

Hydrogeological Existing Conditions Report

Proposed Residential Development

5993 & 6115 Flewellyn Road & 6030 & 6070 Fernbank
Road

Ottawa, Ontario

Prepared for Caivan (Stittsville South) Inc. & Caivan
(Stittsville West) Ltd.

Report PH4625-REP.01.R2
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1.0 Introduction

Paterson Group (Paterson) was retained by Caivan (Stittsville South) Inc. and Caivan (Stittsville West) Ltd. to complete a hydrogeological study for the proposed residential development to be located at 5993 and 6115 Flewellyn Road and 6030 and 6070 Fernbank Road, in the City of Ottawa, Ontario (hereinafter referred to as the “subject site”).

The purpose of this report is to characterize the hydrogeological setting of the subject site, with respect to bedrock and surficial geology, aquifers, aquitards, horizontal and vertical flow patterns, existing groundwater use, and aquifer vulnerability, in support of the 5993 and 6115 Flewellyn Road and 6030 and 6070 Fernbank Road Community Urban Expansion.

1.1 Scope of Work

Paterson has completed this report in accordance with Sub-section 4.2 of the finalized Geotechnical and Hydrogeological Investigation Terms of Reference (GHI TOR), prepared for the City of Ottawa and the Rideau Valley conservation Authority (RVCA). As per the GHI TOR, the purpose of the hydrogeological study is to assist in maintaining the current hydrogeologic function of the subject site. As per the GHI TOR, the study will provide a summary of existing hydrogeological conditions and identify the following:

- ☐ Hydraulic conductivities and aquifer characteristics
- ☐ Groundwater levels and seasonal fluctuations
- ☐ Hydraulic gradients
- ☐ Delineation of the aquifer
- ☐ Vulnerability of aquifers encountered
- ☐ Zones of influence for potential dewatering
- ☐ Water supply wells and the potential risk of impacts to these wells from the proposed development
- ☐ Sites identified by environmental site assessments as potential sources of groundwater contamination
- ☐ Key locations to conduct sampling and monitoring of baseline groundwater quality (i.e. Subdivision Packages, PHC's, BTEX and VOC's)
- ☐ Recharge/potential infiltration areas and mitigation measures

2.0 Previous Reports

In addition to a review of the general literature in the following sections and in the 'References' section of this report (MECP water well database, available geological and physiographic mapping, City of Ottawa Official Plan), Paterson reviewed the following reports:

- ❑ The Jock River - Reach Two Subwatershed - Phase 1 Report (Marshall Macklin Monaghan Limited and WESA, 2009)
- ❑ Paterson Geotechnical Report PG5570-2 Revision 4 - Flewellyn Road - (August 7, 2024)
- ❑ Paterson Geotechnical Report PG2802-1 - Maguire Lands - Hartsmere Drive (November 2012) - As part of D07-16-13-0033.
- ❑ Paterson Geotechnical Report PG2853-1 - Proposed Residential Development - Stittsville Main Street (January 2013) - As part of D07-16-13-0033.
- ❑ Paterson Geotechnical Report PG2983-1 - Faulkner Lands - Fernbank Road at Main Street (July 2013) - As part of D07-16-13-0033.
- ❑ Houle Chevrier Engineering - Technical Memorandum - Hydrogeological Study - (D007-16-13-0033) - Area 6, Stittsville South (April 2015) - As part of D07-16-13-0033.
- ❑ Houle Chevrier Engineering - Report on Private Well Monitoring Program Stittsville South Residential Development and Stormwater Management Pond - (November 2015) - As part of D07-16-15-0008.

3.0 Method of Investigation

3.1 Records Review

A review of available physiographic, geological, and hydrogeological data was completed as a part of this assessment. As discussed above, the literature review and previous reports provided a regional overview regarding the overburden and bedrock aquifers that included the subject site. Further detail is provided in following sections.

3.2 Field Program

A field program was developed to assess geology, groundwater conditions, and hydraulic gradients in the overburden and bedrock at the subject site. The test holes were advanced to various depths at the subject site to assess hydrogeological conditions at the approximate depth of the proposed construction activities at the site. A supplemental field program was performed to provide additional hydraulic properties of the surficial soils and bedrock at the subject site.

The initial field programs were carried out between November 2020 and January 2022. At that time, a total of thirty-eight (38) boreholes and eighteen (18) test pits were advanced to a maximum depth of 10.2 m below ground surface (bgs).

A supplemental field program was completed between September to October 2022 consisted of advancing seven (7) boreholes and one (1) hand auger hole to a maximum depth of 9.1 m bgs, completing permeameter tests at twelve (12) locations across the subject site, installing data loggers and slug testing the monitoring well installations. A total of twenty-four (24) Pask Permeameter tests were conducted at 12 testing locations across the subject site at depths between 0.3 to 0.6 m bgs.

The test holes for both field investigations were distributed in a manner to provide general coverage of the subject site.

Of the test holes completed on site, fourteen (14) were instrumented with monitoring wells. The test hole locations are shown on Drawing PG5570-1 - Test Hole Location Plan, located in Appendix 2.

The initial field program was completed between November 2020 to January 2022 and the supplemental program was completed between September to October 2022. The boreholes were advanced using a low clearance drill rig operated by a two-person crew while the test pits were advanced using a hydraulic shovel excavator. Both drilling and excavating occurred under full-time supervision of Paterson personnel. Soil samples were obtained from test holes by means of grab sampling, split spoon or 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 depths at which grab, split spoon, auger flight and rock core samples were obtained from the test holes are shown as "**G**", "**SS**", "**AU**" and "**RC**" respectively on the Soil Profile and Test Data Sheets, appended to this report in Appendix 2.

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 soil after a 150 mm initial penetration using a 63.5 kg hammer falling from a height of 760 mm.

All soil 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 Soil Samples.

Rock core samples were recovered from select boreholes (BH1-21, BH2-21, BH3-21, BH22A-21, BH24-21, BH33-21, BH34-21, BH1-22, BH2-22, BH3-22, BH4-22 and BH5-22) drilled during the geotechnical investigations 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 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.

Subsurface conditions observed in the test holes were recorded in detail in the field. Reference should be made to the Soil Profile and Test Data sheets presented in Appendix 2 for specific details of the soil profile encountered at the test hole locations.

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).

A total of 8 split spoon samples were submitted for grain size analyses from the initial investigation. A total of 2 split spoon samples and 2 grab samples were submitted for resistivity, pH, sulphate and chloride analyses. The supplemental investigation included an additional 4 aggregated surficial soil samples that were

submitted for grain size analyses. The testing was performed in general accordance with ASTM C117 Test Method for Materials Finer Than 75- μ m (No. 200) Sieve in Mineral Aggregates and Washing and ASTM C136 - Test Method for Sieve Analysis of Fine and Coarse Aggregates. Grain size analysis results are appended to this report. Based on the soil descriptions encountered across the subject site during the various geotechnical and hydrogeological investigations and based on the spatial distribution of the above-noted samples, these samples are considered to be sufficiently representative of the subject site. Grain size, resistivity, pH, sulphate and chloride analyses can be found in Appendix 2.

3.4 Monitoring Well Installation

A total of 13 groundwater monitoring wells were installed by George Downing Estate Drilling of Hawkesbury, Ontario under the full-time supervision of Paterson personnel. The monitoring wells consisted of 51 mm diameter Schedule 40 threaded PVC risers and screens. A sand pack consisting of silica sand was placed around the screen, and a bentonite seal was placed above the screen and extended to ground surface to minimize cross-contamination.

An additional shallow groundwater monitor was installed using a hand auger to measure shallow overburden water levels at the west side of the subject site.

Monitoring well construction details are provided on the Soil Profile and Test Data Sheets appended to this report.

3.5 Piezometer Installation

Flexible polyethylene standpipes were installed in select boreholes to permit the monitoring of groundwater levels subsequent to the completion of the initial field program.

3.6 Groundwater Level Measurement

Groundwater levels were measured at the piezometer installations after the initial field investigation and at the monitoring well installations as part of both field investigations using an electronic water level meter. Groundwater levels were measured relative to the ground surface elevation at each monitoring installation. Groundwater levels at all locations are summarized in Table 1 appended in the Tables section of this report.

Multiple groundwater level measurement events have been completed to date with measurements occurring between January 2022 to May 2023. Groundwater levels in piezometers and the monitoring wells varied between 0.6 to 2.8 m below ground surface (bgs) and 0.0 to 3.7 m bgs, respectively.

Long term groundwater monitoring was undertaken using the VanEssen TD-Diver Water Level Datalogger (10 m) at the fourteen monitoring well locations between October 2022 and May 2023. The monitoring data is presented in Figures 1-12 appended in the Figures section of this report.

3.7 Hydraulic Conductivity Testing

Hydraulic conductivity testing was completed in select monitoring wells installed during both subsurface 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 in October 2022 by Paterson personnel. The general test method consisted of the measurement of the static water level in the well, followed by inducing a near-instantaneous change of head in the monitoring well and subsequent monitoring of water level recovery with an electronic water level tape and a Mini Diver water level 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 as per the method set out by Hvorslev (1951). Assumptions inherent in the Hvorslev method include a homogeneous and isotropic aquifer of infinite extent, zero-storage assumption, and a screen length significantly greater than the monitoring well diameter. The assumption regarding aquifer storage is considered to be appropriate for groundwater flow through the overburden and bedrock aquifer. 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, and isotropy 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.

Based on the above test methods, the overburden and bedrock monitoring wells displayed hydraulic conductivity values ranging from 4.2×10^{-6} to 2.2×10^{-5} m/sec and 4.3×10^{-7} to 1.6×10^{-4} m/sec, respectively. The hydraulic conductivity test

results can be found in Appendix 4 as well as in a summary table (Table 2) appended in the Tables section of this report.

3.8 Pask Permeameter Testing

Permeameter testing was conducted using a Pask (Constant Head Well) Permeameter in September 2022. An 83 mm diameter hole was excavated using a Riverside/Bucket auger to a depth of 0.3 m bgs and a separate hole was excavated to a depth of 0.6 m bgs at 12 locations. All soil from the auger flights were visually inspected and initially classified on site. The permeameter reservoir was filled with water and inverted into the hole, ensuring it was relatively vertical and rests on the bottom of the hole. The water level of the reservoir was monitored at 1-minute intervals until the rate of fall out of the permeameter reached equilibrium, known as quasi “steady state” flow rate. Quasi steady state flow can be considered to have been obtained after measuring 3 to 5 consecutive rate of fall readings with identical values. The values for the steady state rate of fall were recorded for each location.

Preparation and testing of this investigation are in accordance with the Canadian Standards Association (CSA) B65-12 - Annex E. The hydraulic conductivity (K_{fs}) values for each test hole location are presented in Table 2.

Hydraulic conductivity values were determined using Engineering Technologies Canada (ETC) Ltd. reference tables provided in the most recent ETC Pask Permeameter User Guide dated March 2016.

Based on the above testing, field saturated hydraulic conductivity values (K_{fs}) in the test holes ranged from 1.1×10^{-7} to 6.4×10^{-6} m/sec at a depth of 0.3 m and $\leq 8.3 \times 10^{-9}$ to 5.9×10^{-6} m/sec at a depth of 0.6 m. A summary of field saturated hydraulic conductivity results can be found in Table 3 appended in the Tables section of this report.

The field saturated hydraulic conductivity test results have been shown to be lower than the saturated hydraulic conductivity values typically measured. Reynolds (1993) has shown that the K_{fs} value can be less than or equal to half of K_s due to partial blocking of soil pores by air bubbles.

3.9 Stable Isotope Investigation

Stable isotopes, specifically deuterium (^2H) and oxygen-18 (^{18}O), are a useful tool to trace the water cycle and identify potential groundwater recharge and/or discharge zones. The ^2H and ^{18}O signature of local meteoric water will vary seasonally, apposed to the ^2H and ^{18}O signature of groundwater which remains constant (an average of local meteoric water). By comparing site specific isotope results to local meteoric water results, we can determine if surface water features are primarily impacted by groundwater or precipitation derived discharge.

A select number of monitoring wells were sampled for stable isotopes, specifically, deuterium (^2H) and oxygen-18 (^{18}O), to provide insight on groundwater recharge and discharge at the subject site. Prior to collecting each sample, a minimum of three well volumes were purged from the well to ensure that the sample was representative of the groundwater system. Once the well was developed and deemed to contain a representative sample, a 500 mL polyethylene sample bottle was filled with minimal to no headspace and refrigerated until it was submitted to the lab for isotopic analyses.

4.0 Review and Evaluation

4.1 Physical Setting

The subject site is a mix of agricultural land, forested areas, and a hydro corridor. The western portion of the proposed residential development consists of forested areas. There is a Stormwater Management Pond (SWMP) located adjacent to the northwestern boundary of the proposed residential development with the outlet extending southeast between the subject site parcels. The hydro corridor extends in a northerly direction across the site with a second SWMP located centrally on property owned by others. The eastern portion of the study area consists of a cleared area that has been converted into agricultural land. Northwest of the subject site has municipal services with existing and proposed residential developments. An existing, privately serviced residential development with country estate lots is located to the west of the proposed residential development. Shea Road is located to the east of the proposed residential development while Flewellyn Road is located to the south.

The subject site has topographical relief extending from the west corner of the site that ranges from approximately 109 m asl down to 102 m asl in the east corner. The ground surface exhibits a greater slope in the west portion of the site with a reduced slope extending eastward.

The Faulkner Drain transects the subject site from the northwest to the southeast. The west corner of the site contains a small shallow man-made excavation that was likely used for private aggregates. The excavation has been observed to be filled with water with a connection noted to extend to a man-made drainage ditch leading to the Faulkner Drain.

According to available mapping, the region is generally characterized by non-cohesive material with glaciomarine deposits which is generally consistent with field observations at the subject site. To the north, a small portion of the region is characterized by glacial till deposits which is generally consistent with field observations at the subject site.

4.2 Geology

4.2.1 Surficial Geology

The surficial geology mapping of the National Capital Region provided by the Ontario Geologic Survey was reviewed as a part of this assessment. Available mapping indicates that overburden soils at the subject site consist primarily of glaciomarine deposits with fine grained material to the east and coarse-grained material to the west. To the north, a small portion of the subject site consists of glacial till. Overburden soils mapping is shown on Drawing PH4625-1 - Surficial Geology Plan in Appendix 3.

Overburden soils identified by the geotechnical investigations by Paterson were generally consistent with the available mapping. Overburden thickness was observed to extend from 0.3 to 6.1 m bgs across the subject site, with available mapping indicating between 0 to 10 m of soil generally present which is shown on Drawing PH4625-2 - Overburden Drift Thickness Plan in Appendix 3. The overburden generally consisted of topsoil over silty sand to a sandy silt deposit underlain by glacial till. Clay was observed interbedded with the sandy silt layer on the eastern portion of the subject site. All layers were not observed in all test holes.

Specific details are provided on the Soil Profile and Test Data Sheets appended to this report in Appendix 2.

4.2.2 Bedrock Geology

Bedrock mapping, provided by Ontario Geologic Survey of the National Capital Region was reviewed as a part of this assessment. Available mapping indicates that bedrock across the subject site consists of limestone, dolostone, shale and sandstone of the Gull River Formation (Middle Ordovician). The Gull River Formation is a member of the Simcoe Group. Bedrock Geology mapping is shown on Drawing PH4625-3 - Bedrock Geology Plan in Appendix 3.

Bedrock was encountered and cored during the geotechnical investigations and was generally consistent with available mapping. Bedrock was encountered between 0.8 to 6.0 m bgs across the subject site and cored to a maximum depth of 10.2 m bgs. Shallower bedrock was encountered within the western portion of the subject site and deeper bedrock within the eastern portion. Generally, bedrock was characterized as excellent quality dolostone interbedded with limestone across the subject site. Bedrock depths are identified on the appended Drawing PG5570-2 - Bedrock Contour Plan.

4.2.3 Karst Features

The term 'karst' refers to a geologic formation characterized by the dissolution of carbonate bedrock, such as limestone. Based on a review of Ontario Geological Survey available mapping, a small area within the western portion of the subject site is inferred to contain karst, while the remainder of the site falls within an area that can potentially contain karst. It should be noted that no evidence of karstification was observed at the time of the field investigations completed at the subject site. Site specific testing provides better resolution than high level mapping as well as our experience at other sites in the area, it is our opinion that the subject site does not contain karst.

4.3 Hydrogeological Setting

4.3.1 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. The overburden soils at the subject site are relatively shallow and consist of moderate hydraulic conductivities with lower value materials on the east side of the subject site. Given the limited thickness and available quantity of groundwater within the overburden aquifer, it is not considered an adequate source for water supply wells. The domestic water wells surrounding the subject site are accessing the bedrock aquifers.

Based on a review of the MECP water well record database, Paterson has identified one aquifer system in the vicinity of the study area which consists of the underlying bedrock aquifer. The Gull River Formation aquifer system is located over the entirety of the study area. The majority of water wells are completed at greater depths within the bedrock unit.

This assessment will address the overburden aquifer and maintaining the existing water balance in order to protect existing water users/uses and the quantity/quality. The existing man-made excavation, as previously noted, allows a mixture of precipitation and limited volumes of shallow groundwater to daylight to surface. It currently allows for localized surficial flows to be directed to an unnamed man-made drainage ditch that connects to the Faulkner Drain. Isotope testing results, which are presented in Section 4.3.6.1, and the high RQD values observed in the bedrock aquifer support the interpretation that this man-made surface water feature is primarily impacted by surficial flows and surface water runoff. Construction of servicing and building excavations are expected to contribute to altering the existing flow paths and would limit the ability of the man-made water feature to function in the same manner. However, limiting the surficial contributions to this man-made surface water feature will not have an impact to the overall hydrogeological function of the site given that shallow groundwater will continue to flow laterally at the bedrock interface until it is discharged at the Faulkner Drain or roadside ditch.

4.3.2 Groundwater Levels

Piezometers and monitoring wells were placed across the study area for the purpose of monitoring groundwater levels. The piezometers were installed in the overburden and the monitoring wells were installed in the bedrock. Groundwater levels were observed to be between 0.6 to 2.8 m bgs in the piezometers and between 0.0 to 3.7 m bgs in the monitoring wells. The initial groundwater levels are shown on the Soil Profile and Test Data Sheets appended to this report in Appendix 2. Groundwater elevations that were collected on October 11, 2022,

were used to determine hydraulic gradients which are displayed in Table 4, Table 4b and Table 5 appended in the Tables section of this report, and to determine a general groundwater flow direction at the subject site which is shown on Paterson Drawing PH4625-5 - Groundwater Contour Plan within Appendix 3.

The water level monitoring program provides an overview of the variations in the monitoring well water levels based upon seasonal fluctuations. The manual measurements from the monitoring program are summarized in Table 1 at the end of this report.

The monitoring program extended from October 2022 to May 2023. The monitoring data was compared with Environment and Natural Resources Canada precipitation data from the Ottawa International Airport over the same timeframe as part of the monitoring program. The monitoring data is presented in Figures 1-12 appended in the Figures section of this report.

It is our interpretation that saturated conditions in the permeable overburden soils represent the existing water table at the subject site with the potential for minor groundwater lowering due to servicing installation and a typical minor water budget deficit after development. Groundwater levels in overburden soils are expected to vary seasonally and provide insignificant recharge to the underlying bedrock aquifer. Localized perched water conditions should lower during periods of low precipitation and increase during greater precipitation events. It should be noted that groundwater within the shallow overburden aquifer is expected to flow laterally at the bedrock interface until it is discharged at the Faulkner Drain or roadside ditch.

4.3.3 Horizontal Hydraulic Gradients

The direction of hydraulic gradients shows that groundwater flow travels predominantly from west to east towards the eastern corner of the subject site. The study area is located within the Flowing Creek subwatershed where local groundwater flow is generally in an eastward direction towards the Faulkner Drain. Regional groundwater flow is also in an eastward direction towards the Jock River.

The overburden and bedrock groundwater flow in the vicinity of the study area is considered to partially reflect local topography and subwatershed regional boundaries. The horizontal hydraulic gradient in the bedrock was observed to be in a general eastward direction with increased values within the western portion of the subject site. The bedrock horizontal gradients ranged from approximately 0.001 to 0.026 m/m. As for the horizontal hydraulic gradient in the overburden material, it was interpreted to have a similar magnitude and direction as the bedrock given the similarities in groundwater levels at the nested well locations. The overburden horizontal gradient was measured to be approximately 0.006 m/m east. A summary of the site values can be found in Table-4 - Horizontal Hydraulic Gradient Summary appended in the Tables section of this report.

4.3.4 Vertical Hydraulic Gradients

Vertical hydraulic gradients were calculated within two nested well installations across the study area. BH 1-22 and BH 1A-22 (west area of the study area) had a vertical upward gradient of approximately 0.011 to 0.015 m/m while BH 3-22 and BH 3A-22 (east area of the study area) had a vertical downward gradient of 0.004 to 0.035 m/m. It is anticipated that the vertical gradient observed in the west portion of the site is due to the higher topography to the west of the subject site providing additional head where groundwater may daylight in areas such as the man-made excavation observed in the west portion of the site. The eastern portion of the site is showing a slight downward gradient which is indicative of the overburden providing insignificant recharge to the underlying bedrock aquifer. A summary of the vertical gradients is displayed in Table 5 - Vertical Hydraulic Gradient Summary appended in the Tables section of this report.

4.3.5 Hydraulic Conductivity

Based on the field hydraulic conductivity testing undertaken as part of this assessment, the hydraulic conductivity of the overburden materials were observed to range between 4.2×10^{-6} m/sec to 2.2×10^{-5} m/sec while the hydraulic conductivity of the bedrock were observed to range between 4.3×10^{-7} to 1.6×10^{-4} m/sec. These values are consistent with tabulated values from Freeze and Cherry (1979) and field values encountered at similar sites. A summary of the hydraulic conductivity results can be found in Table 2 in appended in the Tables section of this report.

To determine the field hydraulic conductivity of the unsaturated soils at the subject site, Pask Permeameter testing was conducted at depths of 0.3 and 0.6 m bgs. Twelve test locations were identified across the subject site to provide general coverage of surficial K_{fs} values.

The test results showed the surficial field saturated hydraulic conductivity ranged from 1.1×10^{-7} to 6.4×10^{-6} m/sec at a depth of 0.3 m and $\leq 8.3 \times 10^{-9}$ to 5.9×10^{-6} m/sec at a depth of 0.6 m. The values observed at 0.6 m depth were generally lower than the values at 0.3 m depth. Highest surficial field saturated values were observed within the western portion of the subject site indicating that the western portion of the site will exhibit more permeable characteristics than the eastern portion of the subject site. A summary of the surficial field saturated hydraulic conductivity results can be found in Table 3 appended in the Tables section of this report.

The hydraulic conductivity testing results suggest that the overburden materials act as a permeable layer to predominantly transmit groundwater in a horizontal direction with insignificant recharge to the bedrock layer below. Due to the higher RQD values noted, the recharge to the bedrock aquifer is anticipated to be

negligible. Based on the available information, the overburden soils will generally behave as an unconfined aquifer.

4.3.6 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.

Based on field saturated hydraulic conductivity testing in the overburden soils, the overburden soils are considered to have a moderate hydraulic conductivity, which are mapped as a significant groundwater recharge area (SGRA). The Mississippi-Rideau Source Protection Region (MRSPR) SGRA mapping shows that the site area mapped as a recharge area is negligible compared to the overall SGRA zones. Site specific testing shows that subject site is underlain by high RQD bedrock which supports the interpretation that the significance of the recharge to the bedrock aquifer is insignificant given most of the surficial groundwater flow occurs laterally at the bedrock interface until it is discharged at the Faulkner Drain. It should be noted that site specific testing provides better resolution than the high level SGRA mapping provided by the MRSPR.

It is our interpretation that precipitation will intercept the soil surface where it will flow vertically downward through the unsaturated surficial soils to the groundwater table before travelling laterally through the overburden aquifer at the bedrock interface. There is inferred minor groundwater discharge to a man-made surface water feature in the western portion of the subject site due to topographic variations, however, is expected to be limited in nature due to the isotope results discussed in Section 4.3.6.1. This man-made surface water feature has a negligible impact to the overall hydrogeologic function of the subject site.

The vertical gradients observed at the site support the general assertion that the site provides recharge to the shallow overburden aquifer and insignificant recharge to the bedrock aquifer with a limited area of groundwater discharge to the west. This limited area of groundwater discharge is considered to be insignificant with respect to the overall hydrogeologic system.

The study area intersects one subwatershed as previously mentioned and will have flow generally travelling in an eastward direction within the western portion of the subject site, and in a southeastern direction within the eastern portion of the subject site, towards the Faulkner Drain which is tributary to the Jock River.

The presence of overburden soils with moderate hydraulic conductivity overlying the bedrock aquifer units are considered to provide the potential for insignificant groundwater recharge in these areas. It should be noted that the subject site is not identified by the MRSPR as a drinking water protection zone.

Based on the foregoing, groundwater recharge from ground surface to the bedrock aquifer units are considered to extend well beyond the boundary of the study area.

Additional measures to maintain post-development recharge should be reviewed by the Civil Consultant based on the soil properties and water budget information. The shallow bedrock, perched groundwater in the shallow overburden, and high RQD values may make it impractical to use infiltrating Low Impact Development (LID) measures on the site. The use of best management practices (BMP) should be used for stormwater quality and quantity control to assist in infiltrating clean water, treating salt impacted water where possible or redirecting salt impacted water away from the SGRA during seasonal periods with expected elevated salt levels.

4.3.6.1 Isotopes - Deuterium and ^{18}O

Isotope testing was conducted to provide further review of the groundwater flow regime. By comparing the isotopic sample results to the Local Meteoric Water Line (LMWL), interpretations about potential groundwater recharge and discharge zones can be made. A LMWL shows the relationship between ^2H and ^{18}O in precipitation for a specific geographic region, in this case Ottawa. Water features that are largely impacted by precipitation events will generally consist of a ^2H and ^{18}O signature that is similar to the ^2H and ^{18}O isotopes associated with that specific event. However, groundwater will generally have a ^2H and ^{18}O signature similar to the average ^2H and ^{18}O value of the LMWL. Therefore, it is expected that precipitation derived water ^2H and ^{18}O values will show seasonal variability where groundwater will not. Assessing temporal trends in the isotopic data will provide insight on potential discharge and recharge zones at the subject site.

To date, samples were collected from the man-made surface water feature and adjacent monitoring wells on October 28, 2022, December 5, 2022, February 1, 2023, April 4, 2023 and May 30, 2023. The results show that the bedrock water well samples collected during the sampling events all have similar ^2H and ^{18}O signatures. Therefore, it is apparent that the bedrock monitoring well samples are representative of the local bedrock groundwater system given the lack of seasonal variability in the isotope results. The samples collected from the man-made surface water feature had different ^2H and ^{18}O signatures between the sampling events, showing a more depleted isotopic signature in the winter than the fall and spring. The evolution in the surface water feature's isotopic signature follows the same trend as local meteoric waters, therefore, indicating that the man-made surface water feature is likely impacted by precipitation derived water within the overburden soil with minimal influence from bedrock aquifer discharge. Stable isotope results can be found in Figures 13-16: $\delta^2\text{H}/\delta^{18}\text{O}$ Results, appended to this report.

4.3.7 Gravity Driven Flow Paths

The potential for large-scale gravity driven flow pathways was assessed as part of this investigation. The majority of the study area consists of moderately permeable

material characterized by coarse to fine-grained non-cohesive glaciomarine deposits. The site-specific geological data and hydraulic conductivity testing confirmed the properties of the permeable subsoils across the site. However, localized conditions within the overburden material show variations in the hydraulic conductivity values at the subject site. Regions with more cohesive soils and higher percentages of fine-grained soils have lower hydraulic conductivity values than areas with non-cohesive soils.

The groundwater flow over the study area is considered to be predominantly lateral and with some influence due to topography. Infiltration of groundwater from the overburden material to the underlying bedrock aquifer is considered to be negligible.

4.3.8 Impact of Proposed Development on Surrounding Wells

As a component of this investigation, a review of water well records in the vicinity of the subject site was conducted, using the Ministry of the Environment, Conservation and Parks (MECP) online water well record search tool. Water well records within 500 m of the subject site can be found in Appendix 5, and the locations of the water wells provided by MECP's mapping tool are shown on the attached Drawing PH4625-4 - MECP Water Well Location Plan in Appendix 3.

If service trench dewatering is necessary, the radius of influence of the dewatering of service trench excavations can be estimated by using the Sichardt (1992) formula for unconfined aquifers:

$$R_0 = 3000[H - h_w]\sqrt{k}$$

Where R_0 (m) is the steady state radius of influence, H (m) is the thickness of the saturated aquifer, h_w (m) is the thickness of the dewatered aquifer and k (m/sec) is the hydraulic conductivity of the aquifer unit. The Sichardt formula assumes predominantly horizontal equipotential lines within the unconfined aquifer. This leads to increased accuracy for radius of influence approximations for the excavation being analyzed with increased distance from the dewatering source.

The hydraulic conductivity of the overburden materials was observed to range between 4.2×10^{-6} m/sec to 2.1×10^{-5} m/sec while the hydraulic conductivity of the bedrock was observed to range between 4.3×10^{-7} m/sec to 1.6×10^{-4} , respectively. The groundwater levels used for analysis purposes ranged from 0.6 to 4.4 m bgs with groundwater elevations varying seasonally. Groundwater varies seasonally and may be below the anticipated servicing and housing excavation depths at the time of development.

A steady state condition was used as the point of analysis; however, this condition may not be reached due to the typically short duration that servicing excavations are open prior to backfilling. Based on the above-noted assumed parameter values, radius of influence values for service trenches (maximum depth of 2 to 5

m below existing ground surface) within the development were estimated to be between 5 to 50 m.

A search of the Ontario Water Well Records online mapping database indicates there are several wells within 500 m of the site as depicted on Drawing PH4625-4 - MECP Water Well Location Plan included in Appendix 3. The development to the northwest is municipally serviced and any wells in that area would be erroneously located. The development to the west of the subject site is privately serviced and is considered to be upgradient. A number of WWR for the adjacent subdivision have been placed at the previous centroid of the Lot/Concession where they were drilled with multiple well records mapped on top of one another. However, due to the estate lot sizing, the majority of the wells would be expected to be outside of the theoretical radius of influence and extend well below any proposed excavation depth.

A groundwater impact assessment completed at the detailed design stage will inform the baseline sampling program area. Typically, wells accessing deeper aquifers are at lower risk of impacts by construction dewatering activities due to the greater vertical separation between the dewatering zone and the zone(s) at which water was encountered in these wells. Existing developments have been constructed in the area and Paterson is unaware of negative impacts on private wells related to the previous dewatering / bedrock removal for pre or post development conditions.

The water wells shown on Drawing PH4625-4 - MECP Water Well Location Plan in Appendix 3 should be reviewed based upon available MECP mapping and well installation logs to determine potential monitoring locations.

4.3.9 Environmental Concerns

A review of environmental concerns was performed based upon known and potential concerns related to the subject site.

Brownfield Environmental Site Registry

A review of the MECP's Brownfield Environmental Site Registry did not identify any environmental concerns within a search radius of greater than 500 m of the subject site. Based on observations of Paterson staff during field work, no potential environmental concerns were identified with respect to the subject site. No visual or olfactory evidence of contamination was observed in the soil, groundwater, or bedrock at the subject site.

Agricultural Practices

There are active agricultural sites in the downgradient direction of the subject site; however, given the typical nature of agricultural activities in the Ottawa area,

agricultural practices are considered to have a low potential to impact groundwater quality at the subject site.

Existing Permits to Take Water

There are two Permits to Take Water (PTTW) within 500 m of the subject site. Two of these permits (MECP Reference Numbers - 2630-AUPJNY and 3353-A8KQF) are construction dewatering permits that are used on an intermittent basis during the construction of site servicing and storm ponds related to residential developments in the area. The closest developments are anticipated to have completed the majority of the servicing requirements. The approved daily water taking volumes for all sources is 16,491,000 L/day for Permit 2630-AUPJNY and 5,165,000 L/day for permit number.

Groundwater

The overburden aquifer consists of coarser grained non-cohesive soils to the west and fine grained more cohesive soils to the east and is considered a significant groundwater recharge area (SGRA) under the Clean Water Act (2006). As an SGRA, it is important to protect the aquifer from contaminating activities. In order to maintain the pre-development water balance, it is recommended that a restriction on land uses be considered and alternative winter road maintenance within the SGRA to reduce the potential road salting impacts.

Land Use Restrictions

The majority of the development is expected to consist of residential low-density construction and parks. The proposed land uses are not typically potentially contaminating activities. It is recommended that all potentially contaminating activities, as described within O. Reg. 153/04: Records of Site Condition - Part XV.1 of the Act as set out in Schedule D - Table 2, be restricted. These restrictions would prevent the placement of land uses such as storage of gasoline and related products in fixed tanks, commercial autobody shops, dry cleaning operations and salt manufacturing, processing and bulk storage.

Winter Road Maintenance

As the maintenance of safe roadways is required by law, a comprehensive system must be in place to clear roadways in a timely manner and using cost effective methods. Rock salt has been one of the most cost-effective approaches to maintaining safe and clear roadways, however, a balance must be struck that also minimizes the negative effects of road salt entering the surface water and aquifers. Source Water Protection (SWP) encourages that in areas where road salt application and snow storage would be a drinking water threat to a highly vulnerable aquifer. A Road Salt Management Plan should be prepared and

implemented in accordance with Environment Canada's Code of Practice for the Environmental Management of Road Salts (ECC PEMRS) dated 2004.

The ECC PEMRS provides recommendations to prevent and/or control actions related to the protection of the environment from road salts. The Transportation Association of Canada (TAC) produced a guideline called "Syntheses of Best Practices - Road Salt Management" (SBPRSM) dated April 2013. The ECC PEMRS recommends that existing salt management plans be compared with the SBPRSM and the most current recommended practices. As the City of Ottawa was one of the many proponents providing funding for the SBPRSM study, they may have ongoing implementation of recommended salt best management practices within the guidelines.

Best management practices are not considered as a requirement under the ECC PEMRS, however, consideration should be given to following the SBPRSM when in an SGRA in order to facilitate the infiltration of clean precipitation to meet the pre-development water balance. Additional benefits to the road authority for following the recommended practices include more efficient operations, improved roadway safety and savings in material usage.

There are many recommended practices listed within the SBPRSM to facilitate the protection of the environment and while all are applicable, some of the practices will yield better results. These include:

- ☐ Salt Management Plans
- ☐ Training
- ☐ Infrastructure Design
- ☐ Drainage
- ☐ Pavements and Salt Management
- ☐ Vegetation Management
- ☐ Design and Operation of Maintenance Yards
- ☐ Snow Storage and Disposal
- ☐ Winter Maintenance Equipment and Technologies
- ☐ Salt Use on Private Roads, Parking Lots and Walkways

A salt management plan is recommended to identify the optimum quantity of salt to apply to maintain road safety and minimize environmental impacts. The best method to reducing road salt entering the environment is to reduce the quantity of the salt application. Many technologies exist to facilitate salt reduction and should be considered for all areas in proximity to SGRA's.

Drainage design is important to control road salt entering the environment through overland drainage/storm sewer systems, infiltration into the ground and salt spray caused by traffic. Various management options can be found within the SBPRSM to be evaluated against the local conditions. Snow and ice control management

should be based upon pavement temperatures as they can fluctuate greatly depending on many conditions (i.e. time of day, cloud cover, sub-surface conditions etc.).

Snow removal over the winter occurs to increase safety and allow for future snow clearing storage adjacent to roadways. The snow that is removed can be impacted by ice control chemicals, oil/grease, heavy metals, litter, dirt and other pollutants. The SBPRSM notes that chlorides found in snow leave the snow soon after it is stockpiled along the roadside. The report does not specify the length of time before the chlorides leave the stockpiled snow. It is recommended that methods be reviewed that would reduce road salt application and provide removal of snow prior to chlorides leaving the roadway stockpiles unless the timeframe is unreasonable. In addition, snow removal should be deposited at an off-site location where meltwater would not be at risk of infiltrating into the SGRA.

Education of private contractors may also reduce potential salt effects due to the number of parking areas associated with institutional developments. It is recommended that a Smart About Salt certification be required for contractors operating within salt vulnerable areas.

The preceding recommendations are a brief summary of TAC's best practices for road salt management. Any design of a salt management plan should be done in accordance with the ECC PEMRS and SBPRSM guidelines.

The City of Ottawa Material Application Policy dated October 2011 is appended within Appendix 7. The application policy states that some minor collector and all residential roads will undergo the standard treatment for snow packed roadways. A snow packed roadway requires snow and ice be cleared after completion of the storm and abrasives applied at areas of concern.

The City of Ottawa policy provides a treatment standard for the majority of the roadways in the proposed development that fall under snow packed. The snow packed treatment will minimize the road salt potential and allow the capture of clean precipitation for infiltration without requiring treatment.

5.0 Assessment and Recommendations

Existing Wells

Existing water supply wells in the vicinity of the subject site are completed at depths well below the anticipated municipal servicing depths with WWRs noting that water-bearing zones were encountered below the anticipated servicing depths at the subject site. As such, these wells are considered to have a relatively low potential to be impacted by construction dewatering activities at the subject site. The majority of the wells are located upgradient of the subject site with potential impacts related to historical developments that are existing. It is expected that a baseline monitoring program will provide information on the existing water supply wells. The baseline sampling program would be completed as a due diligence measure during the detailed design stage with pre-consultation with the City hydrogeologist.

The proposed development of the subject site will be serviced by municipally supplied services. The assessment of the suitability of groundwater resources for the proposed development of the subject site was not considered.

The proposed development contains one water well believed to be erroneously located as per the MECP mapping available online. As such, decommissioning of existing on-site water wells may be required. These wells should be decommissioned by licensed water well contractors as per Ontario Regulation 903 (Wells) under the Ontario Water Resources Act. Based on the MECP database, the locations of existing water wells within the subject site are shown on Drawing PH4625-4 - MECP Water Well Location Plan Located in Appendix 3. There are additional residences in proximity to the subject site boundary that could be included in the overall development. If these properties are acquired and incorporated into the development area, the wells will be required to be decommissioned. The decommissioning of the wells can be completed at the development construction stage.

Existing Private Sewage Systems

It is recommended that existing private sewage systems, if encountered, within the subject site be properly decommissioned by a qualified contractor prior to the redevelopment of the subject site. No systems are anticipated to be encountered.

Existing Tile Drains

The presence of tile drains was not confirmed on the subject site. A typical design for agricultural fields includes tile drains, however, the current agricultural field is not anticipated to have tile drains due to its age. It is recommended that tile drains be removed and/or capped on an as-encountered basis.

Sources of Contamination

Road salt mitigation is expected as an ongoing concern for the SGRA. It is recommended to follow the guidelines presented by ECC PEMRS and the TAC. The mitigation of future road salt contamination must be a joint venture between on site design (i.e. BMP and stormwater design) and City of Ottawa road maintenance programs. Recommendations were provided in Section 4.3.9.5 - Groundwater to provide a maintenance program to minimize exposure of the SGRA to potential contaminants.

Bedrock was encountered at depths between 0.8 to 6.0 m bgs during the geotechnical investigations. Bedrock mapping indicates that bedrock is at a depth of 0 to 10 m bgs. It is anticipated that bedrock removal will be required during development of the proposed site. As such, a groundwater impact assessment and baseline sampling program will be required for adjacent water supply wells. Previous reporting by others for the adjacent subdivision recommended a sampling radius of 200 m. The City will be consulted on the proposed sampling program and parameters.

Services

The subject site is to be developed with municipal sewer and water services. General recommendations regarding site servicing are provided under separate cover in our geotechnical investigation report. Specific hydrogeological and geotechnical recommendations will be provided during the detailed design phase. Although specific details regarding site servicing are not currently available, it is our expectation that servicing depths within the subject site will be in the range of 2 to 5 m below existing ground surface based upon existing servicing depths in the surrounding area and the preliminary grade raises proposed.

Permit To Take Water

For any water taking of greater than 50,000 L/day, a Permit To Take Water (PTTW) or Environmental Activity and Sector Registry (EASR) is required from the MECP. A permit may be required for construction dewatering or works below the water table. The requirement for a PTTW at the subject site will be determined during the detailed design phase dependent upon proposed servicing depths and potential to intercept the groundwater table. The information contained in this report may be used as supporting documentation for a PTTW or EASR application for the subject site. Depending on the nature of the proposed water taking, additional hydrogeological investigation may be required.

Areas of Recharge Potential

Based on geological and hydrogeological conditions at the subject site, as discussed in previous sections, the potential for groundwater recharge through

overburden soils to the underlying bedrock aquifer is mapped over the majority of the subject site. However, based on the bedrock quality, it is inferred that the recharge to the bedrock aquifer will be insignificant within the boundaries of the subject site. Given that the MRSPR SGRA mapping shows that the site area mapped as a recharge area is minimal compared to the overall SGRA zones in the area, the majority of recharge to bedrock aquifers is interpreted to occur in areas off-site to the west/southwest where bedrock quality may be lower within the SGRA, however, specific areas are not known. It is expected that groundwater recharge from the overburden soils to the bedrock aquifer will be negligible on site with specific information available within the site-specific water budget.

Opportunities and Constraints

Based on geological and hydrogeological conditions at the subject site, as discussed in previous sections, the potential for shallow overburden groundwater recharge exists over portions of the site that are characterized by glaciofluvial or coarse-textured glaciomarine deposits. The groundwater provides recharge to the shallow overburden aquifer in addition to discharge to the Faulkner Drain which is tributary to the Jock River. It is expected there is limited contribution to the bedrock aquifer due to the high RQD values.

Based on isotope testing results, the existing man-made surface water feature collects localized surface water runoff and limited groundwater discharge, allowing for surficial flows to be directed to an unnamed man-made drainage ditch that connects to the Faulkner Drain. Therefore, the man-made surface water feature is prominently recharged by surface water runoff and isolated groundwater discharge from shallow overburden materials, not the bedrock aquifer. During the construction of the proposed development (i.e. Site servicing and building excavations), it is expected that the shallow overburden will be disturbed with the existing flow paths being altered and would limit the ability for the man-made surface water feature to function in the same manner subsequent to development. However, this will have a negligible impact to the overall water balance at the subject site given that the man-made surface water feature has negligible impacts to the hydrogeological function of the subject site. The opportunity exists for BMPs to maintain recharge to the shallow overburden aquifer at various locations across the subject site.

6.0 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.

This report has been prepared for Caivan (Stittsville South) Inc. and Caivan (Stittsville West) Ltd. in support of the proposed residential development to be located at 5993 and 6115 Flewellyn Road and 6030 and 6070 Fernbank Road. It is hereby acknowledged that Caivan (Stittsville South) Inc. and Caivan (Stittsville West) Ltd. may rely upon and utilize this report for the purpose of obtaining approval of the proposed development.

Paterson Group Inc.



Michael Killam, P.Eng.



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TABLES

TABLE 1 - GROUNDWATER LEVEL MEASUREMENT SUMMARY

TABLE 2- SINGLE WELL RESPONSE TEST RESULTS SUMMARY

TABLE 3 - OVERBURDEN FIELD SATURATED HYDRAULIC CONDUCTIVITY
RESULTS AND ESTIMATED INFILTRATION RATES

TABLE 4 & 4b - HORIZONTAL HYDRAULIC GRADIENT SUMMARY

TABLE 5 - VERTICAL HYDRAULIC GRADIENT SUMMARY

Table 1 - Monitoring Well Water Level Measurement Summary															
Well ID		BH1-21	BH2-21	BH3-21	BH22A-21	BH24-21	BH33-21	HA1-22	BH1-22	BH1A-22	BH2-22	BH3-22	BH3A-22	BH4-22	BH5-22
Ground Surface Elevation (m asl)		104.29	107.19	108.41	102.98	103.07	104.7	106.78	107.31	107.31	103.58	102.25	102.25	105.71	105.7
Groundwater (GW) Measurements															
11-Jan-22	GW Level (m bgs)	1.22	0.82	0.89	2.49	0.67	1.84	Wells Were Not Installed At This Time							
	GW Elevation (m asl)	103.07	106.37	107.52	100.49	102.40	102.86								
11-Oct-22	GW Level (m bgs)	1.12	1.16	0.90	2.61	0.60	2.12	0.31	1.33	1.44	1.52	0.84	0.81	3.62	1.62
	GW Elevation (m asl)	103.17	106.03	107.51	100.37	102.47	102.59	106.48	105.99	105.87	102.06	101.42	101.44	102.10	104.09
28-Oct-22	GW Level (m bgs)	1.01	0.95	0.92	N/A	0.46	1.98	0.28	1.35	1.43	1.52	0.61	0.40	3.65	1.64
	GW Elevation (m asl)	103.28	106.25	107.49	N/A	102.61	102.72	106.51	105.97	105.88	102.06	101.64	101.85	102.07	104.06
04-Apr-23	GW Level (m bgs)	0.09	0.33	0.52	1.77	-0.03	1.20	0.14	0.83	0.94	0.59	0.11	0.00	3.08	0.90
	GW Elevation (m asl)	104.21	106.87	107.89	101.21	103.10	103.51	106.64	106.48	106.38	102.99	102.15	102.25	102.64	104.80
31-May-23	GW Level (m bgs)	0.97	0.87	0.84	2.72	0.74	2.22	0.29	1.35	1.46	1.31	0.93	0.99	3.48	1.56
	GW Elevation (m asl)	103.33	106.32	107.57	100.26	102.34	102.49	106.49	105.96	105.86	102.27	101.32	101.26	102.23	104.14

Table 2 - Single Well Response Test Results Summary

Test Hole ID	Ground Surface Elevation (m asl)	Screened Interval (m bgs)	Hydraulic Conductivity (m/s)	Test Type	Screened Media
BH1-22	107.31	7.5 - 9.0	1.2×10^{-5}	Falling Head	Bedrock
			1.5×10^{-5}	Falling Head	
			1.6×10^{-5}	Falling Head	
			1.9×10^{-5}	Rising Head	
			1.5×10^{-5}	Rising Head	
BH2-22	103.58	7.5 - 9.0	8.9×10^{-6}	Falling Head	Bedrock
			9.1×10^{-6}	Rising Head	
BH3-22	102.25	7.5 - 9.0	6.0×10^{-5}	Falling Head	Bedrock
			6.6×10^{-5}	Rising Head	
BH3A-22	102.25	1.7 - 3.2	4.2×10^{-6}	Falling Head	Silty Sand to Sandy Silt & Glacial Till
			4.8×10^{-6}	Rising Head	
BH4-22	105.71	7.5 - 9.0	8.7×10^{-7}	Falling Head	Bedrock
			9.1×10^{-7}	Rising Head	
BH5-22	105.70	7.5 - 9.0	1.2×10^{-5}	Falling Head	Bedrock
			2.0×10^{-5}	Falling Head	Bedrock
			1.4×10^{-5}	Rising Head	
			1.5×10^{-5}	Rising Head	
HA1-22	106.78	0.4 - 0.7	2.2×10^{-5}	Falling Head	Silty Sand
			8.8×10^{-6}	Rising Head	
BH1-21	104.29	2.8 - 5.8	1.4×10^{-4}	Falling Head	Bedrock
			1.1×10^{-4}	Rising Head	
BH2-21	107.19	2.6 - 5.6	4.0×10^{-5}	Falling Head	Bedrock
			4.0×10^{-5}	Falling Head	
			3.9×10^{-5}	Rising Head	
			4.1×10^{-5}	Rising Head	
BH3-21	108.41	2.7 - 5.7	3.0×10^{-6}	Falling Head	Bedrock
BH22A-21	102.98	7.2 - 10.2	4.3×10^{-7}	Falling Head	Bedrock
BH24-21	103.07	4.9 - 7.9	6.0×10^{-5}	Falling Head	Bedrock
			7.3×10^{-5}	Falling Head	
			5.8×10^{-5}	Rising Head	
			5.7×10^{-5}	Rising Head	
BH33-21	104.70	3.3 - 6.3	1.6×10^{-4}	Rising Head	Bedrock

Table 3 - Overburden Field Saturated Hydraulic Conductivity Results and Estimated Infiltration Rates

Test Completed Adjacent to Borehole ID	Infiltration Testing Elevation (m asl)	Material	K_{fs} (m/s)*	Unfactored Infiltration Rate (mm/hr)**
BH1-21	103.90	Brown Silty Sand	2.1×10^{-6}	56
	103.63	Brown Silty Sand	1.9×10^{-6}	56
BH2-21	106.95	Brown Silty Sand	6.4×10^{-6}	76
	106.65	Brown Silty Sand	5.3×10^{-7}	39
BH7-21	106.74	Brown Silty Sand	1.1×10^{-6}	47
	106.44	Brown Silty Sand	1.6×10^{-6}	52
BH11-21	104.68	Brown Silty Sand	2.7×10^{-6}	60
	104.38	Brown Silty Sand to Sandy Silt	1.6×10^{-6}	52
BH15-21	102.70	Brown Silty Sand to Sandy Silt	2.1×10^{-7}	31
	102.48	Brown Silty Sand to Sandy Silt	$< 8.1 \times 10^{-9}$	≤ 13
BH17-21	106.74	Brown Silty Sand to Sandy Silt	5.9×10^{-6}	74
	106.44	Brown Silty Sand to Sandy Silt	4.1×10^{-6}	67
BH22-21	102.58	Brown Silty Sand	1.1×10^{-6}	47
	102.28	Brown Silty Sand	1.6×10^{-6}	52
BH23-21	102.33	Brown Silty Clay w/ Sand	5.3×10^{-7}	39
	101.70	Brown Silty Clay	$< 8.1 \times 10^{-9}$	≤ 13
BH26-21	102.74	Brown Silty Clay w/ Sand	1.1×10^{-7}	26
	102.44	Brown Silty Clay w/ Sand	1.1×10^{-7}	26
BH29-21	101.87	Brown Silty Sand to Sandy Silt	5.3×10^{-7}	39
	101.57	Brown Silty Sand to Sandy Silt	2.7×10^{-7}	33
BH31-21	103.19	Brown Silty Sand to Sandy Silt	1.1×10^{-6}	47
	102.89	Brown Silty Sand to Sandy Silt	1.4×10^{-7}	27
BH37-21	103.21	Brown Silty Sand to Sandy Silt	5.3×10^{-6}	72
	102.91	Brown Silty Sand to Sandy Silt	5.9×10^{-6}	74

*Field hydraulic conductivity (Kfs)

**The infiltration rates do not include a safety correction factor. Based on our testing results, a safety correction factor can range between 2.5 to ≥ 3.5 .

Table 4 - Horizontal Hydraulic Gradient Summary						
Well 'A'		Well 'B'				
Well ID	GW Elevation (m asl)	Well ID	GW Elevation (m asl)	Distance (m)	Hydraulic Gradient (m/m)*	Date
BH3-21	107.515	BH1-22	105.985	73	0.0208	October 11, 2022
BH3-21	107.515	BH5-22	104.085	131	0.0263	October 11, 2022
BH3-21	107.515	BH4-22	102.095	206	0.0263	October 11, 2022
BH1-22	105.985	BH2-21	106.03	197	-0.0002	October 11, 2022
BH1-22	105.985	BH1-21	103.17	442	0.0064	October 11, 2022
BH1-22	105.985	BH5-22	104.085	148	0.0128	October 11, 2022
BH1-22	105.985	BH2-22	102.06	447	0.0088	October 11, 2022
BH1A-22	105.87	BH3A-22	101.44	708	0.0063	October 11, 2022
BH2-21	106.03	BH1-21	103.17	296	0.0097	October 11, 2022
BH2-21	106.03	BH2-22	102.06	358	0.0111	October 11, 2022
BH5-22	104.085	BH4-22	102.095	137	0.0145	October 11, 2022
BH5-22	104.085	BH2-22	102.06	330	0.0061	October 11, 2022
BH2-22	102.06	BH3-22	101.415	397	0.0016	October 11, 2022
BH33-21	102.585	BH3-22	101.415	485	0.0024	October 11, 2022
BH33-21	102.585	BH22A-21	100.37	549	0.0040	October 11, 2022
BH33-21	102.585	BH24-21	102.47	307	0.0004	October 11, 2022
BH3-22	101.415	BH22A-21	100.37	296	0.0035	October 11, 2022
BH24-21	102.47	BH22A-21	100.37	524	0.0040	October 11, 2022
BH4-22	102.095	BH3-22	101.415	584	0.0012	October 11, 2022
BH4-22	102.095	BH33-21	102.585	404	-0.0012	October 11, 2022

*Hydraulic Gradient = (GW Elevation Well 'A' - GW Elevation Well 'B') / Distance

Table 4b - Horizontal Hydraulic Gradient Summary						
Well 'A'		Well 'B'				
Well ID	GW Elevation (m asl)	Well ID	GW Elevation (m asl)	Distance (m)	Hydraulic Gradient (m/m)*	Date
BH3-21	107.57	BH1-22	105.96	73	0.0219	May 30, 2023
BH3-21	107.57	BH5-22	104.14	131	0.0263	May 30, 2023
BH3-21	107.57	BH4-22	102.23	206	0.0259	May 30, 2023
BH1-22	105.96	BH2-21	106.32	197	-0.0018	May 30, 2023
BH1-22	105.96	BH1-21	103.325	442	0.0060	May 30, 2023
BH1-22	105.96	BH5-22	104.14	148	0.0123	May 30, 2023
BH1-22	105.96	BH2-22	102.27	447	0.0082	May 30, 2023
BH1A-22	105.855	BH3A-22	101.26	708	0.0065	May 30, 2023
BH2-21	106.32	BH1-21	103.325	296	0.0101	May 30, 2023
BH2-21	106.32	BH2-22	102.27	358	0.0113	May 30, 2023
BH5-22	104.14	BH4-22	102.23	137	0.0139	May 30, 2023
BH5-22	104.14	BH2-22	102.27	330	0.0057	May 30, 2023
BH2-22	102.27	BH3-22	101.32	397	0.0024	May 30, 2023
BH33-21	102.485	BH3-22	101.32	485	0.0024	May 30, 2023
BH33-21	102.485	BH22A-21	100.26	549	0.0041	May 30, 2023
BH33-21	102.485	BH24-21	102.335	307	0.0005	May 30, 2023
BH3-22	101.32	BH22A-21	100.26	296	0.0036	May 30, 2023
BH24-21	102.335	BH22A-21	100.26	524	0.0040	May 30, 2023
BH4-22	102.23	BH3-22	101.32	584	0.0016	May 30, 2023
BH4-22	102.23	BH33-21	102.485	404	-0.0006	May 30, 2023

*Hydraulic Gradient = (GW Elevation Well 'A' - GW Elevation Well 'B') / Distance

Table 5 - Vertical Hydraulic Gradient Summary							
Well 'A'			Well 'B'				
Well ID	GW Elevation (m asl)	Well Depth (m)	Well ID	GW Elevation (m asl)	Well Depth (m)	Hydraulic Gradient (m/m)*	Date
BH1-22	105.985	98.29	BH1A-22	105.87	105.69	-0.0155	October 11, 2022
BH3-22	101.415	93.13	BH3A-22	101.44	99.1	0.0042	October 11, 2022
BH1-22	105.965	98.29	BH1A-22	105.88	105.69	-0.0115	October 28, 2022
BH3-22	101.64	93.13	BH3A-22	101.85	99.1	0.0352	October 28, 2022
BH1-22	105.96	98.29	BH1A-22	105.855	105.69	-0.0142	May 30, 2023
BH3-22	101.32	93.13	BH3A-22	101.26	99.1	-0.0101	May 30, 2023

*Hydraulic Gradient = (GW Elevation Well 'A' - GW Elevation Well 'B') / (Well Depth Well 'A' - Well Depth Well 'B')

FIGURES

FIGURE 1: BH1-21 - MONITORING WELL WATER ELEVATIONS

FIGURE 2: BH2-21 - MONITORING WELL WATER ELEVATIONS

FIGURE 3: BH3-21 - MONITORING WELL WATER ELEVATIONS

FIGURE 4: BH22-21 - MONITORING WELL WATER ELEVATIONS

FIGURE 5: BH24-21 - MONITORING WELL WATER ELEVATIONS

FIGURE 6: BH33-21 - MONITORING WELL WATER ELEVATIONS

FIGURE 7: BH1-22 & BH1A-22 - MONITORING WELL WATER ELEVATIONS

FIGURE 8: BH2-22 - MONITORING WELL WATER ELEVATIONS

FIGURE 9: BH3-22 & BH3A-22 - MONITORING WELL WATER ELEVATIONS

FIGURE 10: BH4-22 - MONITORING WELL WATER ELEVATIONS

FIGURE 11: BH5-22 - MONITORING WELL WATER ELEVATIONS

FIGURE 12: HA1-22 - MONITORING WELL WATER ELEVATIONS

FIGURE 13: BH1-22 $\delta^2\text{H}/\delta^{18}\text{O}$ RESULTS

FIGURE 14: BH2-21 $\delta^2\text{H}/\delta^{18}\text{O}$ RESULTS

FIGURE 15: BH5-22 $\delta^2\text{H}/\delta^{18}\text{O}$ RESULTS

FIGURE 16: BH1A-22 $\delta^2\text{H}/\delta^{18}\text{O}$ RESULTS

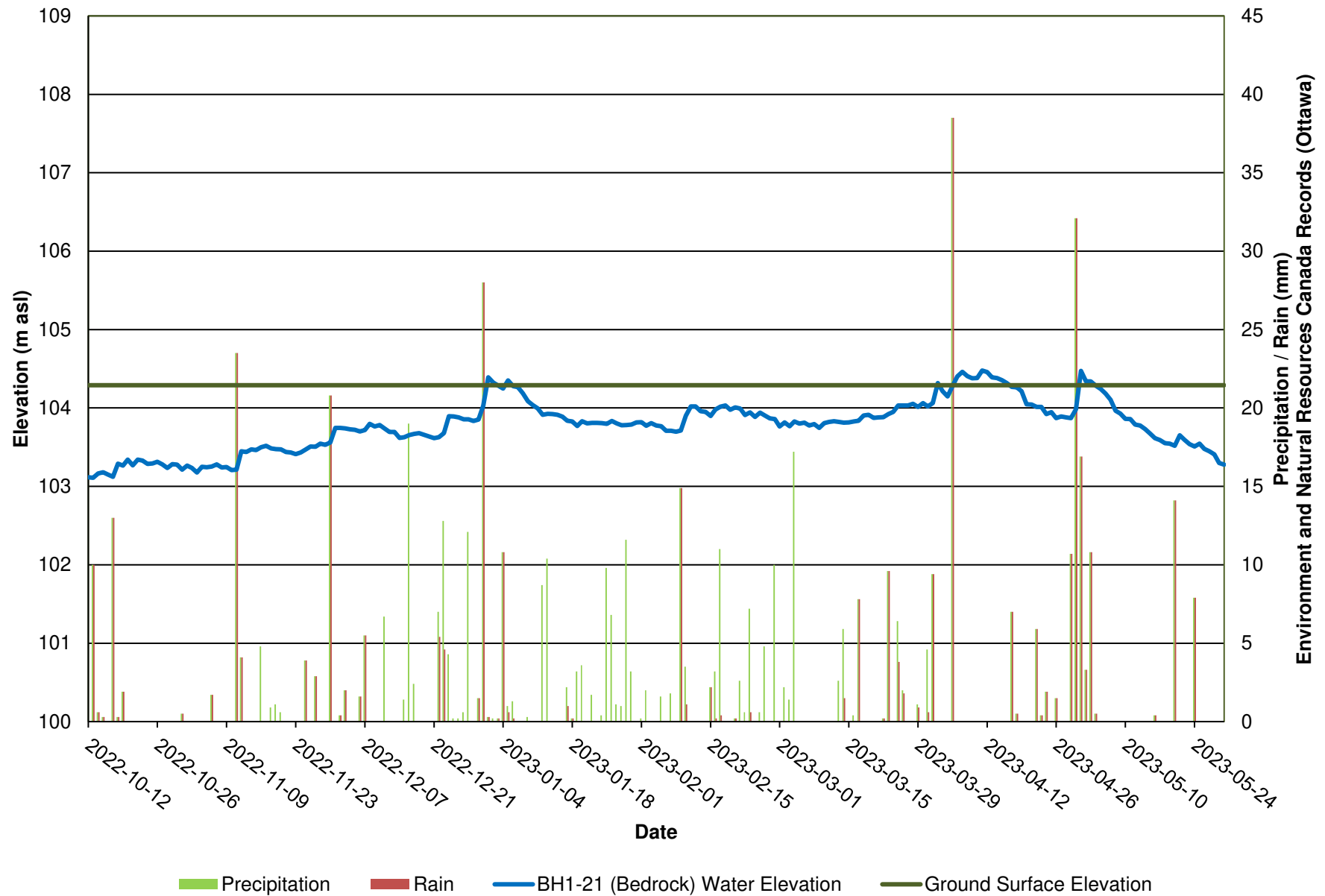
Figure 1: BH1-21 - Monitoring Well Water Elevations

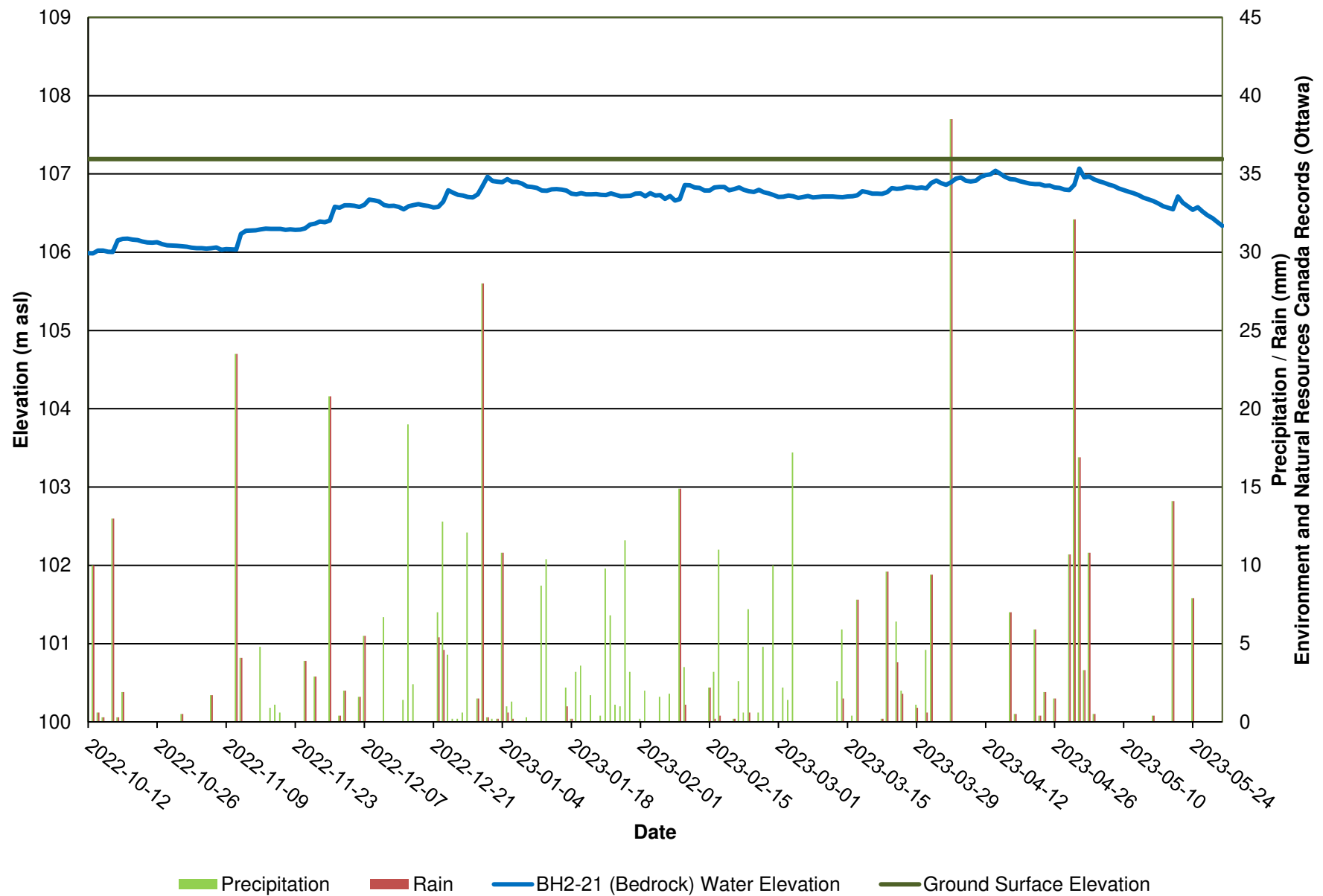
Figure 2: BH2-21 - Monitoring Well Water Elevations

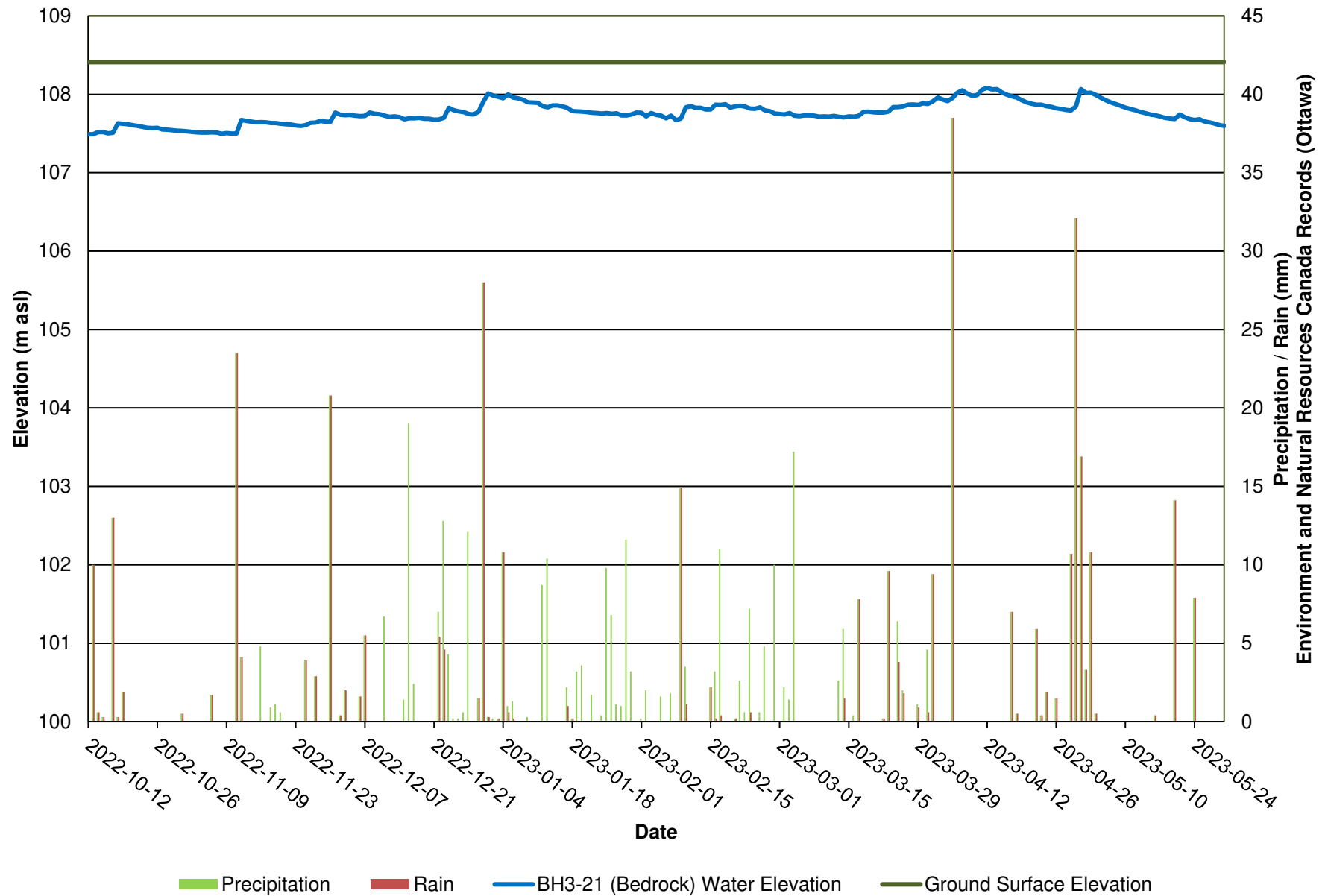
Figure 3: BH3-21 - Monitoring Well Water Elevations

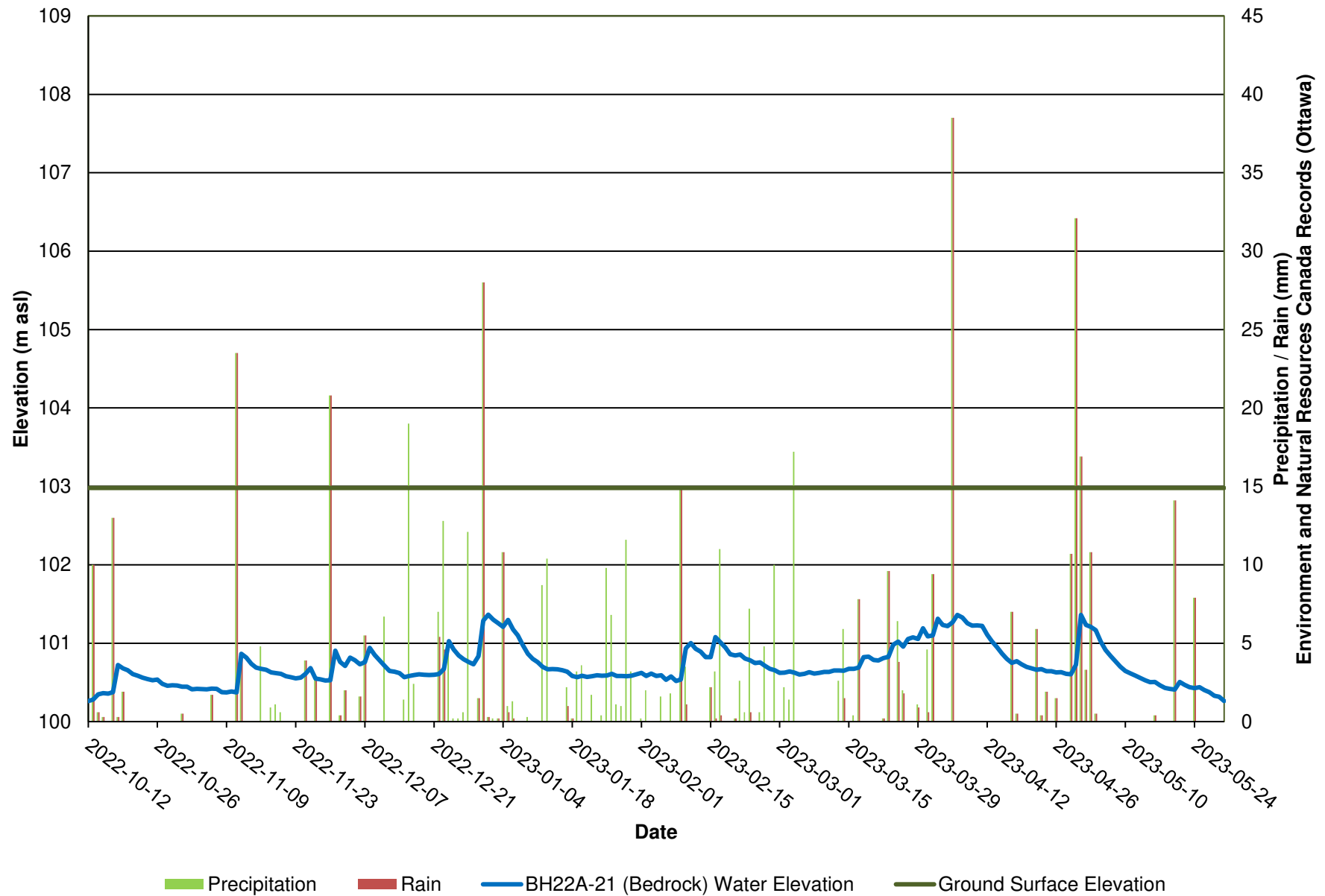
Figure 4: BH22A-21 - Monitoring Well Water Elevations

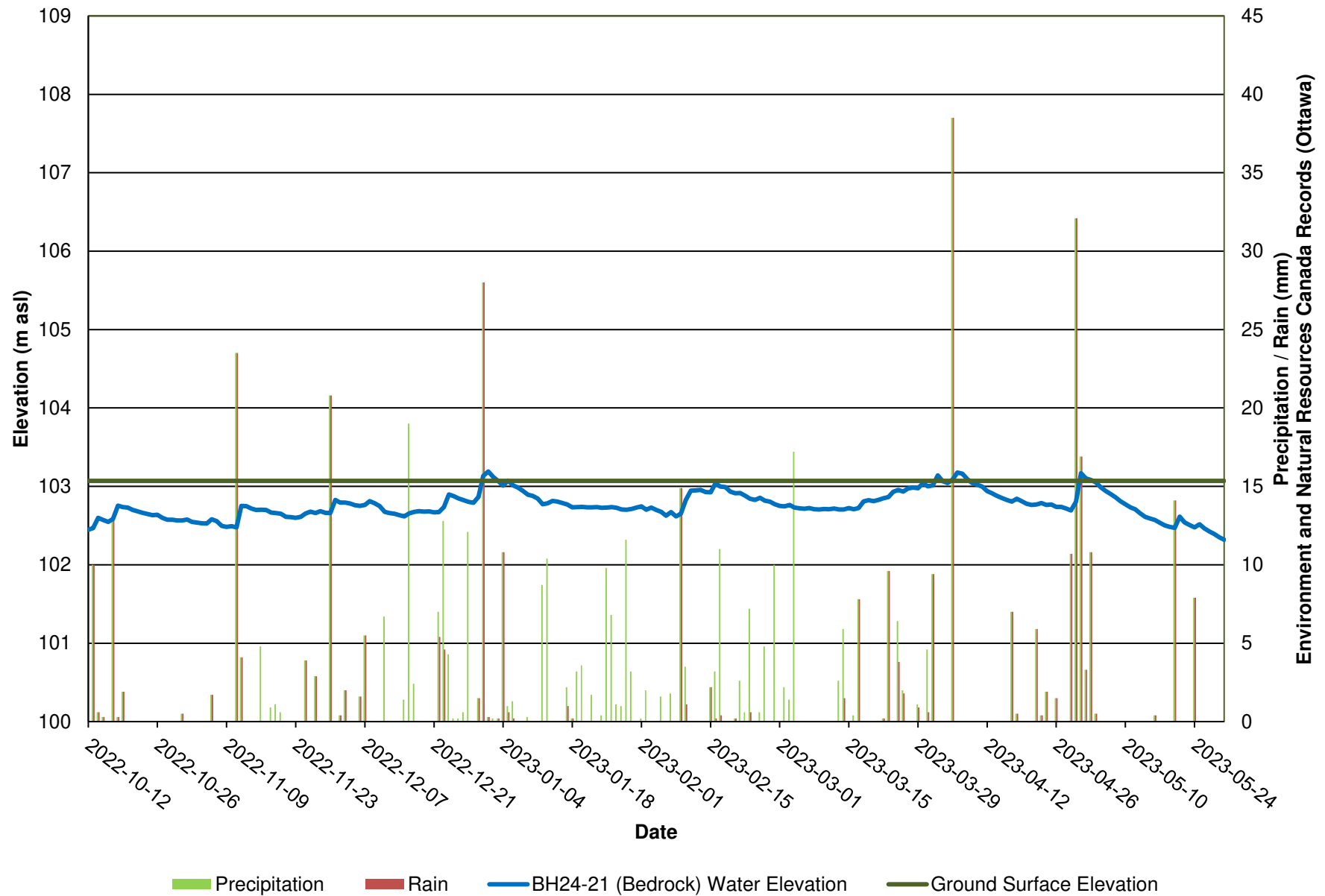
Figure 5: BH24-21 - Monitoring Well Water Elevations

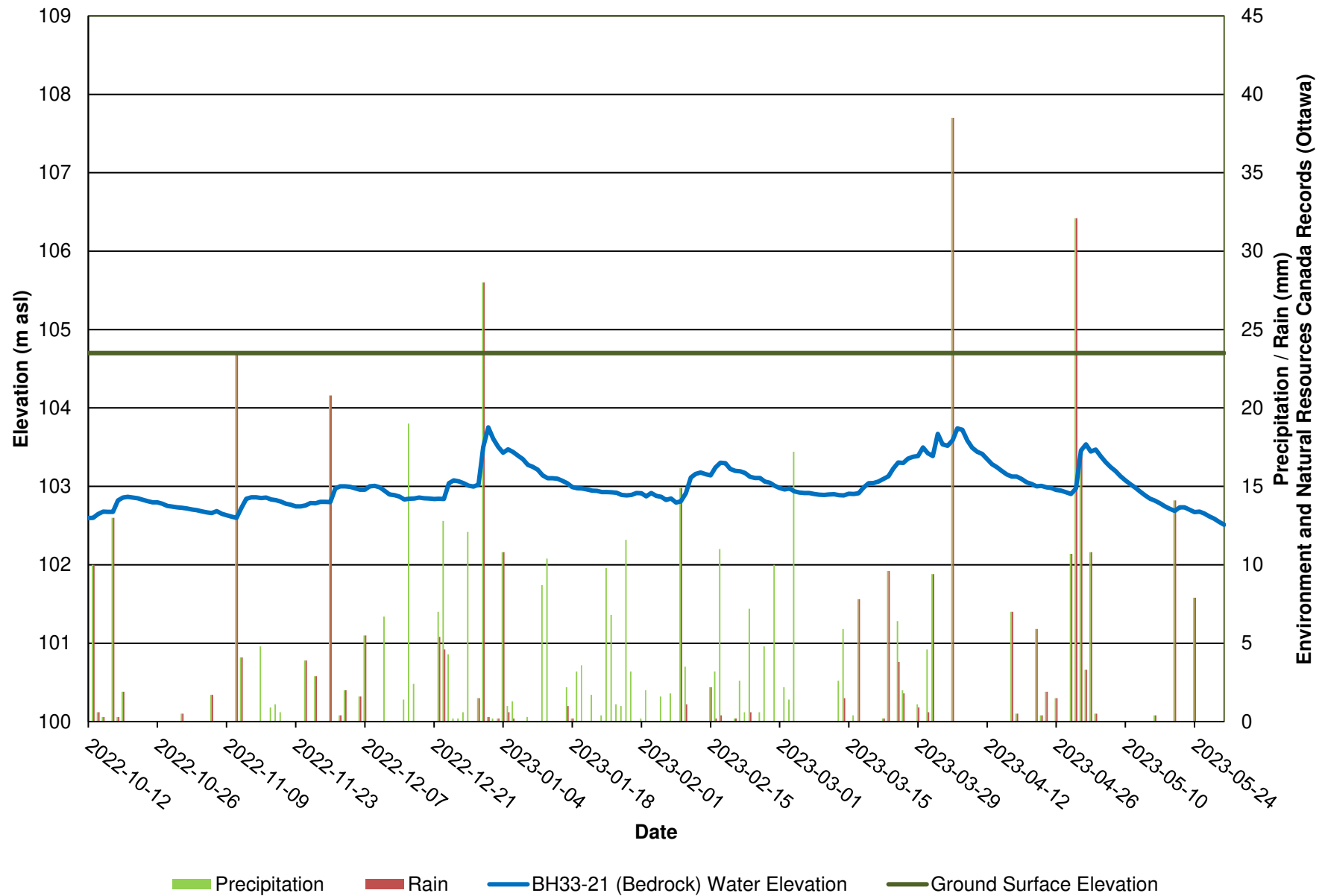
Figure 6: BH33-21 - Monitoring Well Water Elevations

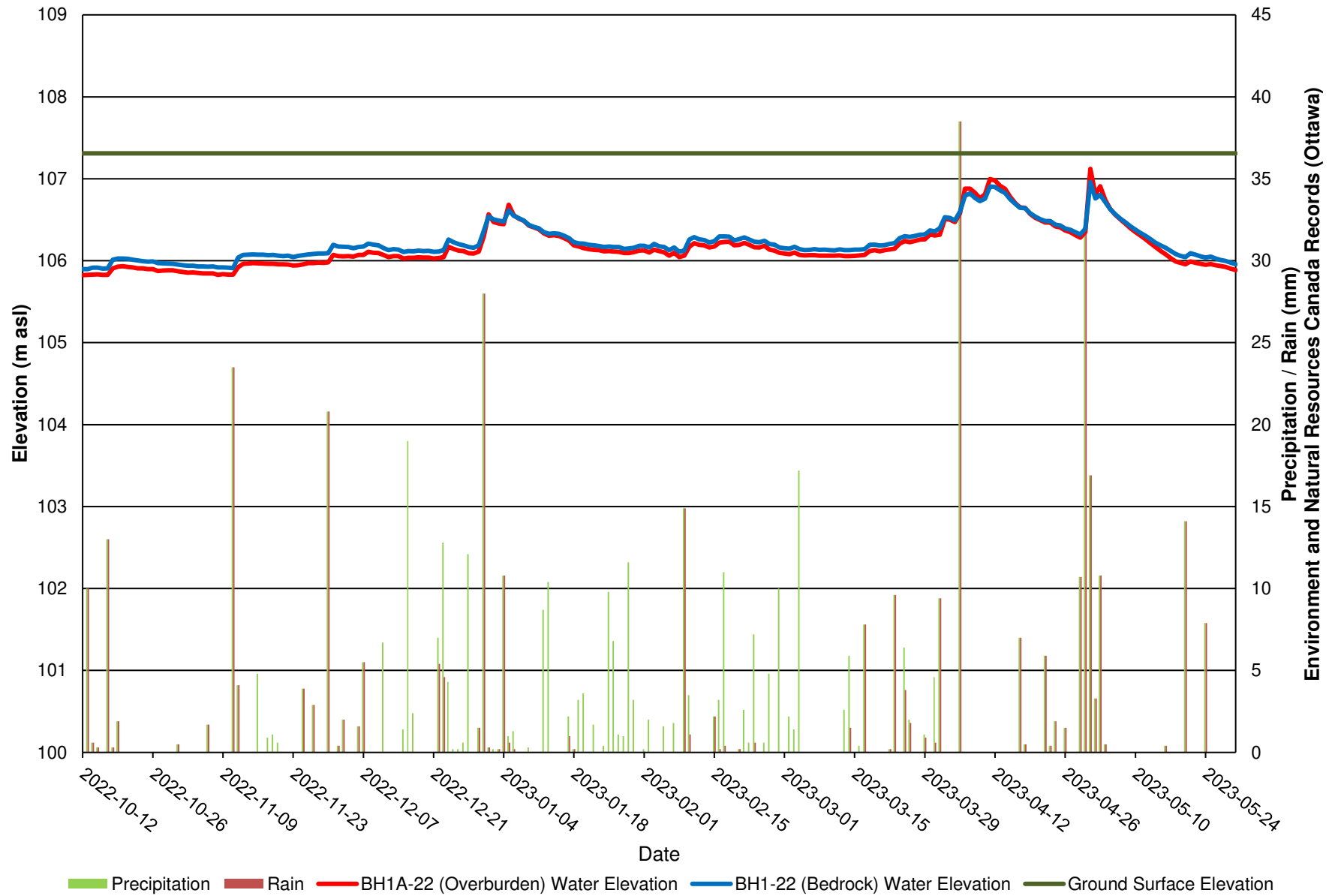
Figure 7: BH1-22 & BH1A-22 - Monitoring Well Water Elevations

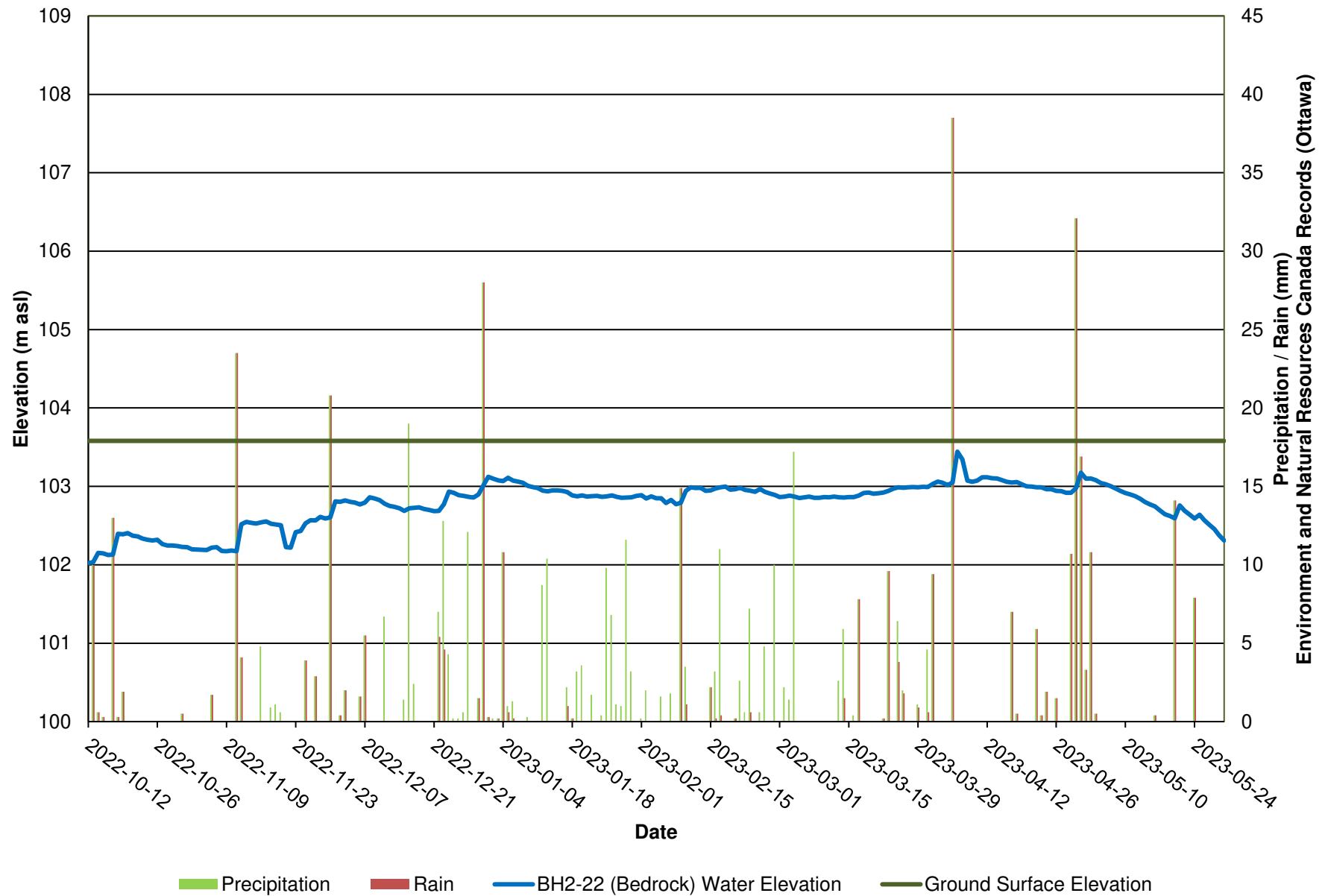
Figure 8: BH2-22 - Monitoring Well Water Elevations

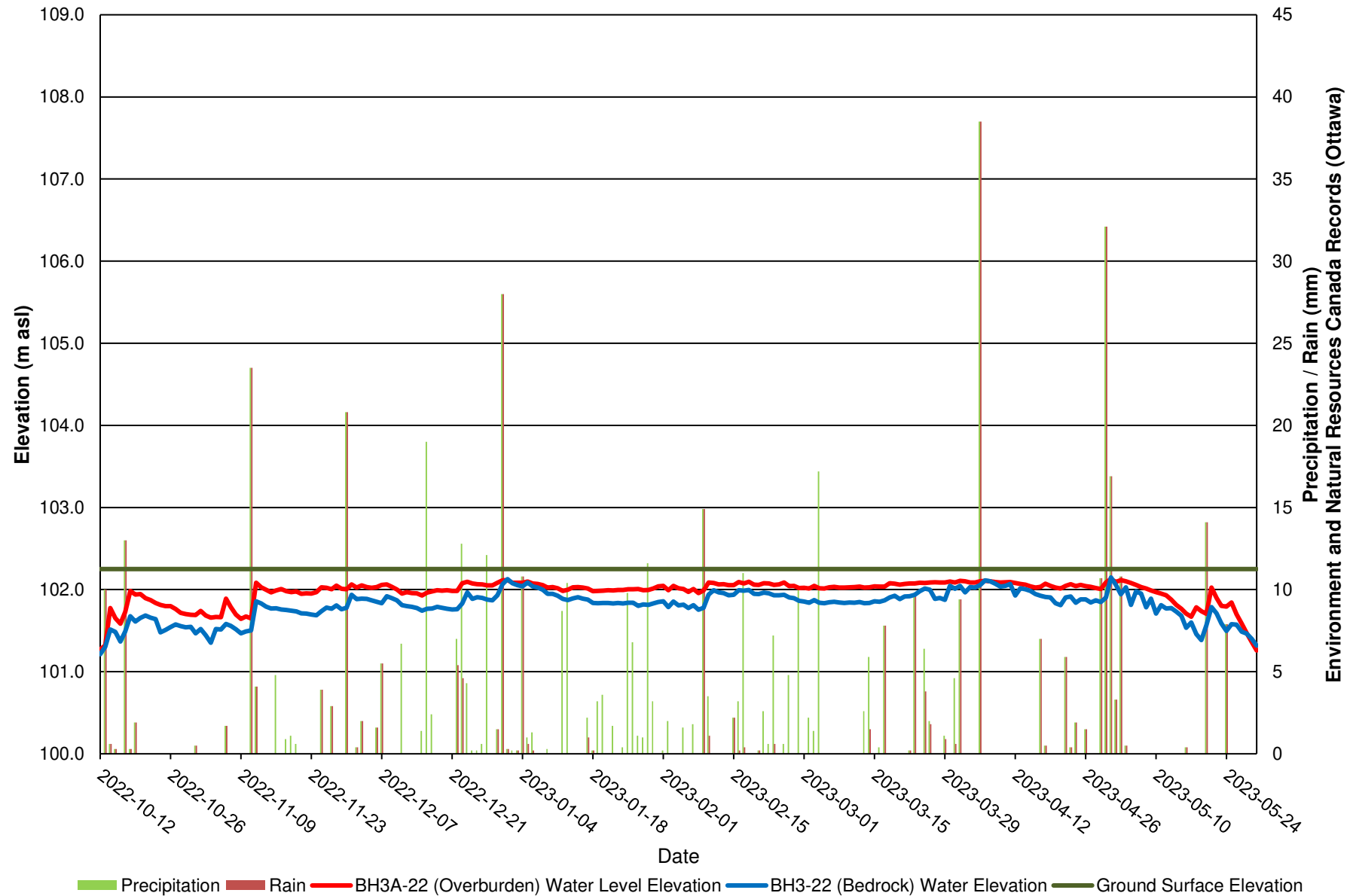
Figure 9: BH3-22 & BH3A-22 - Monitoring Well Water Elevations

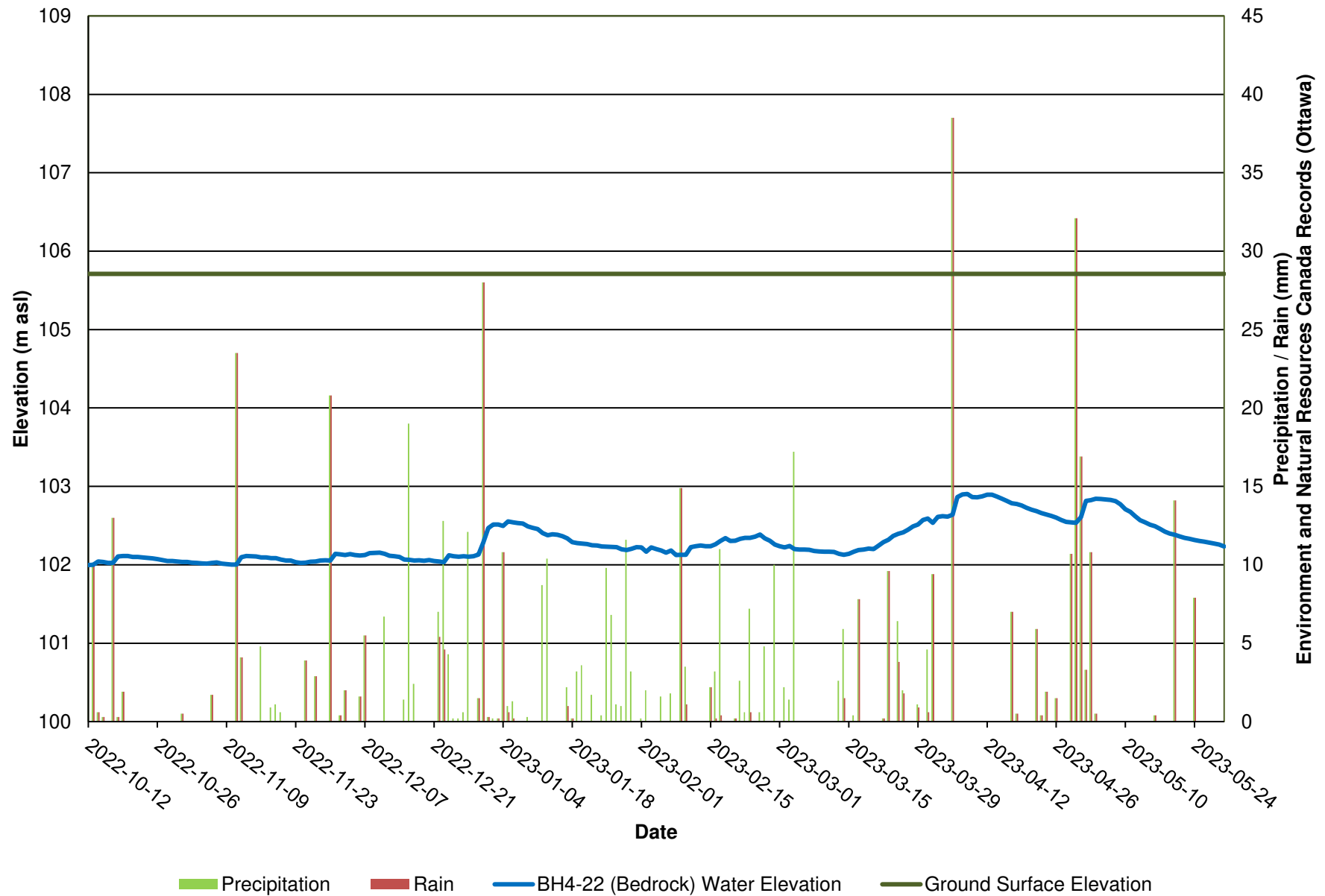
Figure 10: BH4-22 - Monitoring Well Water Elevations

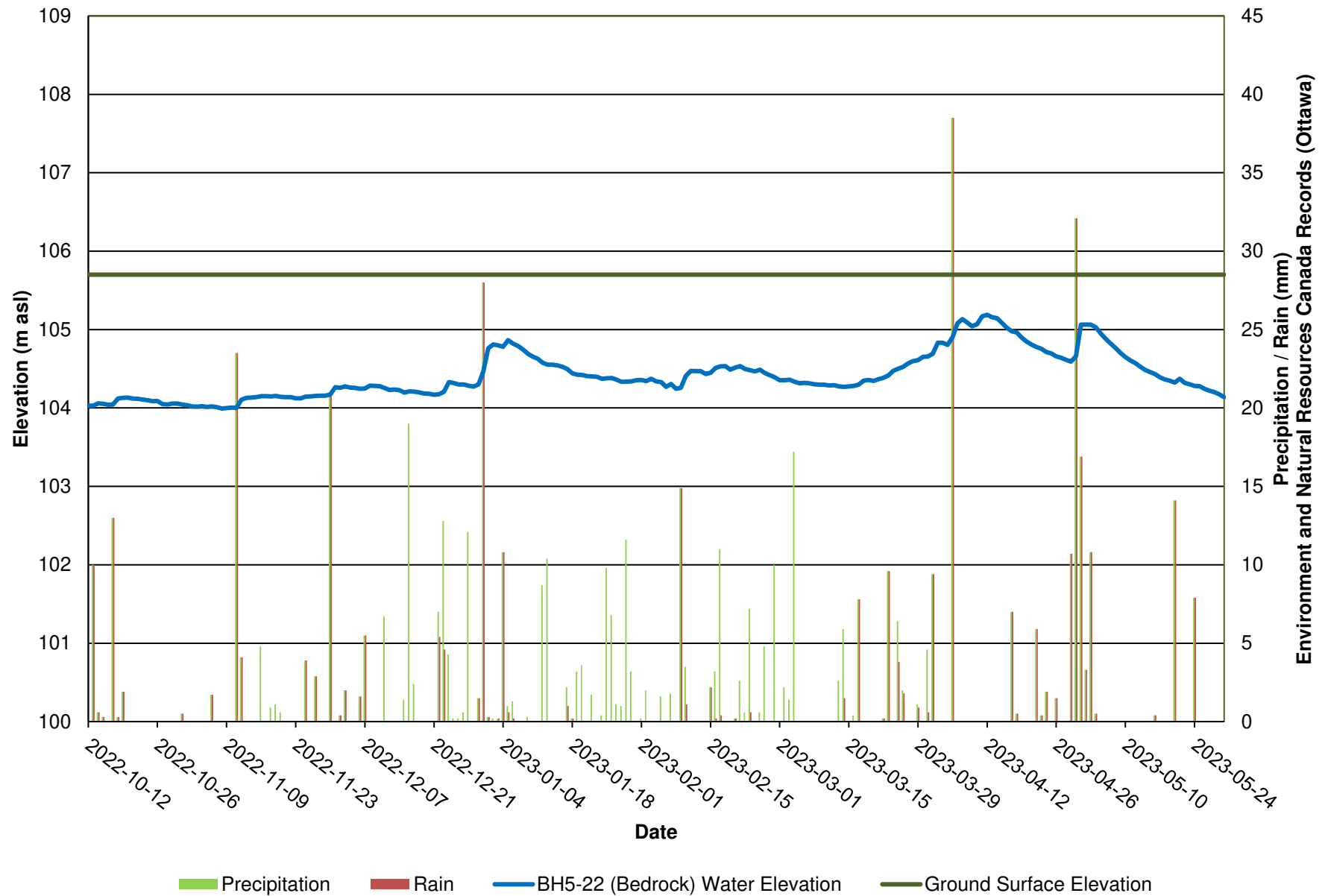
Figure 11: BH5-22 - Monitoring Well Water Elevations

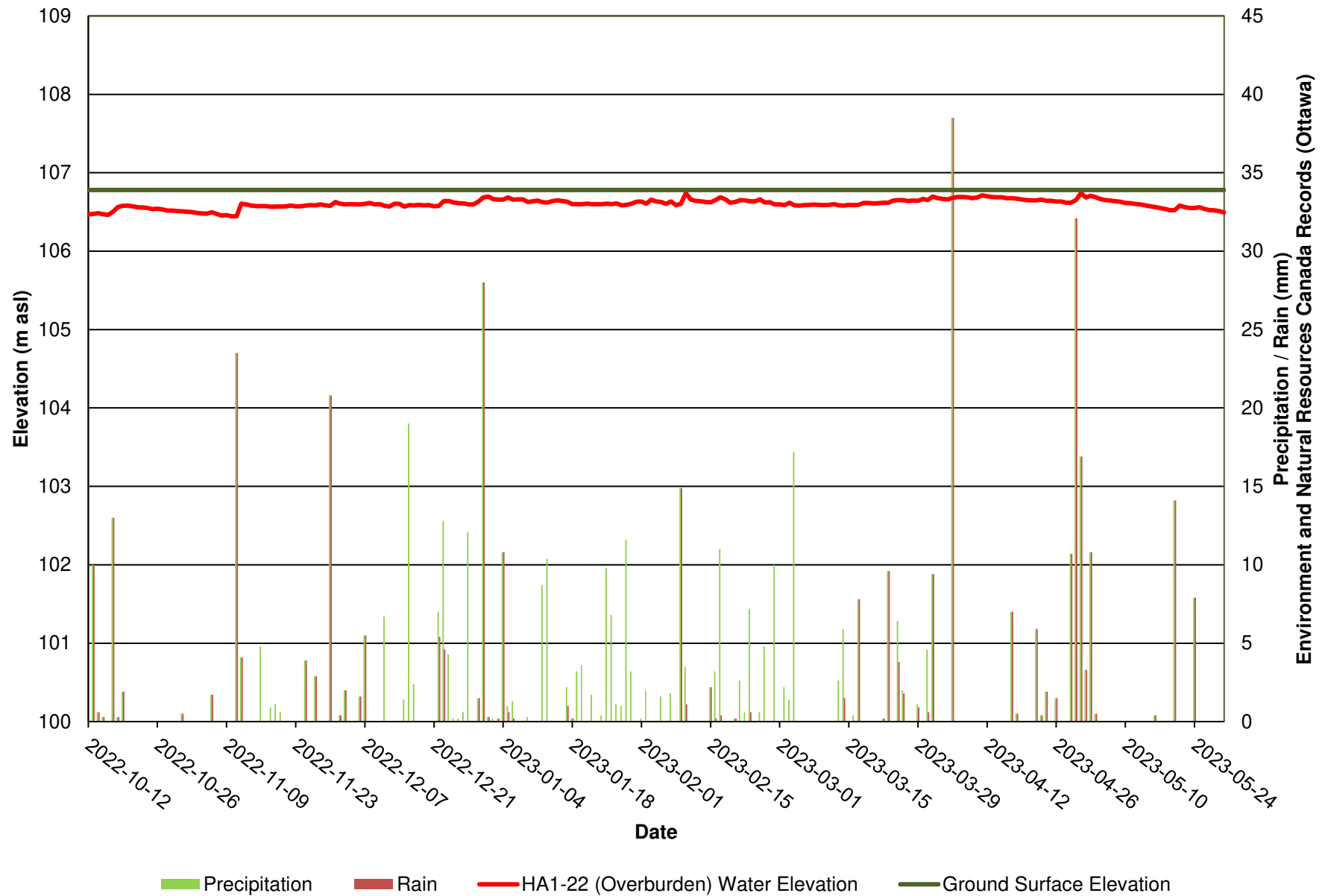
Figure 12: HA1-22 - Monitoring Well Water Elevations

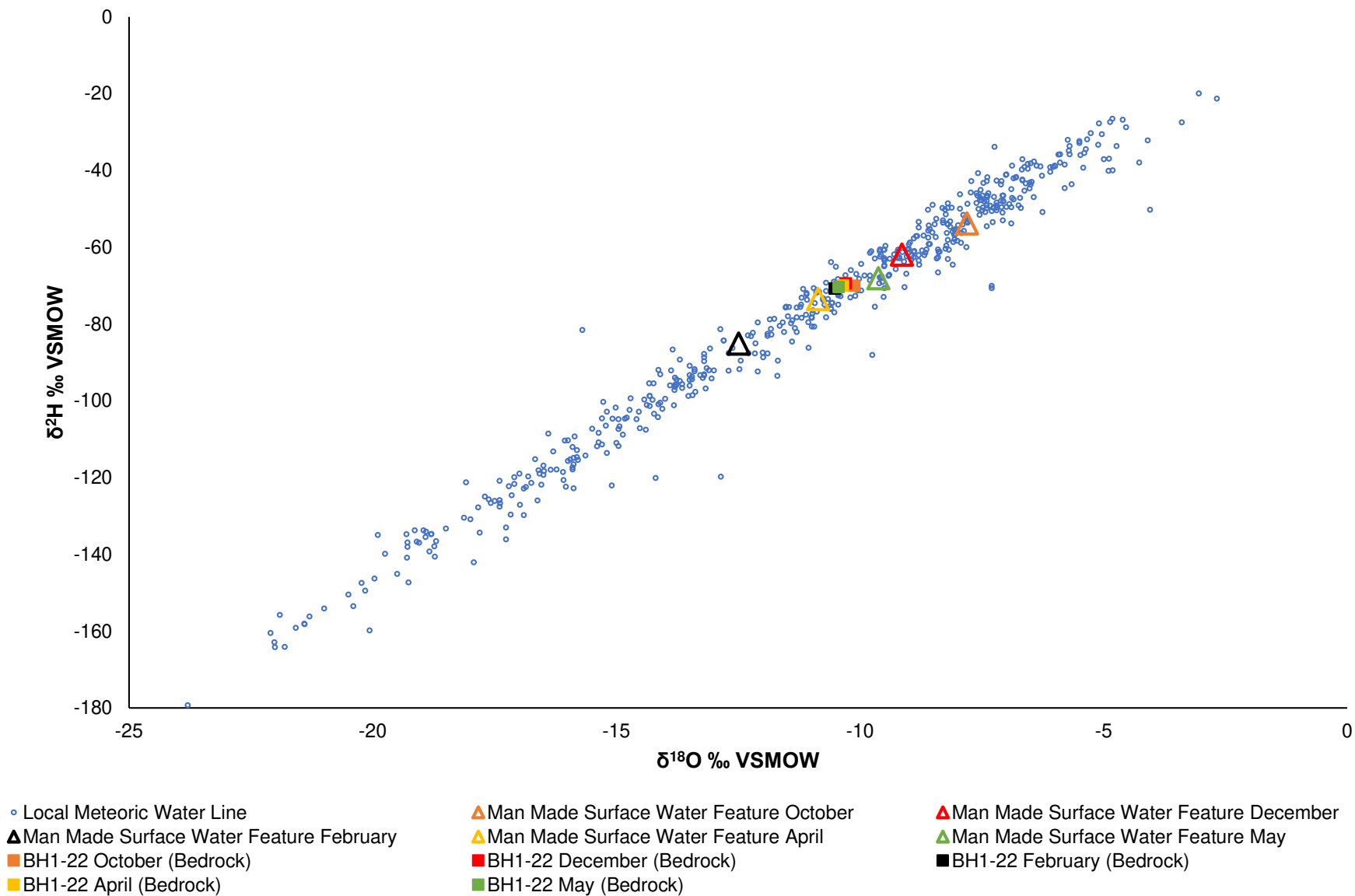
Figure 13: BH1-22 $\delta^2\text{H}/\delta^{18}\text{O}$ Results

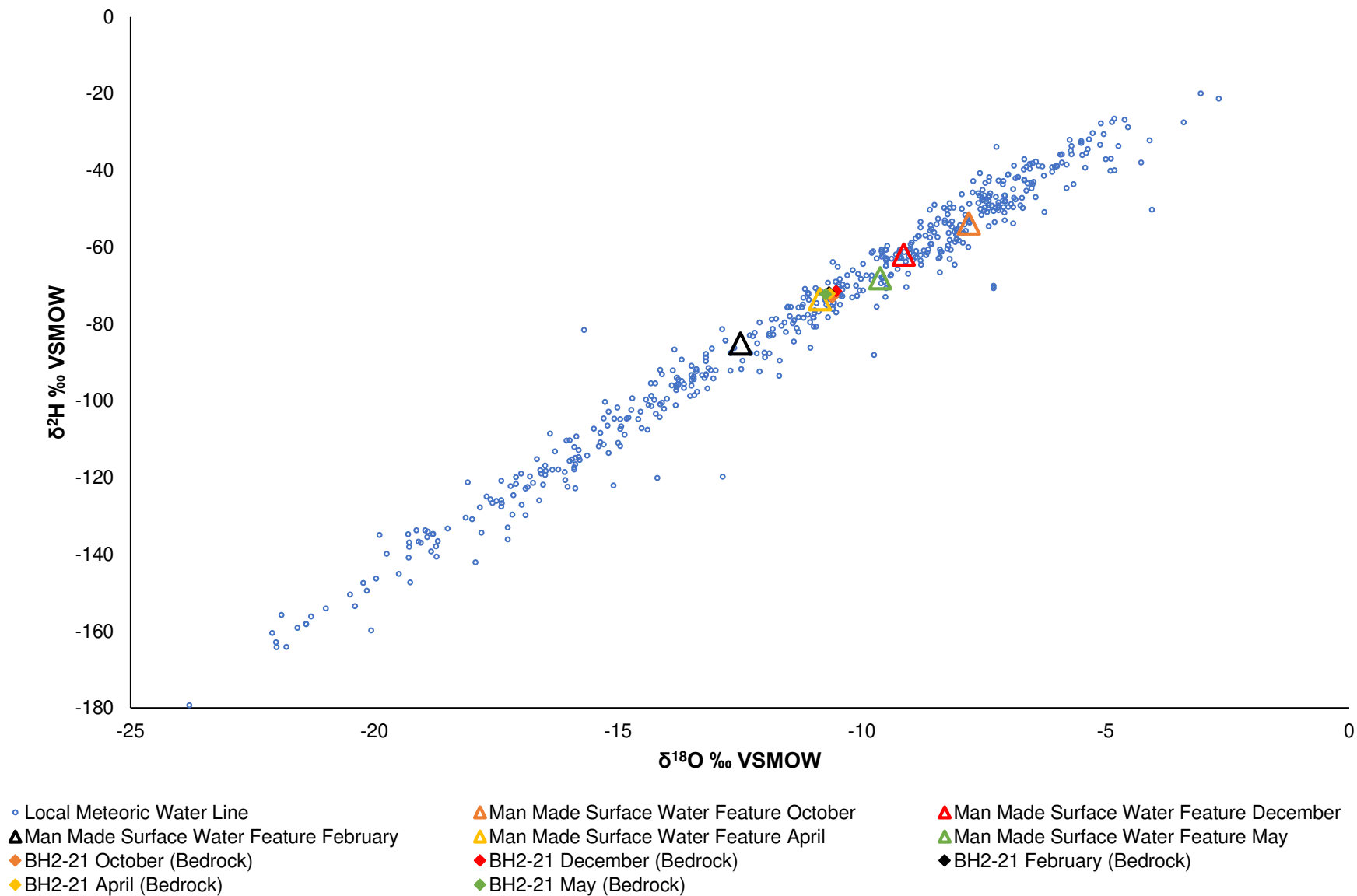
Figure 14: BH2-21 $\delta^2\text{H}/\delta^{18}\text{O}$ Results

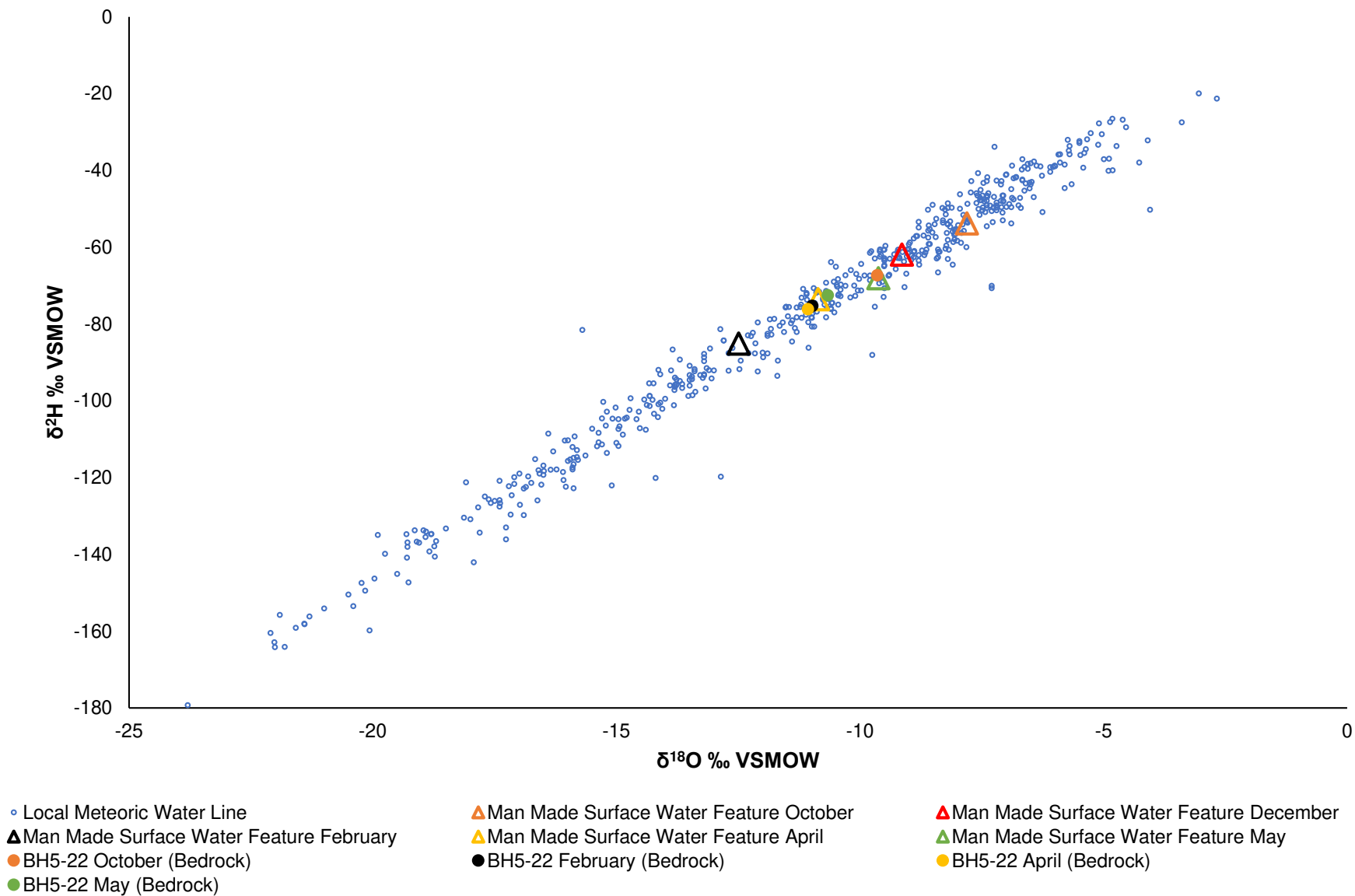
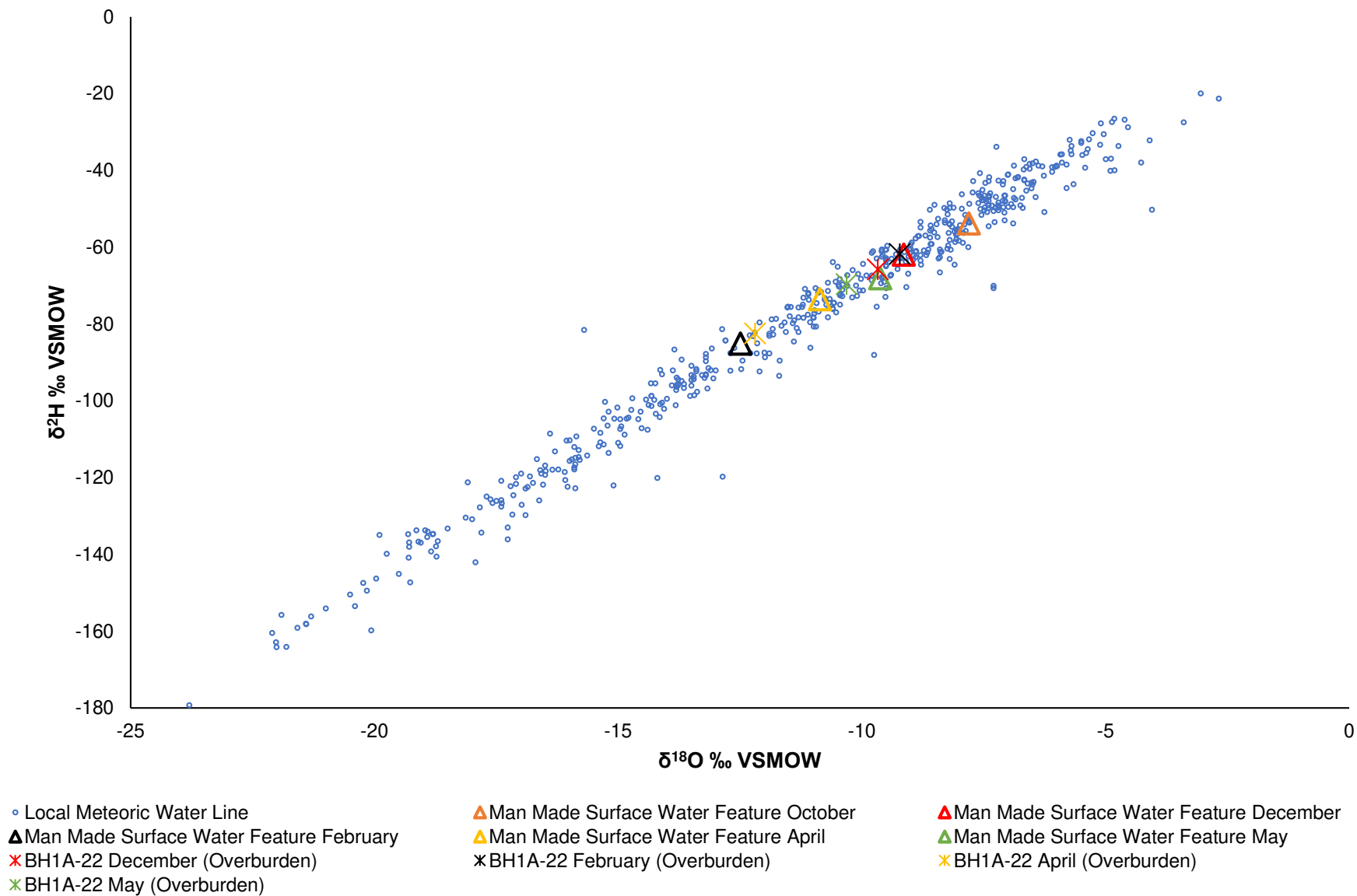
Figure 15: BH5-22 $\delta^2\text{H}/\delta^{18}\text{O}$ Results

Figure 16: BH1A-22 $\delta^2\text{H}/\delta^{18}\text{O}$ Results

APPENDIX 1

PATERSON - TERMS OF REFERENCE

Geotechnical
Engineering

Environmental
Engineering

Hydrogeology

Geological
Engineering

Materials Testing

Building Science

Noise and Vibration
Studies

Terms of Reference – Geotechnical and Hydrogeological Investigation

Proposed Residential Development
5993, 6030 & 6115 Flewellyn Road
& 6070 Fernbank Road - Ottawa

Prepared For

Caivan Communities

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March 15, 2022

Report: PG5570-3 – REV.02

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Appendices

Appendix 1	Figure 1 - Key Plan PG5570-1 – Proposed Monitoring Well Mark-up of Testhole Location Plan
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1.0 Background

Paterson Group (Paterson) was commissioned by Caivan Communities to prepare a Terms of Reference document for the geotechnical and hydrogeological investigations for the proposed residential development to be located at 5993, 6030, 6115 Flewellyn Road and 6070 Fernbank Road in the City of Ottawa (refer to Figure 1 - Key Plan in Appendix 1 of this report).

1.1 Study Area

The proposed limits of the study area presented in Figure 1 are contained within the Flowing Creek catchment of the Jock River Subwatershed. This area falls under the purview of the Rideau Valley Conservation Authority (RVCA).

The Faulkner Drain extends southeast along the east bounds of 6070 Fernbank Road and 6035 Flewellyn Road until it reaches Flewellyn Road. The Drain continues northeast along Flewellyn Road until it turns southeast to follow Shea Road.

2.0 Objectives

The current objective of the existing and proposed reports are to provide reviewing agencies with the available information pertaining to the proposed study area to allow review of planning recommendations that are consistent with their objectives and policies.

The proposed development will be reviewed in the context of Official Plan Policy 4.9.4 and will consider the protection of natural resources.

3.0 Existing Studies

Previous studies that are relevant to the proposed study area consist of the following:

- ☐ The Jock River – Reach Two Subwatershed – Phase 1 Report (Marshall Macklin Monaghan Limited and WESA, 2009)
- ☐ Paterson Geotechnical Report PG5570-2 – Flewellyn Road – (January 2022)
- ☐ Paterson Geotechnical Report PG2802-1 – Maguire Lands – Hartsmere Drive (November 2012) – As part of D07-16-13-0033.
- ☐ Paterson Geotechnical Report PG2853-1 – Proposed Residential Development – Stittsville Main Street (January 2013) - As part of D07-16-13-0033.

- ☐ Paterson Geotechnical Report PG2983-1 – Faulkner Lands – Fernbank Road at Main Street (July 2013) - As part of D07-16-13-0033.
- ☐ Houle Chevrier Engineering – Technical Memorandum - Hydrogeological Study – (D007-16-13-0033) – Area 6, Stittsville South (April 2015) – As part of D07-16-13-0033.
- ☐ Houle Chevrier Engineering – Report on Private Well Monitoring Program Stittsville South Residential Development and Stormwater Management Pond – (November 2015) – As part of D07-16-15-0008.

Further studies may be identified that are relevant to the proposed development.

4.0 Work Plan

The work plan for the hydrogeological investigation will be based on the requirements of the Policy Development and Urban Design Branch at the City of Ottawa and the RVCA. Fotenn Planning has completed the memo on New Urban Expansion Development for Caivan Communities at the subject site and dated January 27, 2022. The memo provides an outline for the Concept Plan and development approvals process for the subject site. Through the development process there will be Concept Plan options produced that will be evaluated internally within the team of consultants based on current guidelines. Through the various iterations and review, an ultimate development plan will be created through the proposed planning and approval process per the Official Plan policies and objectives.

4.1 Geotechnical Existing Information

The existing geotechnical study (PG5570-2 – Geotechnical Investigation dated January 20, 2022) provides a characterization of the local physiography and geology of the subject area. The study results will be used to provide design recommendations for the proposed development.

The geotechnical field program consisted of the following:

- ☐ Test pits to delineate the surficial overburden material in three dimensions through multiple samples of the various strata retained for laboratory analyses.
- ☐ Boreholes were augered to the bedrock surface, where required, to provide the overburden soil profile and soil characterization.
- ☐ Boreholes were cored into the bedrock at select locations.

The geotechnical reporting consists of the following:

- ☐ The geotechnical report addresses geotechnical conditions for the proposed study area and construction recommendations relevant to the site conditions.
- ☐ Detailed test hole logs for all exploratory holes.

Test holes were distributed in compliance with the “Geotechnical Investigation and Reporting Guidelines for Development Applications in the City of Ottawa” (latest revision). See attached PG5570-1 – Proposed Monitoring Well Mark-up of Testhole Location Plan for the existing testhole coverage completed with supplemental work noted.

4.2 Hydrogeological Investigation

The hydrogeological investigation will collect and analyze general information to support the water balance, infrastructure design and constraints, and potential effects on nearby wells due to the proposed development.

The hydrogeological field program will be carried out to provide supplemental information to the geotechnical program.

- ☐ Additional monitoring wells will be installed during the field program for hydrogeological testing as shown on the attached PG5570-1 plan mark-up.
- ☐ Slug testing to determine hydraulic conductivities and aquifer characteristics within the formations/horizons deemed necessary and sieve analyses completed under the existing geotechnical report.
- ☐ Groundwater level measurement and recording of seasonal fluctuations.
- ☐ Permeameter testing will be completed at locations across the subject site within the overburden accessible from the existing ground surface as per best practices.

Evaluation of the hydrogeological conditions will consist of an evaluation of the groundwater resources encountered. The following will be provided:

- ☐ Delineation and characterization of the encountered aquifers.
- ☐ Assess the vulnerability of the aquifers.
- ☐ Calculation of the zone of influence for potential dewatering.
- ☐ Water supply wells will be located using MECP well record mapping and in the field, where required. Assess the potential risk of impacts to the water wells from the proposed development.
- ☐ Review requirements of a monitoring program for existing drinking water wells.

The analysis and recommendations for all aspects of the development will be performed in conjunction with the experts within the other disciplines to ensure an integrated approach to the development of the site. As previously mentioned, the results will be used in support of the water budget analysis. The report will include the preceding information documented, in addition to a description of the groundwater flow systems and connections.

5.0 Recommendations and Deliverables

Recommendations will be provided based upon the available information and in conjunction with the experts within other disciplines to ensure an integrated and cohesive approach to the development of the site.

The deliverables for the project will consist of the hydrogeological reporting, supplemental to the existing geotechnical information, to detail the existing site conditions and the information as set out in Section 4.1 and 4.2.

Paterson Group Inc.



Michael S. Killam, P.Eng.



David J. Gilbert, P.Eng

Report Distribution:

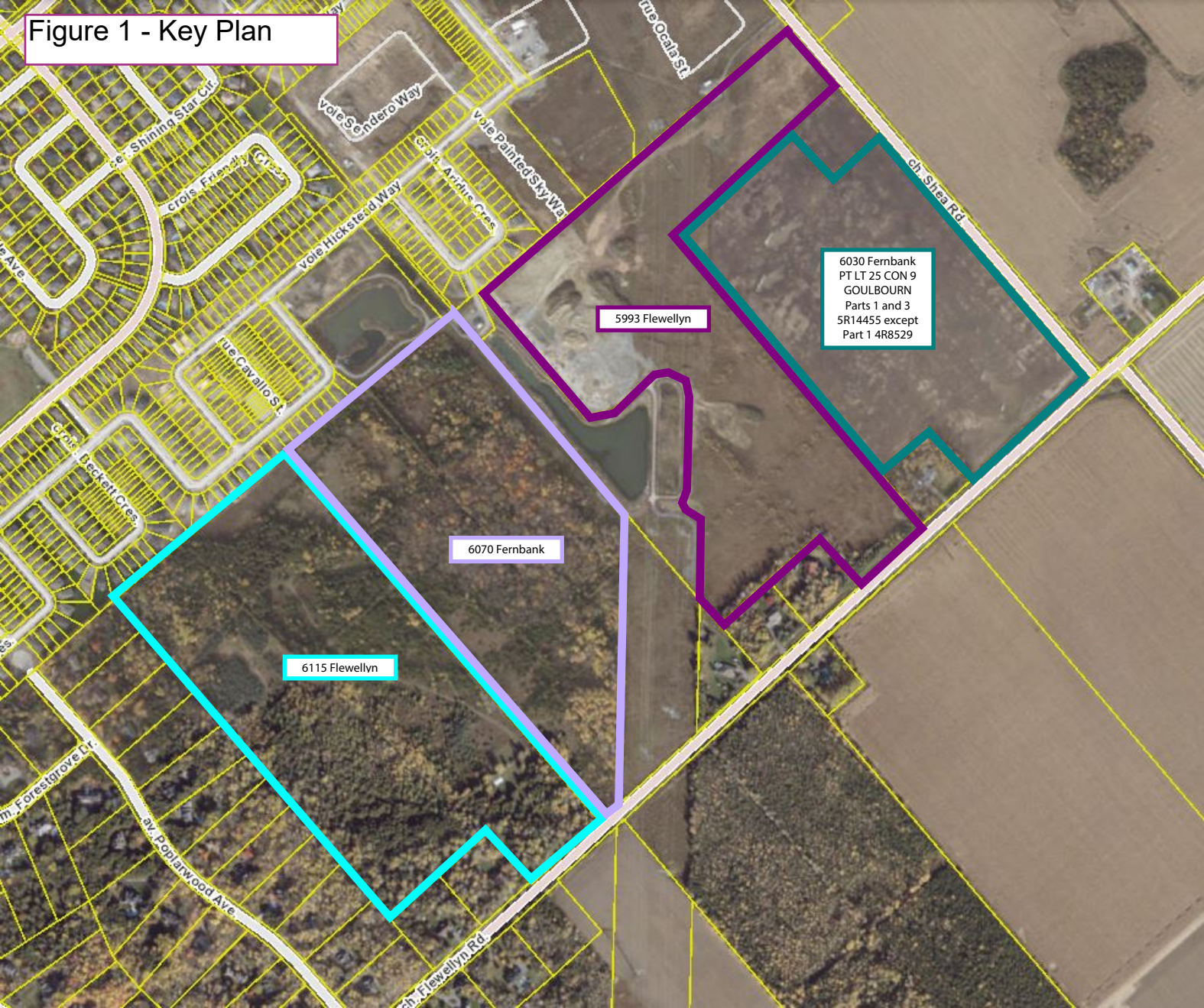
- ☐ Caivan Communities (Digital copy)
- ☐ Paterson Group (Digital copy)

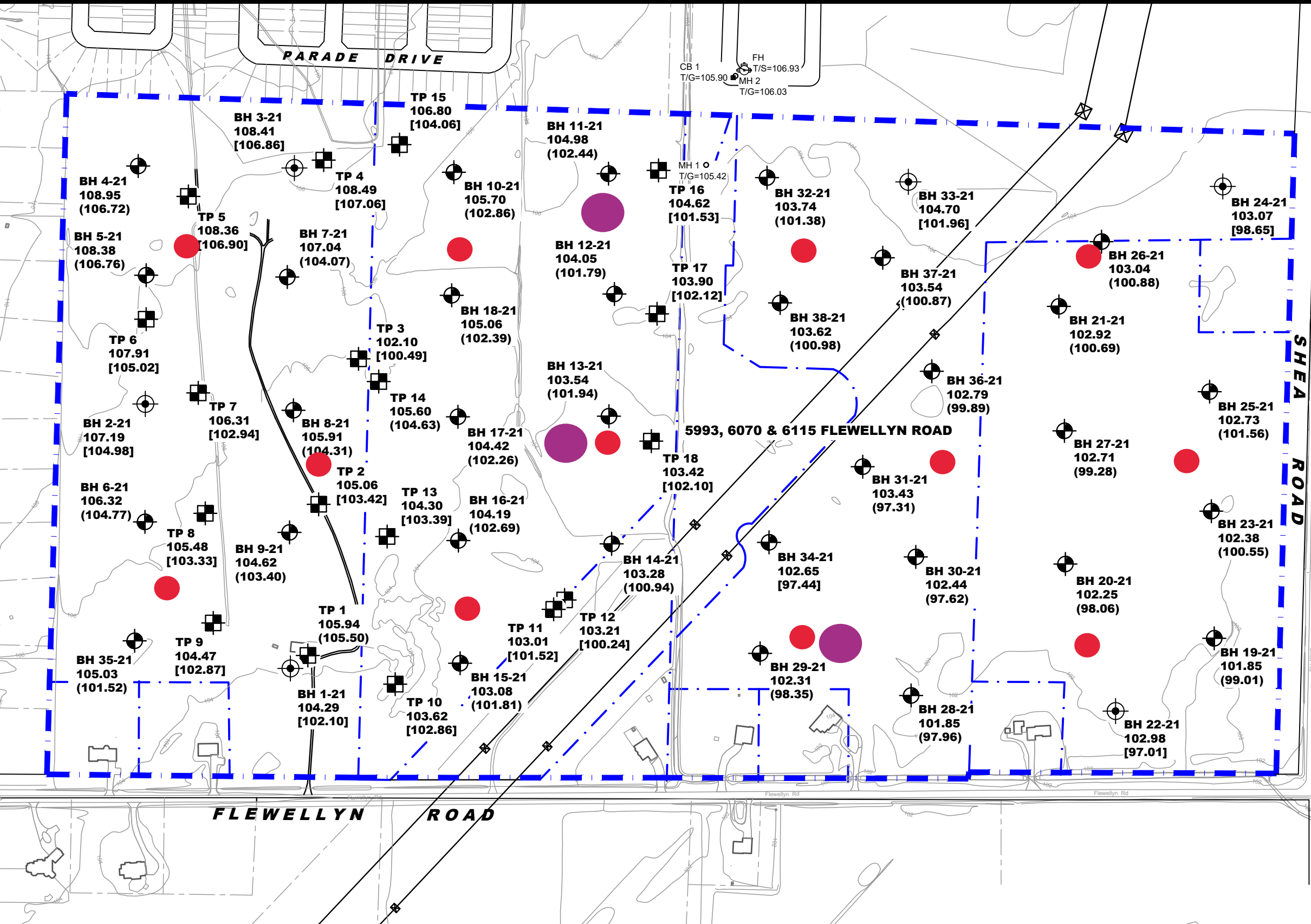
APPENDIX 1

FIGURE 1 – KEY PLAN

PG5570-1 – PROPOSED SUPPLEMENTAL PROGRAM MARK-UP - TESTHOLE LOCATION PLAN

Figure 1 - Key Plan





- LEGEND:**
- BOREHOLE LOCATION
 - BOREHOLE WITH MONITORING WELL LOCATION
 - TEST PIT LOCATION
 - 104.29 GROUND SURFACE ELEVATION (m)
 - [102.10] BEDROCK SURFACE ELEVATION (m)
 - (102.39) PRACTICAL REFUSAL TO AUGERING / EXCAVATION ELEVATION (m)

BASE PLAN PROVIDED BY KILGOUR & ASSOCIATES.
GROUND SURFACE ELEVATIONS AT BOREHOLE LOCATIONS ARE REFERENCED TO A GEODETIC DATUM.
SCALE: 1:4000

patersongroup
consulting engineers

154 Colonnade Road South
Ottawa, Ontario K2E 7J5
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1	BH 1-21 - BH 38-21 ADDED TO PLAN	01/20/2022	OC
NO.	REVISIONS	DATE	INITIAL

OTTAWA,
Title:

CAIVAN COMMUNITIES
GEOTECHNICAL INVESTIGATION
PROPOSED RESIDENTIAL DEVELOPMENT
5993, 6070 & 6115 FLEWELLYN ROAD

ONTARIO

TEST HOLE LOCATION PLAN

Scale:	1:4000	Date:	01/2022
Drawn by:	JM	Report No.:	PG5570-2
Checked by:	OC	Dwg. No.:	PG5570-1
Approved by:	DJG	Revision No.:	1

APPENDIX 2

PATERSON - SOIL AND TEST DATA SHEETS

PG5570-1 - TEST HOLE LOCATION PLAN

PATERSON - GRAIN SIZE ANALYSIS RESULTS

PATERSON - SOIL ANALYTICAL RESULTS

DATUM Geodetic

REMARKS

BORINGS BY CME-55 Low Clearance Drill

DATE September 28, 2022

FILE NO.
PG5570

HOLE NO.
BH 1-22

SOIL DESCRIPTION	STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone				Monitoring Well Construction
		TYPE	NUMBER	RECOVERY %	N VALUE or RQD			○ Water Content %				
								20	40	60	80	
GROUND SURFACE												
TOPSOIL	0.30					0	107.31					
Loose to compact, brown SILTY SAND , trace gravel	0.60	AU	1					○				
GLACIAL TILL: Compact to dense, brown silty sand to sandy silt with gravel, cobbles and boulders		SS	2	45	17	1	106.31	○				
		SS	3	14	65			○				
						2	105.31					
	2.34											
BEDROCK: Excellent quality, grey limestone interbedded with dolostone		RC	1	100	89							
						3	104.31					
		RC	2	100	100							
						4	103.31					
		RC	3	100	100							
						5	102.31					
		RC	4	98	98							
						6	101.31					
		RC	5	100	100							
						7	100.31					
						8	99.31					
End of Borehole	9.02					9	98.31					
(GWL @ 1.33m - Oct. 11, 2022)												
								20	40	60	80	100
								Shear Strength (kPa)				
								▲ Undisturbed △ Remoulded				

DATUM Geodetic

REMARKS

BORINGS BY CME-55 Low Clearance Drill

DATE September 28, 2022

FILE NO.
PG5570

HOLE NO.
BH 2-22

SOIL DESCRIPTION	STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone				Monitoring Well Construction
		TYPE	NUMBER	RECOVERY %	N VALUE or RQD			○ Water Content %				
								20	40	60	80	
GROUND SURFACE												
TOPSOIL	0.30					0	103.58					
Compact, brown SILTY SAND to SANDY SILT , trace clay and gravel	0.76	AU	1									
BEDROCK: Good to excellent quality, grey limestone interbedded with dolostone		RC	1	100	77	1	102.58					
		RC	2	100	97	2	101.58					
		RC	3	100	100	3	100.58					
		RC	4	100	100	4	99.58					
		RC	5	100	97	5	98.58					
		RC	6	100	100	6	95.58					
End of Borehole	9.02					9	94.58					
(GWL @ 1.52m - Oct. 11, 2022)												
								20	40	60	80	100
								Shear Strength (kPa)				
								▲ Undisturbed △ Remoulded				

BEDROCK: Good to excellent quality, grey limestone interbedded with dolostone

DATUM Geodetic

REMARKS

BORINGS BY CME-55 Low Clearance Drill

DATE September 29, 2022

FILE NO.
PG5570

HOLE NO.
BH 3-22

SOIL DESCRIPTION	STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone				Monitoring Well Construction
		TYPE	NUMBER	RECOVERY %	N VALUE or RQD			○ Water Content %				
								20	40	60	80	
GROUND SURFACE												
TOPSOIL	0.28					0	102.25					
Compact, brown SILTY SAND to SANDY SILT		AU	1									
		SS	2	58	19	1	101.25					
		SS	3	58	17	2	100.25					
GLACIAL TILL: Grey silty sand to sandy silt with gravel, cobbles and boulders, trace clay		SS	4	67	3							
		SS	5	67	50+	3	99.25					
BEDROCK: Excellent quality, grey limestone interbedded with doloston		RC	1	100	96	4	98.25					
						5	97.25					
		RC	2	100	98							
						6	96.25					
		RC	3	100	100	7	95.25					
						8	94.25					
		RC	4	100	100							
						9	93.25					
End of Borehole	9.12											
(GWL @ 0.84m - Oct. 11, 2022)												
								20	40	60	80	100
								Shear Strength (kPa)				
								▲ Undisturbed △ Remoulded				

DATUM	Geodetic
-------	----------

REMARKS

BORINGS BY CME-55 Low Clearance Drill

DATE September 29, 2022

FILE NO.
PG5570

HOLE NO.
BH 3A-22

SOIL DESCRIPTION	STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone				Monitoring Well Construction	
		TYPE	NUMBER	RECOVERY	N VALUE or RQD			○ Water Content %					
GROUND SURFACE													
TOPSOIL	0.28					0	102.25						
Compact, brown SILTY SAND to SANDY SILT		AU	1			1	101.25						
	2.20					2	100.25						
GLACIAL TILL: Grey silty sand to sandy silt with gravel, cobbles and boulders, trace clay													
	3.15					3	99.25						
End of Borehole													
Practical refusal to augering at 3.15m depth.													
(GWL @ 0.81m - Oct. 11, 2022)													

DATUM Geodetic

REMARKS

BORINGS BY CME-55 Low Clearance Drill

DATE September 29, 2022

FILE NO.
PG5570

HOLE NO.
BH 4-22

SOIL DESCRIPTION	STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone				Monitoring Well Construction
		TYPE	NUMBER	RECOVERY %	N VALUE or RQD			○ Water Content %				
								20	40	60	80	
GROUND SURFACE												
TOPSOIL	0.28					0	105.71					
Compact, brown SILTY SAND to SANDY SILT		AU	1									
		SS	2	75	22	1	104.71					
		SS	3	75	21	2	103.71					
GLACIAL TILL: Compact to dense, brown silty sand with gravel, cobbles and boulders, trace clay - grey by 3.0m depth	2.21											
		SS	4	67	17	3	102.71					
		SS	5	57	45							
	3.61											
BEDROCK: Good to excellent quality, grey limestone interbedded with dolostone		RC	1	100	84	4	101.71					
		RC	2	100	98	5	100.71					
		RC	3	100	100	6	99.71					
		RC	4	100	100	7	98.71					
						8	97.71					
	9.04											
End of Borehole						9	96.71					
(GWL @ 3.62m - Oct. 11, 2022)												
								20	40	60	80	100
								Shear Strength (kPa)				
								▲ Undisturbed △ Remoulded				

DATUM Geodetic

REMARKS

BORINGS BY CME-55 Low Clearance Drill

DATE September 30, 2022

FILE NO.
PG5570

HOLE NO.
BH 5-22

SOIL DESCRIPTION	STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone				Monitoring Well Construction
		TYPE	NUMBER	RECOVERY %	N VALUE or RQD			○ Water Content %				
GROUND SURFACE								20	40	60	80	
TOPSOIL	0.28					0	105.70					
Compact, brown SILTY SAND to SANDY SILT		AU	1									
		SS	2	79	21	1	104.70					
		SS	3	71	29	2	103.70					
GLACIAL TILL: Compact to dense, brown silty sand to sandy silt, trace gravel	1.96											
	2.29	SS	4	100	50+							
BEDROCK: Excellent quality, grey limestone interbedded with dolostone		RC	1	100	100							
						3	102.70					
		RC	2	100	100							
						4	101.70					
						5	100.70					
		RC	3	100	100							
						6	99.70					
		RC	4	100	100							
						7	98.70					
		RC	5	100	100							
End of Borehole	8.99											
(GWL @ 1.62m - Oct. 11, 2022)												
								20	40	60	80	100
								Shear Strength (kPa)				
								▲ Undisturbed △ Remoulded				

DATUM	Geodetic
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REMARKS

BORINGS BY Hand Auger

DATE September 28, 2022

FILE NO.
PG5570

HOLE NO.
HA 1-22

[illegible]

[illegible]

FILE NO.
PG5570

HOLE NO.
BH 2-21

DATE December 14, 2021

[illegible]

**Prop. Residential Development - 6115 Flewellyn Road
Ottawa, Ontario**

SOIL DESCRIPTION		STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone				Monitoring Well Construction
			TYPE	NUMBER	RECOVERY %	N VALUE or RQD			○ Water Content %				
									20	40	60	80	
GROUND SURFACE													
Mulch	0.08						0	108.41					
TOPSOIL	0.43		AU	1									
Loose, brown SILTY SAND	0.63												
Loose to compact, brown SILTY SAND to SANDY SILT			SS	2	50	10	1	107.41					
	1.55		SS	3	0	50+							
			RC	1	100	100	2	106.41					
BEDROCK: Good to excellent, grey limestone interbedded with dolostone			RC	2	100	72	3	105.41					
							4	104.41					
- 30mm thick mud seam at 4.3m depth			RC	3	100	100	5	103.41					
End of Borehole	5.72												
(GWL @ 0.89m - Jan. 11, 2022)													

20406080100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

SOIL DESCRIPTION		STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone				Piezometer Construction
			TYPE	NUMBER	RECOVERY	N VALUE or RQD			○ Water Content %				
GROUND SURFACE									20	40	60	80	
Mulch	0.10	[Pattern]	AU	1			0	108.95					
TOPSOIL	0.30	[Pattern]											
Compact, brown SILTY SAND, trace shells	0.60	[Pattern]	SS	2	50	12	1	107.95					
GLACIAL TILL: Compact, brown silty sand with gravel, cobbles and boulders		[Pattern]	SS	3	42	21							
	2.23	[Pattern]					2	106.95					
End of Borehole													
Practical refusal to augering at 2.23m depth													
(GWL @ 1.23m - Jan. 11, 2022)													

Shear Strength (kPa)
▲ Undisturbed △ Remoulded

DATUM	Geodetic
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REMARKS

BORINGS BY Track-Mount Power Auger

DATE December 15, 2021

FILE NO.
PG5570

HOLE NO.
BH 5-21

SOIL DESCRIPTION	STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone				Piezometer Construction
		TYPE	NUMBER	% RECOVERY	N VALUE or RQD			○ Water Content %				
GROUND SURFACE								20	40	60	80	
TOPSOIL	0.36	AU	1			0	108.38					
Loose, brown SILTY SAND	1.22	SS	2		4	1	107.38					
GLACIAL TILL: Dense, grey silty sand with gravel, cobbles and boulders	1.62	SS	3	0	50+							
End of Borehole												
Practical refusal to augering at 1.62m depth												
(BH dry - January 11, 2022)												

Shear Strength (kPa)
 ▲ Undisturbed △ Remoulded

DATUM	Geodetic
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REMARKS

BORINGS BY Track-Mount Power Auger

DATE December 15, 2021

FILE NO.
PG5570

HOLE NO.
BH 6-21

[illegible]

DATUM	Geodetic
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REMARKS

BORINGS BY Track-Mount Power Auger

DATE December 15, 2021

FILE NO.
PG5570

HOLE NO.
BH 7-21

SOIL DESCRIPTION	STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone				Piezometer Construction	
		TYPE	NUMBER	RECOVERY %	N VALUE or RQD			○ Water Content %					
								20	40	60	80		
GROUND SURFACE													
Mulch TOPSOIL	0.10	AU	1			0	107.04						
Loose, brown SILTY SAND	0.41												
	0.60												
GLACIAL TILL: Compact to dense, brown silty sand with gravel, cobbles and boulders		SS	2	100	19	1	106.04						
		SS	3	67	44	2	105.04						
		SS	4		52								
End of Borehole	2.97												
Practical refusal to augering at 2.97m depth													
(GWL @ 1.09m - Jan. 11, 2022)													

20406080100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

DATUM	Geodetic
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REMARKS

BORINGS BY Track-Mount Power Auger

DATE December 15, 2021

FILE NO.
PG5570

HOLE NO.
BH 8-21

[illegible]

DATUM	Geodetic
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REMARKS

BORINGS BY Track-Mount Power Auger

DATE December 15, 2021

FILE NO.
PG5570

HOLE NO.
BH 9-21

[illegible]

[illegible]

DATUM	Geodetic
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REMARKS

BORINGS BY Track-Mount Power Auger

DATE December 16, 2021

FILE NO.
PG5570

HOLE NO.
BH11-21

SOIL DESCRIPTION		STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone				Piezometer Construction
			TYPE	NUMBER	RECOVERY %	N VALUE or RQD			○ Water Content %				
									20	40	60	80	
GROUND SURFACE													
TOPSOIL	0.33						0	104.98					
Compact, brown SILTY SAND	0.66		AU	1									
Compact, brown SILTY SAND to SANDY SILT	1.12		SS	2	67	24	1	103.98					
GLACIAL TILL: Compact to dense, brown silty sand with gravel, cobbles and boulders			SS	3	67	32	2	102.98					
	2.54		SS	4	80	50+							
End of Borehole													
Practical refusal to augering at 2.54m depth													
(GWL @ 1.32m - Jan. 11, 2022)													

20406080100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

DATUM	Geodetic
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REMARKS

BORINGS BY Track-Mount Power Auger

DATE December 16, 2021

FILE NO.
PG5570

HOLE NO.
BH12-21

SOIL DESCRIPTION	STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone				Piezometer Construction
		TYPE	NUMBER	RECOVERY %	N VALUE or RQD			○ Water Content %				
								20	40	60	80	
GROUND SURFACE												
TOPSOIL	0.36					0	104.05					
Compact, brown SILTY SAND	0.69	AU	1									
Compact, brown SILTY SAND to SANDY SILT	1.45	SS	2	67	13	1	103.05					
GLACIAL TILL: Dense, brown silty sand with gravel, cobbles and boulders	2.26	SS	3	17	36	2	102.05					
End of Borehole												
Practical refusal to augering at 2.26m depth												
(GWL @ 1.58m - Jan. 11, 2022)												

SOIL PROFILE AND TEST DATA

Geotechnical Investigation

**Prop. Residential Development - 6115 Flewellyn Road
Ottawa, Ontario**

DATUM	Geodetic
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REMARKS

BORINGS BY Track-Mount Power Auger

DATE December 16, 2021

FILE NO.
PG5570

HOLE NO.
BH13-21

[illegible]

DATUM	Geodetic
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REMARKS

BORINGS BY Track-Mount Power Auger

DATE December 16, 2021

FILE NO.
PG5570

HOLE NO.
BH14-21

[illegible]

SOIL DESCRIPTION	STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone				Piezometer Construction
		TYPE	NUMBER	RECOVERY %	N VALUE or RQD			○ Water Content %				
								20	40	60	80	
GROUND SURFACE												
TOPSOIL	0.30					0	103.08					
Compact, brown SILTY SAND to SANDY SILT	0.91	AU	1									
GLACIAL TILL: Compact, brown silty sand with gravel, cobbles and boulders	1.27	SS	2	63	19	1	102.08					
End of Borehole												
Practical refusal to augering at 1.27m depth												
(GWL @ 0.92m - Jan. 11, 2022)												

20406080100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

DATUM	Geodetic
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REMARKS

BORINGS BY Track-Mount Power Auger

DATE December 16, 2021

FILE NO.
PG5570

HOLE NO.
BH16-21

SOIL DESCRIPTION	STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone				Piezometer Construction	
		TYPE	NUMBER	RECOVERY %	N VALUE or RQD			○ Water Content %					
								20	40	60	80		
GROUND SURFACE													
TOPSOIL 0.25						0	104.19						
Compact, brown SILTY SAND, trace gravel 0.69		AU	1										
GLACIAL TILL: Compact, brown silty sand with gravel, cobbles and boulders 1.50		SS	2		22	1	103.19						
End of Borehole													
Practical refusal to augering at 1.50m depth													
(GWL @ 1.32m - Jan. 11, 2022)													

20406080100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

DATUM	Geodetic
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REMARKS

BORINGS BY Track-Mount Power Auger

DATE December 16, 2021

FILE NO.
PG5570

HOLE NO.
BH17-21

SOIL DESCRIPTION	STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone				Piezometer Construction
		TYPE	NUMBER	RECOVERY	N VALUE or RQD			○ Water Content %				
								20	40	60	80	
GROUND SURFACE												
TOPSOIL	0.28					0	104.42					
Loose, brown SILTY SAND to SANDY SILT		AU	1									
		SS	2	75	5	1	103.42					
		SS	3	91	11							
GLACIAL TILL: Compact, brown silty sand with gravel, cobbles and boulders	1.98					2	102.42					
End of Borehole	2.16											
Practical refusal to augering at 2.16m depth												
(GWL @ 1.25m - Jan. 11, 2022)												

20406080100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

SOIL PROFILE AND TEST DATA

Geotechnical Investigation

**Prop. Residential Development - 6115 Flewellyn Road
Ottawa, Ontario**

DATUM	Geodetic
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REMARKS

BORINGS BY Track-Mount Power Auger

DATE December 16, 2021

FILE NO.
PG5570

HOLE NO.
BH18-21

[illegible]

DATUM	Geodetic
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REMARKS

BORINGS BY Track-Mount Power Auger

DATE December 16, 2021

FILE NO.
PG5570

HOLE NO.
BH19-21

[illegible]

DATUM	Geodetic
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REMARKS

BORINGS BY Track-Mount Power Auger

DATE December 17, 2021

FILE NO.
PG5570

HOLE NO.
BH20-21

SOIL DESCRIPTION		STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone				Piezometer Construction
			TYPE	NUMBER	% RECOVERY	N VALUE or RQD			○ Water Content % 20 40 60 80				
GROUND SURFACE													
TOPSOIL	0.23	[Pattern]	AU	1			0	102.25					
Compact to loose, brown SILTY SAND to SANDY SILT		[Pattern]	SS	2	58	11	1	101.25					
		[Pattern]	SS	3	42	7	2	100.25					
	Interlayered grey SANDY SILT and grey SILTY CLAY	2.44	[Pattern]	SS	4	75	3	3	99.25				
GLACIAL TILL: Compact, grey silty sand with gravel, cobbles and boulders	3.20	[Pattern]	SS	5	67	23							
	4.19	[Pattern]	SS	6		50+	4	98.25					
End of Borehole													
Practical refusal to augering at 4.19m depth													
(GWL @ 1.71m - Jan. 11, 2022)													

Shear Strength (kPa)
▲ Undisturbed △ Remoulded

SOIL DESCRIPTION		STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone				Piezometer Construction
			TYPE	NUMBER	RECOVERY	N VALUE or RQD			○ Water Content %				
GROUND SURFACE									20	40	60	80	
TOPSOIL	0.25		AU	1			0	102.92					
Loose, brown SILTY SAND to SANDY SILT	1.07		SS	2	42	36	1	101.92					
GLACIAL TILL: Dense, brown silty sand with gravel, cobbles and boulders	2.23		SS	3	50	71	2	100.92					
End of Borehole													
Practical refusal to augering at 2.23m depth													
(Piezometer damaged - Jan. 11, 2022)													

20406080100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

DATUM	Geodetic
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REMARKS

BORINGS BY Track-Mount Power Auger

DATE December 20, 2021

FILE NO.
PG5570

HOLE NO.
BH22-21

SOIL DESCRIPTION	STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone				Piezometer Construction
		TYPE	NUMBER	RECOVERY %	N VALUE or RQD			○ Water Content %				
								20	40	60	80	
GROUND SURFACE												
TOPSOIL	0.20					0	102.98					
Loose, brown SILTY SAND , trace gravel	0.69	AU	1									
		SS	2	100	22	1	101.98					
GLACIAL TILL: Compact to dense, brown silty sand with gravel, cobbles and boulders		SS	3	92	29	2	100.98					
		SS	4	83	46							
		SS	5	50	50+	3	99.98					
End of Borehole	3.48											
Practical refusal to augering at 3.48m depth.												

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

DATUM Geodetic

REMARKS

BORINGS BY Track-Mount Power Auger

DATE January 10, 2022

FILE NO.
PG5570

HOLE NO.
BH22A-21

SOIL DESCRIPTION	STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone				Monitoring Well Construction
		TYPE	NUMBER	RECOVERY %	N VALUE or RQD			○ Water Content %				
								20	40	60	80	
GROUND SURFACE												
TOPSOIL	0.20					0	102.98					
Loose, brown SILTY SAND , trace gravel	0.69	AU	1									
GLACIAL TILL: Compact to dense, brown silty sand with gravel, cobbles and boulders		SS	2	100	22	1	101.98					
		SS	3	92	29	2	100.98					
		SS	4	83	46	3	99.98					
		SS	5	50	50+	4	98.98					
		RC	1	77		5	97.98					
		RC	2	14		6	96.98					
		RC	3	100	94	7	95.98					
		RC	4	100	100	8	94.98					
		RC	5	100	100	9	93.98					
						10	92.98					
BEDROCK: Excellent quality, grey dolostone interbedded with grey limestone												
End of Borehole	10.21											
(GWL @ 2.49m - Jan. 11, 2022)												
								20	40	60	80	100
								Shear Strength (kPa)				
								▲ Undisturbed △ Remoulded				

SOIL PROFILE AND TEST DATA

Geotechnical Investigation

**Prop. Residential Development - 6115 Flewellyn Road
Ottawa, Ontario**

DATUM	Geodetic
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REMARKS

BORINGS BY Track-Mount Power Auger

DATE December 20, 2021

FILE NO.
PG5570

HOLE NO.
BH23-21

[illegible]

SOIL DESCRIPTION	STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone				Monitoring Well Construction	
		TYPE	NUMBER	RECOVERY %	N VALUE or RQD			○ Water Content %					
								20	40	60	80		
GROUND SURFACE													
TOPSOIL	0.30					0	103.07						
Loose to dense, brown SILTY SAND to SANDY SILT		AU	1										
		SS	2	58	8	1	102.07						
	1.83												
GLACIAL TILL: Dense, brown silty sand with gravel, cobbles and boulders - boulders cored from 2.46 to 4.42m depth		SS	3	75	32	2	101.07						
		SS	4	50	50+								
		RC	1	100		3	100.07						
		RC	2	19		4	99.07						
	4.42												
BEDROCK: Good to excellent quality, grey limestone interbedded with dolostone - 15mm thick mud seam at 5.25m depth		RC	3	100	81	5	98.07						
		RC	4	100	100	6	97.07						
		RC	5	100	100	7	96.07						
	7.92												
End of Borehole (GWL @ 0.67m - Jan. 11, 2022)													
								20	40	60	80	100	
								Shear Strength (kPa)					
								▲ Undisturbed △ Remoulded					

SOIL PROFILE AND TEST DATA

Geotechnical Investigation

**Prop. Residential Development - 6115 Flewellyn Road
Ottawa, Ontario**

DATUM	Geodetic
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REMARKS

BORINGS BY Track-Mount Power Auger

DATE December 21, 2021

FILE NO.
PG5570

HOLE NO.
BH25-21

[illegible]

DATUM	Geodetic
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REMARKS

BORINGS BY Track-Mount Power Auger

DATE December 21, 2021

FILE NO.
PG5570

HOLE NO.
BH26-21

SOIL DESCRIPTION		STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone				Piezometer Construction
			TYPE	NUMBER	% RECOVERY	N VALUE or RQD			○ Water Content %				
									20	40	60	80	
GROUND SURFACE													
TOPSOIL	0.25	[Pattern]	AU	1			0	103.04					
Stiff, brown SILTY CLAY, some sand	0.69	[Pattern]	SS	2	40	50+							
GLACIAL TILL: Dense, brown silty sand with gravel, cobbles and boulders, trace clay		[Pattern]	SS	3	61	33	1	102.04					
	2.16						2	101.04					
End of Borehole													
Practical refusal to augering at 2.16m depth													
(GWL @ 0.78m - Jan. 11, 2022)													

Shear Strength (kPa)
▲ Undisturbed △ Remoulded

DATUM	Geodetic
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REMARKS

BORINGS BY Track-Mount Power Auger

DATE December 21, 2021

FILE NO.
PG5570

HOLE NO.
BH27-21

[illegible]

DATUM	Geodetic
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REMARKS

BORINGS BY Track-Mount Power Auger

DATE December 21, 2021

FILE NO.
PG5570

HOLE NO.
BH28-21

[illegible]

SOIL PROFILE AND TEST DATA

Geotechnical Investigation

**Prop. Residential Development - 6115 Flewellyn Road
Ottawa, Ontario**

DATUM	Geodetic
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REMARKS

BORINGS BY Track-Mount Power Auger

DATE December 21, 2021

FILE NO.
PG5570

HOLE NO.
BH29-21

SOIL DESCRIPTION	STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone				Piezometer Construction
		TYPE	NUMBER	RECOVERY	N VALUE or RQD			○ Water Content %				
								20	40	60	80	
GROUND SURFACE												
TOPSOIL	0.28					0	102.31					
Loose to very loose, brown SILTY SAND to SANDY SILT , trace clay - grey by 1.9m depth - intermittent layers of grey silty clay by 3.0m depth		AU	1									
		SS	2	50	9	1	101.31					
		SS	3	67	8	2	100.31					
		SS	4	67	4							
		SS	5	58	2	3	99.31					
End of Borehole	3.96	SS	6	67								
Practical refusal to augering at 3.96m depth (Piezometer damaged - Jan. 11, 2022)												

20406080100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

DATUM	Geodetic
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REMARKS

BORINGS BY Track-Mount Power Auger

DATE December 21, 2021

FILE NO.
PG5570

HOLE NO.
BH30-21

[illegible]

[illegible]

DATUM	Geodetic
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REMARKS

BORINGS BY Track-Mount Power Auger

DATE December 21, 2021

FILE NO.
PG5570

HOLE NO.
BH32-21

[illegible]

SOIL DESCRIPTION	STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone				Monitoring Well Construction
		TYPE	NUMBER	RECOVERY %	N VALUE or RQD			○ Water Content %				
								20	40	60	80	
GROUND SURFACE												
Compact, brown SILTY SAND , trace clay and organics		AU	1			0	104.70					
		SS	2	50	13	1	103.70					
1.45		SS	3	8	11							
GLACIAL TILL: Compact, brown silty sand with gravel, cobbles and boulders		RC	1	30		2	102.70					
2.74												
		RC	2	100	73	3	101.70					
BEDROCK: Good to excellent quality, grey limestone						4	100.70					
- 25mm thick mud seam at 3.7m depth		RC	3	95	85	5	99.70					
- 30mm thick mud seam at 3.8m depth		RC	4	100	100	6	98.70					
6.27												
End of Borehole												
(GWL @ 1.84m - Jan. 11, 2022)												

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

DATUM	Geodetic
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REMARKS

BORINGS BY Track-Mount Power Auger

DATE December 22, 2021

FILE NO.
PG5570

HOLE NO.
BH34-21

SOIL DESCRIPTION	STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone				Piezometer Construction
		TYPE	NUMBER	RECOVERY %	N VALUE or RQD			○ Water Content %				
								20	40	60	80	
GROUND SURFACE						0	102.65					
TOPSOIL	0.25	SS AU	5	17	8							
Compact to loose, brown SILTY SAND to SANDY SILT		SS	2	42	10	1	101.65					
		SS	3	25	9	2	100.65					
	2.21	SS	4	17	2	3	99.65					
GLACIAL TILL: Very loose to loose, grey silty sand with gravel, cobbles and boulders, trace clay		RC	1	31		4	98.65					
		RC	2	100	100	5	97.65					
	5.21	RC	3	100	100	6	96.65					
BEDROCK: Excellent quality, grey limestone interbedded with dolostone												
End of Borehole	6.61											

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

DATUM	Geodetic
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REMARKS

BORINGS BY Track-Mount Power Auger

DATE January 7, 2022

FILE NO.
PG5570

HOLE NO.
BH35-21

[illegible]

DATUM	Geodetic
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REMARKS

BORINGS BY Track-Mount Power Auger

DATE January 7, 2022

FILE NO.
PG5570

HOLE NO.
BH36-21

[illegible]

DATUM	Geodetic
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REMARKS

BORINGS BY Track-Mount Power Auger

DATE January 7, 2022

FILE NO.
PG5570

HOLE NO.
BH37-21

[illegible]

DATUM	Geodetic
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REMARKS

BORINGS BY Track-Mount Power Auger

DATE January 7, 2022

FILE NO.
PG5570

HOLE NO.
BH38-21

[illegible]

DATUM	Geodetic
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FILE NO. PG5570

REMARKS

HOLE NO. TP 1

BORINGS BY CME-55 Low Clearance Drill

DATE November 20, 2020

[illegible]

DATUM Geodetic

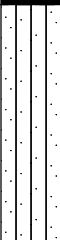
REMARKS

BORINGS BY CME-55 Low Clearance Drill

DATE November 20, 2020

FILE NO. PG5570

HOLE NO. TP 2

SOIL DESCRIPTION	STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone				Piezometer Construction	
		TYPE	NUMBER	RECOVERY %	N VALUE or RQD			○ Water Content %					
								20	40	60	80		
GROUND SURFACE						0	105.06						
TOPSOIL		G	1										
0.21													
Brown SILTY SAND , trace gravel		G	2										
0.92													
GLACIAL TILL : Brown silty sand with gravel, cobbles and boulders		G	3			1	104.06						
1.64													
End of Test Pit													
TP terminated on inferred bedrock surface at 1.64m depth (TP dry upon completion)													

DATUM	Geodetic
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FILE NO. PG5570

REMARKS

HOLE NO. TP 3

BORINGS BY CME-55 Low Clearance Drill

DATE November 20, 2020

[illegible]

DATUM	Geodetic
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FILE NO. PG5570

REMARKS

HOLE NO. TP 4

BORINGS BY CME-55 Low Clearance Drill

DATE November 20, 2020

SOIL DESCRIPTION	STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone				Piezometer Construction
		TYPE	NUMBER	RECOVERY %	N VALUE or RQD			○ Water Content %				
GROUND SURFACE								20	40	60	80	
TOPSOIL 0.21		G	1			0	108.49					
Brown SILTY SAND , trace gravel, cobble and organics 0.70		G	2									
GLACIAL TILL: Brown silty sand, some gravel, cobble, boulder, trace clay 1.43		G	3			1	107.49					
End of Test Pit Test Pit terminated on bedrock surface at 1.43m depth (TP dry upon completion)												

20406080100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

DATUM Geodetic

REMARKS

BORINGS BY CME-55 Low Clearance Drill

DATE November 20, 2020

FILE NO.

PG5570

HOLE NO.

TP 5

SOIL DESCRIPTION	STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone				Piezometer Construction
		TYPE	NUMBER	RECOVERY %	N VALUE or RQD			○ Water Content %				
GROUND SURFACE						0	108.36	20	40	60	80	
TOPSOIL	0.22	G	1									
Brown SILTY SAND		G	2			1	107.36					
GLACIAL TILL: Brown silty sand, some gravel, cobble, and boulder	1.16	G	3									
End of Test Pit	1.46											
TP terminated on inferred bedrock surface at 1.46m depth												
(Groundwater infiltration at 1.28m - Nov 20, 2020)												
								20	40	60	80	100
								Shear Strength (kPa)				
								▲ Undisturbed △ Remoulded				

DATUM Geodetic

REMARKS

BORINGS BY CME-55 Low Clearance Drill

DATE November 20, 2020

FILE NO. PG5570

HOLE NO. TP 6

SOIL DESCRIPTION	STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone				Piezometer Construction		
		TYPE	NUMBER	RECOVERY %	N VALUE or RQD			○ Water Content %						
GROUND SURFACE												20	40	60
TOPSOIL		G	1			0	107.91							
	0.27													
		G	2			1	106.91							
Brown SILTY SAND , trace cobble, boulders and seashells		G	3											
	1.70													
		G	4			2	105.91							
BEDROCK: Weathered interbedded limestone														
	2.89													
End of Test Pit														
TP terminated on inferred bedrock surface at 2.89m depth														
(Groundwater infiltration at 1.70m - Nov 20, 2020)														
				</										

DATUM Geodetic

REMARKS

BORINGS BY CME-55 Low Clearance Drill

DATE November 20, 2020

FILE NO. PG5570

HOLE NO. TP 7

SOIL DESCRIPTION	STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone				Piezometer Construction
		TYPE	NUMBER	RECOVERY %	N VALUE or RQD			○ Water Content %				
								20	40	60	80	
GROUND SURFACE												
TOPSOIL	0.22	G	1			0	106.31					
Brown SILTY SAND , trace clay	0.81	G	2									
GLACIAL TILL : Brown silty sand with gravel, cobbles and boulders		G	3			1	105.31					
		G	4			2	104.31					
End of Test Pit	3.37					3	103.31					
TP terminated on inferred bedrock surface at 3.37m depth												
(Groundwater infiltration at 2.24m - Nov 20, 2020)												
								20	40	60	80	100
								Shear Strength (kPa)				
								▲ Undisturbed △ Remoulded				

DATUM Geodetic

REMARKS

BORINGS BY CME-55 Low Clearance Drill

DATE November 20, 2020

FILE NO. PG5570

HOLE NO. TP 8

SOIL DESCRIPTION	STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone				Piezometer Construction
		TYPE	NUMBER	RECOVERY %	N VALUE or RQD			○ Water Content %				
								20	40	60	80	
GROUND SURFACE						0	105.48					
TOPSOIL	0.21	G	1									
		G	2									
						1	104.48					
		G	3									
						2	103.48					
End of Test Pit	2.15											
TP terminated on inferred bedrock surface at 2.15m depth												
(TP dry upon completion)												

DATUM	Geodetic
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FILE NO. PG5570

REMARKS

HOLE NO. **TP 9**

BORINGS BY CME-55 Low Clearance Drill

DATE November 20, 2020

SOIL DESCRIPTION	STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone				Piezometer Construction
		TYPE	NUMBER	% RECOVERY	N VALUE or RQD			○ Water Content %				
GROUND SURFACE								20	40	60	80	
TOPSOIL		G	1			0	104.47					
0.22												
Brown SILTY SAND , trace organics		G	2									
0.79												
GLACIAL TILL: Brown silty sand trace gravel, cobbles, and boulders		G	3			1	103.47					
1.60												
End of Test Pit												
TP terminated on inferred bedrock surface at 1.60m depth (TP dry upon completion)												

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

SOIL PROFILE AND TEST DATA

FILE NO. PG5570

HOLE NO. **TP 10**

REMARKS

BORINGS BY CME-55 Low Clearance Drill

DATE December 10, 2020

[illegible]

DATUM	Geodetic
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FILE NO. PG5570

REMARKS

HOLE NO. TP 11

BORINGS BY CME-55 Low Clearance Drill

DATE December 10, 2020

[illegible]

DATUM	Geodetic
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FILE NO. PG5570

REMARKS

HOLE NO. TP 12

BORINGS BY CME-55 Low Clearance Drill

DATE December 10, 2020

[illegible]

DATUM	Geodetic
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FILE NO. PG5570

REMARKS

HOLE NO. **TP 13**

BORINGS BY CME-55 Low Clearance Drill

DATE December 10, 2020

[illegible]

DATUM	Geodetic
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REMARKS

BORINGS BY CME-55 Low Clearance Drill

DATE December 10, 2020

FILE NO. PG5570

HOLE NO. TP 14

[illegible]

DATUM Geodetic

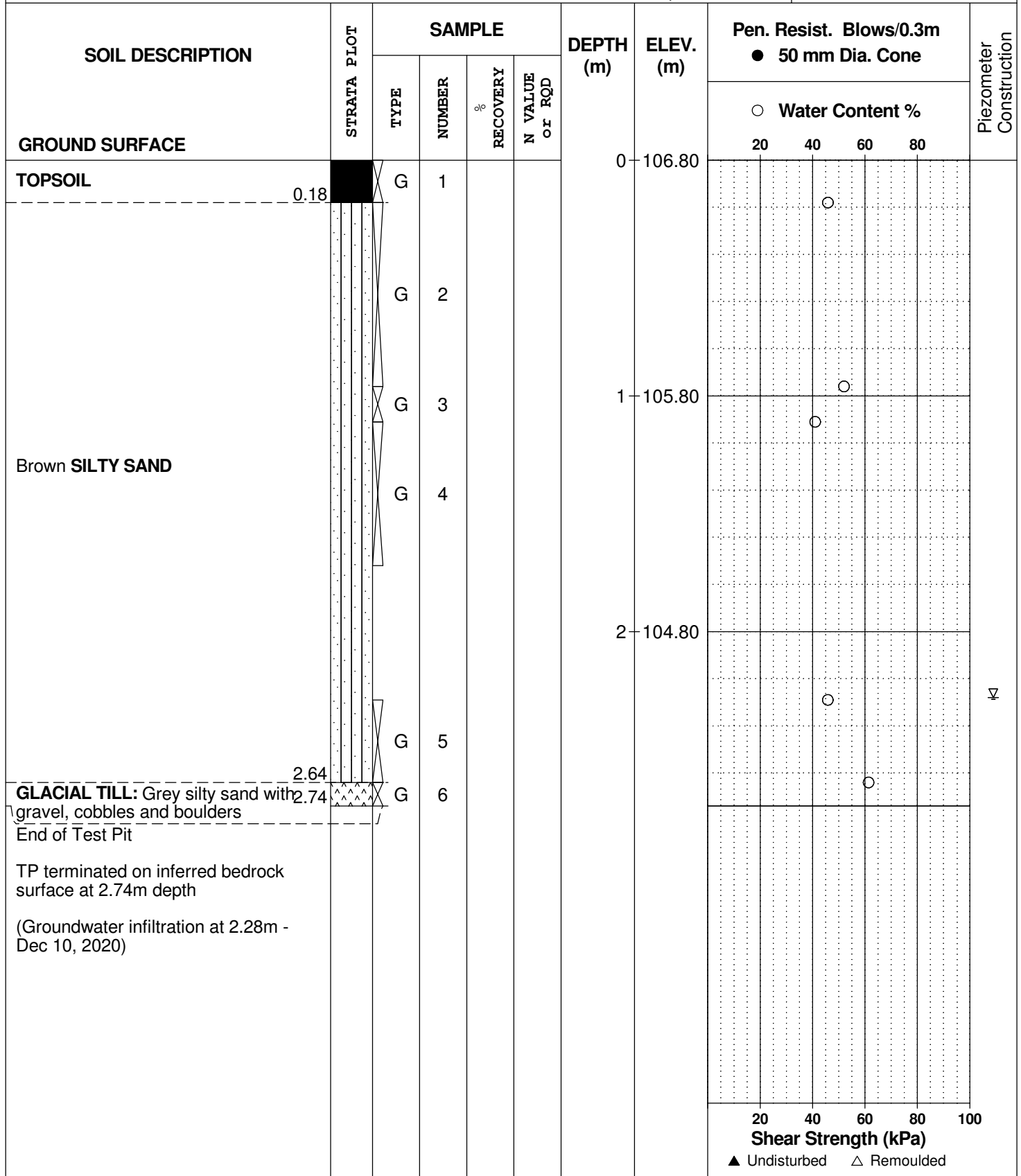
REMARKS

BORINGS BY CME-55 Low Clearance Drill

DATE December 10, 2020

FILE NO. PG5570

HOLE NO. TP 15



DATUM Geodetic

REMARKS

BORINGS BY CME-55 Low Clearance Drill

DATE December 10, 2020

FILE NO.
PG5570

HOLE NO.
TP 16

SOIL DESCRIPTION	STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone				Piezometer Construction
		TYPE	NUMBER	RECOVERY %	N VALUE or RQD			○ Water Content %				
GROUND SURFACE								20	40	60	80	
TOPSOIL		G	1			0	104.62					
	0.35											
		G	2									
						1	103.62					
Brown SILTY SAND , trace gravel												
						2	102.62					
	2.34											
GLACIAL TILL : Grey silty sand with gravel, cobbles and boulders.		G	3									
	3.09					3	101.62					
End of Test Pit												
TP terminated on inferred bedrock surface at 3.09m depth												
(Groundwater infiltration at 2.33m - Dec 10, 2020)												
								20	40	60	80	100
								Shear Strength (kPa)				
								▲ Undisturbed △ Remoulded				

DATUM Geodetic

REMARKS

BORINGS BY CME-55 Low Clearance Drill

DATE December 10, 2020

FILE NO.

PG5570

HOLE NO.

TP 17

SOIL DESCRIPTION	STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone				Piezometer Construction	
		TYPE	NUMBER	RECOVERY %	N VALUE or RQD			○ Water Content %					
GROUND SURFACE										0	103.90	20	40
TOPSOIL		G	1										
0.33													
Brown SILTY SAND , trace gravel		G	2										
1.37													
GLACIAL TILL : Brown silty sand, with gravel cobbles and boulders		G	3										
1.78													
End of Test Pit													
TP terminated on inferred bedrock surface at 1.78m depth													
(Groundwater infiltration at 1.37m - Dec 10, 2020)													

DATUM	Geodetic
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FILE NO. PG5570

REMARKS

HOLE NO. TP 18

BORINGS BY CME-55 Low Clearance Drill

DATE December 10, 2020

SOIL DESCRIPTION	STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone				Piezometer Construction
		TYPE	NUMBER	% RECOVERY	N VALUE or RQD			○ Water Content %				
								20	40	60	80	
GROUND SURFACE						0	103.42					
TOPSOIL		G	1									
Brown SILTY SAND, some gravel		G	2									
		G	3			1	102.42					
End of Test Pit												
TP terminated on inferred bedrock surface at 1.32m depth (TP dry upon completion)												

SYMBOLS AND TERMS

SOIL DESCRIPTION

Behavioural properties, such as structure and strength, take precedence over particle gradation in describing soils. Terminology describing soil structure are as follows:

Desiccated	-	having visible signs of weathering by oxidation of clay minerals, shrinkage cracks, etc.
Fissured	-	having cracks, and hence a blocky structure.
Varved	-	composed of regular alternating layers of silt and clay.
Stratified	-	composed of alternating layers of different soil types, e.g. silt and sand or silt and clay.
Well-Graded	-	Having wide range in grain sizes and substantial amounts of all intermediate particle sizes (see Grain Size Distribution).
Uniformly-Graded	-	Predominantly of one grain size (see Grain Size Distribution).

The standard terminology to describe the relative strength of cohesionless soils is the compactness condition, usually inferred from the results of the Standard Penetration Test (SPT) 'N' value. The SPT N value is the number of blows of a 63.5 kg hammer, falling 760 mm, required to drive a 51 mm O.D. split spoon sampler 300 mm into the soil after an initial penetration of 150 mm. An SPT N value of "P" denotes that the split-spoon sampler was pushed 300 mm into the soil without the use of a falling hammer.

Compactness Condition	'N' Value	Relative Density %
Very Loose	<4	<15
Loose	4-10	15-35
Compact	10-30	35-65
Dense	30-50	65-85
Very Dense	>50	>85

The standard terminology to describe the strength of cohesive soils is the consistency, which is based on the undisturbed undrained shear strength as measured by the in situ or laboratory shear vane tests, unconfined compression tests, or occasionally by the Standard Penetration Test (SPT). Note that the typical correlations of undrained shear strength to SPT N value (tabulated below) tend to underestimate the consistency for sensitive silty clays, so Paterson reviews the applicable split spoon samples in the laboratory to provide a more representative consistency value based on tactile examination.

Consistency	Undrained Shear Strength (kPa)	'N' Value
Very Soft	<12	<2
Soft	12-25	2-4
Firm	25-50	4-8
Stiff	50-100	8-15
Very Stiff	100-200	15-30
Hard	>200	>30

SYMBOLS AND TERMS (continued)

SOIL DESCRIPTION (continued)

Cohesive soils can also be classified according to their “sensitivity”. The sensitivity, S_t , is the ratio between the undisturbed undrained shear strength and the remoulded undrained shear strength of the soil. The classes of sensitivity may be defined as follows:

Low Sensitivity:	$S_t < 2$
Medium Sensitivity:	$2 < S_t < 4$
Sensitive:	$4 < S_t < 8$
Extra Sensitive:	$8 < S_t < 16$
Quick Clay:	$S_t > 16$

ROCK DESCRIPTION

The structural description of the bedrock mass is based on the Rock Quality Designation (RQD).

The RQD classification is based on a modified core recovery percentage in which all pieces of sound core over 100 mm long are counted as recovery. The smaller pieces are considered to be a result of closely-spaced discontinuities (resulting from shearing, jointing, faulting, or weathering) in the rock mass and are not counted. RQD is ideally determined from NQ or larger size core. However, it can be used on smaller core sizes, such as BQ, if the bulk of the fractures caused by drilling stresses (called “mechanical breaks”) are easily distinguishable from the normal in situ fractures.

RQD %	ROCK QUALITY
90-100	Excellent, intact, very sound
75-90	Good, massive, moderately jointed or sound
50-75	Fair, blocky and seamy, fractured
25-50	Poor, shattered and very seamy or blocky, severely fractured
0-25	Very poor, crushed, very severely fractured

SAMPLE TYPES

SS	-	Split spoon sample (obtained in conjunction with the performing of the Standard Penetration Test (SPT))
TW	-	Thin wall tube or Shelby tube, generally recovered using a piston sampler
G	-	"Grab" sample from test pit or surface materials
AU	-	Auger sample or bulk sample
WS	-	Wash sample
RC	-	Rock core sample (Core bit size BQ, NQ, HQ, etc.). Rock core samples are obtained with the use of standard diamond drilling bits.

SYMBOLS AND TERMS (continued)

PLASTICITY LIMITS AND GRAIN SIZE DISTRIBUTION

WC%	-	Natural water content or water content of sample, %
LL	-	Liquid Limit, % (water content above which soil behaves as a liquid)
PL	-	Plastic Limit, % (water content above which soil behaves plastically)
PI	-	Plasticity Index, % (difference between LL and PL)
D _{xx}	-	Grain size at which xx% of the soil, by weight, is of finer grain sizes These grain size descriptions are not used below 0.075 mm grain size
D ₁₀	-	Grain size at which 10% of the soil is finer (effective grain size)
D ₆₀	-	Grain size at which 60% of the soil is finer
C _c	-	Concavity coefficient = $(D_{30})^2 / (D_{10} \times D_{60})$
C _u	-	Uniformity coefficient = D_{60} / D_{10}

C_c and C_u are used to assess the grading of sands and gravels:

Well-graded gravels have: $1 < C_c < 3$ and $C_u > 4$

Well-graded sands have: $1 < C_c < 3$ and $C_u > 6$

Sands and gravels not meeting the above requirements are poorly-graded or uniformly-graded.

C_c and C_u are not applicable for the description of soils with more than 10% silt and clay
(more than 10% finer than 0.075 mm or the #200 sieve)

CONSOLIDATION TEST

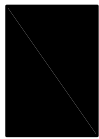
p' _o	-	Present effective overburden pressure at sample depth
p' _c	-	Preconsolidation pressure of (maximum past pressure on) sample
C _{cr}	-	Recompression index (in effect at pressures below p' _c)
C _c	-	Compression index (in effect at pressures above p' _c)
OC Ratio		Overconsolidation ratio = p'_c / p'_o
Void Ratio		Initial sample void ratio = volume of voids / volume of solids
W _o	-	Initial water content (at start of consolidation test)

PERMEABILITY TEST

k	-	Coefficient of permeability or hydraulic conductivity is a measure of the ability of water to flow through the sample. The value of k is measured at a specified unit weight for (remoulded) cohesionless soil samples, because its value will vary with the unit weight or density of the sample during the test.
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SYMBOLS AND TERMS (continued)

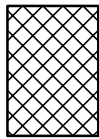
STRATA PLOT



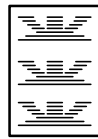
Topsoil



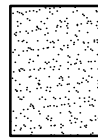
Asphalt



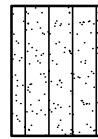
Fill



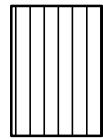
Peat



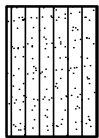
Sand



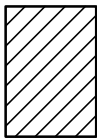
Silty Sand



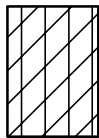
Silt



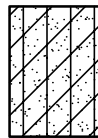
Sandy Silt



Clay



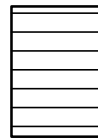
Silty Clay



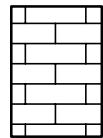
Clayey Silty Sand



Glacial Till



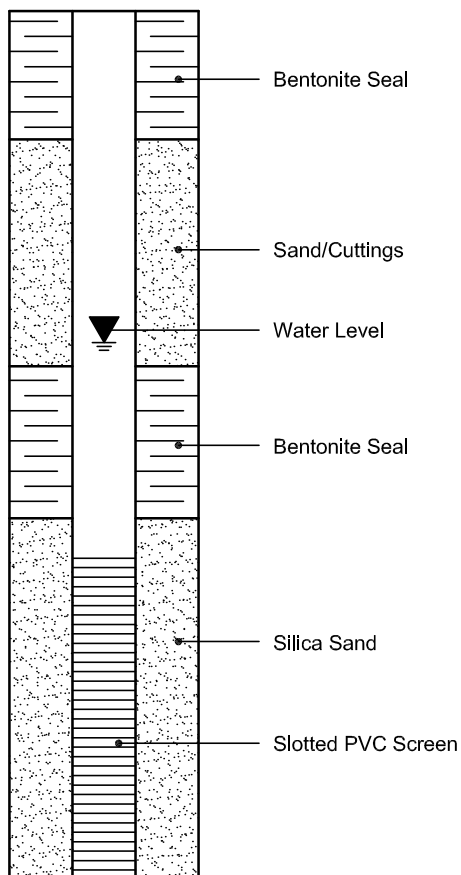
Shale



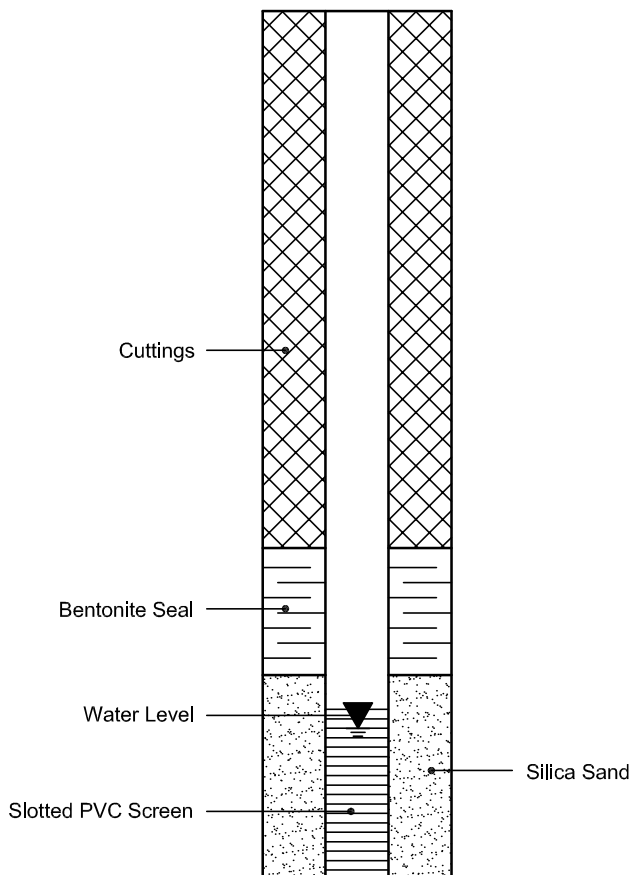
Bedrock

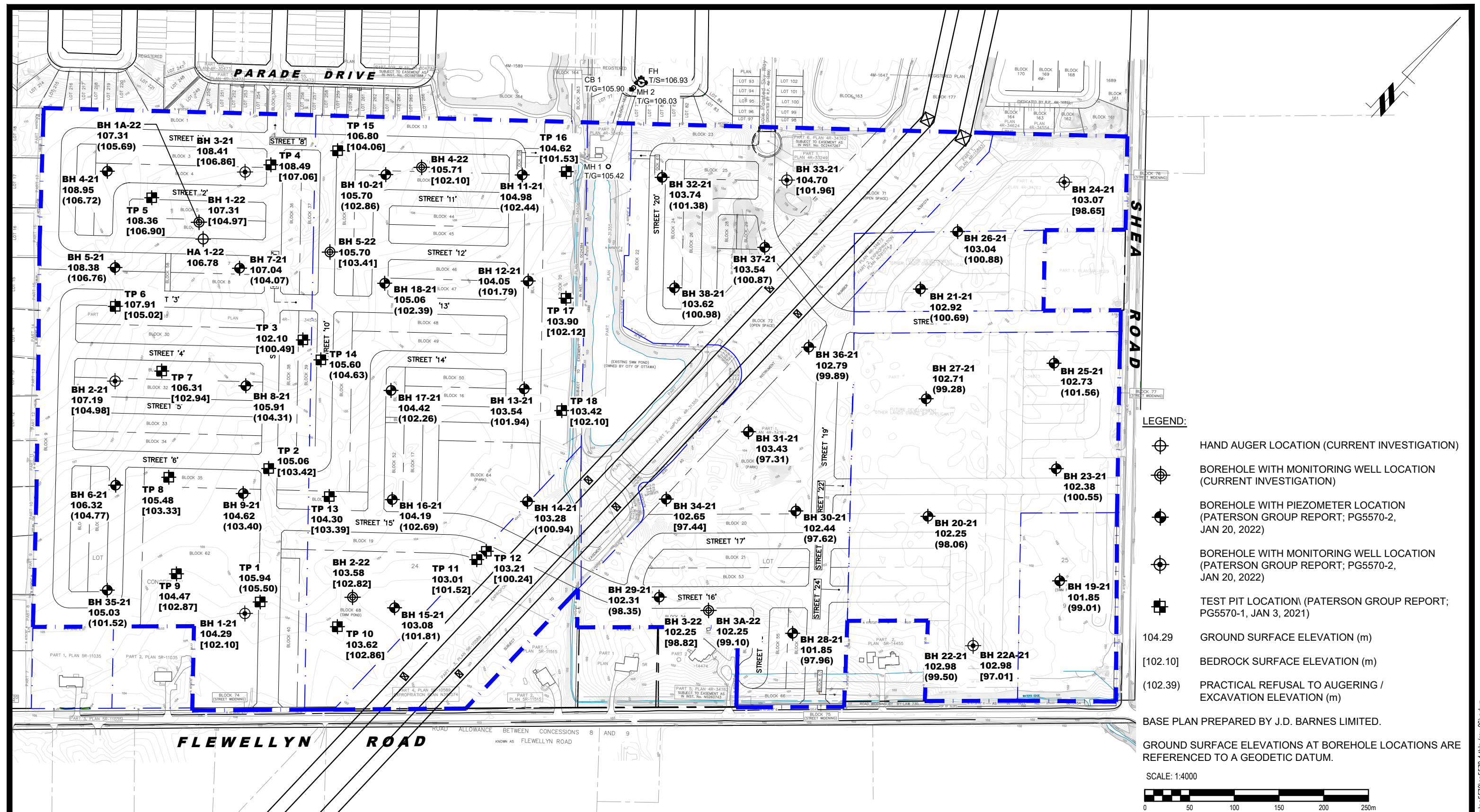
MONITORING WELL AND PIEZOMETER CONSTRUCTION

MONITORING WELL CONSTRUCTION



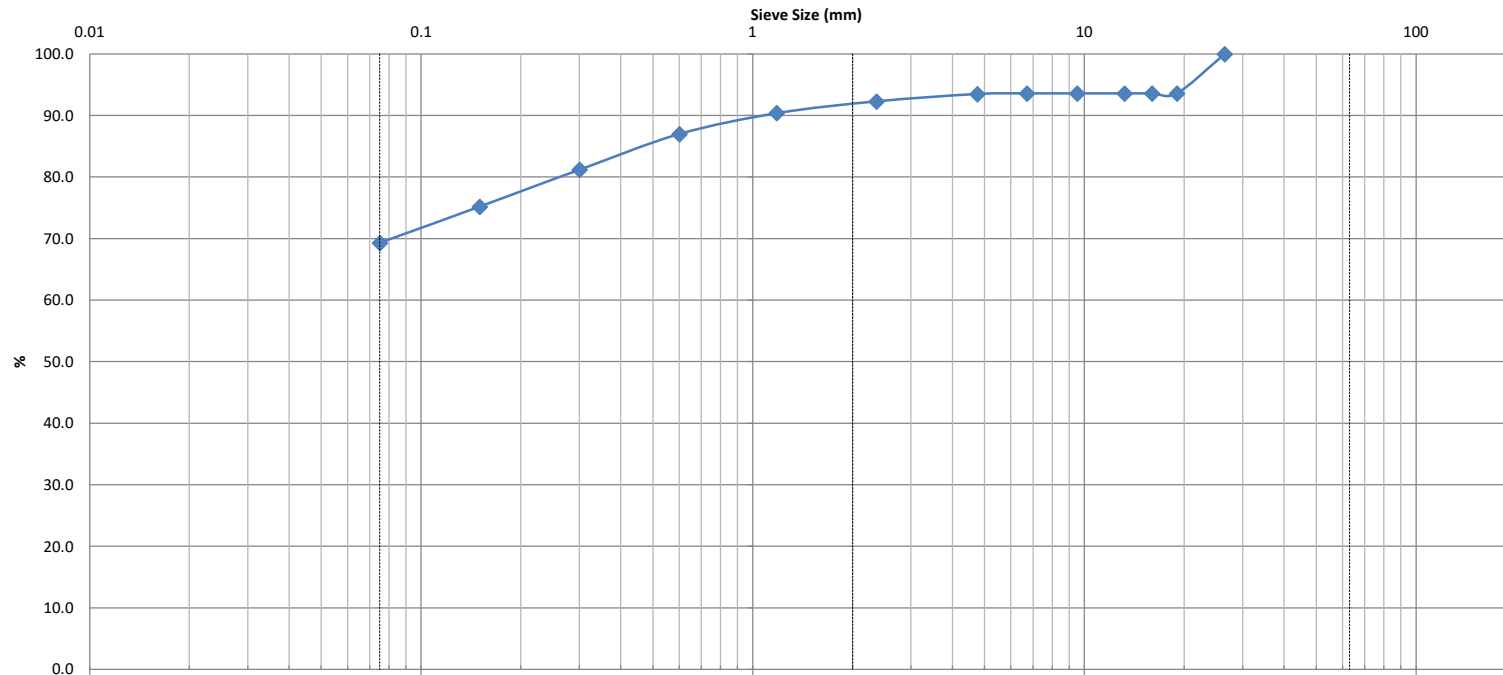
PIEZOMETER CONSTRUCTION





 PATERSON GROUP 9 AURIGA DRIVE OTTAWA, ON K2E 7T9 TEL: (613) 226-7381	6	UPDATED TO NEW CONCEPTUAL PLAN	03/07/2024	KP	CAIVAN (STITTSVILLE SOUTH) INC. & CAIVAN (STITTSVILLE WEST) LTD. GEOTECHNICAL INVESTIGATION PROPOSED RESIDENTIAL DEVELOPMENT OTTAWA, 5993 & 6115 FLEWELLYN ROAD & 6030 & 6070 FERNBANK ROAD ONTARIO Title: TEST HOLE LOCATION PLAN	Scale:	1:4000	Date:	01/2022
	5	UPDATED TO NEW CONCEPTUAL PLAN	28/08/2023	KP		Drawn by:	YA	Report No.:	PG5570-2, REVISION 4
	4	UPDATED CLIENT'S NAME AND SITE ADDRESS	12/06/2023	KP		Checked by:	KP	Dwg. No.:	PG5570-1
	3	UPDATED SITE BOUNDARY	13/02/2023	KP		Approved by:	DJG	Revision No.:	6
	2	BH 1-22 - BH 5-22 & HA1-22 ADDED TO PLAN	10/03/2022	KP					
	NO.	REVISIONS	DATE	INITIAL					

CLIENT:	Caivan	DESCRIPTION:	Fine Aggregate	FILE NO:	PG5570
CONTRACT NO.:	-	SPECIFICATION:	GLACIAL TILL	LAB NO:	31575
PROJECT:	Geotechnical Investigation - 6115 Flewellyn Road	INTENDED USE:	-	DATE RECEIVED:	10-Jan-22
		PIT OR QUARRY:	-	DATE TESTED:	11-Jan-22
DATE SAMPLED:	15/16/17-DEC-21	SOURCE LOCATION:	BH4-21; SS2 + SS3	DATE REPORTED:	14-Jan-22
SAMPLED BY:	A. Emmerton	SAMPLE LOCATION:	2'6" to 7'0"	TESTED BY:	D.K.

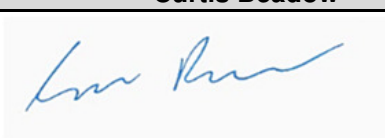


Silt and Clay	Sand			Gravel		Cobble
	Fine	Medium	Coarse	Fine	Coarse	

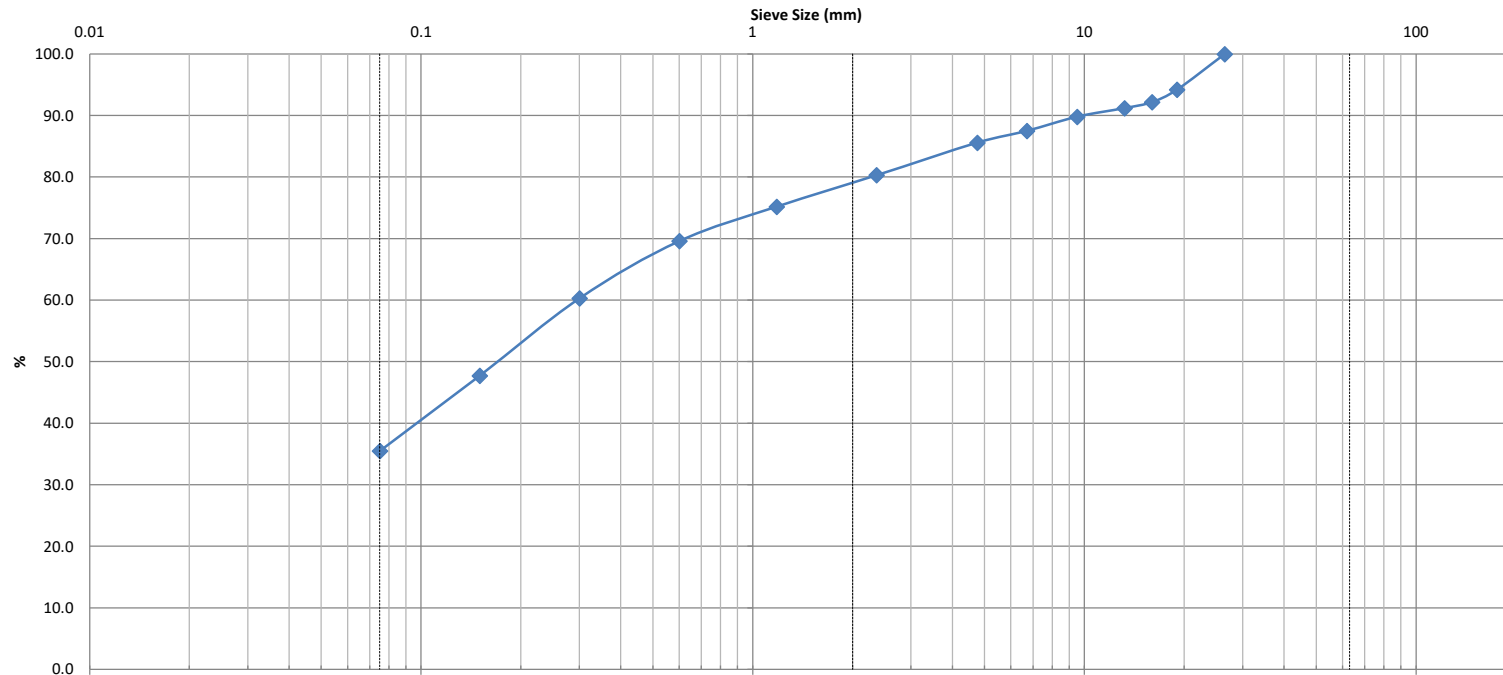
Identification	Soil Classification					MC(%)	LL	PL	PI	Cc	Cu
	D100	D60	D30	D10	Gravel (%)	Sand (%)	Silt (%)	Clay (%)		0.40	2.5
	26.5	0.025	0.01	0.01	6.5	24.2			69.3		

Comments:

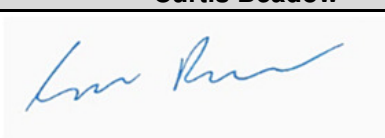
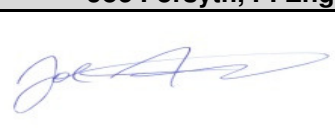
REVIEWED BY:	Curtis Beadow					Joe Fosyth, P. Eng.					

patersongroup consulting engineers					SIEVE ANALYSIS ASTM C136	
CLIENT: Caivan		DESCRIPTION: Fine Aggregate			FILE NO.: PG5570	
CONTRACT NO.: -		SPECIFICATION: Silty Clay			LAB NO.: 31575	
PROJECT: Geotechnical Investigation - 6115 Flewellyn Road		INTENDED USE: -			DATE REC'D: 10-Jan-22	
		PIT OR QUARRY: -			DATE TESTED: 11-Jan-22	
DATE SAMPLED: 15/16/17-DEC-21		SOURCE LOCATION: BH4-21; SS2 + SS3			DATE REP'D: 14-Jan-22	
SAMPLED BY: A. Emmerton		SAMPLE LOCATION: 2'6" to 7'0"			TESTED BY: D.K.	
WEIGHT BEFORE WASH					275.9	
WEIGHT AFTER WASH					93.5	
SIEVE SIZE (mm)	WEIGHT RETAINED	PERCENT RETAINED	PERCENT PASSING	LOWER SPEC	UPPER SPEC	REMARK
150						
106						
75						
63						
53						
37.5						
26.5	0.0	0.0	100.0			
19	17.7	6.4	93.6			
16	17.7	6.4	93.6			
13.2	17.7	6.4	93.6			
9.5	17.7	6.4	93.6			
6.7	17.7	6.4	93.6			
4.75	17.9	6.5	93.5			
2.36	21.2	7.7	92.3			
1.18	26.5	9.6	90.4			
0.6	36.0	13.0	87.0			
0.3	51.9	18.8	81.2			
0.15	68.4	24.8	75.2			
0.075	84.7	30.7	69.3			
PAN	93.3					
SIEVE CHECK FINE		0.21	0.3% max.			REFERENCE MATERIAL
OTHER TESTS					RESULT	LAB NO. RESULT
REVIEWED BY:	Curtis Beadow			Joe Forsyth, P. Eng.		
						

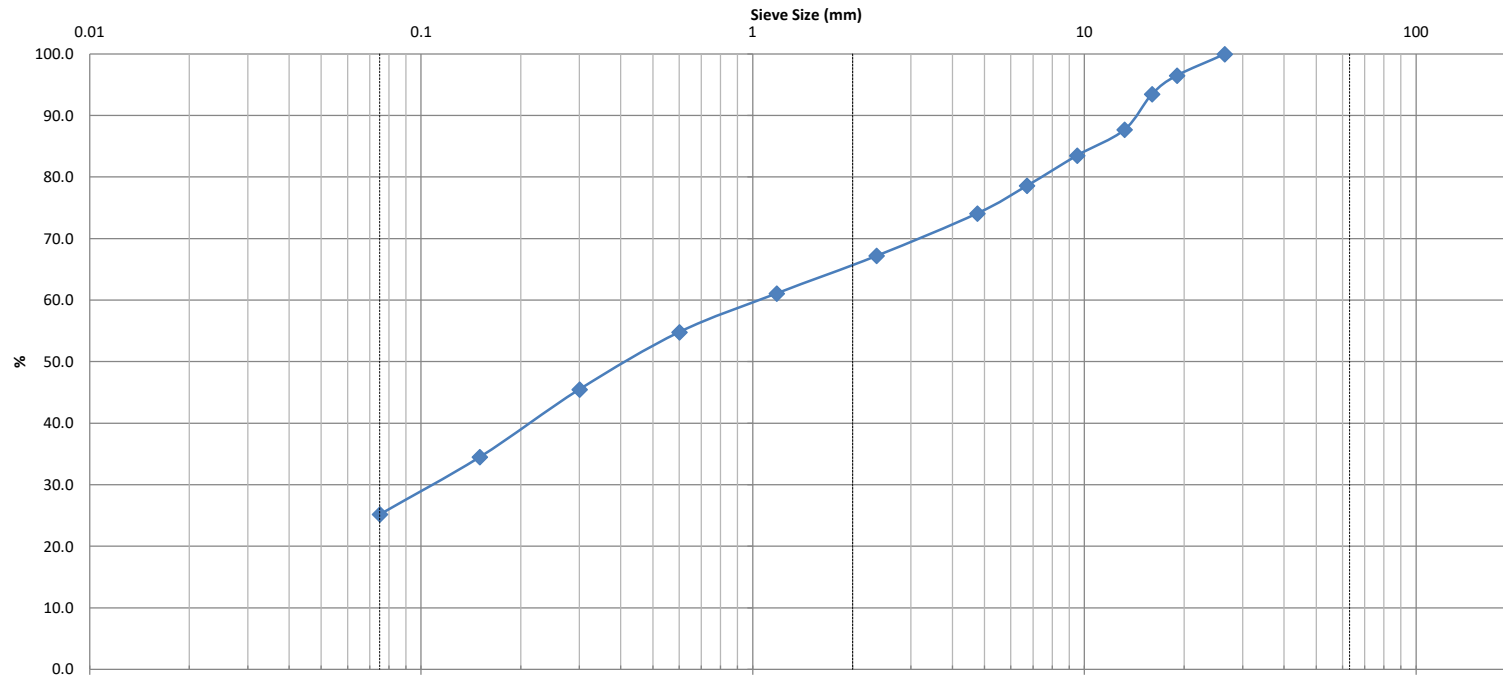
CLIENT:	Caivan	DESCRIPTION:	Fine Aggregate	FILE NO:	PG5570
CONTRACT NO.:	-	SPECIFICATION:	GLACIAL TILL	LAB NO:	31576
PROJECT:	Geotechnical Investigation - 6115 Flewellyn Road	INTENDED USE:	-	DATE RECEIVED:	10-Jan-22
		PIT OR QUARRY:	-	DATE TESTED:	11-Jan-22
DATE SAMPLED:	15/16/17-DEC-21	SOURCE LOCATION:	BH11-21; SS3	DATE REPORTED:	14-Jan-22
SAMPLED BY:	A. Emmerton	SAMPLE LOCATION:	5'0" to 7'0"	TESTED BY:	D.K.



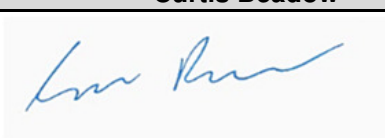
Silt and Clay		Sand			Gravel			Cobble			
		Fine	Medium	Coarse	Fine		Coarse				
Identification	Soil Classification					MC(%)	LL	PL	PI	Cc	Cu
										0.87	24.2
	D100	D60	D30	D10	Gravel (%)	Sand (%)		Silt (%)		Clay (%)	
	26.5	0.29	0.055	0.012	14.4	50.1		35.5			
Comments:											
REVIEWED BY:	Curtis Beadow					Joe Fosyth, P. Eng.					
											

patersongroup consulting engineers					SIEVE ANALYSIS ASTM C136	
CLIENT: Caivan		DESCRIPTION: Fine Aggregate		FILE NO.: PG5570		
CONTRACT NO.: -		SPECIFICATION: Silty Clay		LAB NO.: 31576		
PROJECT: Geotechnical Investigation - 6115 Flewellyn Road		INTENDED USE: -		DATE REC'D: 10-Jan-22		
		PIT OR QUARRY: -		DATE TESTED: 11-Jan-22		
DATE SAMPLED: 15/16/17-DEC-21		SOURCE LOCATION: BH11-21; SS3		DATE REP'D: 14-Jan-22		
SAMPLED BY: A. Emmerton		SAMPLE LOCATION: 5'0" to 7'0"		TESTED BY: D.K.		
WEIGHT BEFORE WASH				503.6		
WEIGHT AFTER WASH				339.5		
SIEVE SIZE (mm)	WEIGHT RETAINED	PERCENT RETAINED	PERCENT PASSING	LOWER SPEC	UPPER SPEC	REMARK
150						
106						
75						
63						
53						
37.5						
26.5	0.0	0.0	100.0			
19	29.1	5.8	94.2			
16	39.2	7.8	92.2			
13.2	44.3	8.8	91.2			
9.5	51.6	10.2	89.8			
6.7	63.0	12.5	87.5			
4.75	72.5	14.4	85.6			
2.36	99.3	19.7	80.3			
1.18	125.1	24.8	75.2			
0.6	153.1	30.4	69.6			
0.3	199.7	39.7	60.3			
0.15	263.4	52.3	47.7			
0.075	325.0	64.5	35.5			
PAN	339.3					
SIEVE CHECK FINE		0.06	0.3% max.		REFERENCE MATERIAL	
OTHER TESTS				RESULT	LAB NO.	RESULT
REVIEWED BY:	Curtis Beadow			Joe Forsyth, P. Eng.		
						

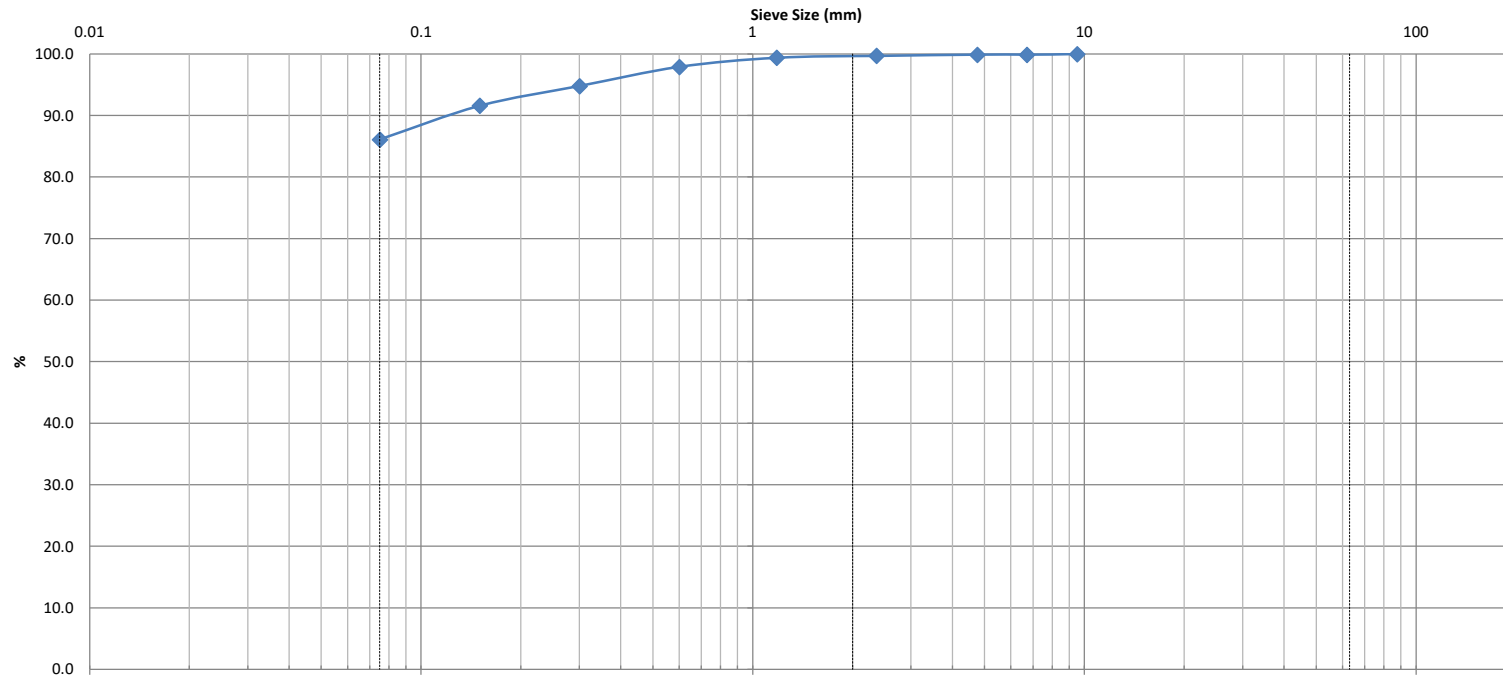
CLIENT:	Caivan	DESCRIPTION:	Fine Aggregate	FILE NO:	PG5570
CONTRACT NO.:	-	SPECIFICATION:	GLACIAL TILL	LAB NO:	31577
PROJECT:	Geotechnical Investigation - 6115 Flewellyn Road	INTENDED USE:	-	DATE RECEIVED:	10-Jan-22
		PIT OR QUARRY:	-	DATE TESTED:	11-Jan-22
DATE SAMPLED:	15/16/17-DEC-21	SOURCE LOCATION:	BH14-21; SS2 + SS3	DATE REPORTED:	14-Jan-22
SAMPLED BY:	A. Emmerton	SAMPLE LOCATION:	2'6" to 7'0"	TESTED BY:	D.K.



Silt and Clay		Sand			Gravel			Cobble			
		Fine	Medium	Coarse	Fine		Coarse				
Identification	Soil Classification					MC(%)	LL	PL	PI	Cc	Cu
										0.70	76.7
	D100	D60	D30	D10	Gravel (%)	Sand (%)		Silt (%)		Clay (%)	
	26.5	1.15	0.11	0.015	25.9	48.9		25.2			
Comments:											
REVIEWED BY:	Curtis Beadow					Joe Fosyth, P. Eng.					
											

patersongroup consulting engineers					SIEVE ANALYSIS ASTM C136	
CLIENT: Caivan		DESCRIPTION: Fine Aggregate			FILE NO.: PG5570	
CONTRACT NO.: -		SPECIFICATION: Silty Clay			LAB NO.: 31577	
PROJECT: Geotechnical Investigation - 6115 Flewellyn Road		INTENDED USE: -			DATE REC'D: 10-Jan-22	
		PIT OR QUARRY: -			DATE TESTED: 11-Jan-22	
DATE SAMPLED: 15/16/17-DEC-21		SOURCE LOCATION: BH14-21; SS2 + SS3			DATE REP'D: 14-Jan-22	
SAMPLED BY: A. Emmerton		SAMPLE LOCATION: 2'6" to 7'0"			TESTED BY: D.K.	
WEIGHT BEFORE WASH					553.4	
WEIGHT AFTER WASH					428.6	
SIEVE SIZE (mm)	WEIGHT RETAINED	PERCENT RETAINED	PERCENT PASSING	LOWER SPEC	UPPER SPEC	REMARK
150						
106						
75						
63						
53						
37.5						
26.5	0.0	0.0	100.0			
19	19.1	3.5	96.5			
16	36.0	6.5	93.5			
13.2	68.2	12.3	87.7			
9.5	91.4	16.5	83.5			
6.7	118.6	21.4	78.6			
4.75	143.3	25.9	74.1			
2.36	181.6	32.8	67.2			
1.18	215.4	38.9	61.1			
0.6	250.3	45.2	54.8			
0.3	301.8	54.5	45.5			
0.15	362.7	65.5	34.5			
0.075	414.2	74.8	25.2			
PAN	428.2					
SIEVE CHECK FINE		0.09	0.3% max.			REFERENCE MATERIAL
OTHER TESTS					RESULT	LAB NO. RESULT
REVIEWED BY:	Curtis Beadow			Joe Forsyth, P. Eng.		
						

CLIENT:	Caivan	DESCRIPTION:	Fine Aggregate	FILE NO:	PG5570
CONTRACT NO.:	-	SPECIFICATION:	SILTY SAND/SANDY SILT	LAB NO:	31578
PROJECT:	Geotechnical Investigation - 6115 Flewellyn Road	INTENDED USE:	-	DATE RECEIVED:	10-Jan-22
		PIT OR QUARRY:	-	DATE TESTED:	11-Jan-22
DATE SAMPLED:	15/16/17-DEC-21	SOURCE LOCATION:	BH19-21; SS2 + SS3	DATE REPORTED:	14-Jan-22
SAMPLED BY:	A. Emmerton	SAMPLE LOCATION:	2'6" to 7'0"	TESTED BY:	D.K.



Silt and Clay	Sand			Gravel		Cobble
	Fine	Medium	Coarse	Fine	Coarse	

Identification	Soil Classification					MC(%)	LL	PL	PI	Cc	Cu
	D100	D60	D30	D10	Gravel (%)	Sand (%)	Silt (%)	Clay (%)		0.83	1.2
	9.5	0.012	0.01	0.01	0.1	13.8			86.1		

Comments:

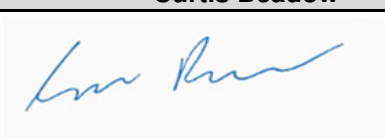
REVIEWED BY:

Curtis Beadow

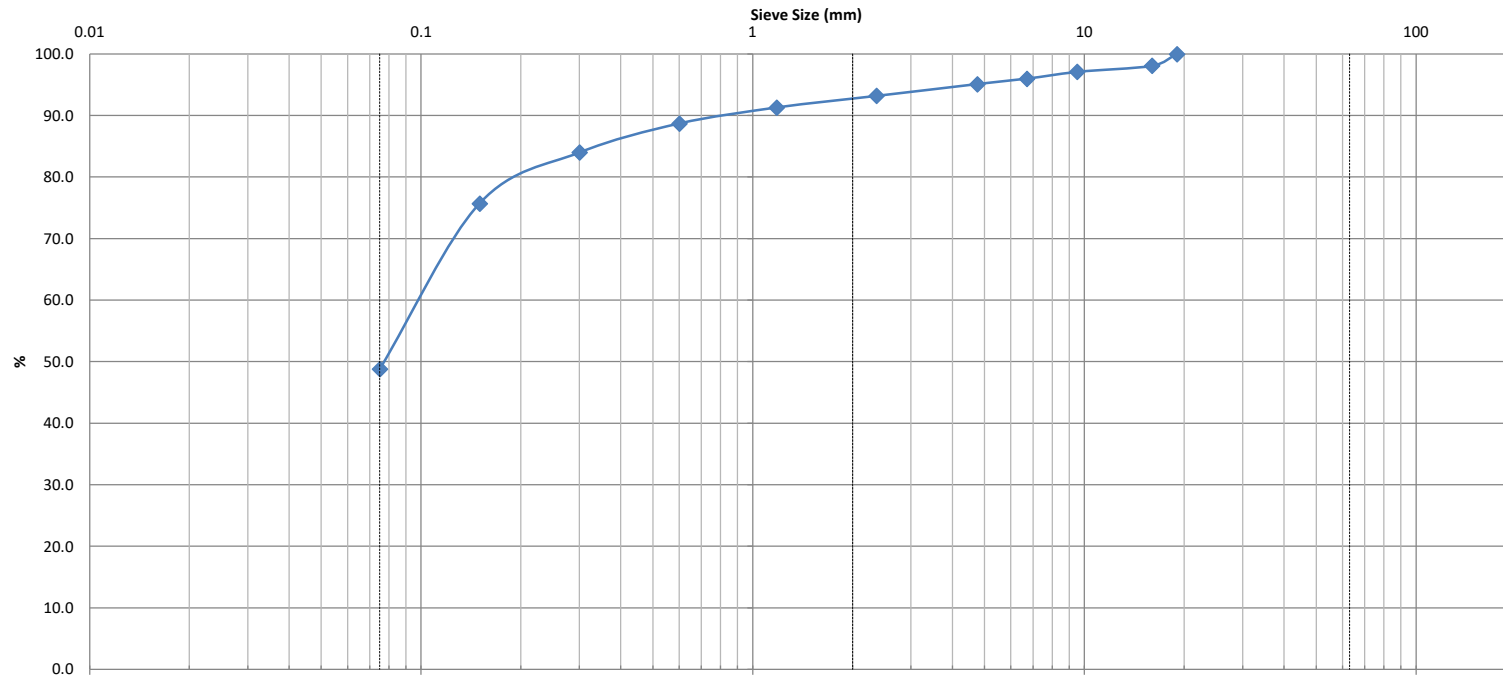
Joe Fosyth, P. Eng.

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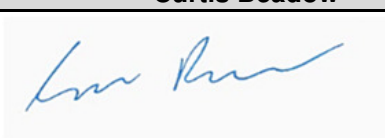
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patersongroup consulting engineers					SIEVE ANALYSIS ASTM C136	
CLIENT: Caivan		DESCRIPTION: Fine Aggregate		FILE NO.: PG5570		
CONTRACT NO.: -		SPECIFICATION: Silty Clay		LAB NO.: 31578		
PROJECT: Geotechnical Investigation - 6115 Flewellyn Road		INTENDED USE: -		DATE REC'D: 10-Jan-22		
		PIT OR QUARRY: -		DATE TESTED: 11-Jan-22		
DATE SAMPLED: 15/16/17-DEC-21		SOURCE LOCATION: BH19-21; SS2 + SS3		DATE REP'D: 14-Jan-22		
SAMPLED BY: A. Emmerton		SAMPLE LOCATION: 2'6" to 7'0"		TESTED BY: D.K.		
WEIGHT BEFORE WASH				397.5		
WEIGHT AFTER WASH				69.5		
SIEVE SIZE (mm)	WEIGHT RETAINED	PERCENT RETAINED	PERCENT PASSING	LOWER SPEC	UPPER SPEC	REMARK
150						
106						
75						
63						
53						
37.5						
26.5						
19						
16						
13.2						
9.5	0.0	0.0	100.0			
6.7	0.5	0.1	99.9			
4.75	0.5	0.1	99.9			
2.36	1.1	0.3	99.7			
1.18	2.5	0.6	99.4			
0.6	8.5	2.1	97.9			
0.3	20.8	5.2	94.8			
0.15	33.5	8.4	91.6			
0.075	55.3	13.9	86.1			
PAN	69.3					
SIEVE CHECK FINE		0.29	0.3% max.		REFERENCE MATERIAL	
OTHER TESTS				RESULT	LAB NO.	RESULT
REVIEWED BY:	Curtis Beadow			Joe Forsyth, P. Eng.		
						

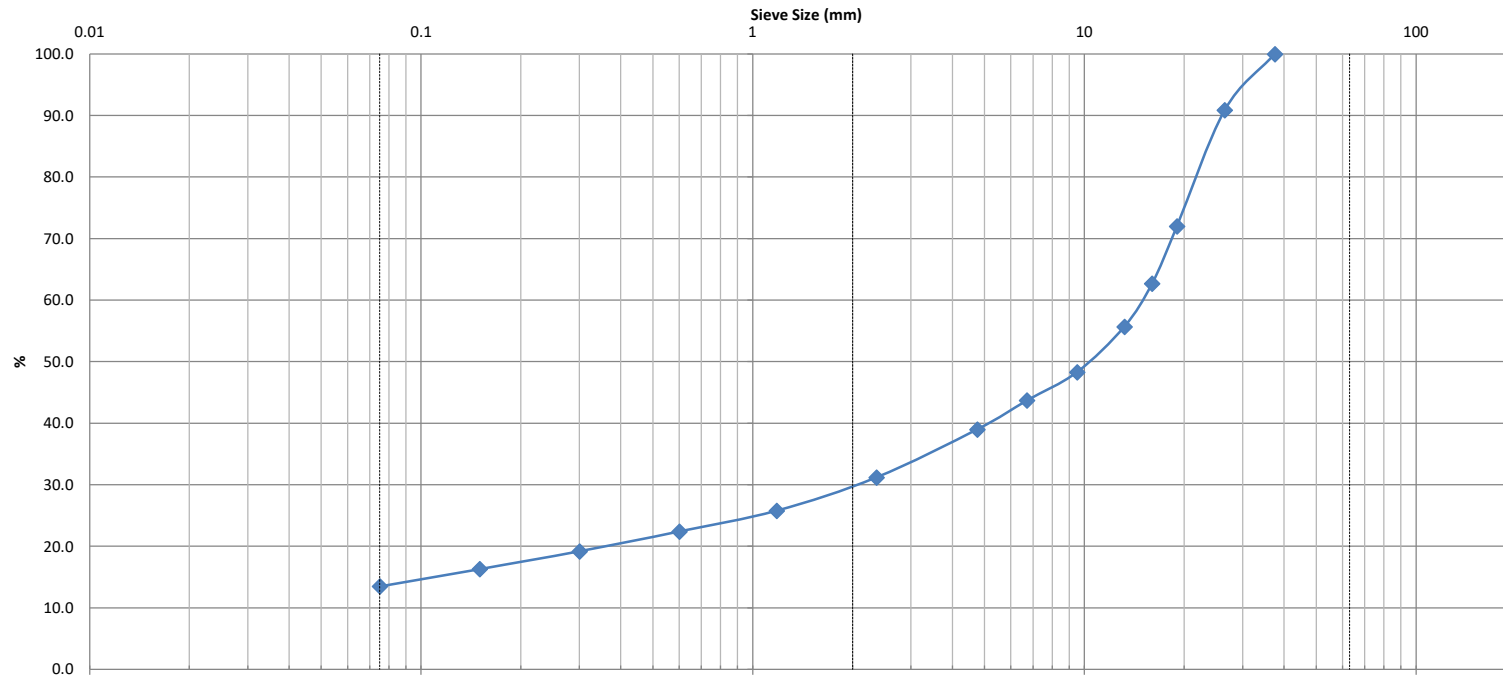
CLIENT:	Caivan	DESCRIPTION:	Fine Aggregate	FILE NO:	PG5570
CONTRACT NO.:	-	SPECIFICATION:	SILTY SAND/SANDY SILT	LAB NO:	31579
PROJECT:	Geotechnical Investigation - 6115 Flewellyn Road	INTENDED USE:	-	DATE RECEIVED:	10-Jan-22
		PIT OR QUARRY:	-	DATE TESTED:	11-Jan-22
DATE SAMPLED:	15/16/17-DEC-21	SOURCE LOCATION:	BH24-21; SS2 + SS3	DATE REPORTED:	14-Jan-22
SAMPLED BY:	A. Emmerton	SAMPLE LOCATION:	2'6" to 7'0"	TESTED BY:	D.K.



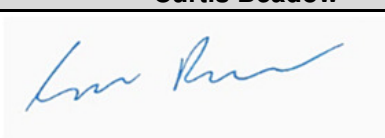
Identification		Soil Classification				MC(%)	LL	PL	PI	Cc	Cu
		D100	D60	D30	D10	Gravel (%)	Sand (%)	Silt (%)	Clay (%)		
		19	0.098	0.055	0.028	4.9	46.3		48.8		
Comments:											
REVIEWED BY:		Curtis Beadow					Joe Fosyth, P. Eng.				

patersongroup consulting engineers						SIEVE ANALYSIS ASTM C136	
CLIENT: Caivan			DESCRIPTION: Fine Aggregate			FILE NO.: PG5570	
CONTRACT NO.: -			SPECIFICATION: Silty Clay			LAB NO.: 31579	
PROJECT: Geotechnical Investigation - 6115 Flewellyn Road			INTENDED USE: -			DATE REC'D: 10-Jan-22	
			PIT OR QUARRY: -			DATE TESTED: 11-Jan-22	
DATE SAMPLED: 15/16/17-DEC-21			SOURCE LOCATION: BH24-21; SS2 + SS3			DATE REP'D: 14-Jan-22	
SAMPLED BY: A. Emmerton			SAMPLE LOCATION: 2'6" to 7'0"			TESTED BY: D.K.	
WEIGHT BEFORE WASH						421.6	
WEIGHT AFTER WASH						278.2	
SIEVE SIZE (mm)	WEIGHT RETAINED	PERCENT RETAINED	PERCENT PASSING	LOWER SPEC	UPPER SPEC	REMARK	
150							
106							
75							
63							
53							
37.5							
26.5							
19	0.0	0.0	100.0				
16	8.1	1.9	98.1				
13.2							
9.5	12.2	2.9	97.1				
6.7	16.8	4.0	96.0				
4.75	20.8	4.9	95.1				
2.36	28.7	6.8	93.2				
1.18	36.7	8.7	91.3				
0.6	47.6	11.3	88.7				
0.3	67.5	16.0	84.0				
0.15	102.5	24.3	75.7				
0.075	216.0	51.2	48.8				
PAN	278.2						
SIEVE CHECK FINE		0.00	0.3% max.			REFERENCE MATERIAL	
OTHER TESTS					RESULT	LAB NO.	RESULT
REVIEWED BY:	Curtis Beadow			Joe Forsyth, P. Eng.			
							

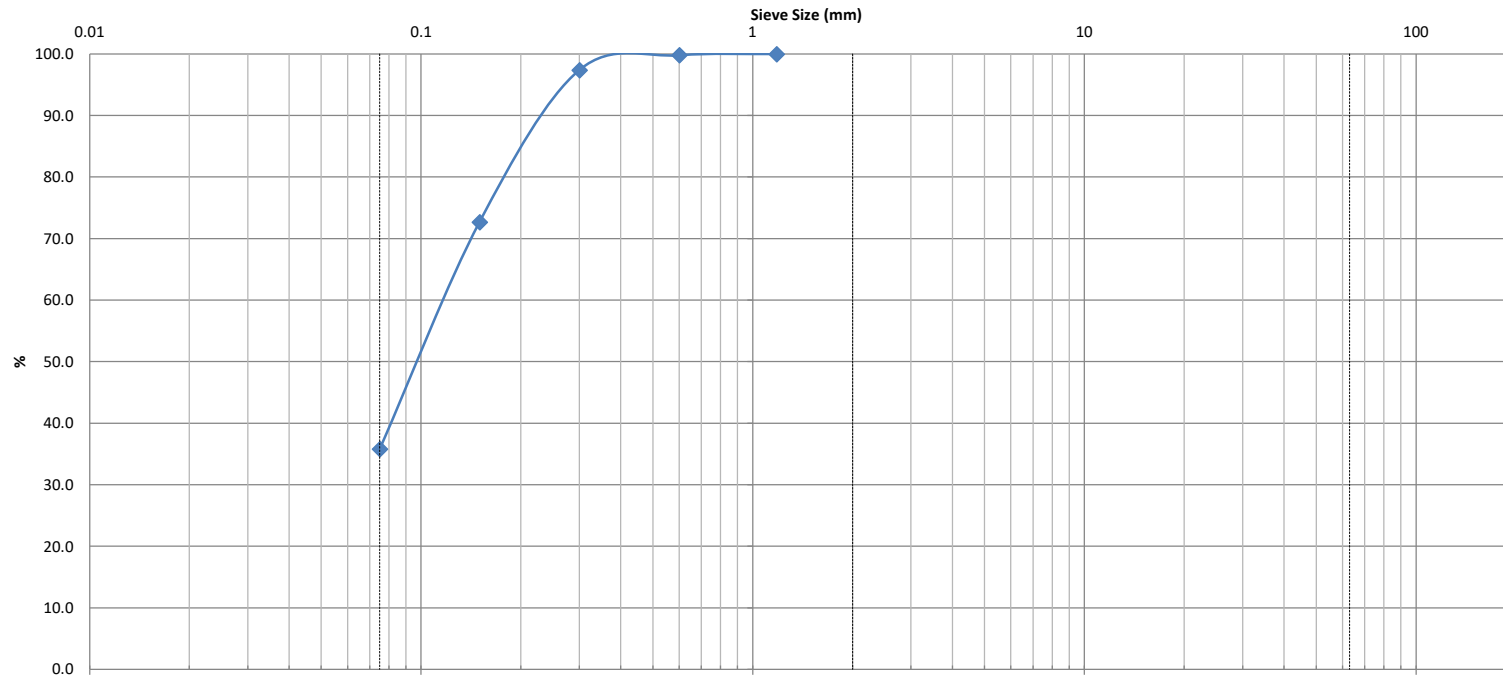
CLIENT:	Caivan	DESCRIPTION:	Fine Aggregate	FILE NO:	PG5570
CONTRACT NO.:	-	SPECIFICATION:	GLACIAL TILL	LAB NO:	31580
PROJECT:	Geotechnical Investigation - 6115 Flewellyn Road	INTENDED USE:	-	DATE RECEIVED:	10-Jan-22
		PIT OR QUARRY:	-	DATE TESTED:	11-Jan-22
DATE SAMPLED:	15/16/17-DEC-21	SOURCE LOCATION:	BH35-22; SS4 + SS5	DATE REPORTED:	14-Jan-22
SAMPLED BY:	A. Emmerton	SAMPLE LOCATION:	7'6" to 12'0"	TESTED BY:	D.K.



Identification		Soil Classification				MC(%)	LL	PL	PI	Cc	Cu
		D100	D60	D30	D10	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	17.82	1100.0
		37.5	16.5	2.1	0.015	61.0	25.5	13.5			
Comments:											
REVIEWED BY:		Curtis Beadow					Joe Fosyth, P. Eng.				

patersongroup consulting engineers						SIEVE ANALYSIS ASTM C136	
CLIENT: Caivan			DESCRIPTION: Fine Aggregate			FILE NO.: PG5570	
CONTRACT NO.: -			SPECIFICATION: Silty Clay			LAB NO.: 31580	
PROJECT: Geotechnical Investigation - 6115 Flewellyn Road			INTENDED USE: -			DATE REC'D: 10-Jan-22	
			PIT OR QUARRY: -			DATE TESTED: 11-Jan-22	
DATE SAMPLED: 15/16/17-DEC-21			SOURCE LOCATION: BH35-22; SS4 + SS5			DATE REP'D: 14-Jan-22	
SAMPLED BY: A. Emmerton			SAMPLE LOCATION: 7'6" to 12'0"			TESTED BY: D.K.	
WEIGHT BEFORE WASH						470.5	
WEIGHT AFTER WASH						411.0	
SIEVE SIZE (mm)	WEIGHT RETAINED	PERCENT RETAINED	PERCENT PASSING	LOWER SPEC	UPPER SPEC	REMARK	
150							
106							
75							
63							
53							
37.5	0.0	0.0	100.0				
26.5	42.6	9.1	90.9				
19	131.9	28.0	72.0				
16	175.4	37.3	62.7				
13.2	208.2	44.3	55.7				
9.5	243.2	51.7	48.3				
6.7	264.7	56.3	43.7				
4.75	286.9	61.0	39.0				
2.36	323.5	68.8	31.2				
1.18	349.0	74.2	25.8				
0.6	365.3	77.6	22.4				
0.3	380.1	80.8	19.2				
0.15	393.9	83.7	16.3				
0.075	406.9	86.5	13.5				
PAN	410.9						
SIEVE CHECK FINE		0.02	0.3% max.			REFERENCE MATERIAL	
OTHER TESTS					RESULT	LAB NO.	RESULT
REVIEWED BY:	Curtis Beadow			Joe Forsyth, P. Eng.			
							

CLIENT:	Caivan	DESCRIPTION:	Fine Aggregate	FILE NO:	PG5570
CONTRACT NO.:	-	SPECIFICATION:	SILTY SAND/SANDY SILT	LAB NO:	31581
PROJECT:	Geotechnical Investigation - 6115 Flewellyn Road	INTENDED USE:	-	DATE RECEIVED:	10-Jan-22
		PIT OR QUARRY:	-	DATE TESTED:	11-Jan-22
DATE SAMPLED:	15/16/17-DEC-21	SOURCE LOCATION:	BH37-22; SS3	DATE REPORTED:	14-Jan-22
SAMPLED BY:	A. Emmerton	SAMPLE LOCATION:	5'7" to 7'0"	TESTED BY:	D.K.



Silt and Clay	Sand			Gravel		Cobble
	Fine	Medium	Coarse	Fine	Coarse	

Identification	Soil Classification					MC(%)	LL	PL	PI	Cc	Cu
	D100	D60	D30	D10	Gravel (%)	Sand (%)	Silt (%)	Clay (%)		0.65	2.4
	1.18	0.13	0.068	0.055	0.0	64.2			35.8		

Comments:

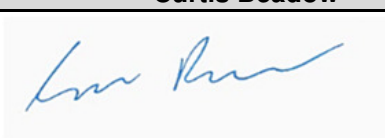
REVIEWED BY:

Curtis Beadow

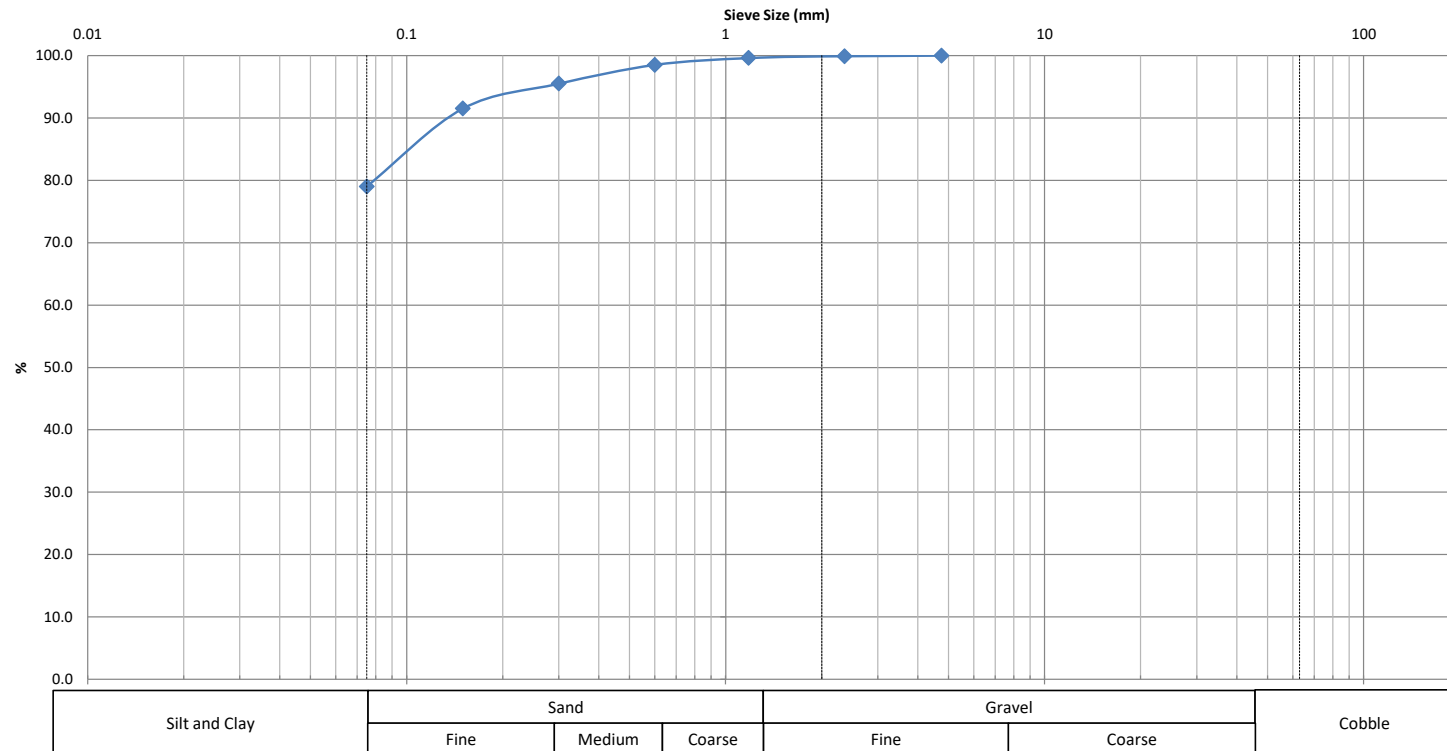
[Signature]

Joe Fosyth, P. Eng.

[Signature]

patersongroup consulting engineers						SIEVE ANALYSIS ASTM C136	
CLIENT: Caivan			DESCRIPTION: Fine Aggregate			FILE NO.: PG5570	
CONTRACT NO.: -			SPECIFICATION: Silty Clay			LAB NO.: 31581	
PROJECT: Geotechnical Investigation - 6115 Flewellyn Road			INTENDED USE: -			DATE REC'D: 10-Jan-22	
			PIT OR QUARRY: -			DATE TESTED: 11-Jan-22	
DATE SAMPLED: 15/16/17-DEC-21			SOURCE LOCATION: BH37-22; SS3			DATE REP'D: 14-Jan-22	
SAMPLED BY: A. Emmerton			SAMPLE LOCATION: 5'7" to 7'0"			TESTED BY: D.K.	
WEIGHT BEFORE WASH						354.8	
WEIGHT AFTER WASH						256.6	
SIEVE SIZE (mm)	WEIGHT RETAINED	PERCENT RETAINED	PERCENT PASSING	LOWER SPEC	UPPER SPEC	REMARK	
150							
106							
75							
63							
53							
37.5							
26.5							
19							
16							
13.2							
9.5							
6.7							
4.75							
2.36							
1.18	0.0	0.0	100.0				
0.6	0.6	0.2	99.8				
0.3	9.3	2.6	97.4				
0.15	96.8	27.3	72.7				
0.075	227.7	64.2	35.8				
PAN	256.4						
SIEVE CHECK FINE		0.08	0.3% max.			REFERENCE MATERIAL	
OTHER TESTS					RESULT	LAB NO.	RESULT
REVIEWED BY:	Curtis Beadow			Joe Forsyth, P. Eng.			
							

CLIENT:	Caivan	DESCRIPTION:	Fine Aggregate	FILE NO:	PG5570
CONTRACT NO.:	-	SPECIFICATION:	SILTY SAND/SANDY SILT	LAB NO:	31582
PROJECT:	Geotechnical Investigation - 6115 Flewellyn Road	INTENDED USE:	-	DATE RECEIVED:	10-Jan-22
		PIT OR QUARRY:	-	DATE TESTED:	11-Jan-22
DATE SAMPLED:	15/16/17-DEC-21	SOURCE LOCATION:	BH38-22; SS3 + SS4	DATE REPORTED:	14-Jan-22
SAMPLED BY:	A. Emmerton	SAMPLE LOCATION:	5'0" to 9'6"	TESTED BY:	D.K.



Identification	Soil Classification					MC(%)	LL	PL	PI	Cc	Cu
	D100	D60	D30	D10	Gravel (%)	Sand (%)		Silt (%)		Clay (%)	
	4.75	0.018	0.01	0.01	0.0	21.0		79.0			

Comments:	
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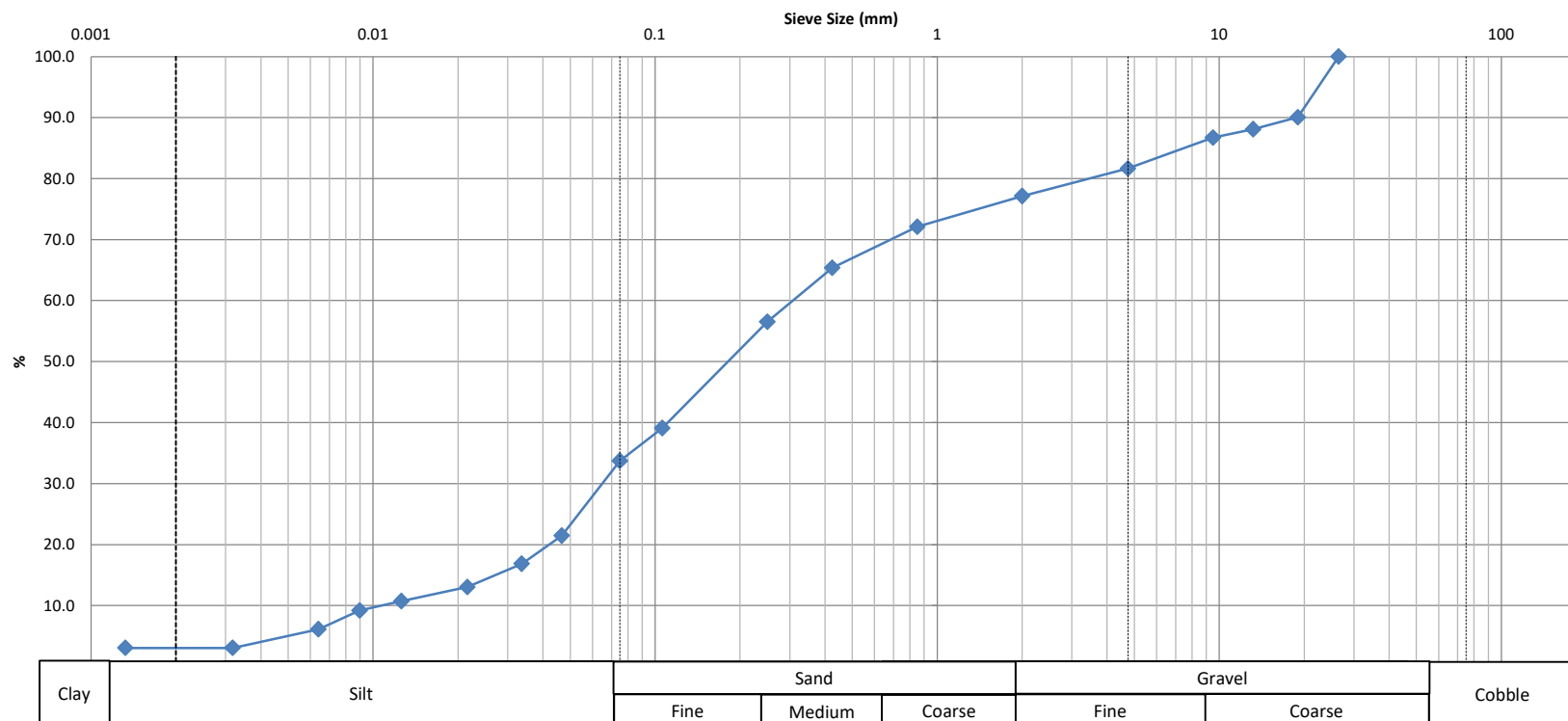
REVIEWED BY:	Curtis Beadow	Joe Fosyth, P. Eng.
	<i>[Signature]</i>	<i>[Signature]</i>

patersongroup consulting engineers					SIEVE ANALYSIS ASTM C136			
CLIENT: Caivan			DESCRIPTION: Fine Aggregate			FILE NO.: PG5570		
CONTRACT NO.: -			SPECIFICATION: Silty Clay			LAB NO.: 31582		
PROJECT: Geotechnical Investigation - 6115 Flewellyn Road			INTENDED USE: -			DATE REC'D: 10-Jan-22		
			PIT OR QUARRY: -			DATE TESTED: 11-Jan-22		
DATE SAMPLED: 15/16/17-DEC-21			SOURCE LOCATION: BH38-22; SS3 + SS4			DATE REP'D: 14-Jan-22		
SAMPLED BY: A. Emmerton			SAMPLE LOCATION: 5'0" to 9'6"			TESTED BY: D.K.		
WEIGHT BEFORE WASH						299.7		
WEIGHT AFTER WASH						88.6		
SIEVE SIZE (mm)		WEIGHT RETAINED	PERCENT RETAINED	PERCENT PASSING	LOWER SPEC	UPPER SPEC	REMARK	
150								
106								
75								
63								
53								
37.5								
26.5								
19								
16								
13.2								
9.5								
6.7								
4.75		0.0	0.0	100.0				
2.36		0.2	0.1	99.9				
1.18		1.1	0.4	99.6				
0.6		4.5	1.5	98.5				
0.3		13.4	4.5	95.5				
0.15		25.4	8.5	91.5				
0.075		63.0	21.0	79.0				
PAN		88.5						
SIEVE CHECK FINE			0.11	0.3% max.			REFERENCE MATERIAL	
OTHER TESTS						RESULT	LAB NO.	RESULT
REVIEWED BY:	Curtis Beadow				Joe Forsyth, P. Eng.			
								



SIEVE ANALYSIS
ASTM C136

CLIENT:	Caivan	DEPTH:	2'6" to 4'6"	FILE NO:	PG5570
CONTRACT NO.:		BH OR TP No.:	BH1-22 SS2	LAB NO:	39280
PROJECT:	6115 Flewellyn Rd		GLACIAL TILL	DATE RECEIVED:	6-Oct-22
				DATE TESTED:	18-Oct-22
DATE SAMPLED:	30-Sep-22			DATE REPORTED:	20-Oct-22
SAMPLED BY:	KB			TESTED BY:	DK/CS



Identification	Soil Classification				MC(%)	LL	PL	PI	Cc	Cu
	D100	D60	D30	D10	9.6					
					Gravel (%)	Sand (%)	Silt (%)	Clay (%)		
					18.3	47.9	31.2	2.5		

Comments:

REVIEWED BY:	Curtis Beadow	Joe Forsyth, P. Eng.

CLIENT:	Caivan	DEPTH:	2'6" to 4'6"	FILE NO.:	PG5570
PROJECT:	6115 Flewellyn Rd	BH OR TP No.:	BH1-22 SS2	DATE SAMPLED:	30-Sep-22
LAB No. :	39280	TESTED BY:	DK/CS	DATE RECEIVED:	6-Oct-22
SAMPLED BY:	KB	DATE REPT'D:	20-Oct-22	DATE TESTED:	18-Oct-22

SAMPLE INFORMATION

SAMPLE MASS		SPECIFIC GRAVITY	
525.7		2.700	
INITIAL WEIGHT	50.00	HYGROSCOPIC MOISTURE	
WEIGHT CORRECTED	49.72	TARE WEIGHT	50.00
WT. AFTER WASH BACK SIEVE	28.95	AIR DRY	528.40
SOLUTION CONCENTRATION	40 g/L	OVEN DRY	525.70
		CORRECTED	0.994

GRAIN SIZE ANALYSIS

SIEVE DIAMETER (mm)	WEIGHT RETAINED (g)	PERCENT RETAINED	PERCENT PASSING
26.5	0	0.0	100.0
19	52.1	9.9	90.1
13.2	62.5	11.9	88.1
9.5	69.8	13.3	86.7
4.75	96.3	18.3	81.7
2.0	120.1	22.8	77.2
Pan	404.8		
0.850	3.27	27.9	72.1
0.425	7.64	34.6	65.4
0.250	13.36	43.5	56.5
0.106	24.66	60.9	39.1
0.075	28.13	66.3	33.7
Pan	28.95		
SIEVE CHECK	0.0	MAX = 0.3%	

HYDROMETER DATA

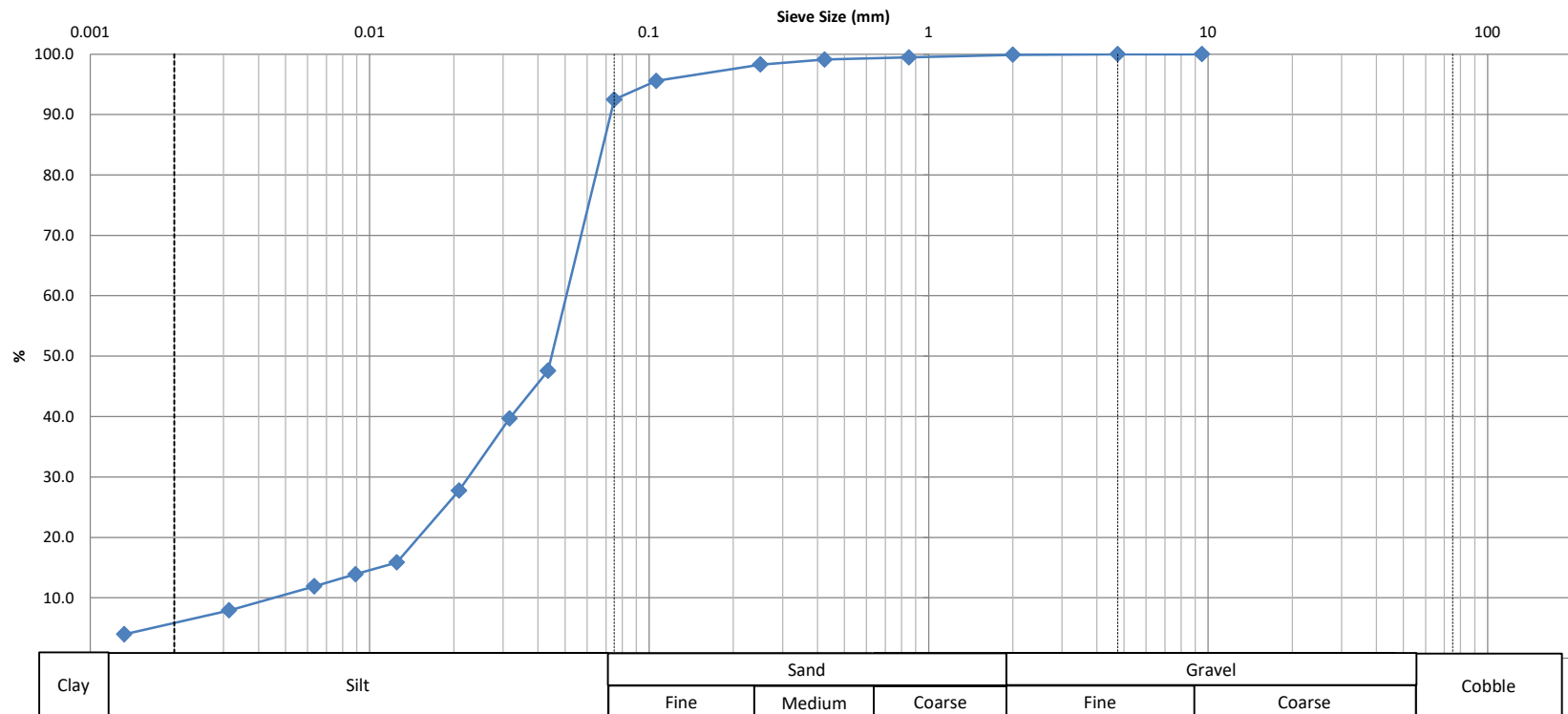
ELAPSED	TIME (24 hours)	Hs	Hc	Temp. (°C)	DIAMETER	(P)	TOTAL PERCENT PASSING
1	6:01	20.0	6.0	23.0	0.0467	27.8	21.5
2	6:02	17.0	6.0	23.0	0.0336	21.9	16.9
5	6:05	14.5	6.0	23.0	0.0216	16.9	13.0
15	6:15	13.0	6.0	23.0	0.0126	13.9	10.7
30	6:30	12.0	6.0	23.0	0.0090	11.9	9.2
60	7:00	10.0	6.0	23.0	0.0064	7.9	6.1
250	10:10	8.0	6.0	23.0	0.0032	4.0	3.1
1440	6:00	8.0	6.0	23.0	0.0013	4.0	3.1

Moisture = 9.60%

REVIEWED BY:	C. Beadow	Joe Forsyth, P. Eng.
		

**SIEVE ANALYSIS
ASTM C136**

CLIENT:	Caivan	DEPTH:	7'6" to 9'6"	FILE NO:	PG5570
CONTRACT NO.:		BH OR TP No.:	BH3 -22 SS4	LAB NO:	39281
PROJECT:	6115 Flewellyn Rd	SILTY SAND TO SANDY SILT		DATE RECEIVED:	6-Oct-22
DATE SAMPLED:	30-Sep-22			DATE TESTED:	18-Oct-22
SAMPLED BY:	KB			DATE REPORTED:	20-Oct-22
				TESTED BY:	DK/CS



Identification	Soil Classification				MC(%)	LL	PL	PI	Cc	Cu
	D100	D60	D30	D10	Gravel (%)	Sand (%)	Silt (%)	Clay (%)		
					0.0	7.5	87.0	5.5		
Comments:										
Curtis Beadow					Joe Forsyth, P. Eng.					
REVIEWED BY:										

CLIENT:	Caivan	DEPTH:	7'6" to 9'6"	FILE NO.:	PG5570
PROJECT:	6115 Flewellyn Rd	BH OR TP No.:	BH4-22 SS4	DATE SAMPLED:	30-Sep-22
LAB No. :	39281	TESTED BY:	DK/CS	DATE RECEIVED:	6-Oct-22
SAMPLED BY:	KB	DATE REPT'D:	20-Oct-22	DATE TESTED:	18-Oct-22

SAMPLE INFORMATION

SAMPLE MASS		SPECIFIC GRAVITY	
130.5		2.700	
INITIAL WEIGHT	50.00	HYGROSCOPIC MOISTURE	
WEIGHT CORRECTED	49.75	TARE WEIGHT	50.00
WT. AFTER WASH BACK SIEVE	3.95	AIR DRY	130.90
SOLUTION CONCENTRATION	40 g/L	OVEN DRY	130.50
		CORRECTED	0.995

GRAIN SIZE ANALYSIS

SIEVE DIAMETER (mm)	WEIGHT RETAINED (g)	PERCENT RETAINED	PERCENT PASSING
26.5			
19			
13.2			
9.5	0.0	0.0	100.0
4.75	0.0	0.0	100.0
2.0	0.1	0.1	99.9
Pan	130.4		
0.850	0.22	0.5	99.5
0.425	0.39	0.9	99.1
0.250	0.80	1.7	98.3
0.106	2.17	4.4	95.6
0.075	3.71	7.5	92.5
Pan	3.95		
SIEVE CHECK	0.0	MAX = 0.3%	

HYDROMETER DATA

ELAPSED	TIME (24 hours)	Hs	Hc	Temp. (°C)	DIAMETER	(P)	TOTAL PERCENT PASSING
1	6:21	30.0	6.0	23.0	0.0435	47.7	47.6
2	6:22	26.0	6.0	23.0	0.0317	39.7	39.7
5	6:25	20.0	6.0	23.0	0.0209	27.8	27.8
15	6:35	14.0	6.0	23.0	0.0125	15.9	15.9
30	6:50	13.0	6.0	23.0	0.0089	13.9	13.9
60	7:20	12.0	6.0	23.0	0.0063	11.9	11.9
250	10:30	10.0	6.0	23.0	0.0031	7.9	7.9
1440	6:20	8.0	6.0	23.0	0.0013	4.0	4.0

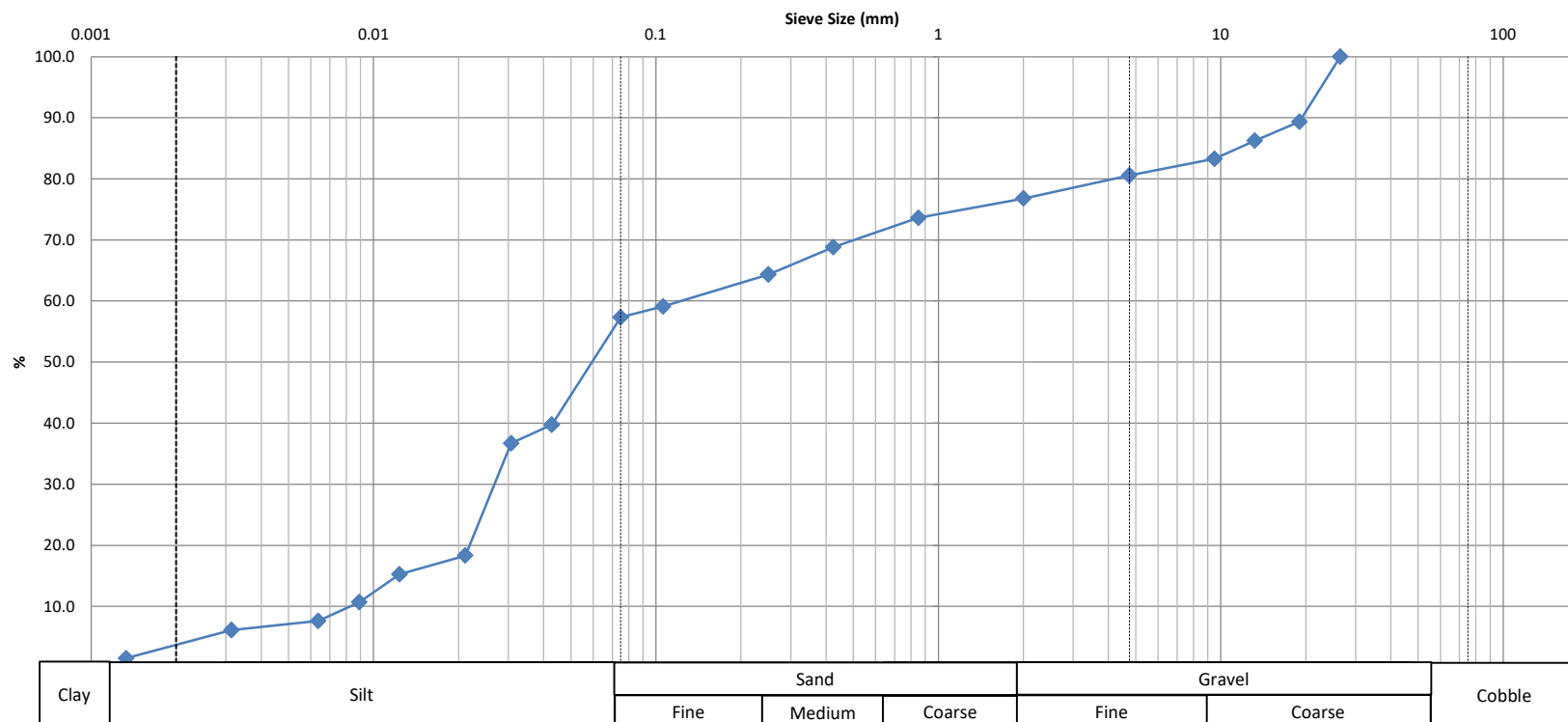
Moisture = 22.91%

REVIEWED BY:	C. Beadow	Joe Forsyth, P. Eng.
		



SIEVE ANALYSIS
ASTM C136

CLIENT:	Caivan	DEPTH:	7'6" to 9'6"	FILE NO:	PG5570
CONTRACT NO.:		BH OR TP No.:	BH4 22 SS4	LAB NO:	39282
PROJECT:	6115 Flewellyn Rd		GLACIAL TILL	DATE RECEIVED:	6-Oct-22
				DATE TESTED:	20-Oct-22
DATE SAMPLED:	30-Sep-22			DATE REPORTED:	21-Oct-22
SAMPLED BY:	KB			TESTED BY:	DK/CS



Identification	Soil Classification				MC(%)	LL	PL	PI	Cc	Cu
	D100	D60	D30	D10	15.1					
					Gravel (%)	Sand (%)	Silt (%)	Clay (%)		
					19.4	23.3	53.8	3.5		

Comments:

REVIEWED BY:	Curtis Beadow	Joe Forsyth, P. Eng.

CLIENT:	Caivan	DEPTH:	7'6" to 9'6"	FILE NO.:	PG5570
PROJECT:	6115 Flewellyn Rd	BH OR TP No.:	BH5-22 SS4	DATE SAMPLED:	30-Sep-22
LAB No. :	39282	TESTED BY:	DK/CS	DATE RECEIVED:	6-Oct-22
SAMPLED BY:	KB	DATE REPT'D:	21-Oct-22	DATE TESTED:	20-Oct-22

SAMPLE INFORMATION

SAMPLE MASS		SPECIFIC GRAVITY	
563.6		2.700	
INITIAL WEIGHT	50.00	HYGROSCOPIC MOISTURE	
WEIGHT CORRECTED	49.61	TARE WEIGHT	50.00
WT. AFTER WASH BACK SIEVE	12.87	AIR DRY	567.60
SOLUTION CONCENTRATION	40 g/L	OVEN DRY	563.60
		CORRECTED	0.992

GRAIN SIZE ANALYSIS

SIEVE DIAMETER (mm)	WEIGHT RETAINED (g)	PERCENT RETAINED	PERCENT PASSING
26.5	0	0.0	100.0
19	60.1	10.7	89.3
13.2	77.4	13.7	86.3
9.5	94.2	16.7	83.3
4.75	109.4	19.4	80.6
2.0	130.8	23.2	76.8
Pan	432.8		
0.850	2.05	26.4	73.6
0.425	5.20	31.2	68.8
0.250	8.09	35.6	64.4
0.106	11.50	40.9	59.1
0.075	12.67	42.7	57.3
Pan	12.87		
SIEVE CHECK	0.0	MAX = 0.3%	

HYDROMETER DATA

ELAPSED	TIME (24 hours)	Hs	Hc	Temp. (°C)	DIAMETER	(P)	TOTAL PERCENT PASSING
1	6:25	32.0	6.0	23.0	0.0428	51.8	39.8
2	6:26	30.0	6.0	23.0	0.0307	47.8	36.7
5	6:29	18.0	6.0	23.0	0.0211	23.9	18.4
15	6:39	16.0	6.0	23.0	0.0124	19.9	15.3
30	6:54	13.0	6.0	23.0	0.0089	13.9	10.7
60	7:24	11.0	6.0	23.0	0.0064	10.0	7.6
250	10:34	10.0	6.0	23.0	0.0031	8.0	6.1
1440	6:24	7.0	6.0	23.0	0.0013	2.0	1.5

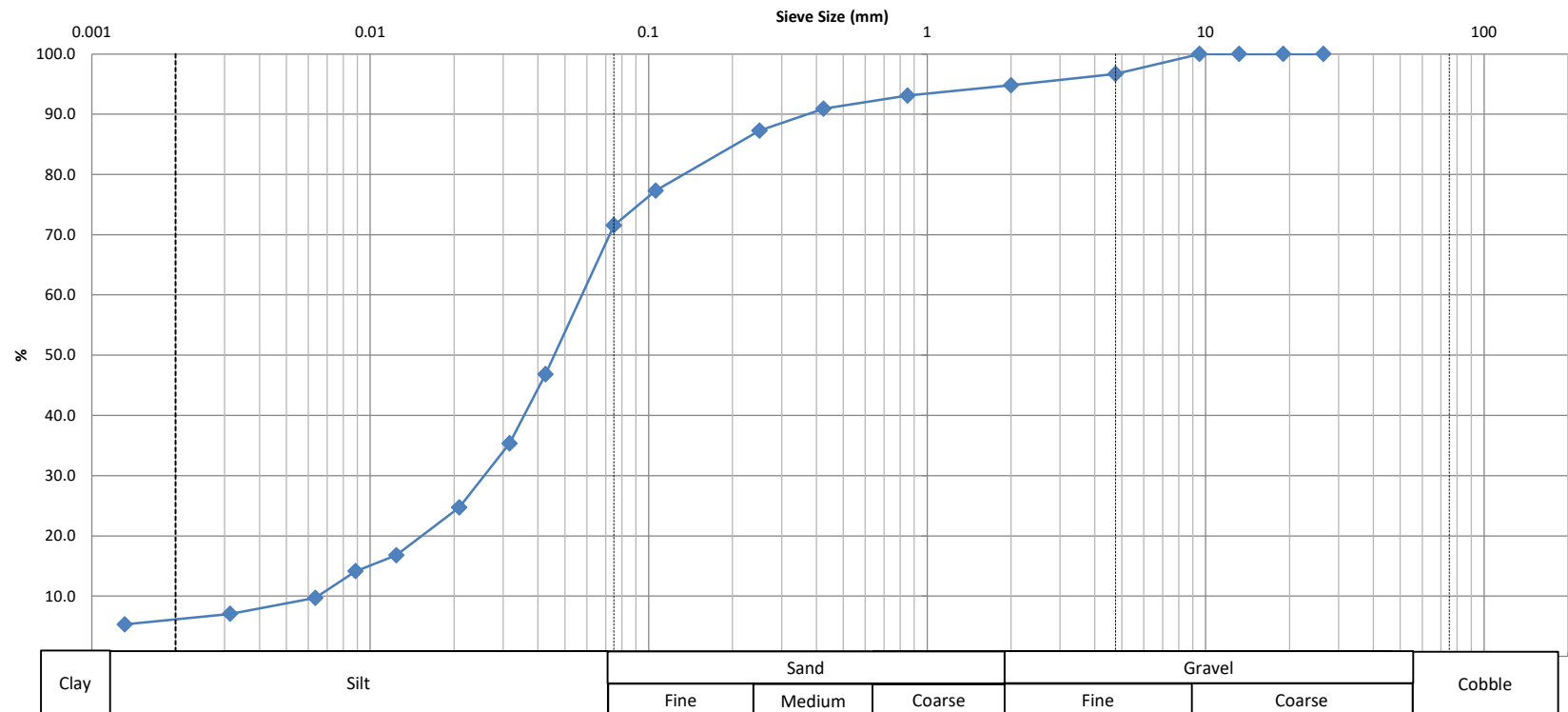
Moisture = 15.10%

REVIEWED BY:	C. Beadow	Joe Forsyth, P. Eng.
		



SIEVE ANALYSIS
ASTM C136

CLIENT:	Caivan	DEPTH:	5'0" to 7'0"	FILE NO:	PG5570
CONTRACT NO.:		BH OR TP No.:	BH5 -22 SS3	LAB NO:	39283
PROJECT:	6115 Flewellyn Rd	SILTY SAND TO SANDY SILT W/ GRAVEL		DATE RECEIVED:	6-Oct-22
				DATE TESTED:	18-Oct-22
DATE SAMPLED:	30-Sep-22			DATE REPORTED:	20-Oct-22
SAMPLED BY:	KB			TESTED BY:	DK/CS



Identification	Soil Classification				MC(%)	LL	PL	PI	Cc	Cu
	D100	D60	D30	D10	Gravel (%)	Sand (%)	Silt (%)	Clay (%)		
					3.3	25.1	65.6	6.0		
Comments:										
Curtis Beadow					Joe Forsyth, P. Eng.					
REVIEWED BY:										

CLIENT:	Caivan	DEPTH:	5'0" to 7'0"	FILE NO.:	PG5570
PROJECT:	6115 Flewellyn Rd	BH OR TP No.:	BH6-22 SS3	DATE SAMPLED:	30-Sep-22
LAB No. :	39283	TESTED BY:	DK/CS	DATE RECEIVED:	6-Oct-22
SAMPLED BY:	KB	DATE REPT'D:	20-Oct-22	DATE TESTED:	18-Oct-22

SAMPLE INFORMATION

SAMPLE MASS		SPECIFIC GRAVITY	
131.1		2.700	
INITIAL WEIGHT	50.00	HYGROSCOPIC MOISTURE	
WEIGHT CORRECTED	53.01	TARE WEIGHT	50.00
WT. AFTER WASH BACK SIEVE	13.56	AIR DRY	126.50
SOLUTION CONCENTRATION	40 g/L	OVEN DRY	131.10
		CORRECTED	1.060

GRAIN SIZE ANALYSIS

SIEVE DIAMETER (mm)	WEIGHT RETAINED (g)	PERCENT RETAINED	PERCENT PASSING
26.5	0	0.0	100.0
19	0.0	0.0	100.0
13.2	0.0	0.0	100.0
9.5	0.0	0.0	100.0
4.75	4.3	3.3	96.7
2.0	6.8	5.2	94.8
Pan	124.3		
0.850	0.91	6.9	93.1
0.425	2.04	9.1	90.9
0.250	3.96	12.7	87.3
0.106	9.23	22.7	77.3
0.075	12.25	28.4	71.6
Pan	13.56		
SIEVE CHECK	0.0	MAX = 0.3%	

HYDROMETER DATA

ELAPSED	TIME (24 hours)	Hs	Hc	Temp. (°C)	DIAMETER	(P)	TOTAL PERCENT PASSING
1	6:25	32.5	6.0	23.0	0.0426	49.4	46.8
2	6:26	26.0	6.0	23.0	0.0317	37.3	35.3
5	6:29	20.0	6.0	23.0	0.0209	26.1	24.7
15	6:39	15.5	6.0	23.0	0.0124	17.7	16.8
30	6:54	14.0	6.0	23.0	0.0089	14.9	14.1
60	7:24	11.5	6.0	23.0	0.0064	10.3	9.7
250	10:34	10.0	6.0	23.0	0.0031	7.5	7.1
1440	6:24	9.0	6.0	23.0	0.0013	5.6	5.3

Moisture = 18.69%

REVIEWED BY:	C. Beadow	Joe Forsyth, P. Eng.
		

Certificate of Analysis

Report Date: 27-Nov-2020

Client: Paterson Group Consulting Engineers

Order Date: 20-Nov-2020

Client PO: 31285

Project Description: PG5570

Client ID:	TP4-GR3	-	-	-
Sample Date:	20-Nov-20 13:00	-	-	-
Sample ID:	2047663-01	-	-	-
MDL/Units	Soil	-	-	-

Physical Characteristics

% Solids	0.1 % by Wt.	89.0	-	-	-
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General Inorganics

pH	0.05 pH Units	7.60	-	-	-
Resistivity	0.10 Ohm.m	93.8	-	-	-

Anions

Chloride	5 ug/g dry	<5	-	-	-
Sulphate	5 ug/g dry	<5	-	-	-

Certificate of Analysis

Report Date: 17-Dec-2020

Client: Paterson Group Consulting Engineers

Order Date: 14-Dec-2020

Client PO: 31363

Project Description: PG5570

Client ID:	TPF-G2	-	-	-
Sample Date:	11-Dec-20 15:30	-	-	-
Sample ID:	2051099-01	-	-	-
MDL/Units	Soil	-	-	-

Physical Characteristics

% Solids	0.1 % by Wt.	82.7	-	-	-
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General Inorganics

pH	0.05 pH Units	7.33	-	-	-
Resistivity	0.10 Ohm.m	101	-	-	-

Anions

Chloride	5 ug/g dry	<5	-	-	-
Sulphate	5 ug/g dry	<5	-	-	-

Certificate of Analysis

Report Date: 22-Dec-2021

Client: Paterson Group Consulting Engineers

Order Date: 17-Dec-2021

Client PO: 33505

Project Description: PG5570

Client ID:	BH17-21 SS3	-	-	-
Sample Date:	16-Dec-21 09:00	-	-	-
Sample ID:	2151599-01	-	-	-
MDL/Units	Soil	-	-	-

Physical Characteristics

% Solids	0.1 % by Wt.	81.9	-	-	-
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General Inorganics

pH	0.05 pH Units	7.73	-	-	-
Resistivity	0.10 Ohm.m	48.9	-	-	-

Anions

Chloride	5 ug/g dry	34	-	-	-
Sulphate	5 ug/g dry	24	-	-	-

Certificate of Analysis

Report Date: 04-Jan-2022

Client: Paterson Group Consulting Engineers

Order Date: 23-Dec-2021

Client PO: 33585

Project Description: PG5570

Client ID:	BH34-21 SS3	-	-	-
Sample Date:	22-Dec-21 09:00	-	-	-
Sample ID:	2152465-01	-	-	-
MDL/Units	Soil	-	-	-

Physical Characteristics

% Solids	0.1 % by Wt.	84.6	-	-	-
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General Inorganics

pH	0.05 pH Units	7.75	-	-	-
Resistivity	0.10 Ohm.m	81.3	-	-	-

Anions

Chloride	5 ug/g dry	12	-	-	-
Sulphate	5 ug/g dry	9	-	-	-

APPENDIX 3

PH4625-1 - SURFICIAL GEOLOGY PLAN

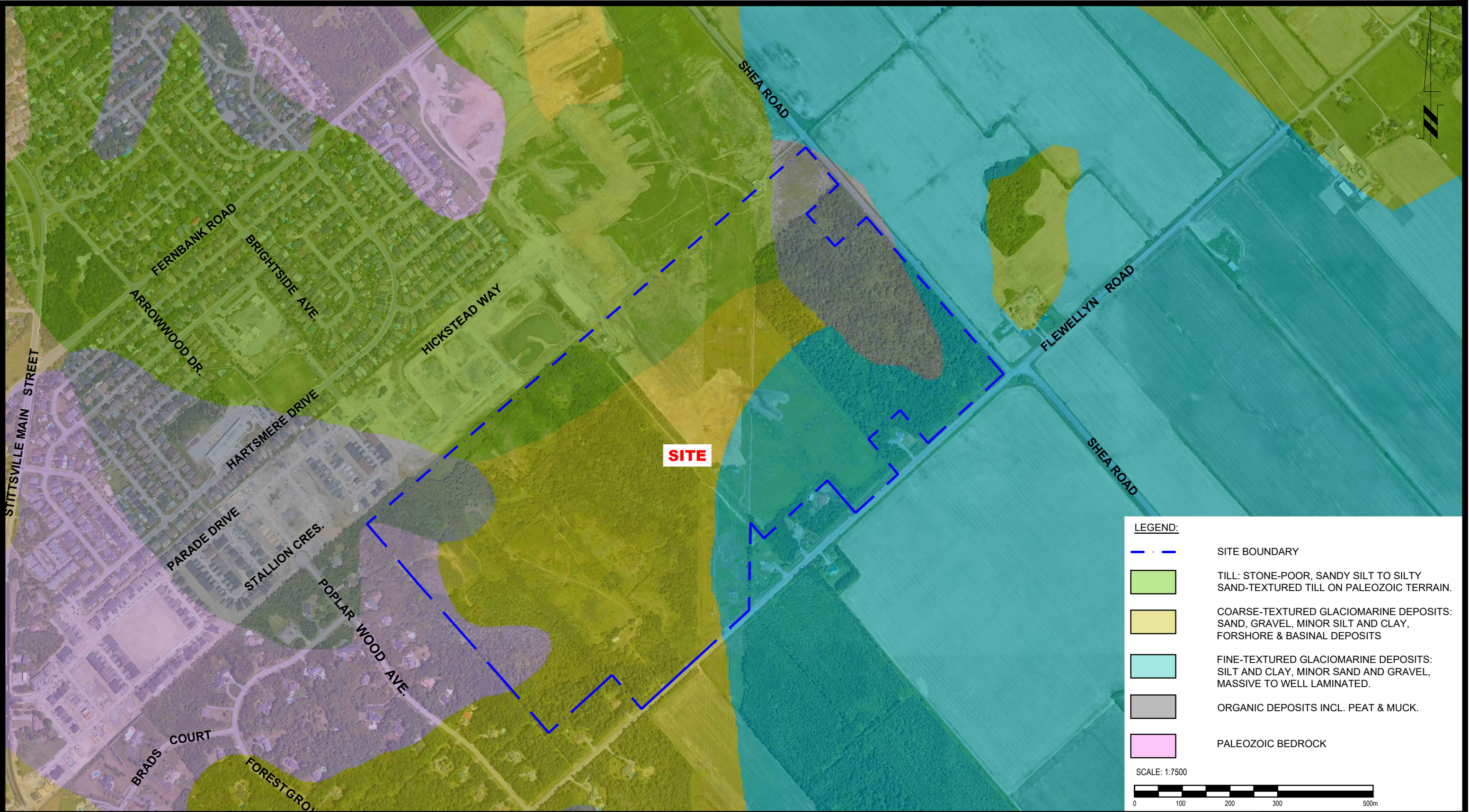
PH4625-2 - DRIFT THICKNESS PLAN

PH4625-3 - BEDROCK GEOLOGY PLAN

PH4625-4 - MECP WATER WELL LOCATION PLAN

PH4625-5 - GROUNDWATER CONTOUR PLAN

PG5570-2.- BEDROCK CONTOUR PLAN



LEGEND:

SITE BOUNDARY

TILL: STONE-POOR, SANDY SILT TO SILTY SAND-TEXTURED TILL ON PALEOZOIC TERRAIN.

COARSE-TEXTURED GLACIOMARINE DEPOSITS: SAND, GRAVEL, MINOR SILT AND CLAY, FORSHORE & BASINAL DEPOSITS

FINE-TEXTURED GLACIOMARINE DEPOSITS: SILT AND CLAY, MINOR SAND AND GRAVEL, MASSIVE TO WELL LAMINATED.

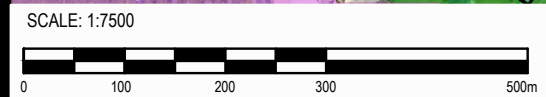
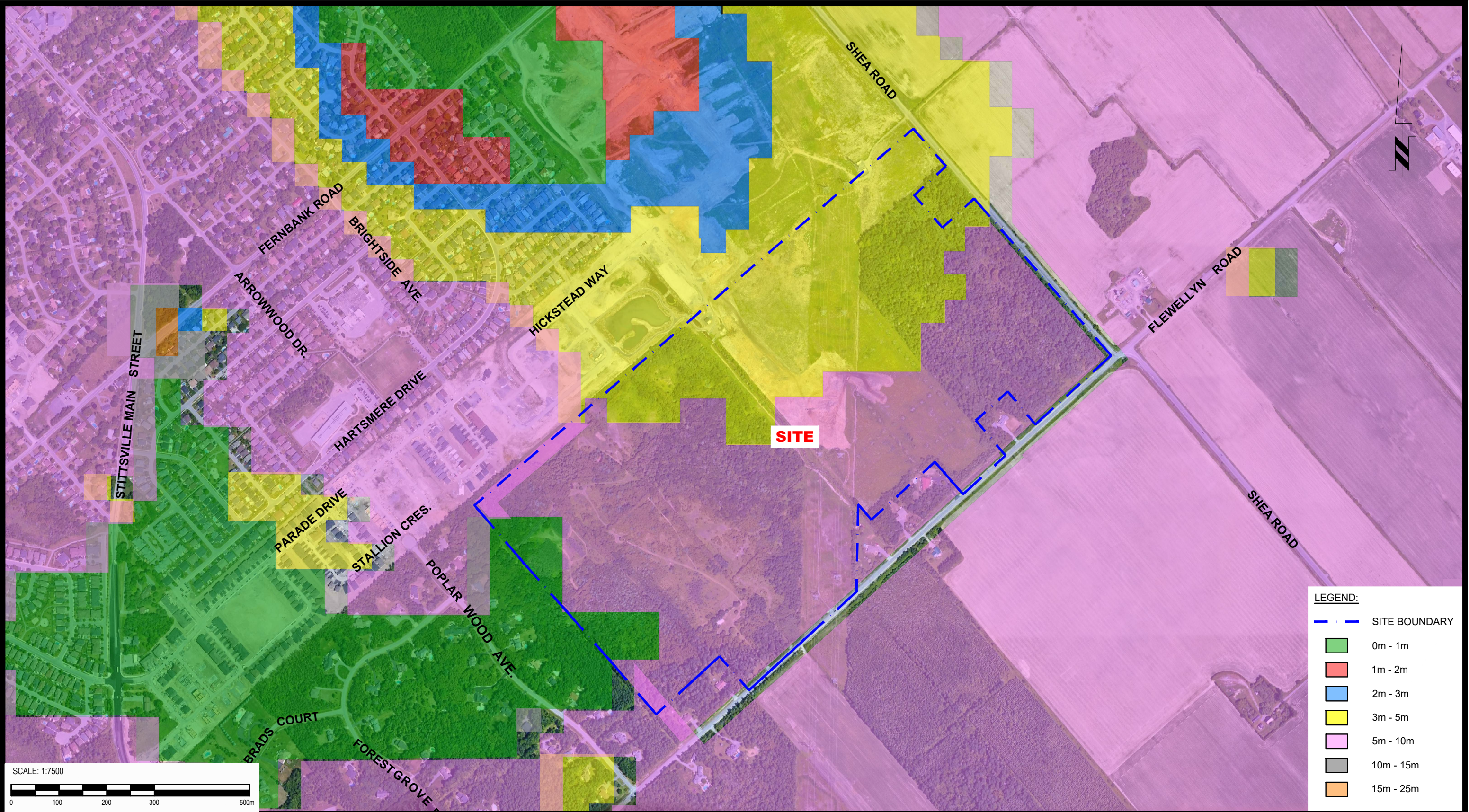
ORGANIC DEPOSITS INCL. PEAT & MUCK.

PALEOZOIC BEDROCK

SCALE: 1:7500

0100200300500m

 9 AURIGA DRIVE OTTAWA, ON K2E 7T9 TEL: (613) 226-7381					CAIVAN (STITTSVILLE SOUTH) INC. & CAIVAN (STITTSVILLE WEST) LTD. HYDROGEOLOGICAL EXISTING CONDITIONS PROPOSED RESIDENTIAL DEVELOPMENT 5993 & 6115 FLEWELLYN ROAD & 6030 & 6070 FERNBANK ROAD ONTARIO	Scale: 1:7500	Date: 10/2022
						Drawn by: JM	Report No.: PH4625-REP.01
						Checked by: OB	Dwg. No.: PH4625-1
						Approved by: MK	
	2	REVISED SITE BOUNDARY	04/07/2024	OB		OTTAWA, Title:	SURFICIAL GEOLOGY PLAN
	1	UPDATED CLIENT'S NAME AND SITE ADDRESS	12/06/2023	OB			
NO.	REVISIONS	DATE	INITIAL				



LEGEND:	
	SITE BOUNDARY
	0m - 1m
	1m - 2m
	2m - 3m
	3m - 5m
	5m - 10m
	10m - 15m
	15m - 25m



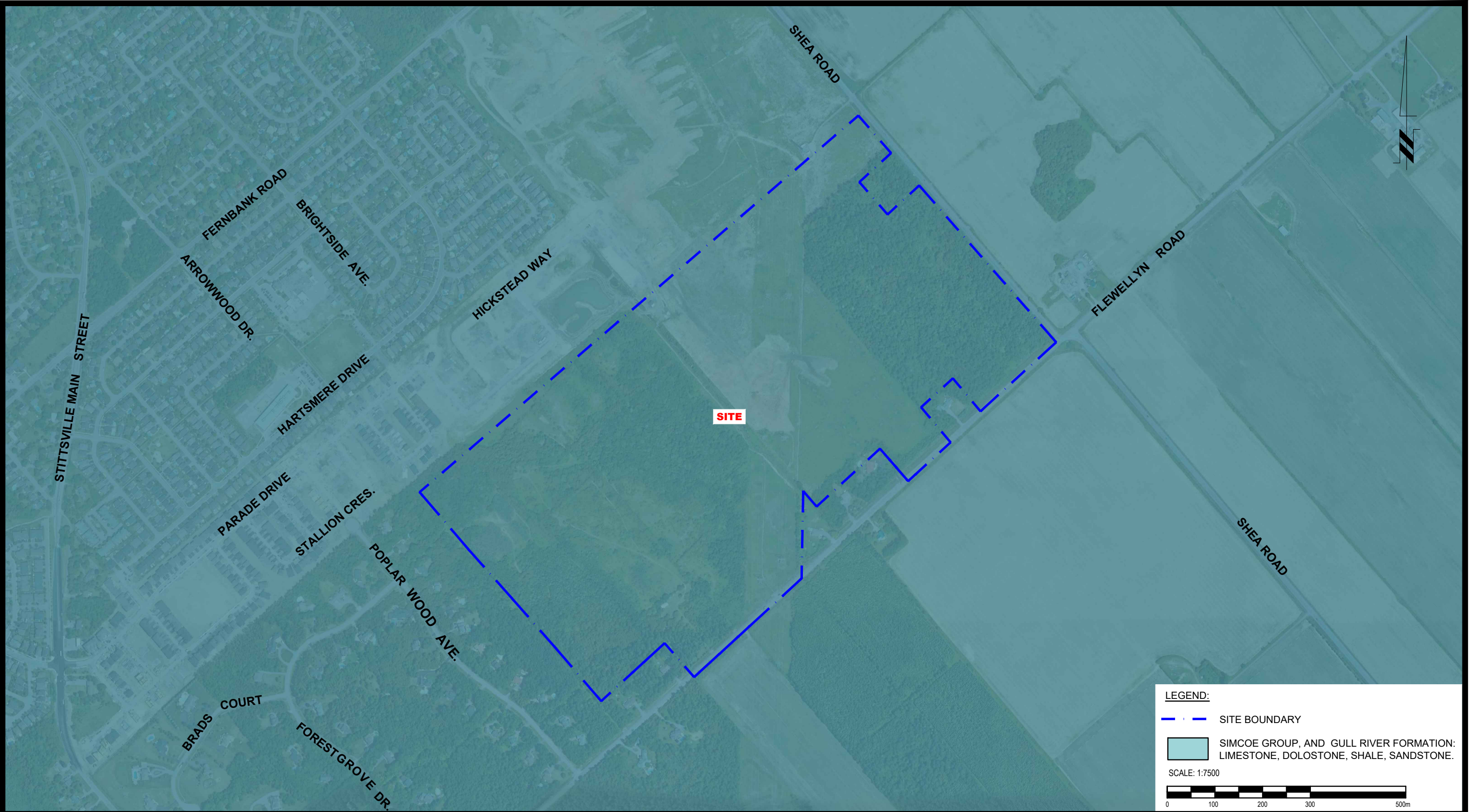
9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

2	REVISED SITE BOUNDARY	04/07/2024	OB
1	UPDATED CLIENT'S NAME AND SITE ADDRESS	12/06/2023	OB
NO.	REVISIONS	DATE	INITIAL

CAIVAN (STITTSVILLE SOUTH) INC. & CAIVAN (STITTSVILLE WEST) LTD.
HYDROGEOLOGICAL EXISTING CONDITIONS
PROPOSED RESIDENTIAL DEVELOPMENT
5993 & 6115 FLEWELLYN ROAD & 6030 & 6070 FERNBANK ROAD
ONTARIO

OTTAWA,
Title:
DRIFT THICKNESS PLAN

Scale:	1:7500	Date:	10/2022
Drawn by:	JM	Report No.:	PH4625-REP.01
Checked by:	OB	Dwg. No.:	PH4625-2
Approved by:	MK	Revision No.:	2



LEGEND:

— · — SITE BOUNDARY

 SIMCOE GROUP, AND GULL RIVER FORMATION: LIMESTONE, DOLOSTONE, SHALE, SANDSTONE.

SCALE: 1:7500



 9 AURIGA DRIVE OTTAWA, ON K2E 7T9 TEL: (613) 226-7381					CAIVAN (STITTSVILLE SOUTH) INC. & CAIVAN (STITTSVILLE WEST) LTD. HYDROGEOLOGICAL EXISTING CONDITIONS PROPOSED RESIDENTIAL DEVELOPMENT 5993 & 6115 FLEWELLYN ROAD & 6030 & 6070 FERNBANK ROAD OTTAWA, ONTARIO	Scale:	1:7500	Date:	10/2022	
						Drawn by:	JM	Report No.:	PH4625-REP.01	
	2	REVISED SITE BOUNDARY	04/07/2024	OB		Title:	Checked by:	OB	Dwg. No.:	PH4625-3
	1	UPDATED CLIENT'S NAME AND SITE ADDRESS	12/06/2023	OB			Approved by:	MK		
	NO.	REVISIONS	DATE	INITIAL						



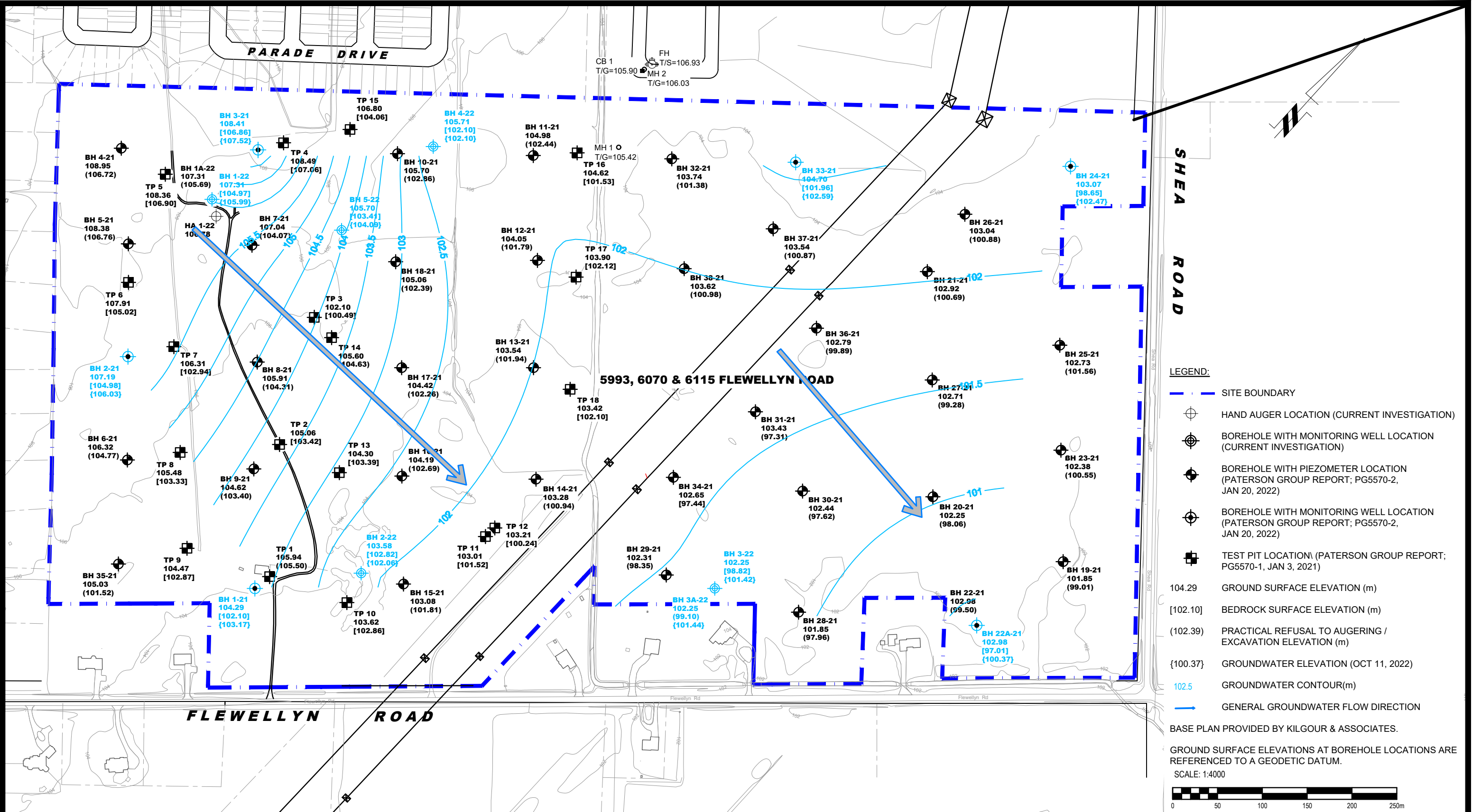
LEGEND:

— · — SITE BOUNDARY

⊙ MECP WELL LOCATIONS

SCALE: 1:12500

 9 AURIGA DRIVE OTTAWA, ON K2E 7T9 TEL: (613) 226-7381				CAIVAN (STITTSVILLE SOUTH) INC. & CAIVAN (STITTSVILLE WEST) LTD. HYDROGEOLOGICAL EXISTING CONDITIONS PROPOSED RESIDENTIAL DEVELOPMENT 5993 & 6115 FLEWELLYN ROAD & 6030 & 6070 FERNBANK ROAD ONTARIO	Scale: 1:12500	Date: 10/2022
					Drawn by: JM	Report No.: PH4625-REP.01
	2	REVISED SITE BOUNDARY	04/07/2024	OB	Checked by: OB	Dwg. No.: PH4625-4
	1	UPDATED CLIENT'S NAME AND SITE ADDRESS	12/06/2023	OB	Approved by: MK	Revision No.: 2
	NO.	REVISIONS	DATE	INITIAL	OTTAWA, Title: MECP WATER WELL LOCATION PLAN	





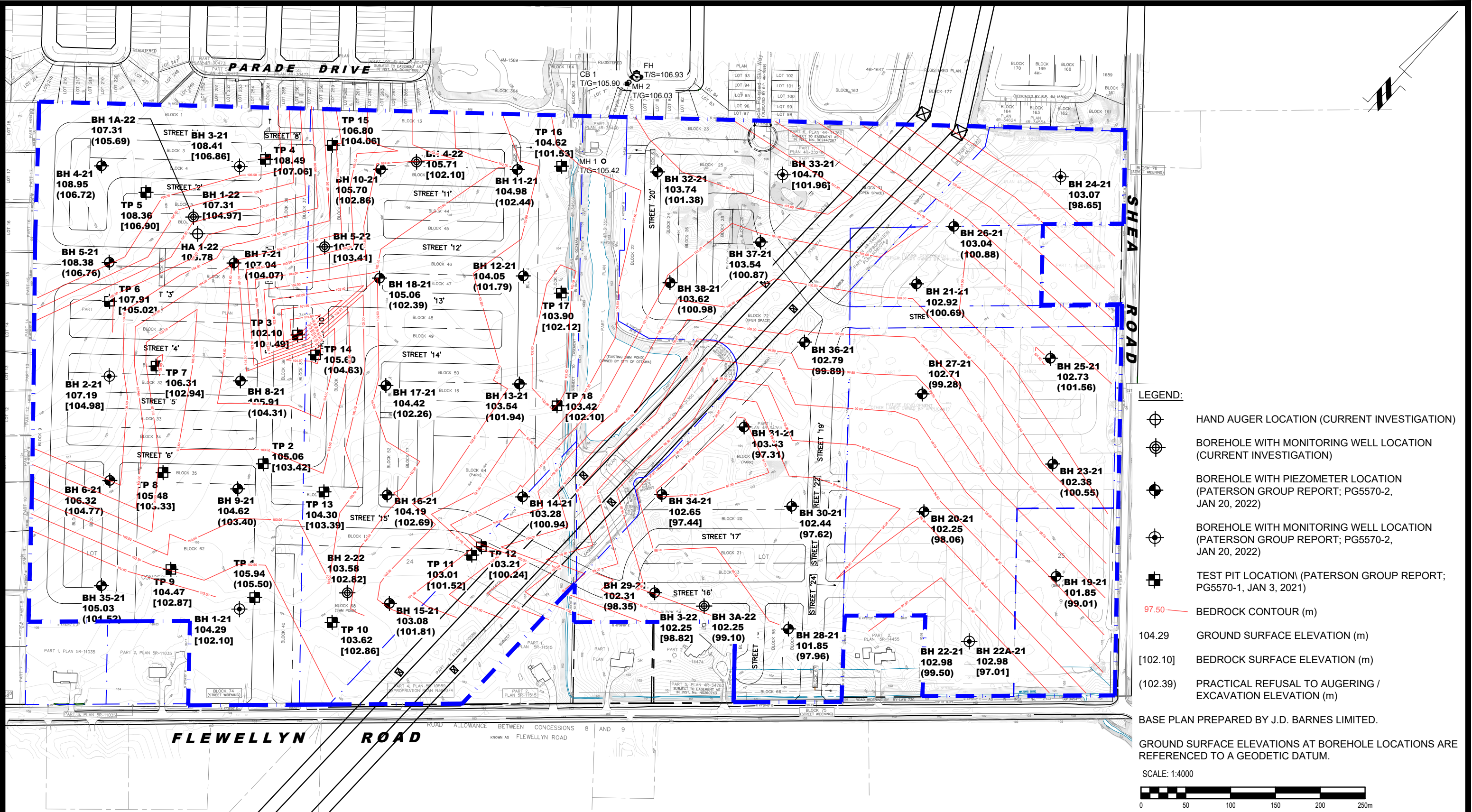
PATERSON GROUP
9 AURIGA DRIVE
OTTAWA, ON
K2E 7S9
TEL: (613) 226-7381

2	REVISED SITE BOUNDARY	04/07/2024	OB
1	UPDATED CLIENT'S NAME AND SITE ADDRESS	12/06/2023	OB
NO.	REVISIONS	DATE	INITIAL

CAIVAN (STITTSVILLE SOUTH) INC. & CAIVAN (STITTSVILLE WEST) LTD.
HYDROGEOLOGICAL EXISTING CONDITIONS
PROPOSED RESIDENTIAL DEVELOPMENT
5993 & 6115 FLEWELLYN ROAD & 6030 & 6070 FERNBANK ROAD
OTTAWA, ONTARIO

GROUNDWATER CONTOUR PLAN

Scale:	1:4000	Date:	11/2022
Drawn by:	RCG	Report No.:	PH4625-REP.01
Checked by:	OB	Dwg. No.:	PH4625-5
Approved by:	MK	Revision No.:	2





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

6	UPDATED TO NEW CONCEPTUAL PLAN	03/07/2024	KP
5	UPDATED TO NEW CONCEPTUAL PLAN	28/08/2023	KP
4	UPDATED CLIENT'S NAME AND SITE ADDRESS	12/06/2023	KP
3	UPDATED SITE BOUNDARY	13/02/2023	KP
2	BH 1-22 - BH 5-22 & HA1-22 ADDED TO PLAN	10/03/2022	KP
NO.	REVISIONS	DATE	INITIAL

CAIVAN (STITTSVILLE SOUTH) INC. & CAIVAN (STITTSVILLE WEST) LTD.

GEOTECHNICAL INVESTIGATION
PROPOSED RESIDENTIAL DEVELOPMENT

OTTAWA, 5993 & 6115 FLEWELLYN ROAD & 6030 & 6070 FERNBANK ROAD ONTARIO

Title:

BEDROCK CONTOUR PLAN

Scale:	1:4000	Date:	01/2022
Drawn by:	YA	Report No.:	PG5570-2, REVISION 4
Checked by:	KP	Dwg. No.:	PG5570-2
Approved by:	DJG	Revision No.:	6

APPENDIX 4

HYDRAULIC CONDUCTIVITY RESULTS - FALLING AND RISING HEAD TESTS

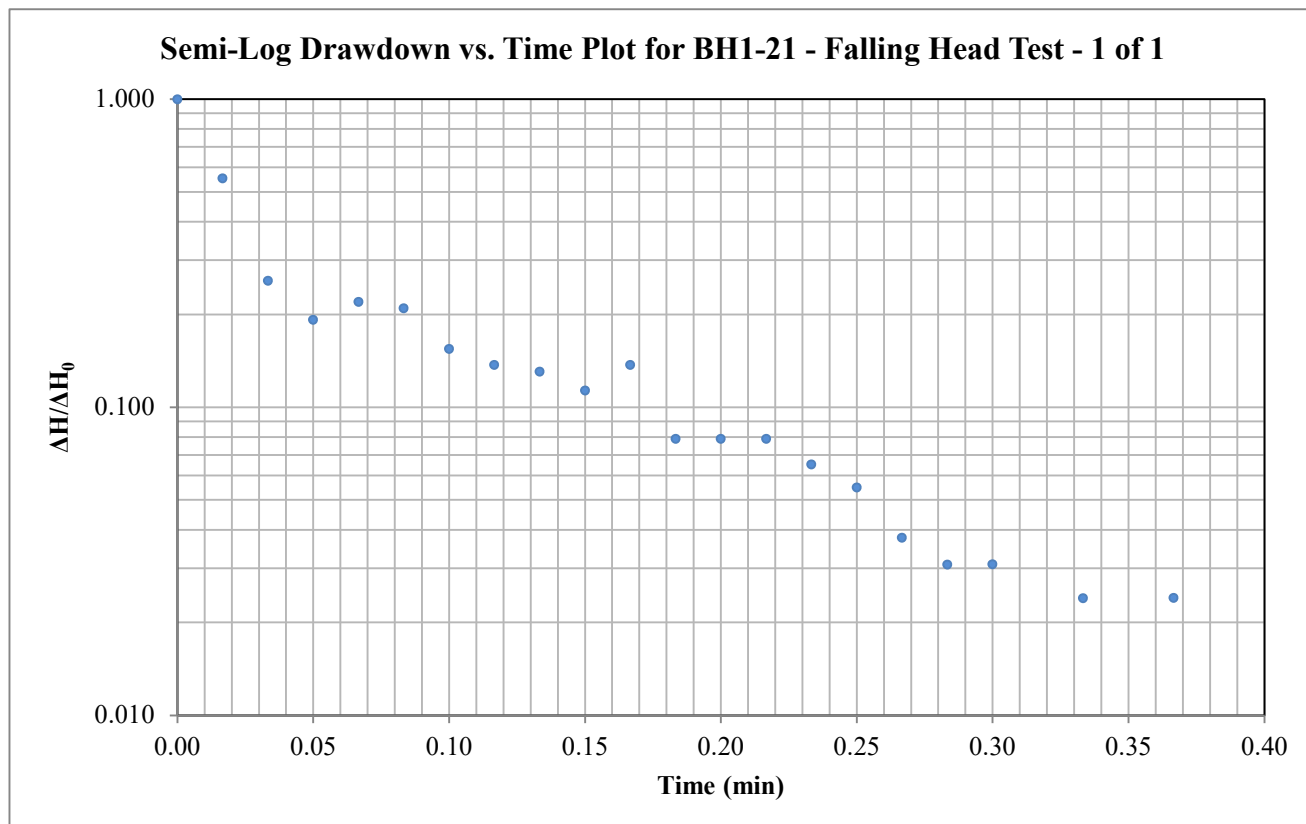
Hvorslev Hydraulic Conductivity Analysis

Project: Caivan - 5993 and 6115 Flewellyn Road and 6030 and 6070 Fernbank Road

Test Location: BH1-21

Test: Falling Head - 1 of 1

Date: October 11, 2022



Hvorslev Horizontal Hydraulic Conductivity

Hvorslev Shape Factor

$$K = \frac{\pi r_c^2}{F} \frac{1}{t^*} \ln \left(\frac{\Delta H^*}{\Delta H_0} \right)$$

$$F = \frac{2\pi L}{\ln \left(\frac{2L}{D} \right)}$$

Valid for $L \gg D$

Hvorslev Shape Factor F: 3.59613

Well Parameters:

L	3 m	Saturated length of screen or open hole
D	0.03175 m	Diameter of well
r_c	0.01588 m	Radius of well

Data Points (from plot):

t^* :	0.027 minutes	$\Delta H^* / \Delta H_0$:	0.37
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Horizontal Hydraulic Conductivity**K = 1.35E-04 m/sec**

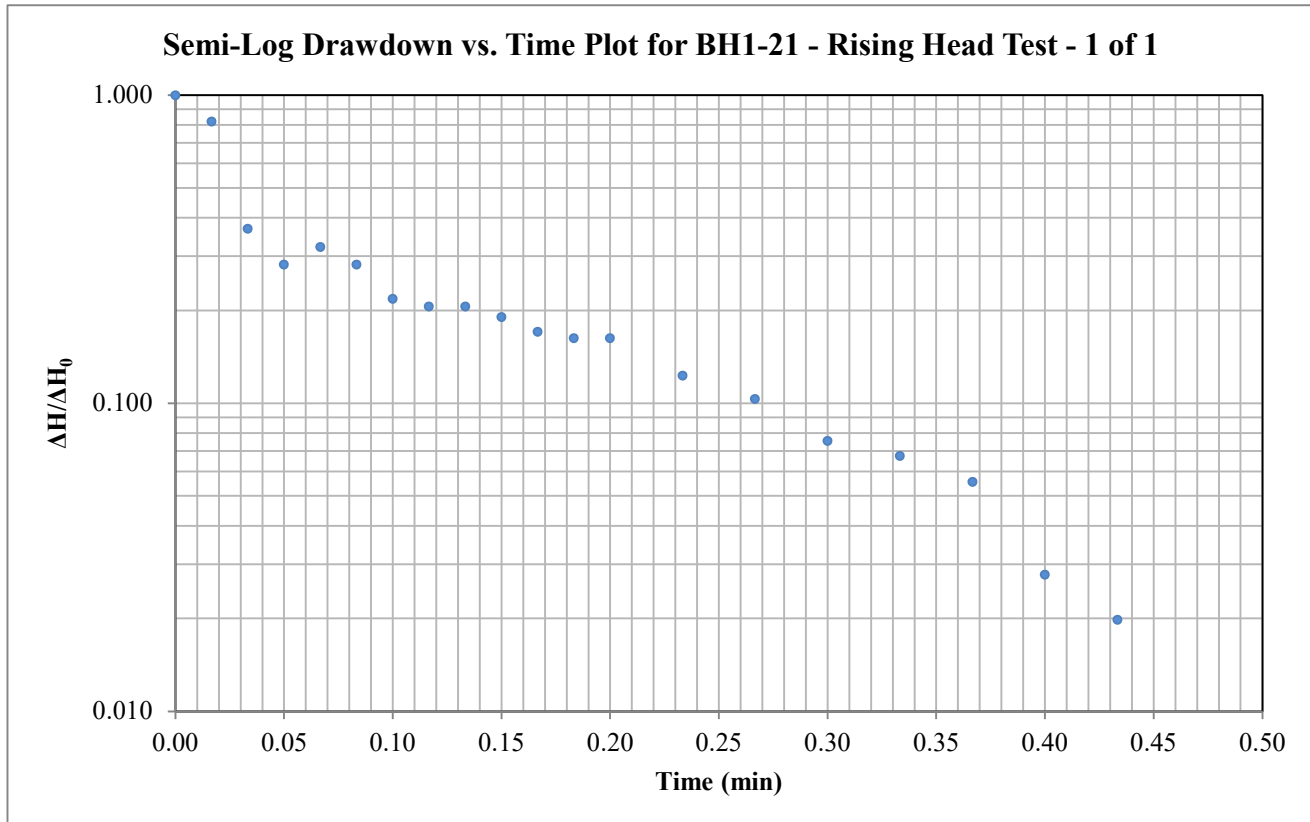
Hvorslev Hydraulic Conductivity Analysis

Project: Caivan - 5993 and 6115 Flewellyn Road and 6030 and 6070 Fernbank Road

Test Location: BH1-21

Test: Rising Head - 1 of 1

Date: October 11, 2022



Hvorslev Horizontal Hydraulic Conductivity

Hvorslev Shape Factor

$$K = \frac{\pi r_c^2}{F} \frac{1}{t^*} \ln \left(\frac{\Delta H^*}{\Delta H_0} \right)$$

$$F = \frac{2\pi L}{\ln \left(\frac{2L}{D} \right)}$$

Valid for $L \gg D$

Hvorslev Shape Factor F: 3.59613

Well Parameters:

L	3 m	Saturated length of screen or open hole
D	0.03175 m	Diameter of well
r_c	0.01588 m	Radius of well

Data Points (from plot):

t^* :	0.033 minutes	$\Delta H^* / \Delta H_0$:	0.37
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Horizontal Hydraulic Conductivity**K = 1.10E-04 m/sec**

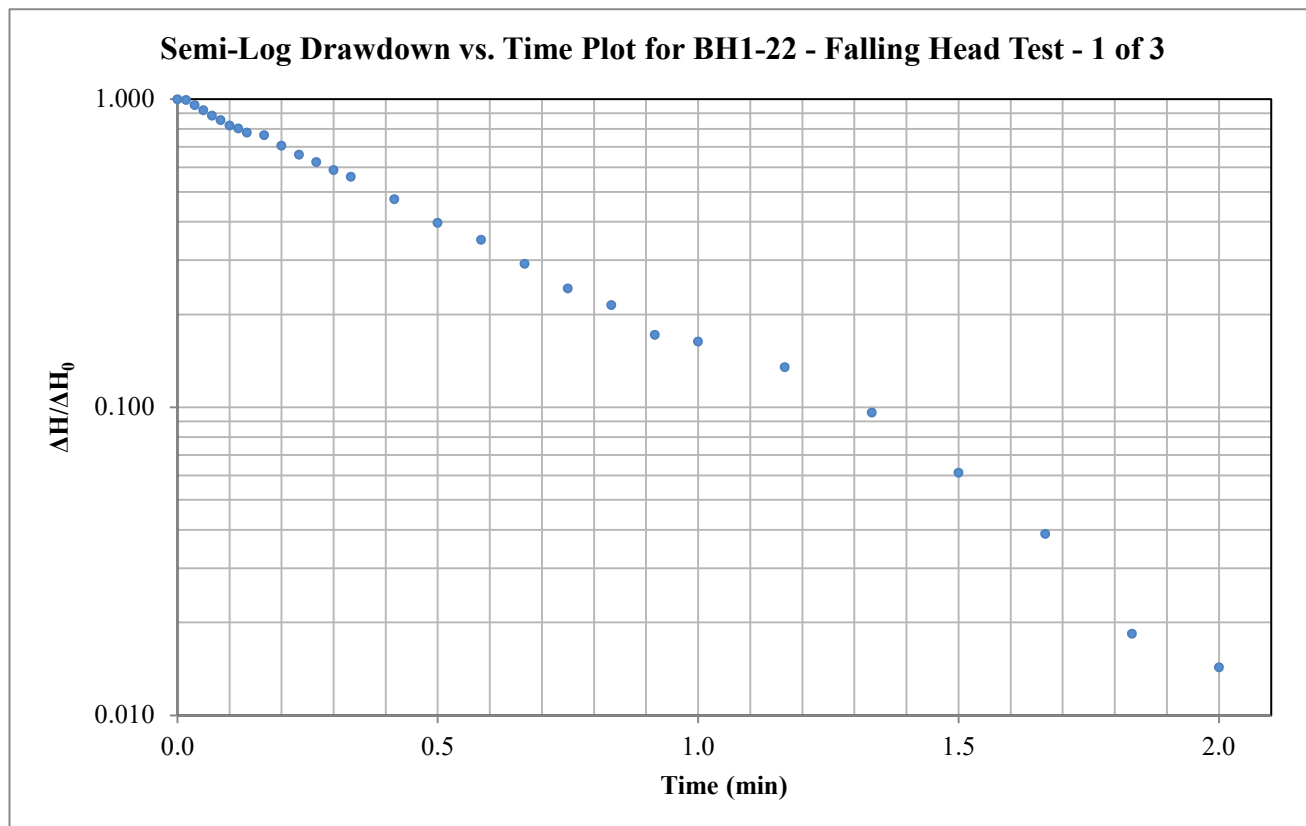
Hvorslev Hydraulic Conductivity Analysis

Project: Caivan - 5993 and 6115 Flewellyn Road and 6030 and 6070 Fernbank Road

Test Location: BH1-22

Test: Falling Head - 1 of 3

Date: October 7, 2022



Hvorslev Horizontal Hydraulic Conductivity

Hvorslev Shape Factor

$$K = \frac{\pi r_c^2}{F} \frac{1}{t^*} \ln \left(\frac{\Delta H^*}{\Delta H_0} \right)$$

$$F = \frac{2\pi L}{\ln \left(\frac{2L}{D} \right)}$$

Valid for $L \gg D$

Hvorslev Shape Factor F: 2.07207

Well Parameters:

L 1.5 m

Saturated length of screen or open hole

D 0.03175 m

Diameter of well

 r_c 0.01588 m

Radius of well

Data Points (from plot):

 t^* : 0.516 minutes $\Delta H^* / \Delta H_0$: 0.37**Horizontal Hydraulic Conductivity****K = 1.23E-05 m/sec**

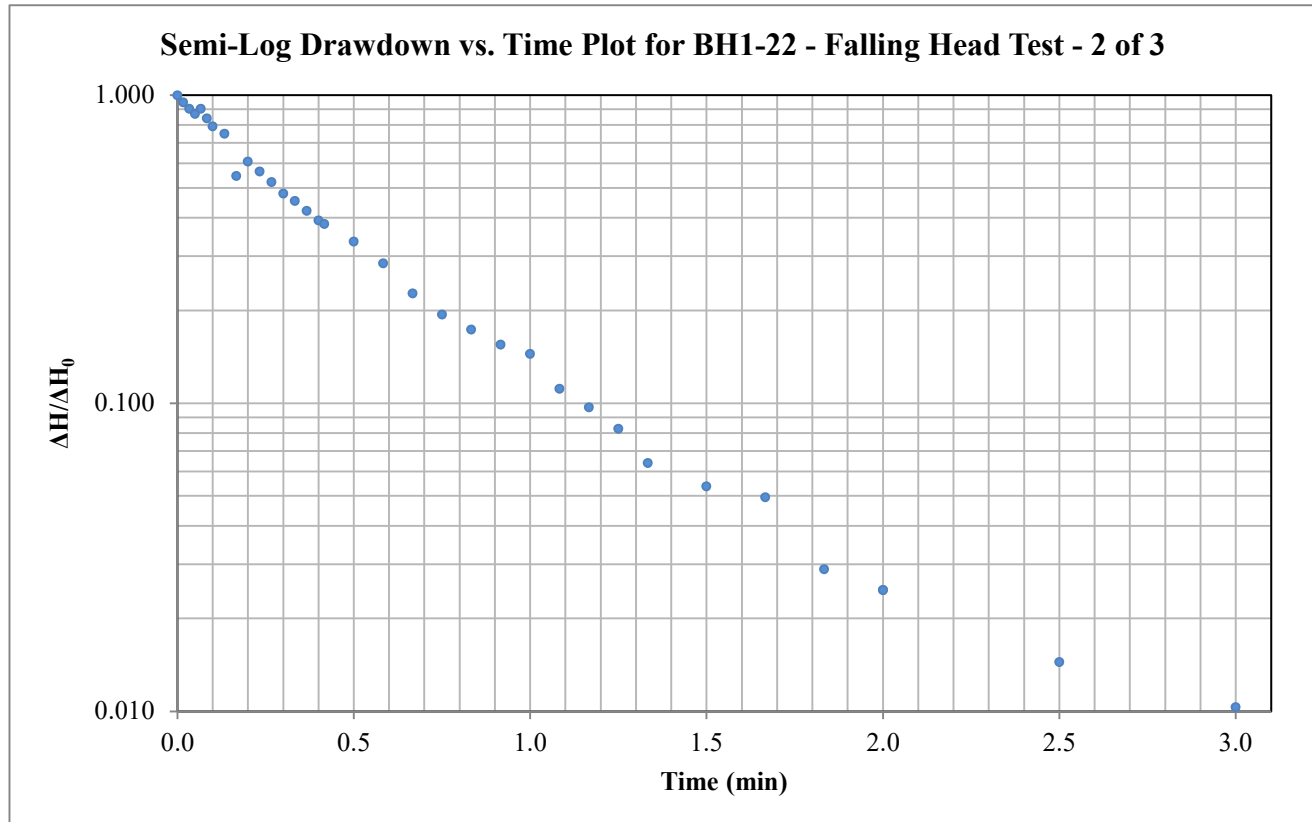
Hvorslev Hydraulic Conductivity Analysis

Project: Caivan - 5993 and 6115 Flewellyn Road and 6030 and 6070 Fernbank Road

Test Location: BH1-22

Test: Falling Head - 2 of 3

Date: October 7, 2022



Hvorslev Horizontal Hydraulic Conductivity

Hvorslev Shape Factor

$$K = \frac{\pi r_c^2}{F} \frac{1}{t^*} \ln \left(\frac{\Delta H^*}{\Delta H_0} \right)$$

$$F = \frac{2\pi L}{\ln \left(\frac{2L}{D} \right)}$$

Valid for $L \gg D$

Hvorslev Shape Factor F: 2.07207

Well Parameters:

L	1.5 m	Saturated length of screen or open hole
D	0.03175 m	Diameter of well
r_c	0.01588 m	Radius of well

Data Points (from plot):

t^* :	0.428 minutes	$\Delta H^* / \Delta H_0$:	0.37
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Horizontal Hydraulic Conductivity**K = 1.48E-05 m/sec**

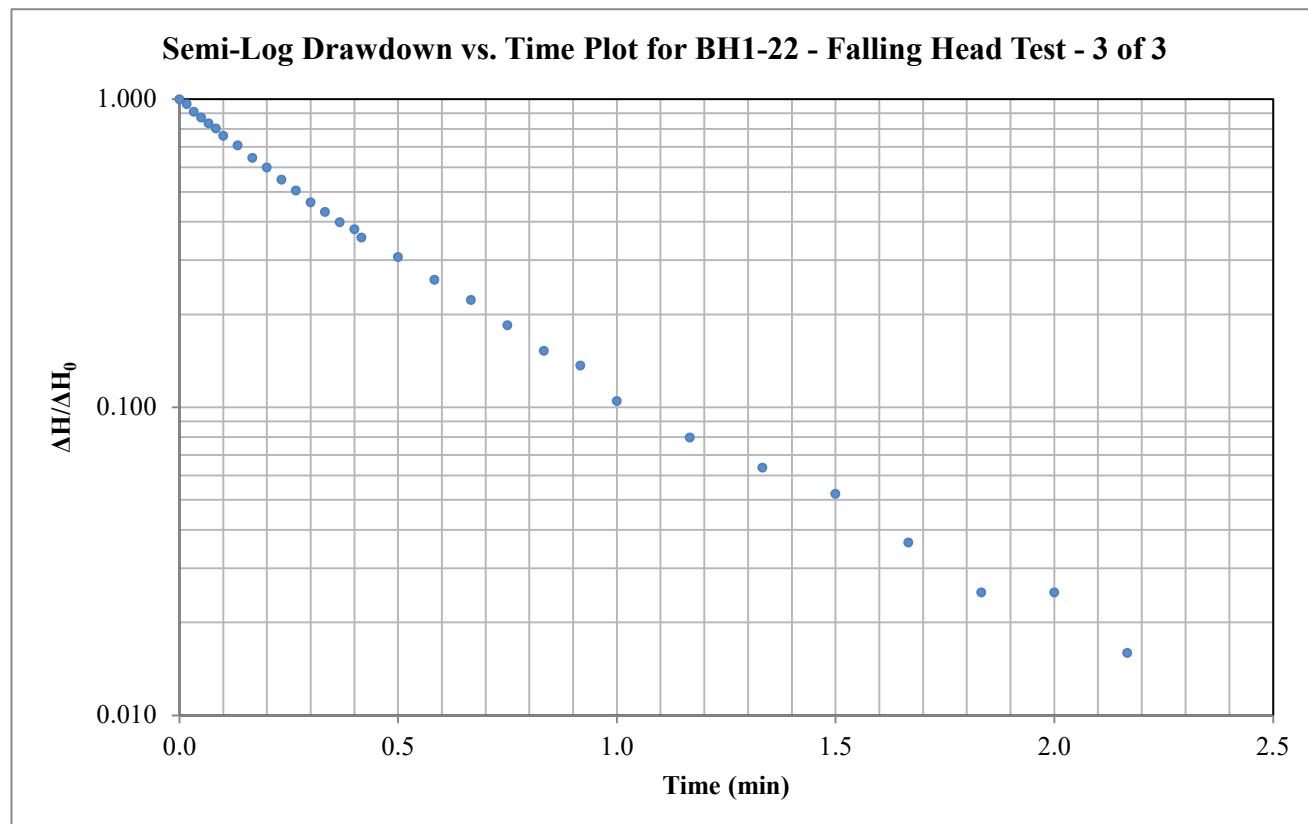
Hvorslev Hydraulic Conductivity Analysis

Project: Caivan - 5993 and 6115 Flewellyn Road and 6030 and 6070 Fernbank Road

Test Location: BH1-22

Test: Falling Head - 3 of 3

Date: October 7, 2022



Hvorslev Horizontal Hydraulic Conductivity

Hvorslev Shape Factor

$$K = \frac{\pi r_c^2}{F} \frac{1}{t^*} \ln \left(\frac{\Delta H^*}{\Delta H_0} \right)$$

$$F = \frac{2\pi L}{\ln \left(\frac{2L}{D} \right)}$$

Valid for $L \gg D$

Hvorslev Shape Factor F: 2.07207

Well Parameters:

L	1.5 m	Saturated length of screen or open hole
D	0.03175 m	Diameter of well
r_c	0.01588 m	Radius of well

Data Points (from plot):

t^* :	0.406 minutes	$\Delta H^*/\Delta H_0$:	0.37
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Horizontal Hydraulic Conductivity**K = 1.56E-05 m/sec**

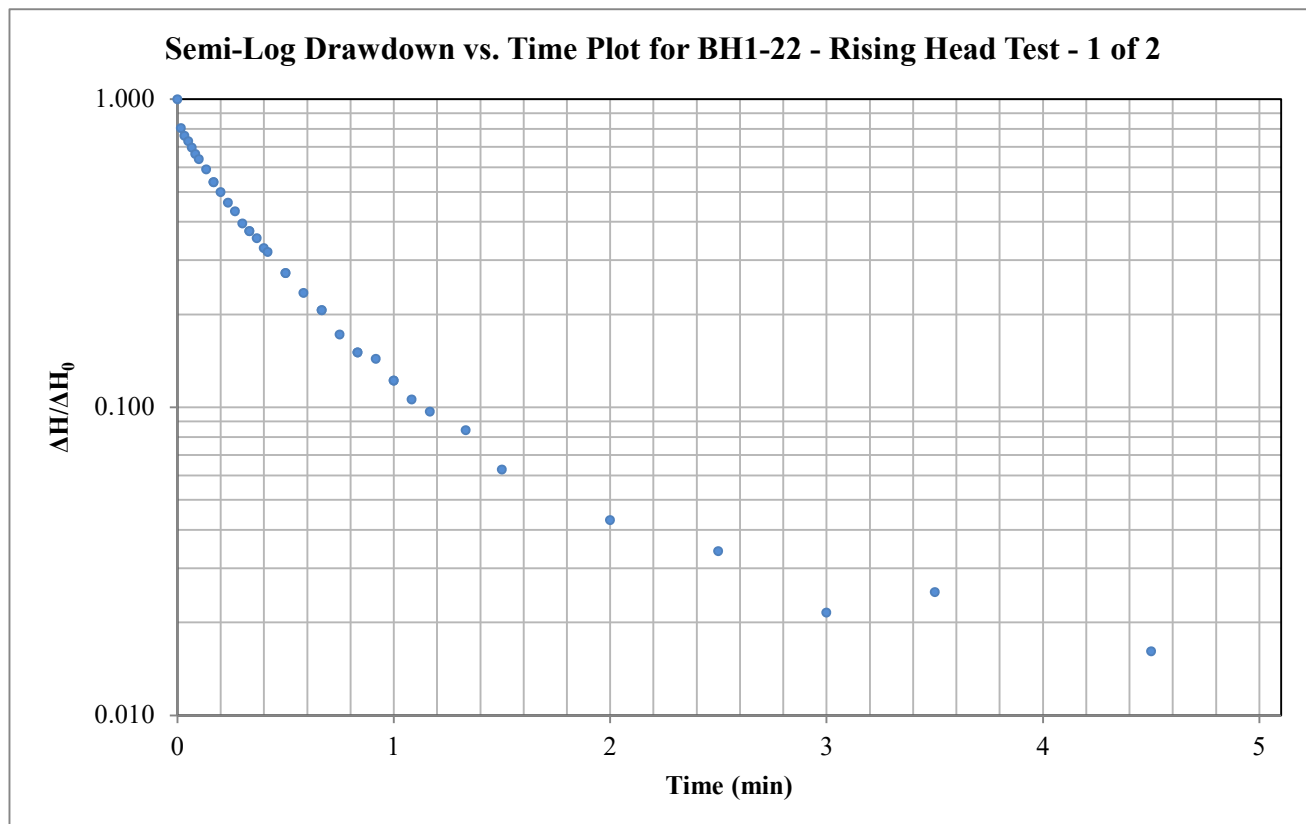
Hvorslev Hydraulic Conductivity Analysis

Project: Caivan - 5993 and 6115 Flewellyn Road and 6030 and 6070 Fernbank Road

Test Location: BH1-22

Test: Rising Head - 1 of 2

Date: October 7, 2022



Hvorslev Horizontal Hydraulic Conductivity

Hvorslev Shape Factor

$$K = \frac{\pi r_c^2}{F} \frac{1}{t^*} \ln \left(\frac{\Delta H^*}{\Delta H_0} \right)$$

$$F = \frac{2\pi L}{\ln \left(\frac{2L}{D} \right)}$$

Valid for $L \gg D$

Hvorslev Shape Factor F: 2.07207

Well Parameters:

L	1.5 m	Saturated length of screen or open hole
D	0.03175 m	Diameter of well
r_c	0.01588 m	Radius of well

Data Points (from plot):

t^* : 0.341 minutes $\Delta H^* / \Delta H_0$: 0.37

Horizontal Hydraulic Conductivity**K = 1.86E-05 m/sec**

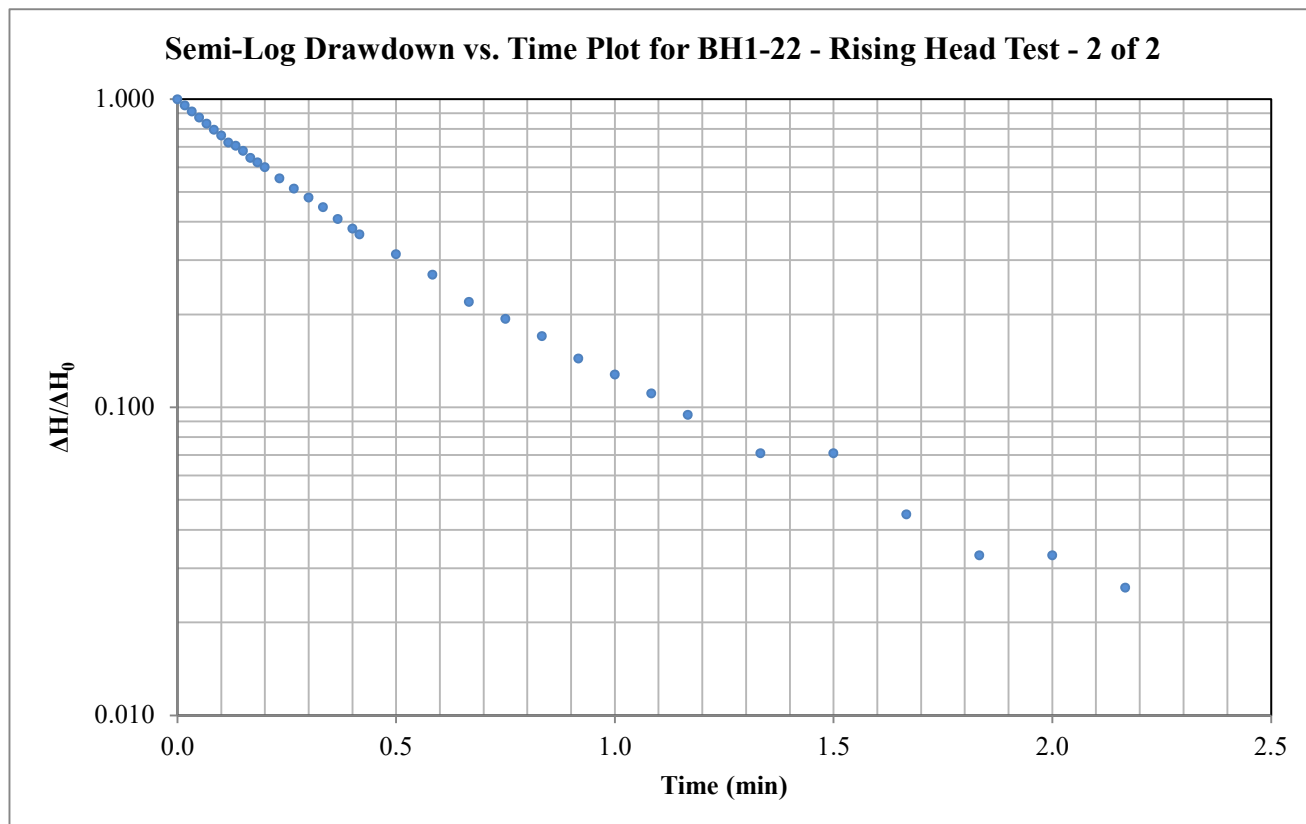
Hvorslev Hydraulic Conductivity Analysis

Project: Caivan - 5993 and 6115 Flewellyn Road and 6030 and 6070 Fernbank Road

Test Location: BH1-22

Test: Rising Head - 2 of 2

Date: October 7, 2022



Hvorslev Horizontal Hydraulic Conductivity

Hvorslev Shape Factor

$$K = \frac{\pi r_c^2}{F} \frac{1}{t^*} \ln \left(\frac{\Delta H^*}{\Delta H_0} \right)$$

$$F = \frac{2\pi L}{\ln \left(\frac{2L}{D} \right)}$$

Valid for $L \gg D$

Hvorslev Shape Factor F: 2.07207

Well Parameters:

L	1.5 m	Saturated length of screen or open hole
D	0.03175 m	Diameter of well
r_c	0.01588 m	Radius of well

Data Points (from plot):

t^* :	0.411 minutes	$\Delta H^*/\Delta H_0$:	0.37
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Horizontal Hydraulic Conductivity**K = 1.54E-05 m/sec**

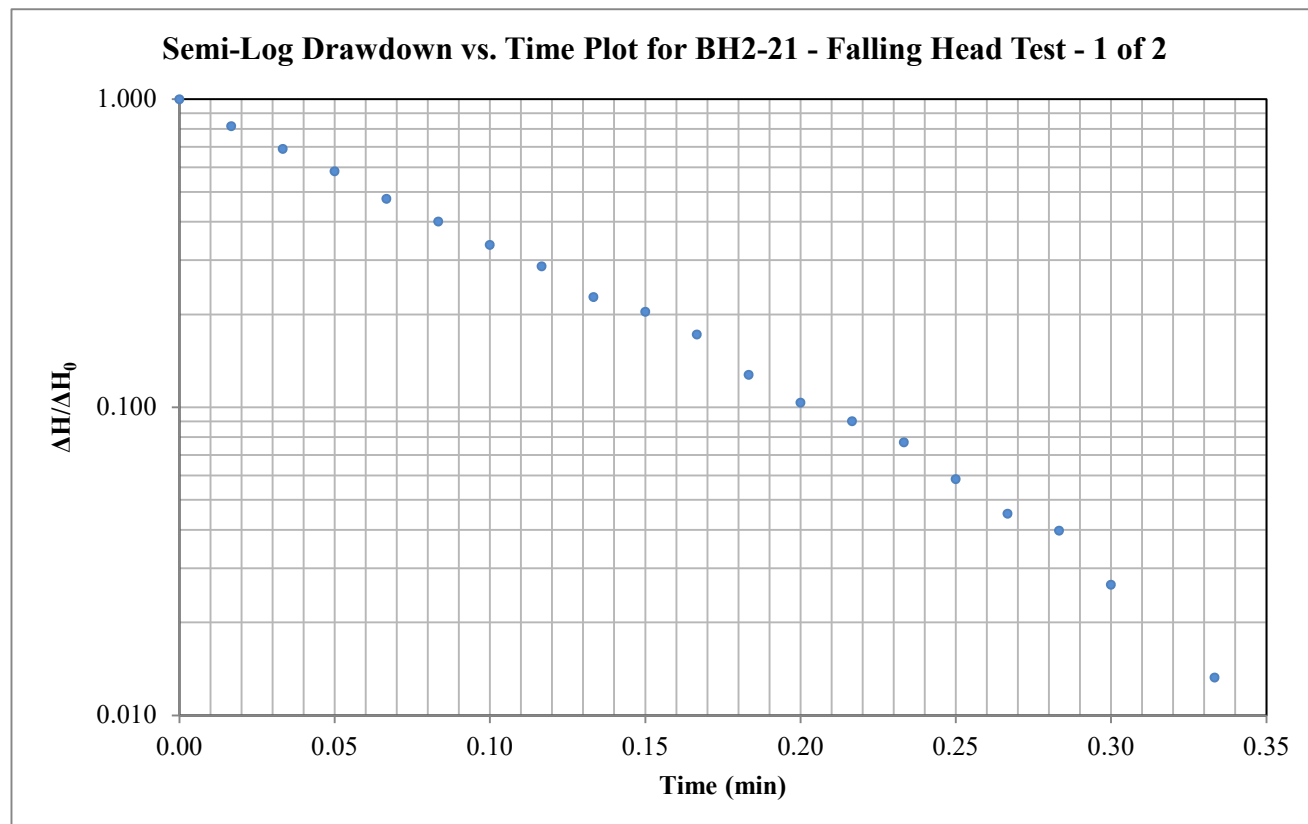
Hvorslev Hydraulic Conductivity Analysis

Project: Caivan - 5993 and 6115 Flewellyn Road and 6030 and 6070 Fernbank Road

Test Location: BH2-21

Test: Falling Head - 1 of 2

Date: October 7, 2022



Hvorslev Horizontal Hydraulic Conductivity

Hvorslev Shape Factor

$$K = \frac{\pi r_c^2}{F} \frac{1}{t^*} \ln \left(\frac{\Delta H^*}{\Delta H_0} \right)$$

$$F = \frac{2\pi L}{\ln \left(\frac{2L}{D} \right)}$$

Valid for $L \gg D$

Hvorslev Shape Factor F: 3.59613

Well Parameters:

L	3 m	Saturated length of screen or open hole
D	0.03175 m	Diameter of well
r_c	0.01588 m	Radius of well

Data Points (from plot):

t^* :	0.091 minutes	$\Delta H^* / \Delta H_0$:	0.37
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Horizontal Hydraulic Conductivity**K = 3.99E-05 m/sec**

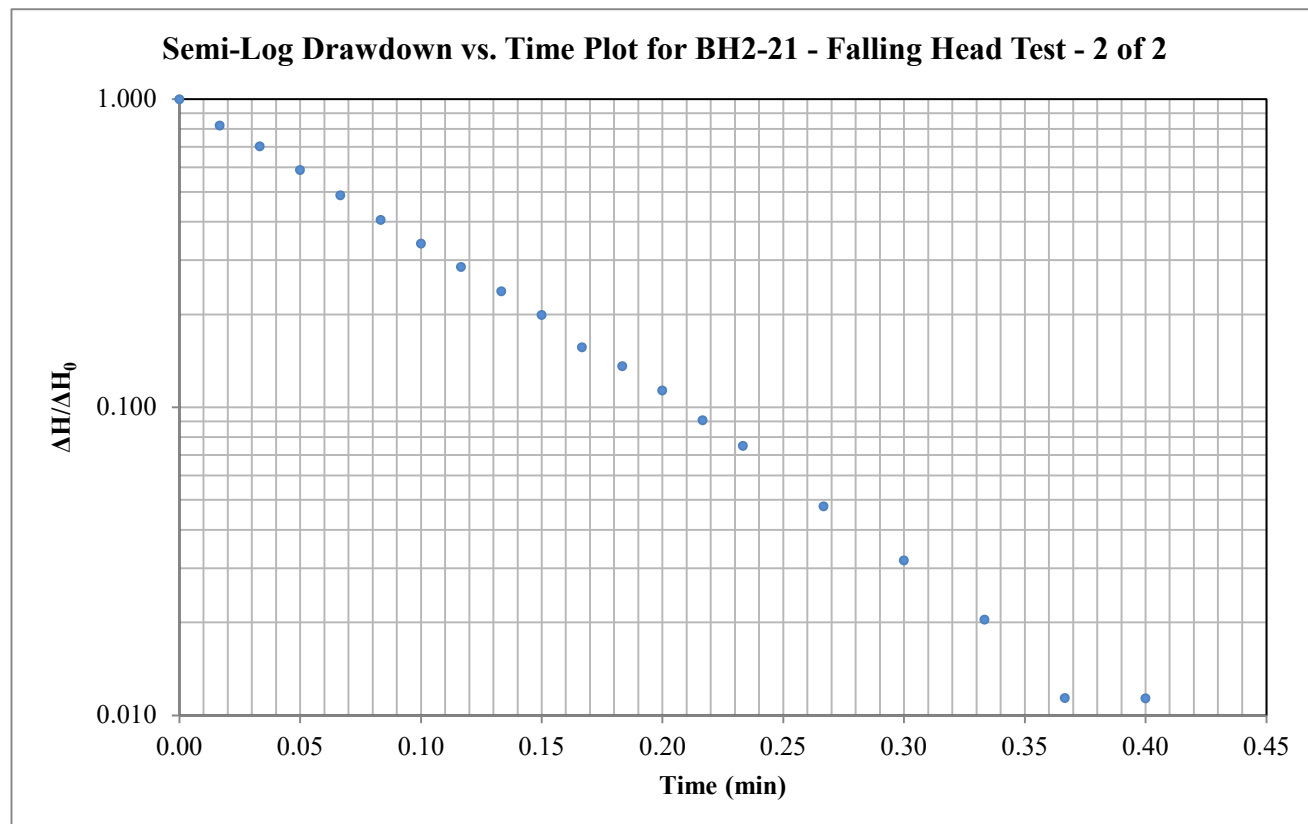
Hvorslev Hydraulic Conductivity Analysis

Project: Caivan - 5993 and 6115 Flewellyn Road and 6030 and 6070 Fernbank Road

Test Location: BH2-21

Test: Falling Head - 2 of 2

Date: October 7, 2022



Hvorslev Horizontal Hydraulic Conductivity

Hvorslev Shape Factor

$$K = \frac{\pi r_c^2}{F} \frac{1}{t^*} \ln \left(\frac{\Delta H^*}{\Delta H_0} \right)$$

$$F = \frac{2\pi L}{\ln \left(\frac{2L}{D} \right)}$$

Valid for $L \gg D$

Hvorslev Shape Factor F: 3.59613

Well Parameters:

L	3 m	Saturated length of screen or open hole
D	0.03175 m	Diameter of well
r _c	0.01588 m	Radius of well

Data Points (from plot):

t*:	0.092 minutes	ΔH*/ΔH₀:	0.37
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Horizontal Hydraulic Conductivity**K = 3.95E-05 m/sec**

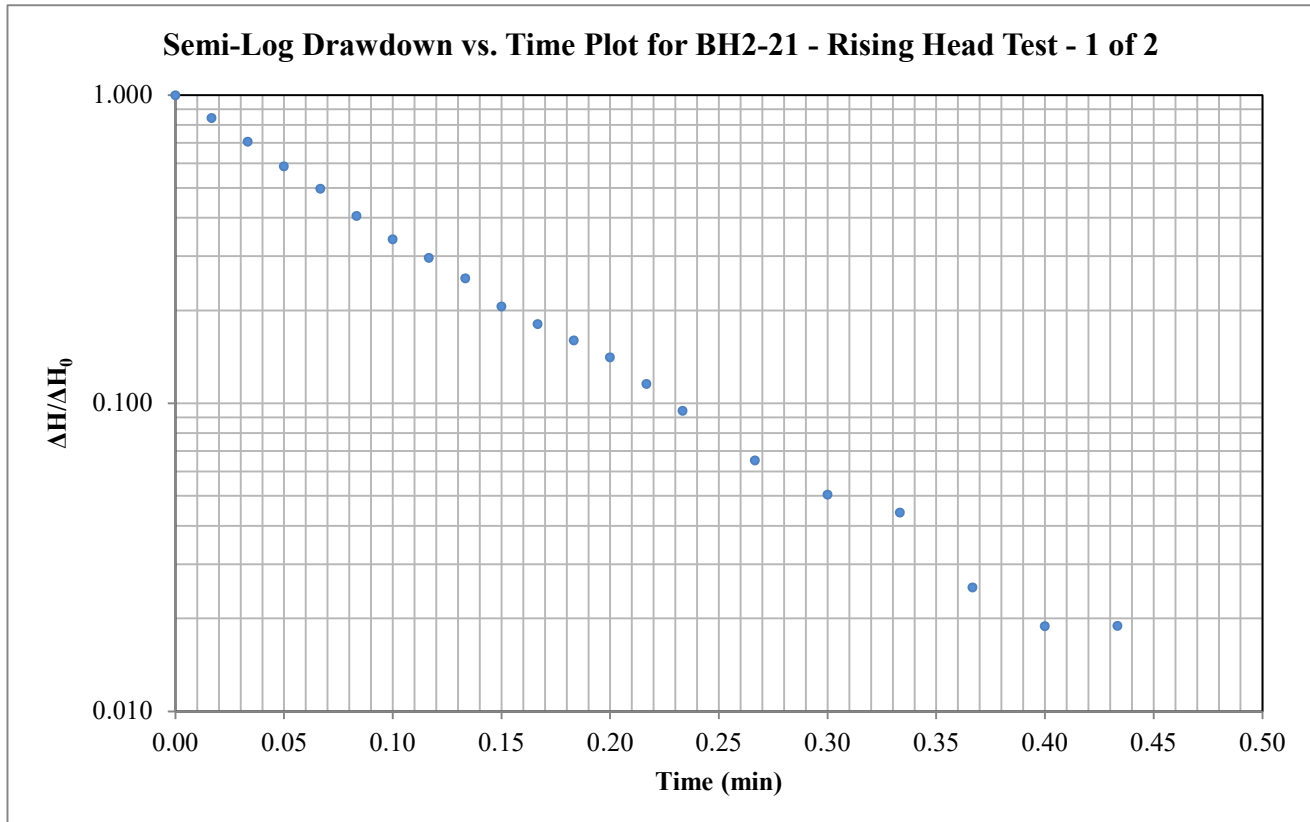
Hvorslev Hydraulic Conductivity Analysis

Project: Caivan - 5993 and 6115 Flewellyn Road and 6030 and 6070 Fernbank Road

Test Location: BH2-21

Test: Rising Head - 1 of 2

Date: October 7, 2022



Hvorslev Horizontal Hydraulic Conductivity

Hvorslev Shape Factor

$$K = \frac{\pi r_c^2}{F} \frac{1}{t^*} \ln \left(\frac{\Delta H^*}{\Delta H_0} \right)$$

$$F = \frac{2\pi L}{\ln \left(\frac{2L}{D} \right)}$$

Valid for $L \gg D$

Hvorslev Shape Factor F: 3.59613

Well Parameters:

L	3 m	Saturated length of screen or open hole
D	0.03175 m	Diameter of well
r_c	0.01588 m	Radius of well

Data Points (from plot):

t^* :	0.093 minutes	$\Delta H^* / \Delta H_0$:	0.37
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Horizontal Hydraulic Conductivity**K = 3.94E-05 m/sec**

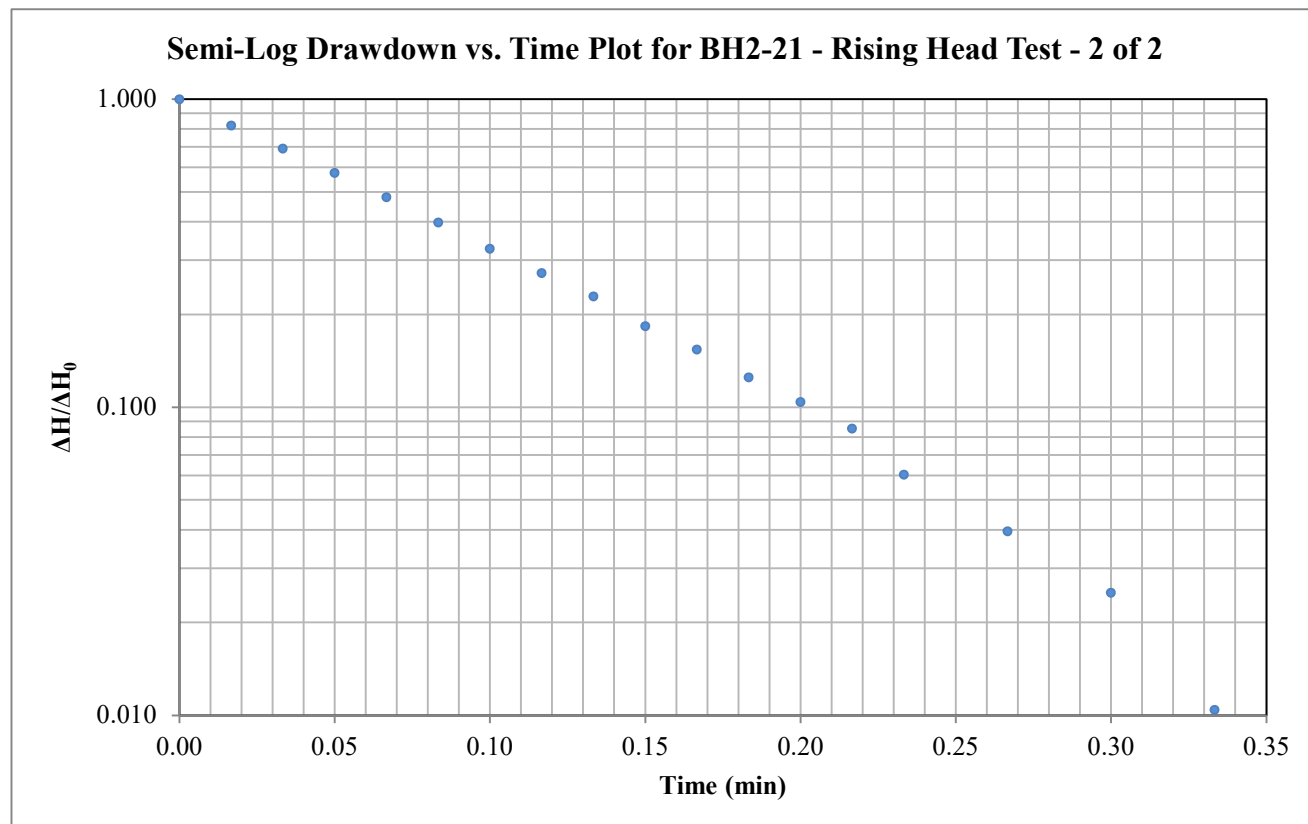
Hvorslev Hydraulic Conductivity Analysis

Project: Caivan - 5993 and 6115 Flewellyn Road and 6030 and 6070 Fernbank Road

Test Location: BH2-21

Test: Rising Head - 2 of 2

Date: October 7, 2022



Hvorslev Horizontal Hydraulic Conductivity

Hvorslev Shape Factor

$$K = \frac{\pi r_c^2}{F} \frac{1}{t^*} \ln \left(\frac{\Delta H^*}{\Delta H_0} \right)$$

$$F = \frac{2\pi L}{\ln \left(\frac{2L}{D} \right)}$$

Valid for $L \gg D$

Hvorslev Shape Factor F: 3.59613

Well Parameters:

L	3 m	Saturated length of screen or open hole
D	0.03175 m	Diameter of well
r _c	0.01588 m	Radius of well

Data Points (from plot):

t*:	0.090 minutes	ΔH*/ΔH₀:	0.37
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Horizontal Hydraulic Conductivity**K = 4.06E-05 m/sec**

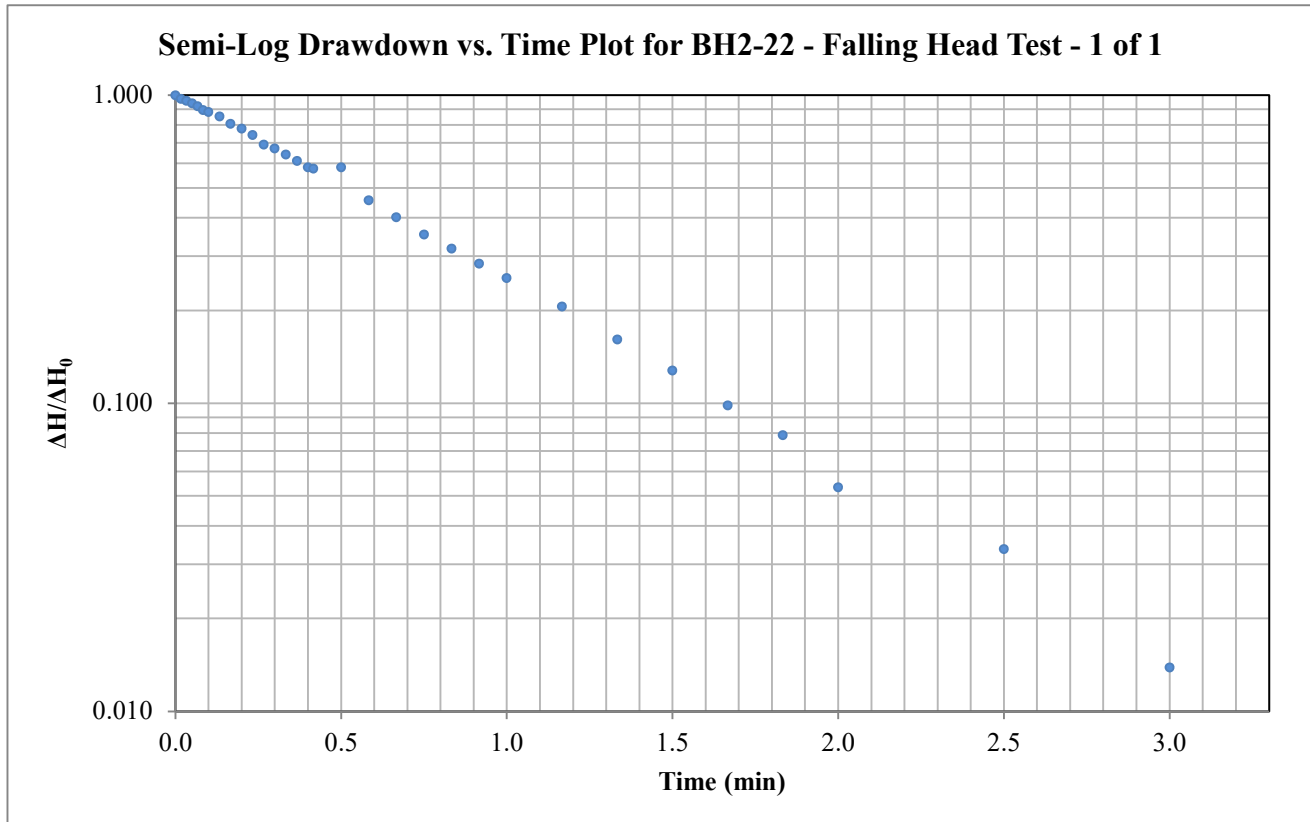
Hvorslev Hydraulic Conductivity Analysis

Project: Caivan - 5993 and 6115 Flewellyn Road and 6030 and 6070 Fernbank Road

Test Location: BH2-22

Test: Falling Head - 1 of 1

Date: October 7, 2022



Hvorslev Horizontal Hydraulic Conductivity

Hvorslev Shape Factor

$$K = \frac{\pi r_c^2}{F} \frac{1}{t^*} \ln \left(\frac{\Delta H^*}{\Delta H_0} \right)$$

$$F = \frac{2\pi L}{\ln \left(\frac{2L}{D} \right)}$$

Valid for $L \gg D$

Hvorslev Shape Factor F: 2.07207

Well Parameters:

L	1.5 m	Saturated length of screen or open hole
D	0.03175 m	Diameter of well
r_c	0.01588 m	Radius of well

Data Points (from plot):

t^* :	0.712 minutes	$\Delta H^* / \Delta H_0$:	0.37
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Horizontal Hydraulic Conductivity**K = 8.89E-06 m/sec**

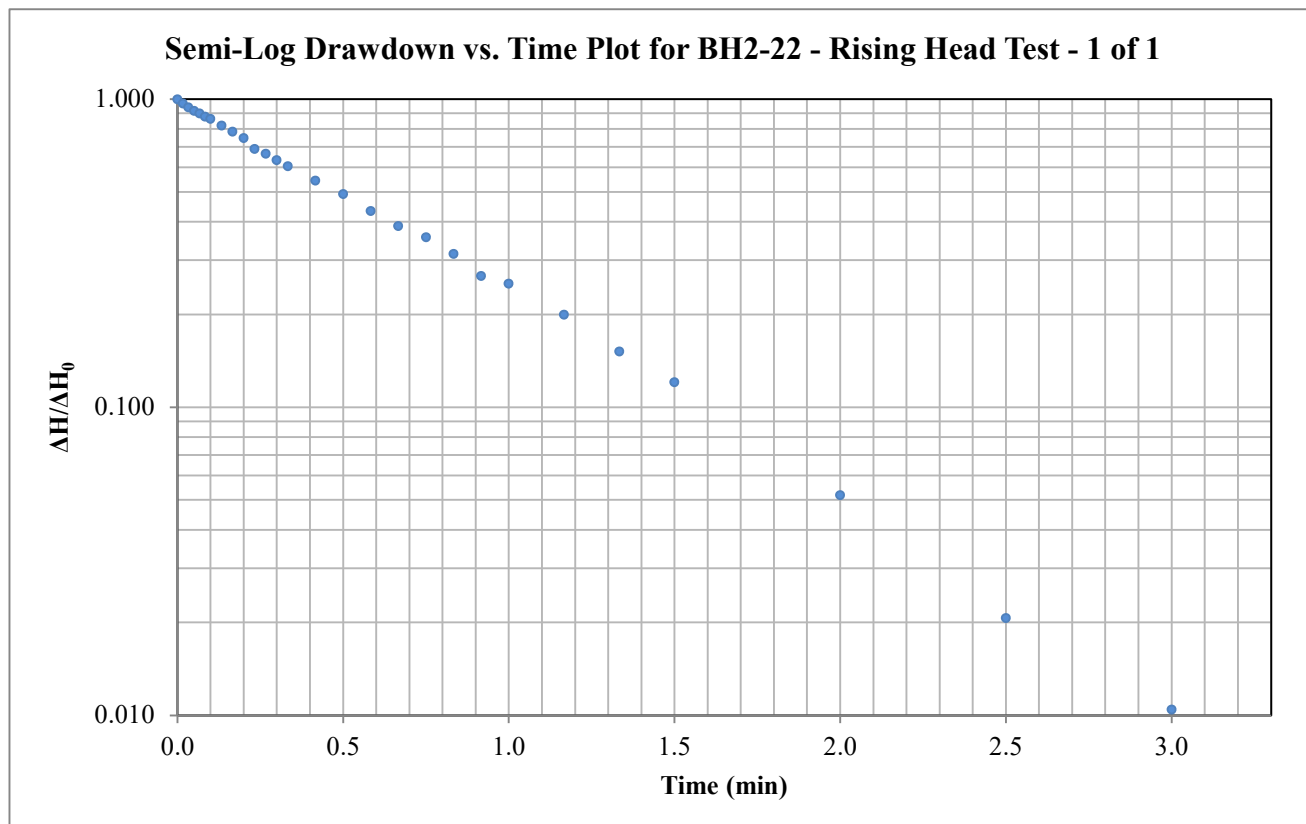
Hvorslev Hydraulic Conductivity Analysis

Project: Caivan - 5993 and 6115 Flewellyn Road and 6030 and 6070 Fernbank Road

Test Location: BH2-22

Test: Rising Head - 1 of 1

Date: October 7, 2022



Hvorslev Horizontal Hydraulic Conductivity

Hvorslev Shape Factor

$$K = \frac{\pi r_c^2}{F} \frac{1}{t^*} \ln \left(\frac{\Delta H^*}{\Delta H_0} \right)$$

$$F = \frac{2\pi L}{\ln \left(\frac{2L}{D} \right)}$$

Valid for $L \gg D$

Hvorslev Shape Factor F: 2.07207

Well Parameters:

L	1.5 m	Saturated length of screen or open hole
D	0.03175 m	Diameter of well
r_c	0.01588 m	Radius of well

Data Points (from plot):

t^* :	0.697 minutes	$\Delta H^* / \Delta H_0$:	0.37
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Horizontal Hydraulic Conductivity**K = 9.09E-06 m/sec**

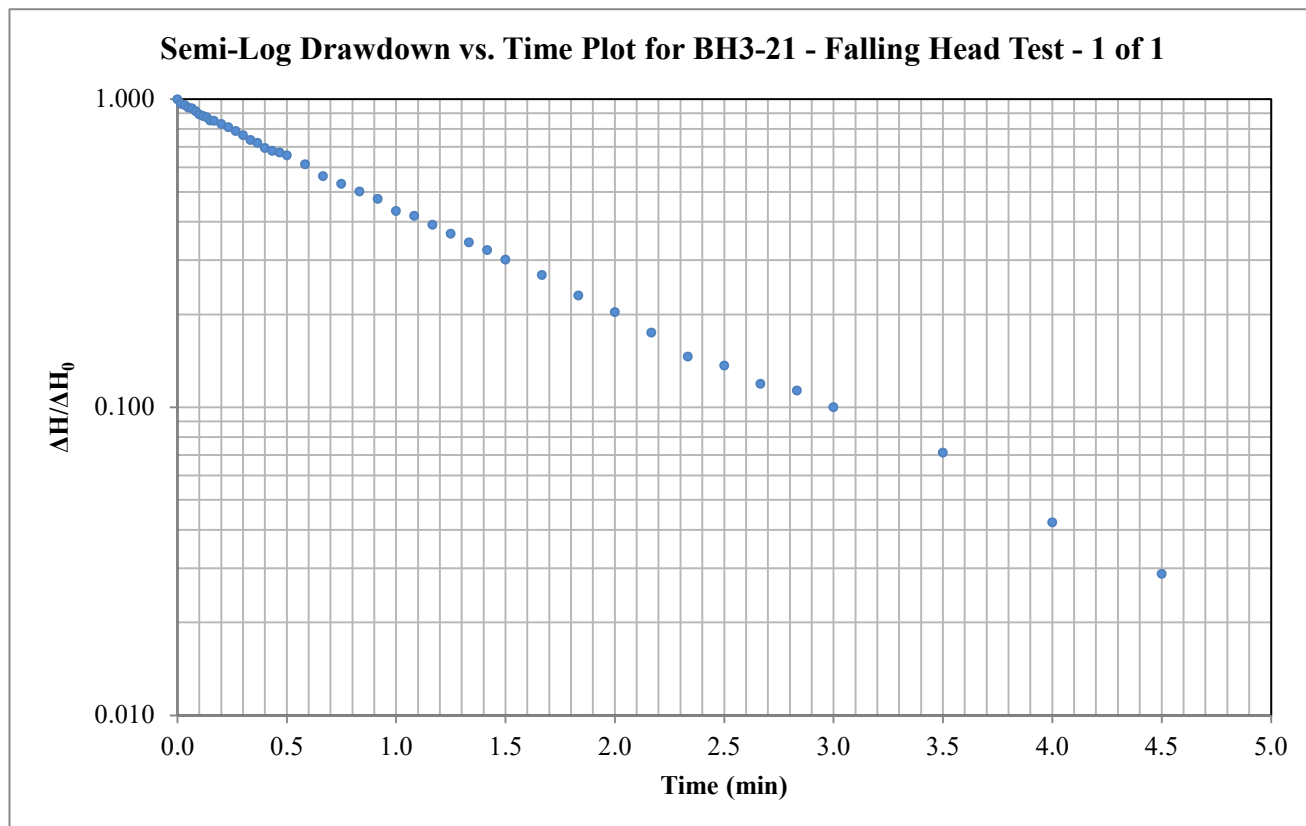
Hvorslev Hydraulic Conductivity Analysis

Project: Caivan - 5993 and 6115 Flewellyn Road and 6030 and 6070 Fernbank Road

Test Location: BH3-21

Test: Falling Head - 1 of 1

Date: October 7, 2022



Hvorslev Horizontal Hydraulic Conductivity

Hvorslev Shape Factor

$$K = \frac{\pi r_c^2}{F} \frac{1}{t^*} \ln \left(\frac{\Delta H^*}{\Delta H_0} \right)$$

$$F = \frac{2\pi L}{\ln \left(\frac{2L}{D} \right)}$$

Valid for $L \gg D$

Hvorslev Shape Factor F: 3.59613

Well Parameters:

L	3 m	Saturated length of screen or open hole
D	0.03175 m	Diameter of well
r_c	0.01588 m	Radius of well

Data Points (from plot):

t^* :	1.223 minutes	$\Delta H^*/\Delta H_0$:	0.37
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Horizontal Hydraulic Conductivity**K = 2.98E-06 m/sec**

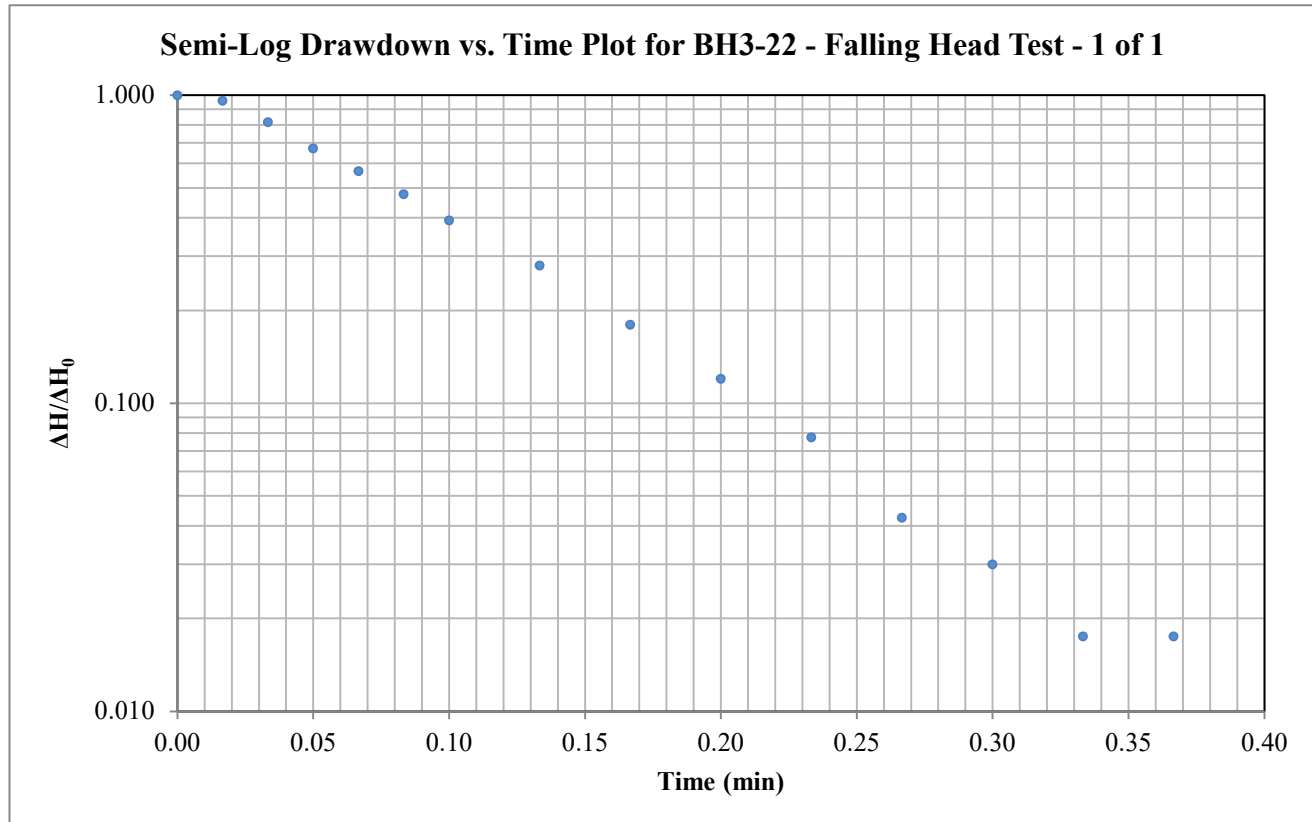
Hvorslev Hydraulic Conductivity Analysis

Project: Caivan - 5993 and 6115 Flewellyn Road and 6030 and 6070 Fernbank Road

Test Location: BH3-22

Test: Falling Head - 1 of 1

Date: October 11, 2022



Hvorslev Horizontal Hydraulic Conductivity

Hvorslev Shape Factor

$$K = \frac{\pi r_c^2}{F} \frac{1}{t^*} \ln \left(\frac{\Delta H^*}{\Delta H_0} \right)$$

$$F = \frac{2\pi L}{\ln \left(\frac{2L}{D} \right)}$$

Valid for $L \gg D$

Hvorslev Shape Factor F: 2.07207

Well Parameters:

L	1.5 m	Saturated length of screen or open hole
D	0.03175 m	Diameter of well
r_c	0.01588 m	Radius of well

Data Points (from plot):

t^* :	0.105 minutes	$\Delta H^* / \Delta H_0$:	0.37
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Horizontal Hydraulic Conductivity**K = 6.01E-05 m/sec**

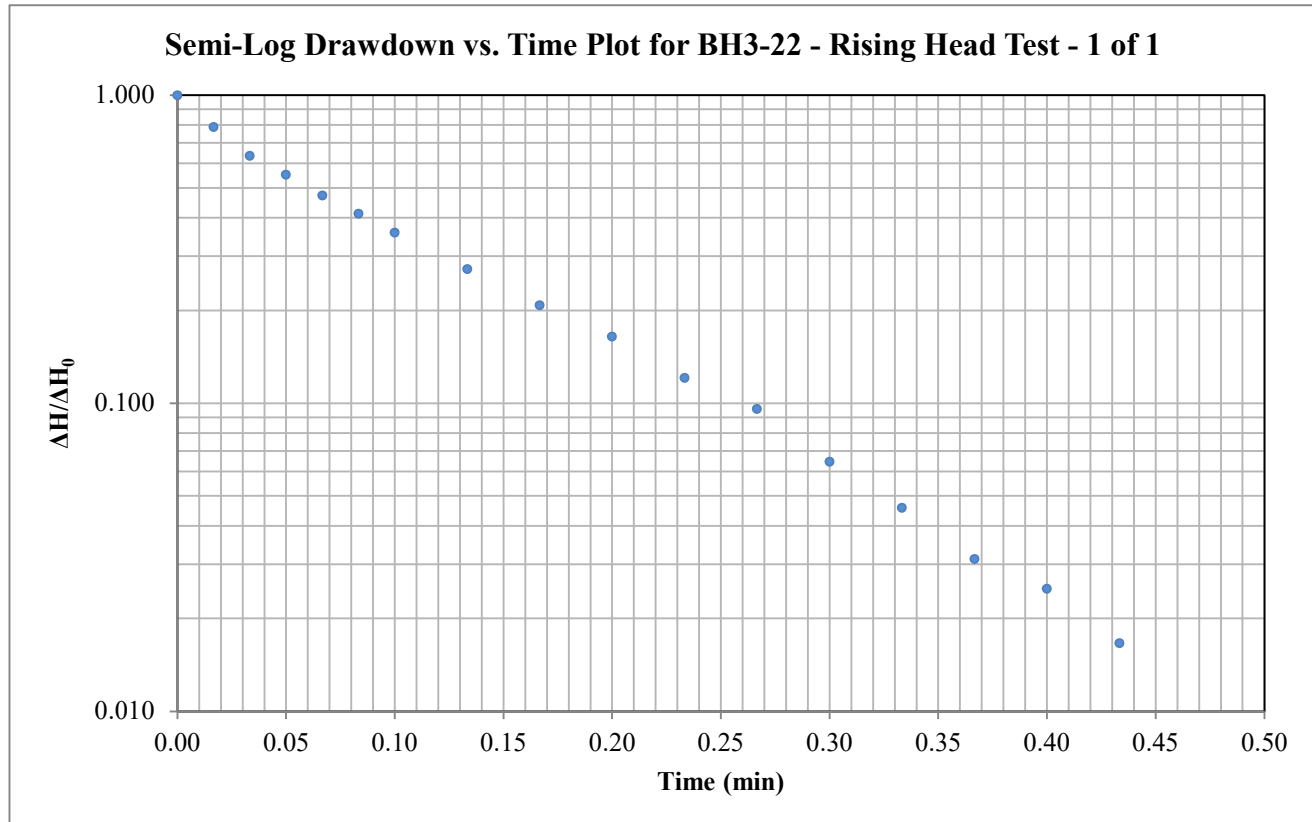
Hvorslev Hydraulic Conductivity Analysis

Project: Caivan - 5993 and 6115 Flewellyn Road and 6030 and 6070 Fernbank Road

Test Location: BH3-22

Test: Rising Head - 1 of 1

Date: October 11, 2022



Hvorslev Horizontal Hydraulic Conductivity

Hvorslev Shape Factor

$$K = \frac{\pi r_c^2}{F} \frac{1}{t^*} \ln \left(\frac{\Delta H^*}{\Delta H_0} \right)$$

$$F = \frac{2\pi L}{\ln \left(\frac{2L}{D} \right)}$$

Valid for $L \gg D$

Hvorslev Shape Factor F: 2.07207

Well Parameters:

L	1.5 m	Saturated length of screen or open hole
D	0.03175 m	Diameter of well
r _c	0.01588 m	Radius of well

Data Points (from plot):

t*:	0.096 minutes	ΔH*/ΔH₀:	0.37
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Horizontal Hydraulic Conductivity**K = 6.57E-05 m/sec**

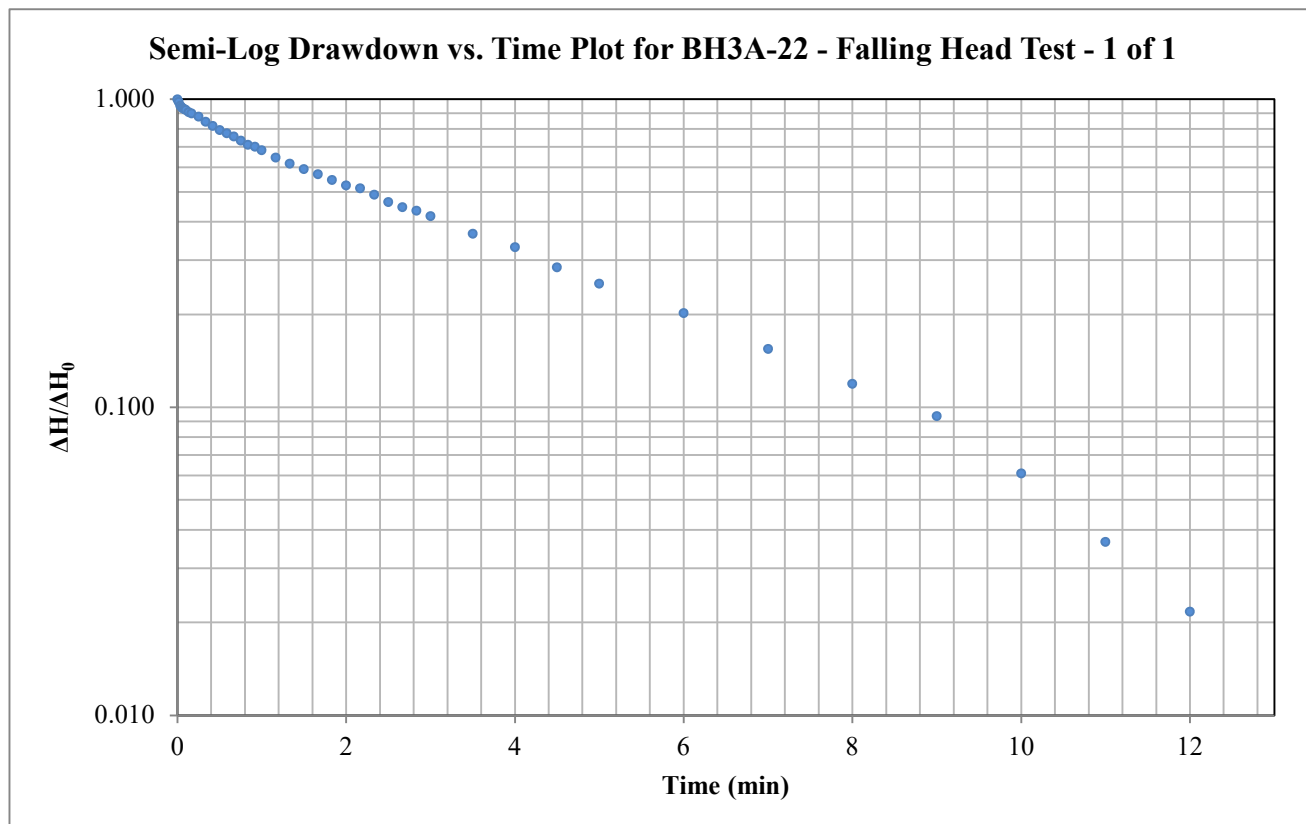
Hvorslev Hydraulic Conductivity Analysis

Project: Caivan - 5993 and 6115 Flewellyn Road and 6030 and 6070 Fernbank Road

Test Location: BH3A-22

Test: Falling Head - 1 of 1

Date: October 11, 2022



Hvorslev Horizontal Hydraulic Conductivity

Hvorslev Shape Factor

$$K = \frac{\pi r_c^2}{F} \frac{1}{t^*} \ln \left(\frac{\Delta H^*}{\Delta H_0} \right)$$

$$F = \frac{2\pi L}{\ln \left(\frac{2L}{D} \right)}$$

Valid for $L \gg D$

Hvorslev Shape Factor F: 2.31086

Well Parameters:

L 1.5 m

Saturated length of screen or open hole

D 0.0508 m

Diameter of well

 r_c 0.0254 m

Radius of well

Data Points (from plot):

 t^* : 3.485 minutes $\Delta H^* / \Delta H_0$: 0.37**Horizontal Hydraulic Conductivity****K = 4.17E-06 m/sec**

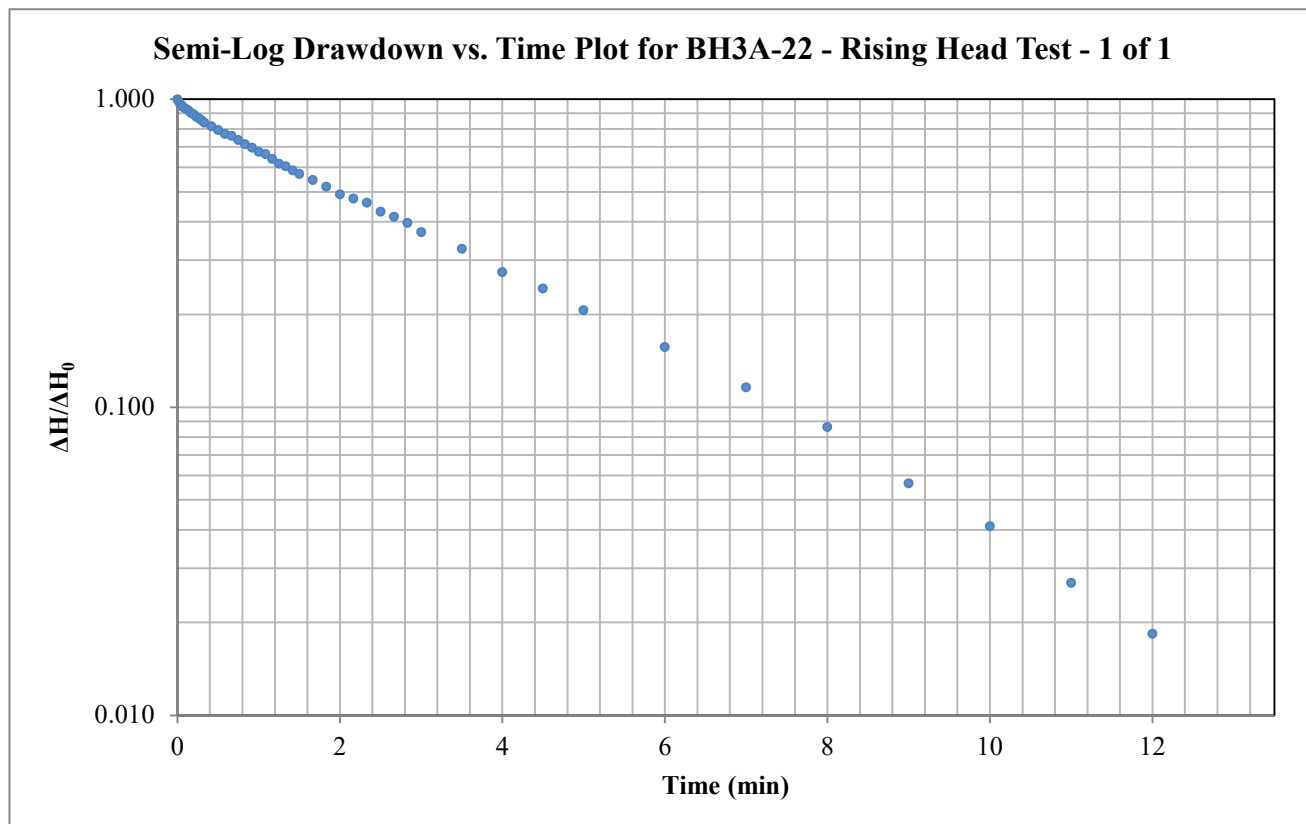
Hvorslev Hydraulic Conductivity Analysis

Project: Caivan - 5993 and 6115 Flewellyn Road and 6030 and 6070 Fernbank Road

Test Location: BH3A-22

Test: Rising Head - 1 of 1

Date: October 11, 2022



Hvorslev Horizontal Hydraulic Conductivity

Hvorslev Shape Factor

$$K = \frac{\pi r_c^2}{F} \frac{1}{t^*} \ln \left(\frac{\Delta H^*}{\Delta H_0} \right)$$

$$F = \frac{2\pi L}{\ln \left(\frac{2L}{D} \right)}$$

Valid for $L \gg D$

Hvorslev Shape Factor F: 2.31086

Well Parameters:

L	1.5 m	Saturated length of screen or open hole
D	0.0508 m	Diameter of well
r_c	0.0254 m	Radius of well

Data Points (from plot):

t^* :	3.038 minutes	$\Delta H^* / \Delta H_0$:	0.37
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Horizontal Hydraulic Conductivity**K = 4.78E-06 m/sec**

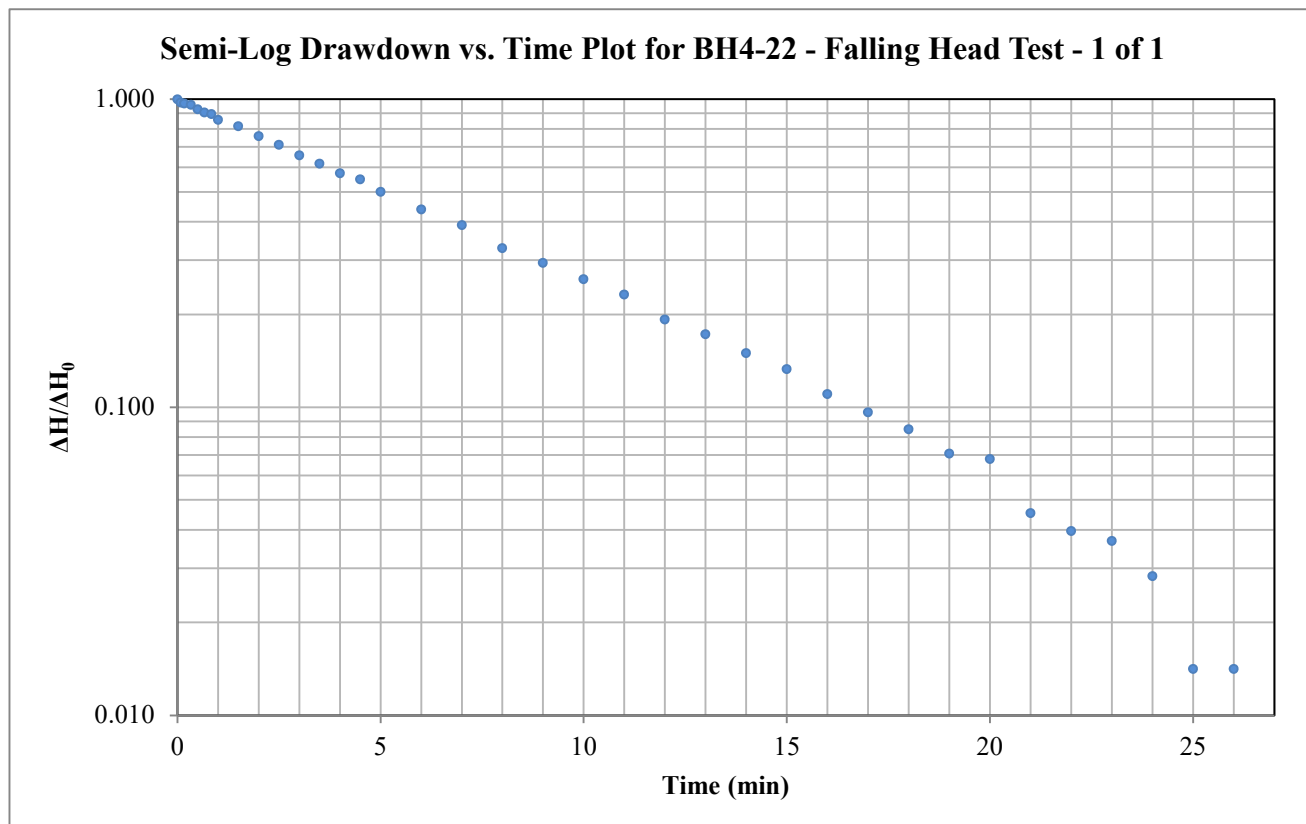
Hvorslev Hydraulic Conductivity Analysis

Project: Caivan - 5993 and 6115 Flewellyn Road and 6030 and 6070 Fernbank Road

Test Location: BH4-22

Test: Falling Head - 1 of 1

Date: October 7, 2022



Hvorslev Horizontal Hydraulic Conductivity

Hvorslev Shape Factor

$$K = \frac{\pi r_c^2}{F} \frac{1}{t^*} \ln \left(\frac{\Delta H^*}{\Delta H_0} \right)$$

$$F = \frac{2\pi L}{\ln \left(\frac{2L}{D} \right)}$$

Valid for $L \gg D$

Hvorslev Shape Factor F: 2.07207

Well Parameters:

L	1.5 m	Saturated length of screen or open hole
D	0.03175 m	Diameter of well
r_c	0.01588 m	Radius of well

Data Points (from plot):

t^* :	7.262 minutes	$\Delta H^* / \Delta H_0$:	0.37
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Horizontal Hydraulic Conductivity**K = 8.72E-07 m/sec**

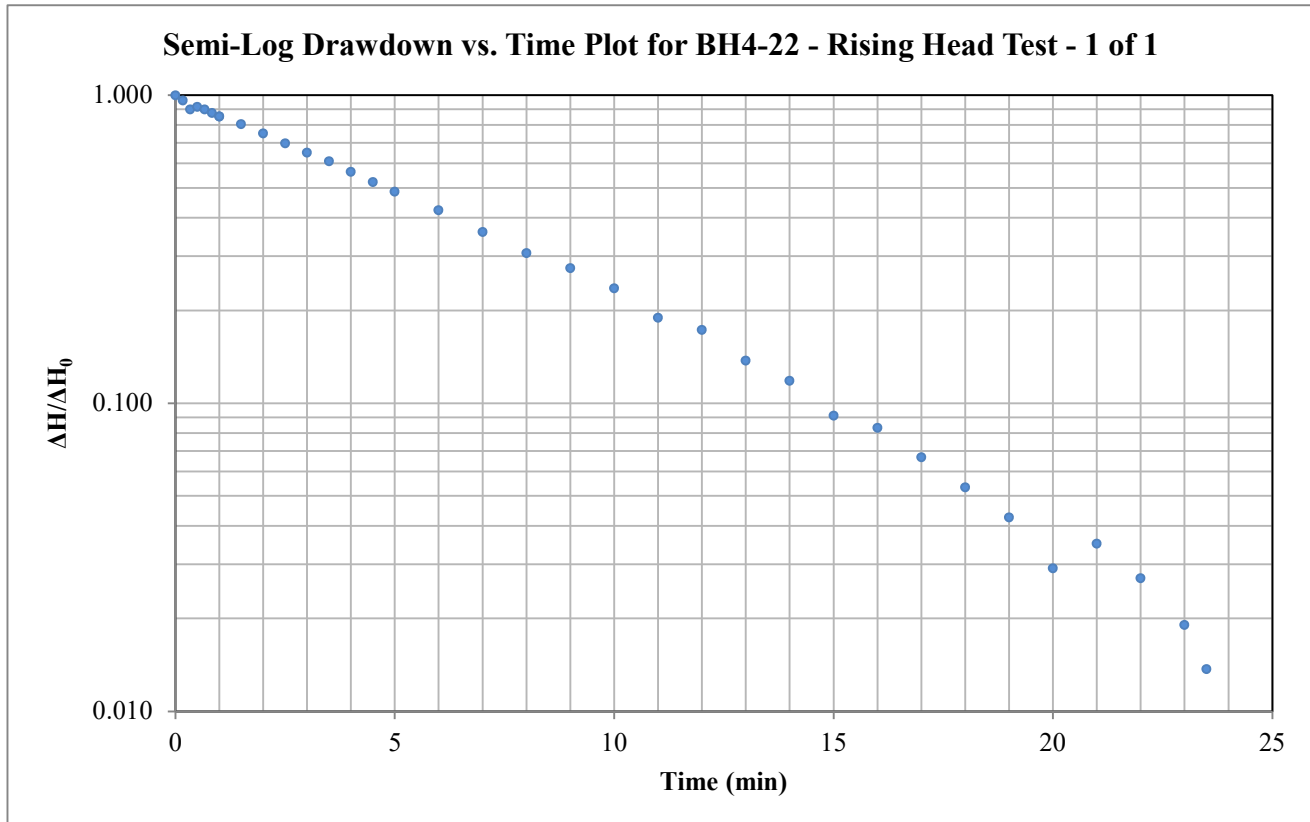
Hvorslev Hydraulic Conductivity Analysis

Project: Caivan - 5993 and 6115 Flewellyn Road and 6030 and 6070 Fernbank Road

Test Location: BH4-22

Test: Rising Head - 1 of 1

Date: October 7, 2022



Hvorslev Horizontal Hydraulic Conductivity

Hvorslev Shape Factor

$$K = \frac{\pi r_c^2}{F} \frac{1}{t^*} \ln \left(\frac{\Delta H^*}{\Delta H_0} \right)$$

$$F = \frac{2\pi L}{\ln \left(\frac{2L}{D} \right)}$$

Valid for $L \gg D$

Hvorslev Shape Factor F: 2.07207

Well Parameters:

L	1.5 m	Saturated length of screen or open hole
D	0.03175 m	Diameter of well
r_c	0.01588 m	Radius of well

Data Points (from plot):

t^* :	6.985 minutes	$\Delta H^* / \Delta H_0$:	0.37
---------	---------------	-----------------------------	------

Horizontal Hydraulic Conductivity**K = 9.06E-07 m/sec**

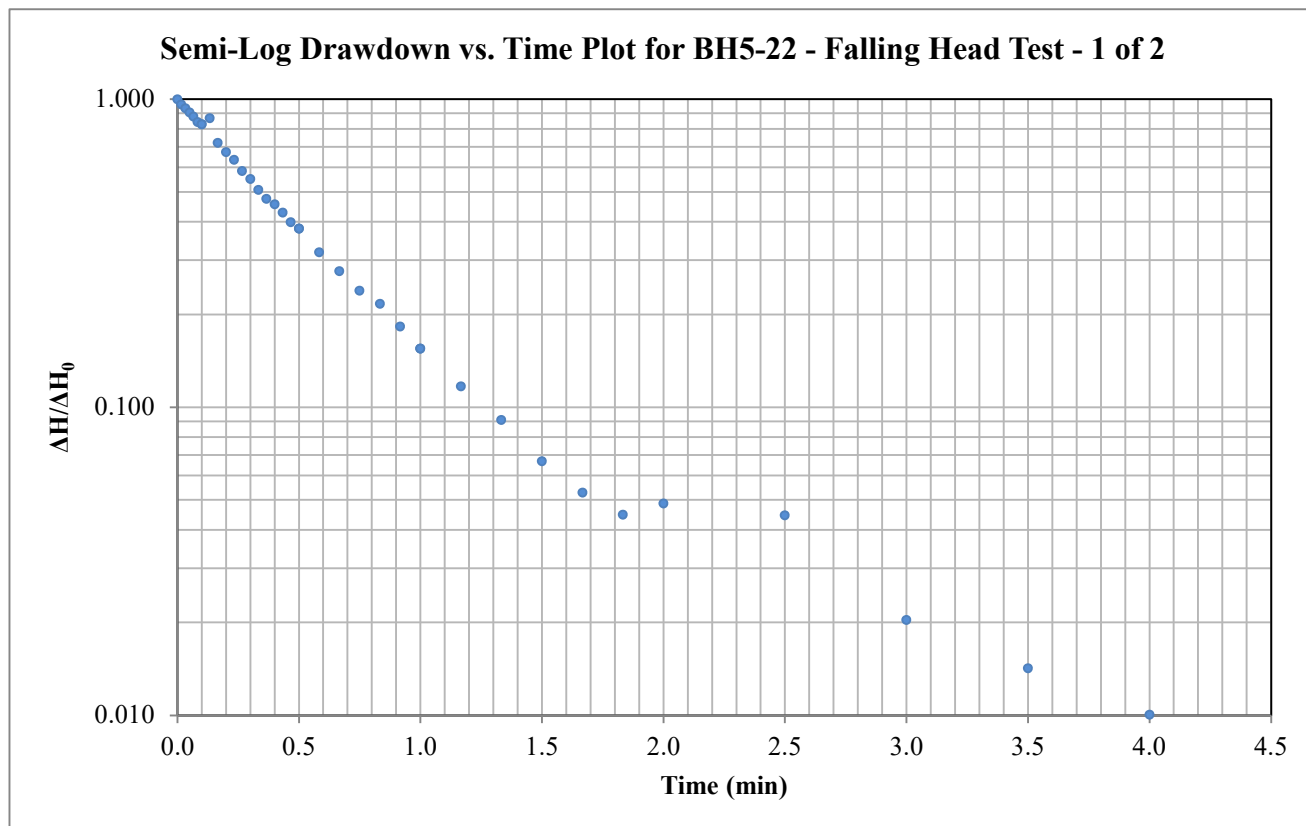
Hvorslev Hydraulic Conductivity Analysis

Project: Caivan - 5993 and 6115 Flewellyn Road and 6030 and 6070 Fernbank Road

Test Location: BH5-22

Test: Falling Head - 1 of 2

Date: October 7, 2022



Hvorslev Horizontal Hydraulic Conductivity

Hvorslev Shape Factor

$$K = \frac{\pi r_c^2}{F} \frac{1}{t^*} \ln \left(\frac{\Delta H^*}{\Delta H_0} \right)$$

$$F = \frac{2\pi L}{\ln \left(\frac{2L}{D} \right)}$$

Valid for $L \gg D$

Hvorslev Shape Factor F: 2.07207

Well Parameters:

L 1.5 m

Saturated length of screen or open hole

D 0.03175 m

Diameter of well

r_c 0.01588 m

Radius of well

Data Points (from plot):

t*: 0.521 minutes

ΔH*/ΔH₀: 0.37

Horizontal Hydraulic Conductivity**K = 1.21E-05 m/sec**

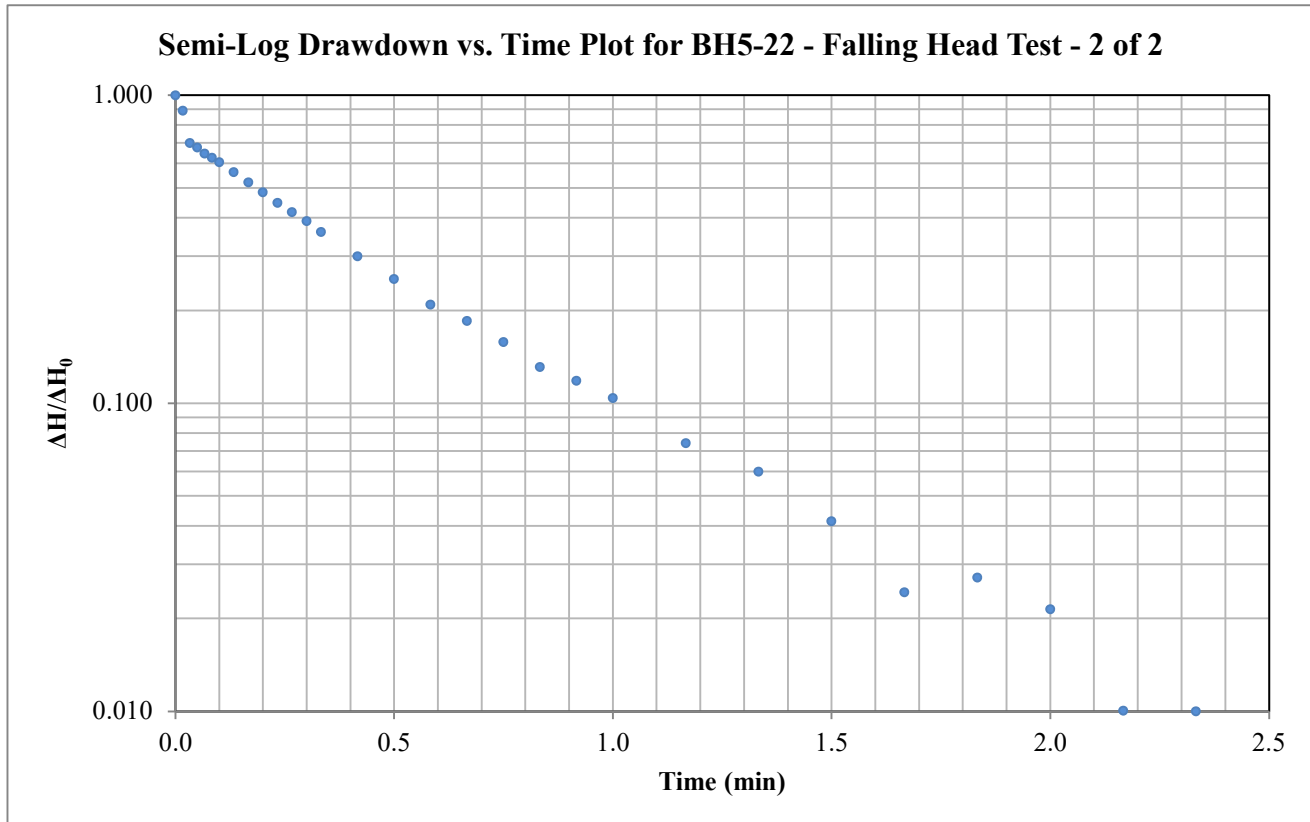
Hvorslev Hydraulic Conductivity Analysis

Project: Caivan - 5993 and 6115 Flewellyn Road and 6030 and 6070 Fernbank Road

Test Location: BH5-22

Test: Falling Head - 2 of 2

Date: October 7, 2022



Hvorslev Horizontal Hydraulic Conductivity

Hvorslev Shape Factor

$$K = \frac{\pi r_c^2}{F} \frac{1}{t^*} \ln \left(\frac{\Delta H^*}{\Delta H_0} \right)$$

$$F = \frac{2\pi L}{\ln \left(\frac{2L}{D} \right)}$$

Valid for $L \gg D$

Hvorslev Shape Factor F: 2.07207

Well Parameters:

L	1.5 m	Saturated length of screen or open hole
D	0.03175 m	Diameter of well
r_c	0.01588 m	Radius of well

Data Points (from plot):

t^* :	0.318 minutes	$\Delta H^*/\Delta H_0$:	0.37
---------	---------------	---------------------------	------

Horizontal Hydraulic Conductivity**K = 1.99E-05 m/sec**

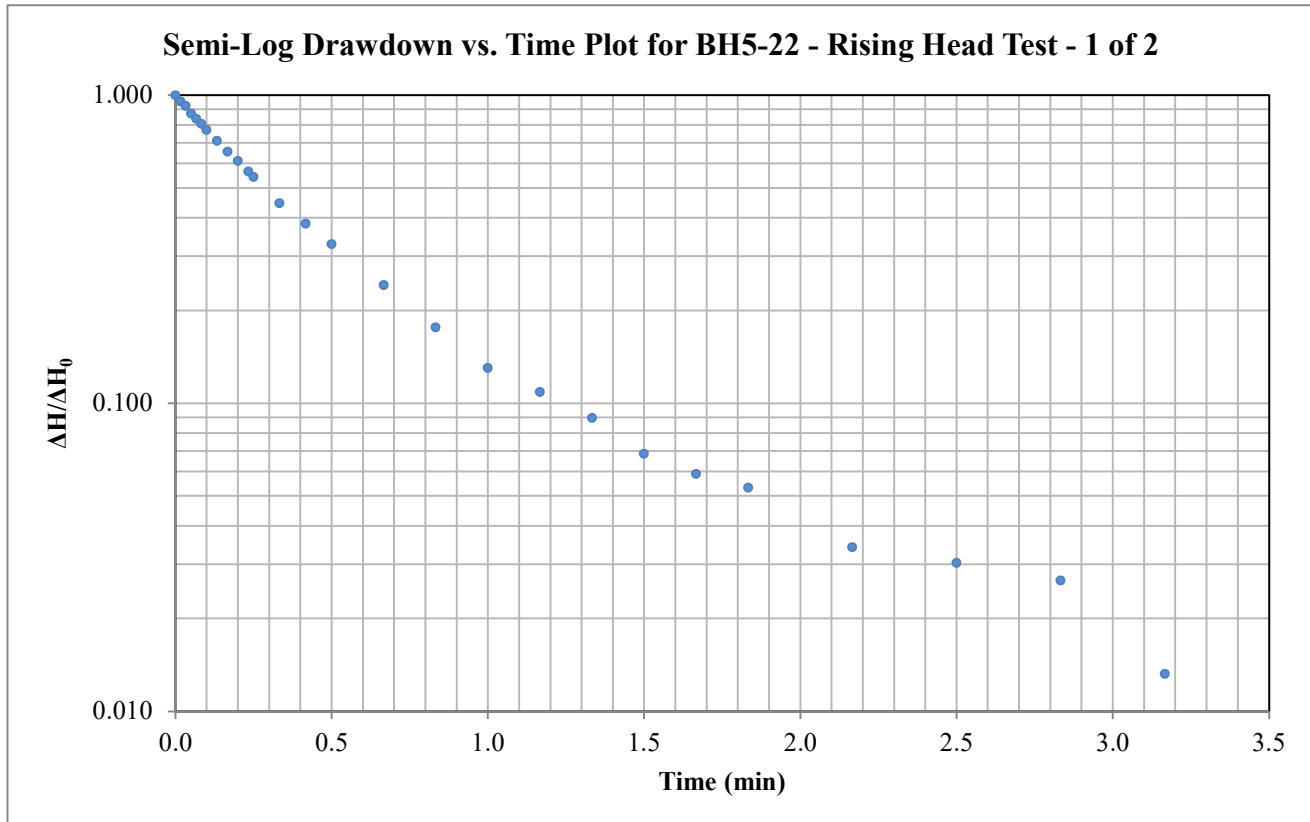
Hvorslev Hydraulic Conductivity Analysis

Project: Caivan - 5993 and 6115 Flewellyn Road and 6030 and 6070 Fernbank Road

Test Location: BH5-22

Test: Rising Head - 1 of 2

Date: October 7, 2022



Hvorslev Horizontal Hydraulic Conductivity

Hvorslev Shape Factor

$$K = \frac{\pi r_c^2}{F} \frac{1}{t^*} \ln \left(\frac{\Delta H^*}{\Delta H_0} \right)$$

$$F = \frac{2\pi L}{\ln \left(\frac{2L}{D} \right)}$$

Valid for $L \gg D$

Hvorslev Shape Factor F: 2.07207

Well Parameters:

L	1.5 m	Saturated length of screen or open hole
D	0.03175 m	Diameter of well
r_c	0.01588 m	Radius of well

Data Points (from plot):

t^* :	0.444 minutes	$\Delta H^* / \Delta H_0$:	0.37
---------	---------------	-----------------------------	------

Horizontal Hydraulic Conductivity**K = 1.43E-05 m/sec**

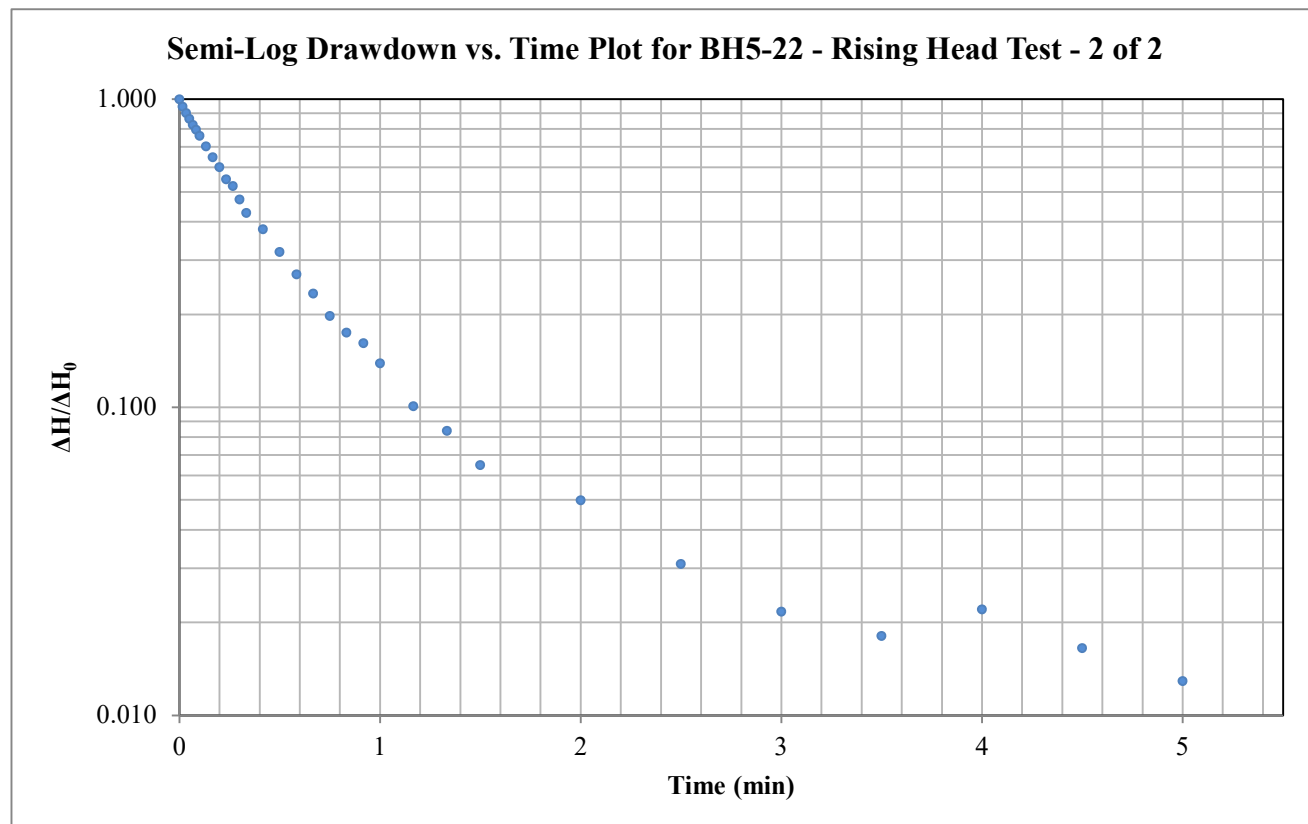
Hvorslev Hydraulic Conductivity Analysis

Project: Caivan - 5993 and 6115 Flewellyn Road and 6030 and 6070 Fernbank Road

Test Location: BH5-22

Test: Rising Head - 2 of 2

Date: October 7, 2022



Hvorslev Horizontal Hydraulic Conductivity

Hvorslev Shape Factor

$$K = \frac{\pi r_c^2}{F} \frac{1}{t^*} \ln \left(\frac{\Delta H^*}{\Delta H_0} \right)$$

$$F = \frac{2\pi L}{\ln \left(\frac{2L}{D} \right)}$$

Valid for $L \gg D$

Hvorslev Shape Factor F: 2.07207

Well Parameters:

L	1.5 m	Saturated length of screen or open hole
D	0.03175 m	Diameter of well
r_c	0.01588 m	Radius of well

Data Points (from plot):

t^* :	0.437 minutes	$\Delta H^*/\Delta H_0$:	0.37
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Horizontal Hydraulic Conductivity**K = 1.45E-05 m/sec**

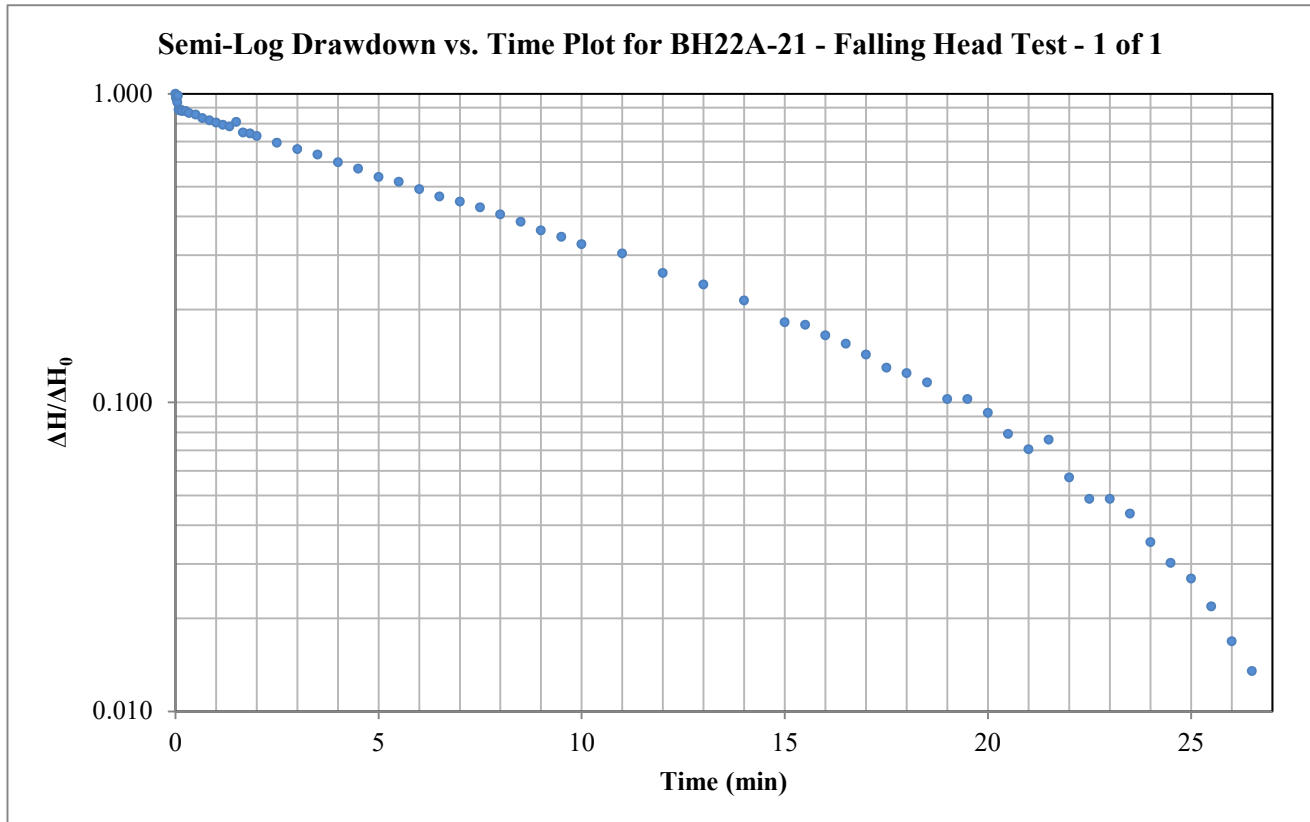
Hvorslev Hydraulic Conductivity Analysis

Project: Caivan - 5993 and 6115 Flewellyn Road and 6030 and 6070 Fernbank Road

Test Location: BH22A-21

Test: Falling Head - 1 of 1

Date: October 11, 2022



Hvorslev Horizontal Hydraulic Conductivity

Hvorslev Shape Factor

$$K = \frac{\pi r_c^2}{F} \frac{1}{t^*} \ln \left(\frac{\Delta H^*}{\Delta H_0} \right)$$

$$F = \frac{2\pi L}{\ln \left(\frac{2L}{D} \right)}$$

Valid for $L \gg D$

Hvorslev Shape Factor F: 3.59613

Well Parameters:

L	3 m	Saturated length of screen or open hole
D	0.03175 m	Diameter of well
r_c	0.01588 m	Radius of well

Data Points (from plot):

t^* :	8.463 minutes	$\Delta H^*/\Delta H_0$:	0.37
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Horizontal Hydraulic Conductivity**K = 4.31E-07 m/sec**

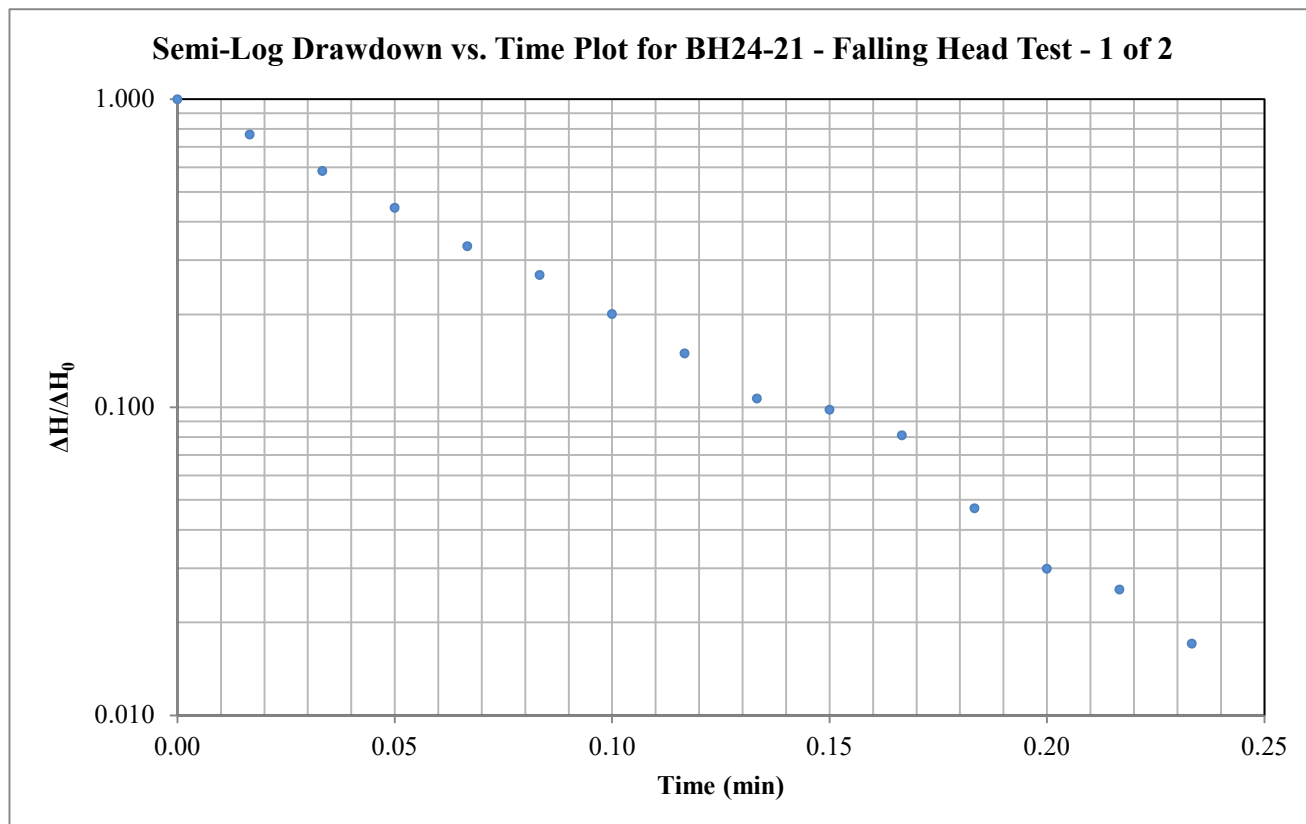
Hvorslev Hydraulic Conductivity Analysis

Project: Caivan - 5993 and 6115 Flewellyn Road and 6030 and 6070 Fernbank Road

Test Location: BH24-21

Test: Falling Head - 1 of 2

Date: October 11, 2022



Hvorslev Horizontal Hydraulic Conductivity

Hvorslev Shape Factor

$$K = \frac{\pi r_c^2}{F} \frac{1}{t^*} \ln \left(\frac{\Delta H^*}{\Delta H_0} \right)$$

$$F = \frac{2\pi L}{\ln \left(\frac{2L}{D} \right)}$$

Valid for $L \gg D$

Hvorslev Shape Factor F: 3.59613

Well Parameters:

L	3 m	Saturated length of screen or open hole
D	0.03175 m	Diameter of well
r_c	0.01588 m	Radius of well

Data Points (from plot):

t^* :	0.061 minutes	$\Delta H^* / \Delta H_0$:	0.37
---------	---------------	-----------------------------	------

Horizontal Hydraulic Conductivity**K = 5.96E-05 m/sec**

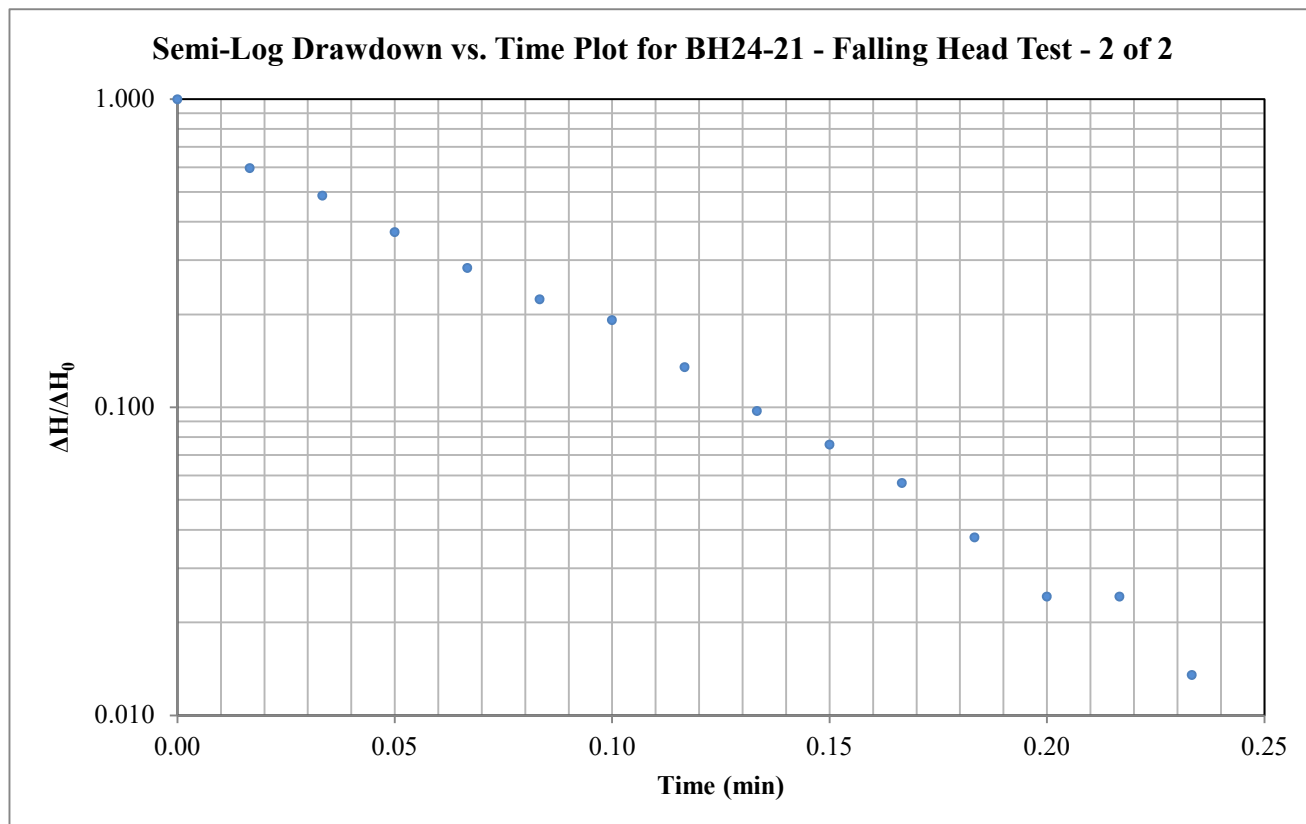
Hvorslev Hydraulic Conductivity Analysis

Project: Caivan - 5993 and 6115 Flewellyn Road and 6030 and 6070 Fernbank Road

Test Location: BH24-21

Test: Falling Head - 2 of 2

Date: October 11, 2022



Hvorslev Horizontal Hydraulic Conductivity

Hvorslev Shape Factor

$$K = \frac{\pi r_c^2}{F} \frac{1}{t^*} \ln \left(\frac{\Delta H^*}{\Delta H_0} \right)$$

$$F = \frac{2\pi L}{\ln \left(\frac{2L}{D} \right)}$$

Valid for $L \gg D$

Hvorslev Shape Factor F: 3.59613

Well Parameters:

L	3 m	Saturated length of screen or open hole
D	0.03175 m	Diameter of well
r_c	0.01588 m	Radius of well

Data Points (from plot):

t^* :	0.050 minutes	$\Delta H^* / \Delta H_0$:	0.37
---------	---------------	-----------------------------	------

Horizontal Hydraulic Conductivity**K = 7.29E-05 m/sec**

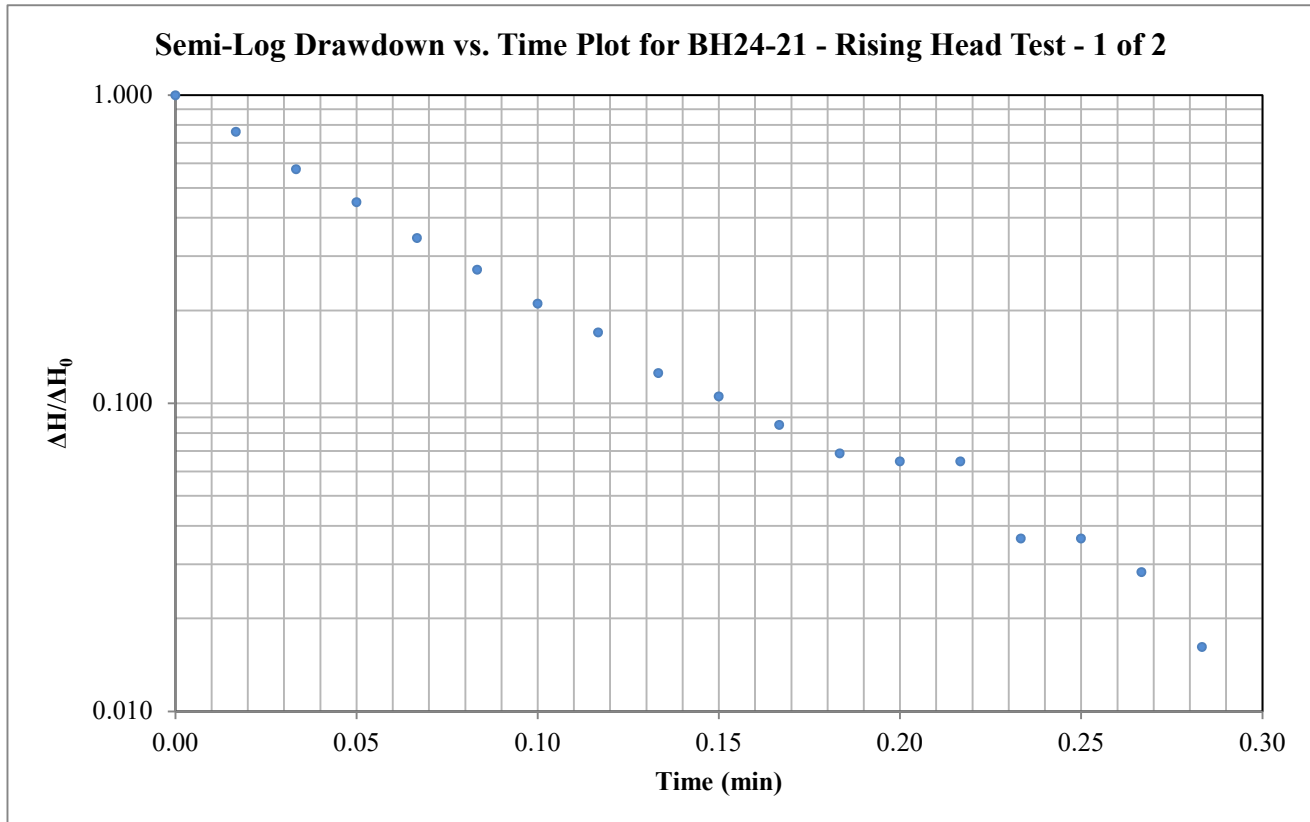
Hvorslev Hydraulic Conductivity Analysis

Project: Caivan - 5993 and 6115 Flewellyn Road and 6030 and 6070 Fernbank Road

Test Location: BH24-21

Test: Rising Head - 1 of 2

Date: October 11, 2022



Hvorslev Horizontal Hydraulic Conductivity

Hvorslev Shape Factor

$$K = \frac{\pi r_c^2}{F} \frac{1}{t^*} \ln \left(\frac{\Delta H^*}{\Delta H_0} \right)$$

$$F = \frac{2\pi L}{\ln \left(\frac{2L}{D} \right)}$$

Valid for $L \gg D$

Hvorslev Shape Factor F: 3.59613

Well Parameters:

L	3 m	Saturated length of screen or open hole
D	0.03175 m	Diameter of well
r_c	0.01588 m	Radius of well

Data Points (from plot):

t^* :	0.063 minutes	$\Delta H^* / \Delta H_0$:	0.37
---------	---------------	-----------------------------	------

Horizontal Hydraulic Conductivity**K = 5.83E-05 m/sec**

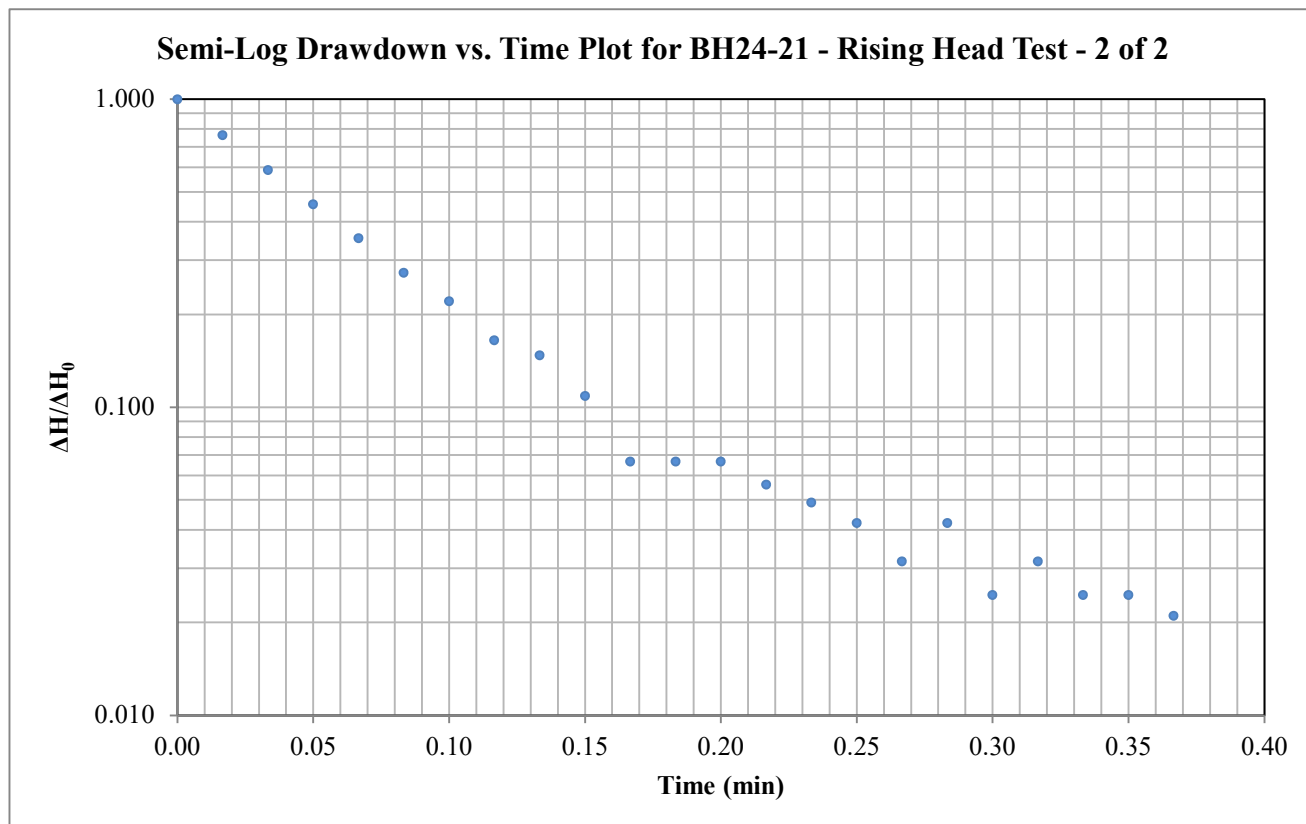
Hvorslev Hydraulic Conductivity Analysis

Project: Caivan - 5993 and 6115 Flewellyn Road and 6030 and 6070 Fernbank Road

Test Location: BH24-21

Test: Rising Head - 2 of 2

Date: October 11, 2022



Hvorslev Horizontal Hydraulic Conductivity

Hvorslev Shape Factor

$$K = \frac{\pi r_c^2}{F} \frac{1}{t^*} \ln \left(\frac{\Delta H^*}{\Delta H_0} \right)$$

$$F = \frac{2\pi L}{\ln \left(\frac{2L}{D} \right)}$$

Valid for $L \gg D$

Hvorslev Shape Factor F: 3.59613

Well Parameters:

L	3 m	Saturated length of screen or open hole
D	0.03175 m	Diameter of well
r_c	0.01588 m	Radius of well

Data Points (from plot):

t^* :	0.064 minutes	$\Delta H^*/\Delta H_0$:	0.37
---------	---------------	---------------------------	------

Horizontal Hydraulic Conductivity**K = 5.69E-05 m/sec**

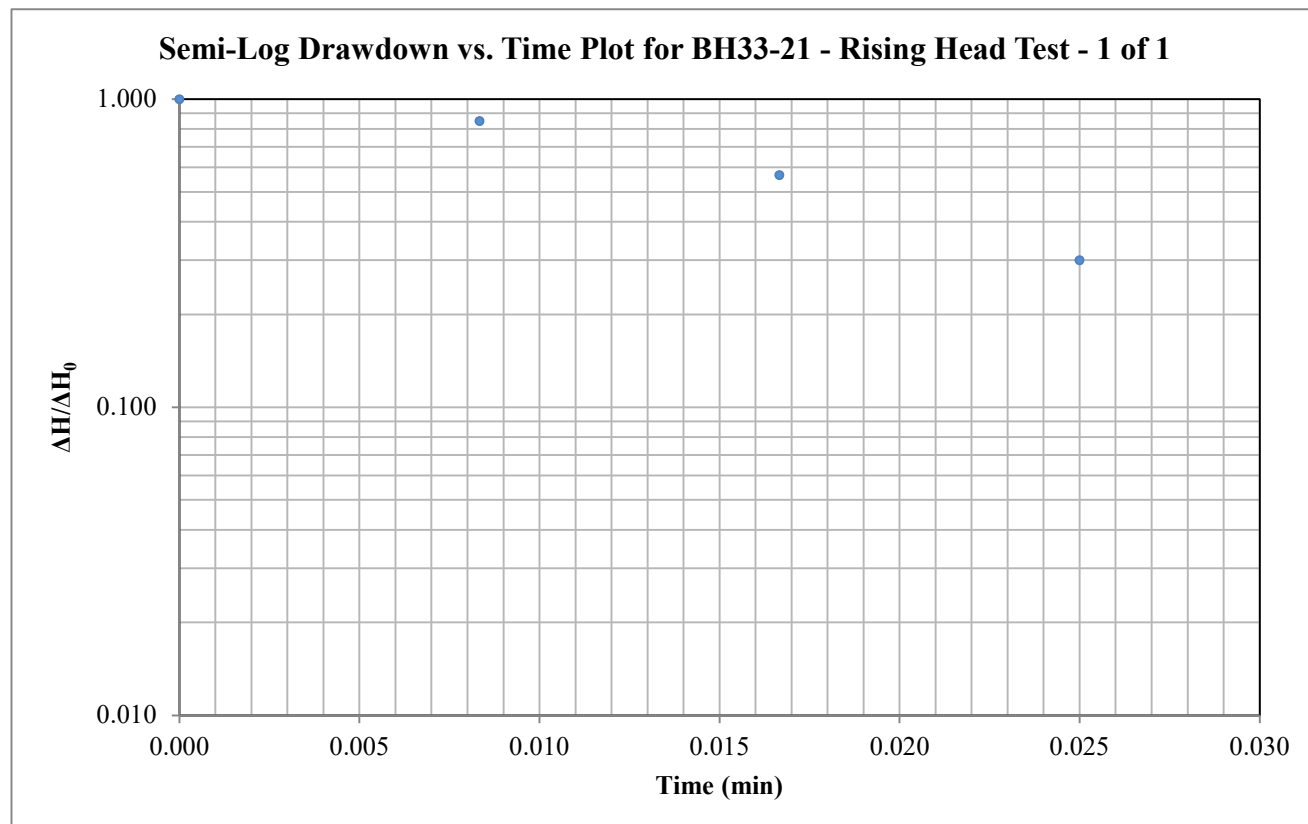
Hvorslev Hydraulic Conductivity Analysis

Project: Caivan - 5993 and 6115 Flewellyn Road and 6030 and 6070 Fernbank Road

Test Location: BH33-21

Test: Rising Head - 1 of 1

Date: October 11, 2022



Hvorslev Horizontal Hydraulic Conductivity

Hvorslev Shape Factor

$$K = \frac{\pi r_c^2}{F} \frac{1}{t^*} \ln \left(\frac{\Delta H^*}{\Delta H_0} \right)$$

$$F = \frac{2\pi L}{\ln \left(\frac{2L}{D} \right)}$$

Valid for $L \gg D$

Hvorslev Shape Factor F: 3.59613

Well Parameters:

L	3 m	Saturated length of screen or open hole
D	0.03175 m	Diameter of well
r_c	0.01588 m	Radius of well

Data Points (from plot):

t^* :	0.023 minutes	$\Delta H^* / \Delta H_0$:	0.37
---------	---------------	-----------------------------	------

Horizontal Hydraulic Conductivity**K = 1.60E-04 m/sec**

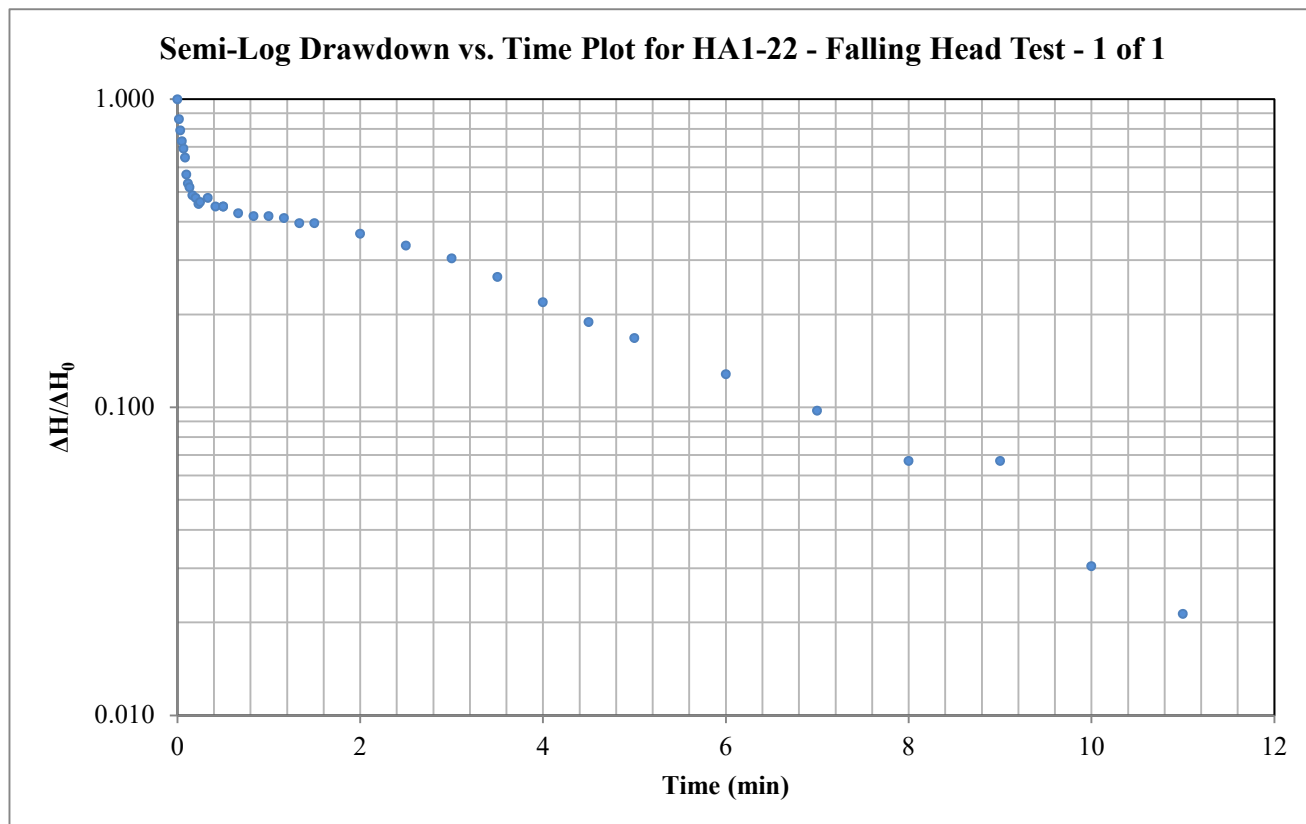
Hvorslev Hydraulic Conductivity Analysis

Project: Caivan - 5993 and 6115 Flewellyn Road and 6030 and 6070 Fernbank Road

Test Location: HA1-22

Test: Falling Head - 1 of 1

Date: October 7, 2022



Hvorslev Horizontal Hydraulic Conductivity

Hvorslev Shape Factor

$$K = \frac{\pi r_c^2}{F} \frac{1}{t^*} \ln \left(\frac{\Delta H^*}{\Delta H_0} \right)$$

$$F = \frac{2\pi L}{\ln \left(\frac{2L}{D} \right)}$$

Valid for $L \gg D$

Hvorslev Shape Factor F: 0.92098

Well Parameters:

L	0.4064 m	Saturated length of screen or open hole
D	0.0508 m	Diameter of well
r_c	0.0254 m	Radius of well

Data Points (from plot):

t^* :	1.695 minutes	$\Delta H^*/\Delta H_0$:	0.37
---------	---------------	---------------------------	------

Horizontal Hydraulic Conductivity**K = 2.15E-05 m/sec**

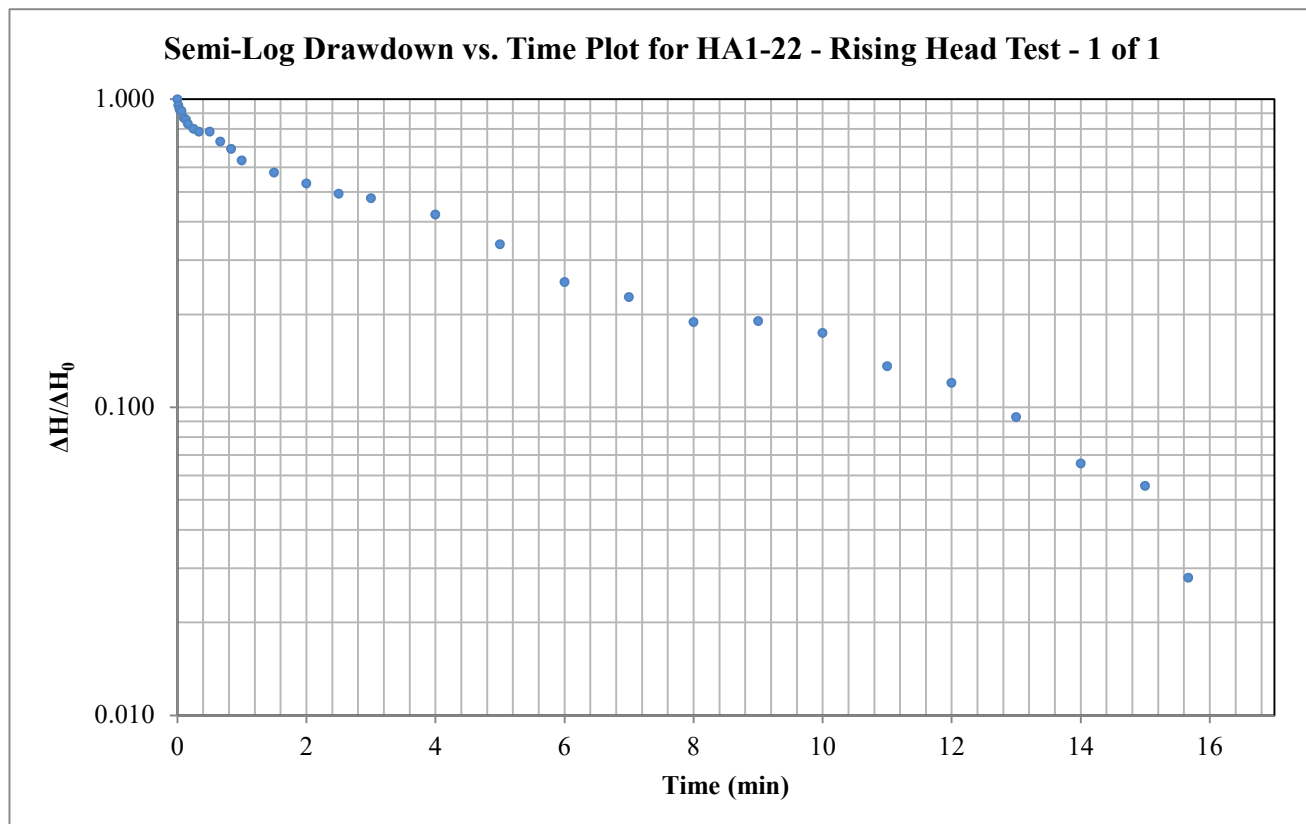
Hvorslev Hydraulic Conductivity Analysis

Project: Caivan - 5993 and 6115 Flewellyn Road and 6030 and 6070 Fernbank Road

Test Location: HA1-22

Test: Rising Head - 1 of 1

Date: October 7, 2022



Hvorslev Horizontal Hydraulic Conductivity

Hvorslev Shape Factor

$$K = \frac{\pi r_c^2}{F} \frac{1}{t^*} \ln \left(\frac{\Delta H^*}{\Delta H_0} \right)$$

$$F = \frac{2\pi L}{\ln \left(\frac{2L}{D} \right)}$$

Valid for $L \gg D$

Hvorslev Shape Factor F: 0.92098

Well Parameters:

L	0.4064 m	Saturated length of screen or open hole
D	0.0508 m	Diameter of well
r_c	0.0254 m	Radius of well

Data Points (from plot):

t^* : 4.164 minutes $\Delta H^* / \Delta H_0$: 0.37

Horizontal Hydraulic Conductivity**K = 8.76E-06 m/sec**

APPENDIX 5

MECP WATER WELL RECORDS

JTM | 1 | 8 | 2 | 4 | 2 | 9 | 8 | 6 | 0 | E
| 5 | B | 5 | 0 | V | I | 1 | 0 | 0 | 7 | 0 | N
Elev. | 4 | R | 0 | 3 | 3 | 4 | 8 |
Basin | 2 | 5 | | | |

The O



GROUND WATER BRANCH
JUN 5 1959
15
ONTARIO WATER
RESOURCES COMMISSION

No. 2540

The Ontario Water Resources Commission Act, 1957

WATER WELL RECORD

County or District CARLETON Township, Village, Town or City GOULBOURN
completed 16 MAY 59
(day month year)
Address STANLEY CARL

Casing and Screen Record

Inside diameter of casing.....	4"
Total length of casing.....	43' 8"
Type of screen.....	—
Length of screen.....	—
Depth to top of screen.....	—
Diameter of finished hole.....	4"

Pumping Test

Static level.....	Flowing	
Test-pumping rate.....	10	G.P.M.
Pumping level.....	Top	
Duration of test pumping.....	1 HR	
Water clear or cloudy at end of test.....	Clear	
Recommended pumping rate.....	3	G.P.M.
with pumping level of.....	Top	

Well Log

Water Record

[illegible]

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

For what purpose(s) is the will made?
House

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

Drilling Firm W J King

Drilling Firm.....
Address **48 WEMASTER**

Address BR. TAN MIA

Licence Number.....70

Name of Driller..... **SAME**

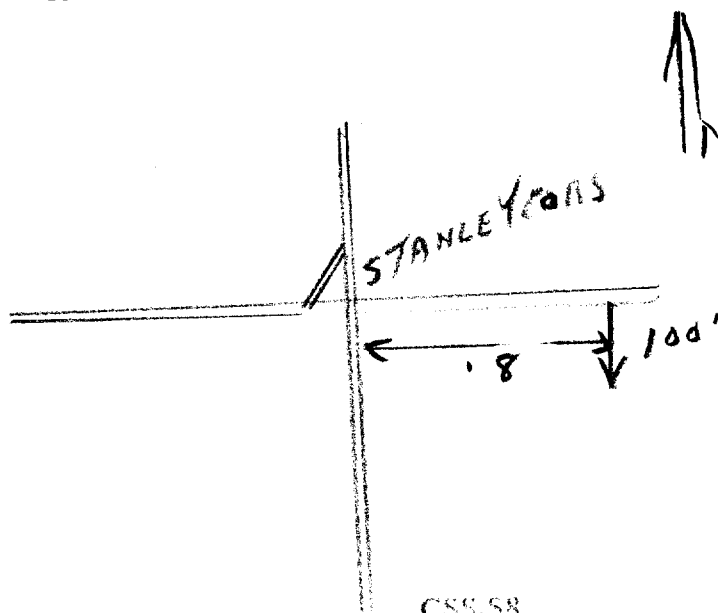
Address

Date 1799 22/59

W. J. King
(Signature of Licensed Drilling Contractor)

Location of Well

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



Form 5



316/54

P

1510222

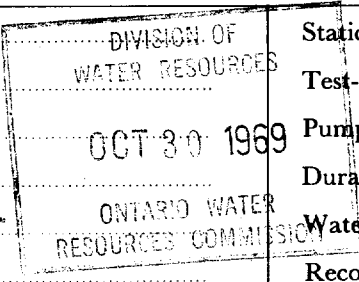
The Ontario Water Resources Commission Act

WATER WELL RECORD

County or District Carleton Place Township, Village, Town or City Carleton Place
 Con. 11 Lot 24 Date completed 9 69
 (day month year)
 Address Stittsville, Ont.

Casing and Screen Record

Inside diameter of casing 2"
 Total length of casing 11'
 Type of screen none
 Length of screen none
 Depth to top of screen 4'
 Diameter of finished hole 4"



Pumping Test

Static level 14'
 Test-pumping rate 5 G.P.M.
 Pumping level 25'
 Duration of test pumping 1/2 hr
 Water clear or cloudy at end of test clear
 Recommended pumping rate 5 G.P.M.
 with pump setting of 30 feet below ground surface

Well Log

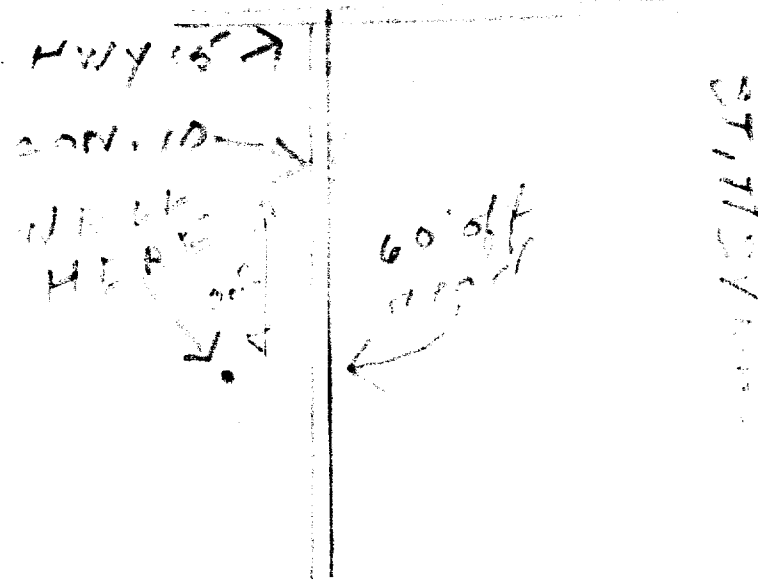
Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
<u>loose gravel</u>	<u>0</u>	<u>8</u>		
<u>shale rock</u>	<u>8</u>	<u>11</u>		
<u>gray limestone</u>	<u>11</u>	<u>65</u>	<u>25-25 feet</u>	

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 L. H. B. Bore
 Address 122 Main St. Stittsville
 Licence Number 5519
 Name of Driller or Borer John H. Bore
 Address 122 Main St. Stittsville
 Date Sept 11 1969
 (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.





Ontario

WATER WELL RECORD

31/8/76

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

11

1515196

15003

CON. 108

COUNTY OR DISTRICT

TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE

CON., BLOCK, TRACT, SURVEY, ETC.

LOT 25-27

026

DATE COMPLETED

DAY 07 MO. 01 YR. 76

x 455 Stittsville, Ontario

RC. ELEVATION

RC.

Basin CODE

AUG 04, 1977

303

1515196 18

430888

5010845

4 334

4 26

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
grey	clay			0	6
grey	hardpan	stones	packed	6	23
grey	limestone		medium	23	100
grey	limestone	streaks of red	soft	100	160

31

32

41

WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
0135	1 ☒ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
0156	1 ☒ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL

51

CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
6 1/2	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE	188	0	0025
5 1/2	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☒ OPEN HOLE		25	160
06	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			0160

SCREEN

SIZES (S) OF OPENING (SLOT NO.)	DIAMETER	LENGTH
	INCHES	FEET
		41-44
		FEET

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

71

PUMPING TEST METHOD ☐ PUMP ☒ BAILER

PUMPING RATE 0030 GPM

DURATION OF PUMPING 01 HOURS 00 MINS

STATIC LEVEL 005 FEET

WATER LEVEL END OF PUMPING 015 FEET

WATER LEVELS DURING

15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
015 FEET	015 FEET	015 FEET	015 FEET

PUMP INTAKE SET AT 025 FEET

WATER AT END OF TEST 1 ☒ CLEAR 2 ☐ CLOUDY

RECOMMENDED PUMP TYPE ☒ SHALLOW ☐ DEEP

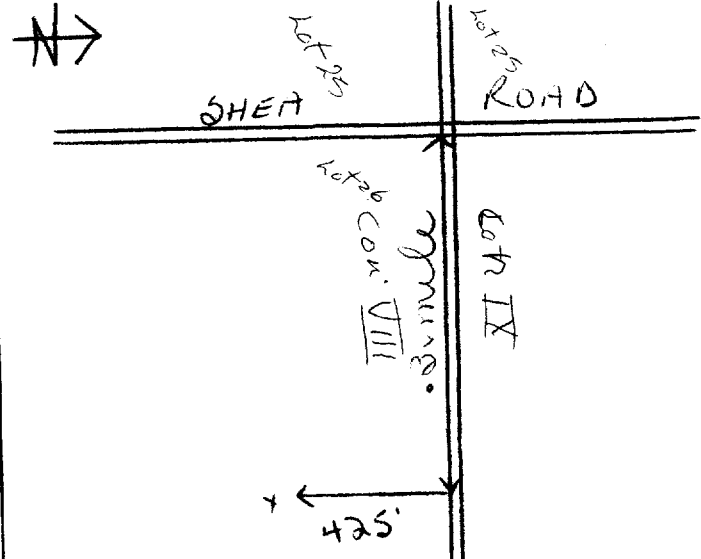
RECOMMENDED PUMP SETTING 025 FEET

RECOMMENDED PUMPING RATE 0005 GPM

GPM./FT. SPECIFIC CAPACITY

LOCATION OF WELL 3010

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



DRILLERS REMARKS:

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

WATER USE

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

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

NAME OF WELL CONTRACTOR Capital Water Supply Ltd.

LICENCE NUMBER 1558

ADDRESS Box 490 Stittsville, Ontario

NAME OF DRILLER OR BORER J. Moore

SIGNATURE OF CONTRACTOR [Signature]

SUBMISSION DATE DAY 8 NO. 1 YR. 76

DATA SOURCE 1558

CONTRACTOR 150376

DATE OF INSPECTION July 13/76

INSPECTOR [Signature]

REMARKS

WI



The Ontario Water Resources Act

WATER WELL RECORD

1. PRINT ONLY IN SPACES PROVIDED

2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

11

1522585

MUNICIP
11,50,93

CON

COUNTY OR DISTRICT

TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE

CON. BLOCK, TRACT, SURVEY, ETC

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

Goulbourn

Q

24

DATE COMPLETED _____

48-53

0 Fernbank Rd. Box 41 Stittsville ^{KOA 3G0}

DAY 05 MO 07 YR. 88

NG	RC	ELEVATION	RC	BASIN CODE
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LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

[illegible]

31

32

WATER RECORD

WATER FOUND AT - FEET		KIND OF WATER	
90	10-13	1 ☒ FRESH 2 ☐ SALTY	3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	15-18	1 ☒ FRESH 2 ☐ SALTY	3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
118	20-23	1 ☐ FRESH 2 ☐ SALTY	3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	25-28	1 ☐ FRESH 2 ☐ SALTY	3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	30-33	1 ☐ FRESH 2 ☐ SALTY	3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS

CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
10-11 6 1/4	☐ STEEL ☐ GALVANIZED ☐ CONCRETE ☐ OPEN HOLE ☐ PLASTIC	.188	0	13-14 21
17-18 6 1/8	☐ STEEL ☐ GALVANIZED ☐ CONCRETE ☐ OPEN HOLE ☐ PLASTIC		21	20-21 125
24-25	☐ STEEL ☐ GALVANIZED ☐ CONCRETE ☐ OPEN HOLE ☐ PLASTIC			27-30

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

78

71	PUMPING TEST METHOD		10	PUMPING RATE		11-14	DURATION OF PUMPING	
	1 ☒ PUMP 2 ☐ BAILER			6		GPM	15-16 17-18 1 HOURS 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		
	10 FEET	75 FEET	75 FEET	75 FEET	75 FEET	75 FEET		
IF FLOWING GIVE RATE		30-41	PUMP INTAKE SET AT			WATER AT END OF TEST		
		GPM	75 FEET			1 ☒ CLEAR 2 ☐ CLOUDY		
RECOMMENDED PUMP TYPE			RECOMMENDED PUMP SETTING		42-45	RECOMMENDED PUMPING RATE		46-49
☐ SHALLOW ☒ DEEP			100 FEET			5		GPM
50-53								

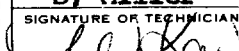
LOCATION OF WELL

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

38203

DRILLERS REMARKS

CONTRACTOR

CONTRACTOR	NAME OF WELL CONTRACTOR		WELL CONTRACTOR'S LICENCE NUMBER	
	Capital Water Supply Ltd.		1558	
	ADDRESS			
	Box 490 Stittsville, Ontario K0A 3G0			
	NAME OF WELL TECHNICIAN			WELL TECHNICIAN'S LICENCE NUMBER
	S. Miller			
	SIGNATURE OF TECHNICIAN/CONTRACTOR			SUBMISSION DATE
				DAY 05 MO. 07 YR. 87

OFFICE USE ONLY

OFFICE USE ONLY	DATA SOURCE	58 CONTRACTOR 59-62	DATE RECEIVED	63-68
		1558	SEP 01 1988	
	DATE OF INSPECTION		INSPECTOR	
	REMARKS			

MINISTRY OF THE ENVIRONMENT COPY

FORM NO. 0506 (11/86) FORM 9

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11

1525795

MUNICIPALITY 15003

CON. 109

COUNTY OR DISTRICT: [redacted] TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: Goulbourn CON. BLOCK TRACT SURVEY, ETC: 9 LOT: 26
DATE COMPLETED: 30/09/91
#1 Stittsville, Ontario K2S 1A6

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)					
GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
Brown	Clay	Boulders	Packed	0	8
Gray	Hardpan	Boulders	Hard	8	23
Gray	Limestone		Medium Hard	23	80
Gray	Limestone	Black Layers	Medium Hard	80	135

31 32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
73	1 ☐ FRESH 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
128	1 ☐ FRESH 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET
6 1/4	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC	.188	0 24
6 1/8	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC		24 135
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC		

SCREEN

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

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET	MATERIAL AND TYPE	(CEMENT GROUT LEAD PACKER, ETC.)
10-13	Grouted	Cement (3)
14-17		
18-21		
22-25		
26-29		
30-33		

71 PUMPING TEST

PUMPING TEST METHOD	1 ☐ PUMP 2 ☒ BAILEY	PUMPING RATE	10 GPM	DURATION OF PUMPING	1 15-16 HOURS 17-18 MINS
STATIC LEVEL	19-21	WATER LEVEL END OF PUMPING	22-24	WATER LEVELS DURING	15 MINUTES 26-28 30 MINUTES 29-31 45 MINUTES 32-34 60 MINUTES 35-37
	20 FEET		80 FEET		50 FEET 70 FEET 80 FEET 80 FEET
IF FLOWING, GIVE RATE	38-41	PUMP INTAKE SET AT	FEET	WATER AT END OF TEST	42
				1 ☐ CLEAR 2 ☒ CLOUDY	
RECOMMENDED PUMP TYPE	43-45	RECOMMENDED PUMP SETTING	100 FEET	RECOMMENDED PUMPING RATE	46-49 5 GPM
☐ SHALLOW ☒ DEEP					

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 8 ☐ DEWATERING
--	--

WATER USE

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

METHOD OF CONSTRUCTION

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

LOCATION OF WELL

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

Shea Road

Flewellyn Rd

29'6"

42' X

100159

DRILLERS REMARKS

CONTRACTOR

NAME OF WELL CONTRACTOR	WELL CONTRACTOR'S LICENCE NUMBER
Capital Water Supply Ltd.	1558
Box 490 Stittsville, Ontario K2S 1A6	
NAME OF WELL TECHNICIAN	WELL TECHNICIAN'S LICENCE NUMBER
J. Moore	T0096
SIGNATURE OF TECHNICIAN/CONTRACTOR	SUBMISSION DATE
[Signature]	DAY 30 MO. 9 YR. 91

OFFICE USE ONLY

DATA SOURCE	58 CONTRACTOR 1558	59-62 DATE RECEIVED NOV 19 1991	63-68
DATE OF INSPECTION	INSPECTOR		
REMARKS			

ROLL #309 - SEP 30/93



**Ministry
of the
Environment**

The Ontario Water Resources Act

WATER WELL RECORD

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11 1527414 INDEXED 15003 FILED KAN 09

COUNTY OF DISTRICT	TOWNSHIP	CDM BLOCK, ACRES, SURVEY, ETC.	LOT
Carleton	Elmblom	Con 9	25
OWNER	DATE COMPLETED		00-11
54 Broad Sutherland	M/M 2M5		19 08 93

21

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

[illegible][illegible]

WATER RECORD

WATER FOUND AT - FEET		INCHES OF WATER		TEMPERATURE	
0-10	198	☒ FRESH	3	☒ SULPHUR	5
		☐ SALT	4	☒ MINERALS	
			0	☒ GAS	
10-20		☐ FRESH	3	☒ SULPHUR	14
		☐ SALT	4	☒ MINERALS	
			0	☒ GAS	
20-30		☐ FRESH	3	☒ SULPHUR	24
		☐ SALT	4	☒ MINERALS	
			0	☒ GAS	
30-40		☐ FRESH	3	☒ SULPHUR	35
		☐ SALT	4	☒ MINERALS	
			0	☒ GAS	
40-50		☐ FRESH	3	☒ SULPHUR	46
		☐ SALT	4	☒ MINERALS	
			0	☒ GAS	

51 CASING & OPEN HOLE RECORD

DEPTH IN INCHES	MATERIAL	DIL DOWEL NO INCHES	DEPTH - FEET	
			10' IN	10'
0-10"	1 STEEL 2 GALVANIZED 3 CONCRETE 4 DEEP HOLE 5 PLASTIC			0-10'
6"		188	0	25
10-15"	1 STEEL 2 GALVANIZED 3 CONCRETE 4 DEEP HOLE 5 PLASTIC			10-15'
6			25	203
15-21"	1 STEEL 2 GALVANIZED 3 CONCRETE 4 DEEP HOLE 5 PLASTIC			15-21'

PLUGGING & SEALING RECORD

DEPTH IN FEET		MATERIALS AND TYPE	CEMENT ABOUT 1000 POUNDS PER C.Y.
1-10	10		
0-10	10-20	cement grout	
10-20	20-30		
30-40	40-50		

71	PROPOSED (SEE NOTE 60)		PUMPING RATE		DIRECTION OF PUMPING	

LOCATION OF WELL

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

FINAL STATUS OF WELL	☐ WATER SUPPLY ☐ OBSERVATION WELL ☐ TEST HOLE ☐ RECHARGE WELL	☐ ABANDONED INSUFFICIENT SUPPLY ☐ ABANDONED POOR QUALITY ☐ UNFINISHED ☐ REMAINS
	☒ DOMESTIC ☐ AGRIC. ☐ IRRIGATION ☐ INDUSTRIAL ☐ OTHER	☐ COMMERCIAL ☐ MUNICIPAL ☐ PUBLIC SUPPLY ☐ COOLING OR AIR CONDITIONING ☐ NOT USED
WATER USE		
METHOD OF CONSTRUCTION	☐ CABLE TOOL ☐ ROTARY (CONVENTIONAL) ☐ ROTARY (REVERSE) ☐ AIR LIFT ☐ AIR PERCUSSION	☐ BORING ☐ SHALLOW ☐ JETTING ☐ DRIVING ☐ DIGGING ☐ OTHER

LOCATION OF WELL

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

70 ft.

70 ft.

Test Well No. 1.

76768

CONTRACTOR	NAME OF WELL CONTRACTOR <i>Ed Marie Well Drilling</i>		WELL CONTRACTOR'S PHONE NUMBER <i>3644</i>	
	ADDRESS <i>Box 326 Richmond Ont.</i>			
	NAME OF WELL TECHNICIAN <i>[Signature]</i>		WELL TECHNICIAN'S PHONE NUMBER <i>7-0064</i>	
	SIGNATURE OF TECHNICIAN/CONTRACTOR <i>[Signature]</i>		SUBMISSION DATE DAY <i>19</i> MONTH <i>8</i> YEAR <i>93</i>	

OFFICE USE ONLY	DATE SOURCE	36	CONTINUAL	70-02	DATE RECEIVED	03-06	6
	36444		SEP 10 1993				
	DATE OF INSPECTION		INSPECTION				
	REMARKS						

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FORM NO. DS-08 (11/88) FORM 1



The Ontario Water Resources Act

WATER WELL RECORD

1527414

MUNICIP
15003

CON. CON 09

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COUNTY OR DISTRICT <i>Catt</i>	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE <i>Elbow</i>	CON. BLOCK, TRACT, SURVEY ETC <i>Con 9</i>	LOT <i>25</i>
			DATE COMPLETED DAY <i>19</i> MO <i>8</i> YR <i>93</i>
PARCELS <i>Parwood Scarborough M117 2175</i>			
NG RC ELEVATION RC BASIN CODE II III IV			

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

[illegible]

WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER			
10-13 198	2	☒ FRESH ☐ SALTY	3 4 6	☒ SULPHUR ☒ MINERALS ☒ GAS
15-18	1 2	☐ FRESH ☐ SALTY	3 4 6	☐ SULPHUR ☐ MINERALS ☐ GAS
20-23	1 2	☐ FRESH ☐ SALTY	3 4 6	☐ SULPHUR ☐ MINERALS ☐ GAS
25-28	1 2	☐ FRESH ☐ SALTY	3 4 6	☐ SULPHUR ☐ MINERALS ☐ GAS
30-33	1 2	☐ FRESH ☐ SALTY	3 4 6	☐ SULPHUR ☐ MINERALS ☐ GAS

CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
10-11 6 1/4	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC	12 188	0	25
17-18 6	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC	19	25	203
24-25	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC	26		27-30

PLUGGING & SEALING RECORD

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

PUMPING TEST	71
--------------	----

PUMP TEST

71	PUMPING TEST METHOD		10	PUMPING RATE		11-14	DURATION OF PUMPING	
	1 ☒ <u>AK</u> 2 ☐ BAILER			5		GPM	1 15-16 HOURS	0 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	
	FEET	FEET		26-28 FEET	29-31 FEET	32-34 FEET	35-37 FEET	
IF FLOWING GIVE RATE		38-41	PUMP INTAKE SET AT			WATER AT END OF TEST		
		GPM	FEET			1 ☐ CLEAR 2 ☒ CLOUDY		
RECOMMENDED PUMP TYPE			RECOMMENDED PUMP SETTING		43-45	RECOMMENDED PUMPING RATE		46-49
☐ SHALLOW ☒ DEEP			180		FEET	5		GPM
50-53								

**FINAL
STATUS
OF WELL**

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

WATER USE

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

**METHOD
OF
CONSTRUCTION**

1 ☐ CABLE TOOL 6 ☐ BORING
2 ☐ ROTARY (CONVENTIONAL) 7 ☐ DIAMOND
3 ☐ ROTARY (REVERSE) 8 ☐ JETTING
4 ☐ ROTARY (AIR) 9 ☐ DRIVING
5 ☒ AIR PERCUSSION 10 ☐ DIGGING ☐ OTHER

LOCATION OF WELL

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

Test Wa
DRILLERS REMARKS

OFFICE USE ONLY	DATA SOURCE	58	CONTRACTOR	59-62	DATE RECEIVED	63-68	69
			3644		SEP 10 1993		
	DATE OF INSPECTION		INSPECTOR				
REMARKS							

CONTRACTOR

NAME OF WELL CONTRACTOR
94 Maine Well Drilling
ADDRESS
Box 3216 Richmond
NAME OF WELL TECHNICIAN
[Signature]
SIGNATURE OF TECHNICIAN/CONTRACTOR
SUB

WELL CONTRACTOR'S
LICENSE NUMBER
3644

1-

WELL TECHNICIAN'S
LICENSE NUMBER
7-0064

DATE

MINISTRY OF THE ENVIRONMENT COPY

FORM NO. 0506 (11/86) FORM 9

ROLL #309 - SEP 30/93

Ministry
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Environment

The Ontario Water Resources Act

WATER WELL RECORD

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22

109

COUNTY OR DISTRICT <i>Carleton</i>	TOWNSHIP OR PARISH <i>Louisiana</i>	CDD BLOCK, TRACT, SURVEY ETC <i>Con 9</i>	DATE <i>25</i>
DATA <i>54 Howard Blvd, Greentown MIM 2M5</i>	ADDRESS	DATE COMPLETED <i>23</i>	NO. 10 <i>8</i>
		DAY	NO. 10 <i>93</i>

21

LOG OF OVERBURDEN AND BEDROCK MATERIALS: SEE INSTRUCTIONS.

[illegible][illegible]

32

WATER RECORD

41 WATER RECORD	
WATER FOUND AS - 0511	KIND OF WATER
158	Not tested
0-10	☐ SURF ☐ SALT ☐ FRESH ☐ MINERALS ☐ OTHER
10-20	☐ FRESH ☐ SALT ☐ FRESH ☐ MINERALS ☐ OTHER
20-25	☐ FRESH ☐ SALT ☐ FRESH ☐ MINERALS ☐ OTHER
25-30	☐ FRESH ☐ SALT ☐ FRESH ☐ MINERALS ☐ OTHER
30-35	☐ FRESH ☐ SALT ☐ FRESH ☐ MINERALS ☐ OTHER

CASING & OPEN HOLE RECORD

51 CASING & OPEN HOLE RECORD						
TIME DOWN HOURS	MATERIAL	SHAFT THICKNESS INCHES	DEPTH FEET	FEET	FEET	FEET
10-10	1 STEEL 2 GALVANIZED 3 CONCRETE 4 OPEN HOLE 5 PLASTIC	1/8				10-10
6 1/2		1/8	0	22		
10-12	1 STEEL 2 GALVANIZED 3 CONCRETE 4 OPEN HOLE 5 PLASTIC		22			20-11
6						
20-11	1 STEEL 2 GALVANIZED 3 CONCRETE 4 OPEN HOLE 5 PLASTIC					27-30

PLUGGING & SEALING RECORD

61		PLUGGING & SEALING RECORD	
DEPTH SET AT FEET		MATERIAL AND TYPE (CEMENT GROUT) LEAD PATCHER, ETC.	
10-00	10		
0	22	cement grouted	
10-21	20-25		
20-20	10-20		

[illegible]

LOCATION OF WELL

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

FINAL STATUS OF WELL	☐ WATER SUPPLY ☐ OBSERVATION WELL ☒ TEST MILE ☐ MESSAGE WELL	☐ ABANDONED, INSUFFICIENT SUPPLY ☐ ABANDONED, POOR QUALITY ☐ UNFINISHED ☐ DRAINING
	1F-1G ☒ DOMESTIC ☐ STOCK ☐ IRRIGATION ☐ INDUSTRIAL ☐ OTHER	☐ COMMERCIAL ☐ MUNICIPAL ☐ PUBLIC SUPPLY ☐ COOLING OR AIR CONDITIONING ☐ NOT USED
	WATER USE	
METHOD OF CONSTRUCTION	1F ☐ CABLE TOOL ☐ DRILLEY (CONVENTIONAL) ☐ DRILLEY (INVERSE) ☐ DRILLEY (SIS) ☐ AIR LIFT	☐ BORING ☐ DIAMOND ☐ JETTING ☐ DRIVING ☐ OTHER

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE INDICATE NDA/FW BY ARROW

30 km

13m

Flowerkyn Rd

Shea Rd

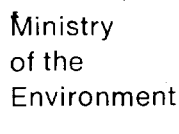
76770

CONTRACTOR	NAME OF WELL CONTRACTOR	WELL CONTRACTOR'S LICENSE NUMBER
	<i>Ed. Maine Well Drilling</i>	<i>3644</i>
	ADDRESS	
	<i>Box 326, Richmond Or</i>	
	NAME OF WELL TECHNICIAN	WELL TECHNICIAN'S LICENSE NUMBER
	<i>[Signature]</i>	<i>7-0564</i>
	SIGNATURE OF TECHNICIAN/CONTRACTOR	SUBMISSION DATE
	<i>[Signature]</i>	<i>23</i> MAY <i>93</i>

OFFICE USE ONLY	DATE EXPENSE	10	CONTINUATION	11 OF 12	DATE RECEIVED	00	00	00
	3644		SEP 10 1993					
DATE OF INSPECTION			INSPECTION					
PG NUMBER 								

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FORM NO. 0606 (11/84) FORM 1



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MUNICIP.
15003

CON.
|C|O|N|

109

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11

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON. BLOCK, TRACT, SURVEY ETC	LOT	25-27																																								
	Elmhurst	9	24																																									
10 Matheson Blvd. East Mississauga, Ontario			DATE COMPLETED	48-53																																								
			DAY 02	MO 02 YR 94																																								
<table border="1"> <tr> <td colspan="10">ELEVATION</td> <td colspan="10">BASIN CODE</td> </tr> <tr> <td colspan="10"> 21 22 23 24 25 26 27 28 29 30 </td> <td colspan="10"> 31 32 33 34 35 36 37 38 39 40 </td> </tr> </table>					ELEVATION										BASIN CODE										21 22 23 24 25 26 27 28 29 30										31 32 33 34 35 36 37 38 39 40									
ELEVATION										BASIN CODE																																		
21 22 23 24 25 26 27 28 29 30										31 32 33 34 35 36 37 38 39 40																																		

[illegible]

31

32

41		WATER RECORD			
WATER FOUND AT - FEET		KIND OF WATER			
10-13	1 ☐ FRESH 3 ☐ SULPHUR	14			
	2 ☐ SALTY 4 ☐ MINERALS				
			6 ☐ GAS		
31					
15-18	1 ☐ FRESH 3 ☐ SULPHUR	19			
	2 ☐ SALTY 4 ☐ MINERALS				
			6 ☐ GAS		
57-58					
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	
6 1/4	1 STEEL 2 GALVANIZED 3 CONCRETE 4 OPEN HOLE 5 PLASTIC	.188	0	22.5	
6	1 STEEL 2 GALVANIZED 3 CONCRETE 4 OPEN HOLE 5 PLASTIC		22.5	63	
6	1 STEEL 2 GALVANIZED 3 CONCRETE 4 OPEN HOLE 5 PLASTIC				

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	INCHES
					FEET	

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

71	PUMPING TEST METHOD		PUMPING RATE		11-14		DURATION OF PUMPING		
	1 ☐ PUMP 2 ☒ BAILER		20		GPM		1 15-18 HOURS 17-18 MINS		
	STATIC LEVEL		WATER LEVEL END OF PUMPING		25		1 ☒ PUMPING 2 ☐ RECOVERY		
	19-21		22-24		15 MINUTES 26-28		30 MINUTES 29-31		
	2 FEET		20 FEET		20 FEET		20 FEET		
IF FLOWING, GIVE RATE		38-41		PUMP INTAKE SET AT		WATER AT END OF TEST		42	
		GPM		FEET		1 ☐ CLEAR 2 ☒ CLOUDY			
RECOMMENDED PUMP TYPE		RECOMMENDED PUMP SETTING		43-45		RECOMMENDED PUMPING RATE		46-49	
☐ SHALLOW ☒ DEEP		45		FEET		5		GPM	
50-53									

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 8 ☐ DEWATERING
WATER USE	1 ☒ DOMESTIC 2 ☐ STOCK 3 ☐ IRRIGATION 4 ☐ INDUSTRIAL ☐ OTHER	5 ☐ COMMERCIAL 6 ☐ MUNICIPAL 7 ☐ PUBLIC SUPPLY 8 ☐ COOLING OR AIR CONDITIONING 9 ☐ NOT USED
METHOD OF CONSTRUCTION	1 ☒ CABLE TOOL 2 ☐ ROTARY (CONVENTIONAL) 3 ☐ ROTARY (REVERSE) 4 ☐ ROTARY (AIR) 5 ☒ AIR PERCUSSION	6 ☐ BORING 7 ☐ DIAMOND 8 ☐ JETTING 9 ☐ DRIVING ☐ DIGGING ☐ OTHER

LOCATION OF WELL

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

Fernbank Road

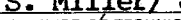
Proposed Lot #5

Shea Road

Flewellyn Road

142237

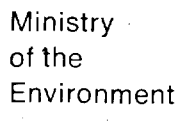
DRILLERS REMARKS

CONTRACTOR	NAME OF WELL CONTRACTOR		WELL CONTRACTOR'S LICENCE NUMBER	
	Capital Water Supply Ltd.		1558	
	ADDRESS			
	P.O. Box 490 Stittsville, Ontario K2S 1A6			
	NAME OF WELL TECHNICIAN		WELL TECHNICIAN'S LICENCE NUMBER	
	S. Miller/ J. Moore		T0097/T0090	
	SIGNATURE OF TECHNICIAN/CONTRACTOR		SUBMISSION DATE	
			DAY 14 MO 2 YR 94	

OFFICE USE ONLY	DATA SOURCE	58 CONTRACTOR 1558	58-62 APR 13 1994	63-68
	DATE OF INSPECTION		INSPECTOR	
	REMARKS			

11

3132



109

2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

11

COUNTY OR DISTRICT

TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE

CON. BLOCK TRACT SURVEY, ETC

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

Coulbourn

C

24

Matheson Blvd.east Mississauga,Ontario

DATE COMPLETED

4B-53

DAY 30 MO 6 YR 94

ING M7

Re

ELEVATION

RC.

BASIN CODE
()

1

1

1

1

1

1

1

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

61 PLUGGING & SEALING RECORD			
DEPTH SET AT - FEET		MATERIAL AND TYPE (CEMENT GROUT LEAD PACKER, ETC.)	
FROM	TO		
10-13	14-17	Grouted Cement (15)	
21	0		
18-21	22-25		
26-29	30-33	80	

LOCATION OF WELL

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

Flewelly Road

X Test Well
#4

↓

Fernbank

DRILLERS REMARKS

142311

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 8 ☐ DEWATERING
WATER USE	1 ☒ DOMESTIC 2 ☐ STOCK 3 ☐ IRRIGATION 4 ☐ INDUSTRIAL ☐ OTHER	5 ☐ COMMERCIAL 6 ☐ MUNICIPAL 7 ☐ PUBLIC SUPPLY 8 ☐ COOLING OR AIR CONDITIONING 9 ☐ NOT USED
METHOD OF CONSTRUCTION	1 ☒ CABLE TOOL 20-90 2 ☐ ROTARY (CONVENTIONAL) 3 ☐ ROTARY (REVERSE) 4 ☐ ROTARY (AIR) 5 ☒ AIR PERCUSSION 0-20	6 ☐ BORING 7 ☐ DIAMOND 8 ☐ JETTING 9 ☐ DRIVING ☐ DIGGING ☐ OTHER

CONTRACTOR	NAME OF WELL CONTRACTOR		WELL CONTRACTOR'S LICENCE NUMBER	
	Capital Water Supply Ltd.		1558	
	ADDRESS			
	Box 490 Stittsville, Ontario K2S 1A6			
CONTRACTOR	NAME OF WELL TECHNICIAN		WELL TECHNICIAN'S LICENCE NUMBER	
	S. Miller/ J. Moore		T0097/T0096	
	SIGNATURE OF TECHNICIAN/CONTRACTOR		SUBMISSION DATE	
	[Signature]		DAY 7 MO 7 YR. 94	

OFFICE USE ONLY	DATA SOURCE	58	CONTRACTOR 1558	59-62	DATE RECEIVED AUG 24 1994	63-68	80
	DATE OF INSPECTION		INSPECTOR				
	REMARKS						



WATER WELL RECORD

MUNICIP.
15003

CON

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11

1 2

MUNICIPALITY OF ...

CON

COUNTY OR DISTRICT

TOWNSHIP, BOROUGH CITY, TOWN, VILLAGE

CON	BLOCK	TRACT	SURVEY	ETC
-----	-------	-------	--------	-----

LOT	25.22
-----	-------

Goulbourn

9

24

#4 Pakenham, Ontario KOA 2X0

DATE COMPLETED

48.53

DAY 13 MO 9 YR 94

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

[illegible]

LOCATION OF WELL

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

Test Well
#5

0.2 mi

0.5 mi

Flewelyn Rd

Shear Road

DRILLER'S REMARKS

147733

34 FINAL STATUS OF WELL	1 ☒ WATER SUPPLY 2 ☒ OBSERVATION WELL 3 ☐ TEST HOLE 4 ☐ RECHARGE WELL	5 ☐ ABANDONED, INSUFFICIENT SUPPLY 6 ☐ ABANDONED POOR QUALITY 7 ☐ UNFINISHED ☐ DEWATERING
35-56 WATER USE	1 ☒ DOMESTIC 2 ☒ STOCK 3 ☐ IRRIGATION 4 ☐ INDUSTRIAL ☐ OTHER	5 ☐ COMMERCIAL 6 ☐ MUNICIPAL 7 ☐ PUBLIC SUPPLY 8 ☐ COOLING OR AIR CONDITIONING 9 ☐ NOT USED
57 METHOD OF CONSTRUCTION	1 ☒ CABLE TOOL 20.5-85 2 ☒ ROTARY (CONVENTIONAL) 3 ☐ ROTARY (REVERSE) 4 ☐ ROTARY (AIR) 5 ☒ AIR PERCUSSION 0-20.5	6 ☐ BORING 7 ☐ DIAMOND 8 ☐ JETTING 9 ☐ DRIVING ☐ DIGGING ☐ OTHER

CONTRACTOR	NAME OF WELL CONTRACTOR		WELL CONTRACTOR'S LICENCE NUMBER	
	Capital Water Supply Ltd.		1558	
	ADDRESS			
	P.O. Box 490 Stittsville, Ontario K2S 1A6			
CONTRACTOR	NAME OF WELL TECHNICIAN		WELL TECHNICIAN'S LICENCE NUMBER	
	S. Miller/ J. Moore		T0097/T0096	
	SIGNATURE OF TECHNICIAN/CONTRACTOR		SUBMISSION DATE	
			DAY 15 MO 08 YR 94	

OFFICE USE ONLY	DATA SOURCE	58	CONTRACTOR	59-62	DATE RECEIVED	63-68	69
	1558		OCT 07 1994				
	DATE OF INSPECTION		INSPECTOR				
	REMARKS						



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

1529417

Municipality **15003** Con. **CON** **09**

County or District Ottawa Carleton		Township/Borough/City/Town/Village Goulbourn	Con block tract survey, etc. 9	Lot 24
Owner's surname Technical Dimensions Inc.	First name	Address 850-36 Antares Dr. Nepean, Ontario K2E 7W5	Date completed 24 day 5 month 97 year	

Figure 1 shows an aerial photograph of the study area with a grid overlay. The grid is labeled with Zone, Easting, Northing, RC, Elevation, RC, Basin Code, and a scale bar. The scale bar shows distances from 0 to 2 km.

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

[illegible]

31

32

41		WATER RECORD	
Water found at - feet		Kind of water	
10-13	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	14
26			
15-18	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	19
92			
20-23	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	24
125			
25-28	NOT TESTED		29
30-33	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	34

51 CASING & OPEN HOLE RECORD					
Inside diam inches	Material	Wall thickness inches	Depth - feet		
			From	To	
6 1/4	☒ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic	.188	0	22	
17-18	☐ Steel ☐ Galvanized ☐ Concrete ☒ Open hole ☐ Plastic		22	129	
24-25	☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic			27-30	

SCREEN	Sizes of opening (Slot No.)	31-33	Diameter	34-36	Length	35-40
			inches		feet	
	Material and type			Depth at top of screen		
				41-44		
				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		Grouted Cement 1 bag			
20		1					
18-21		22-25		Hole Plug 1 bag			
26-29		30-33		80			

PUMPING TEST	Pumping test method		Pumping rate		Duration of pumping	
	1 ☒ Pump	2 ☒ Bailer	5 GPM		1 Hours Mins	
	Static level	Water level end of pumping	Water levels during		☒ Pumping ☐ Recovery	
	19-21	22-24	15 minutes	30 minutes	45 minutes	60 minutes
			26-28	29-31	32-34	35-37
	10 feet	70 feet	37 feet	60 feet	20 feet	70 feet
If flowing give rate		Pump intake set at		Water at end of test		
38-41 GPM				42		
		feet		☐ Clear ☒ Cloudy		
Recommended pump type		Recommended pump setting		Recommended pump rate		
☐ Shallow ☒ Deep		120 feet		4 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 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.

Flewellyn Road.

Woodside Acres

House

15'

11'8"

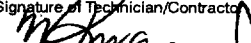
X

G

Lot #15

Poplarwood

175643

Name of Well Contractor	Well Contractor's Licence No.
Capital Water Supply Ltd.	1558
Address	
P.O. Box 490 Stittsville, Ontario K2S 1A6	
Name of Well Technician	Well Technician's Licence No.
W. Kavanagh	T0095
Signature of Technician/Contractor	Submission date
	day 26 mo 5 yr 97

MINISTRY USE ONLY	Data source	58	Contractor	59-62	Date received	63-68	80
			1558		JUN 27 1997		
	Date of inspection		Inspector				
Remarks							



The Ontario Water Resources Act

WATER WELL RECORD

1529429

MUNICIP.
15003

CON.
CON

109

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11

COUNTY OR DISTRICT OTTAWA-CARLETON		TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE TWP. OF GOLDBOURN		CON. BLOCK, TRACT, SURVEY ETC. CONCESSION 9		LOT 24	
OWNER (SURNAME FIRST) TECHNICAL DIMENSIONS INC.		ADDRESS 850-36 Antares, Nepean, Ont. K2E 7W5		DATE COMPLETED 25 10 96		DAY MONTH YEAR	
UTM ZONE 21		EASTING		NORTHING		RC	
ELEVATION		SUBDIVISION		SUBLOT #		8	

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

[illegible]

31

32

1 2

10 14 15 21 32 41 54 65 78

WATER RECORD

WATER FOUND AT - FEET		KIND OF WATER	
10-13	1 ☐ FRESH 2 ☐ SALTY	3 ☐ SULPHUR 4 ☐ MINERALS 5 ☐ GAS	14
15-18	1 ☐ FRESH 2 ☐ SALTY	3 ☐ SULPHUR 4 ☐ MINERALS 5 ☐ GAS	19
20-23	1 ☐ FRESH 2 ☐ SALTY	3 ☐ SULPHUR 4 ☐ MINERALS 5 ☐ GAS	24
25-28	1 ☐ FRESH 2 ☐ SALTY	3 ☐ SULPHUR 4 ☐ MINERALS 5 ☐ GAS	29
30-33	1 ☐ FRESH 2 ☐ SALTY	3 ☐ SULPHUR 4 ☐ MINERALS 5 ☐ GAS	34

CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
10-11	☒ STEEL ☐ GALVANIZED ☐ CONCRETE ☐ OPEN HOLE ☐ PLASTIC	12		13-16
6 1/4"		.128	+3	31
17-18	☐ STEEL ☐ GALVANIZED ☐ CONCRETE ☒ OPEN HOLE ☐ PLASTIC	19		20-23
5 7/8			31	71
24-25	☐ STEEL ☐ GALVANIZED ☐ CONCRETE ☐ OPEN HOLE ☐ PLASTIC	26		27-30

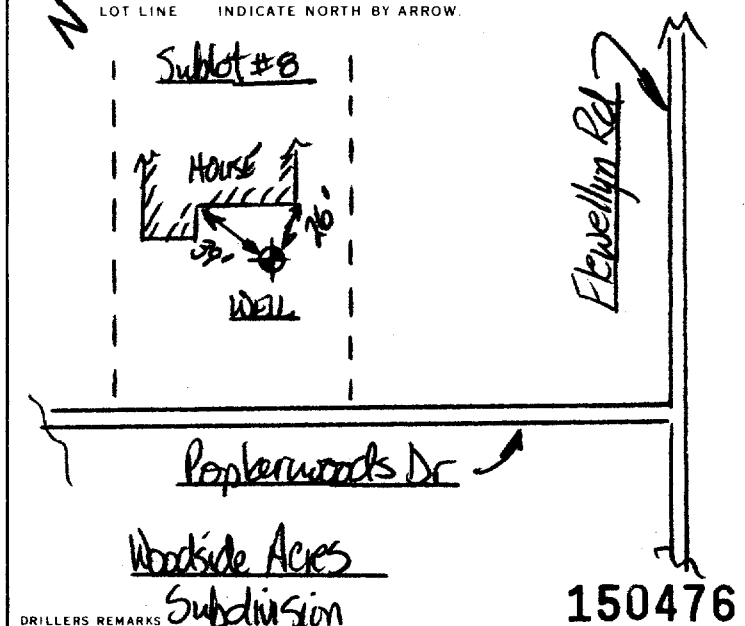
PLUGGING & SEALING RECORD

DEPTH SET AT - FEET		MATERIAL AND TYPE (CEMENT GROUT LEAD PACKER ETC.)
FROM	TO	
4 10-13	31 14-17	GROUT
18-21	22-25	
26-29	30-33	#0

71	PUMPING TEST METHOD		10	PUMPING RATE		TI-14	DURATION OF PUMPING		
	1 ☒ PUMP 2 ☐ BAILER			5			2 15-16 0 17-18 HOURS MIN		
	STATIC LEVEL		WATER LEVEL END OF PUMPING		25		1 ☐ PUMPING 2 ☐ RECOVERY		
	19-21		22-24		15 MINUTES 30 MINUTES		45 MINUTES 60 MINUTES		
	+2		H		12 13		H H		
FEET		FEET		FEET FEET		FEET FEET		FEET FEET	
IF FLOWING GIVE RATE		38-41		PUMP INTAKE SET AT		WATER AT END OF TEST		42	
—		GPM		60		FEET		1 ☐ CLEAR 2 ☒ CLOUDY	
RECOMMENDED PUMP TYPE		RECOMMENDED PUMP SETTING		43-45		RECOMMENDED PUMPING RATE		46-49	
☐ SHALLOW ☒ DEEP		60		FEET		60		to 5 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 |
| 2 ☒ OBSERVATION WELL | 6 ☐ ABANDONED POOR QUALITY |
| 3 ☐ TEST HOLE | 7 ☐ UNFINISHED |
| 4 ☐ RECHARGE WELL | ☐ DEWATERING |

WATER USE

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

**METHOD
OF
CONSTRUCTION**

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

CONTRACTOR	STANTON DRILLING INC:		LICENCE NUMBER 4875	
	ADDRESS Box 219, Pakenham, Ont. K0A 2X0			
	NAME OF WELL TECHNICIAN Peter Stanton		WELL TECHNICIAN'S LICENCE NUMBER T-0066	
	SIGNATURE OF TECHNICIAN/CONTRACTOR <i>[Signature]</i>		SUBMISSION DATE DAY 31 MO 10 YR 96	

OFFICE USE ONLY

[illegible]

MINISTRY OF THE ENVIRONMENT COPY

FORM NO. 0506 (11/86) FORM 9



The Ontario Water Resources Act **WATER WELL RECORD**

Mark correct box with a checkmark, where applicable.

Municipality 15003 Con. CON 09

County or District Ottawa Carleton		Township/Borough/City/Town/Village Goulbourn	Con block tract survey, etc. 9	Lot 24
Owner's surname Technical Dimensions	First name	Address 850-36 Antares Drive Nepean, Ontario	Date completed 3 day 6 month 97 year	

21	Zone	Easting	KZE / WS	Northing	RC	Elevation	RC	Basin Code	ii	iii	iv
	M	10	12	17	18	24	25				

[illegible]

31

32 WATER RECORD CASINO & GRENHOLE RECORD 54 65 75 80

WATER RECORD				
Water found at - feet		Kind of water		
10-13 92	1 ☐ Fresh	3 ☐ Sulphur	14	
	2 ☐ Salty	4 ☐ Minerals	6 ☐ Gas	
15-18 143	1 ☐ Fresh	3 ☐ Sulphur	19	
	2 ☐ Salty	4 ☐ Minerals	6 ☐ Gas	
20-23 152	1 ☐ Fresh	3 ☐ Sulphur	24	
	2 ☐ Salty	4 ☐ Minerals	6 ☐ Gas	
NOT TESTED				
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
6 1/4	☐ Steel ☒ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic	.188	0	25
17-18	☐ Steel ☐ Galvanized ☐ Concrete ☒ Open hole ☐ Plastic		25	155
24-25	☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic			

SCREEN	Sizes of opening (Slot No.)	31-33	Diameter	34-38	Length	36-40
			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		14-17		Grouted Cement (1) Hole Plug (1)					
20		0							
18-21		22-25							
26-29		30-33		80					

PUMPING TEST	71 Pumping test method 10 ☐ Pump ☒ Bailer		Pumping rate 11-14 6 GPM		Duration of pumping 1 Hours Mins	
	25 Static level Water level end of pumping		Water levels during ☒ Pumping ☐ Recovery			
	19-21	22-24	15 minutes 26-28	30 minutes 29-31	45 minutes 32-34	60 minutes 35-37
	27 feet	80 feet	58 feet	67 feet	78 feet	80 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 43-45 130 feet		Recommended pump rate 46-49 5 GPM		

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 ☐ Abandoned (Other) 8 ☐ Dewatering 9 ☐ Unfinished 10 ☐ Replacement well
--	--

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 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.

Lot #13

Poplarwood Road

steps

10'6"

x

13'5"

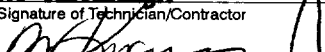
Veranda

House

Woodside Acres

Flewellyn Road

175650

Name of Well Contractor	Well Contractor's Licence No.
Capital Water Supply Ltd.	1558
Address	
P.O. Box 490 Stittsville, Ontario K2S 1A6	
Name of Well Technician	Well Technician's Licence No.
W. Kavanagh	T0095
Signature of Technician/Contractor	Submission date
	day 4 mo 6 yr 97

MINISTRY USE ONLY	Data source	58	Contractor	59-62	Date received	63-68	80
			1558		JUL 15 1997		
	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.

Municipality 15003 Con. CON 09

County or District Ottawa Carleton		Township/Borough/City/Town/Village Goulbourn	Con block tract survey, etc. 9	Lot 23
Owner's surname 28-47 [REDACTED]	First name [REDACTED]	Address 850-36 Antares Drive Nepean, Ontario	Date completed 48-53 18 y 6 month 97 year	

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

[illegible]

31

32

[illegible]

PUMPING TEST	Pumping test method ¹⁰ 1 ☒ Pump 2 ☐ Bailor		Pumping rate ¹¹⁻¹⁴ 4-5 GPM		Duration of pumping ¹⁷⁻¹⁸ 1 Hours Mins	
	Static level	Water level end of pumping	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
	12 feet	100 feet	45 feet	68 feet	98 feet	100 feet
	If flowing give rate ³⁸⁻⁴¹ GPM	Pump intake set at	Water at end of test ⁴² ☐ Clear ☒ Cloudy			
	Recommended pump type ☐ Shallow ☒ Deep	Recommended pump setting ⁴³⁻⁴⁵ 130 feet	Recommended pump rate ⁴⁶⁻⁴⁹ 4 GPM			

LOCATION OF WELL

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

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 Abandoned (Other) ☐ 8 Dewatering	☐ 9 Unfinished ☐ 10 Replacement well

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

METHOD OF CONSTRUCTION 57		
☒ 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

175657

Name of Well Contractor		Well Contractor's Licence No.	
Capital Water Supply Ltd.		1558	
Address			
P.O. Box 490 Stittsville, Ontario K2S 1A6			
Name of Well Technician		Well Technician's Licence No.	
W. Kavanagh		T0095	
Signature of Technician/Contractor		Submission date	
		day 18 mo 6 yr 97	

MINISTRY USE ONLY	Data source	58	Contractor	59-62	Date received	63-68	80
			1558		JUL 15 1997		
	Date of inspection		Inspector				
	Remarks						
							



The Ontario Water Resources Act

WATER WELL RECORD

Mark correct box with a checkmark, where applicable.

109

County or District Ottawa Carleton	Township/Borough/City/Town/Village Goulbourn	Con block tract survey, etc. 9	Lot 24
Owner's surname Technical Dimensions	First name Technical Dimensions	Address 850 - 36 Antares Dr. Nepean Ont.	Date completed 23 day 7 month 97 year

21 Zone Easting **K2E 7W5** Northing RC Elevation RC Basin Code ii iii iv

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

[illegible][illegible]

41	1C	14	15	21
WATER RECORD				
Water found at – feet	Kind of water			
90 ^{1C-13}	1 ☐ Fresh 2 ☐ Salty	3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas	14	
125 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		35				41			
CASING & OPEN HOLE RECORD									
Inside diam inches	Material		Wall thickness inches	Depth – feet					
				From	To				
6 1/4	☒ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic	12	.188	0	20	13	16		
17-18	☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic	19				20	23		
6 1/8	☒ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic			22	130				
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 41-44		
				feet		

61 PLUGGING & SEALING RECORD			
☒ Annular space		☐ Abandonment	
Depth set at - feet		Material and type (Cement grout, bentonite, etc.)	
From	To		
10-13 20	14-17 0	Grouted cement (3)	
18-21	22-25		
26-29	30-33	80	

PUMPING TEST	Pumping test method ¹⁰ 1 ☐ Pump 2 ☒ Bailer		Pumping rate ¹¹⁻¹⁴ 10 GPM		Duration of pumping 1 ¹⁵⁻¹⁶ Hours Mins	
	Static level		Water level end of pumping ²⁵		Water levels during 1 ☒ Pumping 2 ☐ Recovery	
	¹⁹⁻²¹ 18 feet	²²⁻²⁴ 41 feet	²⁶⁻²⁸ 15 minutes 39 feet	²⁹⁻³¹ 30 minutes 41 feet	³²⁻³⁴ 45 minutes 41 feet	³⁵⁻³⁷ 60 minutes 41 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 ⁴³⁻⁴⁵ 100 feet		Recommended pump rate ⁴⁶⁻⁴⁹ 5 GPM	
	50-53					

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

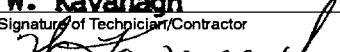
METHOD OF CONSTRUCTION *57*

1 ☒ Cable tool	20-130	1 ☒ Air percussion	0-20	9 ☐ Driving
2 ☐ Rotary (conventional)	6	☐ Boring		10 ☐ Digging
3 ☐ Rotary (reverse)	7	☐ Diamond		11 ☐ Other
4 ☐ Rotary (air)	8	☐ Jetting		

LOCATION OF WELL PO # 493

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

Diagram illustrating the location of a well on Lot 42. The lot is bounded by Woodside Acres to the west, Poplarwood Road to the south, and an unlabeled road to the east. A house is located in the southeast corner of the lot. A well is located within the lot, with a distance of 45' 6" from the west boundary and 29' 10" from the south boundary. A north arrow points towards the top-left.

Name of Well Contractor	Well Contractor's Licence No.
Capital Water Supply Ltd. Address	1558
Box 490, Stittsville, Ont. K2S 1A6	
Name of Well Technician	Well Technician's Licence No.
W. Kavanagh	T0095
Signature of Technician/Contractor 	Submission date day 22 mo 7 yr 97

MINISTRY USE ONLY	Data source	58	Contractor	59-62	Date received	63-68	90
			1558			AUG 14 1997	
	Date of inspection		Inspector				
	Remarks						



1529569

Municipality
15003

Con. CON 02

County or District Ottawa Carleton	Township/Borough/City/Town/Village Goulbourn	Con block tract survey, etc. 9	Lot 24
Owner's surname Technical Dimensions	First name	Address 850-36 Antares Drive Nepean, Ontario	Date completed 7 day 8 month 97 year

21 Zone Easting **K2E 7W5** Northing RC Elevation RC Basin Code

[illegible]

WATER RECORD			
41	Water found at - feet	Kind of water	
10-13	1 ☐ Fresh 2 ☐ Salty	3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas	14
96			
15-18	1 ☐ Fresh 2 ☐ Salty	3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas	19
142			
20-23	1 ☐ Fresh 2 ☐ Salty	3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas	24
169			
25-28	1 ☐ Fresh 2 ☐ Salty	3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas	29
NOT TESTED			
30-33	1 ☐ Fresh 2 ☐ Salty	3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas	34

51		34			
CASING & OPEN HOLE RECORD					
Inside diam inches	Material	Wall thickness inches	Depth - feet		
			From	To	
6 1/4	☒ Steel ☒ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic	.188	0	22	
17-18	☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic		22	175	
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		
				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			
20	0	Grouted Cement (3)		
18-21	22-25			
26-29	30-33	80		

71	Pumping test method		Pumping rate		Duration of pumping	
	☐ Pump	☒ Bailor	10 GPM		1 15-16 Hours 16-18 Mins	
	Static level	Water level end of pumping	Water levels during		☒ Pumping ☐ Recovery	
	19-21	22-24	15 minutes 26-28	30 minutes 29-31	45 minutes 32-34	60 minutes 35-37
	37 feet	55 feet	44 feet	53 feet	55 feet	55 feet
If flowing give rate		Pump intake set at		Water at end of test		
GPM		feet		☐ Clear ☒ Cloudy		
Recommended pump type		Recommended pump setting		Recommended pump rate		
☐ Shallow ☒ Deep		100 feet		5 GPM		

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

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

METHOD OF CONSTRUCTION		57	
1	☒ Cable tool	5	☐ Air percussion
2	☐ Rotary (conventional)	6	☐ Boring
3	☐ Rotary (reverse)	7	☐ Diamond
4	☐ Rotary (air)	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.

House

Deck

Steps

26'

15'

Lot # 14

Poplarwood

Woodside Acres

175696

Flewellyn Rd

Name of Well Contractor	Well Contractor's Licence No.
Capital Water Supply Ltd.	1558
Address	
P.O. Box 490 Stittsville, Ontario K2S 1A6	
Name of Well Technician	Well Technician's Licence No.
S. Miller/W. Kavanaugh	T0097/T0095
Signature of Technician/Contractor	Submission date
	day 8 mo 8 yr 97

MINISTRY USE ONLY	Data source	58	Contractor	59-62	Date received	63-64	80
	1558		1558		SEP 15 1997		
	Date of inspection		Inspector				
	Remarks						



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

The Ontario Water Resources Act **WATER WELL RECORD**

Municipality 15003 Con. CON 09

County or District Ottawa Carleton		Township/Borough/City/Town/Village Goulbourn		Con block tract survey, etc. 9		Lot 23	
		Address 850-36 Antares Drive Nepean, Ontario				Date completed 27 day 8 month 97 year	
		Easting K2E 7W5		Northing RC		Basin Code ii iii iv	

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)					
General colour	Most common material	Other materials	General description	Depth - feet	
				From	To
Brown	Sand, Loom	Stones	Fill	0	6
Brown	Sand ,Clay			6	10
Gray	Hardpan	Boulders		10	20
Gray	Gravel	Gray Sand		20	22
Gray	Limestone			22	87

[illegible]

41 WATER RECORD			
Water found at - feet		Kind of water	
10-13	1 ☐ Fresh 2 ☐ Salty	3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas	14
65			
15-18	1 ☐ Fresh 2 ☐ Salty	3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas	19
81			
20-23	1 ☒ NOT TESTED		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
6 1/4	1 ☒ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic	.188	0	27
17-18	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☒ Open hole 5 ☐ Plastic		27	30
24-25	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☒ Open hole 5 ☐ Plastic		30	87

SCREEN	31-33		34-38		39-40	
	Sizes of opening (Slot No.)		Diameter		Length	
			inches		feet	
	Material and type			Depth at top of screen		
				41-44		
				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			
25	0	Grouted Cement (5)		
26-29	30-33	80		

PUMPING TEST	71 Pumping test method 10 ☒ Pump ☒ Bailer		Pumping rate 11-14 15 GPM		Duration of pumping 15-16 17-18 1 Hours Mins	
	Static level 19-21 17 feet		Water level end of pumping 22-24 22 feet		Water levels during 25 ☒ Pumping ☐ Recovery	
	15 minutes 26-28 22 feet		30 minutes 29-31 22 feet		45 minutes 32-34 22 feet	
	60 minutes 35-37 22 feet		If flowing give rate 38-41 GPM		Pump intake set at 42 feet	
	Recommended pump type 43-45 ☐ Shallow ☒ Deep		Recommended pump setting 46-49 60 feet		Water at end of test ☐ Clear ☒ Cloudy	
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 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 30-37 5 ☐ Air percussion 0-30 9 ☐ Driving						
2 ☒ Rotary (conventional) 3 ☒ 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.

183312

Name of Well Contractor	Well Contractor's Licence No.	Date received	59-62	63-68
Capital Water Supply Ltd.	1558	SEP 15 1997		
Address		Date of inspection	Inspector	
P.O. Box 490 Stittsville, Ontario K2S 1A6				
Name of Well Technician	Well Technician's Licence No.	Remarks		
S. Miller/W. Kavanagh	T0097/T0095			
Signature of Technician/Contractor	Submission date			
<i>[Signature]</i>	day 28 mo 8 yr 97			

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

11

1529714

Municipality 15003 Con. CON 09

County or District
Township/Borough/City/Town/Village
Con block tract survey, etc. Lot
Address
Date completed
100 Herzberg Rd., P.O. Box 13000 Kanata
Ontario K2K 2A6
21 day 10 month 97 year

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)					
General colour	Most common material	Other materials	General description	Depth - feet	
				From	To
Brown	Sand	Stones (Shale)	Packed	0	6
Gray	Limestone			6	20
Gray	Limestone		HARD	20	48
Gray	Limestone		Medium	48	79
Brown	Limestone		Medium	79	141
Gray	Limestone		Medium	141	165
Brown	Limestone		Medium	165	172
Gray	Limestone		Medium	172	190

31
32

WATER RECORD	
Water found at - feet	Kind of water
10-13	1 ☐ Fresh 3 ☐ Sulphur 14
147	2 ☐ Salty 4 ☐ Minerals 6 ☐ Gas
15-18	1 ☐ Fresh 3 ☐ Sulphur 19
165	2 ☐ Salty 4 ☐ Minerals 6 ☐ Gas
20-23	1 ☐ Fresh 3 ☐ Sulphur 24
183	2 ☐ Salty 4 ☐ Minerals 6 ☐ Gas
25-28	NOT TESTED 3 ☐ Sulphur 29
	4 ☐ Minerals 6 ☐ Gas
30-33	1 ☐ Fresh 3 ☐ Sulphur 34
	2 ☐ Salty 4 ☐ Minerals 6 ☐ Gas

CASING & OPEN HOLE RECORD			
Inside diam inches	Material	Wall thickness inches	Depth - feet
			From To
6 1/4	1 ☐ Steel 12 ☒ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic	.188	0 22.5
5 15/16	1 ☐ Steel 19 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic		22.5 190
	1 ☐ Steel 26 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic		27-30

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

PLUGGING & SEALING RECORD	
☒ Annular space	☐ Abandonment
Depth set at - feet	Material and type (Cement grout, bentonite, etc.)
From To	
10-13 14-17	21 0 Grouted Cement (3)
18-21 22-25	
26-29 30-33	

PUMPING TEST	Pumping test method 10 ☒ Pump 2 ☐ Bailor	Pumping rate 11-14 13 GPM	Duration of pumping 17-18 1 Hours 2 Mins
	Static level 19-21 23 feet	Water level during 25 1 ☒ Pumping 2 ☐ Recovery	
	Water level end of pumping 22-24 46 feet	15 minutes 26-28 38 feet 30 minutes 29-31 44 feet 45 minutes 32-34 46 feet 60 minutes 35-37 46 feet	
	If flowing give rate 38-41 46 GPM	Pump intake set at 42 feet	Water at end of test 46 feet
	Recommended pump type ☐ Shallow ☒ Deep	Recommended pump setting 43-45 140 feet	Recommended pump rate 46-49 5 GPM

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	

LOCATION OF WELL	
In diagram below show distances of well from road and lot line. Indicate north by arrow.	
183257	

Name of Well Contractor	Well Contractor's Licence No.
Capital Water Supply Ltd.	1558
Address	
P.O. Box 490 Stittsville, Ontario K2S 1A6	
Name of Well Technician	Well Technician's Licence No.
S. Miller/W. Kavanagh	T0097/T0095
Signature of Technician/Contractor	Submission date
	day 21 mo 10 yr 97

MINISTRY USE ONLY	Data source 58	Contractor 59-62	Date received 63-68
	1558		DEC 22 1997
	Date of inspection	Inspector	
	Remarks		



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Mark correct box with a checkmark, where applicable.

1529791

Municipality **15003** Con. **CON** **09**

County or District	Township/Borough/City/Town/Village	Con block tract survey, etc.	Lot
Ottawa Carleton	Goulbourn	9	24
Owner's surname	First name	Date completed	
Technical Dimensions Inc	850-36 Antares Dr. Nepean, Ontario K2E 7W5	4 day 12 month 97 year	

Figure 1 illustrates the data structure for the 21st zone. The timeline shows the following data points and intervals:

Time Interval	Data Type
12 - 17	Easting
18 - 24	Northing
25	RC
26	Elevation
30	RC
31	Basin Code
32 - 36	Box I
37 - 41	Box II
42 - 46	Box III
47	Box IV

[illegible]

31

32

41		14 15		21	
WATER RECORD					
Water found at – feet		Kind of water			
10-13	1 ☐ Fresh 2 ☐ Salty	3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas	14		
65					
15-18	1 ☐ Fresh 2 ☐ Salty	3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas	19		
126					
20-23	1 ☐ Fresh 2 ☐ Salty	3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas	24		
142					
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		

CASING & OPEN HOLE RECORD				
51 Inside diam inches	Material	Wall thickness inches	Depth - feet	
			From	To
6 1/4	☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic	.188	0	22.5
6 1/8	☐ Steel ☐ Galvanized ☐ Concrete ☒ Open hole ☐ Plastic		22.5	145
	☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic			

SCREEN	54	59	73	39-40
	Sizes of opening (Slot No.)	31-33	Diameter 34-36 inches	Length feet
	Material and type		Depth at top of screen 41-44 feet	39-40

61 PLUGGING & SEALING RECORD				
☒ Annular space			☐ Abandonment	
Depth set at - feet		Material and type (Cement grout, bentonite, etc.)		
From	To			
10-13	14-17	Grouted Cement (3)		
20	0			
18-21	22-25			
26-29	30-33	80		

71	Pumping test method		Pumping rate		Duration of pumping	
	1 ☐ Pump 2 ☒ Bailer		10 GPM		1 ¹⁵ / ₁₆ Hours Mins	
	Static level	Water level end of pumping	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
	12 feet	60 feet	34 feet	47 feet	60 feet	60 feet
If flowing give rate		Pump intake set at		Water at end of test		
38-41 GPM		feet		42 ☐ Clear ☒ Cloudy		
Recommended pump type		Recommended pump setting		Recommended pump rate		
☐ Shallow ☒ Deep		43-45 100 feet		46-49 5 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	0-20	☐ 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.

Diagram illustrating the location of a well on Lot #17. The lot is bounded by Poplarwood Ave to the west and Flewellyn Rd to the south. The well is located 20' 10" from the west boundary and 28' 7" from the south boundary. A north arrow points towards the upper right. The area is labeled "Woodside Acres".

Name of Well Contractor	Well Contractor's Licence No.
Capital Water Supply Ltd.	1558
Address	
P.O. Box 490 Stittsville, Ontario K2S 1A6	
Name of Well Technician	Well Technician's Licence No.
S. Miller/W. Kavanagh	T0097/T0095
Signature of Technician/Contractor	Submission date
	day 5 mo 12 yr 97

MINISTRY USE ONLY	Data source	56	Contract	55-58	59-62	Date received	63-68	69
	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

1529793

Municipality 15003 Con. CON 09

County or District		Township/Borough/City/Town/Village	Con block tract survey, etc.	Lot	25-27
Ottawa Carleton		Goulbourn	9	23	
Owner's surname	First name	Address	Date completed	48-53	
Technical Dimensions Ltd.		850-36 Astares Dr. Nepean, Ontario K2E 7W5	22 May 12	97 year	

Figure 1 illustrates the data structure for the 1990-1991 season. The diagram shows a horizontal timeline from 1990 to 1991. Above the timeline, labels indicate 'Zone', 'Easting', 'Northing', 'RC', 'Elevation', 'RC', and 'Basin Code'. Below the timeline, a series of boxes represent data points, with labels 21, 10, 17, 18, 24, 25, 26, 30, 31, and 41. The timeline is divided into four sections labeled I, II, III, and IV.

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

[illegible]

31

32

41

54

65

75

8

41		14 15		21	
WATER RECORD					
Water found at - feet		Kind of water			
10-13	1 ☐ Fresh 2 ☐ Salty	3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas	14		
85					
15-18	1 ☐ Fresh 2 ☐ Salty	3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas	19		
121					
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		

CASING & OPEN HOLE RECORD				
Inside diam inches	Material	Wall thickness inches	Depth - feet	
			From	To
6 1/4	☒ Steel ☒ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic	.188	0	44
5 15/16	☐ Steel ☐ Galvanized ☒ Concrete ☒ Open hole ☐ Plastic		44	125
5 1/2	☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic			27.30

SCREEN	Sizes of opening (Slot No.)	31-33	Diameter	34-38	Length	39-46
			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		
10-13	14-17	Grouted - Cement	
21	4		
18-21	22-25		
26-29	30-33	80	

71	Pumping test method		10	Pumping rate		11-14	Duration of pumping		15-18
	☐ Pump ☒ Bailer			15		GPM	 Hours Mins		
	Static level		25	Water levels during		☒ Pumping	☐ Recovery		
	19-21	22-24	15 minutes	30 minutes	45 minutes	60 minutes			
			26-28	29-31	32-34	35-37			
PUMP TEST	12 feet		16 feet	16 feet	16 feet	16 feet	16 feet		
	If flowing give rate		38-41	Pump intake set at		Water at end of test		42	
	GPM			feet		☐ Clear ☐ Cloudy			
PUMP TEST	Recommended pump type			Recommended pump setting		43-45	Recommended pump rate		46-49
	☐ Shallow ☒ Deep			90 feet			5		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 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 44-125 5 ☒ Air percussion 0-444 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.

Lot #27

11'7"

11'3"

H

Veranda

G

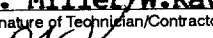
Forest Grove

Woodside

Poplarwood

Flewellyn Road.

182799

Name of Well Contractor	Well Contractor's Licence No.
Capital Water Supply Ltd.	1558
Address	
P.O. Box 490 Spittsville, Ontario K2S 1A6	
Name of Well Technician	Well Technician's Licence No.
S. Miller/W. Kavanagh	T0097/T0095
Signature of Technician/Contractor	Submission date
	day 24 mo 12 yr 97

MINISTRY USE ONLY	Data source	58	Contractor	59-62	Date received	63-68
	1558		JAN 0 8 1998			
	Date of inspection	Inspector				
Remarks						

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

1529795

Municipality 15003 Con. CON 09
10 14 15 22 23 24

County or District Ottawa Carleton		Township/Borough/City/Town/Village Goulbourn		Con block tract survey, etc. 9		Lot 23	
Owner's surname Technical Dimensions		First name		Address 850-36 Antares Dr. Nepean, Ontario K2E 7W5		Date completed 18 day 12 month 97 year	

Zone	Easting	Northing	RC	Elevation	RC	Basin Code	II	III	IV
21	10	12	17	18	24	25	26	30	31

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)					
General colour	Most common material	Other materials	General description	Depth - feet	
				From	To
Gray	Hardpan	Slab Rocks	Fill	0	20
Gray	Limestone		Hard	20	54
Gray	Limestone		Medium	54	83
Light Gray	Limestone		Medium	83	128
Brown	Limestone		Soft	128	147
Gray	Limestone		Soft	147	200

31	32	33	34	35	36	37	38	39	40
----	----	----	----	----	----	----	----	----	----

41 WATER RECORD Water found at - feet 68 135 196 NOT TESTED 30-33		51 CASING & OPEN HOLE RECORD Inside diam inches 6 1/4 6 1/8 24-25		Material Steel Galvanized Concrete Open hole Plastic		Wall thickness inches .188 26		Depth - feet From To 0 22 22 200 27-30	
Kind of water 1 Fresh 3 Sulphur 14 2 Salty 4 Minerals 19 6 Gas 6 Minerals 24 6 Gas 6 Minerals 29 6 Gas 6 Minerals 34		17-18 1 Steel 19 2 Galvanized 20 3 Concrete 21 4 Open hole 22 5 Plastic 23		1 Steel 19 2 Galvanized 20 3 Concrete 21 4 Open hole 22 5 Plastic 23		26 Galvanized Concrete Open hole Plastic		61 PLUGGING & SEALING RECORD Annular space Abandonment Depth set at - feet From To 20 4 18-21 22-25 26-29 30-33	

71 PUMPING TEST Pumping test method 1 Pump 2 Bailer Static level 27 feet If flowing give rate Recommended pump type 1 Shallow 2 Deep		Pumping rate 8 GPM Water level during 15 minutes 40 feet 30 minutes 61 feet 45 minutes 65 feet 60 minutes 65 feet Pump intake set at 125 feet Recommended pump setting 5 GPM		Duration of pumping 1 Hours 18 Mins Pumping Recovery Water at end of test Clear Cloudy Recommended pump rate 5 GPM	
--	--	--	--	---	--

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	
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	
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.	
182795	

Name of Well Contractor Capital Water Supply Ltd. Address P.O. Box 490 Stittsville, Ontario K2S 1A6		Well Contractor's Licence No. 1558	
Name of Well Technician S. Miller/W. Kavanagh Signature of Technician/Contractor		Well Technician's Licence No. T0097/T0095 Submission date day 19 mo 12 yr 97	
Data source 1558		Date received JAN 0 8 1999	
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.

Municipality 15003 Con. CON 09

County or District	Township/Borough/City/Town/Village	Con block tract survey, etc.	Lot
Ottawa Carleton	Goulbourn	9	23
Address		Date completed	
38 Argue Dr., suit 245 Nepean, Ontario		28 day 5 month 98 year	
21	Northings	HC	Elevations
	K2E 8A5	HC	Basin Code
		ii	iii
		iv	

[illegible][illegible]

41		WATER RECORD			
Water found at - feet		Kind of water			
65	10-13	1 ☐ Fresh	3 ☐	☐ Sulphur	14
		2 ☐ Salty	4 ☐	☐ Minerals	
111	15-18	1 ☐ Fresh	3 ☐	☐ Sulphur	19
		2 ☐ Salty	4 ☐	☐ Minerals	
NOT TESTED	20-23	1 ☐ Fresh	3 ☐	☐ Sulphur	24
		2 ☐ Salty	4 ☐	☐ Minerals	
	25-28	1 ☐ Fresh	3 ☐	☐ Sulphur	29
		2 ☐ Salty	4 ☐	☐ Minerals	
	30-33	1 ☐ Fresh	3 ☐	☐ Sulphur	34
		2 ☐ Salty	4 ☐	☐ Minerals	

51 CASING & OPEN HOLE RECORD				
Inside diam inches	Material	Wall thickness inches	Depth - feet	
			From	To
6 1/4	☒ Steel ☒ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic	.188	0	40
17-18	☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☒ Plastic			20-23
5 7/8	☒ Steel ☒ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic		40	115
24-25	☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic			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		41-44
						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		
39	0	Grouted Cement (8)	
18-21	22-25		
26-29	30-33		
		80	

71	Pumping test method ¹⁰ 1 ☐ Pump 2 ☒ Bailer		Pumping rate ¹¹⁻¹⁴ 20 GPM		Duration of pumping ¹⁷⁻¹⁸ 1 Hours Mins	
	Static level ²⁵		Water level end of pumping		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	
	10 feet		16 feet		16 feet 16 feet 16 feet 16 feet	
	If flowing give rate ³⁸⁻⁴¹		Pump intake set at		Water at end of test ⁴²	
GPM		feet		☐ Clear ☒ Cloudy		
Recommended pump type		Recommended pump setting ⁴³⁻⁴⁵		Recommended pump rate ⁴⁶⁻⁴⁹		
☐ Shallow ☒ Deep		80 feet		5 GPM		

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

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 5/

1 ☐ Cable tool	5 ☐ Air percussion	0-40
2 ☒ Rotary (corrosionless)	6 ☒ Boring	
3 ☐ Rotary (reverse)	7 ☐ Diamond	
4 ☐ Rotary (air)	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.

Forest Grove Dr.

Flewellyn Rd.

60'4" 37'6"

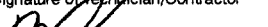
House

G

Lot # 32

Woodside Acres

183867

Name of Well Contractor	Well Contractor's Licence No.
Capital Water Supply Ltd.	1558
Address	
P.O. Box 490 Stittsville, Ontario K2S 1A6	
Name of Well Technician	Well Technician's Licence No.
S. Miller/W. Kavanagh	T0097/T0095
Signature of Technician/Contractor	Submission date
	day 29 mo 5 yr 98

MINISTRY USE ONLY	Data source	58 Contractor	59-62	Date received	63-68	80
		1558		JUL 22 1998		
	Date of inspection	Inspector				
	Remarks					
	CSS. S9					



The Ontario Water Resources Act

WATER WELL RECORD

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

23 24

County or District	Township/Borough/City/Town/Village	Con block tract survey, etc.	Lot	25-27
Ottawa Carleton	Goulbourn	9	25	
	Address	Date completed		48-53
	11 Forest Heights Stittsville, Ontario	29 day 6 month 98 year		
	K2S 1C3			
	Northings	RC	Elevation	RC
		Basin Code	ii	iii
			iv	

[illegible]

41		WATER RECORD			
Water found at – feet		Kind of water			
24	10-13	1 ☐ Fresh	3 ☐	☐ Sulphur	14
	2 ☐ Salty	4 ☐	☐ Minerals		
69	15-18	1 ☐ Fresh	3 ☐	☐ Sulphur	19
	2 ☐ Salty	4 ☐	☐ Minerals		
69	20-23	NOT TESTED			24
	2 ☐ Salty	4 ☐	☐ Minerals		
	25-28	1 ☐ Fresh	3 ☐	☐ Sulphur	29
	2 ☐ Salty	4 ☐	☐ Minerals		
	30-33	1 ☐ Fresh	3 ☐	☐ Sulphur	34
	2 ☐ Salty	4 ☐	☐ Minerals		

51					CASING & OPEN HOLE RECORD		
Inside diam inches	Material	Wall thickness inches	Depth - feet				
			From	To			
6 1/4 ¹⁰⁻¹⁴	1 ☒ Steel ¹² 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic	.188	0	22.5 ¹³⁻¹⁶			
6 ¹⁷⁻¹⁸	1 ☐ Steel ¹⁹ 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☒ Plastic		22.5	73	²⁰⁻²³		
6 ²⁴⁻²⁵	1 ☐ Steel ²⁶ 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic				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	41-44
					feet	30

61 PLUGGING & SEALING RECORD			
☒ Annular space		☐ Abandonment	
Depth set at - feet		Material and type (Cement grout, bentonite, etc.)	
From	To		
10-13	14-17	Grouted Cement (3)	
21	6		
18-21	22-25	Hole Plug (1)	
6	3		
26-29	30-33		

71	Pumping test method ¹⁰		Pumping rate ¹¹⁻¹⁴		Duration of pumping ¹⁷⁻¹⁸	
	☒ Pump ☐ Bailer		20 GPM		1..... Hours Mins	
	Static level		Water level end of pumping		Water levels during ☐ Pumping ☐ Recovery	
	19-21	22-24	15 minutes ₂₆₋₂₈	30 minutes ₂₉₋₃₁	45 minutes ₃₂₋₃₄	60 minutes ₃₅₋₃₇
	10'-6"	15'-4" ^{set}	12'-4" ^{set}	13'-10" ^{set}	15'-11" ^{set}	15'-4" ^{set}
If flowing give rate		Pump intake set at		Water at end of test		
GPM		feet		☐ Clear ☒ Cloudy		
Recommended pump type		Recommended pump setting		Recommended pump rate		
☐ Shallow ☒ Deep		30 feet		5 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.

Shea Rd.

40'

22'

1.8 km

Flewellyn Road

Huntley Road O.C. #5 183897

Name of Well Contractor	Well Contractor's Licence No.
Capital Water Supply Ltd.	1558
Address	
P.O. Box 490 Stittsville, Ontario K2S 1A6	
Name of Well Technician	Well Technician's Licence No.
S. Miller	T0097
Signature of Technician/Contractor	Submission date
	day 30 mo 6 yr 98

MINISTRY USE ONLY	Data source	58 Contractor 1558	59-62	Date received	63-68 JUL 22 1998	69
	Date of inspection	Inspector				
	Remarks CSS. S9 					



1530046

Municipality 15003 Con. CON AS

21 U Zone Easting Northing RC Elevation RC Basin Code ii iii iv
 1 2 10 12 17 18 24 25 26 30 32 34 36 38 40 42 44 46 48 50

[illegible][illegible]

51 CASING & OPEN HOLE RECORD				
Inside diam inches	Material	Wall thickness inches	Depth – feet	
			From	To
6 1/4	☒ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic	.188	0	22.4
17-18	☐ Steel ☐ Galvanized ☐ Concrete ☒ Open hole ☐ Plastic		22.4	30
24-25	☐ Steel ☐ Galvanized ☐ Concrete ☒ Open hole ☐ Plastic		30	130

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
						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		
21	3	Grouted - Cement (6)	
18-21	22-25		
26-29	30-33	80	

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	

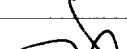
METHOD OF CONSTRUCTION		57
1 ☒ Cable tool	30-130	5 ☐ Air percussion 0-30
2 ☐ Rotary (conventional)	6	6 ☐ Boring
3 ☐ Rotary (reverse)	7	7 ☐ Diamond
4 ☐ Rotary (air)	8	8 ☐ Jetting
		9 ☐ Driving
		10 ☐ Digging
		11 ☐ Other

LOCATION OF WELL

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

183883

Name of Well Contractor	Well Contractor's Licence No.
Capital Water Supply Ltd.	1558
Address	
P.O. Box 490 Stittsville, Ontario K2S 1A6	
Name of Well Technician	Well Technician's Licence No.
S. Miller/W. Kavanagh	T0097/T0095
Signature of Technician/Contractor	Submission date
<i>[Signature]</i>	day 22 mo 6 yr 98

MINISTRY USE ONLY	Data source	58	Contractor	59-62	Date received	63-66	80
			1558		JUL 22 1998		
	Date of inspection	Inspector					
	Remarks						
	CSS. S9 						

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

11

1530217

Municipality 15003 Con. 09

County or District
Township/Borough/City/Town/Village
Con block tract survey, etc.
Lot
Address
Date completed
P.O. Box 98 Greely, Ontario KOA 1Z0

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth - feet	
				From	To
Brown	Sand	Stones	Dry	0	5
Brown	Hardpan	Boulders	Packed	5	16
Gray	Hardpan	Boulders	Packed	16	25
Gray	Limestone		Hard	25	105

31
32

41 WATER RECORD

Water found at - feet	Kind of water
65	1 ☐ Fresh 3 ☐ Sulphur 14 2 ☐ Salty 4 ☐ Minerals 15 3 ☐ Gas 5 ☐ Gas 16
103	1 ☐ Fresh 3 ☐ Sulphur 19 2 ☐ Salty 4 ☐ Minerals 20 3 ☐ Gas 5 ☐ Gas 21
NOT TESTED	1 ☐ Fresh 3 ☐ Sulphur 24 2 ☐ Salty 4 ☐ Minerals 25 3 ☐ Gas 5 ☐ Gas 26
25-28	1 ☐ Fresh 3 ☐ Sulphur 29 2 ☐ Salty 4 ☐ Minerals 30 3 ☐ Gas 5 ☐ Gas 31
30-33	1 ☐ Fresh 3 ☐ Sulphur 34 2 ☐ Salty 4 ☐ Minerals 35 3 ☐ Gas 5 ☐ Gas 36

51 CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth - feet	
			From	To
6 1/4	1 ☒ Steel 12 2 ☐ Galvanized 13 3 ☐ Concrete 14 4 ☐ Open hole 15 5 ☐ Plastic 16	.188	0	40
6 1/8	1 ☐ Steel 19 2 ☐ Galvanized 20 3 ☐ Concrete 21 4 ☐ Open hole 22 5 ☐ Plastic 23		40	50
5 7/8	1 ☐ Steel 26 2 ☐ Galvanized 27 3 ☐ Concrete 28 4 ☐ Open hole 29 5 ☐ Plastic 30		50	105

SCREEN

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

61 PLUGGING & SEALING RECORD

Annular space		Abandonment
Depth set at - feet		
From	To	Material and type (Cement grout, bentonite, etc.)
39	0	Grouted Cement (5)

71 PUMPING TEST

Pumping test method 1 ☐ Pump 2 ☐ Bailer	Pumping rate 15 GPM	Duration of pumping 15-18 Hours 1 Mins
Static level 8 feet	Water level end of pumping 10 feet	Water levels during 15 minutes 10 feet 30 minutes 10 feet 45 minutes 10 feet 60 minutes 10 feet
If flowing give rate 8 feet	Pump intake set at 75 feet	Water at end of test 10 feet
Recommended pump type 1 ☐ Shallow 2 ☒ Deep	Recommended pump setting 75 feet	Recommended pump rate 5 GPM

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
---	--	---

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
--	--	--

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.

Forest Grove

Lot 34

346"

496"

194707

Name of Well Contractor
Capital Water Supply Ltd.
Address
P.O. Box 490 Stittsville, Ontario K2S 1A6
Name of Well Technician
S. Milletr/ W. Kavanagh
Signature of Technician/Contractor
Submission date
day 17 mo 8 yr 98

Well Contractor's Licence No.
1558
Well Technician's Licence No.
T0097/T0095

MINISTRY USE ONLY

Data source 1558	Date received OCT 15 1998
Date of inspection	Inspector
Remarks	

CSS. ES9



The Ontario Water Resources Act WATER WELL RECORD

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

1530297

Municipality

Con.

15003

CON

09

County or District <u>Other than Carlton</u>	Township/Borough/City/Town/Village <u>West Carlton</u>	Con block tract survey, etc. <u>9</u>	Lot <u>23</u>
Address <u>RR#1 Carleton</u>		Date completed <u>2</u> day <u>7</u> month <u>98</u> year	

21

North

RC

Elevation

RC

Basin Code

iii

iv

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

[illegible]

31

32

10 14 15 21 32 43 54 65 75 80

[illegible]

PUMPING TEST	Pumping test method 1 ☒ Pump 2 ☐ Bailor		Pumping rate 11-14 <u>10</u> GPM		Duration of pumping 15-18 <u>1</u> Hours <u>0</u> Mins	
	Static level 19-21	Water level end of pumping 22-24	Water levels during 25 ☐ Pumping ☒ Recovery			
	6 feet	100 feet	15 minutes 26-28	30 minutes 29-31	45 minutes 32-34	60 minutes 35-37
	6 feet	100 feet	6 feet	6 feet	6 feet	6 feet
	If flowing give rate 38-41	Pump intake set at feet	Water at end of test 42			
Recommended pump type ☐ Shallow ☒ Deep		Recommended pump setting 43-45 <u>100</u> feet		Recommended pump rate 46-49 <u>10</u> GPM		

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 ☐ Abandoned (Other) 8 ☐ Dewatering		
9 ☐ Unfinished 10 ☐ Replacement well			
WATER USE 55-56			
1 ☒ Domestic 2 ☐ Stock 3 ☐ Irrigation 4 ☐ Industrial	5 ☐ Commercial 6 ☐ Municipal 7 ☐ Public supply 8 ☐ Cooling & air conditioning		
9 ☐ Not used 10 ☐ Other			
METHOD OF CONSTRUCTION 57			
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			
WATER USE 55-56			
1 ☒ Domestic 2 ☐ Stock 3 ☐ Irrigation 4 ☐ Industrial	5 ☐ Commercial 6 ☐ Municipal 7 ☐ Public supply 8 ☐ Cooling & air conditioning		
9 ☐ Not used 10 ☐ Other			
METHOD OF CONSTRUCTION 57			
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			
WATER USE 55-56			
1 ☒ Domestic 2 ☐ Stock 3 ☐ Irrigation 4 ☐ Industrial	5 ☐ Commercial 6 ☐ Municipal 7 ☐ Public supply 8 ☐ Cooling & air conditioning		
9 ☐ Not used 10 ☐ Other			
METHOD OF CONSTRUCTION 57			
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			
WATER USE 55-56			
1 ☒ Domestic 2 ☐ Stock 3 ☐ Irrigation 4 ☐ Industrial	5 ☐ Commercial 6 ☐ Municipal 7 ☐ Public supply 8 ☐ Cooling & air conditioning		
9 ☐ Not used 10 ☐ Other			
METHOD OF CONSTRUCTION 57			
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			
WATER USE 55-56			
1 ☒ Domestic 2 ☐ Stock 3 ☐ Irrigation 4 ☐ Industrial	5 ☐ Commercial 6 ☐ Municipal 7 ☐ Public supply 8 ☐ Cooling & air conditioning		
9 ☐ Not used 10 ☐ Other			
METHOD OF CONSTRUCTION 57			
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			
WATER USE 55-56			
1 ☒ Domestic 2 ☐ Stock 3 ☐ Irrigation 4 ☐ Industrial	5 ☐ Commercial 6 ☐ Municipal 7 ☐ Public supply 8 ☐ Cooling & air conditioning		
9 ☐ Not used 10 ☐ Other			
METHOD OF CONSTRUCTION 57			
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			

Name of Well Contractor Air-Rock Drilling Co Ltd 1119		Well Contractor's Licence No.	
Address RR# 2 Jasper, Alta			
Name of Well Technician Shannon Purcell		Well Technician's Licence No. T2177	
Signature of Technician/Contractor [Signature]		Submission date 13 Oct 98	

MINISTRY USE ONLY	Data source 58	Contractor 1119	Date received NOV 2 1998 59-62	63-68
	Date of inspection		Inspector	
	Remarks CSS. ES9			

0506 (07/94) Front Form



The Ontario Water Resources Act

WATER WELL RECORD

Mark correct box with a checkmark, where applicable.

Con.

69

County or District Ottawa Carleton		Township/Borough/City/Town/Village Goulbourn		Con block tract survey, etc. 9		Lot 24	
Address [REDACTED]				Date completed 22 day 2 month 99 year			
Technical Dimension Homes 36		Antares		Basin Code ii		iii iv	
Nepean, Ontario		K2E 7W5		Elevation 75		RC	

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth – feet	
				From	To
Brown	Sand	Gravel	Backfill	0	3
Gray	Hardpan	Gravel	Packed	3	6
Gray	Limestone		Medium	6	74
Dark Gray	Limestone		Medium	74	123
Ligh Reddish	Limestone		Medium	123	140
Gray	Limestone		Medium	140	200

41		WATER RECORD		42	
Water found at - feet		Kind of water			
10-13	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	14		
15-18	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	19		
20-23	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	24		
25-28	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	29		
30-33	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	34		

51 CASING & OPEN HOLE RECORD					
Inside diam inches	Material	Wall thickness inches	Depth - feet		
			From	To	
6 1/4	☒ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic	.188	0	25 ¹⁶	
17-18	☐ Steel ☐ Galvanized ☐ Concrete ☒ Open hole ☐ Plastic		25	200	
24-25	☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic			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
						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			
23-5 10-21	3 22-25		Bored - Hole Plug (4)	
28-29	30-33	80		

PUMPING TEST	Pumping test method ¹⁰		Pumping rate ¹¹⁻¹⁴		Duration of pumping ¹⁵⁻¹⁸	
	☒ Pump	☒ Bailer	13 GPM		1 Hours Mins	
	Static level	Water level end of pumping	Water levels during ☒ Pumping ☐ Recovery			
	19-21	22-24	15 minutes ₂₆₋₂₈	30 minutes ₂₉₋₃₁	45 minutes ₃₂₋₃₄	60 minutes ₃₅₋₃₇
	22 feet	60 feet	40 feet	51 feet	60 feet	60 feet
If flowing give rate ³⁸⁻⁴¹		Pump intake set at		Water at end of test ⁴²		
GPM		feet		☐ Clear ☒ Cloudy		
Recommended pump type		Recommended pump setting ⁴³⁻⁴⁵		Recommended pump rate ⁴⁶⁻⁴⁹		
☐ Shallow ☒ Deep		150 feet		5 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	25-200 ☐ Air percussion	9 ☐ Driving
2 ☒ Rotary (conventional)	3 ☒ 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.

Forest Grove

Poplarwood

Woodside Acres

Lot #40

House

House #21

Garage

13'

11'

Flewellyn Road

194823

Name of Well Contractor	Well Contractor's Licence No.
Capital Water Supply Ltd.	1558
Address	
P.O. Box 490 Stittsville, Ontario K2S 1A6	
Name of Well Technician	Well Technician's Licence No.
W. Kavanagh	T0095
Signature of Technician/Contractor	Submission date
<i>W. Kavanagh</i>	day 23 mo 2 yr 99

MINISTRY USE ONLY	Data source	58	Contractor	59-62	Date received	63-68	90
			1558		APR 13 1999		
	Date of inspection		Inspector				
	Remarks						



The Ontario Water Resources Act

WATER WELL RECORD

Mark correct box with a checkmark, where applicable.

bc

County or District	Township/Borough/City/Town/Village	Con block tract survey, etc.	Lot
Ottawa Carleton	Goulbourn	9	24
	Address	Date completed	
	6 Eagle Rock Way Stittsville, Ontario	18 May 5 month 99 year	

21

1 9

T

M

10

12

17

18

24

25

26

30

31

47

North

RC

Elevation

RC

Basin Code

ii

iii

iv

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

[illegible]

Figure 1 shows a grid of 12 empty number lines arranged in two rows of six. The top row is labeled '31' and the bottom row is labeled '32' in boxes. The number lines are labeled with various numbers: 10, 14, 15, 21, 32, 43, 54, 65, 75, 80.

41		WATER RECORD			
Water found at – feet		Kind of water			
10-13	1 ☐ Fresh 2 ☐ Salty	3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas	14		
109					
15-18	1 ☐ Fresh 2 ☐ Salty	3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas	19		
173					
20-23	NOT TESTED			24	
	1 ☐ Fresh 2 ☐ Salty	3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas			
23-28	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	
6 1/4 ¹⁰⁻¹³	☒ 1 Steel ☒ 2 Galvanized ☐ 3 Concrete ☐ 4 Open hole ☐ 5 Plastic	.188	0	22 ¹²⁻¹⁶	
5 7/8 ¹⁷⁻¹⁸	☐ 1 Steel ☐ 2 Galvanized ☐ 3 Concrete ☒ 4 Open hole ☒ 5 Plastic		22	177 ²⁰⁻²³	
	☐ 1 Steel ☐ 2 Galvanized ☐ 3 Concrete ☐ 4 Open hole ☐ 5 Plastic			27-30 ²⁶	

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		
				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	Grouted - Cement	
20 18-21	4 22-25		
26-29	30-33	80	

71	Pumping test method ¹⁰		Pumping rate ¹¹⁻¹⁴		Duration of pumping ¹⁵⁻¹⁸	
	1 ☐ Pump	2 ☒ Bailer	15+ GPM		 1 Hours Mins	
	Static level	Water level end of pumping	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
	30 feet	36 feet	36 feet	36 feet	36 feet	36 feet
If flowing give rate		Pump intake set at		Water at end of test		
GPM		feet		☐ Clear ☒ Cloudy		
Recommended pump type		Recommended pump setting		Recommended pump rate		
☐ Shallow ☒ Deep		100 feet		5 GPM		

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

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

METHOD OF CONSTRUCTION			57
1	☐ Cable tool	5	☒ Air percussion
2	☒ Rotary (conventional)	6	☐ Boring
3	☐ Rotary (reverse)	7	☐ Diamond
4	☐ Rotary (air)	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.

Forest Grove

Flewellyn Rd

Woodside Acres

Lot 23

29'

32'

OC #5

194849

Name of Well Contractor	Well Contractor's Licence No.
Capital Water Supply Ltd.	1558
Address	
P.O. Box 490 Stittsville, Ontario K2S 1A6	
Name of Well Technician	Well Technician's Licence No.
S. Miller	T0097
Signature of Technician/Contractor	Submission date
<i>S. Miller</i>	day 19 mo 5 yr 99

MINISTRY USE ONLY	Data source	58	Contractor	59-62	Date received	63-68	69
			1558		JUN 14 1999		
	Date of inspection	Inspector					
	Remarks						
	CSS.ES9						

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

11

1530702

Municipality 15003 Con. 09

County or District: [redacted] Township/Borough/City/Town/Village: Goulbourn Con block tract survey, etc.: 9 Lot: 24 Address: [redacted] Date completed: 17 day 8 month 99

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth - feet	
				From	To
Brown	Sand			0	5
Gray	Limestone		Medium	5	60
Gray	Limestone		Hard	60	90
Black	Stone	Shale		90	110

31 32

WATER RECORD, CASING & OPEN HOLE RECORD, PLUGGING & SEALING RECORD

PUMPING TEST

FINAL STATUS OF WELL, WATER USE, METHOD OF CONSTRUCTION

LOCATION OF WELL

Name of Well Contractor, Well Contractor's Licence No., Address, Name of Well Technician, Well Technician's Licence No., Signature of Technician/Contractor, Submission date

MINISTRY USE ONLY, Data source, Contractor, Date received, Date of inspection, Inspector, Remarks



The Ontario Water Resources Act

WATER WELL RECORD

11

Municipality
15003

Con.
CON 09

County or District Ontario, Carleton	Township/Borough/City/Town/Village Goulbourn	Con (block tract survey, etc.) 9	Lot 24
Address Box 190 Carp, Ontario K0A 1L0		Date completed 30 day 10 month 99	

99

[illegible][illegible][illegible]

41		WATER RECORD		42	
Water found at - feet		Kind of water			
10-13	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	14		
15-19	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	19		
20-23	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	24		
25-28	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	29		
30-33	☐ Fresh ☐ Salty	☐ Sulphur ☐ Minerals ☐ Gas	34		

51 CASING & OPEN HOLE RECORD				
Inside diam inches	Material	Wall thickness inches	Depth - feet	
			From	To
6 1/4	☒ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic	.188	0	22
6 1/8	☐ Steel ☐ Galvanized ☐ Concrete ☒ Open hole ☐ Plastic		22	50
5 7/8	☐ Steel ☐ Galvanized ☐ Concrete ☒ Open hole ☐ Plastic		50	75

SCREEN	Sizes of opening (Slot No.)	31-33	Diameter	34-38	Length	39-43
			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	Grouted - Cement (3)							
21		0								
18-21		22-25								
26-29		30-33	80							

PUMPING TEST	Pumping test method ¹⁰		Pumping rate ¹¹⁻¹⁴		Duration of pumping ¹⁵⁻¹⁶	
	☐ Pump ² ☒ Bailer ⁵		25 GPM		1 Hours ¹⁷⁻¹⁸ Mins	
	Static level ¹⁹⁻²¹	Water level end of pumping ²²⁻²⁴	Water levels during ²⁵		☒ Pumping ¹ ☐ Recovery ²	
			15 minutes ²⁶⁻²⁸	30 minutes ²⁹⁻³¹	45 minutes ³²⁻³⁴	60 minutes ³⁵⁻³⁷
	18' ¹⁹	19'2" ²²	19 feet ²⁶	19'1" ²⁹	19'2" ³²	19'2" ³⁵
	If flowing give rate ³⁸⁻⁴¹	Pump intake set at ⁴²		Water at end of test ⁴³		
GPM		feet		☐ Clear ☒ Cloudy		
Recommended pump type		Recommended pump setting ⁴³⁻⁴⁵		Recommended pump rate ⁴⁶⁻⁴⁹		
☐ Shallow ☒ Deep		50 feet		5 GPM		

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

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

METHOD OF CONSTRUCTION			57
1	☒ Cable tool	5	☐ Air percussion
2	☐ Rotary (conventional)	6	☐ Boring
3	☐ Rotary (reverse)	7	☐ Diamond
4	☐ Rotary (air)	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.

Forest Grove

G

11'

14'

⑧

lot #28

Woodside Acres

Flewellyn Rd

208492

Name of Well Contractor	Well Contractor's Licence No.
Capital Water Supply Ltd.	1558
Address	
P.O. Box 490 Stittsville, Ontario K2S 1A6	
Name of Well Technician	Well Technician's Licence No.
S. Miller	T0097
Signature of Technician/Contractor	Submission date
	day 30 mo 10 yr 99

MINISTRY USE ONLY	Data source	58	Contractor	59-62	Date received	63-68	80
			1558		DEC 07 1999		
	Date of inspection			Inspector			
	Remarks						
	CSS.ES0						



The Ontario Water Resources Act

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

11

1531026

Municipality **15003** Con. **CON** **09**

County or District Ottawa-Carleton	Township/Borough/City/Town/Village Goulbourn	Con block tract survey, etc. 9	Lot 22+23
Owner's surname John Gerard Holmes	Address Sittisville Rd	Date completed 22 day	17 month 99 year

[illegible]

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

[illegible]

41		WATER RECORD		42	
Water found at - feet		Kind of water			
10-13	1 ☐ Fresh	3 ☐ Sulphur	14		
65	2 ☒ Salty	4 ☐ Minerals			
		6 ☐ Gas			
15-18	1 ☐ Fresh	3 ☐ Sulphur	19		
	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	1 ☒ Steel 12 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic	188	0	22
17-18	1 ☐ Steel 19 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic		0	20
24-25	1 ☐ Steel 26 2 ☐ Galvanized 3 ☐ Concrete 4 ☒ Open hole 5 ☐ Plastic		20	70

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	Cement grout	
10-13	14-17		
2	22		
18-21	22-25		
26-29	30-33	80	

71	Pumping test method ¹⁰ 1 ☒ Pump 2 ☐ Bailer		Pumping rate ¹¹⁻¹⁴ 20 GPM		Duration of pumping ¹⁷⁻¹⁸ 1 Hours Mins	
	Static level		Water level end of pumping 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
	6 feet	feet	6 feet	6 feet	6 feet	6 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 60 feet		Recommended pump rate ⁴⁶⁻⁴⁹ 20 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.

A hand-drawn map showing the location of a well. A north arrow points towards the top right. A road, labeled "Forestgrove Dr.", runs diagonally from the top left towards the bottom right. A lot line, labeled "Flewellyn Rd", runs horizontally across the bottom. A well is marked with a dot. A double-headed arrow indicates a distance of "80'" from the well to the road. Another double-headed arrow indicates a distance of "4km" from the well to the lot line.

Name of Well Contractor	Well Contractor's Licence No.
Air-Rock Drilling Co Ltd	1119
Address	
RR # 2 Jasper Co	
Name of Well Technician	Well Technician's Licence No.
Shannon Purcell	T2122
Signature of Technician/Contractor	Submission date
[Signature]	14 day mo yr

MINISTRY USE ONLY	Data source	58	Contractor	59-62	Date received	63-68	90
			1119		FEB 10 2000		
	Date of inspection			Inspector			
	Remarks	CSS.ES0					

Print only in spaces provided.

Mark correct box with a checkmark, where applicable.

11

1531192

Municipality

15003

Con.

CON

09

County or District Ottawa Carleton	Township/Borough/City/Town/Village Goulbourn	Con block tract survey, etc. 9	Lot 23
Owner's surname Maple Mountain Homes	First Name	Address Box 730 Richmond, Ontario K0A 2Z0	Date completed 17 May 6 months 00 year

[illegible][illegible]

41		10		14		2		8	
WATER RECORD									
Water found at - feet			Kind of water						
27	10-13	1	☐ Fresh	3	☐ Sulphur	14			
		2	☐ Salty	4	☐ Minerals				
160	15-18	1	☐ Fresh	3	☐ Sulphur	19			
		2	☐ Salty	6	☐ Minerals				
NOT TESTED									
	20-23	1	☐ Fresh	4	☐ 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	
6 1/4	☒ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic	.188	0	22	
6	☐ Steel ☐ Galvanized ☐ Concrete ☒ Open hole ☐ Plastic		22	172	
	☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic				

SCREEN	Sizes of opening (Slot No.)	31-25	Diameter	34-38	Length	39-40
			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	Grouted - Cement (3)					
21	0						
18-21	22-25						
26-29	30-33	50					

PUMPING TEST	Pumping test method ¹⁰ ☐ Pump ² ☒ Bailor		Pumping rate ¹¹⁻¹⁴ 7 GPM		Duration of pumping ¹⁵⁻¹⁶ 1 Hours ¹⁷⁻¹⁸ Mins	
	Static level	Water level end of pumping	Water levels during ²⁵ ☒ Pumping ¹ ☐ Recovery ²			
	¹³⁻²¹	²²⁻²⁴	^{15 minutes} ²⁶⁻²⁸	^{30 minutes} ²⁹⁻³¹	^{45 minutes} ³²⁻³⁴	^{60 minutes} ³⁵⁻³⁷
	8 feet	125 feet	65 feet	90 feet	110 feet	125 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 ⁴³⁻⁴⁵ 150 feet		Recommended pump rate ⁴⁶⁻⁴⁹ 7 GPM		

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

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

METHOD OF CONSTRUCTION			57
1	☒ Cable tool	5	☒ Air percussion
2	☐ Rotary (conventional)	6	☐ Boring
3	☐ Rotary (reverse)	7	☐ Diamond
4	☐ Rotary (air)	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.

39'5" → 17

Forest Grove

Woodside Acres

Rd. Wood

Flewellyn Rd

208609

Name of Well Contractor	Well Contractor's Licence No.
Capital Water Supply Ltd.	1558
Address	
P.O. Box 490 Stittsville, Ontario K2S 1A6	
Name of Well Technician	Well Technician's Licence No.
S. Miller	T0097
Signature of Technician/Contractor	Submission date
	day 19 mo 6 yr 00

MINISTRY USE ONLY	Data source	58 Contractor	59-62	Date received	63-68
		1558		JUL 17 2000	
	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.

1531197

Municipality

15003

Con.

CON

09

County or District Ottawa Carleton	Township/Borough/City/Town/Village Goulbourn	Con block tract survey, etc. 9	Lot 23
Address 193 Winding Way Nepean, Ontario		Date completed 16 day 6 month 00 year	

[illegible]

31

32

41		WATER RECORD				
Water found at - feet		Kind of water				
85	10-13	1	☐ Fresh	3	☐ Sulphur	14
		4	☐ Salty	4	☐ Minerals	
		5	☐ Gas	6	☐ Sulphur	19
	15-18	1	☐ Fresh	3	☐ Sulphur	19
		2	☐ Salty	4	☐ Minerals	
			☐ Gas	6	☐ Gas	
	20-23	1	☐ Fresh	3	☐ Sulphur	24
		4	☐ Salty	4	☐ Minerals	
		5	☐ Gas	6	☐ Gas	
	25-28	1	☐ Fresh	3	☐ Sulphur	29
		2	☐ Salty	4	☐ Minerals	
			☐ Gas	6	☐ Gas	
	30-33	1	☐ Fresh	3	☐ Sulphur	34
		2	☐ Salty	4	☐ Minerals	
			☐ Gas	6	☐ Gas	

51 CASING & OPEN HOLE RECORD					
Inside diam inches	Material	Wall thickness inches	Depth - feet		
			From	To	
6 1/4	☒ 1 Steel ☐ 2 Galvanized ☐ 3 Concrete ☐ 4 Open hole ☐ 5 Plastic	.188	0	73 ⁶	
6	☐ 1 Steel ☐ 2 Galvanized ☐ 3 Concrete ☒ 4 Open hole ☐ 5 Plastic		73	90	
	☐ 1 Steel ☐ 2 Galvanized ☐ 3 Concrete ☐ 4 Open hole ☐ 5 Plastic				

SCREEN	Sizes of opening (Slot No.)	31-33	Diameter	34-35	Length	39-40
			inches		feet	
	Material and type			Depth at top of screen		30
				feet		

61				PLUGGING & SEALING RECORD			
☒ Annular space				☐ Abandonment			
Depth set at - feet			Material and type (Cement grout, bentonite, etc.)				
From		To					
10-12		14-17	Grouted -Bentonite (3)				
60		0					
13-21		22-25					
25-29		30-33	80				

PUMPING TEST	Pumping test method ¹⁰ 1 ☒ Pump 2 ☐ Bailer		Pumping rate ¹¹⁻¹⁴ 25 GPM		Duration of pumping ¹⁵⁻¹⁶ 1 Hours 17-18 Mins	
	Static level ¹⁹⁻²¹	Water level end of pumping ²²⁻²⁴	Water levels during 1 ☒ Pumping 2 ☐ Recovery			
			15 minutes ²⁶⁻²⁸	30 minutes ²⁹⁻³¹	45 minutes ³²⁻³⁴	60 minutes ³⁵⁻³⁷
	21 feet	35 feet	85 feet	60 feet	50 feet	35 feet
	If flowing give rate ³⁸⁻⁴¹	Pump intake set at		Water at end of test ⁴²		
		GPM		feet ☐ Clear ☒ Cloudy		
Recommended pump type ☐ Shallow ☒ Deep		Recommended pump setting ⁴³⁻⁴⁵		Recommended pump rate ⁴⁶⁻⁴⁹		
		50 feet		5 GPM		

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

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

METHOD OF CONSTRUCTION		57	
1	☐ Cable tool	5	☒ Air percussion
2	☐ Rotary (conventional)	6	☐ Boring
3	☐ Rotary (reverse)	7	☐ Diamond
4	☒ Rotary (air)	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.

208608

Name of Well Contractor	Well Contractor's Licence No.
Capital Water Supply Ltd.	1558
Address	
P.O. Box 490 Stittsville, Ontario K2S 1A6	
Name of Well Technician	Well Technician's Licence No.
S. Miller	T0097
Signature of Technician/Contractor	Submission date
	day 19 mo 6 yr 00

MINISTRY USE ONLY	Data source	58 Contractor	59-62	Date received	63-68	83
		1558		JUL 17 2000		
	Date of inspection	Inspector				
	Remarks					
	CSS.ES0					



Print only in spaces provided.

Mark correct box with a checkmark, where applicable.

1531200

Municipality

15003

Con.

CON

09

County or District Ottawa Carleton	Township/Borough/City/Town/Village Goulbourn	Con block tract survey, etc. 9	Lot 24
Owner's surname Amsted Construction	First Name	Address P.O. Box 129 Stittsville, Ontario K2S 1A2	Date completed 28 May 6 months 00 years

Figure 1 is a schematic diagram of the data structure for the 1982-1983 season. It shows a horizontal timeline with various data points and labels. The timeline is divided into sections labeled 'Zone', 'Easting', 'Northing', 'RC', 'Elevation', 'RC', 'Basin Code', and 'IV'. The 'Zone' section has a 'UT' label and a 'M' label. The 'Easting' section has a '12' label. The 'Northing' section has a '14' label. The 'RC' section has a '15' label. The 'Elevation' section has a '16' label. The 'RC' section has a '20' label. The 'Basin Code' section has a '31' label. The 'IV' section has a '47' label. The timeline is marked with vertical lines and numbers, indicating specific data points and intervals.

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)[illegible]

31       

32       

41		50		42		51		43		52	
WATER RECORD											
Water found at - feet				Kind of water							
13-13				1	☐ Fresh	3	☐ Sulphur	14			
				2	☐ Salty	4	☐ Minerals				
82				3	☐ Salty	6	☐ Gas				
15-16											
NOT TESTED											
1				☐ Fresh	3	☐ Sulphur	19				
2				☐ Salty	4	☐ Minerals					
				5	☐ Gas						
20-23				1	☐ Fresh	3	☐ Sulphur	24			
				2	☐ Salty	4	☐ Minerals				
				5	☐ Gas						
25-28				1	☐ Fresh	3	☐ Sulphur	29			
				2	☐ Salty	4	☐ Minerals				
				5	☐ Gas						
30-33				1	☐ Fresh	3	☐ Sulphur	34			
				2	☐ Salty	4	☐ Minerals				
				5	☐ Gas						

CASING & OPEN HOLE RECORD				
Inside diam inches	Material	Wall thickness inches	Depth - feet	
			From	To
6 1/4	☒ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic	.188	0	22
6 1/8	☐ Steel ☐ Galvanized ☐ Concrete ☒ Open hole ☐ Plastic		22	50
6	☐ Steel ☐ Galvanized ☐ Concrete ☒ Open hole ☐ Plastic		50	88

SCREEN	Sizes of opening (Slot No.)	31-33	Diameter	34-38	Length	39-40
			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	Grouted-Cement (4)					
21		0						
18-21		22-25						
26-29		30-33	50					

PUMPING TEST	71 Pumping test method ¹⁰ 1 ☐ Pump 2 ☒ Bailer		Pumping rate ¹¹⁻¹⁴ 8 GPM		Duration of pumping ¹⁷⁻¹⁸1 Hours Mins	
	25 Static level ¹⁹⁻²¹		Water level end of pumping ²²⁻²⁴		Water levels during : ☒ Pumping 2 ☐ Recovery	
			15 minutes ²⁶⁻²⁸		30 minutes ²⁹⁻³¹	
	8 feet		16 feet		18 feet	
	18 feet		18 feet		17 feet	
	16 feet		16 feet		16 feet	
If flowing give rate ³⁵⁻⁴¹ GPM		Pump intake set at feet		Water at end of test ⁴² ☐ Clear ☒ Cloudy		
Recommended pump type ☐ Shallow ☒ Deep		Recommended pump setting ⁴³⁻⁴⁵ 40 feet		Recommended pump rate ⁴⁶⁻⁴⁹ 5 GPM		

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

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

METHOD OF CONSTRUCTION			57
1	☒ Cable tool	5	☐ Air percussion
2	☐ Rotary (conventional)	6	☐ Boring
3	☐ Rotary (reverse)	7	☐ Diamond
4	☐ Rotary (air)	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.

Woodside Acres

pitless well in front

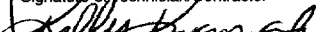
lot #29

Huntley Rd

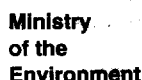
Tlewellyn Rd

Forest Grove

208624

Name of Well Contractor	Well Contractor's Licence No.
Address Capital Water Supply Ltd	1558
P.O. Box 490 Stittsville, Ontario K2S 1A6	
Name of Well Technician	Well Technician's Licence No.
S. Miller/P. Stanton	T0097
Signature of Technician/Contractor 	Submission date day 30 mo 6 yr 00

MINISTRY USE ONLY	Data source	58 Contractor	59-62	Date received	63-68	80
		1558		JUL 17 2000		
	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

1531659

Municipality
15003

Con.
CON 09

County or District Ottawa Carleton		Township/Borough/City/Town/Village Goulbourn		Con block tract survey, etc. 9		Lot 23					
[REDACTED ADDRESS]				Address P.O. Box 190 Carp, Ontario KOA 1L0		Date completed 20 day 11 month 00 year					
21 2		U T M 10 11 12 13 14 15 16 17		Northings 18 19 20 21 22 23 24		RC 25 26 27 28 29 30		Elevation 31 32 33 34 35 36 37 38 39 40		Basin Code ii iii iv	

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

[illegible]

31

32      

41	WATER RECORD				21
Water found at - feet	Kind of water				
10-13	1 ☐ Fresh	3 ☐ Sulphur	14		
65	2 ☐ Salty	4 ☐ Minerals			
		6 ☐ Gas			
15-18	1 ☐ Fresh	3 ☐ Sulphur	19		
91	2 ☐ Salty	4 ☐ Minerals			
		6 ☐ Gas			
20-23	1 ☐ Fresh	3 ☐ Sulphur	24		
NOT TESTED	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			

CASING & OPEN HOLE RECORD				
Inside diam inches	Material	Wall thickness inches	Depth - feet	
			From	To
6 1/4	☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic	.188	0	22.5
6 1/16	☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic		22.5	102
	☐ 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		31-44
						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	Grouted - Cement (4)					
22.5	0						
18-21	22-25						
26-29	30-33	80					

PUMPING TEST	Pumping test method ¹⁰ 1 ☐ Pump 2 ☒ Bailer		Pumping rate ¹¹⁻¹⁴ 8 GPM		Duration of pumping ¹⁵⁻¹⁶ 1 Hours 17-18 Mins	
	Static level ¹⁹⁻²¹	Water level end of pumping ²²⁻²⁴	Water levels during ²⁵ 1 ☒ Pumping 2 ☐ Recovery			
			15 minutes ²⁶⁻²⁸	30 minutes ²⁹⁻³¹	45 minutes ³²⁻³⁴	60 minutes ³⁵⁻³⁷
	6 feet	14 feet	9 feet	12 feet	14 feet	14 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 60 feet		Recommended pump rate ⁴⁶⁻⁴⁹ 5 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 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	55-102	3 ☒ Air percussion	0-55
2 ☐ Rotary (conventional)	6 ☐ Boring	9 ☐ Driving	
3 ☐ Rotary (reverse)	7 ☐ Diamond	10 ☐ Digging	
4 ☒ Rotary (air)	0-55	11 ☐ Other	
	8 ☐ Jetting		

LOCATION OF WELL

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

The diagram is a hand-drawn site map. At the top, a horizontal line represents 'Flewellyn Rd'. To the right, a vertical line represents 'Forest Grove'. At the bottom, a diagonal line represents 'Woodside Acres'. A north arrow is located in the top left corner. In the center, a lot is labeled 'Lot #5'. Within this lot, a well is marked with an 'X' and labeled 'P. 1155'. Dashed lines indicate the boundaries of the lot and the road.

224714

Name of Well Contractor	Well Contractor's Licence No.
Capital Water Supply Ltd.	1558
Address	
P.O. Box 490 Stittsville, Ontario K2S 1A6	
Name of Well Technician	Well Technician's Licence No.
S. Miller	T0097
Signature of Technician/Contractor	Submission date
	day 21 mo 11 yr 00

MINISTRY USE ONLY	Data source	58	Contractor	59-62	Date received	63-66	8
			1558		JAN 30 2001		
	Date of inspection		Inspector				
	Remarks	CSS.ES1					



The Ontario Water Resources Act

WATER WELL RECORD

Mark correct box with a checkmark, where applicable.

11

1531905

Municipality

15003

Con.

CON

108

County or District Ottawa Carleton	Township/Borough/City/Town/Village Goulbourn	Con block tract survey, etc. 8	Lot 23
	Address 41 Delamere Dr., Stittsville, ON. K2S 1R2	Date completed 08 05 01	25-27 48-53 day month year

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)[illegible]

31

32

10 14 15 21 22 41 54 65 75 80

41	WATER RECORD				41
Water found at - feet	Kind of water				
69	10-13	1 ☐ Fresh	4 ☐ Sulphur	14	
		2 ☐ Salty	6 ☐ Gas		
	15-18	1 ☐ Fresh	3 ☐ Sulphur	19	
		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
6 10-11	☒ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic	.188	0	27 12-16
6 17-18	☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic		27	70 20-23
6 24-25	☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic			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 41-44		
				feet		

61				PLUGGING & SEALING RECORD			
☒ Annular space				☐ Abandonment			
Depth set at - feet		Material and type (Cement grout, bentonite, etc.)					
From	To						
10-13 27	14-17 0	Grouted-cement (4)					
18-21	22-25						
26-29	30-33	80					

PUMPING TEST	Pumping test method ¹⁰ 1 ☒ Pump 2 ☐ Bailer		Pumping rate ¹¹⁻¹⁴ 50 GPM		Duration of pumping ¹⁵⁻¹⁶ 1 Hours ¹⁷⁻¹⁸ 15 Mins	
	Static level		Water level end of pumping ²⁵		Water levels during 1 ☒ Pumping 2 ☐ Recovery	
	19-21 5' 6" feet		22-24 30 feet		25 60 feet	
	26-28 50 feet		29-31 40 feet		32-34 30 feet	
	35-37 30 feet		38-41 40 feet		42 30 feet	
	If flowing give rate ³⁸⁻⁴¹ GPM		Pump intake set at ⁴³⁻⁴⁵ feet		Water at end of test ⁴⁶⁻⁴⁹ ☐ Clear ☒ Cloudy	
Recommended pump type ☐ Shallow ☒ Deep		Recommended pump setting ⁴³⁻⁴⁵ 40 feet		Recommended pump rate ⁴⁶⁻⁴⁹ 5 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

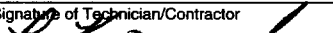
In diagram below show distances of well from road and lot line.
Indicate north by arrow.

#6140

Flewellyn Rd.

D.C. #5

230090

Name of Well Contractor	Well Contractor's Licence No.
Capital Water Supply Ltd.	1558
Address	
Box 490, Stittsville, ON. K2S 1A6	
Name of Well Technician	Well Technician's Licence No.
S. Miller	T0097
Signature of Technician/Contractor	Submission date
	day 09 mo 05 yr 01

MINISTRY USE ONLY	Data source	58	Contractor	59-62	Date received	63-68	80
			1558		JUN 15 2001		
	Date of inspection		Inspector				
	Remarks	CSS.ES1					



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

11

1532031

Municipality **15003** Con. **CON** **09**

County or District Ottawa Carleton	Township/Borough/City/Town/Village Gopitbourn	Con block tract survey, etc. 9	Lot 23	25-27
Address 63 Barrow Crescent, Kanata ON/ K2L 2K9		Date completed 25 day 06 month 01 year		48-53

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10 12 14 16 17

18 20 22 24

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Northing

RC

Elevation

RC

Basin Code

ii iii iv

LOG OF OVERBORER AND DEEPOR WYTHIENS (see instructions)					
General colour	Most common material	Other materials	General description	Depth - feet	
				From	To
Brown	sand	stones		0	11
Grey	limestone		med hard	11	50
Grey	limestone			50	64
NOTE:			casing was left 1 ft. above ground level at time of drilling.		

31

32

41		14 15 21				WATER RECORD	
Water found at - feet		Kind of water					
58	10-13	1	☐ Fresh	3	☐ Sulphur	14	
	2	☐ Salty	4	☐ Minerals			
		6	☐ Gas				
	15-18	1	☐ Fresh	3	☐ Sulphur	19	
	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
6 1/4	☒ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic	.188	0	21'6"
6 1/8	☐ Steel ☐ Galvanized ☐ Concrete ☒ Open hole ☐ Plastic		21'6"	50
5 3/4	☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic		50	64

SCREEN	Sizes of opening (Slot No.)	31-33	Diameter	34-38	Length	39-40
			inches		feet	
	Material and type			Depth at top of screen	3	
				41-44		
				feet		

61			PLUGGING & SEALING RECORD		
☒ Annular space			☐ Abandonment		
Depth set at - feet		Material and type (Cement grout, bentonite, etc.)			
From	To				
10-13 21'6"	14-17 0	Grouted-cement (4)			
18-21	22-25				
26-29	30-33	80			

PUMPING TEST	71		Pumping test method 1 ☒ 2 ☐ Bailor	10		Pumping rate 16 GPM	11-14		Duration of pumping 1 15-18 Hours 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	
	7 feet		12 feet		8 feet		7 feet		7 feet	
	26-28		29-31		32-34		35-37			
	If flowing give rate		38-41		Pump intake set at		feet		Water at end of test	
Recommended pump type		GPM		Recommended pump setting		43-45		Recommended pump rate		
1 ☐ Shallow 2 ☒ Deep				40 feet				5 GPM		
50-53										

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

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

METHOD OF CONSTRUCTION			57
1	☒ Cable tool	50-64	5 ☒ Air percussion
2	☐ Rotary (conventional)	6	☐ Boring
3	☐ Rotary (reverse)	7	☐ Diamond
4	☒ Rotary (air)	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.

The diagram illustrates the location of a well. A vertical line on the left is labeled "Forestgrove #1". At the bottom, a horizontal line is labeled "Flewellyn Road". To the right of the road is a dashed line representing a lot boundary, with the text "Lot #31" to its right. A well is located within the area. Two arrows point from the well to the dashed lot line: one arrow is labeled "54'" and the other is labeled "38'6\"".

Name of Well Contractor	Well Contractor's Licence No.
Capital Water Supply Ltd.	1558
Address	
Box 490, Stittsville ON. K2S 1A6	
Name of Well Technician	Well Technician's Licence No.
S. Miller P. STANTON	T0097 T0086
Signature of Technician/Contractor	Submission date
<i>[Signature]</i>	day 27 mo 06 yr 0

MINISTRY USE ONLY	Data source	58 Contractor	59-62	Date received	63-68
	1558		JUL 18 2001		
	Date of inspection		Inspector		
	Remarks				
	CSS.ES1				



The Ontario Water Resources Act

WATER WELL RECORD

Print only in spaces provided.

Mark correct box with a checkmark, where applicable.

11

1532642

Municipality

15003

Con.

CON

108

County or District Ottawa	Township/Borough/City/Town/Village Goulbourn	Con block tract survey, etc. 8	Lot 25
Address Stittsville Ont		Date completed 8 day 02 month 02 year	48-53 25-27

21

UTM

Northings

RC

Elevation

RC

Basin Code

ii

iii

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LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

[illegible][illegible]

32

41		42		43		44		45		46		47		48	
WATER RECORD															
Water found at - feet				Kind of water											
33				10-13		1	☒ Fresh	3	☐ Sulphur					14	
				2	☐ Salty	4	☐ Minerals								
53				15-18		1	☒ Fresh	5	☐ Sulphur					19	
				2	☐ Salty	6	☐ Minerals								
54				20-23		1	☒ Fresh	1	☐ Sulphur					24	
				2	☐ Salty	4	☐ Minerals								
				25-28		1	☐ Fresh	3	☐ Sulphur					29	
				2	☐ Salty	4	☐ Minerals								
				30-33		1	☐ Fresh	3	☐ Sulphur					34	
				2	☐ Salty	4	☐ Minerals								

51 CASING & OPEN HOLE RECORD				
Inside diam inches	Material	Wall thickness inches	Depth - feet	
			From	To
10-11 6 1/4	☐ 1 Steel ☐ 2 Galvanized ☐ 3 Concrete ☐ 4 Open hole ☐ 5 Plastic	12 188	0	13-16 22
17-18 8 3/4	☐ 1 Steel ☐ 2 Galvanized ☐ 3 Concrete ☒ 4 Open hole ☐ 5 Plastic	19	0	20-23 20
24-25 6	☐ 1 Steel ☐ 2 Galvanized ☐ 3 Concrete ☒ 4 Open hole ☐ 5 Plastic	26	20	27-30 61

SCREEN	Sizes of opening (Slot No.)	31-33	Diameter	34-38	Length	39-40
			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	Cement grout				
2		22					
18-21		22-25					
26-29		30-33	80				

PUMPING TEST	71 Pumping test method ¹⁰ ☒ Pump ☐ Bailer		Pumping rate ¹¹⁻¹⁴ 26 GPM		Duration of pumping ¹⁵⁻¹⁶ 1 Hours ¹⁷⁻¹⁸ 0 Mins	
	Static level		25 Water levels during ☐ Pumping 20 Recovery			
	Water level end of pumping					
	19-21 4 feet	22-24 50 feet	26-28 4 feet	29-31 4 feet	32-34 4 feet	35-37 4 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 50 feet		Recommended pump rate ⁴⁶⁻⁴⁹ 26 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.

Huntley Rd.

106 ft

90'

Fowler Rd.

237772

Name of Well Contractor	Well Contractor's Licence No.
Air-Rock Drilling Co Ltd	1119
Address	
RR # 2 Jasper, AB	
Name of Well Technician	Well Technician's Licence No.
Shannon Purcell	T2122
Signature of Technician/Contractor	Submission date
Kenne [Signature]	15 02 03 day mo yr

MINISTRY USE ONLY	Data source	58	Contractor	59-62	Date received	63-68	8
			1119		FEB 25 2002		
	Date of inspection		Inspector				
	Remarks						
	CSS.ES2						



The Ontario Water Resources Act

WATER WELL RECORD

Mark correct box with a checkmark, where applicable.

11

1533027

Municipality **15003** Con. **CON** **09**

County or District Ottawa Carleton	Township/Borough/City/Town/Village Goulbourn	Con block tract survey, etc. 9	Lot 24
Owner's surname Maple Mountain Homes	First Name	Address P.O. Box 730 Richmond, Ontario K0A 2Z0	Date completed 2 day 7 month 02 year

21	Zone	Easting	Northing	RC	Elevation	RC	Basin Code	ii	iii	iv
1 2	U T M	10	12 17	18 24	25	26	30	31	47	

[illegible]

31

32

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

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

SCREEN	Sizes of opening (Slot No.)		Diameter	Length	39-40
			inches		feet
	Material and type			Depth at top of screen	
				41-44	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	Pumping test method ¹⁰ 1 ☒ Pump 2 ☐ Bailer		Pumping rate ¹¹⁻¹⁴ 20 GPM		Duration of pumping ¹⁵⁻¹⁸ 1 Hours 17 Mins	
	Static level		Water level end of pumping		25 Water levels during ☒ Pumping 2 ☐ Recovery	
	19-21	22-24	15 minutes ²⁶⁻²⁸	30 minutes ²⁹⁻³¹	45 minutes ³²⁻³⁴	60 minutes ³⁵⁻³⁷
	6' 2" feet	20 feet	115 feet	90 feet	60 feet	20 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 50 feet		Recommended pump rate ⁴⁶⁻⁴⁹ 5 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		

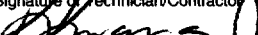
METHOD OF CONSTRUCTION			57
1 ☐ Cable tool	5 ☐ Air percussion	9 ☐ Driving	
2 ☐ Rotary (conventional)	6 ☐ Boring	10 ☐ Digging	
3 ☐ Rotary (reverse)	7 ☐ Diamond	11 ☐ Other	
4 ☒ Rotary (air)	8 ☐ Jetting		

LOCATION OF WELL

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

Flewellyn Rd

238194

Name of Well Contractor	Well Contractor's Licence No.
Capital Water Supply Ltd.	1558
Address	
P.O. Box 490 Stittsville, Ontario K2S 1A6	
Name of Well Technician	Well Technician's Licence No.
S. Miller	T0097
Signature of Technician/Contractor	Submission date
	day 5 mo 7 yr 02

MINISTRY USE ONLY	Data source	58	Contractor	59-62	Date received	63-68	69
			1 55 8		AUG 13 2002		
	Date of inspection		Inspector				
	Remarks	CSS.ES					

Print only in spaces provided.

Mark correct box with a checkmark, where applicable.

11

1533078

Municipality

Con.

Municipality
15003

Con.
CON

109

County or District Ottawa Carleton		Township/Borough/City/Town/Village Goulbourn		Con block tract survey, etc. 9		Lot 23	
Address Box 190 Carp, Ontario K0A 1L0				Date completed 12 day 88 month 02 year			

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth - feet	
				From	To
brown	soil	stones		0	8
grey	limestone		med hard	8	181
Note: Casing was left 1 foota above ground level at time of drilling.					

[illegible]

51 CASING & OPEN HOLE RECORD				
Inside diam inches	Material	Wall thickness inches	Depth - feet	
			From	To
10-11 6 1/4	1 ☒ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic	12 .188	0	13-16 21'6"
17-18 5 7/8	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☒ Open hole 5 ☐ Plastic	19	21'6	20-23 48
24-25	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic	26	48	27-30 181

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
					feet	

61				PLUGGING & SEALING RECORD			
☐ Annular space				☐ Abandonment			
Depth set at - feet		Material and type (Cement grout, bentonite, etc.)					
From	To						
21-18	0	grouted cement (4)					
18-21	22-25						
26-29	30-33	80					

PUMPING TEST	Pumping test method ¹⁰ 1 ☐ Pump 2 ☒ Bailor		Pumping rate ¹¹⁻¹⁴ 12 GPM		Duration of pumping ¹⁵⁻¹⁸ 1 Hours 17-18 Mins	
	Static level ¹⁹⁻²¹	Water level end of pumping ²²⁻²⁴	Water levels during ²⁵ ☒ Pumping		2 ☐ Recovery	
	24 ¹⁹⁻²¹ feet	50 ²²⁻²⁴ feet	42 ²⁶⁻²⁸ feet	45 ²⁹⁻³¹ feet	48 ³²⁻³⁴ feet	50 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 75 feet		Recommended pump rate ⁴⁶⁻⁴⁹ 5 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 50-181	3 ☒ Air percussion 0-50	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.

The diagram illustrates the location of a well (marked with a circle) relative to a road and a lot line. The road is labeled "Forest Grove" and "Woodside Acres". The lot line is labeled "Flewelyn". The distance from the well to the road is 54'. The distance from the well to the lot line is 61'. A north arrow is shown in the upper left corner.

238244

Name of Well Contractor	Well Contractor's Licence No.
Capital Water Supply Ltd.	1558
Address	
Box 490 Stittsville, Ontario K2S 1A6	
Name of Well Technician	Well Technician's Licence No.
S. Miller	T0097
Signature of Technician/Contractor	Submission date
	day 13 mo 08 yr 02

MINISTRY USE ONLY	Data source	58	Contractor	59-62	Date received	63-68
			1558		SEP 16 2002	
	Date of inspection		Inspector			
	Remarks					
	CSS. [unclear]					

Well Location

Address of Well Location (Street Number/Name) 14 Poplarwood (Lot 43)		Township Goulbourn	Lot 23	Concession 9
County/District/Municipality Ottawa Carleton		City/Town/Village Stittsville	Province Ontario	Postal Code
UTM Coordinates NAD 83	Zone 18	Easting 429114	Northings 5010184	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
	Previously Drilled			0	33.52
				33.52	83.20

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

Method of Construction	Well Use
☐ Cable Tool ☒ Rotary (Conventional) ☐ Rotary (Reverse) ☐ Boring ☒ Air percussion ☐ Other, specify _____	☐ Public ☒ Domestic ☐ Livestock ☐ Irrigation ☐ Industrial ☐ Other, specify _____
☐ Diamond ☐ Jetting ☐ Driving ☐ Digging	☐ 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) From	To

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

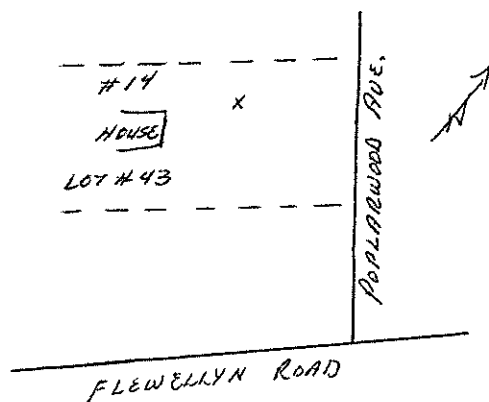
Water Details		Hole Diameter	
Water found at Depth (m/ft)	Kind of Water: ☐ Fresh ☒ Untested	Depth (m/ft) From	To
67.35 (m/ft) ☐ Gas	☐ Other, specify _____	33.52	83.20
81.98 (m/ft) ☐ Gas	☐ Other, specify _____		

Well Contractor and Well Technician Information	
Business Name of Well Contractor Capital Water Supply Ltd.	Well Contractor's Licence No. 1 5 5 8
Business Address (Street Number/Name) Box 490	Municipality Stittsville
Province Ontario	Postal Code K2S 1A6
Business E-mail Address office@capitalwater.ca	
Bus. Telephone No. (inc. area code) 613 836 1766	Name of Well Technician (Last Name, First Name) Miller, Stephen
Well Technician's Licence No. 0 0 9 7	Signature of Technician and/or Contractor Date Submitted 2011/11/02

Results of Well Yield Testing			
Draw Down		Recovery	
Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
Static Level	9.89		
1	11.10	1	24.57
2	12.12	2	22.26
3	13.35	3	19.18
4	14.49	4	18.98
5	15.41	5	16.58
10	19.12	10	11.78
15	19.62	15	9.26
20	20.59	20	8.32
25	23.96	25	8.48
30	24.80	30	8.44
40	25.52	40	8.31
50	26.03	50	8.26
60	27.32	60	8.24

Map of Well Location

Please provide a map below following instructions on the back.



Well owner's information package delivered ☒ Yes ☐ No	Date Package Delivered 2011/11/02 Date Work Completed 2011/11/02	Ministry Use Only Audit No. Z139723 FEB 09 2012
Comments:		Received



Measurements recorded in: ☒ Metric ☐ Imperial

A136701

MW 14+801/12-20

Page 1 of 1

Well Owner's Information

First Name	Last Name / Organization CITY OF OTTAWA	E-mail Address	☒ Well Constructed by Well Owner
Mailing Address (Street Number/Name) 100 CONSTELLATION CRESCENT	Municipality OTTAWA	Province ON	Postal Code K2G 6J8
Telephone No. (inc. area code)			

Well Location

Address of Well Location (Street Number/Name) FLEWELLYN ROAD / SHEA ROAD	Township	Lot	Concession
County/District/Municipality	City/Town/Village	Province Ontario	Postal Code
UTM Coordinates NAD 83 18 43 05 15 50 11 08 99	Zone Easting	Northings	Municipal Plan and Sublot Number
Other			

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	To
GREY	FILL	GRAVELLY SAND, TRACE SILT		0	0.6
	TILL	SANDY SILT, GRAVEL	LOOSE TO DENSE	0.6	4.1
GREY	TILL	SILTY SAND, GRAVEL	VERY DENSE	4.1	5.1

Annular Space		
Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type) BENTONITE
0	0.6	

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

Construction Record - Casing				Status of Well	
Inside Diameter (cm/in) 5.08	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel) PVC	Wall Thickness (cm/in) SCHED 40	Depth (m/ft) From To 0 3.6	☐ Water Supply ☐ Replacement Well ☐ Test Hole ☐ Recharge Well ☐ Dewatering Well ☒ Observation and/or Monitoring Hole ☐ Alteration (Construction) ☐ Abandoned, Insufficient Supply ☐ Abandoned, Poor Water Quality ☐ Abandoned, other, specify ☐ Other, specify	

Construction Record - Screen				
Outside Diameter (cm/in) 5.8	Material (Plastic, Galvanized, Steel) PVC	Slot No. 10	Depth (m/ft) From To 3.6 5.1	

Water Details		Hole Diameter	
Water found at Depth (m/ft) Kind of Water: ☐ Fresh ☐ Untested ☐ Gas ☐ Other, specify		Depth (m/ft) From To	Diameter (cm/in)
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 GEORGE DOWNING ESTATE DRILLING	Well Contractor's Licence No. 1 8 4 4		
Business Address (Street Number/Name) 410 RUE PRINCIPALE GRENVILLE-SUR-LA-ROCHE	Municipality		
Province QC	Postal Code J0V 1B0	Business E-mail Address downing@hawk	
Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)		
Well Technician's Licence No.	Signature of Technician and/or Contractor		Date Submitted 20130801

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	
Duration of pumping hrs + min	4		4	
Final water level end of pumping (m/ft)	5		5	
If flowing give rate (l/min / GPM)	10		10	
	15		15	
Recommended pump depth (m/ft)	20		20	
Recommended pump rate (l/min / GPM)	25		25	
Well production (l/min / GPM)	30		30	
Disinfected? ☐ Yes ☐ No	40		40	
	50		50	
	60		60	

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

Comments: MW 12-20, SEE ATTACHED ALSO	
Well owner's information package delivered ☐ Yes ☐ No	Date Package Delivered Y Y Y Y M M D D 20130523
Date Work Completed 20130523	Ministry Use Only Audit No. Z 161278 AUG 07 2013

Measurements recorded in: ☐ Metric ☒ Imperial

A **B** **C** **D**

Well Owner's Information

First Name	Last Name / Organization	E-mail Address		☐ Well Constructed ☒ Well Owner	
	J.P. Chenier Company Ltd	C/o 1384341 Ontario Ltd			
Mailing Address (Street Number/Name)		Municipality	Province	Postal Code	Telephone No. (inc. area code)
9094 Cavanagh Road		Ashton	ON	K0A 1B0	

Well Location

Address of Well Location (Street Number/Name) 6279 Pembank Road		Township Goulbourn	Lot P/L 3	Concession 10
County/District/Municipality Ottawa-Carleton		City/Town/Village Stittsville		Province Ontario
Postal Code 		UTM Coordinates Zone Easting Northing NAD 83 18 428097 50 11040		Municipal Plan and Sublot Number Other

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

[illegible]

Annular Space

Depth Set at (m/ft)		Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
From	To		
27'	6'	3/8 Hole Plug	1 Bag
6'	0'	Back fill	

Method of Construction

☐ 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 _____		

Well Use

☐ Public	☐ Commercial	☐ Not used
☐ Domestic	☐ Municipal	☐ Dewatering
☐ Livestock	☐ Test Hole	☐ Monitoring
☐ Irrigation	☐ Cooling & Air Conditioning	
☐ Industrial		
☐ Other, <i>specify</i> _____		

Construction Record - Casing

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

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 *construct*
☐ Other, specify

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft)		☐ Abandoned, specify ☒ Water Quality ☒ Abandoned, other, specify ☐ Other, specify
			From	To	
			New		Construct

Water Details

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

Hole Diameter

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

Well Contractor and Well Technician Information

Business Name of Well Contractor Air Rock Drilling Co. Ltd.		Well Contractor's Licence No. 1111	
Business Address (Street Number, Name) 6659 Franktown Road		Municipality and Richmond	
Province Ont	Postal Code K0A2Z0	Business E-mail Address airrock@sympatico.ca	
Bus. Telephone No. (inc. area code) 613 358 1170		Name of Well Technician (Last Name, First Name) Dessuriers, Ken	
Well Technician's Licence No. T4	Signature of Technician and/or Contractor Ken Dessuriers	Date Submitted 2016 09 30	

Results of Well Yield Testing

After test of well yield, water was:		Draw Down		Recovery	
☐ Clear and sand free ☐ Other, specify _____		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.

tion

1.4 km

0.9 km

6279

FERNBANK ROAD

Stittville Main Street

5

Comments:

Well owner's information package delivered ☐ Yes ☒ No	Date Package Delivered [REDACTED] Y Y Y Y M M D D	Ministry Use Only Audit No. Z23713 NOV 28 2016 Received
	Date Work Completed 2016 07 26 Y Y Y Y M M D D	



Measurements recorded in: ☒ Metric ☐ Imperial

Well Owner's Information

First Name _____ Last Name / Organization Davidson Co - Tenancy / c/o Tartan Lands Consultants Inc. E-mail Address _____ ☐ Well Constructed by Well Owner

Mailing Address (Street Number/Name) 237 Somerset St. W Municipality Ottawa Province ON Postal Code K2P1A1J3 Telephone No. (inc. area code) _____

Well Location

Address of Well Location (Street Number/Name) Shea and Fernbank Flewellyn Township _____ Lot _____ Concession _____

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

UTM Coordinates Zone Easting Northing NAD 8 3 18429941 5610554 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)
BRN	top soil		soft	0 .31
BRN	sand	silt, stones	soft	.31 2.44
GRY	silt	stones	dense	2.44 4.57
GRY	shale		layered	4.57 10.06

Annular Space		
Depth Set at (m/ft)	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
0 .31	concrete/mortar	
.31 5.49	bentonite	
5.49 10.06	filter sand	

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 _____	

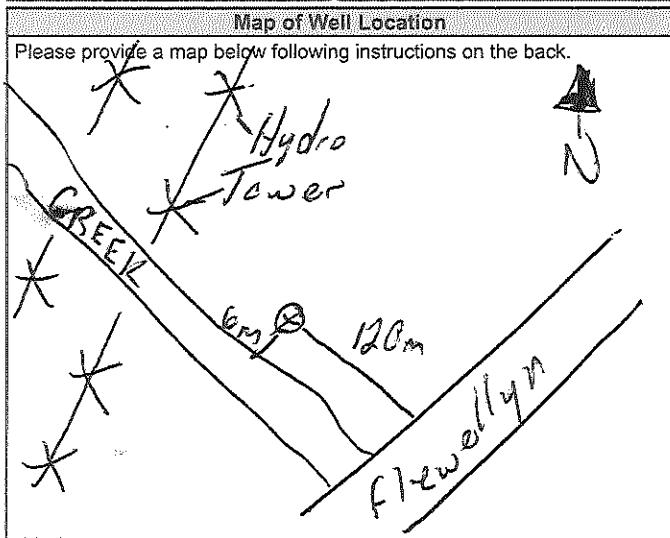
Construction Record - Casing				Status of Well	
Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft)	From	To
5.20	PVC	.340	0 7.01		

Construction Record - Screen				Status of Well	
Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft)	From	To
6.03	PVC	10	7.01 10.06		

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	
		0 6.1	11.43
		6.1 10.06	7.62

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 _____	0	6.1	11.43
Water found at Depth (m/ft) ☐ Gas	Kind of Water: ☐ Fresh ☐ Untested ☐ Other, specify _____	6.1	10.06	7.62
Water found at Depth (m/ft) ☐ Gas	Kind of Water: ☐ Fresh ☐ Untested ☐ Other, specify _____			

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 _____ 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



Comments:	Well owner's information package delivered ☐ Yes ☐ No	Date Package Delivered <u>20180408</u>	Ministry Use Only
		Date Work Completed <u>20180408</u>	Audit No. <u>277801</u>
			AUG 20 2018
			Received