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September 28, 2020
File: PH4089-LET.01

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

www.patersongroup.ca

Attention: **Mr. Tony Mariani**

Subject: **Hydrogeological Report and Terrain Analysis**
Somme Street (5123 Hawthorne Road)
Ottawa, Ontario

Introduction

Further to your request, Paterson Group (Paterson) has conducted a Hydrogeological Report and Terrain Analysis in support of the proposed construction of a one storey slab-on-grade commercial structure and associated warehouse on the subject site located within Part 3 and Part 4 of Block 2 along Somme Street (5123 Hawthorne Road) in the City of Ottawa, Ontario. The purpose of these works has been to determine the suitability of the water supply aquifer underlying the site to service the proposed development and the suitability of the soils to adequately attenuate sewage effluent through a Class 4 Sewage System.

Description of Proposed Property

The subject site is currently undeveloped and grass covered. The ground surface across the site is relatively flat and gradually slopes down towards the southeast. An unidentified tributary to the Findlay Creek Municipal Drain has been identified along the southern boundary of the subject site, while a drainage ditch has been observed along Somme Street. The subject site is bordered to the north by Somme Street, to the east and south by undeveloped land and to the west by vacant land followed by a stormwater management pond. The site is currently zoned as Rural Heavy Industrial (RH).The surrounding properties to the north, east and west are also zone RH, while the property to the south is zone as Mineral Extraction (ME).

Field Program

As a means to demonstrate the adequacy of the aquifer underlying the subject lands, with respect to water quality and quantity, a new drilled well was constructed and tested. The new drilled well has been identified as A295280 and is referred to as TW1 for the purpose of this assessment. TW1 has a 150 mm diameter steel casing extending to a depth of 12.5 m below ground surface (bgs). The total depth of the well was indicated to be 37.2 m bgs. According to the well record, grey limestone was recorded at a depth of approximately 4.6 m bgs, followed by grey to white sandstone bedrock. Based upon available geological mapping, the drift thickness varies from 0 to 2 m bgs.

The new drilled well is located in the northern portion of the property and west of the proposed structure. Refer to attached Paterson Drawing PH4089 -1 - Site Plan for the well location. The new drilled well is fully accessible with the 150 mm diameter steel casing extending 0.61 m above the existing ground surface. The well stick-up meets the minimum height requirement as per Ontario Regulation 903.

As a means to evaluate the water supply aquifer intercepted by the well, the well was subjected to an 8 hour constant rate pumping test. The pumping test was conducted on September 8, 2020 under the full-time supervision of Paterson personnel.

A submersible pump was provided by Air Rock Drilling Co. (Air Rock) for the 8 hour pumping test. A licensed water well technician (Air Rock) was retained to complete the necessary plumbing related activities. A discharge hose assembly with a gate valve was connected to the rented pump. The discharge line was placed at a sufficient distance to ensure that the discharge water was being directed away from the well. Upon completion of the test, the pump was removed and the well was disinfected by Air Rock.

The pumping test was carried out at a pumping rate of 90 L/min for a duration of 8 hours. During the pumping test, the pumping rate was periodically measured using the timed volume correlation method. The pump rate was maintained within 5% of the selected pump rate. The static water level was recorded manually and an electronic datalogger (VanEssen TD-Diver) was installed in the test well prior to the start of the pumping test. The data logger recorded water levels at 30 second intervals. In addition, manual water level readings were taken at periodic intervals during the test.

Recovery data was collected from the well following the completion of the pumping. The well was noted to have achieved 95% recovery approximately 9 hours and 45 minutes after the completion of the pumping.

Groundwater samples were collected at 4 hours and 8 hours after the start of pumping. Prior to collection of the groundwater samples, the free chlorine residual was verified to be 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.

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 the Eurofins laboratory in Ottawa. All samples were received by the laboratory within 24 hours of collection.

A series of field tests of the pumped water were carried out at the well head during the 6 hour pumping test. The parameters tested at the well head included: pH, total dissolved solids, conductivity, turbidity and temperature.

Aquifer Analysis

Water Quantity

Pumping test data was analyzed using AquiferTest Pro (v. 2016.1) aquifer analysis software package by Schlumberger Water Services. Drawdown data was measured using an electronic water level tape and an electronic datalogger unit.

TABLE 1:SUMMARY OF WATER SUPPLY AQUIFER CHARACTERISTICS OF TW1

AQUIFER PARAMETER	RESULT OF ANALYSIS
Transmissivity (m^2/day)	20.23
Pumping Rate (L/min)	90
Pre-test Static Water Level (m)	7.75
Post-test Water level (m)	11.24
Available Drawdown (m)	29.43
% Drawdown During Pumping Test	11.8
Specific Capacity (L/min/m drawdown)	25.79

The drawdown data was analyzed using the Theis (Theis, 1935), Cooper & Jacob (Cooper & Jacob, 1946) and the Theis Recovery methods of analysis. Aquifer transmissivity is estimated to be approximately 20.23 m^2/day.

The pumping test results show that TW1 has a high yield to support the water demands for the proposed development. Overall maximum drawdown at a constant pumping rate for a period of 8 hrs was approximately 3.49 m (11.24 % of the available drawdown). 95% recovery was achieved approximately 9 hours and 45 minutes after the end of pumping. The total volume of water pumped during the 8 hour pumping test was approximately 43,200 L. This is approximately 35 times the maximum total daily design volume of water required to support the proposed development (maximum 1,250 L/day provided by Novatech Engineering Ltd).

It should be noted that the static water level from an adjacent test well was also recorded using an electronic datalogger during the 8 hour pumping test. A minimal drawdown of approximately 2.1 m (5% of the available drawdown) was recorded in the adjacent well located 120 m west of TW1.

The suitability of the aquifer to supply the proposed commercial development was assessed using the methodology provided in MECP Procedure D-5-5 (MOEE, 1996).

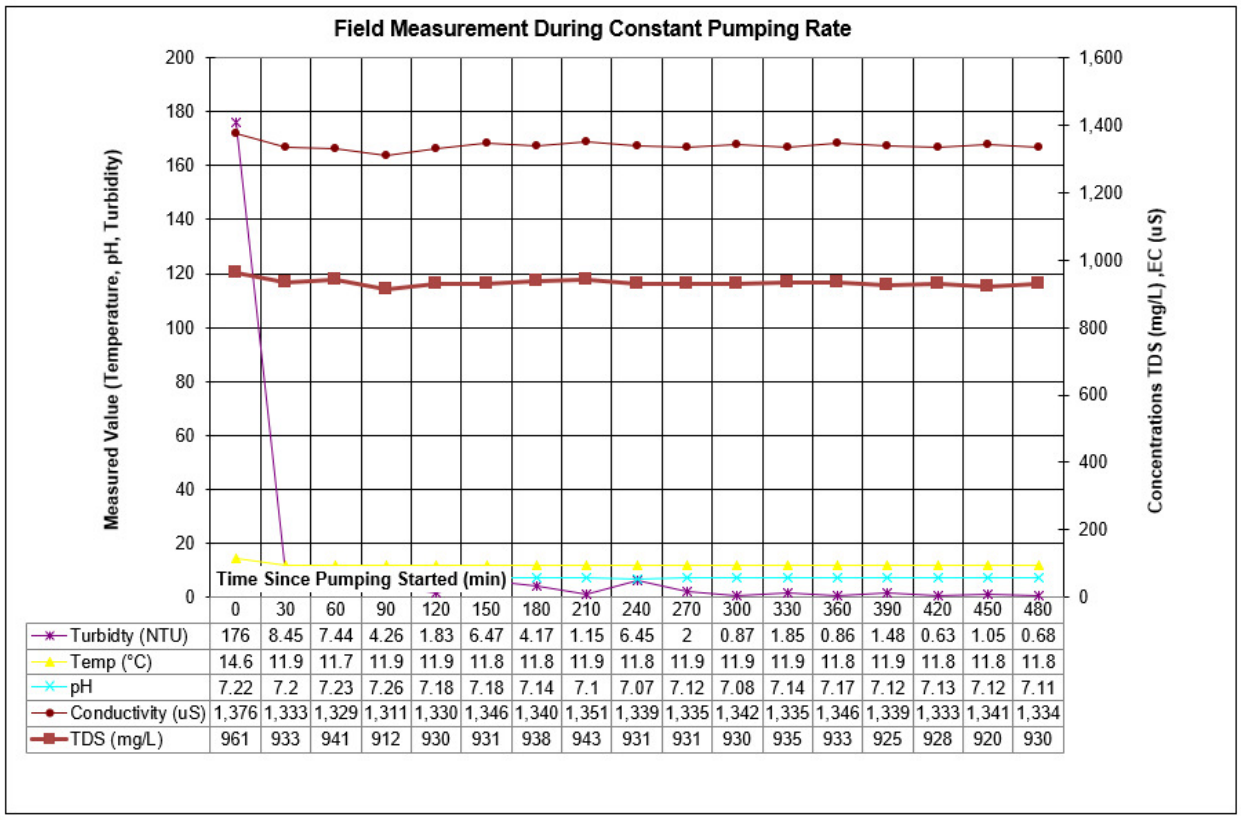
Based on the information summarized in Table 1, it is readily apparent that the new water supply well has intercepted an adequately strong water supply aquifer. It is considered to have sufficient quantity to service the proposed commercial development under typical usage, in addition to the neighboring buildings whose wells may intercept the same water supply aquifer.

The majority of the available water well records for the neighboring properties on the MECP Well Record mapping website consist of test wells, monitoring wells, farm use, public use or erroneously located well records. All surrounding WWR are attached to this report.

Water Quality

Field Data

Turbidity, electrical conductivity, total dissolved solids (TDS), pH and temperature were measured at the wellhead during the pumping test. The measurements and time intervals for each of these parameters are summarized on the graphical representation below. 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.



	0	30	60	90	120	150	180	210	240	270	300	330	360	390	420	450	480
Turbidty (NTU)	176	8.45	7.44	4.26	1.83	6.47	4.17	1.15	6.45	2	0.87	1.85	0.86	1.48	0.63	1.05	0.68
Temp (°C)	14.6	11.9	11.7	11.9	11.9	11.8	11.8	11.9	11.8	11.9	11.9	11.9	11.8	11.9	11.8	11.8	11.8
pH	7.22	7.2	7.23	7.26	7.18	7.18	7.14	7.1	7.07	7.12	7.08	7.14	7.17	7.12	7.13	7.12	7.11
Conductivity (uS)	1,376	1,333	1,329	1,311	1,330	1,346	1,340	1,351	1,339	1,335	1,342	1,335	1,346	1,339	1,333	1,341	1,334
TDS (mg/L)	961	933	941	912	930	931	938	943	931	931	930	935	933	925	928	920	930

Laboratory Data

The laboratory water quality obtained from the pumping test of TW1 is provided in Table 2 below and the laboratory analyses reports can be found attached.

TABLE 2: GROUNDWATER GEOCHEMISTRY (TW1)

PARAMETER	UNITS	ODWS		TW1	
		LIMIT	TYPE	GW1 (4 hr) 2020-09-08	GW2 (8 hr) 2020-09-08
MICROBIOLOGICAL					
Escherichia Coli (E.Coli)	ct/100mL	0	MAC	0	0
Total Coliforms	ct/100mL	0	MAC	0	0
GENERAL CHEMICAL - HEALTH RELATED					
Fluoride	mg/L	1.5(2.4)	MAC	0.12	0.26
N-NO2 (Nitrite)	mg/L	1	MAC	<0.10	<0.10
N-NO3 (Nitrate)	mg/L	10	MAC	<0.10	<0.10
Turbidity (Laboratory)	NTU	1.0 (5.0)	MAC/AO	21.20	24.10
Turbidity (Field)	NTU	1.0 (5.0)	MAC/AO	6.45	0.68
N-NH3 (Ammonia)	mg/L	-	-	0.20	0.22
Total Kjeldahl Nitrogen	mg/L	-	-	0.30	0.30
GENERAL CHEMICAL - AESTHETIC RELATED					
Hardness (as CaCO3)	mg/L	100	OG	613	595
Ion Balance	unitless	-	-	1.01	1
Total Dissolved Solids	mg/L	500	AO	910	920
Alkalinity (as CaCO3)	mg/L	500	OG	495	470
Chloride	mg/L	250	AO	58	63
Colour	TCU	5	AO	2	<2
Conductivity	uS/cm	-	-	1,340	1,320
pH	unitless	6.5-8.5	AO	7.74	7.95
Sulphide	mg/L	0.05	AO	<0.01	<0.01
Sulphate	mg/L	500	AO	188	200
Calcium	mg/L	-	-	135	131
Iron	mg/L	0.3	AO	1.68	1.58
Potassium	mg/L	-	-	10	10
Magnesium	mg/L	-	-	67	65
Manganese	mg/L	0.05	AO	0.50	0.48
Sodium	mg/L	200	AO	72	74
Phenols	mg/L	-	-	<0.001	<0.001
Tannin & Lignin	mg/L	-	-	0.20	0.20
Dissolved Organic Carbon	mg/L	5	AO	4.50	4.30

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

The bacteriological test results (Certificate of Analysis - Report No. 1938338) indicated that E.coli and Total Coliforms were non detect in the well water (0 ct/100mL). Paterson personnel confirmed that the free chlorine residual was 0 mg/L prior to the collection of the bacteriological sample.

The water quality of the subject water supply well meets all the Ontario Drinking Water Standards (ODWS) maximum acceptable concentrations (MAC). Furthermore, the water meets all of the aesthetic objectives (AO) and operational guidelines (OG) with the exception of the following:

- Hardness (As $CaCO_3$)
- TDS
- Turbidity
- Iron
- Manganese

Exceedances of the above parameters are not uncommon of the water supply in the subject aquifer and are similar to the test well results (TW5) used for the hydrogeological study completed by Golder Associates dated December 2008, in support of the approved development. Each of these groundwater parameters are discussed in detail below.

Hardness as $CaCO_3$

Hardness, expressed as calcium carbonate, an operational guideline, 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 of 100 mg/L. At the measured concentration of 613 and 595 mg/L, the water is considered to be hard. The Technical Support Document for ODWS publication states that water with hardness in excess of 500 mg/L may be unacceptable for most domestic purposes, however, there is no maximum treatable value available. It is expected the hardness concentration can be treated using commercial grade water softener technologies, if desired, by the owner.

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. Water with a TDS concentration above 500 mg/L of TDS may not palatable. Procedure D-5-5 does not provide a 'treatability limit' for TDS, but it does require written rationale that corrosion, encrustation, or taste problems will not occur.

The Langelier Saturation Index (Langelier, 1936) is used to predict the calcium carbonate stability of water. It indicates whether the water will precipitate, dissolve, or be in equilibrium with calcium carbonate. The results of the Langelier calculation (LSI = 1.2) indicate the water is super saturated and tends to precipitate a scale layer of calcium carbonate (scale forming but non-corrosive). See Langelier Saturation Index Calculation attached for calculation details.

Turbidity

Turbidity, which is generally an aesthetic parameter, was detected in the laboratory test samples at values of 21.2 and 24.1 NTU in the 4 and 8 hour tests, respectively. Field testing detected the samples at values of 6.4 and 0.7 NTU in the 4 and 8 hour tests, respectively. Continued pumping showed a decrease towards the end of the test. It is expected further development of the well would further reduce turbidity values. The elevated turbidity in the laboratory analyzed samples is attributed to the precipitation of iron.

The ODWS maximum acceptable concentration for turbidity in drinking water entering the distribution system is 1 NTU. The Aesthetic Objective for turbidity in drinking water reaching the consumer is 5 NTU. The field test parameters are below the 5 NTU objective.

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 groundwater at TW1 is considered to be reasonably treatable in accordance with Procedure D-5-5. However, the laboratory observation for turbidity showed increased precipitation (turbidity) attributed to iron precipitate. It is recommended that an iron filter be used to reduce the levels of iron and reduce the potential for excessive precipitate occurring in the water supply system.

Manganese

The manganese concentration results from the laboratory test samples yielded a value of 0.50 and 0.48 mg/L and is above the aesthetic objectives in the ODWO of 0.05 mg/L. As per D-5-5, the results are below the level considered to be reasonably treatable (1.0 mg/L). A conventional water softener can be used to reduce the levels of manganese.

Terrain Analysis

Surficial Geology

The field investigation was completed using the relevant test boreholes completed for a Phase II - Environmental Site Assessment by Paterson of the overall site as well as boreholes completed by others. The above noted investigations included 2 boreholes within the subject site and were advanced to a maximum depth of 4.4 m bgs. The location of the boreholes on the property are delineated on the Test Hole Location Plan, Drawing No. PG5306-1, attached.

The test hole 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.

The subsurface profile consisted of fill material extending to depths of 1.2 to 1.5 m bgs and consists of sandy silt with some gravel, organics and construction debris. The fill material is underlain by a loose to compact silt with traces of sand and gravel. Groundwater levels were not encountered at the time of the field investigation. Auger refusal was encountered in borehole B2-1 (by others) at 1.2 m bgs.

Reference should be made to the borehole 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 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 bordered to the north by Somme Street, to the east and south by undeveloped land and to the west by vacant land followed by a stormwater management pond. The subject development will be serviced by private wells and septic systems.

Based upon the field investigations, the overburden material ranges from approximately 1.2 to >4.4 m depth at the borehole locations. The overburden soils are recorded to consist of fill material overlying a silt with traces of sand and gravel.

As the proposed site is expected to have bedrock within 2 m of the ground surface in areas, the site is considered hydrogeologically sensitive. Horizontal separation distances have been increased between the septic components and the onsite well. The minimum well casing depth for the constructed TW1 has been doubled to 12 m.

The topography of the site is relatively flat and gradually slopes down towards the southeast. An unidentified tributary to the Findlay Creek Municipal Drain has been identified along the southern boundary of the subject site, while a drainage ditch has been observed along Somme Street. The local flow direction of the surficial aquifer is expected to travel towards the northeast, based on the groundwater depths measured from previous investigations in the area. The regional groundwater flow is considered to be in an easterly to south easterly direction, towards the Findlay Creek Municipal Drain. There are no downgradient private water supply wells within 500 m of the proposed septic bed in this direction.

To corroborate our position in this matter, the water quality of the bedrock aquifer targeted as the preferred water supply aquifer for the development, shows no indications of surface water or surface impacts from sewage system effluent. This is especially telling, considering the operation of nearby sewage systems upgradient from the subject site.

Conceptual Lot Development Plan

A one storey slab-on-grade commercial structure and associated warehouse is proposed within the north central portion of the property. The location of the proposed structures can be found on the attached Paterson Drawing PH4089 - 1 - Site Plan. It illustrates that the proposed design layout is adequate to accommodate the associated private services and meet all the regulated separation criteria.

Sewage System Design

In order to minimize the risk of long-term contamination of services, a minimum horizontal separation distance of 30 metres is recommended between the onsite drilled well and the closest distribution pipe of the onsite sewage system. This separation distance shall be increased according to the OBC requirements for beds constructed above the original ground surface. In consideration of the proposed location of the septic area, the existing wells, the proximity of the neighbouring sewage systems and wells with respect to the proposed sewage system, the minimum regulatory separation distances can be easily attained on the subject property. In addition, a minimum of 100 mm of imported soil seal would be required to provide system isolation due to the shallow overburden (<2 m).

Proposed Sewage System

Details regarding the sewage system have not been provided at the time of report preparation. However, based on the available space, it is expected that a conventional Class 4 Sewage System will easily fit on the subject site. Novatech Engineering has been retained to complete the detailed design of the system and is to be completed at a later date. The reader should be aware that there are numerous other types of class 4 sewage

systems that could potentially be used at the subject site. The system is expected to have a daily design load capacity of 1,250 L/day and will govern the allowable flows under the current Ontario Building Code (OBC). Also, a minimum of 100 mm of imported soil seal would be required to provide system isolation due to the shallow overburden (<2 m).

Total Daily Design Sewage Flow

The total daily design flow (TDDSF) of 1,250 L/day for the proposed development was provided by Novatech Engineering. Typical commercial developments will have lower actual loading compared to the conservative design loads as per the OBC.

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. 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 lot size is one hectare or larger a detailed impact assessment may not be required. It has been the City of Ottawa's policy that where the lot size is 0.8 ha. or larger a detailed assessment is typically not required since it is considered be a low risk development. The subject site is approximately 2.7 ha. in size and, as such, a detailed impact assessment is not necessary. In addition, there are no noted sensitive shallow receptors in the downgradient direction within 1 km to the subject site.

Based upon the above information, it is expected that the nitrate impact assessment is not required for this proposed development.

Conclusions

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

1. The results of the water supply assessment have provided satisfactory evidence that the water supply aquifer underlying the subject site can support the proposed commercial development from both a quality and quantity perspective.

2. The preferred water supply aquifer intercepted by TW1 contains a water supply that is potable, and contains only elevated concentrations of hardness, TDS, turbidity, iron and manganese. The results are similar to the test well results (TW5) used for the hydrogeological study completed by Golder Associates dated December 2008, in support of the approved development. The above noted parameters can be treated with current readily available water conditioning equipment.

3. An iron filter is recommended to prevent iron precipitate from occurring within the treatment system that may cause negative impacts.

4. The sodium concentrations were 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.

5. The onsite well and septic system components must have a minium of 30 m horizontal separation as the site is considered hydrogeologically sensitive. Any onsite wells must be designed to have double the minimum casing length required by O.Reg 903 for a total of 12 m.

6. Due to the lot size of the proposed development (2.7 ha), a detailed nitrate impact assessment is not required as it is considered be a low risk development.

7. The subject site is sufficient in size to accommodate a new sewage system and meet all the regulatory separation criteria.

8. A Sewage System Permit and Building Permit need to be issued prior to the commencement of construction on the proposed commercial development or the proposed septic system.

9. The results of the Potable Water Supply and Terrain Analysis have provided satisfactory evidence that the subject site can support the proposed commercial development with respect to water quality, quantity and sewage system placement.

10. The construction of an on site sewage system will not affect the performance or water quality associated with a drilled well, contingent upon the on site sewage system is designed in accordance with the Ontario Building Code (i.e. properly sized sewage system and conforming to all separation distances) and a minimum 100 mm soil seal provided beneath the leaching bed/mantle area to ensure system isolation.

We trust that this satisfies your present requirements. Should you have any questions regarding this submission, please do not hesitate to contact the undersigned.

Yours truly,

PATERSON GROUP INC.

Nicholas Zulinski, P.Geo., géo.

Michael S. Killam, P.Eng.

Attachments:
- ❑ MECP Water Well Record's
- ❑ Eurofins Certificate of Analysis
- ❑ AquiferTest Pro - Pumping Test Analysis Reports
- ❑ Langelier Saturation Index Calculation
- ❑ PG5306: Soil Profile and Test Data Logs
- ❑ Paterson Drawing PG5306-1 - Test Hole Location Plan
- ❑ Paterson Drawing PH4089-1 - Site Plan

Ontario — Ministry of the Environment, Conservation and Parks

Well Tag No. (Place Sticker and/or Print Below): A295280

Well Record

Regulation 903 Ontario Water Resources Act

Measurements recorded in: ☐ Metric ☒ Imperial

Page ____ of ____

Well Owner's Information

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

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
#5255 Albert-Millichamp	Saint-Hubert	Quebec	J3Y 8Z8	

Well Location

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

County/District/Municipality	City/Town/Village	Province	Postal Code
Ottawa Carleton	[redacted] Ottawa	Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 8 3	18	457054	5016813	4M-1388 Part 23-4 / 4R-32280 Block 2	

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	Depth (m/ft) To
	Sandy	Clay & Gravel		0'	15'
Grey	Limestone			15'	80'
Grey & White	Sandstone			80'	83'
Grey & White	Sandstone			83'	116'
Grey & White	Sandstone			116'	122'

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
41'	31'	Neat cement	18.7
31'	0'	Bentonite slurry	16.8

Method of Construction

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

Well Use

☐ Public ☐ Commercial ☐ Not used
☒ Domestic ☐ Municipal ☐ Dewatering
☐ Livestock ☐ Test Hole ☐ Monitoring
☐ Irrigation ☐ Cooling & Air Conditioning
☐ Industrial
☐ Other, specify

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
6 1/4"	Steel	.188"	+2'	41'
6"	Open Hole		41'	122'

Construction Record - Screen

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

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

Water Details

Water found at Depth (m/ft)	☐ Gas	Kind of Water: ☐ Fresh ☒ Untested ☐ Other, specify
83		
116		

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0'	41'	9 3/4"
41'	122'	6"

Results of Well Yield Testing

After test of well yield, water was:
☐ Clear and sand free
☐ Other, specify — Not tested

If pumping discontinued, give reason: X

Pump intake set at (m/ft): 100

Pumping rate (l/min / GPM): 20

Duration of pumping: 1 hrs + 0 min

Final water level end of pumping (m/ft): 33.5"

If flowing give rate (l/min/GPM): X

Recommended pump depth (m/ft): 100'

Recommended pump rate (l/min/GPM): 20

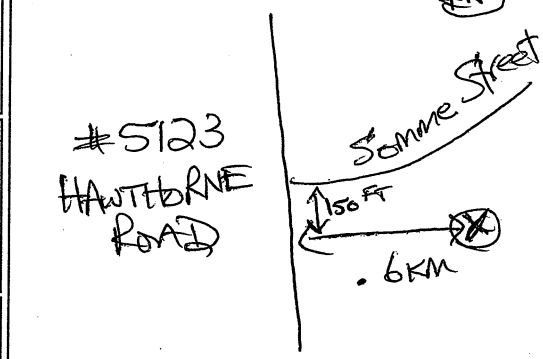
Well production (l/min/GPM): 20

Disinfected? ☒ Yes ☐ No

Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level	26.5"		33.5"
1	29.8	1	26.5
2	30.5	2	26.5
3	30.8	3	26.5
4	31.1	4	26.5
5	31.3	5	26.5
10	31.9	10	26.5
15	32.3	15	26.5
20	32.6	20	26.5
25	32.9	25	26.5
30	33.1	30	26.5
40	33.3	40	26.5
50	33.5	50	26.5
60	33.5"	60	26.5"

Map of Well Location

Please provide a map below following instructions on the back.



Comments: 3/4 HP-15 GPM Set @ 100 FT

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Air Rock Drilling Co. Ltd.	7681

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

Well owner's information package delivered	Date Package Delivered	Date Work Completed
☒ Yes ☐ No	2020 08 22	2020 08 20

Ministry Use Only

Audit No. Z344019

Received

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Ministry's Copy

Ontario — Ministry of the Environment, Conservation and Parks

Well Tag#:A295342 (Below)

A295342

Well Record

Regulation 903 Ontario Water Resources Act

Measurements recorded in: ☐ Metric ☒ Imperial

Page ____ of ____

Well Owner's Information

First Name	Last Name/Organization	E-mail Address	☐ Well Constructed by Well Owner
	[redacted]		

Mailing Address (Street Number/Name)	Province	Postal Code	Telephone No. (inc. area code)
[redacted]			

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	Other
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 (m/ft) From	Depth (m/ft) To
	Sandy Till	& Boulders		0'	6'
Grey	Limestone			6'	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 (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/yds³)
40'	30'	Neat cement	9.36
30'	0'	Bentonite slurry	16.8

Method of Construction

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

Well Use

☐ Public ☐ Commercial ☐ Not used
☒ Domestic ☐ Municipal ☐ Dewatering
☐ Livestock ☐ Test Hole ☐ Monitoring
☐ Irrigation ☐ Cooling & Air Conditioning
☐ Industrial
☐ Other, specify ____

Construction Record - Casing

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

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	Depth (m/ft) To

Water Details

Water found at Depth (m/ft)	Kind of Water	Gas	Other, specify
60	☐ Fresh ☐ Untested	☐	
96	☐ Fresh ☐ Untested	☐	
154	☐ Fresh ☐ Untested	☐	

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0'	40'	9 1/4"
40'	159'	6"

Results of Well Yield Testing

After test of well yield, water was:
☐ Clear and sand free
☐ Other, specify Not tested

If pumping discontinued, give reason: X

Pump intake set at (m/ft): 140

Pumping rate (l/min / GPM): 20

Duration of pumping: 1 hrs + 0 min

Final water level end of pumping (m/ft): 32'8"

If flowing give rate (l/min/GPM): X

Recommended pump depth (m/ft): 100'

Recommended pump rate (l/min/GPM): 20

Well production (l/min/GPM): 20

Disinfected? ☒ Yes ☐ No

Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level	27'5"		32'8"
1	29	1	29
2	29.2	2	27.5
3	29.3	3	27.5
4	29.4	4	27.5
5	29.5	5	27.5
10	30.1	10	27.5
15	30.5	15	27.5
20	30.8	20	27.5
25	31	25	27.5
30	31.3	30	27.5
40	31.9	40	27.5
50	32.3	50	27.5
60	32'8"	60	27'5"

Map of Well Location

Please provide a map below following instructions on the back. 4N

Comments: 1 HP - 20 GPM SET @ 100 FT

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Air Rock Drilling Co. Ltd.	7681

Business Address (Street Number/Name)	Municipality
3659 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 (Y Y Y Y M M D D)
T3058		2020 08 31

Well owner's information package delivered	Date Package Delivered (Y Y Y Y M M D D)	Ministry Use Only
☒ Yes ☐ No	2020 08 28	Audit No. Z344069
	Date Work Completed: 2020 08 26	Received

Ministry's Copy

316/52. 16 ✓

UTM | 18 Z | 415614010 E
| 9 R | 5011618710 N
Elev. | 9 R | 02910
Basin | 25 | | |

ONTARIO

The Well Drillers Act
Department of Mines, Province of Ontario

15 No 2342

RECEIVED
DEC 10 1951
GEOLOGICAL BRANCH
DEPARTMENT OF MINES

Water Well Record

County or Territorial District CARLETON Township, ~~Village, Town or City~~ Gloucester
(Town or City)
[redacted] ss... Leitrim
Date Completed 20 11 51 (day) (month) (year) Cost of Well (excluding pump)

Pipe and Casing Record

Casing diameter(s) 5"
Length(s) of casing(s) WELL DEEPENED
Type of screen From 27' To 57'
Length of screen
Distance from top of screen to ground level
Is well a gravel-wall type?

Pumping Test

Date
Static level 13'
Pumping level 18'
Pumping rate 8 GPM
Duration of test 30 MIN.
Distance from cylinder or bowls to ground level

Water Record

Kind (fresh or mineral) Fresh
Quality (hard, soft, contains iron, sulphur, etc.) hard
Appearance (clear, cloudy, coloured) clear
For what purpose(s) is the water to be used? Farm supply
How far is well from possible source of contamination? 75'
What is the source of contamination? Cow stable
Enclose a copy of any mineral analysis that has been made of water

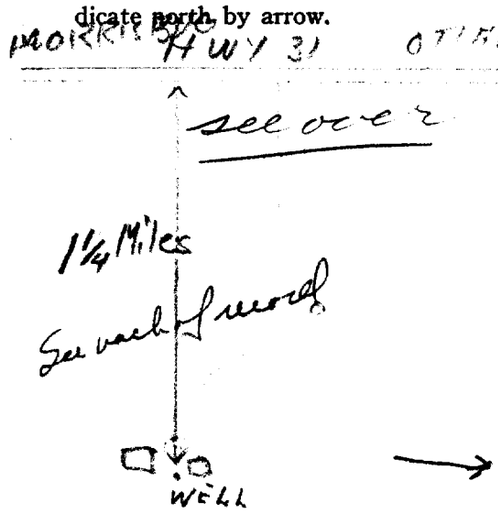
Depth(s) to Water Horizon(s)	Kind of Water	No. of I Water F
57	Fresh	44'

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. [illegible] SON
Address 182 TIMES ST
Name of Driller M. REINFELD Address
Date Nov. 20/51 Licence Number

Signature of Licensee

FORM 5

Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

1527048

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

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
Beaver Road Builders Ltd.	P.O. Box 4208 st. "E" Ottawa, Ontario K1S 5B2	DAY 19 MO 4 YR 93

MUNICIP 15002 CON. CON 06

21 UTM ZONE EASTING NORTHING RC ELEVATION RC BASIN CODE

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
Brown	Sandy Clay	Broken Rock	Fill	0	9
Gray	Hardpan	Boulders		9	15
Gray	Limestone		Soft	15	33
White & Gray	Sandstone		Hard	33	135

31

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
56	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
120	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS NOT TESTED
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
6 1/4	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC	.188	0	31
6 1/8	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☒ OPEN HOLE 5 ☐ PLASTIC		31	75
6	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☒ OPEN HOLE 5 ☐ PLASTIC		75	135

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER INCHES	LENGTH FEET

MATERIAL AND TYPE | DEPTH TO TOP OF SCREEN FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	DEPTH SET AT - FEET TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
31	0	Grouted - Cement (18)

71 PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
1 ☒ PUMP 2 ☐ BAILER	15-20 GPM	1 HOURS MINS

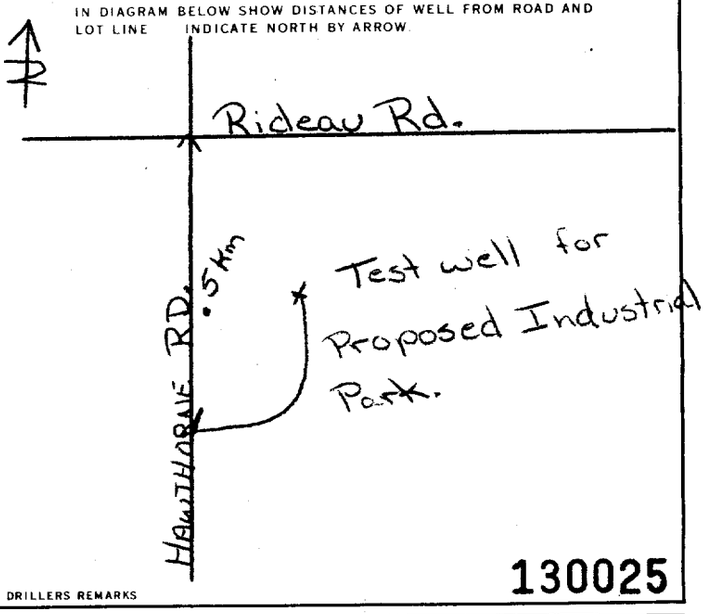
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
31 FEET	130 FEET	1 ☐ PUMPING 2 ☒ RECOVERY	40 FEET	32 FEET	31 FEET	31 FEET

IF FLOWING, GIVE RATE	PUMP INTAKE SET AT	WATER AT END OF TEST
GPM	FEET	1 ☐ CLEAR 2 ☐ CLOUDY

RECOMMENDED PUMP TYPE	RECOMMENDED PUMP SETTING	RECOMMENDED PUMPING RATE
☐ SHALLOW ☒ DEEP	125 FEET	5 GPM

LOCATION OF WELL

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



DRILLERS REMARKS 130025

FINAL STATUS OF WELL	WATER USE	METHOD OF CONSTRUCTION
1 ☒ WATER SUPPLY	1 ☒ DOMESTIC	1 ☐ CABLE TOOL
2 ☐ OBSERVATION WELL	2 ☐ STOCK	2 ☐ ROTARY (CONVENTIONAL)
3 ☐ TEST HOLE	3 ☐ IRRIGATION	3 ☐ ROTARY (REVERSE)
4 ☐ RECHARGE WELL	4 ☐ INDUSTRIAL	4 ☐ ROTARY (AIR)
5 ☐ ABANDONED, INSUFFICIENT SUPPLY	5 ☐ COMMERCIAL	5 ☒ AIR PERCUSSION
6 ☐ ABANDONED, POOR QUALITY	6 ☐ MUNICIPAL	6 ☐ BORING
7 ☐ UNFINISHED	7 ☐ PUBLIC SUPPLY	7 ☐ DIAMOND
☐ DEWATERING	8 ☐ COOLING OR AIR CONDITIONING	8 ☐ JETTING
	9 ☐ NOT USED	9 ☐ DRIVING
	☐ OTHER	☐ DIGGING ☐ OTHER

CONTRACTOR

NAME OF WELL CONTRACTOR: Capital Water Supply Ltd. | WELL CONTRACTOR'S LICENCE NUMBER: 1558

ADDRESS: P.O. Box 490 Stittsville, Ontario K2S 1A6

NAME OF WELL TECHNICIAN: S. Miller | WELL TECHNICIAN'S LICENCE NUMBER: T0097

SIGNATURE OF TECHNICIAN/CONTRACTOR: W Kavanagh | SUBMISSION DATE: DAY 20 MO 4 YR 93

OFFICE USE ONLY

DATA SOURCE | CONTRACTOR 1558 | DATE RECEIVED MAY 06 1993

DATE OF INSPECTION | INSPECTOR

REMARKS

MINISTRY OF THE ENVIRONMENT COPY

FORM NO. 0506 (11/86) FORM 9

Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

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

11 — 1527383 — MUNICIP 15002 — CON. CON. K6

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON., BLOCK, TRACT, SURVEY, ETC	LOT
[redacted]	[redacted]ucester	6	26

[redacted] Box 4208 stn. "E" Ottawa, Ontario K1S 5B2 — DATE COMPLETED: DAY 16 MO 8 YR 93

RC — ELEVATION — RC — BASIN CODE

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
Brown	Sand	Stone		0	5
Gray	Hardpan	Boulders		5	28
Gray	Sandstone		Hard	28	100

31
32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
58	1 ☐ FRESH 2 ☐ SALTY — 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
88	1 ☐ FRESH 2 ☐ SALTY — 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
NOT TESTED	1 ☐ FRESH 2 ☐ SALTY — 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY — 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY — 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
6 1/4	1 ☒ STEEL 2 ☒ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC	.188	0	39
5 15/16	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☒ OPEN HOLE 5 ☐ PLASTIC		39	100
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC			

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER INCHES	LENGTH FEET
MATERIAL AND TYPE	DEPTH TO TOP OF SCREEN FEET	

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	DEPTH SET AT - FEET TO	MATERIAL AND TYPE (CEMENT GROUT LEAD PACKER ETC.)
37.5	0	Cement - Grouted

71 PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
1 ☒ PUMP 2 ☐ BAILER	20 GPM	1 HOURS ___ MINS

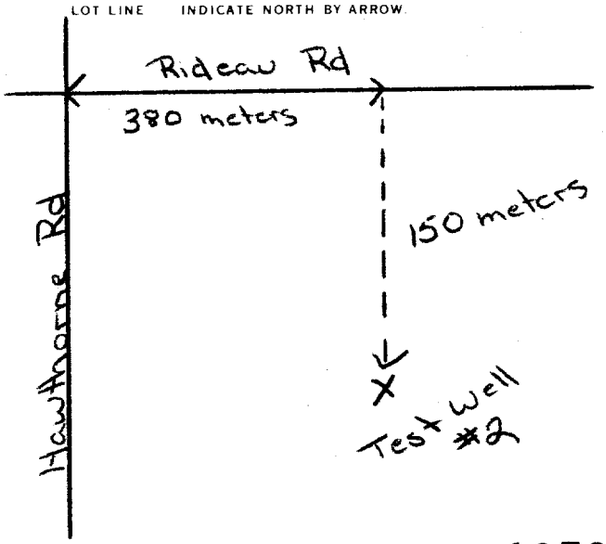
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
7'6" FEET	14'6" FEET	1 ☒ PUMPING 2 ☐ RECOVERY	13'11" FEET	14 FEET	14'4" FEET	14'6" FEET

IF FLOWING, GIVE RATE	PUMP INTAKE SET AT	WATER AT END OF TEST
GPM	FEET	1 ☐ CLEAR 2 ☒ CLOUDY

RECOMMENDED PUMP TYPE	RECOMMENDED PUMP SETTING	RECOMMENDED PUMPING RATE
☐ SHALLOW ☒ DEEP	50 FEET	5 GPM

LOCATION OF WELL

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



DRILLERS REMARKS: 135946

FINAL STATUS OF WELL	1 ☒ WATER SUPPLY; 2 ☐ OBSERVATION WELL; 3 ☐ TEST HOLE; 4 ☐ RECHARGE WELL; 5 ☐ ABANDONED, INSUFFICIENT SUPPLY; 6 ☐ ABANDONED POOR QUALITY; 7 ☐ UNFINISHED; ☐ DEWATERING
WATER USE	1 ☒ DOMESTIC; 2 ☐ STOCK; 3 ☐ IRRIGATION; 4 ☐ INDUSTRIAL; ☐ OTHER; 5 ☐ COMMERCIAL; 6 ☐ MUNICIPAL; 7 ☐ PUBLIC SUPPLY; 8 ☐ COOLING OR AIR CONDITIONING; 9 ☐ NOT USED
METHOD OF CONSTRUCTION	1 ☐ CABLE TOOL; 2 ☐ ROTARY (CONVENTIONAL); 3 ☐ ROTARY (REVERSE); 4 ☐ ROTARY (AIR); 5 ☒ AIR PERCUSSION; 6 ☐ BORING; 7 ☐ DIAMOND; 8 ☐ JETTING; 9 ☐ DRIVING; ☐ DIGGING; ☐ OTHER

CONTRACTOR

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

OFFICE USE ONLY

DATA SOURCE	CONTRACTOR	DATE RECEIVED
	1558	SEP 21 1993
DATE OF INSPECTION	INSPECTOR	
REMARKS		

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FORM NO. 0506 (11/86) FORM 9

Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

1. PRINT ONLY IN SPACES PROVIDED
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11 — 1527384 — MUNICIP. 15002 — CON. CON — LOT 26

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON.	BLOCK, TRACT, SURVEY, ETC.	LOT
Ottawa Carleton	Gloucester		6	26

[redacted]
Box 4208 stn "D" Ottawa, Ontario K1S 5B2

DATE COMPLETED: DAY 16 MO 8 YR 93

NG | RC. | ELEVATION | RC | BASIN CODE

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
Gray & White	Sandstone		Hard	0	100

31

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
30	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
84	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
NOT TESTED	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
6 1/4	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC	.188	0	22
6 1/16	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☒ OPEN HOLE 5 ☐ PLASTIC		22	100
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC			

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER INCHES	LENGTH FEET

MATERIAL AND TYPE — DEPTH TO TOP OF SCREEN FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	DEPTH SET AT - FEET TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
20'8"	0	Grouted cement (3)

71 PUMPING TEST

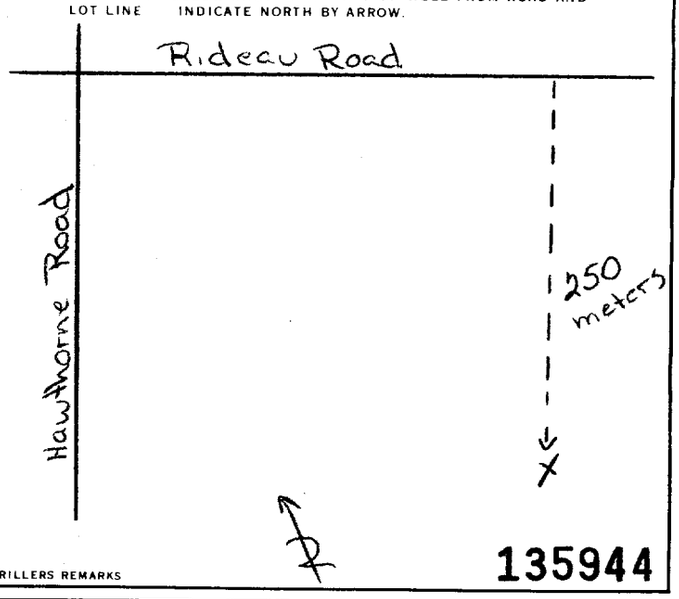
PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
1 ☒ PUMP 2 ☐ BAILER	15-20 GPM	1 HOURS ___ MINS

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING (1 ☐ PUMPING 2 ☒ RECOVERY)	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
21'6" FEET	24'4" FEET		23'6" FEET	24 FEET	24'4" FEET	24'4" FEET

IF FLOWING, GIVE RATE	PUMP INTAKE SET AT	WATER AT END OF TEST	RECOMMENDED PUMP TYPE	RECOMMENDED PUMP SETTING	RECOMMENDED PUMPING RATE
GPM	40 FEET	1 ☐ CLEAR 2 ☒ CLOUDY	☐ SHALLOW ☒ DEEP	50 FEET	5 GPM

LOCATION OF WELL

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



DRILLERS REMARKS: 135944

FINAL STATUS OF WELL

1 ☒ WATER SUPPLY 2 ☐ OBSERVATION WELL 3 ☐ TEST HOLE 4 ☐ RECHARGE WELL 5 ☐ ABANDONED, INSUFFICIENT SUPPLY 6 ☐ ABANDONED, POOR QUALITY 7 ☐ UNFINISHED ☐ DEWATERING

WATER USE

1 ☒ DOMESTIC 2 ☐ STOCK 3 ☐ IRRIGATION 4 ☐ INDUSTRIAL ☐ OTHER 5 ☐ COMMERCIAL 6 ☐ MUNICIPAL 7 ☐ PUBLIC SUPPLY 8 ☐ COOLING OR AIR CONDITIONING 9 ☐ NOT USED

METHOD OF CONSTRUCTION

1 ☐ CABLE TOOL 2 ☐ ROTARY (CONVENTIONAL) 3 ☐ ROTARY (REVERSE) 4 ☐ ROTARY (AIR) 5 ☒ AIR PERCUSSION 6 ☐ BORING 7 ☐ DIAMOND 8 ☐ JETTING 9 ☐ DRIVING ☐ DIGGING ☐ OTHER

CONTRACTOR

NAME OF WELL CONTRACTOR: Capital Water Supply Ltd. — WELL CONTRACTOR'S LICENCE NUMBER: 1558

ADDRESS: Box 490 Stittsville, Ontario K2S 1A6

NAME OF WELL TECHNICIAN: S. Miller/T. Harrison — WELL TECHNICIAN'S LICENCE NUMBER: T0097/T2251

SIGNATURE OF TECHNICIAN/CONTRACTOR: [signature]

SUBMISSION DATE: DAY 18 MO 8 YR 93

OFFICE USE ONLY

DATA SOURCE — CONTRACTOR: 1558 — DATE RECEIVED: SEP 21 1993

DATE OF INSPECTION — INSPECTOR

REMARKS

MINISTRY OF THE ENVIRONMENT COPY

FORM NO. 0506 (11/86) FORM 9

Ontario Ministry of the Environment

Well Tag Number (Place sticker and print number below) A018916 A018916

Well Record

Regulation 903 Ontario Water Resources Act

page ___ of ___

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 1/10th of a metre.**
- Please print clearly in blue or black ink only.

Ministry Use Only

MUN [illegible] CON [illegible] LOT [illegible]

Well Owner's Information and Location of Well Information

[redacted]

OTTAWA CARLETON | GLOUCESTER | Lot 2 | Concession 5

RR#/Street Number/Name: 3500 RIDEAU ROAD | City/Town/Village: GLOUCESTER | Site/Compartment/Block/Tract etc.:

GPS Reading | NAD 8 3 | Zone 18 | Easting 456298 | Northing 5016953 | Unit Make/Model: MAGELLAN | 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	Depth To
	GRAVEL + EARTH			0	1.21
GREY + WHITE	SANDSTONE			1.21	35.05
GREY	LIMESTONE W/ GREY SANDSTONE			35.05	42.67

Hole Diameter

Depth From	Depth To (Metres)	Diameter (Centimetres)
0	42.67	15.23

Water Record

Water found at Metres	Kind of Water
36.20 m	☐ Fresh ☐ Sulphur ☐ Gas ☐ Salty ☒ Minerals ☐ Other: NOT TESTED
39.92 m	☐ Fresh ☐ Sulphur ☐ Gas ☒ Salty ☐ Minerals ☐ Other: NOT TESTED
m	☐ Fresh ☐ Sulphur ☐ Gas ☐ Salty ☐ Minerals ☐ Other:

After test of well yield, water was: ☒ Clear and sediment free ☐ Other, specify: NOT TESTED

Chlorinated ☒ Yes ☐ No

Construction Record

Inside diam centimetres	Material	Wall thickness centimetres	Depth From	Depth To (Metres)
Casing				
15.88	☒ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized	.48	0	6.70
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
Screen				
Outside diam	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized	Slot No.		
No Casing or Screen				
	☒ Open hole		6.09	42.67

Test of Well Yield

Pumping test method: Submp

	Draw Down Time min	Draw Down Water Level Metres	Recovery Time min	Recovery Water Level Metres
Static Level		14.18		
1		15.26	1	14.62
2		15.31	2	14.62
3		15.35	3	14.62
4		15.39	4	14.62
5		15.42	5	14.57
10		15.57	10	14.44
15		15.64	15	14.36
20		15.69	20	14.31
25		15.72	25	14.27
30		15.74	30	14.23
40		15.78	40	14.20
50		15.82	50	14.18
60		15.85	60	14.18

Pump intake set at - (metres) 41.16
Pumping rate - (litres/min) 5.71
Duration of pumping 1 hrs + 0 min
Final water level end of pumping 15.85 metres
Recommended pump type: ☐ Shallow ☒ Deep
Recommended pump depth. 41.16 metres
Recommended pump rate. 15.71 (litres/min)
If flowing give rate - (litres/min)
If pumping discontinued, give reason.

Plugging and Sealing Record ☒ Annular space ☐ Abandonment

Depth set at - Metres From	Depth set at - Metres To	Material and type (bentonite slurry, neat cement slurry) etc.	Volume Placed (cubic metres)
6.09	0	NEAT CEMENT SLURRY	.1362

Method of Construction

☐ Cable Tool ☐ Rotary (air) ☐ Diamond ☐ Digging
☐ Rotary (conventional) ☒ Air percussion ☐ Jetting ☐ Other
☐ Rotary (reverse) ☐ Boring ☐ Driving

Water Use

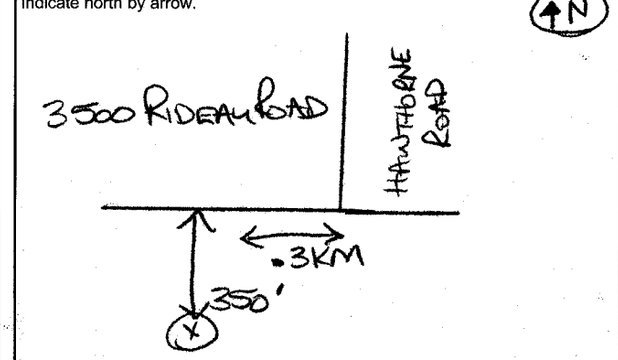
☒ Domestic ☐ Industrial ☐ Public Supply ☐ Other
☐ Stock ☐ Commercial ☐ Not used
☐ Irrigation ☐ Municipal ☐ Cooling & air conditioning

Final Status of Well

☒ Water Supply ☐ Recharge well ☐ Unfinished ☐ Abandoned, (Other)
☐ Observation well ☐ Abandoned, insufficient supply ☐ Dewatering
☐ Test Hole ☐ Abandoned, poor quality ☐ Replacement well

Location of Well

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



Audit No. Z 19099

Date Well Completed: YYYY 2004 MM 10 DD 27

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

Date Delivered: YYYY 2004 MM 10 DD 28

Well Contractor/Technician Information

Name of Well Contractor: AIR ROCK DRILLING CO. LTD | Well Contractor's Licence No.: 1119

Business Address (street name, number, city etc.): RR#1 RICHMOND, ONT K0A 2Z0

Name of Well Technician (last name, first name): HOGAN DAN | Well Technician's Licence No.: T3058

Signature of Technician/Contractor: X [signature] | Date Submitted: YYYY 2004 MM 11 DD 16

Ministry Use Only

Data Source	Contractor
	1119
Date Received YYYY MM DD: NOV 26 2004	Date of Inspection YYYY MM DD:
Remarks	Well Record Number: 1535203

0506E (09/03) Contractor's Copy ☐ Ministry's Copy ☒ Well Owner's Copy ☐ *Cette formule est disponible en français*

Ontario — Ministry of the Environment

Measurements recorded in: [X] Metric [ ] Imperial

Well Tag No. *(Place Sticker and/or Print Below)* A068335 **A 068335**

Well Record

Regulation 903 Ontario Water Resources Act

Page _____ of _____

[redacted]

Address of Well Location (Street Number/Name): TW #5 - Rideau

Township: Gloucestor

Lot: 26

Concession: 6

County/District/Municipality: Ottawa Carleton

City/Town/Village: Gloucestor

Province: Ontario

Postal Code:

UTM Coordinates: Zone: 18 Easting: 457043 Northing: 5016848 NAD 83

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) From	Depth (m/ft) 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) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
12.80	0	Grouted Cement	.525m^3

Method of Construction

[ ] Cable Tool [ ] Diamond
[ ] Rotary (Conventional) [ ] Jetting
[X] Rotary ~~(Reverse)~~ Air [ ] Driving
[ ] Boring [ ] Digging
[X] Air percussion
[ ] Other, specify

Well Use

[ ] Public [X] Commercial [ ] Not used
[X] Domestic [ ] Municipal [ ] Dewatering
[ ] Livestock [ ] Test Hole [ ] Monitoring
[ ] Irrigation [ ] Cooling & Air Conditioning
[X] Industrial
[ ] 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	Depth (m/ft) To
15.86	Steel	.48	+.45	12.80

Construction Record - Screen

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

Status of Well

[X] 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

Water Details

Water found at Depth (m/ft)	Gas	Kind of Water	Other, specify
27.12	[ ]	[ ] Fresh [X] Untested	
	[ ]	[ ] Fresh [ ] Untested	
	[ ]	[ ] Fresh [ ] Untested	

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0	12.80	15.86
12.80	29.86	15.23

Results of Well Yield Testing

After test of well yield, water was:
[X] Clear and sand free
[ ] Other, specify

If pumping discontinued, give reason:

Pump intake set at (m/ft): 22.85

Pumping rate (l/min / GPM): 54.6

Duration of pumping: 6 hrs + ____ min

Final water level end of pumping (m/ft): 9.99

If flowing give rate (l/min / GPM):

Recommended pump depth (m/ft): 22.85

Recommended pump rate (l/min / GPM): 45.5

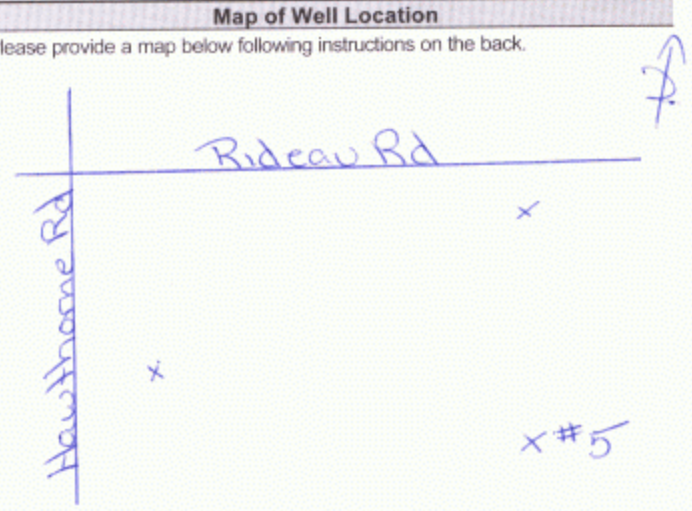
Well production (l/min / GPM):

Disinfected? [X] Yes [ ] No

Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level	6.85		
1	8.03	1	8.97
2	8.35	2	8.69
3	8.60	3	8.55
4	8.76	4	8.46
5	8.88	5	8.40
10	9.20	10	8.23
15		15	
20	9.49	20	8.04
25	9.62	25	7.99
30	9.68	30	7.93
40	9.82	40	7.84
50	9.91	50	7.77
60	9.99	60	7.69

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor: Capital Water Supply Ltd.

Well Contractor's Licence No.: 1558

Business Address (Street Number/Name): Box 490

Municipality: Stittsville

Province: Ontario

Postal Code: K2S1A6

Business E-mail Address: office@capitalwater.ca

Bus. Telephone No. (inc. area code): 6138361766

Name of Well Technician (Last Name, First Name): Miller, Stephen

Well Technician's Licence No.: 0097

Signature of Technician and/or Contractor:

Date Submitted: 2008 10 10

Well owner's information package delivered: [ ] Yes [X] No

Date Package Delivered: 2008 10 07

Date Work Completed: 2008 09 26

Ministry Use Only

Audit No. Z 84410

Received DEC 02 2008

0506E (12/2007)

Ministry's Copy

Ontario — Ministry of the Environment

Well Tag No. *(Place Sticker and/or Print Below)* A068332 A 068332

Well Record

...ation 903 Ontario Water Resources Act

Measurements recorded in: [X] Metric [ ] Imperial

Page ____ of ____

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	[ ] Well Constructed by Well Owner
	Orgaworld		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
c/o 651 Colby Drive	Waterloo	Ontario	N2V1C2	519 884 0510

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
TW #4 - Rideau Rd.	Gloucestor	26	6

County/District/Municipality	City/Town/Village	Province	Postal Code
Ottawa Carleton	Gloucestor	Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	18	456470	5016578		

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	Depth (m/ft) To
Brown	Sandy Clay	Boulders	Packed	0	3.96
Gray	Sandstone		Very Hard	3.96	29.86

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
13.10	0	Grouted Cement	.42m^3

Method of Construction

[ ] Cable Tool [ ] Diamond
[ ] Rotary (Conventional) [ ] Jetting
[X] Rotary (~~Reverse~~) Air [ ] Driving
[ ] Boring [ ] Digging
[X] Air percussion
[ ] Other, specify

Well Use

[ ] Public [X] Commercial [ ] Not used
[X] Domestic [ ] Municipal [ ] Dewatering
[ ] Livestock [ ] Test Hole [ ] Monitoring
[ ] Irrigation [ ] Cooling & Air Conditioning
[X] Industrial
[ ] 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	Depth (m/ft) To
15.86	Steel	.48	+.45	13.10

Construction Record - Screen

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

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

Water Details

Water found at Depth (m/ft)	Gas	Kind of Water	Other, specify
26.51(m)27.12	[ ]	[ ] Fresh [ ] Untested	[ ]
	[ ]	[ ] Fresh [ ] Untested	[ ]
	[ ]	[ ] Fresh [ ] Untested	[ ]

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0	13.10	15.86
13.10	29.86	15.23

Results of Well Yield Testing

After test of well yield, water was:
[X] Clear and sand free
[ ] Other, specify

If pumping discontinued, give reason:

Pump intake set at (m/ft): 27.43

Pumping rate (l/min / GPM): 36.4

Duration of pumping: 6 hrs + ____ min

Final water level end of pumping (m/ft): 18.40

If flowing give rate (l/min / GPM):

Recommended pump depth (m/ft): 22.85

Recommended pump rate (l/min / GPM): 36.4

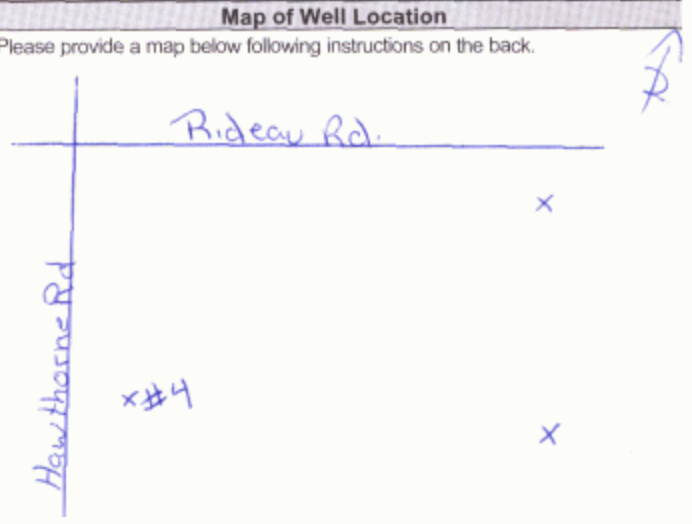
Well production (l/min / GPM):

Disinfected? [X] Yes [ ] No

Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level	14.15		
1	15.97	1	16.76
2	16.98	2	15.74
3	17.30	3	15.20
4	17.43	4	15.
5	17.50	5	14.91
10	17.88	10	14.71
15		15	
20	18.16	20	14.54
25	18.23	25	14.51
30	18.26	30	14.47
40	18.34	40	14.41
50	18.39	50	14.38
60	18.41	60	14.35

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Capital Water Supply Ltd.	1558

Business Address (Street Number/Name)	Municipality	Province	Postal Code	Business E-mail Address
Box 490	Stittsville	Ontario	K2S1A6	office@capitalwater.ca

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)	Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
6138361766	Miller, Stephen	0097		2008 10 08

Well owner's information package delivered	Date Package Delivered	Date Work Completed
[ ] Yes [X] No	2008 10 08	2008 09 26

Ministry Use Only

Audit No. Z 84411

Received DEC 0 2 2008

0506E (12/2007)

Ministry's Copy

Ontario Ministry of the Environment

Well Tag No. for Master Well (Place Sticker and/or Print Below)
A 074584 MW 6-08

Master Well Record for Cluster Well Construction

Regulation 903 Ontario Water Resources Act

Page 1 of 2

Master Well Owner's and Land Owner's Information

First Name	Last Name	E-
Orgaworld Canada Real Estate via Tomlinson Environmental Services Inc.		[redacted]

Mailing Address (Street Number/Name, RR)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
5597 Power Road	Ottawa	ON	K1G3NH	6138321067

Location and Construction of the Master Well in the Cluster

Address of Well Location (Street Number/Name, RR)	Township	Lot	Concession
Hawthorne Road at Ridlau Road		26; 27	6

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

UTM Coordinates	Zone	Easting	Northing	GPS Unit Make	Model	Mode of Operation
NAD 83	18	456400	5016852	Garmin	Etrex	☐ Undifferentiated ☑ Averaged ☐ Differentiated, specify

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

General Colour	Most Common Material	Other Materials	General Description	Depth (Metres) From	Depth (Metres) 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 oxitized	4.7	6.0
Brown	Till - silty sand, gravel			6.0	7.6

Hole Details

Depth (Metres) From	Depth (Metres) To	Diameter (Centimetres)
0	7.6	20

Water Use

☐ Public ☐ Industrial ☐ Not used ☐ Other, specify
☐ Domestic ☐ Commercial ☐ Dewatering
☐ Livestock ☐ Municipal ☑ Monitoring
☐ Irrigation ☐ Test Hole ☐ Cooling & Air Conditioning

Method of Construction

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

Status of Well

☑ Test Hole ☐ Abandoned, Insufficient Supply
☐ Replacement Well ☐ Abandoned, Poor Water Quality
☐ Dewatering Well ☐ Other, specify
☐ Alteration (Construction) ☐ Abandoned, other, specify

Construction Details

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

No Casing and Screen Used

Open Hole ☐ Yes ☑ No

Static Water Level Test

1.7 Metres

Screen

☐ Galvanized ☐ Steel ☐ Fibreglass ☐ Concrete ☑ Plastic

Outside Diameter (Centimetres)	Slot No.
5.8	10

Annular Space/Abandonment Sealing Record

Depth Set at (Metres) From	Depth Set at (Metres) To	Type of Sealant Used (Material and Type)	Volume Used (Cubic Metres)
0.6	2.4	Bentonite	66 kgs

Water Details

Water found at Depth		Kind of Water
	Metres ☐ Gas	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals
	Metres ☐ Gas	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals
	Metres ☐ Gas	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals

Disinfected ☐ Yes ☑ No If no, provide reason: Monitoring Well

Date Master Well Completed (yyyy/mm/dd): 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	Please indicate Number of Cluster Well Information Log Sheets Submitted
10	1
Total Wells on this Property: unknown	

Location of Well Cluster

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

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

Consent to release additional information concerning the cluster to the Director upon request

Signature of Technician/Contractor: Bruce Downing — Date (yyyy/mm/dd): 2008/10/20

Master Well Owner's/Land Owner's consent to use Cluster Form

[redacted]

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
George Downing Estate Drilling	1814

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

Business Phone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
2646 09	Downing, Bruce

Well Technician's Licence No.	Signature of Technician	Date Submitted (yyyy/mm/dd)
	Bruce Downing	2008/10/20

Ministry Use Only

Audit No.	Well Contractor No.
M 02897	
Date Received (yyyy/mm/dd): NOV 26 2008	Date of Inspection (yyyy/mm/dd)
Remarks	

Ministry's Copy

Ontario

Ministry of the Environment

Well Tag No. for Master Well (Print Well Tag No.)
A 074584
A074584

Cluster Well Information for Cluster Well Construction

Regulation 903 Ontario Water Resources Act

Page 1 of 1

Property Owner's Information

First Name	Last Name	Mailing Address (Street No./Name, RR)	Municipality
Orgaworld Canada Real Estate via	Tomlinson Environmental Services Inc.	5597 Power Road	Ottawa

Province	Postal Code	E-mail Address	Telephone No. (inc. area code)
Ontario	K1G3N4	rtomlinson@tomlinsongroup.com	6138221867

[redacted]

upon request

Cluster Well Information

Address of Well Location (Street Number/Name, RR)	Lot	Concession	Township	County/District/Municipality
Hawthorne Road at Rideau Road	26 & 27	6		

City/Town/Village	Province	Postal Code	GPS Unit Make	Model	Unit Mode of Operation
Ottawa	Ontario	K1G3N4			☐ Undifferentiated ☐ Averaged ☐ Differentiated, specify:

Signature of Technician/Contractor: Bruce Downing

Date (yyyy/mm/dd): 2008/10/20

Well # on Sketch	UTM Coordinates Zone	Easting	Northing	Full Depth of Hole (metres)	Hole Diameter (cm)	Method of Construction	Casing Material	Casing Length (metres)	Screen Interval (metres) From	To	Annular Space Sealant Used	Static Water Level (metres)	Abandonment Sealant Used	Comments	Date of Completion (yyyy/mm/dd)
MW 1-08	18	456831	5016712	2.97	20	HSA	PVC	1.5	1.5	2.97	Bentonite	1.3			2008/07/07
MW 2-08	18	456799	5016553	2.77	10	DiA		0.6	0.6	2.77		1.6		overburden from 0 to 0.18	2008/07/08
MW 3-08	18	456533	5016411	17.37	10	DiA		2.13	2.13	17.37		13.2		" " 0 to 0.30	2008/07/09
MW 4-08	18	456474	5016604	2.84	10/20	HSA/DiA		1.22	1.22	2.8		0.7			2008/07/08
MW 5-08	18	456598	5016675	2.77	20	HSA		1.5	1.5	2.77		1.0			2008/07/07
MW 7-08	18	456622	5017219	6.98	20	HSA		3.0	3.0	6.10		3.6			2008/07/14
MW 8-08	18	456687	5017036	4.72	20	HSA		3.0	3.0	4.2		3.0			2008/07/15
MW 9-08	18	457086	5017625	3.66	20	HSA		1.5	1.5	3.0		1.7			2008/07/15
MW 10-08	18	457206	5017303	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	Business Address (Street Number/Name, RR)	Municipality	Province
George Downing Estate Drilling LTD.	410 Rue Principale	Grenville-sur-la-Rouge	Qc

Postal Code	Business Telephone No. (inc. area code)	Well Contractor's Licence No.	Business E-mail Address
J0V1B0	8192426469	1844	downing@xplornet.com

Name of Well Technician (First Name, Last Name)	Well Technician's Licence No.	Date Submitted (yyyy/mm/dd)	Signature of Technician
Bruce Downing	2173	2008/10/20	Bruce Downing

Date 1st Well in Cluster Constructed (yyyy/mm/dd): 2008/07/07

Date Last Well in Cluster Constructed (yyyy/mm/dd): 2008/07/15

Ministry Use Only

Date Received (yyyy/mm/dd)	Date Inspected (yyyy/mm/dd)
NOV 26 2008	
Audit No. C 01984	Remarks m02897

1991 (11/2006)

Ministry's Copy

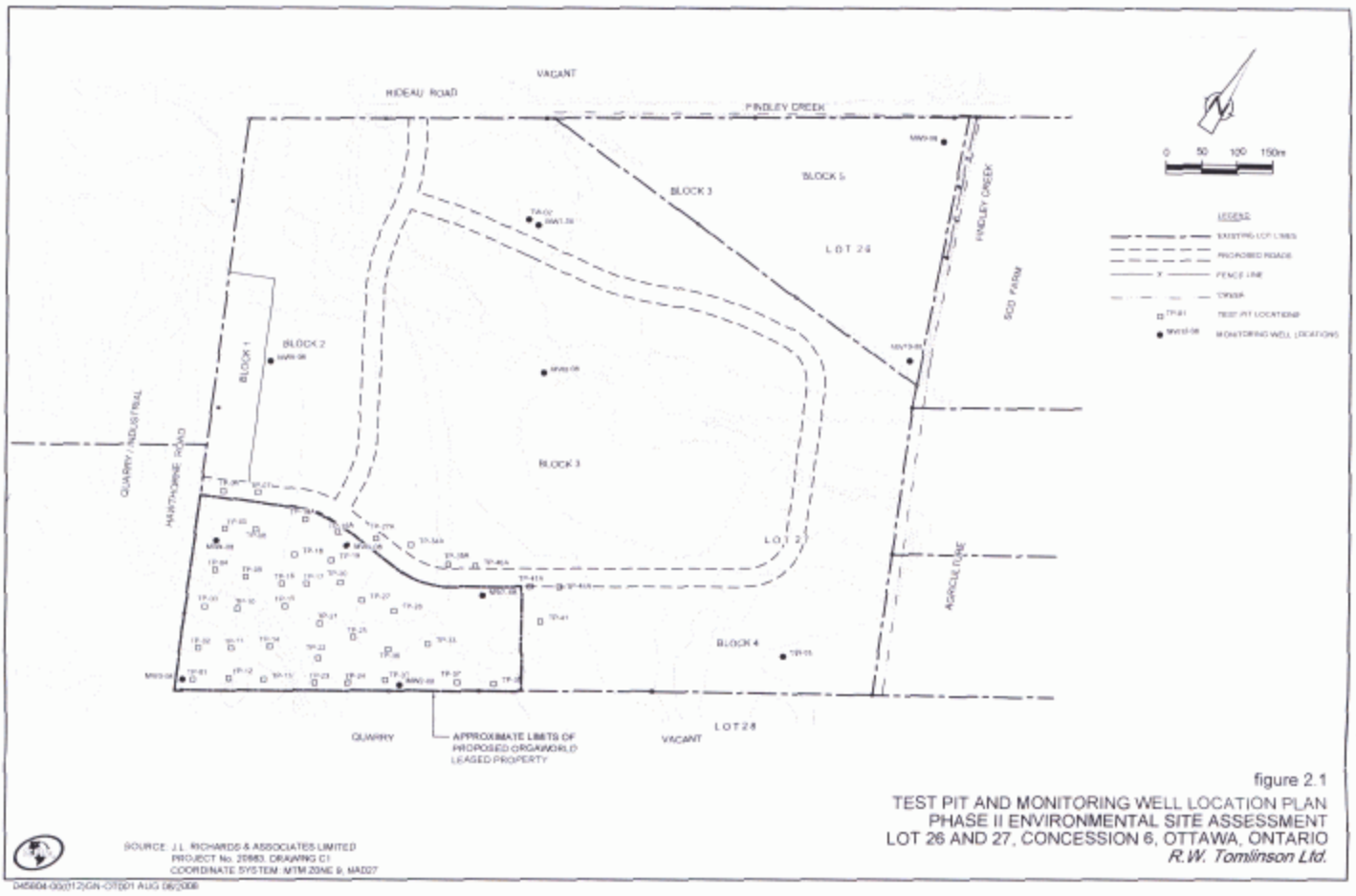


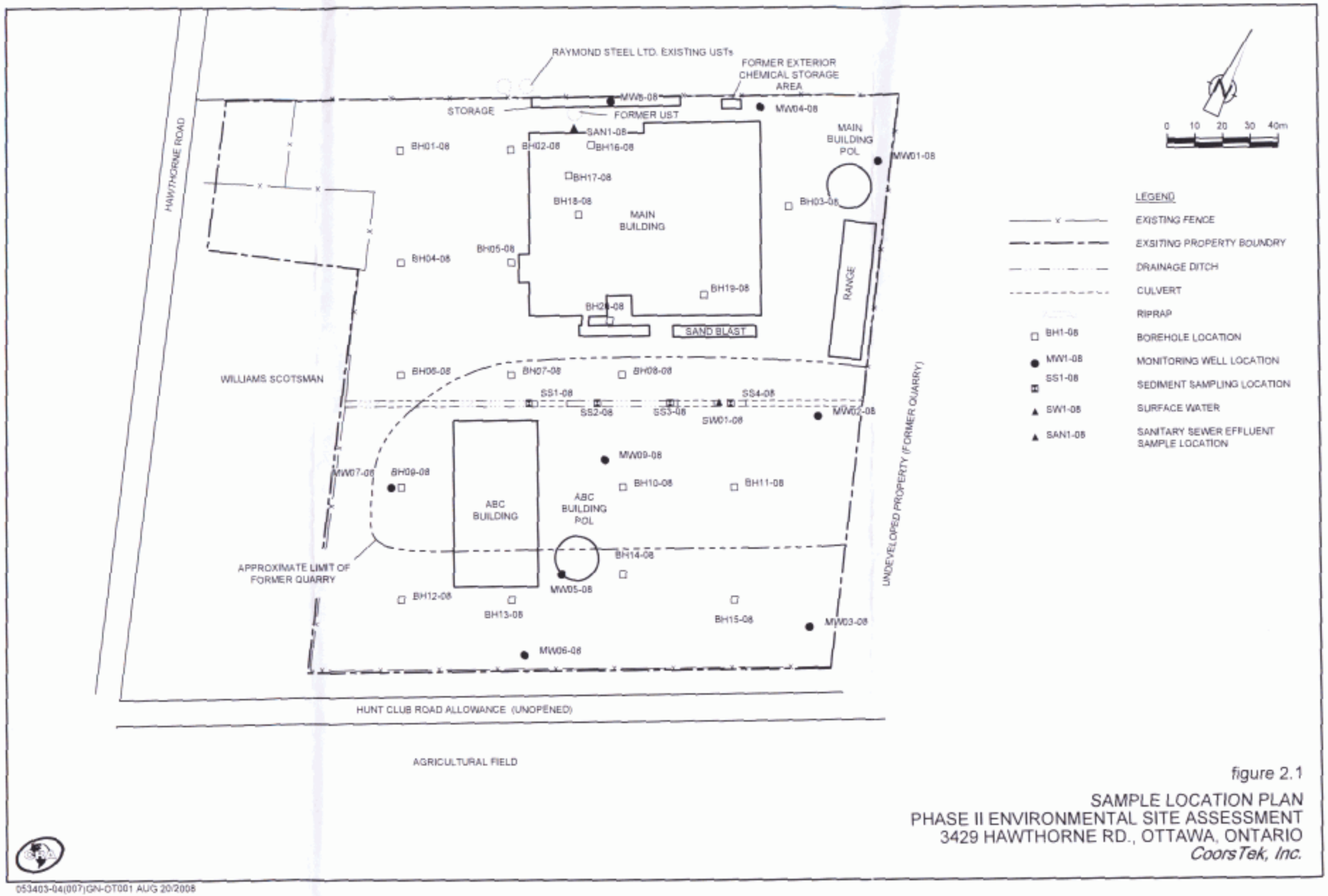
figure 2.1
TEST PIT AND MONITORING WELL LOCATION PLAN
PHASE II ENVIRONMENTAL SITE ASSESSMENT
LOT 26 AND 27, CONCESSION 6, OTTAWA, ONTARIO
R.W. Tomlinson Ltd.

SOURCE: J.L. RICHARDS & ASSOCIATES LIMITED
PROJECT No. 20983, DRAWING C1
COORDINATE SYSTEM: MTM ZONE 9, NAD27

D456804-00(012)GN-OT001 AUG 06/2008

C-1844 m02897 c01984

NOV 26 2008



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

figure 2.1

SAMPLE LOCATION PLAN
PHASE II ENVIRONMENTAL SITE ASSESSMENT
3429 HAWTHORNE RD., OTTAWA, ONTARIO
CoorsTek, Inc.

Ontario — Ministry of the Environment

Measurements recorded in: [X] Metric [ ] Imperial

Well Tag No. *(Place Sticker and/or Print Below)* A082844 **A 082844**

Well Record

...ion 903 Ontario Water Resources Act

Page ____ of ____

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	[ ] Well Constructed by Well Owner
	Orgaworld		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. *(inc. area code)*
c/o 400-179 Colonnade Road	Ottawa	Ontario	K2E 7J4	613 727 0510

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
TW #7 Hawthorne Road	Gloucester	27	6

County/District/Municipality	City/Town/Village	Province	Postal Code
Ottawa Carleton	Gloucester	Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	18	456879	5016752		

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	Depth (m/ft) To
Brown	Soil Stones		Packed	0	4.26
Grey & White	Sandstone		Very Hard	4.26	29.86

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
6.40	0	Grouted Cement	.21m^3

Method of Construction

[ ] Cable Tool [ ] Diamond
[ ] Rotary (Conventional) [ ] Jetting
[X] Rotary (Reverse) Air [ ] Driving
[ ] Boring [ ] Digging
[X] Air percussion
[ ] Other, *specify* ____

Well Use

[ ] Public [ ] Commercial [ ] Not used
[ ] Domestic [ ] Municipal [ ] Dewatering
[ ] Livestock [ ] Test Hole [X] Monitoring
[ ] Irrigation [ ] Cooling & Air Conditioning
[ ] Industrial
[ ] Other, *specify* ____

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
15.86	Steel	.48	+.45	6.40

Construction Record - Screen

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

Status of Well

[X] Water Supply
[ ] Replacement Well
[ ] Test Hole
[ ] Recharge Well
[ ] Dewatering Well
[X] Observation and/or Monitoring Hole
[ ] Alteration (Construction)
[ ] Abandoned, Insufficient Supply
[ ] Abandoned, Poor Water Quality
[ ] Abandoned, other, *specify* ____
[ ] Other, *specify* ____

Water Details

Water found at Depth (m/ft)	Kind of Water	
9.14-12.19	[ ] Gas	[ ] Fresh [X] Untested [ ] Other, *specify* ____
18.28-21.33	[ ] Gas	[ ] Fresh [X] Untested [ ] Other, *specify* ____
(m/ft)	[ ] Gas	[ ] Fresh [ ] Untested [ ] Other, *specify* ____

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0	6.40	15.86
6.40	29.86	15.23

Results of Well Yield Testing

After test of well yield, water was:
[X] Clear and sand free
[ ] Other, *specify* ____

If pumping discontinued, give reason:

Pump intake set at (m/ft): 24.38

Pumping rate (l/min / GPM): 27.3

Duration of pumping: 6 hrs + ____ min

Final water level end of pumping (m/ft): 7.01

If flowing give rate (l/min / GPM):

Recommended pump depth (m/ft): 24.38

Recommended pump rate (l/min / GPM): 27.3

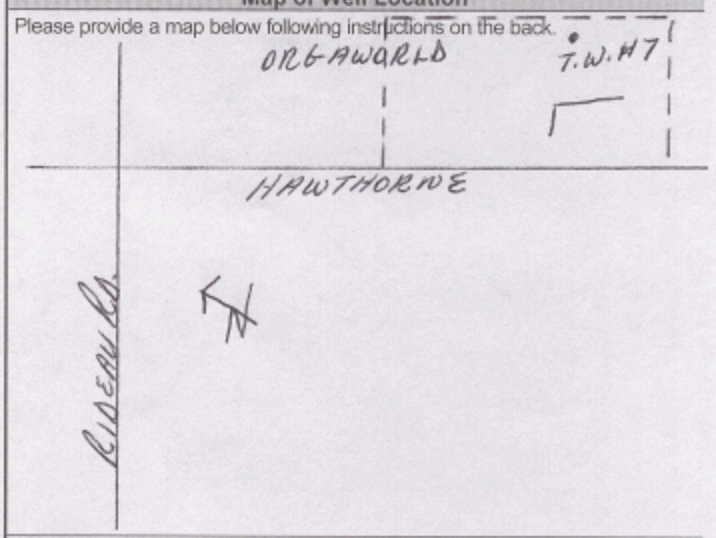
Well production (l/min / GPM):

Disinfected? [X] Yes [ ] No

Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level	4.41		
1	5.20	1	6.07
2	5.57	2	5.68
3	5.78	3	5.46
4	5.94	4	5.33
5	6.05	5	5.25
10	6.37	10	5.01
15	6.52	15	4.89
20	6.60	20	4.81
25	6.68	25	4.76
30	6.72	30	4.72
40	6.81	40	4.65
50	6.86	50	4.61
60	6.89	60	4.58

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Capital Water Supply Ltd.	1558

Business Address (Street Number/Name)	Municipality
Box 490	Stittsville

Province	Postal Code	Business E-mail Address
Ontario	K2S 1A6	office@capitalwater.ca

Bus. Telephone No. *(inc. area code)*	Name of Well Technician (Last Name, First Name)
613 836 1766	Miller, Stephen

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
0097		2010 05 28

Well owner's information package delivered: [ ] Yes [X] No

Date Package Delivered: 2010 05 27

Date Work Completed: 2010 05 25

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Audit No. Z 101832

AUG 04 2010 Received

0506E (12/2007)

Ministry's Copy

Ontario — Ministry of the Environment

Measurements recorded in: [X] Metric [ ] Imperial

Well Tag No. (Place Sticker and/or Print Below): A082845 **A 082845**

Well Record

...on 903 Ontario Water Resources Act

Page ____ of ____

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	[ ] Well Constructed by Well Owner
	Orgaworld		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
c/o 400-179 Colonnade Road	Ottawa	Ontario	K2E 7J4	613 727 0510

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
T.W. #8 Hawthorne Road	Gloucester	27	6

County/District/Municipality	City/Town/Village	Province	Postal Code
Ottawa Carleton	Gloucester	Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	18	456609	5016449		

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	Depth (m/ft) To
Grey	Limestone		Broken Rock	0	1.52
Grey & White	Sandstone		Very Hard	1.52	29.86

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
6.40	0	Grouted Cement & Bentonite	.254m^3

Method of Construction

[ ] Cable Tool [ ] Diamond
[ ] Rotary (Conventional) [ ] Jetting
[X] Rotary (Reverse Air) [ ] Driving
[ ] Boring [ ] Digging
[X] Air percussion
[ ] Other, specify

Well Use

[ ] Public [ ] Commercial [ ] Not used
[ ] Domestic [ ] Municipal [ ] Dewatering
[ ] Livestock [ ] Test Hole [X] Monitoring
[ ] Irrigation [ ] Cooling & Air Conditioning
[ ] Industrial
[ ] Other, specify

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
15.86	Steel	.48	+.45	6.40

Construction Record - Screen

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

Status of Well

[X] Water Supply
[ ] Replacement Well
[ ] Test Hole
[ ] Recharge Well
[ ] Dewatering Well
[X] Observation and/or Monitoring Hole
[ ] Alteration (Construction)
[ ] Abandoned, Insufficient Supply
[ ] Abandoned, Poor Water Quality
[ ] Abandoned, other, specify
[ ] Other, specify

Water Details

Water found at Depth (m/ft)	Kind of Water	
22.85-23.16	[ ] Fresh [X] Untested	[ ] Gas [ ] Other, specify
	[ ] Fresh [ ] Untested	[ ] Gas [ ] Other, specify
	[ ] Fresh [ ] Untested	[ ] Gas [ ] Other, specify

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0	6.40	15.86
6.40	29.86	15.23

Results of Well Yield Testing

After test of well yield, water was:
[X] Clear and sand free
[ ] Other, specify

If pumping discontinued, give reason:

Pump intake set at (m/ft): 24.38

Pumping rate (l/min / GPM): 27.3

Duration of pumping: 6 hrs + ____ min

Final water level end of pumping (m/ft): 12.87

If flowing give rate (l/min / GPM):

Recommended pump depth (m/ft): 24.38

Recommended pump rate (l/min / GPM): 27.3

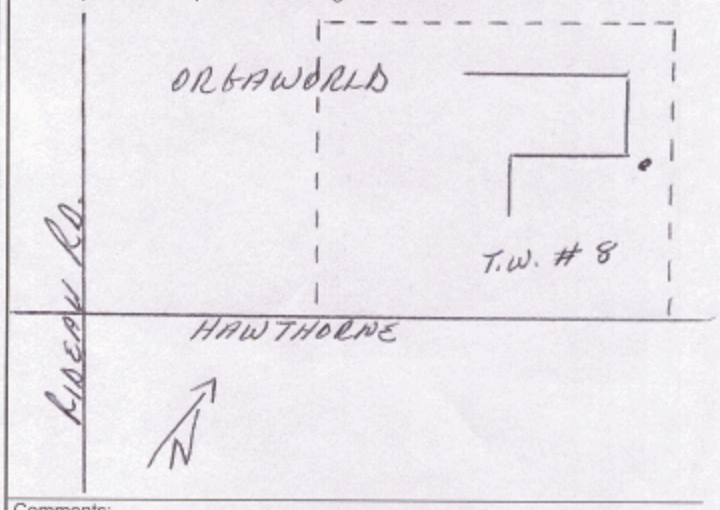
Well production (l/min / GPM):

Disinfected? [X] Yes [ ] No

Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level	11.96		
1	12.39	1	12.43
2	12.45	2	12.37
3	12.49	3	12.33
4	12.51	4	12.31
5	12.54	5	12.29
10	12.60	10	12.22
15	12.65	15	12.19
20	12.67	20	12.17
25	12.69	25	12.22
30	12.71	30	12.18
40	12.73	40	12.13
50	12.76	50	12.11
60	12.77	60	12.09

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Capital Water Supply Ltd.	1558

Business Address (Street Number/Name)	Municipality
Box 490	Stittsville

Province	Postal Code	Business E-mail Address
Ontario	K2S 1A6	office@capitalwater.ca

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
613 836 1766	Miller, Stephen

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
0097		2010 05 26

Well owner's information package delivered	Date Package Delivered	Date Work Completed
[ ] Yes [X] No	2010 05 26	2010 05 26

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Audit No. Z 101833

Received AUG 04 2010

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Well Tag No. (Place Sticker and/or Print Below)
Tag#: A141807 A141807

5-13726 **Well Record**
Regulation 903 Ontario Water Resources Act

Measurements recorded in: ☑ Metric ☐ Imperial

Page _____ of _____

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
	ORGANOWORLD CANADA LTD		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
5123 HAWTHORNE RD.	OTTAWA	ONT	K1G3Y3	6138222056

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
5123 Hawthorne Rd			

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

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	18	456636	5016518		

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	Depth (m/ft) To
Brn	Gravel	Sand	Hard, dry	0	.61
Red	Fill		Hard, dry	.61	1.22
Brn/Blk	Fill		soft, dry	1.22	2.44
Brn/Blk	Fill		soft, saturated	2.44	3.66

Annular Space

Depth Set at (m/ft) From	Depth Set at (m/ft) To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
0	.31	Concrete / flushmount	
.31	1.83	Bensal	
1.83	3.66	Sand	

Method of Construction

☐ Cable Tool ☐ Diamond
☑ Rotary (Conventional) ☐ Jetting
☐ Rotary (Reverse) ☐ Driving
☐ Boring ☐ Digging
☐ Air percussion
☐ Other, specify Direct Push

Well Use

☐ Public ☐ Commercial ☐ Not used
☐ Domestic ☐ Municipal ☐ Dewatering
☐ Livestock ☒ Test Hole ☐ Monitoring
☐ Irrigation ☐ Cooling & Air Conditioning
☐ Industrial
☐ Other, specify

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
5.20	PVC	.390	0	2.13

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	Depth (m/ft) To
6.03	PVC	10	2.13	3.66

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

Water Details

Water found at Depth (m/ft)	Kind of Water	Hole Diameter Depth From (m/ft)	Hole Diameter Depth To (m/ft)	Diameter (cm/in)
☐ Gas	☐ Fresh ☐ Untested ☐ Other, specify	0	3.66	10.92
☐ Gas	☐ Fresh ☐ Untested ☐ Other, specify			
☐ Gas	☐ Fresh ☐ Untested ☐ Other, specify			

Results of Well Yield Testing

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

If pumping discontinued, give reason:

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

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

Map of Well Location

Please provide a map below following instructions on the back.

SEE MAP MW101-13

Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Strata Soil Sampling Inc.	7241

Business Address (Street Number/Name)	Municipality
147-2 West Beaver Creek Road	Richmond Hill

Province	Postal Code	Business E-mail Address
Ontario	L4B 1C6	wrecords@stratasoil.com

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)	Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
905-764-9304	Beatty Brian	3616		2013 02 28

Well owner's information package delivered	Date Package Delivered	Date Work Completed
☐ Yes ☒ No		2013 02 28

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MAR 28 2013
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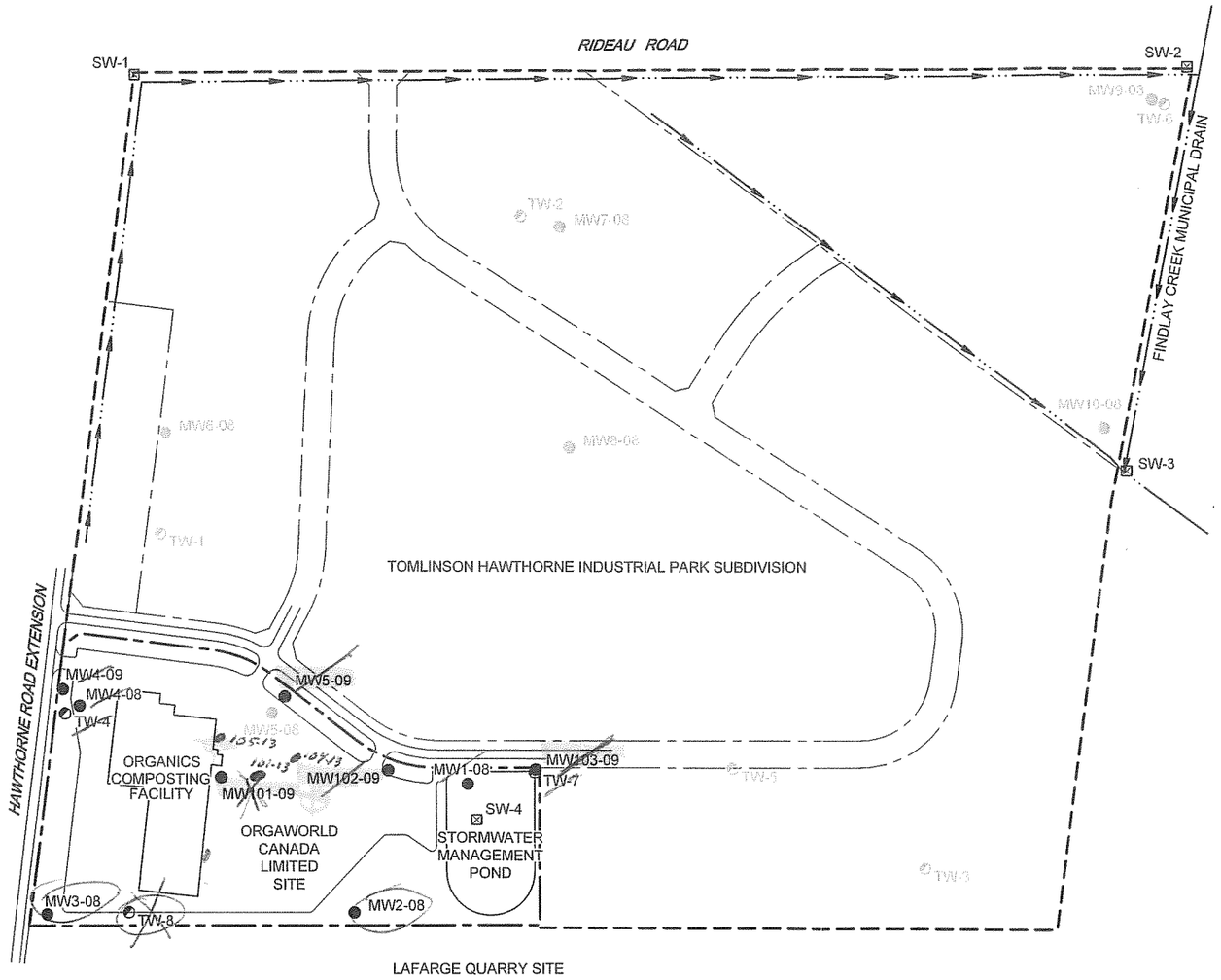

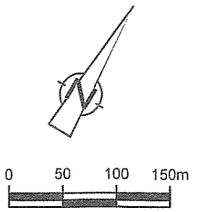

LEGEND

- ORGAWORLD SITE BOUNDARY
- TOMLINSON HAWTHORNE INDUSTRIAL PARK SUBDIVISION BOUNDARY
- SURFACE WATER DRAIN/DITCH/CREEK
- MW2-08 — SHALLOW MONITORING WELL LOCATION
- TW-4 — DEEP BEDROCK MONITORING WELL LOCATION
- SW-3 — SURFACE WATER MONITORING LOCATION
- MW5-08 — MONITORING WELL LOCATIONS NO LONGER ACCESSIBLE (SEE NOTE BELOW)

NOTES:

1. SHALLOW AND DEEP MONITORING WELLS LOCATED ON TOMLINSON PROPERTY ARE NO LONGER ACCESSIBLE TO OCL OR CRA AS OF JANUARY 2010.
2. MW5-08 WAS DESTROYED DURING ASPHALT CONSTRUCTION; MW5-09 WAS INSTALLED TO REPLACE IT.

figure 3.1

GROUNDWATER AND SURFACE WATER MONITORING LOCATIONS
GROUNDWATER/SURFACE WATER MONITORING PROGRAM
5123 HAWTHORNE ROAD, OTTAWA, ONTARIO
Orgaworld Canada Ltd.

045804-58(046)GN-OT001 JAN 23/2013

Ontario — Ministry of the Environment

Well Tag No. *(Place Sticker and/or Print Below)* N/A#

5-13726

Well Record

Regulation 903 Ontario Water Resources Act

Page _____ of _____

Measurements recorded in: ☑ Metric ☐ Imperial

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
OrgaWorld	Canada		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. *(inc. area code)*
5123 Hawthorne Rd.	Ottawa	ON	K1G3Y3	

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
5123 Hawthorne Rd			

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

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	18	456083	5016598		

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	Depth (m/ft) To

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used *(Material and Type)*	Volume Placed (m^3/ft^3)
0	1.5	Benseal	
1.5	3.66	Grout slurry	

Method of Construction

☐ Cable Tool ☐ Diamond
☐ Rotary (Conventional) ☐ Jetting
☐ Rotary (Reverse) ☐ Driving
☐ Boring ☐ Digging
☐ Air percussion
☐ Other, *specify* _____

Well Use

☐ Public ☐ Commercial ☐ Not used
☐ Domestic ☐ Municipal ☐ Dewatering
☐ Livestock ☑ Test Hole ☑ Monitoring
☐ Irrigation ☐ Cooling & Air Conditioning
☐ Industrial
☐ Other, *specify* _____

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
5.20	PVC			

Construction Record - Screen

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

Status of Well

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

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)
0	1.83	20.32

Results of Well Yield Testing

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

If pumping discontinued, give reason:

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

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

Map of Well Location

Please provide a map below following instructions on the back.

See map

MW 101-09

Comments:

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
147-2 W. Beaver Creek	Richmond Hill

Province	Postal Code	Business E-mail Address
ON	L4B1C6	wrecords@stratasoil.com

Bus. Telephone No. *(inc. area code)*	Name of Well Technician (Last Name, First Name)
9057649304	Beatty Brian

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
3616		20130228

Well owner's information package delivered	Date Package Delivered	Date Work Completed
☐ Yes ☐ No	Y Y Y Y M M D D	20130228

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Audit No. Z154412

Received MAR 20 2013

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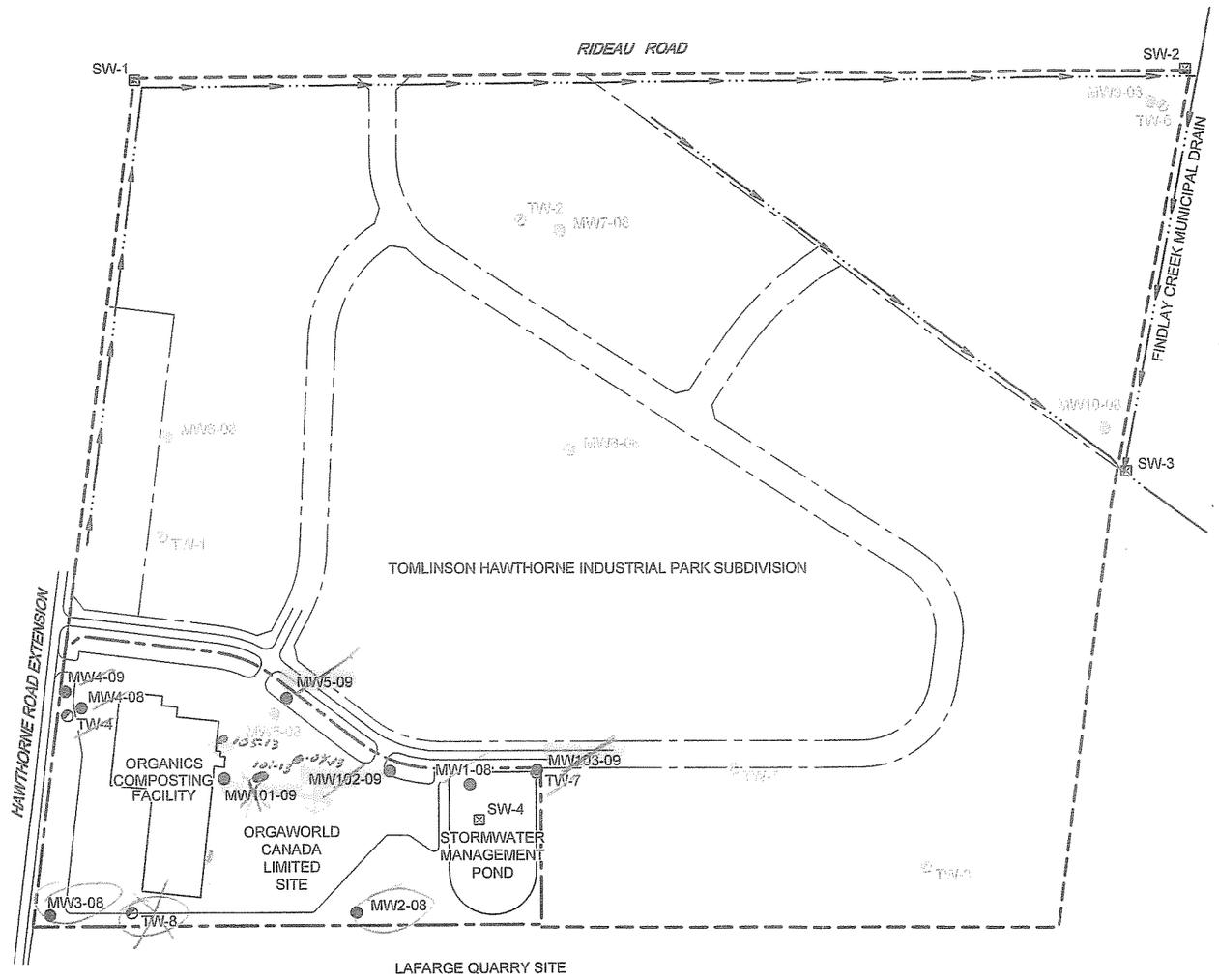

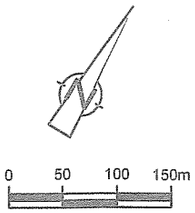

MAR 20 2013

LEGEND

- ORGAWORLD SITE BOUNDARY
- TOMLINSON HAWTHORNE INDUSTRIAL PARK SUBDIVISION BOUNDARY
- SURFACE WATER DRAIN/DITCH/CREEK
- MW2-08 SHALLOW MONITORING WELL LOCATION
- TW-4 DEEP BEDROCK MONITORING WELL LOCATION
- SW-3 SURFACE WATER MONITORING LOCATION
- MONITORING WELL LOCATIONS NO LONGER ACCESSIBLE (SEE NOTE BELOW)

NOTES:

1. SHALLOW AND DEEP MONITORING WELLS LOCATED ON TOMLINSON PROPERTY ARE NO LONGER ACCESSIBLE TO OCL OR CRA AS OF JANUARY 2010.
2. MW5-08 WAS DESTROYED DURING ASPHALT CONSTRUCTION; MW5-09 WAS INSTALLED TO REPLACE IT.

C-7241
215412

figure 3.1

GROUNDWATER AND SURFACE WATER MONITORING LOCATIONS
GROUNDWATER/SURFACE WATER MONITORING PROGRAM
5123 HAWTHORNE ROAD, OTTAWA, ONTARIO
Orgaworld Canada Ltd.

045804-58(046)GN-OT001 JAN 23/2013

Ontario — Ministry of the Environment

Well Record

5-13726

Regulation 903 Ontario Water Resources Act

Tag#: A141808 (or Print Below) TAG #: A141808

Measurements recorded in: ☑ Metric ☐ Imperial

Page ____ of ____

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
	DRAWORED CANADA LTD.		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
5123 HAWTHORNE RD	OTTAWA	ONT	K1G3Y3	6138222056

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
5123 HAWTHORNE RD			

County/District/Municipality	City/Town/Village	Province	Postal Code
	OTTAWA	Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	18	456145	5016602		

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	Depth (m/ft) To
BRN	GRAVEL	SAND	HARD, DRY	0	.61
GREY	SHOT ROCK		HARD, DRY	.61	1.5
GREY	SHOT ROCK		HARD, SATURATED	1.5	3.66

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
0	.31	CONCRETE / FLUSH MOUNT	
.31	1.83	BENSEAL	
1.83	3.66	SAND	

Method of Construction

☐ Cable Tool ☐ Diamond
☑ Rotary (Conventional) ☐ Jetting
☐ Rotary (Reverse) ☐ Driving
☐ Boring ☐ Digging
☐ Air percussion
☐ Other, specify ~~Direct Push~~

Well Use

☐ Public ☐ Commercial ☐ Not used
☐ Domestic ☐ Municipal ☐ Dewatering
☐ Livestock ☒ Test Hole ☒ Monitoring
☐ Irrigation ☐ Cooling & Air Conditioning
☐ Industrial
☐ Other, specify

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
5.20	PVC	.390	0	2.13

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	Depth (m/ft) To
6.03	PVC	10	2.13	3.66

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

Water Details

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

Hole Diameter

Depth (m/ft) From	Depth (m/ft) To	Diameter (cm/in)
0	3.66	10.92

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Strata Soil Sampling Inc.	7241

Business Address (Street Number/Name)	Municipality
147-2 West Beaver Creek Road	Richmond Hill

Province	Postal Code	Business E-mail Address
Ontario	L4B 1C6	wrecords@stratasoil.com

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)	Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
905-764-9304	Beatty, Brian	3616		2013 02 28

Results of Well Yield Testing

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

If pumping discontinued, give reason:

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

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

Map of Well Location

Please provide a map below following instructions on the back.

SEE MAP 105-13

Comments:

Well owner's information package delivered ☐ Yes ☒ No

Date Package Delivered: Y Y Y Y M M D D

Date Work Completed: 2013 02 28

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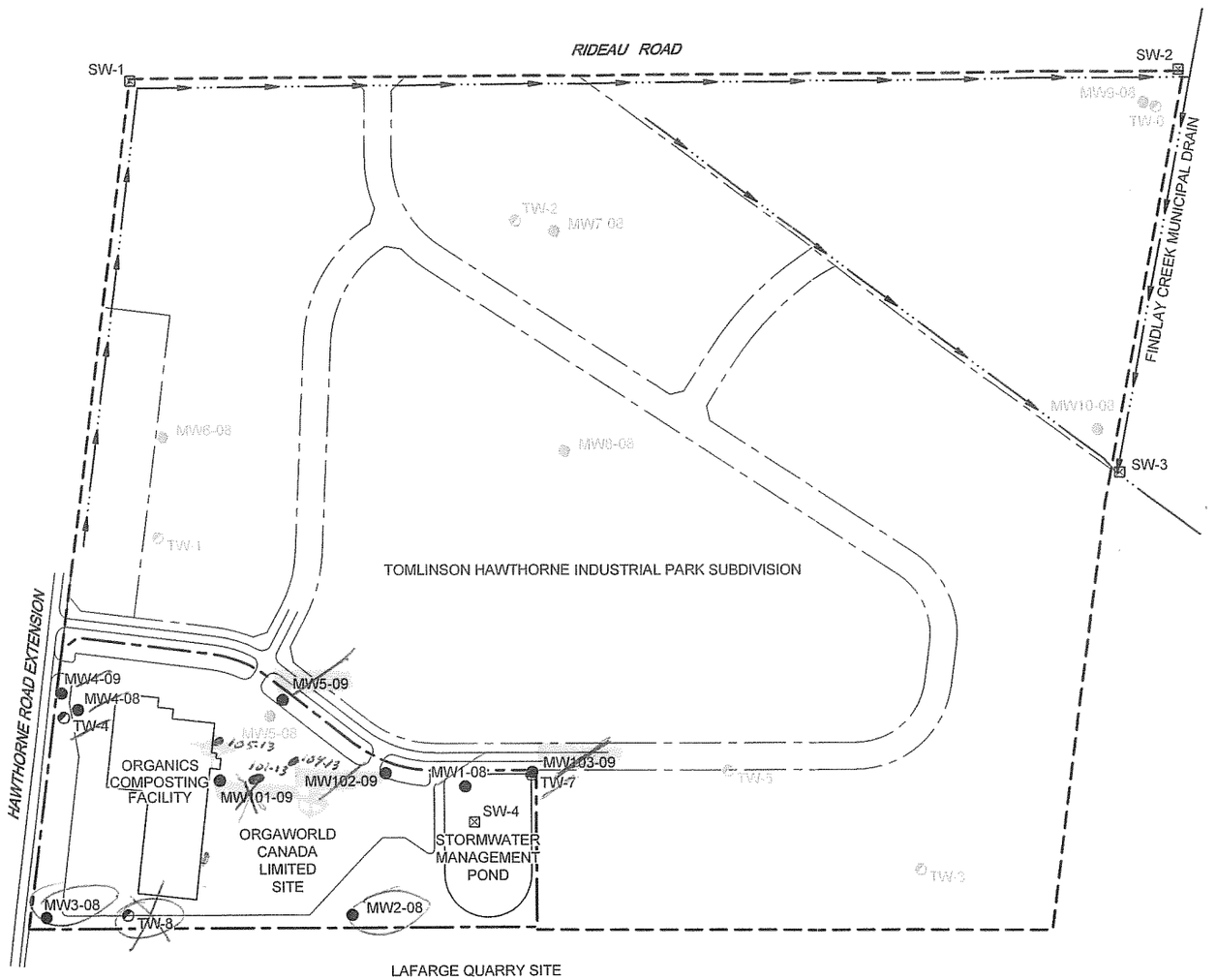

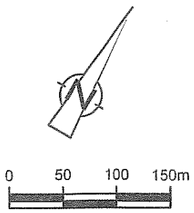

LEGEND

- ORGAWORLD SITE BOUNDARY
- TOMLINSON HAWTHORNE INDUSTRIAL PARK SUBDIVISION BOUNDARY
- SURFACE WATER DRAIN/DITCH/CREEK
- MW2-08 — SHALLOW MONITORING WELL LOCATION
- TW-4 — DEEP BEDROCK MONITORING WELL LOCATION
- SW-3 — SURFACE WATER MONITORING LOCATION
- MW5-08 — MONITORING WELL LOCATIONS NO LONGER ACCESSIBLE (SEE NOTE BELOW)

NOTES:

1. SHALLOW AND DEEP MONITORING WELLS LOCATED ON TOMLINSON PROPERTY ARE NO LONGER ACCESSIBLE TO OCL OR CRA AS OF JANUARY 2010.
2. MW5-08 WAS DESTROYED DURING ASPHALT CONSTRUCTION; MW5-09 WAS INSTALLED TO REPLACE IT.

figure 3.1

GROUNDWATER AND SURFACE WATER MONITORING LOCATIONS
GROUNDWATER/SURFACE WATER MONITORING PROGRAM
5123 HAWTHORNE ROAD, OTTAWA, ONTARIO
Orgaworld Canada Ltd.

045804-58(046)GN-OT001 JAN 23/2013

Ontario — Ministry of the Environment

Well Tag No. (Place Sticker and/or Print Below) Tag#: A141800 TAG #: A141800

5-13726

Well Record

Regulation 903 Ontario Water Resources Act

Measurements recorded in: [X] Metric [ ] Imperial

Page _____ of _____

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	[ ] Well Constructed by Well Owner
Orgaworld	Canada		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
5123 Hawthorne Rd.	Ottawa	ON	K1G3y3	

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
5123 HAWTHORNE RD.			

County/District/Municipality	City/Town/Village	Province	Postal Code
	OTTAWA	Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	18	456650	5011664 D		

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	Depth (m/ft) To
BRN	GRAVEL	SAND	HARD, DRY	0	0.61
RED	FILL		HARD, DRY	0.61	1.22
BRN/BLK	FILL		SOFT, DRY	1.22	2.44
BRN/BLK	FILL		SOFT, SATURATED	2.44	3.66

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
0	.31	CONCRETE / FLUSH MOUNT	
.31	1.83	BENSEAL	
1.83	3.66	SAND	

Method of Construction

[ ] Cable Tool [ ] Diamond
[X] Rotary (Conventional) [ ] Jetting
[ ] Rotary (Reverse) [ ] Driving
[ ] Boring [ ] Digging
[ ] Air percussion
[ ] Other, *specify* Direct Push

Well Use

[ ] Public [ ] Commercial [ ] Not used
[ ] Domestic [ ] Municipal [ ] Dewatering
[ ] Livestock [X] Test Hole [X] Monitoring
[ ] Irrigation [ ] Cooling & Air Conditioning
[ ] Industrial
[ ] Other, *specify*

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
5.20	PVC	0.390	0	2.13

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	Depth (m/ft) To
6.03	PVC	10	2.13	3.66

Status of Well

[ ] Water Supply
[ ] Replacement Well
[X] Test Hole
[ ] Recharge Well
[ ] Dewatering Well
[X] Observation and/or Monitoring Hole
[ ] Alteration (Construction)
[ ] Abandoned, Insufficient Supply
[ ] Abandoned, Poor Water Quality
[ ] Abandoned, other, *specify*
[ ] Other, *specify*

Water Details

Water found at Depth (m/ft)	Kind of Water	Hole Diameter Depth (m/ft) From	Depth (m/ft) To	Diameter (cm/in)
[ ] Gas	[ ] Fresh [ ] Untested [ ] Other, *specify*	0	3.66	10.92
[ ] Gas	[ ] Fresh [ ] Untested [ ] Other, *specify*			
[ ] Gas	[ ] Fresh [ ] Untested [ ] Other, *specify*			

Results of Well Yield Testing

After test of well yield, water was:
[ ] Clear and sand free
[ ] Other, *specify*

If pumping discontinued, give reason:

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

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

Map of Well Location

Please provide a map below following instructions on the back.

See Map

104-13

Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Strata Soil Sampling Inc.	7241

Business Address (Street Number/Name)	Municipality
147-2 West Beaver Creek Road	Richmond Hill

Province	Postal Code	Business E-mail Address
Ontario	L4B 1G6	wrecords@stratasoil.com

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
905-764-9304	BOOTH, BRIAN

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
3616		2013 02 28

Well owner's information package delivered	Date Package Delivered	Date Work Completed
[ ] Yes [X] No		2013 02 28

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Audit No. Z 164315

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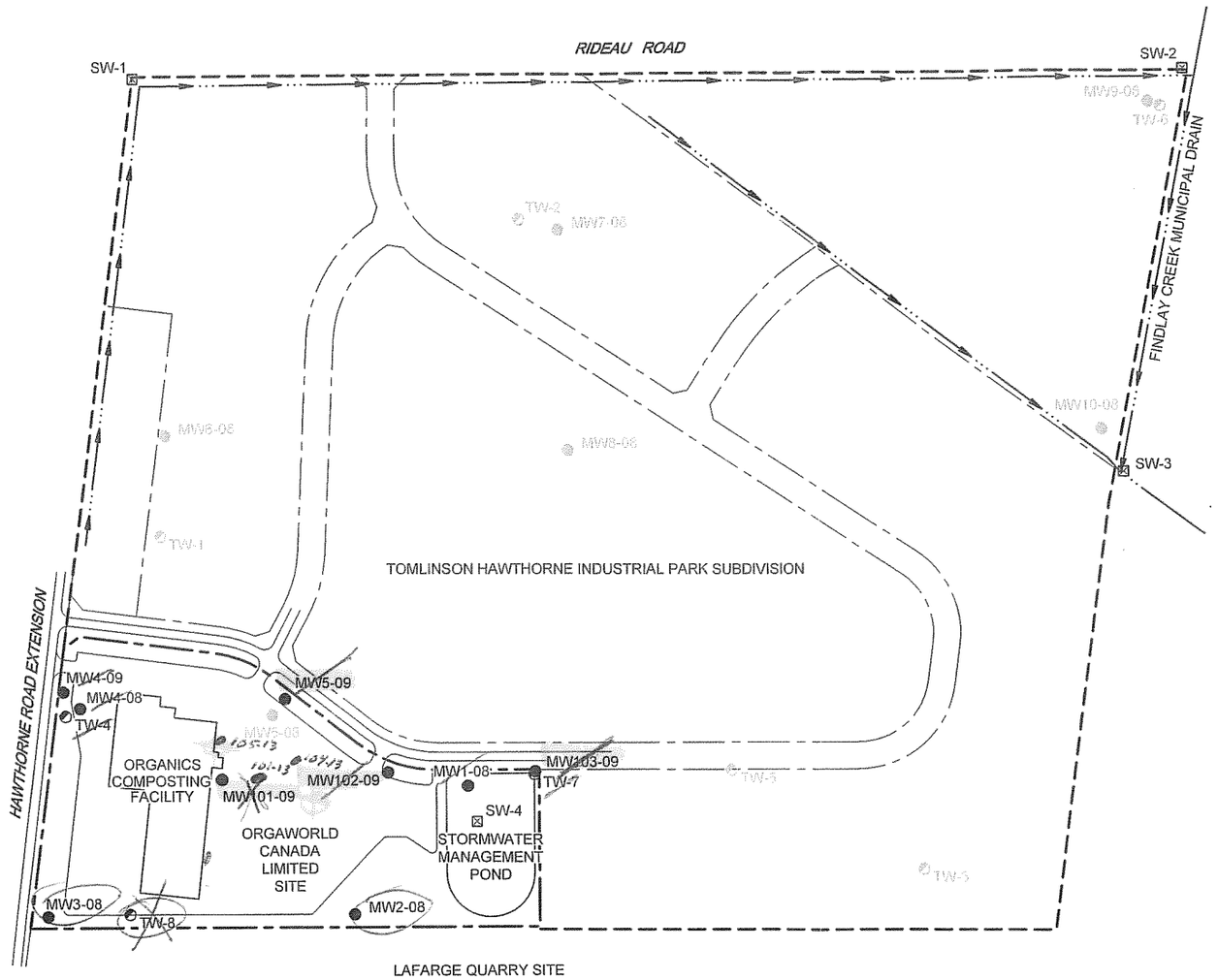


MAR 20 2013

0 50 100 150m

LEGEND

- ORGAWORLD SITE BOUNDARY
- TOMLINSON HAWTHORNE INDUSTRIAL PARK SUBDIVISION BOUNDARY
- SURFACE WATER DRAIN/DITCH/CREEK
- MW2-08 SHALLOW MONITORING WELL LOCATION
- TW-4 DEEP BEDROCK MONITORING WELL LOCATION
- SW-3 SURFACE WATER MONITORING LOCATION
- MW5-05 MONITORING WELL LOCATIONS NO LONGER ACCESSIBLE (SEE NOTE BELOW)

NOTES:

1. SHALLOW AND DEEP MONITORING WELLS LOCATED ON TOMLINSON PROPERTY ARE NO LONGER ACCESSIBLE TO OCL OR CRA AS OF JANUARY 2010.
2. MW5-08 WAS DESTROYED DURING ASPHALT CONSTRUCTION; MW5-09 WAS INSTALLED TO REPLACE IT.

figure 3.1

GROUNDWATER AND SURFACE WATER MONITORING LOCATIONS
GROUNDWATER/SURFACE WATER MONITORING PROGRAM
5123 HAWTHORNE ROAD, OTTAWA, ONTARIO
Orgaworld Canada Ltd.

045804-58(046)GN-OT001 JAN 23/2013

Ontario — Ministry of the Environment

Measurements recorded in: ☐ Metric ☒ Imperial

Well Tag No. A 089801

Well Record

Regulation 903 Ontario Water Resources Act

Page 1 of 1

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
	APEX DEVELOPMENTS INC.	info@apexdevco.com	

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
206 - 900 Morrison Drive	OHawa	ON	K2H8K7	6134226757

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
35 Sappers Ridge			

County/District/Municipality	City/Town/Village	Province	Postal Code
	OHawa	Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	75	75 33' 10	45 18' 31		

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	Depth (m/ft) To
	Fill		loose	0	8
grey	Clay limestone	gravel	packed	8	24
				24	155

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
40	0	High Early Cement	13.95

Results of Well Yield Testing

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

If pumping discontinued, give reason:

Pump intake set at (m/ft): 130

Pumping rate (l/min / GPM): 10

Duration of pumping: 1 hrs + 0 min

Final water level end of pumping (m/ft): 34'

If flowing give rate (l/min / GPM):

Recommended pump depth (m/ft): 130

Recommended pump rate (l/min / GPM):

Well production (l/min / GPM): 15

Disinfected? ☑ Yes ☐ No

Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level	25		
1	27'	1	31.8
2	28'	2	30.5
3	29'4"	3	29.5
4	30'	4	29.0
5	30'2"	5	28.6
10	31'4"	10	28.3
15	32'2"	15	28.0
20	32'7"	20	27.5
25	33'2"	25	27.0
30	33'5"	30	26.0
40	34'	40	25.0
50	34'6"	50	25.0
60	34'	60	25.0

Method of Construction

☐ Cable Tool ☐ Diamond ☑ Rotary (Conventional) ☐ Jetting ☐ Rotary (Reverse) ☐ Driving ☐ Boring ☐ Digging ☐ Air percussion ☐ Other, specify

Well Use

☑ Public ☐ Commercial ☐ Not used ☐ Domestic ☐ Municipal ☐ Dewatering ☐ Livestock ☐ Test Hole ☐ Monitoring ☐ Irrigation ☐ Cooling & Air Conditioning ☐ Industrial ☐ Other, specify

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
5 5/8	Steel	1.88	40	+2.

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	Depth (m/ft) To

Water Details

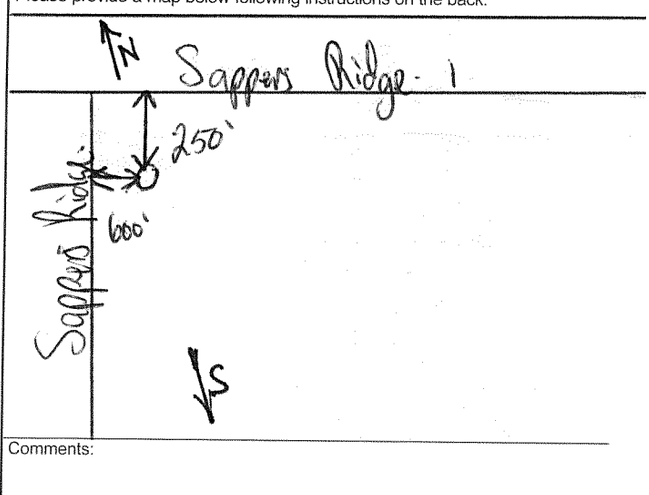
Water found at Depth (m/ft)	Kind of Water	
135	☑ Fresh ☑ Untested ☐ Gas ☐ Other, specify	
	☐ Fresh ☐ Untested ☐ Gas ☐ Other, specify	
	☐ Fresh ☐ Untested ☐ Gas ☐ Other, specify	

Hole Diameter

Depth (m/ft) From	Depth (m/ft) To	Diameter (cm/in)
0	40	10 5/8
40	155	6 1/8

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
J.R. Drilling Co. Ltd.	3749

Business Address (Street Number/Name)	Municipality	Province	Postal Code	Business E-mail Address
C23 Mitchem Rd., R.R.#5	Shawville	QC	J0X2Y0	info@jrwaterwelldrilling.com

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)	Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
8196475184	Moloughney, Brady	3641		2013 08 08

Well owner's information package delivered ☑ Yes ☐ No

Date Package Delivered: 2013 08 06

Date Work Completed: 2013 07 18

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Certificate of Analysis

Client: Paterson Group
154 Colonnade Rd. South
Nepean, ON
K2E 7T7
Attention: Mr. Erik Ardley
PO#: 30000
Invoice to: Paterson Group

Report Number: 1938338
Date Submitted: 2020-09-09
Date Reported: 2020-09-10
Project: PH4089
COC #: 862795

				Lab I.D.	1515499	1515500
				Sample Matrix	GW	GW
				Sample Type		
				Sampling Date	2020-09-08	2020-09-08
				Sample I.D.	TW1-GW1	TW1-GW2
Group	**Analyte**	**MRL**	**Units**	**Guideline**		
Microbiology	Escherichia Coli	0	ct/100mL	MAC 0	0	0
	Total Coliforms	0	ct/100mL	MAC 0	0	0

Guideline = ODWSOG *** = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.
Analytical Method: AMBCOLM1
additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

Certificate of Analysis

eurofins | Environment Testing

Client: Paterson Group
154 Colonnade Rd. South
Nepean, ON
K2E 7T7
Attention: Mr. Erik Ardley
PO#: 30000
Invoice to: Paterson Group

Report Number: 1938340
Date Submitted: 2020-09-09
Date Reported: 2020-09-16
Project: PH4089
COC #: 862795

Group	Analyte	MRL	Units	Guideline	Lab I.D. / Sample Matrix / Sample Type / Sampling Date / Sample I.D.	
					1515501 GW 2020-09-08 TW1-GW1	1515502 GW 2020-09-08 TW1-GW2
Anions	Cl	1	mg/L	AO 250	58	63
	F	0.10	mg/L	MAC 1.5	0.12	0.26
	N-NO2	0.10	mg/L	MAC 1.0	<0.10	<0.10
	N-NO3	0.10	mg/L	MAC 10.0	<0.10	<0.10
	SO4	1	mg/L	AO 500	188	200
General Chemistry	Alkalinity as CaCO3	5	mg/L	OG 500	495	470
	Colour	2	TCU		2	<2
	Conductivity	5	uS/cm		1340	1320
	DOC	0.5	mg/L	AO 5	4.5	4.3
	pH	1.00		6.5-8.5	7.74	7.95
	S2-	0.01	mg/L	AO 0.05	<0.01	<0.01
	TDS	10	mg/L	AO 500	910*	920*
	Turbidity	0.1	NTU	AO 5.0	21.2*	24.1*
Hardness	Hardness as CaCO3	1	mg/L	OG 100	613*	595*
Indices/Calc	Ion Balance	0.01			1.01	1.00
Metals	Ca	1	mg/L		135	131
	Fe	0.03	mg/L	AO 0.3	1.68*	1.58*
	K	1	mg/L		10	10
	Mg	1	mg/L		67	65
	Mn	0.01	mg/L	AO 0.05	0.50*	0.48*
	Na	2	mg/L	AO 200	72	74
Subcontract-Inorg	N-NH3	0.01	mg/L		0.20	0.22
	Phenols	0.001	mg/L		<0.001	<0.001
	Tannin & Lignin	0.1	mg/L		0.2	0.2
	Total Kjeldahl Nitrogen	0.1	mg/L		0.3	0.3

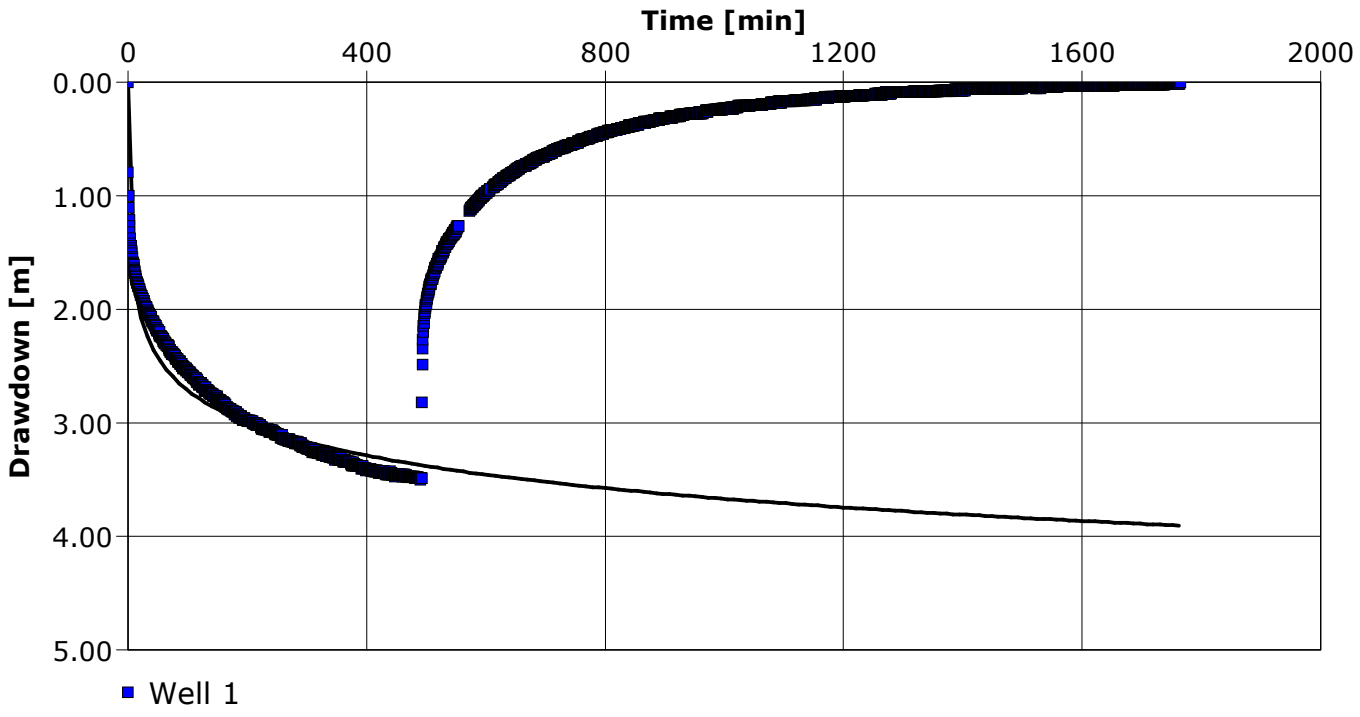
Guideline = ODWSOG *** = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

	Pumping Test Analysis Report
	Project: TW1 - Pumping Test
	Number: PH4089
	Client: Techo Bloc

Location: 5123 Hawthorne Road	Pumping Test: Pumping Test - TW1	Pumping Well: Well 1
Test Conducted by: EA		Test Date: 23/09/2020
Analysis Performed by: EA	Theis	Analysis Date: 23/09/2020
Aquifer Thickness:	Discharge: variable, average rate 1.5 [l/s]	

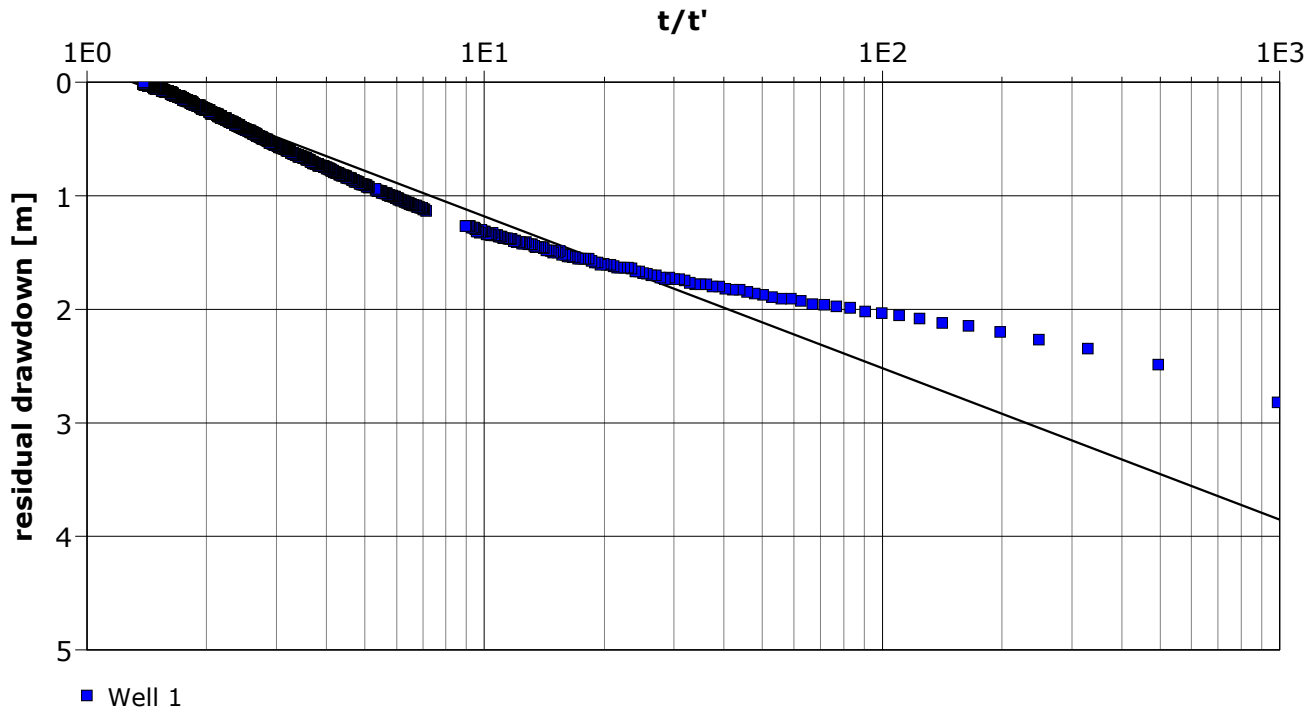


Calculation using Theis

Observation Well	Transmissivity [m²/d]	Storage coefficient	Radial Distance to PW [m]	
Well 1	2.48×10^{1}		0.08	

	Pumping Test Analysis Report
	Project: TW1 - Pumping Test
	Number: PH4089
	Client: Techo Bloc

Location: 5123 Hawthorne Road	Pumping Test: Pumping Test - TW1	Pumping Well: Well 1
Test Conducted by: EA		Test Date: 23/09/2020
Analysis Performed by: EA	Theis Recovery	Analysis Date: 23/09/2020
Aquifer Thickness:	Discharge: variable, average rate 1.5 [l/s]	

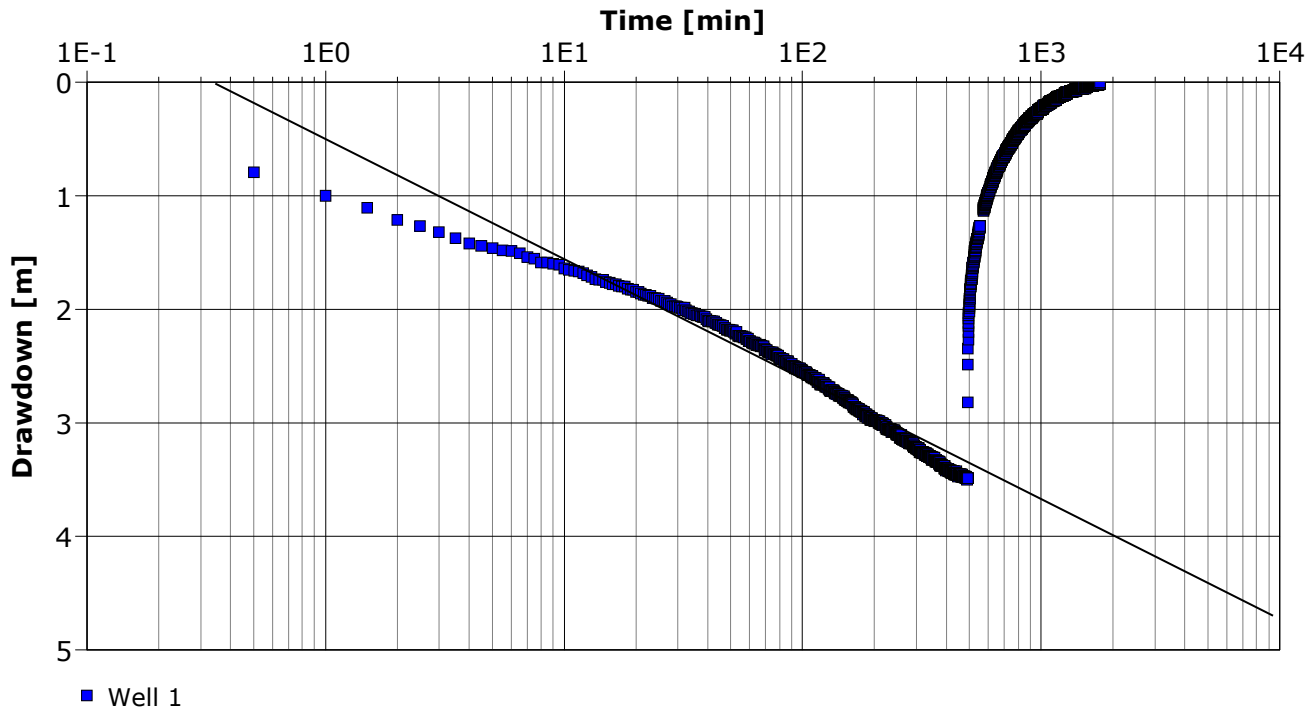


Calculation using THEIS & JACOB

Observation Well	Transmissivity [m²/d]	Radial Distance to PW [m]	
Well 1	1.78×10^{1}	0.08	

	Pumping Test Analysis Report
	Project: TW1 - Pumping Test
	Number: PH4089
	Client: Techo Bloc

Location: 5123 Hawthorne Road	Pumping Test: Pumping Test - TW1	Pumping Well: Well 1
Test Conducted by: EA		Test Date: 23/09/2020
Analysis Performed by: EA	Cooper Jacob 1	Analysis Date: 23/09/2020
Aquifer Thickness:	Discharge: variable, average rate 1.5 [l/s]	



Calculation using COOPER & JACOB

Observation Well	Transmissivity [m²/d]	Storage coefficient	Radial Distance to PW [m]	
Well 1	1.81×10^{1}		0.08	

	Pumping Test Analysis Report
	Project: TW1 - Pumping Test
	Number: PH4089
	Client: Techo Bloc

Location: 5123 Hawthorne Road	Pumping Test: Pumping Test - TW1	Pumping Well: Well 1
Test Conducted by: EA		Test Date: 23/09/2020
Aquifer Thickness: NAN m	Discharge: variable, average rate 1.5 [l/s]	

	Analysis Name	Analysis Performed by	Method name	Well	T [m²/d]	S
1	Theis	EA	Theis	Well 1	2.48×10^{1}	
2	Theis Recovery	EA	Theis Recovery	Well 1	1.78×10^{1}	
3	Cooper Jacob 1	EA	Cooper & Jacob I	Well 1	1.81×10^{1}	

patersongroup

Somme Street

PH4089

TW1 inputs

pH	7.95	A	0.20
TDS	920	B	2.35
Hardness	595	C	2.37
Alkalinity	470	D	2.67
Temp.	11.8		
		pHs =	6.796199356

Langelier Saturation Index (LSI) Calculation

(Langelier, 1936)

LSI = pH - pHs

pHs = (9.3 + A + B) - (C + D)

Where:

A = (Log10 [TDS] - 1) / 10

B = -13.12 x Log10 (oC + 273) + 34.55

C = Log10 [Ca2+ as CaCO3] - 0.4

D = Log10 [alkalinity as CaCO3]

LSI = 1.2

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 corrosivebut non-scale forming).
-0.5 to -2	Water is under saturated and tends to dissolve solid calcium carbonate (seriously corrosive).

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
5123 Hawthorne Road
Ottawa, Ontario

DATUM Ground surface elevations provided by the client.

FILE NO. PG5306

REMARKS

HOLE NO. BH 2

BORINGS BY CME 55 Power Auger **DATE** December 10, 2019

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	90.32
FILL: Brown sandy silt, trace gravel and organics		AU	1				
0.60							
FILL: Grey-brown silty sand, some gravel, piece of asphalt		SS	2	100	24	1	89.32
1.50							
Loose to compact, brown **SILT,** occasional sand and gravel		SS	3	67	17	2	88.32
		SS	4	71	7	3	87.32
		SS	5	67	2		
		SS	6	79	21	4	86.32
4.42							
End of Borehole							

Pen. Resist. Blows/0.3m
● **50 mm Dia. Cone**
○ **Water Content %**

20 40 60 80

Monitoring Well Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

REFERENCE No.: T020556-A1

ENCLOSURE No.: 8

INSPEC·SOL

BOREHOLE No.: B2-1

ELEVATION: 90.43 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 27, 2008 DATE (FINISH): October 27, 2008

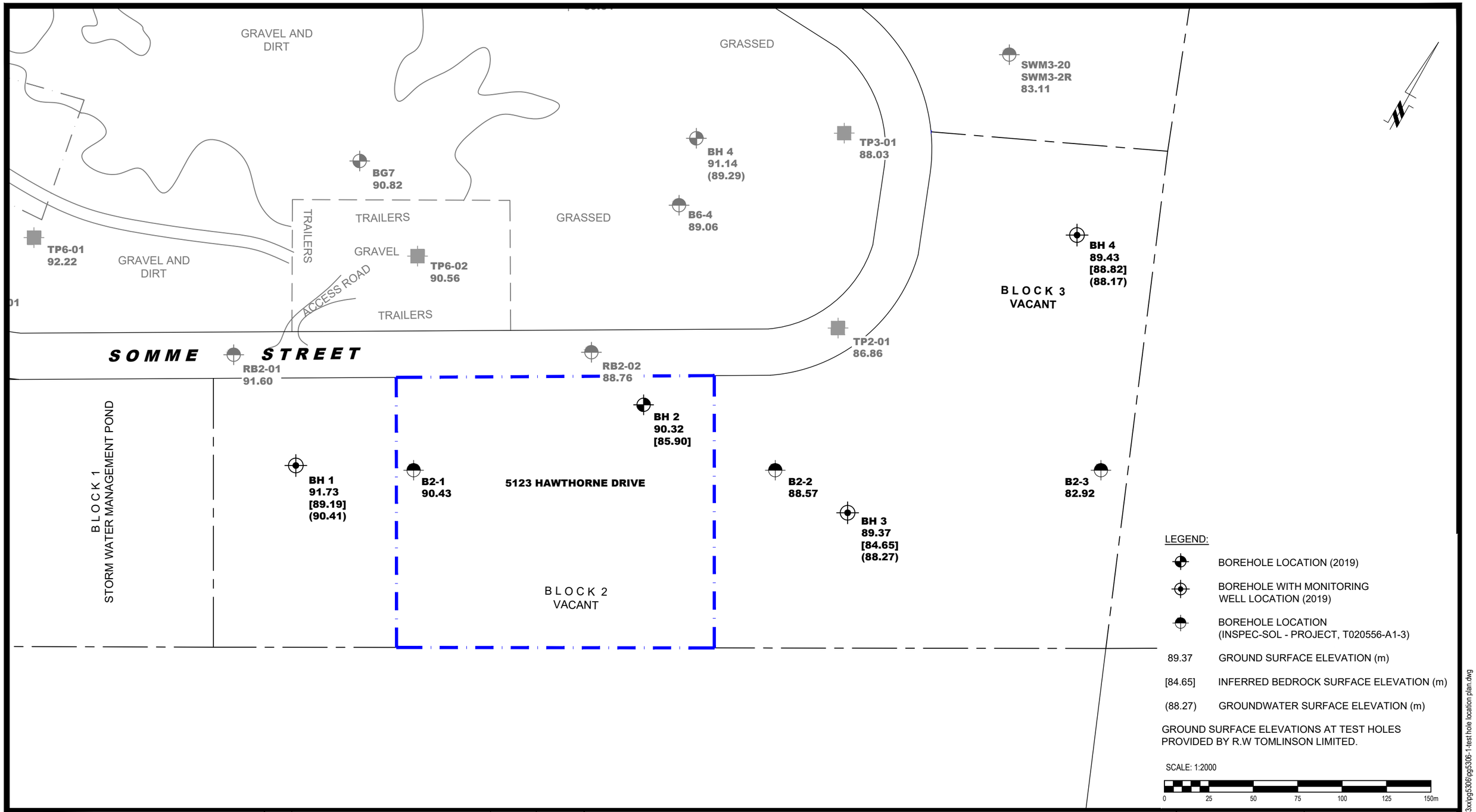
LEGEND

- SS Split Spoon
- ST Shelby Tube
- RC Rock Core
- Water Level
- w 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	Organic Vapour ppm or %LEL	Penetration Index / RQD	SCALE FOR TEST RESULTS 50kPa 100kPa 150kPa 200kPa 10 20 30 40 50 60 70 80 90
meters	90.43		GROUND SURFACE			%	ppm	N	
			FILL- sandy silt, some gravel and organics, compact, brown, moist						
1.0	89.24				SS1	58		14	
			End of Borehole Auger Refusal Assumed Bedrock						
2.0									
3.0									
4.0									
5.0									
6.0									
7.0									
8.0									
9.0									
10.0									
11.0									
12.0									
13.0									

NOTES:

BOREHOLE LOG T020556-A1-BH(OCT-31-08).GPJ INSPEC_SOL.GDT 5/12/09



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Ottawa, Ontario K2E 7J5
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NO.	REVISIONS	DATE	INITIAL

FULLER MARIANI BUILDING SOLUTIONS

GEOTECHNICAL INVESTIGATION
5123 HAWTHORNE DRIVE

OTTAWA, ONTARIO

Title:

TEST HOLE LOCATION PLAN

Scale: 1:2000	Date: 04/2020
Drawn by: YA	Report No.: PG5306-1
Checked by: YT	Dwg. No.: PG5306-1
Approved by: FA	Revision No.:

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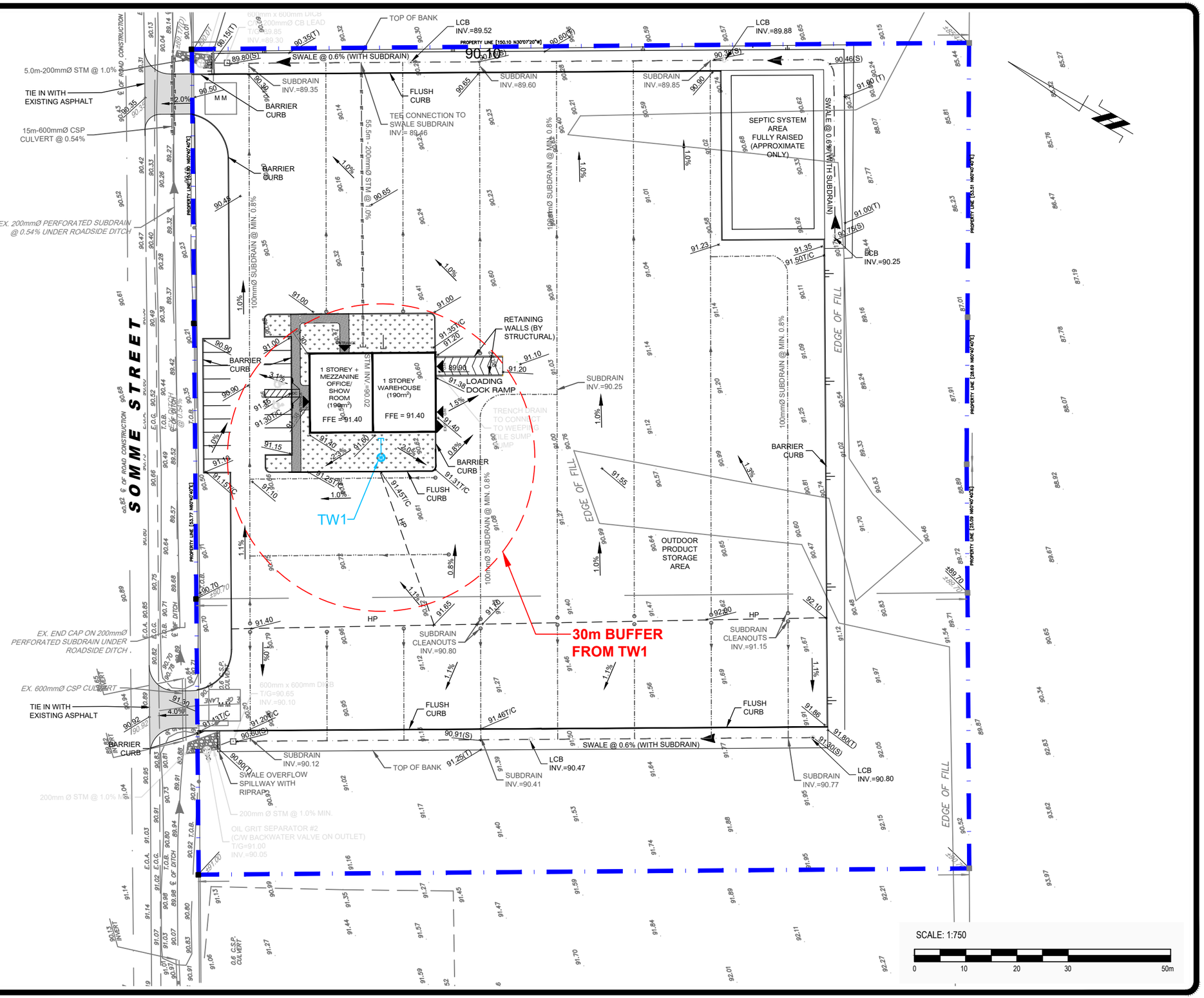

BENCHMARK INFORMATION:

Cut cross on northeast corner of concrete headwall
Geodetic Elevation: 92.79 m.

All ground surface elevations reference a geodetic datum (NAD83 Zone 18T)

REFERENCE:

Base Plan provided by Novatech, Drawing No. 120096-GS Grading, Servicing and Erosion sediment control Plan, Rev.3

DD/MM/YY	DESCRIPTION	REV.

Consultant:

patersongroup
consulting engineers

Client:

FULLER MARIANI BUILDING SOLUTIONS

Project:

PROPOSED COMMERCIAL DEVELOPMENT

SOMME STREET
OTTAWA, ONTARIO

Drawing:

SITE PLAN

Scale: 1:750	Drawn by: RCG
Date: 09/2020	Checked by: MK

Drawing No.:

PH4089-1

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