

Hydrogeological Study

Proposed Residential Development

4850 Bank Street
Ottawa, Ontario

Prepared for Regional Group
Report PH5087-REP.01.R1
dated October 17, 2025



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1.0 INTRODUCTION

1.1 Background

Paterson Group (Paterson) was retained by Regional Group to conduct a hydrogeological study for the proposed residential development located at 4850 Bank Street in the City of Ottawa (hereinafter referred to as the “subject site”). The location of the subject site is shown on Drawing PH5087-1 - Site Plan appended to this report. This report incorporates the findings of Paterson Report PG6912-1 prepared concurrently.

1.2 Scope of Work

Paterson has completed this report in accordance with the scope prepared by Paterson. As per the agreed upon scope, the purpose of this study was to:

- ☐ Characterize the hydrogeological setting of the subject site. Consideration was given to bedrock and surficial geology, aquifer systems, groundwater levels, hydraulic properties and catchment characteristics.
- ☐ A groundwater impact assessment to determine potential impacts to adjacent infrastructure, well users and the surrounding environment.

Additionally, the study was to include the standard components of a Water Budget Assessment as per the City of Ottawa's Water Budget Assessment Terms of Reference, which included the following:

- ☐ Review related higher-level studies.
- ☐ Conduct pre and post-development water budget analyses, including water budget equations, to determine the hydrogeological function of the subject site in order to assess the need for supplemental stormwater management measures.
- ☐ Develop a conceptual model to characterize pre and post-development hydrologic and hydrogeologic site conditions.
- ☐ Identify sensitive hydrologic and hydrogeologic features (if any) within the study area.
- ☐ Identify water budget targets (if applicable) to mitigate post-development hydrologic and hydrogeologic impacts.
- ☐ Identify how climate change projections may impact the water budget.

2.0 RELATED REPORTS

In addition to a review of the general literature summarized in the following sections and in the 'References' section of this report (MECP water well mapping, available geological and physiographic mapping), Paterson reviewed the following site-specific/related reports:

- ❑ PG6912-1 Rev.1 Geotechnical Investigation - Proposed Residential Development & Off-Site Sewer Installation - 4850 Bank Street - prepared by Paterson Group - prepared concurrently with this study.
- ❑ S4 Leitrim Urban Expansion Area - Serviceability Report - prepared by Arcadis – prepared concurrently with this study.
- ❑ Leitrim West Urban Expansion Area - S4 Environmental Impact Study prepared by Arcadis – prepared concurrently with this study.
- ❑ Pathways at Findlay Creek - Constructed Channel Monitoring (Year 5) - prepared by Cambium Inc. - October 30, 2024.
- ❑ PE6336-1 Phase I-II Environmental Site Assessment - 4850 Bank Street - prepared by Paterson Group - December 20, 2023.
- ❑ Environmental Management Plan for the Remer and Idone Lands - Ottawa, Ontario - Prepared by Golder Associates - February 2015

3.0 METHOD OF INVESTIGATION

3.1 Records Review

A review of available geological, and hydrogeological data was completed as a part of this assessment. However, the literature review and previous reports did not provide site-specific data regarding overburden and bedrock aquifers, recharge and discharge conditions or flow contributions to the nearby water features. Further detail is provided in the following sections.

3.2 Field Program

The geotechnical and hydrogeological field programs were developed to assess geology, groundwater conditions, hydraulic gradients and the overall hydrologic/hydrogeologic function of the subject site. The test holes were advanced to various depths across the site to assess hydrogeological and geotechnical conditions.

Geotechnical field investigations were completed by Paterson at the subject site between December 2023 and July 2025. During this time, 18 boreholes were advanced to a maximum depth of 8.5 m below ground surface (bgs). The location of the test holes are shown on Drawing PG6912-1 - Test Hole Location Plan, included in Appendix 1.

Soil samples were obtained from the boreholes by means of split spoon sampling and the sampling of shallow soils directly from auger flights. Split-spoon samples were taken at approximate 0.76 m intervals. In addition to soil sampling, rock core samples were obtained with the use of a standard diamond drill bit. The depth at which split-spoon, auger samples and rock core samples were obtained from the test holes are shown as "**SS**", "**AU**" and "**RC**", respectively, on the Soil Profile and Test Data sheets, included in Appendix 1.

All samples were classified on site, placed in sealed plastic bags and were transported to our laboratory for further review and testing. Transportation of the samples was completed in accordance with ASTM D4220-95 (2007) - Standard Practice for Preserving and Transporting Soils. Rock core samples were recovered from select boreholes (BH1-25 and BH2-25) drilled during the July 2025 geotechnical investigation using a core barrel and diamond drilling techniques. The bedrock samples were classified on site, placed in hard cardboard core boxes and transported to Paterson's laboratory.

The Standard Penetration Test (SPT) was conducted in conjunction with the recovery of the split-spoon samples. The SPT results are recorded as "N" values on the Soil Profile and Test Data sheets. The "N" value is the number of blows required to drive the split-spoon sampler 300 mm into the ground after an initial penetration of 150 mm using a 63.5 kg hammer falling from a height of 760 mm. This test was done in accordance with ASTM D1586-11 - Standard Method for Penetration Test and Split-Barrel Sampling of Soils.

The recovery value and a Rock Quality Designation (RQD) value were calculated for each drilled section of bedrock and are presented on the borehole logs. The recovery value is the length of the bedrock sample recovered over the length of the drilled section. The RQD value is the total length of intact rock pieces longer than 100 mm over the length of the core run. The values indicate the bedrock quality.

Reference should be made to the Soil Profile and Test Data sheets presented in Appendix 1 for specific details of the soil profiles encountered at the test hole locations.

Drawdown Analysis - Hydraulic Conductivity Testing

Hydraulic conductivity testing (slug testing) was completed at the monitoring wells installed during the December 2023 and July 2025 geotechnical investigations. Falling head and rising head tests (slug tests) were completed in accordance with ASTM Standard Test Method D 4404 - Field Procedure for Instantaneous Change in Head (Slug) Tests for Determining Hydraulic Properties of Aquifers.

Slug testing was completed during the month of July 2025 by Paterson personnel. The general test method consisted of measuring the static water level in the well, followed by inducing a near-instantaneous change of head in the well and subsequent monitoring of water level recovery with an electronic water level meter and a water level data logger. The change in head was induced by the introduction of either an acetal slug, 0.9 m in length and 38 mm in diameter, or a metal slug, 1.0 m in length and 19 mm in diameter, depending on the well diameter. The slug was introduced to raise the groundwater level in the monitoring well, following which the decrease in water level over time was monitored (falling head test). Once the water level had stabilized (or nearly stabilized), the slug was then removed to lower the groundwater level, following which the increase in water level over time was monitored (rising head test).

Following the completion of the slug tests, the test data was analyzed using the AQTESOLV Pro Version 4.5 aquifer analysis software package by HydroSOLVE

Inc. and the results were processed as per the method set out by Hvorslev (1951). Assumptions inherent in the Hvorslev method include a homogeneous aquifer of infinite extent and a screen length significantly greater than the monitoring well diameter. The assumption regarding screen length and well diameter is considered to be met based upon a typical length of 1.52 m and a diameter of 0.03 to 0.05 m.

While the idealized assumptions regarding aquifer extent, homogeneity are not strictly met in this case (or in any real-world situation), it has been our experience that the Hvorslev method produces effective point estimates of hydraulic conductivity in conditions similar to those encountered at the subject site. Hvorslev analysis is based on the line of best fit through the field data (hydraulic head recovery vs. time), plotted on a semi-logarithmic scale.

Infiltration Testing

In-situ infiltration testing was conducted at the subject site during the month of July 2025 using a Pask (Constant Head) Permeameter. At each testing location, up to two in-situ infiltration tests were conducted at depths of approximately 0.5 to 1.0 m below ground surface (bgs). The tests were conducted to provide general coverage of the subject site and are shown on Drawing PG6912-1 - Test Hole Location Plan included in Appendix 1.

At each testing location, an 83 mm diameter hole was excavated using a Riverside/Bucket auger to remove topsoil and other subsoil material until the desired testing elevation. Up to two holes were advanced at each testing location to approximately 0.5 and 1.0 m bgs. All soil from the auger flights was visually inspected and initially classified on site. An aggregated soil sample was gathered at each test location. Each test was conducted by filling the permeameter reservoir with water and inverting it into the hole, ensuring it was relatively vertical and resting at the bottom of the hole. The water level of the reservoir was monitored at 0.5 to 5 minute intervals until the rate of fall out of the permeameter reached equilibrium, known as a quasi “steady state” flow rate. Quasi steady state flow was considered to be obtained once 3 to 5 consecutive rate of fall readings with identical values were measured. The values for the steady state rate of fall were recorded for each test. The steady state rate of fall was converted to a field saturated hydraulic conductivity value (K_{fs}) using the Engineering Technology Canada Ltd. conversion tables. Unfactored infiltration rates were estimated based on the methodology outlined in Appendix C of the Credit Valley Conservation’s Low Impact Development Stormwater Management Planning and Design Guide.

3.3 Laboratory Testing

All soil samples were retained for laboratory review following the field portion of the subsurface investigation. The soils were classified in general accordance with ASTM D2488-09a, Standard Practice for Description and Identification of Soils (Visual-Manual Procedure). Based on the soil descriptions across the subject site during the geotechnical investigations, these samples are considered to be sufficiently representative of the site.

3.4 Monitoring Well Installations

As part of the December 2023 and July 2025 geotechnical field programs, monitoring wells were installed in select boreholes to permit the monitoring of groundwater levels and conduct drawdown analyses. The well installations were compliant with ASTM D5092 standards.

3.5 Water Level Measurements

Following the completion of the December 2023 and July 2025 drilling programs, groundwater levels were measured at the monitoring well locations. Water levels were measured using an electronic water level meter relative to the ground surface elevation at each location and are noted on the Soil Profile and Test Data sheets, included in Appendix 1.

In addition to the manual groundwater level measurements, select wells were outfitted with dataloggers to record long-term fluctuations in monitoring well water elevations. The monitoring program began in summer 2025 and will last until spring high water levels are captured in 2026.

3.6 Surveying

The test hole locations and ground surface elevations at each test hole location completed by Paterson were surveyed using a GPS unit with respect to a geodetic datum. The locations and ground surface elevations for each test hole are presented on Drawing PG6912-1 - Test Hole Location Plan, included in Appendix 1.

4.0 REVIEW AND EVALUATION

4.1 Physical Setting

At the time of the field investigations, the subject site was undeveloped and heavily forested with mature trees and grass/shrubs. The subject site is located in the City of Ottawa, Ontario and is bordered by Bank Street to the east, forested land and a driving range to the south, forested land and a wetland to the west and a residential development and commercial properties to the north. The location of the subject site is shown on Drawing PH5087-1 - Site Plan, appended to this report.

Based on mapping provided by the Ministry of Conservation and Parks (MECP) Source Protection Information Atlas, the subject site is located within the Castor River subwatershed. There are several surface water features located within the subject site and within 500 m of the subject site. These include unnamed scratch ditches, drainage ditches and conveyance channels. Also, the Leitrim Wetlands lies west of the subject site. The ground surface at the subject site generally slopes downwards to the east and west from the central portion of the subject site. The site is generally at grade with adjacent roadways and properties. The site slopes from east to west with an elevation difference of approximately 6-8 m.

According to available mapping from the Ontario Geologic Survey (OGS; MRD 228), the majority of the subject site is located in the sand plains physiographic region. The eastern tip of the subject site is located in the limestone plains physiographic region. The sand plains region is characterized by silty sand deposits. The limestone plains region is characterized by limestone bedrock. These are generally consistent with field observations at the subject site.

4.2 Geology

Surficial Geology

Overburden mapping provided by the OGS was reviewed as part of this assessment. Available mapping (MRD 128) indicates that overburden soils throughout the subject site consist of till (stone-poor, sandy silt to silty sand-textured till on paleozoic terrain). Overburden soil mapping is shown on Drawing PH5087-3 - Surficial Geology Plan, appended to this report.

Overburden soils identified during the geotechnical investigations by Paterson between December 2023 and July 2025 were generally consistent with the available mapping. Soils generally consisted of topsoil overlying a glacial till deposit followed by bedrock. Fill material was encountered at one (1) borehole location. The fill material generally consisted of brown silty sand with gravel, crushed stone and trace clay, extending to a maximum observed depth of 0.9 m bgs. The glacial till deposit generally consisted of a silty sand matrix with varying amounts of gravel, cobbles and boulders, extending to a maximum observed depth of 6.7 m bgs.

Specific details are provided on the Soil Profile and Test Data Sheets included in Appendix 1 of this report. More details regarding the overburden soils can be found in Paterson Report PG6912-1 prepared concurrently with this report.

Bedrock Geology

Bedrock was encountered between 5.0 to 5.2 m bgs during Paterson's 2025 geotechnical field investigation and cored to a maximum depth of 8.5 m bgs. The bedrock was observed to vary from poor to excellent quality. Based on available mapping, the overburden drift thickness at the subject site ranges between 3 and 15 m. Bedrock geology mapping is shown on Drawing PH5087-4 - Bedrock Geology Plan, appended to this report.

Karst Features

The term "karst" refers to a geologic formation characterized by the dissolution of carbonate bedrock, such as limestone or dolostone. In order for karstification to occur, precipitation must be able to infiltrate the top of the bedrock, causing dissolution which enlarges previously existing joints and bedding planes. Based on available mapping by the OGS (GRS 005), the subject site is located within an area that does not contain karstic landforms.

4.3 Hydrogeological Setting (Conceptual Model)

Based on the field investigations at the subject site, Paterson used borehole data, existing water well records, topography, monitoring well water levels, hydraulic conductivity and infiltration rates to develop a conceptual model of the transport fate of surface water and groundwater at the subject site. Information related to the conceptual flow model is described below.

Existing Aquifer Systems

Aquifer systems may be defined as geological media, either overburden soils or fractured bedrock, which permit the movement of groundwater under hydraulic gradients. In general, aquifer systems may be present in overburden soils or bedrock. Groundwater was observed within the overburden soils at the subject site and the soils consist of moderate hydraulic conductivities. Given the limited quantity of groundwater within the overburden aquifer, it is not considered an adequate source for water supply wells. If water supply wells are still in use in the vicinity of the subject site, it is anticipated that they are accessing bedrock aquifers.

Based on a review of the MECP water well record database, available geological mapping and field investigations, Paterson has identified two (2) aquifer systems in the vicinity of the study area which consist of the overburden aquifer and underlying bedrock aquifer. The bedrock aquifer system consists of dolostone or dolostone and sandstone of the Oxford or March Formations, respectively. Given the temporal variability between the water well records and lack of geodetic elevation references, we were only able to approximate a potentiometric surface of the deeper bedrock aquifer which was inferred to range between approximately 2 to 15 m bgs. Surrounding water well records are included in Appendix 5.

Groundwater Levels

Piezometers and monitoring wells were placed across the study area for the purpose of monitoring groundwater levels. The piezometers and monitoring wells were installed in the overburden and bedrock. Groundwater levels were observed to be between 0.13 and 1.23 m bgs in the piezometers and between 0.39 and 1.99 m bgs in the monitoring wells. The initial groundwater level measurements are shown on the Soil Profile and Test Data Sheets appended to this report in Appendix 1. Groundwater elevations that were collected on July 3, 2025, were used to determine hydraulic gradients and the general groundwater flow direction at the subject site which is shown on Drawing PH5087-5 - Groundwater Contour Plan appended to this report. The manual measured groundwater levels are presented in Table 1 below.

Table 1 – Summary of Manual Groundwater Level Measurements

Borehole ID	Ground Surface Elevation (m asl)	Manual Groundwater Level Measurement		Date Recorded
		Depth (m bgs)	Elevation (m asl)	
BH 1-25*	101.45	1.74	99.71	July 3, 2025
BH 2-25	103.07	2.18	100.89	July 3, 2025
BH 3-25*	109.30	1.99	107.31	July 3, 2025
BH 1-23*	102.56	2.47	100.09	July 3, 2025
BH 2A-23*	102.25	2.09	100.16	July 3, 2025
BH 6C-23*	101.59	1.21	100.38	July 3, 2025
BH 10-23*	103.35	1.25	102.10	July 3, 2025
BH 1-23*	102.56	1.40	101.16	January 29, 2024
BH 2A-23*	102.25	0.94	101.31	January 29, 2024
BH 10-23*	103.35	0.26	103.09	January 29, 2024
BH 1-23*	102.56	1.30	101.26	December 15, 2023
BH 2A-23*	102.25	0.80	101.45	December 15, 2023
BH 3-23	105.46	1.23	104.23	December 15, 2023
BH 4-23	106.70	Dry	-	December 15, 2023
BH 5-23	107.88	0.40	107.48	December 15, 2023
BH 6C-23*	101.59	0.76	100.83	December 15, 2023
BH 7-23	109.28	0.66	108.62	December 15, 2023
BH 8A-23	107.22	0.27	106.95	December 15, 2023
BH 9-23	106.87	0.13	106.74	December 15, 2023
BH 10-23*	103.35	0.39	102.96	December 15, 2023
Note: The ground surface elevation at each borehole location was surveyed by Paterson using a handheld GPS and was referenced to a geodetic datum. * Borehole instrumented with groundwater monitoring well.				

Horizontal Hydraulic Gradients

Due to the nature of the water levels obtained from field work conducted at the subject site (groundwater monitoring wells), the absolute direction of horizontal hydraulic gradients in the vicinity of the subject site was not determined. However, using the available data, it was possible to approximate the horizontal hydraulic gradients in the overburden materials given that the horizontal hydraulic gradient between any 2 points is the slope of the hydraulic head between those points:

$$i = h_2 - h_1 / L$$

Where: i = horizontal gradient
 h = water elevation (m asl)
 L = horizontal distance between test hole locations

Using the above noted formula, the horizontal hydraulic gradients within the eastern portion of the site were observed to be in an approximate easterly orientation with a magnitude of approximately 0.022 m/m in the glacial till deposit. The horizontal hydraulic gradients within the western portion of the site were observed to be in an approximate westerly orientation with a magnitude of approximately 0.016 m/m in the glacial till deposit towards the Leitrim Wetlands. The approximate groundwater flow directions are presented on Drawing PH5087-5 - Groundwater Contour Plan, appended to this report. Regional groundwater flow in the overburden is expected to be in a southeasterly orientation towards Castor River which is consistent with available watershed mapping.

Hydraulic Conductivity

Hydraulic conductivity testing (slug testing) was completed by Paterson as part of the field investigations at the subject site. The test data was analyzed as per the method set out by Hvorslev (1951). The testing yielded hydraulic conductivity values of 3.71×10^{-7} to 1.21×10^{-5} m/sec for glacial till and 1.05×10^{-4} to 1.20×10^{-4} m/sec for bedrock. Hydraulic conductivity results are summarized in Table 2 below and have been included in Appendix 3.

Table 2 – Summary of Hydraulic Conductivity (Slug) Testing Results					
Test Hole ID	Ground Surface Elevation (m asl)	Testing Elevation (m asl)	Hydraulic Conductivity (m/sec)	Test Type	Soil Type
BH1-25	101.45	93.17-94.67	1.05×10^{-4}	Falling Head	Bedrock
			1.20×10^{-4}	Rising Head	
BH3-25	109.30	103.15-104.65	1.33×10^{-6}	Falling Head	Glacial Till
			2.03×10^{-6}	Rising Head	
BH1-23	102.56	98.80-100.30	3.71×10^{-7}	Falling Head	Glacial Till
BH6C-23	101.59	96.97-98.47	9.00×10^{-6}	Falling Head	Glacial Till
			1.21×10^{-5}	Rising Head	
BH10-23	103.35	98.27-99.77	4.28×10^{-6}	Falling Head	Glacial Till
			5.01×10^{-6}	Rising Head	

In-Situ Infiltration Testing

In-situ infiltration testing was conducted by Paterson using a Pask (Constant Head Well) Permeameter across the subject site to determine the field saturated hydraulic conductivities (K_{fs}) and their respective unfactored infiltration rates of the unsaturated overburden soils. The tests were conducted in a manor to provide general coverage across the subject site. Estimated unfactored infiltration rates varied between 24 and 82 mm/hr for the glacial till unsaturated overburden soils. The variations in the infiltration rates are dependent on the

composition/compaction of the glacial till at a given location. In-situ infiltration testing results can be found below in Table 3.

Table 3 – Summary of Field Saturated Hydraulic Conductivity Testing Results and Estimated Infiltration Rates					
Test Completed Adjacent to Borehole ID	Ground Surface Elevation (m asl)	Infiltration Testing Elevation (m asl)	K_{fs} (m/sec)	Unfactored Infiltration Rate (mm/hr)	Material
PT1-25	101.67	101.17	2.7×10^{-7}	33	Glacial Till
		100.67	9.3×10^{-8}	24	Glacial Till
PT2-25	105.82	105.32	5.3×10^{-6}	72	Glacial Till
		104.82	8.5×10^{-6}	82	Glacial Till
PT3-25	107.29	106.79	2.7×10^{-7}	33	Glacial Till
		106.49	1.4×10^{-7}	27	Glacial Till
PT4-25	109.49	108.99	2.1×10^{-6}	56	Glacial Till
		108.54	1.1×10^{-6}	47	Glacial Till
PT5-25	106.11	105.56	1.4×10^{-7}	27	Glacial Till
*Field saturated hydraulic conductivity (K_{fs})					
**The infiltration rates do not include a safety correction factor. Based on our testing results, a minimum safety correction factor of 2.5 should be applied to the values.					

Groundwater Recharge and Discharge

In general, groundwater will follow the path of least resistance from areas of higher hydraulic head to areas of lower hydraulic head. Upward and downward hydraulic gradients are typically indicative of areas of discharge and recharge, respectively.

It is our interpretation that there is some recharge occurring at the subject site due to the soils identified at the time of the field investigations, and the infiltration testing results at the subject site. Recharge of the shallow overburden aquifer will occur as precipitation infiltrates the subsoils where it will flow vertically downward through the unsaturated surficial soils before intercepting the overburden aquifer. However, it should be noted that the site is not mapped as a significant groundwater recharge area (SGRA) by the MECP.

With regards to discharge zones, neither the topographical nor geological conditions are suitable for discharge to be occurring on a large scale at the subject site.

The subject site intersects one subwatershed as previously mentioned. However, within the confines of the subject site, shallow groundwater was found to have flow generally travelling in an eastward direction within the eastern portion of the subject site, and in a western direction within the western portion of the subject site, given the topographic relief.

It should be noted that the subject site is not identified by the MECP as a drinking water protection zone.

Catchment Areas

The subject site is located within the Castor River subwatershed. As shown on Drawing PH5087-5 - Groundwater Contour Plan, the groundwater flows in an eastward direction within the eastern portion of the subject site, and in a western direction towards the Leitrim Wetlands within the western portion of the subject site. Therefore, it is Paterson's opinion that the subject site is predominantly characterized by two catchment areas.

Detailed servicing plans were unavailable at the time of report preparation. Based on discussions with the civil design team, the site will continue to be characterized by two catchment areas under post-development which will function similarly to pre-development conditions. However, it is anticipated that the size of the western catchment area will increase to allow for increased hydration to the adjacent Leitrim Wetlands as per recommendations by the Rideau Valley Conservation Authority (RVCA).

Groundwater Inflow/Dewatering Requirements

Three (3) potential sources of dewatering have been identified at the subject site. The sources consist of the excavation footprints related to the building foundations, servicing trenches and stormwater management pond (SWMP). Details regarding the excavation footprints and depths for each potential dewatering source were unavailable at the time of report preparation. Therefore, the building, servicing and SWMP excavations are assumed to encompass an area of approximately 750 m², 125 m² and 5,000 m², respectively, for a preliminary dewatering assessment.

Based on available conceptual drawings for the site, excavation sizes were estimated based on proposed building footprints, typical servicing excavation sizes based on previous experience at similar sites and the proposed SWMP footprint.

The infiltration rates provided for the following sources were calculated using the Dupuit Forchheimer method:

$$Q = \pi k((h_o^2 - h_p^2)/\ln(R/r))$$

- ☐ k = hydraulic conductivity (m/sec)
- ☐ h_o = thickness of the aquifer (m)

- ☐ h_p = thickness of the aquifer from the base of the excavation to the base of the aquifer (m)
- ☐ R = effective drawdown radius for the excavation (m)
- ☐ r = equivalent radius of the excavation (m)

The groundwater infiltration calculations for the excavation footprints are provided in Appendix 3 of this report.

The stratigraphy within the anticipated saturated depth of the building excavations generally consists of a glacial till deposit. Specific design details were not available at the time of report preparation. For the purpose of this study, it has been assumed the buildings will consist of slab-on-grade construction or one basement level with a maximum excavation depth of 3 m bgs. Calculations are based on an excavation size of approximately 750 m² and a saturated depth of 2 m. Using a representative hydraulic conductivity of 3.03×10^{-6} m/sec (geometric mean of the calculated hydraulic conductivities), the steady state volume of groundwater anticipated is approximately 22,000 L/day, per excavation.

The stratigraphy within the anticipated saturated depth of the servicing excavations generally consists of a glacial till deposit. Specific design details were not available at the time of report preparation. For the purpose of this study, it has been assumed the servicing trenches will have a maximum excavation depth of 5 m bgs. Calculations are based on an excavation size of approximately 125 m² and a saturated depth of 4 m. Using a representative hydraulic conductivity of 3.03×10^{-6} m/sec (geometric mean of the calculated hydraulic conductivities), the steady state volume of groundwater anticipated is approximately 12,000 L/day, per excavation.

The stratigraphy within the anticipated saturated depth of the SWMP excavation generally consists of a glacial till deposit. Specific design details were not available at the time of report preparation. For the purpose of this study, it has been assumed the SWMP excavation will have a maximum excavation depth of 5 m bgs. Calculations are based on an excavation size of approximately 5,000 m² and a saturated depth of 4 m. Using a representative hydraulic conductivity of 3.03×10^{-6} m/sec (geometric mean of the calculated hydraulic conductivities), the steady state volume of groundwater anticipated is approximately 44,000 L/day.

It is recommended that source specific dewatering calculations be completed once more specific development details are available.

5.0 SITE SPECIFIC WATER BUDGET ASSESSMENT

The site-specific water budget assessment (SSWB) was conducted to determine the hydrogeological function of the subject site, to identify infiltration potential and to identify opportunities for supplemental stormwater management measures. At the time of the field investigations the study area mainly consisted of mature trees, grass and shrubs. The pre and post-development terrain compositions are illustrated on Drawings PH5087-6 - Pre-Development Terrain Composition Plan and PH5087-7 - Post-Development Terrain Composition Plan, appended to this report. It should be noted that the future Earl Armstrong extension was excluded from the water budget study area as it is not a component to the current serviceability study for the development.

5.1 Calculations

Thornthwaite and Mather Water Balance Calculations

When falling precipitation intercepts the ground, three possible outcomes arise. The water can either evaporate/transpire back into the atmosphere (evapotranspiration), infiltrate into the surface soils (infiltration) or leave the area as runoff.

The method employed by Thornthwaite and Mather (1957) was used along with modelling software by Environment Canada's Engineering Climate Services Unit (EC-ECS) to determine the partitioning of water throughout various portions of the hydrologic cycle. Inputs into the modelling program included monthly temperature, precipitation, water holding capacities and site latitude. Using the long-term averages of these variables, it was possible to calculate annual potential and actual evapotranspiration, change in soil moisture storage and the water surplus.

The formula employed by Thornthwaite and Mather is as follows:

$$S = R + I = P - ET$$

Where:

- S = surplus (mm/year)
- R = annual runoff (mm/year)
- I = annual infiltration (mm/year)
- P = annual precipitation (mm/year)
- ET = annual evapotranspiration (mm/year).

Shallow unsaturated soils within the study area generally consisted of topsoil overlying a glacial till deposit. Given the similar soil profiles across the entire study area, the above noted calculations were carried out for the soil moisture holding capacity of a fine sandy loam.

Based on the location of the site within the Ottawa area, climatic data was obtained from the climate station located at the McDonald-Cartier International Airport covering the period of January 1939 to December 2022. The information was provided by Environment Canada's Engineering Climate Services Unit and is presented in Appendix 2 of the report.

Table 4, below, displays the soil types present within the study area and their associated water holding capacities (WHC) as well as the actual evapotranspiration (AET) and surplus data. For the purposes of this study, AET values were used as they account for accumulated soil moisture deficit. This deficit represents the volume of water retained within the available pore spaces of the soil and is subtracted from the potential evapotranspiration (PET) value to more accurately calculate the water surplus. The monthly/annual water balance data is presented in Tables 6 and 7 in Appendix 2 of this report. For the purpose of this study, 70% of the detached homes property footprints are considered to be impervious surfaces (100% of surplus will result in runoff) and 30% are considered to be urban lawns.

Table 4 - Site Specific Water Surplus Information			
Land Use Unit	Water Holding Capacity (mm)	Actual Evapotranspiration (mm/year)	Surplus Water (mm/year)
Impervious Surfaces	N/A	145*	759
Urban Lawn/Shallow Rooted Crops (Fine Sandy Loam)	75	525	378
Mature Forests (Fine Sandy Loam)	300	605	298
Table reproduced using WHC values from MOE (2003) - Stormwater Management Planning and Design Manual and modelling data from Environment Canada's Engineering Climate Services Unit. *Values based on evaporation information for urban areas (16% of precipitation) included in the Eastern Ontario Water Resources Management Study prepared by CH2M HILL Canada Limited (March 30, 2001).			

Infiltration Factors

In order to break down the surplus water values for the various materials into infiltration and runoff, various factors must be considered. The MOE Stormwater Management Planning and Design Manual (2003) lists three main factors that

contribute to surface water infiltration rates.

The first factor is topography, which is broken down further into three sections: flat and average slope, rolling land and hilly land. Flat and average slope provides the greatest potential for infiltration and has the largest infiltration factor applied to it (0.3), while the other two have progressively lower infiltration factors (rolling land is 0.2 and hilly land is 0.1).

The second factor is soil, which is also broken down further into three sections: tight impervious clay, medium combinations of clay and loam and open sandy loam. Open sandy loam provides the greatest potential for infiltration (infiltration factor of 0.4) while the other two have progressively lower potential for infiltration to occur (infiltration factor for medium combinations of clay and loam is 0.2 and for tight impervious clay is 0.1).

The final factor the MOE manual uses to partition infiltration from runoff is land cover. It is broken down into two sections: open fields/cultivated lands and woodlands. Woodlands have greater infiltration potential and an infiltration factor of 0.2. Open fields and cultivated lands have lower potential and with an infiltration factor of 0.1. A summary of the MOE manual's descriptors and their associated infiltration factors is shown below in Table 5.

Table 5 - MOE (2003) Infiltration Factors	
Description of Area/Development Site	Value of Infiltration Factor
Topography	
Flat and average slope (<0.6 m/km)	0.30
Rolling land (slope of 2.8-3.8 m/km)	0.20
Hilly land (slope of 28-47 m/km)	0.10
Soil	
Tight impervious clay	0.10
Medium combinations of clay and loam	0.20
Open sandy loam	0.40
Cover	
Open fields/cultivated lands	0.10
Woodlands	0.20
Table reproduced from MOE (2003) - Stormwater Management Planning and Design Manual.	

The topography of the study area is classified as hilly land (slope of 28-47 m/km throughout the subject site) Therefore, a pre-development topography infiltration factor of 0.1 was given for the materials analysed on this property. In order for development to proceed, it is expected that alterations will be made to the topography of the site. In general, it is expected that the overall slope of the site will be reduced to accommodate buildings and parking areas. Therefore, the

topography of the subject site under post-development conditions will consist of a mix rolling and hilly land and was therefore assigned a post-development topography infiltration factor of 0.15. An infiltration factor of 0 was assigned to the impervious surfaces due to its negligible infiltration capacity.

As previously discussed, soils within the study area generally consisted of topsoil overlying a glacial till deposit. Therefore, a pre-development soil infiltration factor of 0.3 was given for the materials analysed on this property. Under post-development conditions, the majority of the site will consist of either landscaped areas or impervious surfaces, with soil infiltration factors ranging from 0.3 for fine sandy loam to 0 for impervious surfaces.

At the time of the field investigations, the subject site generally consisted of mature forest. A pre-development vegetation infiltration factor of 0.2 was therefore used for the site. Post-development, it is expected the majority of the trees remaining on site will be removed to accommodate buildings, parking areas and roadways. As such, a post-development vegetation infiltration factor of 0.1 was assigned to the site, except for impervious surfaces, which were given an infiltration factor of 0 due to its negligible potential to benefit from vegetation cover.

The pre and post-development infiltration factors for all materials considered are included in the water budget calculations provided in Table 8 and Table 9 included in Appendix 2 of this report.

5.2 Pre and Post-Development Water Budget

The pre-development water budget analysis conducted for the study area determined that an estimated 21,992,400 L/year of surplus water currently infiltrates the surface soils. The remaining estimated 14,661,600 L/year of surplus leaves the site as runoff.

The post-development water budget analysis determined that an estimated 6,168,925 L/year of surplus water will infiltrate the surface soils and approximately 72,011,680 L/year will leave the site as runoff. These values equate to an approximate decrease in infiltration of 72% and an increase in runoff of 391%.

The main variable that changed from pre-development conditions to post-development conditions was the addition of approximately 8.8 hectares of impervious surfaces. This results in reducing the area of pervious materials throughout the subject site, therefore, reducing the overall infiltration potential of the subject site. The remaining areas that are not being converted to impervious surfaces will become landscaped surfaces characterized by urban lawn (fine sandy

loam) material. Also, it should be noted that the SWMP area was excluded from the post-development water budget analysis given that this area is designed to manage stormwater runoff and does not contribute to the infiltration or runoff potential of the site.

It is important to note that the post-development water budget analysis for the subject site does not consider any potential infiltration of the impervious surfaces (100% runoff was taken as a conservative approach). In reality, some portion of surface water that lands on impervious surfaces infiltrates (asphalt is not 100% impervious) or is diverted to grassed areas where additional infiltration may occur. As such, the post-development runoff volumes should be considered a conservative estimate and not expected to definitively represent future conditions.

Details of the pre and post-development water budget analyses are presented in Tables 8 and 9, included in Appendix 2 of this report. Additional water budget calculations were completed for each catchment area and are also included in Appendix 2.

6.0 GROUNDWATER IMPACT ASSESSMENT

6.1 Impact of Proposed Development on Surrounding Infrastructure

As previously discussed, soils within the subject site generally consisted of topsoil, overlying a glacial till deposit. The expected groundwater infiltration will be encountered within the glacial till deposit.

The steady-state radius of influence calculations completed were based upon the Sichardt equation as shown below. The assumed setting for the analytical solution was one in which open cut trenches were used to install the services at the subject site, creating an unconfined condition which would allow use of the equation to determine the radius of influence.

$$R = 3000 * \Delta h(K^{0.5})$$

Where: R = radius of influence (m)
 Δh = expected groundwater drawdown (m)
 K = hydraulic conductivity (m/sec).

For the purposes of completing the calculations, the following values were used in the analysis for the glacial till:

- ☐ Δh = 2 to 4 m
- ☐ K = 3.71×10^{-7} to 1.21×10^{-5} m/sec, based on site specific hydraulic conductivity values of the glacial till.

Using the above equation and assumptions, a radius of influence of 5 to 42 m will develop as a steady state condition within the glacial till, extending from the edge of the excavation, in the area of the subject site, depending on the groundwater levels and hydraulic properties of the specific soils encountered.

The surrounding area consists of mostly low-rise residential homes and commercial properties. The buildings located within the theoretical radius of influence are generally expected to be founded on the glacial till deposit. The majority of the groundwater infiltration is expected to occur within the glacial till with minimal compressibility. Furthermore, water takings are also expected to be short term in duration, given the nature of the development. As such, adverse effects to surrounding infrastructure related to dewatering activities at the subject site are expected to be negligible.

6.2 Impact of Proposed Development on Existing Well Users

A search of the Ontario Water Well Records online mapping database indicates there are a number of wells within 500 m of the site as depicted on Drawing PH5087-2 - MECP Water Well Location Plan, appended to this report. However, it is expected that the majority of these wells are either no longer in use due to their installation dates and developed nature of the region or are monitoring well installations. Additionally, the majority of properties surrounding the site are serviced by municipal water supplies. Any wells that may still be in use are cased well below the anticipated excavation depths associated with the proposed development and are accessing the deeper bedrock aquifer. Furthermore, the properties that reside on the eastern boundary of the subject site will have the opportunity to connect to municipal services once the development proceeds. Therefore, it is anticipated that the existing wells will either no longer be in use or have adequate vertical and horizontal separation from proposed construction activities. Therefore, dewatering activities at the subject site are not expected to cause any interference to the water supply of surrounding properties or other negative impacts.

As the potential to interfere with the water quality/quantity of existing well users in the area is negligible, a water well monitoring program is not recommended for the aforementioned water takings. If wells are found to remain in existence on the subject site, they should be decommissioned in accordance with Ontario Regulation 903.

If construction activities are shown to cause negative impacts to the water supplies of existing well users, the contractor shall take action to make available a supply of water equivalent in quality and quantity of their typical takings or shall compensate those affected for reasonable costs for doing so, or shall reduce water taking amounts to alleviate the negative impacts. The contractor shall provide temporary water supplies, to those affected, to meet their typical takings or compensate such persons for reasonable costs associated to do so until permanent restoration of the affected water supply or an equivalent source.

6.3 Impact of Proposed Development on the Environment

A search of the MECP Environmental Site Registry for Records Site Condition (RSCs) was conducted as part of the assessment of the site, neighbouring properties and the general area. No RSCs were identified within the 500 m of the subject site.

A Phase II Environmental Site Assessment (ESA) was completed by Paterson for the subject site. All soil samples were found to be in compliance with MECP Table 2 Residential standards. All groundwater samples were found to be in compliance with MECP Table 2 Potable standards.

There are several surface water features located within the subject site and within 500 m of the subject site. These include unnamed scratch ditches, drainage ditches and conveyance channels. Also, the Leitrim Wetlands lies west of the subject site.

As per the Environmental Impact Study (EIS) prepared by Arcadis, select drainage features located within the subject site are expected to be infilled/removed as part of the proposed development. However, removal of these features is not anticipated to impact the overall hydrogeologic or hydrologic function of the site, as the stormwater management infrastructure will replicate pre-development discharge conditions by directing flows from the western catchment area toward the wetland. Furthermore, the stormwater management infrastructure will direct flows to the adjacent wetland by the means of conventional stormwater management measures, thus increasing hydration to this natural feature. Additionally, it is anticipated that water directed towards the wetland will infiltrate the subsoils offsite, helping to maintain the overall hydrogeologic function of the area, despite the localized infiltration deficit within the subject site itself. Therefore, given that the EIS did not identify impacts to features outside the development area and the stormwater management measures discussed above, impacts to the surrounding natural environment as a result of the proposed development are anticipated to be negligible.

6.4 Adjacent PTTW/EASRs/ECAs

A search of the MECP Permit to Take Water (PTTW) database provided one (1) PTTW within a 500 m radius of the subject site.

PTTW 2014-BAQMK2 is registered to 4840 Bank St. Ltd. and is located within the residential development currently under construction to the north of the subject site. The above noted permit contains 2 sources (Services Trenches and Miscellaneous Poned Areas) with a maximum taking of 5,200,000 L/day.

A search of the MECP Environmental Activity and Sector Registry (EASR) database provided one (1) active EASR within a 500 m radius of the subject site.

EASR R-009-7232525387 is registered to RON EASTERN CONSTRUCTION LTD. and is located within the residential development currently under construction

to the north of the subject site. The above noted permit contains 2 sources (Building Excavation and Servicing Excavation) with a maximum taking of 400,000 L/day, per source.

Based on available mapping (GeoOttawa), it is expected that the servicing has been completed for the adjacent residential development at 4840 Bank Street. Therefore, it is unlikely that dewatering between the two sites would be taking place concurrently. Cumulative impacts related to anticipated dewatering activities for the proposed development from adjacent water taking permits are not anticipated.

With respect to Environmental Compliance Approvals (ECAs), given the nature of the development in the area (residential and commercial), there are several ECAs that exist for various purposes in the areas bordering the site. Eight (8) ECAs were found to be in relation to existing stormwater management systems in the area. Upon review of the aforementioned ECAs, the ECAs generally relate to installations of new sanitary and storm sewers for new residential developments along with stormwater management strategies on the respective sites. As the ECAs relate to municipal stormwater infrastructure, no concerns were found from a hydrogeological perspective in relation to the subject site.

7.0 ASSESSMENT AND RECOMMENDATIONS

7.1 Sources of Contamination

Based on the soil and groundwater samples collected at the subject site as part of the Phase II ESA investigation, all soil and groundwater samples were found to be in compliance with MECP Table 2 Residential standards and MECP Table 2 Potable standards, respectively.

Prior to and during site development, it is recommended that construction best management practices with respect to fuels and chemical handling, spill prevention, and erosion and sediment control be followed. This will minimize the potential for the introduction of contaminants to the soil, surface water, or groundwater at the subject site.

It is anticipated that the material on site will be disposed of as per Ontario Regulation 406/19 – On-site and Excess Soil Management.

With respect to stormwater runoff quality, it is recommended that best management practices with respect to operational standards be maintained for any stormwater management facilities constructed for the proposed development. It is also recommended that adherence to the City of Ottawa Salt Management Plan - Appendix A (October, 2011) included in Appendix 4 is enforced to ensure that chloride levels in stormwater runoff are minimized.

7.2 Surface Water Features

There are several surface water features located within the subject site and within 500 m of the subject site. These include unnamed scratch ditches, drainage ditches and conveyance channels. Also, the Leitrim Wetlands lies west of the subject site. However, as previously discussed, the stormwater management strategy will employ measures to increase hydration to adjacent surface water features. Therefore, by implementing the proposed stormwater management strategy and as per the Environmental Impact Study prepared by Arcadis, no significant impacts are expected from the proposed development on the overall hydrologic function of the area or sensitive features.

With respect to water discharge, water that is pumped from on site excavations must be managed in an appropriate manner. The contractor will be required to implement a water management program to dispose of the pumped water. If the discharge point for the pumped water is directed to overland drainage, it is

expected that a multi-barrier approach (such as hay bales, geosocks, silt fence, etc.) to a non-frozen, well vegetated area will be utilized in order to promote re-infiltration prior to reaching a watercourse. Furthermore, if the discharged water is to be directed to overland drainage within 30 m of a water body/watercourse, the turbidity of the water shall not exceed 8 NTU above background levels of the nearest water body. The contractor will be required to maintain appropriate BMPs with respect to sediment and erosion control to ensure negative effects to the surrounding environment are minimized.

7.3 Existing Wells

Any wells within the subject site must be decommissioned prior to construction in accordance with Ontario Regulation 903.

If construction activities are shown to cause negative impacts to the water supplies of existing well users, the contractor shall take action to make available a supply of water equivalent in quality and quantity of their typical takings, or shall compensate those affected for reasonable costs for doing so, or shall reduce water taking amounts to alleviate the negative impacts. The contractor shall provide temporary water supplies, to those affected, to meet their typical takings or compensate such persons for reasonable costs associated to do so until permanent restoration of the affected water supply or an equivalent source. As the potential to interfere with the water quality/quantity of existing well users in the area is negligible, a water well monitoring program is not recommended for the proposed development.

7.4 Water Taking Permitting Requirements

If water taking volumes are greater than 50,000 L/day, a MECP water taking Environmental Activity Sector Registry (EASR) or Permit to Take Water (PTTW) will be required. Depending on the nature of the proposed water takings, an additional hydrogeological investigation may be required.

7.5 Infiltration Potential

As previously discussed, surficial soils within the study area generally consisted of topsoil overlying a glacial till deposit. With regards to infiltration rates for the soils found on-site, site-specific testing varied from 24 to 82 mm/hr for the glacial till. The variations in the infiltration rates are dependent on the composition/compaction of the glacial till at a given location. A minimum safety correction factor of 2.5 will need to be applied to the estimated infiltration rates

noted above prior to consideration in the stormwater management design. Additional infiltration testing may be required once additional development details become available.

As noted above, the results of the water budget analyses completed at the subject site indicated that 21,992,400 L/year of infiltration and 14,661,600 L/year of surface runoff are occurring under pre-development conditions. Under post development conditions, it is expected that there will be a 72% infiltration deficit and a 391% increase in runoff. Therefore, it will likely be necessary to incorporate various stormwater management measures into the design of the development. It should be noted that Paterson's water budget assessment is based on mean water budget values for the soil types at the subject site that were calculated by modeling conducted by EC-ECS. The EC-ECS model is calibrated to historical climate data and does not account for climate change predictions. Therefore, based on the National Capital Commission and City of Ottawa climate change predictions, the stormwater management design team could consider potential seasonal changes (longer spring and shorter winter) and increases in temperature and precipitation when developing their stormwater management strategy.

The stormwater management strategy should target methods best suited to mitigate the impacts that may arise due to the post-development decrease in infiltration and increase in runoff at the subject site, while maintaining consideration of site constraints as defined by the City of Ottawa's Technical Bulletin IWSTB-2024-04 and the MECP's Consolidated Linear Infrastructure Environmental Compliance Approval documentation. Based on the site constraints observed at the subject site (i.e., shallow water table), infiltration based Low Impact Development (LID) measures are not recommended at the time of report preparation. Therefore, it is understood that the stormwater management strategy will include conventional stormwater management measures (i.e., end of pipe quality and quantity control) as well as the implementation of Best Management Practices to mitigate impacts related to the post-development water balance. This will be accomplished by directing flows to the adjacent wetland, thereby increasing hydration and maintaining natural function of surrounding features. Despite the post-development infiltration deficit, the majority of runoff will continue to be directed to areas within the same subwatershed, where infiltration will occur offsite, thereby maintaining the natural function of the hydrologic and hydrogeologic systems.

8.0 CLOSURE

The client should be aware that any information pertaining to soils and all test hole logs are furnished as a matter of general information only, and test hole descriptions or logs are not to be interpreted as descriptive of conditions at locations other than those of the test holes.

A hydrogeological review of this nature is a limited sampling of a site. The recommendations are based on information gathered at the specific test locations and can only be extrapolated to an undefined limited area around the test locations. Should any conditions at the site be encountered which differ from those at the test locations, we request notification immediately in order to permit reassessment of our recommendations.

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

Paterson Group Inc.



Zavian Buchanan, E.I.T.



Oliver Blume, P.Geo.



9.0 REFERENCES

Government of Ontario. Provincial Policy Statement 2020 Under the Planning Act.

Engineering Technologies Canada Ltd, "ETC Pask (Constant Head Well) Permeameter – User Guide", dated March 2016.

Transportation Association of Canada, "Syntheses of Best Practices – Road Salt Management", dated 2013.

"Characterization of Ottawa's Watersheds", Prepared for the City of Ottawa, dated March 2011.

"Surficial Geology of Southern Ontario (MRD128)", Prepared by the Ontario Geological Survey, 2010

"Karst of Southern Ontario and Manitoulin Island (GRS005)" Prepared by the Ontario Geological Survey, 2008

"Paleozoic Geology of Southern Ontario (MRD219)", Prepared by the Ontario Geological Survey, 2007

"Physiography of Southern Ontario (MRD228)", Prepared by the Ontario Geological Survey, 2007

Chapman, L.J., and Putnam, D. F. "The Physiography of Southern Ontario, Third Edition". Ontario Ministry of Natural Resources, 1984.

Freeze, R.A., and Cherry, J.A. "Groundwater". Prentice-Hall, Inc., 1979.

FIGURES

DRAWING PH5087-1 - SITE PLAN

DRAWING PH5087-2 - MECP WATER WELL LOCATION PLAN

DRAWING PH5087-3 - SURFICIAL GEOLOGY PLAN

DRAWING PH5087-4 - BEDROCK GEOLOGY PLAN

DRAWING PH5087-5 - GROUNDWATER CONTOUR PLAN

DRAWING PH5087-6 - PRE-DEVELOPMENT TERRAIN COMPOSITION PLAN

DRAWING PH5087-7 - POST-DEVELOPMENT TERRAIN COMPOSITION PLAN

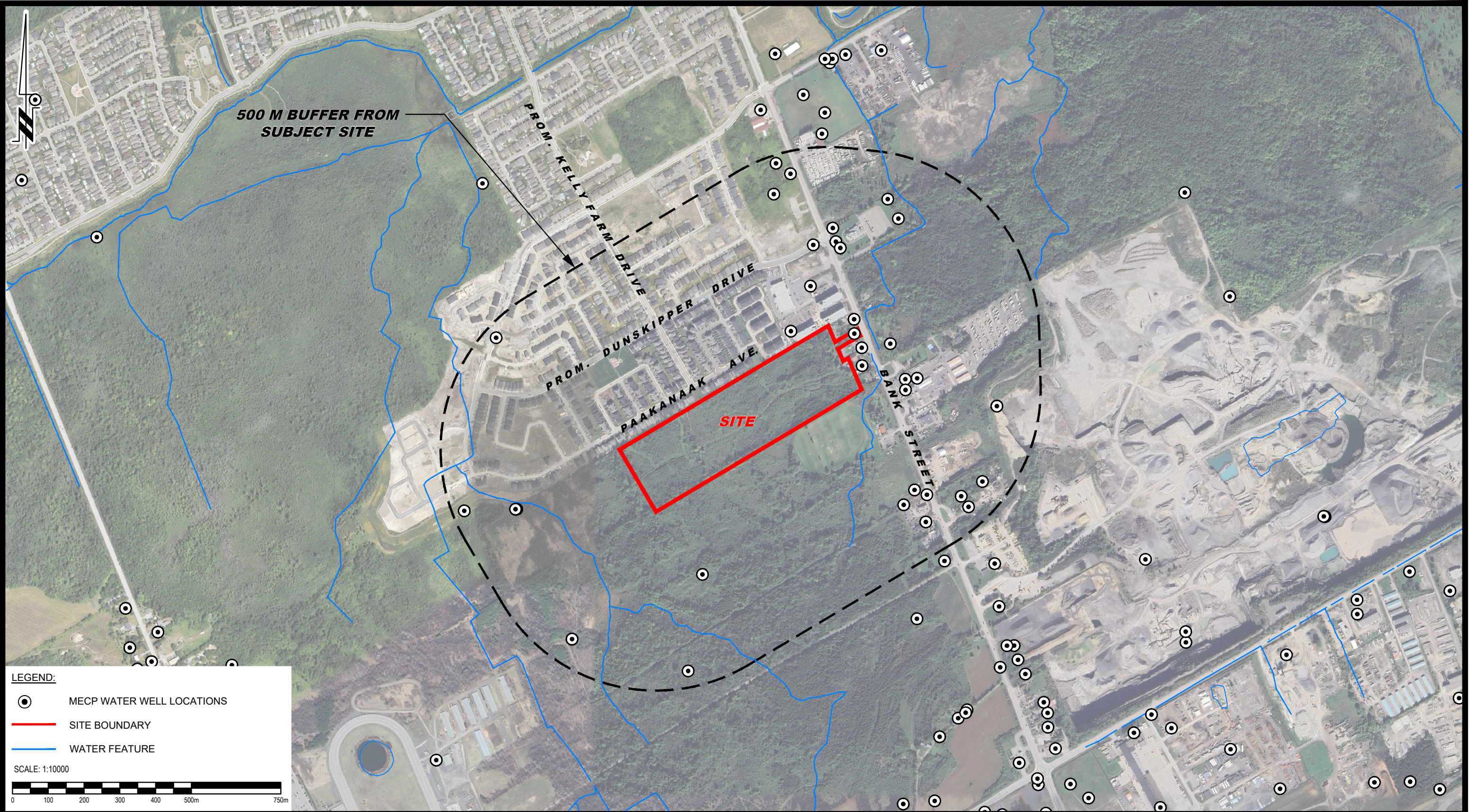


LEGEND:

— SITE BOUNDARY

SCALE: 1:3000

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							Drawn by:	GK	Report No.:	PH5087-REP.01
							Checked by:	ZB	Dwg. No.:	PH5087-1
							Approved by:	OB	Revision No.:	
NO.	REVISIONS	DATE	INITIAL							



LEGEND:

- MECP WATER WELL LOCATIONS
- SITE BOUNDARY
- WATER FEATURE

SCALE: 1:10000

0 100 200 300 400 500m 750m

 9 AURIGA DRIVE OTTAWA, ON K2E 7T9 TEL: (613) 226-7381					REGIONAL GROUP HYDROGEOLOGICAL STUDY PROPOSED RESIDENTIAL DEVELOPMENT 4850 BANK STREET ONTARIO	Scale: 1:10000	Date: 08/2025
						Drawn by: GK	Report No.: PH5087-REP.01
						Checked by: ZB	Dwg. No.: PH5087-2
						Approved by: OB	Revision No.:
	NO.	REVISIONS	DATE	INITIAL	OTTAWA, Title: MECP WATER WELL LOCATION PLAN		



LEGEND:

- SITE BOUNDARY
- TILL
- PALEOZOIC BEDROCK
- ORGANIC DEPOSITS

SCALE: 1:3000

 PATERSON GROUP 9 AURIGA DRIVE OTTAWA, ON K2E 7T9 TEL: (613) 226-7381					REGIONAL GROUP HYDROGEOLOGICAL STUDY PROPOSED RESIDENTIAL DEVELOPMENT 4850 BANK STREET ONTARIO	Scale:	1:3000	Date:	08/2025
						Drawn by:	GK	Report No.:	PH5087-REP.01
						Checked by:	ZB	Dwg. No.:	PH5087-3
						Approved by:	OB	Revision No.:	
	NO.	REVISIONS	DATE	INITIAL	SURFICIAL GEOLOGY PLAN				



LEGEND:

- SITE BOUNDARY
- MARCH FORMATION, SANDSTONE, DOLOMITIC SANDSTONE, DOLOSTONE
- OXFORD FORMATION, DOLOSTONE, MINOR SHALE AND SANDSTONE

SCALE: 1:3000

0

25

50

75

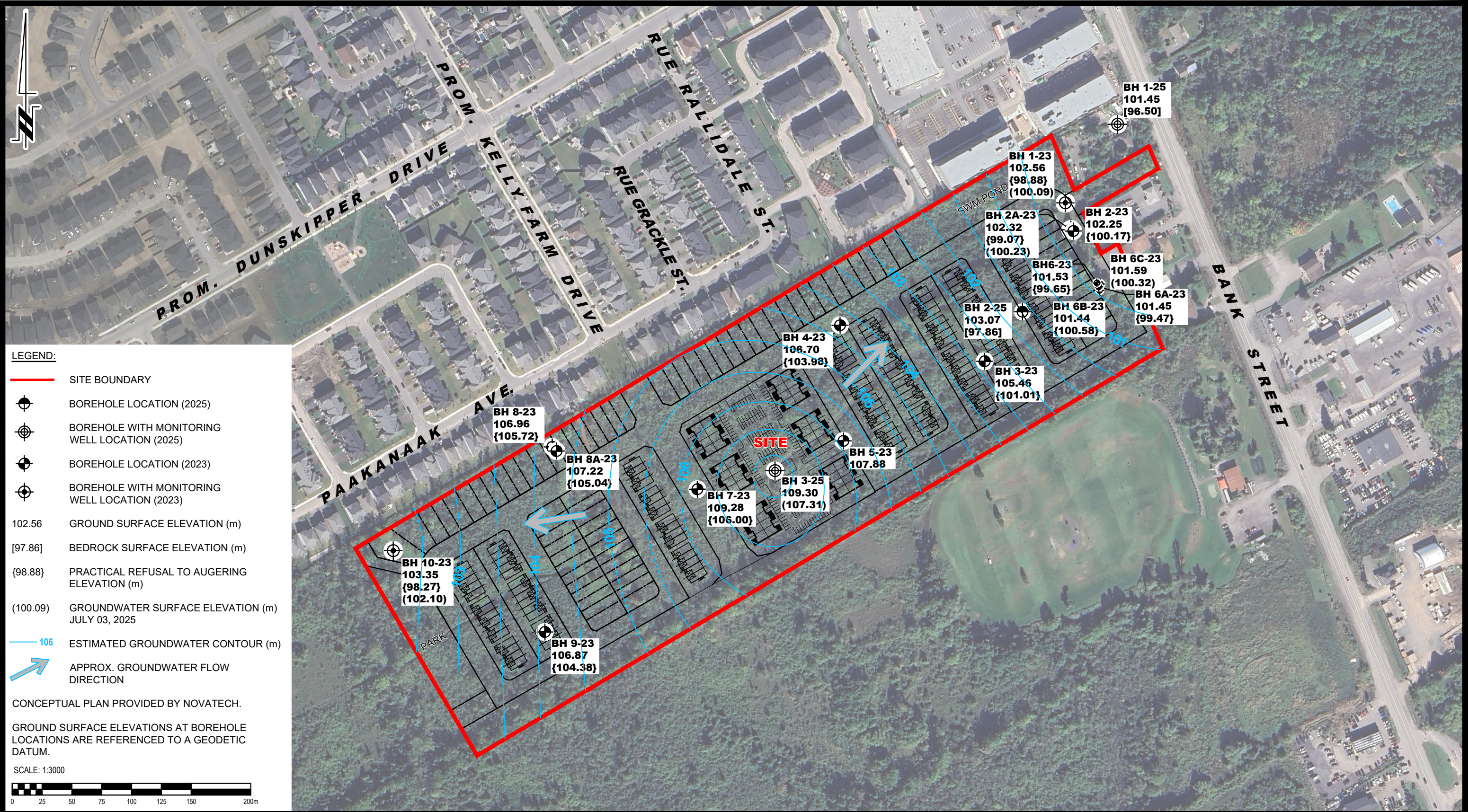
100

125

150

200m

 9 AURIGA DRIVE OTTAWA, ON K2E 7T9 TEL: (613) 226-7381					REGIONAL GROUP HYDROGEOLOGICAL STUDY PROPOSED RESIDENTIAL DEVELOPMENT 4850 BANK STREET ONTARIO BEDROCK GEOLOGY PLAN	Scale:	1:3000	Date:	08/2025
						Drawn by:	GK	Report No.:	PH5087-REP.01
						Checked by:	ZB	Dwg. No.:	PH5087-4
						Approved by:	OB	Revision No.:	
	NO.	REVISIONS	DATE	INITIAL					



LEGEND:

- SITE BOUNDARY
- BOREHOLE LOCATION (2025)
- BOREHOLE WITH MONITORING WELL LOCATION (2025)
- BOREHOLE LOCATION (2023)
- BOREHOLE WITH MONITORING WELL LOCATION (2023)
- 102.56 GROUND SURFACE ELEVATION (m)
- [97.86] BEDROCK SURFACE ELEVATION (m)
- {98.88} PRACTICAL REFUSAL TO AUGERING ELEVATION (m)
- (100.09) GROUNDWATER SURFACE ELEVATION (m) JULY 03, 2025
- 106 ESTIMATED GROUNDWATER CONTOUR (m)
- APPROX. GROUNDWATER FLOW DIRECTION

CONCEPTUAL PLAN PROVIDED BY NOVATECH.

GROUND SURFACE ELEVATIONS AT BOREHOLE LOCATIONS ARE REFERENCED TO A GEODETIC DATUM.

SCALE: 1:3000

9 AURIGA DRIVE OTTAWA, ON K2E 7T9 TEL: (613) 226-7381				REGIONAL GROUP HYDROGEOLOGICAL STUDY PROPOSED RESIDENTIAL DEVELOPMENT 4850 BANK STREET ONTARIO			Scale: 1:3000	Date: 08/2025
				OTTAWA, Title:			Drawn by: GK	Report No.: PH5087-REP.01
				OVERBURDEN GROUNDWATER CONTOUR PLAN			Checked by: ZB	Dwg. No.: PH5087-5
							Approved by: OB	Revision No.: 1
1	UPDATED GROUNDWATER ELEVATION	16/10/2025	OB					
NO.	REVISIONS	DATE	INITIAL					



LEGEND:

- WATER BUDGET STUDY AREA
- CATCHMENT BOUNDARY
- MATURE FORESTS (FINE SANDY LOAM)

SCALE: 1:3000

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

1	UPDATED WATER BUDGET STUDY AREA	16/10/2025	OB
NO.	REVISIONS	DATE	INITIAL

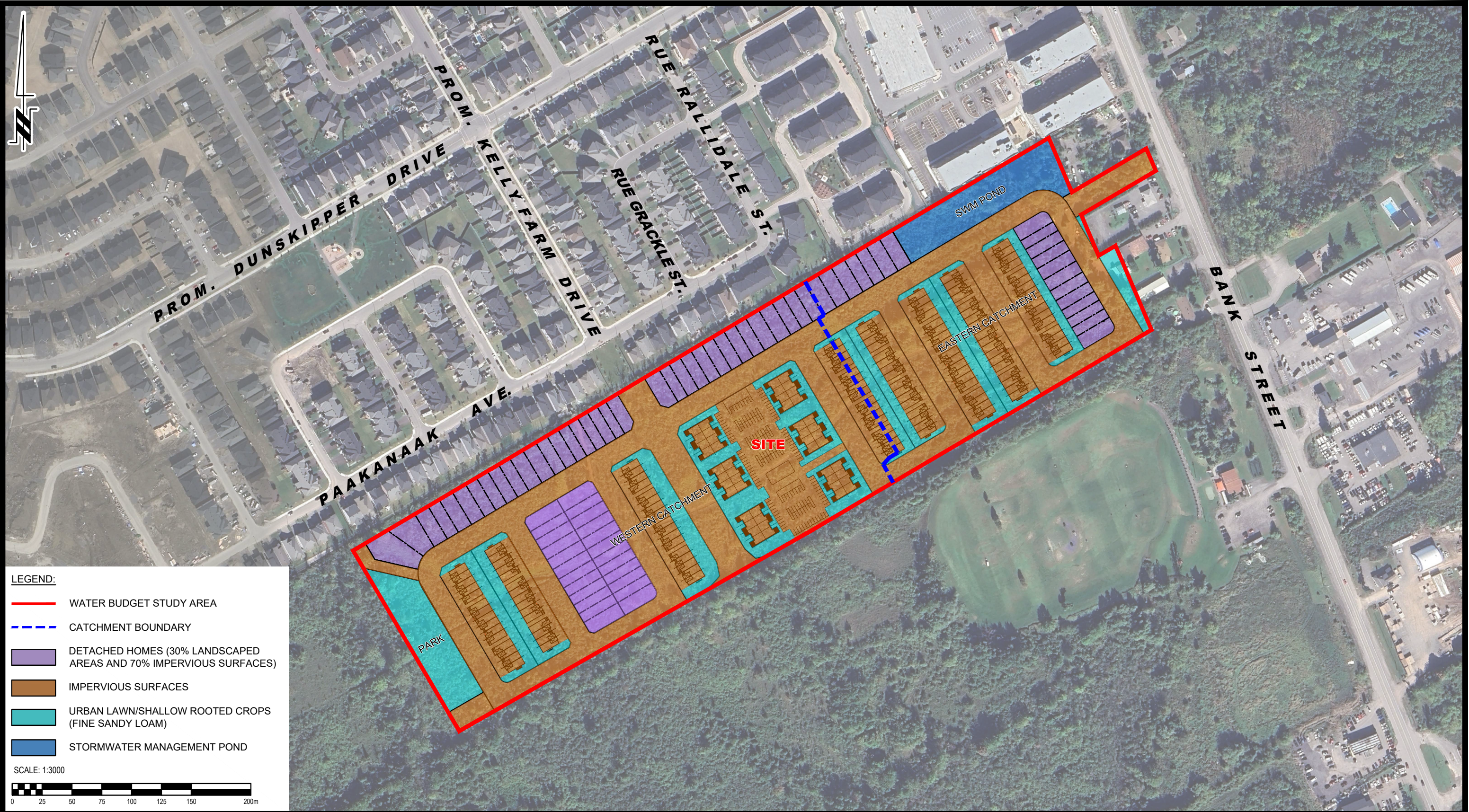
REGIONAL GROUP
HYDROGEOLOGICAL STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
4850 BANK STREET

OTTAWA,
Title:

ONTARIO

PRE-DEVELOPMENT TERRAIN COMPOSITION PLAN

Scale:	1:3000	Date:	08/2025
Drawn by:	GK	Report No.:	PH5087-REP.01
Checked by:	ZB	Dwg. No.:	PH5087-6
Approved by:	OB	Revision No.:	1



LEGEND:

- WATER BUDGET STUDY AREA
- CATCHMENT BOUNDARY
- DETACHED HOMES (30% LANDSCAPED AREAS AND 70% IMPERVIOUS SURFACES)
- IMPERVIOUS SURFACES
- URBAN LAWN/SALLOW ROOTED CROPS (FINE SANDY LOAM)
- STORMWATER MANAGEMENT POND

SCALE: 1:3000

0255075100125150200m

PATERSON GROUP 9 AURIGA DRIVE OTTAWA, ON K2E 7T9 TEL: (613) 226-7381					REGIONAL GROUP HYDROGEOLOGICAL STUDY PROPOSED RESIDENTIAL DEVELOPMENT 4850 BANK STREET ONTARIO	Scale: 1:3000	Date: 08/2025
						Drawn by: GK	Report No.: PH5087-REP.01
						Checked by: ZB	Dwg. No.: PH5087-7
	1	UPDATED WATER BUDGET STUDY AREA	16/10/2025	OB	OTTAWA, Title: POST-DEVELOPMENT TERRAIN COMPOSITION PLAN	Approved by: OB	Revision No.: 1
	NO.	REVISIONS	DATE	INITIAL			

APPENDIX 1

SOIL PROFILE AND TEST DATA SHEETS

DRAWING PG6912-1 - TEST HOLE LOCATION PLAN

COORD. SYS.: MTM ZONE 9 EASTING: 376393.34 NORTHING: 5019077.45 ELEVATION: 101.45

PROJECT: Proposed Residential Development

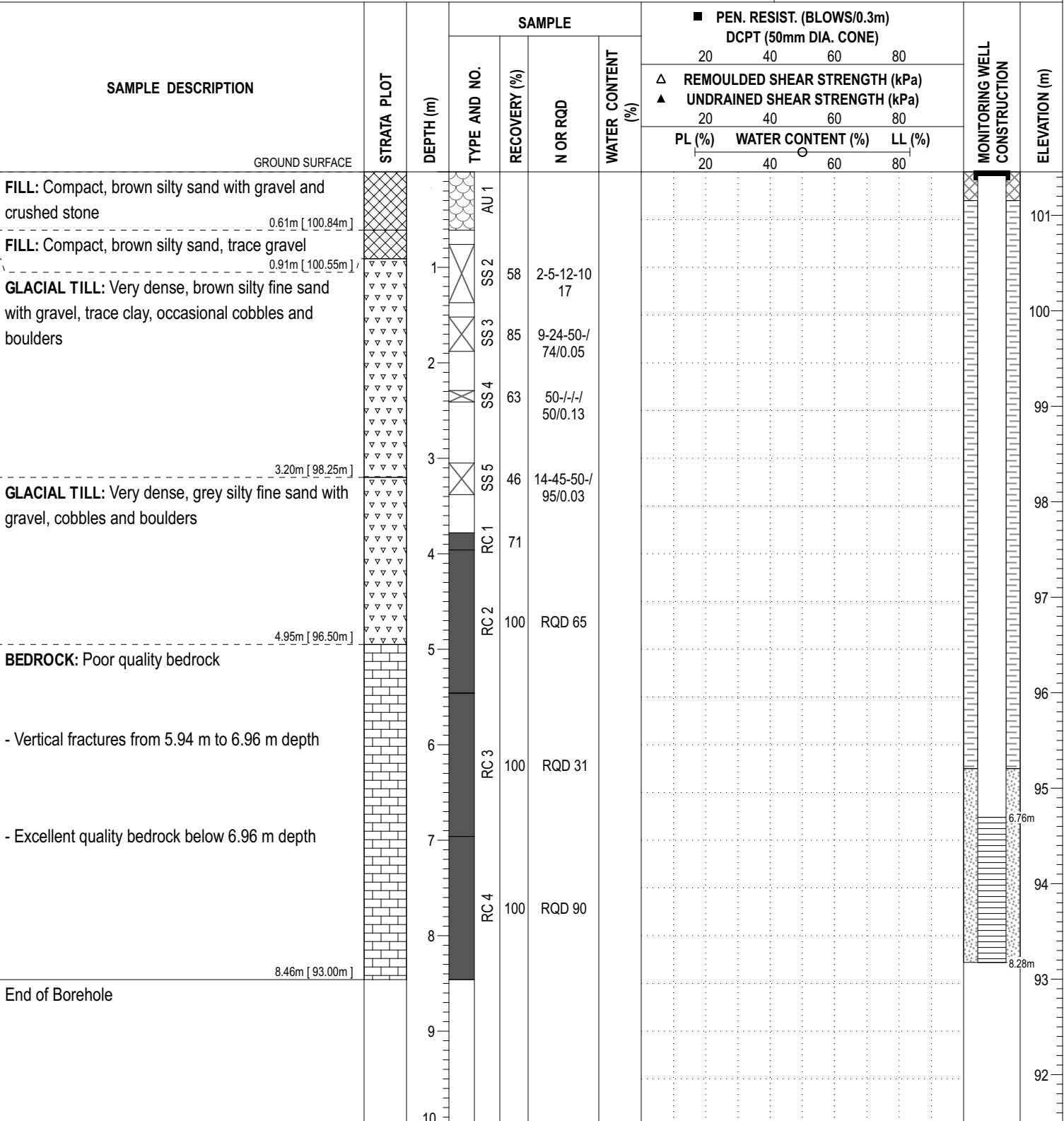
FILE NO.: PG6912

ADVANCED BY: CME-55 Low Clearance Drill

DATE: June 18, 2025

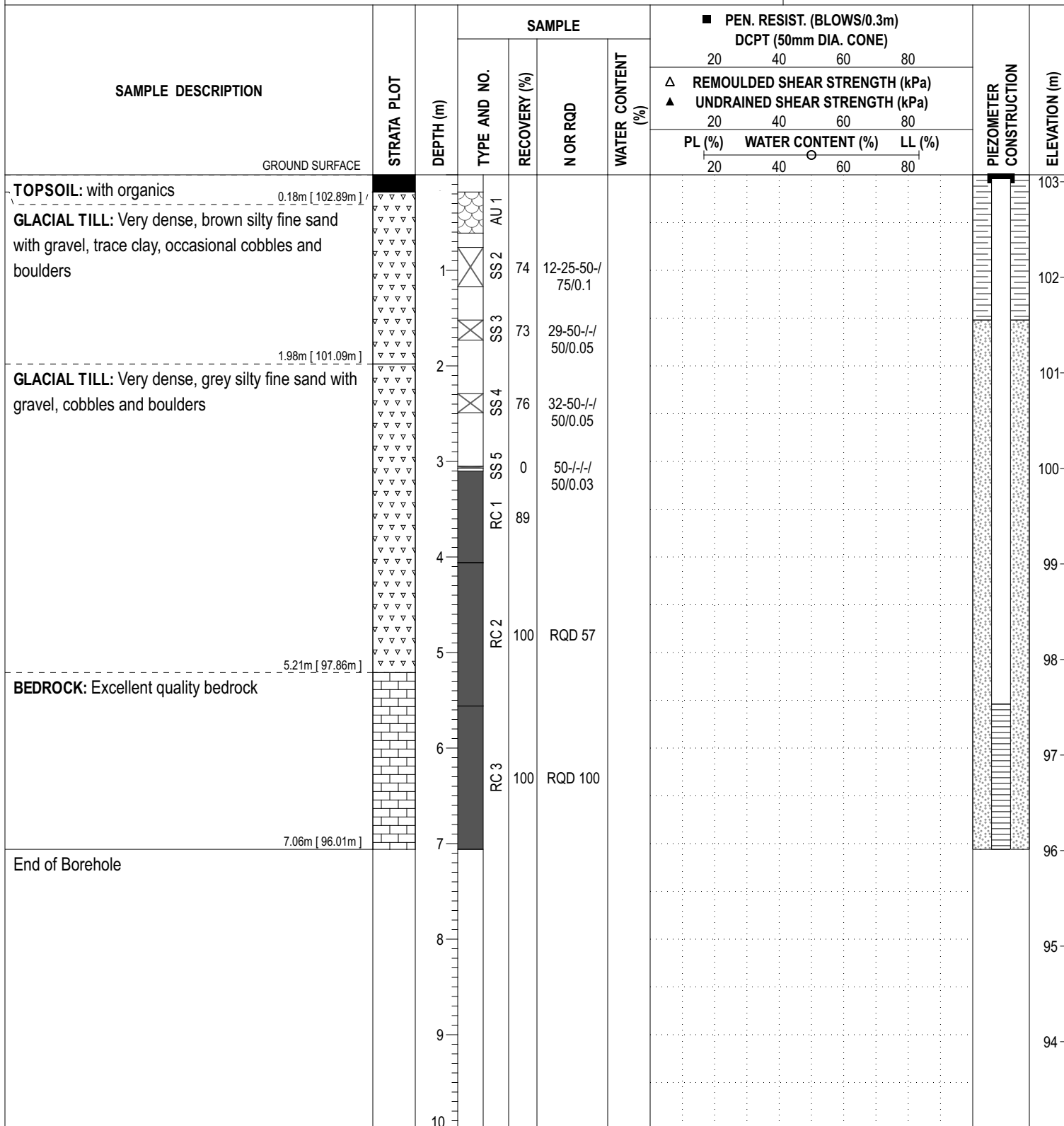
HOLE NO.: BH 1-25

REMARKS:



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COORD. SYS.: MTM ZONE 9	EASTING: 376313.61	NORTHING: 5018920.17	ELEVATION: 103.07
PROJECT: Proposed Residential Development			FILE NO. : PG6912
ADVANCED BY: CME-55 Low Clearance Drill			HOLE NO. : BH 2-25
REMARKS:			DATE: June 18, 2025



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COORD. SYS.: MTM ZONE 9

EASTING: 376106.17

NORTHING: 5018786.90

ELEVATION: 109.30

PROJECT: Proposed Residential Development

FILE NO. : PG6912

ADVANCED BY: CME-55 Low Clearance Drill

HOLE NO. : BH 3-25

REMARKS:

DATE: June 20, 2025

[illegible]

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COORD. SYS.: MTM ZONE 9 **EASTING:** 376203.99 **NORTHING:** 5019601.65 **ELEVATION:** 96.09

PROJECT: Proposed Residential Development

FILE NO. : PG6912

ADVANCED BY: CME-55 Low Clearance Drill

REMARKS:
DATE: July 7, 2025

HOLE NO. : BH 4-25

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE				■ PEN. RESIST. (BLOWS/0.3m) DCPT (50mm DIA. CONE)				PIEZOMETER CONSTRUCTION	ELEVATION (m)
			TYPE AND NO.	RECOVERY (%)	N OR RQD	WATER CONTENT (%)	20 40 60 80					
							△ REMOULDED SHEAR STRENGTH (kPa) ▲ UNDRAINED SHEAR STRENGTH (kPa)					
							PL (%)	WATER CONTENT (%)		LL (%)		
							20	40	60	80		
							20	40	60	80		
							20	40	60	80		
							20	40	60	80		
GROUND SURFACE												
FILL: Brown silty sand with gravel and crushed stone			 AU 1									96
0.69m [95.40m]												
FILL: Compact, brown silty sand with gravel, trace clay		1	 SS 2	50	2-8-7-5 15							95
1.52m [94.57m]												
TOPSOIL: with organics, trace sand			 SS 3	58	5-5-5-11 10							
1.83m [94.26m]												
GLACIAL TILL: Very dense, brown silty fine sand, occasional cobbles		2	 SS 4	83	14-25-24-30 49							94
2.97m [93.12m]												
GLACIAL TILL: Very dense, grey silty sand with gravel, cobbles and boulders		3	 SS 5	73	15-50-/-/ 50/0.13							93
3.23m [92.86m]												
End of Borehole												
		4										92
Practical refusal to augering at 3.23 m depth on inferred boulders												
		5										91
		6										90
		7										89
		8										88
		9										87
		10										

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ELEVATION: 96.49

HOLE NO.: BH 5-25

COORD. SYS.: MTM ZONE 9 **EASTING:** 376283.28 **NORTHING:** 5019413.06 **ELEVATION:** 97.68

PROJECT: Proposed Residential Development

FILE NO. : PG6912

ADVANCED BY: CME-55 Low Clearance Drill

REMARKS:
DATE: July 7, 2025

HOLE NO. : BH 6-25

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE				■ PEN. RESIST. (BLOWS/0.3m) DCPT (50mm DIA. CONE)				PIEZOMETER CONSTRUCTION	ELEVATION (m)	
			TYPE AND NO.	RECOVERY (%)	N OR RQD	WATER CONTENT (%)	20	40	60	80			
							Δ	REMOULDED SHEAR STRENGTH (kPa)					
							▲	UNDRAINED SHEAR STRENGTH (kPa)					
PL (%)	WATER CONTENT (%)		LL (%)										
20	40	60	80										
GROUND SURFACE							20	40	60	80			
ASPHALT		0.05m [97.63m]	AU 1										
FILL: Granular, crushed stone, some sand		0.61m [97.07m]										97	
FILL: Compact, brown silty sand with gravel		1.22m [96.46m]	SS 2	42	5-7-3-6 10								
TOPSOIL: with organics, sand, trace clay and gravel		1.52m [96.16m]											
GLACIAL TILL: Dense to very dense, brown silty fine sand with gravel, cobbles and boulders			SS 3	67	7-16-14-13 30							96	
			SS 4	85	50-/-/-/ 50/0.13							95	
													
			SS 5	92	30-48-51-42 99							94	
GLACIAL TILL: Very dense, grey silty fine sand with gravel, cobbles and boulders			SS 6	79	20-26-21-50 47/0.13								
													
End of Borehole		4.50m [93.18m]										93	
Practical refusal to augering at 4.50 m depth												92	
												91	
												90	
												89	
												88	

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COORD. SYS.: MTM ZONE 9 **EASTING:** 376306.21 **NORTHING:** 5019357.57 **ELEVATION:** 98.42

PROJECT: Proposed Residential Development

FILE NO. : PG6912

ADVANCED BY: CME-55 Low Clearance Drill

REMARKS:
DATE: July 7, 2025

HOLE NO. : BH 7-25

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE				■ PEN. RESIST. (BLOWS/0.3m) DCPT (50mm DIA. CONE)				PIEZOMETER CONSTRUCTION	ELEVATION (m)
			TYPE AND NO.	RECOVERY (%)	N OR RQD	WATER CONTENT (%)	20 40 60 80					
							△ REMOULDED SHEAR STRENGTH (kPa) ▲ UNDRAINED SHEAR STRENGTH (kPa)					
							PL (%)	WATER CONTENT (%)		LL (%)		
20 40 60 80												
GROUND SURFACE												
ASPHALT			AU 1								98	
FILL: Granular, crushed stone and gravel, some sand												
FILL: Dense, brown silty sand with gravel, trace topsoil and clay		1	SS 2	42	16-29-18-10 47						97	
		2	SS 3	100	4-8-6-15 14						96	
GLACIAL TILL: Compact to very dense, brown silty fine sand with gravel, cobbles and boulders												
		3	SS 4	67	13-30-28-42 58						95	
			SS 5	54	14-50-/-/ 50/0.13						94	
		4	SS 6	77	26-52-50-/ 102/0.03						93	
End of Borehole											92	
Practical refusal to augering at 4.14 m depth											91	
											90	
											89	
									</			

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COORD. SYS.: MTM ZONE 9

EASTING: 376361.10

NORTHING: 5019231.96

ELEVATION: 100.48

PROJECT: Proposed Residential Development

FILE NO. : PG6912

ADVANCED BY: CME-55 Low Clearance Drill

HOLE NO. : BH 8-25

REMARKS:

DATE: July 7, 2025

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE				■ PEN. RESIST. (BLOWS/0.3m) DCPT (50mm DIA. CONE)			PIEZOMETER CONSTRUCTION	ELEVATION (m)		
			TYPE AND NO.	RECOVERY (%)	N OR RQD	WATER CONTENT (%)	20	40	60			80	
							△ REMOULDED SHEAR STRENGTH (kPa)	20	40			60	80
							▲ UNDRAINED SHEAR STRENGTH (kPa)	20	40			60	80
PL (%)	WATER CONTENT (%)	LL (%)											
GROUND SURFACE													
ASPHALT			AU 1								100-		
FILL: Granular, crushed stone, some sand													
FILL: Dense, brown silty sand, trace gravel		1	SS 2	33	8-26-21-17 47								
											99-		
GLACIAL TILL: Dense, brown silty fine sand with gravel, cobbles and boulders		2	SS 3	75	8-12-24-29 36								
			SS 4	0	50-/-/-/ 50/0.03						98-		
End of Borehole													
Practical refusal to augering at 2.34 m depth		3									97-		
		4									96-		
		5									95-		
		6									94-		
		7									93-		
		8									92-		
		9									91-		
		10											

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ELEVATION: 101.22

FILE NO. : PG6912

HOLE NO. : BH 9-25

DATE: July 7, 2025

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COORD. SYS.: MTM ZONE 9

EASTING: 376435.21

NORTHING: 5019057.96

ELEVATION: 101.23

PROJECT: Proposed Residential Development

FILE NO. : PG6912

ADVANCED BY: CME-55 Low Clearance Drill

REMARKS:
DATE: July 7, 2025

HOLE NO. : BH10-25

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE				■ PEN. RESIST. (BLOWS/0.3m) DCPT (50mm DIA. CONE)				PIEZOMETER CONSTRUCTION	ELEVATION (m)
			TYPE AND NO.	RECOVERY (%)	N OR RQD	WATER CONTENT (%)	20 40 60 80					
							△ REMOULDED SHEAR STRENGTH (kPa)					
							▲ UNDRAINED SHEAR STRENGTH (kPa)					
							20 40 60 80					
GROUND SURFACE							PL (%)	○ WATER CONTENT (%)		LL (%)		
							20 40 60 80					
FILL: Compact, brown silty sand with gravel				AU 1								101
0.61m [100.62m]												
FILL: Compact, brown silty sand with asphalt, some gravel		1		SS 2	33	8-7-25-14 32						100
1.45m [99.78m]												
FILL: Loose to compact, brown silty sand with gravel, trace clay and topsoil		2		SS 3	42	4-4-4-6 8						99
2.21m [99.02m]												
Compact, grey, medium SAND, some gravel				SS 4	58	6-9-26-32 35						98
2.44m [98.79m]												
GLACIAL TILL: Dense, grey silty fine sand with gravel		3										97
2.95m [98.28m]												96
End of Borehole												95
												94
												93
												92

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**PATERSON
GROUP**

SOIL PROFILE AND TEST DATA

GEOTECHNICAL INVESTIGATION

4850 Bank Street, Ottawa, Ontario

DATUM: Geodetic **EASTING:** 376352.245 **NORTHING:** 5019009.799 **ELEVATION:** 102.56

PROJECT: Proposed Development

FILE NO. PG6912

BORINGS BY: CME 55 Track-Mounted Mechanical Auger

REMARKS:

DATE: December 11, 2023

HOLE NO. BH 1-23

SAMPLE DESCRIPTION	STRATA PLOT	Sample No.	SAMPLE % RECOVERY	N VALUE or RQD	WATER CONTENT %	DEPTH (m)	Remoulded Shear Strength (kPa)			Peak Shear Strength (kPa)			Pen. Resist. Blows/0.3m (50 mm Dia. Cone)			Monitoring Well Construction
							0	50	100	0	50	100	0	50	100	
Ground Surface																
EL 102.56 m																
TOPSOIL with organics, trace clay		AU 1				0										
0.15 m																
EL 102.41 m																
GLACIAL TILL: Very dense, brown silty sand to sandy silt, some gravel and boulders, occasional cobble		SS 2	83	50		1										
- silt content increasing with depth		SS 3	100	+50		2										
- grey by 2.2m depth		SS 4	83	18												
- compact between 2.3m to 2.9m depth		SS 5	100	+50		3										
		SS 6		+50		4										
3.76 m																
EL 98.8 m																
End of Test Hole						4										
Practical refusal to augering at 3.76m depth																
(GWL @ 1.30 m - Dec. 15, 2023)																
						5										
						6										
						7										

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**PATERSON
GROUP**

SOIL PROFILE AND TEST DATA

GEOTECHNICAL INVESTIGATION

4850 Bank Street, Ottawa, Ontario

DATUM: Geodetic **EASTING:** 376358.876 **NORTHING:** 5018986.132 **ELEVATION:** 102.25

PROJECT: Proposed Development

FILE NO. PG6912

BORINGS BY: CME 55 Track-Mounted Mechanical Auger

REMARKS:

DATE: December 11, 2023

HOLE NO. BH 2-23

SAMPLE DESCRIPTION	STRATA PLOT	Sample No.	SAMPLE % RECOVERY	N VALUE or RQD	WATER CONTENT %	DEPTH (m)	Remoulded Shear Strength (kPa)			Peak Shear Strength (kPa)			Pen. Resist. Blows/0.3m (50 mm Dia. Cone)			Monitoring Well Construction
							0	50	100	0	50	100	0	50	100	
Ground Surface						0										
EL 102.25 m																
GLACIAL TILL: Brown clayey silt with gravel and occasional cobble, trace organics		AU 1				0										
0.46 m																
EL 101.79 m																
GLACIAL TILL: Dense, brown silty sand to sandy silt with gravel and boulders, occasional cobble		SS 2	63	48		1										
- very dense by 1.2m depth																
		SS 3	76	+50		2										
2.08 m																
EL 100.17 m																
End of Test Hole																
Practical refusal to augering at 2.08m depth																
						3										
						4										
						5										
						6										
						7										

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**PATERSON
GROUP**

SOIL PROFILE AND TEST DATA

GEOTECHNICAL INVESTIGATION

4850 Bank Street, Ottawa, Ontario

DATUM: Geodetic **EASTING:** 376356.813 **NORTHING:** 5018986.889 **ELEVATION:** 102.32

PROJECT: Proposed Development

FILE NO. PG6912

BORINGS BY: CME 55 Track-Mounted Mechanical Auger

REMARKS:

DATE: December 11, 2023

HOLE NO. BH 2A-23

SAMPLE DESCRIPTION	STRATA PLOT	Sample No.	SAMPLE % RECOVERY	N VALUE or RQD	WATER CONTENT %	DEPTH (m)	Remoulded Shear Strength (kPa)			Peak Shear Strength (kPa)			Pen. Resist. Blows/0.3m (50 mm Dia. Cone)			Monitoring Well Construction
							0	50	100	0	50	100	0	50	100	
Ground Surface						0										
EL 102.32 m																
Overburden						0										
Augered to 2.18 m depth						1										
						2										
						3										
						4										
						5										
						6										
						7										

2.18 m
EL 100.14 m

GLACIAL TILL: Very dense, grey silty sand to sandy silt with gravel and boulders, occasional cobble

- trace clay by 3.0m depth

3.25 m
EL 99.07 m

End of Test Hole

Practical refusal to augering at 3.25m depth

(GWL @ 0.80 m - Dec. 15, 2023)

SS 1 86 +50

SS 2 100 +50

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**PATERSON
GROUP**

SOIL PROFILE AND TEST DATA

GEOTECHNICAL INVESTIGATION

4850 Bank Street, Ottawa, Ontario

DATUM: Geodetic **EASTING:** 376284.113 **NORTHING:** 5018877.194 **ELEVATION:** 105.46 m

PROJECT: Proposed Development

FILE NO. PG6912

BORINGS BY: CME 55 Track-Mounted Mechanical Auger

REMARKS:

DATE: December 11, 2023

HOLE NO. BH 3-23

SAMPLE DESCRIPTION	STRATA PLOT	Sample No.	SAMPLE % RECOVERY	N VALUE or RQD	WATER CONTENT %	DEPTH (m)	Remoulded Shear Strength (kPa)			Peak Shear Strength (kPa)			Pen. Resist. Blows/0.3m (50 mm Dia. Cone)			Piezometer Construction
							0	50	100	0	50	100	0	50	100	
Ground Surface						0										
EL 105.46 m																
TOPSOIL with organics						0										
0.25 m																
EL 105.21 m																
GLACIAL TILL: Compact, brown silty sand to sandy silt, trace gravel		AU 1														
						1										
		SS 2	42	12												
- no gravel by 1.5m depth																
		SS 3	83	19		2										
2.21 m																
EL 103.25 m																
GLACIAL TILL: Very dense, grey silty sand to sandy silt with gravel and boulders, occasional cobble		SS 4	75	+50		3										
		SS 5	100	+50		4										
- trace clay by 3.8m depth																
		SS 6	78	+50		5										
4.45 m																
EL 101.01 m																
End of Test Hole																
Practical refusal to augering at 4.45m depth						6										
(GWL @ 1.23 m - Dec. 15, 2023)																
						7										

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**PATERSON
GROUP**

SOIL PROFILE AND TEST DATA

GEOTECHNICAL INVESTIGATION

4850 Bank Street, Ottawa, Ontario

DATUM: Geodetic **EASTING:** 376162.967 **NORTHING:** 5018907.818 **ELEVATION:** 106.7 m

PROJECT: Proposed Development

FILE NO. PG6912

BORINGS BY: CME 55 Track-Mounted Mechanical Auger

HOLE NO. BH 4-23

REMARKS: **DATE:** December 11, 2023

SAMPLE DESCRIPTION	STRATA PLOT	Sample No.	SAMPLE % RECOVERY	N VALUE or RQD	WATER CONTENT %	DEPTH (m)	Remoulded Shear Strength (kPa)			Peak Shear Strength (kPa)			Pen. Resist. Blows/0.3m (50 mm Dia. Cone)			Piezometer Construction
							0	50	100	0	50	100	0	50	100	
Ground Surface						0										
EL 106.7 m																
TOPSOIL with organics						0										
0.1 m																
EL 106.6 m		AU 1														
GLACIAL TILL: Brown clayey silt, some gravel and boulders, occasional cobble																
0.46 m						1										
EL 106.24 m		SS 2	100	46												
GLACIAL TILL: Dense to very dense, brown silty sand to sandy silt with gravel and boulders, occasional cobble																
		SS 3	88	+50		2										
		SS 4	67	+50		3										
2.72 m						4										
EL 103.98 m						5										
End of Test Hole						6										
Practical refusal to augering at 2.72m depth						7										
(Dried Borehole - Dec. 15, 2023)																

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**PATERSON
GROUP**

SOIL PROFILE AND TEST DATA

GEOTECHNICAL INVESTIGATION

4850 Bank Street, Ottawa, Ontario

DATUM: Geodetic **EASTING:** 376165.452 **NORTHING:** 5018810.785 **ELEVATION:** 107.88 m

PROJECT: Proposed Development

FILE NO. PG6912

BORINGS BY: CME 55 Track-Mounted Mechanical Auger

REMARKS:

DATE: December 11, 2023

HOLE NO. BH 5-23

SAMPLE DESCRIPTION	STRATA PLOT	Sample No.	SAMPLE % RECOVERY	N VALUE or RQD	WATER CONTENT %	DEPTH (m)	Remoulded Shear Strength (kPa)			Peak Shear Strength (kPa)			Pen. Resist. Blows/0.3m (50 mm Dia. Cone)			Piezometer Construction
							0	50	100	0	50	100	0	50	100	
Ground Surface						0										
EL 107.88 m																
TOPSOIL with organics						0										
0.3 m																
EL 107.58 m																
GLACIAL TILL: Brown clayey silt with gravel, occasional cobble		AU 1														
0.61 m																
EL 107.27 m																
GLACIAL TILL: Dense to very dense, brown silty sand to sandy silt with gravel and boulders, occasional cobble		SS 2	83	43		1										
		SS 3	100	+50		2										
		SS 4	100	+50		3										
		SS 5	100	+50		4										
		SS 6	100	+50		5										
- grey by 3.0m depth		SS 7	100	46		6										
		SS 8	75	34		7										
- dense by 4.6m depth																
5.94 m																
EL 101.94 m																
End of Test Hole																
(GWL @ 0.40 m - Dec. 15, 2023)																

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**PATERSON
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SOIL PROFILE AND TEST DATA

GEOTECHNICAL INVESTIGATION

4850 Bank Street, Ottawa, Ontario

DATUM: Geodetic **EASTING:** 376381.101 **NORTHING:** 5018941.64 **ELEVATION:** 101.53

PROJECT: Proposed Development

FILE NO. PG6912

BORINGS BY: CME 55 Track-Mounted Mechanical Auger

REMARKS:

DATE: December 13, 2023

HOLE NO. BH 6-23

SAMPLE DESCRIPTION	STRATA PLOT	Sample No.	SAMPLE % RECOVERY	N VALUE or RQD	WATER CONTENT %	DEPTH (m)	Remoulded Shear Strength (kPa)			Peak Shear Strength (kPa)			Pen. Resist. Blows/0.3m (50 mm Dia. Cone)			Monitoring Well Construction
							0	50	100	0	50	100	0	50	100	
Ground Surface						0										
EL 101.53 m																
TOPSOIL with organics						0										
0.25 m																
EL 101.28 m																
GLACIAL TILL: Brown clayey silt, trace gravel		AU 1														
0.61 m																
EL 100.92 m																
GLACIAL TILL: Compact, brown silty sand to sandy silt with gravel and boulders, occasional cobble		SS 2	75	19		1										
- very dense by 1.5m depth		SS 3	89	+50												
1.88 m																
EL 99.65 m																
End of Test Hole						2										
Practical refusal to augering at 1.88m depth																
						3										
						4										
						5										
						6										
						7										

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**PATERSON
GROUP**

SOIL PROFILE AND TEST DATA

GEOTECHNICAL INVESTIGATION

4850 Bank Street, Ottawa, Ontario

DATUM: Geodetic **EASTING:** 376380 **NORTHING:** 5018939.186 **ELEVATION:** 101.45

PROJECT: Proposed Development

FILE NO. PG6912

BORINGS BY: CME 55 Track-Mounted Mechanical Auger

REMARKS:

DATE: December 13, 2023

HOLE NO. BH 6A-23

SAMPLE DESCRIPTION	STRATA PLOT	Sample No.	SAMPLE % RECOVERY	N VALUE or RQD	WATER CONTENT %	DEPTH (m)	Remoulded Shear Strength (kPa)			Peak Shear Strength (kPa)			Pen. Resist. Blows/0.3m (50 mm Dia. Cone)			Monitoring Well Construction
							0	50	100	0	50	100	0	50	100	
Ground Surface						0										
EL 101.45 m																
Overburden						0										
Augered to 1.98 m depth						1										
						2										
1.98 m EL 99.47 m																
End of Test Hole						3										
Practical refusal to augering at 1.98m depth						4										
						5										
						6										
						7										

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**PATERSON
GROUP**

SOIL PROFILE AND TEST DATA

GEOTECHNICAL INVESTIGATION

4850 Bank Street, Ottawa, Ontario

DATUM: Geodetic **EASTING:** 376380.758 **NORTHING:** 5018936.262 **ELEVATION:** 101.44

PROJECT: Proposed Development

FILE NO. PG6912

BORINGS BY: CME 55 Track-Mounted Mechanical Auger

REMARKS:

DATE: December 13, 2023

HOLE NO. BH 6B-23

SAMPLE DESCRIPTION	STRATA PLOT	Sample No.	SAMPLE % RECOVERY	N VALUE or RQD	WATER CONTENT %	DEPTH (m)	Remoulded Shear Strength (kPa)			Peak Shear Strength (kPa)			Pen. Resist. Blows/0.3m (50 mm Dia. Cone)			Monitoring Well Construction
							0	50	100	0	50	100	0	50	100	
Ground Surface						0										
EL 101.44 m																
Overburden																
Augered to 0.86 m depth																
0.86 m																
EL 100.58 m																
End of Test Hole						1										
Practical refusal to augering at 0.86m depth																
						2										
						3										
						4										
						5										
						6										
						7										

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4850 Bank Street, Ottawa, Ontario

REMARKS: DATE: December 13, 2023

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**PATERSON
GROUP**

SOIL PROFILE AND TEST DATA

GEOTECHNICAL INVESTIGATION

4850 Bank Street, Ottawa, Ontario

DATUM: Geodetic **EASTING:** 376042.873 **NORTHING:** 5018770.725 **ELEVATION:** 109.28 m

PROJECT: Proposed Development

FILE NO. PG6912

BORINGS BY: CME 55 Track-Mounted Mechanical Auger

REMARKS:

DATE: December 13, 2023

HOLE NO. BH 7-23

SAMPLE DESCRIPTION	STRATA PLOT	Sample No.	SAMPLE % RECOVERY	N VALUE or RQD	WATER CONTENT %	DEPTH (m)	Remoulded Shear Strength (kPa)			Peak Shear Strength (kPa)			Pen. Resist. Blows/0.3m (50 mm Dia. Cone)			Piezometer Construction
							0	50	100	0	50	100	0	50	100	
Ground Surface						0										
EL 109.28 m																
TOPSOIL with organics						0										
0.18 m																
EL 109.1 m		AU 1														
GLACIAL TILL: Brown clayey silt with gravel																
0.51 m																
EL 108.77 m																
GLACIAL TILL: Dense, brown silty sand to sandy silt with gravel and boulders, occasional cobble						1										
- very dense by 1.5m depth		SS 2	75	30												
		SS 3		+50		2										
		SS 4	50	+50												
		SS 5	100	+50		3										
3.28 m																
EL 106 m																
End of Test Hole																
Practical refusal to augering at 3.28m depth																
(GWL @ 0.66 m - Dec. 15, 2023)																
						4										
						5										
						6										
						7										

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**PATERSON
GROUP**

SOIL PROFILE AND TEST DATA

GEOTECHNICAL INVESTIGATION

4850 Bank Street, Ottawa, Ontario

DATUM: Geodetic **EASTING:** 375921.34 **NORTHING:** 5018806.672 **ELEVATION:** 106.96 m

PROJECT: Proposed Development

FILE NO. PG6912

BORINGS BY: CME 55 Track-Mounted Mechanical Auger

REMARKS:

DATE: December 13, 2023

HOLE NO. BH 8-23

SAMPLE DESCRIPTION	STRATA PLOT	Sample No.	SAMPLE % RECOVERY	N VALUE or RQD	WATER CONTENT %	DEPTH (m)	Remoulded Shear Strength (kPa)			Peak Shear Strength (kPa)			Pen. Resist. Blows/0.3m (50 mm Dia. Cone)			Piezometer Construction
							0	50	100	0	50	100	0	50	100	
Ground Surface						0										
EL 106.96 m																
TOPSOIL with organics						0										
0.15 m																
EL 106.81 m																
GLACIAL TILL: Brown clayey silt with gravel		AU 1														
0.69 m																
EL 106.27 m																
GLACIAL TILL: Very dense, brown silty sand to sandy silt with gravel and boulders, occasional cobble, trace clay		SS 2	100	+50		1										
1.24 m																
EL 105.72 m																
End of Test Hole						2										
Practical refusal to augering at 1.24m depth						3										
						4										
						5										
						6										
						7										

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4850 Bank Street, Ottawa, Ontario

REMARKS: DATE: December 13, 2023

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**PATERSON
GROUP**

SOIL PROFILE AND TEST DATA

GEOTECHNICAL INVESTIGATION

4850 Bank Street, Ottawa, Ontario

DATUM: Geodetic **EASTING:** 375914.663 **NORTHING:** 5018651.441 **ELEVATION:** 106.87 m

PROJECT: Proposed Development

FILE NO. PG6912

BORINGS BY: CME 55 Track-Mounted Mechanical Auger

REMARKS:

DATE: December 13, 2023

HOLE NO. BH 9-23

SAMPLE DESCRIPTION	STRATA PLOT	Sample No.	SAMPLE % RECOVERY	N VALUE or RQD	WATER CONTENT %	DEPTH (m)	Remoulded Shear Strength (kPa)			Peak Shear Strength (kPa)			Pen. Resist. Blows/0.3m (50 mm Dia. Cone)			Piezometer Construction
							0	50	100	0	50	100	0	50	100	
Ground Surface						0										
EL 106.87 m																
TOPSOIL with organics						0										
0.13 m																
EL 106.74 m		AU 1														
GLACIAL TILL: Brown clayey silt with gravel																
0.48 m																
EL 106.39 m																
GLACIAL TILL: Very dense, brown silty sand to sandy silt with gravel and boulders, occasional cobble		SS 2	100	+50		1										
		SS 3	100	+50		2										
		SS 4	80	+50		3										
- grey by 2.2m depth																
2.49 m																
EL 104.38 m																
End of Test Hole																
Practical refusal to augering at 2.49m depth																
(GWL @ 0.13 m - Dec. 15, 2023)																
						4										
						5										
						6										
						7										

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**PATERSON
GROUP**

SOIL PROFILE AND TEST DATA

GEOTECHNICAL INVESTIGATION

4850 Bank Street, Ottawa, Ontario

DATUM: Geodetic **EASTING:** 375787.732 **NORTHING:** 5018720.138 **ELEVATION:** 103.35

PROJECT: Proposed Development

FILE NO. PG6912

BORINGS BY: CME 55 Track-Mounted Mechanical Auger

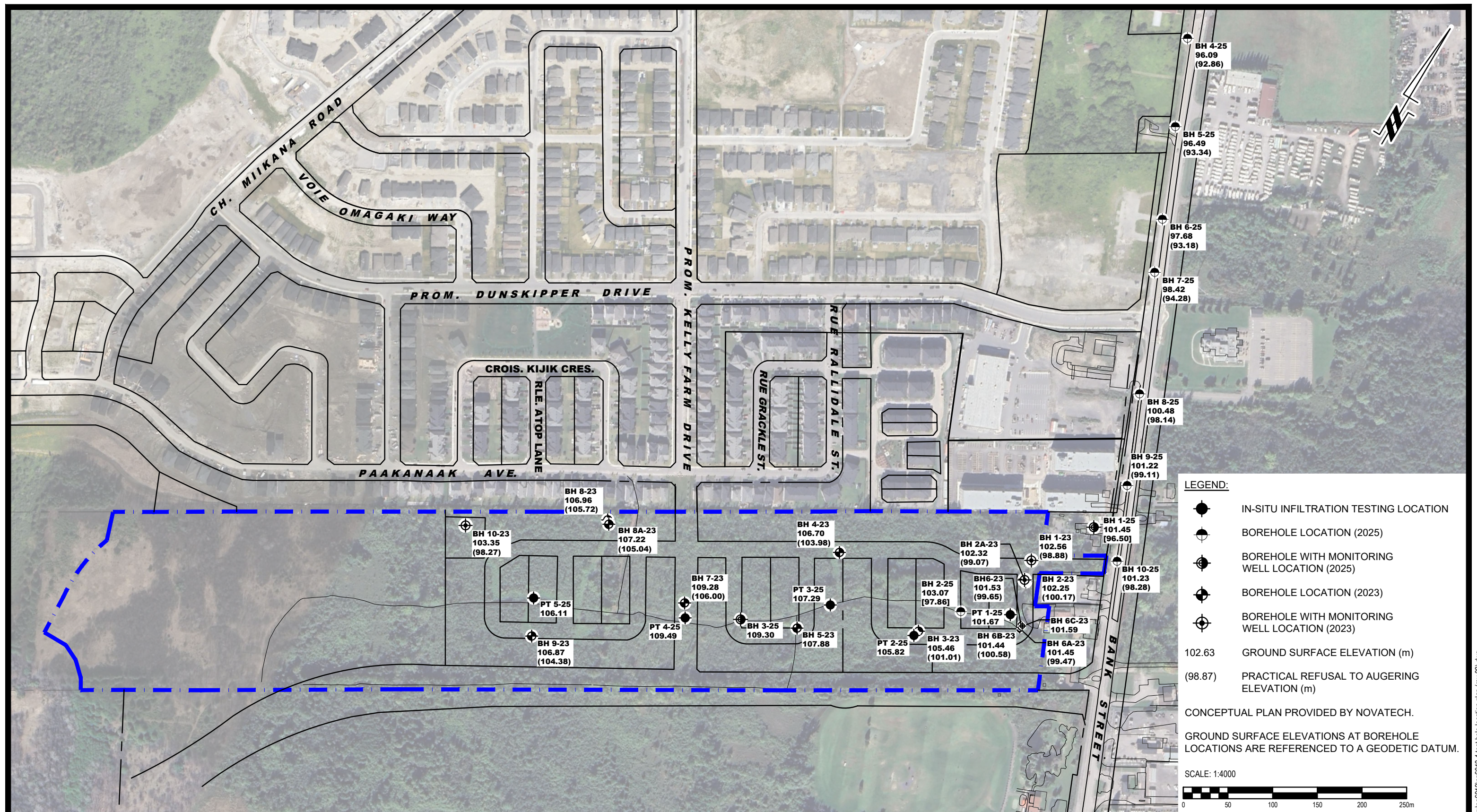
REMARKS:

DATE: December 13, 2023

HOLE NO. BH10-23

SAMPLE DESCRIPTION	STRATA PLOT	Sample No.	SAMPLE % RECOVERY	N VALUE or RQD	WATER CONTENT %	DEPTH (m)	Remoulded Shear Strength (kPa)			Peak Shear Strength (kPa)			Pen. Resist. Blows/0.3m (50 mm Dia. Cone)			Monitoring Well Construction
							0	50	100	0	50	100	0	50	100	
Ground Surface						0										
EL 103.35 m																
TOPSOIL with organics		AU 1				0										
0.33 m EL 103.02 m																
GLACIAL TILL: Compact, brown silty sand to sandy silt with gravel, occasional cobble		SS 2	46	10		1										
		SS 3	67	24		2										
2.21 m EL 101.14 m																
GLACIAL TILL: Dense to very dense, grey silty sand with gravel, cobble, and boulders		SS 4A SS 4B	60	+50												
		SS 5	88	48		3										
		SS 6	63	37		4										
		SS 7	58	+50		5										
5.08 m EL 98.27 m																
End of Test Hole																
Practical refusal to augering on inferred boulder or bedrock at 5.08m depth																
(GWL @ 0.39 m - Dec. 15, 2023)																
						6										
						7										

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LEGEND:

- | | |
|---|---|
|  | IN-SITU INFILTRATION TESTING LOCATION |
|  | BOREHOLE LOCATION (2025) |
|  | BOREHOLE WITH MONITORING WELL LOCATION (2025) |
|  | BOREHOLE LOCATION (2023) |
|  | BOREHOLE WITH MONITORING WELL LOCATION (2023) |
| 102.63 | GROUND SURFACE ELEVATION (m) |
| (98.87) | PRACTICAL REFUSAL TO AUGERING ELEVATION (m) |

CONCEPTUAL PLAN PROVIDED BY NOVATECH.

GROUND SURFACE ELEVATIONS AT BOREHOLE LOCATIONS ARE REFERENCED TO A GEODETIC DATUM.

SCALE: 1:4000



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

2	ADDED 2025 IN-SITU INFILTRATION TESTING TO PLAN	08/08/2025	ZB
1	ADDED 2025 BOREHOLES BH 1-25 TO BH 10-25	09/07/2025	PB
NO.	REVISIONS	DATE	INITIAL

OTTAWA,
Title:

**REGIONAL GROUP
GEOTECHNICAL INVESTIGATION
PROPOSED RESIDENTIAL DEVELOPMENT
4850 BANK STREET**

ONTARIO

TEST HOLE LOCATION PLAN

O	Scale:	1:4000	Date:	12/2023
	Drawn by:	GK	Report No.:	PG6912-1
	Checked by:	DR	Dwg. No.:	PG6912-1
	Approved by:	SD	Revision No.:	

p:\autocad drawings\geotechnical\pgb9xx\pgb912\pgb912-1 test hole location plan (rev.02).dwg

APPENDIX 2

TABLE 6 - MONTHLY WATER BALANCE FOR SOIL WITH 75 mm WATER HOLDING CAPACITY AT THE OTTAWA INTERNATIONAL AIRPORT

TABLE 7 - MONTHLY WATER BALANCE FOR SOIL WITH 300 mm WATER HOLDING CAPACITY AT THE OTTAWA INTERNATIONAL AIRPORT

TABLE 8 - PRE-DEVELOPMENT ANNUAL WATER BUDGET CALCULATIONS

TABLE 9 - POST-DEVELOPMENT ANNUAL WATER BUDGET CALCULATIONS

TABLE 10 - WESTERN CATCHMENT PRE-DEVELOPMENT ANNUAL WATER BUDGET CALCULATIONS

TABLE 11 - WESTERN CATCHMENT POST-DEVELOPMENT ANNUAL WATER BUDGET CALCULATIONS

TABLE 12 - EASTERN CATCHMENT PRE-DEVELOPMENT ANNUAL WATER BUDGET CALCULATIONS

TABLE 13 - EASTERN CATCHMENT POST-DEVELOPMENT ANNUAL WATER BUDGET CALCULATIONS

Table 6 - Monthly Water Balance for Soil With 75 mm Water Holding Capacity at the Ottawa International Airport

Month	Temperature (°C)	Total Precipitation (mm)	Actual Evapotranspiration (mm)	Water Surplus (mm)
January	-10.6	62	0	25
February	-9.0	56	1	26
March	-2.8	65	6	103
April	5.7	73	31	110
May	13.1	76	80	14
June	18.3	85	107	4
July	20.9	88	104	3
August	19.7	85	84	1
September	14.8	82	65	3
October	8.3	76	36	14
November	1.3	77	10	38
December	-6.8	79	1	37
Annual	6	904	525	378

Table 7 - Monthly Water Balance for Soil With 300 mm Water Holding Capacity at the Ottawa International Airport

Month	Temperature (°C)	Total Precipitation (mm)	Actual Evapotranspiration (mm)	Water Surplus (mm)
January	-10.6	62	0	17
February	-9.0	56	1	21
March	-2.8	65	6	91
April	5.7	73	31	105
May	13.1	76	80	14
June	18.3	85	116	4
July	20.9	89	135	3
August	19.7	84	114	1
September	14.8	82	73	2
October	8.3	76	37	6
November	1.3	77	10	16
December	-6.8	80	1	18
Annual	6	904	605	298

Table 8 - Pre-Development Annual Water Budget Calculations

Land Use Unit	Area (m ²)	Water Surplus (mm)	Topography Factor	Soil Factor	Vegetation Factor	Infiltration Factor	Runoff Factor	Total Infiltration (mm/year)	Total Infiltration (L/year)	Total Runoff (mm/year)	Total Runoff (L/year)
Mature Forest (Fine Sandy Loam)	123,000	298	0.1	0.3	0.2	0.6	0.4	178.8	21,992,400	119.2	14,661,600
Total	123,000								21,992,400		14,661,600

Table 9 - Post-Development Annual Water Budget Calculations

Land Use Unit	Area (m ²)	Water Surplus (mm)	Topography Factor	Soil Factor	Vegetation Factor	Infiltration Factor	Runoff Factor	Total Infiltration (mm/year)	Total Infiltration (L/year)	Total Runoff (mm/year)	Total Runoff (L/year)
Impervious Surfaces	88,227	759	0	0	0	0	1	0	0	759.0	66,964,378
Urban Lawn/Shallow Rooted Crops (Fine Sandy Loam)	29,673	378	0.15	0.3	0.1	0.55	0.45	207.9	6,168,925	170.1	5,047,302
Stormwater Management Pond	5,100	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Totals	123,000								6,168,925		72,011,680
Difference (L/year)									-15,823,475		57,350,080
Percentage Variation									-72%		391%

Table 10 - Western Catchment Pre-Development Annual Water Budget Calculations

Land Use Unit	Area (m ²)	Water Surplus (mm)	Topography Factor	Soil Factor	Vegetation Factor	Infiltration Factor	Runoff Factor	Total Infiltration (mm/year)	Total Infiltration (L/year)	Total Runoff (mm/year)	Total Runoff (L/year)
Mature Forest (Fine Sandy Loam)	48,000	298	0.1	0.3	0.2	0.6	0.4	178.8	8,582,400	119.2	5,721,600
Total	48,000								8,582,400		5,721,600

Table 11 - Western Catchment Post-Development Annual Water Budget Calculations

Land Use Unit	Area (m ²)	Water Surplus (mm)	Topography Factor	Soil Factor	Vegetation Factor	Infiltration Factor	Runoff Factor	Total Infiltration (mm/year)	Total Infiltration (L/year)	Total Runoff (mm/year)	Total Runoff (L/year)
Impervious Surfaces	57,234	759	0	0	0	0	1	0	0	759.0	43,440,315
Urban Lawn/Shallow Rooted Crops (Fine Sandy Loam)	21,766	378	0.15	0.3	0.1	0.55	0.45	207.9	4,525,165	170.1	3,702,407
Totals	79,000								4,525,165		47,142,722
Difference (L/year)									-4,057,235		41,421,122
Percentage Variation									-47%		724%

Table 12 - Eastern Catchment Pre-Development Annual Water Budget Calculations

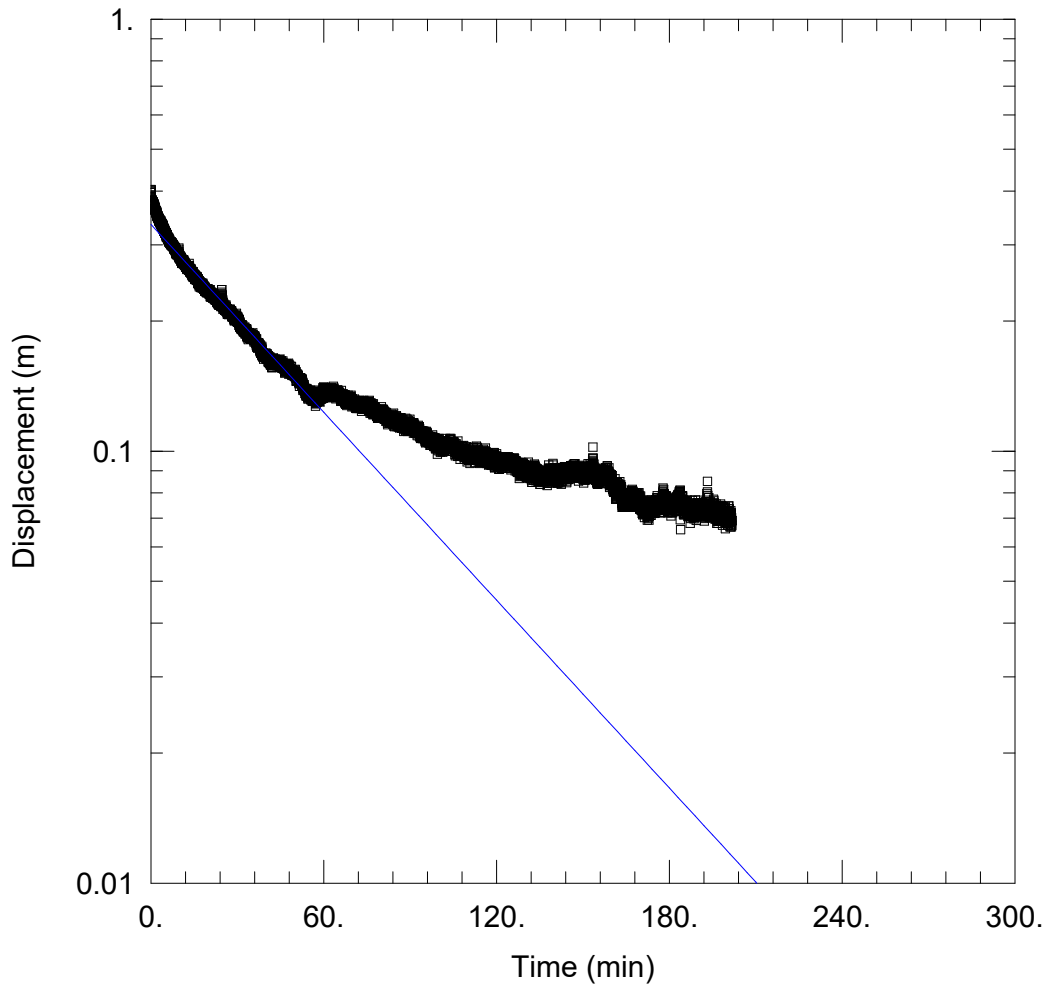
Land Use Unit	Area (m ²)	Water Surplus (mm)	Topography Factor	Soil Factor	Vegetation Factor	Infiltration Factor	Runoff Factor	Total Infiltration (mm/year)	Total Infiltration (L/year)	Total Runoff (mm/year)	Total Runoff (L/year)
Mature Forest (Fine Sandy Loam)	75,000	298	0.1	0.3	0.2	0.6	0.4	178.8	13,410,000	119.2	8,940,000
Total	75,000								13,410,000		8,940,000

Table 13 - Eastern Catchment Post-Development Annual Water Budget Calculations

Land Use Unit	Area (m ²)	Water Surplus (mm)	Topography Factor	Soil Factor	Vegetation Factor	Infiltration Factor	Runoff Factor	Total Infiltration (mm/year)	Total Infiltration (L/year)	Total Runoff (mm/year)	Total Runoff (L/year)
Impervious Surfaces	30,953	759	0	0	0	0	1	0	0	759.0	23,493,688
Urban Lawn/Shallow Rooted Crops (Fine Sandy Loam)	7,946	378	0.15	0.3	0.1	0.55	0.45	207.9	1,652,074	170.1	1,351,697
Stormwater Management Pond	5,100	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Totals	44,000								1,652,074		24,845,385
Difference (L/year)									-11,757,926		15,905,385
Percentage Variation									-88%		178%

APPENDIX 3

HYDRAULIC CONDUCTIVITY RESULTS - FALLING AND RISING HEAD TESTS
SAMPLE CALCULATIONS - DUPUIT FORCHHEIMER



BH1-23 - FALLING HEAD 1 OF 1

PROJECT INFORMATION

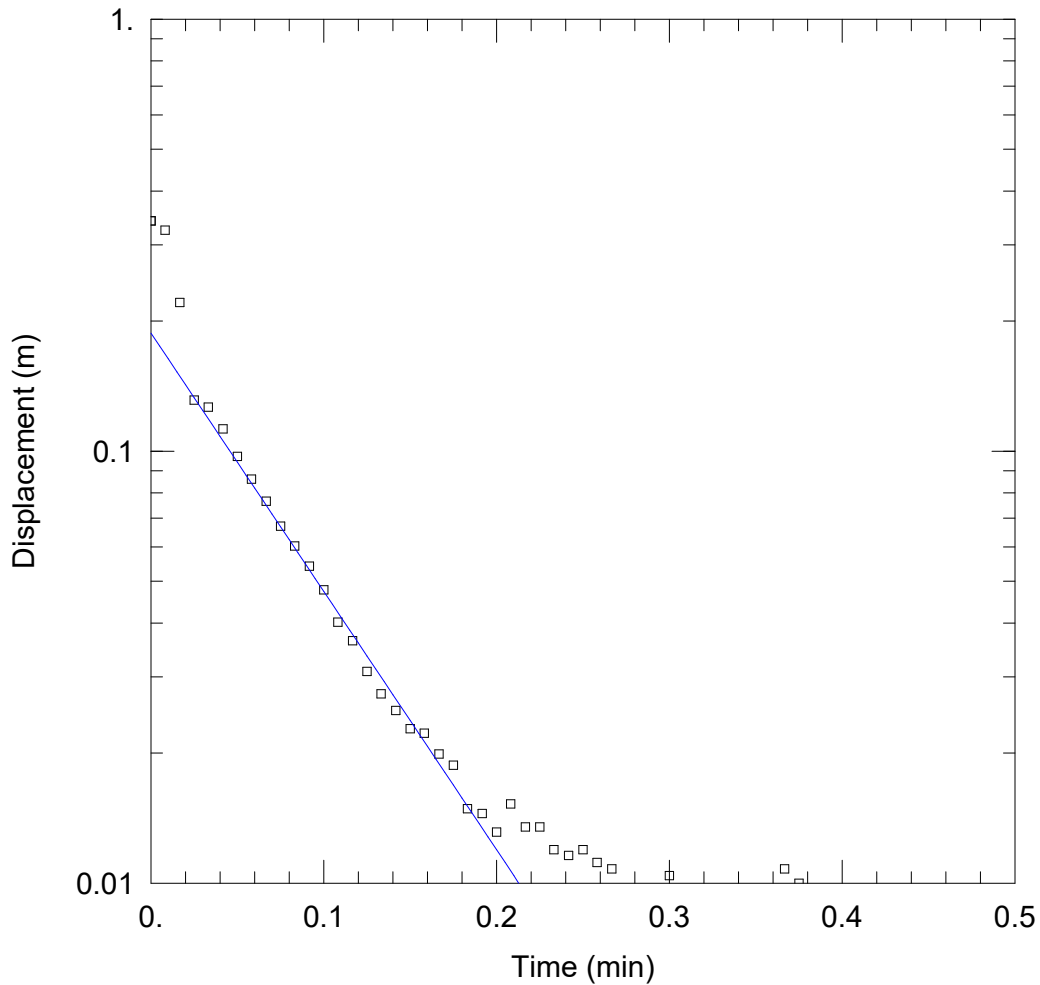
Company: Paterson Group Inc.
 Client: Regional Group
 Project: PH5087
 Location: 4850 Bank Street
 Test Well: BH1-23
 Test Date: July 3, 2025

WELL DATA (BH1-23)

Initial Displacement: <u>0.403 m</u>	Static Water Column Height: <u>1.28 m</u>
Total Well Penetration Depth: <u>1.28 m</u>	Screen Length: <u>1.28 m</u>
Casing Radius: <u>0.0254 m</u>	Well Radius: <u>0.1045 m</u>

SOLUTION

Aquifer Model: <u>Unconfined</u>	Solution Method: <u>Hvorslev</u>
$K = \underline{3.714E-7 \text{ m/sec}}$	$y_0 = \underline{0.3347 \text{ m}}$



BH1-25 - FALLING HEAD 1 OF 1

PROJECT INFORMATION

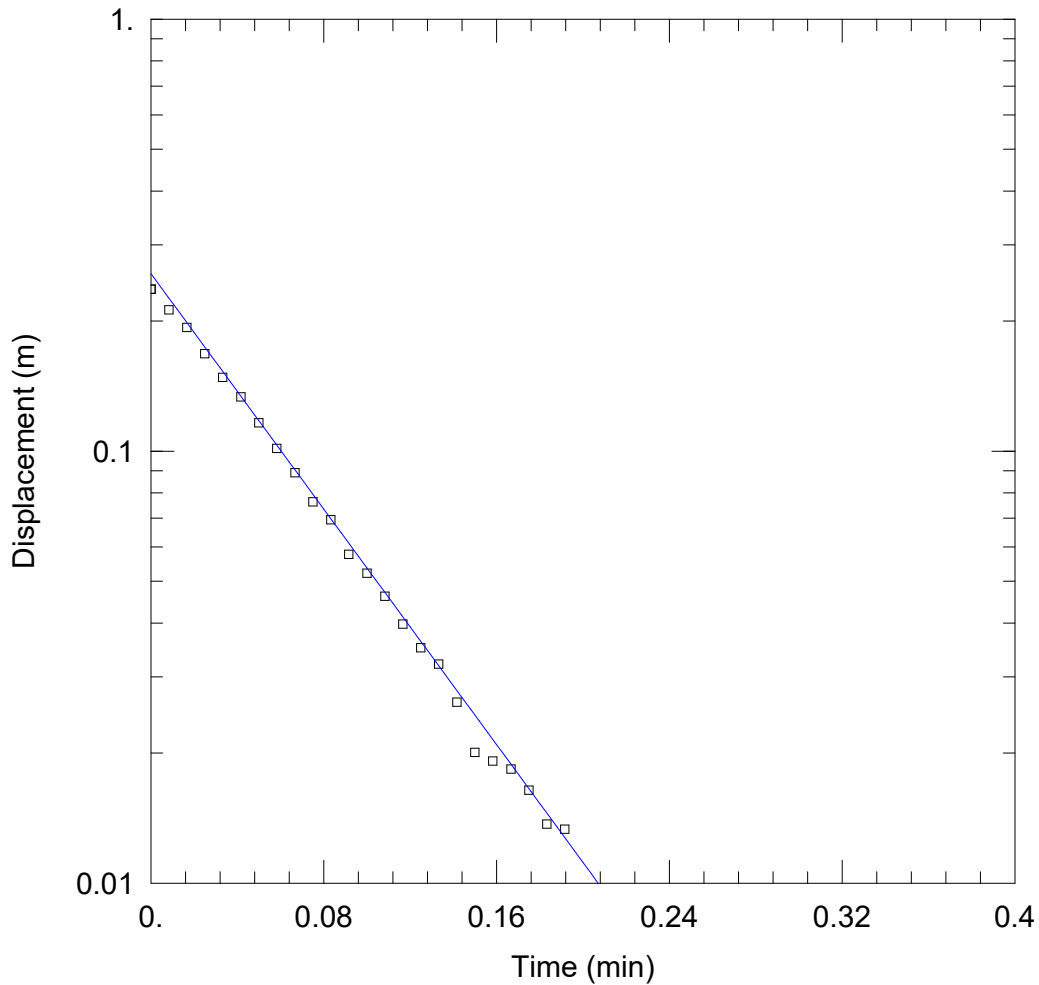
Company: Paterson Group Inc.
 Client: Regional Group
 Project: PH5087
 Location: 4850 Bank Street
 Test Well: BH1-25
 Test Date: July 3, 2025

WELL DATA (BH1-25)

Initial Displacement: <u>0.341 m</u>	Static Water Column Height: <u>6.54 m</u>
Total Well Penetration Depth: <u>6.54 m</u>	Screen Length: <u>1.524 m</u>
Casing Radius: <u>0.01588 m</u>	Well Radius: <u>0.0381 m</u>

SOLUTION

Aquifer Model: <u>Unconfined</u>	Solution Method: <u>Hvorslev</u>
K = <u>0.000105 m/sec</u>	y0 = <u>0.1876 m</u>



BH1-25 - RISING HEAD 1 OF 1

PROJECT INFORMATION

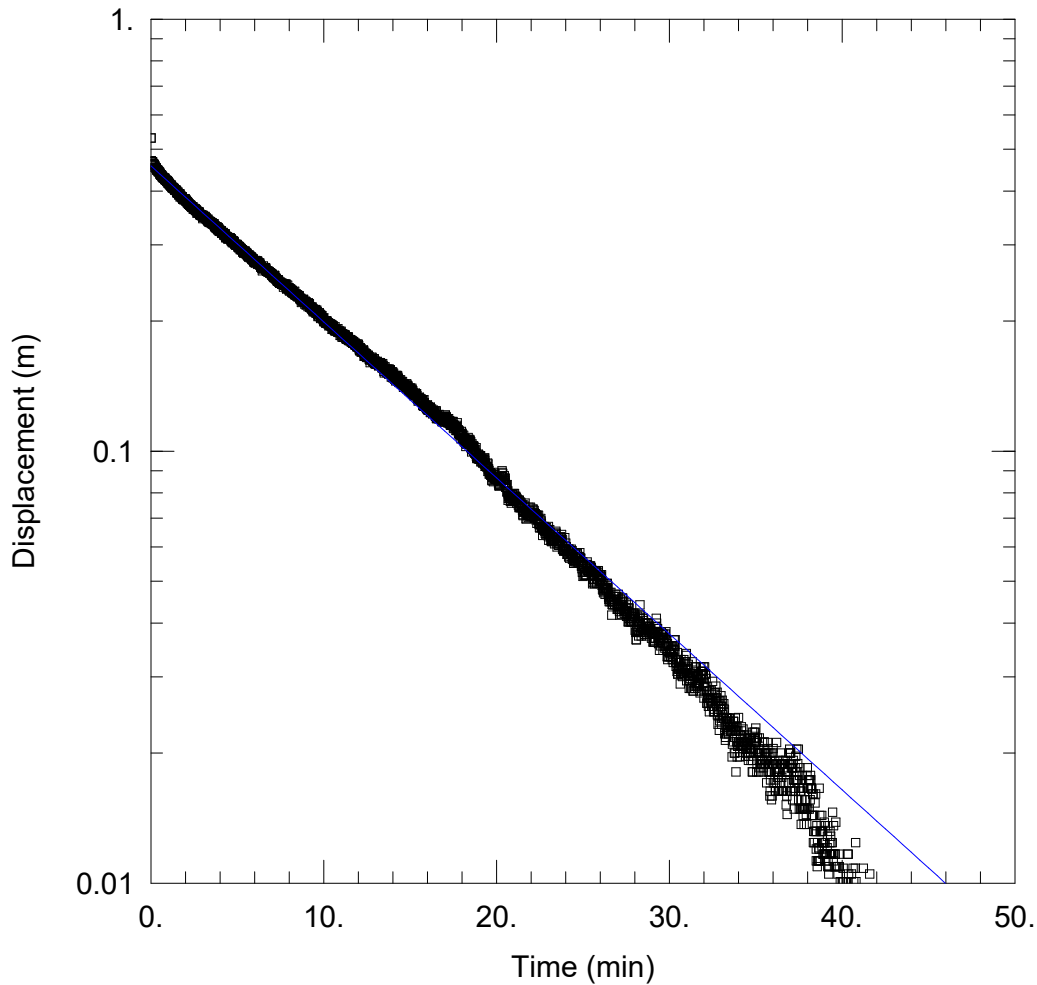
Company: Paterson Group Inc.
 Client: Regional Group
 Project: PH5087
 Location: 4850 Bank Street
 Test Well: BH1-25
 Test Date: July 3, 2025

WELL DATA (BH1-25)

Initial Displacement: <u>0.237 m</u>	Static Water Column Height: <u>6.54 m</u>
Total Well Penetration Depth: <u>6.54 m</u>	Screen Length: <u>1.524 m</u>
Casing Radius: <u>0.01588 m</u>	Well Radius: <u>0.0381 m</u>

SOLUTION

Aquifer Model: <u>Unconfined</u>	Solution Method: <u>Hvorslev</u>
K = <u>0.0001196 m/sec</u>	y0 = <u>0.2575 m</u>



BH3-25 - FALLING HEAD 1 OF 1

PROJECT INFORMATION

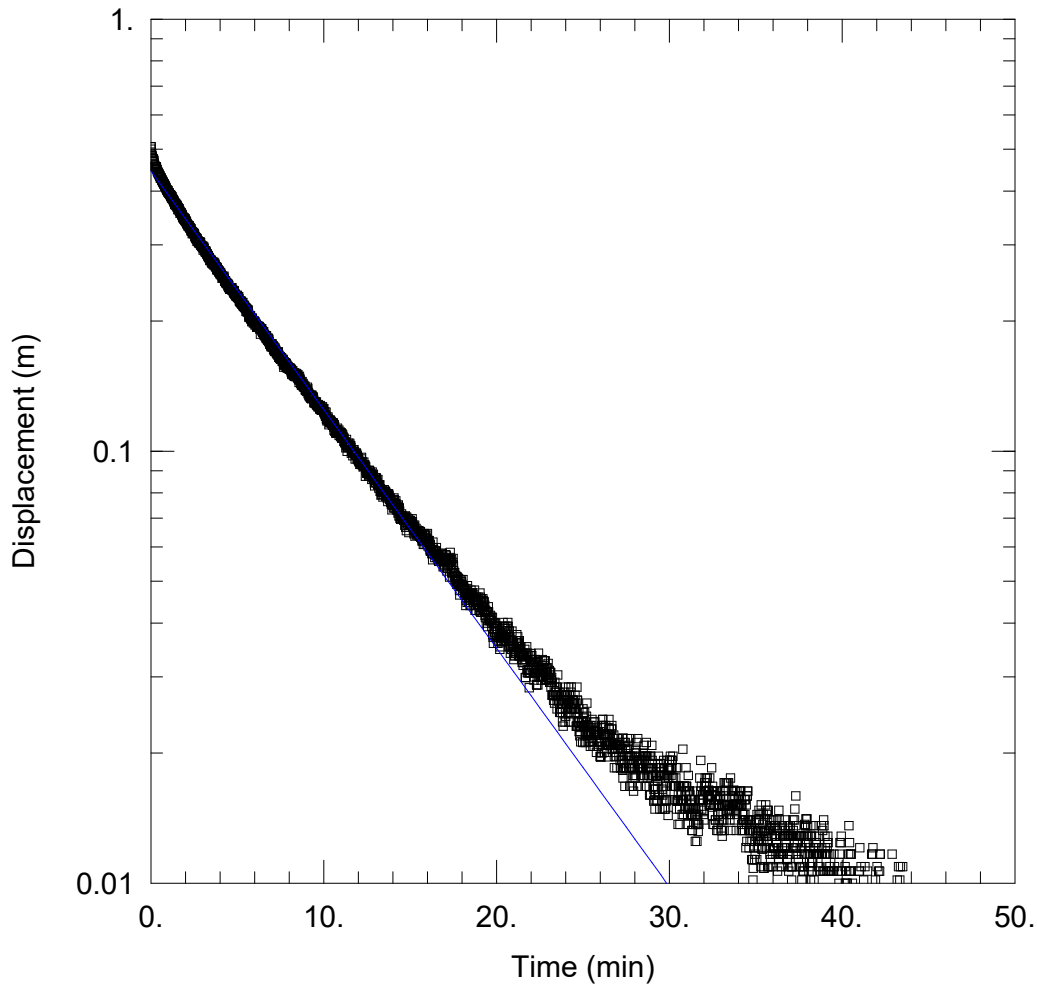
Company: Paterson Group Inc.
 Client: Regional Group
 Project: PH5087
 Location: 4850 Bank Street
 Test Well: BH3-25
 Test Date: July 3, 2025

WELL DATA (BH3-25)

Initial Displacement: <u>0.531 m</u>	Static Water Column Height: <u>4.17 m</u>
Total Well Penetration Depth: <u>4.17 m</u>	Screen Length: <u>1.524 m</u>
Casing Radius: <u>0.0254 m</u>	Well Radius: <u>0.1045 m</u>

SOLUTION

Aquifer Model: <u>Unconfined</u>	Solution Method: <u>Hvorslev</u>
K = <u>1.327E-6 m/sec</u>	y0 = <u>0.4572 m</u>



BH3-25 - RISING HEAD 1 OF 1

PROJECT INFORMATION

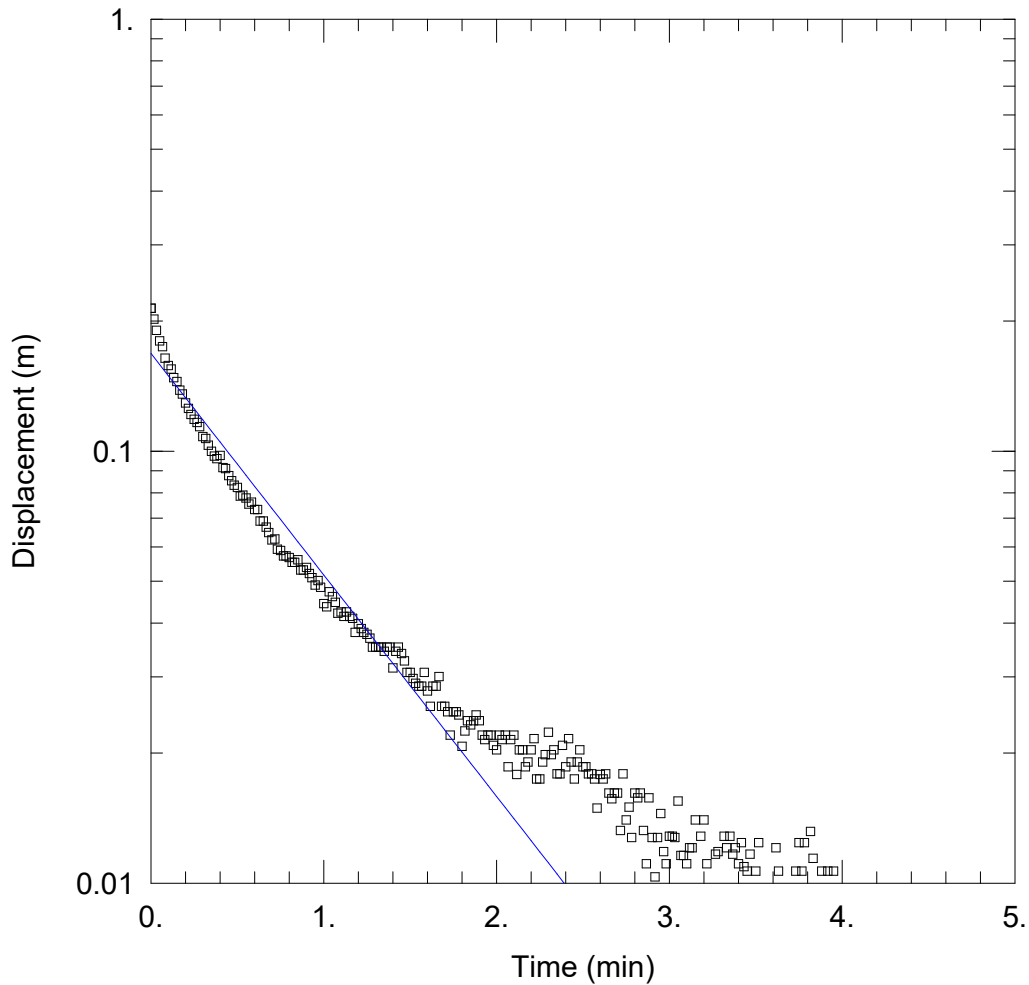
Company: Paterson Group Inc.
 Client: Regional Group
 Project: PH5087
 Location: 4850 Bank Street
 Test Well: BH3-25
 Test Date: July 3, 2025

WELL DATA (BH3-25)

Initial Displacement: 0.506 m Static Water Column Height: 4.16 m
 Total Well Penetration Depth: 4.17 m Screen Length: 1.524 m
 Casing Radius: 0.0254 m Well Radius: 0.1045 m

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 $K = 2.029E-6$ m/sec $y_0 = 0.4448$ m



BH6C-23 - FALLING HEAD 1 OF 1

PROJECT INFORMATION

Company: Paterson Group Inc.
 Client: Regional Group
 Project: PH5087
 Location: 4850 Bank Street
 Test Well: BH6C-23
 Test Date: July 3, 2025

WELL DATA (BH6C-23)

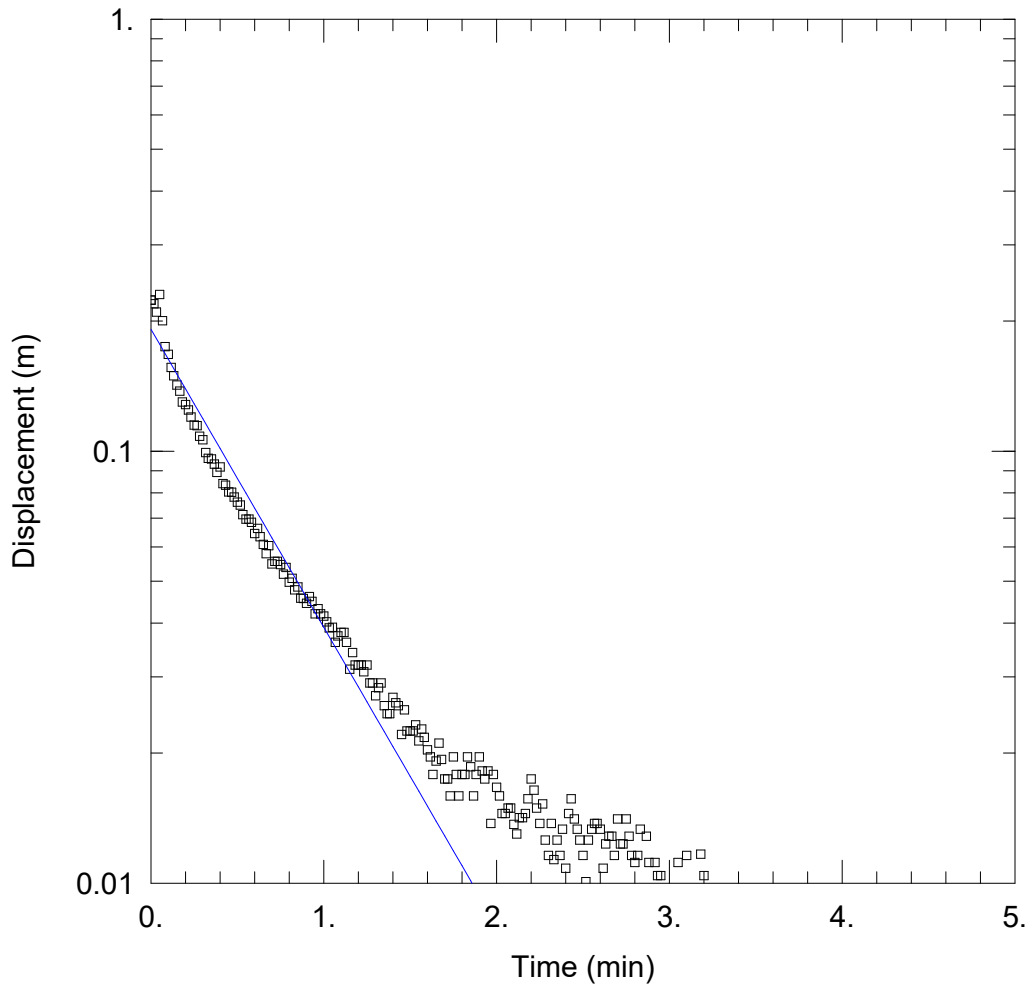
Initial Displacement: 0.214 m
 Total Well Penetration Depth: 3.41 m
 Casing Radius: 0.01588 m

Static Water Column Height: 3.41 m
 Screen Length: 1.524 m
 Well Radius: 0.0381 m

SOLUTION

Aquifer Model: Unconfined
 $K = 9.002E-6$ m/sec

Solution Method: Hvorslev
 $y_0 = 0.1683$ m



BH6C-23 - RISING HEAD 1 OF 1

PROJECT INFORMATION

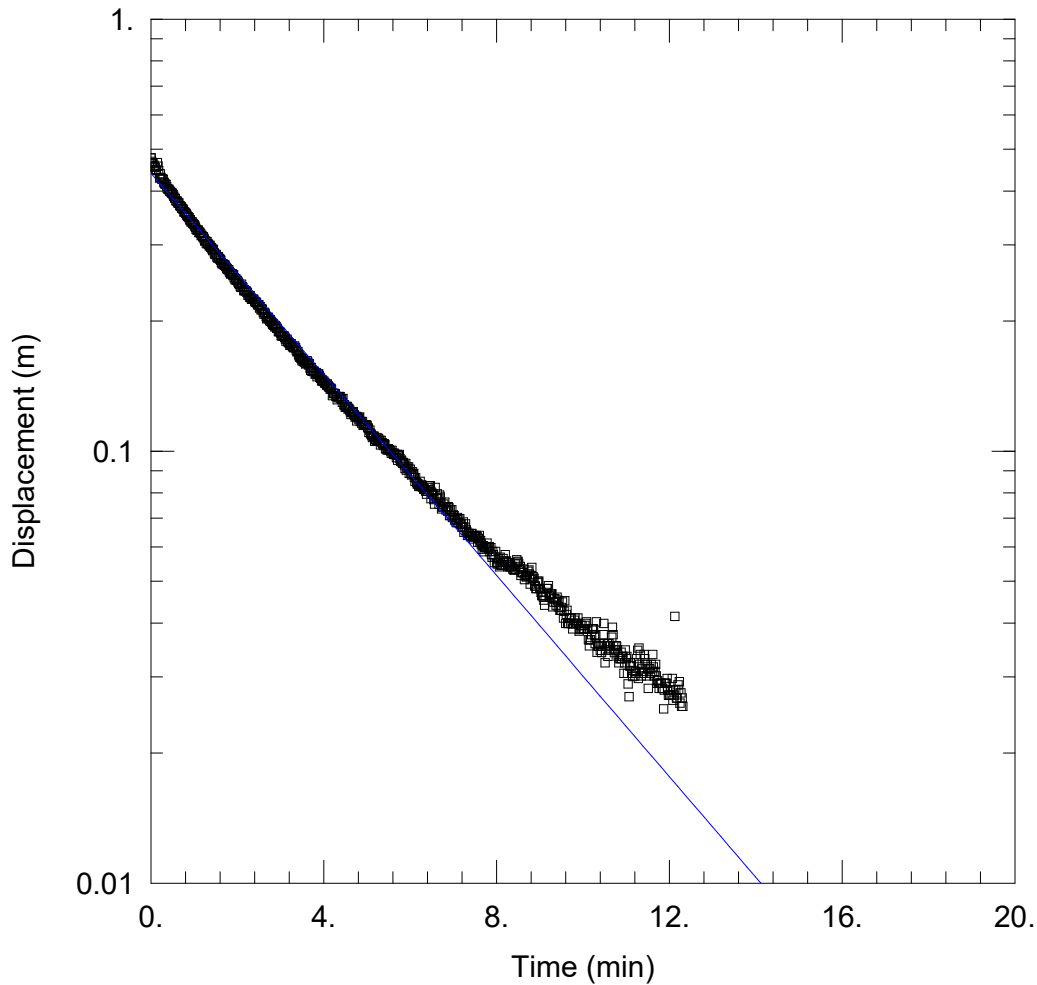
Company: Paterson Group Inc.
 Client: Regional Group
 Project: PH5087
 Location: 4850 Bank Street
 Test Well: BH6C-23
 Test Date: July 3, 2025

WELL DATA (BH6C-23)

Initial Displacement: 0.224 m Static Water Column Height: 3.41 m
 Total Well Penetration Depth: 3.41 m Screen Length: 1.524 m
 Casing Radius: 0.01588 m Well Radius: 0.0381 m

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 $K = 1.211\text{E-}5 \text{ m/sec}$ $y_0 = 0.1914 \text{ m}$



BH10-23 - FALLING HEAD 1 OF 1

PROJECT INFORMATION

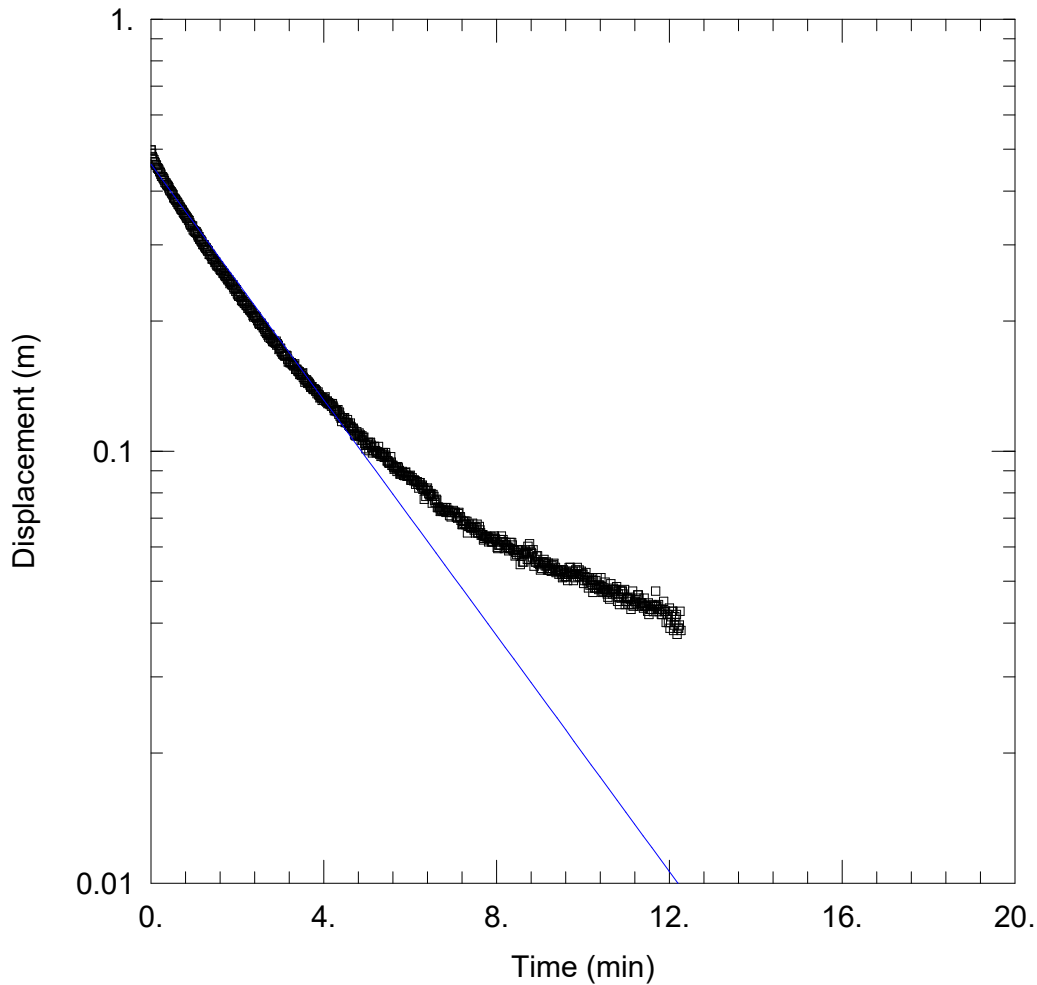
Company: Paterson Group Inc.
 Client: Regional Group
 Project: PH5087
 Location: 4850 Bank Street
 Test Well: BH10-23
 Test Date: July 3, 2025

WELL DATA (BH10-23)

Initial Displacement: <u>0.477 m</u>	Static Water Column Height: <u>3.84 m</u>
Total Well Penetration Depth: <u>3.84 m</u>	Screen Length: <u>1.524 m</u>
Casing Radius: <u>0.0254 m</u>	Well Radius: <u>0.1045 m</u>

SOLUTION

Aquifer Model: <u>Unconfined</u>	Solution Method: <u>Hvorslev</u>
K = <u>4.275E-6 m/sec</u>	y0 = <u>0.4396 m</u>



BH10-23 - RISING HEAD 1 OF 1

PROJECT INFORMATION

Company: Paterson Group Inc.
 Client: Regional Group
 Project: PH5087
 Location: 4850 Bank Street
 Test Well: BH10-23
 Test Date: July 3, 2025

WELL DATA (BH10-23)

Initial Displacement: <u>0.498 m</u>	Static Water Column Height: <u>3.84 m</u>
Total Well Penetration Depth: <u>3.84 m</u>	Screen Length: <u>1.524 m</u>
Casing Radius: <u>0.0254 m</u>	Well Radius: <u>0.1045 m</u>

SOLUTION

Aquifer Model: <u>Unconfined</u>	Solution Method: <u>Hvorslev</u>
$K = 5.011E-6$ m/sec	$y_0 = 0.4612$ m

Estimated Groundwater InflowRegional Group - 4850 Bank Street - Building ExcavationDupuit-Forchheimer Equation

$$Q = \pi K ((h_0^2 - h_p^2) / \ln(R/r))$$

K (m/sec) = 3.03E-06

h₀ (m) = 4h_p (m) = 2

r (m) = 17.35

Equivalent Radius of Excavation =

A+B=Pi*r

Excavation Width (A) =

26.5 m

Excavation Length (B) =

28 m

Perimeter Length =

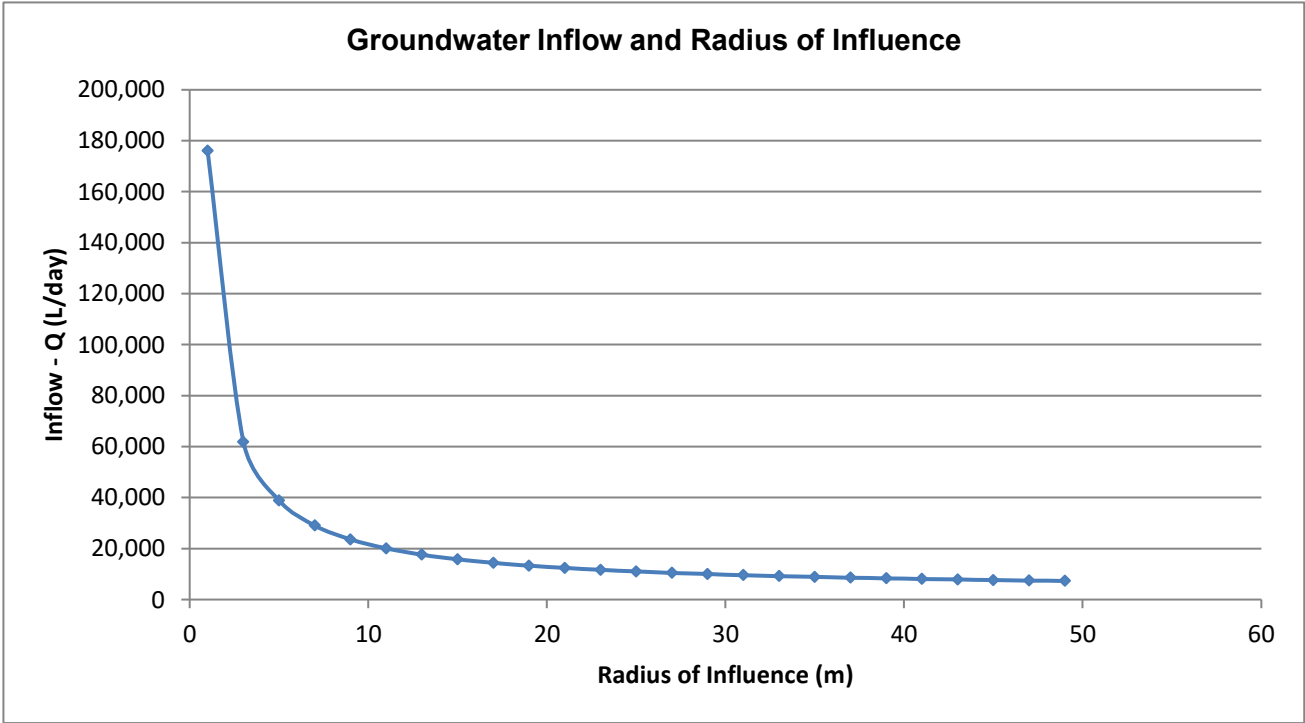
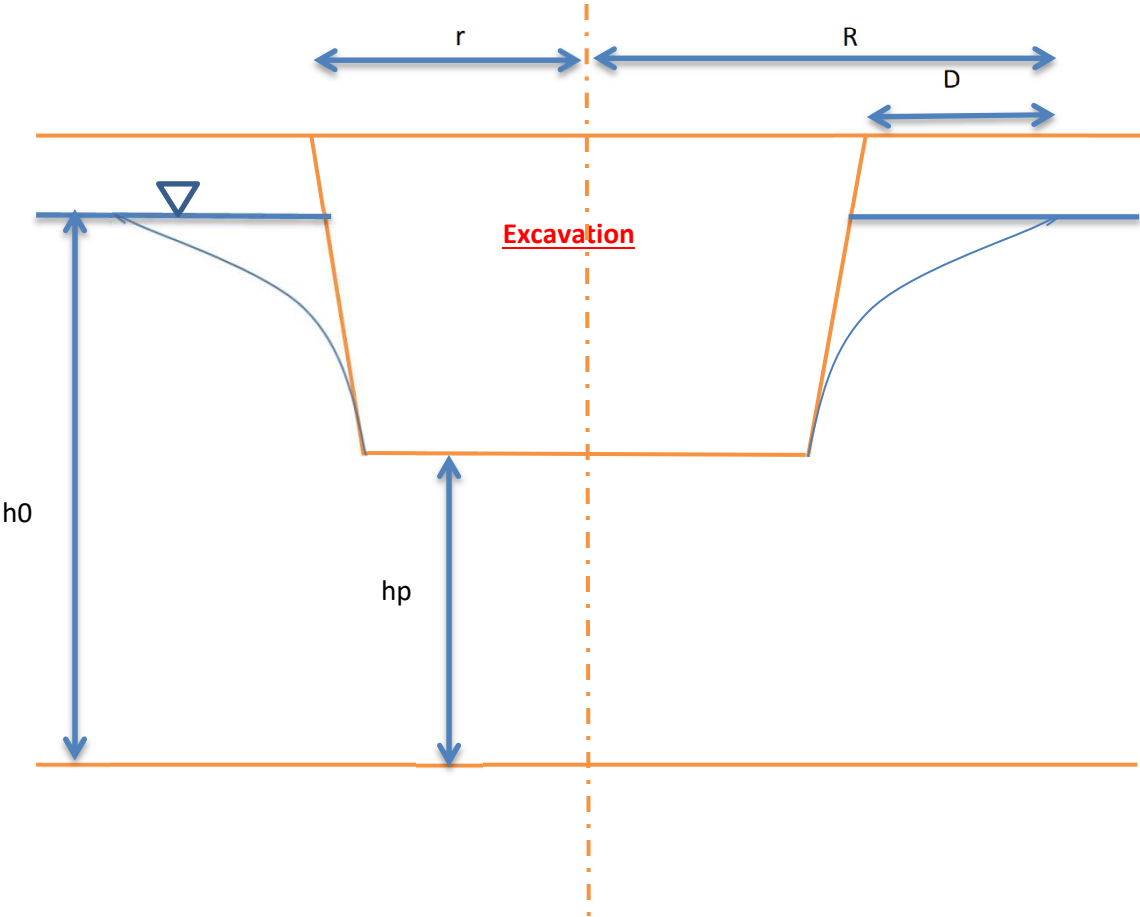
109 m

Equivalent Radius (r) =

17.35 m

R	Distance to edge of excavation (D)
18.35	1.00
20.35	3.00
22.35	5.00
24.35	7.00
26.35	9.00
28.35	11.00
30.35	13.00
32.35	15.00
34.35	17.00
36.35	19.00
38.35	21.00
40.35	23.00
42.35	25.00
44.35	27.00
46.35	29.00
48.35	31.00
50.35	33.00
52.35	35.00
54.35	37.00
56.35	39.00
58.35	41.00
60.35	43.00
62.35	45.00
64.35	47.00
66.35	49.00
68.35	51.00
70.35	53.00
72.35	55.00
74.35	57.00
76.35	59.00

Q (m ³ /s)	Q (m ³ /day)	Q (L/day)
0.0020	176.1	176,101
0.0007	61.9	61,874
0.0005	39.0	38,969
0.0003	29.1	29,115
0.0003	23.6	23,615
0.0002	20.1	20,097
0.0002	17.6	17,647
0.0002	15.8	15,840
0.0002	14.4	14,448
0.0002	13.3	13,343
0.0001	12.4	12,442
0.0001	11.7	11,693
0.0001	11.1	11,059
0.0001	10.5	10,515
0.0001	10.0	10,043
0.0001	9.6	9,629
0.0001	9.3	9,263
0.0001	8.9	8,936
0.0001	8.6	8,643
0.0001	8.4	8,378
0.0001	8.1	8,137
0.0001	7.9	7,917
0.0001	7.7	7,715
0.0001	7.5	7,529
0.0001	7.4	7,357
0.0001	7.2	7,198
0.0001	7.0	7,050
0.0001	6.9	6,911
0.0001	6.8	6,782
0.0001	6.7	6,660



Estimated Groundwater InflowRegional Group - 4850 Bank Street - Servicing ExcavationDupuit-Forchheimer Equation

$$Q = \pi K ((h_0^2 - h_p^2) / \ln(R/r))$$

K (m/sec) = 3.03E-06

h₀ (m) = 4h_p (m) = 0

r (m) = 9.55

Equivalent Radius of Excavation =

A+B=Pi*r

Excavation Width (X) =

5 m

Excavation Length (Y) =

25 m

Perimeter Length =

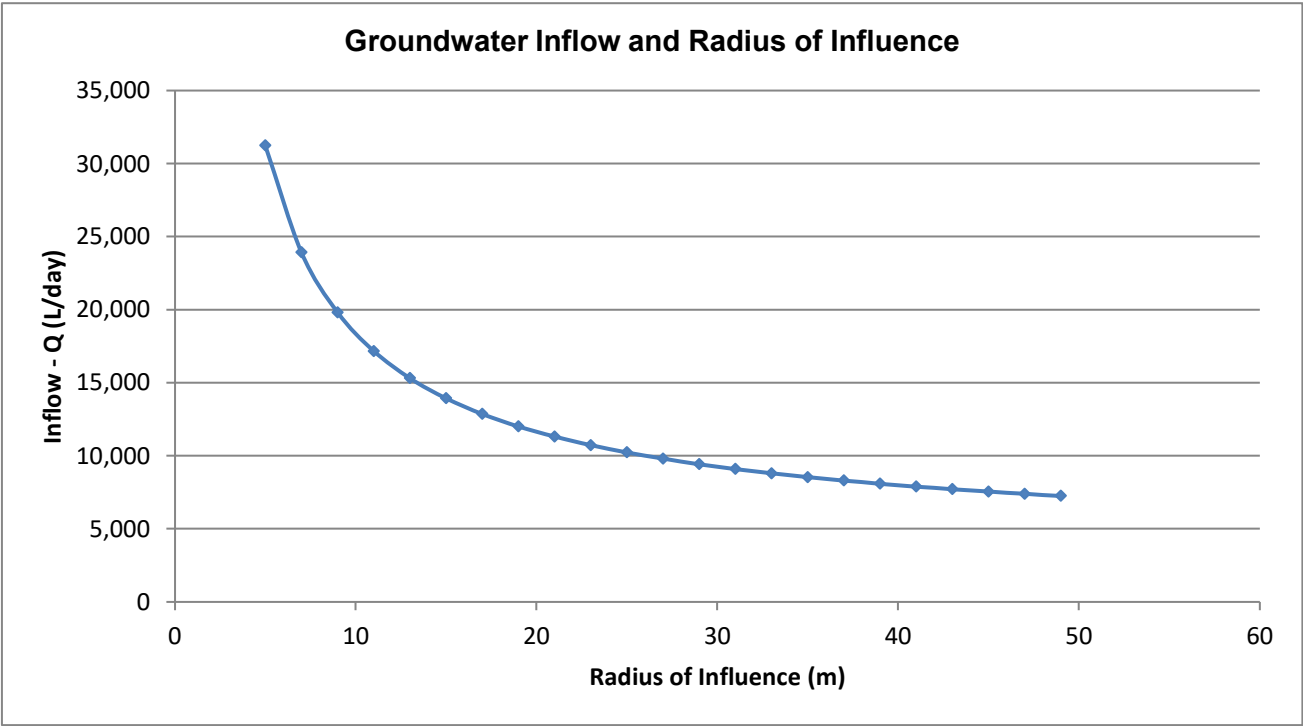
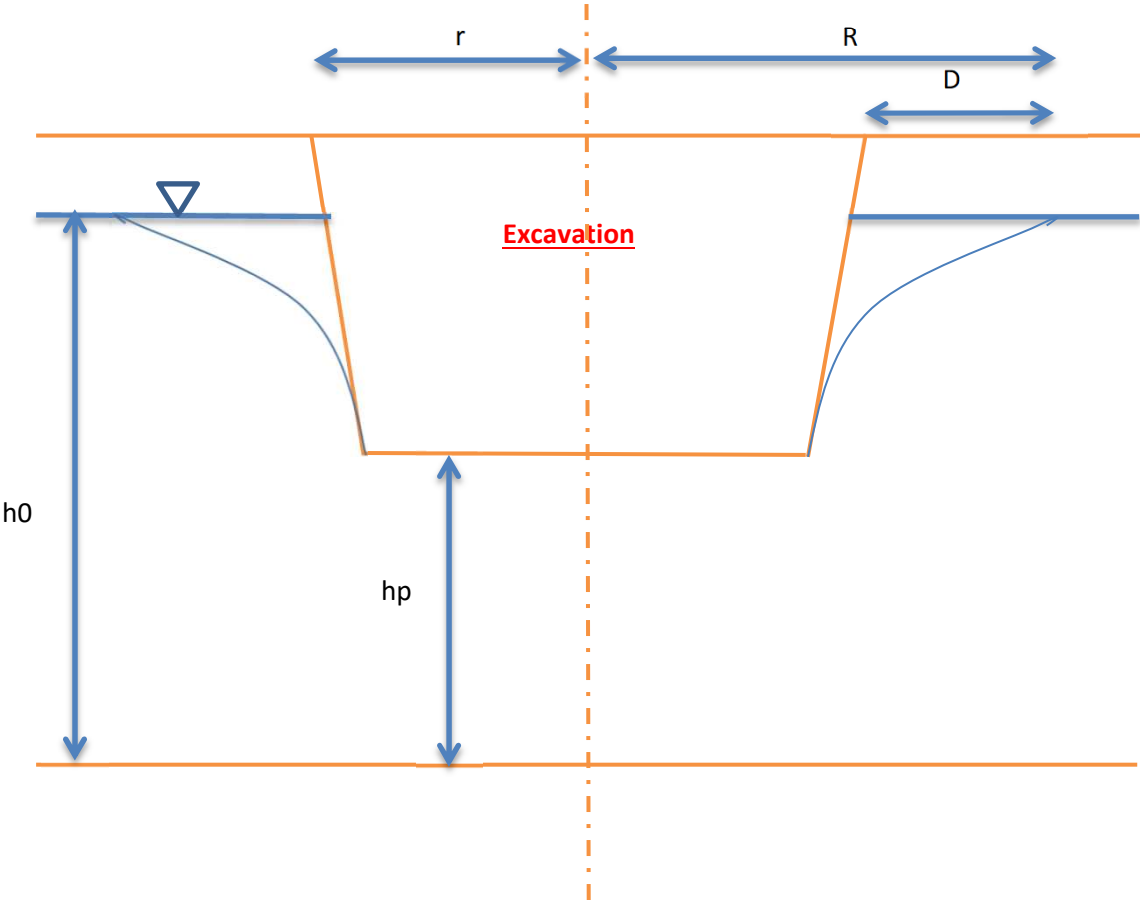
60 m

Equivalent Radius (r) =

9.55 m

R	Distance to edge of excavation (D)
14.55	5.00
16.55	7.00
18.55	9.00
20.55	11.00
22.55	13.00
24.55	15.00
26.55	17.00
28.55	19.00
30.55	21.00
32.55	23.00
34.55	25.00
36.55	27.00
38.55	29.00
40.55	31.00
42.55	33.00
44.55	35.00
46.55	37.00
48.55	39.00
50.55	41.00
52.55	43.00
54.55	45.00
56.55	47.00
58.55	49.00
60.55	51.00
62.55	53.00
64.55	55.00
66.55	57.00
68.55	59.00
70.55	61.00
72.55	63.00

Q (m ³ /s)	Q (m ³ /day)	Q (L/day)
0.0004	31.3	31,251
0.0003	23.9	23,931
0.0002	19.8	19,819
0.0002	17.2	17,171
0.0002	15.3	15,315
0.0002	13.9	13,937
0.0001	12.9	12,869
0.0001	12.0	12,016
0.0001	11.3	11,316
0.0001	10.7	10,731
0.0001	10.2	10,233
0.0001	9.8	9,804
0.0001	9.4	9,430
0.0001	9.1	9,100
0.0001	8.8	8,807
0.0001	8.5	8,544
0.0001	8.3	8,307
0.0001	8.1	8,092
0.0001	7.9	7,896
0.0001	7.7	7,717
0.0001	7.6	7,551
0.0001	7.4	7,398
0.0001	7.3	7,257
0.0001	7.1	7,125
0.0001	7.0	7,001
0.0001	6.9	6,886
0.0001	6.8	6,778
0.0001	6.7	6,676
0.0001	6.6	6,580
0.0001	6.5	6,489



Estimated Groundwater InflowRegional Group - 4850 Bank Street - SWMP ExcavationDupuit-Forchheimer Equation

$$Q = \pi K ((h_0^2 - h_p^2) / \ln(R/r))$$

K (m/sec) = 3.03E-06

h₀ (m) = 4h_p (m) = 0

r (m) = 58.73

Equivalent Radius of Excavation =

A+B=Pi + r

Excavation Width (X) =

32.5 m

Excavation Length (Y) =

152 m

Perimeter Length =

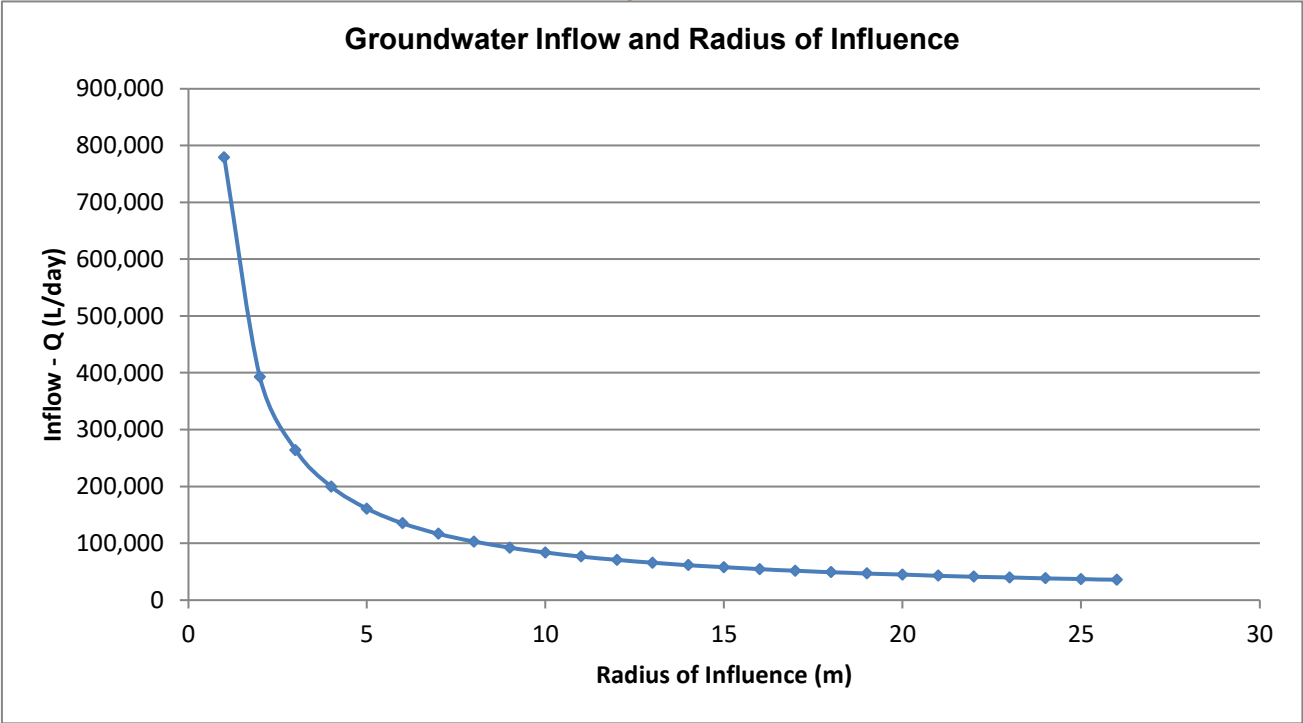
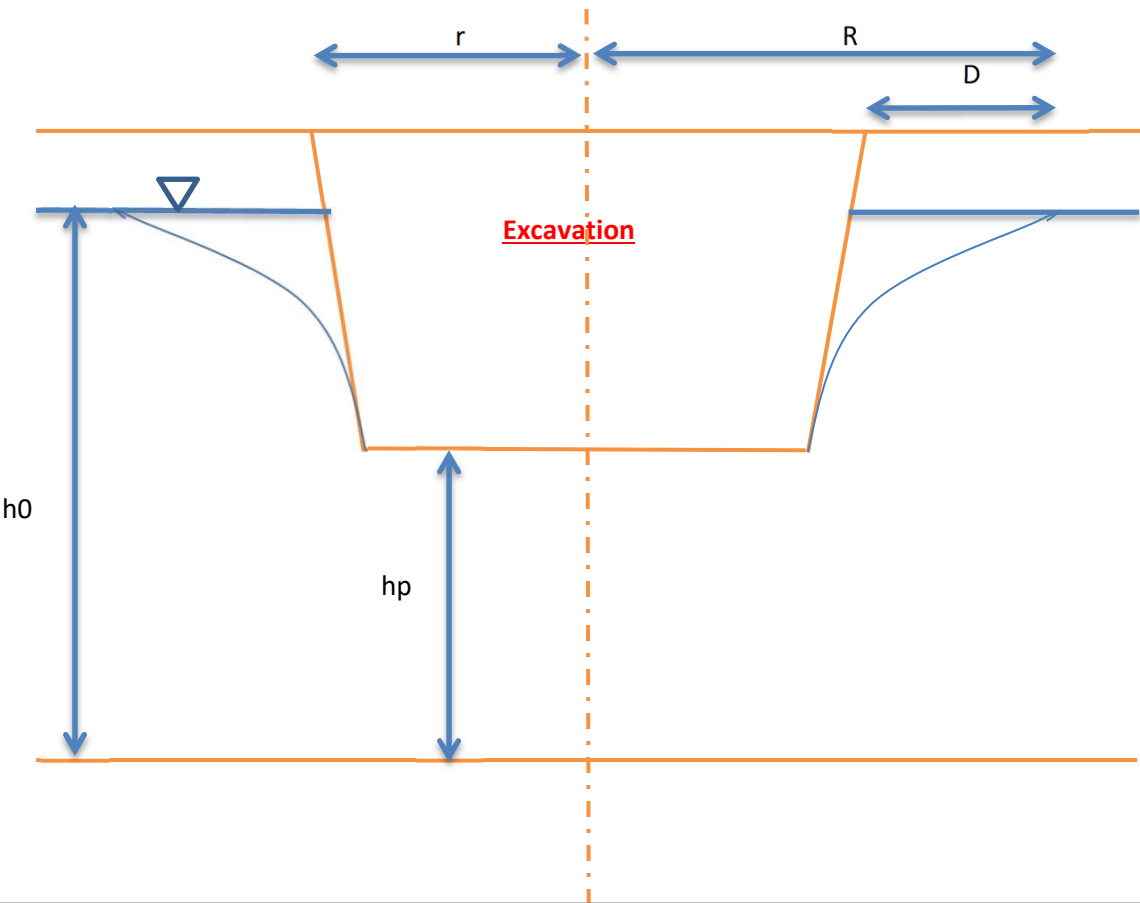
369 m

Equivalent Radius (r) =

58.73 m

R	Distance to edge of excavation (D)
59.73	1.00
60.73	2.00
61.73	3.00
62.73	4.00
63.73	5.00
64.73	6.00
65.73	7.00
66.73	8.00
67.73	9.00
68.73	10.00
69.73	11.00
70.73	12.00
71.73	13.00
72.73	14.00
73.73	15.00
74.73	16.00
75.73	17.00
76.73	18.00
77.73	19.00
78.73	20.00
79.73	21.00
80.73	22.00
81.73	23.00
82.73	24.00
83.73	25.00
84.73	26.00
85.73	27.00
86.73	28.00
87.73	29.00
88.73	30.00

Q (m ³ /s)	Q (m ³ /day)	Q (L/day)
0.0090	779.4	779,371
0.0045	392.9	392,948
0.0031	264.1	264,128
0.0023	199.7	199,710
0.0019	161.1	161,052
0.0016	135.3	135,275
0.0014	116.9	116,858
0.0012	103.0	103,041
0.0011	92.3	92,291
0.0010	83.7	83,688
0.0009	76.6	76,647
0.0008	70.8	70,777
0.0008	65.8	65,807
0.0007	61.5	61,546
0.0007	57.9	57,851
0.0006	54.6	54,616
0.0006	51.8	51,760
0.0006	49.2	49,221
0.0005	46.9	46,947
0.0005	44.9	44,899
0.0005	43.0	43,045
0.0005	41.4	41,359
0.0005	39.8	39,818
0.0004	38.4	38,405
0.0004	37.1	37,104
0.0004	35.9	35,902
0.0004	34.8	34,788
0.0004	33.8	33,753
0.0004	32.8	32,789
0.0004	31.9	31,889



APPENDIX 4

CITY OF OTTAWA - SALT MANAGEMENT PLAN - APPENDIX A - OCTOBER 171,
2011

City of Ottawa
Public Works and Services Department
Surface Operations Branch

**Salt Management Plan
Appendix A**

MATERIAL APPLICATION POLICY

CONTENT

Maintenance Quality Standards – Snow and Ice Control on Roads
 General Information
 Use of Liquid Chemicals
Material Application Guideline and Policy – Bare Pavement Roads
 Material Application Guideline and Policy – Centre-Bare Roads
Material Application Guideline and Policy – Snow Packed Roads
 Blast Policy

*The Surface Operations Branch District Managers, Area Managers
and Zone Supervisors have been consulted through
the development of this document.*

REVISION INFO

Rev	Date	By	Description
3.1	Jan 10 2007		
3.2	Oct 31 2011	D Vander Wal	• Removed 50/50 mix per Dan O'Keefe. • Removed specific references to Sodium and Calcium Chloride as new product for 2011 is a Multi-Chloride Brine. Changed liquid application rate from 46 (6%) to 39L/tonne (5%). • Removed Dry and Wet salt rates for pavement temperatures below -18C. • Updated Epoke rates to match Appendix B and added wet rates to obtain 20% reduction when pre-wetting. • Removed separate rate table for Hwy 174 Epoke spreaders since the resulting lane-km rates are the same as other bare pavement.

COUNCIL APPROVED MAINTENANCE QUALITY STANDARDS

For snow clearing, resources are to be deployed and snow clearing completed as defined in the Table below. If the depth of snow accumulation is less than the minimum for deployment, then resources may be deployed subject to road conditions resulting from previous snow accumulations or from forecasted weather conditions.

For treating icy roads, resources are to be deployed as soon as practicable after becoming aware of the icy conditions. Icy roads are to be treated within the times defined in the Table below after becoming aware of the icy conditions.

MAINTENANCE QUALITY STANDARD SNOW AND ICE CONTROL ON ROADS							
Road Maintenance Class		Road Type	Minimum Depth of Snow Accumulation for Deployment of Resources <i>(Depth as per MMSMH)</i>	Time to Clear Snow Accumulation From the End of Snow Accumulation or Time to Treat Icy Conditions <i>(Time as per MMSMH)</i>	Treatment Standard		
					Bare Pavement	Centre Bare	Snow Packed
1	A	High Priority Roads	As accumulation begins <i>(2.5-8 cm depending on class)</i>	2 h <i>(3-4 h)</i>	✓		
	B				✓		
2	A	Most Arterials		3 h <i>(3-6 h)</i>	✓		
	B				✓		
3	A	Most Major Collectors		4 h <i>(8-12 h)</i>	✓		
	B				✓		
4	A	Most Minor Collectors	5 cm <i>(8 cm)</i>	6 h <i>(12-16 h)</i>	✓		
	B					✓	
	C						✓
5	A, C	Residential Roads and Lanes	7 cm <i>(10 cm)</i>	10 h <i>(16-24 h)</i>			✓
	B		10 cm <i>(not defined)</i>	16 h <i>(not defined)</i>			✓

Note - MMSMH refers to Ontario Regulation 239/02, Minimum Maintenance Standards for Municipal Highways shown for comparison purposes.

- **Bare Pavement:** requires that snow and ice be controlled, cleared and/or prevented for the full traveled road pavement width, including flush medians of 2 m width or less, paved shoulders and/or adjacent cycling lanes. It does not include parking lanes.
- **Centre-Bare:** requires that snow and ice be controlled, cleared and/or prevented in a strip down the middle of the road pavement width for a minimum width of 2.5 m on each side of centre-line.
- **Snow-Packed:** requires that snow and ice be cleared and that ruts and/or potholes that may cause poor vehicle control be leveled off. Abrasive or deicing materials are applied at intersections, hills and sharp curves.

LIQUID CHEMICALS

Application Rates and Reductions

USE OF LIQUID CHEMICALS					
Chemical	Use	Application Ratio	Chemical Concentration	Application Rate	Dry Salt Reduction
<i>CaCl</i> , <i>MgCl</i> , or <i>Multi-Chloride</i>	Pre-Wetting	5% by weight	Varies (28%-35%)	39L / t	20% ¹
<i>CaCl</i> , <i>MgCl</i> , or <i>Multi-Chloride</i>	Straight Liquid Application	N/A	Varies	60 to 100L/ lane-km	-

¹ The Epoke controller does not support setting a separate reduction percentage – the rate will only be reduced by the set liquid application ratio (5%).

Pre-Wetted Salt

- Pre-wetting salt is a recommended practice to enhance the performance of the road salt.
- When salt is pre-wet, the brine solution is formed quicker than dry salt and more material is retained on the road surface. It is the brine solution that prevents or breaks the bond between the road surface and snow/ice.
- The enhanced performance of the salt as well as the retention of salt on the road surface facilitates achieving a bare road more quickly and maintains bare pavement longer. As a result, a reduction in salt application rates can achieve the same effectiveness as dry salt application at traditional rates.

Practical temperature ranges for Pre-Wetted Salt (WET SALT)

- Sodium Chloride Brine (NaCl):
 - o From 0 to -9°C (0 to -12°C as per pre-wetting practices in urban areas)
- Calcium Chloride (CaCl₂), Magnesium Chloride (MgCl), and Multi-Chloride Brines with a minimum eutectic temperature of -30°C:
 - o From 0 to -15°C (0 to -18°C as per pre-wetting practices in urban areas)

Direct Liquid Applications (DLA)

- Anti-icing by Direct Liquid Application is a recommended practice to treat frost and black ice conditions in the shoulder seasons at pavement temperatures between 0 and -10°C.
- Liquid should be applied to treat forecasted conditions at the following rates:

Winter Event	Litres / LaneKm	mL / m ² (at 3m width)
Frost	60	20
Light Snow	60 to 80	25
Moderate to Heavy Snow, Freezing Rain	80 to 100	30

- DLA should be applied:
 - o As close to the beginning of the winter event as possible
 - o When the air and pavement temperatures are both below +5°C currently and forecasted to remain below +5°C within the next 12 hours.
 - o When the air and pavement temperatures are a minimum of 10°C above the eutectic temperature of the DLA liquid and forecasted to do so for the next 24 hours.
- DLA should NOT be applied:

- When the relative humidity is below 60% and the air and pavement temperatures are between 0°C and +5°C.
- More than once in a three-day period unless a Winter Event (frost, snow, freezing rain or rain) has removed the product from the pavement. Note that DLA liquid can remain on the pavement up to several days after the initial application.

GENERAL INFORMATION

When the Pavement Temperature is below –18°C

- Below –18°C, the salt melting action is close to none.
- Below –18°C, the use of salt shall be discontinued and replaced by an abrasive.
- Multiple factors can affect the performance of de-icing chemicals and abrasives below pavement temperature of –18°C. Under such conditions, supervisors shall select the most appropriate material based on the current and expected traffic volume, current and forecasted weather and road conditions.

Abrasives

- Accepted abrasives are Sand and Grit
- Straight abrasive does contain salt to prevent the stockpile from freezing. The goal is to minimize the amount of salt mixed with the abrasives. The objective is to use an engineered abrasive of 5% salt / 95% sand or grit by volume. The following interim abrasive ratios are accepted (where the engineered ratio cannot be achieved due to equipment and material storage constraints)
 - 10% salt / 90% sand or grit by volume

Rush Hours and Forecasted Conditions

- Supervisors are responsible for making timely material application calls based on forecasted conditions and expected traffic peak hours.

Freezing Rain

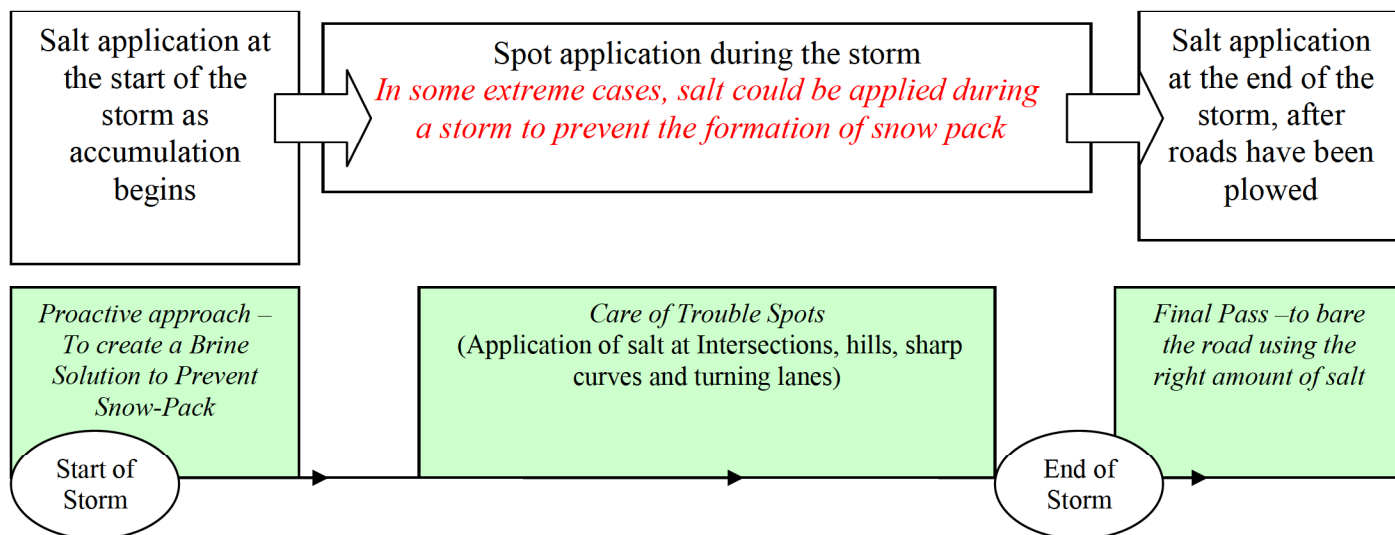
- When Freezing Rain occurs, abrasive materials (sand or grit) will be applied on snow packed roads on a continuous basis (to the full Road Width).
- Snow Packed Roads – where available, graders with ice blades shall drag the roads to aid traction.

MATERIAL APPLICATION POLICY BARE PAVEMENT					
Pavement Temperature °C	Material	Frost and Black Ice Kg/2-lane km	Light Snow <1cm/hr Kg/2-lane km	Heavy Snow >1cm/hr Kg/2-lane km	Freezing Rain Kg/2-lane km
0 to -5°C	DRY SALT	70	100	140	230
	WET SALT	55	80	110	185
-5 to -10°C	DRY SALT	85	140	180	230
	WET SALT	70	110	145	185
-10 to -18°C	DRY SALT	85	180	230	230
	WET SALT	70	145	185	185
< -18°C*	ABRASIVE	350	350	350	-

* Refer to the General Information Section for additional information when the Pavement Temperature is below -18°C. When forecasted warming conditions are expected, dry/wet rates of 180/145, and 230/185 may provide some baring-off benefit.

* Note: Use wet rates where pre-wetting capable spreaders and liquid supply is available.

Timing of Application – BARE PAVEMENT ROADS



Start of the Storm

Salt shall be spread just at the beginning of the icy precipitation.

End of Storm

Salt shall not be spread once bare pavement is achieved and when no further precipitation is forecasted.

MATERIAL APPLICATION POLICY BARE PAVEMENT (EPOKE SPREADERS)									
Pavement Temperature °C	Material	Frost and Black Ice		Light Snow <1cm/hr		Heavy Snow >1cm/hr		Freezing Rain	
		g/m ²	Width	g/m ²	Width	g/m ²	Width	g/m ²	Width
0 to -5°C	DRY Salt (WET Salt)*	70kg/2ln-km		100kg/2ln-km		140kg/2ln-km		230kg/2ln-km	
		35 (30)	2m	50 (43)	2m	70 (60)	2m	115 (98)	2m
		23 (20)	3m	35 (30)	3m	45 (38)	3m	77 (65)	3m
		17 (14)	4m	23 (20)	4m	35 (30)	4m	58 (49)	4m
		17 (14)	5m	20 (17)	5m	28 (24)	5m	45 (38)	5m
-5 to -10°C	DRY Salt (WET Salt)*	85kg/2ln-km		140kg/2ln-km		180kg/2ln-km		230kg/2ln-km	
		45 (38)	2m	70 (60)	2m	90 (77)	2m	115 (98)	2m
		28 (24)	3m	45 (38)	3m	58 (49)	3m	77 (65)	3m
		20 (17)	4m	35 (30)	4m	45 (38)	4m	58 (49)	4m
		17 (14)	5m	28 (24)	5m	35 (30)	5m	45 (38)	5m
-10 to -18°C	DRY Salt (WET Salt)*	85kg/2ln-km		180kg/2ln-km		230kg/2ln-km		230kg/2ln-km	
		45 (38)	2m	90 (77)	2m	115 (98)	2m	115 (98)	2m
		28 (24)	3m	58 (49)	3m	77 (65)	3m	77 (65)	3m
		20 (17)	4m	45 (38)	4m	58 (49)	4m	58 (49)	4m
		17 (14)	5m	35 (30)	5m	45 (38)	5m	45 (38)	5m
< -18°C†	ABRASIVE	350kg/2ln-km		350kg/2ln-km		350kg/2ln-km		-	
		175	2m	175	2m	175	2m		
		115	3m	115	3m	115	3m	-	-
		88	4m	88	4m	88	4m		
		70	5m	70	5m	70	5m		

* When the pre-wetting system is engaged, the dry material output is reduced. The Epoke controller does not support setting a separate reduction percentage – the rate is only reduced by the set liquid application ratio (5%). Material 2 was therefore configured with rates reduced by 15%.

* Use wet rates where pre-wetting capable spreaders and liquid supply is available.

† Refer to the General Information Section for additional information when the Pavement Temperature is below -18°C. When forecasted warming conditions are expected, dry/wet rates of 180/145, and 230/185 may provide some baring-off benefit.

Notes

There are 2 variables affecting the material output on an Epoke salt spreader:

-Material Application Rate in g/m² AND Application Width in m.

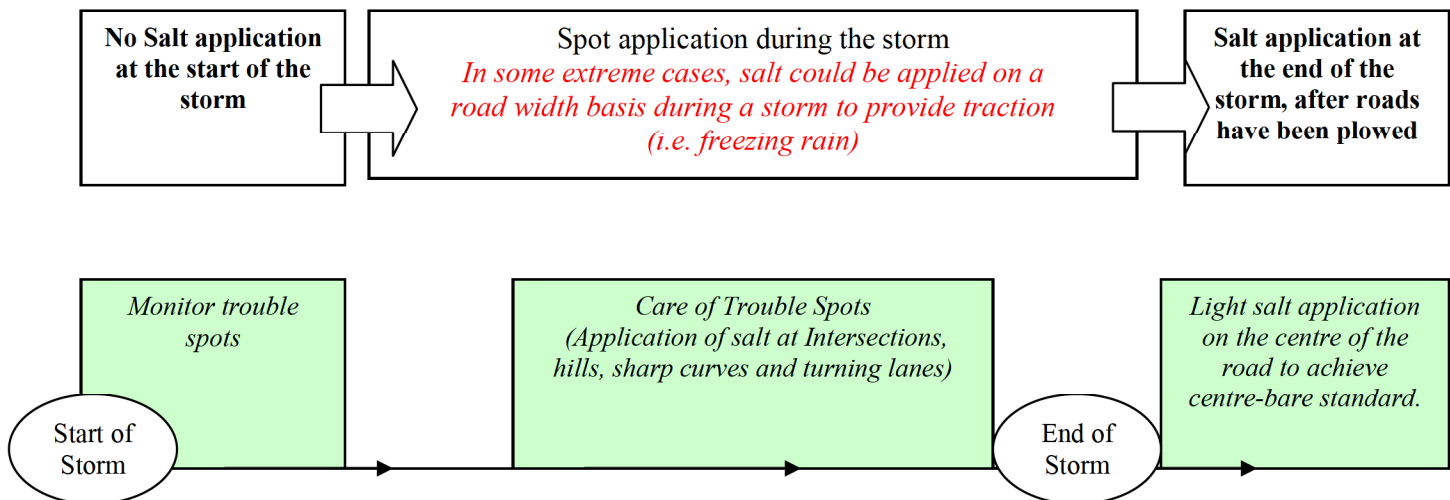
Examples:

- 1- For a rate of 100kg/2ln-km, the Epoke Setup would be 25g/m² at a Width of 4m. **OR** a rate of 50g/m² at a Width of 2m.
- 2- For a rate of 170kg/2ln-km, the Epoke Setup would be 42g/m² at a Width of 4m. **OR** a rate of 57g/m² at a Width of 3m.

MATERIAL APPLICATION POLICY CENTRE-BARE PAVEMENT				
Pavement Temperature °C	Material	Frost and Black Ice <i>Kg/2-lane km</i>	Snow <i>Kg/2-lane km</i>	Freezing Rain <i>Kg/2-lane km</i>
0 to -5°C	DRY SALT	70	100	230
	WET SALT	55	80	185
-5 to -18°C	DRY SALT	85	140	230
	WET SALT	70	110	185
< -18°C	ABRASIVE	350	350	-

Note: Use wet rates where pre-wetting capable spreaders and liquid supply is available.

Timing of Application – CENTRE-BARE PAVEMENT ROADS



Start of the Storm

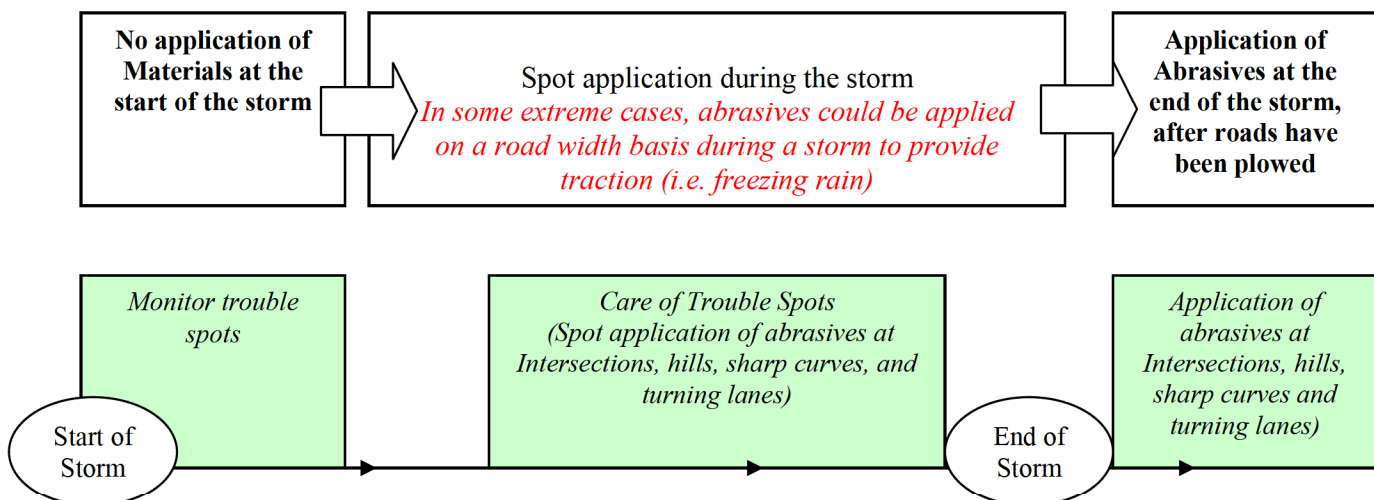
No Salt application at the start of the storm. Monitor trouble spots.

End of Storm

Salt shall not be spread once centre-bare pavement is achieved and when no further precipitation is forecasted.

MATERIAL APPLICATION POLICY (Intersections, Hills and Sharp Curves) SNOW PACKED				
Pavement Temperature °C	Material	Frost and Black Ice <i>Kg/2-lane km</i>	Snow <i>Kg/2-lane km</i>	Freezing Rain <i>Kg/2-lane km</i>
0 to -30°C and below	ABRASIVE	350	350	500

Timing of Application – SNOW PACKED ROADS



Start of the Storm

No application of abrasives at the start of the storm. Monitor trouble spots.

End of Storm

Abrasives shall not be spread once traction is provided.

BLASTING POLICY

The On-Board Electronic Controller's Blast function is an important tool for roadway de-icing operations. It allows operational staff to timely increase the amount of spread material at trouble locations such as steep hills and sharp curves. Although the blast function is indispensable, it should be used with care as its liberal use can lead to significant increases in salt consumption and environmental impacts.

- Supervisory staff shall work toward minimizing the amount of salt being spread using the Blast function to achieve the required maintenance quality standard.
- Many variables come into play during a winter weather event. As such, the call to allow the use of the Blast Function during a winter event is left to the judgment of the supervisory staff, as the first priority is the safety of the traveling public.

The Blast function shall only be used at the following locations:

- Steep Hills
- Elevated Curves
- Intersections (within 30m of the stop line on the approach side only)
- Shade areas
- Right and Left Turning Lanes
- Bus Bays
- Railways (within 30m of the railway crossing on the approach side only)
- Bridge Decks

Caution: when blasting salt on a bridge deck. Rock salt needs heat to dissolve. Spreading salt on a bridge deck could lower its surface temperature to a point where the brine solution will refreeze.

Application:

- The Blast function shall only be used under severe winter conditions
- The Blast function shall not be used during light winter weather events such as light snow, frost, etc.
- The blast function shall not be used while clearing the roads (stripping) at the end of a storm.

On-Board Electronic Controller's Blast function

- The Epoke controllers will blast at the highest material calibration setting.
- The CS-230 controller will blast to its maximum hydraulic power (which can be adjusted if too high)
- The CS-440 controller can be calibrated at a defined Blast rate for each material.
 - o The Blast Rate for Salt is to be set at 300kg/2 lane-km
 - o The Blast Rate for Abrasive is to be set at 500kg/2 lane-km. Note: Suburban/Rural District has a requirement to Blast Abrasives on gravel roads at a rate of 700kg/2 lane-km. To achieve this rate, the spreaders need to be calibrated using two gate settings. The District will provide, every fall, a list of spreaders requiring this specific calibration.

APPENDIX 5

SURROUNDING WATER WELL RECORDS

316/52



GROUND WATER BRANCH

SEP 15 1962

2176

ONTARIO WATER
RESOURCES COMMISSION

UTM 1182 4537610E

N 15R 561175610N

The Ontario Water Resources Commission Act

Elev: 4R 03115

WATER WELL RECORD

Basin 251 CARLETON

Township, Village, Town or City

FLORESTER

Con. 4RF Lot 21

Date completed 20 JULY 62
(day month year)

Address BILLINGS BRIDGE

Casing and Screen Record

Inside diameter of casing 184
 Total length of casing 184
 Type of screen -
 Length of screen -
 Depth to top of screen -
 Diameter of finished hole 4

Pumping Test

Static level 6
 Test-pumping rate 6 G.P.M.
 Pumping level 8
 Duration of test pumping 1 HR
 Water clear or cloudy at end of test CL
 Recommended pumping rate 6 G.P.M.
 with pump setting of 30 feet below ground surface

Well Log

Water Record

Overburden and Bedrock Record

From
ft.To
ft.Depth(s) at
which water(s)
foundKind of water
(fresh, salty,
sulphur)

CLAY

0

18

Limestone

18

45

45

F

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

Home

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

V

Drilling or Boring Firm

M MEDSTER

Address

6 FORD

Licence Number

612

Name of Driller or Borer

S. J. M. E.

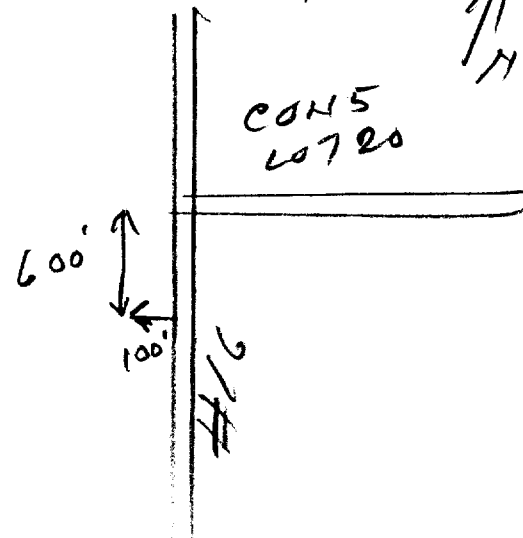
Address

Date

AUG 28

(Signature of Licensed Drilling or Boring Contractor)

Location of Well

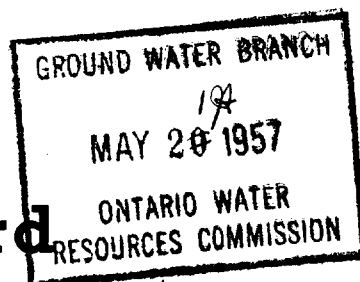
In diagram below show distances of well from
road and lot line. Indicate north by arrow.

564
UTM 11824532710E
Rideau Front
5R 507710810N
Elev. 4R 03310
Basin 25 221



The Water-well Drillers Act, 1954
Department of Mines

15 No 2177



Water-Well Record

County or Territorial District Carleton Township, Village, Town or City Gloucester
in Village, Town or City)
Address 40 Lawrence St Ottawa
(day) (month) (year)

Pipe and Casing Record

Pumping Test

Casing diameter(s) <u>2"</u>	Static level <u>6</u>
Length(s) <u>21</u>	Pumping rate <u>800 G.P.H</u>
Type of screen	Pumping level <u>25 ft</u>
Length of screen	Duration of test <u>2 hr</u>

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)
<u>Sand</u>	<u>0</u>	<u>7</u>	<u>60</u>	<u>54</u>	<u>Fresh</u>
<u>Boulders and Sand</u>	<u>7</u>	<u>20</u>			
<u>Wt Sand stone</u>	<u>20</u>	<u>60</u>			

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

House

Is water clear or cloudy? Clear

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

Upland

Drilling firm L. R. Corsette

Address 1252 Baseline Rd

City of Ottawa

Name of Driller L. R. Corsette

Address

Licence Number 395

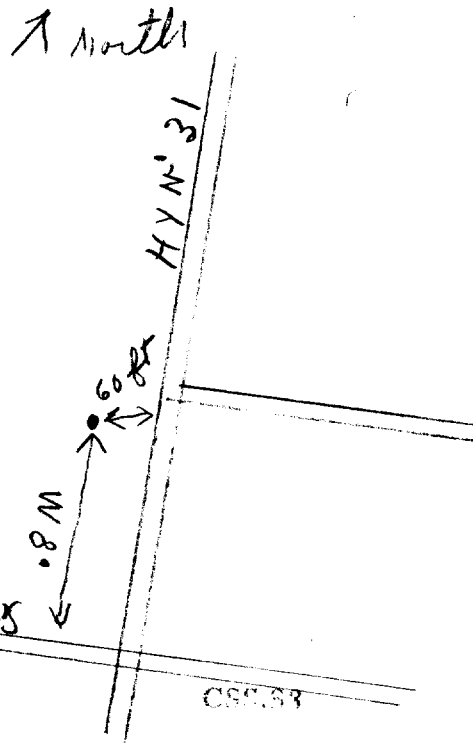
I certify that the foregoing statements of fact are true.

Date May 17/57 L. R. Corsette

Signature of Licensee

Location of Well

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



316/52

UTM 118Z 4530110E

9R 501162910N

Elev. 9R 01303+

Basin 25

Con IV

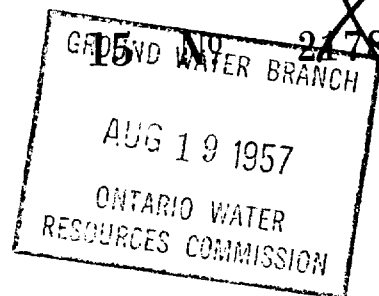
10+22



ONTARIO

The Water-well Drillers Act, 1954

Department of Mines



Water-Well Record

County or Territorial District Carleton Township, Village, Town or City Gloucester

In Village, Town or City

Address Belling Bridge

(day)

(month)

(year)

Pipe and Casing Record

Pumping Test

Casing diameter(s) 4" Static level 13
 Length(s) 23 feet Pumping rate 240 gal PH
 Type of screen 1 Pumping level 50 feet
 Length of screen Duration of test 1 hour

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)
<u>hard gravelly</u>			<u>48 feet</u>	<u>37'</u>	<u>fresh</u>
<u>Clay & Sand</u>	<u>0</u>	<u>18</u>			<u>very hard</u>
<u>& boulders</u>					
<u>Very hard lime</u>	<u>18</u>	<u>50</u>			
<u>Stone Rock</u>					

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

house hold use onlyIs water clear or cloudy? Clear

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

uplands

Drilling firm

Address

Name of Driller James KettlesAddress ParmayvilleLicence Number 337

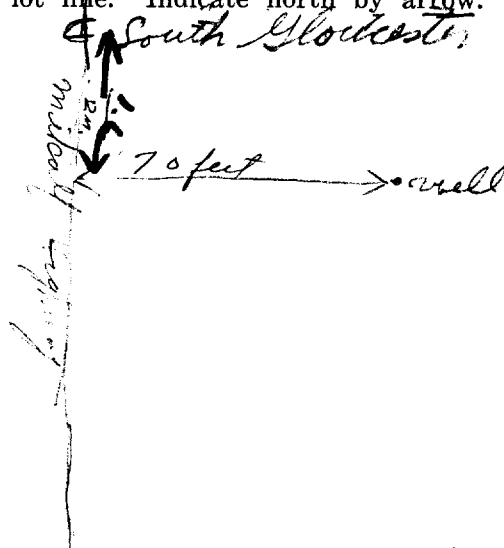
I certify that the foregoing statements of fact are true.

Date Aug 15 James Kettles

Signature of Licensee

Location of Well

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



Elev. 42R 10325

Basin 25

County or District Carleton

Township, Village, Town or City Gloucester

Con 4 R F

Lot P.T.22

Date completed 6 10 1961

Address 28 Clarence St. Ottawa 2, Ont.

Casing and Screen Record

Inside diameter of casing 6 3/16

Total length of casing 21'

Type of screen

Length of screen

Depth to top of screen

Diameter of finished hole 6"

Pumping Test

Static level 20'

Test-pumping rate 80 G.P.M.

Pumping level 70'

Duration of test pumping 1 hr.

Water clear or cloudy at end of test clear

Recommended pumping rate 80 G.P.M.

with pump setting of 80 feet below ground surface

Well Log			Water Record	
Overburden and Bedrock Record			Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
Till and Boulder, Grey hard lime stone and sand stone.			85	fresh
SAND STONE				
BOULDER TILL				
HARD GREY LIMESTONE				
SAND STONE			85	FRESH

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

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

Drilling or Boring Firm J. B. Dufresne Co. Ltd.

Address Ottawa, Ontario.

Licence Number 194

Name of Driller or Borer W. Roy

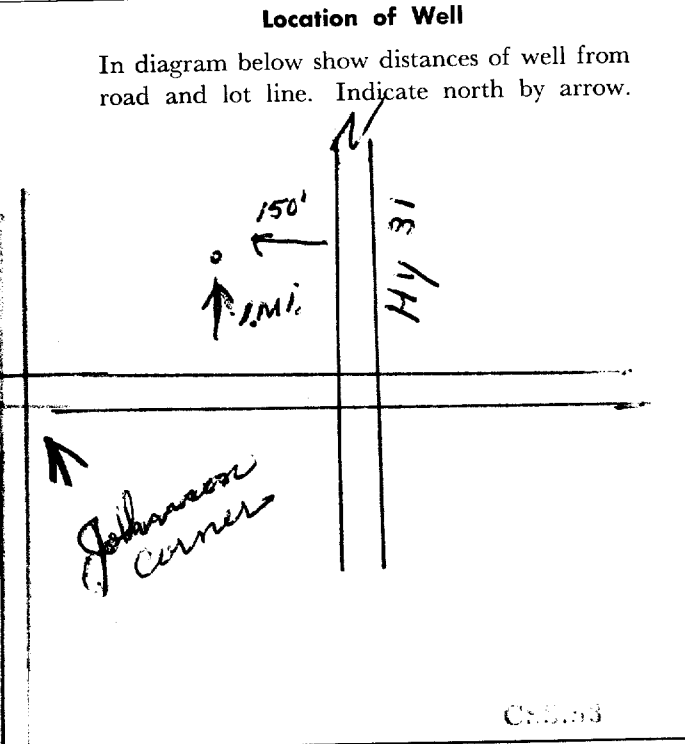
Address Hull

Date Oct 10/60

(Signature of Licensed Drilling or Boring Contractor)

Location of Well

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



000000

UTM 118^Z 45381010^E

316/52



GROUND WATER BRANCH

15 No.
SEP 5 1962

2481

ONTARIO WATER
RESOURCES COMMISSION

Elev. 5^R 501175310^N

The Ontario Water Resources Commission Act

Elev. 4^R 03115

WATER WELL RECORD

Basin 25 CHARLETON

Township, Village, Town or City GLoucester

Con. 4RF Lot 2122

Date completed 26 JULY 62
(day month year)

Address BILLINGS BRIDGE

Casing and Screen Record

Inside diameter of casing 4
Total length of casing 21
Type of screen -
Length of screen -
Depth to top of screen -
Diameter of finished hole 4

Pumping Test

Static level 8
Test-pumping rate 5 G.P.M.
Pumping level 10
Duration of test pumping 1 HR
Water clear or cloudy at end of test CC
Recommended pumping rate 5 G.P.M.
with pump setting of 30 feet below ground surface

Well Log

Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
<u>CLAY</u>	<u>0</u>	<u>21</u>		
<u>Limestone</u>	<u>21</u>	<u>46</u>	<u>46</u>	<u>F</u>

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

Home

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

Drilling or Boring Firm

MMEACHER

Address OTTAWA

Licence Number 618

Name of Driller or Borer SDME

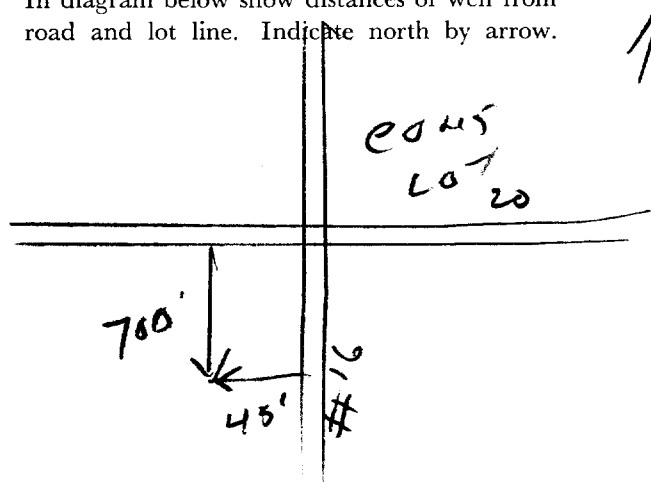
Address OTTAWA

Date 03024

(Signature of Licensed Drilling or Boring Contractor)

Location of Well

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



A1

15 N^o 2183

GROUND WATER BRANCH

Don

JAN 14 1958

ONTARIO WATER
RESOURCES COMMISSION

ord

Water-Well Record

Pumping Test

Water Record

Johnson Corners

316/52.



GROUND WATER BRANCH

JUN 1 1962 2 15 N

ONTARIO WATER
RESOURCES COMMISSION

UTM 1182 4527810 E

5R 5015910 N

The Ontario Water Resources Commission Act

Elev. 4R 0347

WATER WELL RECORD

Basin 25 L Carleton

County or District

Con IV R.E. Lot 23

Township, Village, Town or City Gloucester

Date completed 9 May 1962

Address 10 McRostie & Associates
OTTAWA

Casing and Screen Record

Inside diameter of casing 6 5/8"

Total length of casing 37'

Type of screen none

Length of screen —

Depth to top of screen —

Diameter of finished hole 6 1/2"

Pumping Test

Static level 7'

Test-pumping rate 100 G.P.M.

Pumping level 15'

Duration of test pumping 24 hrs

Water clear or cloudy at end of test clear

Recommended pumping rate 100 G.P.M.

with pump setting of 15 feet below ground surface

Well Log

Water Record

Overburden and Bedrock Record

	From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
(SANDY loam	0	3		
Fine Sand	3	36		
sandstone	36	51	47	Fresh

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

Domestic & Other Uses

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

Drilling or Boring Firm

McLean Water Supply Ltd.

Address 1532 Raven Ave
OTTAWA ONT.

Licence Number 196

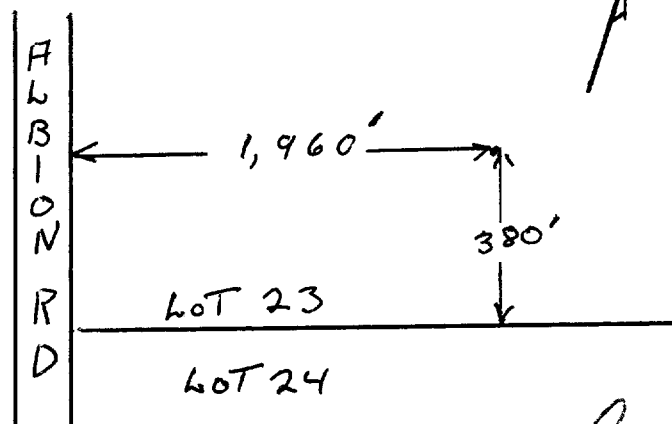
Name of Driller or Borer H. Sally

Address

Date May 10, 1962

C.D. McLean
(Signature of Licensed Drilling or Boring Contractor)

Location of Well

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

310/52



ONTARIO

The Well Drillers Act

Department of Mines, Province of

RECEIVED

DEC 12 1952

GEOLOGICAL BRANCH
DEPARTMENT OF MINES

No. 4185

UTM 118Z 415411310E

9R 50116121810N

Elev. 9R 0310

Basin 1215

Lot - 24

Water Well Record

County or District Corleton Tp. Gloucester Con. 4 RE Lot 24 Pt. Lot

including pump)

Pipe and Casing Record

Pumping Test

Casing diameter(s) <u>5 in</u>	Date
Length(s) of casing(s) <u>18 feet</u>	Developed Capacity
Length of screen	Duration of Test <u>1 hour</u>
Type of screen	Pumping Rate <u>200 P.M.</u>
Type of pump	Drawdown <u>22 feet</u>
Capacity of pump	Static level of completed well <u>14 feet</u>
Depth of pump setting	Is well a gravel-wall type?

Water Record

Kind (fresh or mineral)	Depth(s) to Water Horizon(s)	Kind of Water	No. of Feet Water Rises
<u>fresh</u>	<u>24 feet</u>	<u>fresh</u>	<u>42</u>
Quality (hard, soft, contains iron, sulphur etc.) <u>hard</u>	<u>56'</u>		
Appearance (clear, cloudy, coloured) <u>clear</u>			
For what purpose(s) is the water to be used? <u>house</u>			
How far is well from possible source of contamination? <u>30 feet</u>			
What is source of contamination? <u>septic</u>			
Enclose a copy of any mineral analysis that has been made of water			

Well Log

Drift and Bedrock Record

From To
0 ft.ft.

Loam

18

gray sand

18 38

56.6

Location of Well

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

(over)

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

Drilling Firm Chunij

Address

Recorded by Mr. G. Chunij Address Bar

Date Dec 8 Licence Number 365

A 861

316/52

ON

UTM 182 4542110E

5R 5016440N

Elev. 4R 0384

Basin 25

Lot 24



RECEIVED

JAN 22 1957

GEOLOGICAL BRANCH
DEPARTMENT OF MINES

15 No 2186

The Water-well Drillers Association
Department of Mines

Water-Well Record

County or Territorial District Carleton Township, Village, Town or City Belleville

Village, Town or City

Address Billings Bridge

(day) (month) (year)

Pipe and Casing Record

Pumping Test

Casing diameter(s) 4 inch
Length(s) 16 feet
Type of screen
Length of screen

Static level 8 feet
Pumping rate 219 gal PER-HR
Pumping level 8 feet
Duration of test 1 hr

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)
<u>Black loam</u>				<u>62 feet</u>	<u>fresh</u>
<u>60 yd boulders</u>	<u>0</u>	<u>6</u>			
<u>Black hard limestone</u>	<u>6</u>	<u>35</u>	<u>33 feet</u>		
<u>hard grey limestone</u>	<u>35</u>	<u>60</u>			
<u>DOLOMITE</u>	<u>60</u>	<u>70</u>	<u>70</u>		

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

household use

Is water clear or cloudy? clear

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

Drilling firm

Address

Name of Driller James Kettle

Address

Licence Number 537

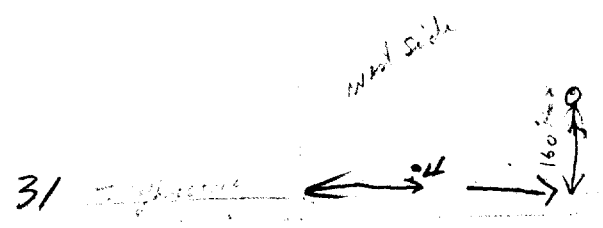
I certify that the foregoing statements of fact are true.

Date Dec 20 James Kettle
Signature of Licensee

Location of Well

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

JOHNSON'S CORP



316/50.

STM 1182 4526210E



GROUND WATER BRANCH

JUN 15 1962

ONTARIO WATER
RESOURCES COMMISSION

5R 50156110N

The Ontario Water Resources Commission Act

Elev. 4R 0365

WATER WELL RECORD

Basin 25

County or District

Carleton

Township, Village, Town or City Gloucester

Con. 1V RF Lot 24

Date completed 25 April 1962

(day)

month

year

Address 90 McBASTIE & ASSOCIATES
OTTAWA

Casing and Screen Record

Inside diameter of casing 6 5/8"

Total length of casing 51'

Type of screen none

Length of screen

Depth to top of screen

Diameter of finished hole 6 1/2"

Pumping Test

Static level 30'

Test-pumping rate 8 G.P.M.

Pumping level 43'

Duration of test pumping 4 hrs

Water clear or cloudy at end of test cloudy

Recommended pumping rate 8 G.P.M.

with pump setting of 43' feet below ground surface

Well Log

Water Record

Overburden and Bedrock Record

	From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
sandy loam	0	3		
gravel & boulders	3	47		
sandstone	47	60	60	Fresh

For what purpose(s) is the water to be used? RACETRACK
Domestic & Other uses

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

Drilling or Boring Firm

McLean Water Supply Ltd.

Address 1532 Raven Ave
OTTAWA

Licence Number 196

Name of Driller or Borer H. Sally

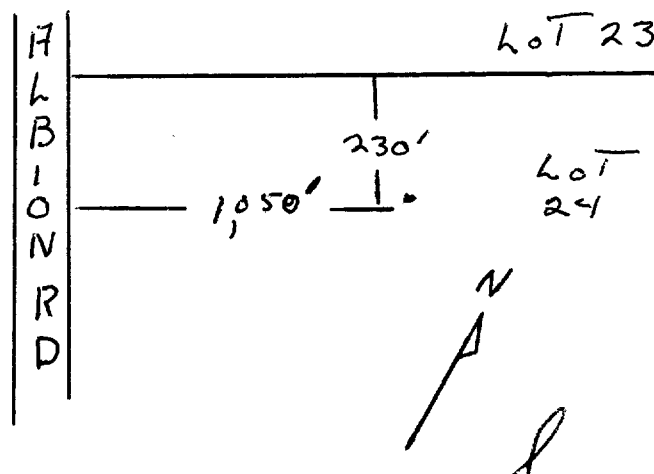
Address

Date May 10, 1962

(Signature of Licensed Drilling or Boring Contractor)

Location of Well

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



316/52



WATER RESOURCES
DIVISION
15 No 2250
JAN 19 1965
ONTARIO WATER
RESOURCES COMMISSION

UTM 118Z 4541110E

Ridgmont 50
5R 501169210NElev. 4R 03413
Lot 23

The Ontario Water Resources Commission Act

WATER WELL RECORD

Basin 25 L Carleton

County or District
Con. V R F Lot 23

Township, Village, Town or City Gloucester

Date completed 14 Dec 1964
(day month year)

Address Box 254 RRG, Ottawa

Casing and Screen Record

Inside diameter of casing 5"
Total length of casing 10'
Type of screen none
Length of screen —
Depth to top of screen —
Diameter of finished hole 5"

Pumping Test

Static level 20'
Test-pumping rate 4 G.P.M.
Pumping level 65'
Duration of test pumping 1 1/2 hrs
Water clear or cloudy at end of test cloudy
Recommended pumping rate 4 G.P.M.
with pump setting of 75 feet below ground surface

Well Log

Water Record

Overburden and Bedrock Record

From
ft.To
ft.Depth(s) at
which water(s)
foundKind of water
(fresh, salty,
sulphur)

loam
Hard Sandstone
Red Granite

0

2

2

65

65

79

60-79

fresh

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

house

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

Drilling or Boring Firm

McLean Water Supply Ltd

Address 1532 Raven Ave

Ottawa

Licence Number 1328

Name of Driller or Borer H. Sally

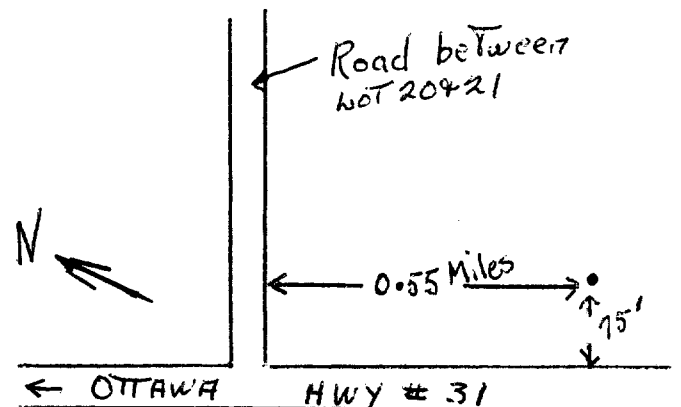
Address

Date Dec 17, 1964

(Signature of Licensed Drilling or Boring Contractor)

Location of Well

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



Form 5

030.93



672

9622

The Ontario Water Resources Commission Act

WATER WELL RECORD

County or District

Carleton Place R.F. Lot 23

Township, Village, Town or City

Date completed

25 Aug. 1968

Address

Manotick Ont.

Casing and Screen Record

Inside diameter of casing 4 inch
 Total length of casing 79
 Type of screen
 Length of screen
 Depth to top of screen
 Diameter of finished hole 4 inch

Pumping Test

Static level 30
 Test-pumping rate 10 G.P.M.
 Pumping level 35
 Duration of test pumping 30 min.
 Water clear or cloudy at end of test cloudy
 Recommended pumping rate 4 G.P.M.
 with pump setting of 30 feet below ground surface

Well Log

Overburden and Bedrock Record

Sandy soil
 Brown sand and gravel
 Grey limestone

From ft.

To ft.

Depth(s) at which water(s) found

Kind of water (fresh, salty, sulphur)

0

3

80

fresh

3

60

80

60

79

79

82

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 Maurice Cayer

Address

Casalmon Dr.

Licence Number

2911

Name of Driller or Borer

Address

Date

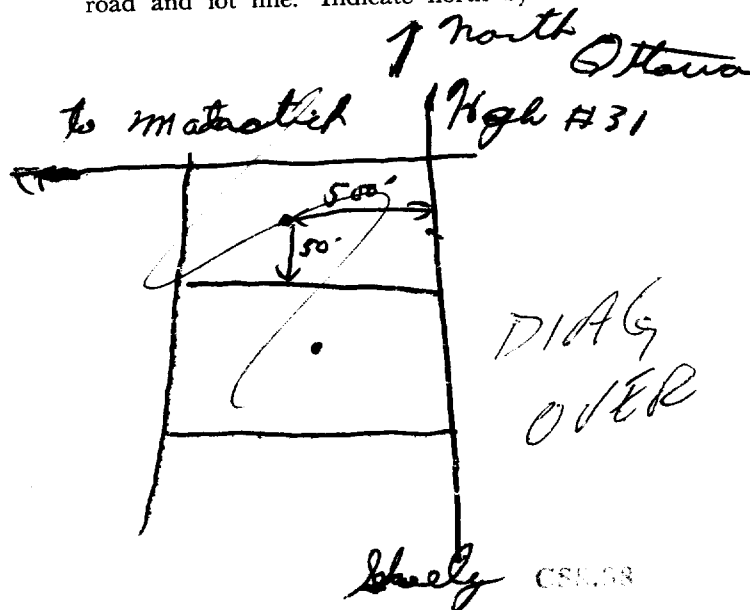
5 August 1968

(Signature of Licensed Drilling or Boring Contractor)

Maurice Cayer

Location of Well

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



2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

11

151019

MUNICIP

CON

MUNICIP. 15000

CON.
125

142

TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE

	10	14	15
CON., BLOCK, TRACT, SURVEY, ETC.			

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

Carleton

Gloucester

Con. 5 - R.F.

024

OWNER (SURNAME FIRST)

29-47

ADDRESS

DATE COMPLETED

48-53

Armstrong Bros. Const.

R.R. 6, Hwy. 31, Ottawa, Ontario.

DAY 22 MO 07 YR 69

DAY 22 MO 07 YR 69

21	ZONE	EASTING	NORTHING	RC.	ELEVATION	RC.	BASIN CODE	II	III	IV
	10	16	18	25	26	30	31			
1 2	1 8	453280	5711590	5	9382	5	25			

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

[illegible]

31	000470509	0060215	0194218			
32						

41 WATER RECORD

WATER FOUND AT - FEET		KIND OF WATER	
10-13 0060	1 ☒ FRESH 2 ☐ SALTY	3 ☐ SULPHUR 4 ☐ MINERAL	14
15-18 0115	1 ☒ FRESH 2 ☐ SALTY	3 ☐ SULPHUR 4 ☐ MINERAL	19
20-23 0192	1 ☒ FRESH 2 ☐ SALTY	3 ☐ SULPHUR 4 ☐ MINERAL	24
25-28	1 ☐ FRESH 2 ☐ SALTY	3 ☐ SULPHUR 4 ☐ MINERAL	29
30-33	1 ☐ FRESH 2 ☐ SALTY	3 ☐ SULPHUR 4 ☐ MINERAL	34

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES		MATERIAL		WALL THICKNESS INCHES		DEPTH - FEET	
						FROM	TO
10-11 06 6 1/2	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	12		.188			13-14 25 0025
17-18	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☒ OPEN HOLE	19					20-23 0194
24-25	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	26					27-30

Z	SIZE(S) OF OPENING (SLOT NO.)	31-33	DIAMETER	34-38	LENGTH	39-4

SCREEN	(SEE 107)		
	MATERIAL AND TYPE	INCHES DEPTH TO TOP OF SCREEN	FEE 41-44 80 FEET

61 PLUGGING & SEALING RECORD

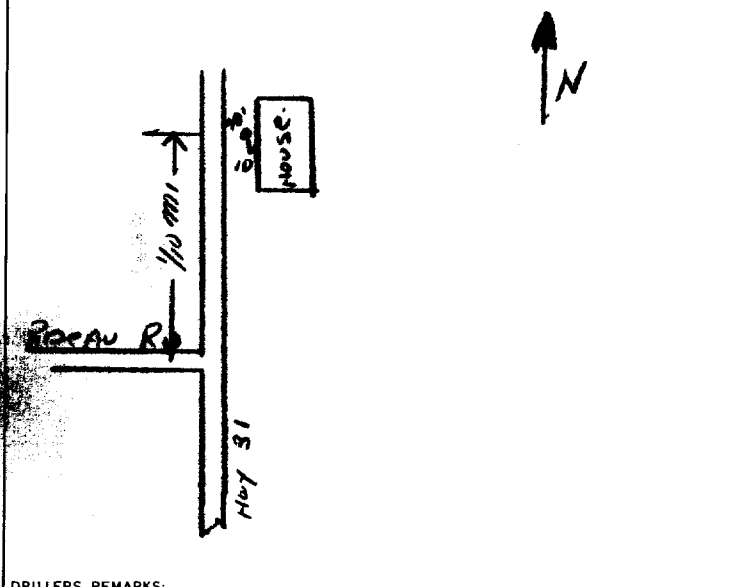
DEPTH SET AT - FEET		MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
FROM	TO	
10-13	14-17	fondu ciment
0	25	
18-21	22-25	
26-29	30-33	
		80

PUMPING TEST	PUMPING TEST METHOD		10	PUMPING RATE		11-14	DURATION OF PUMPING	
	☒ PUMP 2 ☐ BAILER			00 40		GPM	04	15-16 HOURS 17-18 MINS
	STATIC LEVEL		25	WATER LEVELS DURING			1 ☒ PUMPING 2 ☐ RECOVERY	
	19-21	22-24	15 MINUTES 26-28	30 MINUTES 29-31	45 MINUTES 32-34	60 MINUTES 35-37		
	110 FEET	135 FEET	120 FEET	135 FEET	135 FEET	135 FEET		
IF FLOWING, GIVE RATE			38-41	PUMP INTAKE SET AT		WATER AT END OF TEST		
				BOTTOM		42		
RECOMMENDED PUMP TYPE				RECOMMENDED PUMP SETTING		43-45	RECOMMENDED PUMPING RATE	
☐ SHALLOW ☒ DEEP				175 FEET			00 10 GPM	
50-53 --- 00:06 --- GPM./FT. SPECIFIC CAPACITY								

54	FINAL STATUS OF WELL	☒ 1 WATER SUPPLY ☐ 2 OBSERVATION WELL ☐ 3 TEST HOLE ☐ 4 RECHARGE WELL	☐ 5 ABANDONED, INSUFFICIENT SUPPLY ☐ 6 ABANDONED, POOR QUALITY ☐ 7 UNFINISHED
	55-56	WATER USE 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
57	METHOD OF DRILLING	☐ 1 CABLE TOOL ☐ 2 ROTARY (CONVENTIONAL) ☐ 3 ROTARY (REVERSE) ☒ 4 ROTARY (AIR) ☐ 5 AIR PERCUSSION	☐ 6 BORING ☐ 7 DIAMOND ☐ 8 JETTING ☐ 9 DRIVING

LOCATION OF WELL

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

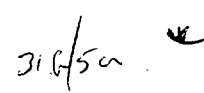


DRILLERS REMARKS:

CONTRACTOR	NAME OF WELL CONTRACTOR		LICENCE NUMBER
	F.E. Johnston Drilling Co. Ltd.		3492
	ADDRESS		
	P.O. Box 4134, Stn. "E", Ottawa, Ont.		
	NAME OF DRILLER OR BORER		LICENCE NUMBER
CONTRACTOR	R. Bisson		
	SIGNATURE OF CONTRACTOR	SUBMISSION DATE	
	DAY 23 MO 7 YR 6		

OFFICE USE ONLY	DATA SOURCE	58	CONTRACTOR	59-62	DATE RECEIVED	63-68	69
	1		3002		<i>[Signature]</i>	021069	
	DATE OF INSPECTION		INSPECTOR				
REMARKS:							

OWRC COPY



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WIND DIRECTION	RC.	ELEVATION	RC.	BASIN CODE	II	III	IV
0117050	4	9336	A	257			
24	75	36	24				

OFFICE USE ONLY	DATA SOURCE	58	CONTRACTOR	59-62	DATE RECEIVED	63-68	80
	1		3002		150173		
	DATE OF INSPECTION		INSPECTOR				
			K				
REMARKS:						P K	
						WI	

XC COPY



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COUNTY OR DISTRICT <i>Carleton</i>		TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE <i>Gloucester</i>		CON., BLOCK, TRACT, SURVEY, ETC. <i>II RF IV</i>		LOT <i>022</i>	
OWNER (SURNAME FIRST) <i>CDP Canadian Industries Ltd.</i>		ADDRESS <i>Hwy # 31</i>		DATE COMPLETED <i>20 02</i>		48-53 <i>YR 25</i>	
ZONE <i>18</i>		EASTING <i>453793</i>		NORTHING <i>5017090</i>		RC <i>4</i>	
ELEVATION <i>0340</i>		RC <i>4</i>		BASIN CODE <i>26</i>		II III IV	

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

[illegible]

31	00136281113	0030817	0111215	0125118					
32									

41 WATER RECORD		10	14	15	27
WATER FOUND AT - FEET		KIND OF WATER			
0032	10-13	1 ☒ FRESH	3 ☐ SULPHUR	14	
	2 ☐ SALTY	4 ☐ MINERAL			
0111	15-18	1 ☒ FRESH	3 ☐ SULPHUR	19	
	2 ☐ SALTY	4 ☐ MINERAL			
	20-23	1 ☐ FRESH	3 ☐ SULPHUR	24	
	2 ☐ SALTY	4 ☐ MINERAL			
	25-28	1 ☐ FRESH	3 ☐ SULPHUR	29	
	2 ☐ SALTY	4 ☐ MINERAL			
	30-33	1 ☐ FRESH	3 ☐ SULPHUR	34	
	2 ☐ SALTY	4 ☐ MINERAL			

51		CASING & OPEN HOLE RECORD			
INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET		
			FROM	TO	
10-11 6 1/4 86	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	12 188		13-16 22 0022	
17-18 7 1/4 86	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☒ OPEN HOLE	19	22	20-23 0125	
24-25	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	26		27-30	

SCREEN	SIZE(S) OF OPENING (SLOT NO.)	31-33	DIAMETER	34-38	LENGTH	39-40
				INCHES	FEET	
	MATERIAL AND TYPE		DEPTH TO TOP OF SCREEN		41-44	8
					FEET	

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

PUMPING TEST	PUMPING TEST METHOD		10	PUMPING RATE		11-14	DURATION OF PUMPING	
	1 ☒ PUMP 2 ☐ BAILER		0012		GPM.	01	15-16 HOURS	17-18 MINS
	STATIC LEVEL		WATER LEVEL END OF PUMPING		25		1 ☒ PUMPING 2 ☐ RECOVERY	
	19-21		22-24		15 MINUTES		30 MINUTES	
	020		020		020		020	
	FEET		FEET		FEET		FEET	
	IF FLOWING, GIVE RATE		38-41		PUMP INTAKE SET AT		WATER AT END OF TEST	
—		GPM		80		FEET		
RECOMMENDED PUMP TYPE		RECOMMENDED PUMP SETTING		43-45		RECOMMENDED PUMPING RATE		
☐ SHALLOW ☒ DEEP		080		FEET		1 ☒ CLEAR 2 ☐ CLOUDY		
50-53		0240		GPM. / FT. SPECIFIC CAPACITY		46-49		
						0008		
						GPM.		

LOCATION OF WELL 5317

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

South Gloucester

O.R.

Hy #317

750'

20'

North Arrow

DRAWER'S 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 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		LICENCE NUMBER
	Hawthorne Drilling Ltd		2558
	ADDRESS		
	PO Box 4218 Stat. E.		
	NAME OF DRILLER OR BORER		LICENCE NUMBER
	A. Emond		2558
	SIGNATURE OF CONTRACTOR		SUBMISSION DATE
			DAY 24 MO. 2 YR. 25

OFFICE USE ONLY	DATA SOURCE		58	CONTRACTOR	59-62	DATE RECEIVED	63-68
	1			2338		220575	
	DATE OF INSPECTION			INSPECTOR			
	REMARKS:						P ☒ WI



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MECHANISMS

[illegible][illegible]

71	PUMPING TEST METHOD		10	PUMPING RATE		11-14	DURATION OF PUMPING	
	1 ☒ PUMP 2 ☐ BAILER			12		GPM	1 15-16 HOURS 15 17-18 MINS	
	STATIC LEVEL	WATER LEVEL END OF PUMPING	25	WATER LEVELS DURING		1 ☐ PUMPING 2 ☐ RECOVERY		
	19-21	22-24	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES		
	20 FEET	20 FEET	20 ²⁶⁻²⁸ FEET	20 ³¹ FEET	20 ³²⁻³⁴ FEET	20 ³⁵⁻³⁷ FEET		
IF FLOWING GIVE RATE		38-41	PUMP INTAKE SET AT		WATER AT END OF TEST			
—		GPM	80 FEET		1 ☒ CLEAR 2 ☐ CLOUDY			
RECOMMENDED PUMP TYPE			RECOMMENDED PUMP SETTING	43-45	RECOMMENDED PUMPING RATE		46-49	
☐ SHALLOW ☒ DEEP			80 FEET		8		GPM	
50-53			GPM / FT. SPECIFIC CAPACITY					

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	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

LOCATION OF WELL

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

South Gloucester

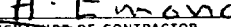
Hwy #31

750'

20'

OC4

DRILLERS REMARKS:

CONTRACTOR	NAME OF WELL CONTRACTOR	LICENCE NUMBER
	Howthorne Drilling Ltd	2558
	ADDRESS	
	PO Box 4218 Stat. E.	
	NAME OF DRILLER OR BORER	LICENCE NUMBER
	A. Enand	2558
	SIGNATURE OF CONTRACTOR	SUBMISSION DATE
		DAY 24 MO. 2 YR. 24

OFFICE USE ONLY	DATA SOURCE	58 CONTRACTOR	59-62	DATE RECEIVED	67-68
	DATE OF INSPECTION		INSPECTOR		
	REMARKS:				P WI



WATER WELL RECORD

316/5a

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COUNTY OR DISTRICT Ottawa Parishes		TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE Gloucester		CON. BLOCK, TRACT, SURVEY, ETC. Not 23		RE 5		LOT 25-2	
OWNER (SURNAME FIRST) Hume Trading Co Ltd		ADDRESS P O Box 254 R R. #6		DATE COMPLETED 11		MO 07		YR 25	
ZONE 18		EASTING 454143		NORTHING 5016952		RC 4		ELEVATION 0345	
BASIN CODE 26									

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

[illegible][illegible]

WATER RECORD	
WATER FOUND AT - FEET	KIND OF WATER
10-13	1 ☒ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
15-18	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
20-23	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
25-28	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
30-33	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL

51		32		43	
CASING & OPEN HOLE RECORD					
INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET		
			FROM	TO	
10-11	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	12			13-14
06		1/88	0		20 0020
17-18	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☒ OPEN HOLE	19			20-21
06			20		0135
24-25	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	26			27-30

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

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

PUMPING TEST	PUMPING TEST METHOD		10	PUMP RATE		T-14	DURATION OF PUMPING	
	1 ☒ PUMP	2 ☐ BAILER		0009		GPM	01	15-16 HOURS 10 MINS
	STATIC LEVEL	WATER LEVEL END OF PUMPING	25	WATER LEVELS DURING		1 ☒ PUMPING	2 ☐ RECOVERY	
	19-21	22-24	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES		
	020	090	090	090	090	090	35-37	
	FEET	FEET	FEET	FEET	FEET	FEET	FEET	
	IF FLOWING, GIVE RATE	30-41	PUMP INTAKE SET AT		WATER AT END OF TEST			
		GPM	90		FEET	1 ☐ CLEAR	2 ☒ CLOUDY	
RECOMMENDED PUMP TYPE		RECOMMENDED PUMP SETTING	43-45	RECOMMENDED PUMP RATE		46-49		
☐ SHALLOW ☒ DEEP		090	FEET	0006		GPM		
50-53		GPM / FT. SPECIFIC CAPACITY						

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 1 ☒ DOMESTIC 2 ☐ STOCK 3 ☐ IRRIGATION 4 ☐ INDUSTRIAL ☐ OTHER	5 ☐ COMMERCIAL 6 ☐ MUNICIPAL 7 ☐ PUBLIC SUPPLY ☐ 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 ☐ SETTING 9 ☐ DRIVING

LOCATION OF WELL 1654

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

Travelmore Trailer

1654

2.85 mi.

31

Leith

DRILLERS REMARKS:

CONTRACTOR	NAME OF WELL CONTRACTOR		LICENCE NUMBER
	Hawthorne Drilling Ltd		2557
	ADDRESS		
	P.O. Box 9218 Stn E. Ottawa		
	NAME OF DRILLER OR BORER		LICENCE NUMBER
	A. Emerald		2557
	SIGNATURE OF CONTRACTOR		SUBMISSION DATE
			DAY 15 MO. 7 YR. 75

OFFICE USE ONLY	DATA SOURCE	1	58	CONTRACTOR	58-62	DATE RECEIVED	06 08 75	63-68	80
	DATE OF INSPECTION		INSPECTOR						
	REMARKS:		WI P ✓						

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County or District Ottawa-Carleton	Township/Borough/City/Town/Village Gloucester	Con block tract survey, etc. 2	Lot 23
Address 4837 Albion Rd		Date completed 23 05 99 day month year	
Northing 10 12 17 18 24 25 26 30 31		Elevation ii iii iv	

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth - feet	
				From	To
Brown	sand	stone		0	42
Black	shale			42	51
Grey	Limestone			51	123
Grey	Limestone w	sandstone layers		123	168
White	sandstone	sandstone		168	200
Green	Granite	granite		200	210

31	32
----	----

41 WATER RECORD	
Water found at - feet	Kind of water
10-13 73	1 ☐ Fresh 3 ☐ Sulphur 2 ☐ Salty 6 ☐ Minerals 4 ☐ Gas
15-18 123	1 ☐ Fresh 3 ☐ Sulphur 2 ☐ Salty 6 ☐ Minerals 4 ☐ Gas
20-23 147	1 ☐ Fresh 3 ☐ Sulphur 2 ☐ Salty 6 ☐ Minerals 4 ☐ Gas
24-27 untested	1 ☐ Fresh 3 ☐ Sulphur 2 ☐ Salty 6 ☐ Minerals 4 ☐ Gas
30-33	1 ☐ Fresh 3 ☐ Sulphur 2 ☐ Salty 6 ☐ Minerals 4 ☐ Gas

51 CASING & OPEN HOLE RECORD	
Inside diam inches	Material
10-11 8	1 ☐ Steel 12 2 ☐ Galvanized 3 ☐ Concrete 4 ☒ Open hole 5 ☐ Plastic
17-18 6	1 ☐ Steel 19 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic
24-25 6	1 ☐ Steel 26 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic

61 PLUGGING & SEALING RECORD		
Sizes of opening (Slot No.)	Diameter	Length
Material and type	inches	feet
Depth at top of screen		
feet		

61 PLUGGING & SEALING RECORD	
Annular space	Abandonment
Depth set at - feet	Material and type (Cement grout, bentonite, etc.)
From To	
10-13 42 0	14-17 Benseal 10 bags
18-21	22-25
26-29	30-33

71 PUMPING TEST	
Pumping test method 1 ☐ Pump 2 ☐ Bailer	Pumping rate GPM
Static level 19-21 feet	Water level end of pumping 22-24 feet
Water levels during 15 minutes 26-28 30 minutes 29-31 45 minutes 32-34 60 minutes 35-37	Water at end of test 42 feet
If flowing give rate 38-41 GPM	Pump intake set at feet
Recommended pump type 1 ☐ Shallow 2 ☐ Deep	Recommended pump setting 43-45 feet
Recommended pump rate 46-49 GPM	

54 FINAL STATUS OF WELL	
1 ☐ Water supply 2 ☐ Observation well 3 ☐ Test hole 4 ☐ Recharge well	5 ☐ Abandoned, insufficient supply 6 ☐ Abandoned, poor quality 7 ☐ Abandoned (Other) 8 ☐ Dewatering
9 ☐ Unfinished 10 ☐ Replacement well	

55-56 WATER USE	
1 ☐ Domestic 2 ☐ Stock 3 ☐ Irrigation 4 ☐ Industrial	5 ☐ Commercial 6 ☐ Municipal 7 ☐ Public supply 8 ☐ Cooling & air conditioning
9 ☐ Not used 10 ☐ Other mondering	

57 METHOD OF CONSTRUCTION	
1 ☐ Cable tool 2 ☐ Rotary (conventional) 3 ☐ Rotary (reverse) 4 ☒ Rotary (air)	5 ☐ Air percussion 6 ☐ Boring 7 ☐ Diamond 8 ☐ Jetting
9 ☐ Driving 10 ☐ Digging 11 ☐ Other	

LOCATION OF WELL	
In diagram below show distances of well from road and lot line. Indicate north by arrow.	
201703	

Name of Well Contractor Olympic Drilling Co Ltd	Well Contractor's Licence No. 4006
Address 2320 Scrivens Dr Nekele	
Name of Well Technician Wayne Benwick	Well Technician's Licence No. TO-327
Signature of Technician/Contractor Wayne Benwick	Submission date 03 06 99 day mo yr

MINISTRY USE ONLY	
Data source 4006	Contractor 4006
Date of inspection	Inspector
Remarks CSS.ES0	

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Mark correct box with a checkmark, where applicable.

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1530654

Municipality 15002 Con. RF 04
10 14 15 22 23 24

County or District Ottawa Carleton	Township/Borough/City/Town/Village Gloucester	Con block tract survey, etc. 2	Lot 23
Address 4837 Albion Rd		Date completed 23 05 99	
Northing		RC	Elevation
Basin Code		ii	iii

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)					
General colour	Most common material	Other materials	General description	Depth - feet	
				From	To
Brown	sand + stone		MW# 1 D	0	54
Brown	sand + stone		MW# 1 S	0	20
NW1D 0' -2" PVC 10' 40' 10' to 60' 54' Benseal Plug native backfill 3' Benseal Plug Filter stone NW2S 0' -2" PVC 10' 13' 20' Benseal Plug Native backfill 1' Benseal Plug Filter stone					

31	32
----	----

41 WATER RECORD Water found at - feet Kind of water 10-13 1 ☐ Fresh 3 ☐ Sulphur 14 ☐ Minerals 2 ☐ Salty 6 ☐ Gas 15-18 1 ☐ Fresh 3 ☐ Sulphur 19 ☐ Minerals 2 ☐ Salty 6 ☐ Gas 20-23 1 ☐ Fresh 3 ☐ Sulphur 24 ☐ Minerals 2 ☐ Salty 6 ☐ Gas 25-28 1 ☐ Fresh 3 ☐ Sulphur 29 ☐ Minerals 2 ☐ Salty 6 ☐ Gas 30-33 1 ☐ Fresh 3 ☐ Sulphur 34 ☐ Minerals 2 ☐ Salty 6 ☐ Gas		51 CASING & OPEN HOLE RECORD Inside diam inches Material Wall thickness inches Depth - feet From To 10-14 NWID 1 ☐ Steel 12 ☐ Galvanized 13-16 2 ☐ Concrete 17-20 3 ☐ Open hole 21-23 4 ☐ Plastic 24-25 5 ☐ Steel 26-30 6 ☐ Galvanized 31-33 7 ☐ Concrete 34-36 8 ☐ Open hole 37-39 9 ☐ Plastic 40-42		61 PLUGGING & SEALING RECORD ☐ Annular space ☐ Abandonment Depth set at - feet From To Material and type (Cement grout, bentonite, etc.) 10-13 14-17 18-21 22-25 26-29 30-33	
---	--	---	--	---	--

71 PUMPING TEST Pumping test method 10 ☐ Pump 2 ☐ Bailer Pumping rate 11-14 GPM Duration of pumping 15-18 Hours 17-18 Mins Static level 19-21 feet Water level end of pumping 22-24 feet Water levels during 1 ☐ Pumping 2 ☐ Recovery 15 minutes 26-28 feet 30 minutes 29-31 feet 45 minutes 32-34 feet 60 minutes 35-37 feet If flowing give rate 38-41 GPM Pump intake set at 42 feet Water at end of test 43-45 ☐ Clear ☐ Cloudy Recommended pump type 46-49 ☐ Shallow ☐ Deep Recommended pump setting 43-45 feet Recommended pump rate 46-49 GPM		LOCATION OF WELL In diagram below show distances of well from road and lot line. Indicate north by arrow. 	
FINAL STATUS OF WELL 1 ☐ Water supply 5 ☐ Abandoned, insufficient supply 9 ☐ Unfinished 2 ☐ Observation well 6 ☐ Abandoned, poor quality 10 ☐ Replacement well 3 ☐ Test hole 7 ☐ Abandoned (Other) 4 ☐ Recharge well 8 ☐ Dewatering		WATER USE 1 ☐ Domestic 5 ☒ Commercial 9 ☐ Not used 2 ☐ Stock 6 ☐ Municipal 10 ☐ Other 3 ☐ Irrigation 7 ☐ Public supply 4 ☐ Industrial 8 ☐ Cooling & air conditioning	
METHOD OF CONSTRUCTION 1 ☐ Cable tool 5 ☐ Air percussion 9 ☐ Driving 2 ☐ Rotary (conventional) 6 ☐ Boring 10 ☐ Digging 3 ☐ Rotary (reverse) 7 ☐ Diamond 11 ☐ Other 4 ☐ Rotary (air) 8 ☒ Jetting		201704	

Name of Well Contractor Olympic Drilling Co. Ltd Address 2320 Scrivens Dr Name of Well Technician Wayne Benwick Signature of Technician/Contractor 		Well Contractor's Licence No. 4006 Well Technician's Licence No. 70-327 Submission date 08 05 99		Data source 4006 Date of inspection Inspector Remarks 		Date received AUG 09 1999 CSS.ES0	
--	--	---	--	---	--	---	--



The Ontario Water Resources Act

WATER WELL RECORD

Mark correct box with a checkmark, where applicable.

04

County or District Ottawa Carleton	Township/Borough/City/Town/Village Gloucester	Con block tract survey, etc. 2	Lot 23	25-27
	Address 4837 Albion Rd	Date completed 23 day 05 month 97 year	48-53	

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

[illegible][illegible]

41		WATER RECORD			
Water found at - feet		Kind of water			
10-13	1 ☐ Fresh 2 ☐ Salty	3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas	14		
15-18	1 ☐ Fresh 2 ☐ Salty	3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas	19		
20-23	1 ☐ Fresh 2 ☐ Salty	3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas	24		
25-28	1 ☐ Fresh 2 ☐ Salty	3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas	29		
30-33	1 ☐ Fresh 2 ☐ Salty	3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas	34		

51		CASING & OPEN HOLE RECORD		
Inside diam inches	Material	Wall thickness inches	Depth - feet	
			From	To
10-11	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☒ Open hole 5 ☐ Plastic			
6			0	58
17-18	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic			
24-25	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic			

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

61		PLUGGING & SEALING RECORD	
☐ Annular space		☐ Abandonment	
Depth set at - feet		Material and type (Cement grout, bentonite, etc.)	
From	To		
10-13	14-17		
18-21	22-25		
26-29	30-33		
	80		

PUMPING TEST	71 Pumping test method ¹⁰ 1 ☐ Pump 2 ☐ Bailer		Pumping rate ¹¹⁻¹⁴ GPM		Duration of pumping ¹⁵⁻¹⁸ Hours Mins ¹⁷⁻¹⁸	
	Static level ²⁵ Water level end of pumping		Water levels during 1 ☐ Pumping 2 ☐ Recovery			
	19-21 feet	22-24 feet	15 minutes ²⁶⁻²⁸ feet	30 minutes ²⁹⁻³¹ feet	45 minutes ³²⁻³⁴ feet	60 minutes ³⁵⁻³⁷ feet
	If flowing give rate ³⁸⁻⁴¹ GPM		Pump intake set at feet		Water at end of test ⁴² ☐ Clear ☐ Cloudy	
	Recommended pump type ☐ Shallow ☐ Deep		Recommended pump setting ⁴³⁻⁴⁵ feet		Recommended pump rate ⁴⁶⁻⁴⁹ GPM	

FINAL STATUS OF WELL			54
1 ☐ Water supply	5 ☐ Abandoned, insufficient supply	9 ☐ Unfinished	
2 ☐ Observation well	6 ☐ Abandoned, poor quality	10 ☐ Replacement well	
3 ☐ Test hole	7 ☐ Abandoned (Other)		
4 ☐ Recharge well	8 ☐ Dewatering		

WATER USE			55-56
1 ☐ Domestic	5 ☐ Commercial	9 ☐ Not used	
2 ☐ Stock	6 ☐ Municipal	10 ☐ Other	
3 ☐ Irrigation	7 ☐ Public supply		
4 ☐ Industrial	8 ☐ Cooling & air conditioning		

METHOD OF CONSTRUCTION			57
1 ☐ Cable tool	5 ☐ Air percussion	9 ☐ Driving	
2 ☐ Rotary (conventional)	6 ☐ Boring	10 ☐ Digging	
3 ☐ Rotary (reverse)	7 ☐ Diamond	11 ☐ Other	
4 ☐ Rotary (air)	8 ☐ Jetting		

LOCATION OF WELL

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

1/4 mile

1514'

Practice Track

201705

Name of Well Contractor	Well Contractor's Licence No.
Olympic Drilling Co. Ltd	4006
Address	
2320 Scrivens Dr.	Metcalfe
Name of Well Technician	Well Technician's Licence No.
Wayne Renwick	10-327
Signature of Technician/Contractor	Submission date
C. Renwick	day mo yr 08 06 99

MINISTRY USE ONLY	Data source	58	Contractor	59-62	Date received	63-68	81
			4006		AUG 09 1999		
	Date of inspection		Inspector				
	Remarks						
	CSS.ES0						



The Ontario Water Resources Act

WATER WELL RECORD

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

11

1534131

Municipality **15002** Con. **RF** **04**

County or District <i>Gloucester</i>	Township/Borough/City/Town/Village <i>Gloucester</i>	Con block tract survey, etc. <i>4</i>	Lot <i>22</i>
Address of Well Location <i>Greely, Ont</i>		Date completed <i>10 10 03</i> day month year	

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

[illegible]

31

32

10 14 15 21 32 43 54 65 75 8

41		14 15		21	
WATER RECORD					
Water found at - feet		Kind of water			
10-13	1 ☐ Fresh	3 ☐ Sulphur	14		
48	2 ☐ Salty	4 ☐ Minerals			
		6 ☐ Gas			
16-18	1 ☐ Fresh	3 ☐ Sulphur	19		
55	2 ☐ Salty	4 ☐ Minerals			
		6 ☐ Gas			
20-23	1 ☐ Fresh	3 ☐ Sulphur	24		
	2 ☐ Salty	4 ☐ Minerals			
		6 ☐ Gas			
25-28	1 ☐ Fresh	3 ☐ Sulphur	29		
	2 ☐ Salty	4 ☐ Minerals			
		6 ☐ Gas			
30-33	1 ☐ Fresh	3 ☐ Sulphur	34		
	2 ☐ Salty	4 ☐ Minerals			
		6 ☐ Gas			

51 CASING & OPEN HOLE RECORD				
Inside diam inches	Material	Wall thickness inches	Depth - feet	
			From	To
10-11 67	☒ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic	12 -188	0	29 13-16
17-18 6	☐ Steel ☐ Galvanized ☐ Concrete ☒ Open hole ☐ Plastic	19	27	62 20-23
24-25	☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic	26		27-30

SCREEN	Sizes of opening (Slot No.)	31-33	Diameter	34-38	Length	39-40
			inches		feet	
	Material and type			Depth at top of screen		30
				41-44		
				feet		

61				PLUGGING & SEALING RECORD			
☒ Annular space				☐ Abandonment			
Depth set at - feet				Material and type (Cement grout, bentonite, etc.)			
From		To					
27 ⁴⁰⁻³³		0 ¹⁴⁻¹⁷		bentonite			
18-21		22-25					
36-29		30-33		80			

PUMPING TEST	71 Pumping test method ¹⁰ 1 ☒ Pump 2 ☐ Bailer		Pumping rate ¹¹⁻¹⁴ 18 GPM		Duration of pumping ¹⁵⁻¹⁶ 1 Hours ¹⁷⁻¹⁸ Mins	
	Static level		25 Water levels during 1 ☐ Pumping 2 ☒ Recovery		Water level end of pumping	
	¹⁹⁻²¹ 16 ²²⁻²⁴ 50 feet		²⁵ 15 minutes ²⁶⁻²⁸ 16 ²⁹⁻³¹ 16 feet		³²⁻³⁴ 45 minutes ³⁵⁻³⁷ 16 feet	
	If flowing give rate ³⁸⁻⁴¹ GPM		Pump intake set at feet		Water at end of test ⁴²	
	Recommended pump type ☐ Shallow ☒ Deep		Recommended pump setting ⁴³⁻⁴⁵ 50 feet		Recommended pump rate ⁴⁶⁻⁴⁹ 18 GPM	
	50-53					

FINAL STATUS OF WELL			54
1 ☒ Water supply	5 ☐ Abandoned, insufficient supply	9 ☐ Unfinished	
2 ☐ Observation well	6 ☐ Abandoned , poor quality	10 ☐ Replacement well	
3 ☒ Test hole	7 ☐ Abandoned (Other)		
4 ☐ Recharge well	8 ☐ Dewatering		

WATER USE			55-56
1 ☐ Domestic	5 ☐ Commercial	9 ☒ Not use	
2 ☐ Stock	6 ☐ Municipal	10 ☐ Other	
3 ☐ Irrigation	7 ☐ Public supply		
4 ☐ Industrial	8 ☐ Cooling & air conditioning		

METHOD OF CONSTRUCTION			57
1 ☐ Cable tool	5 ☒ Air percussion	9 ☐ Driving	
2 ☐ Rotary (conventional)	6 ☐ Boring	10 ☐ Digging	
3 ☐ Rotary (reverse)	7 ☐ Diamond	11 ☐ Other	
4 ☐ Rotary (air)	8 ☐ Jetting		

LOCATION OF WELL

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

0.9 Km

1.1 Km

311

↑ N

Ridgeway Rd

265638

Name of Well Contractor	Well Contractor's Licence No.
Air Rock Drilling Ltd	1119
Address	
RR#1 Richmond, Ont	
Name of Well Technician	Well Technician's Licence No.
Shannon Purcell	Ta122
Signature of Technician/Contractor	Submission date
	501003 day mo yr

MINISTRY USE ONLY	Data source	58 Contractor 1119	59-62	Date received	63-68 OCT 23 2003	69-74
	Date of inspection	Inspector				
	Remarks					



The Ontario Water Resources Act

WATER WELL RECORD

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

11

1534133

Municipality **15002** Con. **RF** **04**

County or District [REDACTED]	Township/Borough/City/Town/Village Gloucester	Con block tract survey, etc. 4	Lot 22
Address of Well Location Ottawa, Ont		Date completed 26 day 09 month 03 year	

Figure 1 shows a 1D seismic profile. The profile is a horizontal line with a vertical axis on the left labeled 'Zone' (U, T, M) and a horizontal axis on the top labeled 'Easting', 'Northing', 'RC', 'Elevation', 'RC', 'Basin Code', and 'ii', 'iii', 'iv'. The profile is divided into segments by vertical lines. The segments are labeled with numbers: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47. The profile is also labeled with 'Zone' (U, T, M) and 'Easting', 'Northing', 'RC', 'Elevation', 'RC', 'Basin Code', and 'ii', 'iii', 'iv'.

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

[illegible]

31

32      

41		10	14	15	21	WATER RECORD	
Water found at - feet		Kind of water					
10-13	79	1	☐ Fresh	3	☐ Sulphur	14	
		2	☐ Salty	6	☐ Minerals		
15-18	83	1	☐ Fresh	3	☐ Sulphur	19	
		2	☐ Salty	6	☐ Minerals		
20-23		1	☐ Fresh	3	☐ Sulphur	24	
		2	☐ Salty	6	☐ Minerals		
25-28		1	☐ Fresh	3	☐ Sulphur	29	
		2	☐ Salty	6	☐ Minerals		
30-33		1	☐ Fresh	3	☐ Sulphur	34	
		2	☐ Salty	6	☐ Minerals		

CASING & OPEN HOLE RECORD				
Inside diam inches	Material	Wall thickness inches	Depth - feet	
			From	To
10-11	☒ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic			
6 1/4		.188	0	69
17-18	☐ Steel ☐ Galvanized ☐ Concrete ☒ Open hole ☐ Plastic			
6			67	101
24-25	☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic			

SCREEN	Sizes of opening (Slot No.)	31-33	Diameter	34-38	Length	39-40
			inches		feet	
	Material and type			Depth at top of screen	41-44	30
				feet		

61 PLUGGING & SEALING RECORD			
☒ Annular space		☐ Abandonment	
Depth set at - feet		Material and type (Cement grout, bentonite, etc.)	
From	To		
10-13 67	14-17 0		
18-21	22-25		
26-29	30-33		
		80	

PUMPING TEST	Pumping test method 10 1 ☒ Pump 2 ☐ Bailer		Pumping rate 6 11-14 GPM		Duration of pumping 1 15-16 Hrs 17-18 Mins	
	Static level	Water level end of pumping 25	Water levels during 1 ☐ Pumping		2 ☒ Recovery	
	19-21 44 feet	22-24 90 feet	15 minutes 26-28 44 feet	30 minutes 29-31 44 feet	45 minutes 32-34 44 feet	60 minutes 35-37 44 feet
	If flowing give rate 38-41 GPM		Pump intake set at feet		Water at end of test 42 ☐ Clear ☒ Cloudy	
	Recommended pump type ☐ Shallow ☒ Deep		Recommended pump setting 43-45 90 feet		Recommended pump rate 46-49 6 GPM	
	50-53					

FINAL STATUS OF WELL		54	
1 ☐ Water supply	5 ☐ Abandoned, insufficient supply	9 ☐ Unfinished	
2 ☐ Observation well	6 ☐ Abandoned, poor quality	10 ☐ Replacement well	
3 ☒ Test hole	7 ☐ Abandoned (Other)		
4 ☐ Recharge well	8 ☐ Dewatering		

WATER USE		55-56	
1 ☐ Domestic	5 ☐ Commercial	9 ☒ Not use	
2 ☐ Stock	6 ☐ Municipal	10 ☐ Other	
3 ☐ Irrigation	7 ☐ Public supply		
4 ☐ Industrial	8 ☐ Cooling & air conditioning		

METHOD OF CONSTRUCTION		57	
1 ☐ Cable tool	5 ☒ Air percussion	9 ☐ Driving	
2 ☐ Rotary (conventional)	6 ☐ Boring	10 ☐ Digging	
3 ☐ Rotary (reverse)	7 ☐ Diamond	11 ☐ Other	
4 ☐ Rotary (air)	8 ☐ Jetting		

LOCATION OF WELL

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

↑ N

265605

Name of Well Contractor	Well Contractor's Licence No.
Air Rod Drilling Ltd 1119	
Address	
RR#1 Richmond, Ont	
Name of Well Technician	Well Technician's Licence No.
Shannon Purcell	T2122
Signature of Technician/Contractor	Submission date
Kenny [Signature]	2010 03 day mo yr

MINISTRY USE ONLY	Data source	58	Contractor	59-62	Date received	63-68	80
			1119		OCT 23 2003		
	Date of inspection		Inspector				
	Remarks						

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.

Well Owner's Information and Location of Well Information

First Name

Aecon Ltd

Last Name

Quarry

MUN

15000

CON

RF

LOT

23

Mailing Address (Street Number/Name, RR, lot, Concession)

4949 Bank Street

County/District/Municipality

Ottawa-Carleton

Township/City/Town/Village

Gloucester

Province

Ontario

Postal Code

K1X 1G7

Telephone Number (include area code)

Address of Well Location (County/District/Municipality)

Ottawa-Carleton

Township

Gloucester

Lot

23

Concession

5

RR#/Street Number/Name

4949 Bank Street

City/Town/Village

Ottawa

Site/Compartment/Block/Tract etc.

GPS Reading

NAD

83

Zone

18

Easting

454395

Northing

5017092

Unit Make/Model

Garmin

Mode of Operation:

Undifferentiated

☒ Averaged

Differentiated, specify

Log of Overburden and Bedrock Materials (see instructions)

General Colour	Most common material	Other Materials	General Description	Depth From	Metres To
Grey	Limestone		Layered	0	18.2
Grey	Sand stone		Layered	18.2	18.9
Grey	Limestone		Layered	18.9	22.1
White	Sand stone		Layered	22.1	23.0
Grey	Limestone		Layered	23.0	32.0
White	Sand stone		Layered	32.0	36.5

Hole Diameter

Depth From	Metres To	Diameter Centimetres
0	36.5	15.2

Water Record

Water found at

Metres

Kind of Water

☐ m

☐ Gas

☐ Other:

☐ m

☐ Gas

☐ Other:

☐ m

☐ Gas

☐ Other:

Fresh

Salty

Sulphur

Minerals

Fresh

Salty

Sulphur

Minerals

Fresh

Salty

Sulphur

Minerals

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
15.2	☒ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized	0.48	0	2.8
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
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	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
	☐ Steel ☐ Fibreglass			

A 010015

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.

Well Owner's Information and Location of Well Information

First Name Aecon Ltd		Last Name Quarry		Mailing Address (Street Number/Name, RR, Lot, Concession) 4949 Bank Street			
County/District/Municipality Ottawa-Carleton		Township/City/Town/Village Gloucester		Province Ontario	Postal Code K1X 1G7	Telephone Number (include area code)	
Address of Well Location (County/District/Municipality) Ottawa-Carleton				Township Gloucester		Lot 23	Concession 5
RR#/Street Number/Name 4949 Bank Street				City/Town/Village Ottawa		Site/Compartment/Block/Tract etc.	
GPS Reading	NAD 83	Zone 18	Easting 454395	Northing 5012092	Unit Make/Model Strex	Mode of Operation: ☐ Undifferentiated ☒ Averaged ☐ Differentiated, specify	

Log of Overburden and Bedrock Materials (see instructions)

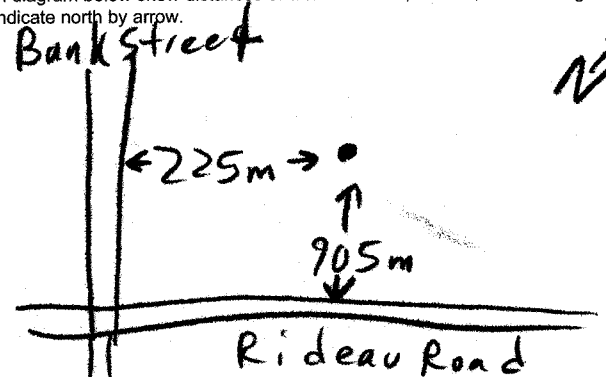
General Colour	Most common material	Other Materials	General Description	Depth From	Metres To
Grey	Limestone		Layered	0	18.0
Grey	Sandstone		Layered	18.0	18.8
Grey	Limestone		Layered	18.8	21.3

Hole Diameter			Construction Record				Test of Well Yield					
Depth From	Metres To	Diameter Centimetres	Inside diam centimetres	Material	Wall thickness centimetres	Depth From	Metres To	Pumping test method	Draw Down Time min	Water Level Metres	Recovery Time min	Water Level Metres
0	21.3	15.2						Pump intake set at - (metres)				
			15.2	☒ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized	0.48	0	3.0	Pumping rate - (litres/min)	1		1	
				☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized				Duration of pumping hrs + min	2		2	
				☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized				Final water level end of pumping metres	3		3	
				☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized				Recommended pump type. ☐ Shallow ☐ Deep	4		4	
				☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized				Recommended pump depth. metres	5		5	
								Recommended pump rate. (litres/min)	10		10	
								If flowing give rate - (litres/min)	15		15	
									20		20	
									25		25	
								If pumping discontinued, give reason.	30		30	
									40		40	
									50		50	
									60		60	

Plugging and Sealing Record		
Depth set at - Metres	Material and type (bentonite slurry, neat cement slurry) etc.	Volume Placed (cubic metres)
From		

Method of Construction			
☐ Cable Tool	☒ Rotary (air)	☐ Diamond	☐ Digging
☐ Rotary (conventional)	☐ Air percussion	☐ Jetting	☐ Other
☐ Rotary (reverse)	☐ Boring	☐ Driving	
Water Use			
☐ Domestic	☐ Industrial	☐ Public Supply	☐ Other
☐ Stock	☐ Commercial	☒ Not used	
☐ Irrigation	☐ Municipal	☐ Cooling & air conditioning	
Final Status of Well			
☐ Water Supply	☐ Recharge well	☐ Unfinished	☐ Abandoned, (Other)
☒ Observation well	☐ Abandoned, insufficient supply	☐ Dewatering	
☐ Test Hole	☐ Abandoned, poor quality	☐ Replacement well	

Well Contractor/Technician Information	
Name of Well Contractor Rox's LBR Ltd	Well Contractor's Licence No. 4609
Business Address (street name, number, city etc.) Cornwall	
Name of Well Technician (last name, first name) Jeff Skitch	Well Technician's Licence No. T-1702
Signature of Well Contractor/Technician X	Date Submitted YYYY MM DD

Location of Well	
In diagram below show distances of well from road, lot line, and building. Indicate north by arrow. 	
Audit No. Z 10072	Date Well Completed 2004 5 26
Was the well owner's information package delivered? ☐ Yes ☒ No	Date Delivered YYYY MM DD

Ministry Use Only	
Data Source	Contractor 4609
Date Received JUL 08 2004	Date of Inspection YYYY MM DD
Remarks	Well Record Number 1534752

Instructions for Completing Form

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- 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.

Well Owner's Information and Location of Well Information

Ministry Use Only									
MUN						CON			LOT

RR#/Street Number/Name: **4667-Albion Rd.** City/Town/Village: **OTTAWA** Site/Compartment/Block/Tract etc.: **22 4**
GPS Reading: **4667** NAD: **83** Zone: **18** Easting: **452245** Northing: **5016408** Unit Make/Model: **Gloucester** Mode of Operation: ☒ Undifferentiated ☒ Averaged **22**
Log of Overburden and Bedrock Materials (see instructions)

General Colour	Most common material	Other Materials	General Description	Depth From	Metres To
Brown	Top Soil		Soft	0	0.60
Brown	Sand		Soft	0.60	21.21
Grey	Gravel		Soft	21.21	24.84
Grey	SHALE		Porous	24.84	25.75

Hole Diameter			Construction Record				Test of Well Yield			
Depth From	Metres To	Diameter Centimetres	Inside diam centimetres	Material	Wall thickness centimetres	Depth From	Metres To	Pumping test method	Draw Down	Recovery
0	6.06	25.40						Submersible	Time min	Water Level Metres
			15.55	Steel	0.48	0	24.84	Pump intake set at (metres) 15.15	Static Level	7.34
				Plastic				Pumping rate - (litres/min) 54.00	1	7.52
				Galvanized				Duration of pumping 1 hrs + 00 min	2	7.57
				Steel				Final water level and of pumping 7.57 metres	3	7.57
				Plastic				Recommended pump type	4	7.57
				Galvanized				Recommended pump depth 15.15 metres	5	7.57
				Steel				Recommended pump rate (litres/min) 45.50	10	7.57
				Plastic				If flowing give rate - (litres/min)	15	7.57
				Galvanized				If pumping discontinued, give reason.	20	7.57
									25	7.57
									30	7.57
									40	7.57
									50	7.57
									60	7.57

Plugging and Sealing Record ☒ Annular space ☐ Abandonment

Depth set at - Metres From	To	Material and type (bentonite slurry, neat cement slurry) etc.	Volume Placed (cubic metres)
0	6.06	Cement Grout	160 Kg

Method of Construction

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

Water Use

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

Final Status of Well

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

Well Contractor/Technician Information

Name of Well Contractor: D&B-WATER-Well-Drilling	Well Contractor's Licence No.: 6006
Business Address (street name, number, city etc.): CP. 98- St-Albert - ON	
Name of Well Technician (last name, first name): Desnoyers Louis	Well Technician's Licence No.: 1-625
Signature of Technician/Contractor: <i>[Signature]</i>	Date Submitted: 2005/10/05

Location of Well

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

Audit No. 2 32795 Date Well Completed: **2005/10/05**

Was the well owner's information package delivered? ☒ Yes ☐ No Date Delivered: **2005/10/05**

Ministry Use Only

Data Source	Contractor: 6006
Date Received: NOV 04 2005	Date of Inspection: 2005/10/05
Remarks	Well Record Number

Address of Well Location (Street Number/Name) #6391 Blossom TRAIL				Township Osgoode		Lot P/L6	Concession 3
County/District/Municipality Ottawa-Carleton				City/Town/Village Greenby		Province Ontario	
UTM Coordinates NAD 83		Zone 18	Easting 453564	Northings 5016637	Municipal Plan and Sublot Number PLAN 4M-1295		Other S/L23

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)	
	Sand & Boulders Grey limestone			From	To
				0	12'
				12'	207'

Annular Space			Results of Well Yield Testing			
Depth Set at (m/ft)	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)	Draw Down		Recovery	
From	To		Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
22'	12' Neat Cement Slurry	4.68	After test of well yield, water was: ☐ Clear and sand free ☒ Other, specify TESTED If pumping discontinued, give reason: X Pump intake set at (m/ft) 180' Pumping rate (l/min / GPM) 20 Duration of pumping 1 hrs + 0 min Final water level end of pumping (m/ft) 77' 7" If flowing give rate (l/min / GPM) X Recommended pump depth (m/ft) (120') 140' Recommended pump rate (l/min / GPM) 20 Well production (l/min / GPM) 30 Disinfected? ☒ Yes ☐ No			
12'	0 Bentonite Slurry	8.4	Static Level	25' 7"		77' 7"
			1	34' 5"	1	55'
			2	40' 2"	2	45' 6"
			3	45' 1"	3	40'
			4	48' 4"	4	37'
			5	51' 3"	5	33' 4"
			10	60' 8"	10	28' 2"
			15	66'	15	25' 7"
			20	68' 5"	20	↓
			25	70' 9"	25	
			30	73' 4"	30	
			40	75' 8"	40	
			50	76' 3"	50	
			60	77' 7"	60	

Method of Construction		Well Use		
☐ Cable Tool	☐ Diamond	☐ Public	☐ Commercial	☐ Not used
☐ Rotary (Conventional)	☐ Jetting	☒ Domestic	☐ Municipal	☐ Dewatering
☐ Rotary (Reverse)	☐ Driving	☐ Livestock	☐ Test Hole	☐ Monitoring
☐ Boring	☐ Digging	☐ Irrigation	☐ Cooling & Air Conditioning	
☒ Air percussion		☐ Industrial		
☐ Other, specify		☐ Other, specify		

Construction Record - Casing				Status of Well	
Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft)	☒ Water Supply	☐ Replacement Well
			From To		
6"	Steel	.188	2' 22'	☐ Test Hole	☐ Recharge Well
6"	Open hole		22' 207'	☐ Dewatering Well	☐ Observation and/or Monitoring Hole
				☐ Alteration (Construction)	☐ Abandoned, Insufficient Supply
				☐ Abandoned, Poor Water Quality	☐ Abandoned, other, specify
				☐ Other, specify	

Construction Record - Screen				Status of Well	
Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft)	☐ Abandoned, Insufficient Supply	☐ Abandoned, Poor Water Quality
			From To		
				☐ Abandoned, other, specify	
				☐ Other, specify	

Water Details		Hole Diameter	
Water found at Depth (m/ft)	Kind of Water: ☐ Fresh ☒ Untested ☐ Gas ☐ Other, specify	Depth (m/ft)	Diameter (cm/in)
201'		From To	
		0' 207' 6"	

Well Contractor and Well Technician Information			
Business Name of Well Contractor AIR ROCK DRILLING CO LTD		Well Contractor's Licence No. 1119	
Business Address (Street Number/Name) RR#1		Municipality RICHMOND	
Province ONT	Postal Code K0A2Z0	Business E-mail Address	
Bus. Telephone No. (inc. area code) 613 838 2170		Name of Well Technician (Last Name, First Name) HOGAN DAN	
Well Technician's Licence No. T3058		Signature of Technician and/or Contractor <i>[Signature]</i>	
		Date Submitted 20090525	

Map of Well Location			
Please provide a map below following instructions on the back.			
APPLE ORCHARD ROAD 2 km 120' #6391 Blossom Trail Drive			
Comments:			

Well owner's information package delivered ☒ Yes ☐ No	Date Package Delivered 20090416 Date Work Completed 20090415	Ministry Use Only Audit No. Z 94625 JUN 03 2009 Received _____
--	---	--

Master Well Owner's and Land Owner's Information

First Name [Redacted]	Last Name Lederer Associates	E-mail Address
Mailing Address (Street Number/Name, RR) 1-2884 Chamberland Street	Municipality Rockland	Province ON
Postal Code K1Y1K1	Telephone No. (inc. area code) 6134146777	

Location and Construction of the Master Well in the Cluster

Address of Well Location (Street Number/Name, RR) 4880 Bank Street	Township	Lot	Concession
County/District/Municipality	City/Town/Village Ottawa	Province Ontario	Postal Code
UTM Coordinates NAD 83 118454119550116848	Zone 18	Easting 454119550116848	Northing 116848
GPS Unit Make Garmin	Model Etrex	Mode of Operation: ☐ Undifferentiated ☒ Averaged ☐ Differentiated, specify	

Overburden and Bedrock Materials (see instructions on the back of this form)				
General Colour	Most Common Material	Other Materials	General Description	Depth (Metres) From To
1	Asphalt			0.0 0.20
Brownish grey	Sandy loam	gravel fill	dry	0.20 0.69
black	Sand	gravel/silt	dry/moist	0.69 1.48
dark grey	Silt	sand	moist	1.48 1.80
grey	Limestone			1.80 5.79

Construction Details				
Inside Diameter (Centimetres)	Material (steel, plastic, fibreglass, concrete, galvanized)	Wall Thickness	Depth (Metres) From To	
5.1	PVC	SCHED 40	2.98	5.79

Annular Space/Abandonment Sealing Record			
Depth Set at (Metres) From To	Type of Sealant Used (Material and Type)	Volume Used (Cubic Metres)	
1.01 1.30	Bentonite	20 Kg	

Well Contractor and Well Technician Information	
Business Name of Well Contractor George Downing Estate Drilling Ltd	Well Contractor's Licence No. 11844
Business Address (Street No./Name, number, RR) 410 rue principale	Municipality Brenville-sur-la-Rouge
Province QC	Postal Code J0V1B0
Business E-mail Address downing@hawk.igs.net	
Bus. Telephone No. (inc. area code) 81192426469	Name of Well Technician (Last Name, First Name) Downing, Bruce
Well Technician's Licence No. 21173	Signature of Technician [Signature] Date Submitted (yyyy/mm/dd) 2012/01/06

Hole Details		
Depth (Metres) From To	Diameter (Centimetres)	
0.00 5.79	20	

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

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

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

No Casing and Screen Used	Static Water Level Test
Open Hole ☐ Yes ☒ No	Metres

Screen	
☐ Galvanized	☐ Steel
☐ Fibreglass	☐ Concrete
☒ Plastic	
Outside Diameter (Centimetres) 5.8	Slot No. 10

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

Disinfected ☐ Yes ☒ No If no, provide reason:	Date Master Well Completed (yyyy/mm/dd) 2011/07/22
Monitoring Well	

Cluster Information (Please also fill out the additional Cluster Well Information for Well Construction for each parcel of land and cluster.)	
Total Wells in Cluster 3	Please indicate Number of Cluster Well Information Log Sheets Submitted 1
Total Wells on this Property unknown	

Location of Well Cluster	
Detailed Map must be provided as an attachment no larger than legal size (8.5" x 14"). Sketches are not allowed.	
☒ Check box to confirm detailed map is provided as per Section 11.1 (3)	

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

Signature [Signature]	Date (yyyy/mm/dd) 2012/01/06
Master Well Owner's/Land Owner's consent to use Cluster Form	
Signature [Signature]	Date (yyyy/mm/dd) 2012/01/11

Ministry Use Only	
Audit No. M 08719	Well Contractor No.
Date Received (yyyy/mm/dd) JAN 26 2012	Date of Inspection (yyyy/mm/dd)
Remarks	

Property Owner's Information					
First Name		Last Name		Mailing Address (Street No./Name, RR)	
[Redacted]		Leclerc Association		1-2884 Chamberland Street	
Province		Postal Code		E-mail Address	
ON		K1Y1K1M16			
				Telephone No. (inc. area code)	
				6134467777	

Cluster Well Information					
Address of Well Location (Street Number/Name, RR)			Lot	Concession	Township
4880 Bank Street			10		
City/Town/Village		Province	Postal Code	GPS Unit Make	Model
Ottawa		Ontario		Garmin	Etrex
Unit Mode of Operation			☐ Undifferentiated ☒ Averaged ☐ Differentiated, specify:		

Consent	
Property Owner's Consent to use cluster form	
Signature	Date (yyyy/mm/dd)
[Redacted]	
Consent to release additional information to the Director upon request	
Signature of Technician/Contractor	Date (yyyy/mm/dd)
[Signature]	2012/01/01

Well # on Sketch	UTM Coordinates		Full Depth of Hole (metres)	Hole Diameter (cm)	Method of Construction	Casing Material	Casing Length (metres)	Screen Interval (metres)		Annular Space Sealant Used	Static Water Level (metres)	Abandonment Sealant Used	Comments	Date of Completion (yyyy/mm/dd)
	Zone	Easting						From	To					
mw 4	18	454118550116834	5.60	20	HSA	PVC	2.72	2.72	5.60	Bentonite				2011/07/2
mw 1	18	4541164501168117	5.60	20	HSA	PVC	2.74	2.74	5.60	Bentonite				2011/07/2

Well Contractor and Well Technician Information					
Business Name of Well Contractor			Business Address (Street Number/Name, RR)		Municipality
George Downing Estate Drilling Ltd			410 rue principale		Brenville-sur-la-Rouge
Postal Code		Business Telephone No. (inc. area code)	Well Contractor's Licence No.	Business E-mail Address	
J10V1B0811924264619			1844	downing@hawk.iq.s.net	
Name of Well Technician (First Name, Last Name)			Well Technician's Licence No.	Date Submitted (yyyy/mm/dd)	Signature of Technician
Bruce Downing			2173	2012/01/06	[Signature]

Date 1st Well in Cluster Constructed (yyyy/mm/dd)	Date Last Well in Cluster Constructed (yyyy/mm/dd)
2011/07/21	2011/07/21
Ministry Use Only	
Date Received (yyyy/mm/dd)	Date Inspected (yyyy/mm/dd)
JAN 25 2012	
Audit No.	Remarks
C13690	M08719

PROJECT

PHASE II ENVIRONMENTAL SITE ASSESSMENT
4880 BANK STREET
OTTAWA, ONTARIO

DRAWING TITLE

SITE PLAN



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LEVAC ROBICHAUD LECLERC ASSOCIATES LTD.
Project Managers and Consulting Engineers

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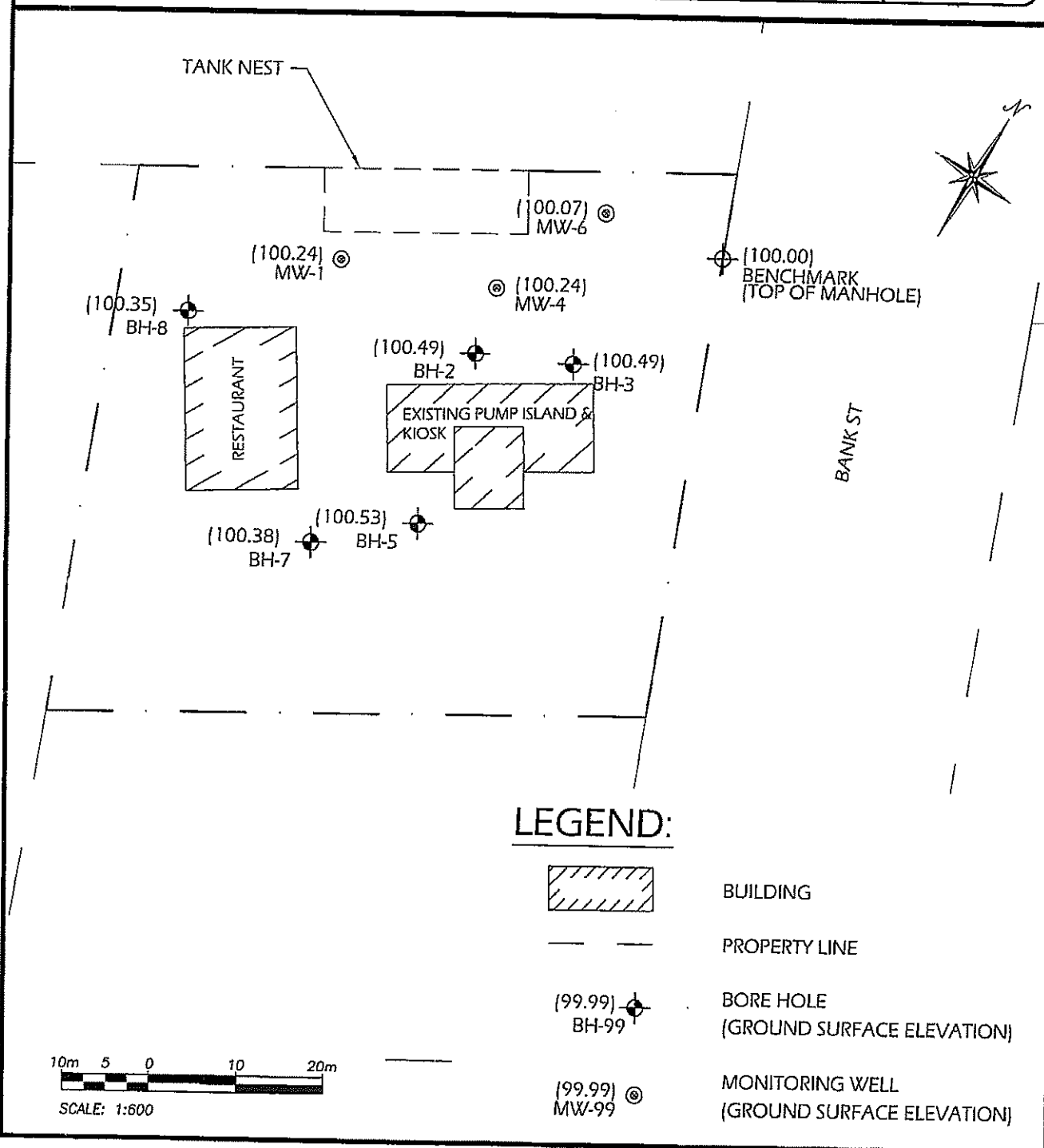
CLIENT

LOK VANIAK

DATE
JULY 28, 2011

FILE
110678

DWG No.
FIGURE 2





Measurements recorded in: ☐ Metric ☒ Imperial

Well Owner's Information

First Name	Last Name / Organization RIDEAU CADLETON DRIVEWAY	E-mail Address	☐ Well Constructed by Well Owner
Mailing Address (Street Number/Name) 4837 ALBION ROAD	Municipality GLOUCESTER	Province ONT	Postal Code K1X1A3
Telephone No. (inc. area code) 613 822 2211			

Well Location

Address of Well Location (Street Number/Name) 4837 ALBION ROAD	Township OTTAWA	Lot 23	Concession IV
County/District/Municipality GLOUCESTER	City/Town/Village OTTAWA	Province Ontario	Postal Code K1X1A3
UTM Coordinates Zone NAD 83	Easting 18452780	Northing 5015910	Municipal Plan and Sublot Number
		Other	

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
	SAUDY LOAM			0	3
	FINE SAND			3	36
	SANDSTONE			36	51

WELL CONSTRUCTION DATA FROM ORIGINAL
WELL RECORD, UNTAGGED JUNE 15, 1962
DRILLER LICENSE #196 MCLEAN WATER SUPPLY

Depth Set at (m/ft) From	To	Annular Space Type of Sealant Used (Material and Type)	Volume Placed (m ³ /ft)	After test of well yield, water was: ☒ Clear and sand free ☐ Other, specify	Draw Down Time (min)	Water Level (m/ft)	Recovery Time (min)	Water Level (m/ft)
				If pumping discontinued, give reason:	Static Level			
				Pump intake set at (m/ft)	1		1	
				Pumping rate (l/min / GPM)	2		2	
				Duration of pumping hrs + min	3		3	
				Final water level end of pumping (m/ft)	4		4	
				If flowing give rate (l/min / GPM)	5		5	
				Recommended pump depth (m/ft)	10		10	
				Recommended pump rate (l/min / GPM)	15		15	
				Well production (l/min / GPM)	20		20	
				Disinfected? ☒ Yes ☐ No	25		25	
					30		30	
					40		40	
					50		50	
					60		60	

Method of Construction		Well Use	
☐ Cable Tool	☐ Diamond	☐ Public	☐ Commercial
☐ Rotary (Conventional)	☐ Jetting	☒ Domestic	☐ Not used
☐ Rotary (Reverse)	☐ Driving	☒ Livestock	☐ Municipal
☐ Boring	☐ Digging	☐ Irrigation	☐ Test Hole
☐ Air percussion		☐ Industrial	☐ Cooling & Air Conditioning
☐ Other, specify		☐ Other, specify	

Construction Record - Casing				Status of Well	
Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From To	☒ Water Supply	
6 5/8"	STEEL	3/16"	0 37	☐ Replacement Well	
				☐ Test Hole	
				☐ Recharge Well	
				☐ Dewatering Well	
				☐ Observation and/or Monitoring Hole	
				☐ Alteration (Construction)	
				☐ Abandoned, Insufficient Supply	
				☐ Abandoned, Poor Water Quality	
				☐ Abandoned, other, specify	
				☐ Other, specify	

Construction Record - Screen			
Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From To
	NONE		

Water Details		Hole Diameter	
Water found at Depth (m/ft) 47	Kind of Water: ☒ Fresh ☐ Untested	Depth (m/ft) From To	Diameter (cm/in)
	☐ Gas ☐ Other, specify		
Water found at Depth (m/ft)	Kind of Water: ☐ Fresh ☐ Untested		
	☐ Gas ☐ Other, specify		
Water found at Depth (m/ft)	Kind of Water: ☐ Fresh ☐ Untested		
	☐ Gas ☐ Other, specify		

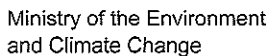
Well Contractor and Well Technician Information	
Business Name of Well Contractor THE PUMP HOUSE INC	Well Contractor's Licence No. 6378
Business Address (Street Number/Name) 848 CLYDE AVE	Municipality
Province ONT	Postal Code K1Z5A2
Business E-mail Address INFO@THEPUMPHOUSE.CA	

Bus. Telephone No. (inc. area code) 613 722 4226	Name of Well Technician (Last Name, First Name) MACINTYRE DJ
Well Technician's Licence No. 3853	Signature of Technician and/or Contractor [Signature]
Date Submitted 2017/08/30	

Map of Well Location			
Please provide a map below following instructions on the back.			

Comments:	

Well owner's information package delivered ☒ Yes ☐ No	Date Package Delivered 2017/08/30	Ministry Use Only Audit No. 2256899
Date Work Completed 2017/08/30	Received SEP 22 2017	



Well Record

Page 7 of 7

Measurements recorded in: ☒ Metric ☐ Imperial

First Name LEITRINA	Last Name / Organization SOUTH HOLLINGS	E-mail Address % OTTAWA GREGORIE CONSTRUCTION	☐ Well Constructed by Well Owner
-------------------------------	---	---	--

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
160 CUMBERLAND DRIVE	OTTAWA	ON	K2J 6K6	(613) 872-6672

Address of Well Location (Street Number/Name) 4608-4658 BANK ST.	Township GLoucester	Lot 22	Concession 4(RF).
---	------------------------	-----------	----------------------

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

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	18N	600000	600000		

General Colour	Most Common Material		Other Materials	General Description		Depth (m/ft)
						From To
Well	SLA	STATIC WATER LEVEL	(GR/Estuary)	(GR/Winning)		(DEPTH)
1329A	32mm	0.40	18452902	5016827		0.00-220
1329B	32mm	0.60	18452902	5016827		0.00-5.20

Annular Space			Results of Well Yield Testing					
Depth Set at (m/ft) From To		Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)	After test of well yield, water was: ☐ Clear and sand free ☐ Other, specify _____	Draw Down		Recovery	
					Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
		Sealant Hb plug and Tet Plug Dentrite grout.	0.03		Static Level			
				If pumping discontinued, give reason:	1		1	
				Pump intake set at (m/ft)	2		2	
					3		3	

Method of Construction		Well Use		Pumping rate (l/min / GPM)		
☐ Cable Tool	☐ Diamond	☐ Public	☐ Commercial	☒ Not used	3	3
☐ Rotary (Conventional)	☐ Jetting	☐ Domestic	☐ Municipal	☐ Dewatering	4	4
☐ Rotary (Reverse)	☐ Driving	☐ Livestock	☒ Test Hole	☒ Monitoring	5	5
☐ Boring	☐ Digging	☐ Irrigation	☐ Cooling & Air Conditioning		10	10
☐ Air percussion		☐ Industrial			15	15
☐ Other, specify _____		☐ Other, specify _____				

Construction Record - Casing				Status of Well	
Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft)		
			From	To	
					☐ Water Supply
					☐ Replacement Well
					☒ Test Hole
					☐ Recharge Well
					☐ Dewatering Well
					☒ Observation and/or Monitoring Hole
					☐ Alteration (Construction)
					☐ Abandoned

Flowing GVE Rate (l/min / GPM)	Recommended pump depth (m/ft)	Recommended pump rate (l/min / GPM)	Well production (l/min / GPM)	Disinfected?
	20	30	40	☐ Yes ☐ No
	25	30	40	
	30	30	40	
	40	30	40	
	50	30	40	
	60	30	40	

[illegible]

Water Details		Hole Diameter	
Water found at Depth (m/ft) ☐ Gas	Kind of Water: ☐ Fresh ☐ Untested ☐ Other, specify	Depth (m/ft) From To	Diameter (cm/in)
Water found at Depth (m/ft) ☐ Gas	Kind of Water: ☐ Fresh ☐ Untested ☐ Other, specify	See above	
Water found at Depth (m/ft) ☐ Gas	Kind of Water: ☐ Fresh ☐ Untested ☐ Other, specify		

10410
TR
"Potholes"
Subdivision

Well Contractor and Well Technician Information	
Business Name of Well Contractor SIMON DRILLING INC	Well Contractor's Licence No. 4875

Business Address (Street Number/Name) 157 FIVE ARCHES DR, BOX 219	Municipality FAKENHAM	Comments: (1111)
--	--------------------------	---------------------

Province <i>ON</i>	Postal Code <i>M6A 2K0</i>	Business E-mail Address <i>stanton.d@live.ca</i>			
Well owner's		Date Package Delivered	Ministry Use Only		

Bus Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)	information package delivered	Audit No. 2252131
NRVIA 317	STANTON, PETER	Y Y Y Y M M D D	

Well Technician's Licence No. 3010003 Signature of Technician and/or Contractor [Signature] Date Submitted 20/09/13

☐ Yes
☒ No

Date Work Completed 20/09/13

Received SEP 10 2013

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Ministry's Copy



Tag#: A247971

Measurements recorded in: ☐ Metric ☒ Imperial

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
	Hindu Temple of Ottawa-Carleton	hindutempleottawacarleton@gmail.com	
Mailing Address (Street Number/Name)	Municipality	Province	Postal Code
4835 Bank St	Ottawa	ON	K1X1G6
Telephone No. (inc. area code)			

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
4835 Bank St			
County/District/Municipality	City/Town/Village	Province	Postal Code
Ottawa	Ottawa	Ontario	K1X1G6
UTM Coordinates Zone	Eastings	Northings	Municipal Plan and Sublot Number
NAD 83	184539545017560		
Other			

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	To
Gray	fill	fill, sand	Very Dense	0'	14'10"

Annular Space			
Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
0'	8'8"	Bentonite	2.3m³
8'8"	14'10"	Silica Sand	3.8m³

Method of Construction		Well Use		
☐ Cable Tool	☐ Diamond	☐ Public	☐ Commercial	☐ Not used
☐ Rotary (Conventional)	☐ Jetting	☐ Domestic	☐ Municipal	☐ Dewatering
☐ Rotary (Reverse)	☐ Driving	☐ Livestock	☐ Test Hole	☒ Monitoring
☒ Boring	☐ Digging	☐ Irrigation	☐ Cooling & Air Conditioning	
☐ Air percussion		☐ Industrial		
☐ Other, specify		☐ Other, specify		

Construction Record - Casing				Status of Well	
Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	To	
2.067	PVC	0.154	0'	9'10"	☐ Water Supply
					☐ Replacement Well
					☐ Test Hole
					☐ Recharge Well
					☐ Dewatering Well
					☒ Observation and/or Monitoring Hole
					☐ Alteration (Construction)
					☐ Abandoned, Insufficient Supply
					☐ Abandoned, Poor Water Quality
					☐ Abandoned, other, specify
					☐ Other, specify

Construction Record - Screen				Status of Well	
Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	To	
2.375	PC	3	9'10"	14'10"	☐ 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		Hole Diameter		
Water found at Depth	Kind of Water: ☐ Fresh ☒ Untested	Depth (m/ft) From	To	Diameter (cm/in)
11' (m/ft) ☐ Gas	☐ Other, specify	0'	14'10"	8"
Water found at Depth	Kind of Water: ☐ Fresh ☐ Untested			
(m/ft) ☐ Gas	☐ Other, specify			
Water found at Depth	Kind of Water: ☐ Fresh ☐ Untested			
(m/ft) ☐ Gas	☐ Other, specify			

Well Contractor and Well Technician Information					
Business Name of Well Contractor	Well Contractor's Licence No.				
CLL Geotechnical/Environmental Drilling	75413				
Business Address (Street Number/Name)	Municipality				
48-2127 Edinburgh Place	Ottawa				
Province	Postal Code	Business E-mail Address			
ON	K1H1B5	mwebb@cccgroupp.ca			
Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)				
6137375229	Seymour, Vincent				
Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted			
3380		20191018/19			

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

Map of Well Location	
Please provide a map below following instructions on the back.	
Bank St	
Comments:	
Well owner's information package delivered	Date Package Delivered
☐ Yes ☒ No	Y Y Y Y M M D D
Date Work Completed	20190924
Ministry Use Only	
Audit No. 2286383	
OCT 22 2019	
Received	



Measurements recorded in: ☐ Metric ☒ Imperial

Tag#: A247970

Page _____ of _____

Well Owner's Information

First Name	Last Name / Organization <i>Hindu Temple of Ottawa Carleton</i>	E-mail Address <i>hindutempleottawa@gmail.com</i>	☐ Well Constructed by Well Owner
Mailing Address (Street Number/Name) <i>4835 Bank St</i>	Municipality <i>Ottawa</i>	Province <i>ON</i>	Postal Code <i>K1K1G6</i>
Telephone No. (inc. area code)			

Well Location

Address of Well Location (Street Number/Name) <i>4835 Bank St</i>	Township	Lot	Concession
County/District/Municipality	City/Town/Village <i>Ottawa</i>	Province Ontario	Postal Code
UTM Coordinates NAD 83 <i>18 45 39 86 50 175 42</i>	Municipal Plan and Sublot Number	Other	

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	To
<i>Grey</i>	<i>Fill</i>	<i>Fill Sand</i>	<i>Very Dense</i>	<i>0'</i>	<i>13'</i>

Annular Space			
Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
<i>0'</i>	<i>7'</i>	<i>Bentonite 3/8 chips 2'</i>	<i>2.55</i>
<i>7'</i>	<i>13'</i>	<i>Silica Sand</i>	<i>2.94</i>

Method of Construction		Well Use	
☐ Cable Tool	☐ Diamond	☐ Public	☐ Commercial
☐ Rotary (Conventional)	☐ Jetting	☐ Domestic	☐ Municipal
☐ Rotary (Reverse)	☐ Driving	☐ Livestock	☐ Test Hole
☒ Boring	☐ Digging	☐ Irrigation	☐ Cooling & Air Conditioning
☐ Air percussion		☐ Industrial	☒ Monitoring
☐ Other, specify		☐ Other, specify	

Construction Record - Casing				Status of Well	
Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	To	
<i>2.667</i>	<i>PVC</i>	<i>0.154</i>	<i>0'</i>	<i>8'</i>	☐ Water Supply
					☐ Replacement Well
					☐ Test Hole
					☐ Recharge Well
					☐ Dewatering Well
					☒ Observation and/or Monitoring Hole
					☐ Alteration (Construction)
					☐ Abandoned, Insufficient Supply
					☐ Abandoned, Poor Water Quality
					☐ Abandoned, other, specify
					☐ Other, specify

Construction Record - Screen					☐ Insufficient Supply ☐ Abandoned, Poor Water Quality ☐ Abandoned, other, specify ☐ Other, specify
Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft)		
			From	To	
2.375	1 PVC	3	8'	13'	

Water Details		Hole Diameter	
Water found at Depth <i>10'</i> (m/ft) ☐ Gas ☒ Other, specify	Kind of Water: ☐ Fresh ☒ Untested	Depth (m/ft) From	To
Water found at Depth (m/ft) ☐ Gas ☒ Other, specify	Kind of Water: ☐ Fresh ☐ Untested	<i>0'</i>	<i>13'</i>
Water found at Depth (m/ft) ☐ Gas ☒ Other, specify	Kind of Water: ☐ Fresh ☐ Untested		
Water found at Depth (m/ft) ☐ Gas ☒ Other, specify	Kind of Water: ☐ Fresh ☐ Untested		
Water found at Depth (m/ft) ☐ Gas ☒ Other, specify	Kind of Water: ☐ Fresh ☐ Untested		

Well Contractor and Well Technician Information			
Business Name of Well Contractor <i>CEL Geotechnical and Environmental Drilling</i>	Well Contractor's Licence No. <i>75413</i>		
Business Address (Street Number/Name) <i>4835 Bank St</i>	Municipality <i>Ottawa</i>		
Province <i>ON</i>	Postal Code <i>K1K1G6</i>	Business E-mail Address	
Bus. Telephone No. (inc. area code) <i>613 732 5227</i>	Name of Well Technician (Last Name, First Name) <i>SEAN VINCENT</i>		
Well Technician's Licence No. <i>3380</i>	Signature of Technician and/or Contractor <i>[Signature]</i>		Date Submitted <i>20190924</i>

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

Map of Well Location	
Please provide a map below following instructions on the back.	
<i>Bank St Hwy 31</i>	
<i>Temple</i>	
Comments:	
Well owner's information package delivered ☐ Yes ☒ No	Date Package Delivered Y Y Y Y M M D D <i>20190924</i>
Date Work Completed <i>20190924</i>	Ministry Use Only Audit No. <i>2286385</i> Received <i>OCT 22 2019</i>



Measurements recorded in: ☐ Metric ☒ Imperial

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
	Hindu Temple of Ottawa/Gilberton	hindutemple@gmail.com	
Mailing Address (Street Number/Name)	Municipality	Province	Postal Code
4835 Bank St	Ottawa	ON	K1X1K6
Telephone No. (inc. area code)			

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
4835 Bank St			
County/District/Municipality	City/Town/Village	Province	Postal Code
	Ottawa	Ontario	K1X1K6
UTM Coordinates	Zone	Easting	Northing
NAD 83	18	4531946	5017598
Municipal Plan and Sublot Number			
Other			

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft)
Grey	Fill	Sand, F.I.	Very Dense	0' 13'3"

Annular Space			
Depth Set at (m/ft)	Type of Sealant Used (Material and Type)	Volume Placed (m ³ /ft ³)	
0' 7'	Benkote	2.5A	
7' 13'3"	Silica Sand	3A	

Method of Construction	Well Use
☐ Cable Tool ☐ Rotary (Conventional) ☐ Rotary (Reverse) ☒ Boring ☐ Air percussion ☐ Other, specify	☐ Diamond ☐ Jetting ☐ Driving ☐ Digging ☐ Public ☐ Domestic ☐ Livestock ☐ Irrigation ☐ Industrial ☐ Other, specify
	☐ Commercial ☐ Municipal ☐ Test Hole ☐ Cooling & Air Conditioning ☐ Not used ☐ Dewatering ☒ Monitoring

Construction Record - Casing				Status of Well	
Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft)		
2.067	PVC	0.54	0' 8'3"	☐ Water Supply ☐ Replacement Well ☐ Test Hole ☐ Recharge Well ☐ Dewatering Well ☒ Observation and/or Monitoring Hole ☐ Alteration (Construction) ☐ Abandoned, Insufficient Supply ☐ Abandoned, Poor Water Quality ☐ Abandoned, other, specify ☐ Other, specify	

Construction Record - Screen				Status of Well	
Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft)		
2.375	PVC	3	8'3" 13'3"	☐ 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		Hole Diameter	
Water found at Depth	Kind of Water: ☐ Fresh ☒ Untested	Depth (m/ft)	Diameter (cm/in)
10' (m/ft) ☐ Gas ☐ Other, specify		From To	
Water found at Depth	Kind of Water: ☐ Fresh ☐ Untested	0" 13'3"	8"
(m/ft) ☐ Gas ☐ Other, specify			
Water found at Depth	Kind of Water: ☐ Fresh ☐ Untested		
(m/ft) ☐ Gas ☐ Other, specify			

Well Contractor and Well Technician Information			
Business Name of Well Contractor	Well Contractor's Licence No.		
CC Geotechnical and Environmental Drilling	75413		
Business Address (Street Number/Name)	Municipality		
49-267 Edinburgh Pl	Ottawa		
Province	Postal Code	Business E-mail Address	
ON	K1B5M1	mwebb@ccgroup.ca	
Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)		
613 737 5227	Sedmore, Vincent		
Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted	
3380	[Signature]	4/18/2014	

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

Map of Well Location	
Please provide a map below following instructions on the back.	
Bank St Temple	
Comments:	
Well owner's information package delivered	Date Package Delivered
☐ Yes ☒ No	Y Y Y Y M M D D
Date Work Completed	20140924
Ministry Use Only	
Audit No. 2286384	
Received 777719	

Measurements recorded in: ☐ Metric ☒ Imperial

Page _____ of _____

Well Owner's Information

First Name Erin	Last Name / Organization O'Connor Regional Group	E-mail Address erocconnor@regionalgroup.com	☐ Well Constructed by Well Owner
Mailing Address (Street Number/Name) 1737 Woodward Drive	Municipality OTTAWA	Province Ont	Postal Code K2C 0P9
Telephone No. (inc. area code) 613 230 2100			

Well Location

Address of Well Location (Street Number/Name) 4840 Bank Street	Township OTTAWA	Lot	Concession
County/District/Municipality OTTAWA Carleton	City/Town/Village OTTAWA	Province Ontario	Postal Code K1X 1G6
UTM Coordinates Zone NAD 83	Easting 184535	Northing 195016368	Municipal Plan and Sublot Number
Other			

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	To
			Decommission of Stone Dug well 36 inch Dia + 12 Ft Depth	-5	10 Ft
	Clean Clay material / Bentonite Hole Plug		4 Bags	10 Ft	12 Ft
			Decommission of Drilled well 5 inch Dia + 75 Ft Depth		
	Drilled well inside dug well	Bentonite 4 Bag		-5	30 Ft
	Clean Clear stone	6 Buckett		30 Ft	60 Ft
	Bentonite Hole Plug	3 Bag		60 Ft	75 Ft

Annular Space			
Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)

Method of Construction		Well Use	
☒ Cable Tool	☐ Diamond	☐ Public	☐ Commercial
☐ Rotary (Conventional)	☐ Jetting	☐ Domestic	☐ Municipal
☐ Rotary (Reverse)	☐ Driving	☐ Livestock	☐ Test Hole
☐ Boring	☒ Digging	☐ Irrigation	☐ Cooling & Air Conditioning
☐ Air percussion		☐ Industrial	
☐ Other, specify		☐ Other, specify	

Construction Record - Casing				Status of Well	
Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	To	
					☐ Water Supply
					☐ Replacement Well
					☐ Test Hole
					☐ Recharge Well
					☐ Dewatering Well
					☐ Observation and/or Monitoring Hole
					☐ Alteration (Construction)
					☐ Abandoned, Insufficient Supply
					☐ Abandoned, Poor Water Quality
					☒ Abandoned, other, specify
					☐ Other, specify

Construction Record - Screen				Status of Well	
Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	To	
					☒ Abandoned, other, specify
					☐ Other, specify

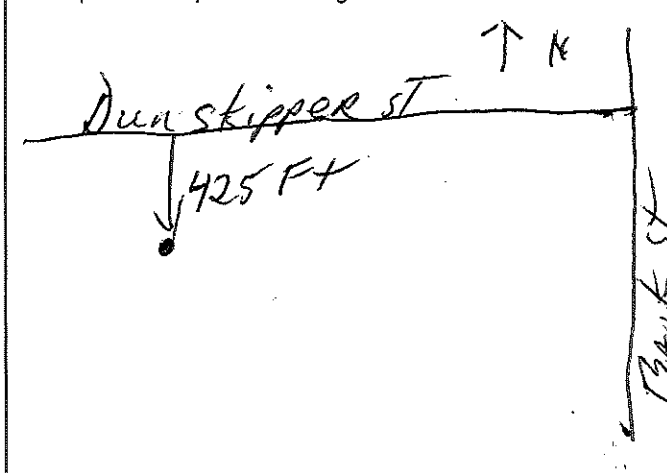
Water Details		Hole Diameter	
Water found at Depth (m/ft) ☐ Gas ☐ Other, specify	Kind of Water: ☐ Fresh ☐ Untested	Depth (m/ft) From	To
Water found at Depth (m/ft) ☐ Gas ☐ Other, specify	Kind of Water: ☐ Fresh ☐ Untested		
Water found at Depth (m/ft) ☐ Gas ☐ Other, specify	Kind of Water: ☐ Fresh ☐ Untested		

Well Contractor and Well Technician Information			
Business Name of Well Contractor Raymond Pump + well	Well Contractor's Licence No. 722610		
Business Address (Street Number/Name) Box 18, 147 Principale St	Municipality NATION		
Province ON	Postal Code K0A 7K0	Business E-mail Address clabrosse-09@hotmail.com	
Bus. Telephone No. (inc. area code) 613 913 1924	Name of Well Technician (Last Name, First Name) RAYMOND JACQUES		
Well Technician's Licence No. 0264	Signature of Technician and/or Contractor <i>[Signature]</i>	Date Submitted 2019/12/02	

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

Map of Well Location

Please provide a map below following instructions on the back.



Comments:	Well owner's information package delivered ☐ Yes ☒ No	Date Package Delivered Y Y Y Y M M D D 2019/12/02	Date Work Completed 2019/12/02
Ministry Use Only		Audit No. 2307113	
Received		JAN 10 2020	



-SEE BELOW-

Measurements recorded in: ☒ Metric ☐ Imperial

Well Owner's Information

First Name: LETAIR, SOUTH HOLDINGS INC. Last Name / Organization: LETAIR, SOUTH HOLDINGS INC. E-mail Address: LETAIR, SOUTH HOLDINGS INC. ☐ Well Constructed by Well Owner

Mailing Address (Street Number/Name): 180 CITIGATE Municipality: OTTAWA Province: ON Postal Code: K2H 6A7 Telephone No. (inc. area code): 613 692 3222

Well Location

Address of Well Location (Street Number/Name): N/A. Township: GLOUCESTER (E) Lot: 21 Concession: A

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

UTM Coordinates Zone: Easting: Nothing: NAD: 83: -SEE TABLE BELOW. Municipal Plan and Sublot Number: Other:

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

General Colour	Most Common Material		Other Materials	General Description		Depth (m/ft)	
WELL	NA. (mm)	STATIC WATER LEVEL (m)	GPS EASTING	GPS NORTHING	TAG	From	To
1318 g	38	3.09	18453000	5017309	—	0-3.21	
" h	38	3.47	"	"		0-6.91	
131 g	50	1.88	18453156	5017343	—	0-2.0	
131 b	50	2.20	18453154	5017343	—	0-4.1	

Annular Space		
Depth Set at (m/ft)	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
From To		
see above	Hepler / Red Plug	0.03
	Penetrant grade	

Method of Construction		Well Use	
☐ Cable Tool	☐ Diamond	☐ Public	☐ Commercial
☐ Rotary (Conventional)	☐ Jetting	☐ Domestic	☐ Municipal
☐ Rotary (Reverse)	☐ Driving	☐ Livestock	☐ Test Hole
☐ Boring	☐ Digging	☐ Irrigation	☐ Cooling & Air Conditioning
☐ Air percussion		☐ Industrial	
☐ Other, specify		☐ Other, specify	

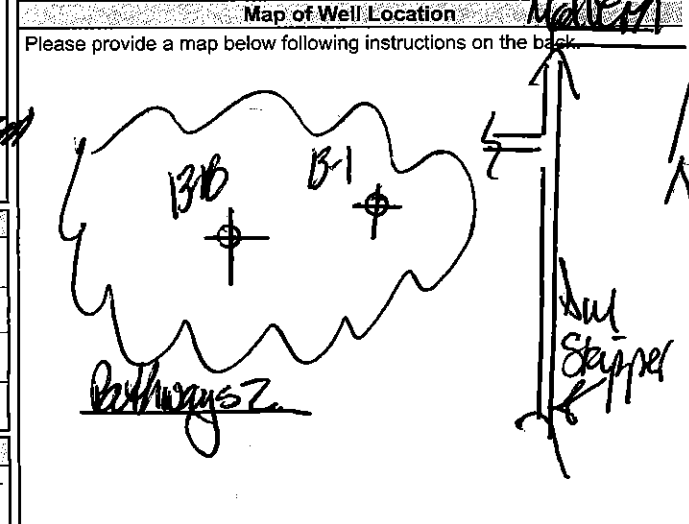
Construction Record - Casing			Status of Well	
Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft)	
			From To	
	PK			☐ Water Supply
				☐ Replacement Well
				☐ Test Hole
				☐ Recharge Well
				☐ Dewatering Well
				☒ Observation and/or Monitoring Hole
				☐ Alteration (Construction)
				☐ Abandoned, Insufficient Supply
				☐ Abandoned, Poor Water Quality
				☒ Abandoned, other, specify
				☐ Other, specify

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

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

Well Contractor and Well Technician Information			
Business Name of Well Contractor: STANLEY DRILLING INC.		Well Contractor's Licence No.: 4875	
Business Address (Street Number/Name): 157 FIVE ACRES DR, BOX 219		Municipality: PAKENHAM	
Province: ON	Postal Code: K0A 2X0	Business E-mail Address: StanleyDrilling@Bell.net	
Bus. Telephone No. (inc. area code): (613) 692-0622		Name of Well Technician (Last Name, First Name): STANLEY, PETER	
Well Technician's Licence No.: 00086		Signature of Technician and/or Contractor: [Signature]	
		Date Submitted: 2020/04/26	

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



Comments: Refer to Golden B-121-0023 for borehole Site Plan	
Well owner's information package delivered: ☒ Yes ☐ No	Date Package Delivered: Y Y Y Y M M D D
Date Work Completed: 2020/04/26	Ministry Use Only
	Audit No.: 322883
	Received: APR 08 2020

Notice of Collection of Personal Information

Personal information contained on this form is collected pursuant to sections 35-50 and 75(2) of the *Ontario Water Resources Act* and section 16.3 of the Wells Regulation. This information will be used for the purpose of maintaining a public record of wells in Ontario. This form and the information contained on the form will be stored in the Ministry's well record database and made publicly available. Questions about this collection should be directed to the Water Well Customer Service Representative at the Wells Help Desk, 125 Resources Road, Toronto Ontario M9P 3V6, at 1-888-396-9355 or wellshelpdesk@ontario.ca.

Fields marked with an asterisk (*) are mandatory.

Well Tag Number *

A219864

Type *

☒ Construction ☐ Abandonment

Measurement recorded in: *

☐ Metric ☒ Imperial

1. Well Owner's Information

Last Name and First Name, or Organization is mandatory. *

Last Name	First Name
Organization Aecon Construction and Materials Limited	Email Address

Current Address

Unit Number	Street Number * 4949	Street Name * Bank Street	City/Town/Village Gloucester
Country Canada	Province Ontario	Postal Code K1X 1G7	Telephone Number

2. Well Location

Address of Well Location

Unit Number	Street Number * 4949	Street Name * Bank Street	Township Gloucester
Lot	Concession	County/District/Municipality Carleton	
City/Town Gloucester	Province Ontario	Postal Code K1X 1G7	
UTM Coordinates NAD 83	Zone * 18	Easting * 454374	Northing * 5016659
Municipal Plan and Sublot Number Test UTM in Map			
Other BH2-23			

3. Overburden and Bedrock Material *

Well Depth * 50	(ft)				
General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To

				(ft)	(ft)
Grey	Gravel	Sand		0	5
Grey	Limestone			5	50

4. Annular Space *

Depth From (ft)	Depth To (ft)	Type of Sealant Used (Material and Type)	Volume Placed (cubic feet)
0	49	Hole Plug	4.54
49	50	Sand	0.07

5. Method of Construction *

- ☐ Cable Tool ☐ Rotary (Conventional) ☐ Rotary (Reverse) ☐ Boring ☐ Air percussion ☐ Diamond
☐ Jetting ☐ Driving ☐ Digging ☒ Rotary (Air) ☒ Augering ☐ Direct Push
☐ Other (specify) _____

6. Well Use *

- ☐ Public ☐ Industrial ☐ Cooling & Air Conditioning
☐ Domestic ☐ Commercial ☐ Not Used
☐ Livestock ☐ Municipal ☒ Monitoring
☐ Irrigation ☐ Test Hole ☐ Dewatering
☐ Other (specify) _____

7. Status of Well *

- ☐ Water Supply ☐ Replacement Well ☐ Test Hole
☐ Recharge Well ☐ Dewatering Well ☒ Observation and/or Monitoring Hole
☐ Alteration (Construction) ☐ Abandoned, Insufficient Supply ☐ Abandoned, Poor Water Quality
☐ Abandoned, other (specify) _____
☐ Other (specify) _____

8. Construction Record - Casing * (use negative number(s) to indicate depth above ground surface)

Inside Diameter (in)	Open Hole or Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness	Depth From (ft)	Depth To (ft)
2	Plastic	0.25	0	40

9. Construction Record - Screen

Outside Diameter (in)	Material (Plastic, Galvanized, Steel)	Slot Number	Depth From (ft)	Depth To (ft)
2	Plastic	10	40	50

10. Water Details

Water found at Depth 2 (ft)	☐ Gas	Kind of water	☐ Fresh	☐ Untested	☐ Other
Water found at Depth 40	☐ Gas	Kind of water	☐ Fresh	☐ Untested	☐ Other

11. Hole Diameter

Depth From (ft)	Depth To (ft)	Diameter (in)
0	5	8
5	50	4

12. Results of Well Yield Testing

☐ Pumping Discontinued

Explain

If flowing give rate

☐ Flowing (GPM)

Draw down

Time (min)	Static Level	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)														

Recovery

Time (min)	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)													

After test of well yield, water was

☐ Clear and sand free ☐ Other (specify)

Pump intake set at (ft)	Pumping rate (GPM)	Duration of pumping hrs + min	Final water level end of pumping (ft)	Disinfected? * ☐ Yes ☒ No
Recommended pump depth (ft)	Recommended pump rate (GPM)	Well production (GPM)		

13. Map of Well Location *

Map 1. Please Click the map area below to import an image file to use as the map. ☐ Make map area bigger



14. Information

Well owner's information package delivered ☐ Yes ☐ No	Date Package Delivered (yyyy/mm/dd)	Date Work Completed (yyyy/mm/dd) *
		2023/03/29
Comments		

15. Well Contractor and Well Technician Information

Business Name of Well Contractor *		Well Contractor's License Number *	
Aardvark Drilling Inc.		7675	
Business Address			
Unit Number	Street Number	Street Name *	
C	25	Lewis Road	
City/Town/Village *		Province	Postal Code *
Guelph		ON	N1H 1E9
Business Telephone Number	Business Email Address		
519-826-9340	info@aardvarkdrillinginc.com		
Last Name of Well Technician *	First Name of Well Technician *	Well Technician's License Number *	
Tabbert	Devin	4557	

16. Declaration *

☒ I hereby confirm that I am the person who constructed the well and I hereby confirm that the information on the form is correct and accurate.

Last Name	First Name	Email Address
England	Matthew	mengland@aardvarkdrillinginc.com
Signature		Date Submitted (yyyy/mm/dd)
Matt England  Digitally signed by Matt England Date: 2023.04.12 09:20:13 -04'00'		2023/04/12

17. Ministry Use Only

Audit Number
UJW8 VM4D

Notice of Collection of Personal Information

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Fields marked with an asterisk (*) are mandatory.

Well Tag Number *

A219865

Type *

☒ Construction ☐ Abandonment

Measurement recorded in: *

☐ Metric ☒ Imperial

1. Well Owner's Information

Last Name and First Name, or Organization is mandatory. *

Last Name	First Name
Organization Aecon Construction and Materials Limited	Email Address

Current Address

Unit Number	Street Number * 4949	Street Name * Bank Street	City/Town/Village Gloucester
Country Canada	Province Ontario	Postal Code K1X 1G7	Telephone Number

2. Well Location

Address of Well Location

Unit Number	Street Number * 4949	Street Name * Bank Street	Township Gloucester
Lot	Concession	County/District/Municipality Carleton	
City/Town Gloucester	Province Ontario	Postal Code K1X 1G8	
UTM Coordinates NAD 83	Zone * 18	Easting * 454398	Northing * 5016664
		Municipal Plan and Sublot Number Test UTM in Map	
Other MW5-23			

3. Overburden and Bedrock Material *

Well Depth * 45	(ft)				
General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To

				(ft)	(ft)
Grey	Gravel	Sand		0	2
Grey	Limestone			2	45

4. Annular Space *

Depth From (ft)	Depth To (ft)	Type of Sealant Used (Material and Type)	Volume Placed (cubic feet)
0	34	Hole Plug	2.77
34	45	Sand	0.73

5. Method of Construction *

- ☐ Cable Tool ☐ Rotary (Conventional) ☐ Rotary (Reverse) ☐ Boring ☐ Air percussion ☐ Diamond
☐ Jetting ☐ Driving ☐ Digging ☒ Rotary (Air) ☒ Augering ☐ Direct Push
☐ Other (specify) _____

6. Well Use *

- ☐ Public ☐ Industrial ☐ Cooling & Air Conditioning
☐ Domestic ☐ Commercial ☐ Not Used
☐ Livestock ☐ Municipal ☒ Monitoring
☐ Irrigation ☐ Test Hole ☐ Dewatering
☐ Other (specify) _____

7. Status of Well *

- ☐ Water Supply ☐ Replacement Well ☐ Test Hole
☐ Recharge Well ☐ Dewatering Well ☒ Observation and/or Monitoring Hole
☐ Alteration (Construction) ☐ Abandoned, Insufficient Supply ☐ Abandoned, Poor Water Quality
☐ Abandoned, other (specify) _____
☐ Other (specify) _____

8. Construction Record - Casing * (use negative number(s) to indicate depth above ground surface)

Inside Diameter (in)	Open Hole or Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness	Depth From (ft)	Depth To (ft)
2	Plastic	0.25	0	35

9. Construction Record - Screen

Outside Diameter (in)	Material (Plastic, Galvanized, Steel)	Slot Number	Depth From (ft)	Depth To (ft)
2	Plastic	10	35	45

10. Water Details

Water found at Depth 1.5 (ft)	☐ Gas	Kind of water	☐ Fresh	☐ Untested	☐ Other
Water found at Depth 33	☐ Gas	Kind of water	☐ Fresh	☐ Untested	☐ Other

11. Hole Diameter

Depth From (ft)	Depth To (ft)	Diameter (in)
0	2	8
2	45	4

12. Results of Well Yield Testing

☐ Pumping Discontinued

Explain _____

If flowing give rate

☐ Flowing _____ (GPM)

Draw down

Time (min)	Static Level	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)														

Recovery

Time (min)	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)													

After test of well yield, water was

☐ Clear and sand free ☐ Other (specify)

Pump intake set at (ft)	Pumping rate (GPM)	Duration of pumping hrs + min	Final water level end of pumping (ft)	Disinfected? * ☐ Yes ☒ No
Recommended pump depth (ft)	Recommended pump rate (GPM)	Well production (GPM)		

13. Map of Well Location *

Map 1. Please Click the map area below to import an image file to use as the map. ☐ Make map area bigger



14. Information

Well owner's information package delivered ☐ Yes ☐ No	Date Package Delivered (yyyy/mm/dd)	Date Work Completed (yyyy/mm/dd) *
		2023/03/28
Comments		

15. Well Contractor and Well Technician Information

Business Name of Well Contractor *		Well Contractor's License Number *	
Aardvark Drilling Inc.		7675	
Business Address			
Unit Number	Street Number	Street Name *	
C	25	Lewis Road	
City/Town/Village *		Province	Postal Code *
Guelph		ON	N1H 1E9
Business Telephone Number	Business Email Address		
519-826-9340	info@aardvarkdrillinginc.com		
Last Name of Well Technician *	First Name of Well Technician *	Well Technician's License Number *	
Tabbert	Devin	4557	

16. Declaration *

☒ I hereby confirm that I am the person who constructed the well and I hereby confirm that the information on the form is correct and accurate.

Last Name	First Name	Email Address
England	Matthew	mengland@aardvarkdrillinginc.com
Signature		Date Submitted (yyyy/mm/dd)
 Digitally signed by Matt England Date: 2023.04.12 09:17:58 -04'00'		2023/04/12

17. Ministry Use Only

Audit Number
O85E RJ9U

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Fields marked with an asterisk (*) are mandatory.

Well Tag Number *

A219866

Type *

☒ Construction ☐ Abandonment

Measurement recorded in: *

☐ Metric ☒ Imperial

1. Well Owner's Information

Last Name and First Name, or Organization is mandatory. *

Last Name	First Name
Organization Aecon Construction and Materials Limited	Email Address

Current Address

Unit Number	Street Number * 4949	Street Name * Bank Street	City/Town/Village Gloucester
Country Canada	Province Ontario	Postal Code K1X 1G7	Telephone Number

2. Well Location

Address of Well Location

Unit Number	Street Number * 4949	Street Name * Bank Street	Township Gloucester
Lot	Concession	County/District/Municipality Carleton	
City/Town Gloucester	Province Ontario	Postal Code K1X 1G8	
UTM Coordinates NAD 83	Zone * 18	Easting * 454374	Northing * 5016605
		Municipal Plan and Sublot Number Test UTM in Map	
Other MW1-23			

3. Overburden and Bedrock Material *

Well Depth * 66	(ft)				
General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To

				(ft)	(ft)
Brown	Gravel	Sand		0	8
Grey	Limestone			8	66

4. Annular Space *

Depth From (ft)	Depth To (ft)	Type of Sealant Used (Material and Type)	Volume Placed (cubic feet)
0	53	Hole Plug	5.59
53	55	Pellet Plug	0.13
55	66	Sand	0.73

5. Method of Construction *

- ☐ Cable Tool ☐ Rotary (Conventional) ☐ Rotary (Reverse) ☐ Boring ☐ Air percussion ☐ Diamond
☐ Jetting ☐ Driving ☐ Digging ☒ Rotary (Air) ☒ Augering ☐ Direct Push
☐ Other (specify) _____

6. Well Use *

- ☐ Public ☐ Industrial ☐ Cooling & Air Conditioning
☐ Domestic ☐ Commercial ☐ Not Used
☐ Livestock ☐ Municipal ☒ Monitoring
☐ Irrigation ☐ Test Hole ☐ Dewatering
☐ Other (specify) _____

7. Status of Well *

- ☐ Water Supply ☐ Replacement Well ☐ Test Hole
☐ Recharge Well ☐ Dewatering Well ☒ Observation and/or Monitoring Hole
☐ Alteration (Construction) ☐ Abandoned, Insufficient Supply ☐ Abandoned, Poor Water Quality
☐ Abandoned, other (specify) _____
☐ Other (specify) _____

8. Construction Record - Casing * (use negative number(s) to indicate depth above ground surface)

Inside Diameter (in)	Open Hole or Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness	Depth From (ft)	Depth To (ft)
2	Plastic	0.25	0	56

9. Construction Record - Screen

Outside Diameter (in)	Material (Plastic, Galvanized, Steel)	Slot Number	Depth From (ft)	Depth To (ft)
2	Plastic	10	56	66

10. Water Details

Water found at Depth 5	(ft)	☐ Gas	Kind of water	☐ Fresh	☐ Untested	☐ Other
Water found at Depth 57		☐ Gas	Kind of water	☐ Fresh	☐ Untested	☐ Other

11. Hole Diameter

Depth From (ft)	Depth To (ft)	Diameter (in)
0	8	8
8	66	4

12. Results of Well Yield Testing

☐ Pumping Discontinued

Explain _____

If flowing give rate

☐ Flowing _____ (GPM)

Draw down

Time (min)	Static Level	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)														

Recovery

Time (min)	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)													

After test of well yield, water was

☐ Clear and sand free ☐ Other (specify)

Pump intake set at (ft)	Pumping rate (GPM)	Duration of pumping hrs + min	Final water level end of pumping (ft)	Disinfected? * ☐ Yes ☒ No
Recommended pump depth (ft)	Recommended pump rate (GPM)	Well production (GPM)		

13. Map of Well Location *

Map 1. Please Click the map area below to import an image file to use as the map. ☐ Make map area bigger



14. Information

Well owner's information package delivered ☐ Yes ☐ No	Date Package Delivered (yyyy/mm/dd)	Date Work Completed (yyyy/mm/dd) *
		2023/03/28
Comments		

15. Well Contractor and Well Technician Information

Business Name of Well Contractor *		Well Contractor's License Number *	
Aardvark Drilling Inc.		7675	
Business Address			
Unit Number	Street Number	Street Name *	
C	25	Lewis Road	
City/Town/Village *		Province	Postal Code *
Guelph		ON	N1H 1E9
Business Telephone Number	Business Email Address		
519-826-9340	info@aardvarkdrillinginc.com		
Last Name of Well Technician *	First Name of Well Technician *	Well Technician's License Number *	
Tabbert	Devin	4557	

16. Declaration *

☒ I hereby confirm that I am the person who constructed the well and I hereby confirm that the information on the form is correct and accurate.

Last Name	First Name	Email Address
England	Matthew	mengland@aardvarkdrillinginc.com
Signature		Date Submitted (yyyy/mm/dd)
Matt England <i>Digitally signed by Matt England</i> <i>Date: 2023.04.12 09:19:07 -04'00'</i>		2023/04/12

17. Ministry Use Only

Audit Number
YTCY BLDC