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July 15, 2025

PH4864-LET.01.REV.02

27783179 Ontario Inc.
6356 Fourth Line Road
North Gower, Ontario
K0A 2T0

Attention: Victoria La Valle

Subject: **Hydrogeological Assessment and Terrain Analysis**
Re-zoning Application
6356 Fourth Line Road
Ottawa (North Gower), Ontario

INTRODUCTION

Paterson Group Inc. (Paterson) was retained by 27783179 Ontario Inc. to conduct a Hydrogeological Assessment and Terrain Analysis in support of a Re-zoning Application for the proposed Equestrian Establishment located at 6356 Fourth Line Road in Ottawa (North Gower), Ontario. It is our understanding that the current property, identified as 6356 Fourth Line Road, Ottawa (North Gower), consists of a 1.28 hectares (ha) parcel with an existing dwelling in the eastern portion of the site. The proposed Re-zoning application aims to modify acceptable uses of the 1.28 ha parcel that is designated as Agricultural (AG). Please refer to the Key Plan attached for more details.

The purpose of this work has been to determine the suitability of the water supply aquifer underlying the site and to carry out a septic system impact assessment (terrain analysis) to determine the site's suitability for private on-site sewage systems. Specifically, the intent of the report is to determine the quality and quantity of water underlying the subject site, as well as to provide the maximum sewage flow volume which the subject site can support from a nitrate attenuation standpoint.

BACKGROUND

Subject Site

The subject property consists of a residential dwelling with associated landscaped areas and driveways, as well as a concrete block barn located at 6356 Fourth Line Road in the City of Ottawa (North Gower), Ontario. The existing dwelling is anticipated to be relocated off-site. The site is currently serviced by a private water supply and private septic system. The site is bordered by residential buildings to the north and south, by agricultural lands to the west and by Fourth Line Road to the east.

The subject site is largely rectangular in shape with a total area of 1.28 ha. The site is currently zoned as AG (agricultural). The intention of the aforementioned Re-zoning application is to amend the zoning of the subject site to allow for the zoning to include Equestrian Establishment as an allowable usage.

Regional Geology

Published surficial geology mapping (OGS MRD128) for the area in the vicinity of the subject site indicates that the majority of the site is underlain predominantly by fine-textured glaciomarine deposits largely consisting of silt and clay.

Published bedrock geology mapping (OGS MRD219) indicates that the subject lands are underlain by dolostone with minor shale and sandstone of the Beekmantown Group and Oxford Formation. The available bedrock mapping coincides with the well driller's description on the Ministry of the Environment, Conservation and Parks (MECP) Water Well Records (WWR) for the surrounding well supplies installed within the subject area, which generally indicate a grey limestone.

Technically Representative Well

As a Water Well Record (WWR) was not available for the existing well located at 6356 Fourth Line Road. An existing well, located at 6340 Fourth Line Road, will be used as a technically representative well for the subject site. The technically representative well, hereby referred to as TW1, has a WWR with ID No. 1530684, is approximately 65 m from the property boundary of the subject site. Bedrock and aquifer mapping are consistent across the area.

TW1 has a well No of 1530684 with a 158.75 mm diameter steel casing. The well has a 0.42 m stick-up above ground surface with a total casing length of 14.75 m The total well depth extends to 24.7 m below ground surface (bgs). The well is located such that water will drain away from the wellhead and was determined, by visual inspection, to be in good condition with an intact cap and no visual damage. The Water Well Record (WWR) can be found attached to this report. Available water well records (WWR) of the neighboring properties on the MECP Well Record mapping website indicated that the

wells were screened in limestone. Surrounding WWR's are attached to this report. TW1 meets the requirements as set by O.Reg.903 and is compliant.

MISSISSIPPI-RIDEAU SOURCE PROTECTION PLAN

The Mississippi-Rideau Source Protection Plan (MRSPP) provides guidance as to which policies apply to a given property, municipality or specific activity and if there are specific designations that apply to the area. The subject site and surrounding areas have not been designated as a Highly Vulnerable Aquifer (HVA), an Intake Protection Zone (IPZ or a Significant Groundwater Recharge Area (SGRA).

Therefore, there are no related requirements for an HVA, an IPZ with a score of less than 8 or SGRA at this location.

Hydrogeological Pre-Consultation

A City of Ottawa pre-consultation was completed on April 17, 2024 to discuss the requirements for the hydrogeological assessment and terrain analysis of the subject site.

FIELDWORK PROGRAM

Well Inspection

A visual inspection of TW1 was performed by Paterson personnel which confirmed that the well casing and cap are in good condition. The grading around the well was sufficiently graded to direct surface water away from the wellhead (as required by O.Reg 903) at the time of the new sewage system installation. The stickup was measured to be 0.42 m above ground surface. Based on a visual inspection by Paterson personnel, the well was deemed to be in good condition.

Well Testing

As a means to demonstrate the adequacy of the aquifer underlying the subject lands, with respect to water quality and quantity, the existing drilled well (TW1) on the adjacent site was tested. TW1 has a Water Well Record (WWR) Well ID of 1530684. TW1 has a 158.75 mm diameter steel casing that extends to 14.33 m bgs with a 0.42 m stick up. The well itself extends to a depth of 24.7 m bgs. Based on available geological mapping, the drift thickness at TW1 varies from 5 to 10 m.

As a means to evaluate the water supply aquifer intercepted by the well, the well was subjected to a 6-hour constant rate pumping test. The pumping test was conducted on June 11, 2024 under the full-time supervision of Paterson personnel. Prior to the pumping test a data-logger was installed to monitor the background groundwater levels.

The existing submersible pump was used for the 6-hour pumping test. A licensed water well technician (Air Rock) completed the necessary plumbing related activities. The discharge line was placed at a sufficient distance to ensure that the discharge water was being directed away from the well and the septic system onsite. Upon completion of the test, the system was returned to its normal configuration.

The pumping test was carried out at a pumping rate of 38 L/min (10 US gpm) for a duration of 6 hours. During the pumping test, the pumping rate was periodically measured using the timed volume correlation method. The pumping rate was maintained within 5% of the selected pumping rate. The static water level was recorded manually and an electric datalogger (VanEssen TD-Diver) was installed in the test well prior to the start of the pumping test.

The selected rate of 38 L/min provides approximately 6.8 times the maximum total daily design volume of 2,000 L/day for the septic system during the 6-hour pumping test. The maximum total daily design sanitary sewage flows (TDDSSF) were calculated based on the maximum volume that can be attenuated by the subject site (see Predictive Nitrate Impact Assessment Calculation, attached). The rate was determined to be generally representative of a flow rate which would be in excess of what the proposed development would require.

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 90% recovery approximately 40 minutes after the completion of pumping and 95% recovery after the homeowner's pump was replaced, within 60 minutes of the completion of pumping.

Groundwater samples were collected at 3 hours and 6 hours after the start of pumping. Prior to collection of the groundwater samples, the free chlorine residual was verified as non-detectable. The water samples were submitted for comprehensive testing of bacteriological, chemical, and physical water quality parameters consistent with the standard "Subdivision Supply" suite of parameters plus trace metals.

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

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, true colour, and temperature. Calibration / confirmation of calibration of all field-testing equipment was performed in Paterson's laboratory the day

prior to the pumping test. Values are then confirmed again onsite prior to the start of the pumping test.

Aquifer Analysis

Water Quantity

Pumping test data was analyzed using AQTESOLV Pro Version 4 aquifer analysis software package by HydroSOLVE Inc. 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)	78.83
Pumping Rate (L/min)	38
Pre-test Static Water Level (m BTOC)	1.32
Post-test Static Water Level (m BTOC)	1.91
Available Drawdown (m)	23.8
% Drawdown During Pumping Test (%)	2.5
Specific Capacity (L/min/m drawdown)	64.4

The drawdown data was analyzed using the Theis and Cooper Jacob methods of analysis. Aquifer transmissivity is estimated to be 78.83 m^2/day. Refer to the Theis and Cooper Jacob methods of analysis data sheets attached to this report.

The pumping test results show that TW1 has a high yield to support the water demands that may be required. Overall maximum drawdown at a constant pumping rate for a period of 6 hours was approximately 0.59 m at approximately 6 hours into the pumping test (2.5% of the available drawdown). 95% recovery was achieved approximately 60 minutes after the end of pumping.

The total volume of water pumped during the 6-hour pumping event was approximately 13,680 L. This is approximately 6.84 times the maximum total daily design volume of water (2,000 L/d) required to support the Re-zoning Application.

The suitability of the aquifer to supply the proposed Re-zoning application was assessed using the methodology provided in the City of Ottawa Hydrogeological and Terrain Analysis Guidelines (HTAG).

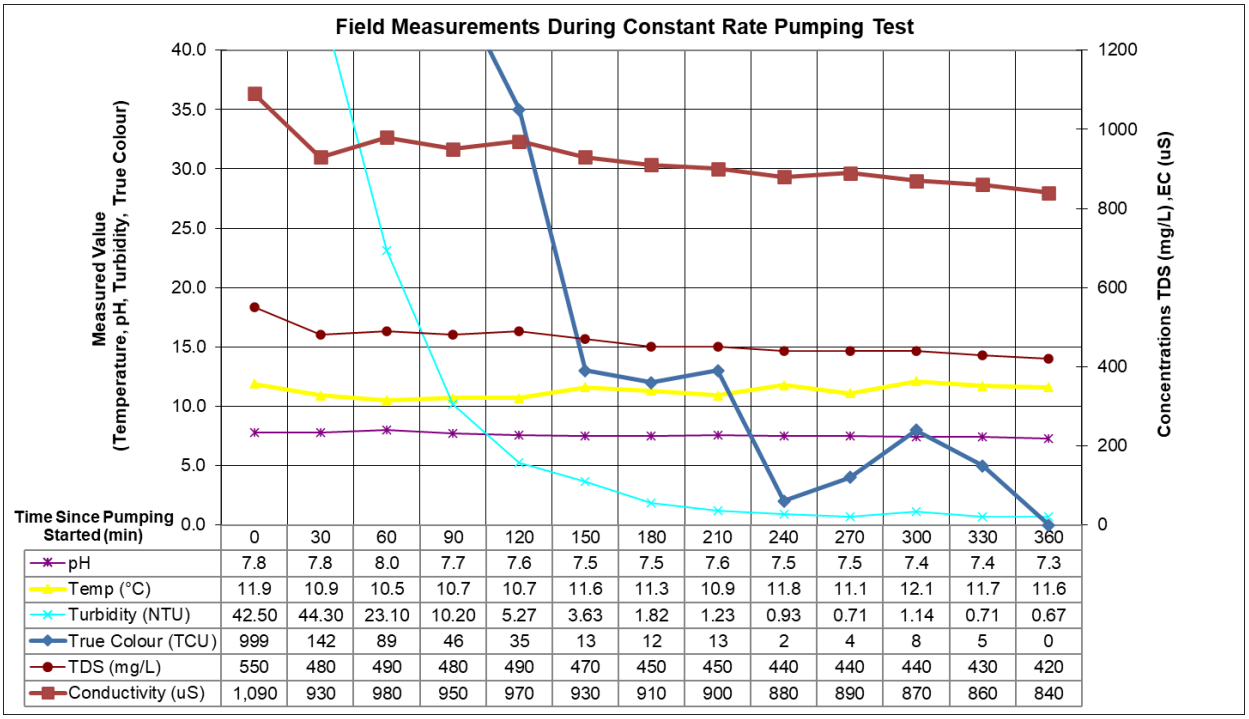
Based on the information summarized in Table 1, it is readily apparent that the water supply well has intercepted an adequately strong water supply aquifer which has sufficient quantity to service the proposed zoning usage.

Given the analyses presented and summarized above, it is our opinion that there is an adequate supply of water to support the proposed Application

Water Quality

Field Data

Turbidity, electrical conductivity, total dissolved solids (TDS), pH, true color 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.



Time Since Pumping Started (min)	0	30	60	90	120	150	180	210	240	270	300	330	360
pH	7.8	7.8	8.0	7.7	7.6	7.5	7.5	7.6	7.5	7.5	7.4	7.4	7.3
Temp (°C)	11.9	10.9	10.5	10.7	10.7	11.6	11.3	10.9	11.8	11.1	12.1	11.7	11.6
Turbidity (NTU)	42.50	44.30	23.10	10.20	5.27	3.63	1.82	1.23	0.93	0.71	1.14	0.71	0.67
True Colour (TCU)	999	142	89	46	35	13	12	13	2	4	8	5	0
TDS (mg/L)	550	480	490	480	490	470	450	450	440	440	440	430	420
Conductivity (uS)	1,090	930	980	950	970	930	910	900	880	890	870	860	840

Laboratory Data

The Subdivision Package suite of parameters and trace metals laboratory water quality obtained from the pumping test of TW1 is provided in Table 2a and 2b below and the laboratory analyses reports can be found attached. All laboratory test results can be found attached to this report.

TABLE 2a: GROUNDWATER MICROBIOLOGY & GENERAL GEOCHEMISTRY					
PARAMETER	UNITS	ODWS		TW1	
		LIMIT	TYPE	TW1 GW1 (3 hr) 5/30/2024	TW1 GW2 (6 hr) 5/30/2024
MICROBIOLOGICAL					
Escherichia Coli (E.Coli)	ct/100mL	0	MAC	0	0
Total Coliforms	ct/100mL	0	MAC	0	0
GENERAL CHEMICAL - HEALTH RELATED					
Fluoride (F)	mg/L	1.5	MAC	0.10	0.10
Ammonia ($N\text{-}NH_3$)	mg/L	-	-	<0.02	<0.02
Nitrite ($N\text{-}NO_2$)	mg/L	1	MAC	<0.1	<0.1
Nitrate ($N\text{-}NO_3$)	mg/L	10	MAC	1.28	1.61
Total Kjeldahl Nitrogen	mg/L	-	-	0.455	0.413
Turbidity (Field)	NTU	1.0 (5.0)	MAC/AO	1.81	0.67
Turbidity (Laboratory)	NTU	1.0 (5.0)	MAC/AO	1.4	0.6
GENERAL CHEMICAL - AESTHETIC RELATED					
Alkalinity (as CaCO3)	mg/L	30-500	OG	349	336
Chloride (Cl)	mg/L	250	AO	36	37
Colour (Apparent)	TCU	5	AO	8	4
Colour (Field - True)	TCU	5	AO	12	0
Conductivity	uS/cm	-	-	884	837
Dissolved Organic Carbon	mg/L	5	AO	3.3	2.8
Hardness (as CaCO3)	mg/L	100	OG	422	413
Ion Balance	unitless	-	-	1.08	1.06
pH	unitless	6.5-8.5	AO	8.04	8.06
Phenols	mg/L	-	-	<0.001	<0.001
Sulphate (SO_4)	mg/L	500	AO	75	79
Sulphide (S_2^-)	mg/L	0.05	AO	<0.01	<0.01
Tannin & Lignin	mg/L	-	-	0.20	0.10
Total Dissolved Solids	mg/L	500	AO	575	544

1. ODWS identifies the following types of parameters:
   MAC = Maximum Allowable Concentration
   AO = Aesthetic Objective
   OG = Operational Guideline
2. Shaded Concentration Indicates an Exceedance of the ODWS Objective

TABLE 2b: GROUNDWATER GEOCHEMISTRY - METALS					
PARAMETER	UNITS	ODWS		TW1	
		LIMIT	TYPE	TW1 GW1 (3 hr) 5/30/2024	TW1 GW2 (6 hr) 5/30/2024
METALS					
Aluminum (Al)	mg/L	0.1	OG	<0.01	<0.01
Antimony (Sb)	mg/L	0.006	IMAC	<0.0005	<0.0005
Arsenic (As)	mg/L	0.01	IMAC	<0.001	<0.001
Barium (Ba)	mg/L	1.0	MAC	0.06	0.05
Beryllium (Be)	mg/L	-	-	<0.0005	<0.0005
Boron (B)	mg/L	5.0	IMAC	0.02	0.02
Cadmium (Cd)	mg/L	0.005	MAC	<0.0001	<0.0001
Calcium (Ca)	mg/L	-	-	88	87
Chromium (Cr)	mg/L	0.05	MAC	<0.001	<0.001
Cobalt (Co)	mg/L	-	-	0.0010	0.0009
Copper (Cu)	mg/L	1.0	AO	0.004	0.003
Iron (Fe)	mg/L	0.3	AO	0.05	<0.03
Lead (Pb)	mg/L	0.01	MAC	<0.001	<0.001
Magnesium (Mg)	mg/L	-	-	49	47
Manganese (Mn)	mg/L	0.05	AO	0.05	0.05
Mercury (Hg)	mg/L	0.001	MAC	<0.0001	<0.0001
Molybdenum (Mo)	mg/L	-	-	<0.005	<0.005
Nickel (Ni)	mg/L	-	-	<0.005	<0.005
Potassium (K)	mg/L	-	-	52	47
Selenium (Se)	mg/L	0.05	MAC	<0.001	<0.001
Silver (Ag)	mg/L	-	-	<0.0001	<0.0001
Sodium (Na)	mg/L	200	AO	16	15
Strontium (Sr)	mg/L	-	-	0.216	0.206
Thallium (Tl)	mg/L	-	-	<0.0001	<0.0001
Uranium (U)	mg/L	0.02	MAC	0.012	0.01
Vanadium (V)	mg/L	-	-	<0.001	<0.001
Zinc (Zn)	mg/L	5.0	AO	<0.01	<0.01

1. ODWS identifies the following types of parameters:
   MAC = Maximum Acceptable Concentration
   IMAC = Interim Maximum Acceptable 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. 3952152) indicated that the test samples at the 3 and 6 hour interval were non-detect (0 ct/100 mL) for E.Coli and Total Coliforms.

The water quality of the subject water supply well meets all the Ontario Drinking Water Standards maximum acceptable concentrations (MAC). Furthermore, the water meets all of the Aesthetic Objectives (AO) and Operational Guidelines (OG) with the exception of the following.

- Hardness (as $CaCO_3$)
- Total Dissolved Solids (TDS)

Exceedances of the above parameters are not uncommon of the water supply in the subject aquifer. Each of these groundwater parameters are discussed in detail below.

Should any water treatment be desired by the owner, it is recommended that a water treatment specialist be retained to ensure that water treatment occurs in a safe manner.

Hardness as $CaCO_3$

Hardness, expressed as calcium carbonate, is an operation guideline and does not appear in the ODWS. Rather, it appears in the Technical Support Documents for Ontario Drinking Water Standards, Objectives and Guidelines as a parameter with an operational guideline at 100 mg/L. At the measured concentrations of 422 and 415 mg/L, the water is considered to be very hard, however, it is below the reasonable treatable limit of 500 mg/L specified in Table 3 of the MOECC guidance document Procedure D-5-5 (1996), thus, hardness can be treated with readily available technologies.

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

Total Dissolved Solids (TDS)

TDS refers to the concentration of inorganic substances dissolved in water. The main constituents are typically chloride, sulphates, calcium, magnesium, and bicarbonates. The TDS concentration of 575 mg/L exceeds the Aesthetic Objective of 500 mg/L. At concentrations above 500 mg/L, some consumers may find the taste objectionable, however, as the objective is an aesthetic objective, no treatment is required. It is, however, recommended that a point-of-use reverse osmosis unit be installed or to provide bulk bottled water on an as-needed basis for drinking water purposes. As such, no taste problems will occur when the system is used, or, bottled water is consumed.

The Langelier calculation provided an LSI of 0.3. Based on the evaluation of the result, the water is super saturated and tends to precipitate a scale layer of calcium carbonate

(slightly scale forming but non-corrosive). Based on the range of stability in the positive direction, it is recommended that water softening be used to prevent scaling. See Langelier Saturation Index Calculation attached for calculation details.

TERRAIN ANALYSIS

The fieldwork which was completed as part of a Geotechnical Investigation for the site (PG7022, dated April 17, 2024) is used in support of this assessment. Additional information pertaining to this investigation was gathered from available geological mapping and surrounding WWR's.

Surficial Geology

A series of test pits were excavated on the subject parcel to delineate the subsurface soil conditions as part of a Geotechnical Field Investigation. On March 1, 2024, five (5) test pits were completed on the property. The location of the test pits are delineated on the drawing PG7022-1-Test Hole Location Plan, 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 test pits were advanced to a maximum depth of 3.4 m below ground surface (bgs). Refusal to excavation was not recorded in any test pit. The subsurface profile generally consisted of silty clay with trace sand to the depth of the test pit. Topsoil was recorded to extend to a maximum depth of 0.3 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.

Materials encountered during Paterson's Geotechnical Investigation were consistent with the available surficial and bedrock geology mapping.

Hydrogeological Sensitivity of the Site

The subject site currently consists of a residential dwelling and a barn. It is anticipated that the dwelling will be relocated off-site. The topography of the site is generally level. The local flow direction of the shallow aquifer is expected to be towards local Drains to the north or south. The regional groundwater flow is considered to be in an east / southeast direction towards Stevens Creek and the Rideau River.

The onsite overburden generally consists of silty clay with trace sand. Refusal to excavation was not recorded in any test pit to a depth of 3.4 m bgs. The bedrock depths surrounding the proposed site vary from 3.7 to 4.5 m bgs based on surrounding Water Well Records (WWR). According to the field investigation, the overburden thickness was observed to be greater than 2 m at all borehole locations. As the proposed site does not

have bedrock within 2 m of the ground surface, the site is not considered hydrogeologically sensitive.

Conceptual Lot Development

As this Terrain Analysis is completed to support a Re-zoning Application, a Site Plan is not available.

Sewage System Design and Total Daily Design Sewage Flow

As this Terrain Analysis is completed to support a Re-zoning Application, a Site Plan is not available at this time. As such a sewage system design and flows have not yet been completed. A maximum predicted nitrate concentration will be determined for the site as a whole, and the current assessment will be completed based on existing conditions.

The proposed property will be analysed as part of the Re-zoning Application to ensure the theoretical impacts are below the Ontario Drinking Water Objective maximum allowable concentration of 10 mg/L of nitrate in the groundwater prior to the property line.

PREDICTIVE NITRATE IMPACT ASSESSMENT

Nitrate is considered to be a critical parameter of concern when assessing impacts to groundwater quality downgradient of an onsite sewage system. The City of Ottawa annotated MECP Procedure D-5-4 in the Hydrogeological and Terrain Analysis Guidelines (HTAG) applies for the proposed development. For the purpose of this guideline, the Ontario Drinking Water Objective of 10 mg/L of nitrate is the maximum allowable concentration detectable in the groundwater prior to the property line.

A detailed impact assessment is required due to the proposed zoning of the site. In order to demonstrate that private services would adequately support the proposed Re-zoning Application, a predictive nitrate impact assessment for the subject site was completed. This calculation was completed to determine the maximum sewage flow volume which could be applied to the subject site with the current site conditions and without the use of tertiary treatment systems (nitrate reducing systems). The values shown in the Predictive Nitrate Impact Assessment calculation attached to this report are summarized below:

- ❑ Site area — 1.28 ha
- ❑ Impervious area % — 4 %
- ❑ Concentration of nitrate in effluent — 40 mg/L
  (Value based on conventional effluent concentration)

- ❑ Surplus Water 360 mm/year
  (The surplus water value was estimated based on Environment Canada Climate Office values with a soil type comprised of clay loam (urban lawn) and anthropogenic sources, which can be found attached.)

- ❑ Combined infiltration factor based on: 0.52
  - Topography infiltration factor 0.20
  - Soil texture infiltration factor 0.20
  - Cover infiltration factor 0.12

The topography infiltration factor of 0.20 is based upon a rolling land (average slope of 2.8 to 3.8 m/km) based on available mapping.

The soil texture infiltration factor was based upon a “medium combinations of clay and loam” with a value of 0.2 which is a reasonable generalization based upon the field investigation by Paterson, available geological mapping and surrounding WWR’s.

The “vegetative cover infiltration factor” was calculated as 0.12 based upon the site being used as cultivated land with some trees throughout the site.

As part of the rezoning process, the City of Ottawa does not typically allow the use of tertiary treatment systems to support the re-zoning application. As a tertiary treatment system requires annual monitoring by the OSSO, and allows for advanced treatment of sewage effluent, a tertiary treatment system is being reviewed for the Subject Site. The mandatory monitoring required on tertiary treatment systems by the OSSO ensures that the system is properly maintained and replaced when required, whereas there is no mandatory monitoring on a conventional sewage system. In order to demonstrate the viability and sustainability aspects of private servicing on the subject site, a Nitrate Impact Assessment was completed using the above noted parameters. As tertiary treatment technology is available to lower the potential risk to the groundwater supply, the use of nitrate reduction technology was included in the assessment for information purposes only and not to determine the maximum allowable volumes for the site.

The predicted nitrate concentration calculation for a conventional sewage system (system without nitrate reduction) results in a maximum of **2.1 m^3/day** of effluent using a nitrate concentration of 40 mg/L. The inclusion of nitrate reduction technology (50 % nitrogen reduction in the of the effluent nitrate) would result in a maximum of **6.3 m^3/day** of a effluent using a nitrate concentration of 20 mg/L. Note that the inclusion of tertiary treatment is for information purposes and does not dictate the maximum effluent volumes attenuable by the subject site. Both maximum sewage flows volumes with their respective nitrate concentrations meet the nitrate concentration threshold of below 10 mg/L at the property boundary. Additional re-infiltration from LID's or stormwater can be further used to increase the volume of septic effluent capable of being infiltrated on the subject site.

Furthermore, changing the parameters of the calculation (i.e. topography, cover factor, impermeable surfaces etc.) will further alter the maximum allowable effluent on the subject site.

A sewage system installation application for a new sewage system on any site in the City of Ottawa with a sewage flow volume of less than 10 m^3/day will require an Ottawa Septic System Office (OSSO) application.

CONCLUSIONS

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

1. The water supply aquifer underlying the subject site is considered to be adequate to support the water quantity demands for the proposed zoning.

2. The neighbouring well, located at 6340 Fourth Line Road, is considered technically representative of the aquifer underlying the subject site.

3. Based on a visual inspection performed by Paterson personnel, the well casing, stickup, well cap, and WWR details of the representative well are in compliance with O.Reg. 903.

4. The preferred water supply intercepted by TW1 contains a water supply that is potable, and contains only elevated concentrations of hardness and TDS. The noted parameters can be treated with current readily available water conditioning equipment.

5. If desired by the property owner, a residential grade water softener can be used to facilitate the reduction of the hardness concentration and reduce scaling. If a water softener is used for the proposed development, the owner should be made aware that additional sodium will be added to the water to reduce hardness. If desired, a point-of-use reverse osmosis system can be used to provide a drinking tap source without increasing sodium levels.

6. It is recommended that either a point-of-use reverse osmosis system be used to used to reduce the TDS concentration, or bulk bottled water is provided as a drinking water source.

7. A maximum sewage flow volume of **2.1 m^3/day** at a nitrate concentration of 40 mg/L or **6.1 m^3/day** at a nitrate concentration of 20 mg/L can be accommodated on the subject site and still be below the predictive nitrate concentration threshold of 10 mg/L at the property boundary. These values are subject to change due to numerous variable factors which will need to be considered at that time and are provided for informational purposes in support of the re-zoning application.

8. Onsite sewage disposal needs can be accommodated with a Class 4 Sewage System utilizing conventional or tertiary treatment technologies

9. A Sewage System Permit and Building Permit need to be issued prior to the commencement of construction on the proposed structures or amenities/services.

10. The results of the Hydrogeological Assessment and Terrain Analysis have provided satisfactory evidence that the subject site can support the proposed zoning usage with respect to water quality, quantity and sewage system placement.

We trust that the current submission satisfies your immediate requirements.

Best Regards,

Paterson Group Inc.

LICENSED PROFESSIONAL ENGINEER
15/7/2025
M. S. KILLAM
100221103
PROVINCE OF ONTARIO

Alexander Schopf, PhD, EIT

Michael Killam, P.Eng

Attachments:

- ❑ Key Plan
- ❑ MECP Water Well Records
- ❑ Eurofins Certificate of Analysis
- ❑ Paterson PG7022 - Test Pit Logs
- ❑ AQTESOLV - Pumping Test Analysis Reports
- ❑ Langelier Calculation
- ❑ Nitrate Impact Assessment Calculations
- ❑ Paterson Drawing PG7022-1 - Test Hole Location Plan

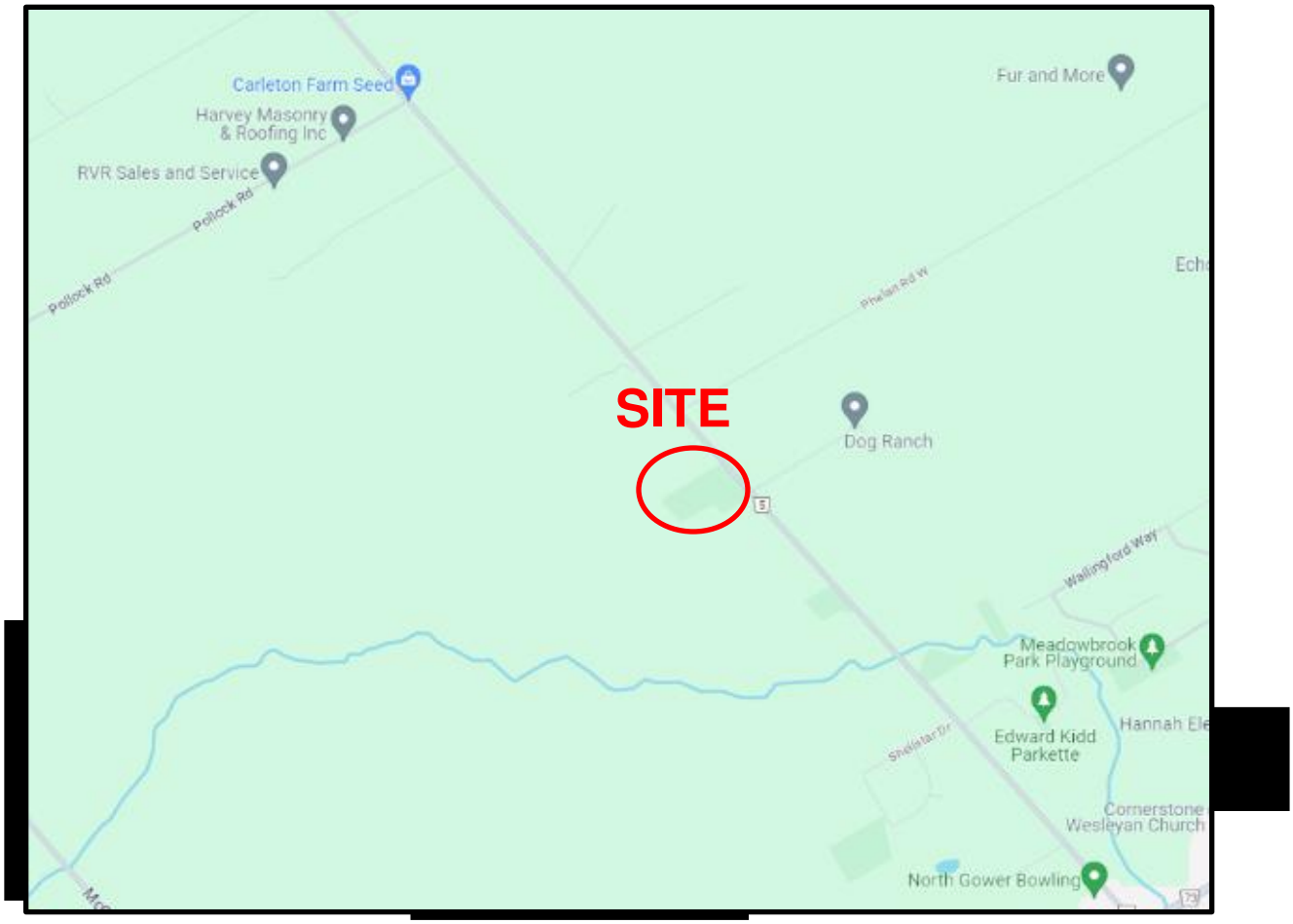


FIGURE 1

KEY PLAN

PATERSON GROUP

Ministry of Environment and Energy
Ontario

The Ontario Water Resources Act
WATER WELL RECORD

Print only in spaces provided.
Mark correct box with a checkmark, where applicable.

11 | 1530684 | Municipality 15004 | Con. CON 04

County or District	Township/Borough/City/Town/Village	Con block tract survey, etc.	Lot
Ottawa-Carleton	Rideau	Con #4	16

[redacted]

Address: Box 303 North Gower
Date completed: 26 7 99 (day month year)

Northing | RC | Elevation KOA-270 | RC | Basin Code | ii | iii | iv

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth – feet From	Depth – feet To
Brown	Clay		Packed	0	8
Grey	Clay		Soft	8	40
Grey	Clay	Stones	Packed	40	44
Grey	Limestone		Hard	44	81

WATER RECORD

Water found at – feet	Kind of water
72	☒ Fresh ☐ Salty ☐ Sulphur ☐ Minerals ☐ Gas
	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals ☐ Gas
	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals ☐ Gas
	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals ☐ Gas
	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals ☐ Gas

CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth – feet From	Depth – feet To
9 7/8	☐ Steel ☐ Galvanized ☐ Concrete ☒ Open hole ☐ Plastic		0	47
6 1/4	☒ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic	.188	0	47
6	☐ Steel ☐ Galvanized ☐ Concrete ☒ Open hole ☐ Plastic		47	81

SCREEN

Sizes of opening (Slot No.)	Diameter inches	Length feet
Material and type	Depth at top of screen feet	

PLUGGING & SEALING RECORD

☒ Annular space ☐ Abandonment

Depth set at – feet From	To	Material and type (Cement grout, bentonite, etc.)
47	0	Cement Pressure Grouted

PUMPING TEST

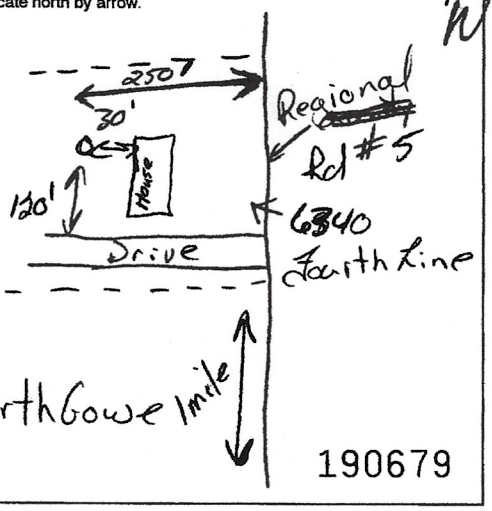
Pumping test method: ☒ Pump ☐ Bailer
Pumping rate: 30 GPM
Duration of pumping: 1 Hours 0 Mins

Static level	Water level end of pumping	Water levels during ☐ Pumping ☒ Recovery: 15 minutes	30 minutes	45 minutes	60 minutes
8 feet	60 feet	8 feet	8 feet	8 feet	8 feet

If flowing give rate: GPM
Pump intake set at: 60 feet
Water at end of test: ☐ Clear ☒ Cloudy
Recommended pump type: ☐ Shallow ☒ Deep
Recommended pump setting: 60 feet
Recommended pump rate: 25 GPM

LOCATION OF WELL

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



190679

FINAL STATUS OF WELL

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

WATER USE

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

METHOD OF CONSTRUCTION

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

Name of Well Contractor	Well Contractor's Licence No.
Splash Well Drilling	4877
Address: Box 1083, Piescott	
Name of Well Technician: Todd Ferguson	Well Technician's Licence No. T-0478
Signature of Technician/Contractor: Todd Ferguson	Submission date 26 7 99 (day mo yr)

MINISTRY USE ONLY

Data source	Contractor 4877	Date received AUG 09 1999
Date of inspection	Inspector	
Remarks		

CSS.ES0

2 - MINISTER OF ENVIRONMENT & ENERGY COPY

0506 (07/94) Front Form 9

UTM 18 Z 442510 E
5 R 4991816 N
Elev. 4 R 0310
25
Basin 6 ON 111
LOT 16

31G4y

ONTARIO

15 No. 6849

GROUND WATER BRANCH
NOV 17 1958
ONTARIO WATER RESOURCES COMMISSION

The Water-well Drillers Act, 1954
Department of Mines

Water-Well Record

County or Territorial District: Carlton
Township, Village, Town or City: North Gower
Village, Town or City)
Address: North Gower
Date completed: 20 (day) 1 (month) 1958 (year)

Pipe and Casing Record

Casing diameter(s): 2"
Length(s): 50'
Type of screen:
Length of screen:

Pumping Test

Static level: 13'
Pumping rate: 170 g.p.hr
Pumping level: 18'
Duration of test: 2 hours

Well Log

Overburden and Bedrock Record	From ft.	To ft.
Clay & Boulders	0'	45'
Grey limestone	45'	134'

Water Record

Depth(s) at which water(s) found	No. of feet water rises	Kind of water (fresh, salty, or sulphur)
134'	121'	Fresh

For what purpose(s) is the water to be used? Household
Is water clear or cloudy? Clear
Is well on upland, in valley, or on hillside? Upland
Drilling firm: R.H. Miller
Address: 97 King St. E. Brockville
Name of Driller: C. Robertson
Address: North Gower

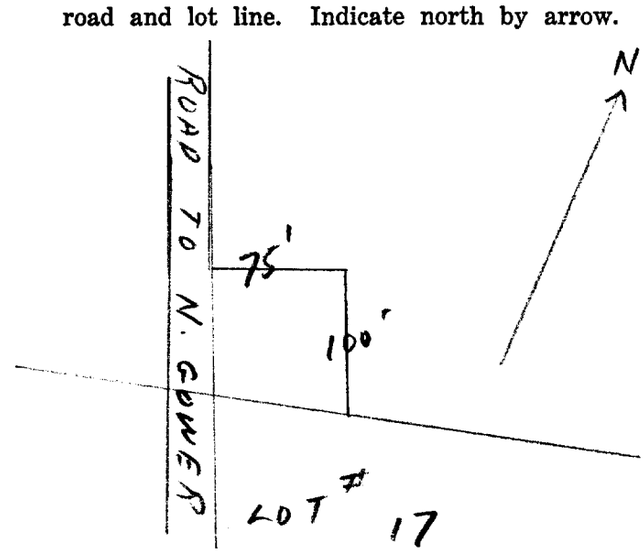
Licence Number: 1291

I certify that the foregoing statements of fact are true.

Date: Nov. 14/58 R. H. Miller
Signature of Licensee

Location of Well

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



Form 5

8

31G-49

15 № 6925

UTM 18 Z 414119125 E
19 R 4919912810 N
Elev. 19 R 013110
Basin 25

ONTARIO

The Well Drillers Act

Department of Mines, Province of Ontario

RECEIVED
FEB 23 1949
GEOLOGICAL BRANCH
DEPARTMENT OF MINES

Water Well Record

County or District Carleton Tp. North Gower Con. 4 Lot 15 Pt. Lot
[redacted] North Gower Acres 100
[redacted] cluding pump) $124.00

Pipe and Casing Record

Casing diameter(s) ~~26~~ 4"
Length(s) of casing(s) 26'
Length of screen
Type of screen
Type of pump
Capacity of pump
Depth of pump setting

Pumping Test

Date Dec 22
Developed Capacity 1000 G.P.H.
Duration of Test 1 hr.
Pumping Rate
Drawdown 4"
Static level of completed well 10'
Is well a gravel-wall type? No.

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? stock well
How far is well from possible source of contamination? 20'
What is source of contamination? barn yard
Enclose a copy of any mineral analysis that has been made of water

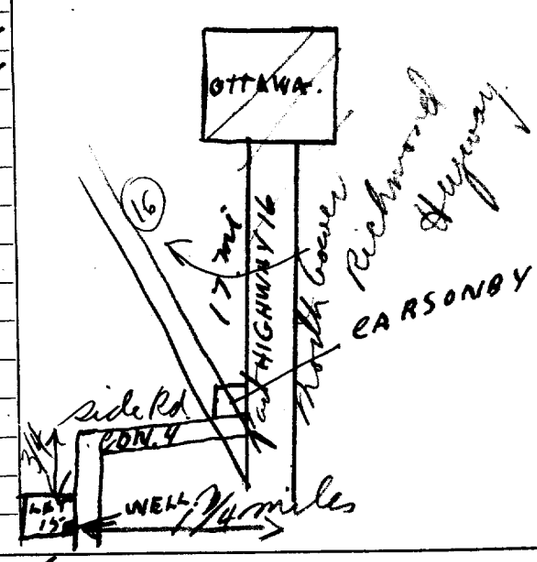
Depth(s) to Water Horizon(s)	Kind of Water	No. of Feet Water Rises
20'	fresh	30'
40		

Well Log

Drift and Bedrock Record	From (0 ft.)	To (ft.)
	1'	5'
Top soil	5'	26'
Clay	26'	42'
Granite		

Location of Well

In diagram below show distances of well from road and lot line



Situation: Is well on upland, in valley, or on hillside? hillside

Drilling Firm M. Meagher
Address 361 Bruce St Britannia Bay Ottawa
Recorded by M. Meagher Address 361 Bruce St Britannia Ottawa
Date Dec 23/48 Licence Number

UTM 18 Z 442020 E
19 R 4999235 N
Elev. 9 R 03110
Basin 25 1 -

31G4g

ONTARIO

The Water-well Drillers Act, 1954
Department of Mines

GROUND WATER BRANCH
15 N. 6976
DEC 16 1957
ONTARIO WATER RESOURCES COMMISSION

Water-Well Record

[redacted] ip, Village, Town or City North Gower
[redacted] Village, Town or City)
[redacted] ddress North Gower

Date completed 26 Oct 1957
(day) (month) (year)

Pipe and Casing Record

Casing diameter(s) 9"
Length(s) 72 FT
Type of screen NONE
Length of screen

Pumping Test

Static level 30 FTO
Pumping rate 150 G.P.H
Pumping level 34 FT.
Duration of test ½ H.

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	No. of feet water rises	Kind of water (fresh, salty, or sulphur)
SAND BOLDERS	0	72	150	120	FRESH
LIMESTONE GREY	72	150			

Water Record

For what purpose(s) is the water to be used? House + Stable
Is water clear or cloudy? CLEAR
Is well on upland, in valley, or on hillside? Hillside
Drilling firm MARCEL COSSETTE
Address 52 MARIER
EASTVIEW OTTA. ONT
Name of Driller F. COSSETTE
Address 9 ALLARD HULL P.Q.

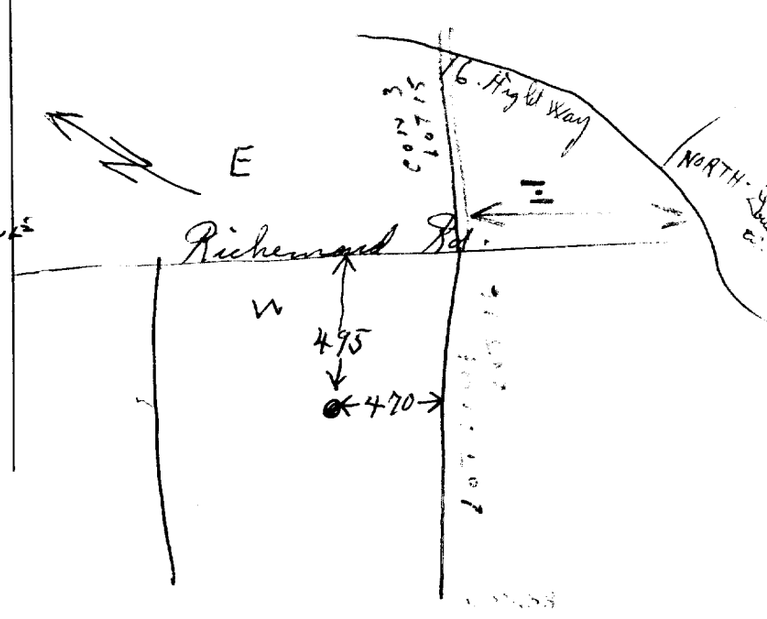
Licence Number 1193

I certify that the foregoing statements of fact are true.

Date
M. Cossette
Signature of Licensee

Location of Well

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



Form 5

UTM 18 442120 E 31G4y
C05 R 4999310 N
Elev. 4 R 013110

The Ontario Water Resources Commission Act

WATER WELL RECORD

WATER RESOURCES DIVISION
15 JAN 19 1965 69 7
ONTARIO WATER RESOURCES COMMISSION

Basin 25
County or District Carl
Township, Village, Town or City North Gower
Con. 4 Lot 15
Date completed 8 (day) October (month) 1964 (year)
[redacted]dress R. No. 3 North Gower

Casing and Screen Record

Inside diameter of casing	5"
Total length of casing	68'
Type of screen	
Length of screen	
Depth to top of screen	
Diameter of finished hole	5"

Pumping Test

Static level	35'
Test-pumping rate	10 G.P.M.
Pumping level	65
Duration of test pumping	1hr.
Water clear or cloudy at end of test	cloudy
Recommended pumping rate	5 G.P.M.

with pump setting of 80'&35' tale pipe below ground surface

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Water Record: Depth(s) at which water(s) found	Water Record: Kind of water (fresh, salty, sulphur)
loam	0	5	100	fresh
hardpan & boulders	5	64	183	fresh
limestone	64	185		

For what purpose(s) is the water to be used? new house

Is well on upland, in valley, or on hillside? upland

Drilling or Boring Firm CAPITAL WATER SUPPLY

Address 1243 Heron Rd.
Ottawa 733-0600

Licence Number 1223

Name of Driller or Borer M. Kavanagh

Address

Date October 8, 1964

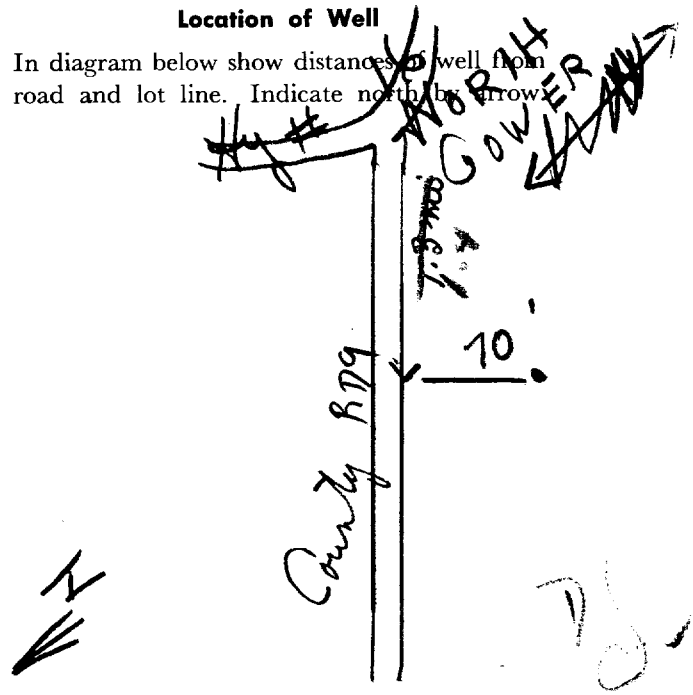
Walter Kavanagh
(Signature of Licensed Drilling or Boring Contractor)

Form 7 15M-60-4138

OWRC COPY

Location of Well

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



UTM 18 Z 441191810 E
15 R 4999144 10 N
Elev. 4 R 013115

31G4g

15 № 6928

The Ontario Water Resources Commission Act

WATER WELL RECORD

Basin 25 | Carleton

County or District: Carleton

Township, Village, Town or City: N. Gower

Con. 4 Lot 15

Date completed: 1 (day) Aug (month) 66 (year)

[redacted] dress N. Gower Rd 3

Casing and Screen Record

Inside diameter of casing: 5

Total length of casing: 44

Type of screen:

Length of screen:

Depth to top of screen:

Diameter of finished hole: 5

Pumping Test

Static level: 17

Test-pumping rate: 8 G.P.M.

Pumping level: 23

Duration of test pumping: 1 HR

Water clear or cloudy at end of test: CLEAR

Recommended pumping rate: 5 G.P.M.

with pump setting of: 40 feet below ground surface

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Water Record: Depth(s) at which water(s) found	Water Record: Kind of water (fresh, salty, sulphur)
Boulder Clay	0	19		
GRAVEL	19	44		
Limestone	44	45	45	FRESH

For what purpose(s) is the water to be used? FARM

Is well on upland, in valley, or on hillside?

Drilling or Boring Firm: M McHugh

Address: OTTAWA

Licence Number: 2127

Name of Driller or Borer:

Address:

Date: DEC 6

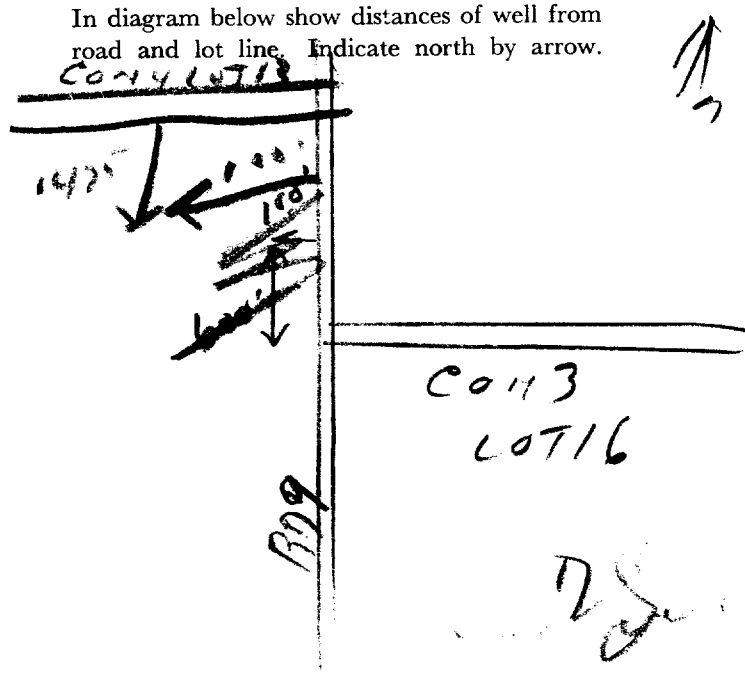
M M Keagher
(Signature of Licensed Drilling or Boring Contractor)

Form 7 15M-60-4138

OWRC COPY

Location of Well

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



UTM 18 Z 442418 10 E 31G4g
19 R 4991817 8 5 N

Elev. 19 R 93015
Basin 25 Lot 16

ONTARIO

15 N. 929

GROUND WATER BRANCH
DEC 16 1957
ONTARIO WATER RESOURCES COMMISSION

The Water-well Drillers Act, 1954
Department of Mines

Water-Well Record

County or Territorial District: [redacted] Township, Village, Town or City: N GOWER
[redacted] Village, Town or City)
[redacted] Address: North Gower

Date completed [redacted] (day) (month) (year)

Pipe and Casing Record

Casing diameter(s): 2"
Length(s): 72 FT
Type of screen: NONE
Length of screen:

Pumping Test

Static level: 15 FT
Pumping rate: 250 g.p.h.
Pumping level: 18 FT
Duration of test: 1/2 H Test

Well Log / Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	No. of feet water rises	Kind of water (fresh, salty, or sulphur)
Sand Bolder	0	72	89	74 FT	FRESH
Limestone GREY	72	88			

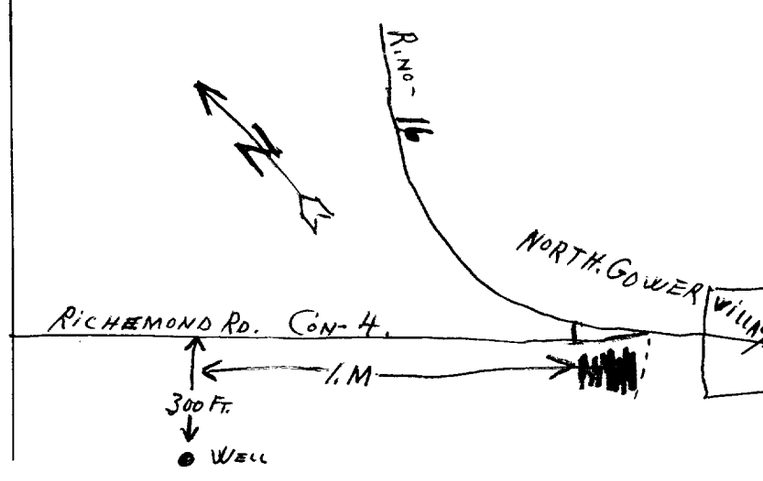
For what purpose(s) is the water to be used? House + Stable
Is water clear or cloudy? Clear
Is well on upland, in valley, or on hillside? UPLAND
upland
Drilling firm: Marcel Cassette
Address: 52 Marion Rd.
Eastview
Name of Driller: Florent Cassette
Address: Hull P Que
Licence Number: 1193

I certify that the foregoing statements of fact are true.

Date: [illegible]
Signature of Licensee

Location of Well

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



Form 5

UTM 1 18 Z 4 4 3 1 5 0 E 1230 31G49
15 R 4 9 9 7 8 9 0 N

Elev. 4 R 0 3 0 0

Basin 25 201

The Ontario Water Resources Commission Act, 1957

WATER WELL RECORD

15 No. 6929

County or District Carleton Township, Village, Town or City N. Gower

Con. IV Lot 30 Date completed 27 (day) Jan (month) 61 (year)

[redacted] ess Kars Ont. Box 108

Casing and Screen Record

Inside diameter of casing 5"

Total length of casing 50'

Type of screen none

Length of screen

Depth to top of screen

Diameter of finished hole 5"

Pumping Test

Static level 30'

Test-pumping rate 10 G.P.M.

Pumping level 35

Duration of test pumping 1 hr

Water clear or cloudy at end of test cloudy

Recommended pumping rate 10 G.P.M.

with pumping level of 35

Well Log / Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	No. of feet water rises	Kind of water (fresh, salty, sulphur)
Fine grey sand and clay	0	41			
Grey limestone	41	91	91	61'	Fresh

For what purpose(s) is the water to be used?

house

Is well on upland, in valley, or on hillside?

hillside

Drilling Firm McLEAN WATER SUPPLY LTD.

Address 1532 RAVEN AVE. TA 7-7315 OTTAWA

Licence Number 476

Name of Driller W. Kavanagh

Address

Date Jan 27, 1961

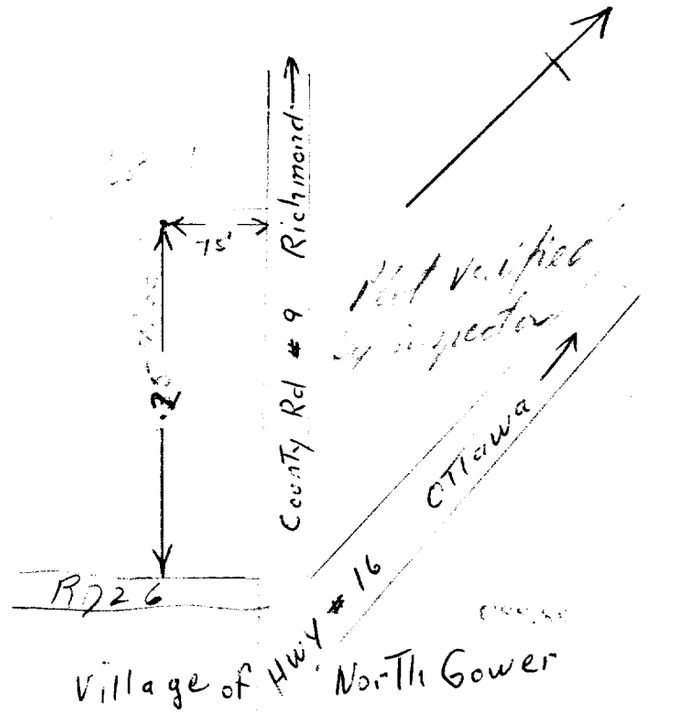
O D McLean

(Signature of Licensed Drilling Contractor)

Form 5

Location of Well

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



31G/49

The Ontario Water Resources Commission Act

WATER WELL RECORD

Water management in Ontario

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

11 | 1510590 | MUNICIP. 15004 | CON. CON 04

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON., BLOCK, TRACT, SURVEY, ETC.	LOT
[redacted]	NORTH GOWER	4	017

[redacted] E3, NORTH GOWER

DATE COMPLETED: DAY 09 MO. 04 YR. 70

98840 | RC. 4 | ELEVATION 0308 | RC. 4 | BASIN CODE 25

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH – FEET FROM	TO
	Hard Pan			0	20
	Blue and sand			20	52
	Hard Limestone			52	70

31 | 0020 14 | 0052 1309 | 0070 15

82

46 WATER RECORD

WATER FOUND AT – FEET	KIND OF WATER
0065	1 ☒ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH – FEET FROM	TO
05	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	1/4	0	~~52~~ 0052
05	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☒ OPEN HOLE		52	~~70~~ 0070
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			

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	TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)

71 PUMPING TEST

PUMPING TEST METHOD: 1 ☐ PUMP 2 ☒ BAILER

PUMPING RATE: ~~75~~ 0015 GPM. DURATION OF PUMPING: 02 HOURS 00 MINS.

WATER LEVELS DURING: 1 ☒ PUMPING 2 ☐ RECOVERY

STATIC LEVEL	WATER LEVEL END OF PUMPING	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
025 FEET	050 FEET	050 FEET	050 FEET	050 FEET	050 FEET

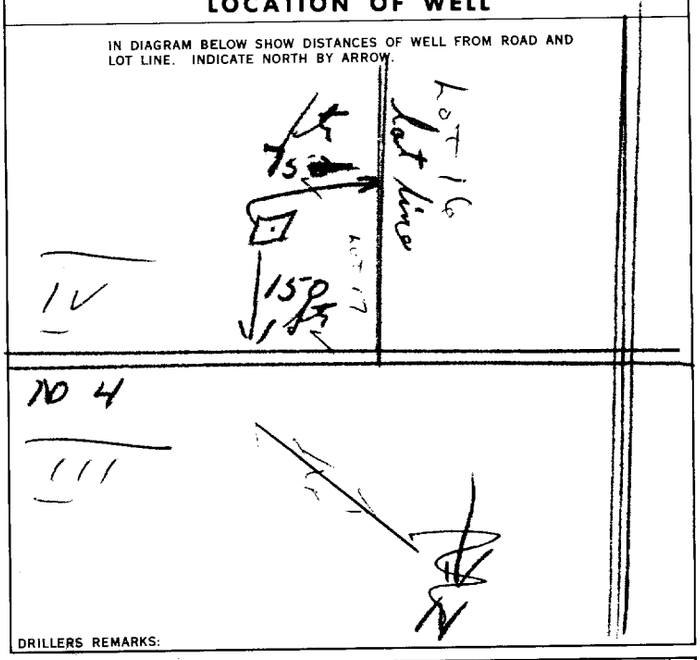
IF FLOWING, GIVE RATE: GPM. PUMP INTAKE SET AT: 5 FEET. WATER AT END OF TEST: 1 ☒ CLEAR 2 ☐ CLOUDY

RECOMMENDED PUMP TYPE: ☐ SHALLOW ☒ DEEP. RECOMMENDED PUMP SETTING: 060 FEET. RECOMMENDED PUMPING RATE: ~~35~~ 0005 GPM.

50-53 000.3 GPM./FT. SPECIFIC CAPACITY

LOCATION OF WELL

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



DRILLERS REMARKS:

FINAL STATUS OF WELL (54): 1 ☒ WATER SUPPLY 2 ☐ OBSERVATION WELL 3 ☐ TEST HOLE 4 ☐ RECHARGE WELL 5 ☐ ABANDONED, INSUFFICIENT SUPPLY 6 ☐ ABANDONED, POOR QUALITY 7 ☐ UNFINISHED

WATER USE (55-56) 01: 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 DRILLING (57): 1 ☒ CABLE TOOL 2 ☐ ROTARY (CONVENTIONAL) 3 ☐ ROTARY (REVERSE) 4 ☐ ROTARY (AIR) 5 ☐ AIR PERCUSSION 6 ☐ BORING 7 ☐ DIAMOND 8 ☐ JETTING 9 ☐ DRIVING

CONTRACTOR

NAME OF WELL CONTRACTOR: Armand Gauthier — LICENCE NUMBER: 2308

ADDRESS: Cayder Ont

NAME OF DRILLER OR BORER: — LICENCE NUMBER:

SIGNATURE OF CONTRACTOR: Armand Gauthier — SUBMISSION DATE: DAY 9 MO. 4 YR. 70

OFFICE USE ONLY

DATA SOURCE (58): 1 — CONTRACTOR (59-62): 2308 — DATE RECEIVED (63-68): 020670

DATE OF INSPECTION: — INSPECTOR: P/Km. M

REMARKS:

OWRC COPY

MINISTRY OF THE ENVIRONMENT
The Ontario Water Resources Act

WATER WELL RECORD

Ontario

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

11 | 1515161 | MUNICIP. 15004 | CON. CON | 04

COUNTY OR DISTRICT: [redacted] | TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: North Gower | CON., BLOCK, TRACT, SURVEY, ETC.: Con 4 | LOT 017

[redacted] RR#3 North Gower | DATE COMPLETED DAY 4 08 YR. 75

[redacted] 988817 | RC. 4 | ELEVATION 0304 | RC 4 | BASIN CODE 26

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	TO
grey	Clay	stones		0	37
Grey	Limestone			37	45

31 | 0037 2051 2 | 0045 2151

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
0042	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	TO
06	1 ☑ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	188	0	0039
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			

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	TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)

PUMPING TEST

71 | PUMPING TEST METHOD: 1 ☑ PUMP 2 ☐ BAILER | PUMPING RATE 0020 GPM | DURATION OF PUMPING 01 HOURS 00 MINS

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING (1 ☒ PUMPING 2 ☐ RECOVERY) 15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
005 FEET	025 FEET	025 FEET	025 FEET	025 FEET	025 FEET

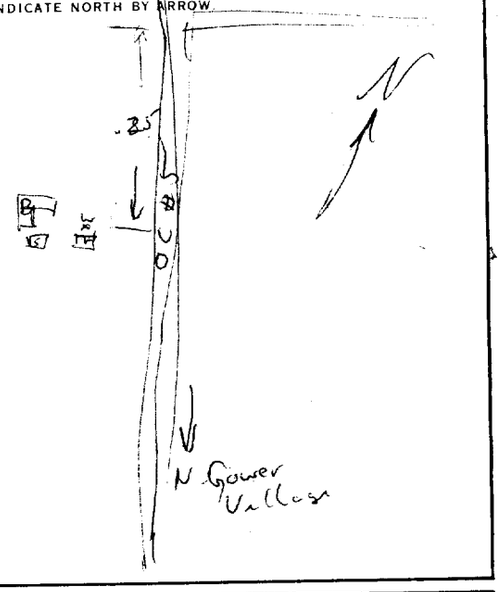
IF FLOWING, GIVE RATE: GPM | PUMP INTAKE SET AT: FEET | WATER AT END OF TEST: 1 ☐ CLEAR 2 ☑ CLOUDY

RECOMMENDED PUMP TYPE: ☑ SHALLOW ☐ DEEP | RECOMMENDED PUMP SETTING: FEET | RECOMMENDED PUMPING RATE: GPM

50-53 ___ . ___ GPM./FT. SPECIFIC CAPACITY

LOCATION OF WELL 4298

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



DRILLERS REMARKS:

FINAL STATUS OF WELL (54): 1 ☑ WATER SUPPLY 2 ☐ OBSERVATION WELL 3 ☐ TEST HOLE 4 ☐ RECHARGE WELL 5 ☐ ABANDONED, INSUFFICIENT SUPPLY 6 ☐ ABANDONED POOR QUALITY 7 ☐ UNFINISHED

WATER USE (55-56): 01 — 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 DRILLING (57): 5 — 1 ☐ CABLE TOOL 2 ☐ ROTARY (CONVENTIONAL) 3 ☐ ROTARY (REVERSE) 4 ☐ ROTARY (AIR) 5 ☑ AIR PERCUSSION 6 ☐ BORING 7 ☐ DIAMOND 8 ☐ JETTING 9 ☐ DRIVING

CONTRACTOR

NAME OF WELL CONTRACTOR: Henry Mains Well Drilling | LICENCE NUMBER: 3644
ADDRESS: Box 326, Richmond Ont
NAME OF DRILLER OR BORER: [illegible] | LICENCE NUMBER:
SIGNATURE OF CONTRACTOR: [signature] | SUBMISSION DATE DAY ___ MO. 8 YR. 75

OFFICE USE ONLY

DATA SOURCE (58): 1 | CONTRACTOR (59-62): 3644 | DATE RECEIVED (63-68): 15 01 76
DATE OF INSPECTION: 16 Jan 76 | INSPECTOR: P/R. Dgl
REMARKS:
P
WI

MINISTRY OF THE ENVIRONMENT COPY

FORM 7 MOE 07-091

31G4q

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 — 1517856 — MUNICIP. 15004 — CON. CON 04

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON., BLOCK, TRACT, SURVEY, ETC.	LOT
[redacted]	Rideau North Gower	Con 4,	015

[redacted] RR#3 North Gower.

DATE COMPLETED: DAY 26 MO 05 YR 82

UTM: 99399 — RC 4 — ELEVATION 0310 — RC 4 — BASIN CODE 26

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	TO
grey	clay			0	31
grey	hardpan	stones		31	62
grey	limestone			62	195
white	sandstone			195	225

31: 0031295 — 0062214112 — 0195215 — 0225118

32:

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
0215	1 ☑ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	TO
06	1 ☑ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	.188	0	64
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			

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	TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)

71 PUMPING TEST

PUMPING TEST METHOD: 1 ☑ PUMP 2 ☐ BAILER

PUMPING RATE: 0006 GPM

DURATION OF PUMPING: 01 HOURS 00 MINS

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING (1 ☒ PUMPING 2 ☐ RECOVERY) 15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
015 FEET	030 FEET	030 FEET	030 FEET	030 FEET	030 FEET

IF FLOWING, GIVE RATE: GPM

PUMP INTAKE SET AT: FEET

WATER AT END OF TEST: 1 ☐ CLEAR 2 ☑ CLOUDY

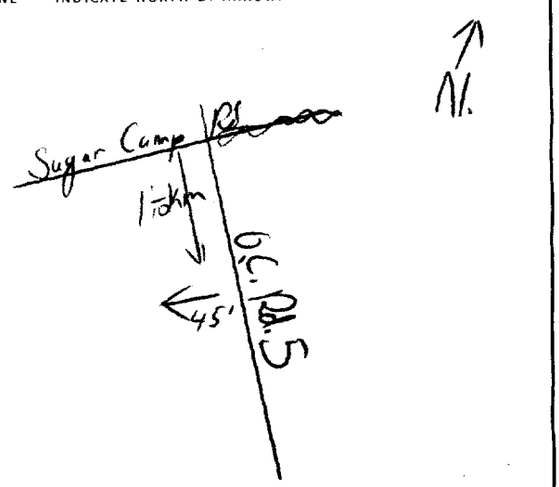
RECOMMENDED PUMP TYPE: ☑ SHALLOW ☐ DEEP

RECOMMENDED PUMP SETTING: 030 FEET

RECOMMENDED PUMPING RATE: 0006 GPM

LOCATION OF WELL

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



DRILLERS REMARKS

FINAL STATUS OF WELL 1
1 ☑ WATER SUPPLY 2 ☐ OBSERVATION WELL 3 ☐ TEST HOLE 4 ☐ RECHARGE WELL 5 ☐ ABANDONED, INSUFFICIENT SUPPLY 6 ☐ ABANDONED, POOR QUALITY 7 ☐ UNFINISHED

WATER USE 12
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 DRILLING 5
1 ☐ CABLE TOOL 2 ☐ ROTARY (CONVENTIONAL) 3 ☐ ROTARY (REVERSE) 4 ☐ ROTARY (AIR) 5 ☑ AIR PERCUSSION 6 ☐ BORING 7 ☐ DIAMOND 8 ☐ JETTING 9 ☐ DRIVING

CONTRACTOR

NAME OF WELL CONTRACTOR: Henry Mains Well Drilling — LICENCE NUMBER: 3644

ADDRESS: Box 326, Richmond Ont

NAME OF DRILLER OR BORER: [illegible] — LICENCE NUMBER:

SIGNATURE OF CONTRACTOR: [illegible] — SUBMISSION DATE: DAY 27 MO 5 YR 82

OFFICE USE ONLY

DATA SOURCE: 1 — CONTRACTOR: 3644 — DATE RECEIVED: 09 07 82

DATE OF INSPECTION — INSPECTOR

REMARKS: CSS LBS

MINISTRY OF THE ENVIRONMENT COPY

FORM NO. 0506—4—77 FORM 7

Ontario — Ministry of the Environment

Well Tag Number (Place sticker and print number below): A013620

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 15004 CON CON 04 LOT 25

Well Owner's Information and Location of Well Information

First Name	Last Name	Mailing Address (Street Number/Name, RR,Lot,Concession)
Barasite Construction		2354 Summerside Drive

County/District/Municipality	Township/City/Town/Village	Province	Postal Code	Telephone Number (include area code)
Ottawa Carleton	Manotick	Ontario	K4M 1B4	613 692 5049

Address of Well Location (County/District/Municipality)	Township	Lot	Concession
Ottawa Carleton	Rideau	25	4

RR#/Street Number/Name	City/Town/Village	Site/Compartment/Block/Tract etc.
6366 4th Line Road	North Gower	

GPS Reading	NAD	Zone	Easting	Northing	Unit Make/Model	Mode of Operation
	83	18	44 24 62	49 99 12 6	GArmin	☐ Undifferentiated ☒ Averaged ☐ Differentiated, specify

Log of Overburden and Bedrock Materials (see instructions)

General Colour	Most common material	Other Materials	General Description	Depth From	Metres To
Brown	Clay	Boulders		0	3.65
Gray	Clay			3.65	6.09
Gray	Sandy Clay	Boulders		6.09	21.33

Hole Diameter

Depth From	Metres To	Diameter Centimetres
0	13.10	22.75
13.10	21.33	15.23

Water Record

Water found at ___ Metres	Kind of Water
19.81	☐ Fresh ☐ Sulphur ☐ Gas ☐ Salty ☐ Minerals ☐ Other: not tested
___ m	☐ Fresh ☐ Sulphur ☐ Gas ☐ Salty ☐ Minerals ☐ Other:
___ m	☐ Fresh ☐ Sulphur ☐ Gas ☐ Salty ☐ Minerals ☐ Other:

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

Chlorinated ☒ Yes ☐ No

Construction Record

Inside diam centimetres	Material	Wall thickness centimetres	Depth From	Metres To
Casing				
15.86	☒ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized	0.48	+ 0.45	13.10
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
Screen				
Outside diam	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized	Slot No.		
No Casing or Screen				
15.23	☒ Open hole		13.10	21.33

Test of Well Yield

Pumping test method: submersible

Pump intake set at - (metres): 15.24

Pumping rate - (litres/min): 54.6

Duration of pumping: 1 hrs + ___ min

Final water level end of pumping: 3.69 metres

Recommended pump type: ☐ Shallow ☒ Deep

Recommended pump depth: 15.24 metres

Recommended pump rate: 45.5 (litres/min)

If flowing give rate - (litres/min)

If pumping discontinued, give reason.

Draw Down Time min	Water Level Metres	Recovery Time min	Water Level Metres
Static Level	3.46		
1	3.51	1	3.64
2	3.53	2	3.63
3	3.54	3	3.62
4	3.55	4	3.62
5	3.56	5	3.61
10	3.59	10	3.59
15	3.62	15	3.57
20	3.63	20	3.56
25	3.65	25	3.55
30	3.66	30	3.55
40	3.68	40	3.55
50	3.68	50	3.52
60	3.69	60	3.52

Plugging and Sealing Record

☒ Annular space ☐ Abandonment

Depth set at - From	Metres To	Material and type (bentonite slurry, neat cement slurry) etc.	Volume Placed (cubic metres)
13.10	0	Grouted - Bentonite Slurry	0.46m3

Method of Construction

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

Water Use

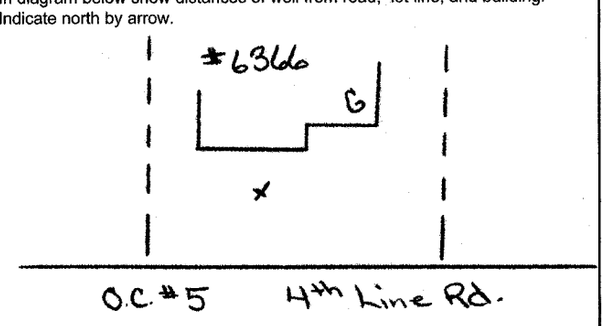
☒ Domestic ☐ Industrial ☐ Public Supply ☐ Other
☐ Stock ☐ Commercial ☐ Not used
☐ Irrigation ☐ Municipal ☐ Cooling & air conditioning

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 13734

Date Well Completed: YYYY 2004 MM 8 DD 12

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

Date Delivered: YYYY 2004 MM 8 DD 13

Well Contractor/Technician Information

Name of Well Contractor: Capital Water Supply Ltd.

Well Contractor's Licence No.: 1558

Business Address (street name, number, city etc.): P.O. Box 490 Stittsville, ONtario K2S 1A6

Name of Well Technician (last name, first name): Miller, Stephen

Well Technician's Licence No.: T0097

Signature of Technician/Contractor: X

Date Submitted: YYYY 2004 MM 8 DD 18

Ministry Use Only

Data Source

Contractor: 1558

Date Received: YYYY MM DD — SEP 10 2004

Date of Inspection: YYYY MM DD

Remarks

Well Record Number: 1534966

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)*

Tag#: A138838

Well Record

Regulation 903 Ontario Water Resources Act

Page _____ of _____

[redacted]

Address of Well Location (Street Number/Name)	Township	Lot	Concession
6382 FOURTH LINE RD	NORTH GOWER		

County/District/Municipality	City/Town/Village	Province	Postal Code
OTTAWA-CARLETON	NORTH GOWER	Ontario	K0A2T0

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	18	442558	4999042		

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)
.10	1.5M	BENTONITE	.32 m^3

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
15.86	Steel	.48	+.45	1.45
10.0	Steel	.48	1.45	UNKN

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
[X] 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	
[ ] Gas	[ ] Fresh [ ] Untested	[ ] Other, *specify* _____
[ ] Gas	[ ] Fresh [ ] Untested	[ ] Other, *specify* _____
[ ] Gas	[ ] Fresh [ ] Untested	[ ] Other, *specify* _____

Hole Diameter

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

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)*

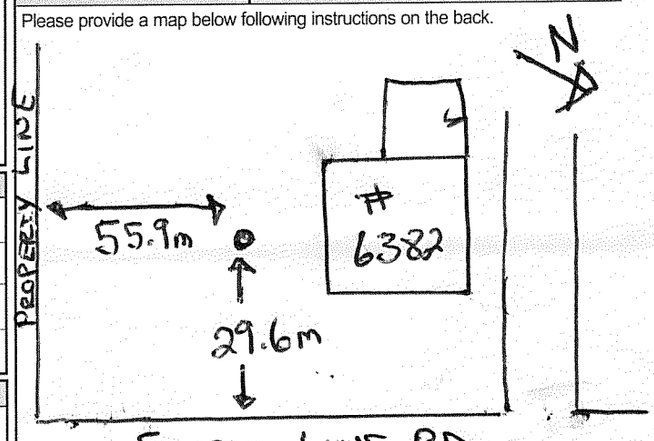
Well production *(l/min / GPM)*

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.



Comments: EXTEND CASING TO ABOVE GRADE

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
H.O. WRIGHT + SONS LTD	6357

Business Address (Street Number/Name)	Municipality
2383 CHURCH ST	NORTH GOWER

Province	Postal Code	Business E-mail Address
ON	K0A2T0	gpratt@howright.ca

Bus. Telephone No. *(inc. area code)*	Name of Well Technician (Last Name, First Name)
6134893372	PRATT GEORGE

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
1445	George Pratt	2012 10 05

Well owner's information package delivered	Date Package Delivered	Date Work Completed
[ ] Yes [ ] No	Y Y Y Y M M D D	2012 10 05

Ministry Use Only

Audit No. Z159104

Received OCT 25 2012

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Ministry's Copy

Ontario — Ministry of the Environment

Measurements recorded in: [X] Metric [ ] Imperial

Well Tag No. **Tag#: A178213**

A178213

Well Record

Regulation 903 Ontario Water Resources Act

Page _____ of _____

[redacted]

Address of Well Location (Street Number/Name)	Township	Lot	Concession
6381 Fourth Line Rd	Rideau	17	3

County/District/Municipality	City/Town/Village	Province	Postal Code
	North Gower	Ontario	K0A2T0

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	18	442545	4991361		

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	To
Brown	clay	Silt	Hard	0	4.5
Grey	clay	Silt	Hard	4.5	12.6
Grey	gravel	Stone, Sand	packed	12.6	14.1
Grey	limestone		layered	14.1	24.3

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
0	15.2	cement grout	.4 m³

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

Pumping rate (l/min / GPM): 60

Duration of pumping: 1 hrs + ___ min

Final water level end of pumping (m/ft): 11.63

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

Recommended pump depth (m/ft): 22

Recommended pump rate (l/min / GPM): 60

Well production (l/min / GPM): 85

Disinfected? [X] Yes [ ] No

Draw Down Time (min)	Water Level (m/ft)	Recovery Time (min)	Water Level (m/ft)
Static Level	3.44		11.63
1	5.10	1	9.22
2	5.99	2	8.05
3	6.82	3	7.03
4	6.98	4	6.30
5	7.26	5	5.78
10	8.05	10	5.20
15	8.47	15	4.10
20	9.13	20	3.45
25	9.54	25	3.44
30	9.82	30	3.44
40	10.60	40	3.44
50	11.13	50	3.44
60	11.63	60	3.44

Method of Construction

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

Well Use

[ ] Public [ ] Commercial [ ] Not used
[X] 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	To
15.55	Steel	.48	4.6	15.2
15.55	open Hole		15.2	24.3

Construction Record - Screen

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

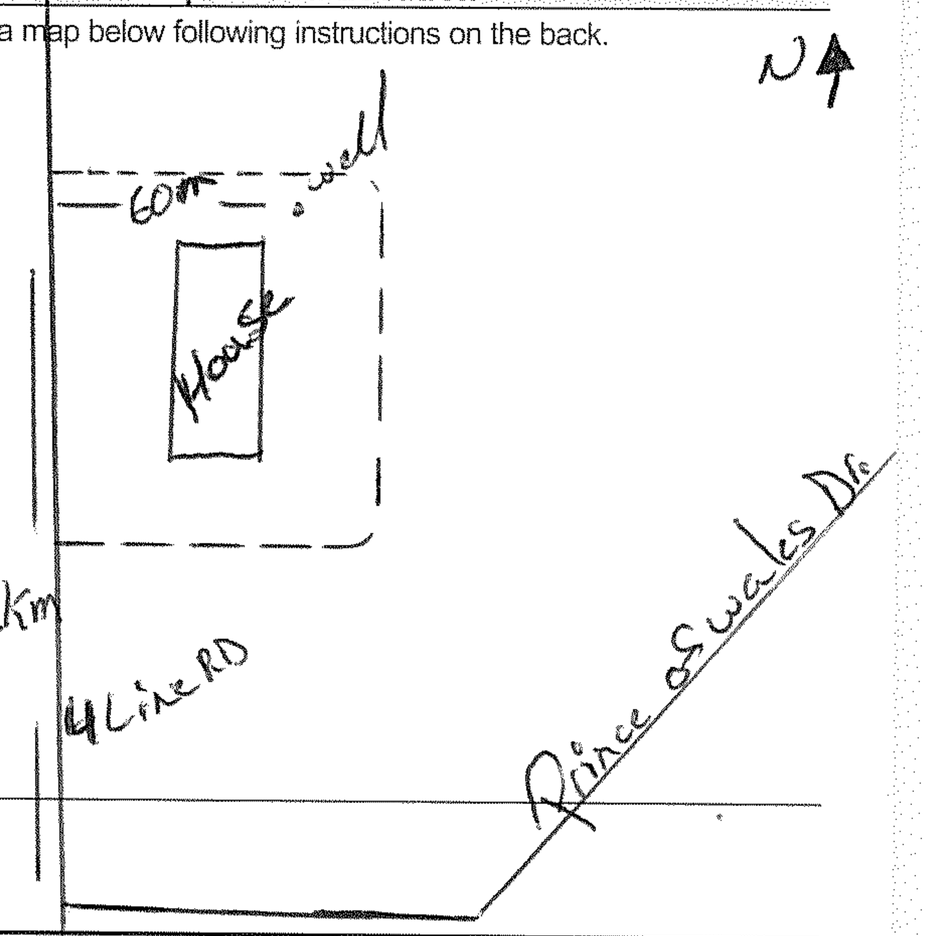
Water found at Depth	Kind of Water	
21 (m/ft) [ ] Gas	[ ] Fresh [X] Untested [ ] Other, specify	
(m/ft) [ ] Gas	[ ] Fresh [ ] Untested [ ] Other, specify	
(m/ft) [ ] Gas	[ ] Fresh [ ] Untested [ ] Other, specify	

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0	15.2	24.9
15.2	24.3	15.55

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.
Bourgeois Well Drilling Ltd.	7417

Business Address (Street Number/Name)	Municipality
14245 Conc. 10-11	Cryslor

Province	Postal Code	Business E-mail Address
On.	K0A1R0	N/A

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
613 987 5291	GENIER, MICHAEL

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
3493		20150824

Well owner's information package delivered	Date Package Delivered	Date Work Completed
[X] Yes [ ] No	20150818	20150818

Ministry Use Only

Audit No. Z 202984

SEP 04 2015

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Ministry's Copy

Ministry of Environment and Energy
Ontario

The Ontario Water Resources Act
WATER WELL RECORD

Print only in spaces provided.
Mark correct box with a checkmark, where applicable.

11 | 1530684 | Municipality 15004 | Con. CON 04

County or District	Township/Borough/City/Town/Village	Con block tract survey, etc.	Lot
Ottawa-Carleton	Rideau	Con #4	16

[redacted]

Address: Box 303 North Gower
Date completed: 26 7 99 (day month year)

Northing | RC | Elevation KOA-270 | RC | Basin Code | ii | iii | iv

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth – feet From	Depth – feet To
Brown	Clay		Packed	0	8
Grey	Clay		Soft	8	40
Grey	Clay	Stones	Packed	40	44
Grey	Limestone		Hard	44	81

WATER RECORD

Water found at – feet	Kind of water
72	☒ Fresh ☐ Salty ☐ Sulphur ☐ Minerals ☐ Gas
	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals ☐ Gas
	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals ☐ Gas
	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals ☐ Gas
	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals ☐ Gas

CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth – feet From	Depth – feet To
9 7/8	☐ Steel ☐ Galvanized ☐ Concrete ☒ Open hole ☐ Plastic		0	47
6 1/4	☒ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic	.188	0	47
6	☐ Steel ☐ Galvanized ☐ Concrete ☒ Open hole ☐ Plastic		47	81

SCREEN

Sizes of opening (Slot No.)	Diameter inches	Length feet
Material and type	Depth at top of screen feet	

PLUGGING & SEALING RECORD

☒ Annular space ☐ Abandonment

Depth set at – feet From	To	Material and type (Cement grout, bentonite, etc.)
47	0	Cement Pressure Grouted

PUMPING TEST

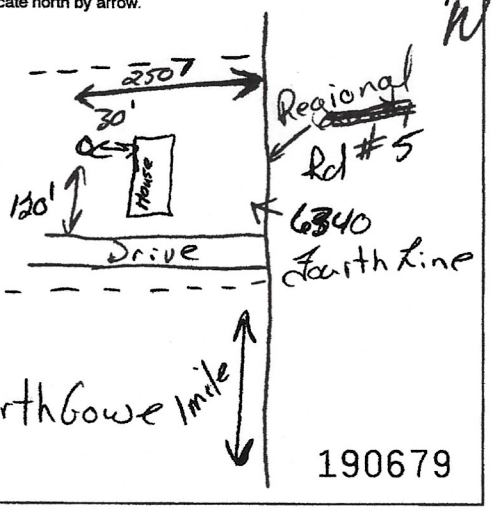
Pumping test method: ☒ Pump ☐ Bailer
Pumping rate: 30 GPM
Duration of pumping: 1 Hours 0 Mins

Static level	Water level end of pumping	Water levels during ☐ Pumping ☒ Recovery: 15 minutes	30 minutes	45 minutes	60 minutes
8 feet	60 feet	8 feet	8 feet	8 feet	8 feet

If flowing give rate: GPM
Pump intake set at: 60 feet
Water at end of test: ☐ Clear ☒ Cloudy
Recommended pump type: ☐ Shallow ☒ Deep
Recommended pump setting: 60 feet
Recommended pump rate: 25 GPM

LOCATION OF WELL

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



190679

FINAL STATUS OF WELL

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

WATER USE

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

METHOD OF CONSTRUCTION

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

Name of Well Contractor	Well Contractor's Licence No.
Splash Well Drilling	4877
Address: Box 1083, Piescott	
Name of Well Technician: Todd Ferguson	Well Technician's Licence No. T-0478
Signature of Technician/Contractor: Todd Ferguson	Submission date 26 7 99 (day mo yr)

MINISTRY USE ONLY

Data source	Contractor 4877	Date received AUG 09 1999
Date of inspection	Inspector	
Remarks		

CSS.ES0

2 - MINISTER OF ENVIRONMENT & ENERGY COPY

0506 (07/94) Front Form 9

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146 Colonnade Rd, Unit 8, Ottawa, ON K2E 7Y1 (613) 727-5692

OFFICIAL CERTIFICATE OF ANALYSIS : 3952152
WORK REQUEST : 100288909
Report Date : 2024-06-18

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

Reception Date : 2024-06-11
Project : PH4864
Sampler : NA
PO Number : 60414
Temperature : 13 °C

Analysis	Quantity	External Method
Alkalinity (Water, Automated)	2	Modified from SM 2320 B
Ammonia, Total (Water, Colorimetry)	2	Modified from EPA 350.1
Chloride (Water, IC)	2	Modified from SM 4110 B and C
Colour, Apparent (Water, Spectrophotometry)	2	Modified from SM 2120 C
Conductivity (Water, Automated)	2	Modified from SM 2510 B
DOC (Water, IR)	2	Modified from SM 5310 B
Escherichia coli (DC Plate)	2	Modified from MECP E3407
Fluoride (Water, Auto/ISE)	2	Modified from SM 4500-F A and 4500-F C
Hardness (Water, Calculation Only)	2	SM 2340 B
Ion Balance (Water, Calculation)	2	Modified from SM1030 E
Metals Scan (Water, ICP/MS)	2	Modified from EPA 200.8
Metals Scan (Water, ICP/OES)	2	Modified from SM 3120 B
Nitrate (Water, IC)	2	Modified from SM 4110 B and C
Nitrite (Water, IC)	2	Modified from SM 4110 B and C
pH (25°C) (Water, Automated)	2	Modified from SM 4500-H+ B
Phenols (Water, Colorimetry)	2	Modified from EPA 420.2
Sulphate (Water, IC)	2	Modified from SM 4110 B and C
Sulphide (Water, Colorimetry)	2	Modified from SM 4500-S2 D
Tannin and Lignin (Water, Spec)	2	Modified from SM 5550 B
TDS (Estimated)	2	Modified from SM 2510 A
Total Coliforms (DC Plate)	2	Modified from MECP E3407
Total Kjeldahl Nitrogen (Water, Colorimetry)	2	Modified from EPA 351.2
Turbidity (Water, Turbidimeter)	2	Modified from SM 2130 B

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

Sample status upon receipt :
7773595 7773596
Compliant

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

Legend :
RL : Reporting limit
QC : Reference material (QC)
N/A : Not applicable
1 : Results in annex
* : Analysis conducted by external subcontracting
^ : Analysis not accredited

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OFFICIAL CERTIFICATE OF ANALYSIS - EXCEEDENCE SUMMARY

Client : Paterson Group
Project : PH4864

Reception Date : 2024-06-11

Eurofins Sample No	Client Sample Identification	Analyte	Result	Units	Exceeded Criteria		
					A	B	C
Colour, Apparent (Water, Spectrophotometry)							
7773595	TW1-GW1	Colour (Apparent)	8	TCU	5		
Hardness (Water, Calculation Only)							
7773595	TW1-GW1	Hardness as CaCO3 (Calculation)	422	mg/L	80-100		
7773596	TW1-GW2	Hardness as CaCO3 (Calculation)	413	mg/L	80-100		
TDS (Estimated)							
7773595	TW1-GW1	TDS (Estimated)^	575	mg/L	500		
7773596	TW1-GW2	TDS (Estimated)^	544	mg/L	500		

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OFFICIAL CERTIFICATE OF ANALYSIS - RESULTS

Client : Paterson Group
Project : PH4864

Reception Date: 2024-06-11

					Eurofins Sample No :	7773595	7773596			
					Matrix :	Drinking water	Drinking water			
					Sampling Date :	2024-06-11	2024-06-11			
					Client Sample Identification :	TW1-GW1	TW1-GW2			
Anions			**Criteria**							
	RL	**Unit**	**A**	**B**	**C**					
Chloride	0.5	mg/L	250			35.6	37.3			
Nitrate (as Nitrogen)	0.1	mg/L	10.0			1.28	1.61			
Nitrite (as Nitrogen)	0.1	mg/L	1.0			<0.1	<0.1			
Sulphate	1	mg/L	500			75	79			

					Eurofins Sample No :	7773595	7773596			
					Matrix :	Drinking water	Drinking water			
					Sampling Date :	2024-06-11	2024-06-11			
					Client Sample Identification :	TW1-GW1	TW1-GW2			
Calculations	**RL**	**Unit**								
Ion Balance (Calculation)^	0.1		1.08	1.06						

					Eurofins Sample No :	7773595	7773596			
					Matrix :	Drinking water	Drinking water			
					Sampling Date :	2024-06-11	2024-06-11			
					Client Sample Identification :	TW1-GW1	TW1-GW2			
General Chemistry			**Criteria**							
	RL	**Unit**	**A**	**B**	**C**					
Alkalinity (as CaCO3)	5	mg/L	500			349	336			
Colour (Apparent)	2	TCU	5			8	4			
Conductivity @ 25°C	5	µS/cm				884	837			
Dissolved Organic Carbon	0.5	mg/L	5			3.3	2.8			
Fluoride	0.1	mg/L	1.5			0.10	0.10			
Hardness as CaCO3 (Calculation)	1	mg/L	80-100			422	413			
pH @ 25°C	1		6.5-8.5			8.04	8.06			
Phenols-4AAP	0.001	mg/L				<0.001	<0.001			
Sulphide (S2-)	0.01	mg/L	0.05			<0.01	<0.01			
Tannin and Lignin	0.1	mg/L				0.2	0.1			
TDS (Estimated)^	5	mg/L	500			575	544			
Turbidity	0.1	NTU	5			1.40	0.643			

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OFFICIAL CERTIFICATE OF ANALYSIS - RESULTS

Client : Paterson Group
Project : PH4864

Reception Date: 2024-06-11

					Eurofins Sample No :	**7773595**	**7773596**			
					Matrix :	Drinking water	Drinking water			
					Sampling Date :	2024-06-11	2024-06-11			
					Client Sample Identification :	TW1-GW1	TW1-GW2			
Metals			**Criteria**							
	RL	**Unit**	**A**	**B**	**C**					
Metals Scan (Water, ICP/MS)										
Aluminum	0.01	mg/L	0.1			<0.01	<0.01			
Antimony	0.0005	mg/L	0.006			<0.0005	<0.0005			
Arsenic	0.001	mg/L	0.01			<0.001	<0.001			
Barium	0.001	mg/L	1			0.057	0.052			
Beryllium	0.0005	mg/L				<0.0005	<0.0005			
Boron	0.01	mg/L	5			0.02	0.02			
Cadmium	0.0001	mg/L	0.005			<0.0001	<0.0001			
Chromium	0.001	mg/L	0.05			<0.001	<0.001			
Cobalt	0.0002	mg/L				0.0010	0.0009			
Copper	0.001	mg/L	1			0.004	0.003			
Iron	0.03	mg/L	0.3			0.05	<0.03			
Lead	0.001	mg/L	0.01			<0.001	<0.001			
Manganese	0.01	mg/L	0.05			0.05	0.05			
Mercury	0.0001	mg/L	0.001			<0.0001	<0.0001			
Molybdenum	0.005	mg/L				<0.005	<0.005			
Nickel	0.005	mg/L				<0.005	<0.005			
Selenium	0.001	mg/L	0.05			<0.001	<0.001			
Silver	0.0001	mg/L				<0.0001	<0.0001			
Strontium	0.001	mg/L				0.216	0.206			
Thallium	0.0001	mg/L				<0.0001	<0.0001			
Uranium	0.001	mg/L	0.02			0.012	0.010			
Vanadium	0.001	mg/L				<0.001	<0.001			
Zinc	0.01	mg/L	5			<0.01	<0.01			
Metals Scan (Water, ICP/OES)										
Calcium	1	mg/L				88	87			
Magnesium	1	mg/L				49	47			
Potassium	1	mg/L				52	47			
Sodium	1	mg/L	200			16	15			

					Eurofins Sample No :	**7773595**	**7773596**			
					Matrix :	Drinking water	Drinking water			
					Sampling Date :	2024-06-11	2024-06-11			
					Client Sample Identification :	TW1-GW1	TW1-GW2			
Microbiology			**Criteria**							
	RL	**Unit**	**A**	**B**	**C**					
Escherichia coli (DC)	0	CFU/100mL	0			0	0			
Total Coliforms (DC)	0	CFU/100mL	0			0	0			

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OFFICIAL CERTIFICATE OF ANALYSIS - RESULTS

Client : Paterson Group
Project : PH4864

Reception Date: 2024-06-11

Eurofins Sample No :			**7773595**	**7773596**					
Matrix :			Drinking water	Drinking water					
Sampling Date :			2024-06-11	2024-06-11					
Client Sample Identification :			TW1-GW1	TW1-GW2					
Nutrients	**RL**	**Unit**							
Ammonia (Total, as Nitrogen)	0.02	mg/L	<0.020	<0.020					
Total Kjeldahl Nitrogen	0.1	mg/L	0.455	0.413					

Approved by : Emma-Dawn Ferguson, M.Sc.
Environmental Chemist

Approved by : Jason Kennedy,
Project Manager

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OFFICIAL CERTIFICATE OF ANALYSIS - QUALITY CONTROL

Client : Paterson Group
Project : PH4864

Reception Date: 2024-06-11

Parameter	Unit	RL	Blank	QC		Matrix Spike		Duplicate	
				Recovery %	Range %	Recovery %	Range %	RPD %	Range %
Alkalinity (Water, Automated)									
Method : Alkalinity (water, titration to pH 4.5, automated). Internal method: OTT-I-AT-WI45398.									
Alkalinity (as CaCO3)	mg/L	5	<5	99	95-105			1	0-20
Associated Samples : 7773595, 7773596								Prep Date: 2024-06-14 Analysis Date: 2024-06-17	
Ammonia, Total (Water, Colorimetry)									
Method : Ammonia (Water, Colorimetry). Internal method: OTT-I-NUT-WI46201.									
Ammonia (Total, as Nitrogen)	mg/L	0.02	<0.020	103	80-120	105	80-120	-	0-20
Associated Samples : 7773595, 7773596								Prep Date: 2024-06-13 Analysis Date: 2024-06-14	
Chloride (Water, IC)									
Method : Anions (Water, Ion Chromatography). Internal method: OTT-I-IC-WI45985.									
Chloride	mg/L	0.5	<0.5	100	80-120	106	80-120	-	0-20
Associated Samples : 7773595, 7773596								Prep Date: 2024-06-14 Analysis Date: 2024-06-17	
Colour, Apparent (Water, Spectrophotometry)									
Method : Colour (Water, Spectrophotometric). Internal method: OTT-I-SPEC-WI45980.									
Colour (Apparent)	TCU	2	<2	101	39-159			-	0-40
Associated Samples : 7773595, 7773596								Prep Date: 2024-06-17 Analysis Date: 2024-06-17	
Conductivity (Water, Automated)									
Method : Conductivity (Water, Autotitrator). Internal Method: OTT-I-AT-WI45398.									
Conductivity @ 25°C	uS/cm	5	<5	100	98-102			0	0-20
Associated Samples : 7773595, 7773596								Prep Date: 2024-06-14 Analysis Date: 2024-06-17	
DOC (Water, IR)									
Method : Organic carbon (water, IR, combustion). Internal method: OTT-I-DEM-WI46148.									
Dissolved Organic Carbon	mg/L	0.5	<0.5	97	84-116	87	80-120	13	0-15
Associated Samples : 7773595, 7773596								Prep Date: 2024-06-14 Analysis Date: 2024-06-17	
Escherichia coli (DC Plate)									
Method : Total Coliforms and E.Coli by MF (Water, DC plate). Internal method: OTT-M-BAC-WI45296.									
Escherichia coli (DC)	CFU/100mL	0	0					-	0-30
Associated Samples : 7773595, 7773596								Prep Date: 2024-06-12 Analysis Date: 2024-06-13	
Fluoride (Water, Auto/ISE)									
Method : Fluoride by autotitrator, ion selective electrode. Internal method: OTT-I-AT-WI45398.									
Fluoride	mg/L	0.1	<0.10	98	90-110			-	0-20
Associated Samples : 7773595, 7773596								Prep Date: 2024-06-14 Analysis Date: 2024-06-17	

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OFFICIAL CERTIFICATE OF ANALYSIS - QUALITY CONTROL

Client : Paterson Group
Project : PH4864

Reception Date: 2024-06-11

Parameter	Unit	RL	Blank	QC		Matrix Spike		Duplicate	
				Recovery %	Range %	Recovery %	Range %	RPD %	Range %
Metals Scan (Water, ICP/MS)									
Method : Metals (Water, ICP/MS). Internal method: AMMTFQE1.									
Aluminum	mg/L	0.01	<0.01	100	80-120	105	70-130	-	0-20
Antimony	mg/L	0.0005	<0.0005	103	80-120	92	70-130	1	0-20
Arsenic	mg/L	0.001	<0.001	93	80-120	103	70-130	-	0-20
Barium	mg/L	0.001	<0.001	100	80-120	94	70-130	1	0-20
Beryllium	mg/L	0.0005	<0.0005	100	80-120	107	70-130	-	0-20
Boron	mg/L	0.01	<0.01	100	80-120	98	70-130	3	0-20
Cadmium	mg/L	0.0001	<0.0001	98	80-120	99	70-130	-	0-20
Chromium	mg/L	0.001	<0.001	100	80-120	104	70-130	-	0-20
Cobalt	mg/L	0.0002	<0.0002	101	80-120	96	70-130	1	0-20
Copper	mg/L	0.001	<0.001	100	80-120	97	70-130	-	0-20
Iron	mg/L	0.03	<0.03	100	80-120	87	70-130	0	0-20
Lead	mg/L	0.001	<0.001	100	80-120	91	70-130	-	0-20
Manganese	mg/L	0.01	<0.01	100	80-120	96	70-130	1	0-20
Mercury	mg/L	0.0001	<0.0001	108	80-120	84	70-130	-	0-20
Molybdenum	mg/L	0.005	<0.005	90	80-120	99	70-130	-	0-20
Nickel	mg/L	0.005	<0.005	100	80-120	99	70-130	-	0-20
Selenium	mg/L	0.001	<0.001	95	80-120	99	70-130	-	0-20
Silver	mg/L	0.0001	<0.0001	104	80-120	94	70-130	-	0-20
Strontium	mg/L	0.001	<0.001	90	80-120	84	70-130	2	0-20
Thallium	mg/L	0.0001	<0.0001	100	80-120	92	70-130	-	0-20
Uranium	mg/L	0.001	<0.001	100	80-120	96	70-130	-	0-20
Vanadium	mg/L	0.001	<0.001	100	80-120	104	70-130	-	0-20
Zinc	mg/L	0.01	<0.01	110	80-120	92	70-130	-	0-20
Associated Samples : 7773595, 7773596								Prep Date: 2024-06-17 Analysis Date: 2024-06-17	
Metals Scan (Water, ICP/OES)									
Method : Metals (Water, ICP/OES). Internal method: OTT-I-MET-WI48491.									
Calcium	mg/L	1	<1	106	86-115	108	70-130	0	0-20
Magnesium	mg/L	1	<1	102	91-109	107	70-130	0	0-20
Potassium	mg/L	1	<1	112	87-113	121	70-130	-	0-20
Sodium	mg/L	1	<1	110	85-115	115	70-130	-	0-20
Associated Samples : 7773595, 7773596								Prep Date: 2024-06-18 Analysis Date: 2024-06-12	
Nitrate (Water, IC)									
Method : Anions (Water, Ion Chromatography). Internal method: OTT-I-IC-WI45985.									
Nitrate (as Nitrogen)	mg/L	0.1	<0.1	101	80-120	107	80-120	-	0-20
Associated Samples : 7773595, 7773596								Prep Date: 2024-06-14 Analysis Date: 2024-06-17	
Nitrite (Water, IC)									
Method : Anions (Water, Ion Chromatography). Internal method: OTT-I-IC-WI45985.									
Nitrite (as Nitrogen)	mg/L	0.1	<0.1	100	80-120				
Associated Samples : 7773595, 7773596								Prep Date: 2024-06-14 Analysis Date: 2024-06-17	
pH (25°C) (Water, Automated)									
Method : pH (Water, Automated Meter). Internal method: OTT-I-AT-WI45398.									
pH @ 25°C		1	6.14	100	97-103			0	0-20
Associated Samples : 7773595, 7773596								Prep Date: 2024-06-14 Analysis Date: 2024-06-17	

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OFFICIAL CERTIFICATE OF ANALYSIS - QUALITY CONTROL

Client : Paterson Group
Project : PH4864

Reception Date: 2024-06-11

Parameter	Unit	RL	Blank	QC		Matrix Spike		Duplicate	
				Recovery %	Range %	Recovery %	Range %	RPD %	Range %
Phenols (Water, Colorimetry)									
Method : Phenols (Water, Colorimetry). Internal method: OTT-I-4AAP-WI46150.									
Phenols-4AAP	mg/L	0.001	<0.001	100	75-125	98	70-130	-	0-20
Associated Samples : 7773595, 7773596								Prep Date: 2024-06-13 Analysis Date: 2024-06-13	
Sulphate (Water, IC)									
Method : Anions (Water, Ion Chromatography). Internal method: OTT-I-IC-WI45985.									
Sulphate	mg/L	1	<1	95	90-110	100	80-120	0	0-20
Associated Samples : 7773595, 7773596								Prep Date: 2024-06-14 Analysis Date: 2024-06-17	
Sulphide (Water, Colorimetry)									
Method : Sulphide, S2- (Water, Colorimetry). Internal method: OTT-I-SPEC-WI45931.									
Sulphide (S2-)	mg/L	0.01	<0.01	115	80-120			-	0-20
Associated Samples : 7773595, 7773596								Prep Date: 2024-06-17 Analysis Date: 2024-06-17	
Tannin and Lignin (Water, Spec)									
Method : Tannin and Lignin (Water, Spec), Internal method: OTT-I-SPEC-WI57693.									
Tannin and Lignin	mg/L	0.1	<0.1	94	80-120			-	0-20
Associated Samples : 7773595, 7773596								Prep Date: 2024-06-14 Analysis Date: 2024-06-14	
Total Coliforms (DC Plate)									
Method : Total Coliforms and E.Coli by MF (Water, DC plate). Internal method: OTT-M-BAC-WI45296.									
Total Coliforms (DC)	CFU/100mL	0	0					-	0-30
Associated Samples : 7773595, 7773596								Prep Date: 2024-06-12 Analysis Date: 2024-06-13	
Total Kjeldahl Nitrogen (Water, Colorimetry)									
Method : TKN (Water, colorimetry). Internal method: OTT-I-NUT-WI46201.									
Total Kjeldahl Nitrogen	mg/L	0.1	<0.100	113	70-130	92	70-130	15	0-20
Associated Samples : 7773595, 7773596								Prep Date: 2024-06-14 Analysis Date: 2024-06-17	
Turbidity (Water, Turbidimeter)									
Method : Turbidity (Water, Turbidimeter). Internal method: OTT-I-TUR-WI46288.									
Turbidity	NTU	0.1	<0.1	104	80-120			4	0-30
Associated Samples : 7773595, 7773596								Prep Date: 2024-06-13 Analysis Date: 2024-06-13	

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

This certificate of analysis corrects and replaces any previous version. The analysis results refer only to what was provided for testing.
This certificate shall not be reproduced except in full, without the written approval of Eurofins Environment Testing Canada Inc.
Method references and/or additional QA/QC information available on request.

eurofins

STANDARD CHAIN-OF-CUSTODY

146 Colonnade Road, Unit #8, Ottawa, ON, K2E 7Y1 - Phone: 613-727-5692, Fax: 613-727-5222

100288909

Printed On : 2024-06-12 13:07:50

CLIENT INFORMATION

Company: Paterson Group
Contact: Alex Schopf
Address: 9 Auriga Drive
Telephone: 613-218-3444 Cell:
Email: #1: eardley@patersongroup.ca, mlaflamme@patersongroup.ca; mkillam@patersongroup.ca
Email: #2: aschopf@patersongroup.ca;
Project: PH4864 Quote #:

INVOICE INFORMATION (SAME AS CLIENT I

Company:
Contact:
Address:
Telephone:
Fax:
Email:
Email:
PO #: 60414

TURN-AROUND TIME (Business Days)

- [ ] 1 Day* (100%)
- [ ] 2 Day** (50%)
- [ ] 3-5 Days (25%)
- [x] 5-7 Days (Standard)

Please contact lab in advance to determine rush availability.
*For results reported after rush due date, surcharges will apply: before 12:00 - 100%, after 12:00 - 50%.
**For results reported after rush due date, surcharges will apply: before 12:00 - 50%, after 12:00 - 25%.

REGULATION/GUIDELINE REQUIRED

- [ ] Sanitary Sewer, City: Ottawa
- [ ] Storm Sewer, City: Ottawa
- [x] ODWSOG
- [ ] PWQO
- [ ] O. Reg 347/558
- [ ] Other:
- [ ] None

- [ ] O. Reg 153
  Table # ___, Course / Fine, Surface / subsurface.
  Type: Com-Ind / Res-Park / Agri / GW / All Other / Sediment
- [ ] Excess Soil, Table: _____ Type: _____

The sample results from this submission will form part of a formal Record of Site Condition (RSC) under O.Reg. 153/04
[ ] Yes [ ] No

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

Sample Details / Sample Analysis Required

Sample ID	Date/Time Collected	Sample Matrix	# of Containers	PHC F1 - F4	BTEX	VOCs	PAHs	PCBs	Metals + Inorganics	Metals only	See attached paper	Subdivision Supply Bacti 2 (Ec/TC only)	TSS	pH	Total Metals	Hg				RN# (Lab Use Only)
Field Filtered -->				O.Reg.153 parameters																
TW1 - GW1	June 11, 2024	GW	8									✓			✓					7773595
TW1-GW2	June 11, 2024	GW	8									✓			✓					96

	PRINT	SIGN	DATE/TIME	TEMP (°C)
Sampled By:	Alex Schopf		June 11, 2024	
Relinquished By:	Alex Schopf		June 11, 2024	
Received By:			June 11/24 @4:55	13

COMMENTS: Total and Trace Metals

CUSTODY SEAL: [ ] YES [ ] NO Ice packs submitted: [ ] Yes [ ] No

401 Magnetic Drive, Unit #1, North York, ON, M3J 3H9 - Telephone: 416-661-5287 • 380 Vansickle Road, Unit #630, St. Catharines, ON, L2S 0B5 - Telephone: 905-680-8887 • 608 Norris Court, Kingston, ON, K7P 2R9 - Telephone: 613-634-9307

STDCOC.5

Copies: White - Laboratory, Yellow - Sampler

patersongroup Consulting Engineers

9 Auriga Drive, Ottawa, Ontario K2E 7T9

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Prop. Commercial Development - 6356 Fourth Line Road
Ottawa, Ontario

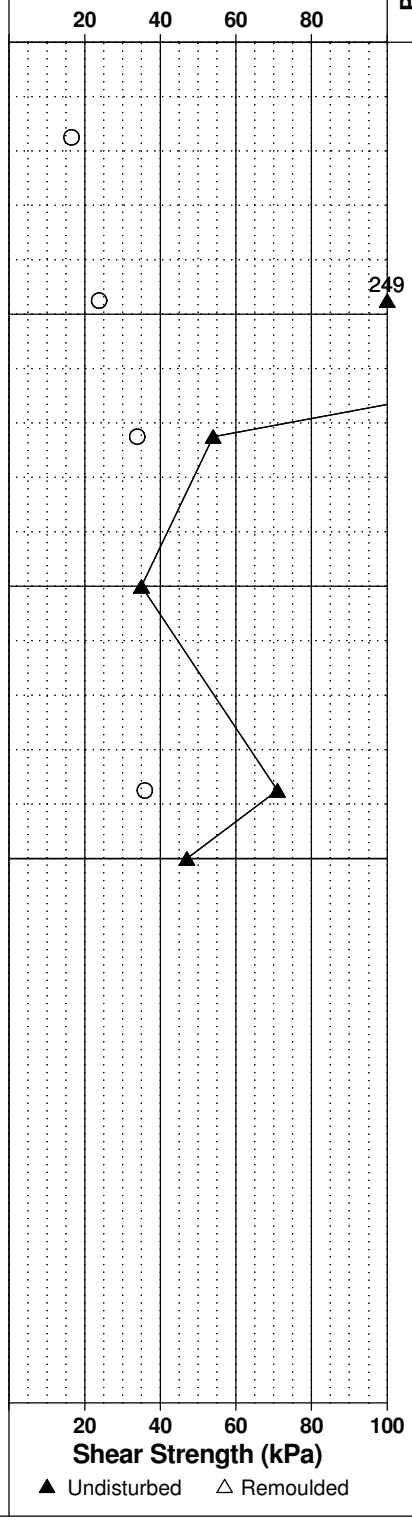
EASTING:	365103.937	**NORTHING:**	5000698.79	**ELEVATION:**	92.54
DATUM:	Geodetic				
REMARKS:					
BORINGS BY:	Backhoe			**DATE:**	March 1, 2024

FILE NO. PG7022

HOLE NO. TP 1-24

SAMPLE DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	% RECOVERY	N VALUE or RQD	DEPTH (m)	ELEV. (m)
Ground Surface						0	92.54
TOPSOIL with organics (0.17)							
FILL: Brown silty clay with sand and gravel, occasional cobbles (0.80)		G	1				
Hard to firm, brown **SILTY CLAY**, trace sand		G	2			1	91.54
		G	3			2	90.54
		G	4			3	89.54
End of Test Pit (3.00)							

(Groundwater infiltration observed at 1.25m depth on March 1, 2024)



PIEZOMETER CONSTRUCTION

patersongroup Consulting Engineers

9 Auriga Drive, Ottawa, Ontario K2E 7T9

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Prop. Commercial Development - 6356 Fourth Line Road
Ottawa, Ontario

EASTING:	365082.851	**NORTHING:**	5000730.443	**ELEVATION:**	92.05
DATUM:	Geodetic				
REMARKS:					
BORINGS BY:	Backhoe			**DATE:**	March 1, 2024

FILE NO. PG7022

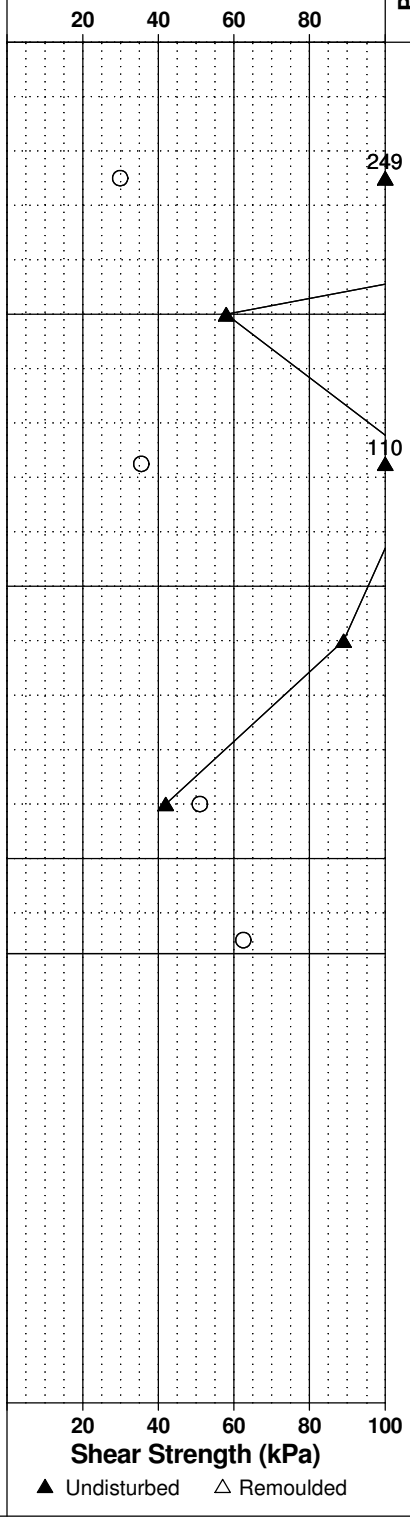
HOLE NO. TP 2-24

SAMPLE DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	% RECOVERY	N VALUE or RQD	DEPTH (m)	ELEV. (m)
Ground Surface						0	92.05
TOPSOIL with organics, some sand and gravel, occasional cobbles 0.25							
Hard to firm, brown **SILTY CLAY**, trace sand		G	1			1	91.05
		G	2			2	90.05
		G	3			3	89.05
3.20							
Stiff to firm, grey **SILTY CLAY** 3.35		G	4				
End of Test Pit							

(Groundwater infiltration observed at 0.5m depth on March 1, 2024)

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone

○ Water Content %



PIEZOMETER CONSTRUCTION

patersongroup Consulting Engineers

9 Auriga Drive, Ottawa, Ontario K2E 7T9

SOIL PROFILE AND TEST DATA

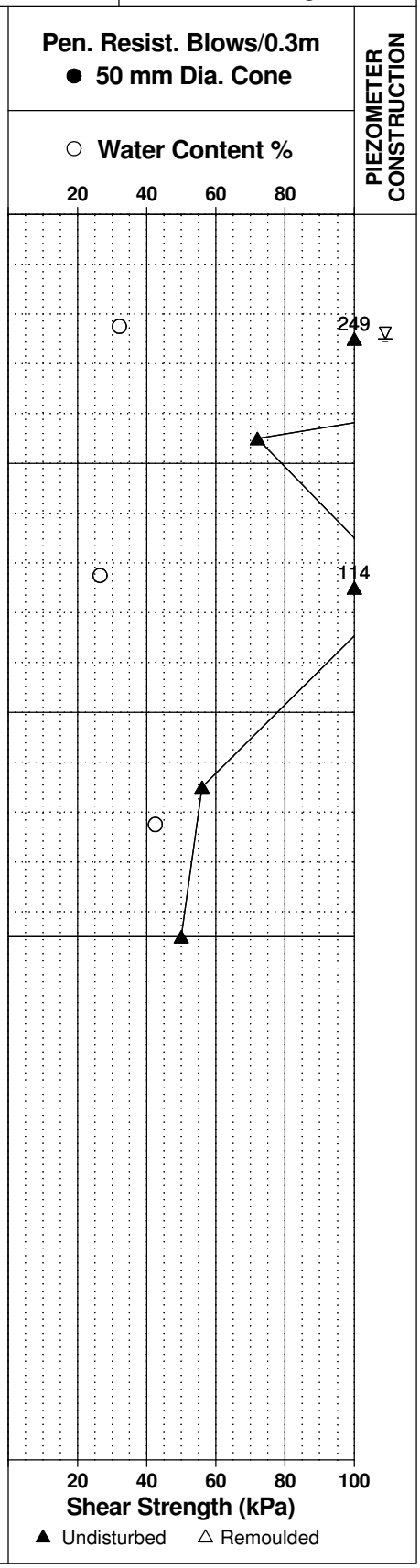
Geotechnical Investigation
Prop. Commercial Development - 6356 Fourth Line Road
Ottawa, Ontario

EASTING:	365138.314	**NORTHING:**	5000771.858	**ELEVATION:**	92.05
DATUM:	Geodetic				
REMARKS:					
BORINGS BY:	Backhoe			**DATE:**	March 1, 2024

FILE NO. PG7022

HOLE NO. TP 3-24

SAMPLE DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	% RECOVERY	N VALUE or RQD	DEPTH (m)	ELEV. (m)
Ground Surface							
TOPSOIL with organics							
0.30							
Hard to stiff, brown **SILTY CLAY**, trace sand		G	1				
- some sand from 1.2m to 2.0m depth		G	2				
		G	3				
2.90							
End of Test Pit							
(Groundwater infiltration observed at 0.5m depth on March 1, 2024)							



patersongroup Consulting Engineers

9 Auriga Drive, Ottawa, Ontario K2E 7T9

SOIL PROFILE AND TEST DATA

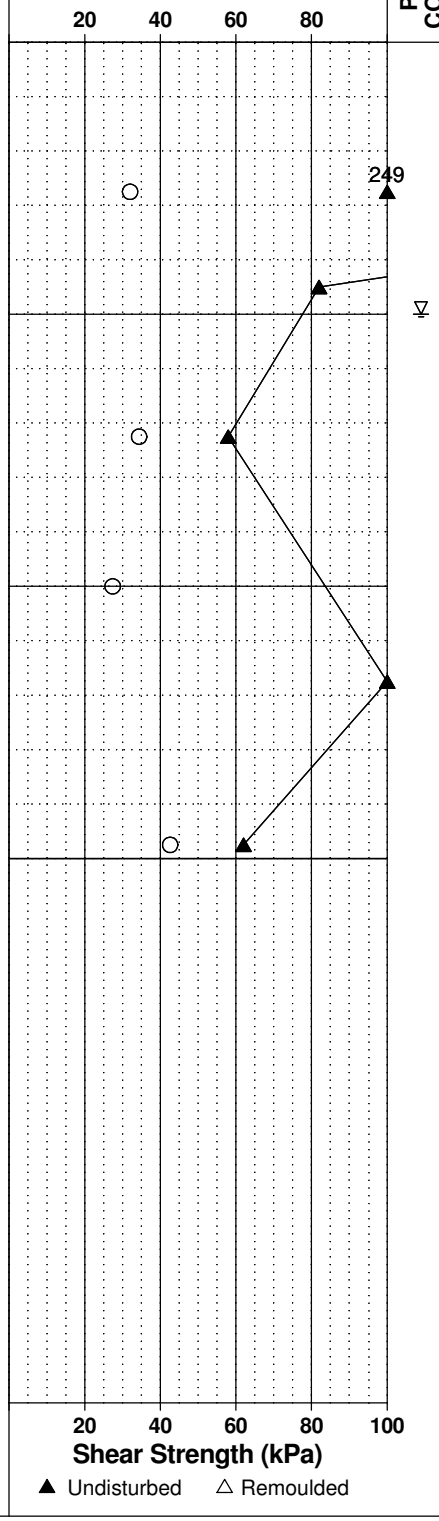
Geotechnical Investigation
Prop. Commercial Development - 6356 Fourth Line Road
Ottawa, Ontario

EASTING:	365155.177	**NORTHING:**	5000735.496	**ELEVATION:**	92.22
DATUM:	Geodetic				
REMARKS:					
BORINGS BY:	Backhoe			**DATE:**	March 1, 2024

FILE NO. PG7022

HOLE NO. TP 4-24

SAMPLE DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	% RECOVERY	N VALUE or RQD	DEPTH (m)	ELEV. (m)
Ground Surface							
TOPSOIL 0.20						0	92.22
Hard to stiff, brown **SILTY CLAY**, trace sand		G	1				
- some sand from 1.2m to 2.2m depth		G	2			1	91.22
		G	3			2	90.22
3.00		G	4			3	89.22
End of Test Pit							
(Groundwater infiltration observed at 1.0m depth on March 1, 2024)							



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9 Auriga Drive, Ottawa, Ontario K2E 7T9

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Prop. Commercial Development - 6356 Fourth Line Road
Ottawa, Ontario

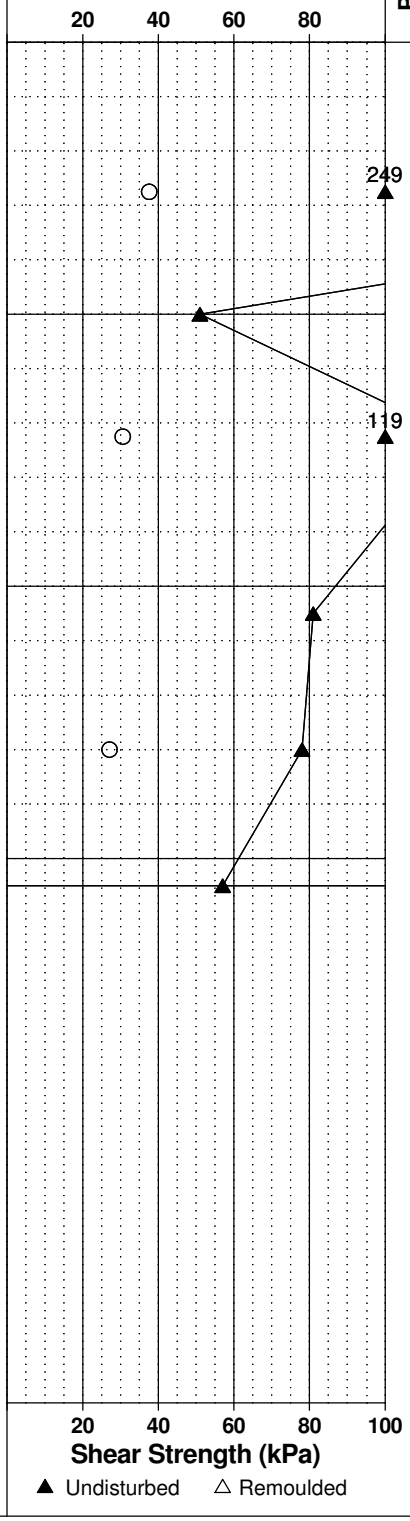
EASTING:	365182.962	**NORTHING:**	5000724.926	**ELEVATION:**	92.23
DATUM:	Geodetic				
REMARKS:					
BORINGS BY:	Backhoe			**DATE:**	March 1, 2024

FILE NO. PG7022

HOLE NO. TP 5-24

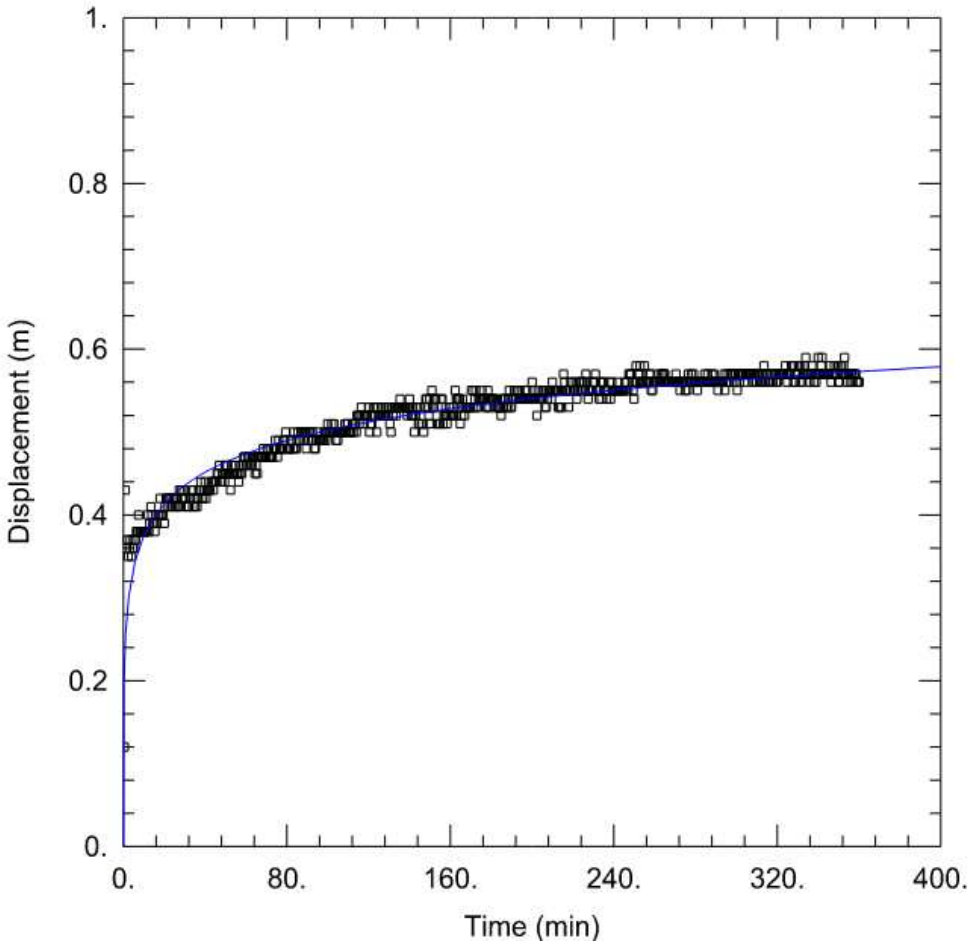
SAMPLE DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	% RECOVERY	N VALUE or RQD	DEPTH (m)	ELEV. (m)
Ground Surface						0	92.23
TOPSOIL 0.30							
Hard to stiff, brown **SILTY CLAY**, trace sand		G	1			1	91.23
		G	2			2	90.23
		G	3			3	89.23
3.10 End of Test Pit							

(Groundwater infiltration observed at 0.5m depth on March 1, 2024)



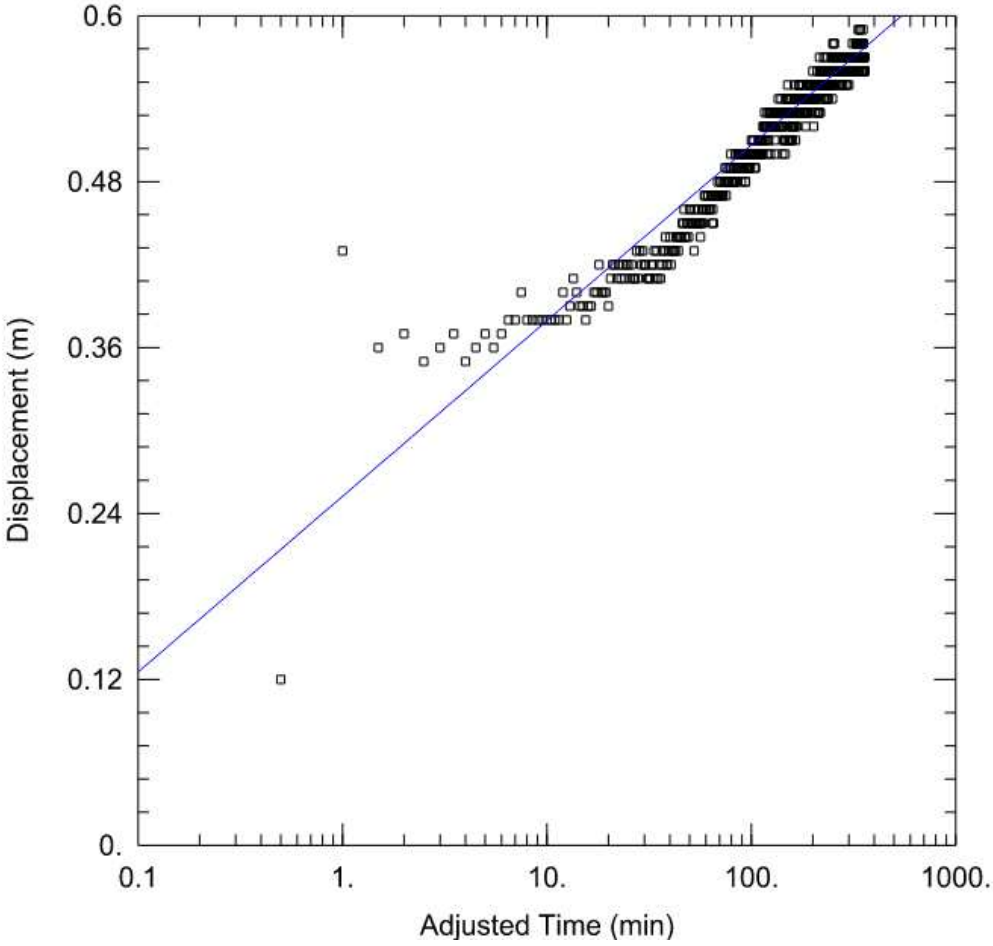
Pumping Test Analysis Report

File No.	PH4864	Well ID:	TW1
Date:	Tuesday, June 11, 2024	Solution Method:	**Theis**
Client:	Victoria La Valle	Transmissitivity (m2/day):	78.74
Site Address:	6356 Fourth Line Road	Discharge Rate (L/min)	38
Project:	Re-zoning Application	Analysis performed by:	AS



Pumping Test Analysis Report

File No.	PH4864	Well ID:	TW1
Date:	Tuesday, June 11, 2024	Solution Method:	**Cooper-Jacob**
Client:	Victoria La Valle	Transmissitivity (m2/day):	78.91
Site Address:	6356 Fourth Line Road	Discharge Rate (L/min)	38
Project:	Re-zoning Application	Analysis performed by:	AS



Pumping Test Analysis Report

File No.	PH4864
Date:	Tuesday, June 11, 2024
Client:	Victoria La Valle
Site Address:	6356 Fourth Line Road
Project:	Re-zoning Application

Summary Table:

Solution Method:	Well ID:	Transmissitivity (m2/day):
Theis	TW1	78.74
Cooper-Jacob	TW1	78.91
Average:		**78.83**

PATERSON GROUP

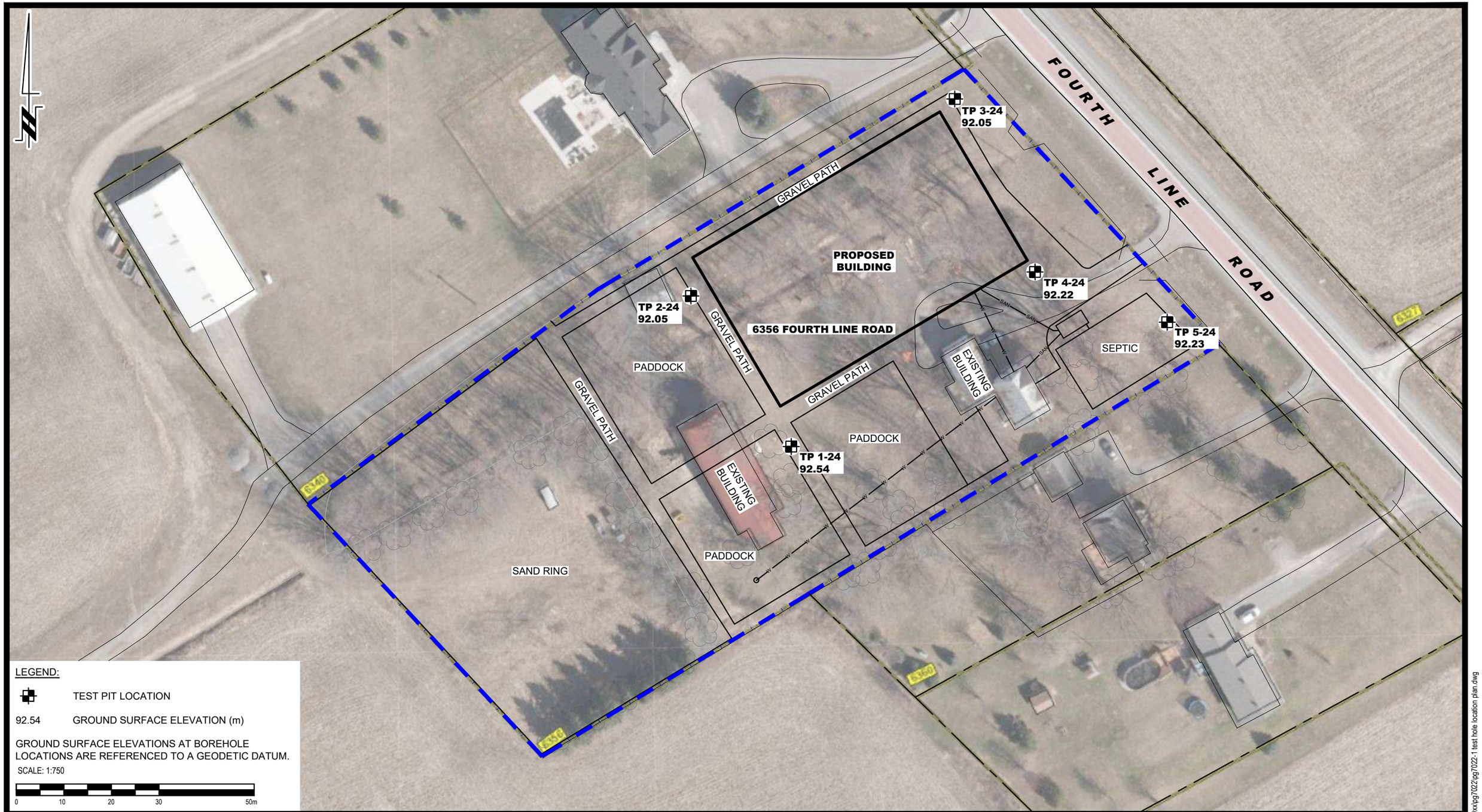
patersongroup JOB NO. PH4864

6356 Fourth Line Road

PREDICTIVE NITRATE IMPACT ASSESSEMENT

Infiltration Factors		
Topography	0.20	
Soil	0.20	
Cover	0.12	
Total	**0.52**	
Site Characteristics		
Area of Site :	12794	m^2
Total of roof areas:	300	m^2
Total area of paved driveway areas:	150	m^2
Roof + paved driveway areas	450	m^2
Impervious Area	450	m^2
Percent Impervious Area =	4	%
Infiltration Area =	12344	m^2
Septic Effluent		
Concentration of Effluent (Cs) =	40	mg/L
Infiltration Calculation		
Nitrate concentration in precipitation (C_i) =	0	mg/L
Surplus Water (Environment Canada)	360	mm/yr
Factored Water Surplus =	187	mm/yr
Infiltration % due to stormwater management measures	-	%
Infiltration rate from stormwater management measures =	0	mm/yr
Infiltration Flow Entering the System (Q_i) =	6	m^3/day
Mass Balance Model (MOEE, 1995)		
$C_T = (Q_bC_b+Q_eC_e+Q_iC_i)/(Q_b+Q_e+Q_i)$ = Cumulative Nitrate Concentration		
Q_b = flow entering the system across the upgradient area	0	m^3/day
C_b = background nitrate concentration	0	mg/L
Cs = concentration of nitrates in the septic effluent	40	mg/L
Q_i = flow entering the system from infiltration	6	m^3/day
C_i = Concentration of nitrates in the infiltrate	0	mg/L
C_T =	**10.00**	**mg/L**
Maximum Allowable Sewage Flow Volume		
Daily Sewage Flow (Qs)=	**2.110**	**m^3**

Notes: Site characteristic values were measured as approximate values from the available site plans and GeoOttawa.



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

NO.	REVISIONS	DATE	INITIAL

2778317 ONTARIO INC.
GEOTECHNICAL INVESTIGATION
PROPOSED COMMERCIAL DEVELOPMENT
6356 FOURTH LINE ROAD

OTTAWA, ONTARIO

Title:

TEST HOLE LOCATION PLAN

Scale: 1:750	Date: 03/2024
Drawn by: GK	Report No.: PG7022-1
Checked by: MA	Dwg. No.: PG7022-1
Approved by: KP	Revision No.:

11x17

p:\autocad drawings\geotechnical\pg70xx\pg7022\pg7022-1 test hole location plan.dwg