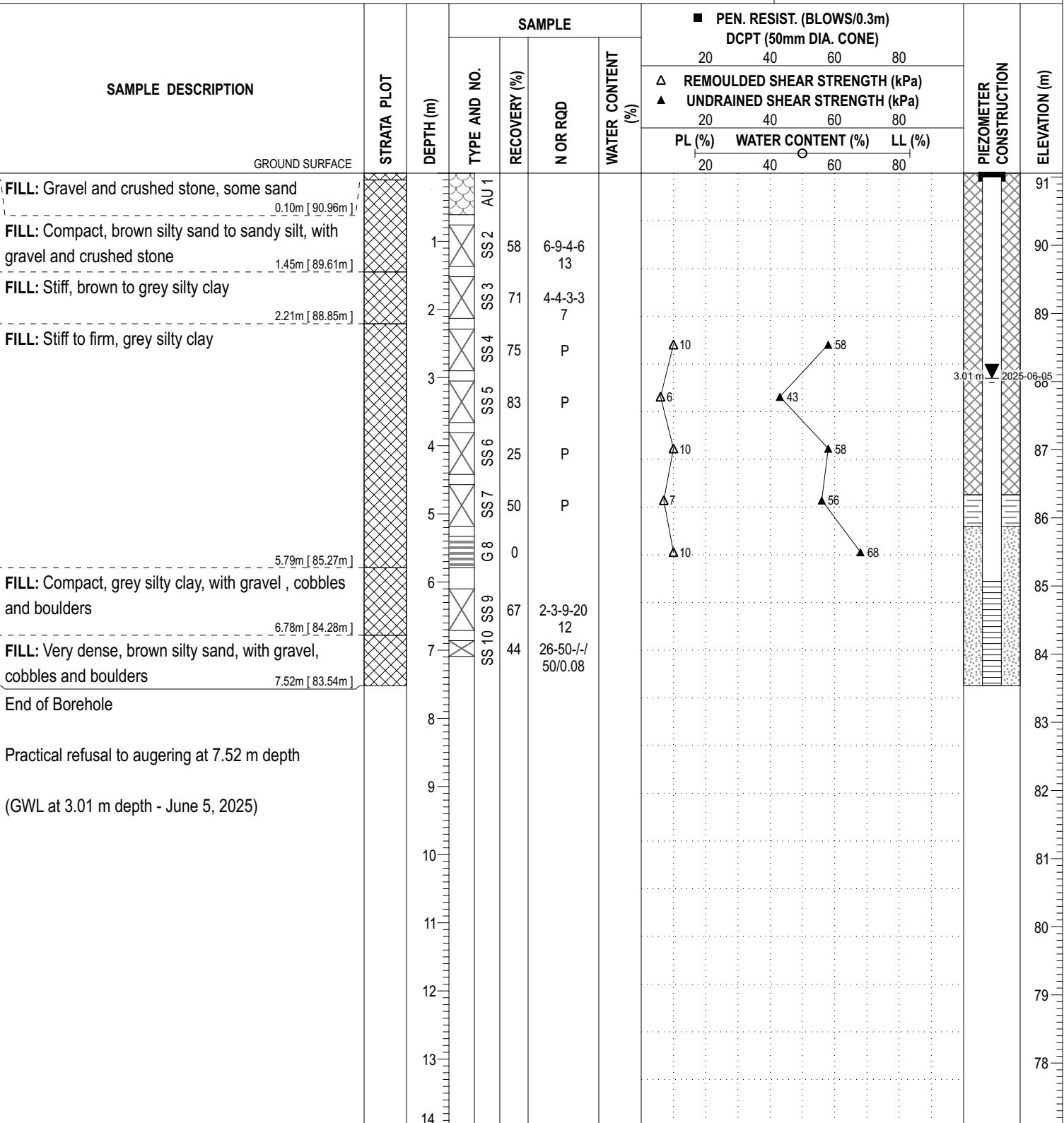


**COORD. SYS.:** MTM ZONE 9    **EASTING:** 379026.72    **NORTHING:** 5019097.92    **ELEVATION:** 91.06

**PROJECT:** Proposed Commercial Development    **FILE NO. :** PG7567

**ADVANCED BY:** CME-55 Low Clearance Drill    **HOLE NO. :** BH 2-25

**REMARKS:**    **DATE:** June 2, 2025



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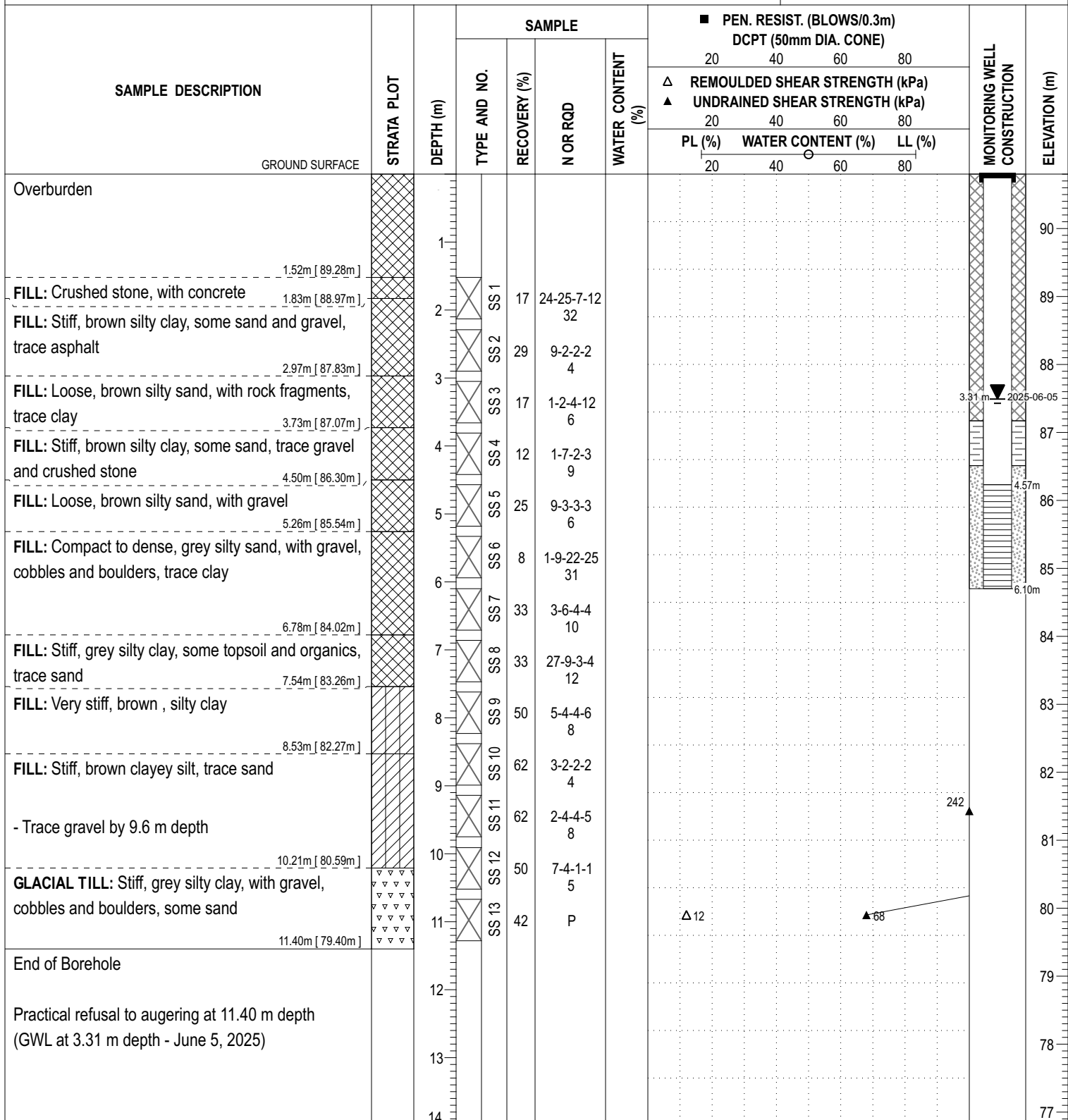
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|                                                 |                           |                             |                            |
|-------------------------------------------------|---------------------------|-----------------------------|----------------------------|
| <b>COORD. SYS.:</b> MTM ZONE 9                  | <b>EASTING:</b> 379084.55 | <b>NORTHING:</b> 5019060.27 | <b>ELEVATION:</b> 90.64    |
| <b>PROJECT:</b> Proposed Commercial Development |                           |                             | <b>FILE NO. :</b> PG7567   |
| <b>ADVANCED BY:</b> CME-55 Low Clearance Drill  |                           |                             | <b>HOLE NO. :</b> BH 3A-25 |
| <b>REMARKS:</b>                                 |                           |                             |                            |
| <b>DATE:</b> June 2, 2025                       |                           |                             |                            |

| SAMPLE DESCRIPTION                            | STRATA PLOT | DEPTH (m) | SAMPLE       |              |          |                   | ■ PEN. RESIST. (BLOWS/0.3m)<br>DCPT (50mm DIA. CONE) |    |        |    | PIEZOMETER<br>CONSTRUCTION | ELEVATION (m) |
|-----------------------------------------------|-------------|-----------|--------------|--------------|----------|-------------------|------------------------------------------------------|----|--------|----|----------------------------|---------------|
|                                               |             |           | TYPE AND NO. | RECOVERY (%) | N OR RQD | WATER CONTENT (%) | 20                                                   | 40 | 60     | 80 |                            |               |
|                                               |             |           |              |              |          |                   | △ REMOULDED SHEAR STRENGTH (kPa)                     |    |        |    |                            |               |
|                                               |             |           |              |              |          |                   | ▲ UNDRAINED SHEAR STRENGTH (kPa)                     |    |        |    |                            |               |
| GROUND SURFACE                                |             |           |              |              |          | 20                | 40                                                   | 60 | 80     |    |                            |               |
|                                               |             |           |              |              |          | PL (%)            | WATER CONTENT (%)                                    |    | LL (%) |    |                            |               |
|                                               |             |           |              |              |          | 20                | 40                                                   | 60 | 80     |    |                            |               |
|                                               |             |           |              |              |          |                   |                                                      |    |        |    | 90                         |               |
| End of Borehole                               |             | 1         |              |              |          |                   |                                                      |    |        |    | 89                         |               |
| Practical refusal to augering at 0.94 m depth |             | 2         |              |              |          |                   |                                                      |    |        |    | 88                         |               |
|                                               |             | 3         |              |              |          |                   |                                                      |    |        |    | 87                         |               |
|                                               |             | 4         |              |              |          |                   |                                                      |    |        |    | 86                         |               |
|                                               |             | 5         |              |              |          |                   |                                                      |    |        |    | 85                         |               |
|                                               |             | 6         |              |              |          |                   |                                                      |    |        |    | 84                         |               |
|                                               |             | 7         |              |              |          |                   |                                                      |    |        |    | 83                         |               |
|                                               |             | 8         |              |              |          |                   |                                                      |    |        |    | 82                         |               |
|                                               |             | 9         |              |              |          |                   |                                                      |    |        |    | 81                         |               |
|                                               |             | 10        |              |              |          |                   |                                                      |    |        |    | 80                         |               |
|                                               |             | 11        |              |              |          |                   |                                                      |    |        |    | 79                         |               |
|                                               |             | 12        |              |              |          |                   |                                                      |    |        |    | 78                         |               |
|                                               |             | 13        |              |              |          |                   |                                                      |    |        |    | 77                         |               |
|                                               | 14          |           |              |              |          |                   |                                                      |    |        |    |                            |               |

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|                                                 |                           |                             |                            |
|-------------------------------------------------|---------------------------|-----------------------------|----------------------------|
| <b>COORD. SYS.:</b> MTM ZONE 9                  | <b>EASTING:</b> 379087.71 | <b>NORTHING:</b> 5019059.84 | <b>ELEVATION:</b> 90.80    |
| <b>PROJECT:</b> Proposed Commercial Development |                           |                             | <b>FILE NO. :</b> PG7567   |
| <b>ADVANCED BY:</b> CME-55 Low Clearance Drill  |                           |                             | <b>HOLE NO. :</b> BH 3B-25 |
| <b>REMARKS:</b>                                 |                           |                             | <b>DATE:</b> June 2, 2025  |



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|                                                 |                           |                             |                           |
|-------------------------------------------------|---------------------------|-----------------------------|---------------------------|
| <b>COORD. SYS.:</b> MTM ZONE 9                  | <b>EASTING:</b> 379135.75 | <b>NORTHING:</b> 5019162.49 | <b>ELEVATION:</b> 92.18   |
| <b>PROJECT:</b> Proposed Commercial Development |                           |                             | <b>FILE NO. :</b> PG7567  |
| <b>ADVANCED BY:</b> CME-55 Low Clearance Drill  |                           |                             | <b>HOLE NO. :</b> BH 4-25 |
| <b>REMARKS:</b>                                 |                           |                             | <b>DATE:</b> June 3, 2025 |

| SAMPLE DESCRIPTION                                                                                 | STRATA PLOT | DEPTH (m) | SAMPLE       |                |                     |                   | ■ PEN. RESIST. (BLOWS/0.3m)<br>DCPT (50mm DIA. CONE)                 |                   |  |        | MONITORING WELL<br>CONSTRUCTION | ELEVATION (m) |
|----------------------------------------------------------------------------------------------------|-------------|-----------|--------------|----------------|---------------------|-------------------|----------------------------------------------------------------------|-------------------|--|--------|---------------------------------|---------------|
|                                                                                                    |             |           | TYPE AND NO. | RECOVERY (%)   | N OR RQD            | WATER CONTENT (%) | 20 40 60 80                                                          |                   |  |        |                                 |               |
|                                                                                                    |             |           |              |                |                     |                   | △ REMOULDED SHEAR STRENGTH (kPa)<br>▲ UNDRAINED SHEAR STRENGTH (kPa) |                   |  |        |                                 |               |
|                                                                                                    |             |           |              |                |                     |                   | PL (%)                                                               | WATER CONTENT (%) |  | LL (%) |                                 |               |
| 20 40 60 80                                                                                        |             |           |              |                |                     |                   |                                                                      |                   |  |        |                                 |               |
| GROUND SURFACE                                                                                     |             |           |              |                |                     |                   |                                                                      |                   |  |        |                                 |               |
| FILL: Stiff brown silty clay, some gravel, trace sand<br>- trace organics to 0.08 m depth          |             | 1         | AU 1         |                |                     |                   |                                                                      |                   |  |        | 92                              |               |
| 1.22m [ 90.96m ]                                                                                   |             | SS 2      | 33           | 3-5-5-25<br>10 |                     |                   |                                                                      |                   |  |        | 91                              |               |
| FILL: Compact, brown silty sand, with gravel, trace<br>topsoil and organics                        |             | 2         | SS 3         | 75             | 11-13-11-11<br>24   |                   |                                                                      |                   |  |        | 90                              |               |
| 2.21m [ 89.97m ]                                                                                   |             | SS 4      | 25           | 2-5-2-3<br>7   |                     |                   |                                                                      |                   |  |        | 89                              |               |
| FILL: Stiff, brown silty clay, with gravel, some<br>crushed stone and sand                         |             | 3         | SS 5         | 42             | 1-4-4-4<br>8        |                   |                                                                      |                   |  |        | 88                              |               |
| 2.97m [ 89.21m ]                                                                                   |             | SS 6      | 12           | 1-2-2-4<br>4   |                     |                   |                                                                      |                   |  |        | 87                              |               |
| FILL: Loose, brown silty sand, some clay, trace<br>wood and topsoil                                |             | 4         | SS 7         | 31             | 2-2-50-/<br>52/0.25 |                   |                                                                      |                   |  |        | 86                              |               |
| 3.73m [ 88.45m ]                                                                                   |             | SS 8      | 25           | 1-2-2-2<br>4   |                     |                   |                                                                      |                   |  |        | 85                              |               |
| FILL: Firm, brown silty clay, with gravel, some sand<br>and crushed stone                          |             | 5         | SS 9         | 29             | 1-2-4-4<br>6        |                   |                                                                      |                   |  |        | 84                              |               |
| 6.02m [ 86.16m ]                                                                                   |             | SS 10     | 46           | 1-2-1-1<br>3   |                     |                   |                                                                      |                   |  |        | 83                              |               |
| FILL: Firm, grey silty clay, with gravel, cobbles and<br>boulders, trace crushed stone and asphalt |             | 6         | SS 11        | 58             | 1-3-2-2<br>5        |                   |                                                                      |                   |  |        | 82                              |               |
| 8.69m [ 83.49m ]                                                                                   |             | SS 12     | 71           | 1-2-2-6<br>4   |                     |                   |                                                                      |                   |  |        | 81                              |               |
| 8.99m [ 83.19m ]                                                                                   |             | SS 13     | 62           | 5-11-8-/<br>19 |                     |                   |                                                                      |                   |  |        | 80                              |               |
| 9.45m [ 82.73m ]                                                                                   |             | SS 14     | 83           | 1-1-1-1<br>2   |                     |                   |                                                                      |                   |  |        | 79                              |               |
| GLACIAL TILL: Firm to stiff, brown clayey silt, trace<br>gravel and sand                           | 10          | SS 15     | 100          | 1-1-1-2<br>2   |                     |                   |                                                                      |                   |  | 78     |                                 |               |
|                                                                                                    | 11          | SS 16     | 83           | 0-0-0-0<br>0   |                     |                   |                                                                      |                   |  | 77     |                                 |               |
| - Clay content increasing by 12.2 m depth                                                          | 12          | SS 17     | 100          | P              |                     |                   |                                                                      |                   |  | 76     |                                 |               |
|                                                                                                    | 13          | SS 18     | 100          | 1-2-3-1<br>5   |                     |                   |                                                                      |                   |  | 75     |                                 |               |
|                                                                                                    | 14          | SS 19     |              |                |                     |                   |                                                                      |                   |  | 74     |                                 |               |

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|                                                 |                           |                             |                           |
|-------------------------------------------------|---------------------------|-----------------------------|---------------------------|
| <b>COORD. SYS.:</b> MTM ZONE 9                  | <b>EASTING:</b> 379135.75 | <b>NORTHING:</b> 5019162.49 | <b>ELEVATION:</b> 92.18   |
| <b>PROJECT:</b> Proposed Commercial Development |                           |                             | <b>FILE NO. :</b> PG7567  |
| <b>ADVANCED BY:</b> CME-55 Low Clearance Drill  |                           |                             | <b>HOLE NO. :</b> BH 4-25 |
| <b>REMARKS:</b>                                 |                           |                             |                           |
| <b>DATE:</b> June 3, 2025                       |                           |                             |                           |

| SAMPLE DESCRIPTION                                       | STRATA PLOT | DEPTH (m) | SAMPLE       |              |              |                   | ■ PEN. RESIST. (BLOWS/0.3m)<br>DCPT (50mm DIA. CONE)                 |  |  | MONITORING WELL<br>CONSTRUCTION | ELEVATION (m) |
|----------------------------------------------------------|-------------|-----------|--------------|--------------|--------------|-------------------|----------------------------------------------------------------------|--|--|---------------------------------|---------------|
|                                                          |             |           | TYPE AND NO. | RECOVERY (%) | N OR RQD     | WATER CONTENT (%) | 20 40 60 80                                                          |  |  |                                 |               |
|                                                          |             |           |              |              |              |                   | △ REMOULDED SHEAR STRENGTH (kPa)<br>▲ UNDRAINED SHEAR STRENGTH (kPa) |  |  |                                 |               |
|                                                          |             |           |              |              |              |                   | PL (%) WATER CONTENT (%) LL (%)                                      |  |  |                                 |               |
|                                                          |             |           |              |              |              |                   |                                                                      |  |  |                                 |               |
| 14.33m [ 77.85m ]                                        | ▽ ▽ ▽ ▽     | 14        | △ SS 19      | 83           | 1-2-4-4<br>6 |                   |                                                                      |  |  |                                 | 78            |
| Dynamic cone penetration test commenced at 14.33 m depth |             | 15        |              |              |              |                   | ■ 11                                                                 |  |  | 100 ■                           | 77            |
| 15.42m [ 76.76m ]                                        |             | 16        |              |              |              |                   |                                                                      |  |  |                                 | 76            |
| End of Borehole                                          |             | 17        |              |              |              |                   |                                                                      |  |  |                                 | 75            |
| Practical refusal to DCPT at 15.42 m depth               |             | 18        |              |              |              |                   |                                                                      |  |  |                                 | 74            |
| DCPT Pushed from 14.33 m to 15.01 m depth                |             | 19        |              |              |              |                   |                                                                      |  |  |                                 | 73            |
| (GWL at 7.54 m depth - June 5, 2025)                     |             | 20        |              |              |              |                   |                                                                      |  |  |                                 | 72            |
|                                                          |             | 21        |              |              |              |                   |                                                                      |  |  |                                 | 71            |
|                                                          |             | 22        |              |              |              |                   |                                                                      |  |  |                                 | 70            |
|                                                          |             | 23        |              |              |              |                   |                                                                      |  |  |                                 | 69            |
|                                                          |             | 24        |              |              |              |                   |                                                                      |  |  |                                 | 68            |
|                                                          |             | 25        |              |              |              |                   |                                                                      |  |  |                                 | 67            |
|                                                          |             | 26        |              |              |              |                   |                                                                      |  |  |                                 | 66            |
|                                                          |             | 27        |              |              |              |                   |                                                                      |  |  |                                 | 65            |
|                                                          |             | 28        |              |              |              |                   |                                                                      |  |  |                                 |               |

BOREHOLE No.: **BH1-21**ELEVATION: **91.07 m**Page 35  
**BOREHOLE LOG**Page: 1 of 2CLIENT: Consolidated Fastfrate (Ottawa) Holdings Ltd.PROJECT: ConFastfrate, New Warehouse & OfficesLOCATION: Somme Street, Ottawa, ONDESCRIBED BY: J. ScottCHECKED BY: Leandro RamosDATE (START): 26 July 2021DATE (FINISH): 27 July 2021**LEGEND**

- ☒ SS Split Spoon  
☒ ST Shelby Tube  
☒ RC Rock Core  
 Water Level  
 Water content (%)  
 Atterberg limits (%)  
 Penetration Index based on Split Spoon sample  
 Penetration Index based on Dynamic Cone sample  
 Shear Strength based on Field Vane  
 Shear Strength based on Lab Vane  
 Sensitivity Value of Soil  
 Shear Strength based on Pocket Penetrometer

| SCALE     |               | STRATIGRAPHY |                                                                                                                                          |       | SAMPLE DATA     |          |                         |                           |
|-----------|---------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------|-------|-----------------|----------|-------------------------|---------------------------|
| Depth BGS | Elevation (m) | Stratigraphy | DESCRIPTION OF SOIL AND BEDROCK                                                                                                          | State | Type and Number | Recovery | Blows per 6 in. / 15 cm | Penetration Index / RQD % |
| metres    | 91.07         |              | GROUND SURFACE                                                                                                                           |       |                 | %        |                         | N                         |
|           | 90.99         |              | <b>TOPSOIL</b> (75 mm)                                                                                                                   |       |                 |          |                         |                           |
|           |               |              | <b>FILL - SILTY SAND</b> , trace gravel, trace clay, dark grey, moist, compact                                                           |       | SS1             | 96       | 7-15-10-9               | 25                        |
| 1.0       | 90.20         |              | <b>FILL - SAND</b> , trace silt, trace gravel, brown, moist, loose<br>Gravel - 17%, Sand - 60%, Silt - 19%, Clay - 4%                    |       | SS2A<br>SS2B    | 71       | 9-6-3-4<br>--           | 9                         |
| 2.0       | 89.54         |              | <b>FILL - SILTY SAND</b> , with clay, trace gravel, dark grey, moist, dense<br>cobble encountered at 1.83 mbgs                           |       | SS3             | 71       | 7-13-33-40              | 46                        |
| 3.0       |               |              |                                                                                                                                          |       | SS4             | 42       | 5-2-3-50/76 mm          | 5                         |
|           |               |              | with organics and wood fragments                                                                                                         |       | SS5A<br>SS5B    | 67       | 8-8-5-3<br>--           | 13                        |
| 4.0       |               |              | augers grinding at 3.96 mbgs, inferred boulders or construction debris                                                                   |       | SS6             | 0        | 50/51 mm                | 50/51 mm                  |
| 5.0       | 86.49         |              | <b>SILTY SAND</b> - trace gravel, trace clay, brown, moist, dense to very dense                                                          |       | SS7             | 83       | 10-21-37<br>50/127 mm   | 58                        |
| 6.0       | 85.27         |              | grey, very moist, augers grinding at 9.85 mbgs, inferred boulder                                                                         |       | SS8A<br>SS8B    | 100      | 43-31-36-47<br>--       | 67                        |
| 7.0       |               |              | cobble encountered at 6.86 mbgs                                                                                                          |       | SS9             | 83       | 24-23-18-26             | 41                        |
| 8.0       |               |              |                                                                                                                                          |       | SS10            | 75       | 13-11-15-12             | 26                        |
|           |               |              |                                                                                                                                          |       | SS11            | 71       | 6-4-12-23               | 16                        |
| 9.0       |               |              |                                                                                                                                          |       | SS12            | 67       | 50-15-15-18             | 30                        |
|           |               |              | Gravel - 16%, Sand - 32%, Silt - 36%, Clay - 16%                                                                                         |       | SS13            | 67       | 13-17-19-17             | 36                        |
| 10.0      | 81.21         |              | <b>LIMESTONE</b> - interbedded sandstone, grey, poor to excellent quality based on RQD<br>- highly weathered from 9.86 mbgs to 9.93 mbgs |       | RC1             | 58       | 38                      | 38                        |
| 11.0      |               |              | silty sand seam at 10.92 mbgs                                                                                                            |       |                 |          |                         |                           |

**NOTES:**

mbgs: meters below ground surface

RQD: Rock Quality Designation

BOREHOLE No.: BH1-21ELEVATION: 91.07 mPage 36  
**BOREHOLE LOG**Page: 2 of 2CLIENT: Consolidated Fastfrate (Ottawa) Holdings Ltd.PROJECT: ConFastfrate, New Warehouse & OfficesLOCATION: Somme Street, Ottawa, ONDESCRIBED BY: J. ScottCHECKED BY: Leandro RamosDATE (START): 26 July 2021DATE (FINISH): 27 July 2021**LEGEND**

- ☐ SS Split Spoon  
☐ ST Shelby Tube  
☐ RC Rock Core  
 Water Level  
 Water content (%)  
 Atterberg limits (%)  
 Penetration Index based on Split Spoon sample  
 Penetration Index based on Dynamic Cone sample  
 Shear Strength based on Field Vane  
 Shear Strength based on Lab Vane  
 Sensitivity Value of Soil  
 Shear Strength based on Pocket Penetrometer

**SCALE FOR TEST RESULTS**
 50kPa 100kPa 150kPa 200kPa  
 10 20 30 40 50 60 70 80 90

File: \\GHDNET\GHD\CA\PETERBOROUGH\PROJECTS\662\11231101\WORKSHARE\FIELD\GINT LOG\11231101 LOGS.GPJ Library File: 11231101 GHD\_GEOTECH\_V10.GLB Report: 11231101 BOREHOLE LOG Date: 12/8/21

| SCALE     |               | STRATIGRAPHY |                                                                                               |       | SAMPLE DATA     |          |                         |                           |
|-----------|---------------|--------------|-----------------------------------------------------------------------------------------------|-------|-----------------|----------|-------------------------|---------------------------|
| Depth BGS | Elevation (m) | Stratigraphy | DESCRIPTION OF SOIL AND BEDROCK                                                               | State | Type and Number | Recovery | Blows per 6 in. / 15 cm | Penetration Index / RQD % |
| metres    | 91.07         |              | GROUND SURFACE                                                                                |       |                 | %        |                         | N                         |
| 12.0      |               |              | vertical fracture at 11.58 mbgs                                                               |       | RC2             | 98       | 95                      | 95                        |
| 13.0      |               |              |                                                                                               |       | RC3             | 95       | 58                      | 58                        |
| 14.0      | 77.25         |              | Borehole terminated at 13.82 mbgs                                                             |       |                 |          |                         |                           |
| 15.0      |               |              | Note:<br>Borehole Coordinate<br>- UTM Zone 18<br>- Northing: 5017223.9<br>- Easting: 456487.2 |       |                 |          |                         |                           |
| 16.0      |               |              |                                                                                               |       |                 |          |                         |                           |
| 17.0      |               |              |                                                                                               |       |                 |          |                         |                           |
| 18.0      |               |              |                                                                                               |       |                 |          |                         |                           |
| 19.0      |               |              |                                                                                               |       |                 |          |                         |                           |
| 20.0      |               |              |                                                                                               |       |                 |          |                         |                           |
| 21.0      |               |              |                                                                                               |       |                 |          |                         |                           |
| 22.0      |               |              |                                                                                               |       |                 |          |                         |                           |

**NOTES:**
 mbgs: meters below ground surface  
 RQD: Rock Quality Designation



BOREHOLE No.: **BH2-21**ELEVATION: **90.79 m**Page 37  
**BOREHOLE LOG**Page: 1 of 2CLIENT: Consolidated Fastfrate (Ottawa) Holdings Ltd.PROJECT: ConFastfrate, New Warehouse & OfficesLOCATION: Somme Street, Ottawa, ONDESCRIBED BY: J. ScottCHECKED BY: Leandro RamosDATE (START): 27 July 2021DATE (FINISH): 27 July 2021**LEGEND**

- ☒ SS Split Spoon  
☒ ST Shelby Tube  
☒ RC Rock Core  
 Water Level  
 Water content (%)  
 Atterberg limits (%)  
 Penetration Index based on Split Spoon sample  
 Penetration Index based on Dynamic Cone sample  
 Shear Strength based on Field Vane  
 Shear Strength based on Lab Vane  
 Sensitivity Value of Soil  
 Pocket Penetrometer

| SCALE     |               | STRATIGRAPHY |                                                                                            |       | SAMPLE DATA     |          |                         |                           |
|-----------|---------------|--------------|--------------------------------------------------------------------------------------------|-------|-----------------|----------|-------------------------|---------------------------|
| Depth BGS | Elevation (m) | Stratigraphy | DESCRIPTION OF SOIL AND BEDROCK                                                            | State | Type and Number | Recovery | Blows per 6 in. / 15 cm | Penetration Index / RQD % |
| metres    | 90.79         |              | GROUND SURFACE                                                                             |       |                 | %        |                         | N                         |
|           | 90.71         |              | TOPSOIL (75 mm)                                                                            |       | SS1A            | 92       | 3-12-11-15              | 23                        |
|           | 90.33         |              | FILL - SILTY SAND, trace clay, trace bricks, trace asphalt, brown to black, moist, compact |       | SS1B            |          | --                      |                           |
| 1.0       | 90.03         |              | FILL - SAND AND GRAVEL, trace silt, brown, moist, compact                                  |       | SS2             | 88       | 6-14-17-15              | 31                        |
|           |               |              | FILL - SILTY SAND, with gravel, trace clay, brown to grey, moist, dense                    |       | SS3A            | 46       | 7-9-6-6                 | 15                        |
| 2.0       |               |              | with clay at 1.65 mbgs                                                                     |       | SS3B            |          | --                      |                           |
|           |               |              | trace clay at 2.89 mbgs                                                                    |       | SS4             | 67       | 28-13-12-38             | 25                        |
| 3.0       |               |              | asphalt at 3.35 mbgs                                                                       |       | SS5             | 63       | 8-7-5-12                | 12                        |
| 4.0       | 86.93         |              | ORGANIC                                                                                    |       | SS6A            | 67       | 3-1-1-1                 | 2                         |
|           | 86.88         |              | FILL - SILTY SAND, trace gravel, trace clay, brown, wet, loose                             |       | SS6B            |          | --                      |                           |
|           |               |              | with topsoil at 4.57 mbgs                                                                  |       | SS6C            |          | --                      |                           |
| 5.0       |               |              | with clay, bricks fragments at 4.72 mbgs                                                   |       | SS7A            | 88       | 2-3-7-8                 | 10                        |
|           |               |              |                                                                                            |       | SS7B            |          | --                      |                           |
| 6.0       | 85.45         |              | SILTY SAND - with clay, trace gravel, brown, moist to wet, compact to dense                |       | SS8             | 83       | 8-19-22-40              | 41                        |
|           |               |              | grey at 6.10 mbgs                                                                          |       | SS9             | 54       | 9-14-12-13              | 26                        |
| 7.0       |               |              |                                                                                            |       | SS10            | 79       | 5-3-5-6                 | 8                         |
| 8.0       |               |              |                                                                                            |       | SS11            | 75       | 5-7-8-10                | 15                        |
| 9.0       |               |              | Gravel - 20%, Sand - 38%, Silt - 33%, Clay - 9%                                            |       | SS12            | 63       | 6-10-11-17              | 21                        |
|           |               |              | wet at 9.14 mbgs                                                                           |       | SS13            | 71       | 11-18-18-21             | 36                        |
| 10.0      |               |              | augers grinding at 10.08 mbgs, inferred boulder                                            |       | SS14            | 71       | 19-50/25 mm             | 50/25 mm                  |
| 11.0      |               |              |                                                                                            |       | SS15            | 25       | 11-14-15-21             | 29                        |

## NOTES:

mbgs: meters below ground surface

RQD: Rock Quality Designation



**BOREHOLE No.:** BH2-21  
**ELEVATION:** 90.79 m

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**BOREHOLE LOG**

Page: 2 of 2

CLIENT: Consolidated Fastrate (Ottawa) Holdings Ltd.

PROJECT: ConFastrate, New Warehouse & Offices

LOCATION: Somme Street, Ottawa, ON

DESCRIBED BY: J. Scott

CHECKED BY: L. Ramos

DATE (START): 27 July 2021

DATE (FINISH): 27 July 2021

### LEGEND

- ☒ SS Split Spoon
- ☒ ST Shelby Tube
- ☒ RC Rock Core
- ☒ Water Level
- ☒ Water content (%)
- ☒ Atterberg limits (%)
- ☒ N Penetration Index based on Split Spoon sample
- ☒ N Penetration Index based on Dynamic Cone sample
- ☒ Δ Cu Shear Strength based on Field Vane
- ☒ □ Cu Shear Strength based on Lab Vane
- ☒ S Sensitivity Value of Soil
- ☒ ▲ Shear Strength based on Pocket Penetrometer

### SCALE FOR TEST RESULTS

10 50kPa 100kPa 150kPa 200kPa  
 20 30 40 50 60 70 80 90

File: G:\11231101\WORKSHARE\FIELD\GINT LOG\11231101 LOGS - COPY.GPJ Library File: 11231101 GHD\_GEOTECH\_V10.GLB Report: 11231101 BOREHOLE LOG Date: 24/1/22

| SCALE     |               | STRATIGRAPHY |                                                                                                 |       | SAMPLE DATA     |          |                         |                           |
|-----------|---------------|--------------|-------------------------------------------------------------------------------------------------|-------|-----------------|----------|-------------------------|---------------------------|
| Depth BGS | Elevation (m) | Stratigraphy | DESCRIPTION OF SOIL AND BEDROCK                                                                 | State | Type and Number | Recovery | Blows per 6 in. / 15 cm | Penetration Index / RQD % |
| metres    | 90.79         |              | GROUND SURFACE                                                                                  |       |                 | %        |                         | N                         |
|           | 79.36         |              | <b>SAND</b> - trace silt, grey, wet, dense                                                      |       | SS16A           | 92       | 11-15-18-31             | 23                        |
| 12.0      | 79.23         |              | <b>SILTY CLAY</b> - with sand, trace gravel reddish brown, moist, hard                          |       | SS16B           |          | -                       |                           |
| 13.0      |               |              |                                                                                                 |       | SS17            | 0        | 21-31-31-40             | 62                        |
| 14.0      |               |              |                                                                                                 |       | SS18            | 100      | 9-21-38-50/127 mm       | 59                        |
| 15.0      | 76.01         |              | <b>LIMESTONE</b> - interbedded sandstone, grey, good quality based on RQD                       |       | RC1             | 100      | 78                      | 78                        |
| 16.0      |               |              | UCS = 139.1 MPa                                                                                 |       | RC2             | 98       | 76                      | 76                        |
| 17.0      |               |              |                                                                                                 |       |                 |          |                         |                           |
| 18.0      |               |              |                                                                                                 |       | RC3             | 100      | 89                      | 89                        |
| 19.0      | 71.92         |              | Borehole terminated at 18.87 mbgs                                                               |       |                 |          |                         |                           |
| 20.0      |               |              | Note:<br>Borehole Coordinates<br>- UTM Zone 18N<br>- Northing: 5017221.2<br>- Easting: 456581.5 |       |                 |          |                         |                           |
| 21.0      |               |              |                                                                                                 |       |                 |          |                         |                           |
| 22.0      |               |              |                                                                                                 |       |                 |          |                         |                           |

### NOTES:

m bgs: meters below ground surface  
 RQD: Rock Quality Designation



**BOREHOLE No.:** BH3-21  
**ELEVATION:** 90.55 m

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**BOREHOLE LOG**

Page: 1 of 1

CLIENT: Consolidated Fastrate (Ottawa) Holdings Ltd.

PROJECT: ConFastrate, New Warehouse & Offices

LOCATION: Somme Street, Ottawa, ON

DESCRIBED BY: J. Scott

CHECKED BY: L. Ramos

DATE (START): 26 July 2021

DATE (FINISH): 26 July 2021

**LEGEND**

- ☒ SS Split Spoon
- ☒ ST Shelby Tube
- ☒ RC Rock Core
- ☒ Water Level
- ☒ Water content (%)
- ☒ Atterberg limits (%)
- ☒ Penetration Index based on Split Spoon sample
- ☒ Penetration Index based on Dynamic Cone sample
- ☒ Shear Strength based on Field Vane
- ☒ Shear Strength based on Lab Vane
- ☒ Sensitivity Value of Soil
- ☒ Shear Strength based on Pocket Penetrometer

**SCALE FOR TEST RESULTS**

50kPa 100kPa 150kPa 200kPa

10 20 30 40 50 60 70 80 90

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| Depth BGS | Elevation (m)       | Stratigraphy | DESCRIPTION OF SOIL AND BEDROCK                                                               | State | Type and Number | Recovery | Blows per 6 in. / 15 cm | Penetration Index / RQD % |  |
|-----------|---------------------|--------------|-----------------------------------------------------------------------------------------------|-------|-----------------|----------|-------------------------|---------------------------|--|
| metres    | 90.55               |              | GROUND SURFACE                                                                                |       |                 | %        |                         | N                         |  |
|           | 90.48               |              | TOPSOIL (75 mm)                                                                               |       |                 |          |                         |                           |  |
|           |                     |              | FILL - SILTY SAND, with gravel, trace clay, brown, moist, compact                             |       | SS1             | 71       | 2-6-4-10                | 10                        |  |
| 1.0       | 89.64               |              | with presence of organics/topsoil                                                             |       | SS2A<br>SS2B    | 42       | 5-5-7-14                | 12                        |  |
| 2.0       |                     |              |                                                                                               |       | SS3             | 33       | 5-5-6-15                | 11                        |  |
| 3.0       |                     |              | with to trace clay at 2.5 m bgs                                                               |       | SS4             | 42       | 7-6-4-3                 | 10                        |  |
| 4.0       |                     |              | grey at 3.0 m bgs moist                                                                       |       | SS5             | 86       | 2-2-8-27                | 10                        |  |
|           | 87.20               |              | ASPHALT                                                                                       |       |                 |          |                         |                           |  |
|           | 87.15               |              | FILL - SANDY GRAVEL, dark grey, wet, compact                                                  |       |                 |          |                         |                           |  |
|           | 86.74               |              | SILTY SAND - trace gravel, some clay, brown, moist, compact                                   |       | SS6             | 46       | 12-12-5-7               | 17                        |  |
| 5.0       |                     |              | loose at 4.75 m bgs                                                                           |       | SS7             | 0        | 3-2-3-4                 | 5                         |  |
| 6.0       |                     |              | compact to very dense at 5.5 m bgs<br>Gravel - 19%, Sand - 49%, Silt - 26%, Clay - 6%         |       | SS8             | 73       | 10-16-21-46             | 37                        |  |
|           | WL6.2<br>2021-07-26 |              |                                                                                               |       | SS9             | 100      | 13-26-27-41             | 53                        |  |
| 7.0       |                     |              | with clay, trace gravel, trace cobbles, grey, moist, compact                                  |       | SS10A<br>SS10B  | 100      | 9-11-11-15              | 22                        |  |
| 8.0       | 83.54               |              |                                                                                               |       | SS11            | 71       | 8-13-20-28              | 33                        |  |
| 9.0       |                     |              |                                                                                               |       | SS12            | 79       | 5-10-16-36              | 26                        |  |
| 10.0      |                     |              | wet at 9.14 m bgs                                                                             |       | SS13            | 80       | 18-50/102 mm            | 100+                      |  |
| 11.0      | 81.11               |              | Borehole terminated due to auger refusal at 9.45 mbgs.<br>Bedrock or boulder inferred         |       |                 |          |                         |                           |  |
|           |                     |              | Noted:<br>Borehole Location<br>- UTM Zone 18N<br>- Northing: 5017286.1<br>- Easting: 456612.6 |       |                 |          |                         |                           |  |

**NOTES:**

m bgs: meters below ground surface  
 RQD: Rock Quality Designation

BOREHOLE No.: **BH4-21**

ELEVATION: 90.23 m

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**BOREHOLE LOG**

Page: 1 of 2

CLIENT: Consolidated Fastrate (Ottawa) Holdings Ltd.

PROJECT: ConFastrate, New Warehouse &amp; Offices

LOCATION: Somme Street, Ottawa, ON

DESCRIBED BY: J. Scott

CHECKED BY: L. Ramos

DATE (START): 8 July 2021

DATE (FINISH): 28 July 2021

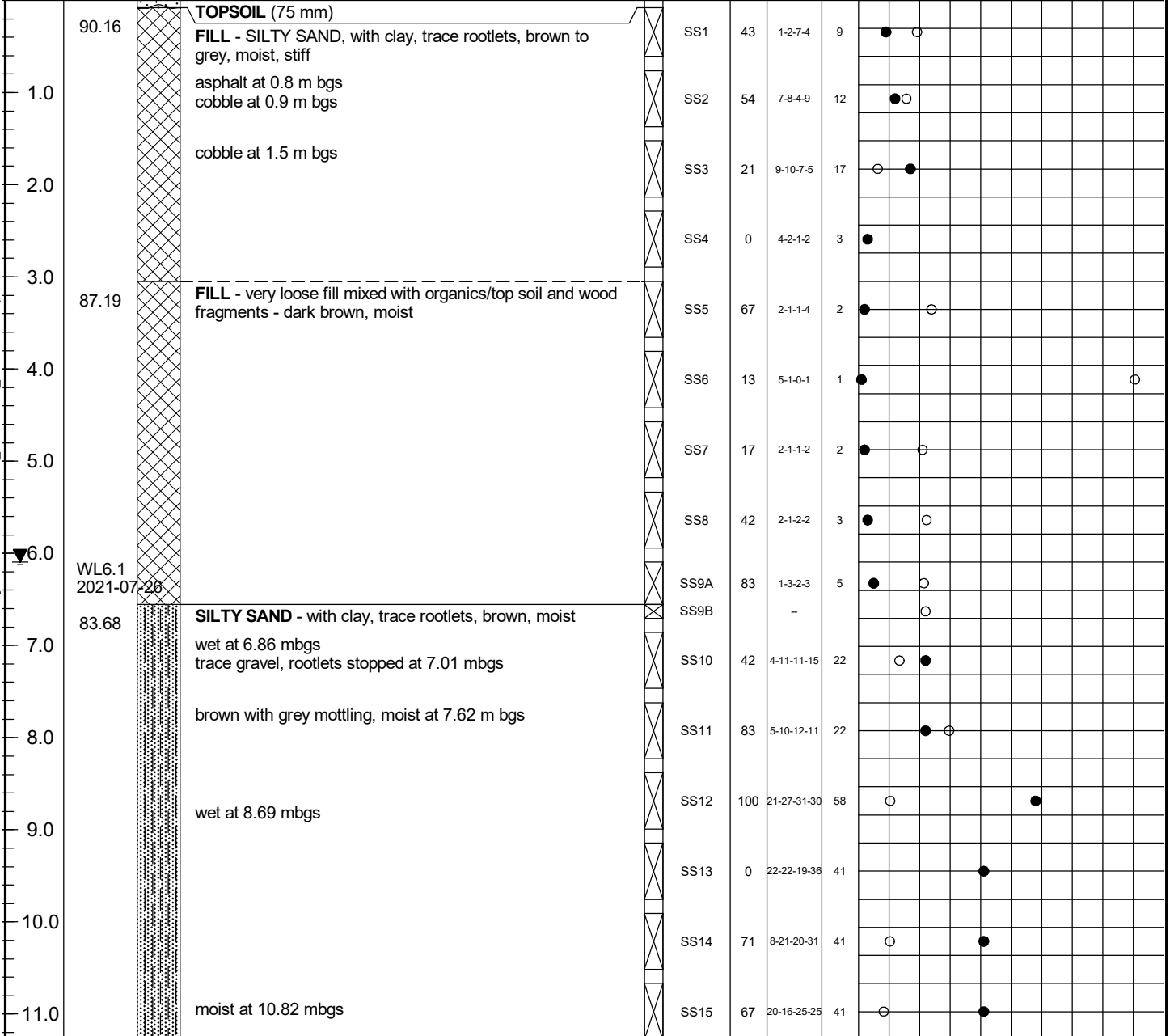
**LEGEND**

- ☒ SS Split Spoon  
☒ ST Shelby Tube  
☒ RC Rock Core  
 Water Level  
 Water content (%)  
 Atterberg limits (%)  
 • N Penetration Index based on Split Spoon sample  
 • N Penetration Index based on Dynamic Cone sample  
 Δ Cu Shear Strength based on Field Vane  
 □ Cu Shear Strength based on Lab Vane  
 S Sensitivity Value of Soil  
 ▲ Shear Strength based on Pocket Penetrometer

## SCALE FOR TEST RESULTS

 10 50kPa 100kPa 150kPa 200kPa  
 20 30 40 50 60 70 80 90

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## NOTES:

 m bgs: meters below ground surface  
 RQD: Rock Quality Designation



BOREHOLE No.: BH4-21ELEVATION: 90.23 mPage 41  
**BOREHOLE LOG**Page: 2 of 2CLIENT: Consolidated Fastfrate (Ottawa) Holdings Ltd.PROJECT: ConFastfrate, New Warehouse & OfficesLOCATION: Somme Street, Ottawa, ONDESCRIBED BY: J. ScottCHECKED BY: Leandro RamosDATE (START): 8 July 2021DATE (FINISH): 28 July 2021**LEGEND**

- ☒ SS Split Spoon  
☒ ST Shelby Tube  
☒ RC Rock Core  
 Water Level  
 Water content (%)  
 Atterberg limits (%)  
 Penetration Index based on Split Spoon sample  
 Penetration Index based on Dynamic Cone sample  
 Shear Strength based on Field Vane  
 Shear Strength based on Lab Vane  
 Sensitivity Value of Soil  
 Shear Strength based on Pocket Penetrometer

**SCALE FOR TEST RESULTS**

50kPa 100kPa 150kPa 200kPa  
 10 20 30 40 50 60 70 80 90

| SCALE     |               | STRATIGRAPHY |                                                                                               |       | SAMPLE DATA     |          |                         |                           |
|-----------|---------------|--------------|-----------------------------------------------------------------------------------------------|-------|-----------------|----------|-------------------------|---------------------------|
| Depth BGS | Elevation (m) | Stratigraphy | DESCRIPTION OF SOIL AND BEDROCK                                                               | State | Type and Number | Recovery | Blows per 6 in. / 15 cm | Penetration Index / RQD % |
| metres    | 90.23         |              | GROUND SURFACE                                                                                |       |                 | %        |                         | N                         |
|           | 78.80         |              | <b>SILTY CLAY</b> - with sand, trace gravel, reddish brown, moist, hard                       |       | SS16            | 100      | 13-24-26-22             | 50                        |
| 12.0      | 78.19         |              | Borehole terminated due to auger refusal at 12.04 mbgs. Bedrock or boulder inferred           |       |                 |          |                         |                           |
| 13.0      |               |              | Note:<br>Borehole Coordinate<br>- UTM 18 Zone<br>- Northing: 5017343.6<br>- Easting: 456673.6 |       |                 |          |                         |                           |
| 14.0      |               |              |                                                                                               |       |                 |          |                         |                           |
| 15.0      |               |              |                                                                                               |       |                 |          |                         |                           |
| 16.0      |               |              |                                                                                               |       |                 |          |                         |                           |
| 17.0      |               |              |                                                                                               |       |                 |          |                         |                           |
| 18.0      |               |              |                                                                                               |       |                 |          |                         |                           |
| 19.0      |               |              |                                                                                               |       |                 |          |                         |                           |
| 20.0      |               |              |                                                                                               |       |                 |          |                         |                           |
| 21.0      |               |              |                                                                                               |       |                 |          |                         |                           |
| 22.0      |               |              |                                                                                               |       |                 |          |                         |                           |

**NOTES:**

mbgs: meters below ground surface  
 RQD: Rock Quality Designation

BOREHOLE No.: **BH5-21**ELEVATION: **90.39 m**Page 42  
**BOREHOLE LOG**Page: 1 of 1CLIENT: Consolidated Fastfrate (Ottawa) Holdings Ltd.PROJECT: ConFastfrate, New Warehouse & OfficesLOCATION: Somme Street, Ottawa, ONDESCRIBED BY: J. ScottCHECKED BY: Leandro RamosDATE (START): 26 July 2021DATE (FINISH): 26 July 2021**LEGEND**

- ☒ SS Split Spoon  
☒ ST Shelby Tube  
☒ RC Rock Core  
 Water Level  
 Water content (%)  
 Atterberg limits (%)  
 Penetration Index based on Split Spoon sample  
 Penetration Index based on Dynamic Cone sample  
 Shear Strength based on Field Vane  
 Shear Strength based on Lab Vane  
 Sensitivity Value of Soil  
 Shear Strength based on Pocket Penetrometer

| SCALE     |               | STRATIGRAPHY |                                                                                               |       | SAMPLE DATA     |          |                         |                           |
|-----------|---------------|--------------|-----------------------------------------------------------------------------------------------|-------|-----------------|----------|-------------------------|---------------------------|
| Depth BGS | Elevation (m) | Stratigraphy | DESCRIPTION OF SOIL AND BEDROCK                                                               | State | Type and Number | Recovery | Blows per 6 in. / 15 cm | Penetration Index / RQD % |
| metres    | 90.39         |              | GROUND SURFACE                                                                                |       |                 | %        |                         | N                         |
|           | 90.32         |              | <b>TOPSOIL</b> (75 mm)                                                                        |       |                 |          |                         |                           |
|           |               |              | <b>FILL - SILTY CLAY</b> , trace sand, grey, moist, very soft                                 |       | SS1             | 21       | 1-0-0-1                 | 0                         |
| 1.0       | 89.48         |              | <b>FILL - SANDY SILT</b> , trace clay, trace gravel, dark brown, moist, compact               |       | SS2A            | 24       | 2-5-6-7                 | 11                        |
|           |               |              |                                                                                               |       | SS2B            |          | -                       |                           |
| 2.0       |               |              | loose at 1.52 mbgs                                                                            |       |                 |          |                         |                           |
|           |               |              | Gravel - 25%, Sand - 38%, Silt - 29%, Clay - 8%                                               |       | SS3             | 24       | 12-5-4-6                | 9                         |
|           |               |              | with clay, some gravel at 2.29 mbgs                                                           |       |                 |          |                         |                           |
| 3.0       |               |              |                                                                                               |       | SS4             | 24       | 5-4-2-5-6               | 6                         |
|           |               |              |                                                                                               |       |                 |          |                         |                           |
| 4.0       |               |              | shale cobble at 3.2 mbgs                                                                      |       | SS5             | 24       | 4-3-6-7                 | 9                         |
|           |               |              |                                                                                               |       | SS6             | 24       | 4-3-3-5                 | 6                         |
|           |               |              |                                                                                               |       |                 |          |                         |                           |
| 5.0       | 85.82         |              | <b>SILTY SAND</b> - trace clay, trace gravel, brown, moist, compact to very dense             |       | SS7             | 24       | 3-5-8-9                 | 13                        |
|           |               |              | Gravel - 10%, Sand - 38%, Silt - 41%, Clay - 11%                                              |       |                 |          |                         |                           |
|           |               |              | wet at 5.03 mbgs                                                                              |       | SS8             | 24       | 14-20-42-42             | 62                        |
|           |               |              | moist, containing cobbles at 5.33 mbgs                                                        |       |                 |          |                         |                           |
| 6.0       |               |              |                                                                                               |       |                 |          |                         |                           |
|           |               |              | grey at 6.1 mbgs                                                                              |       | SS9             | 24       | 8-16-20-20              | 36                        |
|           |               |              |                                                                                               |       |                 |          |                         |                           |
| 7.0       |               |              | wet, with clay at 6.86 mbgs                                                                   |       | SS10            | 16       | 15-34-50/102 mm         | 84/254 mm                 |
|           |               |              |                                                                                               |       |                 |          |                         |                           |
|           |               |              | moist at 7.62                                                                                 |       | SS11A           | 15       | 23-40-50/76 mm          | 90/229 mm                 |
| 8.0       | 82.52         |              | <b>SANDY SILT</b> - trace clay, grey, moist, very loose                                       |       | SS11B           |          |                         |                           |
|           |               |              | Borehole terminated due to auger refusal at 8.0 mbgs. Bedrock or boulder inferred             |       |                 |          |                         |                           |
|           | 82.39         |              |                                                                                               |       |                 |          |                         |                           |
| 9.0       |               |              | Note:<br>Borehole Coordinate<br>- UTM 18 Zone<br>- Northing: 5017293.2<br>- Easting: 456532.1 |       |                 |          |                         |                           |
| 10.0      |               |              |                                                                                               |       |                 |          |                         |                           |
| 11.0      |               |              |                                                                                               |       |                 |          |                         |                           |

**NOTES:**

mbgs: meters below ground surface

RQD: Rock Quality Designation



BOREHOLE No.: BH1

ELEVATION: 90.21 m

## BOREHOLE LOG

Page: 1 of 2

CLIENT: Consolidated Fastrate (Ottawa) Holdings Ltd.

PROJECT: New Warehouse

LOCATION: Somme Street, Ottawa, ON

DESCRIBED BY: RVT

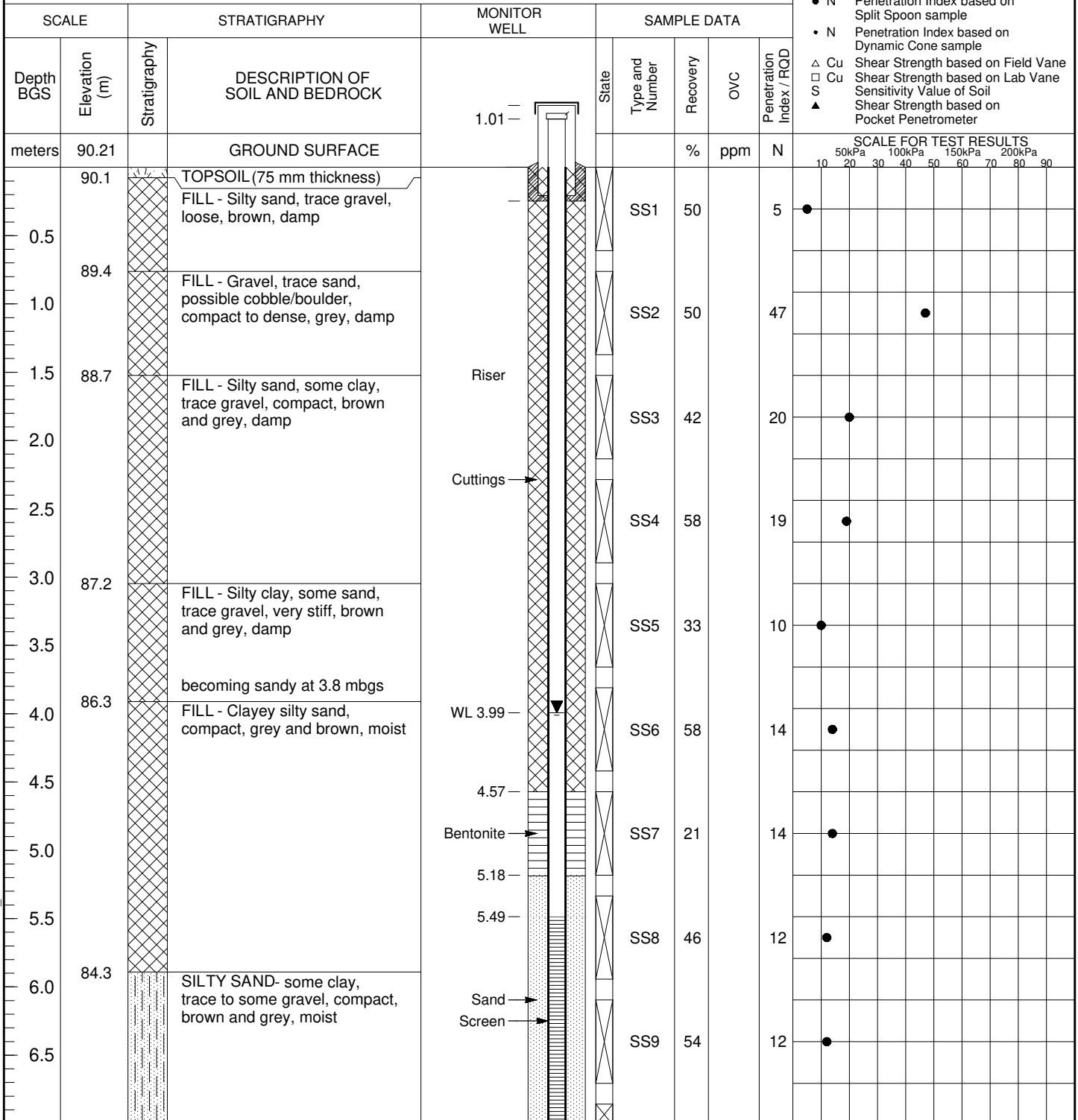
CHECKED BY: BV

DATE (START): 6 August 2020

DATE (FINISH): 6 August 2020

## LEGEND

- SS Split Spoon
- GS Auger Sample
- ST Shelby Tube
- Water Level
- Water content (%)
- Atterberg limits (%)
- N Penetration Index based on Split Spoon sample
- N Penetration Index based on Dynamic Cone sample
- Δ Cu Shear Strength based on Field Vane
- Cu Shear Strength based on Lab Vane
- S Sensitivity Value of Soil
- ▲ Shear Strength based on Pocket Penetrometer



## NOTES:

mbgs: meters below ground surface

RQD: Rock Quality Designation



BOREHOLE No.: BH1

ELEVATION: 90.21 m

## BOREHOLE LOG

Page: 2 of 2

## LEGEND

- ☒ SS Split Spoon
- ☒ GS Auger Sample
- ☒ ST Shelby Tube
- Water Level
- Water content (%)
- Atterberg limits (%)
- Penetration Index based on Split Spoon sample
- Penetration Index based on Dynamic Cone sample
- Shear Strength based on Field Vane
- Shear Strength based on Lab Vane
- Sensitivity Value of Soil
- Shear Strength based on Pocket Penetrometer

CLIENT: Consolidated Fastrate (Ottawa) Holdings Ltd.

PROJECT: New Warehouse

LOCATION: Somme Street, Ottawa, ON

DESCRIBED BY: RVT

CHECKED BY: BV

DATE (START): 6 August 2020

DATE (FINISH): 6 August 2020

| SCALE     |               | STRATIGRAPHY |                                                                                            | MONITOR WELL | SAMPLE DATA                         |                 |          |     |
|-----------|---------------|--------------|--------------------------------------------------------------------------------------------|--------------|-------------------------------------|-----------------|----------|-----|
| Depth BGS | Elevation (m) | Stratigraphy | DESCRIPTION OF SOIL AND BEDROCK                                                            |              | State                               | Type and Number | Recovery | OVC |
| meters    | 90.21         |              | GROUND SURFACE                                                                             |              |                                     |                 | %        | ppm |
|           |               |              | Refusal encountered at 7.2 mbgs                                                            | 7.01         | <input checked="" type="checkbox"/> | SS10            | 71       | 50+ |
| 7.5       |               |              | Cobbles and boulders encountered from 7.3 to 8.2 mbgs                                      |              |                                     | RC1             | 49       |     |
| 8.0       | 82.0          |              | LIMESTONE- interbedded sandstone, grey, fair becoming good quality with depth based on RQD |              |                                     | RC2             | 94       | 73  |
| 8.5       |               |              |                                                                                            |              |                                     | RC3             | 100      | 82  |
| 9.0       |               |              |                                                                                            |              |                                     | RC4             | 100      | 90  |
| 9.5       |               |              |                                                                                            |              |                                     |                 |          |     |
| 10.0      |               |              |                                                                                            |              |                                     |                 |          |     |
| 10.5      |               |              |                                                                                            |              |                                     |                 |          |     |
| 11.0      | 78.9          |              | Borehole terminated at 11.3 mbgs                                                           |              |                                     |                 |          |     |
| 11.5      |               |              |                                                                                            |              |                                     |                 |          |     |
| 12.0      |               |              |                                                                                            |              |                                     |                 |          |     |
| 12.5      |               |              |                                                                                            |              |                                     |                 |          |     |
| 13.0      |               |              |                                                                                            |              |                                     |                 |          |     |
| 13.5      |               |              |                                                                                            |              |                                     |                 |          |     |

## NOTES:

mbgs: meters below ground surface  
RQD: Rock Quality Designation





BOREHOLE No.: BH2

ELEVATION: 89.80 m

## BOREHOLE LOG

Page: 1 of 2

CLIENT: Consolidated Fastrate (Ottawa) Holdings Ltd.

PROJECT: New Warehouse

LOCATION: Somme Street, Ottawa, ON

DESCRIBED BY: RVT

CHECKED BY: BV

DATE (START): 6 August 2020

DATE (FINISH): 6 August 2020

## LEGEND

- ☒ SS Split Spoon
- ☒ GS Auger Sample
- ☒ ST Shelby Tube
- ☒ Water Level
- ☒ Water content (%)
- ☒ Atterberg limits (%)
- ☒ N Penetration Index based on Split Spoon sample
- ☒ N Penetration Index based on Dynamic Cone sample
- ☒ Cu Shear Strength based on Field Vane
- ☒ Cu Shear Strength based on Lab Vane
- ☒ S Sensitivity Value of Soil
- ☒ Shear Strength based on Pocket Penetrometer

| SCALE     |               | STRATIGRAPHY |                                                                              |       | SAMPLE DATA     |          |     |                         |
|-----------|---------------|--------------|------------------------------------------------------------------------------|-------|-----------------|----------|-----|-------------------------|
| Depth BGS | Elevation (m) | Stratigraphy | DESCRIPTION OF SOIL AND BEDROCK                                              | State | Type and Number | Recovery | OVC | Penetration Index / RQD |
| meters    | 89.80         |              | GROUND SURFACE                                                               |       |                 | %        | ppm | N                       |
| 89.7      |               |              | TOPSOIL (75 mm thickness)                                                    |       |                 |          |     |                         |
| 0.5       |               |              | FILL - Silty clay, firm to stiff, grey, moist                                |       | SS1             | 58       |     | 2                       |
| 1.0       |               |              |                                                                              |       | SS2             | 100      |     | 2                       |
| 1.5       |               |              |                                                                              |       | SS3             | 100      |     | 1                       |
| 2.0       |               |              |                                                                              |       | SS4             | 100      |     | WH                      |
| 2.5       |               |              |                                                                              |       |                 |          |     |                         |
| 3.0       |               |              |                                                                              |       |                 |          |     |                         |
| 3.5       |               |              |                                                                              |       | FV5             |          |     |                         |
| 4.0       | 86.0          |              | FILL - Clayey sand, some gravel, organics, loose, grey and brown, moist      |       | SS6             | 75       |     | 5                       |
| 4.5       | 85.2          |              | FILL - Gravelly sandy silt, compact to very dense, brown and grey, saturated |       | SS7             | 83       |     | 33                      |
| 5.0       |               |              |                                                                              |       | SS8             | 63       |     | 70                      |
| 5.5       |               |              |                                                                              |       |                 |          |     |                         |
| 6.0       | 83.7          |              | SILTY SAND- some gravel, compact to very dense, grey, moist to saturated     |       | SS9             | 100      |     | 27                      |
| 6.5       |               |              |                                                                              |       |                 |          |     |                         |

## NOTES:

mbgs: meters below ground surface

RQD: Rock Quality Designation



BOREHOLE No.: BH2

ELEVATION: 89.80 m

## BOREHOLE LOG

Page: 2 of 2

CLIENT: Consolidated Fastrate (Ottawa) Holdings Ltd.

PROJECT: New Warehouse

LOCATION: Somme Street, Ottawa, ON

DESCRIBED BY: RVT

CHECKED BY: BV

DATE (START): 6 August 2020

DATE (FINISH): 6 August 2020

## LEGEND

- ☒ SS Split Spoon
- ☒ GS Auger Sample
- ☒ ST Shelby Tube
- ☒ Water Level
- ☒ Water content (%)
- ☒ Atterberg limits (%)
- ☒ N Penetration Index based on Split Spoon sample
- ☒ N Penetration Index based on Dynamic Cone sample
- ☒ Cu Shear Strength based on Field Vane
- ☒ Cu Shear Strength based on Lab Vane
- ☒ S Sensitivity Value of Soil
- ☒ Shear Strength based on Pocket Penetrometer

| SCALE     |               | STRATIGRAPHY |                                                                           |       | SAMPLE DATA     |          |     |                         |
|-----------|---------------|--------------|---------------------------------------------------------------------------|-------|-----------------|----------|-----|-------------------------|
| Depth BGS | Elevation (m) | Stratigraphy | DESCRIPTION OF SOIL AND BEDROCK                                           | State | Type and Number | Recovery | OVC | Penetration Index / RQD |
| meters    | 89.80         |              | GROUND SURFACE                                                            |       |                 | %        | ppm | N                       |
| 7.5       |               |              |                                                                           |       | SS10            | 83       |     | 57                      |
| 8.0       |               |              |                                                                           |       | SS11            | 91       |     | 70                      |
| 8.5       |               |              | Cobbles and boulders encountered from 8.4 to 9.3 mbgs                     |       | SS12            | 100      |     | 50+                     |
| 9.0       |               |              | Refusal encountered at 9.3 mbgs                                           |       | SS13            | 100      |     | 50+                     |
| 9.5       | 80.5          |              | LIMESTONE- interbedded sandstone, grey, fair to good quality based on RQD |       | RC1             | 100      |     | 85                      |
| 10.0      |               |              |                                                                           |       |                 |          |     |                         |
| 10.5      |               |              |                                                                           |       | RC2             | 100      |     | 83                      |
| 11.0      |               |              |                                                                           |       |                 |          |     |                         |
| 11.5      |               |              |                                                                           |       |                 |          |     |                         |
| 12.0      | 77.6          |              | Borehole terminated at 12.2 mbgs                                          |       | RC3             | 100      |     | 52                      |
| 12.5      |               |              |                                                                           |       |                 |          |     |                         |
| 13.0      |               |              |                                                                           |       |                 |          |     |                         |
| 13.5      |               |              |                                                                           |       |                 |          |     |                         |

## NOTES:

mbgs: meters below ground surface  
RQD: Rock Quality Designation



BOREHOLE No.: BH3

ELEVATION: 90.88 m

## BOREHOLE LOG

Page: 1 of 3

CLIENT: Consolidated Fastrate (Ottawa) Holdings Ltd.

PROJECT: New Warehouse

LOCATION: Somme Street, Ottawa, ON

DESCRIBED BY: RVT

CHECKED BY: BV

DATE (START): 7 August 2020

DATE (FINISH): 7 August 2020

## LEGEND

- ☒ SS Split Spoon
- ☒ GS Auger Sample
- ☒ ST Shelby Tube
- ☒ Water Level
- ☒ Water content (%)
- ☒ Atterberg limits (%)
- ☒ N Penetration Index based on Split Spoon sample
- ☒ N Penetration Index based on Dynamic Cone sample
- ☒ Cu Shear Strength based on Field Vane
- ☒ Cu Shear Strength based on Lab Vane
- ☒ S Sensitivity Value of Soil
- ☒ Shear Strength based on Pocket Penetrometer

| SCALE     |               | STRATIGRAPHY |                                                                                                                                    |       | SAMPLE DATA     |          |     |                         |
|-----------|---------------|--------------|------------------------------------------------------------------------------------------------------------------------------------|-------|-----------------|----------|-----|-------------------------|
| Depth BGS | Elevation (m) | Stratigraphy | DESCRIPTION OF SOIL AND BEDROCK                                                                                                    | State | Type and Number | Recovery | OVC | Penetration Index / RQD |
| meters    | 90.88         |              | GROUND SURFACE                                                                                                                     |       |                 | %        | ppm | N                       |
|           | 90.8          |              | TOPSOIL (125 mm thickness)                                                                                                         |       |                 |          |     |                         |
| 0.5       |               |              | FILL - Clayey silty sand, trace to some gravel, compact, brown and grey, damp                                                      |       | SS1             | 63       |     | 11                      |
| 1.0       | 90.0          |              | FILL - Crushed limestone, asphalt, compact, grey and black, damp                                                                   |       | SS2             | 58       |     | 42                      |
| 1.5       | 89.4          |              | FILL - Sand, trace gravel, clay pockets, asphalt, compact, grey and black, damp to moist                                           |       | SS3             | 38       |     | 15                      |
| 2.0       |               |              |                                                                                                                                    |       |                 |          |     |                         |
| 2.5       | 88.6          |              | FILL - Silty sand, some gravel, trace clay, possible cobbles/boulders, compact, grey, moist                                        |       | SS4             | 33       |     | 54                      |
| 3.0       |               |              |                                                                                                                                    |       |                 |          |     |                         |
| 3.5       | 87.8          |              | FILL - Clayey sand, asphalt, loose to compact, grey and brown, moist                                                               |       | SS5             | 33       |     | 22                      |
| 4.0       |               |              |                                                                                                                                    |       |                 |          |     |                         |
| 4.5       |               |              |                                                                                                                                    |       | SS6             | 4        |     | 8                       |
| 5.0       | 86.3          |              | FILL - Silty sand, trace gravel, trace to some clay, dense to very dense, brown and grey, damp to moist, possible cobbles/boulders |       | SS7             | 50       |     | 54                      |
| 5.5       |               |              |                                                                                                                                    |       |                 |          |     |                         |
| 6.0       |               |              |                                                                                                                                    |       | SS8             | 33       |     | 44                      |
| 6.5       | 84.8          |              | SANDY SILT- some gravel, compact to very dense, grey, damp                                                                         |       | SS9             | 83       |     | 31                      |

## NOTES:

mbgs: meters below ground surface

RQD: Rock Quality Designation



BOREHOLE No.: BH3  
ELEVATION: 90.88 m

## BOREHOLE LOG

Page: 2 of 3

CLIENT: Consolidated Fastrate (Ottawa) Holdings Ltd.

PROJECT: New Warehouse

LOCATION: Somme Street, Ottawa, ON

DESCRIBED BY: RVT

CHECKED BY: BV

DATE (START): 7 August 2020

DATE (FINISH): 7 August 2020

## LEGEND

- ☒ SS Split Spoon
- ☒ GS Auger Sample
- ☒ ST Shelby Tube
- Water Level
- Water content (%)
- Atterberg limits (%)
- Penetration Index based on Split Spoon sample
- Penetration Index based on Dynamic Cone sample
- Shear Strength based on Field Vane
- Shear Strength based on Lab Vane
- Sensitivity Value of Soil
- Shear Strength based on Pocket Penetrometer

| SCALE     |               | STRATIGRAPHY |                                                                           |       | SAMPLE DATA     |          |     |                         |
|-----------|---------------|--------------|---------------------------------------------------------------------------|-------|-----------------|----------|-----|-------------------------|
| Depth BGS | Elevation (m) | Stratigraphy | DESCRIPTION OF SOIL AND BEDROCK                                           | State | Type and Number | Recovery | OVC | Penetration Index / RQD |
| meters    | 90.88         |              | GROUND SURFACE                                                            |       |                 | %        | ppm | N                       |
| 7.5       |               |              | Possible cobbles/boulders encountered from 7.6 to 9.1 mbgs                |       | SS10            | 83       |     | 28                      |
| 8.0       |               |              |                                                                           |       | SS11            | 83       |     | 24                      |
| 8.5       |               |              |                                                                           |       | SS12            | 25       |     | 80                      |
| 9.0       |               |              |                                                                           |       | SS13            | 100      |     | 42                      |
| 9.5       |               |              | Refusal encountered at 10 mbgs                                            |       |                 |          |     |                         |
| 10.0      |               |              | Cobbles and boulders encountered from 10.0 to 11.9 mbgs                   |       |                 |          |     |                         |
| 10.5      |               |              |                                                                           |       |                 |          |     |                         |
| 11.0      |               |              |                                                                           |       | RC1             | 32       |     |                         |
| 11.5      |               |              |                                                                           |       |                 |          |     |                         |
| 12.0      | 79.0          |              | LIMESTONE- interbedded sandstone, grey, poor to fair quality based on RQD |       |                 |          |     |                         |
| 12.5      |               |              |                                                                           |       | RC2             | 100      |     | 57                      |
| 13.0      |               |              |                                                                           |       |                 |          |     |                         |
| 13.5      |               |              | Rock core mechanical breaks during coring from 13.4 to 14.9 mbgs          |       |                 |          |     |                         |

## NOTES:

mbgs: meters below ground surface  
RQD: Rock Quality Designation





BOREHOLE No.: BH3

ELEVATION: 90.88 m

## BOREHOLE LOG

Page: 3 of 3

## LEGEND

- ☒ SS Split Spoon  
☒ GS Auger Sample  
☒ ST Shelby Tube  
 Water Level  
 Water content (%)  
 Atterberg limits (%)  
 • N Penetration Index based on Split Spoon sample  
 • N Penetration Index based on Dynamic Cone sample  
 Δ Cu Shear Strength based on Field Vane  
 □ Cu Shear Strength based on Lab Vane  
 S Sensitivity Value of Soil  
 ▲ Shear Strength based on Pocket Penetrometer

CLIENT: Consolidated Fastrate (Ottawa) Holdings Ltd.  
 PROJECT: New Warehouse  
 LOCATION: Somme Street, Ottawa, ON  
 DESCRIBED BY: RVT CHECKED BY: BV  
 DATE (START): 7 August 2020 DATE (FINISH): 7 August 2020

| SCALE     |               | STRATIGRAPHY |                                  |  | SAMPLE DATA |                 |          |     |                         |
|-----------|---------------|--------------|----------------------------------|--|-------------|-----------------|----------|-----|-------------------------|
| Depth BGS | Elevation (m) | Stratigraphy | DESCRIPTION OF SOIL AND BEDROCK  |  | State       | Type and Number | Recovery | OVC | Penetration Index / RQD |
| meters    | 90.88         |              | GROUND SURFACE                   |  |             |                 | %        | ppm | N                       |
| 14.5      | 75.9          |              | Borehole terminated at 14.9 mbgs |  |             | RC3             | 92       |     | 37                      |
| 15.0      |               |              |                                  |  |             |                 |          |     |                         |
| 15.5      |               |              |                                  |  |             |                 |          |     |                         |
| 16.0      |               |              |                                  |  |             |                 |          |     |                         |
| 16.5      |               |              |                                  |  |             |                 |          |     |                         |
| 17.0      |               |              |                                  |  |             |                 |          |     |                         |
| 17.5      |               |              |                                  |  |             |                 |          |     |                         |
| 18.0      |               |              |                                  |  |             |                 |          |     |                         |
| 18.5      |               |              |                                  |  |             |                 |          |     |                         |
| 19.0      |               |              |                                  |  |             |                 |          |     |                         |
| 19.5      |               |              |                                  |  |             |                 |          |     |                         |
| 20.0      |               |              |                                  |  |             |                 |          |     |                         |
| 20.5      |               |              |                                  |  |             |                 |          |     |                         |
|           |               |              |                                  |  |             |                 |          |     |                         |
|           |               |              |                                  |  |             |                 |          |     |                         |
|           |               |              |                                  |  |             |                 |          |     |                         |
|           |               |              |                                  |  |             |                 |          |     |                         |

NOTES:  
 mbgs: meters below ground surface  
 RQD: Rock Quality Designation



BOREHOLE No.: BH4

ELEVATION: 90.44 m

## BOREHOLE LOG

Page: 1 of 2

CLIENT: Consolidated Fastrate (Ottawa) Holdings Ltd.

PROJECT: New Warehouse

LOCATION: Somme Street, Ottawa, ON

DESCRIBED BY: RVT

CHECKED BY: BV

DATE (START): 7 August 2020

DATE (FINISH): 7 August 2020

## LEGEND

- ☒ SS Split Spoon
- ☒ GS Auger Sample
- ☒ ST Shelby Tube
- ☒ Water Level
- ☒ Water content (%)
- ☒ Atterberg limits (%)
- ☒ N Penetration Index based on Split Spoon sample
- ☒ N Penetration Index based on Dynamic Cone sample
- ☒ Δ Cu Shear Strength based on Field Vane
- ☒ □ Cu Shear Strength based on Lab Vane
- ☒ S Sensitivity Value of Soil
- ☒ ▲ Shear Strength based on Pocket Penetrometer

| SCALE     |               | STRATIGRAPHY |                                                                                                               |       | SAMPLE DATA     |          |     |                         |
|-----------|---------------|--------------|---------------------------------------------------------------------------------------------------------------|-------|-----------------|----------|-----|-------------------------|
| Depth BGS | Elevation (m) | Stratigraphy | DESCRIPTION OF SOIL AND BEDROCK                                                                               | State | Type and Number | Recovery | OVC | Penetration Index / RQD |
| meters    | 90.44         |              | GROUND SURFACE                                                                                                |       |                 | %        | ppm | N                       |
|           | 90.3          |              | TOPSOIL (125 mm thickness)                                                                                    |       |                 |          |     |                         |
| 0.5       |               |              | FILL - Gravelly sand, compact, grey, damp                                                                     |       | SS1             | 63       |     | 33                      |
| 1.0       | 89.7          |              | FILL - Sand and gravel, compact, grey, damp                                                                   |       | SS2             | 50       |     | 17                      |
| 1.5       |               |              | Asphalt encountered at 1.5 mbgs                                                                               |       | SS3             | 54       |     | 27                      |
| 2.0       |               |              |                                                                                                               |       | SS4             | 58       |     | 28                      |
| 2.5       |               |              |                                                                                                               |       |                 |          |     |                         |
| 3.0       | 87.4          |              | FILL - Silty sand, trace clay, trace to some gravel, possible cobbles/boulders, brown and grey, damp to moist |       | SS5             | 100      |     | 50+                     |
| 3.5       |               |              |                                                                                                               |       |                 |          |     |                         |
| 4.0       |               |              | Wood encountered at 3.8 mbgs                                                                                  |       | SS6             | 17       |     | 19                      |
| 4.5       |               |              |                                                                                                               |       |                 |          |     |                         |
| 5.0       |               |              |                                                                                                               |       | SS7             | 0        |     | 4                       |
| 5.5       |               |              |                                                                                                               |       |                 |          |     |                         |
| 6.0       | 84.3          |              | SILTY SAND- trace to some gravel, trace clay, compact to dense, grey and brown, moist                         |       | SS8             | 75       |     | 29                      |
| 6.5       |               |              |                                                                                                               |       | SS9             | 79       |     | 49                      |

## NOTES:

mbgs: meters below ground surface



BOREHOLE No.: BH4

ELEVATION: 90.44 m

## BOREHOLE LOG

Page: 2 of 2

CLIENT: Consolidated Fastrate (Ottawa) Holdings Ltd.

PROJECT: New Warehouse

LOCATION: Somme Street, Ottawa, ON

DESCRIBED BY: RVT

CHECKED BY: BV

DATE (START): 7 August 2020

DATE (FINISH): 7 August 2020

## LEGEND

- ☒ SS Split Spoon
- ☒ GS Auger Sample
- ☒ ST Shelby Tube
- Water Level
- Water content (%)
- Atterberg limits (%)
- Penetration Index based on Split Spoon sample
- Penetration Index based on Dynamic Cone sample
- Shear Strength based on Field Vane
- Shear Strength based on Lab Vane
- Sensitivity Value of Soil
- Shear Strength based on Pocket Penetrometer

| SCALE     |               | STRATIGRAPHY |                                             |       | SAMPLE DATA     |          |     |                         |
|-----------|---------------|--------------|---------------------------------------------|-------|-----------------|----------|-----|-------------------------|
| Depth BGS | Elevation (m) | Stratigraphy | DESCRIPTION OF SOIL AND BEDROCK             | State | Type and Number | Recovery | OVC | Penetration Index / RQD |
| meters    | 90.44         |              | GROUND SURFACE                              |       |                 | %        | ppm | N                       |
| 7.5       |               |              |                                             |       | SS10            | 4        |     | 32                      |
| 8.0       |               |              |                                             |       | SS11            | 58       |     | 18                      |
| 8.5       |               |              |                                             |       | SS12            | 58       |     | 44                      |
| 9.0       |               |              |                                             |       | SS13            | 67       |     | 50                      |
| 9.5       |               |              |                                             |       | SS14            | 88       |     | 50+                     |
| 10.0      |               |              |                                             |       |                 |          |     |                         |
| 10.5      |               |              |                                             |       |                 |          |     |                         |
| 11.0      | 79.3          |              | Borehole terminated at refusal at 11.1 mbgs |       |                 |          |     |                         |
| 11.5      |               |              |                                             |       |                 |          |     |                         |
| 12.0      |               |              |                                             |       |                 |          |     |                         |
| 12.5      |               |              |                                             |       |                 |          |     |                         |
| 13.0      |               |              |                                             |       |                 |          |     |                         |
| 13.5      |               |              |                                             |       |                 |          |     |                         |

## NOTES:

mbgs: meters below ground surface



BOREHOLE No.: DCPT5

ELEVATION: 90.76 m

## BOREHOLE LOG

Page: 1 of 1

CLIENT: Consolidated Fastrate (Ottawa) Holdings Ltd.

PROJECT: New Warehouse

LOCATION: Somme Street, Ottawa, ON

DESCRIBED BY: RVT

CHECKED BY: BV

DATE (START): 7 August 2020

DATE (FINISH): 7 August 2020

## LEGEND

- ☒ SS Split Spoon
- ☒ GS Auger Sample
- ☒ ST Shelby Tube
- ☒ Water Level
- ☒ Water content (%)
- ☒ Atterberg limits (%)
- ☒ N Penetration Index based on Split Spoon sample
- ☒ N Penetration Index based on Dynamic Cone sample
- ☒ Cu Shear Strength based on Field Vane
- ☒ Cu Shear Strength based on Lab Vane
- ☒ S Sensitivity Value of Soil
- ☒ Shear Strength based on Pocket Penetrometer

| SCALE     |               | STRATIGRAPHY |                                                                               |  | SAMPLE DATA |                 |          |     |                         |
|-----------|---------------|--------------|-------------------------------------------------------------------------------|--|-------------|-----------------|----------|-----|-------------------------|
| Depth BGS | Elevation (m) | Stratigraphy | DESCRIPTION OF SOIL AND BEDROCK                                               |  | State       | Type and Number | Recovery | OVC | Penetration Index / RQD |
| meters    | 90.76         |              | GROUND SURFACE                                                                |  |             |                 | %        | ppm | N                       |
|           |               |              | Dynamic Cone Penetration test from surface to refusal encountered at 5.9 mbgs |  |             |                 |          |     |                         |
| 0.5       |               |              |                                                                               |  |             |                 |          |     |                         |
| 1.0       |               |              |                                                                               |  |             |                 |          |     |                         |
| 1.5       |               |              |                                                                               |  |             |                 |          |     |                         |
| 2.0       |               |              |                                                                               |  |             |                 |          |     |                         |
| 2.5       |               |              |                                                                               |  |             |                 |          |     |                         |
| 3.0       |               |              |                                                                               |  |             |                 |          |     |                         |
| 3.5       |               |              |                                                                               |  |             |                 |          |     |                         |
| 4.0       |               |              |                                                                               |  |             |                 |          |     |                         |
| 4.5       |               |              |                                                                               |  |             |                 |          |     |                         |
| 5.0       |               |              |                                                                               |  |             |                 |          |     |                         |
| 5.5       |               |              |                                                                               |  |             |                 |          |     |                         |
| 6.0       | 84.8          |              |                                                                               |  |             |                 |          |     |                         |
| 6.5       |               |              |                                                                               |  |             |                 |          |     |                         |

## SCALE FOR TEST RESULTS

50kPa 100kPa 150kPa 200kPa

10 20 30 40 50 60 70 80 90

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## NOTES:

mbgs: meters below ground surface

## SOIL PROFILE AND TEST DATA

Phase II - Environmental Site Assessment  
Part of 5123 Hawthorne Road - Part 1  
Ottawa, Ontario

DATUM Ground surface elevations provided R. W. Tomlinson Limited.

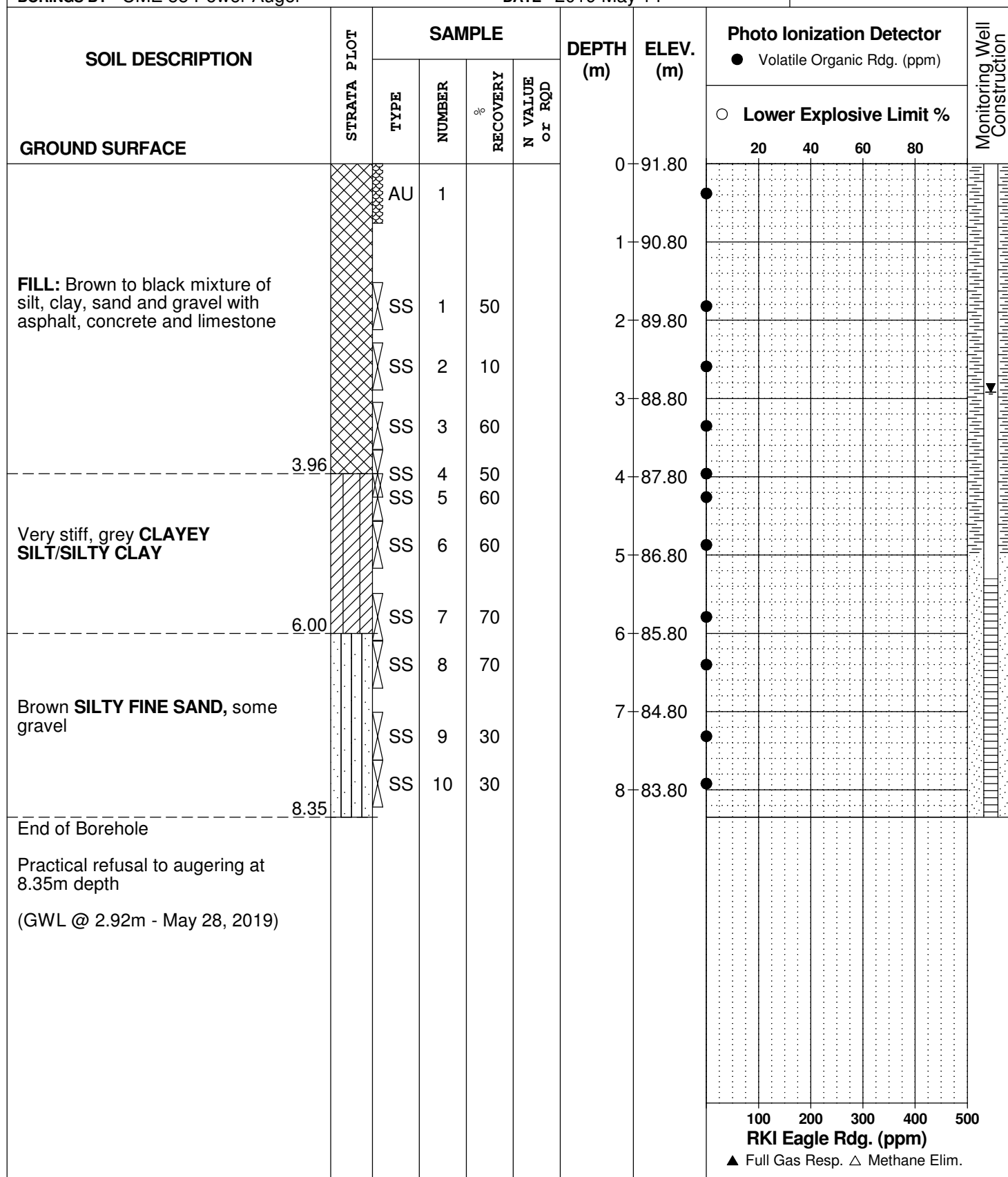
FILE NO. **PE4621**

REMARKS

HOLE NO. **BH 1**

BORINGS BY CME 55 Power Auger

DATE 2019 May 14





## SOIL PROFILE AND TEST DATA

Phase II - Environmental Site Assessment  
Part of 5123 Hawthorne Road - Part 1  
Ottawa, Ontario

**DATUM** Ground surface elevations provided R. W. Tomlinson Limited.

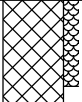
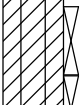
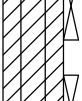
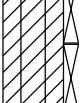
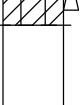
**FILE NO.**  
**PE4621**

**REMARKS**

**HOLE NO.**  
**BH 2**

**BORINGS BY** CME 55 Power Auger

**DATE** 2019 May 15

| SOIL DESCRIPTION                                                 | STRATA PLOT                                                                         | SAMPLE |        |            |                | DEPTH (m) | ELEV. (m) | Photo Ionization Detector     |                           |    |    | Monitoring Well Construction |
|------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------|--------|------------|----------------|-----------|-----------|-------------------------------|---------------------------|----|----|------------------------------|
|                                                                  |                                                                                     | TYPE   | NUMBER | RECOVERY % | N VALUE or RQD |           |           | ● Volatile Organic Rdg. (ppm) | ○ Lower Explosive Limit % |    |    |                              |
| GROUND SURFACE                                                   |                                                                                     |        |        |            |                |           |           | 20                            | 40                        | 60 | 80 |                              |
| FILL: Dark brown clayey sand                                     |    | AU     | 1      |            |                | 0         | 92.38     | ●                             |                           |    |    |                              |
| 0.91                                                             |                                                                                     |        |        |            |                |           |           |                               |                           |    |    |                              |
| FILL: Dark grey gravelly clay, some shale                        |                                                                                     | SS     | 1      | 70         |                | 1         | 91.38     | ●                             |                           |    |    |                              |
| 1.52                                                             |                                                                                     |        |        |            |                |           |           |                               |                           |    |    |                              |
| FILL: Dark grey gravelly silty sandy clay with shale and cobbles |    | SS     | 2      | 70         |                | 2         | 90.38     | ●                             |                           |    |    |                              |
| 2.30                                                             |                                                                                     |        |        |            |                |           |           |                               |                           |    |    |                              |
| Stiff to firm, grey SILTY CLAY                                   |    | SS     | 3      | 90         |                | 3         | 89.38     | ●                             |                           |    |    |                              |
|                                                                  |   | SS     | 4      | 90         |                | 4         | 88.38     | ●                             |                           |    |    |                              |
|                                                                  |  | SS     | 5      |            |                | 5         | 87.38     | ●                             |                           |    |    |                              |
|                                                                  |  | SS     | 6      |            |                | 6         |           |                               |                           |    |    |                              |
| 5.30                                                             |                                                                                     |        |        |            |                |           |           |                               |                           |    |    |                              |
| End of Borehole                                                  |                                                                                     |        |        |            |                |           |           |                               |                           |    |    |                              |
| Practical refusal to augering at 5.30m depth                     |                                                                                     |        |        |            |                |           |           |                               |                           |    |    |                              |
| (GWL @ 3.82m - May 28, 2019)                                     |                                                                                     |        |        |            |                |           |           |                               |                           |    |    |                              |
|                                                                  |                                                                                     |        |        |            |                |           |           |                               |                           |    |    |                              |
|                                                                  |                                                                                     |        |        |            |                |           |           |                               |                           |    |    |                              |
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|                                                                  |                                                                                     |        |        |            |                |           |           |                               |                           |    |    |                              |
|                                                                  |                                                                                     |        |        |            |                |           |           |                               |                           |    |    |                              |

## SOIL PROFILE AND TEST DATA

Phase II - Environmental Site Assessment  
Part of 5123 Hawthorne Road - Part 1  
Ottawa, Ontario

**DATUM** Ground surface elevations provided R. W. Tomlinson Limited.

**REMARKS**

**BORINGS BY** CME 55 Power Auger

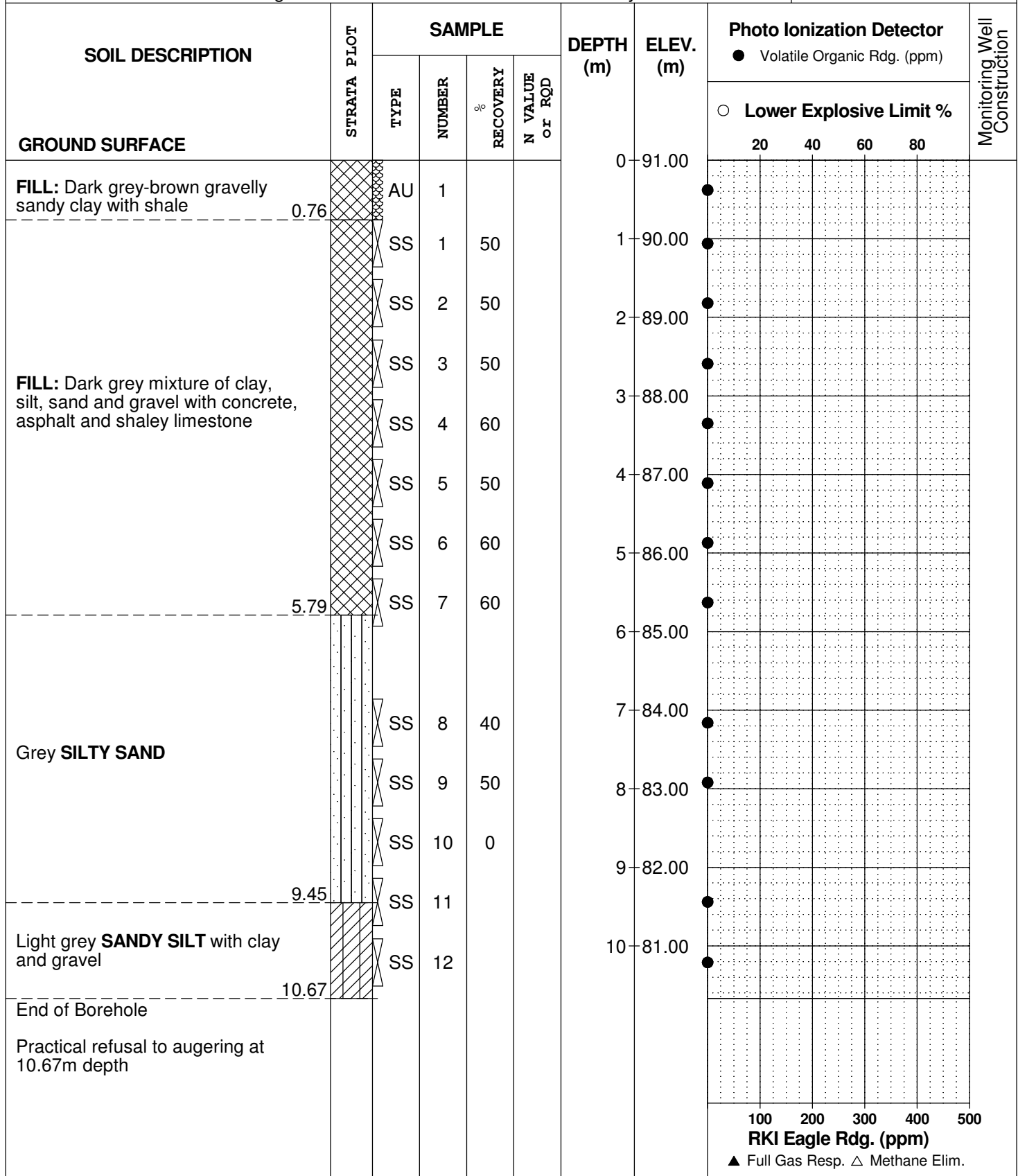
**DATE** 2019 May 14

**FILE NO.**

**PE4621**

**HOLE NO.**

**BH 3**





BOREHOLE No.: B5-1

ELEVATION: 90.48 m

## BOREHOLE LOG

Page: 1 of 1

CLIENT: R.W.Tomlinson Ltd.

PROJECT: Geotechnical Investigation

LOCATION: Lot 26 and 27, concession 6, Ottawa, Ontario

DESCRIBED BY: B.Beveridge

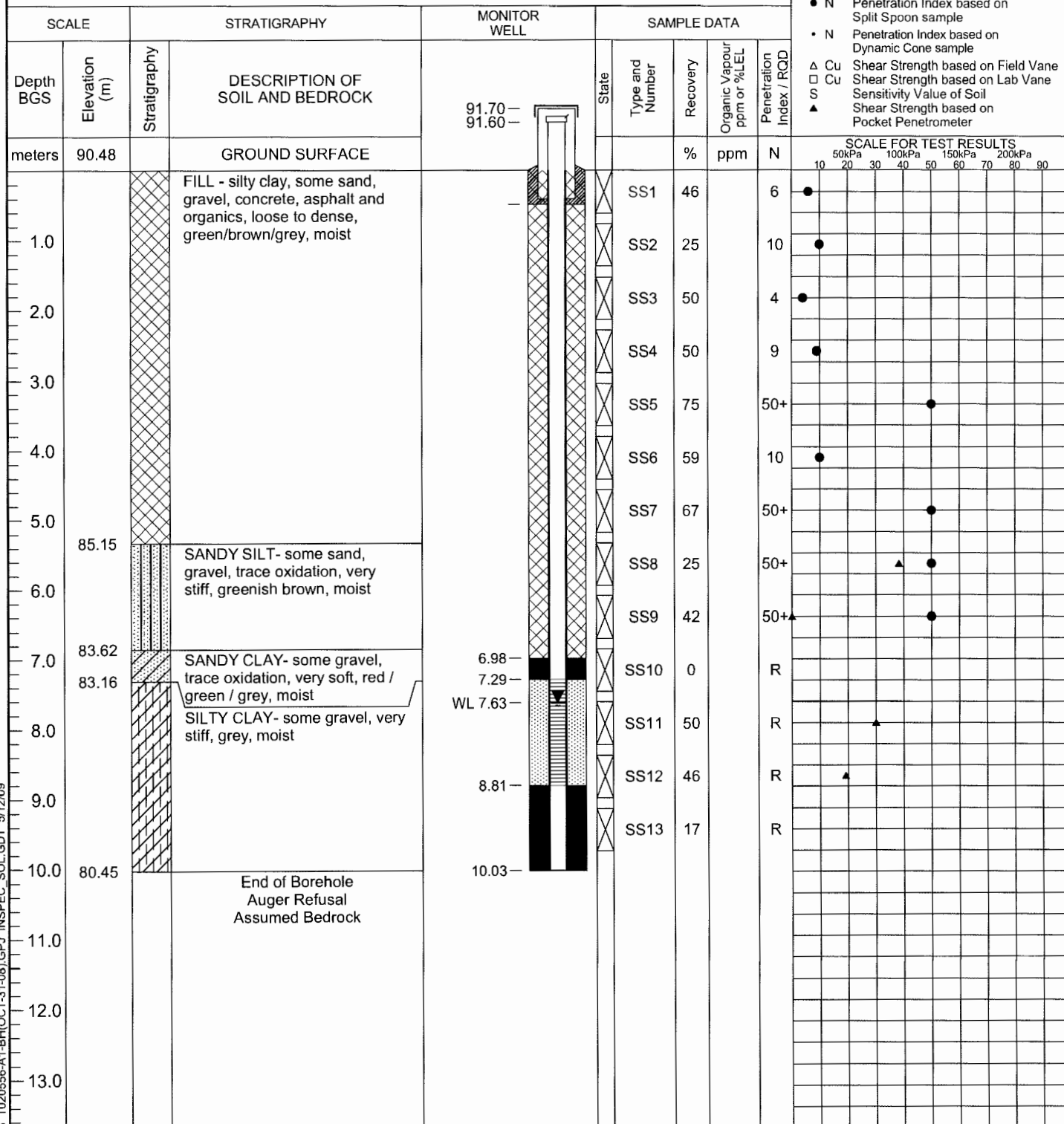
CHECKED BY: J.Bennett

DATE (START): October 30, 2008

DATE (FINISH): October 30, 2008

## LEGEND

- ☒ SS Split Spoon  
☒ ST Shelby Tube  
☒ RC Rock Core  
 Water Level  
 Water content (%)  
 Atterberg limits (%)  
 Penetration Index based on Split Spoon sample  
 Penetration Index based on Dynamic Cone sample  
 Shear Strength based on Field Vane  
 Shear Strength based on Lab Vane  
 Sensitivity Value of Soil  
 Shear Strength based on Pocket Penetrometer



NOTES:

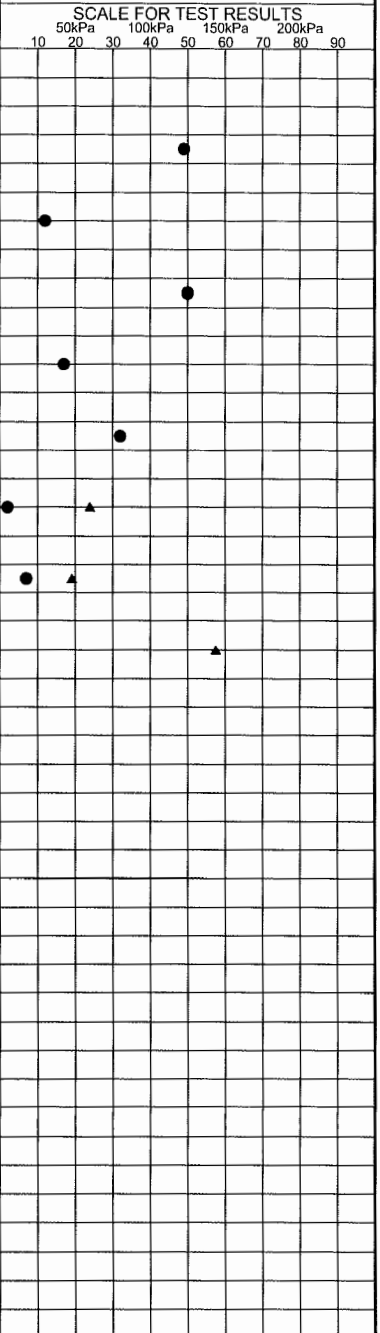


BOREHOLE No.: B5-2  
ELEVATION: 90.78 m

**BOREHOLE LOG**Page: 1 of 1CLIENT: R.W.Tomlinson Ltd.PROJECT: Geotechnical InvestigationLOCATION: Lot 26 and 27, concession 6, Ottawa, OntarioDESCRIBED BY: B.BeveridgeCHECKED BY: J.BennettDATE (START): October 23, 2008DATE (FINISH): October 23, 2008**LEGEND**

- ☒ SS Split Spoon  
☒ ST Shelby Tube  
☒ RC Rock Core  
 Water Level  
 Water content (%)  
 Atterberg limits (%)  
 Penetration Index based on Split Spoon sample  
 Penetration Index based on Dynamic Cone sample  
 Shear Strength based on Field Vane  
 Shear Strength based on Lab Vane  
 Sensitivity Value of Soil  
 Shear Strength based on Pocket Penetrometer

| SCALE     |               | STRATIGRAPHY |                                                                                                        |       | SAMPLE DATA     |          |                            |                         |
|-----------|---------------|--------------|--------------------------------------------------------------------------------------------------------|-------|-----------------|----------|----------------------------|-------------------------|
| Depth BGS | Elevation (m) | Stratigraphy | DESCRIPTION OF SOIL AND BEDROCK                                                                        | State | Type and Number | Recovery | Organic Vapour ppm or %LEL | Penetration Index / RQD |
| meters    | 90.78         |              | GROUND SURFACE                                                                                         |       |                 | %        | ppm                        | N                       |
| 1.0       |               |              | FILL - silty clay, some asphalt, sand and gravel, trace organics, compact to dense, brown/black, moist |       | SS1             | 92       |                            | 49                      |
| 2.0       |               |              |                                                                                                        |       | SS2             | 55       |                            | 12                      |
| 3.0       |               |              |                                                                                                        |       | SS3             | 75       |                            | 50+                     |
| 4.0       |               |              |                                                                                                        |       | SS4             | 63       |                            | 17                      |
| 5.0       | 86.21         |              | SILTY CLAY - some gravel, trace oxidation, firm to stiff, brown/grey, moist to wet                     |       | SS5             | 71       |                            | 32                      |
| 6.0       |               |              |                                                                                                        |       | SS6             | 38       |                            | 2                       |
| 7.0       | 84.07         |              |                                                                                                        |       | SS7             | 100      |                            | 7                       |
| 8.0       |               |              | End of Borehole                                                                                        |       | SS8             | 84       |                            | R                       |
| 9.0       |               |              |                                                                                                        |       |                 |          |                            |                         |
| 10.0      |               |              |                                                                                                        |       |                 |          |                            |                         |
| 11.0      |               |              |                                                                                                        |       |                 |          |                            |                         |
| 12.0      |               |              |                                                                                                        |       |                 |          |                            |                         |
| 13.0      |               |              |                                                                                                        |       |                 |          |                            |                         |



NOTES:

**INSPEC SOL**

BOREHOLE No.: B5-3

ELEVATION: 90.51 m

**BOREHOLE LOG**

Page: 1 of 1

CLIENT: R.W.Tomlinson Ltd.

PROJECT: Geotechnical Investigation

LOCATION: Lot 26 and 27, concession 6, Ottawa, Ontario

DESCRIBED BY: B.Beveridge

CHECKED BY: J.Bennett

DATE (START): October 23, 2008

DATE (FINISH): October 23, 2008

**LEGEND**

- ☒ SS Split Spoon  
☒ ST Shelby Tube  
☒ RC Rock Core  
 Water Level  
 Water content (%)  
 Atterberg limits (%)  
 • N Penetration Index based on Split Spoon sample  
 • N Penetration Index based on Dynamic Cone sample  
 Δ Cu Shear Strength based on Field Vane  
 □ Cu Shear Strength based on Lab Vane  
 S Sensitivity Value of Soil  
 ▲ Shear Strength based on Pocket Penetrometer

| SCALE     |               | STRATIGRAPHY |                                                                                        |       | SAMPLE DATA     |          |                            |                         |                            |
|-----------|---------------|--------------|----------------------------------------------------------------------------------------|-------|-----------------|----------|----------------------------|-------------------------|----------------------------|
| Depth BGS | Elevation (m) | Stratigraphy | DESCRIPTION OF SOIL AND BEDROCK                                                        | State | Type and Number | Recovery | Organic Vapour ppm or %LEL | Penetration Index / RQD |                            |
| meters    | 90.51         |              | GROUND SURFACE                                                                         |       |                 | %        | ppm                        | N                       |                            |
|           |               |              |                                                                                        |       |                 |          |                            |                         | SCALE FOR TEST RESULTS     |
|           |               |              |                                                                                        |       |                 |          |                            |                         | 50kPa 100kPa 150kPa 200kPa |
|           |               |              |                                                                                        |       |                 |          |                            |                         | 10 20 30 40 50 60 70 80 90 |
| 1.0       | 89.75         |              | FILL- concrete and asphalt fragments, some sand, trace organics                        |       |                 |          |                            |                         |                            |
|           |               |              | FILL- silty clay, some gravel, trace oxidation, stiff, brown, moist                    |       | SS1             | 42       |                            | 50+                     |                            |
| 2.0       | 88.99         |              | FILL- sandy silt, some gravel, trace clay, organics, very stiff, brownish green, moist |       | SS2             | 58       |                            | 15                      |                            |
|           | 88.22         |              | FILL- silty clay, some asphalt, gravel and sand, trace organics, hard, brown, moist    |       | SS3             | 50       |                            | 38                      |                            |
| 3.0       |               |              |                                                                                        |       | SS4             | 59       |                            | 13                      |                            |
| 4.0       | 86.70         |              | FILL- silty clay, trace organics, oxidation, gravel, sand, hard, moist                 |       | SS5             | 21       |                            | 17                      |                            |
| 5.0       |               |              | -becoming trace to some gravel                                                         |       | SS6             | 84       |                            | 32                      |                            |
|           |               |              | -becoming more asphalt fragments, hard to very stiff                                   |       | SS7             | 71       |                            | 22                      |                            |
| 6.0       | 84.41         |              | SILTY CLAY- some sand, trace organics, firm, grey, moist                               |       | SS8             | 25       |                            | 7                       |                            |
| 7.0       |               |              | -becoming very stiff                                                                   |       | SS9             | 59       |                            | 39                      |                            |
|           | 82.89         |              | End of Borehole                                                                        |       |                 |          |                            |                         |                            |
| 8.0       |               |              |                                                                                        |       |                 |          |                            |                         |                            |
| 9.0       |               |              |                                                                                        |       |                 |          |                            |                         |                            |
| 10.0      |               |              |                                                                                        |       |                 |          |                            |                         |                            |
| 11.0      |               |              |                                                                                        |       |                 |          |                            |                         |                            |
| 12.0      |               |              |                                                                                        |       |                 |          |                            |                         |                            |
| 13.0      |               |              |                                                                                        |       |                 |          |                            |                         |                            |

NOTES:



| PREDICTIVE NITRATE IMPACT ASSESSEMENT                                                                                                                                                       |             |                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|---------------------|
| <b>Infiltration Factors</b>                                                                                                                                                                 |             |                     |
| Topography                                                                                                                                                                                  | 0.20        |                     |
| Soil                                                                                                                                                                                        | 0.20        |                     |
| Cover                                                                                                                                                                                       | 0.10        |                     |
| <b>Total</b>                                                                                                                                                                                | <b>0.50</b> |                     |
| <b>Site Characteristics</b>                                                                                                                                                                 |             |                     |
| Area of Site :                                                                                                                                                                              | 60893       | m <sup>2</sup>      |
| Total of roof areas:                                                                                                                                                                        | 5312        | m <sup>2</sup>      |
| Total area of paved driveway areas:                                                                                                                                                         | 43365       | m <sup>2</sup>      |
| Roof + paved driveway areas                                                                                                                                                                 | 48677       | m <sup>2</sup>      |
| Impervious Area                                                                                                                                                                             | 48677       | m <sup>2</sup>      |
| Percent Impervious Area =                                                                                                                                                                   | 80          | %                   |
| Infiltration Area =                                                                                                                                                                         | 12216       | m <sup>2</sup>      |
| <b>Septic Effluent</b>                                                                                                                                                                      |             |                     |
| Concentration of Effluent (Cs) =                                                                                                                                                            | 20          | mg/L                |
| Daily Sewage Flow (Qs)=                                                                                                                                                                     | 4.1         | m <sup>3</sup>      |
| See Notes below.                                                                                                                                                                            |             |                     |
| <b>Infiltration Calculation</b>                                                                                                                                                             |             |                     |
| Nitrate concentration in precipitation (C <sub>i</sub> ) =                                                                                                                                  | 0           | mg/L                |
| Surplus Water (Environment Canada)                                                                                                                                                          | 361         | mm/yr               |
| Factored Water Surplus =                                                                                                                                                                    | 181         | mm/yr               |
| Infiltration % due to stormwater management measures                                                                                                                                        | -           | %                   |
| Infiltration rate from stormwater management measures =                                                                                                                                     | 0           | mm/yr               |
| Infiltration Flow Entering the System (Q <sub>i</sub> ) =                                                                                                                                   | 6           | m <sup>3</sup> /day |
| <b>Mass Balance Model (MOEE, 1995)</b>                                                                                                                                                      |             |                     |
| $C_T = (Q_b C_b + Q_e C_e + Q_i C_i) / (Q_b + Q_e + Q_i) = \text{Cumulative Nitrate Concentration}$                                                                                         |             |                     |
| Q <sub>b</sub> = flow entering the system across the upgradient area                                                                                                                        | 0           | m <sup>3</sup> /day |
| C <sub>b</sub> = background nitrate concentration                                                                                                                                           | 0           | mg/L                |
| Q <sub>e</sub> = flow entering the system from the septic drainfield                                                                                                                        | 4.1         | m <sup>3</sup> /day |
| C <sub>e</sub> = concentration of nitrates in the septic effluent                                                                                                                           | 20          | mg/L                |
| Q <sub>i</sub> = flow entering the system from infiltration                                                                                                                                 | 6           | m <sup>3</sup> /day |
| C <sub>i</sub> = Concentration of nitrates in the infiltrate                                                                                                                                | 0           | mg/L                |
| <b>C<sub>T</sub> =</b>                                                                                                                                                                      | <b>8.09</b> | <b>mg/L</b>         |
| Estimate Number of Lots                                                                                                                                                                     | <b>1</b>    | <b>lots</b>         |
| Notes: Site characteristic values were measured as approximate values from the available site plan. Daily Sewage Flow volume was calculated by Paterson Group as a preliminary design flow. |             |                     |



The Public Health and Safety Organization

## NSF Product and Service Listings

These NSF Official Listings are current as of **Monday, December 8, 2025** at 12:15 a.m. Eastern Time. Please [contact NSF](#) to confirm the status of any Listing, report errors, or make suggestions.

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<http://info.nsf.org/Certified/Wastewater/Listings.asp?Standard=245&Company=oB98o&>

---

### NSF/ANSI 245 Wastewater Treatment Systems - Nitrogen Reduction

---

#### Orenco Systems Inc.

814 Airway Avenue

Sutherlin, OR 97479

United States

800-348-9843

541-459-4449

Visit this company's website (<http://www.orenco.com>).

**Facility :** Sutherlin, OR

| Model Number           | Rated Capacity |
|------------------------|----------------|
|                        | Gallons/Day    |
| AdvanTex AX20          | 500            |
| AdvanTex AX20-RT       | 500            |
| AdvanTex AX20-RTUV     | 500            |
| AdvanTex AX20          | 600            |
| AdvanTex AX20-RT       | 600            |
| AdvanTex AX20-RTUV     | 600            |
| AdvanTex AX25-RT       | 625            |
| AdvanTex AX25-RTUV     | 625            |
| AdvanTex AX25-RT       | 750            |
| AdvanTex AX25-RTUV     | 750            |
| AdvanTex AX20-RT 2 pod | 1000           |

|                        |      |
|------------------------|------|
| AdvanTex AX20 2 pod    | 1000 |
| AdvanTex AX20-RT 2 pod | 1200 |
| AdvanTex AX20 2 pod    | 1200 |
| AdvanTex AX25-RT 2 pod | 1250 |
| AdvanTex AX20 3 pod    | 1500 |
| AdvanTex AX20-RT 3 pod | 1500 |
| AdvanTex AX25-RT 2 pod | 1500 |

NOTE: This company may sell products complying with all applicable requirements for Certification nationally and internationally, but has advised NSF of authorized representatives physically located in the following:

|            |              |       |            |      |
|------------|--------------|-------|------------|------|
| California | Georgia      | Idaho | New Jersey | Ohio |
| Oregon     | Pennsylvania | Texas |            |      |

Contact the Listed company directly for further product information and availability in your area.

---

Number of matching Manufacturers is 1  
Number of matching Products is 18  
Processing time was 0 seconds

| MW1 inputs |      |       |             |
|------------|------|-------|-------------|
| pH         | 8.2  | A     | 0.19        |
| TDS        | 787  | B     | 2.35        |
| Calcium    | 128  | C     | 1.71        |
| Alkalinity | 306  | D     | 2.49        |
| Temp.      | 11.4 |       |             |
|            |      | pHs = | 7.651109829 |

| Langelier Saturation Index (LSI) Calculation                     |                                                                                                                                       | (Langelier, 1936)                                                                                                                                                                   |
|------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $LSI = pH - pH_s$ $pH_s = (9.3 + A + B) - (C + D)$ <p>Where:</p> |                                                                                                                                       | $A = (\log_{10} [TDS] - 1) / 10$ $B = -13.12 \times \log_{10} (oC + 273) + 34.55$ $C = \log_{10} [Ca^{2+} \text{ as } CaCO_3] - 0.4$ $D = \log_{10} [\text{alkalinity as } CaCO_3]$ |
|                                                                  |                                                                                                                                       | LSI = 0.5                                                                                                                                                                           |
| LSI                                                              | Effect                                                                                                                                |                                                                                                                                                                                     |
| 0.5 to 2                                                         | Water is super saturated and tends to precipitate a scale layer of calcium carbonate (scale forming but non-corrosive)                |                                                                                                                                                                                     |
| 0 to 0.5                                                         | Water is super saturated and tends to precipitate a scale layer of calcium carbonate (slightly scale forming and corrosive).          |                                                                                                                                                                                     |
| 0                                                                | Water is saturated (in equilibrium) with calcium carbonate. A scale layer of calcium carbonate is neither precipitated nor dissolved. |                                                                                                                                                                                     |
| 0 to -0.5                                                        | Water is under saturated and tends to dissolve solid calcium carbonate (slightly corrosive but non-scale forming).                    |                                                                                                                                                                                     |
| -0.5 to -2                                                       | Water is under saturated and tends to dissolve solid calcium carbonate (seriously corrosive).                                         |                                                                                                                                                                                     |



# Manganese in Drinking Water Fact Sheet

---

## WHAT IS MANGANESE?

Manganese is a naturally occurring element that is an essential nutrient for humans and animals. It is found in many foods, as well as in air, water, soil, and rocks.<sup>1</sup> Manganese makes up 0.1% of the Earth's crust, and can be found as a component of other minerals like sulfides, oxides, carbonates, and silicates.<sup>2</sup> Manganese is used in the manufacture of various products including iron and steel alloys, batteries, glass, fireworks, fertilizers, cosmetics, paints, and cleaning and disinfection products.<sup>1,2</sup> Manganese can also be purchased as a nutritional supplement.<sup>2</sup>

## HOW DOES MANGANESE GET INTO DRINKING WATER?

Manganese is naturally occurring in many surface and ground waters. Manganese can also be dissolved from soils, sand and rocks to enter surface and ground waters.<sup>1</sup> Human activities like mining, industrial discharges, or landfills may also contribute to manganese in surface and ground waters.<sup>1,2</sup> In general, manganese can be found at higher concentrations in groundwater compared to surface water.<sup>2</sup> Some lakes and reservoirs can also have higher levels of manganese due to natural water chemistry.<sup>2</sup>

Permanganate, a compound that contains manganese, may also be added to water during the treatment of drinking water to remove other chemicals (e.g., for the removal of iron).<sup>2,3</sup>

## HOW DOES MANGANESE INTAKE AFFECT MY HEALTH?

Too much or too little manganese in your body can lead to health problems.

**Manganese deficiency:** Manganese deficiency is rare and symptoms are not well defined. Health effects observed in individuals with diets very low in manganese include skin rashes, slow nail growth, reduced bone density, loss of pigmentation in hair, and low cholesterol levels.<sup>2</sup>

**Manganese excess:** There are few reports of adverse health effects from people who ingest too much manganese from food and water.<sup>1</sup> Recent evidence reviewed by Health Canada indicates that high levels of manganese in drinking water may impact memory and learning, behaviour, and fine motor control in infants and young children.<sup>2,4</sup> Formula-fed infants may be more susceptible to health risks if water with high concentrations of manganese is used to prepare formula. This is because infant brains are rapidly developing, they drink more water in proportion to their body weight, and they absorb more manganese and are less able to remove



it from their bodies compared to other age groups.<sup>3</sup> For adults and older children, short term exposure to manganese in drinking water at levels slightly above the guideline is unlikely to cause negative health effects.<sup>3</sup>

Health Canada notes that exposure to manganese while showering (either through breathing in water vapour or absorption through skin) is likely to be negligible.<sup>2</sup>

## **WHAT ARE THE LEVELS OF MANGANESE FOUND IN CANADIANS?**

For most Canadians, diet is the main source of manganese. The Canadian Health Measures Survey (CHMS) is a national survey that collects information about the general health of Canadians and includes measurements of chemicals in blood and urine samples.<sup>5</sup> The objective of the chemical measurements in the CHMS survey is to establish baseline levels in the Canadian population. Given that manganese is an essential trace element, its presence in the blood and urine of Canadians is expected. Manganese in blood and urine can be interpreted as an indicator of exposure, but does not necessarily mean that health effects will occur.<sup>5</sup> Data collected from 2007 to 2011 for the CHMS found that the average levels of manganese measured in the blood of people in the Canadian population (aged 3 to 79) ranged from 8.8 – 11 µg/L.<sup>6</sup> More information on the CHMS and the levels of manganese in Canadians can be obtained by visiting the Canadian Biomonitoring Dashboard.<sup>6</sup>

## **ARE THERE STANDARDS FOR MANGANESE IN DRINKING WATER?**

The Ontario Drinking Water Standard (ODWS) published in 2006 sets an aesthetic objective for manganese in drinking water at 0.05 mg/L.<sup>7</sup> The aesthetic objective is not intended to prevent health effects (e.g., not a health-based standard), but instead is intended to prevent the discolouration and staining of fixtures, and the undesirable taste caused by higher levels of manganese in water.

The Canadian Drinking Water Guideline for manganese developed by Health Canada stipulates a maximum acceptable concentration (MAC) in drinking water of 0.12 mg/L and an aesthetic objective of 0.02 mg/L.<sup>2</sup> The MAC is a health-based value intended to be protective of neurological effects in infants, the most sensitive population, and therefore it is also protective for chronic exposure in children and adults.<sup>2</sup>

## **ARE THERE OTHER STANDARDS OR GUIDELINE VALUES FOR MANGANESE?**

The main source of exposure to manganese is via food, with grains, nuts and vegetables contributing the most to a person's daily intake of manganese. The average dietary intakes of manganese across all age groups according to the Canadian Total Diet Study (TDS) were estimated to range between 44.0 to 61.3 µg/kg of bodyweight per day (based on data gathered from different Canadian cities for the TDS).<sup>2</sup> Health Canada has also established Adequate Intake Levels for manganese ranging with age or lifestage from 0.003 to 2.6 mg/day and Tolerable Upper Intake Levels ranging from 2 to 11 mg/day.<sup>8</sup>

Infant formula sold in Canada is regulated to contain a minimum of 5 µg of manganese per 100 available kilocalories (equivalent to 3.33 µg per 100 mL of ready-to-feed formula); a maximum amount of manganese has not been set for infant formula.<sup>9</sup>

## HOW CAN I TELL IF MY DRINKING WATER HAS HIGH MANGANESE LEVELS?

Water testing is the only way to know if manganese is present. Although water with elevated levels of manganese may impart a bitter metallic taste, tint water purplish brown or black (water discolouration may occur at concentrations as low as 0.005 to 0.02 mg/L), and stain laundry and plumbing fixtures;<sup>2,10,11</sup> but these issues can also be caused by other chemicals.

## WHAT SHOULD I DO IF A HIGH LEVEL OF MANGANESE IS FOUND IN MY WELL WATER?

For households who do not obtain their drinking water from a municipal source, a residential drinking water treatment device may be an option to reduce manganese concentrations in drinking water. Options can be explored with professionals specialized in water treatment, but examples of treatment processes effective at removing manganese include reverse osmosis, ion exchange (including water softeners and other cation exchange systems) and oxidizing filters.<sup>2</sup> As with any water treatment system, it is important to follow the manufacturer's recommendations for operation and maintenance (e.g., replacement of filter media).

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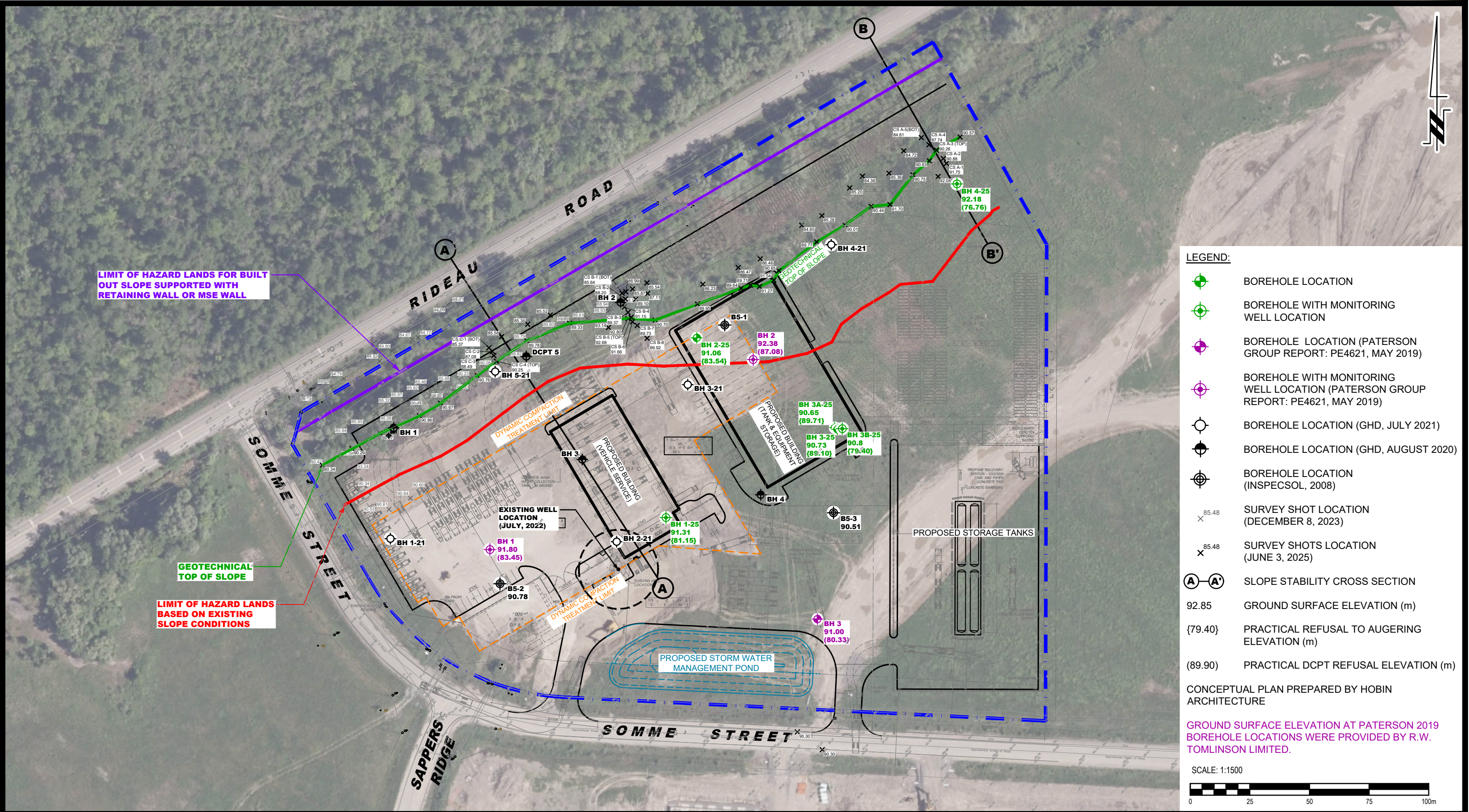
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Please note: This fact sheet was created by Ottawa Public Health in consultation with Public Health Ontario.

Manganese in Drinking Water Fact Sheet [Last updated: September 12, 2024]

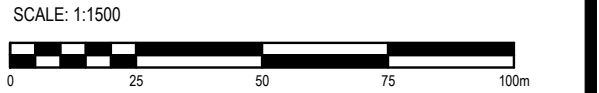




- LEGEND:**
- BOREHOLE LOCATION
  - BOREHOLE WITH MONITORING WELL LOCATION
  - BOREHOLE LOCATION (PATERSON GROUP REPORT: PE4621, MAY 2019)
  - BOREHOLE WITH MONITORING WELL LOCATION (PATERSON GROUP REPORT: PE4621, MAY 2019)
  - BOREHOLE LOCATION (GHD, JULY 2021)
  - BOREHOLE LOCATION (GHD, AUGUST 2020)
  - BOREHOLE LOCATION (INSPECSOL, 2008)
  - SURVEY SHOT LOCATION (DECEMBER 8, 2023)
  - SURVEY SHOTS LOCATION (JUNE 3, 2025)
  - SLOPE STABILITY CROSS SECTION
  - 92.85 GROUND SURFACE ELEVATION (m)
  - {79.40} PRACTICAL REFUSAL TO AUGERING ELEVATION (m)
  - (89.90) PRACTICAL DCPT REFUSAL ELEVATION (m)

CONCEPTUAL PLAN PREPARED BY HOBIN ARCHITECTURE

GROUND SURFACE ELEVATION AT PATERSON 2019 BOREHOLE LOCATIONS WERE PROVIDED BY R.W. TOMLINSON LIMITED.





**PATERSON GROUP**  
9 AURIGA DRIVE  
OTTAWA, ON  
K2E 7T9  
TEL: (613) 226-7381

|     |                                |            |         |
|-----|--------------------------------|------------|---------|
|     |                                |            |         |
|     |                                |            |         |
|     |                                |            |         |
|     |                                |            |         |
| 1   | UPDATED TO NEW CONCEPTUAL PLAN | 14/08/2025 | SD      |
| NO. | REVISIONS                      | DD/MM/YYYY | INITIAL |

W.O. STINSON & SON LTD.  
GEOTECHNICAL INVESTIGATION  
PROPOSED COMMERCIAL DEVELOPMENT  
301 SOMME STREET

OTTAWA,  
Title:

ONTARIO

**TEST HOLE LOCATION PLAN**

|              |        |               |                 |
|--------------|--------|---------------|-----------------|
| Scale:       | 1:1500 | Date:         | 07/2025         |
| Drawn by:    | ZS     | Report No.:   | PG7567-1        |
| Checked by:  | PB     | Dwg. No.:     | <b>PG7567-1</b> |
| Approved by: | SD     | Revision No.: | 1               |





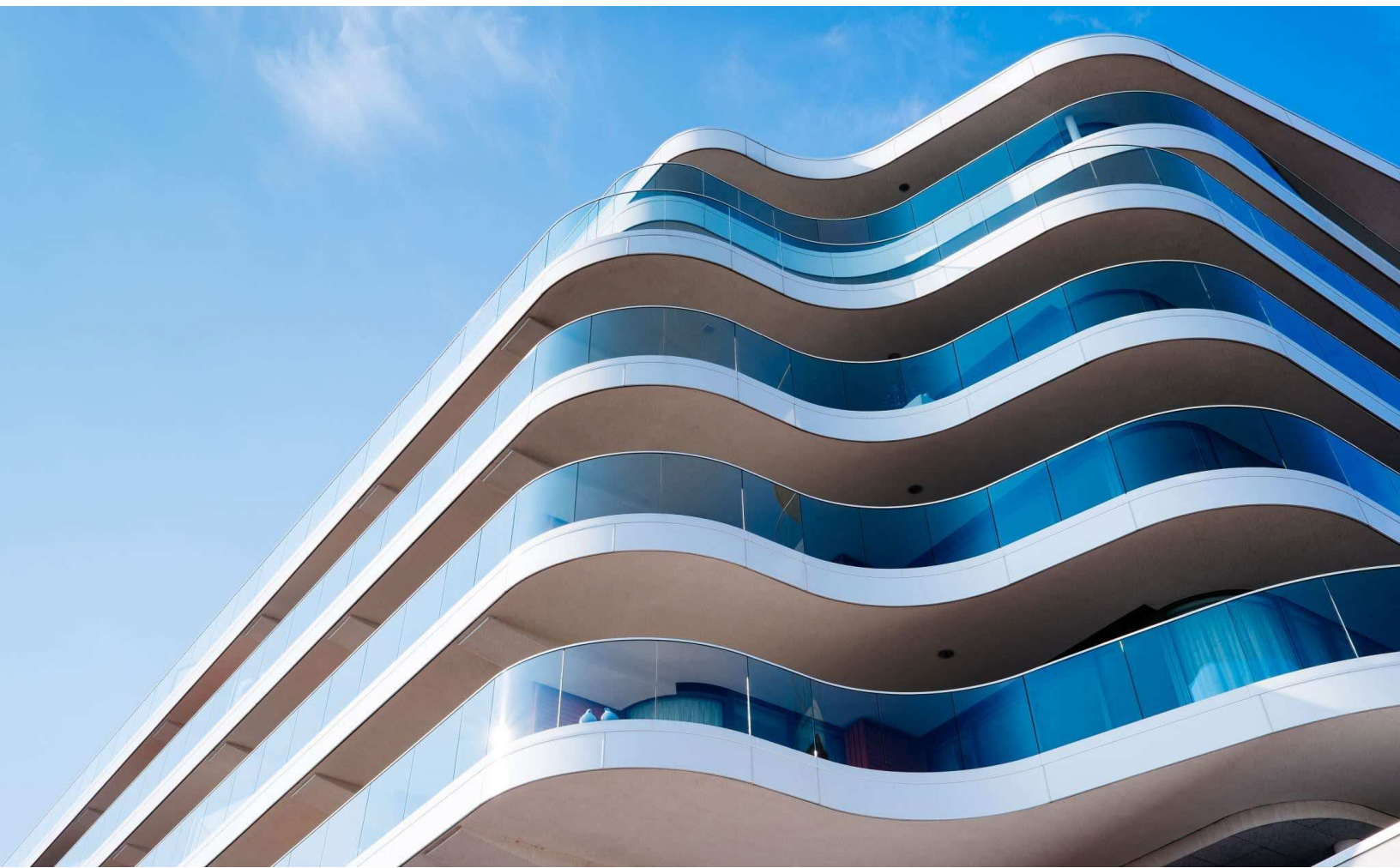
# **Hydrogeological and Impact Assessment Report**

**Proposed Commercial Development, 301  
Somme Street, Ottawa, Ontario**

Consolidated Fastfrate (Ottawa) Holdings Inc.

September 22, 2022

→ **The Power of Commitment**





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# 1. Introduction

GHD Limited (GHD) was retained by Consolidated Fastfrate (Ottawa) Holdings Inc. to conduct a hydrogeological impact assessment in support of a proposed commercial development at the intersection of Rideau Road and Somme Street in Ottawa (the Site). The municipal address is 301 Somme Street, Ottawa, Ontario and is geographically located at Lot 26, Gloucester Concession 6 from the Rideau River. The Site encompasses an area on the order of 7.0 ha (17.4 acres) and is currently vacant of structures. The development will be privately serviced with a well and septic system. The location of the Site is provided on the **Site Location Plan, Figure 1**.

The purpose of this hydrogeological and impact assessment was to assess the groundwater conditions to evaluate that sufficient drinking water supply exists for the proposed development in accordance with the City of Ottawa Hydrogeological and Terrain Analysis Guidelines (HTAG). Groundwater conditions were assessed through a constant rate pumping test and data collection to evaluate potential impacts to the local groundwater regime (quality and quantity).

The scope of work included a desktop review of available geological and groundwater mapping; a review of the Ministry of the Environment, Conservation and Parks (MECP) well records; a water well survey within 500 m of the development; and a 12-hour, constant rate pumping test with recovery measurements.

This report is organized into the following sections:

**Section 1.0 – Introduction:** Outlines the purpose, objectives and scope of work, and presents the report organization.

**Section 2.0 – Background:** Provides a description of the existing Site conditions, background information and surrounding land uses, as well as an outline of the proposed development. The regional environmental setting, including the physiography, topography, surface water features in the vicinity, and the surficial geology is presented.

**Section 3.0 – Methodology:** Describes the field activities and methodologies used to assess the groundwater supply and quality and to evaluate potential impacts associated with the undertaking.

**Section 4.0 – Geology and Hydrogeology:** Provides a detailed description of the Site geology, hydrogeology, and the hydraulic properties of the underlying stratigraphy and aquifer.

**Section 5.0 – Water Quality Impact Assessment:** Provides information regarding the water quality impact related to the proposed septic system.

**Section 6.0 – Construction Dewatering:** Provides a summary of the shallow groundwater quality compared to the Ottawa Storm Sewer Use By-Law 2003-514, which addresses discharge to the Municipal sewage system for potential construction dewatering.

**Section 7.0 – Summary and Conclusions:** Provides a summary of the assessment findings. Sections 8 and 9 provide a Statement of Limitations and References. The Figures and Appendices are provided following the text of this report, as indicated in the Table of Contents. Tabulated data is presented in tables within the text.

The factual data, interpretations and recommendations contained in this report pertain to a specific project as described in the report and are not applicable to any other project or site location. This report should be read in conjunction with the Statement of Limitations appended to this report. The reader's attention is specifically drawn to this information, as it is essential for the proper use and interpretation of this report.

## 2. Background

### 2.1 Site Description

The Site is located at the intersection of Rideau Road and Somme Street in Ottawa, Ontario. The parcel has the municipal address of 301 Somme Street and currently vacant of structures. Surrounding lots consisted of commercial / industrial lots to the west and south, undeveloped and forested lands and a few residential lots. The lands to the north, east and south are privately serviced for water and sanitary services; with municipally services lots located to the west of the Site. Findlay Creek flows from west to east along the northern Site boundary on the south side of Rideau Road.

The proposed development is to consist of a one-storey warehouse with office space and various amenities covering a total building area of 8,641 square metres (m<sup>2</sup>) with a projected occupancy of 36 staff. The Site will also have asphalt parking, a stormwater pond and septic bed area as depicted in the **Concept Plan, Figure 2**. The drilled water well location is also shown on **Figure 2** and will service the development.

### 2.2 Regional Setting

The Site is relatively flat with the regional topography sloping generally towards the east / northeast. Topographic relief is on the order of 3 to 4 metres across the Site. Regional topography is provided as **Figure 3**. Excess surface water is directed towards ditches alongside the Site with drainage generally to the east / northeast.

The Site is situated within the physiographic region known as the Russell and Prescott Sand Plains. In the United Counties of Prescott and Russell, and the Regional Municipality of Ottawa-Carleton, there is a group of large sand plains separated by the clays of the lower Ottawa Valley. The plains cover an area of nearly 1500 square kilometers and a level surface of about 85 metres above sea level. The plains were originally a continuous delta that was built by the Ottawa River into the Champlain Sea. The plains are as thick as 6 to 10 m in some areas (Chapman and Putnam, 1984). The local physiography is illustrated on **Figure 4** showing the Site is within a sand plains with Peat and Muck to the north and Limestone Plains to the west.

Surficial geology mapping on **Figure 5** indicates the Site is a mix of organic deposits, coarse textured glaciolacustrine deposits and Paleozoic bedrock. Based upon GHD's previous geotechnical work (GHD, 2020), the upper soils are comprised of fill. Underlying the fill is native silty sand / sandy silt followed by a glacial till (GHD, 2020).

The Quaternary geology (**Figure 6**) suggests carbonate and clastic sedimentary rock exposed at surface or covered by a discontinuous thin layer of drift. Bedrock outcrops are common in the area; however, were not observed on the Site.

The bedrock is Dolostone / Sandstone of the Beekmantown group (**Figure 7**). Based upon water well records, bedrock was found varying from 8.5 metres below ground surface (mbgs) to 14.0 mbgs at the Site. Golder's report also outlined the Gloucester Fault, a major northwest-southeast trending, steeply dipping structural feature in close proximity and northeast of the Site.

### 2.3 Previous Investigations

GHD and others have completed various studies at the Site. GHD has considered them, where applicable, in this report. The studies include:

- GHD Limited, November 2, 2021. Hydrogeological Assessment – Large Sewage Disposal System. Rideau Road and Somme Street. Ottawa Ontario. Project No. 12565773-01
- GHD Limited, April 12, 2021. Terrain Analysis. Septic Assessment and Percolation Rate Evaluation. Proposed Commercial Development – Rideau Road and Somme Street. Gloucester Con 6 from Rideau River, Lot 26, Ottawa Ontario. Project No. 11220832-01

- GHD Limited, January 19, 2021. Hydrogeological Assessment Report. Proposed Commercial Development – Rideau Road and Somme Street. Gloucester Con 6 from Rideau River, Lot 26, Ottawa Ontario. Project No. 11220832-01;
- GHD Limited, September 10, 2020. Geotechnical Investigation. Warehouse and Offices. Intersection of Rideau Street and Somme Street, Ottawa Ontario. Project No. 11215612-01;
- Stormwater Management Report. Hawthorne Industrial Park, Report Reference. No. JLR 20983, by J.L. Richards & Associates Limited, dated February 2009 (Revised May 2009);
- Geotechnical Study Subdivision Plan, Hawthorne Industrial Park, Report Reference No. T020556-A1, by Inspec-Sol, dated May 4, 2009;
- Phase II Environmental Site Assessment and Hydrogeological Assessment, Report Reference No. 045804 (12), by Conestoga-Rovers & Associates, dated September 2008; and
- Hydrogeological Investigation, Terrain Analysis and Impact Assessment, Proposed Industrial Subdivision, Report Reference. No. 08-1122-0215, by Golder Associates, dated December 2008.

### 3. Methodology

To achieve the purpose and objectives of this assessment, the following activities were undertaken:

- Review of existing local water supplies by reviewing MECP water well records within 500 m of the Site;
- Completion of a Health and Safety Plan for field activities;
- Site inspection and well survey of local water wells within approximately 500 m of the pumping test wellhead;
- Aquifer performance testing and water level monitoring of observation wells

#### 3.1 Existing Local Water Supplies

The Site and areas surrounding the Site are generally privately serviced with municipal services present to the west of the Site. Physical and hydraulic data are presented on MECP well records (**Appendix A**). The well records indicate a mix of overburden materials (fill, sand, clay, gravel etc.) overlying bedrock including shale, sandstone, limestone and quartz. Based upon the well records, there is one (1) primary bedrock aquifer in this immediate area that is tapped by drilled wells. Of the 17 records, seven (7) are for monitoring wells and will not be considered further within this discussion.

The groundwater was generally described as “fresh” in the well records reviewed. The information from the MECP data indicates that all ten (10) wells were drilled bedrock wells averaging a depth of about 41 m. The bedrock wells encountered water at an average depth of 31 m with pumping rates averaging nearly 100 L/min. No flowing artesian wells were reported.

No dug / bored well records were reviewed. Shallow dug / bored wells are susceptible to large seasonal fluctuations in the groundwater. The result is that shallow wells are also more prone to becoming dry in the winter and summer months. From a quality perspective, shallow dug / bored wells are generally difficult to seal at the surface and therefore considered to be susceptible to shallow sources of contamination and are not recommended for this commercial development.

**Table 3.1** summarizes the data reviewed in the well records within 500 m of the Site:



**Table 3.1** Summary of MECP Well Record Data

| Total Number of Wells Inventoried: 17<br>Dug/Bored Wells: 0 (0%)<br>Drilled Wells (Overburden): 0 (0%)<br>Drilled Wells (Bedrock): 10 (59%)<br><i>NOT INCLUDED IN STATISTICAL SUMMARY:</i><br>Abandonments, Monitoring Wells, Unknown Wells: 7 (41%) |                      |    |                  |                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|----|------------------|----------------|
| Parameters                                                                                                                                                                                                                                           | Statistical Summary  |    |                  |                |
|                                                                                                                                                                                                                                                      | Drilled – Overburden |    | Drilled– Bedrock |                |
| <b>WELL YIELDS</b>                                                                                                                                                                                                                                   |                      |    |                  |                |
| Range                                                                                                                                                                                                                                                | --                   | -- | 19 to 680 L/min  | 5 to 180 USgpm |
| Average                                                                                                                                                                                                                                              | --                   | -- | 99.1 L/min       | 26.2 USgpm     |
| <b>REPORTED YIELDS</b>                                                                                                                                                                                                                               | Frequency            |    | Frequency        |                |
| Not Reported                                                                                                                                                                                                                                         | 0                    | 0% | 0                | 0%             |
| Dry                                                                                                                                                                                                                                                  | 0                    | 0% | 0                | 0%             |
| 0 to 1 USgpm                                                                                                                                                                                                                                         | 0                    | 0% | 0                | 0%             |
| 2 to 4 USgpm                                                                                                                                                                                                                                         | 0                    | 0% | 0                | 0%             |
| 5 to 9 USgpm                                                                                                                                                                                                                                         | 0                    | 0% | 6                | 60%            |
| ≥10 USgpm                                                                                                                                                                                                                                            | 0                    | 0% | 4                | 40%            |
| <b>STATIC WATER LEVELS</b>                                                                                                                                                                                                                           |                      |    |                  |                |
| Range                                                                                                                                                                                                                                                | --                   | -- | 2.3 to 14.2 m    | 7.5 to 46.6 ft |
| Average                                                                                                                                                                                                                                              | --                   | -- | 8.4 m            | 27.6 ft        |
| <b>WATER ENCOUNTERED</b>                                                                                                                                                                                                                             |                      |    |                  |                |
| Range                                                                                                                                                                                                                                                | --                   | -- | 9.1 to 75.0 m    | 30 to 246 ft   |
| Average                                                                                                                                                                                                                                              | --                   | -- | 31.2 m           | 103.5 ft       |
| <b>WELL DEPTH</b>                                                                                                                                                                                                                                    |                      |    |                  |                |
| Range                                                                                                                                                                                                                                                | --                   | -- | 17.4 to 75.6 m   | 57 to 248 ft   |
| Average                                                                                                                                                                                                                                              | --                   | -- | 40.8 m           | 133.9 ft       |

**Notes:**

Data based on MECP well record information (refer to **Appendix A** for well information).

\*Abandonments, well upgrades and unknown well records are not included in the statistical data summarized in **Table 3.1**

## 3.2 Health and Safety

A Site-specific Health and Safety Plan (HASP) was prepared for implementation during the field investigation program. The HASP presents the visually observed Site conditions to identify potential physical hazards to field personnel. Required personal protective equipment was also listed in the HASP. It is mandatory for all GHD personnel involved in the field program, to read and have a copy of the HASP available at the Site during the investigative work. Health and Safety requirements in the HASP were implemented during the field investigation program.

In addition to the abovementioned safety measures, GHD's safety protocol related to COVID-19 issues was implemented and preventive measures were reinforced.

### 3.3 Site Inspection and Well Survey

The field work was conducted on August 9 and 10, 2022 by GHD to observe the general surficial characteristics of the Site, neighbouring lands and complete the well survey and pumping test. The Site consists of undeveloped lands. Photographs are provided in **Appendix B**.

GHD observed the drilled water well and a monitoring well on the Site. Other water wells in the vicinity of the Site were also observed. No surface water was observed on the Site.

The well survey was conducted on August 9, 2022 and involved collecting water levels from local area wells. There is one home within 500 m of the Site located at 4885 Hawthorne Road. This residential dwelling utilizes a drilled well that was measured by GHD to be 15 metres deep. The owner did not indicate any issues with water quantity or quality. The owner also provided authorization to use the well for monitoring purposes during our pumping test.

GHD also collected information from commercial properties located at 3500 Rideau Road to the west (MECP tag no. A018916), 5213 Hawthorne Road to the south (MECP tag no. A342260) and 300 Somme Street to the south (MECP tag no. A305146). No issues were communicated to GHD regarding the wells from these commercial properties. These wells were also monitored during GHD's pumping test. The locations of the various water wells / observation wells utilized for monitoring in this assessment and included in the well survey is provided on the **Well Location Plan, Figure 8**. The MECP tag numbers are referenced on **Figure 8**.

### 3.4 Aquifer Performance Testing

#### 3.4.1 Test Well Information

An onsite drilled well was utilized for assessment of the local aquifer via a pumping test. The well was constructed by Air Rock Drilling Co Ltd with drilling completed on July 27, 2022. The well has a MECP well tag number of A342117 and its location is shown on **Figure 2**. The water well record and Certificate of Well Compliance is provided in **Appendix C**.

A summary of the information presented on the water well record, is as follows:

- Drilled to total depth of 42.7 m (140 feet). The well record indicates overburden materials consisting of gravel, hardpan and boulders to 14 m (46 feet) followed by grey and black limestone with white sandstone mix to the depth of the well. The well is considered to be a confined well within the sandstone;
- Water was encountered at 39 m and 40.8 m (128 and 134 feet) and was not tested. The static water level was 8.6 m resulting in an available drawdown of 34.1 m to the bottom of the well;
- Construction was completed on July 27, 2022. Constructed with steel casing to 15.8 m (52 feet) then open hole to the bottom of the well. From grade to 15.8 m, the annular space was grouted and sealed with neat cement slurry with a total volume of about 0.4 cubic metres (~12.5 cubic feet). As per previous recommendations, the well was constructed with greater than 6 m of casing and 2 m into the bedrock;
- The well was tested by the drillers at 75.6 litres per minute or L/min (20 gallons per minute or gpm) resulting in a drawdown of 0.7 m or about 2% of the available drawdown. The well is recommended for pumping at 75.6 L/min; and
- The well is drilled 4 m from the proposed building and 3 m from a proposed paved walkway. The ground surface is to be positively sloped away from the water well in all directions (refer to the inset illustrated on **Figure 2**).

Adjacent water wells, monitoring well MW22-1 and a residential well that were monitored during testing are illustrated on **Figure 8**.

## 3.4.2 Pumping Test Methodology

GHD completed a constant rate pumping test of well A342117 on August 9, 2022 to assess aquifer conditions and evaluate the availability of a suitable groundwater resource for the proposed commercial development. The pumping test was conducted for twelve (12) hours at a constant rate of 37.8 L/min (10 gpm). Recovery measurements were collected after the pumping was completed.

A submersible pump was installed in the well to conduct the testing. Water levels in the pumped water well, adjacent observation wells and an onsite shallow monitoring well were monitored throughout the aquifer performance testing. Measurements were collected manually and through the use of data loggers to evaluate drawdown, recovery and the potential of mutual interference with adjacent wells. The discharge water was directed away from the pumped well a distance of about 30 m downgradient and also away from observation wells. This practice safeguards against artificial recharge of the well from occurring during the pumping test.

The pumped water well was chlorinated in advance of the pumping test. Non-detect chlorine levels were confirmed in the field prior to bacteria sampling conducted at the water well.

Water samples were collected throughout the testing and submitted to SGS Environmental Laboratories (SGS), a CALA accredited analytical laboratory for the testing. Water samples were collected for the following parameters:

- Polycyclic aromatic hydrocarbons (sampled after 12 hours of pumping);
- Volatile organic compounds (sampled after 12 hours of pumping);
- Petroleum hydrocarbons fractions F1 – F4 (sampled after 12 hours of pumping);
- Trace metals (filtered) (sampled after 12 hours of pumping);
- Bacteriological parameters including total coliform; E.coli, fecal coliform (sampled after 1, 6 and 12 hours of pumping); and
- General chemistry, Ottawa subdivision package and D-5-5 parameters.

Field measurements of methane, pH, temperature, free chlorine, turbidity, and conductivity were completed with a turbidity meter, Hach Pocket Pro+ Multi 2 and chlorine meter. Water levels were collected from the pumped water well using a dedicated, audible water level meter and a data logger. Water levels were also collected from neighbouring wells using an audible water level meter. Calibration of these instruments / equipment was completed prior to the pumping test. The calibration records are provided in **Appendix D**.

## 4. Geology and Hydrogeology

The following sections provide a detailed description of the geology and hydrogeology of the Site, based on the results of the investigations completed and on the available background information.

### 4.1 Site Geology

Based upon information reviewed within GHD's geotechnical report, the following are the predominant surficial materials and geologic deposits that underlie the Site:

- Ground Cover and Fill (ground surface up to 6 m thick) – topsoil, silty sand to gravel to silty clay fill
- Native sandy silt / silty sand (depths ranging from 8.2 to 11.9 mbgs)
- Bedrock (8.2 to 14.0 mbgs)

The depths of the materials listed above vary within the Site and have been simplified for purposes of this report.

## 4.2 Site Hydrogeology

### 4.2.1 Hydrostratigraphic Units

The primary hydrostratigraphic units (i.e. aquifer/aquitard units) underlying the Site include the following:

- Shallow, unconfined unit of fill and native soil and upper bedrock zone
  - Shallow groundwater found within the fill
  - Shallow unit is not suitable as a water supply
- Deeper confined aquifer within the sandstone bedrock generally at depths between about 25 m and 40 mbgs. This is the aquifer tapped by the drilled well on the Site.

### 4.2.2 Groundwater Levels

Water levels were obtained from the new supply well (MECP tag no. A342117), a monitoring well installed on the Site (MW22-1), and the nearby commercial and residential wells shown in **Table 4.1** on August 9, 2022 prior to the commencement of the pumping test. The data is summarized in **Table 4.1**. Based upon the water levels obtained from these wells, the groundwater flow tapped by the drilled wells is generally in an easterly direction including northeast and southeast components (note: groundwater elevations are based upon regional topographic contours and are for the purposes of evaluation potentiometric elevations only). Shallow groundwater flow tapped by monitoring wells was not assessed.

**Table 4.1** Water Level Summary

| Location          | Description                   | Ground Elevation* (m) | Depth of Well (mbgs) | Water Level (mbgs) | Potentiometric Elevation (masl) |
|-------------------|-------------------------------|-----------------------|----------------------|--------------------|---------------------------------|
|                   |                               |                       |                      | August 9, 2022     |                                 |
| A342117           | New Site water well           | 91.1                  | 42.7                 | 7.31               | 85.8                            |
| MW22-1            | New Site monitoring well      | 91.4                  | 3.7                  | 2.05               | 89.4                            |
| 4885 Hawthorne Rd | Residential well              | 85                    | 15.2                 | 0.95               | 84.1                            |
| 3500 Rideau Rd    | A018916 – Commercial property | 100                   | 35.4                 | 11.80              | 88.2                            |
| 5213 Hawthorne Rd | A342260 – Commercial property | 95                    | >30                  | 10.60              | 84.4                            |
| TW-5              | A295342                       | 90                    | 29.9                 | 6.70               | 83.3                            |
| 300 Somme St      | A305146 – Commercial property | 85                    | 42.7                 | 7.42               | 77.6                            |

**Notes:**

masl = metres above sea level

\*Elevations estimated from regional topographic contours provided on Figure 3; and elevations on the Site are based upon a topographic elevations provided to GHD. The elevations provided are for the purposes of evaluating potentiometric elevations and should not be relied upon as a legal survey or topographic elevation survey.

## 4.3 Aquifer Performance Assessment

The following sections discuss the pumping test results and coefficients, well interference and water quality.

### 4.3.1 Pumping Test

The pumping test was commenced on August 9, 2022. The results of the constant rate pumping test including field testing data are graphically presented in **Appendix E**.

The water level during the pumping test at A342117 is illustrated on **Figures E-1** and **E-2** showing water level versus time. The plot shows a slow, minimal drawdown of the water level over the course of the 12-hour test at 37.8 L/min. After 12 hours of pumping, the water level was 8.7 metres below top of pipe (mbtp). The maximum drawdown was about 0.8 m over the course of the testing with about 30.3 m of available drawdown above the pump remaining. Approximately 2.5% of the available drawdown was used during the pumping test. A total groundwater volume of about 27,215 L was pumped during the testing. Based upon the septic design flow calculations, about 12,000 L/day has been estimated. Actual groundwater usage is expected to be much less than 12,000 L/day for the warehouse and offices.

Recovery measurements were collected manually for 60 minutes after pumping ceased. The water level recovered about 50% in one (1) hour and fully recovered 100% in seven (7) hours. The estimated transmissivity for the pumped water well was 33.4 m<sup>2</sup>/day (2238 gpd/ft) based on the drawdown and 26.7 m<sup>2</sup>/day (1791 gpd/ft) based on the recovery period and represents a high transmissivity. The specific capacity for this well is calculated to be 48.5 L/min/m based upon the pumping test completed.

The plotted data indicates the aquifer that this well is tapped into can safely provide long-term quantities of groundwater at a pumping rate of 37.8 L/min (10 gpm) based upon the pumping test completed.

Pumping tests were completed previously within a test well located on the Site (i.e. TW2) within the same sandstone aquifer. The test well, TW2, was pumped in 1994, 2008 and in 2020 at 67 L/min, 55 L/min, and 60 L/min, respectively. The drawdowns of these tests were similar to our drawdown at the new well ranging from about 1.1 m to 1.2 m. Static water levels from TW-2 were also similar ranging from 3.15 mbgs in 1994 to 6.90 mbgs in 2020, indicating that development in this area including quarries on nearby properties has not resulted in significant negative effects to the underlying water supply aquifer.

### 4.3.2 Summary of Aquifer Performance

The following **Table 4.2** summarizes the data and coefficients obtained from the pumping test.

**Table 4.2** Aquifer Performance Testing Summary

| Well No. | Step No. | Yield |       | Test Type | Time                                             | Maximum drawdown |        | Available Drawdown* |        | Specific Capacity |         | Estimated Transmissivity |                     |
|----------|----------|-------|-------|-----------|--------------------------------------------------|------------------|--------|---------------------|--------|-------------------|---------|--------------------------|---------------------|
|          |          | gpm   | L/min |           | min                                              | feet             | metres | feet                | metres | gpm/ft            | L/min/m | gpd/ft                   | m <sup>2</sup> /day |
| A342117  | 1        | 0     | 0     | Static    | 0                                                | 0                | 0      | 103.3               | 31.5   | --                | --      | --                       | --                  |
|          | 2        | 10    | 37.8  | Const.    | 720                                              | 2.6              | 0.8    | 100.7               | 30.7   | 3.9               | 48.5    | 2238                     | 33.4                |
|          | 3        | 0     | 0     | Recvy.    | 50% recovery in 1 hour; 100% recovery in 7 hours |                  |        |                     |        |                   |         | 1791                     | 26.7                |

**Notes:**

gpm = gallons per minute; gpd/ft = gallons per day per foot

"Recvy" refers to Recovery measurements; "Const" refers to the Constant Rate test conducted for 720 minutes.

\*Available Drawdown refers to the height of water in the well above the pump.

Static water level at the pumped well A342117 was 7.96 metres below top of pipe (7.31 metres below ground surface) at the start of the testing.



### 4.3.3 Water Quality

Groundwater samples from the pumped well were obtained for laboratory testing during the course of the pumping test for the purpose of water quality analyses. The well was sampled after one (1) hour; at six (6) hours; and at the end of the constant rate test on August 9, 2022. The water samples were delivered to SGS laboratories in Lakefield, ON. Certificates of chemical analyses are presented in **Appendix F**. The water quality data are summarized and compared with the Ontario Drinking Water Standards (ODWS)<sup>1</sup> in **Table 4.3**. Regulation 153/04 parameters are also compared with the Table 2 Standards in a Potable Ground Water Condition for all property uses including a commercial property use<sup>2</sup>. For the Regulation 153/04 parameters, the most stringent standard was used for comparison purposes.

**Table 4.3**      *Test Well Water Quality Summary*

| Parameter                                     | Pumped Water Well A342117 |       |        | O.Reg. 153 –<br>Table 2 | ODWS       |       |
|-----------------------------------------------|---------------------------|-------|--------|-------------------------|------------|-------|
|                                               | 1 hr                      | 6 hrs | 12 hrs |                         | MAC / IMAC | AO/OG |
| <b>Bacteriological (Colony Forming Units)</b> |                           |       |        |                         |            |       |
| Total Coliform                                | --                        | --    | 3      | NS                      | <6*        | NS    |
| E.coli                                        | --                        | --    | 0      | NS                      | 0          | NS    |
| Fecal coliform                                | --                        | --    | 0      | NS                      | 0          | NS    |
| Background                                    | --                        | --    | 33     | NS                      | NS         | NS    |
| Heterotrophic Plate Count                     | --                        | --    | 55     | NS                      | NS         | NS    |
| <b>Semi-Volatile Organic Compounds (µg/L)</b> |                           |       |        |                         |            |       |
| Acenaphthene                                  | --                        | --    | <0.1   | 4.1                     | NS         | NS    |
| Acenaphthylene                                | --                        | --    | <0.1   | 1                       | NS         | NS    |
| Anthracene                                    | --                        | --    | <0.1   | 2.4                     | NS         | NS    |
| Benzo(a)anthracene                            | --                        | --    | <0.1   | 1                       | NS         | NS    |
| Benzo(a)pyrene                                | --                        | --    | <0.01  | 0.01                    | 0.01       | NS    |
| Benzo(b+j)fluoranthene                        | --                        | --    | <0.1   | NS                      | NS         | NS    |
| Benzo(ghi)perylene                            | --                        | --    | <0.2   | 0.2                     | NS         | NS    |
| Benzo(k)fluoranthene                          | --                        | --    | <0.1   | 0.1                     | NS         | NS    |
| Chrysene                                      | --                        | --    | <0.1   | 0.1                     | NS         | NS    |
| Dibenzo(a,h)anthracene                        | --                        | --    | <0.1   | 0.2                     | NS         | NS    |
| Fluoranthene                                  | --                        | --    | <0.1   | 0.41                    | NS         | NS    |
| Fluorene                                      | --                        | --    | <0.1   | 120                     | NS         | NS    |
| Indeno(1,2,3-cd)pyrene                        | --                        | --    | <0.2   | 0.2                     | NS         | NS    |
| 1-Methylnaphthalene                           | --                        | --    | <0.5   | 3.2                     | NS         | NS    |
| 2-Methylnaphthalene                           | --                        | --    | <0.5   |                         | NS         | NS    |
| Naphthalene                                   | --                        | --    | <0.5   | 11                      | NS         | NS    |
| Phenanthrene                                  | --                        | --    | <0.1   | 1                       | NS         | NS    |
| Pyrene                                        | --                        | --    | <0.1   | 4.1                     | NS         | NS    |

<sup>1</sup> Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines. June 2003, revised June 2006.

<sup>2</sup> Ministry of the Environment, April 15, 2011. Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act.

| Parameter                         | Pumped Water Well A342117 |       |        | O.Reg. 153 –<br>Table 2 | ODWS       |       |
|-----------------------------------|---------------------------|-------|--------|-------------------------|------------|-------|
|                                   | 1 hr                      | 6 hrs | 12 hrs |                         | MAC / IMAC | AO/OG |
| Volatile Organic Compounds (µg/L) |                           |       |        |                         |            |       |
| Acetone                           | --                        | --    | <30    | 2700                    | NS         | NS    |
| Bromomethane                      | --                        | --    | <0.5   | 0.89                    | NS         | NS    |
| Carbon tetrachloride              | --                        | --    | <0.2   | 0.79                    | 5          | NS    |
| Chlorobenzene                     | --                        | --    | <0.5   | 30                      | NS         | NS    |
| Chloroform                        | --                        | --    | <0.5   | 2.4                     | NS         | NS    |
| 1,2-Dichlorobenzene               | --                        | --    | <0.5   | 3                       | 20         | 3     |
| 1,3-Dichlorobenzene               | --                        | --    | <0.5   | 59                      | NS         | NS    |
| 1,4-Dichlorobenzene               | --                        | --    | <0.5   | 1                       | 5          | 1     |
| Dichlorofluoromethane             | --                        | --    | <2     | 590                     | NS         | NS    |
| 1,1-Dichloroethane                | --                        | --    | <0.5   | 5                       | NS         | NS    |
| 1,2-Dichloroethane                | --                        | --    | <0.5   | 1.6                     | 5          | NS    |
| 1,1-Dichloroethylene              | --                        | --    | <0.5   | 1.6                     | NS         | NS    |
| trans-1,2-Dichloroethane          | --                        | --    | <0.5   | 1.6                     | NS         | NS    |
| cis-1,2-Dichloroethane            | --                        | --    | <0.5   | 1.6                     | NS         | NS    |
| 1,2-Dichloropropane               | --                        | --    | <0.5   | 5                       | NS         | NS    |
| cis-1,3-Dichloropropane           | --                        | --    | <0.5   | NS                      | NS         | NS    |
| trans-1,3-Dichloropropane         | --                        | --    | <0.5   | NS                      | NS         | NS    |
| 1,3-Dichloropropene               | --                        | --    | <0.5   | 0.5                     | NS         | NS    |
| Ethylene Dibromide                | --                        | --    | <0.2   | 0.2                     | NS         | NS    |
| Hexane                            | --                        | --    | <1     | 51                      | NS         | NS    |
| Methyl Ethyl Ketone               | --                        | --    | <20    | 1000                    | NS         | NS    |
| Methyl Isobutyl Ketone            | --                        | --    | <20    | 400                     | NS         | NS    |
| Methyl Tert-Butyl Ether           | --                        | --    | <2     | 15                      | NS         | NS    |
| Methylene Chloride                | --                        | --    | <0.5   | 50                      | NS         | NS    |
| Styrene                           | --                        | --    | <0.5   | 5.4                     | NS         | NS    |
| Tetrachloroethylene               | --                        | --    | <0.5   | 1.6                     | 30         | NS    |
| 1,1,1,2-Tetrachloroethane         | --                        | --    | <0.5   | 1.1                     | NS         | NS    |
| 1,1,2,2-Tetrachloroethane         | --                        | --    | <0.5   | 1                       | NS         | NS    |
| 1,1,1-Trichloroethane             | --                        | --    | <0.5   | 200                     | NS         | NS    |
| 1,1,2-Trichloroethane             | --                        | --    | <0.5   | 4.7                     | NS         | NS    |
| Trichloroethylene                 | --                        | --    | <0.5   | 1.6                     | 5          | NS    |
| Trichlorofluoromethane            | --                        | --    | <5     | 150                     | NS         | NS    |
| Vinyl Chloride                    | --                        | --    | <0.2   | 0.5                     | 2          | NS    |
| Benzene                           | --                        | --    | <0.5   | 5                       | 5          | NS    |
| Toluene                           | --                        | --    | <0.5   | 24                      | NS         | 24    |
| Ethylbenzene                      | --                        | --    | <0.5   | 2.4                     | NS         | 2.4   |

| Parameter                                   | Pumped Water Well A342117 |              |                  | O.Reg. 153 –<br>Table 2 | ODWS       |           |
|---------------------------------------------|---------------------------|--------------|------------------|-------------------------|------------|-----------|
|                                             | 1 hr                      | 6 hrs        | 12 hrs           |                         | MAC / IMAC | AO/OG     |
| Xylenes                                     | --                        | --           | <0.5             | 300                     | NS         | 300       |
| Bromodichloromethane                        | --                        | --           | <0.5             | 16                      | NS         | NS        |
| Bromoform                                   | --                        | --           | <0.5             | 25                      | NS         | NS        |
| Dibromochloromethane                        | --                        | --           | <0.5             | 25                      | NS         | NS        |
| <b>Petroleum Hydrocarbons</b>               |                           |              |                  |                         |            |           |
| PHC F1 (C <sub>6</sub> – C <sub>10</sub> )  | --                        | --           | <25              | 750                     | NS         | NS        |
| PHC F2 (C <sub>10</sub> – C <sub>16</sub> ) | --                        | --           | <100             | 150                     | NS         | NS        |
| PHC F3 (C <sub>16</sub> – C <sub>34</sub> ) | --                        | --           | <200             | 500                     | NS         | NS        |
| PHC F4 (C <sub>34</sub> – C <sub>50</sub> ) | --                        | --           | <200             | 500                     | NS         | NS        |
| PHC F4 Gravimetric                          | --                        | --           | Yes <sup>1</sup> | 500                     | NS         | NS        |
| <b>Trace Metals (dissolved) (mg/L)</b>      |                           |              |                  |                         |            |           |
| Aluminum                                    | <0.001                    | <0.001       | <0.001           | NS                      | NS         | 0.1       |
| Arsenic                                     | 0.0006                    | 0.0004       | 0.0004           | 0.25                    | 0.025      | NS        |
| Boron                                       | 0.199                     | 0.216        | 0.216            | 5                       | 5          | NS        |
| Barium                                      | 0.09451                   | 0.09889      | 0.09880          | 1                       | 1          | NS        |
| Beryllium                                   | <0.000007                 | <0.000007    | 0.000011         | 0.004                   | NS         | NS        |
| Cobalt                                      | 0.000094                  | 0.0000910    | 0.000082         | 0.0038                  | NS         | NS        |
| Calcium                                     | 103                       | 112          | 117              | NS                      | NS         | NS        |
| Cadmium                                     | 0.000016                  | 0.000017     | 0.000020         | 0.0027                  | 0.005      | NS        |
| Copper                                      | <0.0002                   | <0.0002      | <0.0002          | 0.087                   | NS         | 1         |
| Chromium                                    | 0.00012                   | <0.00008     | <0.00008         | 0.05                    | 0.05       | NS        |
| Iron                                        | <b>0.369</b>              | 0.276        | <b>0.481</b>     | NS                      | NS         | 0.3       |
| Magnesium                                   | 47.8                      | 53.4         | 53.5             | NS                      | NS         | NS        |
| Manganese                                   | <b>0.175</b>              | <b>0.173</b> | <b>0.171</b>     | NS                      | NS         | 0.05      |
| Mercury                                     | <0.00001                  | <0.00001     | <0.00001         | 0.00029                 | 0.001      | NS        |
| Molybdenum                                  | 0.02195                   | 0.02931      | 0.03188          | 0.07                    | NS         | NS        |
| Nickel                                      | 0.0014                    | 0.0013       | 0.0012           | 0.1                     | NS         | NS        |
| Sodium                                      | 54.5                      | 57.4         | 57.0             | 490                     | NS         | 200 (20*) |
| Lead                                        | <0.00009                  | <0.00009     | <0.00009         | 0.01                    | 0.01       | NS        |
| Silver                                      | <0.00005                  | <0.00005     | <0.00005         | 0.0015                  | NS         | NS        |
| Strontium                                   | 5.15                      | 5.91         | 5.92             | NS                      | NS         | NS        |
| Thallium                                    | <0.000005                 | <0.000005    | <0.000005        | 0.002                   | NS         | NS        |
| Antimony                                    | <0.0009                   | <0.0009      | <0.0009          | 0.006                   | 0.006      | NS        |
| Selenium                                    | 0.00015                   | 0.00020      | 0.00011          | 0.01                    | 0.01       | NS        |
| Uranium                                     | 0.000219                  | 0.000227     | 0.000219         | 0.02                    | 0.02       | NS        |
| Vanadium                                    | 0.00011                   | 0.00008      | 0.00009          | 0.0062                  | NS         | NS        |
| Zinc                                        | <0.002                    | <0.002       | <0.002           | 1.1                     | NS         | 5         |

| Parameter                                                        | Pumped Water Well A342117 |            |            | O.Reg. 153 –<br>Table 2 | ODWS       |           |
|------------------------------------------------------------------|---------------------------|------------|------------|-------------------------|------------|-----------|
|                                                                  | 1 hr                      | 6 hrs      | 12 hrs     |                         | MAC / IMAC | AO/OG     |
| <b>General Chemistry Parameters (units listed per parameter)</b> |                           |            |            |                         |            |           |
| Tannin + Lignin (mg phenol/L)                                    | 0.32                      | 0.34       | 0.40       | NS                      | NS         | NS        |
| Alkalinity (mg/L as CaCO <sub>3</sub> )                          | 265                       | 261        | 261        | NS                      | NS         | 30 – 500  |
| Carbonate (mg/L as CaCO <sub>3</sub> )                           | <2                        | <2         | <2         | NS                      | NS         | NS        |
| Bicarbonate (mg/L as CaCO <sub>3</sub> )                         | 265                       | 261        | 261        | NS                      | NS         | NS        |
| pH                                                               | 8.14                      | 8.20       | 8.23       | NS                      | NS         | 6.5 – 8.5 |
| Conductivity (µS/cm)                                             | 1180                      | 1290       | 1350       | NS                      | NS         | NS        |
| Total Dissolved Solids (mg/L)                                    | <b>763</b>                | <b>914</b> | <b>914</b> | NS                      | NS         | 500       |
| Colour (TCU)                                                     | 3                         | <3         | <3         | NS                      | NS         | 5         |
| Turbidity (NTU)                                                  | 2.5                       | 2.89       | 4.21       | NS                      | NS         | 5         |
| Organic Nitrogen (mg/L)                                          | <0.05                     | <0.05      | <0.05      | NS                      | NS         | 0.15      |
| Total Kjeldahl Nitrogen (mg/L)                                   | 0.18                      | 0.17       | 0.16       | NS                      | NS         | NS        |
| Ammonia + Ammonium (mg/L)                                        | 0.19                      | 0.17       | 0.17       | NS                      | NS         | NS        |
| Nitrite (as N mg/L)                                              | <0.003                    | <0.003     | <0.003     | NS                      | 1          | NS        |
| Nitrate (as N mg/L)                                              | <0.006                    | <0.006     | <0.006     | NS                      | 10         | NS        |
| Chloride (mg/L)                                                  | 62                        | 66         | 68         | 790                     | NS         | 250       |
| Hydrogen Sulphide                                                | <0.02                     | <0.02      | <0.02      | NS                      | NS         | 0.05      |
| Sulphide (mg/L)                                                  | <0.02                     | <0.02      | <0.02      | NS                      | NS         | NS        |
| Sulphate (mg/L)                                                  | 300                       | 370        | 400        | NS                      | NS         | 500       |
| Dissolved Organic Carbon (mg/L)                                  | 2                         | 2          | 2          | NS                      | NS         | 5         |
| Hardness (mg/L as CaCO <sub>3</sub> )                            | <b>453</b>                | <b>500</b> | <b>511</b> | NS                      | NS         | 80 – 100  |
| Ryznar Stability Index                                           | 6.4                       | 6.2        | 6.2        | NS                      | NS         | NS        |
| Potassium                                                        | 7.16                      | 7.56       | 7.39       | NS                      | NS         | NS        |

**Notes:**

"1" denotes that PHC F4 gravimetric returned to baseline

"<" indicates concentrations are less than laboratory reporting limits

MAC = maximum acceptable concentration; IMAC – Interim MAC; AO / OG = aesthetic objective / operational guideline

**Bold / shaded** indicates the concentration exceeds the ODWS AO / OG. There are no exceedances of MAC or IMAC (health related).

\*The aesthetic objective for sodium in drinking water is 200 mg/L. When the sodium concentration exceeds 20 mg/L, this information should be communicated to those on sodium restricted diets.

The laboratory analyses confirmed that there were no health-related parameter exceedances of the ODWS. VOCs, PAHs and PHCS were reported below detection limits and meet all Ontario Regulation Table 2 Standards for the parameters tested in a potable groundwater condition for all property uses.

In general, the test results indicate the majority of parameters meet the ODWS with the exception of the aesthetic objectives for:

- Hardness;
- Total Dissolved Solids;
- Manganese; and
- Iron.

Elevated hardness is related to the overburden materials containing calcium and to a lesser extent, magnesium.

Elevated hardness, iron and manganese are common traits of groundwater supplies in Southern Ontario and can be

treated using commercially available treatment equipment such as a water softener. The iron and manganese are within treatable limits. Although hardness in excess of 500 mg/L is considered very hard, a maximum treatable value is not provided within the D-5-5 Guideline. Treatment for hardness (and other parameters) is provided in the following sub-section.

Total dissolved solids (TDS) were also elevated above its aesthetic objective of 500 mg/L. TDS may be the result of hard water including calcium and/or magnesium as well as other constituents such as sodium and chloride. Treatment consideration is provided in the following sub-section. The Ryznar Stability Index was calculated to be between 6.2 and 6.4 which is within the neutral range and therefore incrustation and corrosion are not considered to be problematic due to the elevated TDS.

Turbidity was reported as less than 5 NTU in the laboratory samples and ranged from 3.25 to 1.2 NTU at the wellhead. These values indicated acceptable turbidity.

The bacteriological results were three (3) colony forming units per 100 mL (CFU) for total coliform which is acceptable for raw water as fecal coliform and E.coli are zero CFU. The residual chlorine residual was measured in the field at the wellhead prior to testing and confirmed to be non-detect.

As a proactive measure, GHD recommends that bacteriological treatment (i.e. ultraviolet (UV) treatment) be used at a minimum. As it is anticipated that this well system will be regulated and will require treatment to meet appropriate standards to ensure potable water is available to employees and visitors.

To supplement the analytical data, field measurements were obtained throughout the pumping test by GHD. At the end of the pump test, the groundwater at the well head had a conductivity of 1.35 mS/cm, a water temperature of 16.0 degrees Celsius, a pH of 7.82, a chlorine residual of 0 mg/L and turbidity of 1.2 NTU. There was no methane detected within the water.

#### **4.3.3.1 Water Treatment**

MacLellan Water Treatment (MacLellan) was contacted to provide water treatment based upon the pumped well chemistry. Based upon the chemistry provided from the pumping test, MacLellan provided recommendations for water treatment. Their report is provided in **Appendix G** and summarized below:

- a. Installation of a filtration system for iron that utilizes a manganese greensand filter with chlorine regeneration. This filter would also remove a certain amount of manganese.
- b. Installation of an activated carbon filter to remove residual chlorine and organically-complexed metals.
- c. Install a water softener to soften the water to improve the aesthetics of the water and protect the water disinfection system and water-using appliances (hot water tanks, etc.) in the facility from fouling due to hard water scale. A twin alternating system was recommended to ensure that softening is uninterrupted.
- d. Disinfection of the water will be provided with ultraviolet (UV) disinfection. The unit will be sized to allow adequate flow to the facility and will be equipped with turbidity-reducing cartridge-style prefilters to screen out particles that bacteria might shelter behind while passing through the UV light.
- e. As the concentration of sodium in the water is already slightly high, the use of a water softener will increase the sodium content of the treated water by about 300 mg/L. Therefore, one or more point of use reverse osmosis (RO) units will be installed to remove sodium at locations (like lunch rooms) where staff will actually consume the water. The RO units will be equipped with small storage tanks so that pre-treated water will be ready on demand.

Based upon the MacLellan report, the water can be treated for use at the proposed commercial facility.

#### **4.3.4 Well Interference**

In order to assess the potential for hydraulic connection between the pumped water well A342117 and neighbouring wells were monitored during the pumping test. Data logger water levels were installed at each of the observation wells during the pumping test and the data is provided in **Appendix H**. Manual water levels at TW-5, A305146, A342260



and A018916 were collected prior to and after the pumping test was conducted between August 3 and August 18, 2022. The data illustrates the water level conditions during this time as well as during the pumping test.

The approximate linear distances between the pumped water well and observation wells are provided in **Table 4.4** based upon the locations plotted on **Figure 8**.

**Table 4.4** Distance Between Pumping Well and Observation Wells

| Location            | Distances between Pumped Water Well A342117 and Observation Wells (metres) |                    |      |         |         |         |
|---------------------|----------------------------------------------------------------------------|--------------------|------|---------|---------|---------|
|                     | MW22-1                                                                     | 4885 Hawthorne Rd. | TW-5 | A305146 | A018916 | A342260 |
| Pumped well A342117 | 45                                                                         | 630                | 570  | 140     | 475     | 640     |

**Notes:**

Distances based upon locations identified on **Well Locations, Figure 8**.

MW = monitoring well

The following table provides the manual water levels collected during the pumping test at the observation wells monitored during the pumping test.

**Table 4.5** Maximum Drawdowns in Pumping and Observation Wells

| Location                    | Water Level (start of test)<br>mbgs | Water Level (end of test)<br>mbgs | Drawdown (m) |
|-----------------------------|-------------------------------------|-----------------------------------|--------------|
| A342117 (pumped water well) | 7.31                                | 8.11                              | -0.80        |
| MW22-1                      | 2.05                                | 1.95                              | +0.10        |
| 4885 Hawthorne Road         | 0.95                                | 0.93                              | +0.02        |
| TW-5                        | 6.70                                | 6.71                              | -0.01        |
| A305146                     | 7.42                                | 7.69                              | -0.27        |
| A018916                     | 11.85                               | 11.81                             | +0.04        |
| A342260                     | 10.62                               | 10.59                             | +0.03        |

**Notes:**

Negative drawdown (denoted by minus sign and RED text) indicates water level lowered during the testing

Positive drawdown (denoted by plus sign and BLACK text) indicates water level was rising during the testing

#### 4.3.4.1 Interference Assessment

Prior to the pumping test, data loggers were installed within the adjacent wells including TW-5, A305146, 4885 Hawthorne Road, A342260 and A018916 to collect background water levels. Water levels were also collected from these locations during the pumping test and after the pumping test was completed. The data was collected was used to evaluate groundwater level trends and to aid in assessing hydraulic connection between the overburden and bedrock aquifer, and, within the bedrock aquifer itself.

There was no drawdown attributable to pumping at the pumped well within the monitoring well MW22-1 indicating that there is no vertical hydraulic connection between the overburden groundwater and confined bedrock aquifer that A342117 draws from.

There was no drawdown measured at water wells A018916, A342260 or 4885 Hawthorne Road and minimal drawdown within TW-5 throughout the duration of the pumping test. The drawdown at TW-5 was about one (1) cm based upon the data logger readings and is considered negligible. No impacts are expected at these wells as a result of future usage of the water well on the Site.

The results of the interference monitoring did illustrate a hydraulic connection between the pumping well A342117 and A305146 about 140 m to the south. Both wells are drilled to 42.7 m (140 feet) and are expected to tap into the same aquifer unit. The drawdown at this well was manually measured to be about 27 cm during the pumping test and the

data logger shows a similar water level response in A305146, albeit to a lower magnitude, as the pumped well. The data confirms that these wells are confined within the same aquifer unit and are hydraulically connected. With the drawdown of 27 cm (less than 1% of the available drawdown within this well), about 35 m of available drawdown remains within the well.

The testing showed that the pumping of nearly 30,000 L resulted in the usage of about 2.5% of the available drawdown of the pumped well. As daily usage is expected to be below 10,000 L/day, the pump test results indicate that there is sufficient water quantity below the Site for the planned development with without significant interference to future and existing neighbouring wells. In our professional opinion, the risk of interference is minimal.

## **4.4 Septic Waste Disposal**

The septic waste disposal system is being designed by others. The septic will be about 25 m from the water well, maintaining the minimum 15 m horizontal buffer as per the Ontario Building Code.

# **5. Water Quality Impact Assessment**

Procedure D-5-4 provides a methodology for assessing potential impact to downgradient groundwater resources as a result of the installation of private sewage disposal systems on a development property. The procedure is to consider the following:

- Lot Size Considerations
- System Isolation Considerations
- Contaminant Attenuation Considerations

Using D-5-4 as a guide, the proponent is to determine the background nitrate concentration in the receiving groundwater; demonstrate that the area is not hydrogeologically sensitive; and, demonstrate that the maximum nitrate limit prescribed by the procedure will not be exceeded in the receiving groundwater at the downgradient site boundary.

However, this guideline does not apply to Large Subsurface Sewage Disposal Systems (i.e. septic effluent of greater than 10,000 L/day). The projected design septic effluent for this Site is on the order 12,000 L/day. If the septic effluent from the Site was to be less than 10,000 L/day, then the Procedure would also not be applicable as the development area is greater than one (1) hectare

GHD completed a hydrogeological assessment for a large subsurface septic system (GHD report dated November 2, 2021). Based upon the impact assessment, tertiary treatment will be required. Based upon the impact assessment, the proposed sewage system will have no significant impact on the groundwater aquifer, shallow water or any downgradient receptors that utilize groundwater.

## 6. Construction Dewatering

A water sample was collected from the monitoring well (MW22-1) for purposes of establishing the water quality should excavations extend into the shallow groundwater and require dewatering. Depending upon the construction activities, dewatering to remove groundwater seepage, surface water runoff and precipitation may be required to ensure safe and dry working conditions.

### 6.1.1 Groundwater Sampling for Construction Dewatering

On August 9, 2022, a groundwater sample was collected from MW22-1 (referred to “Piezo” in the certificate of analysis). The sample was submitted to SGS for analysis of parameters described in City of Ottawa By Law 2003-514, which addresses discharge to the Municipal sewage system. The analytical results are summarized within the certificates of analysis in **Appendix I**.

Based upon the analytical results, and upon comparison with the City of Ottawa criteria, the following parameters exceeded the criteria:

- Total suspended solids; and,
- Manganese.

The results represent total concentrations including dissolved and sorbed particulate. Based on these observations, the water discharged from an excavation would require treatment (i.e. filtration) to minimize the particulate and reduce the total concentrations to meet the City of Ottawa criteria. The discharge would be expected to be a combination of groundwater, surface water runoff and precipitation into the excavation and would require further assessment to verify its quality. City of Ottawa approval, sewer-use discharge permit and pre-treatment will be required prior to discharge to a drainage ditch or sewer.

## 7. Summary and Recommendations

Supporting data upon which our conclusions and recommendations are based have been presented in the foregoing sections of this report. The following conclusions and recommendations are governed by the physical properties of the subsurface materials that were encountered at the Site and assume that they are representative of the overall Site conditions. It should be noted that these conclusions and recommendations are intended for use by the designers only. Contractors bidding on or undertaking any work at the Site should examine the factual results of the assessment, satisfy themselves as to the adequacy of the information for construction, and make their own interpretation of this factual data as it affects their proposed construction techniques, equipment capabilities, costs, sequencing, and the like. Comments, techniques, or recommendations pertaining to construction should not be construed as instructions to the contractor.

Based on the results of the hydrogeological and impact assessment, the pumped water well has sufficient water of good quality and quantity to provide ample supply of potable groundwater for the proposed commercial development while preserving the long-term water quality of the aquifer complex. In the certification letter WSP has indicated that the new water well, A342117, was properly constructed and adequately sealed in accordance with Ontario Regulation 903. The well will have adequate separation from the proposed building and future septic area. Based upon the pumping test, there was marginal interference between an adjacent well; however, the interference is not considered significant to impact the operation of the wells. Based on the data collected no vertical hydraulic connection between the shallow overburden groundwater and the bedrock aquifer unit was identified. In the long-term, it is our opinion that the bedrock aquifer tested can support the commercial development with minimal to negligible impact to neighbouring wells.

The water quality, as indicated in the MacLellan report, can be treated to meet the needs of the proposed facility. The treatment is to consist of filters, water softening, UV disinfection and RO at selected point(s) of consumption such as lunch room(s).

Based upon the impact assessment, water quality impacts are not expected provided that the waste disposal system is properly constructed. The waste disposal system will be a large subsurface system that, based upon the daily design, will exceed 10,000 L/day of septic effluent. The actual daily septic effluent is expected to be much less than 10,000 L/day. No impact is anticipated on downgradient baseline water quality functions or to the existing water bearing aquifers.

Should construction dewatering of shallow water be required, filtration of the pumped water will be required to remove particulate and ensure that total suspended solids and manganese concentrations meet the City of Ottawa storm sewer use by-law criteria. No significant impacts from construction dewatering are anticipated.

It is our opinion that the results of this hydrogeologic and impact assessment support the development of the proposed commercial development.

All of Which is Respectfully Submitted,

GHD



**Jason Gerald, M.Sc., C.Chem.**  
**Project Manager**



**Robert Neck, P.Geo. (Limited)**  
**Senior Geoscientist**



**Steve Gagné, H.B.Sc.**  
**Associate, Project Director**

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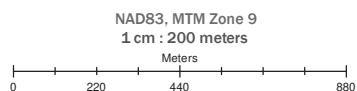
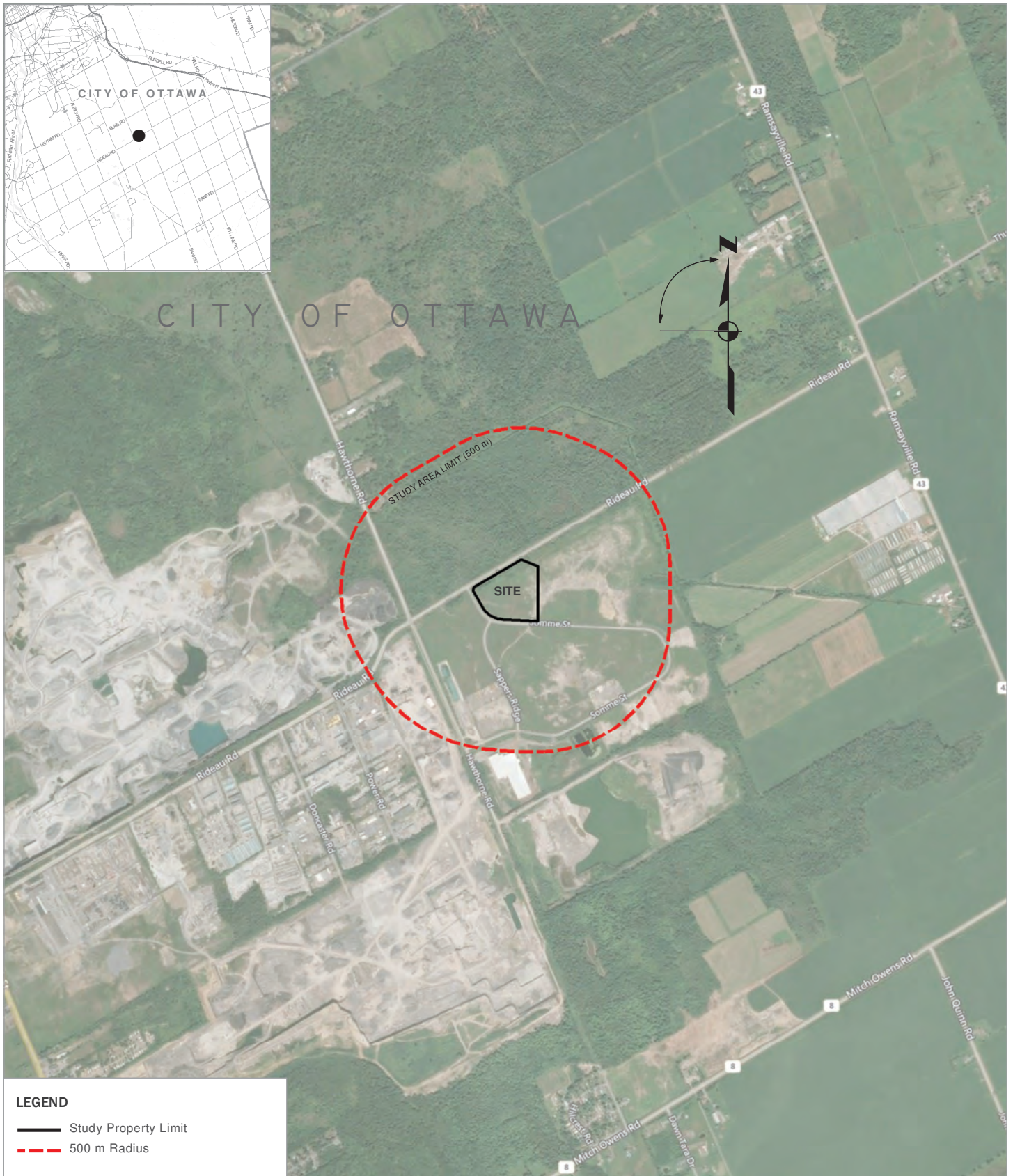
## 9. Statement of Limitations

This report is intended solely for Consolidated Fastfrate (Ottawa) Holdings Inc. in assessing the hydrogeological aspects of the Site (301 Somme Street, Ottawa, Ontario) and is prohibited for use by others without GHD's prior written consent. This report is considered GHD's professional work product and shall remain the sole property of GHD. Any unauthorized reuse, redistribution of or reliance on the report shall be at the Client and recipient's sole risk, without liability to GHD. Client shall defend, indemnify and hold GHD harmless from any liability arising from or related to Client's unauthorized distribution of the report. No portion of this report may be used as a separate entity; it is to be read in its entirety and shall include all supporting drawings and appendices.

The recommendations made in this report are in accordance with our present understanding of the project, the current site use, ground surface elevations and conditions, and are based on the work scope approved by the Client and described in the report. The services were performed in a manner consistent with that level of care and skill ordinarily exercised by members of hydrogeological engineering professions currently practicing under similar conditions in the same locality. No other representations, and no warranties or representations of any kind, either expressed or implied, are made. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties.

All details of design and construction are rarely known at the time of completion of a hydrogeological study. The recommendations and comments made in the study report are based on our subsurface investigation and resulting understanding of the project, as defined at the time of the study. We should be retained to review our recommendations when the drawings and specifications are complete. Without this review, GHD will not be liable for any misunderstanding of our recommendations or their application and adaptation into the final design.

# Figures



Consolidated Fastfrate (Ottawa) Holdings Inc.  
RIDEAU ROAD & SOMME STREET  
CITY OF OTTAWA  
ONTARIO

## HYDROGEOLOGY ASSESSMENT SITE LOCATION PLAN

Project No. 12580314-01  
Revision No. 1  
Date September 2022

**FIGURE 1**

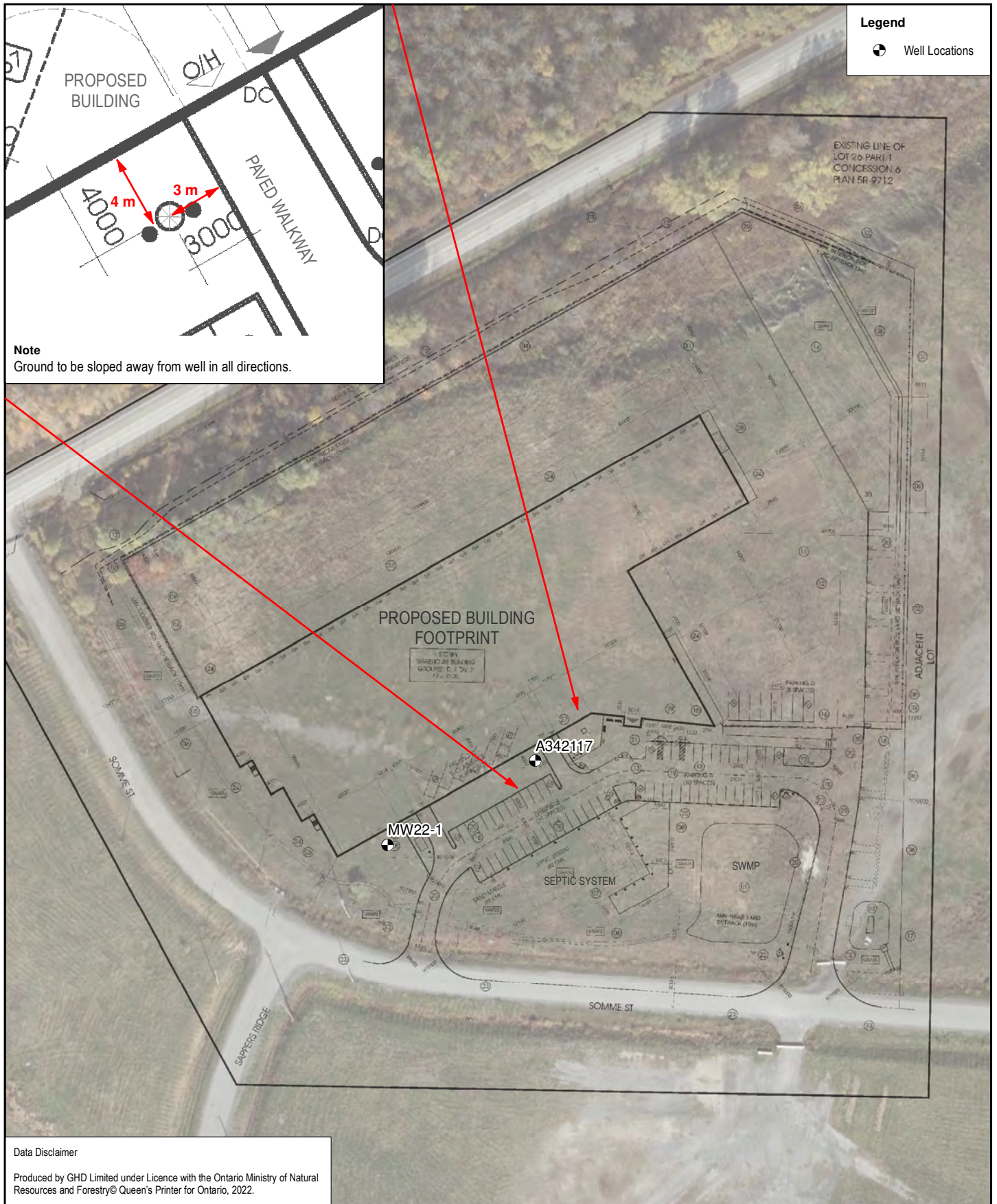
Created by: Will Pridham

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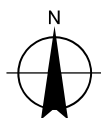


1 cm = 15 meters

0 10 20 30 40

Metres

Map Projection: Transverse Mercator  
Horizontal Datum: North American 1983  
Grid: NAD 1983 UTM Zone 18N



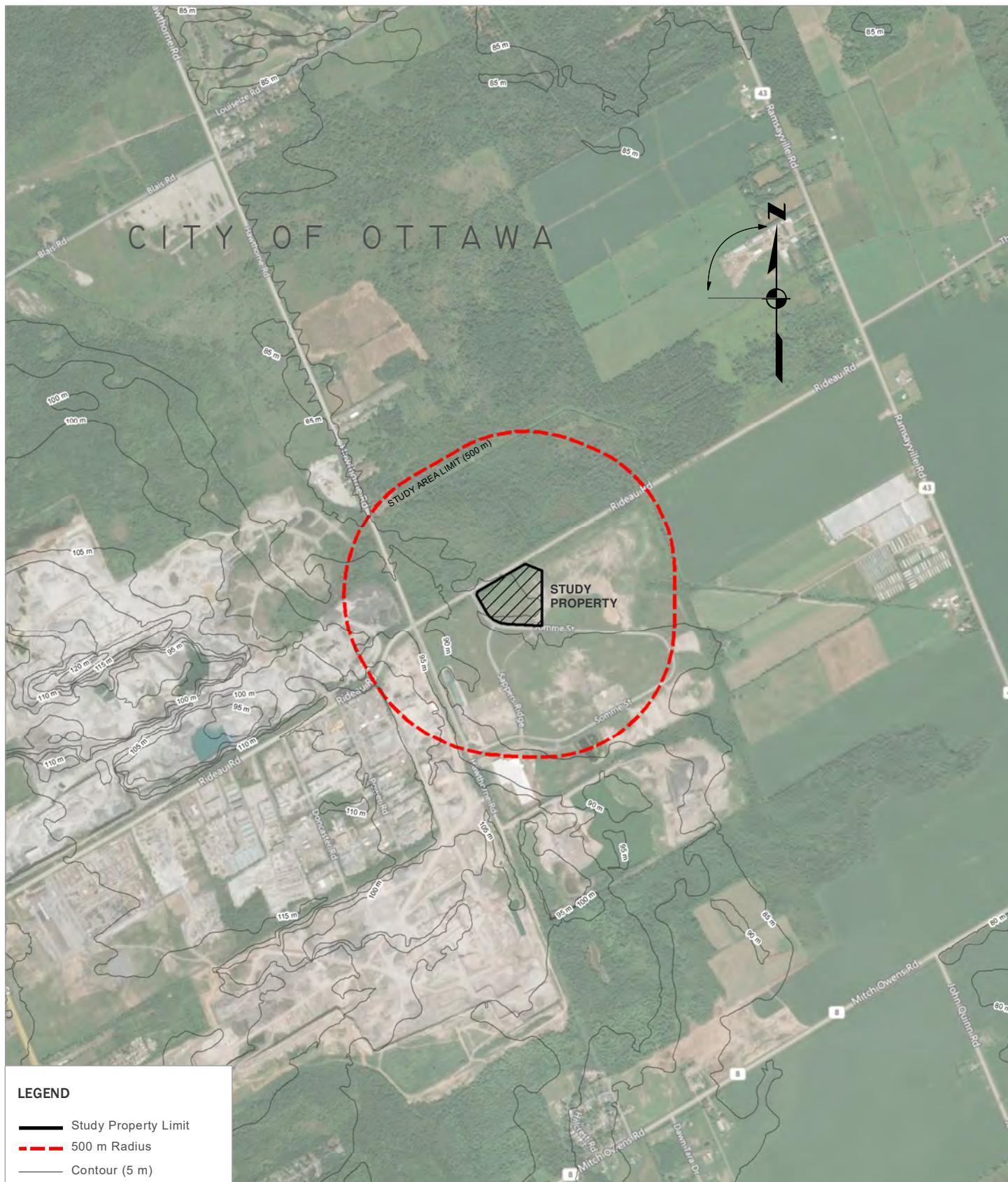
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City of Ottawa

Project No. 12580314  
Revision No.  
Date Sep 19, 2022

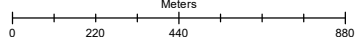
**Concept Plan**

**Figure 2**





NAD83, MTM Zone 9  
1 cm : 200 meters



#### ATtribution STATEMENTS

- MRD128-REV. Ontario Geological Survey 2010. Surficial geology of southern Ontario; Ontario Geological Survey, Miscellaneous Release—Data 128 – Revised.
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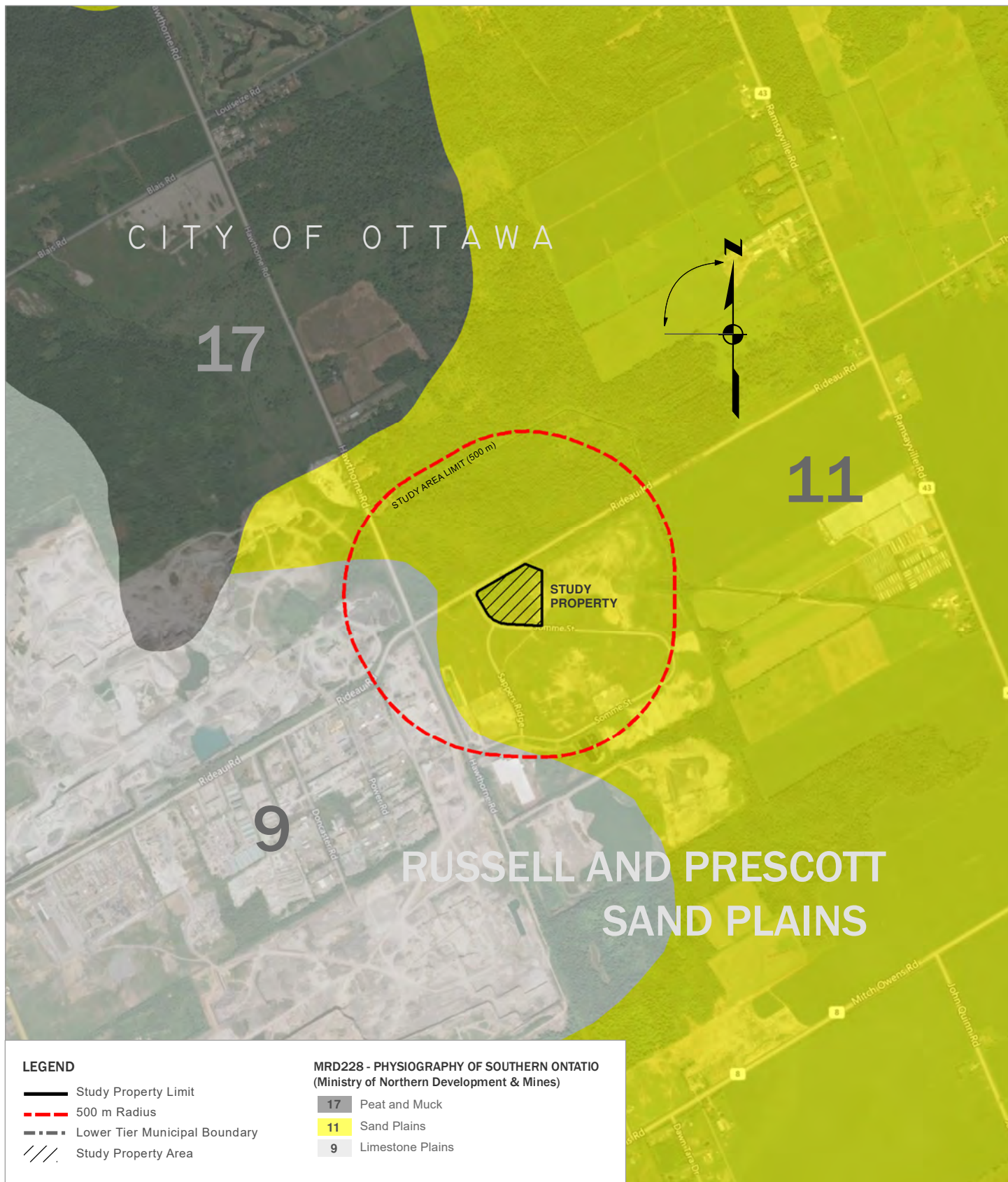
#### HYDROGEOLOGY ASSESSMENT REGIONAL TOPOGRAPHY

Project No. 12580314-01  
Revision No. -  
Date September 2022

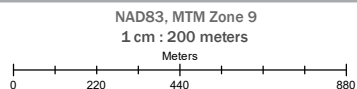
#### FIGURE 3

Created by: Will Pridham





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- MRD228-REV. Chapman, L.J. and Putnam, D.F. 2007. Physiography of southern Ontario; Ontario Geological Survey, Miscellaneous Release—Data 228.
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#### HYDROGEOLOGY ASSESSMENT PHYSIOGRAPHY

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Revision No. -  
Date September 2022

#### FIGURE 4

Created by: Will Pridham



#### LEGEND

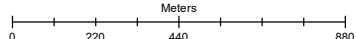
- Study Property Limit
- 500 m Radius
- Landslide Scar
- Beach

#### MRD128 - SURFICIAL GEOLOGY (Ministry of Northern Development & Mines)

- |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li><span style="background-color: #f0e68c; border: 1px solid black; padding: 2px; display: inline-block; width: 20px; height: 10px;"></span> <b>3</b> Paleozoic Bedrock</li> <li><span style="background-color: #d3d3d3; border: 1px solid black; padding: 2px; display: inline-block; width: 20px; height: 10px;"></span> <b>20</b> Organic Deposits: peat, muck, marl</li> <li><span style="background-color: #ffcc99; border: 1px solid black; padding: 2px; display: inline-block; width: 20px; height: 10px;"></span> <b>17</b> Eolian deposits: fine to very fine sand and silt</li> <li><span style="background-color: #ffff00; border: 1px solid black; padding: 2px; display: inline-block; width: 20px; height: 10px;"></span> <b>11</b> Coarse-textured glaciolacustrine deposits: sand, gravel, minor silt and clay               <ul style="list-style-type: none"> <li>11b Littoral deposits</li> <li>11c Foreshore and basinal deposits</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li><span style="background-color: #add8e6; border: 1px solid black; padding: 2px; display: inline-block; width: 20px; height: 10px;"></span> <b>10</b> Fine-textured glaciomarine deposits               <ul style="list-style-type: none"> <li>10a Massive to well laminated</li> </ul> </li> <li><span style="background-color: #90ee90; border: 1px solid black; padding: 2px; display: inline-block; width: 20px; height: 10px;"></span> <b>5b</b> Till: Silty sand to sand-textured till on Precambrian terrain               <ul style="list-style-type: none"> <li>5b Stone-poor, sandy silt to silty sand-textured till on Paleozoic terrain</li> </ul> </li> </ul> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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NAD83, MTM Zone 9  
1 cm : 200 meters



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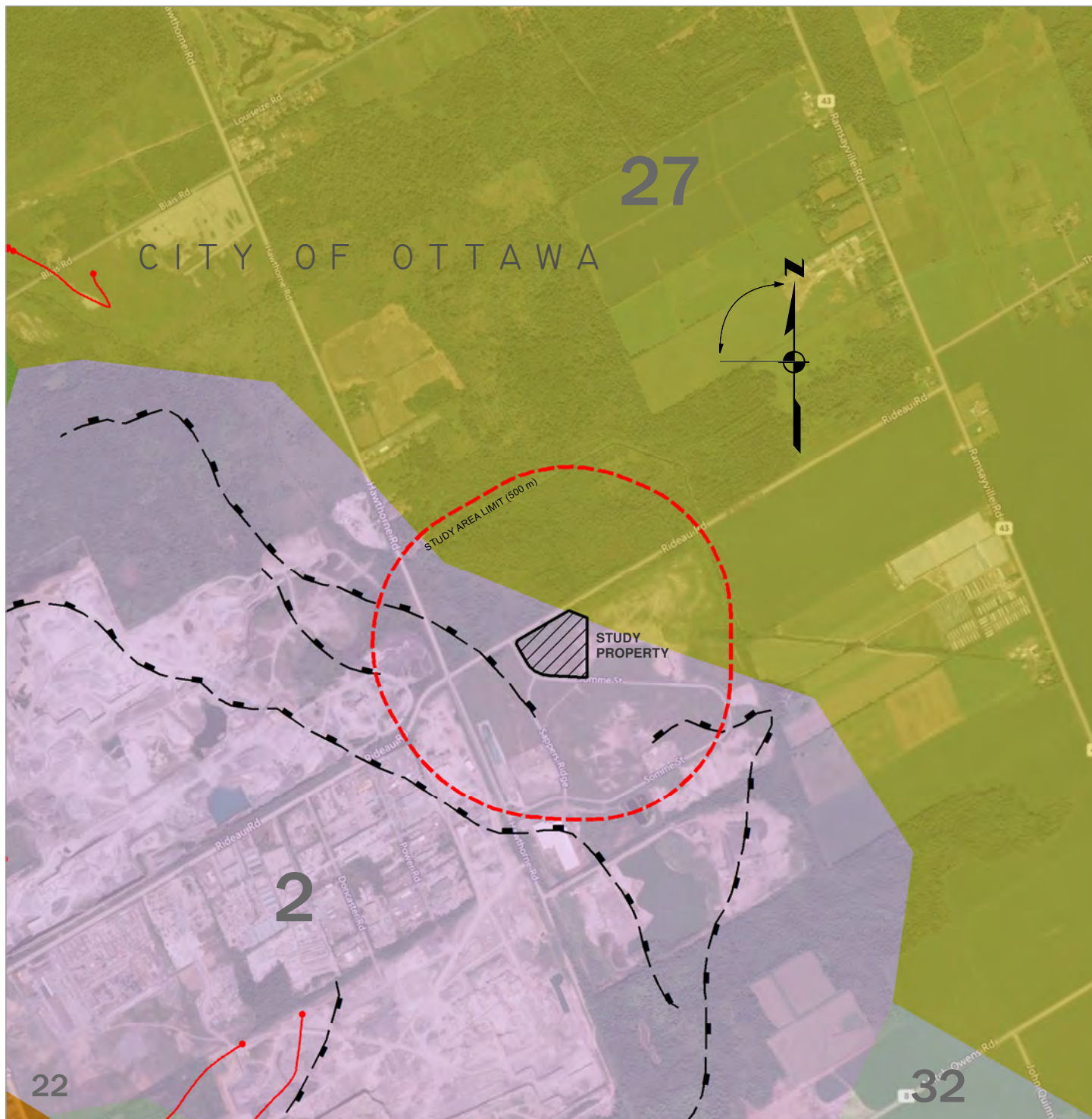
#### HYDROGEOLOGY ASSESSMENT SURFICIAL GEOLOGY

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Revision No. -  
Date September 2022

#### FIGURE 5

Created by: Will Pridham





#### LEGEND

- Study Property Limit
- - - 500 m Radius
- - - Landslide Scar
- Beach

#### EDS014 - QUATERNARY GEOLOGY (Ministry of Northern Development & Mines)

**32 Organic deposits:**  
peat, muck and marl

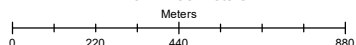
**27 Glaciomarine and marine deposits:**  
sand, gravelly sand and gravel nearshore and beach deposits

**22 Glaciofluvial ice-contact deposits:**  
gravel and sand minor till includes esker, kame, end moraine, ice-marginal delta and subaqueous fan deposits

**2 Bedrock:**  
undifferentiated carbonate and clastic sedimentary rock, exposed at surface or covered by a discontinuous, thin layer of drift

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NAD83, MTM Zone 9  
1 cm : 200 meters



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#### HYDROGEOLOGY ASSESSMENT QUATERNARY GEOLOGY

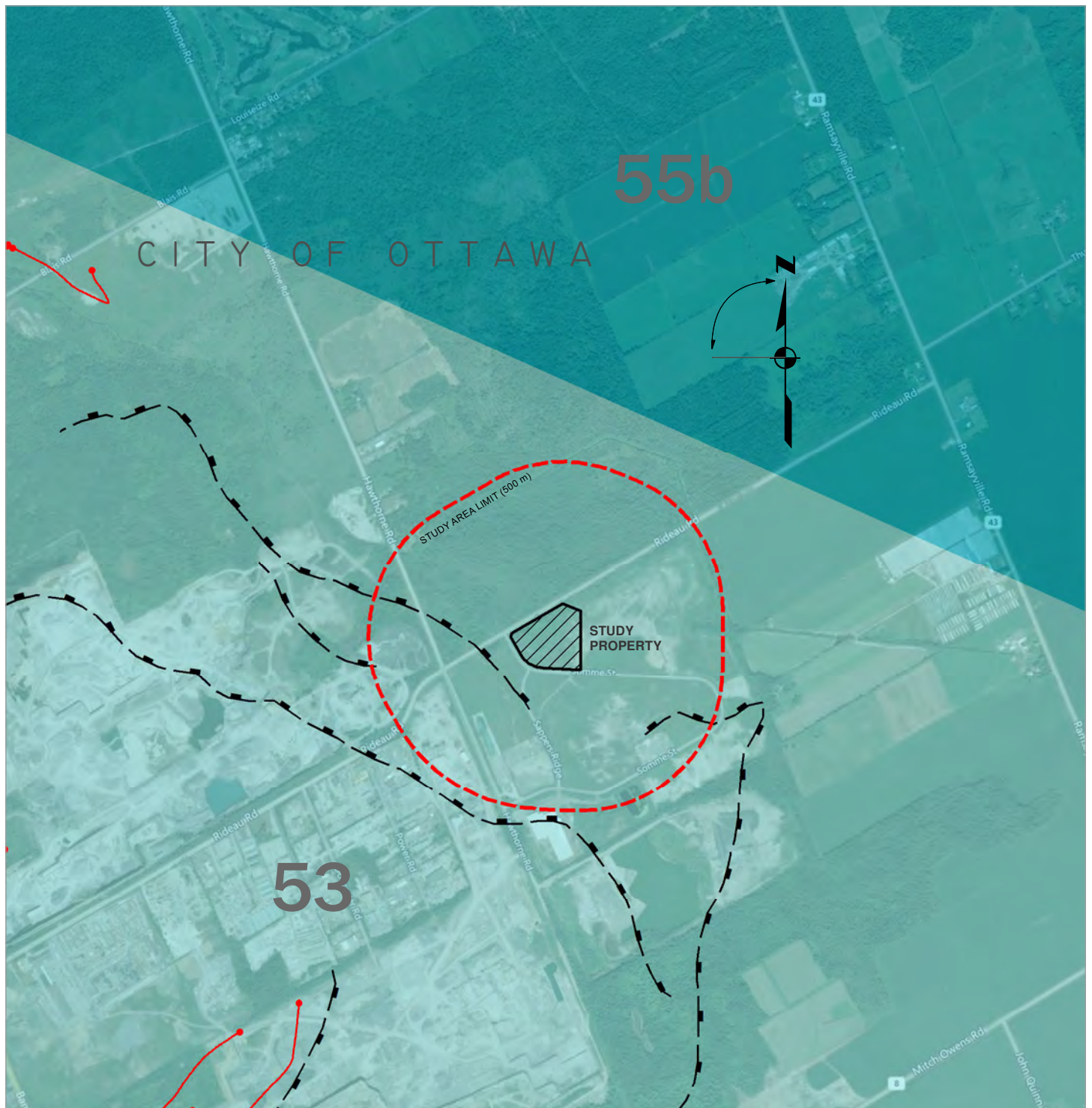
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Revision No. -  
Date September 2022

#### FIGURE 6

Created by: Will Pridham

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#### LEGEND

- Study Property Limit
- - - 500 m Radius
- - - Landslide Scar
- Beach

#### MRD126 - BEDROCK GEOLOGY (Ministry of Northern Development & Mines)

ORDOVICIAN (443.7 Ma to 488.3 Ma)

#### UPPER ORDOVICIAN

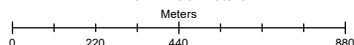
55 Shale, limestone, dolostone, siltstone

55b Georgian Bay Fm.; Blue Mountain Fm.; Billings Fm.; Collingwood Mb.; Eastview Mb.

53 Dolostone, sandstone: Beekmantown Gp.

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NAD83, MTM Zone 9  
1 cm : 200 meters



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#### HYDROGEOLOGY ASSESSMENT BEDROCK GEOLOGY

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Revision No. -

Date September 2022

#### FIGURE 7

Created by: Will Pridham

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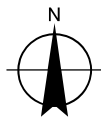


1 cm = 72 meters

0 50 100 150 200

Metres

Map Projection: Transverse Mercator  
Horizontal Datum: North American 1983  
Grid: NAD 1983 UTM Zone 18N



Consolidated Fastrate (Ottawa) Holdings Inc.  
301 Somme Street, Ottawa, ON  
City of Ottawa

Project No. 12580314  
Revision No.  
Date Sep 19, 2022

**Well Locations**

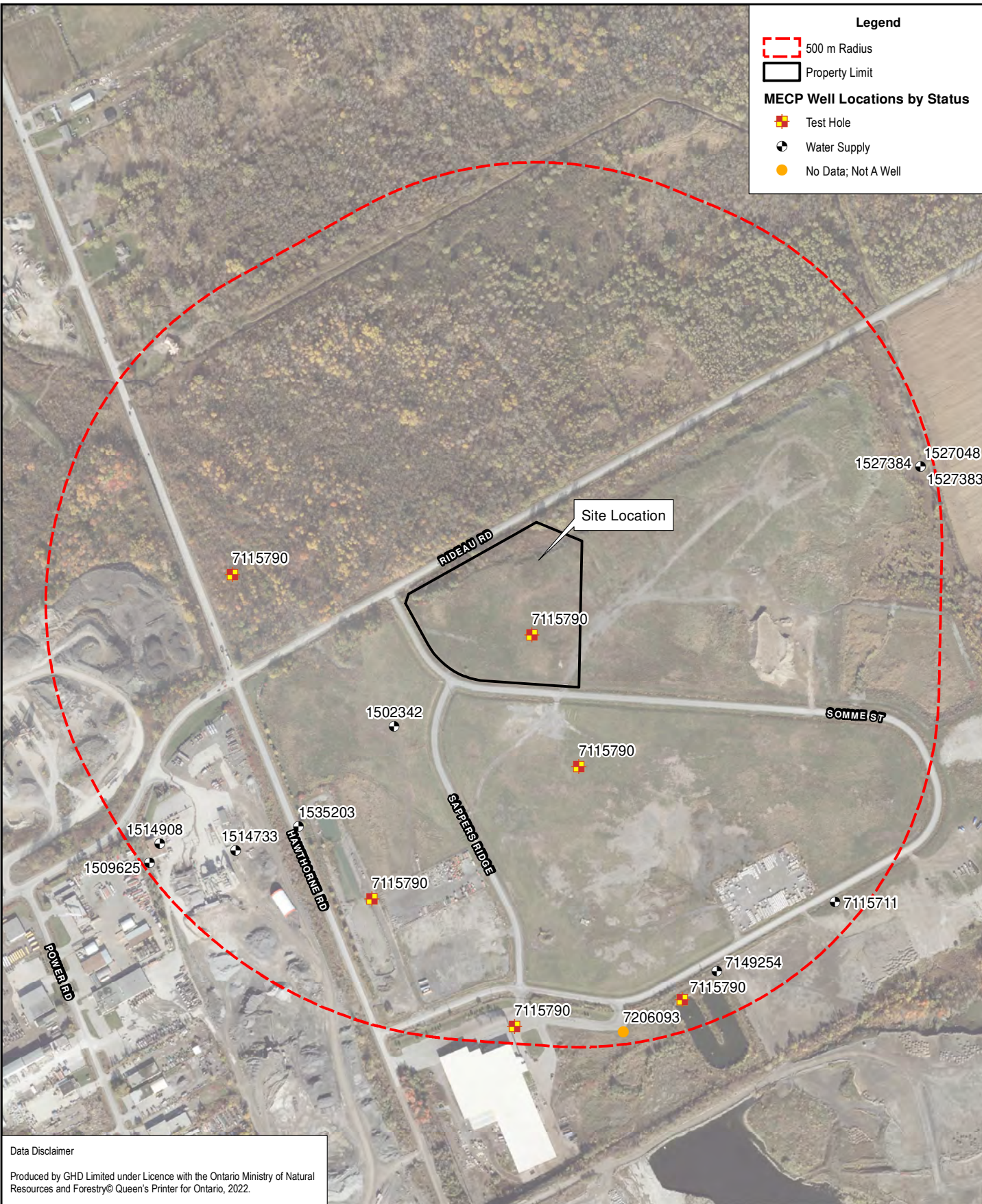
**Figure 8**



# Appendices

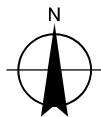
# **Appendix A**

## **MECP Well Records**



1 cm = 72 meters  
0 50 100 150 200  
Metres

Map Projection: Transverse Mercator  
Horizontal Datum: North American 1983  
Grid: NAD 1983 UTM Zone 18N



Consolidated Fastrate (Ottawa) Holdings Inc.  
301 Somme Street, Ottawa, ON  
City of Ottawa

Project No. 12580314  
Revision No.  
Date Sep 19, 2022

## MECP Well Locations

## Appendix A

# MECP WELL RECORD LISTINGS

Ministry of the Environment, Conservation & Parks (MECP)

© Water Well Information System (WWIS). Ministry of the Environment, Conservation, and Parks. 2021.

Powered by Location Intelligence



*DISCLAIMER: All effort has been taken to ensure the accuracy of the data is the same as the source. There are instances where the original PDF document is different and in those cases, the PDF should be used instead.*

|           |                       |                     |                                                           |                                         |
|-----------|-----------------------|---------------------|-----------------------------------------------------------|-----------------------------------------|
| 18        | <b>Easting:</b>       | 456430.80           | <b>Latitude:</b> 45.30598<br><b>Longitude:</b> -75.555767 | <b>Well ID:</b> <b>1502342</b>          |
|           | <b>Northing:</b>      | 5017092.00          |                                                           |                                         |
|           | <b>Elev (masl):</b>   | 87.74               |                                                           |                                         |
| LOCATION  | <b>Lot:</b>           | 026                 |                                                           | <b>Tag:</b>                             |
|           | <b>Con:</b>           | 06                  |                                                           | <b>Audit No:</b>                        |
|           | <b>Municipality:</b>  | OTTAWA-CARLETON     |                                                           | <b>Contractor License:</b> 3504         |
|           | <b>Township:</b>      | GLOUCESTER TOWNSHIP |                                                           | <b>Well Completion Date:</b> 11/30/1950 |
|           | <b>Street:</b>        |                     |                                                           | <b>Received Date:</b> 12/06/1951        |
| WELL      | <b>City:</b>          | n/a                 |                                                           |                                         |
|           | <b>Well Status:</b>   | Water Supply        |                                                           | <b>Well Depth (m):</b> 17.3736          |
|           | <b>Prim. Use:</b>     | n/a                 |                                                           | <b>Depth to Bedrock (m):</b> 27         |
|           | <b>Sec. Use:</b>      | Domestic            |                                                           | <b>Depth to Water:</b> ft               |
|           | <b>Boring Method:</b> | Cable Tool          |                                                           | <b>Water Kind:</b> FRESH                |
| PUMP TEST | <b>Test Method:</b>   | CLEAR               |                                                           | <b>Pipe ID:</b> 10572955                |
|           | <b>Pump Set (m):</b>  | n/a                 |                                                           | <b>Pump Test ID:</b> 991502342          |
|           | <b>SWL (ft)</b>       | 13                  |                                                           | <b>Flowing:</b> N                       |
|           | <b>Final Level:</b>   | 18 ft               |                                                           | <b>Pump Duration (hr):</b> 0            |
|           | <b>Pump Rate:</b>     | 1 GPM               |                                                           | <b>Pump Duration (m):</b> 30            |
|           | <b>Recom. Rate:</b>   | n/a GPM             |                                                           |                                         |
|           |                       |                     |                                                           |                                         |

## CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

| Layer | Case ID   | Casing Diamter | Diamter Units | Material  | Top Depth | Bottom Depth |
|-------|-----------|----------------|---------------|-----------|-----------|--------------|
| 1     | 930041541 | 5              | inch          | STEEL     | n/a       | 27 ft        |
| 2     | 930041542 | 5              | inch          | OPEN HOLE | n/a       | 57 ft        |

## FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

| Layer | Material      | Material 2 | Material 3 | Colour | Top Depth | Bottom Depth |
|-------|---------------|------------|------------|--------|-----------|--------------|
| 1     | PREV. DRILLED | n/a        | n/a        | n/a    | 0         | 27 ft        |
| 2     | SANDSTONE     | n/a        | n/a        | n/a    | 27        | 57 ft        |

End of Record

|           |                       |                     |                                                            |                                         |
|-----------|-----------------------|---------------------|------------------------------------------------------------|-----------------------------------------|
| 18        | <b>Easting:</b>       | 456090.80           | <b>Latitude:</b> 45.304248<br><b>Longitude:</b> -75.560087 | <b>Well ID:</b> <b>1509625</b>          |
|           | <b>Northing:</b>      | 5016902.00          |                                                            |                                         |
|           | <b>Elev (masl):</b>   | 103.27              |                                                            |                                         |
| LOCATION  | <b>Lot:</b>           | 026                 |                                                            | <b>Tag:</b>                             |
|           | <b>Con:</b>           | 05                  |                                                            | <b>Audit No:</b>                        |
|           | <b>Municipality:</b>  | OTTAWA-CARLETON     |                                                            | <b>Contractor License:</b> 3002         |
|           | <b>Township:</b>      | GLOUCESTER TOWNSHIP |                                                            | <b>Well Completion Date:</b> 05/04/1968 |
|           | <b>Street:</b>        |                     |                                                            | <b>Received Date:</b> 06/12/1968        |
| WELL      | <b>City:</b>          | n/a                 |                                                            |                                         |
|           | <b>Well Status:</b>   | Water Supply        |                                                            | <b>Well Depth (m):</b> 58.5216          |
|           | <b>Prim. Use:</b>     | n/a                 |                                                            | <b>Depth to Bedrock (m):</b> 0          |
|           | <b>Sec. Use:</b>      | n/a                 |                                                            | <b>Depth to Water:</b> ft               |
|           | <b>Boring Method:</b> | Cable Tool          |                                                            | <b>Water Kind:</b> FRESH                |
| PUMP TEST | <b>Test Method:</b>   | CLEAR               |                                                            | <b>Pipe ID:</b> 10580227                |
|           | <b>Pump Set (m):</b>  | n/a                 |                                                            | <b>Pump Test ID:</b> 991509625          |
|           | <b>SWL (ft)</b>       | 36                  |                                                            | <b>Flowing:</b> N                       |
|           | <b>Final Level:</b>   | 63 ft               |                                                            | <b>Pump Duration (hr):</b> 24           |
|           | <b>Pump Rate:</b>     | 180 GPM             |                                                            | <b>Pump Duration (m):</b> 0             |
|           | <b>Recom. Rate:</b>   | 180 GPM             |                                                            |                                         |
|           |                       |                     |                                                            |                                         |

### CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

| Layer | Case ID   | Casing Diameter | Diameter Units | Material  | Top Depth | Bottom Depth |
|-------|-----------|-----------------|----------------|-----------|-----------|--------------|
| 1     | 930055956 | 10              | inch           | STEEL     | n/a       | 18 ft        |
| 2     | 930055957 | 9               | inch           | OPEN HOLE | n/a       | 192 ft       |

### FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

| Layer | Material  | Material 2 | Material 3 | Colour | Top Depth | Bottom Depth |
|-------|-----------|------------|------------|--------|-----------|--------------|
| 1     | SANDSTONE | n/a        | n/a        | BROWN  | 0         | 52 ft        |
| 2     | QUARTZITE | n/a        | n/a        | GREY   | 52        | 72 ft        |
| 3     | SANDSTONE | n/a        | n/a        | WHITE  | 72        | 160 ft       |
| 4     | SANDSTONE | n/a        | n/a        | GREY   | 160       | 192 ft       |

End of Record

|                  |                       |                     |                                                                                                                                                   |                                |
|------------------|-----------------------|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| <b>18</b>        | <b>Easting:</b>       | 456210.80           | <b>Latitude:</b> 45.304418<br><b>Longitude:</b> -75.558558                                                                                        | <b>Well ID:</b> <b>1514733</b> |
|                  | <b>Northing:</b>      | 5016920.00          |                                                                                                                                                   |                                |
|                  | <b>Elev (masl):</b>   | 99.42               |                                                                                                                                                   |                                |
| <b>LOCATION</b>  | <b>Lot:</b>           | 026                 | <b>Tag:</b><br><b>Audit No:</b><br><b>Contractor License:</b> 1517<br><b>Well Completion Date:</b> 04/15/1975<br><b>Received Date:</b> 07/08/1975 |                                |
|                  | <b>Con:</b>           | 05                  |                                                                                                                                                   |                                |
|                  | <b>Municipality:</b>  | OTTAWA-CARLETON     |                                                                                                                                                   |                                |
|                  | <b>Township:</b>      | GLOUCESTER TOWNSHIP |                                                                                                                                                   |                                |
|                  | <b>Street:</b>        |                     |                                                                                                                                                   |                                |
| <b>WELL</b>      | <b>City:</b>          | n/a                 | <b>Well Depth (m):</b> 35.3568<br><b>Depth to Bedrock (m):</b> 2<br><b>Depth to Water:</b> ft<br><b>Water Kind:</b> FRESH                         |                                |
|                  | <b>Well Status:</b>   | Water Supply        |                                                                                                                                                   |                                |
|                  | <b>Prim. Use:</b>     | n/a                 |                                                                                                                                                   |                                |
|                  | <b>Sec. Use:</b>      | n/a                 |                                                                                                                                                   |                                |
|                  | <b>Boring Method:</b> | Cable Tool          |                                                                                                                                                   |                                |
| <b>PUMP TEST</b> | <b>Test Method:</b>   | CLOUDY              | <b>Pipe ID:</b> 10585273<br><b>Pump Test ID:</b> 991514733<br><b>Flowing:</b> N<br><b>Pump Duration (hr):</b> 1<br><b>Pump Duration (m):</b> 20   |                                |
|                  | <b>Pump Set (m):</b>  | n/a                 |                                                                                                                                                   |                                |
|                  | <b>SWL (ft)</b>       | 40                  |                                                                                                                                                   |                                |
|                  | <b>Final Level:</b>   | 65 ft               |                                                                                                                                                   |                                |
|                  | <b>Pump Rate:</b>     | 10 GPM              |                                                                                                                                                   |                                |
|                  | <b>Recom. Rate:</b>   | 5 GPM               |                                                                                                                                                   |                                |
|                  |                       |                     |                                                                                                                                                   |                                |

### CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

| Layer | Case ID   | Casing Diameter | Diameter Units | Material  | Top Depth | Bottom Depth |
|-------|-----------|-----------------|----------------|-----------|-----------|--------------|
| 1     | 930064874 | 5               | inch           | STEEL     | n/a       | 18 ft        |
| 2     | 930064875 | 5               | inch           | OPEN HOLE | n/a       | 116 ft       |

### FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

| Layer | Material  | Material 2 | Material 3 | Colour | Top Depth | Bottom Depth |
|-------|-----------|------------|------------|--------|-----------|--------------|
| 1     | TOPSOIL   | SAND       | n/a        | BROWN  | 0         | 2 ft         |
| 2     | SHALE     | n/a        | n/a        | BROWN  | 2         | 10 ft        |
| 3     | LIMESTONE | n/a        | n/a        | GREY   | 10        | 116 ft       |

End of Record

|                 |                       |                     |                                                                                                                                                   |                                |
|-----------------|-----------------------|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| <b>18</b>       | <b>Easting:</b>       | 456104.80           | <b>Latitude:</b> 45.304492<br><b>Longitude:</b> -75.559911                                                                                        | <b>Well ID:</b> <b>1514908</b> |
|                 | <b>Northing:</b>      | 5016929.00          |                                                                                                                                                   |                                |
|                 | <b>Elev (masl):</b>   | 101.82              |                                                                                                                                                   |                                |
| <b>LOCATION</b> | <b>Lot:</b>           | 026                 | <b>Tag:</b><br><b>Audit No:</b><br><b>Contractor License:</b> 1558<br><b>Well Completion Date:</b> 08/15/1975<br><b>Received Date:</b> 09/11/1975 |                                |
|                 | <b>Con:</b>           | 05                  |                                                                                                                                                   |                                |
|                 | <b>Municipality:</b>  | OTTAWA-CARLETON     |                                                                                                                                                   |                                |
|                 | <b>Township:</b>      | GLOUCESTER TOWNSHIP |                                                                                                                                                   |                                |
|                 | <b>Street:</b>        |                     |                                                                                                                                                   |                                |
| <b>WELL</b>     | <b>City:</b>          | n/a                 | <b>Well Depth (m):</b> 75.5904<br><b>Depth to Bedrock (m):</b> 0<br><b>Depth to Water:</b> ft<br><b>Water Kind:</b> Not stated                    |                                |
|                 | <b>Well Status:</b>   | Water Supply        |                                                                                                                                                   |                                |
|                 | <b>Prim. Use:</b>     | n/a                 |                                                                                                                                                   |                                |
|                 | <b>Sec. Use:</b>      | Domestic            |                                                                                                                                                   |                                |
|                 | <b>Boring Method:</b> | Air Percussion      |                                                                                                                                                   |                                |



PUMP TEST

Test Method:  
 Pump Set (m): n/a  
 SWL (ft): 40  
 Final Level: 100 ft  
 Pump Rate: 15 GPM  
 Recom. Rate: 5 GPM

Pipe ID:  
 Pump Test ID 991514908  
 Flowing: N  
 Pump Duration (hr): 1  
 Pump Duration (m): 0

## CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

| Layer | Case ID   | Casing Diameter | Diameter Units | Material  | Top Depth | Bottom Depth |
|-------|-----------|-----------------|----------------|-----------|-----------|--------------|
| 1     | 930065185 | 6               | inch           | STEEL     | n/a       | 196 ft       |
| 2     | 930065186 | 6               | inch           | OPEN HOLE | n/a       | 248 ft       |

## FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

| Layer | Material  | Material 2 | Material 3 | Colour | Top Depth | Bottom Depth |
|-------|-----------|------------|------------|--------|-----------|--------------|
| 1     | FILL      | ROCK       | FRACTURED  | n/a    | 0         | 1 ft         |
| 2     | LIMESTONE | n/a        | n/a        | GREY   | 1         | 40 ft        |
| 3     | SANDSTONE | HARD       | n/a        | WHITE  | 40        | 196 ft       |
| 4     | SANDSTONE | n/a        | n/a        | WHITE  | 196       | 248 ft       |

End of Record

|    |              |            |                                              |                         |
|----|--------------|------------|----------------------------------------------|-------------------------|
| 18 | Easting:     | 457162.00  | Latitude: 45.309274<br>Longitude: -75.546472 | Well ID: <b>1527048</b> |
|    | Northing:    | 5017453.00 |                                              |                         |
|    | Elev (masl): | 82.18      |                                              |                         |

LOCATION

Lot: 026  
 Con: 06  
 Municipality: OTTAWA-CARLETON  
 Township: GLOUCESTER TOWNSHIP  
 Street:  
 City: n/a

Tag:  
 Audit No: 130025  
 Contractor License: 1558  
 Well Completion Date: 04/19/1993  
 Received Date: 05/06/1993

WELL

Well Status: Water Supply  
 Prim. Use: n/a  
 Sec. Use: n/a  
 Boring Method: Air Percussion

Well Depth (m): 41.148  
 Depth to Bedrock (m): 0  
 Depth to Water: ft  
 Water Kind: Not stated

PUMP TEST

Test Method: n/a  
 Pump Set (m): n/a  
 SWL (ft): 31  
 Final Level: 130 ft  
 Pump Rate: 15 GPM  
 Recom. Rate: 5 GPM

Pipe ID: 10597297  
 Pump Test ID 991527048  
 Flowing: N  
 Pump Duration (hr): 1  
 Pump Duration (m): 0

## CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

| Layer | Case ID   | Casing Diameter | Diameter Units | Material  | Top Depth | Bottom Depth |
|-------|-----------|-----------------|----------------|-----------|-----------|--------------|
| 1     | 930085230 | 6               | inch           | STEEL     | n/a       | 31 ft        |
| 2     | 930085231 | 6               | inch           | OPEN HOLE | n/a       | 75 ft        |
| 3     | 930085232 | 6               | inch           | OPEN HOLE | n/a       | 135 ft       |

## FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

| Layer | Material  | Material 2 | Material 3 | Colour | Top Depth | Bottom Depth |
|-------|-----------|------------|------------|--------|-----------|--------------|
| 1     | CLAY      | ROCK       | FILL       | BROWN  | 0         | 9 ft         |
| 2     | HARDPAN   | BOULDERS   | n/a        | GREY   | 9         | 15 ft        |
| 3     | LIMESTONE | SOFT       | n/a        | GREY   | 15        | 33 ft        |
| 4     | SANDSTONE | HARD       | n/a        | WHITE  | 33        | 135 ft       |

End of Record

|    |              |            |                                              |                         |
|----|--------------|------------|----------------------------------------------|-------------------------|
| 18 | Easting:     | 457162.00  | Latitude: 45.309274<br>Longitude: -75.546472 | Well ID: <b>1527383</b> |
|    | Northing:    | 5017453.00 |                                              |                         |
|    | Elev (masl): | 82.18      |                                              |                         |

LOCATION

Lot: 026  
 Con: 06  
 Municipality: OTTAWA-CARLETON  
 Township: GLOUCESTER TOWNSHIP  
 Street:

Tag:  
 Audit No: 135946  
 Contractor License: 1558  
 Well Completion Date: 08/16/1993  
 Received Date:

|           |                |                |  |  |                       |            |
|-----------|----------------|----------------|--|--|-----------------------|------------|
| L         | City:          | n/a            |  |  |                       | 09/21/1993 |
|           | Well Status:   | Water Supply   |  |  | Well Depth (m):       | 30.48      |
|           | Prim. Use:     | n/a            |  |  | Depth to Bedrock (m): | 28         |
|           | Sec. Use:      | n/a            |  |  | Depth to Water:       | ft         |
| WELL      | Boring Method: | Air Percussion |  |  | Water Kind:           | Not stated |
|           | Test Method:   | CLOUDY         |  |  | Pipe ID:              | 10597603   |
|           | Pump Set (m):  | n/a            |  |  | Pump Test ID          | 991527383  |
|           | SWL (ft)       | 7              |  |  | Flowing:              | N          |
| PUMP TEST | Final Level:   | 15 ft          |  |  | Pump Duration (hr):   | 1          |
|           | Pump Rate:     | 20 GPM         |  |  | Pump Duration (m):    | 0          |
|           | Recom. Rate:   | 5 GPM          |  |  |                       |            |
|           |                |                |  |  |                       |            |

#### CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

| Layer | Case ID   | Casing Diamter | Diamter Units | Material  | Top Depth | Bottom Depth |
|-------|-----------|----------------|---------------|-----------|-----------|--------------|
| 1     | 930085613 | 6              | inch          | STEEL     | n/a       | 39 ft        |
| 2     | 930085614 | 6              | inch          | OPEN HOLE | n/a       | 100 ft       |

#### FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

| Layer | Material  | Material 2 | Material 3 | Colour | Top Depth | Bottom Depth |
|-------|-----------|------------|------------|--------|-----------|--------------|
| 1     | SAND      | STONES     | n/a        | BROWN  | 0         | 5 ft         |
| 2     | HARDPAN   | BOULDERS   | n/a        | GREY   | 5         | 28 ft        |
| 3     | SANDSTONE | HARD       | n/a        | GREY   | 28        | 100 ft       |

End of Record

|    |              |            |                                              |                         |
|----|--------------|------------|----------------------------------------------|-------------------------|
| 18 | Easting:     | 457162.00  | Latitude: 45.309274<br>Longitude: -75.546472 | Well ID: <b>1527384</b> |
|    | Northing:    | 5017453.00 |                                              |                         |
|    | Elev (masl): | 82.18      |                                              |                         |

|           |                |                     |  |  |                       |            |
|-----------|----------------|---------------------|--|--|-----------------------|------------|
| LOCATION  | Lot:           | 026                 |  |  | Tag:                  |            |
|           | Con:           | 06                  |  |  | Audit No:             | 135944     |
|           | Municipality:  | OTTAWA-CARLETON     |  |  | Contractor License:   | 1558       |
|           | Township:      | GLOUCESTER TOWNSHIP |  |  | Well Completion Date: | 08/16/1993 |
| WELL      | Street:        |                     |  |  | Received Date:        | 09/21/1993 |
|           | City:          | n/a                 |  |  |                       |            |
|           | Well Status:   | Water Supply        |  |  | Well Depth (m):       | 30.48      |
|           | Prim. Use:     | n/a                 |  |  | Depth to Bedrock (m): | 0          |
| PUMP TEST | Sec. Use:      | n/a                 |  |  | Depth to Water:       | ft         |
|           | Boring Method: | Air Percussion      |  |  | Water Kind:           | Not stated |
|           | Test Method:   | CLOUDY              |  |  | Pipe ID:              | 10597604   |
|           | Pump Set (m):  | n/a                 |  |  | Pump Test ID          | 991527384  |
|           | SWL (ft)       | 22                  |  |  | Flowing:              | N          |
|           | Final Level:   | 24 ft               |  |  | Pump Duration (hr):   | 1          |
|           | Pump Rate:     | 15 GPM              |  |  | Pump Duration (m):    | 0          |
|           | Recom. Rate:   | 5 GPM               |  |  |                       |            |

#### CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

| Layer | Case ID   | Casing Diamter | Diamter Units | Material  | Top Depth | Bottom Depth |
|-------|-----------|----------------|---------------|-----------|-----------|--------------|
| 1     | 930085615 | 6              | inch          | STEEL     | n/a       | 22 ft        |
| 2     | 930085616 | 6              | inch          | OPEN HOLE | n/a       | 100 ft       |

#### FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

| Layer | Material  | Material 2 | Material 3 | Colour | Top Depth | Bottom Depth |
|-------|-----------|------------|------------|--------|-----------|--------------|
| 1     | SANDSTONE | HARD       | n/a        | GREY   | 0         | 100 ft       |

End of Record

|    |              |            |                                             |                         |
|----|--------------|------------|---------------------------------------------|-------------------------|
| 18 | Easting:     | 456298.00  | Latitude: 45.30472<br>Longitude: -75.557449 | Well ID: <b>1535203</b> |
|    | Northing:    | 5016953.00 |                                             |                         |
|    | Elev (masl): | 90.37      |                                             |                         |

|           |                       |                     |                              |            |
|-----------|-----------------------|---------------------|------------------------------|------------|
| LOCATION  | <b>Lot:</b>           |                     | <b>Tag:</b>                  | A018916    |
|           | <b>Con:</b>           | 06                  | <b>Audit No:</b>             | Z19099     |
|           | <b>Municipality:</b>  | OTTAWA-CARLETON     | <b>Contractor License:</b>   | 1119       |
|           | <b>Township:</b>      | GLOUCESTER TOWNSHIP | <b>Well Completion Date:</b> | 10/27/2004 |
| WELL      | <b>Street:</b>        | 3500 RIDEAU ROAD    | <b>Received Date:</b>        | 11/26/2004 |
|           | <b>City:</b>          | GLOUCESTER          |                              |            |
|           | <b>Well Status:</b>   | Water Supply        | <b>Well Depth (m):</b>       | 42.67      |
|           | <b>Prim. Use:</b>     | n/a                 | <b>Depth to Bedrock (m):</b> | 4          |
| PUMP TEST | <b>Sec. Use:</b>      | n/a                 | <b>Depth to Water:</b>       | n/a        |
|           | <b>Boring Method:</b> | Air Percussion      | <b>Water Kind:</b>           |            |
|           | <b>Test Method:</b>   | CLEAR               | <b>Pipe ID:</b>              | 11181474   |
|           | <b>Pump Set (m):</b>  | 41.16               | <b>Pump Test ID</b>          | 11189805   |
|           | <b>SWL (ft)</b>       | 14.18               | <b>Flowing:</b>              | n/a        |
|           | <b>Final Level:</b>   | 15.8m               | <b>Pump Duration (hr):</b>   | 1          |
|           | <b>Pump Rate:</b>     | 75.7LPM             | <b>Pump Duration (m):</b>    | 0          |
|           | <b>Recom. Rate:</b>   | 75.7LPM             |                              |            |

#### CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

| Layer | Case ID   | Casing Diameter | Diameter Units | Material  | Top Depth | Bottom Depth |
|-------|-----------|-----------------|----------------|-----------|-----------|--------------|
| 1     | 930843335 | 15.88           | cm             | STEEL     | 0         | 6.7 m        |
| 2     | 930843336 | n/a             | cm             | OPEN HOLE | 6.09      | 42.67 m      |

#### FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

| Layer | Material  | Material 2 | Material 3 | Colour | Top Depth | Bottom Depth |
|-------|-----------|------------|------------|--------|-----------|--------------|
| 1     | GRAVEL    | TOPSOIL    | n/a        | n/a    | 0         | 1.21 m       |
| 2     | SANDSTONE | n/a        | n/a        | GREY   | 1.21      | 35.05 m      |
| 3     | LIMESTONE | SANDSTONE  | n/a        | GREY   | 35.05     | 42.67 m      |

End of Record

|    |                     |            |                                                            |                                |
|----|---------------------|------------|------------------------------------------------------------|--------------------------------|
| 17 | <b>Easting:</b>     | 436883.00  | <b>Latitude:</b> 45.303821<br><b>Longitude:</b> -75.547937 | <b>Well ID:</b> <b>7115711</b> |
|    | <b>Northing:</b>    | 4794755.00 |                                                            |                                |
|    | <b>Elev (masl):</b> | 87.38      |                                                            |                                |

|           |                       |                     |                              |            |
|-----------|-----------------------|---------------------|------------------------------|------------|
| LOCATION  | <b>Lot:</b>           | 026                 | <b>Tag:</b>                  | A068335    |
|           | <b>Con:</b>           | 06                  | <b>Audit No:</b>             | Z84410     |
|           | <b>Municipality:</b>  | OTTAWA-CARLETON     | <b>Contractor License:</b>   | 1558       |
|           | <b>Township:</b>      | GLOUCESTER TOWNSHIP | <b>Well Completion Date:</b> | 09/26/2008 |
| WELL      | <b>Street:</b>        | TW #5               | <b>Received Date:</b>        | 12/02/2008 |
|           | <b>City:</b>          | GLOUCESTER          |                              |            |
|           | <b>Well Status:</b>   | Water Supply        | <b>Well Depth (m):</b>       | 29.86      |
|           | <b>Prim. Use:</b>     | n/a                 | <b>Depth to Bedrock (m):</b> | n/a        |
| PUMP TEST | <b>Sec. Use:</b>      | Industrial          | <b>Depth to Water:</b>       | n/a        |
|           | <b>Boring Method:</b> | Rotary (Air)        | <b>Water Kind:</b>           | Untested   |
|           | <b>Test Method:</b>   | CLEAR               | <b>Pipe ID:</b>              | 1002442328 |
|           | <b>Pump Set (m):</b>  | 22.85               | <b>Pump Test ID</b>          | 1002442329 |
|           | <b>SWL (ft)</b>       | 6.85                | <b>Flowing:</b>              | n/a        |
|           | <b>Final Level:</b>   | 9.99m               | <b>Pump Duration (hr):</b>   | 6          |
|           | <b>Pump Rate:</b>     | 54.6LPM             | <b>Pump Duration (m):</b>    | 0          |
|           | <b>Recom. Rate:</b>   | 45.5LPM             |                              |            |

#### CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

| Layer | Case ID    | Casing Diameter | Diameter Units | Material | Top Depth | Bottom Depth |
|-------|------------|-----------------|----------------|----------|-----------|--------------|
| 1     | 1002442337 | 15.86           | cm             | STEEL    | -0.45     | 12.8 m       |

#### FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

| Layer | Material  | Material 2 | Material 3 | Colour | Top Depth | Bottom Depth |
|-------|-----------|------------|------------|--------|-----------|--------------|
| 1     | TOPSOIL   | STONES     | FILL       | BROWN  | 0         | 1.21 m       |
| 2     | TOPSOIL   | STONES     | SANDY      | GREY   | 1.21      | 3.96 m       |
| 3     | SANDSTONE | n/a        | HARD       | GREY   | 3.96      | 29.86 m      |

End of Record

17

Easting:555808.00

Northing:4809940.00

Elev (masl):85.10

Latitude:45.303818

Longitude:-75.556139

Well ID:7115790

LOCATION

Lot:026

Con:06

Municipality:OTTAWA-CARLETON

Township:GLOUCESTER TOWNSHIP

Street:HAWTHORNE ROAD AT RIDEAU ROAD

City:Ottawa

WELL

Well Status:Test Hole

Prim. Use:n/a

Sec. Use:n/a

Boring Method:n/a

PUMP TEST

Test Method:n/a

Pump Set (m):n/a

SWL (ft):1.7

Final Level:n/a m

Pump Rate:n/a

Recom. Rate:n/a

Tag:A074584

Audit No:M02897

Contractor License:1844

Well Completion Date:07/15/2008

Received Date:11/26/2008

Well Depth (m):7.6

Depth to Bedrock (m):n/a

Depth to Water:

Water Kind:

Pipe ID:1002782586

Pump Test ID:1002782562

Flowing:n/a

Pump Duration (hr):n/a

Pump Duration (m):n/a

#### CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

| Layer | Case ID    | Casing Diameter | Diameter Units | Material | Top Depth | Bottom Depth |
|-------|------------|-----------------|----------------|----------|-----------|--------------|
| 0     | 1002782579 | n/a             | n/a            | PLASTIC  | n/a       | 3 m          |
| 0     | 1002782525 | n/a             | n/a            | PLASTIC  | n/a       | 1.5 m        |
| 0     | 1002782570 | n/a             | n/a            | PLASTIC  | n/a       | 3 m          |
| 0     | 1002782597 | n/a             | n/a            | PLASTIC  | n/a       | 1.37 m       |
| 0     | 1002782561 | n/a             | n/a            | PLASTIC  | n/a       | 1.5 m        |
| 0     | 1002782588 | n/a             | n/a            | PLASTIC  | n/a       | 1.5 m        |
| 0     | 1002782552 | n/a             | n/a            | PLASTIC  | n/a       | 1.22 m       |
| 0     | 1002782534 | n/a             | n/a            | PLASTIC  | n/a       | 0.6 m        |
| 0     | 1002782543 | n/a             | n/a            | PLASTIC  | n/a       | 2.13 m       |

#### FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

| Layer | Material  | Material 2 | Material 3 | Colour | Top Depth | Bottom Depth |
|-------|-----------|------------|------------|--------|-----------|--------------|
| 1     | FINE SAND | SILT       | DENSE      | GREY   | 0         | 0.9 m        |
| 2     | FILL      | SAND       | SILT       | BROWN  | 0.9       | 4.7 m        |
| 3     | SAND      | SILT       | n/a        | GREY   | 4.7       | 6 m          |
| 4     | TILL      | SAND       | GRAVEL     | BROWN  | 6         | 7.6 m        |

End of Record

|           |                |                               |                                             |                  |                       |            |
|-----------|----------------|-------------------------------|---------------------------------------------|------------------|-----------------------|------------|
| n/a       | Easting:       | <null>                        | Latitude: 45.302584<br>Longitude: -75.55063 | Well ID: 7115790 |                       |            |
|           | Northing:      | <null>                        |                                             |                  |                       |            |
|           | Elev (masl):   | 94.41                         |                                             |                  |                       |            |
| LOCATION  | Lot:           | 026                           |                                             |                  | Tag:                  | A074584    |
|           | Con:           | 06                            |                                             |                  | Audit No:             | M02897     |
|           | Municipality:  | OTTAWA-CARLETON               |                                             |                  | Contractor License:   | 1844       |
|           | Township:      | GLOUCESTER TOWNSHIP           |                                             |                  | Well Completion Date: | 07/15/2008 |
|           | Street:        | HAWTHORNE ROAD AT RIDEAU ROAD |                                             |                  | Received Date:        | 11/26/2008 |
| WELL      | City:          | Ottawa                        |                                             |                  | Well Depth (m):       | 0          |
|           | Well Status:   | Test Hole                     |                                             |                  | Depth to Bedrock (m): | n/a        |
|           | Prim. Use:     | n/a                           |                                             |                  | Depth to Water:       |            |
|           | Sec. Use:      | n/a                           |                                             |                  | Water Kind:           |            |
|           | Boring Method: | n/a                           |                                             |                  | Pipe ID:              | 1002782595 |
| PUMP TEST | Test Method:   | n/a                           |                                             |                  | Pump Test ID          | 1002782535 |
|           | Pump Set (m):  | n/a                           |                                             |                  | Flowing:              | n/a        |
|           | SWL (ft)       | 1.3                           |                                             |                  | Pump Duration (hr):   | n/a        |
|           | Final Level:   | n/a m                         |                                             |                  | Pump Duration (m):    | n/a        |
|           | Pump Rate:     | n/a                           |                                             |                  |                       |            |
|           | Recom. Rate:   | n/a                           |                                             |                  |                       |            |

#### CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

| Layer | Case ID    | Casing Diamter | Diamter Units | Material | Top Depth | Bottom Depth |
|-------|------------|----------------|---------------|----------|-----------|--------------|
| 0     | 1002782588 | n/a            | n/a           | PLASTIC  | n/a       | 1.5 m        |
| 0     | 1002782570 | n/a            | n/a           | PLASTIC  | n/a       | 3 m          |
| 0     | 1002782543 | n/a            | n/a           | PLASTIC  | n/a       | 2.13 m       |
| 0     | 1002782561 | n/a            | n/a           | PLASTIC  | n/a       | 1.5 m        |
| 0     | 1002782525 | n/a            | n/a           | PLASTIC  | n/a       | 1.5 m        |
| 0     | 1002782534 | n/a            | n/a           | PLASTIC  | n/a       | 0.6 m        |
| 0     | 1002782597 | n/a            | n/a           | PLASTIC  | n/a       | 1.37 m       |
| 0     | 1002782552 | n/a            | n/a           | PLASTIC  | n/a       | 1.22 m       |
| 0     | 1002782579 | n/a            | n/a           | PLASTIC  | n/a       | 3 m          |

#### FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

| Layer | Material  | Material 2 | Material 3 | Colour | Top Depth | Bottom Depth |
|-------|-----------|------------|------------|--------|-----------|--------------|
| 1     | FINE SAND | SILT       | DENSE      | GREY   | 0         | 0.9 m        |
| 2     | FILL      | SAND       | SILT       | BROWN  | 0.9       | 4.7 m        |
| 3     | SAND      | SILT       | n/a        | GREY   | 4.7       | 6 m          |
| 4     | TILL      | SAND       | GRAVEL     | BROWN  | 6         | 7.6 m        |

End of Record

|           |                |                               |                                                                                                                               |                         |
|-----------|----------------|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| n/a       | Easting:       | <null>                        | Latitude: 45.302237<br>Longitude: -75.553598                                                                                  | Well ID: <b>7115790</b> |
|           | Northing:      | <null>                        |                                                                                                                               |                         |
|           | Elev (masl):   | 103.53                        |                                                                                                                               |                         |
| LOCATION  | Lot:           | 026                           | Tag: A074584<br>Audit No: M02897<br>Contractor License: 1844<br>Well Completion Date: 07/08/2008<br>Received Date: 11/26/2008 |                         |
|           | Con:           | 06                            |                                                                                                                               |                         |
|           | Municipality:  | OTTAWA-CARLETON               |                                                                                                                               |                         |
|           | Township:      | GLOUCESTER TOWNSHIP           |                                                                                                                               |                         |
|           | Street:        | HAWTHORNE ROAD AT RIDEAU ROAD |                                                                                                                               |                         |
| WELL      | City:          | Ottawa                        | Well Depth (m): 0<br>Depth to Bedrock (m): n/a<br>Depth to Water:<br>Water Kind:                                              |                         |
|           | Well Status:   | Test Hole                     |                                                                                                                               |                         |
|           | Prim. Use:     | n/a                           |                                                                                                                               |                         |
|           | Sec. Use:      | n/a                           |                                                                                                                               |                         |
|           | Boring Method: | n/a                           |                                                                                                                               |                         |
| PUMP TEST | Test Method:   | n/a                           | Pipe ID: 1002782586<br>Pump Test ID: 1002782535<br>Flowing: n/a<br>Pump Duration (hr): n/a<br>Pump Duration (m): n/a          |                         |
|           | Pump Set (m):  | n/a                           |                                                                                                                               |                         |
|           | SWL (ft)       | 3.6                           |                                                                                                                               |                         |
|           | Final Level:   | n/a m                         |                                                                                                                               |                         |
|           | Pump Rate:     | n/a                           |                                                                                                                               |                         |
|           | Recom. Rate:   | n/a                           |                                                                                                                               |                         |

#### CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

| Layer | Case ID    | Casing Diamter | Diamter Units | Material | Top Depth | Bottom Depth |
|-------|------------|----------------|---------------|----------|-----------|--------------|
| 0     | 1002782552 | n/a            | n/a           | PLASTIC  | n/a       | 1.22 m       |
| 0     | 1002782597 | n/a            | n/a           | PLASTIC  | n/a       | 1.37 m       |
| 0     | 1002782543 | n/a            | n/a           | PLASTIC  | n/a       | 2.13 m       |
| 0     | 1002782525 | n/a            | n/a           | PLASTIC  | n/a       | 1.5 m        |
| 0     | 1002782579 | n/a            | n/a           | PLASTIC  | n/a       | 3 m          |
| 0     | 1002782561 | n/a            | n/a           | PLASTIC  | n/a       | 1.5 m        |
| 0     | 1002782534 | n/a            | n/a           | PLASTIC  | n/a       | 0.6 m        |
| 0     | 1002782570 | n/a            | n/a           | PLASTIC  | n/a       | 3 m          |
| 0     | 1002782588 | n/a            | n/a           | PLASTIC  | n/a       | 1.5 m        |

#### FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

| Layer | Material  | Material 2 | Material 3 | Colour | Top Depth | Bottom Depth |
|-------|-----------|------------|------------|--------|-----------|--------------|
| 1     | FINE SAND | SILT       | DENSE      | GREY   | 0         | 0.9 m        |
| 2     | FILL      | SAND       | SILT       | BROWN  | 0.9       | 4.7 m        |
| 3     | SAND      | SILT       | n/a        | GREY   | 4.7       | 6 m          |
| 4     | TILL      | SAND       | GRAVEL     | BROWN  | 6         | 7.6 m        |

End of Record

|     |              |        |                                             |                         |
|-----|--------------|--------|---------------------------------------------|-------------------------|
| n/a | Easting:     | <null> | Latitude: 45.307135<br>Longitude: -75.55334 | Well ID: <b>7115790</b> |
|     | Northing:    | <null> |                                             |                         |
|     | Elev (masl): |        |                                             |                         |



|           |                |                               |        |                       |            |
|-----------|----------------|-------------------------------|--------|-----------------------|------------|
| LOCATION  | Lot:           | 026                           | 103.53 | Tag:                  | A074584    |
|           | Con:           | 06                            |        | Audit No:             | M02897     |
|           | Municipality:  | OTTAWA-CARLETON               |        | Contractor License:   | 1844       |
|           | Township:      | GLOUCESTER TOWNSHIP           |        | Well Completion Date: | 07/15/2008 |
|           | Street:        | HAWTHORNE ROAD AT RIDEAU ROAD |        | Received Date:        | 11/26/2008 |
| WELL      | City:          | Ottawa                        |        |                       |            |
|           | Well Status:   | Test Hole                     |        | Well Depth (m):       | 0          |
|           | Prim. Use:     | n/a                           |        | Depth to Bedrock (m): | n/a        |
|           | Sec. Use:      | n/a                           |        | Depth to Water:       |            |
| PUMP TEST | Boring Method: | n/a                           |        | Water Kind:           |            |
|           | Test Method:   | n/a                           |        | Pipe ID:              | 1002782532 |
|           | Pump Set (m):  | n/a                           |        | Pump Test ID          | 1002782571 |
|           | SWL (ft)       | 1.7                           |        | Flowing:              | n/a        |
|           | Final Level:   | n/a m                         |        | Pump Duration (hr):   | n/a        |
|           | Pump Rate:     | n/a                           |        | Pump Duration (m):    | n/a        |
|           | Recom. Rate:   | n/a                           |        |                       |            |

### CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

| Layer | Case ID    | Casing Diameter | Diameter Units | Material | Top Depth | Bottom Depth |
|-------|------------|-----------------|----------------|----------|-----------|--------------|
| 0     | 1002782588 | n/a             | n/a            | PLASTIC  | n/a       | 1.5 m        |
| 0     | 1002782597 | n/a             | n/a            | PLASTIC  | n/a       | 1.37 m       |
| 0     | 1002782561 | n/a             | n/a            | PLASTIC  | n/a       | 1.5 m        |
| 0     | 1002782579 | n/a             | n/a            | PLASTIC  | n/a       | 3 m          |
| 0     | 1002782525 | n/a             | n/a            | PLASTIC  | n/a       | 1.5 m        |
| 0     | 1002782534 | n/a             | n/a            | PLASTIC  | n/a       | 0.6 m        |
| 0     | 1002782543 | n/a             | n/a            | PLASTIC  | n/a       | 2.13 m       |
| 0     | 1002782552 | n/a             | n/a            | PLASTIC  | n/a       | 1.22 m       |
| 0     | 1002782570 | n/a             | n/a            | PLASTIC  | n/a       | 3 m          |

### FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

| Layer | Material  | Material 2 | Material 3 | Colour | Top Depth | Bottom Depth |
|-------|-----------|------------|------------|--------|-----------|--------------|
| 1     | FINE SAND | SILT       | DENSE      | GREY   | 0         | 0.9 m        |
| 2     | FILL      | SAND       | SILT       | BROWN  | 0.9       | 4.7 m        |
| 3     | SAND      | SILT       | n/a        | GREY   | 4.7       | 6 m          |
| 4     | TILL      | SAND       | GRAVEL     | BROWN  | 6         | 7.6 m        |

End of Record

|     |              |        |                                              |                         |
|-----|--------------|--------|----------------------------------------------|-------------------------|
| n/a | Easting:     | <null> | Latitude: 45.305492<br>Longitude: -75.552495 | Well ID: <b>7115790</b> |
|     | Northing:    | <null> |                                              |                         |
|     | Elev (masl): | 94.41  |                                              |                         |

|           |                |                               |        |                       |            |
|-----------|----------------|-------------------------------|--------|-----------------------|------------|
| LOCATION  | Lot:           | 026                           | 103.53 | Tag:                  | A074584    |
|           | Con:           | 06                            |        | Audit No:             | M02897     |
|           | Municipality:  | OTTAWA-CARLETON               |        | Contractor License:   | 1844       |
|           | Township:      | GLOUCESTER TOWNSHIP           |        | Well Completion Date: | 07/14/2008 |
|           | Street:        | HAWTHORNE ROAD AT RIDEAU ROAD |        | Received Date:        | 11/26/2008 |
| WELL      | City:          | Ottawa                        |        |                       |            |
|           | Well Status:   | Test Hole                     |        | Well Depth (m):       | 0          |
|           | Prim. Use:     | n/a                           |        | Depth to Bedrock (m): | n/a        |
|           | Sec. Use:      | n/a                           |        | Depth to Water:       |            |
| PUMP TEST | Boring Method: | n/a                           |        | Water Kind:           |            |
|           | Test Method:   | n/a                           |        | Pipe ID:              | 1002782595 |
|           | Pump Set (m):  | n/a                           |        | Pump Test ID          | 1002782544 |
|           | SWL (ft)       | 1.3                           |        | Flowing:              | n/a        |
|           | Final Level:   | n/a m                         |        | Pump Duration (hr):   | n/a        |
|           | Pump Rate:     | n/a                           |        | Pump Duration (m):    | n/a        |
|           | Recom. Rate:   | n/a                           |        |                       |            |

### CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

| Layer | Case ID    | Casing Diameter | Diameter Units | Material | Top Depth | Bottom Depth |
|-------|------------|-----------------|----------------|----------|-----------|--------------|
| 0     | 1002782525 | n/a             | n/a            | PLASTIC  | n/a       | 1.5 m        |
| 0     | 1002782597 | n/a             | n/a            | PLASTIC  | n/a       | 1.37 m       |

|   |            |     |     |         |     |      |   |
|---|------------|-----|-----|---------|-----|------|---|
| 0 | 1002782534 | n/a | n/a | PLASTIC | n/a | 0.6  | m |
| 0 | 1002782588 | n/a | n/a | PLASTIC | n/a | 1.5  | m |
| 0 | 1002782579 | n/a | n/a | PLASTIC | n/a | 3    | m |
| 0 | 1002782552 | n/a | n/a | PLASTIC | n/a | 1.22 | m |
| 0 | 1002782570 | n/a | n/a | PLASTIC | n/a | 3    | m |
| 0 | 1002782543 | n/a | n/a | PLASTIC | n/a | 2.13 | m |
| 0 | 1002782561 | n/a | n/a | PLASTIC | n/a | 1.5  | m |

#### FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

| Layer | Material  | Material 2 | Material 3 | Colour | Top Depth | Bottom Depth |
|-------|-----------|------------|------------|--------|-----------|--------------|
| 1     | FINE SAND | SILT       | DENSE      | GREY   | 0         | 0.9 m        |
| 2     | FILL      | SAND       | SILT       | BROWN  | 0.9       | 4.7 m        |
| 3     | SAND      | SILT       | n/a        | GREY   | 4.7       | 6 m          |
| 4     | TILL      | SAND       | GRAVEL     | BROWN  | 6         | 7.6 m        |

End of Record

|            |                     |        |                                                            |                                |
|------------|---------------------|--------|------------------------------------------------------------|--------------------------------|
| <b>n/a</b> | <b>Easting:</b>     | <null> | <b>Latitude:</b> 45.307865<br><b>Longitude:</b> -75.558653 | <b>Well ID:</b> <b>7115790</b> |
|            | <b>Northing:</b>    | <null> |                                                            |                                |
|            | <b>Elev (masl):</b> | 84.01  |                                                            |                                |

|                 |                      |                               |                              |            |
|-----------------|----------------------|-------------------------------|------------------------------|------------|
| <b>LOCATION</b> | <b>Lot:</b>          | 026                           | <b>Tag:</b>                  | A074584    |
|                 | <b>Con:</b>          | 06                            | <b>Audit No:</b>             | M02897     |
|                 | <b>Municipality:</b> | OTTAWA-CARLETON               | <b>Contractor License:</b>   | 1844       |
|                 | <b>Township:</b>     | GLOUCESTER TOWNSHIP           | <b>Well Completion Date:</b> | 07/14/2008 |
|                 | <b>Street:</b>       | HAWTHORNE ROAD AT RIDEAU ROAD | <b>Received Date:</b>        | 11/26/2008 |
| <b>City:</b>    | Ottawa               |                               |                              |            |

|             |                       |           |                              |     |
|-------------|-----------------------|-----------|------------------------------|-----|
| <b>WELL</b> | <b>Well Status:</b>   | Test Hole | <b>Well Depth (m):</b>       | 0   |
|             | <b>Prim. Use:</b>     | n/a       | <b>Depth to Bedrock (m):</b> | n/a |
|             | <b>Sec. Use:</b>      | n/a       | <b>Depth to Water:</b>       |     |
|             | <b>Boring Method:</b> | n/a       | <b>Water Kind:</b>           |     |

|                  |                      |       |                            |            |
|------------------|----------------------|-------|----------------------------|------------|
| <b>PUMP TEST</b> | <b>Test Method:</b>  | n/a   | <b>Pipe ID:</b>            | 1002782599 |
|                  | <b>Pump Set (m):</b> | n/a   | <b>Pump Test ID</b>        | 1002782589 |
|                  | <b>SWL (ft)</b>      | 1     | <b>Flowing:</b>            | n/a        |
|                  | <b>Final Level:</b>  | n/a m | <b>Pump Duration (hr):</b> | n/a        |
|                  | <b>Pump Rate:</b>    | n/a   | <b>Pump Duration (m):</b>  | n/a        |
|                  | <b>Recom. Rate:</b>  | n/a   |                            |            |

#### CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

| Layer | Case ID    | Casing Diamter | Diamter Units | Material | Top Depth | Bottom Depth |
|-------|------------|----------------|---------------|----------|-----------|--------------|
| 0     | 1002782588 | n/a            | n/a           | PLASTIC  | n/a       | 1.5 m        |
| 0     | 1002782525 | n/a            | n/a           | PLASTIC  | n/a       | 1.5 m        |
| 0     | 1002782543 | n/a            | n/a           | PLASTIC  | n/a       | 2.13 m       |
| 0     | 1002782534 | n/a            | n/a           | PLASTIC  | n/a       | 0.6 m        |
| 0     | 1002782561 | n/a            | n/a           | PLASTIC  | n/a       | 1.5 m        |
| 0     | 1002782579 | n/a            | n/a           | PLASTIC  | n/a       | 3 m          |
| 0     | 1002782552 | n/a            | n/a           | PLASTIC  | n/a       | 1.22 m       |
| 0     | 1002782597 | n/a            | n/a           | PLASTIC  | n/a       | 1.37 m       |
| 0     | 1002782570 | n/a            | n/a           | PLASTIC  | n/a       | 3 m          |

#### FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

| Layer | Material  | Material 2 | Material 3 | Colour | Top Depth | Bottom Depth |
|-------|-----------|------------|------------|--------|-----------|--------------|
| 1     | FINE SAND | SILT       | DENSE      | GREY   | 0         | 0.9 m        |
| 2     | FILL      | SAND       | SILT       | BROWN  | 0.9       | 4.7 m        |
| 3     | SAND      | SILT       | n/a        | GREY   | 4.7       | 6 m          |
| 4     | TILL      | SAND       | GRAVEL     | BROWN  | 6         | 7.6 m        |

End of Record

|            |                     |        |                                                            |                                |
|------------|---------------------|--------|------------------------------------------------------------|--------------------------------|
| <b>n/a</b> | <b>Easting:</b>     | <null> | <b>Latitude:</b> 45.302947<br><b>Longitude:</b> -75.550021 | <b>Well ID:</b> <b>7149254</b> |
|            | <b>Northing:</b>    | <null> |                                                            |                                |
|            | <b>Elev (masl):</b> | 88.61  |                                                            |                                |

|           |                       |                     |                              |            |
|-----------|-----------------------|---------------------|------------------------------|------------|
| LOCATION  | <b>Lot:</b>           |                     | <b>Tag:</b>                  | A082844    |
|           | <b>Con:</b>           |                     | <b>Audit No:</b>             | Z101832    |
|           | <b>Municipality:</b>  | OTTAWA-CARLETON     | <b>Contractor License:</b>   | 1558       |
|           | <b>Township:</b>      | GLOUCESTER TOWNSHIP | <b>Well Completion Date:</b> | 05/25/2010 |
| WELL      | <b>Street:</b>        | TW#7 HOAWTHORNE RD. | <b>Received Date:</b>        | 08/04/2010 |
|           | <b>City:</b>          | GLOUCESTER          |                              |            |
|           | <b>Well Status:</b>   | Water Supply        | <b>Well Depth (m):</b>       | 29.86      |
|           | <b>Prim. Use:</b>     | n/a                 | <b>Depth to Bedrock (m):</b> | n/a        |
| PUMP TEST | <b>Sec. Use:</b>      | n/a                 | <b>Depth to Water:</b>       | m          |
|           | <b>Boring Method:</b> | Rotary (Reverse)    | <b>Water Kind:</b>           | Untested   |
|           | <b>Test Method:</b>   | CLEAR               | <b>Pipe ID:</b>              | 1003263559 |
|           | <b>Pump Set (m):</b>  | 23.38               | <b>Pump Test ID</b>          | 1003263560 |
|           | <b>SWL (ft)</b>       | 4.41                | <b>Flowing:</b>              | n/a        |
|           | <b>Final Level:</b>   | 7.01m               | <b>Pump Duration (hr):</b>   | 6          |
|           | <b>Pump Rate:</b>     | 27.3LPM             | <b>Pump Duration (m):</b>    | 0          |
|           | <b>Recom. Rate:</b>   | 27.3LPM             |                              |            |

#### CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

| Layer | Case ID    | Casing Diameter | Diameter Units | Material | Top Depth | Bottom Depth |
|-------|------------|-----------------|----------------|----------|-----------|--------------|
| 1     | 1003263568 | 15.86           | cm             | STEEL    | -0.45     | 6.4 m        |

#### FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

| Layer | Material  | Material 2 | Material 3 | Colour | Top Depth | Bottom Depth |
|-------|-----------|------------|------------|--------|-----------|--------------|
| 1     | TOPSOIL   | STONES     | PACKED     | BROWN  | 0         | 4.26 m       |
| 2     | SANDSTONE | n/a        | HARD       | GREY   | 4.26      | 29.86 m      |

End of Record

|     |                     |        |
|-----|---------------------|--------|
| n/a | <b>Easting:</b>     | <null> |
|     | <b>Northing:</b>    | <null> |
|     | <b>Elev (masl):</b> | 89.57  |

**Latitude:** 45.302183  
**Longitude:** -75.551672

Well ID: **7206093**

|           |                       |                     |                              |            |
|-----------|-----------------------|---------------------|------------------------------|------------|
| LOCATION  | <b>Lot:</b>           | 027                 | <b>Tag:</b>                  | A089801    |
|           | <b>Con:</b>           | 06                  | <b>Audit No:</b>             | Z103282    |
|           | <b>Municipality:</b>  | OTTAWA-CARLETON     | <b>Contractor License:</b>   | 3749       |
|           | <b>Township:</b>      | GLOUCESTER TOWNSHIP | <b>Well Completion Date:</b> | 07/18/2013 |
| WELL      | <b>Street:</b>        | 35 SAPPERS RIDGE    | <b>Received Date:</b>        | 08/12/2013 |
|           | <b>City:</b>          | Ottawa              |                              |            |
|           | <b>Well Status:</b>   | <null>              | <b>Well Depth (m):</b>       | 47.244     |
|           | <b>Prim. Use:</b>     | n/a                 | <b>Depth to Bedrock (m):</b> | n/a        |
| PUMP TEST | <b>Sec. Use:</b>      | n/a                 | <b>Depth to Water:</b>       | ft         |
|           | <b>Boring Method:</b> | Rotary (Convent.)   | <b>Water Kind:</b>           | FRESH      |
|           | <b>Test Method:</b>   | CLEAR               | <b>Pipe ID:</b>              | 1004977760 |
|           | <b>Pump Set (m):</b>  | 130                 | <b>Pump Test ID</b>          | 1004977761 |
|           | <b>SWL (ft)</b>       | 25                  | <b>Flowing:</b>              | n/a        |
|           | <b>Final Level:</b>   | 34 ft               | <b>Pump Duration (hr):</b>   | 1          |
|           | <b>Pump Rate:</b>     | 10 GPM              | <b>Pump Duration (m):</b>    | n/a        |
|           | <b>Recom. Rate:</b>   | n/a GPM             |                              |            |

#### CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

| Layer | Case ID    | Casing Diameter | Diameter Units | Material | Top Depth | Bottom Depth |
|-------|------------|-----------------|----------------|----------|-----------|--------------|
| 1     | 1004977768 | 5.625           | inch           | STEEL    | 40        | -2 ft        |

#### FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

| Layer | Material  | Material 2 | Material 3 | Colour | Top Depth | Bottom Depth |
|-------|-----------|------------|------------|--------|-----------|--------------|
| 1     | FILL      | n/a        | LOOSE      | n/a    | 0         | 8 ft         |
| 2     | CLAY      | GRAVEL     | PACKED     | GREY   | 8         | 24 ft        |
| 3     | LIMESTONE | n/a        | n/a        | n/a    | 24        | 155 ft       |

End of Record

# **Appendix B**

## **Photographs**



Photo 1 - View of drilled water well on the Site used during pumping test and proposed building area showing ground improvement.



Photo 2 - View of ground improvement area.



## Site Photographs





Photo 3 - Wellhead at pumped water well A342117.



Photo 4 - Observation well (ID A305146) used during pumping test for monitoring of potential interference effects.



## Site Photographs



Photo 5 - Observation well (ID A295342) used during pumping test for monitoring of potential interference effects.



Photo 6 - Observation well (ID A342260) used during pumping test for monitoring of potential interference effects.



## Site Photographs



Photo 7 - Observation well (ID A018916) used during pumping test for monitoring of potential interference effects.



Photo 8 - Observation well at 4885 Hawthorne Road used during pumping test for monitoring of potential interference effects.



## Site Photographs

# **Appendix C**

**Well Record A342117 and WSP Well  
Certificate**

# CERTIFICATE OF WELL COMPLIANCE



I ( Jeremy Hanna ) AIR ROCK DRILLING CO. LTD. - DO HEREBY CERTIFY

that I am licensed to drill water wells in the Province of Ontario, and that I have

supervised the drilling of the water well on the property of:

CONSOLIDATED FASTRATE (OTTAWA)  
OWNER: HOLDINGS INC.

Location: # 301 SOMME STREET, GLOUCESTER

Part 26 +  
LOT: 27 CON: 6 R.F. PLAN # 4M-1388 S/L # X

Ottawa-Carleton / Geographical Township of GLOUCESTER

I CERTIFY FURTHER that, I am aware of the well drilling requirements, the guidelines, recommendations and regulations of the Ministry of the Environment governing well installations in the Province of Ontario, and the standards specified in any subdivision agreement and hydrogeological report applicable to this site and City Standards.

AND DO HEREBY CERTIFY THAT the said well has been drilled, cased, grouted (cement or bentonite) as applicable and constructed in strict conformity with the standards required.

Signed this 27TH Day of JULY, 2022

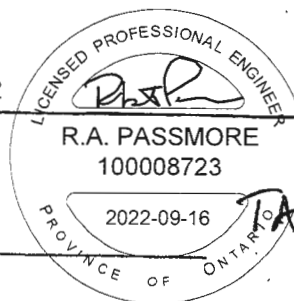
Jeremy Hanna (T3632)

Air Rock Drilling Co. Ltd. (C-7681)

The Engineer on behalf of the Landowner set out above, Certifies that he/she has inspected the well and it was constructed in accordance with the specifications in O.Reg 903, this report and the Hydrogeological Report with regards to casing length and grouting requirements.

Signed this 16th day of Aug 2022

(Engineer)



2022511  
TA GA 342117

Shaping our future together  
Ensemble, formons notre avenir

City of Ottawa  
Client Service Centre  
8743 Victoria Street

Ville d'Ottawa  
Centre de service  
8743, rue Victoria





Measurements recorded in: ☐ Metric ☐ Imperial

Page 0

### Well Owner's Information

|                                            |                        |                |                                                         |
|--------------------------------------------|------------------------|----------------|---------------------------------------------------------|
| First Name                                 | Last Name/Organization | E-mail Address | <input type="checkbox"/> Well Constructed by Well Owner |
| Consolidated FastRate (Ottawa)             |                        | Helding Inc.   |                                                         |
| Mailing Address (Street Number/Name)       | Municipality           | Province       | Postal Code                                             |
| 333 Preston Street, 7th Floor, Ottawa, Ont | K1S 5N4                |                |                                                         |
| Telephone No. (inc. area code)             |                        |                |                                                         |

## Well Location

|                                               |  |                   |          |                                  |
|-----------------------------------------------|--|-------------------|----------|----------------------------------|
| Address of Well Location (Street Number/Name) |  | Township          | Lot      | Concession                       |
| # 301 SOMME STREET                            |  | GLoucester        | P/L2627  | 6 R.F.                           |
| County/District/Municipality                  |  | City/Town/Village | Province | Postal Code                      |
| QUAWA-CARLETON                                |  | GLoucester        | Ontario  |                                  |
| UTM Co-ordinate Zone Easting                  |  | Northings         |          | Municipal Plan and Sublot Number |
| NAC   83   8456588                            |  | 3017208           |          | 4M-1388                          |
|                                               |  |                   |          | Other                            |

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

[illegible]

## Angular Space

| Depth Set at (m <sup>ft</sup> ) |    | Annular Space | Type of Sealant Used<br>(Material and Type) | Volume Placed<br>(m <sup>ft</sup> <sup>3</sup> ) |
|---------------------------------|----|---------------|---------------------------------------------|--------------------------------------------------|
| From                            | To |               |                                             |                                                  |
| 52'                             | 0' |               | Neat Cement Slurry                          | 12.48                                            |
|                                 |    |               |                                             |                                                  |
|                                 |    |               |                                             |                                                  |
|                                 |    |               |                                             |                                                  |

### 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 checked="" 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 Ho/e                  | <input type="checkbox"/> Monitoring |
| <input type="checkbox"/> Boring                    | <input type="checkbox"/> Digging | <input type="checkbox"/> Irrigation           | <input type="checkbox"/> Cooling & Air Conditioning |                                     |
| <input checked="" type="checkbox"/> Air percussion |                                  | <input type="checkbox"/> Industrial           |                                                     |                                     |
| <input type="checkbox"/> Other, specify _____      |                                  | <input type="checkbox"/> Other, specify _____ |                                                     |                                     |

### Construction Record - Casing

| Construction Record - Casing |                                                                          |                             |              | Status of Well |                                                                                                                                                                                                                                                                                                                                                                                      |
|------------------------------|--------------------------------------------------------------------------|-----------------------------|--------------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Inside Diameter (cm)<br>(in) | Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel) | Wall Thickness (cm)<br>(in) | Depth (m/ft) |                | <input checked="" type="checkbox"/> Water Supply<br><input type="checkbox"/> Replacement Well<br><input type="checkbox"/> Test Hole<br><input type="checkbox"/> Recharge Well<br><input type="checkbox"/> Dewatering Well<br><input type="checkbox"/> Observation and/or Monitoring Hole<br><input type="checkbox"/> Alteration (Construction)<br><input type="checkbox"/> Abandoned |
|                              |                                                                          |                             | From         | To             |                                                                                                                                                                                                                                                                                                                                                                                      |
| 6 1/4" Steel                 |                                                                          | .188"                       | 12'          | 52'            |                                                                                                                                                                                                                                                                                                                                                                                      |
| 6" Open Hole                 |                                                                          |                             | 52'          | 140'           |                                                                                                                                                                                                                                                                                                                                                                                      |
|                              |                                                                          |                             |              |                |                                                                                                                                                                                                                                                                                                                                                                                      |
|                              |                                                                          |                             |              |                |                                                                                                                                                                                                                                                                                                                                                                                      |
|                              |                                                                          |                             |              |                |                                                                                                                                                                                                                                                                                                                                                                                      |
|                              |                                                                          |                             |              |                |                                                                                                                                                                                                                                                                                                                                                                                      |

## Construction Record - Screen

| Outside Diameter (mm/in) | Material (Plastic, Galvanized, Steel) | Slot No. | Depth (m/in) |    |                                                                                                                                                                     |
|--------------------------|---------------------------------------|----------|--------------|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                          |                                       |          | From         | To |                                                                                                                                                                     |
|                          |                                       |          |              |    | <input type="checkbox"/> Abandoned, Poor Water Quality<br><input type="checkbox"/> Abandoned, other, specify _____<br><input type="checkbox"/> Other, specify _____ |

### Water Details

|                                                                |                                                                                                                                       |                         |                                  |
|----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|-------------------------|----------------------------------|
| Water found at Depth<br>128 (m/f) <input type="checkbox"/> Gas | Kind of Water: <input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested<br><input type="checkbox"/> Other, specify | Depth (m/ft)<br>From To | Diameter (cm/in)<br>0' 52' 93/4" |
| Water found at Depth<br>134 (m/f) <input type="checkbox"/> Gas | Kind of Water: <input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested<br><input type="checkbox"/> Other, specify | 52' 140'                | 6"                               |
| Water found at Depth<br>(m/ft) <input type="checkbox"/> Gas    | Kind of Water: <input type="checkbox"/> Fresh <input type="checkbox"/> Untested<br><input type="checkbox"/> Other, specify            |                         |                                  |

**Hole Diameter**

| Depth (m/ft) |      | Diameter |
|--------------|------|----------|
| From         | To   | (cm/in)  |
| 0'           | 52'  | 9 3/4"   |
| 52'          | 140' | 6"       |

### Well Contractor and Well Technician Information

|                                                                      |                              |                                              |
|----------------------------------------------------------------------|------------------------------|----------------------------------------------|
| Business Name of Well Contractor<br><b>Airlock Drilling Co Ltd</b>   |                              | Well Contractor's Licence No<br><b>C7681</b> |
| Business Address (Street Number/Name)<br><b>6659 Front town road</b> |                              | Municipality<br><b>Richmond</b>              |
| Province<br><b>Ont</b>                                               | Postal Code<br><b>K0A3Z0</b> | Business E-mail Address                      |

|                                     |                                                                                     |                |
|-------------------------------------|-------------------------------------------------------------------------------------|----------------|
| Bus, Telephone No. (inc. area code) | Name of Well Technician (Last Name, First Name)                                     |                |
| 63838270                            | HANNA Jeremy                                                                        |                |
| Well Technician's Licence No.       | Signature of Technician and/or Contractor                                           | Date Submitted |
| 13632                               |  | 2/23/08 3:10 p |

### Results of Well Yield Testing

| After test of well yield, water was:                                |  | Draw Down        |                 | Recovery   |                 |
|---------------------------------------------------------------------|--|------------------|-----------------|------------|-----------------|
| <input type="checkbox"/> Clear and sand free                        |  | Time (min)       | Water Level (m) | Time (min) | Water Level (m) |
| <input type="checkbox"/> Other, specify _____                       |  | Stationary Level | 28.2"           |            | 30.7"           |
| If pumping discontinued, give reason:                               |  | 1                | 29.3            | 1          | 29.2            |
| Pump intake set at (mft)                                            |  | 2                | 29.4            | 2          | 29.1            |
| 120'                                                                |  | 3                | 29.5            | 3          | 29.1            |
| Pumping rate (l/min (GPM))                                          |  | 4                | 29.6            | 4          | 29.1            |
| 20                                                                  |  | 5                | 29.7            | 5          | 29.             |
| Duration of pumping                                                 |  | 10               | 29.9            | 10         | 28.2            |
| 1 hrs + 0 min                                                       |  | 15               | 30.1            | 15         | 28.2"           |
| Final water level end of pumping (mft)                              |  | 20               | 30.3            | 20         |                 |
| 30.7"                                                               |  | 25               | 30.4            | 25         |                 |
| If flowing give rate (l/min (GPM))                                  |  | 30               | 30.5            | 30         |                 |
|                                                                     |  | 40               | 30.6            | 40         |                 |
| Recommended pump depth (mft)                                        |  | 50               | 30.7            | 50         |                 |
| 100'                                                                |  | 60               | 30.7"           | 60         |                 |
| Recommended pump rate (l/min (GPM))                                 |  |                  |                 |            |                 |
| 20                                                                  |  |                  |                 |            |                 |
| Well production (l/min (GPM))                                       |  |                  |                 |            |                 |
| 20                                                                  |  |                  |                 |            |                 |
| Discontinued?                                                       |  |                  |                 |            |                 |
| <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |  |                  |                 |            |                 |

### Map of Well Location

Please provide a map below following instructions on the back

Hand-drawn map showing the location of the site. It includes "Rideau Road" at the top, "Somme Street" at the bottom, and a distance of "150m" between them. A circled "X" marks the site, with a north arrow and "100 ft" scale nearby.

Comments:

1 HP-2 GPM Set @ 100 ft

|                                                                                                                            |                                   |                                                   |
|----------------------------------------------------------------------------------------------------------------------------|-----------------------------------|---------------------------------------------------|
| Well owner's information<br>package<br>delivered<br><input checked="" type="checkbox"/> Yes<br><input type="checkbox"/> No | Date Package Delivered<br>2-22-07 | Ministry Use Only<br>Audit No. Z37904<br>Received |
|                                                                                                                            | Date Work Completed<br>2-22-07    |                                                   |

# **Appendix D**

## **Calibration Records**

Field Data Record Form  
Colorimeter-Pocket  
Page 1 of 1

Control number: PET-TE-19 Project number: 12580314  
Date (mm/dd/yyyy): 08/09/2022 Project name: Consolidated Fastfrate,  
HydroG Assessment  
User (print name): Jason Gerald Location: 301 Somme Street, Ottawa

Additional equipment control numbers and descriptions: Hach Pocket Colorimeter II  
(S/N 15100E283721)  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Field procedure before use:

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Check when completed                                                                                                                                                                        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>• Check batteries are charged. Replace AAA batteries if needed.</li><li>• Review applicable MSDS sheets for the DPD foil pillows (21055-69 &amp; 21056-69 – in equipment case).</li><li>• Proceed with a Spec <math>\sqrt{}</math>™ Secondary Standard repeatability test if required. Please note that this test is done at the shop. Please see pages 1-43 and 1-44 (Pocket Colorimeter) or 1-47 and 1-48 (Pocket Colorimeter II) of instruction manual.</li><li>• Proceed with a User-Entered Calibration if the project requires it. This is usually done at the shop. Please see pages 2-15 to 2-27 in instruction manual.</li></ul> | <div><input checked="" type="checkbox"/></div> <div><input checked="" type="checkbox"/></div> <div><input checked="" type="checkbox"/></div> <div><input checked="" type="checkbox"/></div> |

Filing: Field file

Signature: \_\_\_\_\_



Field Data Record Form  
Multi-Parameter Meter-Horiba  
Page 1 of 1

|                    |              |
|--------------------|--------------|
| Control number:    | PET-TE-25    |
| Date (mm/dd/yyyy): | 08/09/2022   |
| User (print name): | Jason Gerald |

|                 |                             |
|-----------------|-----------------------------|
| Project number: | 12580314                    |
| Project name:   | Consolidated Fastfrate      |
|                 | HydroG Assessment           |
| Location:       | 301 Somme Street,<br>Ottawa |

|                          |                  |
|--------------------------|------------------|
| Calibration solution(s): | AutoCal Standard |
| Lot #(s):                | 1GJ470           |
| Supplier(s):             | Maxim            |
| Expiration date(s):      | OCT/22           |

Additional information:      Horiba U-52 (S/N XPX0PRWK)

Field procedure before use:

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Check when completed                                                                              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• Wash the sensors in distilled water.</li> <li>• Fill the calibration beaker to line on the beaker with auto-cal solution.</li> <li>• Immerse the probe into the beaker, and turn the power on.</li> <li>• For the U-10: press the MODE key to put the unit into the MAINT mode, and set the lower cursor to AUTO.</li> <li>• For the U-22: press the CAL key in one of the measurement modes.</li> <li>• Press the ENT key to start the AUTO calibration. When calibration is complete, the readout will show END.</li> <li>• Switch to MEAS mode, and check the calibration in AUTO-CAL solution.</li> <li>• The instrument is ready for use.</li> </ul> | <div> <input checked="" type="checkbox"/> </div> <div> <input checked="" type="checkbox"/> </div> |
| <p>Note: Conductivity measured in mS/cm not <math>\mu\text{S/cm}</math> as commonly measured by pocket meters. Multiply value by 1,000 to convert to <math>\mu\text{S/cm}</math>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                   |

Filing: Field file

Signature: \_\_\_\_\_

## Field Data Record Form

Gas Meter-Dry

Page 1 of 1

Control number: PET-TE-3  
Date (mm/dd/yyyy): 08/09/2022  
User (print name): Jason Gerald

Project number: 12580314  
Project name: Consolidated Fastfrate  
HydroG Assessment  
Location: 301 Somme Street,  
Ottawa

Additional equipment control numbers and descriptions: Gastech NP-204 natural gas  
detector used for methane detection at wellhead.

Field procedure before use:

|                                                                                                                                  | Check when completed                                                                          |
|----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>• Check for damages</li><li>• Ensure the instrument has been properly calibrated</li></ul> | <div><input checked="" type="checkbox"/></div> <div><input checked="" type="checkbox"/></div> |
| <p>Note: The equipment does not require a data entry sheet, so only one page will print out.</p>                                 |                                                                                               |

Filing: Field file

Signature: 



Field Data Record Form  
Water Level Meter  
Page 1 of 1

Control number: PET-WL-25 Project number: 12580314  
Date (mm/dd/yyyy): 08/09/2022 Project name: Consolidated Fastfrate  
User (print name): Jason Gerald HydroG Assessment  
Location: 301 Somme Street,  
Ottawa

Additional equipment control numbers and descriptions: Heron Instruments, Dipper-T 100 m,  
S/N 4009-T

Field procedure before use:

|                                                                                                                                                                                                                                                                                                       | Check when completed                                                                                                                                                                                                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>• Check for broken or missing parts.</li><li>• Check battery</li><li>• Check operation of buzzer.</li><li>• Check operation of signal light.</li><li>• Test probe in water to ensure unit operates, both visually and audibly.</li><li>• Check cable.</li></ul> | <div><input checked="" type="checkbox"/></div> <div><input checked="" type="checkbox"/></div> <div><input checked="" type="checkbox"/></div> <div><input checked="" type="checkbox"/></div> <div><input checked="" type="checkbox"/></div> |

Filing: Field file

Signature: \_\_\_\_\_



Field Data Record Form  
Water Level Meter  
Page 1 of 1

Control number: PET-WL-34  
Date (mm/dd/yyyy): 08/09/2022  
User (print name): Jason Gerald

Project number: 12580314  
Project name: Consolidated Fastfrate  
HydroG Assessment  
Location: 301 Somme Street,  
Ottawa

Additional equipment control numbers and descriptions: Waterra, WS-2 Closed Reel,  
S/N WS2-00518

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Field procedure before use:

|                                                                                                                                                                                                                                                                                                       | Check when completed                                                                                                                                                                                                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>• Check for broken or missing parts.</li><li>• Check battery</li><li>• Check operation of buzzer.</li><li>• Check operation of signal light.</li><li>• Test probe in water to ensure unit operates, both visually and audibly.</li><li>• Check cable.</li></ul> | <div><input checked="" type="checkbox"/></div> <div><input checked="" type="checkbox"/></div> <div><input checked="" type="checkbox"/></div> <div><input checked="" type="checkbox"/></div> <div><input checked="" type="checkbox"/></div> |

Filing: Field file

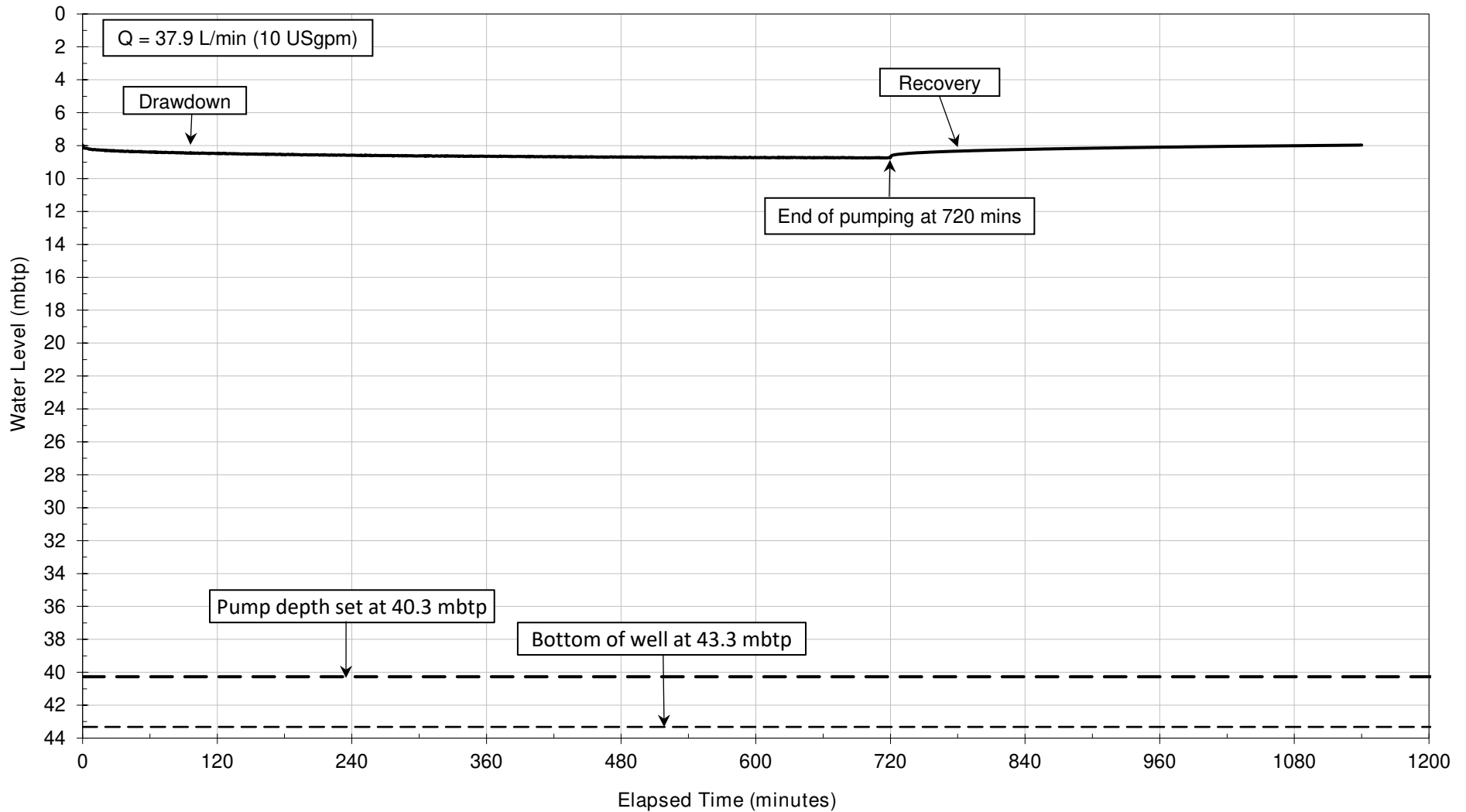
Signature: \_\_\_\_\_



# **Appendix E**

## **Aquifer Performance Testing**

PUMP HISTORY CURVE  
Well A342117: August 9-10, 2022



# PUMP HISTORY CURVE

Drilled Water Well  
MECP Well ID: A342117  
Static Level = 7.96 mbtp (7.31 mbgs)

Note: m = metres; mbtp = metres below top of pipe; mbgs = metres below ground surface

DATE: SEPTEMBER 2022

LOCATION: 301 Somme Street, Ottawa, ON

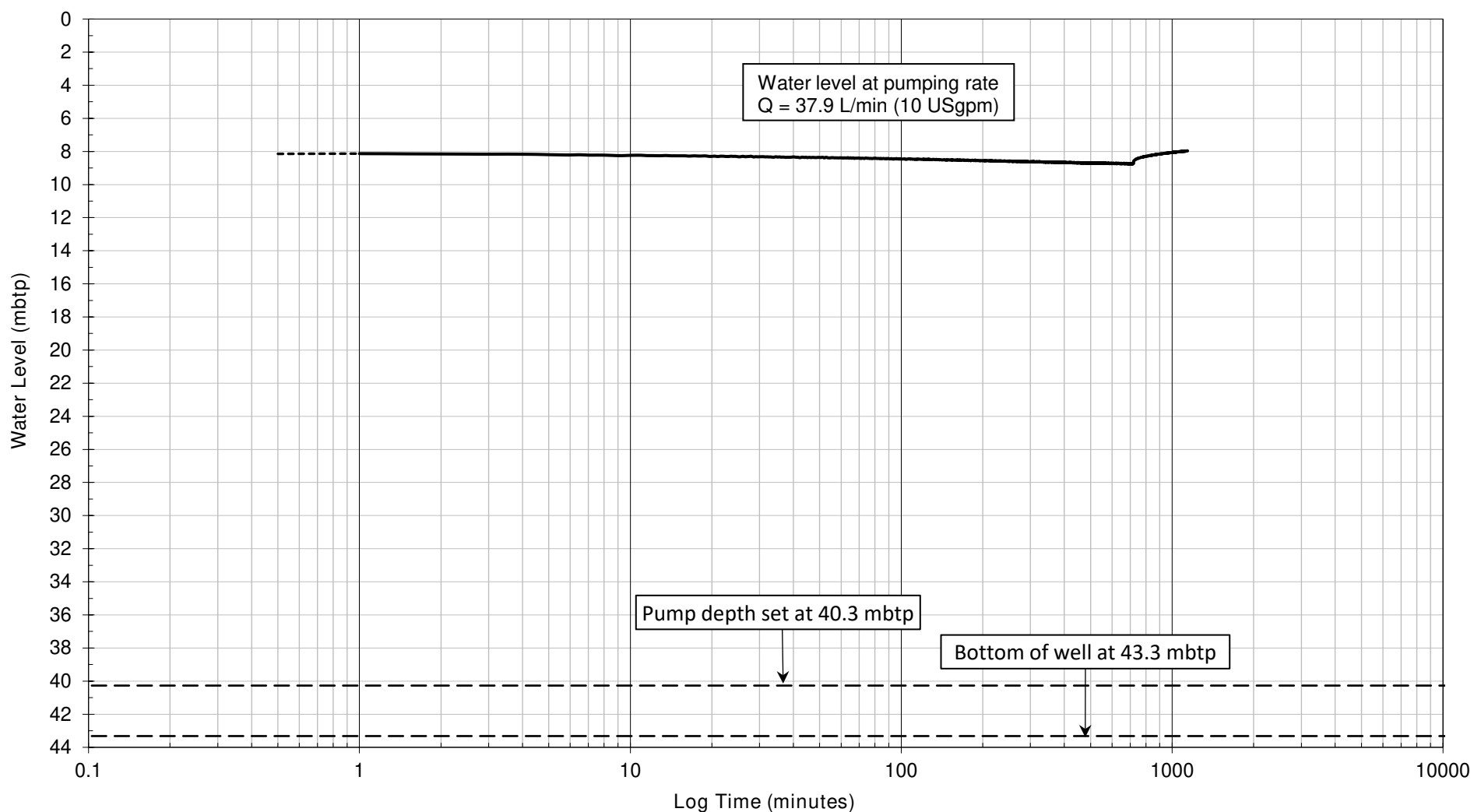
JOB NUMBER: 12580314-01

DRAWING NUMBER: E-1



347 PIDO ROAD, UNIT 29  
PETERBOROUGH, ON K9J 6X7  
www.ghd.com

CONSTANT RATE TEST: WATER LEVEL vs LOG TIME  
Well A342117: August 9-10, 2022



# CONSTANT RATE

Drilled Water Well  
MECP Well ID: A342117  
Static Level = 7.96 mbtp (7.31 mbgs)

Note: m = metres; mbtp = metres below top of pipe; mbgs = metres below ground surface

DATE: SEPTEMBER 2022

LOCATION: 301 Somme Street, Ottawa, ON

JOB NUMBER: 12580314-01

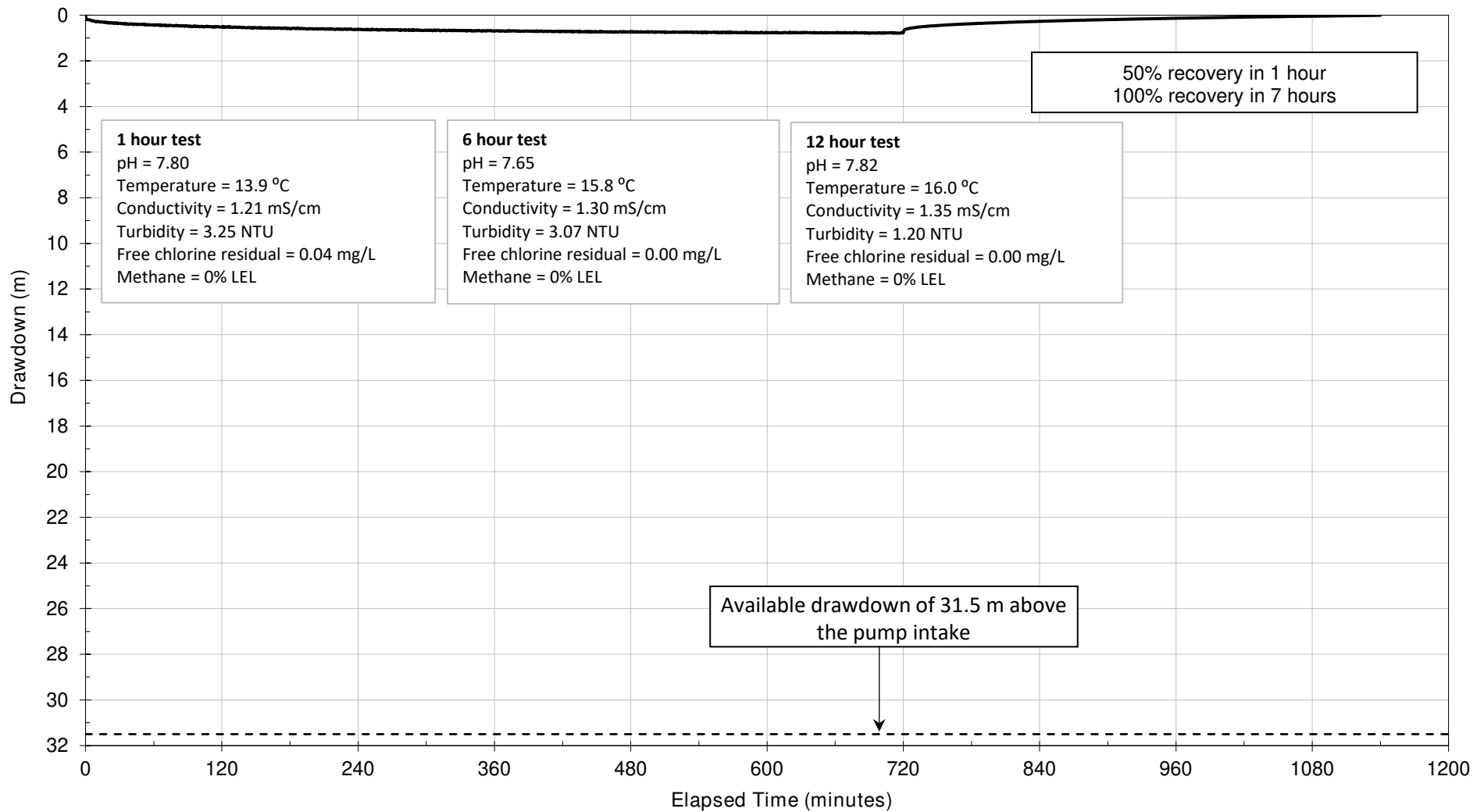
DRAWING NUMBER: E-2



347 PIDO ROAD, UNIT 29  
PETERBOROUGH, ON K9J 6X7  
www.ghd.com



**CONSTANT RATE DRAWDOWN, RECOVERY AND TESTING DETAILS**  
Well A342117: August 9-10, 2022



## CONSTANT RATE DRAWDOWN

Drilled Water Well  
MECP Well ID: A342117  
Static Level = 7.96 mbtp (7.31 mbgs)

Note: m = metres; mbtp = metres below top of pipe; mbgs = metres below ground surface

DATE: SEPTEMBER 2022

LOCATION: 301 Somme Street, Ottawa, ON

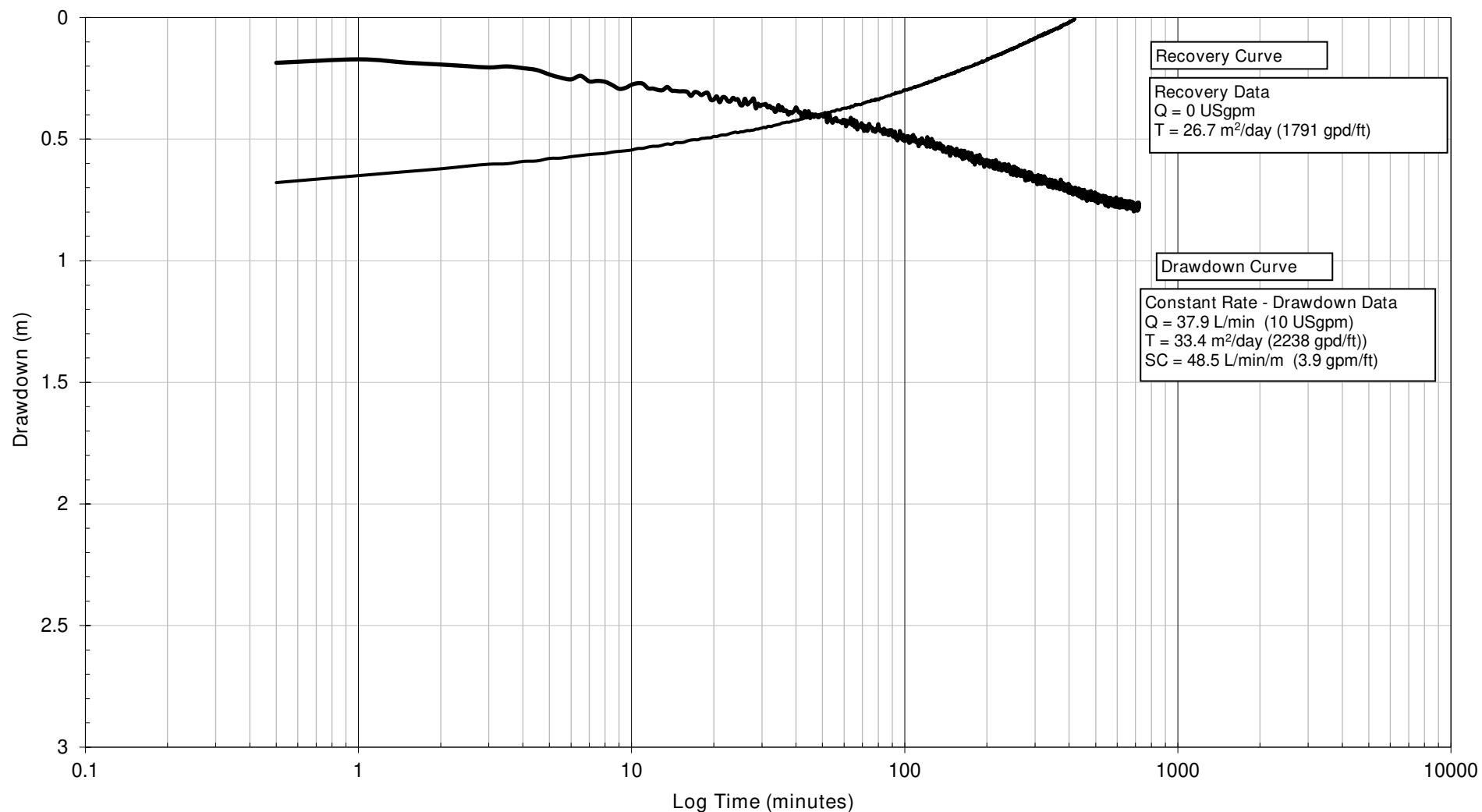
JOB NUMBER: 12580314-01

DRAWING NUMBER: E-3



347 PIDO ROAD, UNIT 29  
PETERBOROUGH, ON K9J 6X7  
www.ghd.com

CONSTANT RATE: DRAWDOWN and RECOVERY VS LOG TIME  
Well A342117: August 9-10, 2022



# TRANSMISSIVITY

Drilled Water Well  
MECP Well ID: A342117

Static Level = 7.96 mbtp (7.31 mbgs)

Note: m = metres; mbtp = metres below top of pipe; mbgs = metres below ground surface

DATE: SEPTEMBER 2022

LOCATION: 301 Somme Street, Ottawa, ON

JOB NUMBER: 12580314-01

DRAWING NUMBER: E-4



347 PIDO ROAD, UNIT 29  
PETERBOROUGH, ON K9J 6X7  
www.ghd.com

# **Appendix F**

## **Water Well Certificates of Analyses**

**SGS Canada Inc.**

P.O. Box 4300 - 185 Concession St.  
Lakefield - Ontario - K0L 2H0  
Phone: 705-652-2000 FAX: 705-652-6365

**Project :** 12580314-01

17-August-2022

**GHD Limited - 735****Attn :** Jason Gerald

347 Pido Rd., Unit #29  
Peterborough, ON  
K9J 6Z8, Canada

Phone: 705-749-3317  
Fax: 705-749-9248

**Date Rec. :** 10 August 2022  
**LR Report:** CA15144-AUG22  
**Reference:** PO#:735-003858,  
12580314-01, Jason  
Gerald

**Copy:** #1

## CERTIFICATE OF ANALYSIS

### Final Report

| Analysis                   | 1:<br>Analysis<br>Start Date | 2:<br>Analysis<br>Start Time | 3:<br>Analysis<br>Completed<br>Date | 4:<br>Analysis<br>Completed<br>Time | 6:<br>A342117 12hr |
|----------------------------|------------------------------|------------------------------|-------------------------------------|-------------------------------------|--------------------|
| Sample Date & Time         |                              |                              |                                     |                                     | 09-Aug-22 19:07    |
| Temp Upon Receipt [°C]     | ***                          | ***                          | ***                                 | ***                                 | ***                |
| Total Coliform [cfu/100mL] | 11-Aug-22                    | 14:01                        | 15-Aug-22                           | 15:25                               | 3                  |
| E.coli [cfu/100mL]         | 11-Aug-22                    | 14:01                        | 15-Aug-22                           | 15:25                               | 0                  |
| Fecal Coliform [cfu/100mL] | 11-Aug-22                    | 14:01                        | 15-Aug-22                           | 15:25                               | 0                  |
| Background [cfu/100mL]     | 11-Aug-22                    | 14:01                        | 15-Aug-22                           | 15:25                               | 33                 |
| HPC [cfu/1mL]              | 11-Aug-22                    | 14:01                        | 15-Aug-22                           | 15:25                               | 55                 |

MAC - Maximum Acceptable Concentration

AO/OG - Aesthetic Objective / Operational Guideline

NR - Not reportable under applicable drinking water regulations as per client.

Temperature of Sample upon Receipt: 13 degrees C

Cooling Agent Present: Yes

Custody Seal Present: Yes

Chain of Custody Number: 024625

*Jill Campbell, B.Sc., GISAS*  
*Project Specialist,*  
*Environment, Health & Safety*



**SGS Canada Inc.**

P.O. Box 4300 - 185 Concession St.  
Lakefield - Ontario - K0L 2H0  
Phone: 705-652-2000 FAX: 705-652-6365

## GHD Limited - 735

Attn : Jason Gerald

347 Pido Rd., Unit #29  
Peterborough, ON  
K9J 6Z8, Canada

Phone: 705-749-3317  
Fax: 705-749-9248

**Project :** 12580314-01

**22-September-2022**

**Date Rec. :** 10 August 2022  
**LR Report:** CA15142-AUG22  
**Reference:** PO#:735-003858, 12580314-01,  
Jason Gerald

**Copy:** 2

# CERTIFICATE OF ANALYSIS

## Final Report - Revised

| Analysis                                      | 1:<br>Analysis Start<br>Date | 2:<br>Analysis Start<br>Time | 3:<br>Analysis<br>Completed Date | 4:<br>Analysis<br>Completed Time | 5:<br>MAC | 6:<br>AO/OG | 7:<br>A342117 1hr | 8:<br>A342117 6hr | 9:<br>A342117 12hr |
|-----------------------------------------------|------------------------------|------------------------------|----------------------------------|----------------------------------|-----------|-------------|-------------------|-------------------|--------------------|
| Sample Date & Time                            |                              |                              |                                  |                                  |           |             | 09-Aug-22 08:07   | 09-Aug-22 13:07   | 09-Aug-22 19:07    |
| Temp Upon Receipt [°C]                        | ***                          | ***                          | ***                              | ***                              | ***       | ***         | ***               | ***               | ***                |
| Tannin+Lignin [mg phenol/L]                   | 16-Aug-22                    | 13:12                        | 17-Aug-22                        | 13:09                            |           |             | 0.32              | 0.34              | 0.40               |
| Alkalinity [mg/L as CaCO <sub>3</sub> ]       | 15-Aug-22                    | 15:41                        | 17-Aug-22                        | 12:21                            | ---       | 30-500      | 265               | 261               | 261                |
| CO <sub>3</sub> [mg/L as CaCO <sub>3</sub> ]  | 15-Aug-22                    | 15:41                        | 17-Aug-22                        | 12:21                            | ---       | ---         | < 2               | < 2               | < 2                |
| HCO <sub>3</sub> [mg/L as CaCO <sub>3</sub> ] | 15-Aug-22                    | 15:41                        | 24-Aug-22                        | 10:32                            |           |             | 265               | 261               | 261                |
| Temperature @ pH [°C]                         | 15-Aug-22                    | 15:41                        | 24-Aug-22                        | 10:32                            |           |             | 21.9              | 21.7              | 20.5               |
| pH [No unit]                                  | 15-Aug-22                    | 15:41                        | 17-Aug-22                        | 12:21                            | ---       | 6.5-8.5     | 8.14              | 8.20              | 8.23               |
| Conductivity [uS/cm]                          | 15-Aug-22                    | 15:41                        | 17-Aug-22                        | 12:21                            |           |             | 1180              | 1290              | 1350               |
| TDS [mg/L]                                    | 15-Aug-22                    | 08:47                        | 17-Aug-22                        | 12:04                            |           |             | 763               | 914               | 914                |
| Colour [TCU]                                  | 15-Aug-22                    | 11:22                        | 16-Aug-22                        | 12:52                            |           |             | 3                 | < 3               | < 3                |
| Turbidity [NTU]                               | 10-Aug-22                    | 17:53                        | 11-Aug-22                        | 09:56                            | 1         | 5           | 2.50              | 2.89              | 4.21               |
| Organic N [mg/L]                              | 15-Aug-22                    | 16:28                        | 19-Aug-22                        | 14:07                            |           |             | < 0.05            | < 0.05            | < 0.05             |
| TKN [as N mg/L]                               | 15-Aug-22                    | 16:28                        | 17-Aug-22                        | 09:37                            | ---       | ---         | 0.18              | 0.17              | 0.16               |
| NH <sub>3</sub> +NH <sub>4</sub> [as N mg/L]  | 18-Aug-22                    | 19:31                        | 19-Aug-22                        | 14:07                            |           |             | 0.19              | 0.17              | 0.17               |
| NO <sub>2</sub> [as N mg/L]                   | 16-Aug-22                    | 11:08                        | 16-Aug-22                        | 13:46                            | 1         | ---         | <0.003            | <0.003            | <0.003             |
| NO <sub>3</sub> [as N mg/L]                   | 16-Aug-22                    | 11:08                        | 16-Aug-22                        | 13:46                            | 10        | ---         | <0.006            | <0.006            | <0.006             |
| NO <sub>2</sub> +NO <sub>3</sub> [as N mg/L]  | 16-Aug-22                    | 11:08                        | 16-Aug-22                        | 13:46                            |           |             | <0.006            | <0.006            | <0.006             |
| Cl [mg/L]                                     | 17-Aug-22                    | 14:11                        | 18-Aug-22                        | 16:18                            |           |             | 62                | 66                | 68                 |





SGS Canada Inc.

P.O. Box 4300 - 185 Concession St.

Lakefield - Ontario - KOL 2HO

Phone: 705-652-2000 FAX: 705-652-6365

Project : 12580314-01

LR Report : CA15142-AUG22

| Analysis                 | 1:<br>Analysis Start<br>Date | 2:<br>Analysis Start<br>Time | 3:<br>Analysis<br>Completed Date | 4:<br>Analysis<br>Completed Time | 5:<br>MAC | 6:<br>AO/OG | 7:<br>A342117 1hr | 8:<br>A342117 6hr | 9:<br>A342117 12hr |
|--------------------------|------------------------------|------------------------------|----------------------------------|----------------------------------|-----------|-------------|-------------------|-------------------|--------------------|
| SO4 [mg/L]               | 17-Aug-22                    | 14:37                        | 18-Aug-22                        | 16:18                            |           |             | 300               | 370               | 400                |
| DOC [mg/L]               | 15-Aug-22                    | 12:00                        | 16-Aug-22                        | 08:37                            |           |             | 2                 | 2                 | 2                  |
| Hardness [mg/L as CaCO3] | 16-Aug-22                    | 11:55                        | 22-Aug-22                        | 10:47                            |           |             | 453               | 500               | 511                |
| Al (tot) [mg/L]          | 16-Aug-22                    | 11:55                        | 17-Aug-22                        | 14:03                            |           |             | 0.016             | 0.004             | 0.001              |
| Al (diss) [mg/L]         | 16-Aug-22                    | 11:55                        | 22-Aug-22                        | 10:47                            | ---       | 0.1         | < 0.001           | < 0.001           | < 0.001            |
| As (tot) [mg/L]          | 16-Aug-22                    | 11:55                        | 17-Aug-22                        | 14:03                            |           |             | 0.0006            | 0.0006            | 0.0005             |
| As (diss) [mg/L]         | 16-Aug-22                    | 11:55                        | 22-Aug-22                        | 10:47                            | 0.025     | ---         | 0.0006            | 0.0004            | 0.0004             |
| B (tot) [mg/L]           | 16-Aug-22                    | 11:55                        | 17-Aug-22                        | 14:03                            |           |             | 0.188             | 0.192             | 0.194              |
| B (diss) [mg/L]          | 16-Aug-22                    | 11:55                        | 22-Aug-22                        | 10:47                            | 5         | ---         | 0.199             | 0.216             | 0.216              |
| Ba (tot) [mg/L]          | 16-Aug-22                    | 11:55                        | 17-Aug-22                        | 14:03                            |           |             | 0.08335           | 0.08734           | 0.09029            |
| Ba (diss) [mg/L]         | 16-Aug-22                    | 11:55                        | 22-Aug-22                        | 10:47                            | 1         | ---         | 0.09451           | 0.09889           | 0.09880            |
| Be (tot) [mg/L]          | 16-Aug-22                    | 11:55                        | 17-Aug-22                        | 14:03                            |           |             | < 0.000007        | < 0.000007        | < 0.000007         |
| Be (diss) [mg/L]         | 16-Aug-22                    | 11:55                        | 22-Aug-22                        | 10:47                            | ---       | ---         | < 0.000007        | < 0.000007        | 0.000011           |
| Co (tot) [mg/L]          | 16-Aug-22                    | 11:55                        | 17-Aug-22                        | 14:03                            |           |             | 0.000100          | 0.000084          | 0.000061           |
| Co (diss) [mg/L]         | 16-Aug-22                    | 11:55                        | 22-Aug-22                        | 10:47                            | ---       | ---         | 0.000094          | 0.000091          | 0.000082           |
| Ca (tot) [mg/L]          | 16-Aug-22                    | 11:55                        | 17-Aug-22                        | 14:03                            |           |             | 135               | 156               | 161                |
| Ca (diss) [mg/L]         | 16-Aug-22                    | 11:55                        | 22-Aug-22                        | 10:48                            | ---       | ---         | 103               | 112               | 117                |
| Cd (tot) [mg/L]          | 16-Aug-22                    | 11:55                        | 17-Aug-22                        | 14:04                            |           |             | 0.000016          | 0.000025          | 0.000021           |
| Cd (diss) [mg/L]         | 16-Aug-22                    | 11:55                        | 22-Aug-22                        | 10:48                            | 0.005     | ---         | 0.000016          | 0.000017          | 0.000020           |
| Cu (tot) [mg/L]          | 16-Aug-22                    | 11:55                        | 17-Aug-22                        | 14:04                            |           |             | 0.0006            | 0.0003            | < 0.0002           |
| Cu (diss) [mg/L]         | 16-Aug-22                    | 11:55                        | 22-Aug-22                        | 10:48                            | ---       | 1           | < 0.0002          | < 0.0002          | < 0.0002           |
| Cr (tot) [mg/L]          | 16-Aug-22                    | 11:55                        | 17-Aug-22                        | 14:04                            |           |             | 0.00040           | 0.00035           | 0.00010            |
| Cr (diss) [mg/L]         | 16-Aug-22                    | 11:55                        | 22-Aug-22                        | 10:48                            | 0.05      | ---         | 0.00012           | < 0.00008         | < 0.00008          |
| Fe (tot) [mg/L]          | 16-Aug-22                    | 11:55                        | 17-Aug-22                        | 14:04                            |           |             | 0.653             | 0.881             | 0.656              |
| Fe (diss) [mg/L]         | 16-Aug-22                    | 11:55                        | 22-Aug-22                        | 10:48                            |           |             | 0.369             | 0.276             | 0.481              |
| K (tot) [mg/L]           | 16-Aug-22                    | 11:55                        | 22-Sep-22                        | 12:28                            | ---       | ---         | 8.73              | 9.15              | 9.50               |
| K (diss) [mg/L]          | 16-Aug-22                    | 11:55                        | 22-Sep-22                        | 12:53                            | ---       | ---         | 7.16              | 7.56              | 7.39               |
| Mg (tot) [mg/L]          | 16-Aug-22                    | 11:55                        | 17-Aug-22                        | 14:04                            |           |             | 58.5              | 66.0              | 69.8               |
| Mg (diss) [mg/L]         | 16-Aug-22                    | 11:55                        | 22-Aug-22                        | 10:48                            |           |             | 47.8              | 53.4              | 53.5               |
| Mn (tot) [mg/L]          | 16-Aug-22                    | 11:55                        | 17-Aug-22                        | 14:04                            |           |             | 0.172             | 0.187             | 0.192              |
| Mn (diss) [mg/L]         | 16-Aug-22                    | 11:55                        | 22-Aug-22                        | 10:48                            |           |             | 0.175             | 0.173             | 0.171              |
| Mo (tot) [mg/L]          | 16-Aug-22                    | 11:55                        | 17-Aug-22                        | 14:04                            |           |             | 0.02270           | 0.03083           | 0.03435            |
| Mo (diss) [mg/L]         | 16-Aug-22                    | 11:55                        | 22-Aug-22                        | 10:48                            | ---       | ---         | 0.02195           | 0.02931           | 0.03188            |
| Ni (tot) [mg/L]          | 16-Aug-22                    | 11:55                        | 17-Aug-22                        | 14:04                            |           |             | 0.0007            | 0.0007            | 0.0006             |
| Ni (diss) [mg/L]         | 16-Aug-22                    | 11:55                        | 22-Aug-22                        | 10:48                            | ---       | ---         | 0.0014            | 0.0013            | 0.0012             |
| Na (tot) [mg/L]          | 16-Aug-22                    | 11:55                        | 17-Aug-22                        | 14:04                            |           |             | 60.4              | 64.3              | 67.6               |



SGS Canada Inc.

P.O. Box 4300 - 185 Concession St.

Lakefield - Ontario - KOL 2HO

Phone: 705-652-2000 FAX: 705-652-6365

Project : 12580314-01

LR Report : CA15142-AUG22

| Analysis                            | 1:<br>Analysis Start<br>Date | 2:<br>Analysis Start<br>Time | 3:<br>Analysis<br>Completed Date | 4:<br>Analysis<br>Completed Time | 5:<br>MAC | 6:<br>AO/OG | 7:<br>A342117 1hr | 8:<br>A342117 6hr | 9:<br>A342117 12hr |
|-------------------------------------|------------------------------|------------------------------|----------------------------------|----------------------------------|-----------|-------------|-------------------|-------------------|--------------------|
| Na (diss) [mg/L]                    | 16-Aug-22                    | 11:55                        | 22-Aug-22                        | 10:48                            | 20*       | 200         | 54.5              | 57.4              | 57.0               |
| Pb (tot) [mg/L]                     | 16-Aug-22                    | 11:55                        | 17-Aug-22                        | 14:04                            |           |             | < 0.00009         | < 0.00009         | < 0.00009          |
| Pb (diss) [mg/L]                    | 16-Aug-22                    | 11:55                        | 22-Aug-22                        | 10:48                            | 0.01      | ---         | < 0.00009         | < 0.00009         | < 0.00009          |
| Ag (tot) [mg/L]                     | 16-Aug-22                    | 11:55                        | 17-Aug-22                        | 14:04                            |           |             | < 0.00005         | < 0.00005         | < 0.00005          |
| Ag (diss) [mg/L]                    | 16-Aug-22                    | 11:55                        | 22-Aug-22                        | 10:49                            | ---       | ---         | < 0.00005         | < 0.00005         | < 0.00005          |
| Sr (tot) [mg/L]                     | 16-Aug-22                    | 11:55                        | 17-Aug-22                        | 14:04                            |           |             | 5.66              | 6.35              | 6.65               |
| Sr (diss) [mg/L]                    | 16-Aug-22                    | 11:55                        | 22-Aug-22                        | 10:49                            | ---       | ---         | 5.15              | 5.91              | 5.92               |
| Tl (tot) [mg/L]                     | 16-Aug-22                    | 11:55                        | 17-Aug-22                        | 14:04                            |           |             | < 0.000005        | < 0.000005        | < 0.000005         |
| Tl (diss) [mg/L]                    | 16-Aug-22                    | 11:55                        | 22-Aug-22                        | 10:49                            | ---       | ---         | < 0.000005        | < 0.000005        | < 0.000005         |
| Sb (tot) [mg/L]                     | 16-Aug-22                    | 11:55                        | 17-Aug-22                        | 14:05                            |           |             | < 0.0009          | < 0.0009          | < 0.0009           |
| Sb (diss) [mg/L]                    | 16-Aug-22                    | 11:55                        | 22-Aug-22                        | 10:49                            | 0.006     | ---         | < 0.0009          | < 0.0009          | < 0.0009           |
| Se (tot) [mg/L]                     | 16-Aug-22                    | 11:55                        | 17-Aug-22                        | 14:05                            |           |             | < 0.00004         | < 0.00004         | < 0.00004          |
| Se (diss) [mg/L]                    | 16-Aug-22                    | 11:55                        | 22-Aug-22                        | 10:49                            | 0.01      | ---         | 0.00015           | 0.00020           | 0.00011            |
| U (tot) [mg/L]                      | 16-Aug-22                    | 11:55                        | 17-Aug-22                        | 14:05                            |           |             | 0.000166          | 0.000201          | 0.000204           |
| U (diss) [mg/L]                     | 16-Aug-22                    | 11:55                        | 22-Aug-22                        | 10:49                            | 0.02      | ---         | 0.000219          | 0.000227          | 0.000219           |
| V (tot) [mg/L]                      | 16-Aug-22                    | 11:55                        | 17-Aug-22                        | 14:05                            |           |             | 0.00021           | 0.00016           | 0.00014            |
| V (diss) [mg/L]                     | 16-Aug-22                    | 11:55                        | 22-Aug-22                        | 10:49                            | ---       | ---         | 0.00011           | 0.00008           | 0.00009            |
| Zn (tot) [mg/L]                     | 16-Aug-22                    | 11:55                        | 17-Aug-22                        | 14:05                            |           |             | < 0.002           | < 0.002           | < 0.002            |
| Zn (diss) [mg/L]                    | 16-Aug-22                    | 11:55                        | 22-Aug-22                        | 10:49                            | ---       | 5           | < 0.002           | < 0.002           | < 0.002            |
| Cation Sum [meq/L]                  |                              |                              |                                  |                                  | ---       | ---         | 14.37             | 16.23             | 16.93              |
| Anion Sum [meq/L]                   |                              |                              |                                  |                                  | ---       | ---         | 13.29             | 14.78             | 15.46              |
| Anion-Cation Balance [% difference] |                              |                              |                                  |                                  | ---       | ---         | 3.9               | 4.67              | 4.53               |
| Ion Ratio                           |                              |                              |                                  |                                  | ---       | ---         | 1.08              | 1.1               | 1.09               |
| TDS (calculated) [mg/L]             |                              |                              |                                  |                                  | ---       | ---         | 775               | 879               | 923                |
| Conductivity (calc) [uS/cm]         |                              |                              |                                  |                                  | ---       | ---         | 1383              | 1550              | 1619               |
| Langelier's Index [@ 4° C]          |                              |                              |                                  |                                  | ---       | ---         | 0.7               | 0.81              | 0.85               |
| Saturation pH [pHs @ 4°C]           |                              |                              |                                  |                                  | ---       | ---         | 7.44              | 7.39              | 7.38               |
| Ryznar Stability Ind [no unit]      | 09-Sep-22                    | 10:04                        | 09-Sep-22                        | 10:04                            | ---       | ---         | 6.4               | 6.2               | 6.2                |

MAC - Maximum Acceptable Concentration

AO/OG - Aesthetic Objective / Operational Guideline

NR - Not reportable under applicable Provincial drinking water regulations as per client.

Total phosphorous includes all Ortho-phosphates as well as Organics and hydrolyzable Phosphorous.

Temperature of Sample upon Receipt: 13 degrees C

Cooling Agent Present: Yes

Custody Seal Present: Yes



**SGS Canada Inc.**

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Lakefield - Ontario - K0L 2H0

Phone: 705-652-2000 FAX: 705-652-6365

**Project :** 12580314-01

**LR Report :** CA15142-AUG22

Chain of Custody Number: 015249

Ryzner Stabulity Index calculated as per the following link with an assumed water temperatur of 20 °C.

<https://www.lenntech.com/calculators/ryznar/index/ryznar.htm>

Revision 1 - total and dissolved potassium data included. Only dissolved hardness reported

*Brad Moore Hon. B.Sc  
Project Specialist,  
Environment, Health & Safety*

**SGS Canada Inc.**

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 Lakefield - Ontario - K0L 2H0  
 Phone: 705-652-2000 FAX: 705-652-6365

**Project :** 12580314-01

18-August-2022

**GHD Limited - 735**

Attn : Jason Gerald

347 Pido Rd., Unit #29  
 Peterborough, ON  
 K9J 6Z8, Canada

Phone: 705-749-3317  
 Fax: 705-749-9248

**Date Rec. :** 10 August 2022  
**LR Report:** CA15143-AUG22  
**Reference:** PO#:735-003858,  
 12580314-01, Jason  
 Gerald

**Copy:** 1

# CERTIFICATE OF ANALYSIS

## Final Report

| Analysis                           | 1:<br>Date<br>Extracted /<br>Digested | 3:<br>Analysis<br>Completed<br>Date | 6:<br>RL | 7:<br>A342117 12hr |
|------------------------------------|---------------------------------------|-------------------------------------|----------|--------------------|
| Sample Date & Time                 |                                       |                                     |          | 09-Aug-22 19:07    |
| 1.1.8 PAHs (sVOC)                  | ***                                   | ***                                 | ***      | ***                |
| Acenaphthene [µg/L]                | 15-Aug-22                             | 17-Aug-22                           | 0.1      | < 0.1              |
| Acenaphthylene [µg/L]              | 15-Aug-22                             | 17-Aug-22                           | 0.1      | < 0.1              |
| Anthracene [µg/L]                  | 15-Aug-22                             | 17-Aug-22                           | 0.1      | < 0.1              |
| Benzo(a)anthracene [µg/L]          | 15-Aug-22                             | 17-Aug-22                           | 0.1      | < 0.1              |
| Benzo(a)pyrene [µg/L]              | 15-Aug-22                             | 17-Aug-22                           | 0.01     | < 0.01             |
| Benzo(b+j)fluoranthene [µg/L]      | 15-Aug-22                             | 17-Aug-22                           | 0.1      | < 0.1              |
| Benzo(ghi)perylene [µg/L]          | 15-Aug-22                             | 17-Aug-22                           | 0.2      | < 0.2              |
| Benzo(k)fluoranthene [µg/L]        | 15-Aug-22                             | 17-Aug-22                           | 0.1      | < 0.1              |
| Chrysene [µg/L]                    | 15-Aug-22                             | 17-Aug-22                           | 0.1      | < 0.1              |
| Dibenzo(a,h)anthracene [µg/L]      | 15-Aug-22                             | 17-Aug-22                           | 0.1      | < 0.1              |
| Fluoranthene [µg/L]                | 15-Aug-22                             | 17-Aug-22                           | 0.1      | < 0.1              |
| Fluorene [µg/L]                    | 15-Aug-22                             | 17-Aug-22                           | 0.1      | < 0.1              |
| Indeno(1,2,3-cd)pyrene [µg/L]      | 15-Aug-22                             | 17-Aug-22                           | 0.2      | < 0.2              |
| 1-Methylnaphthalene [µg/L]         | 15-Aug-22                             | 17-Aug-22                           | 0.5      | < 0.5              |
| 2-Methylnaphthalene [µg/L]         | 15-Aug-22                             | 17-Aug-22                           | 0.5      | < 0.5              |
| Methylnaphthalene, 2 [µg/L]        | 15-Aug-22                             | 17-Aug-22                           | 0.5      | < 0.5              |
| Naphthalene [µg/L]                 | 15-Aug-22                             | 17-Aug-22                           | 0.5      | < 0.5              |
| Phenanthrene [µg/L]                | 15-Aug-22                             | 17-Aug-22                           | 0.1      | < 0.1              |
| Pyrene [µg/L]                      | 15-Aug-22                             | 17-Aug-22                           | 0.1      | < 0.1              |
| Surrogates - SVOCs                 | ***                                   | ***                                 | ***      | ***                |
| Surr 2-Methylnaphtha [Surr Rec %]  | 15-Aug-22                             | 17-Aug-22                           |          | 86                 |
| Surr Fluoranthene-D1 [Surr Rec %]  | 15-Aug-22                             | 17-Aug-22                           |          | 97                 |
| Surr 2-Fluorobiphenyl [Surr Rec %] | 15-Aug-22                             | 17-Aug-22                           |          | 82                 |
| Surr 4-Terphenyl-d14 [Surr Rec %]  | 15-Aug-22                             | 17-Aug-22                           |          | 92                 |

| Analysis                    | 1:<br>Date<br>Extracted /<br>Digested | 3:<br>Analysis<br>Completed<br>Date | 6:<br>RL | 7:<br>A342117 12hr |
|-----------------------------|---------------------------------------|-------------------------------------|----------|--------------------|
| 1.1.10 VOC                  | ***                                   | ***                                 | ***      | ***                |
| Acetone [µg/L]              | 13-Aug-22                             | 15-Aug-22                           | 30       | < 30               |
| Bromomethane [µg/L]         | 13-Aug-22                             | 15-Aug-22                           | 0.5      | < 0.5              |
| Carbon tetrachloride [µg/L] | 13-Aug-22                             | 15-Aug-22                           | 0.2      | < 0.2              |
| Chlorobenzene [µg/L]        | 13-Aug-22                             | 15-Aug-22                           | 0.5      | < 0.5              |
| Chloroform [µg/L]           | 13-Aug-22                             | 15-Aug-22                           | 0.5      | < 0.5              |
| 1,2-Dichlorobenzene [µg/L]  | 13-Aug-22                             | 15-Aug-22                           | 0.5      | < 0.5              |
| 1,3-Dichlorobenzene [µg/L]  | 13-Aug-22                             | 15-Aug-22                           | 0.5      | < 0.5              |
| 1,4-Dichlorobenzene [µg/L]  | 13-Aug-22                             | 15-Aug-22                           | 0.5      | < 0.5              |
| Dichlorodifluorometh [µg/L] | 13-Aug-22                             | 15-Aug-22                           | 2        | < 2                |
| 1,1-Dichloroethane [µg/L]   | 13-Aug-22                             | 15-Aug-22                           | 0.5      | < 0.5              |
| 1,2-Dichloroethane [µg/L]   | 13-Aug-22                             | 15-Aug-22                           | 0.5      | < 0.5              |
| 1,1-Dichloroethylene [µg/L] | 13-Aug-22                             | 15-Aug-22                           | 0.5      | < 0.5              |
| trans-1,2-Dichloroet [µg/L] | 13-Aug-22                             | 15-Aug-22                           | 0.5      | < 0.5              |
| cis-1,2-Dichloroethe [µg/L] | 13-Aug-22                             | 15-Aug-22                           | 0.5      | < 0.5              |
| 1,2-Dichloropropane [µg/L]  | 13-Aug-22                             | 15-Aug-22                           | 0.5      | < 0.5              |
| cis-1,3-Dichloroprop [µg/L] | 13-Aug-22                             | 15-Aug-22                           | 0.5      | < 0.5              |
| trans-1,3-Dichloropr [µg/L] | 13-Aug-22                             | 15-Aug-22                           | 0.5      | < 0.5              |
| 1,3-dichloropropene [µg/L]  | 13-Aug-22                             | 15-Aug-22                           | 0.5      | < 0.5              |
| Ethylenedibromide [µg/L]    | 13-Aug-22                             | 15-Aug-22                           | 0.2      | < 0.2              |
| n-Hexane [µg/L]             | 13-Aug-22                             | 15-Aug-22                           | 1        | < 1                |
| MEK [µg/L]                  | 13-Aug-22                             | 15-Aug-22                           | 20       | < 20               |
| MIBK [µg/L]                 | 13-Aug-22                             | 15-Aug-22                           | 20       | < 20               |
| MtBE [µg/L]                 | 13-Aug-22                             | 15-Aug-22                           | 2        | < 2                |
| Methylene Chloride [µg/L]   | 13-Aug-22                             | 15-Aug-22                           | 0.5      | < 0.5              |
| Styrene [µg/L]              | 13-Aug-22                             | 15-Aug-22                           | 0.5      | < 0.5              |
| Tetrachloroethylene [µg/L]  | 13-Aug-22                             | 15-Aug-22                           | 0.5      | < 0.5              |
| 1,1,1,2-Tetrachloroe [µg/L] | 13-Aug-22                             | 15-Aug-22                           | 0.5      | < 0.5              |
| 1,1,2,2-Tetrachloroe [µg/L] | 13-Aug-22                             | 15-Aug-22                           | 0.5      | < 0.5              |
| 1,1,1-Trichloroethan [µg/L] | 13-Aug-22                             | 15-Aug-22                           | 0.5      | < 0.5              |
| 1,1,2-Trichloroethan [µg/L] | 13-Aug-22                             | 15-Aug-22                           | 0.5      | < 0.5              |
| Trichloroethylene [µg/L]    | 13-Aug-22                             | 15-Aug-22                           | 0.5      | < 0.5              |
| Trichlorofluorometha [µg/L] | 13-Aug-22                             | 15-Aug-22                           | 5        | < 5                |
| Vinyl Chloride [µg/L]       | 13-Aug-22                             | 15-Aug-22                           | 0.2      | < 0.2              |
| 1.1.11 BTEX                 | ***                                   | ***                                 | ***      | ***                |
| Benzene [µg/L]              | 13-Aug-22                             | 15-Aug-22                           | 0.5      | < 0.5              |
| Ethylbenzene [µg/L]         | 13-Aug-22                             | 15-Aug-22                           | 0.5      | < 0.5              |
| Toluene [µg/L]              | 13-Aug-22                             | 15-Aug-22                           | 0.5      | < 0.5              |
| Xylene (total) [µg/L]       | 13-Aug-22                             | 15-Aug-22                           | 0.5      | < 0.5              |
| m-p-xylene [µg/L]           | 13-Aug-22                             | 15-Aug-22                           | 0.5      | < 0.5              |
| o-xylene [µg/L]             | 13-Aug-22                             | 15-Aug-22                           | 0.5      | < 0.5              |
| 1.1.9 THMs (VOC)            | ***                                   | ***                                 | ***      | ***                |



**SGS Canada Inc.**

P.O. Box 4300 - 185 Concession St.  
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 Phone: 705-652-2000 FAX: 705-652-6365

**Project : 12580314-01****LR Report : CA15143-AUG22**

| Analysis                          | 1:<br>Date<br>Extracted /<br>Digested | 3:<br>Analysis<br>Completed<br>Date | 6:<br>RL | 7:<br>A342117 12hr |
|-----------------------------------|---------------------------------------|-------------------------------------|----------|--------------------|
| Bromodichloromethane [µg/L]       | 13-Aug-22                             | 15-Aug-22                           | 0.5      | < 0.5              |
| Bromoform [µg/L]                  | 13-Aug-22                             | 15-Aug-22                           | 0.5      | < 0.5              |
| Dibromochloromethane [µg/L]       | 13-Aug-22                             | 15-Aug-22                           | 0.5      | < 0.5              |
| Surrogates (VOCs)                 | ***                                   | ***                                 | ***      | ***                |
| Surr 1,2-Dichloroeth [Surr Rec %] | 13-Aug-22                             | 15-Aug-22                           |          | 101                |
| Surr 2-Bromo-1-Chlor [Surr Rec %] | 13-Aug-22                             | 15-Aug-22                           |          | 85                 |
| Surr 4-Bromofluorob [Surr Rec %]  | 13-Aug-22                             | 15-Aug-22                           |          | 90                 |
| 1.1.6 PHCs                        | ***                                   | ***                                 | ***      | ***                |
| F1 (C6-C10) [µg/L]                | 12-Aug-22                             | 15-Aug-22                           | 25       | < 25               |
| F1-BTEX (C6-C10) [µg/L]           | 12-Aug-22                             | 15-Aug-22                           |          | < 25               |
| F2 (C10-C16) [µg/L]               | 15-Aug-22                             | 18-Aug-22                           | 100      | < 100              |
| F3 (C16-C34) [µg/L]               | 15-Aug-22                             | 18-Aug-22                           | 200      | < 200              |
| F4 (C34-C50) [µg/L]               | 15-Aug-22                             | 18-Aug-22                           | 200      | < 200              |
| Baseline at nC50 [Yes / No]       | 15-Aug-22                             | 18-Aug-22                           |          | YES                |

CCME Method Compliance: Analyses were conducted using analytical procedures that comply with the Reference Method for the CWS for Petroleum Hydrocarbons in Soil and have been validated for use at the SGS laboratory, Lakefield, ON site.

Quality Compliance: Instrument performance / calibration quality criteria were met and extraction and analysis limits for holding times were met.

nC6 and nC10 response factors within 30% of response factor for toluene: YES

nC10, nC16 and nC34 response factors within 10% of the average response for the three compounds: YES

C50 response factors within 70% of nC10 + nC16 + nC34 average: YES

Linearity is within 15%: YES

Benzo(b)fluoranthene results for comparison to the standard are reported as benzo(b+j)fluoranthene. Benzo(b)fluoranthene and benzo(j)fluoranthene co-elute and cannot be reported individually by the analytical method used.

Temperature of Sample upon Receipt: 13 degrees C

Cooling Agent Present: Yes

Custody Seal Present: Yes

Chain of Custody Number: 024624

Methylene Chloride LCS; Recovery is outside control limits; the overall quality control for this analysis has been assessed and was determined to be acceptable.

Acetone matrix spike; recovery for this parameter is outside control limits; the overall quality control for this analysis has been assessed and was determined to be acceptable.

F3(C16-C34) Dup RPD is outside control limits. The average of the two duplicates is less than five times the RL, therefore greater uncertainty is expected.



**SGS Canada Inc.**

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Lakefield - Ontario - KOL 2H0

Phone: 705-652-2000 FAX: 705-652-6365

**Project :** 12580314-01

**LR Report :** CA15143-AUG22

*Jill Campbell*

---

*Jill Campbell, B.Sc., GISAS  
Project Specialist,  
Environment, Health & Safety*



## FINAL REPORT

CA14875-SEP22 R1

12580314-01

Prepared for

**GHD Limited - 735**

## First Page

### CLIENT DETAILS

Client GHD Limited - 735

Address 347 Pido Rd., Unit #29  
Peterborough, ON  
K9J 6Z8. Canada

Contact Jason Gerald

Telephone 705-749-3317

Facsimile 705-749-9248

Email Jason.Gerald@ghd.com

Project 12580314-01

Order Number

Samples Ground Water (3)

### LABORATORY DETAILS

Project Specialist Brad Moore Hon. B.Sc

Laboratory SGS Canada Inc.

Address 185 Concession St., Lakefield ON, K0L 2H0

Telephone 705-652-2143

Facsimile 705-652-6365

Email brad.moore@sgs.com

SGS Reference CA14875-SEP22

Received 09/21/2022

Approved 09/27/2022

Report Number CA14875-SEP22 R1

Date Reported 09/27/2022

### COMMENTS

MAC - Maximum Acceptable Concentration

AO/OG - Aesthetic Objective / Operational Guideline

NR - Not reportable under applicable Provincial drinking water regulations as per client.

Temperature of Sample upon Receipt: 13 degrees C

Cooling Agent Present: Yes

Custody Seal Present: Yes

Chain of Custody Number: 015249

### SIGNATORIES

Brad Moore Hon. B.Sc





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FINAL REPORT

CA14875-SEP22 R1

Client: GHD Limited - 735  
Project: 12580314-01  
Project Manager: Jason Gerald  
Samplers: Jason Gerald

MATRIX: WATER

L1 = ODWS\_AO\_OG / WATER / - - Table 4 - Drinking Water - Reg O.169\_03

L2 = ODWS\_MAC / WATER / - - Table 1,2 and 3 - Drinking Water - Reg O.169\_03

|                       |       |         | Sample Number |       | 7            | 8            | 9            |
|-----------------------|-------|---------|---------------|-------|--------------|--------------|--------------|
|                       |       |         | Sample Name   |       | A342117 1HR  | A342117 6HR  | A342117 12HR |
|                       |       |         | Sample Matrix |       | Ground Water | Ground Water | Ground Water |
|                       |       |         | Sample Date   |       | 09/08/2022   | 09/08/2022   | 09/08/2022   |
| Parameter             | Units | RL      | L1            | L2    | Result       | Result       | Result       |
| General Chemistry     |       |         |               |       |              |              |              |
| Hydrogen Sulphide     | mg/L  | 0.02    | 0.05          |       | < 0.02       | < 0.02       | < 0.02       |
| Metals and Inorganics |       |         |               |       |              |              |              |
| Sulphide              | mg/L  | 0.02    |               |       | < 0.02       | < 0.02       | < 0.02       |
| Other (ORP)           |       |         |               |       |              |              |              |
| Mercury (dissolved)   | mg/L  | 0.00001 |               | 0.001 | < 0.00001    | < 0.00001    | < 0.00001    |



## EXCEEDANCE SUMMARY

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No exceedances are present above the regulatory limit(s) indicated



FINAL REPORT

CA14875-SEP22 R1

QC SUMMARY

Mercury by CVAAS  
Method: EPA 7471A/SM 3112B | Internal ref.: ME-CA-IENVISPE-LAK-AN-004

| Parameter           | QC batch<br>Reference | Units | RL      | Method<br>Blank | Duplicate |           | LCS/Spike Blank          |                        |      | Matrix Spike / Ref.      |                        |      |
|---------------------|-----------------------|-------|---------|-----------------|-----------|-----------|--------------------------|------------------------|------|--------------------------|------------------------|------|
|                     |                       |       |         |                 | RPD       | AC<br>(%) | Spike<br>Recovery<br>(%) | Recovery Limits<br>(%) |      | Spike<br>Recovery<br>(%) | Recovery Limits<br>(%) |      |
|                     |                       |       |         |                 |           |           |                          | Low                    | High |                          | Low                    | High |
| Mercury (dissolved) | EHG0048-SEP22         | mg/L  | 0.00001 | < 0.00001       | ND        | 20        | 101                      | 80                     | 120  | 121                      | 70                     | 130  |

Sulphide by SFA  
Method: SM 4500 | Internal ref.: ME-CA-IENVISFA-LAK-AN-008

| Parameter | QC batch<br>Reference | Units | RL   | Method<br>Blank | Duplicate |           | LCS/Spike Blank          |                        |      | Matrix Spike / Ref.      |                        |      |
|-----------|-----------------------|-------|------|-----------------|-----------|-----------|--------------------------|------------------------|------|--------------------------|------------------------|------|
|           |                       |       |      |                 | RPD       | AC<br>(%) | Spike<br>Recovery<br>(%) | Recovery Limits<br>(%) |      | Spike<br>Recovery<br>(%) | Recovery Limits<br>(%) |      |
|           |                       |       |      |                 |           |           |                          | Low                    | High |                          | Low                    | High |
| Sulphide  | SKA0224-SEP22         | mg/L  | 0.02 | <0.02           | ND        | 20        | 100                      | 80                     | 120  | NA                       | 75                     | 125  |



## QC SUMMARY

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**Method Blank:** a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.

**Duplicate:** Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.

**LCS/Spike Blank:** Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.

**Matrix Spike:** A sample to which a known amount of the analyte of interest has been added. Used to evaluate laboratory accuracy with sample matrix effects.

**Reference Material:** a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.

**RL:** Reporting limit

**RPD:** Relative percent difference

**AC:** Acceptance criteria

**Multielement Scan Qualifier:** as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.

**Duplicate Qualifier:** for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.

**Matrix Spike Qualifier:** for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

## LEGEND

### FOOTNOTES

**NSS** Insufficient sample for analysis.

**RL** Reporting Limit.

↑ Reporting limit raised.

↓ Reporting limit lowered.

**NA** The sample was not analysed for this analyte

**ND** Non Detect

Results relate only to the sample tested.

Data reported represent the sample as submitted to SGS. Solid samples expressed on a dry weight basis.

"Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.

Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act and Excess Soil Quality" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated.

SGS Canada Inc. statement of conformity decision rule does not consider uncertainty when analytical results are compared to a specified standard or regulation.

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The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any other holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Reproduction of this analytical report in full or in part is prohibited.

This report supersedes all previous versions.

-- End of Analytical Report --



# **Appendix G**

## **MacLellan Water Treatment Recommendations**



**Telephone:** (613) 386-0550  
**Toll-Free:** 1-800-200-0865  
**Fax:** 613-386-9889  
**Website:** [www.mwater.ca](http://www.mwater.ca)  
**Email:** [info@mwater.ca](mailto:info@mwater.ca)

**Address:** 388 Millhaven Road  
P.O. Box 392  
Odessa, ON K0H 2H0

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## Report for GHD – Ottawa Warehouse Project

*September 21, 2022*

### Introduction

This report has been prepared based on water quality information that was provided to MacLellan Water. The principal purpose of this report is to make recommendations for a water treatment system for the warehouse facility. Maximum use is estimated at 10 000 L per day although 5000 L per day is expected to be a more typical use.

### Water Quality

Several sets of water quality information were provided, corresponding to samples collected at different times during pumping of the well. Although there was some variation among the samples, the results were broadly similar. We have used the last set of samples when discussing specific numbers in this report. The following parameters returned noteworthy values:

#### *Turbidity*

Turbidity is a measure of the “cloudiness” of the water. Turbidity is a concern because the materials that cause turbidity can interfere with disinfection efforts. The operational limit for turbidity is 1 NTU. The turbidity of this water was measured at 4.21 NTU.

#### *Hardness*

Water is considered hard when the hardness exceeds 100 mg/L. This water was measured with a hardness of 689 mg/L.

#### *Iron*

The aesthetic limit for iron is 0.3 mg/L. Above this limit, it can cause problems with colour, staining, and taste in the water. The concentration of iron in this water was measured at 0.481 mg/L. A further 0.175 mg/L of iron was present in a form where it is bound up with organic matter.

#### *Manganese*

The aesthetic limit for manganese is 0.05 mg/L. Above this limit, it can cause problems with colour, staining, and taste similar to those caused by iron. The concentration of manganese in this water was measured at 0.171 mg/L.

## *Sodium*

People consuming water with a sodium content above 20 mg/L are encouraged to inform their physician. This is so that the physician can take the sodium content of the drinking water into consideration should it ever become necessary to prescribe a low sodium diet for medical reasons.

Above 200 mg/L sodium has a negative aesthetic effect in that it imparts a disagreeable, salty tang to the water.

The concentration of sodium in this water was measured at 67.6 mg/L.

## *Langelier's Index*

The Langelier's Index (LI) is a calculation that assesses the "character" of the water. Water with an LI below -0.5 is aggressive and will tend to corrode metal pipes, fixtures, and appliances. Water with an LI from -0.5 to +0.5 is neutral. Water with an LI of more than +0.5 will tend to form hard water scale at an appreciably accelerated rate.

The LI is temperature dependent. The LI of this water was calculated at +0.85 at 4°C. It will actually be even higher for water that has warmed up to room temperature while sitting inside the building.

## **Recommendations**

The following items are presented for your consideration. It is assumed that they would be carried out at the appropriate time in the construction of the facility. MacLellan Water would be happy to provide price estimates to carry out the recommended work.

1. A submersible pump should be installed in the well and connected to the building with pipe and wire that are run inside protective conduit. An appropriate pressure system will need to be installed inside the building.
2. A filtration system for iron should be installed. There are a number of options for this, but the best would be a manganese greensand filter with chlorine regeneration. The filter will also remove a certain amount of manganese.
3. An activated carbon filter should be installed to both remove residual chlorine and organically-complexed metals.
4. A water softener should be used to soften the water. This will improve the aesthetics of the water. More importantly, it will protect the water disinfection system and water-using appliances (hot water tanks, etc.) in the facility from fouling due to hard water scale.

A twin alternating softener system will be used. With this system, one tank remains in service until its capacity is exhausted. The second tank then takes over softening duties while the first tank regenerates. This ensures an uninterrupted supply of softened water and allows the use of smaller, less expensive softening equipment than a single tank model.

5. Disinfection of the water will be provided with ultra violet (UV) disinfection. Depending on preferences for redundancy, this may involve one or two units. Depending on preferences, these may be fairly straight forward units or units equipped with sensors and automatic fail-safe shutoffs.

Regardless, the unit(s) will be sized to allow adequate flow to the facility and will be equipped with turbidity-reducing cartridge-style prefilters to screen out particles that bacteria might shelter behind while passing through the UV light.

6. The concentration of sodium in the water is already slightly high. The use of a water softener will increase the sodium content of the treated water by about 300 mg/L to a total of about 360 mg/L.

One or more point of use reverse osmosis (RO) units will be installed to remove sodium at locations (like lunch rooms) where people will actually consume the water. This is done in preference to treating all the water in the facility because the output of RO units is slow. The RO units will be equipped with small storage tanks so that pre-treated water will be ready on demand.

7. MacLellan Water will arrange a servicing schedule to ensure that all the equipment remains in proper working order.

## **Conclusion**

We hope that this report contains all the information you require. Please do not hesitate to contact me with any questions. We would be happy to provide price estimates for this work once a few additional details have been established.

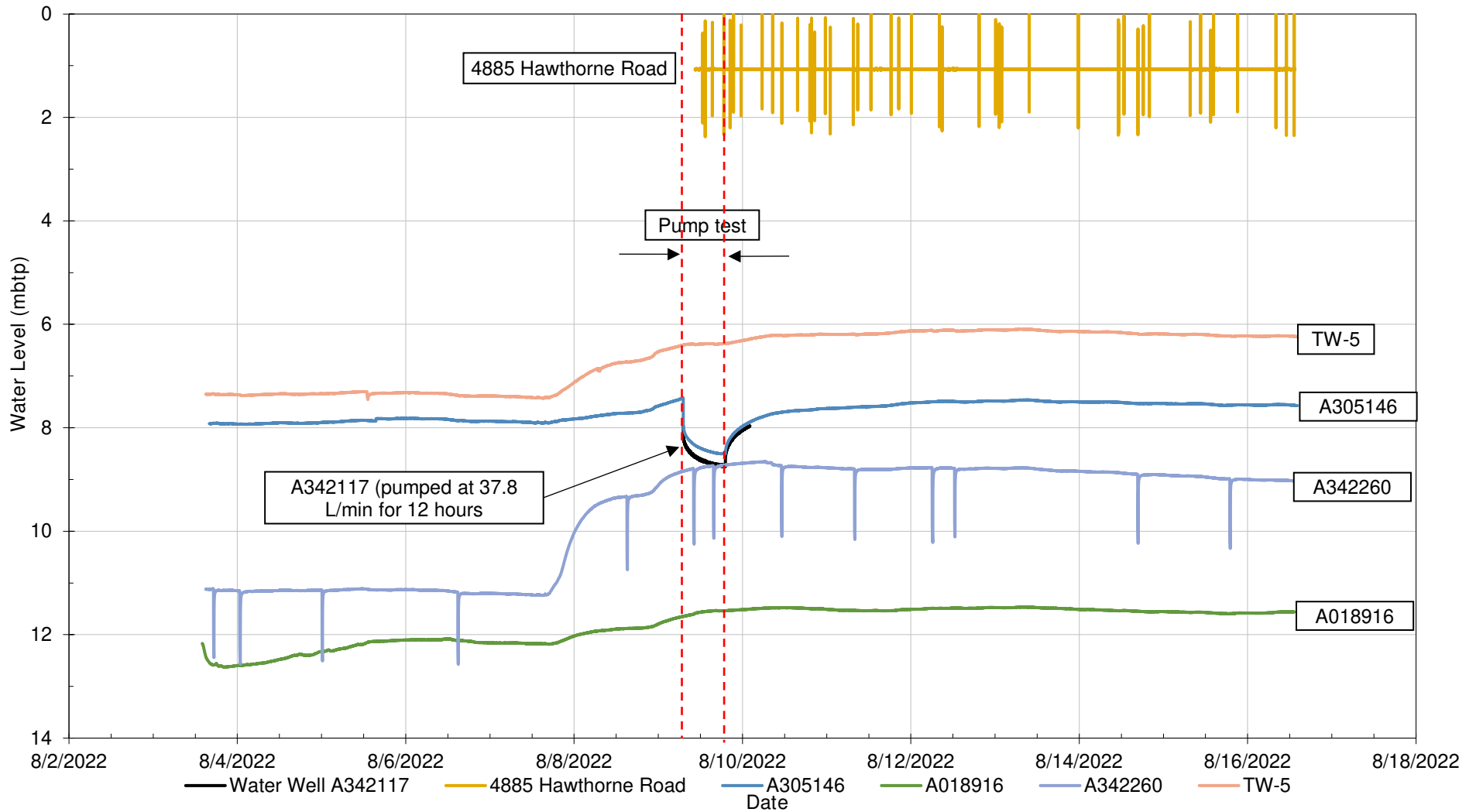
Sincerely,

William Vander Wilp  
MacLellan Water Treatment and Pumps  
1-800-200-0865 x 24

# **Appendix H**

## **Observation Well Hydrographs**

# OBSERVATION WELL HYDROGRAPHS August 3-18, 2022



## Observation Well Water Levels

Drilled Water Well  
MECP Well ID: A342117  
Static Level = 7.96 mbtp (7.31 mbgs)

Note: m = metres; mbtp = metres below top of pipe; mbgs = metres below ground surface

DATE: SEPTEMBER 2022

LOCATION: 301 Somme Street, Ottawa, ON

JOB NUMBER: 12580314-01

DRAWING NUMBER: H-1



347 PIDO ROAD, UNIT 29  
PETERBOROUGH, ON K9J 6X7  
www.ghd.com



# **Appendix I**

## **Storm Sewer Use Certificate of Analysis**

**SGS Canada Inc.**

P.O. Box 4300 - 185 Concession St.  
Lakefield - Ontario - K0L 2H0  
Phone: 705-652-2000 FAX: 705-652-6365

Project : 12580314-01

18-August-2022

**GHD Limited - 735**

Attn : Jason Gerald

347 Pido Rd., Unit #29  
Peterborough, ON  
K9J 6Z8, Canada

Phone: 705-749-3317  
Fax: 705-749-9248

**Date Rec. :** 10 August 2022  
**LR Report:** CA15141-AUG22  
**Reference:** PO#:735-003858,  
12580314-01, Jason  
Gerald

Copy: #1

# CERTIFICATE OF ANALYSIS

## Final Report

| Analysis                    | 1:<br>Analysis<br>Start Date | 3:<br>Analysis<br>Completed<br>Date | 5:<br>Ottawa<br>Storm<br>By-law<br>Limit | 6:<br>RL | 7:<br>Piezo     |
|-----------------------------|------------------------------|-------------------------------------|------------------------------------------|----------|-----------------|
| Sample Date & Time          |                              |                                     |                                          |          | 09-Aug-22 18:00 |
| Ecoli [cfu/100mL]           | 11-Aug-22                    | 15-Aug-22                           | 200                                      | 2        | < 2             |
| pH [No unit]                | 11-Aug-22                    | 16-Aug-22                           | 9                                        | 0.05     | 6.86            |
| BOD5 [mg/L]                 | 11-Aug-22                    | 16-Aug-22                           | 25                                       | 2        | < 4             |
| TSS [mg/L]                  | 13-Aug-22                    | 15-Aug-22                           | 15                                       | 2        | 92              |
| 4AAP-Phenolics [mg/L]       | 12-Aug-22                    | 15-Aug-22                           | 0.008                                    | 0.002    | 0.003           |
| CN(T) [mg/L]                | 11-Aug-22                    | 12-Aug-22                           | 0.02                                     | 0.01     | < 0.01          |
| Hg (tot) [mg/L]             | 15-Aug-22                    | 16-Aug-22                           | 0.0004                                   | 0.00001  | 0.00002         |
| As (tot) [mg/L]             | 17-Aug-22                    | 18-Aug-22                           | 0.02                                     | 0.0002   | 0.0033          |
| Cd (tot) [mg/L]             | 17-Aug-22                    | 18-Aug-22                           | 0.008                                    | 0.000003 | 0.000055        |
| Cr (tot) [mg/L]             | 17-Aug-22                    | 18-Aug-22                           | 0.08                                     | 0.00008  | 0.00206         |
| Cu (tot) [mg/L]             | 17-Aug-22                    | 18-Aug-22                           | 0.04                                     | 0.0002   | 0.0071          |
| Pb (tot) [mg/L]             | 17-Aug-22                    | 18-Aug-22                           | 0.12                                     | 0.00001  | 0.00192         |
| Mn (tot) [mg/L]             | 17-Aug-22                    | 18-Aug-22                           | 0.05                                     | 0.00001  | 1.37            |
| Ni (tot) [mg/L]             | 17-Aug-22                    | 18-Aug-22                           | 0.08                                     | 0.0001   | 0.0046          |
| P (tot) [mg/L]              | 17-Aug-22                    | 18-Aug-22                           | 0.4                                      | 0.003    | 0.156           |
| Se (tot) [mg/L]             | 17-Aug-22                    | 18-Aug-22                           | 0.02                                     | 0.00004  | 0.00025         |
| Ag (tot) [mg/L]             | 17-Aug-22                    | 18-Aug-22                           | 0.12                                     | 0.00005  | < 0.00005       |
| Zn (tot) [mg/L]             | 17-Aug-22                    | 18-Aug-22                           | 0.04                                     | 0.002    | 0.011           |
| PCB (tot) [mg/L]            | 12-Aug-22                    | 15-Aug-22                           | 0.0004                                   | 0.0001   | < 0.0001        |
| PAHs (total) [mg/L]         | 16-Aug-22                    | 17-Aug-22                           | 0.006                                    | ---      | 0.001           |
| 7Hdibenzo(c,g)carbaz [mg/L] | 16-Aug-22                    | 17-Aug-22                           | ---                                      | 0.0001   | < 0.0001        |
| Anthracene [mg/L]           | 16-Aug-22                    | 17-Aug-22                           | ---                                      | 0.0001   | < 0.0001        |
| Benzo(a)anthracene [mg/L]   | 16-Aug-22                    | 17-Aug-22                           | ---                                      | 0.0001   | 0.0002          |
| Benzo(a)pyrene [mg/L]       | 16-Aug-22                    | 17-Aug-22                           | ---                                      | 0.0001   | 0.0001          |

**SGS Canada Inc.**

P.O. Box 4300 - 185 Concession St.  
 Lakefield - Ontario - K0L 2H0  
 Phone: 705-652-2000 FAX: 705-652-6365

**Ottawa Storm Bylaw 2003-514****Project : 12580314-01****LR Report : CA15141-AUG22**

| Analysis                         | 1:<br>Analysis<br>Start Date | 3:<br>Analysis<br>Completed<br>Date | 5:<br>Ottawa<br>Storm<br>By-law<br>Limit | 6:<br>RL | 7:<br>Piezo |
|----------------------------------|------------------------------|-------------------------------------|------------------------------------------|----------|-------------|
| Benzo(b+j)fluoranthene [mg/L]    | 16-Aug-22                    | 17-Aug-22                           | ---                                      | 0.0001   | 0.0002      |
| Benzo[e]pyrene [mg/L]            | 16-Aug-22                    | 17-Aug-22                           | ---                                      | 0.0001   | 0.0001      |
| Benzo(ghi)perylene [mg/L]        | 16-Aug-22                    | 17-Aug-22                           | ---                                      | 0.0002   | 0.0003      |
| Benzo(k)fluoranthene [mg/L]      | 16-Aug-22                    | 17-Aug-22                           | ---                                      | 0.0001   | < 0.0001    |
| Chrysene [mg/L]                  | 16-Aug-22                    | 17-Aug-22                           | ---                                      | 0.0001   | < 0.0001    |
| Dibenzo(a,h)anthracene [mg/L]    | 16-Aug-22                    | 17-Aug-22                           | ---                                      | 0.0001   | < 0.0001    |
| Dibenzo(a,i)pyrene [mg/L]        | 16-Aug-22                    | 17-Aug-22                           | ---                                      | 0.0001   | < 0.0001    |
| Dibenzo(a,j)acridine [mg/L]      | 16-Aug-22                    | 17-Aug-22                           | ---                                      | 0.0001   | < 0.0001    |
| Fluoranthene [mg/L]              | 16-Aug-22                    | 17-Aug-22                           | ---                                      | 0.0001   | 0.0002      |
| Perylene [mg/L]                  | 16-Aug-22                    | 17-Aug-22                           | ---                                      | 0.0005   | < 0.0005    |
| Phenanthrene [mg/L]              | 16-Aug-22                    | 17-Aug-22                           | ---                                      | 0.0001   | 0.0001      |
| Pyrene [mg/L]                    | 16-Aug-22                    | 17-Aug-22                           | ---                                      | 0.0001   | 0.0002      |
| Naphthalene [mg/L]               | 16-Aug-22                    | 17-Aug-22                           | 0.0064                                   | 0.0005   | < 0.0005    |
| Hexachlorobenzene [mg/L]         | 16-Aug-22                    | 17-Aug-22                           | 0.00004                                  | 0.0001   | < 0.0001    |
| Benzene [mg/L]                   | 16-Aug-22                    | 17-Aug-22                           | 0.002                                    | 0.0005   | < 0.0005    |
| Chloroform [mg/L]                | 16-Aug-22                    | 17-Aug-22                           | 0.002                                    | 0.0005   | < 0.0005    |
| 1,2-Dichlorobenzene [mg/L]       | 16-Aug-22                    | 17-Aug-22                           | 0.0056                                   | 0.0005   | < 0.0005    |
| 1,4-Dichlorobenzene [mg/L]       | 16-Aug-22                    | 17-Aug-22                           | 0.0068                                   | 0.0005   | < 0.0005    |
| cis-1,2-Dichloroethane [mg/L]    | 16-Aug-22                    | 17-Aug-22                           | 0.0056                                   | 0.0005   | < 0.0005    |
| trans-1,3-Dichloropropane [mg/L] | 16-Aug-22                    | 17-Aug-22                           | 0.0056                                   | 0.0005   | < 0.0005    |
| Ethylbenzene [mg/L]              | 16-Aug-22                    | 17-Aug-22                           | 0.002                                    | 0.0005   | < 0.0005    |
| Methylene Chloride [mg/L]        | 16-Aug-22                    | 17-Aug-22                           | 0.0052                                   | 0.0005   | < 0.0005    |
| 1,1,2,2-Tetrachloroethane [mg/L] | 16-Aug-22                    | 17-Aug-22                           | 0.017                                    | 0.0005   | < 0.0005    |
| Tetrachloroethylene [mg/L]       | 16-Aug-22                    | 17-Aug-22                           | 0.0044                                   | 0.0005   | < 0.0005    |
| Toluene [mg/L]                   | 16-Aug-22                    | 17-Aug-22                           | 0.002                                    | 0.0005   | < 0.0005    |
| Trichloroethylene [mg/L]         | 16-Aug-22                    | 17-Aug-22                           | 0.0076                                   | 0.0005   | < 0.0005    |
| Xylene (total) [mg/L]            | 16-Aug-22                    | 17-Aug-22                           | 0.0044                                   | 0.0005   | < 0.0005    |
| m-p-xylene [mg/L]                | 16-Aug-22                    | 17-Aug-22                           | ---                                      | 0.0005   | < 0.0005    |
| o-xylene [mg/L]                  | 16-Aug-22                    | 17-Aug-22                           | ---                                      | 0.0005   | < 0.0005    |
| Nonylphenol [mg/L]               | 15-Aug-22                    | 17-Aug-22                           | 0.001                                    | 0.001    | < 0.001     |
| Nonylphenol Ethoxylate [mg/L]    | 15-Aug-22                    | 17-Aug-22                           | 0.01                                     | 0.01     | < 0.01      |
| Nonylphenol diethoxy [mg/L]      | 15-Aug-22                    | 17-Aug-22                           | ---                                      | 0.01     | < 0.01      |
| Nonylphenol monoethoxy [mg/L]    | 15-Aug-22                    | 17-Aug-22                           | ---                                      | 0.01     | < 0.01      |

RL - SGS Reporting Limit

Nonylphenol Ethoxylates is the sum of nonylphenol monoethoxylate and nonylphenol diethoxylate.

.

Temperature of Sample upon Receipt: 10 degrees C

Cooling Agent Present: Yes

Custody Seal Present: Yes

Chain of Custody Number: 015194



**SGS Canada Inc.**

P.O. Box 4300 - 185 Concession St.  
Lakefield - Ontario - K0L 2H0  
Phone: 705-652-2000 FAX: 705-652-6365

**Ottawa Storm Bylaw 2003-514**

**Project : 12580314-01**

**LR Report : CA15141-AUG22**

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*Jill Campbell, B.Sc., GISAS  
Project Specialist,  
Environment, Health & Safety*



**ghd.com**

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