Ecometrix | Environmental INTELLIGENCE

HYDROGEOLOGICAL ASSESSMENT FOR STELLAR ESTATES PHASE 2

TOWN OF CALEDON, ONTARIO

REPORT PREPARED FOR:

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1.0 Introduction

Ecometrix Incorporated (Ecometrix) was retained by Stellar Homes Inc. to assist with the completion of a Hydrogeological Assessment for the proposed Stellar Estates Phase 2 residential development (the "Site") located in the Town of Caledon, Ontario.

This report provides an evaluation of hydrogeological characteristics of the Site, including groundwater flow and quality, an assessment of potential impacts to groundwater as a result of the proposed development; in particular, nitrate loadings from residential septic systems. This report includes a desktop review of existing information and results from recent field investigations by Ecometrix. Additional hydrogeological background information was obtained from a Hydrogeological Investigation report prepared by Shaheen & Peaker Ltd. for Phase 1 of the Stellar Estates development (SPL, 2007).

This report has been prepared as supporting documentation for the Draft Plan of Subdivision application for the Stellar Estates Phase 2 development.

2.0 Site Setting

The Site location is approximately 8 km northeast of the village of Bolton (Figure 2.1). The Site is bounded by Mount Pleasant Road to the east, Mulloy Court and associated estate residential development to the north, estate residential development to the west, and agricultural land to the south. The legal description of the Site is Part of Lot 18, Concession 8 (Albion), Town of Caledon, Regional Municipality of Peel.

The 4.07-hectare (ha) Site was historically undeveloped or agricultural land (AEL, 2021), and is currently vacant and primarily comprised of grassland meadows. The surrounding area is rural with agricultural and estate residential land uses. Residences in the area are typically serviced by municipal water and private on-site sewage disposal systems.

Stellar Homes Inc. proposes to develop the Site with five estate residential lots with individual private septic systems for sewage disposal, and municipal water supply. The Site is outside of the 2-, 10- and 25-years Wellhead Protection Areas and is located in a Low Aquifer Vulnerability area, as identified in Schedules O and P-1 of the Town of Caledon Official Plan (2018).

2.1 Physiography and Drainage

The Site is located within the Oak Ridges Moraine (ORM). The ORM encompasses a stretch of about 160 kilometres from the Trent River to the east to the Niagara Escarpment to the west, and typically varies from 2 to 11 km in width. The moraine was created as glaciers receded and deposited layers of sand and gravel that are separated by clay and till soils. The ORM comprises smaller landforms, including Palgrave Morane, within which the Site is located (Chapman and Putnam, 1984). The Palgrave Moraine is an ice-contact stratified area of sands, gravels, and silts that originated as kame outwash deposits, and consists of a strip of hummocky topography 5 to 7 kilometers in width extending from Caledon East to the Palgrave and Mount Wolfe area, and then east to King City (White, 1975).

The highest point in the area is Mount Wolfe, which has an elevation of 368 m and is situated approximately 3.5 km northwest of the Site. The highest elevation on the Site is 270 m, and occurs approximately on Lot 4. The lowest elevation level at the Site is approximately 263 m, and occurs at the southwest corner of Lot 1 where the wetland exists.

Local topography and drainage patterns are shown in Figure 2.2. Generally, the Site and surrounding areas are characterized as hummocky terrain, with many hills and low-lying wetlands scattered across the landscape. Elevation tends to gradually decrease moving from northwest of the Site to southeast of the Site. Surface waters from the Site and surrounding areas drain into the Humber River watershed (TRCA, 2022). Thus, the Site falls under the jurisdiction of the Toronto and Region Conservation Authority (Humber River Watershed). Specifically, the Site is part of the Cold Creek subwatershed, which includes a number of upper tributaries to the south and southeast of the Site, draining into the main branch of the Humber River (TRCA, 2008).

A provincially significant wetland exists along the southern border of the Site (MNRF, 2022), downslope of Lots 1, 2, and 3 (Figure 2.2).

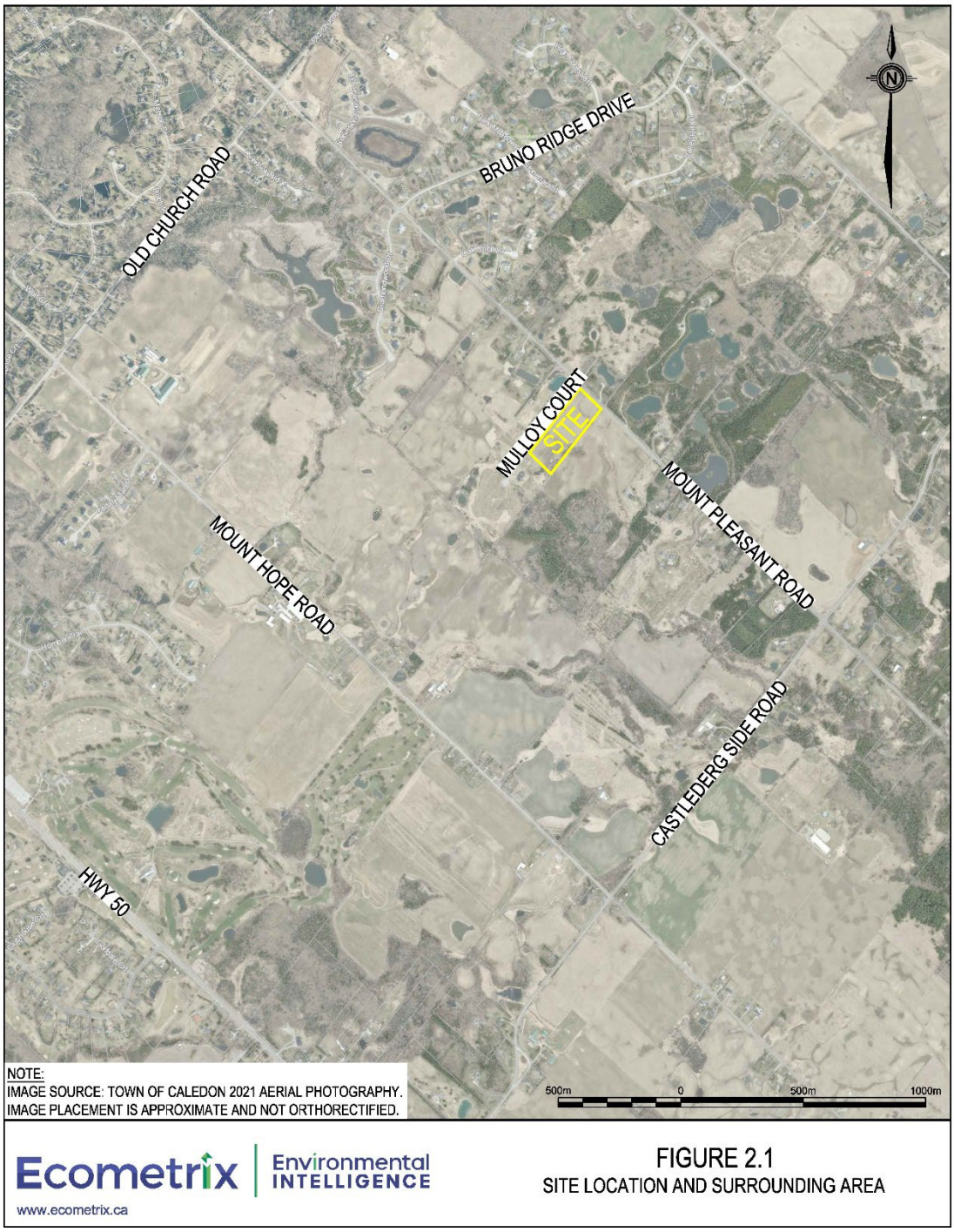

Figure 2.1: Site Location and Surrounding Area

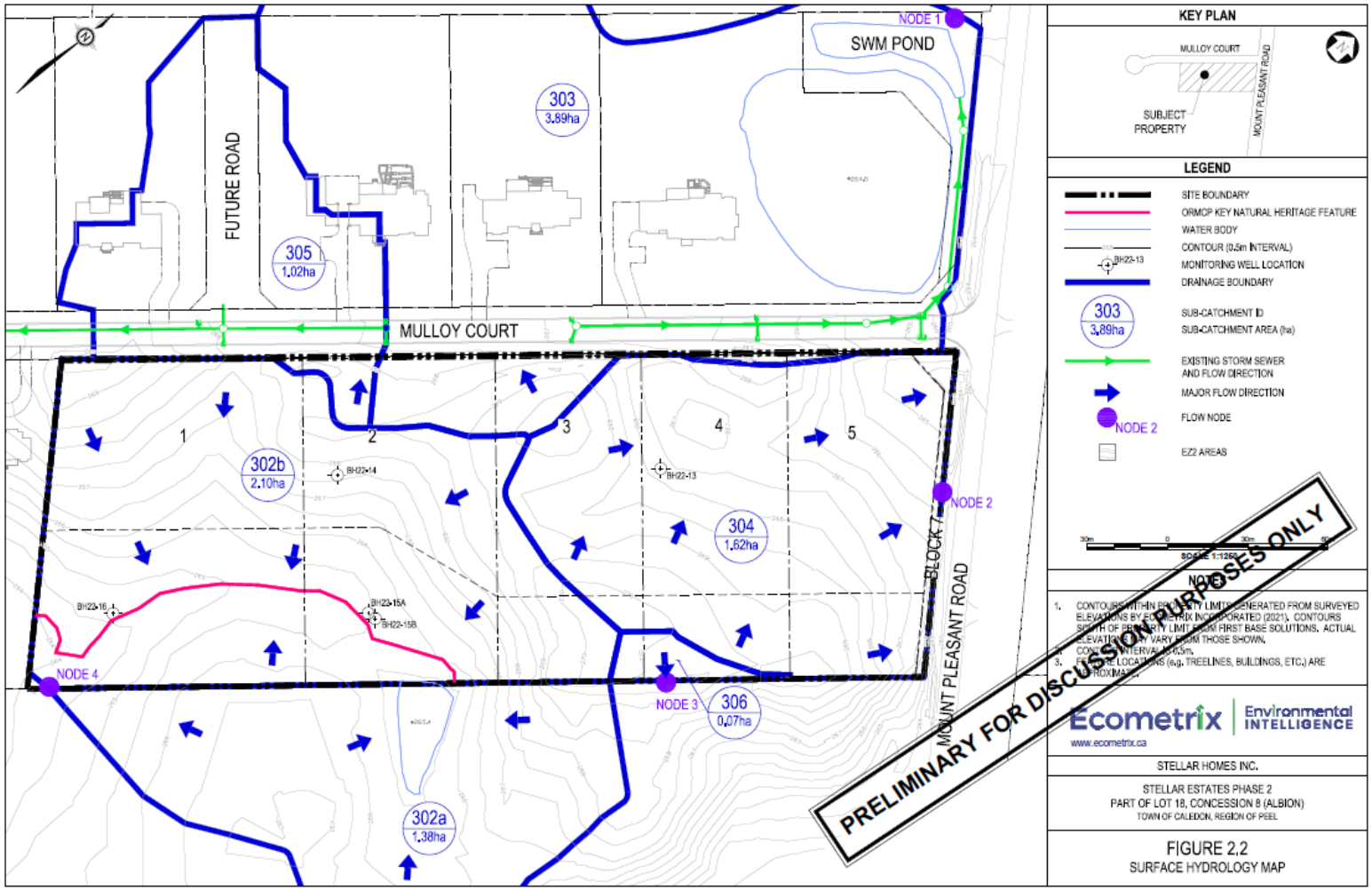

Figure 2.2: Local Topography and Drainage

2.2 Site Geology

2.2.1 Bedrock Geology

The bedrock underlying the Site is Ordovician in age, and part of the Georgian Bay Formation, which consists of "grey-green and grey-blue shales, siltstone and limestone" (Bond and Telford, 1976). The formation is reported to be exposed along the main branch and tributaries of the Humber River further to the southeast (White, 1975). Local bedrock topography slopes towards the southeast (White, 1973). In the local area surrounding the Site, bedrock was noted in one Ministry of Environment, Conservation and Parks (MECP) well record within 500 metres of the Site (Well ID 4905627); described as shale and encountered at a depth of 136 meters below ground surface (446 feet).

2.2.2 Overburden Geology

Surficial geology in the local area where the Site is located is reported to comprise of yellowish brown, loam to silt loam till within the Palgrave Moraine, and is reported to correlate with Halton Till to the south (White and Karrow, 1973; White, 1975). The Site is located near the northern extent of the Halton Till; regional overburden geology transitions to ice contact stratified drift in the direction of Mount Wolfe. The till has been observed to occur as thin layers (1 to 1.5 m) overlying stratified sediments in places; as well as deeper layers with consistent texture (White, 1975).

Mapping of overburden sediments within the Humber River watershed provided by TRCA (2008) indicates that the main stratigraphic units underlying the Halton Till in the vicinity of the site include Oak Ridges Moraine Deposits, Newmarket Till, Thorncliffe Formation, and Sunnybrook Drift.

Oak Ridges Moraine sediments are described as interbedded fine sand and silt deposits with local deposits of coarse sands and heterogeneous gravels (TRCA, 2008). The Newmarket Till is a consistently dense silty sand diamicton, with interconnected sand and silt lenses; and is underlain by Thorncliffe Formation deposits, which represent glaciofluvial deposition of sand and silty sand (TRCA, 2008). Sunnybrook Drift sediments consist mostly of clay and silt and is locally present in the vicinity of the Site (TRCA, 2008).

During the geotechnical investigation completed by GeoTerre Limited (2024), observations of shallow overburden materials included 15 to 60 cm of topsoil, the sub-surface profile below the surface topsoil within the limits of the entire site appears to consist primarily of a series of low plasticity silty clay materials interbedded with occasional thin layers of more silt rich soils.

Field obtained SPT 'N80' values obtained wholly within native inorganic soils of BH22-13 and 14 as located within the more elevated reaches of the site varied from 5 to 41. However, upon closer inspection, two (2) SPT 'N80' values obtained wholly within native inorganic soils of BH22-13 and 14 above a depth of 1.4 m gave values of 5 and 8, whereas SPT 'N80' values obtained within native inorganic soils materials below a depth of 1.4 m varied from 19 to 41. Hence, based on this data, the soils within the elevated Phase 2 development limits are

described as firm degree of consistency/loose degree of compactness above a depth 1.4 m and very stiff to hard degree of consistency/compact to dense degree of compactness below 1.4 m.

Additionally, SPT 'N80' values obtained within BH22-15 and 16 as located within the lower lying Natural Heritage Feature exhibit a similar trend of SPT 'N80' values except that the depth interface between lower and more elevated SPT 'N80' Values is 4.4 m, i.e., SPT 'N80' values of BH22-15 and 16 above a depth of 4.4 m vary from 4 to 15 whereas below a depth of 4.4 m SPT 'N80' values vary from 17 to 30. Hence, based on this data, the dominant low plasticity silty clay soils within the lower lying Natural Heritage Feature are described as having a firm to stiff degree of consistency above a depth 4.4 m and a very stiff degree of consistency below a depth 4.4 m.

The boreholes ranged in depth from 6.6 to 15.7 metres below ground surface (mbgs). Borehole logs are provided in Appendix A.

2.3 Hydrogeological Conditions

2.3.1 Regional Hydrostratigraphy and Groundwater Flow

As part of the Oak Ridge's Groundwater Monitoring Program, an initiative was established to understand and characterize the hydrogeology of the Oak Ridges Moraine. The program is a product of the Regional Municipalities of York, Peel, and Durham, and the City of Toronto (YPDT) and the Conservation Authorities Moraine Coalition (CAMC) consisting of the nine conservation authorities with jurisdiction on the Oak Ridges Moraine.

As part of the program, a groundwater modelling study was completed (EarthFX, 2006) that provides a conceptual hydrostratigraphic framework to understand and identify regional aquifers and aquitards influencing the flow of groundwater. The key aquifers in the region include the Oak Ridges Aquifer Complex (ORAC), Thorncliffe Aquifer Complex (TAC), and Scarborough Aquifer Complex (SAC). The ORAC and TAC are separated by the Newmarket Aquitard; and the TAC and SAR are separated by the Sunnybrook Aquitard. Regionally, discontinuous tunnel channels which have eroded through the Newmarket Till and possibly through deeper units contribute to leakage between the shallower and deeper flow system (EarthFX, 2006). Figure 2.3A shows a hydrostratigraphic cross-section which includes the Site, which is located just west of the York-Peel line.

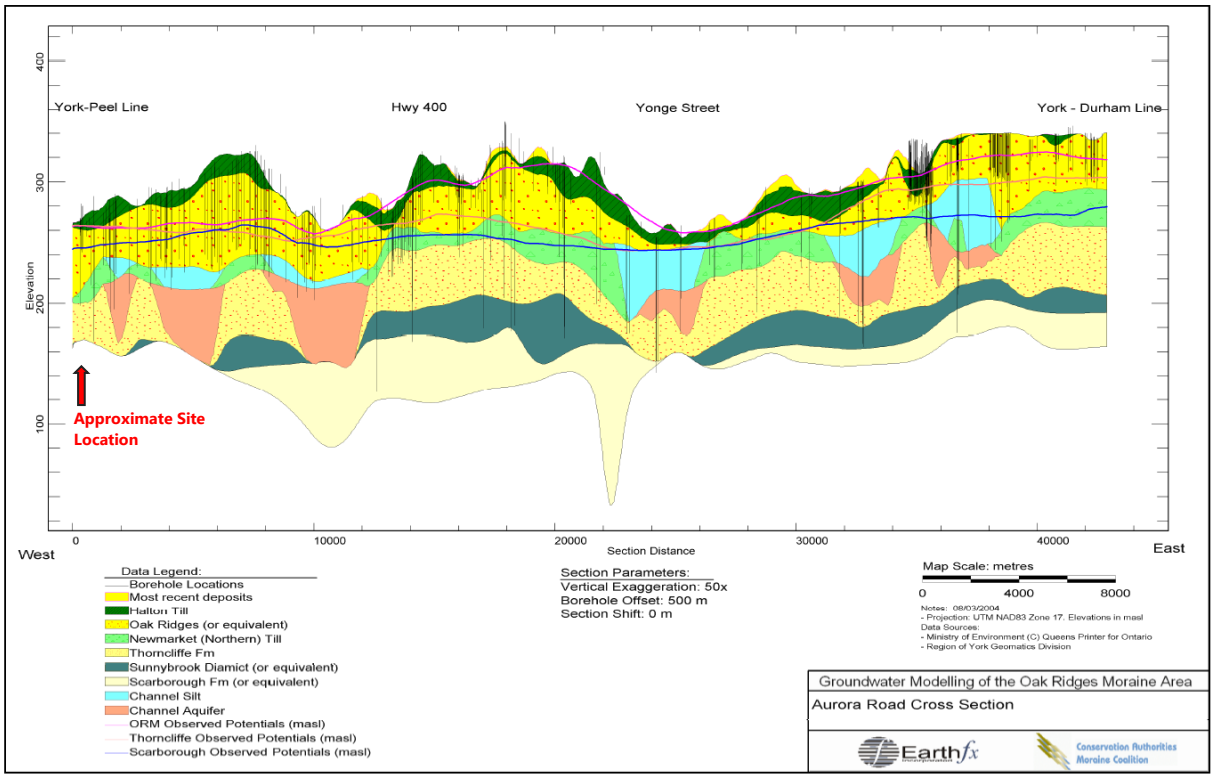

Figure 2.3A: East-West Cross-Section along Aurora Road (Figure 49 from EarthFX, 2006)

As part of the Oak Ridges Moraine groundwater modelling study, an assessment of the regional groundwater flow was provided (EarthFX, 2006). Within the ORAC, TAC and SAC, groundwater flow is generally to the south and southwest towards the Humber River (Figures 95, 97 and 98 of EarthFX, 2006).

2.3.2 Local Water Use

A search of the Ministry of the Environment, Conservation and Parks (MECP) water well database resulted in the identification of 20 records for the area within 500 m of the Site boundary. Water use in the area includes 15 water supply wells for livestock and domestic use. Of the remaining five well records, two wells (Well IDs 4900480 and 7285427) were listed as abandoned; one well record (Well ID 4905855) noted that the casing was pulled upon discovery of salt water; one well record was identified as a test hole (Well ID 4905606); and a cluster of three wells (Well ID 7119440) did not indicate a purpose but is assumed to have been installed for monitoring purposes based on the installation contractor (Strata Soil Sampling). The approximate locations of identified wells are shown on Figure 2.4. A summary table of all well records, and individual records obtained from MECP well water database, are provided in Appendix B.

Well records indicate that water supply wells in the area are typically positioned within the unconfined overburden aquifer, extending to depths ranging from 10.7 to 23.2 m.

Overburden aquifer materials generally consist primarily of clay, with occasional seams of sand and other loose-packed materials. Observed static water levels in the shallow wells range from 1.5 to 12.2 m and well yields range from 0.25 to 5 gallons per minute (GPM; 0.95 to 19 liters per minute, LPM). A detailed cross-section of the site stratigraphy extending 500 metres around it, including the locations of monitoring wells and some MECP wells is shown on Figure 2.3B

Records for two water supply wells (Well IDs 4905606 and 7214203), installed at greater depths of 70.7 and 132.9, respectively, indicate the wells are located within confined a sand aquifer underlying the clay to silty clay overburden. The deeper wells have reported static water levels between 7.9 and 9.3 m and higher reported well yields, ranging from 4 to 20 GPM (15 to 75 LPM).

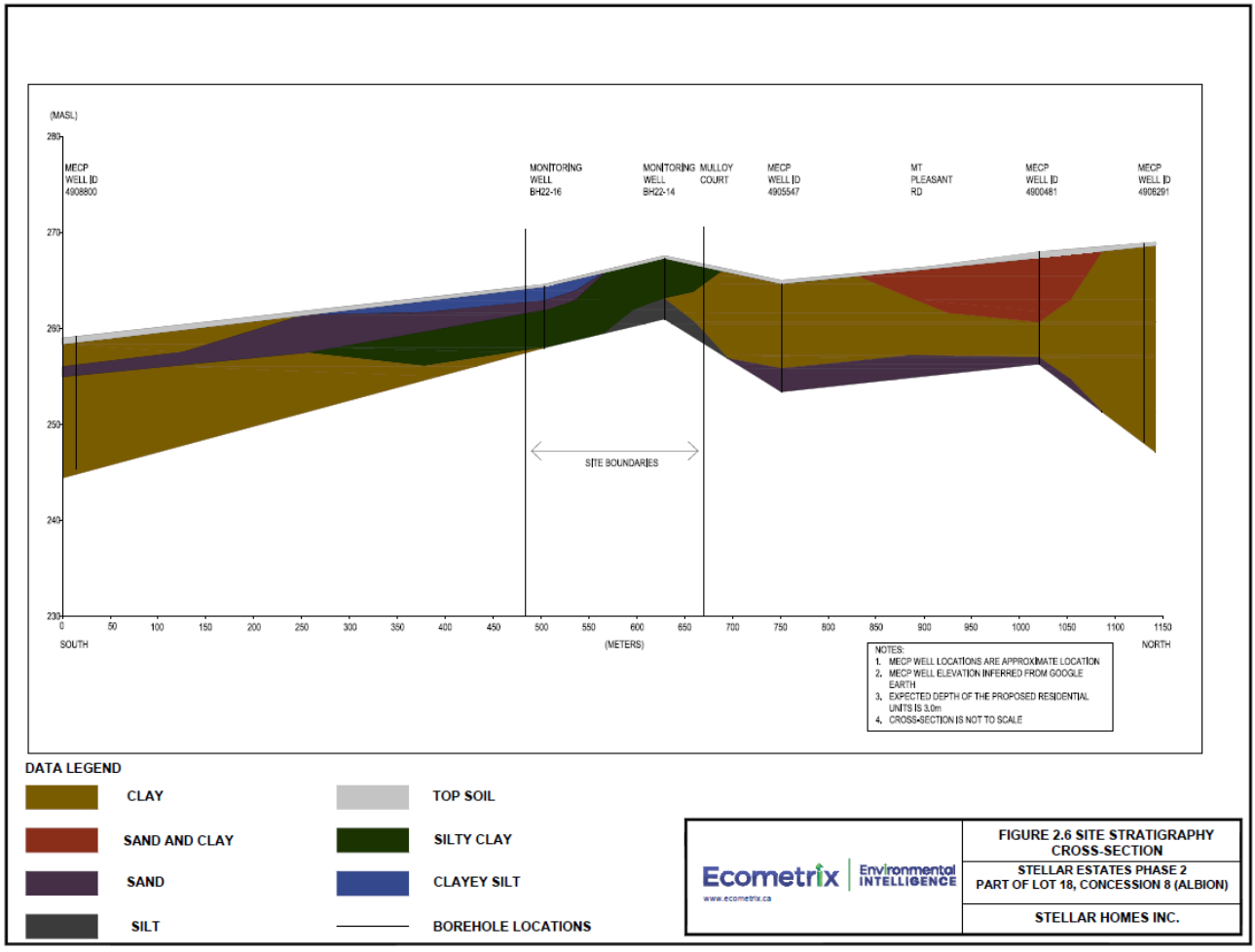

Figure 2.3B: Site Stratigraphy Cross-Section from South to North

The Region of Peel operates three municipal water supply wells servicing the community of Palgrave, with the closest located approximately 4.6 km to the east of the site on Mount Hope Road. Two wells obtain groundwater from the Thorncliffe Aquifer Complex, and one from the deeper Scarborough Aquifer Complex (TRCA, 2008). The proposed Stellar Estates Phase 2 site is outside the 2 to 25-year Wellhead Protection Areas of this well, and all other wells as identified on Schedule 'O' of the Town of Caledon Official Plan (2018).

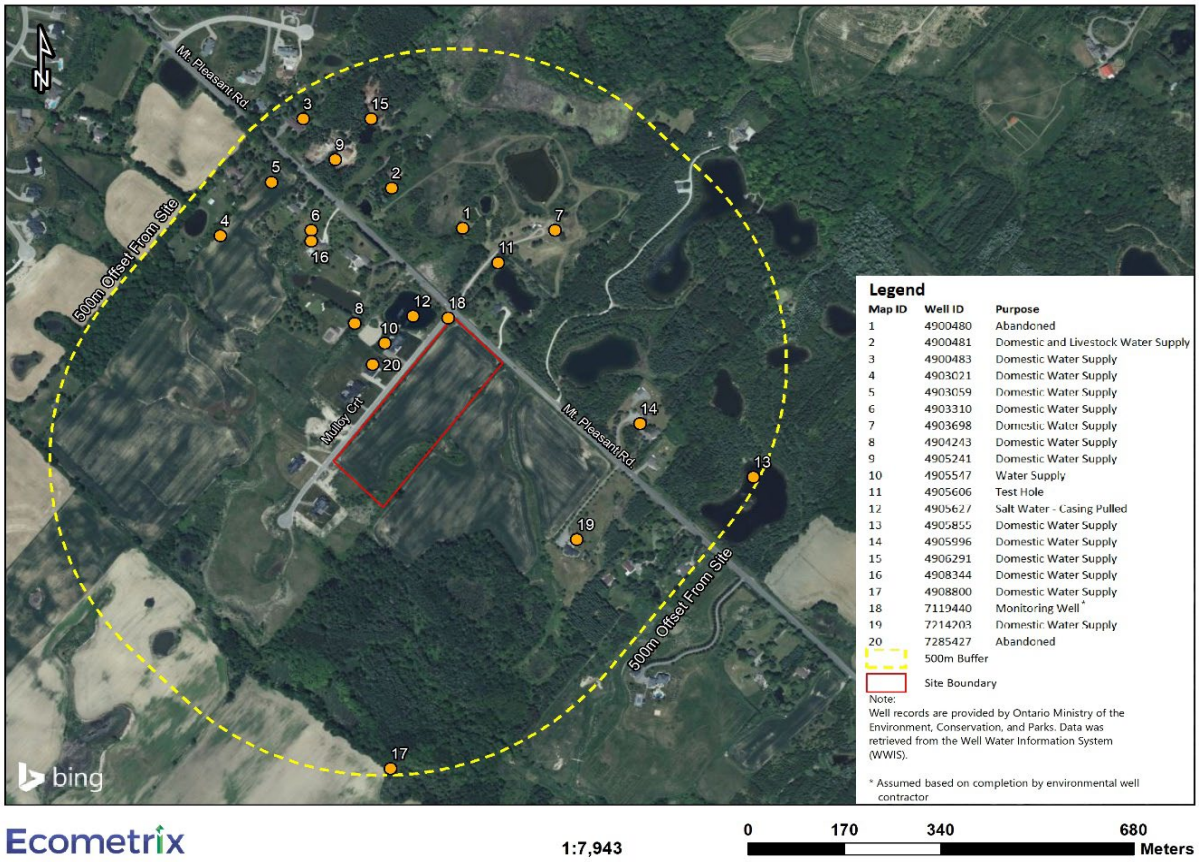

Figure 2.4: Well Records within 500m of the Stellar Estates Phase 2 Site

2.3.3 Local Groundwater Flow

As part of the geotechnical investigation at the Site, 5 boreholes were advanced to depths of 6.6 to 15.7 mbgs (GeoTerre, 2022). Borehole logs are provided in Appendix A. Monitoring wells were installed in each borehole to depths ranging from 4.1 to 14.6 mbgs (Table 2-1). Nested monitoring wells BH22-15A and BH22-15B were installed in separate boreholes at depths of 5.38 and 14.6 mbgs, respectively. The locations of the monitoring wells are illustrated in Figure 2.5.

Groundwater levels were measured by Ecometrix on eight occasions. The initial measurement was taken prior to monitoring well development at all well locations on July 25, 2022, a

month after drilling. Groundwater levels were measured again at selected locations on August 19, 2022, prior to conducting single-well response tests (i.e., "slug" testing). Water levels in the wells were approximately 60 cm lower in August 2022 than they were in July 2022. Another set of measurements at all well locations was conducted on November 23, 2022, when water levels were approximately 70 cm lower than in August 2022.

Monitoring continued in 2023, and on April 19, another set of measurements was conducted, with water levels approximately 3m higher in April 2023 than in November 2022. The last measurement in 2023 was taken on September 27, when water levels were approximately 2m lower than in April 2023.

In 2024, the first set of manual measurements was taken on March 15, with water levels approximately 2.5m higher than on September 23, 2023. The second set of measurements was taken on June 28, 2024, showing water levels approximately 0.6m lower than in March. The last set of measurements in 2024 was taken on October 11, when water levels were approximately 1.5m lower than on June 28, 2024.

Water level measurements and groundwater elevations are summarized in Table 2-2 and Table 2-3. Provided in Appendix E is a hydrograph of the water level data measured by Ecometrix on five occasions for each location.

Table 2-1: Summary of Monitoring Wells on the Site

ID	Location; Easting (m)	Location; Northing (m)	Ground Surface Elevation (masl)	Top of Pipe Elevation (masl)	Well Depth (mbgs)
BH22-13	598850.86	4865405.90	267.76	268.64	6.02
BH22-14	598777.37	4865309.98	267.64	268.65	5.95
BH22-15A	598825.03	4865286.72	265.41	266.38	14.6
BH22-15B	598828.14	4865287.25	265.56	266.52	5.38
BH22-16	598765.63	4865212.27	264.60	265.67	4.09

mbgs = metres below ground surface; masl = metres above sea level

Table 2-2: Groundwater Level Measurements

ID	Water Level (mbtop)							
	2022-07-25	2022-08-19	2022-11-23	2023-04-19	2023-09-27	2024-03-15	2024-06-28	2024-10-11
BH22-13	3.06	-	5.05	1.74	4.74	1.46	2.44	4.84
BH22-14	2.50	-	5.15	2.86	4.28	1.63	2.51	4.13
BH22-15A	1.82	2.42	3.29	0.29	2.50	0.32	0.89	2.38
BH22-15B	2.54	3.15	3.83	1.15	2.82	1.02	1.32	2.69
BH22-16	3.09	3.82	4.56	1.34	3.53	1.13	1.71	-

mbtop = metres below top of pipe

Table 2-3: Groundwater Elevations

ID	Water Elevation (masl)							
	2022-07-25	2022-08-19	2022-11-23	2023-04-19	2023-09-27	2024-03-15	2024-06-28	2024-10-11
BH22-13	265.58	-	263.60	266.91	263.90	267.19	266.20	263.80
BH22-14	266.14	-	263.50	265.79	264.36	267.02	266.14	264.52
BH22-15A	264.56	263.96	263.10	266.10	263.89	266.07	265.49	264.00
BH22-15B	263.97	263.37	262.69	265.37	263.69	265.50	265.20	263.82
BH22-16	262.58	261.85	261.11	264.33	262.14	264.54	263.96	-

Masl = meters above sea level

A map of shallow groundwater levels showing the inferred groundwater flow direction in the shallow groundwater system is shown in Figure 2.6 for water levels measured on July 25, 2022. The water level at BH22-15A, installed at a greater depth, was not included in the figure. The low permeability deposits near surface, and the undulating topography are indicative that topographic control on the water table occurs throughout the area. The water elevations in the monitoring wells confirm that the water table remains close to surface over a wide range of elevations across the site and is typically within 5m or less of ground surface. An upward flow direction at the edge of the wetland measured in wells BH22-15A and BH22-15B is indicative of a local-scale flow system influenced by the topography at the scale of the Site. This type of shallow, local-scale groundwater flow system is commonly influenced by seasonal changes and hydraulic connections with surface water bodies.

It is important to highlight that the water level elevations shown in Figure 2.6 which is dated July 25, 2022, are representative of the overall flow path in the area. Subsequent measurements on November 23, 2022, April 19, 2023, September 27, 2023, March 15, 2024, June 28, 2024 and October 11, 2024 consistently follow a similar pattern, exhibiting normal seasonal fluctuations. Despite these changes, the general trend shows that shallow groundwater tends to flow towards the topographic low areas, specifically directed towards the identified wetlands in the southern portion of the site (Figure 2.6).

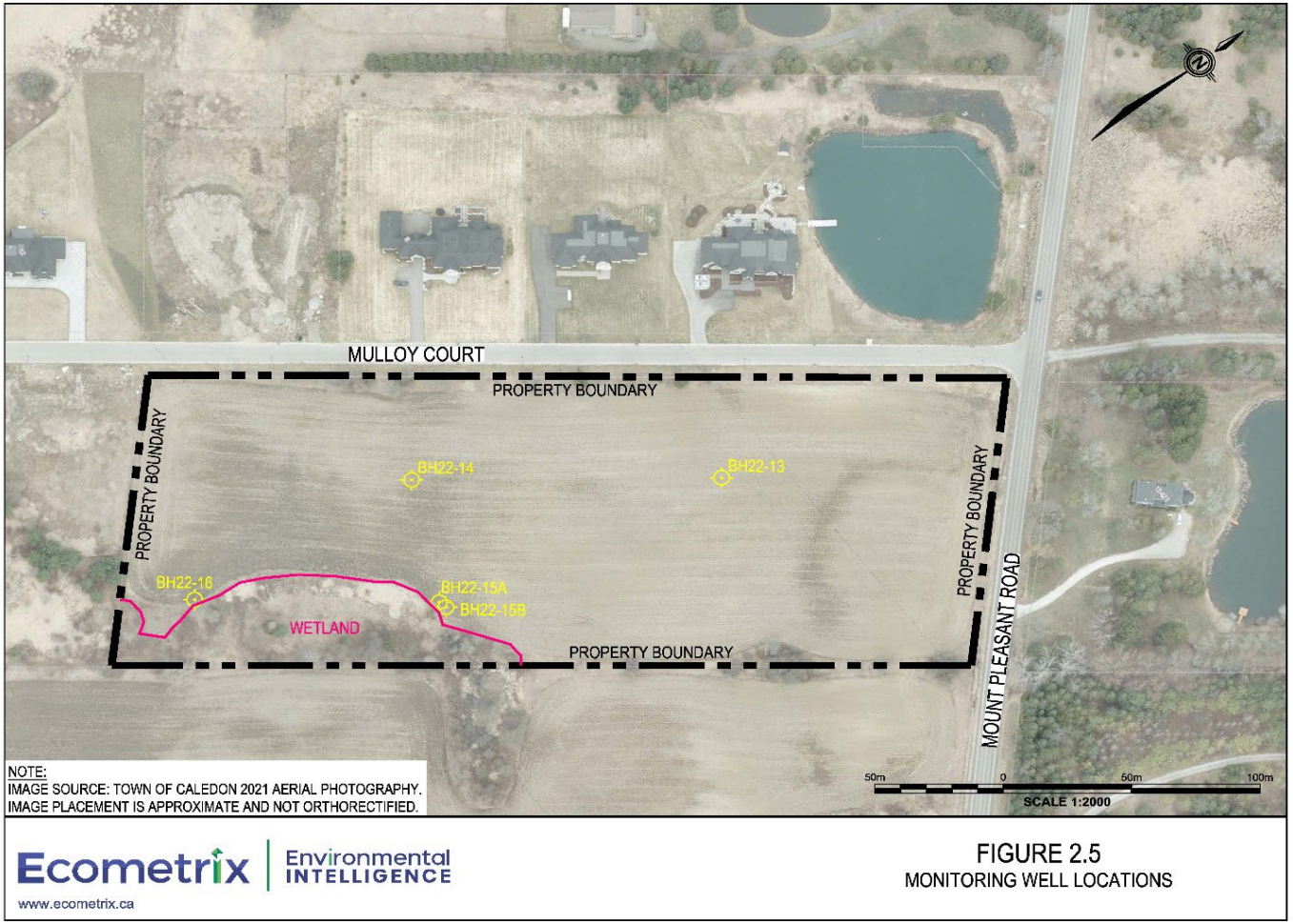

Figure 2.5: Monitoring Well Locations

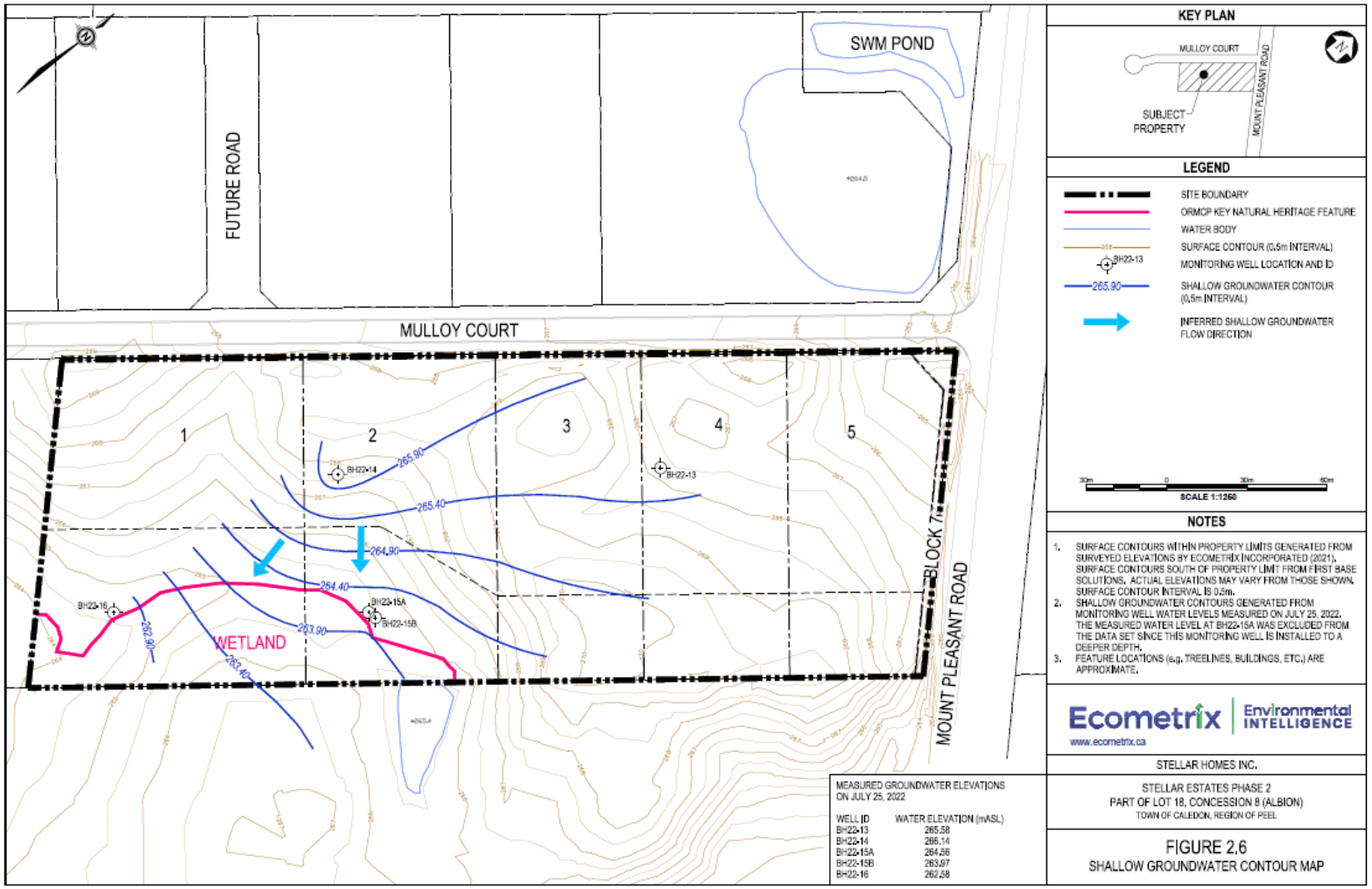

Figure 2.6: Shallow Groundwater Contour Map

2.3.4 Groundwater Elevations

Long-term groundwater elevation monitoring was initiated by Ecometrix in August 2022. Monitoring wells BH22-15A, BH22-15B and BH22-16 were each equipped with an automatic water level and temperature recording device with an integral datalogger. The equipment used was Solinst Model 3001 Levelogger Edge LT M5/F30 (BH22-16 and BH22-15B) and Solinst Model 3001 Levelogger Edge LT M5/F30 (BH22-15A) with direct read cabling. The Solinst water level data logger instrumentation measures absolute pressure, and therefore compensation is required for atmospheric pressure fluctuations.

The groundwater monitoring instrumentation was installed by Ecometrix in August 2022 and was programmed to record information on an hourly basis. The water level data is downloaded and reviewed by Ecometrix Incorporated for the three (3) groundwater wells. The data files were collected three (6) times (November 23, 2022, April 19, 2023, September 27, 2023, March 15, 2024, June 28, 2024, and October 10, 2024) in xle and csv files after the installation. These files contain date, time, recorded water level, and temperature. Instrumentation information, date of installation, start date of available data and end date of available data are summarized in table 2-4

Barometric pressure compensation was achieved using information collected from a Solinst Barologger Model 3001 LT F5/M15 located within 15km of the Site. The barometric compensated water levels were converted to geodetic elevations using survey information of top of well, and field measurements.

Table 2-4 Instrumentation information

ID	Levelogger Serial Number	Levelogger Installation Time	Levelogger Start Time	Levelogger End Time
BH22-15A	2161957	August 12, 2022 01:57 PM	August 23, 2022 12:00 PM	October 11, 2024 1:00 PM
BH22-15B	2162175	August 12, 2022 01:52 PM	August 19, 2022 02:30 PM	October 11, 2024 1:30 PM
BH22-16	2162197	August 12, 2022 02:05 PM	August 24, 2022 11:00 AM	October 11, 2024 2:00 PM

The groundwater levels have been monitored in these three (3) wells continuously for over a year with no data gaps. Locations of the monitoring wells listed above are provided in figure 2-6 and tabulated results of the minimum, maximum and mean of recorded water level to date are provided in table 2.5.

Table 2-5 Tabulated minimum, maximum and mean water level

ID	Min (masl)	Max (masl)	Mean (masl)
BH22-15A	262.81	266.43	264.70
BH22-15B	262.48	265.65	264.39
BH22-16	260.92	264.66	263.11

BH22-15A

On August 12, 2022, a Solinst Levelogger Edge Model 3001 water level sensor and datalogger with a direct read cable was installed to continuously record water level at this site. Reported water level data for BH22-15A is from August 23, 2022 to October 11, 2024. On April 19, 2023, a malfunction was reported with the direct read cable necessitating the retrieval of the levelogger in order to download the recorded data. In Appendix F is provided a hydrograph of the water level data recorded by the equipment for BH22-15A.

BH22-15B

On August 12, 2022, a Solinst Levelogger Edge Model 3001 water level sensor and datalogger with a direct read cable was installed to continuously record water level at this site. Reported water level data for BH22-15B is from August 19, 2022 to October 11, 2024. In Appendix F is provided a hydrograph of the water level data recorded by the equipment for BH22-15B.

BH22-16

On August 12, 2022, a Solinst Levelogger Edge Model 3001 water level sensor and datalogger with a direct read cable was installed to continuously record water level at this site. Reported water level data for BH22-156 is from August 24, 2022 to October 11, 2024. In **Appendix F** is provided a hydrograph of the water level data recorded by the equipment for BH22-16.

The continuous collection of groundwater elevations by the Leveloggers in three monitoring wells (BH22-15A, BH22-15B and BH22-16) over a period exceeding two years has confirmed that the water table consistently stays within 5 meters or less of the ground surface as it was indicated in the manual measurements conducted by Ecometrix staff. Monitoring wells BH22-15A and BH22-15B show an upward flow direction at the wetland edge, indicative of a local-scale flow system influenced by site topography. This system is subject to seasonal variations, notably affected by surface water inflow patterns. During the spring melt, higher water levels are observed, followed by a gradual decline, reaching lower levels in late summer.

2.3.5 Hydraulic Characteristics

Single-well response tests (i.e., slug tests) were performed by Ecometrix in August 2022 on monitoring wells BH22-15A, BH22-15B and BH22-16. The results of the tests are presented in Appendix C and provide information regarding the hydraulic conductivity of the soils surrounding the well screen.

Falling head tests were performed at monitoring wells BH22-15A and BH22-15B by inserting a solid slug into the water column, and subsequent monitoring of the lowering of water level in the well over time back to static conditions. A rising head test was performed at monitoring well BH22-16 by removing a volume of water from the well casing and subsequent monitoring of the rise in water level in the well over time back to static conditions. Water levels were recorded manually using a water level tape and through measurements collected automatically in regular intervals using Solinst Leveloggers installed in each well, as described in Section 2.3.4. The test durations ranged from 1.1 to 10.9 hours, and 59% to 96% of the recovery was monitored (Table 2-6). Barometric pressure readings were recorded at the same regular intervals to compensate for atmospheric pressure fluctuations over the course of the test.

Interpretation of the slug test data was completed using version 4.5 of AQTESOLV Aquifer test Analysis Software (HydroSOLVE, 2007), which provides a range of analytical solutions depending on aquifer and well construction conditions. The Bouwer and Rice (1975) model was used to estimate the hydraulic conductivity of BH22-15A, which is installed in silty clay interpreted to represent confined conditions. The model developed by Hyder *et al.* (1994), also known as the KGS Model, was used for the analysis of data from shallow well BH22-15B due to unconfined conditions and slight non-linearity in the response. A saturated thickness of 5 metres was assumed for the analysis of BH22-15A and BH22-15B, approximated based on observed water levels, subsurface stratigraphy reported in borehole logs, and well depths (Appendix A). The Cooper method (Cooper *et al.*, 1967) was used for the interpretation of slug test data from BH22-16, assuming preferential groundwater flow through the 0.9 m thick silty fine sand layer observed between silty clay above and below within the screened interval resulting in a response similar to confined conditions. Inputs and assumptions for the analysis are provided in Appendix C.

The results for the hydraulic analyses are presented in Table 2-6, with outputs for the analytical solutions provided in Appendix B. The estimated hydraulic conductivity ranges from $2x10^{-07}$ m/s at BH22-16 to $2x10^{-08}$ m/s at BH22-15A. These results are within the estimated range of hydraulic conductivity values reported by Freeze and Cherry (1979) for similar soils.

Table 2-6: Estimates of Hydraulic Conductivity from Single-Well Response Tests

Monitoring Well	Screened Lithology	Test Duration	Percent Recovery Monitored	Hydraulic Conductivity (m/s)
BH22-15A	Silty clay, trace sand	9.8 hours	79%	$2x10^{-08}$
BH22-15B	Silty clay, frequent layers of sand or silt	1.1 hours	93%	$3x10^{-07}$
BH22-16	Silty fine sand / sand and silt / silty clay	10.9 hours	96%	$2x10^{-07}$

The results indicate that the silty clay till observed at the screened depths of deep well BH22-15A has low permeability. Hydraulic conductivity at shallow wells BH22-15B and BH22-16 were higher, and the results are consistent with observations of sand seams at BH22-15B, and a thin confined layer of sand within the screened interval at BH22-16, as reported in borehole logs by GeoTerre (Appendix A). Overall, the results are considered representative of low to moderate permeability of the shallow groundwater system across the southern portion of the Site.

2.4 Groundwater Quality

Groundwater was sampled from three (3) groundwater monitoring wells (BH22-15A, BH22-15B and BH22-16) on July 26, 2022 and two (2) groundwater monitoring wells (BH22-15A and BH22-15B) on November 22, 2022. On November 22, 2022, a water sample could not be obtained from BH22-16 as the groundwater level was at/below bottom of the respective monitoring well. These groundwater wells (i.e., BH22-15A, BH22-15B, BH22-16) are downgradient on the Site and adjacent the wetland feature in the southwest corner of the site. Groundwater samples were submitted to Bureau Veritas in Mississauga, Ontario for analysis. Results are summarized below in Table 2.7.

Concentrations of all chemical constituents analyzed in the groundwater samples were below Ontario Drinking Water Quality Standards (ODWQS) with the exception of hardness (as $CaCO_3$) failing to meet the operational guideline of 80 to 100 mg/L $CaCO_3$ on July 26, 2022, and manganese failing to meet the aesthetic objective of 50 µg/L on both sampling dates.

Operational guidelines represent concentrations below which a chemical constituent is not expected to interfere with or impair a drinking water treatment process or technology (e.g., chlorination, UV disinfection) or damage drinking water infrastructure (e.g., corrode pipes). The exceedance for hardness is due to an elevated amount of calcite ($CaCO_3$) and/or dolomite ($CaMg(CO_3)_2$) content of the local overburden and is not considered a concern for human health, but some users may opt to use softeners to avoid mineral precipitates (also referred to as scaling).

Aesthetic objectives represent concentrations above which the aesthetic quality (e.g., taste, odour, colour) of water may be negatively impacted or may interfere with water quality control practices. The aesthetic objective for manganese is based on undesirable staining of laundry and sink fixtures and unpleasant tastes in beverages. As the aesthetic objective is not a health risk-based guideline, the concentration of manganese in groundwater is not considered a concern for human health.

Nitrate and nitrite concentrations in groundwater were generally below the detection limit at all monitoring wells, except for BH22-16 (2.94 mg/L nitrate, 0.018 mg/L nitrite on July 26, 2022) and BH22-15B (0.11 mg/L nitrate, 0.039 mg/L nitrite on November 22, 2022). These concentrations are still well below the ODWQS of 10 mg/L for nitrate and 1 mg/L for nitrite.

All groundwater samples were analyzed for *Escherichia coli* (*E. coli*) and total coliform bacteria. Collected groundwater samples were transported via an ice-filled cooler and were received at the laboratory at a temperature of 4.3°C on July 26, 2022 and 5.7 °C on November 22, 2022. All analyzed samples were reported as “No data due to overgrowth” (NDOGT). This designation indicates that both E. coli and total coliform bacteria were indeed detected, but the bacterial overgrowth prevented an accurate measurement of colony-forming units (CFU) per 100 mL of water. The wells from which these samples were collected are not used as a drinking water supply and have not been disinfected to eliminate bacteria.

Table 2-7: Summary of Chemical and Microbiological Parameters in Groundwater

Parameter	Units	Drinking Water Quality Guideline				BH22-16 [f]		BH22-15A		BH22-15B		DUP1 [c]	RDL [d]
		ODWQS [a]	MAC [b]	AO [b]	OG [b]	26-Jul-22	22-Nov-22	26-Jul-22	22-Nov-22	26-Jul-22	22-Nov-22	26-Jul-22	
Water Quality													
Alkalinity (Total as CaCO3)	mg/L	-	-	-	30 - 500	-	ND	-	260	-	280	-	1.0
Conductivity	µΩ/cm	-	-	-	-	670	ND	500	500	650	580	650	1.0
Hardness (asCaCO3)	mg/L	-	-	-	80 - 100	**370**	ND	**250**	-	**380**	-	**390**	1.0
pH	-	-	-	-	7.0 - 10.5	7.87	ND	8.06	7.88	7.87	7.80	7.88	-
Anions and Nutrients													
Dissolved Bromide (Br-)	mg/L	-	-	-	-	<1.0	ND	<1.0	<1.0	<1.0	<1.0	<1.0	1.0
Dissolved Chloride (Cl-)	mg/L	-	-	250	-	15	ND	3.9	3.9	7.1	4.4	7.1	1.0
Fluoride (F-)	mg/L	1.5	1.5	-	-	0.13	ND	0.22	0.22	0.14	0.15	0.13	0.10
Nitrate (as N)	mg/L	10	10	-	-	2.94	ND	<0.10	<0.10	<0.10	0.11	<0.10	0.10
Nitrite (as N)	mg/L	1	1	-	-	0.018	ND	<0.010	<0.010	<0.010	0.039	<0.010	0.010
Dissolved Sulphate (SO4)	mg/L	-	-	500	-	59	ND	18	13	51	35	51	1.0
Total Phosphorus	mg/L	-	-	-	-	0.034	ND	0.031	0.031	0.022	0.12	<0.020	0.020
Dissolved Metals													
Aluminum (Al)	µg/L	-	2,900	-	100	5.2	ND	5	<4.9	<4.9	<4.9	<4.9	4.9
Antimony (Sb)	µg/L	6	6	-	-	<0.50	ND	<0.50	0.86	<0.50	<0.50	<0.50	0.5
Arsenic (As)	µg/L	10	10	-	-	<1.0	ND	4.4	4.4	1.1	<1.0	1.1	1
Boron (B)	µg/L	5,000	5,000	-	-	24	ND	74	67	27	29	30	10
Cadmium (Cd)	µg/L	5	7	-	-	<0.090	ND	<0.090	<0.090	<0.090	<0.090	<0.090	0.09
Calcium (Ca)	µg/L	-	-	-	-	110,000	ND	30,000	28,000	100,000	78,000	100,000	200
Chromium (Cr)	µg/L	50	50	-	-	<5.0	ND	<5.0	<5.0	<5.0	<5.0	<5.0	5
Cobalt (Co)	µg/L	-	-	-	-	<0.50	ND	<0.50	<0.50	<0.50	<0.50	<0.50	0.5
Copper (Cu)	µg/L	-	2,000	1,000	-	1.1	ND	<0.90	<0.90	<0.90	<0.90	<0.90	0.9

Iron (Fe)	µg/L	-	-	300	-	<100	ND	<100	120	240	**370**	260	100
Lead (Pb)	µg/L	10	5	-	-	<0.50	ND	<0.50	<0.50	<0.50	<0.50	<0.50	0.5
Magnesium (Mg)	µg/L	-	-	-	-	25,000	ND	43,000	38,000	30,000	31,000	31,000	50
Manganese (Mn)	µg/L	-	120	20	-	**120**	ND	16	**35**	**43**	**69**	**44**	2
Nickel (Ni)	µg/L	-	-	-	-	<1.0	ND	<1.0	<1.0	<1.0	<1.0	<1.0	1
Potassium (K)	µg/L	-	-	-	-	1,700	ND	1,500	1,500	1,500	1,500	1,600	200
Selenium (Se)	µg/L	50	50	-	-	<2.0	ND	<2.0	<2.0	<2.0	<2.0	<2.0	2
Sodium (Na)	µg/L	-	-	200,000	-	9,300	ND	27,000	21,000	9,600	7,800	9,900	100
Strontium (Sr)	µg/L	-	7,000	-	-	280	ND	730		330		340	1
Uranium (U)	µg/L	20	20	-	-	0.91	ND	0.81	0.52	0.68	0.2	0.66	0.1
Zinc (Zn)	µg/L	-	-	5,000	-	<5.0	ND	<5.0	<5.0	<5.0	<5.0	<5.0	5
Microbiological													
Escherichia coli (E. coli)	CFU/100 mL	Not detectable	Not detectable	-	-	**NDOGT** [e]	ND	**NDOGT** [e]	**NDOGT** [e]	**NDOGT** [e]	**NDOGT** [e]	**NDOGT** [e]	-
Total Coliforms	CFU/100 mL	Not detectable	Not detectable	-	-	**NDOGT** [e]	ND	**NDOGT** [e]	**NDOGT** [e]	**NDOGT** [e]	**NDOGT** [e]	**NDOGT** [e]	-

Notes:

Bold/Underline - Represents concentrations above drinking water quality guidelines.

[a] O. Reg. 169/03: Ontario Drinking Water Quality Standards

[b] Health Canada Guidelines for Canadian Drinking Water Quality (MAC - Maximum Acceptable Concentration; AO - Aesthetic Objective; OG - Operational Guideline)

[c] Field duplicate for BH22-15B.

[d] RDL - Reportable Detection Limit

[e] NDOGT - No data due to overgrowth. Total coliforms and/or *E. coli* detected.

[f] ND - No data collected; no groundwater in well.

2.5 Planning Considerations

General guidelines for Geotechnical/Hydrogeological Investigations are provided in Section 7.1.18.3 of the Town of Caledon Official Plan (2018). It is noted in Section 7.1.18.3 of the Town of Caledon Official Plan that a minimum of 100 metres of soil borings normally will be required for each half township lot. The borings will include a number of boreholes in order to describe adequately the soil properties and stratigraphic relationships of the site and the characteristics of the water table aquifer. We note that each half of a township lot is 100 acres, therefore a minimum 1 metre of soil boring is suggested to be conducted per acre. The subject property consists of a 10-acre parcel, therefore the minimum suggested soil boring would be 10 metres.

Information on soil borings for the Site and surrounding area is available from a geotechnical investigation conducted by GeoTerre (2024). Three boreholes were investigated to a depth of 6.6 metres, and one borehole was investigated to a depth of 15.7 metres, for a total depth of 35.5 metres of geotechnical boreholes. Two locations (BH22-13 and BH22-14) were installed at topographical high areas on the Site; and two locations (BH22-15A/B and BH22-16) were installed at topographical low areas on the Site.

Given the above information and the generally similar stratigraphy noted on the adjacent Stellar Estates Phase 1 development (SPL, 2007) where twelve boreholes were investigated to depths of 2.0 metres and 5.0 metres, for a total depth of 39.0 meters of geotechnical boreholes and MECP well water records in the area (Appendix B), the amount of soil boring information available for the Site is considered sufficient to characterize the subsurface stratigraphy and provide information of groundwater conditions. This exceeds the minimum suggested soil boring depth (10 meters for 10-acre parcel) outlined in the General Guidelines for Geotechnical/Hydrogeological Investigations provided in Section 7.1.18.3 of the Town of Caledon Official Plan (2018).

3.0 Impact Assessment

Section 7.1.18.5 of the Town of Caledon Official Plan requires an assessment of the risk for contamination, including nitrate modelling, from the proposed development to adjacent domestic and communal groundwater supplies. The impact assessment is provided in Sections 3.1 to 3.3.

3.1 Groundwater Quantity

No impacts to the deep regional groundwater system are anticipated as the site is small in the overall context of the regional system, the surficial silty clay/silty sand tills are typically of low permeability and anticipated to be in the order of 5 to 20 metres in thickness, and the site water balance will be maintained.

Water servicing of the proposed development will be by connection to the Region of Peel municipal water system and not private water wells. As such, there is no concern for a significant decrease in the available water in the aquifer to service the surrounding domestic wells. In addition, the project involves connection to existing municipal water supply infrastructure on Mulloy Court and no construction of sewers with the associated risk of dewatering.

No impacts are expected on the shallow groundwater flow system, other than higher groundwater levels in the immediate area of the septic system on each lot. This effect can be mitigated by design of the respective septic systems in conformance with the Ontario Building Code and maintenance of required vertical clearances to groundwater levels. Preliminary water balance calculations **(Appendix G)** indicate that post-construction infiltration values will be similar to that of current conditions. In addition, post-development drainage patterns will generally remain similar to pre-development conditions. Therefore, no significant change in local groundwater recharge is expected.

3.2 Groundwater Quality

In general, the proposed development is not expected to impact the local water supply groundwater quality. Geotechnical investigations completed at the site indicate that the overlying silty clay and silty sand tills are at least 5 metres in thickness and may be up to 20 metres in thickness based on review of MECP water well records for the area.

Construction of services and homes is expected to be within the top several metres of the overlying silty clay and silty sand tills, which typically are of low permeability (Section 2.3.5). In addition, no deep storm or sanitary sewers are anticipated to be constructed which would intercept water-bearing soil zones that are targeted by municipal water supply wells. Private domestic water supply wells in the local area typically draw water from the overlying silty clay and silty sand tills from depths ranging from 10 to 25 metres. At these depths, there is separation between the water taking zones and the anticipated depth of construction. In addition, the majority of water supply wells are located up-gradient to the inferred direction of

shallow groundwater flow to the south; and the nearest downgradient well to the site is approximately 500m from the Site (Figure 2.4). The first phase of the Stellar Estates development, located adjacent to the north and west of the Site, are municipally supplied with drinking water. Therefore, there is significant protection between the Site and nearby water supply wells.

The site is also located outside the 2 to 25-year wellhead protection areas as identified on Schedule 'O' of the Town of Caledon Official Plan (2018).

3.3 Nitrate Loadings

Individual on-Site sewage disposal systems (e.g., septic systems) will provide sanitary servicing for each of the residential structures within the proposed subdivision. The use of septic systems at the Site is expected to add nitrate to the local shallow groundwater system. The deeper aquifer system is isolated from the shallow system by the presence of the thick till overburden, which limits vertical groundwater flow and promotes horizontal flow. In addition, the native surficial soils are typically silts and not observably hydrogeologically sensitive, unlike other areas such as karstic terrain, areas with thin soil cover and fractured bedrock, or areas with highly permeable soils.

Nitrate loading calculations are provided below to assess the potential for off-Site impact. The total nitrate mass loading for the Site is calculated using the standard 40 mg/L nitrate septic effluent concentration and 1,000 L/day per lot of septic volume, as outlined in the MECP Guideline D-5-4 (MECP, 2021).

The average annual total precipitation and evapotranspiration were estimated by Ecometrix (2022) to be 940 and 542 mm respectively, resulting in an annual water surplus of 398 mm. The MOE (2003a) compiled a set of factors to quantify the percentage of the water surplus that infiltrates into the subsurface. The infiltration factor (I_f) is the summation of infiltration factors related to topography, soil and vegetation cover of the Site (Table 3-1). For the proposed Site, the infiltration factor is estimated to be equivalent to the sum of 0.2 for topography (rolling land), 0.2 for soil (medium combination of clay and loam) and 0.1 for cover (cultivated lands), for a total infiltration factor of 0.5.

Table 3-1: Determination of Infiltration Factor (MOE, 2003a)

Physical Description of Site	Value of I_f
Topography	
Flat land, average slope <0.6 m per km	0.3
Rolling land, average slope of 2.8 m to 3.8 m per km	0.2
Hilly land, average slope of 28 m to 47 m per km	0.1
Soil	
Tight impervious clay	0.1
Medium combination of clay and loam	0.2
Open sandy loam	0.4
Cover	
Cultivated lands	0.1
Woodland	0.2

The available infiltration water for the Site is determined by the area (4.07 ha), average annual precipitation surplus (0.398 m/a) and infiltration factor (0.5). The average background nitrate concentration for all values reported in **6** was 1.05 mg/L (C_{bkgd}), assuming the detection limit values for results that were below detection.

The nitrate concentration at the down gradient boundary of the proposed development can be calculated as follows:

$$Nitrate\ Concentration\ (mg/L) = \frac{(Q_{inf} \times C_{bkgd}) + (Q_{eff} \times C_{eff})}{Q_{inf} + Q_{eff}}$$

Where:

Q_{inf} = Volume of water infiltrating ground from precipitation surplus (L/d)
Q_{eff} = Septic volume (1,000 L/day per lot)
C_{bkgd} = Background concentration (mg/L) of nitrate in groundwater
C_{eff} = Concentration of nitrate in septic effluent from dwellings (assumed 40 mg/L)

The estimated nitrate concentration in groundwater at the downgradient boundary of the property was calculated to be 8.30 mg/L, as shown in Table 3-2 below.

Table 3-2: Nitrate Loading for the Stellar Estates Phase 2 Residential Development

Area of Development + Downgradient (ha)	Number of lots	Infiltration (m^3/d)	Effluent (m^3/d)	Nitrate in groundwater (mg/L)	Nitrate in effluent (mg/L)	Nitrate (mg/L)
		Q_{inf}	Q_{eff}	C_{bkgd}	C_{eff}	
4.07	5	22	5	1.05	40	8.30

The above result suggests that the nitrate concentration in groundwater will be elevated above background values; however, the calculated nitrate concentration is less than the maximum acceptable concentrations (MAC) of 10 mg/L for drinking water in Ontario (MOE, 2003b). The drinking water standard is used here solely as a relative benchmark for nitrate.

The above calculation reflects the theoretical nitrate loading associated with recharge water to the groundwater system and assumes no nitrate attenuation between the septic system leaching bed and the receiving groundwater system, no dilution from lateral movement of groundwater, and no nitrate attenuation along the groundwater flowpath or at the wetland. The low permeability and thickness of the overburden at the site will provide additional protection for local domestic wells.

4.0 Monitoring and Contingency

Based on the analysis, no significant groundwater effects are expected at the site. However, in order to ensure unexpected effects do not occur, monitoring and contingency plans have been prepared for the Stellar Estates Phase 2 project. These include monitoring to collect additional information on site natural features and groundwater conditions and assess the effectiveness of the proposed site water management strategy. The potential impacts on groundwater quantity and quality will be assessed by establishment of a well monitoring program to further document baseline conditions, provide routine monitoring during construction, and continue for a two-year period post-construction. The well monitoring program has been initiated.

In addition, monitoring of existing water wells within the zone of influence prior to, during and after construction will be conducted consistent with Region of Peel Guidelines for Hydrogeologic Assessment and Reporting Requirements (2009), and the well monitoring program should contain at a minimum:

- Baseline monitoring including measurement of static water levels and water quality sampling of accessible wells located within 500 metres of the site and proposed construction areas. As a minimum, water quality sampling would include analyses for the following parameters:
    - bacteriological analysis for Total coliform and E. coli counts
    - chemical analysis for nitrate
- A comprehensive baseline hydrogeologic report will be prepared and provide a proposed contingency plan for replacement of private well supplies that could potentially be affected by the proposed development.
- Monitoring of groundwater levels and well water quality during construction and for 1 year after completion of construction of underground services and submission of a summary report.

With respect to maintenance of groundwater levels and groundwater quality, the following mitigation measures are proposed by Ecometrix Incorporated:

<u>Construction (Servicing and House Building Phase)</u>

- during construction of bioretention areas (for stormwater management), if elevated groundwater levels are encountered, either implementation of measures to increase the vertical separation distance between surface and groundwater systems to limit potential hydraulic connectivity or placement of a semi-impermeable barrier in areas of concern.
- spill management – requirement for contractor spill contingency plans that outline reporting procedures, clean-up procedures, and appropriate spill management materials and equipment to be maintained at the work site.

Post Services Construction

- if elevated concentration(s) of water quality parameters are observed, inspection of on-site sewage disposal systems to ensure they are functioning as intended and no illicit connections or discharges are present.

- if elevated concentration(s) of water quality parameters are observed, inspection of land uses to ensure compliance with the applicable zoning by-laws and that no uses are present that could potentially impact groundwater quality (e.g., intensive urban horticulture and nutrient or pesticide use, chemical storage or handling)

- spill management – requirement for contractor spill contingency plans that outline reporting procedures, clean-up procedures, and appropriate spill management materials and equipment to be maintained at the work site.

Contingency Plan

With respect to maintenance of groundwater levels and groundwater quality, contingency measures would be active and adaptive and involve on-going inspection, maintenance, and re-evaluation of site conditions. This could result in increased frequency of inspections and maintenance, monitoring, and specification of alternative control measures.

With respect to potential off-site impacts, to minimize the potential for an increase in nitrate concentrations, on-site sewage disposal systems could incorporate tertiary treatment technologies with nitrate reduction capabilities.

Based on review of MECP water well records, it is noted that only one well record was identified to be downgradient of the Site (Well ID 4908800, installed at a depth of 14.6 mbgs and servicing 15300 Mount Pleasant Road). Due to distance from the site and predominantly low permeability strata of the shallow groundwater flow system, no impacts are anticipated.

In the event of a well interference complaint during or after construction activities, and prior to assumption by the municipality, the response procedures outlined below will be implemented to mitigate any adverse effects on groundwater:

- Construction operations, if on-going, will be stopped until the well interference complaint has been investigated

- A hydrogeologist will review the well interference complaint to assess nature of the potential issue and make a determination if the well complaint is related to the project

- If the well interference complaint is determined attributable to the project, the viability of provision of a temporary water supply will be evaluated as well related options such as deepening/re-drilling, provision of a new well, and or modernizing of the well pumping system and or water treatment system

- Records of complaints, investigations, and resolutions will be maintained and circulated to the municipality

5.0 Summary

A hydrogeological assessment was completed for the proposed Stellar Estates Phase 2 estates residential development in the Palgrave area of the Town of Caledon, Ontario, and includes an evaluation of the hydrogeological characteristics of the site, including groundwater flow and quality, as well as an assessment of potential impacts to the groundwater as a result of the proposed development, and in particular nitrate loadings from residential septic systems. This report has been prepared as supporting documentation for the Draft Plan of Subdivision application for the Stellar Estates Phase 2 development.

The overall site comprises 4.07 ha. The proposed development includes five estate residential lots with individual private septic systems for sewage disposal, and municipal water supply.

The shallow groundwater table has been measured to typically 2.5 to 5 mbgs or less and has been inferred to flow to the south across the Site. The water table reflects the topography, and the shallow groundwater follows local topography through the low permeability, predominantly silty clay overburden. The shallow, local groundwater flow system discharges to a provincially-designated wetland in the southern portion of the Site during summer months, but this pattern may reverse at the wetland during snowmelt or after rain events when surface water likely rises in the wetland. Groundwater flow in the deeper confined aquifer(s) and regional groundwater system is generally to the south and southwest towards the Humber River.

The hydraulic conductivities of the subsurface soils, determined through single-well response tests, generally ranged from $2x10^{-7}$ to $3x10^{-8}$ m/s, and is consistent with literature values for silty sand and clayey soils.

The proposed development is not anticipated to have an impact on local groundwater levels, well water quantity, or well water quality. Groundwater levels in the immediate area of the sewage disposal system on each lot are expected to be higher than pre-development levels, but this change is unlikely to materially influence the shallow groundwater flow system. Nitrate loading estimates from the individual on-site sewage disposal systems indicates the downstream nitrate concentration at the property boundary are likely to be less than the Ontario drinking water standard of 10 mg/L. It is noted that additional reduction in nitrate loadings can be achieved through the use of on-site sewage disposal systems with nitrate reduction capability.

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Appendix A Borehole Logs

LOG OF BOREHOLE BH22-13

PROJECT No.: **TG22-033**
CLIENT: **Ecometrix**
PROJECT: **Stellar Estates-Phase 2**
LOCATION: **Ontario**
SURFACE ELEV.: **0 metres (Geodetic)**

Drilling Data
METHOD: **Solid Stem Augers**
DIAMETER: **150 mm**
PREP. BY: **VTM** APPR. BY: **IC**
DATE: **June 22 2022**

ELEV. (m) / DEPTH (m)	Water/Backfill Data	% MOISTURE (W_P W W_L)	Symbol	MATERIAL DESCRIPTION	SAMPLE NUMBER	SAMPLE TYPE	'N' VALUE	VANE (kPa) ✖ Pocket Pen (kPa) + / SPT (N) ● Blows/0.3m / DCPT ◆	GRAIN SIZE DISTRIBUTION (%) Gr	Sa	Si	Cl
-0.2				TOPSOIL (200 mm)	1A							
0.2				SILTY CLAY (low plasticity), trace sand, soft to firm, brown	1B		4					
					2		5		0	6	54	40
-1.4												
1.4				CLAYEY SILT, trace sand, compact, brown	3		21		0	6	73	22
-2.1												
2.1				SILTY CLAY (low plasticity), trace sand, occasional higher silt content zones, very stiff, grey/brown	4A							
					4B		22					
					5		18		0	8	67	24
					6		21		0	7	55	38
-4.8					7A							
4.8				SILT, some sand, some clay and occasional clay layers, compact to dense, grey	7B		24					
					8		41		0	14	74	13
-6.6												
6.6				END OF BOREHOLE AT TARGET DEPTH OF 6.6 M.								

BOREHOLE OPEN WITH STANDING WATER AT A DEPTH OF 6.1 M UPON COMPLETION OF DRILLING.

STANDPIPE PIEZOMETER (50 mm diameter) INSTALLED TO A TIP DEPTH OF 6.1 M (3.0 M LONG SCREEN) UPON COMPLETION OF DRILLING.

PIEZOMETER WATER LEVEL READINGS

DATE	Depth(m)	Elevation(m)
Jun 22'22 (noon)	dry	
Jun 22'22 (3 pm)	2.95	
Jun 23'22 (9 am)	1.36	

REPORTED SPT 'N' VALUES OBTAINED USING AN AUTOMATIC DROP HAMMER.

LOG OF BOREHOLE ECOMETRIX-STELLARESTATE-PHASE2.GPJ GEOTERRE.GDT 8/16/22

GeoTerre Limited
215 Advance Blvd. - Unit 5/6
Brampton, Ontario L6T 4V9
Phone: (905) 455-5666
Fax: (905) 455-5639
e-mail: toronto@geoterre.ca

SAMPLE TYPE
Auger Sample
Split Spoon Sample
Bulk Sample
Thin Wall Tube Sampler
Pionjar Sample
Soil Core (PQ)

BACKFILL LEGEND
Concrete
Drill Cuttings
Asphalt
Bentonite
Filter Sand
Slotted Pipe
Grout
Slough

LOG OF BOREHOLE BH22-14

PROJECT No.: **TG22-033**
CLIENT: **Ecometrix**
PROJECT: **Stellar Estates-Phase 2**
LOCATION: **Ontario**
SURFACE ELEV.: **0 metres (Geodetic)**

Drilling Data
METHOD: **Solid Stem Augers**
DIAMETER: **150 mm**
PREP. BY: **VTM** APPR. BY: **IC**
DATE: **June 22 2022**

ELEV. (m) / DEPTH (m)	Water/Backfill Data	% MOISTURE (W_P W W_L)	Symbol	MATERIAL DESCRIPTION	SAMPLE NUMBER	SAMPLE TYPE	'N' VALUE	VANE (kPa) ✖ Pocket Pen (kPa) + / SPT (N) ● Blows/0.3m / DCPT ◆	GRAIN SIZE DISTRIBUTION (%) Gr	Sa	Si	Cl
-0.3 / 0.3				TOPSOIL (250 mm)	1A							
				CLAYEY SILT, trace sand, loose, grey/brown	1B		5					
					2		8		0	5	70	25
-1.4 / 1.4				SILTY CLAY (low plasticity), trace sand, very stiff, grey/brown becoming grey at Sample 6	3		19					
					4		25		0	7	63	30
					5		21					
					6		24					
-4.5 / 4.5				SILT, some clay, trace sand, compact to dense, grey	7		22		0	4	81	15
					8		33					
-6.6 / 6.6				END OF BOREHOLE AT TARGET DEPTH OF 6.6 M.								

BOREHOLE OPEN WITH STANDING WATER AT A DEPTH OF 6.1 M UPON COMPLETION OF DRILLING.

STANDPIPE PIEZOMETER (50 mm diameter) INSTALLED TO A TIP DEPTH OF 6.1 M (3.0 M LONG SCREEN) UPON COMPLETION OF DRILLING.

PIEZOMETER WATER LEVEL READINGS

DATE	Depth(m)	Elevation(m)
Jun 22'22 (10 am)	dry	
Jun 22'22 (3 pm)	2.60	
Jun 23'22 (9 am)	2.01	

REPORTED SPT 'N' VALUES OBTAINED USING AN AUTOMATIC DROP HAMMER.

LOG OF BOREHOLE ECOMETRIX-STELLARESTATE-PHASE2.GPJ GEOTERRE.GDT 8/16/22

GeoTerre Limited
215 Advance Blvd. - Unit 5/6
Brampton, Ontario L6T 4V9
Phone: (905) 455-5666
Fax: (905) 455-5639
e-mail: toronto@geoterre.ca

SAMPLE TYPE
Auger Sample; Split Spoon Sample; Bulk Sample; Thin Wall Tube Sampler; Pionjar Sample; Soil Core (PQ)

BACKFILL LEGEND
Concrete; Drill Cuttings; Asphalt; Bentonite; Filter Sand; Slotted Pipe; Grout; Slough

LOG OF BOREHOLE BH22-15

PROJECT No.: **TG22-033**
CLIENT: **Ecometrix**
PROJECT: **Stellar Estates-Phase 2**
LOCATION: **Ontario**
SURFACE ELEV.: **0 metres (Geodetic)**

Drilling Data
METHOD: **See Note 1)**
DIAMETER:
PREP. BY: **PSH** APPR. BY: **IC**
DATE: **June 23 2022**

ELEV. (m) / DEPTH (m)	Water/Backfill Data	% MOISTURE (W_P W W_L)	Symbol	MATERIAL DESCRIPTION	SAMPLE NUMBER	SAMPLE TYPE	'N' VALUE	VANE (kPa) / Pocket Pen (kPa) / SPT (N) Blows/0.3m / DCPT	GRAIN SIZE DISTRIBUTION (%) Gr	Sa	Si	Cl
0.6 / -0.6				TOPSOIL (600 mm)	1A 1B		5					
2.1 / -2.1				SAND AND SILT, trace gravel, trace clay and frequent thin layers of clay, very loose to loose, brown	2 3		4 9		3	39	49	9
3.7 / -3.7				SILTY CLAY (low plasticity), trace sand, frequent thin layers of silt, firm, grey	4 5		9 11		0	6	62	32
4.4 / -4.4				NO SAMPLE RECOVERY	6		6					
5.6 / -5.6				SILTY CLAY (low plasticity), frequent thin layers of sand, very stiff, grey	7		17					
				CLAYEY SILT, some sand, trace gravel, compact, loose, grey	8 9 10		20 25 24		1	14	61	24

LOG OF BOREHOLE ECOMETRIX-STELLARESTATE-PHASE2.GPJ GEOTERRE.GDT 8/16/22

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SAMPLE TYPE
- Auger Sample
- Split Spoon Sample
- Bulk Sample
- Thin Wall Tube Sampler
- Pionjar Sample
- Soil Core (PQ)

BACKFILL LEGEND
- Concrete
- Drill Cuttings
- Asphalt
- Bentonite
- Filter Sand
- Slotted Pipe
- Grout
- Slough

LOG OF BOREHOLE BH22-15

PROJECT No.: **TG22-033**
CLIENT: **Ecometrix**
PROJECT: **Stellar Estates-Phase 2**
LOCATION: **Ontario**
SURFACE ELEV.: **0 metres (Geodetic)**

Drilling Data
METHOD: **See Note 1)**
DIAMETER:
PREP. BY: **PSH** APPR. BY: **IC**
DATE: **June 23 2022**

ELEV. (m) / DEPTH (m)	Water/Backfill Data	% MOISTURE (W_P W W_L)	Symbol	MATERIAL DESCRIPTION	SAMPLE NUMBER	SAMPLE TYPE	'N' VALUE	VANE (kPa) / Pocket Pen (kPa) / SPT (N) / DCPT Blows/0.3m	GRAIN SIZE DISTRIBUTION (%) Gr	Sa	Si	Cl
-10.1												
10.1				SILTY CLAY (low plasticity), trace sand, very stiff, grey								
					11		25					
					12		28		0	5	59	36
					13		29					
-14.7												
14.7				NO SAMPLE RECOVERY								
					14		23					
-15.7												
15.7				END OF BOREHOLE AT TARGET DEPTH OF 15.7 M. BOREHOLE OPEN UPON COMPLETION OF DRILLING WITH WATER LEVEL AT A SHORT DISTANCE BELOW GROUND SURFACE DUE TO DRILLING BEING COMPLETED USING WASHBORING. REPORTED SPT 'N' VALUES OBTAINED USING AN AUTOMATIC DROP HAMMER. LOWER MONITORING WELL A (50 mm diameter) INSTALLED TO A TIP DEPTH OF 15.7 M (3.0 M LONG SCREEN) UPON COMPLETION OF DRILLING. MONITORING WELL A WATER LEVEL READINGS DATE Depth (m) Elevation (m)								

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SAMPLE TYPE
- Auger Sample
- Split Spoon Sample
- Bulk Sample
- Thin Wall Tube Sampler
- Pionjar Sample
- Soil Core (PQ)

BACKFILL LEGEND
- Concrete
- Drill Cuttings
- Asphalt
- Bentonite
- Filter Sand
- Slotted Pipe
- Grout
- Slough

LOG OF BOREHOLE ECOMETRIX-STELLARESTATE-PHASE2.GPJ GEOTERRE.GDT 8/16/22

LOG OF BOREHOLE BH22-15

PROJECT No.: **TG22-033**
CLIENT: **Ecometrix**
PROJECT: **Stellar Estates-Phase 2**
LOCATION: **Ontario**
SURFACE ELEV.: **0 metres (Geodetic)**

Drilling Data
METHOD: **See Note 1)**
DIAMETER:
PREP. BY: **PSH** APPR. BY: **IC**
DATE: **June 23 2022**

ELEV. (m) DEPTH (m)	Water/Backfill Data	% MOISTURE (W_P W W_L) 10 20 30 40	Symbol	MATERIAL DESCRIPTION	SAMPLE NUMBER	SAMPLE TYPE	'N' VALUE	VANE (kPa) ✖ Pocket Pen (kPa) + 20 40 60 80; SPT (N) ● Blows/0.3m DCPT◆ 20 40 60 80	GRAIN SIZE DISTRIBUTION (%) Gr Sa Si Cl
				UPPER MONITORING WELL B (50 mm diameter) INSTALLED TO A TIP DEPTH OF 5.8 M (3.0 M LONG SCREEN) IN CLOSELY ADJACENT (3 M EAST) UNSAMPLED BOREHOLE UPON COMPLETION OF DRILLING. MONITORING WELL B WATER LEVEL READINGS DATE Depth (m) Elevation (m) NOTES 1) SOLID STEM AUGERS (150mm diameter) TO 3.0 M, FOLLOWED BY WASHBORING IN CONJUCTION WITH 96MM TRI-CONE FOR REMAINDER OF BOREHOLE.					

LOG OF BOREHOLE ECOMETRIX-STELLARESTATE-PHASE2.GPJ GEOTERRE.GDT 8/16/22

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SAMPLE TYPE
- Auger Sample
- Split Spoon Sample
- Bulk Sample
- Thin Wall Tube Sampler
- Pionjar Sample
- Soil Core (PQ)

BACKFILL LEGEND
- Concrete
- Drill Cuttings
- Asphalt
- Bentonite
- Filter Sand
- Slotted Pipe
- Grout
- Slough

LOG OF BOREHOLE BH22-16

PROJECT No.: **TG22-033**
CLIENT: **Ecometrix**
PROJECT: **Stellar Estates-Phase 2**
LOCATION: **Ontario**
SURFACE ELEV.: **0 metres (Geodetic)**

Drilling Data
METHOD: **Solid Stem Augers**
DIAMETER: **150 mm**
PREP. BY: **VTM** APPR. BY: **IC**
DATE: **June 22 2022**

ELEV. (m) / DEPTH (m)	Water/Backfill Data	% MOISTURE (W_P W W_L)	Symbol	MATERIAL DESCRIPTION	SAMPLE NUMBER	SAMPLE TYPE	'N' VALUE	VANE (kPa) ✖ / Pocket Pen (kPa) + / SPT (N) ● Blows/0.3m / DCPT ◆	GRAIN SIZE DISTRIBUTION (%) Gr	Sa	Si	Cl
-0.2 / 0.2				TOPSOIL (150 mm)	1A							
				CLAYEY SILT, trace sand, loose, grey/brown	1B		5					
					2		10		0	1	76	24
-1.7 / 1.7					3A							
				SILTY FINE SAND TO SAND AND SILT, trace clay, compact, brown	3B		15					
-2.6 / 2.6					4A		11					
				SILTY CLAY (low plasticity), trace gravel, trace sand, firm to stiff, grey	4B							
					5		9					
					6		13		2	6	55	37
-4.4 / 4.4				SILTY CLAY (low plasticity), trace sand and frequent thin layers of silt, very stiff, grey	7		20					
					8		30					
-6.6 / 6.6				END OF BOREHOLE AT TARGET DEPTH OF 6.6 M.								

BOREHOLE OPEN TO DEPTH OF 3.4 M WITH STANDING WATER AT 2.1 M UPON COMPLETION OF DRILLING.

STANDPIPE PIEZOMETER (50 mm diameter) INSTALLED TO A TIP DEPTH OF 4.1 M (3.0 M LONG SCREEN) UPON COMPLETION OF DRILLING.

PIEZOMETER WATER LEVEL READINGS

DATE	Depth(m)	Elevation(m)
Jun 22'22 (3 pm)	1.50	

REPORTED SPT 'N' VALUES OBTAINED USING AN AUTOMATIC DROP HAMMER.

LOG OF BOREHOLE ECOMETRIX-STELLARESTATE-PHASE2.GPJ GEOTERRE.GDT 8/16/22

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SAMPLE TYPE
Auger Sample; Split Spoon Sample; Bulk Sample; Thin Wall Tube Sampler; Pionjar Sample; Soil Core (PQ)

BACKFILL LEGEND
Concrete; Drill Cuttings; Asphalt; Bentonite; Filter Sand; Slotted Pipe; Grout; Slough

Appendix B MECP Water Well Records

Table B-1: Summary of Well Records within 500m of the Site Boundary

Well ID (Tag #)	Easting, Northing, Address of Well Location	Date of Completion	Well Depth (m)	Water Found Depth (m)	Static Water Level	Recommended Pump Depth	Estimated Well Yields (GPM)	Description						Well Status
4900480 (N/A)	598901.50 4865687.00	01/29/1964	96.3	31, 62	N/A	N/A	Insufficient	**Colour**	**Most Common Material**	**Other Materials**	**General Description**	**Depth From**	**Depth To**	Abandoned
								BROWN	CLAY			0 ft	12 ft	
								BROWN	MSND	CLAY		12 ft	18 ft	
								BLUE	CLAY			18 ft	48 ft	
								GREY	MSND	CLAY		48 ft	102 ft	
									FSND	CLAY		102 ft	103 ft	
								GREY	CLAY			103 ft	203 ft	
									FSND			203 ft	210 ft	
								GREY	CLAY			210 ft	219 ft	
								GREY	CLAY			219 ft	316 ft	
4900481 (N/A)	598776.50 4865762.00	06/25/1965	11.6	6	4.9 m (16 ft)	10.7 m (35 ft)	2	**General Colour**	**Most Common Material**	**Other Materials**	**General Description**	**Depth From**	**Depth To**	Domestic & Livestock Water Supply
									LOAM			0 ft	2 ft	
									MSND	CLAY		2 ft	22 ft	
								BLUE	CLAY			22 ft	36 ft	
									QSND			36 ft	38 ft	
4900483 (N/A)	598620.50 4865891.00	05/20/1965	17.7	17.1	12.2 m (40 ft)	16.5 m (54 ft)	0.5	**General Colour**	**Most Common Material**	**Other Materials**	**General Description**	**Depth From**	**Depth To**	Domestic Water Supply
								BROWN	LOAM	CLAY		0 ft	20 ft	
								GREY	CLAY			20 ft	56 ft	
								GREY	FSND			56 ft	58 ft	
4903021 (N/A)	598474.50 4865673.00	04/27/1968	12.2	4.9	4.6 m (15 ft)	11.6 m (38 ft)	4	**General Colour**	**Most Common Material**	**Other Materials**	**General Description**	**Depth From**	**Depth To**	Domestic Water Supply
									CLAY	MSND		0 ft	12 ft	
									CSND			12 ft	16 ft	
								BLUE	CLAY			16 ft	40 ft	
4903059 (N/A)	598564.50 4865773.00	07/26/1968	12.2	5.2, 8.2	8.5 m (28 ft)	11.6 m (38 ft)	0.25	**General Colour**	**Most Common Material**	**Other Materials**	**General Description**	**Depth From**	**Depth To**	Domestic Water Supply
									LOAM			0 ft	2 ft	
								BROWN	CSND	CLAY		2 ft	21 ft	
								GREY	CLAY	STNS		21 ft	27 ft	
								BLUE	CLAY			27 ft	40 ft	
4903310 (N/A)	598634.50 4865683.00	07/20/1969	12.2	12.2	6.1 m (20 ft)	11.9 m (39 ft)	4	**General Colour**	**Most Common Material**	**Other Materials**	**General Description**	**Depth From**	**Depth To**	Domestic Water Supply
								BROWN	CLAY	MSND		0 ft	38 ft	
								BROWN	MSND			38 ft	40 ft	

Well ID (Tag #)	Easting, Northing, Address of Well Location	Date of Completion	Well Depth (m)	Water Found Depth (m)	Static Water Level	Recommended Pump Depth	Estimated Well Yields (GPM)	Description						Well Status
4903698 (N/A)	599064.50 4865683.00	10/07/1971	12.8	6.7	6.7 m (22 ft)	11.9 m (39 ft)	2	**General Colour**	**Most Common Material**	**Other Materials**	**General Description**	**Depth From**	**Depth To**	Domestic Water Supply
								BROWN	LOAM			0 ft	2 ft	
								BROWN	CLAY	SAND		2 ft	16 ft	
								LUE	CLAY	STNS		16 ft	22 ft	
								GREY	SAND			22 ft	42 ft	
4904243 (N/A)	598711.50 4865510.00	10/19/1973	10.7	3.7	2.4 m (8 ft)	9.8 m (32 ft)	2	**General Colour**	**Most Common Material**	**Other Materials**	**General Description**	**Depth From**	**Depth To**	Domestic Water Supply
									LOAM			0 ft	1 ft	
								BROWN	SAND			1 ft	15 ft	
								BLUE	CLAY	STNS	SILT	15 ft	35 ft	
4905241 (N/A)	598677.00 4865815.00	11/25/1977	17.7	6.1, 15	1.5 m (5 ft)	10.7 m (35 ft)	1	**General Colour**	**Most Common Material**	**Other Materials**	**General Description**	**Depth From**	**Depth To**	Domestic Water Supply
								BROWN	LOAM	HARD		0 ft	1 ft	
								BROWN	SAND	CLAY	HARD	1 ft	20 ft	
								GREY	CLAY	HARD		20 ft	45 ft	
								GREY	SAND	LOOS		45 ft	58 ft	
4905547 (N/A)	598764.50 4865473.00	10/10/1979	11.6	2.1, 9.1	4.6 m (15 ft)	9.1 m (30 ft)	2	**General Colour**	**Most Common Material**	**Other Materials**	**General Description**	**Depth From**	**Depth To**	Water Supply
								BLCK	LOAM			0 ft	1 ft	
								BROWN	CLAY			1 ft	16 ft	
								BLUE	CLAY			16 ft	20 ft	
								BLUE	CLAY	SAND		20 ft	30 ft	
								GREY	FSND			30 ft	35 ft	
								BLUE	CLAY	SAND		35 ft	38 ft	
4905606 (N/A)	598964.50 4865623.00	05/29/1979	70.7	67.1	7.9 m (26 ft)	36.6 m (120 ft)	20	**General Colour**	**Most Common Material**	**Other Materials**	**General Description**	**Depth From**	**Depth To**	Test Hole
								BROWN	CLAY	SAND	SOFT	0 ft	21 ft	
								BLUE	CLAY	STNS	HARD	21 ft	96 ft	
								BLUE	CLAY	GRVL	SAND	96 ft	98 ft	
								BLUE	CLAY	STNS	SAND	98 ft	219 ft	
								BROWN	SAND	GRVL	CLAY	219 ft	226 ft	
								BROWN	MSND	GRVL	LOOS	226 ft	232 ft	

Well ID (Tag #)	Easting, Northing, Address of Well Location	Date of Completion	Well Depth (m)	Water Found Depth (m)	Static Water Level	Recommended Pump Depth	Estimated Well Yields (GPM)	Description						Well Status
4905627 (N/A)	598814.50 4865523.00	05/01/1979	148.4	148.4	N/A	N/A	N/A	**General Colour**	**Most Common Material**	**Other Materials**	**General Description**	**Depth From**	**Depth To**	Salt Water - Casing Pulled
									LOAM			0 ft	2 ft	
								GREY	CLAY			2 ft	28 ft	
								GREY	CLAY	SNDY		28 ft	87 ft	
								GREY	CLAY			87 ft	199 ft	
								GREY	CLAY	SOFT	SNDY	199 ft	228 ft	
								BLUE	CLAY	HARD	SNDY	228 ft	340 ft	
								BLUE	CLAY			340 ft	398 ft	
								BLUE	SAND	SLTY		398 ft	435 ft	
								BLUE	CLAY			435 ft	446 ft	
								BLUE	SHLE			446 ft	487 ft	
4905855 (N/A)	599414.50 4865223.00	09/17/1981	18.3	9.8, 17	9.8 m (32 ft)	16.8 m (55 ft)	2	**General Colour**	**Most Common Material**	**Other Materials**	**General Description**	**Depth From**	**Depth To**	Domestic Water Supply
								BROWN	LOAM			0 ft	2 ft	
								BROWN	CLAY	SAND		2 ft	32 ft	
								BLUE	CLAY			32 ft	55 ft	
								GREY	SAND			55 ft	60 ft	
4905996 (N/A)	599214.50 4865323.00	10/04/1982	17.4	11.6	11.6 m (38 ft)	16.5 m (54 ft)	1	**General Colour**	**Most Common Material**	**Other Materials**	**General Description**	**Depth From**	**Depth To**	Domestic Water Supply
								BROWN	LOAM			0 ft	1 ft	
								BROWN	CLAY			1 ft	18 ft	
								BLUE	CLAY			18 ft	38 ft	
								GREY	SAND			38 ft	40 ft	
								BLUE	CLAY			40 ft	57 ft	
4906291 (N/A)	598740.50 4865891.00	06/20/1984	21.9	15, 18, 21	3.0 m (10 ft)	19.8 m (65 ft)	2	**General Colour**	**Most Common Material**	**Other Materials**	**General Description**	**Depth From**	**Depth To**	Domestic Water Supply
								BROWN	LOAM	HARD		0 ft	1 ft	
								BROWN	CLAY	HARD		1 ft	20 ft	
								GREY	CLAY	SAND	LYRD	20 ft	72 ft	
4908344 (N/A)	598635.00 4865663.00 15534 Mount Pleasant Road	05/26/1998	23.2	1.8, 14	1.8 m (6 ft)	18.3 m (60 ft)	5	**General Colour**	**Most Common Material**	**Other Materials**	**General Description**	**Depth From**	**Depth To**	Domestic Water Supply
								BLCK	LOAM			0 ft	2 ft	
								BROWN	SAND			2 ft	11 ft	
								GREY	SAND	SLTY		11 ft	24 ft	
								GREY	CLAY	SILT	LYRD	24 ft	46 ft	
								GREY	CLAY	SAND	HARD	46 ft	76 ft	

Well ID (Tag #)	Easting, Northing, Address of Well Location	Date of Completion	Well Depth (m)	Water Found Depth (m)	Static Water Level	Recommended Pump Depth	Estimated Well Yields (GPM)	Description						Well Status
4908800 (N/A)	598774.70 4864680.00 15300 Mount Pleasant Road	04/03/2001	14.6	2.7, 11	2.7 m (9 ft)	13.7 m (45 ft)	2.5	**General Colour**	**Most Common Material**	**Other Materials**	**General Description**	**Depth From**	**Depth To**	Domestic Water Supply
								BLCK	LOAM			0 ft	2 ft	
								BROWN	CLAY			2 ft	10 ft	
								BROWN	SAND	CLAY		10 ft	12 ft	
								BROWN	CLAY			12 ft	16 ft	
								BLUE	CLAY			16 ft	35 ft	
								GREY	SAND			35 ft	36 ft	
								BLUE	CLAY			36 ft	45 ft	
								GREY	SAND			45 ft	46 ft	
								BLUE	CLAY			46 ft	48 ft	
7119440 (A079003)	598876.00 4865520.00 15462 Mount Pleasant Road	02/09/2009	5.5	N/A	N/A	N/A	N/A	**General Colour**	**Most Common Material**	**Other Materials**	**General Description**	**Depth From**	**Depth To**	Monitoring Well (assumed; drilled by Strata Soil Sampling)
								BROWN	SAND	SILT	DNSE	0 m	2.44 m	
								GREY	CLAY	SILT	DNSE	2.44 m	5.49 m	
7214203 (A160367)	599103.00 4865107.00 15300 Mount Pleasant Road	12/20/2013	132.9	129	9.3 (30.6 ft)	76.2 m (250 ft)	4	**General Colour**	**Most Common Material**	**Other Materials**	**General Description**	**Depth From**	**Depth To**	Domestic Water Supply
								BROWN	LOAM			0 ft	2 ft	
								BROWN	CLAY	STNS		2 ft	20 ft	
								GREY	CLAY	DNSE		20 ft	145 ft	
								GREY	CLAY	SILT	LYRD	145 ft	155 ft	
								GREY	CLAY	STNS		155 ft	196 ft	
								GREY	CLAY	DNSE		196 ft	310 ft	
								GREY	SILT	CLAY	LYRD	310 ft	423 ft	
								GREY	SAND	WBRG		423 ft	436 ft	
7285427 (A204307)	598743.00 4865433.00 6 Mulloy Court	04/03/2017	N/A	N/A	N/A	N/A	N/A	N/A						Abandoned

UTM 17 Z 598887 E
5 R 4865464 N
Elev. 5 R 1810
Basin 24
County or District Peel

The Ontario Water Resources Commission Act

WATER WELL RECORD

GROUND WATER BRANCH
MAR 9 1964
ONTARIO WATER RESOURCES COMMISSION

49 No. 480

Township, Village, Town or City Albion

Con. 9 Lot 18

Date completed 29 (day) Jan (month) 64 (year)

[redacted]dress R.R.#1, Bolton, Ont.

Casing and Screen Record

Inside diameter of casing 4", removed

Total length of casing

Type of screen

Length of screen REMOVED

Depth to top of screen

Diameter of finished hole

Pumping Test

Static level

Test-pumping rate G.P.M.

Pumping level

Duration of test pumping

Water clear or cloudy at end of test

Recommended pumping rate G.P.M.

with pump setting of feet below ground surface

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Water Record: Depth(s) at which water(s) found	Water Record: Kind of water (fresh, salty, sulphur)
Brown clay	0	12	102	not suffic-
Brown muddy sand	12	18	203	ient to
Blue clay	18	48		develop.
Gray sand and clay	48	102		
Fine muddy sand	102	103		
Soft gray clay	103	203		
Fine dirty sand	203	210		
Gravely gray clay	210	219		
Soft gray clay	219	316		

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

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

Drilling or Boring Firm
Rutledge Water Wells Ltd.,

Address Nobleton, Ont.

Licence Number 1171

Name of Driller or Borer R. Kimberley

Address

Date Jan 31, 1964.

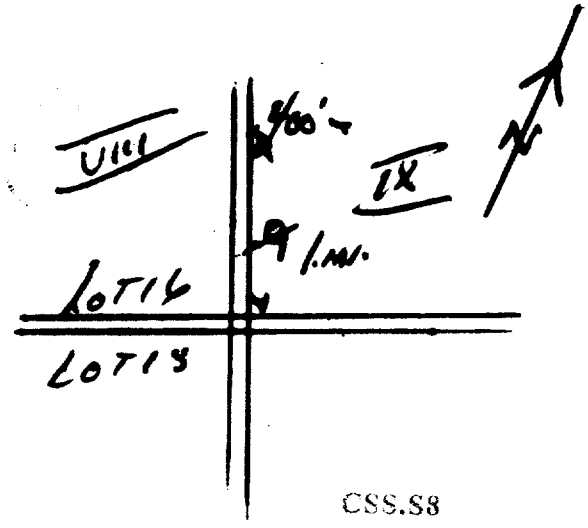
C. W. Rutledge
(Signature of Licensed Drilling or Boring Contractor)

Form 7 15M-60-4138

OWRC COPY

Location of Well

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



CSS.S8

UTM 17 Z 598762 E
5R 486555 N

Elev 5R 18880

Basin 24

The Ontario Water Resources Commission Act

WATER WELL RECORD

County or District Peel County
Township, Village, Town or City Albion Twp.
Con. 9 Lot 18 #1
Date completed 25th (day) June (month) 1965 (year)
Address RR#1, Bolton

[redacted]

Casing and Screen Record

Inside diameter of casing 36"
Total length of casing 38 ft
Type of screen
Length of screen
Depth to top of screen
Diameter of finished hole 30 inches

Pumping Test

Static level 16 ft
Test-pumping rate 2 gal G.P.M.
Pumping level
Duration of test pumping 3 hrs.
Water clear or cloudy at end of test cloudy
Recommended pumping rate 2 G.P.M.
with pump setting of 35' feet below ground surface

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Water Record: Depth(s) at which water(s) found	Water Record: Kind of water (fresh, salty, sulphur)
top soil	0	2	20 ft	fresh
sand and brown clay	2	22		
blue clay	22	36		
quick sand	36	38		

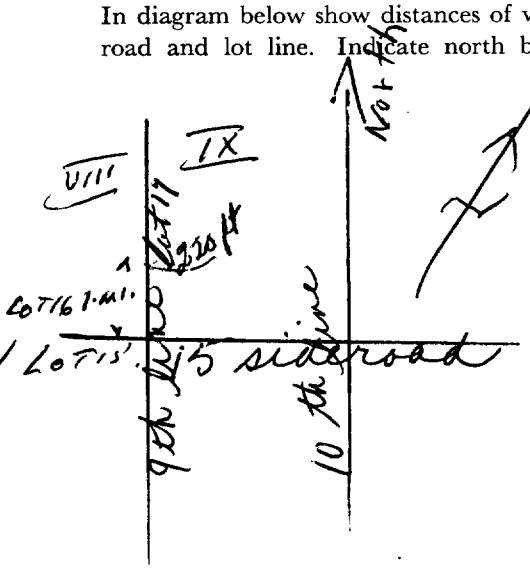
For what purpose(s) is the water to be used? farm
Is well on upland, in valley, or on hillside? hillside
Drilling or Boring Firm Well Boring
Mervin Mason
Address RR#1 Colgan Ont
Licence Number 78
Name of Driller or Borer Mervin Mason
Address RR#1, Colgan Ont
Date 25th June 1965
Mervin Mason
(Signature of Licensed Drilling or Boring Contractor)

Form 7 15M-60-4138

OWRC COPY

Location of Well

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



CSS.SS

CD

UTM 17 Z 598606 E
5 R 4865168 N

Elev. 5 R 9110

Basin 24

County or District Peel

Township, Village, Town or City albion

Con. 9 Lot 19

Date completed 20 (day) May (month) 1965 (year)

[redacted] dress RR1 Bolton Ont

B 483

WATER RESOURCES DIVISION 49 No MAY 3 0 1965 ONTARIO WATER RESOURCES COMMISSION

The Ontario Water Resources Commission Act

WATER WELL RECORD

Casing and Screen Record

Inside diameter of casing 30 inch

Total length of casing 59 feet

Type of screen

Length of screen

Depth to top of screen

Diameter of finished hole 30 inch

Pumping Test

Static level growing to waste 40 feet

Test-pumping rate 1/2 gallon per min G.P.M.

Pumping level

Duration of test pumping

Water clear or cloudy at end of test clear

Recommended pumping rate 1/2 G.P.M.

with pump setting of 54 feet below ground surface

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Water Record: Depth(s) at which water(s) found	Water Record: Kind of water (fresh, salty, sulphur)
Top brown soil	0	20		
grey clay	20	56		
fine grey sand & water	56	58	56 feet	fresh

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

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

Drilling or Boring Firm

Address

Licence Number 1669

Name of Driller or Borer Maurice Babineau

Address 590 Burnhamthorpe Rd Elobicoke

Date May 20/65

Maurice Babineau

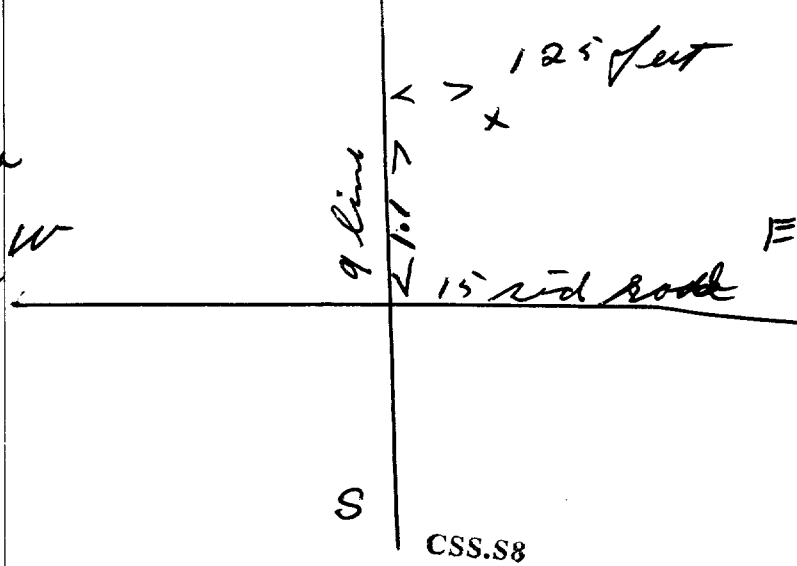
(Signature of Licensed Drilling or Boring Contractor)

Form 7 15M-60-4138

OWRC COPY

Location of Well

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



CSS.S8

Con VIII Lot 19 CODED

TM 1 1 7 2 5 T 9 8 4 C 1 0

4 R 4 8 4 S T 4 5 T 0

6 R 4 9 0 1 5

4303021

3 9

WATER RESOURCES DIVISION MAY 1 8 1967 ONTARIO WATER RESOURCES COMMISSION

J.B.

The Ontario Water Resources Commission Act

WATER WELL RECORD

Basin 2 1 4 REEK

County or District ..... Township, Village, Town or City ALBION TWP.

Con. 8 Lot 18 19 Date completed 27 (day) APR. (month) 1968 (year)

[redacted] ress BOLTON

Casing and Screen Record

Inside diameter of casing 30"

Total length of casing 40 FT

Type of screen

Length of screen

Depth to top of screen

Diameter of finished hole 30"

Pumping Test

Static level 15

Test-pumping rate 5 G.P.M.

Pumping level

Duration of test pumping

Water clear or cloudy at end of test CLEAR

Recommended pumping rate 4 G.P.M.

with pump setting of 38 feet below ground surface

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Water Record: Depth(s) at which water(s) found	Water Record: Kind of water (fresh, salty, sulphur)
SANDY CLAY	0	12		
COURSE SAND	12	16	16	FRESH
BLUE CLAY	16	40		
		40 20 Sidlyrd		

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

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

Drilling or Boring Firm [redacted]

Address [redacted]

P.R. # [redacted]

Licence Number 3035

Name of Driller or Borer S. MOORE

Address SAME

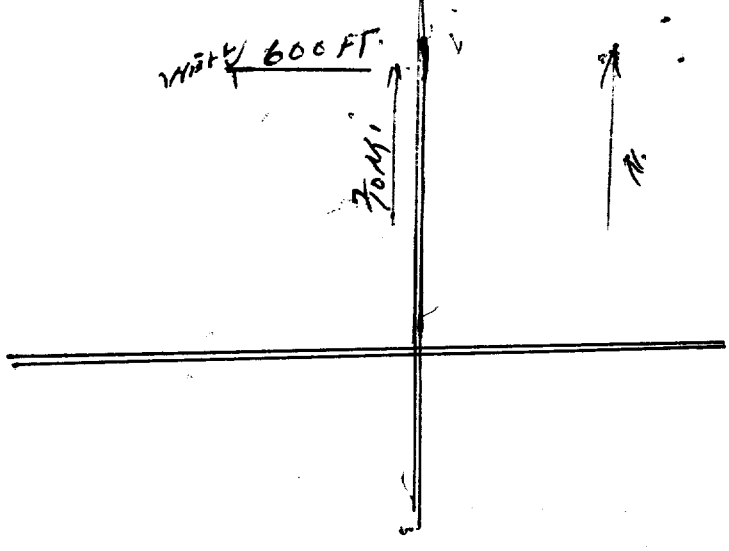
Date 24/4/68

S. Moore

(Signature of Licensed Drilling or Boring Contractor)

Location of Well

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



Form 7 5M 60-20912

OWRC COPY

56

CSS.S8

Con VIII Lot 19

1303059

The Ontario Water Resources Commission Act

WATER WELL RECORD

County or District [redacted] Township, Village, Town or City Albion

Con 8 Lot E H 18 19 Date completed 26th (day) July (month) 1968 (year)

[redacted] ress RR#1 Bolton

Casing and Screen Record

Inside diameter of casing 36"

Total length of casing 40 ft

Type of screen —

Length of screen —

Depth to top of screen

Diameter of finished hole 30"

Pumping Test

Static level 28 ft

Test-pumping rate 1/4 G.P.M.

Pumping level 38 ft

Duration of test pumping 1 hour

Water clear or cloudy at end of test cloudy

Recommended pumping rate 1/4 G.P.M.

with pump setting of 38 feet below ground surface

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Water Record: Depth(s) at which water(s) found	Water Record: Kind of water (fresh, salty, sulphur)
Topsoil	0	2		
coarse sand with brown clay	2	21	17 ft	fresh
grey clay with stone	21	27		
blue clay	27	40	27 ft	

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

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

Drilling or Boring Firm Mervin Mason

Address RR#1 Colgan

Licence Number 134

Name of Driller or Borer Mervin Mason

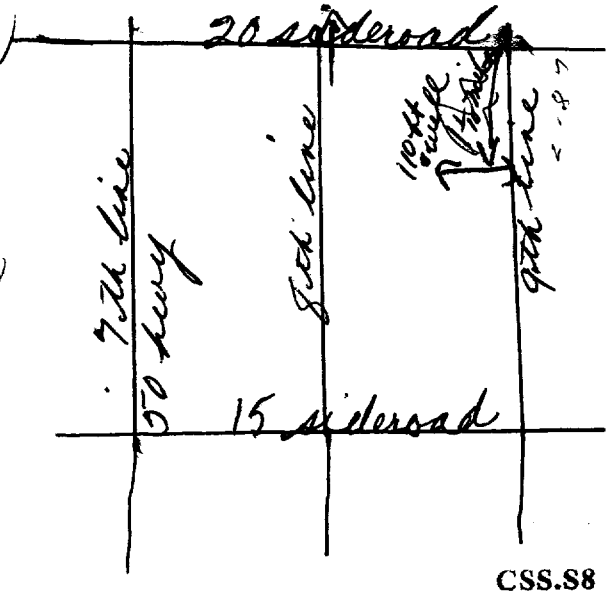
Address RR#1 Colgan

Date July 26/68

Melvin Mason
(Signature of Licensed Drilling or Boring Contractor)

Location of Well

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



Form 7 15M-60-4138

OWRC COPY

CSS.S8

The Ontario Water Resources Commission Act

WATER WELL RECORD

Water management in Ontario

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

11 | 4903310 | MUNICIP. 49004 | CON. CON 08

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON., BLOCK, TRACT, SURVEY, ETC.	LOT
Peel	Albion	8	9 8

[redacted] Glenvale Cs Reddale

DATE COMPLETED: DAY 20 MO. 07 YR. 69

[redacted] 65460 | RC. 4 | ELEVATION 0885 | RC. 6 | BASIN CODE 2

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH – FEET FROM	DEPTH – FEET TO
Brown	Sandy	Clay		0	38
Brown	Sand		And Water	38	40

31 | 0038 05 09 | 0040 06 09

32

41 WATER RECORD

WATER FOUND AT – FEET	KIND OF WATER
0040	1 ☒ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH – FEET FROM	DEPTH – FEET TO
30"	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☒ CONCRETE 4 ☐ OPEN HOLE	3"	0	0040 (40)
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			

SCREEN

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

MATERIAL AND TYPE | DEPTH TO TOP OF SCREEN FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT – FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)

71 PUMPING TEST

PUMPING TEST METHOD	1 ☐ PUMP 2 ☒ BAILER
PUMPING RATE	0004 GPM.
DURATION OF PUMPING	01 HOURS 00 MINS.
STATIC LEVEL	020 FEET
WATER LEVEL END OF PUMPING	038 FEET
WATER LEVELS DURING ☒ PUMPING ☐ RECOVERY	15 MINUTES 026 FEET; 30 MINUTES 032 FEET; 45 MINUTES 038 FEET; 60 MINUTES 038 FEET
IF FLOWING, GIVE RATE	GPM.
PUMP INTAKE SET AT	FEET
WATER AT END OF TEST	1 ☒ CLEAR 2 ☐ CLOUDY
RECOMMENDED PUMP TYPE	☐ SHALLOW ☒ DEEP
RECOMMENDED PUMP SETTING	039 FEET
RECOMMENDED PUMPING RATE	0004 GPM.
SPECIFIC CAPACITY	000.2 GPM./FT.

FINAL STATUS OF WELL: 1

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

WATER USE: 01

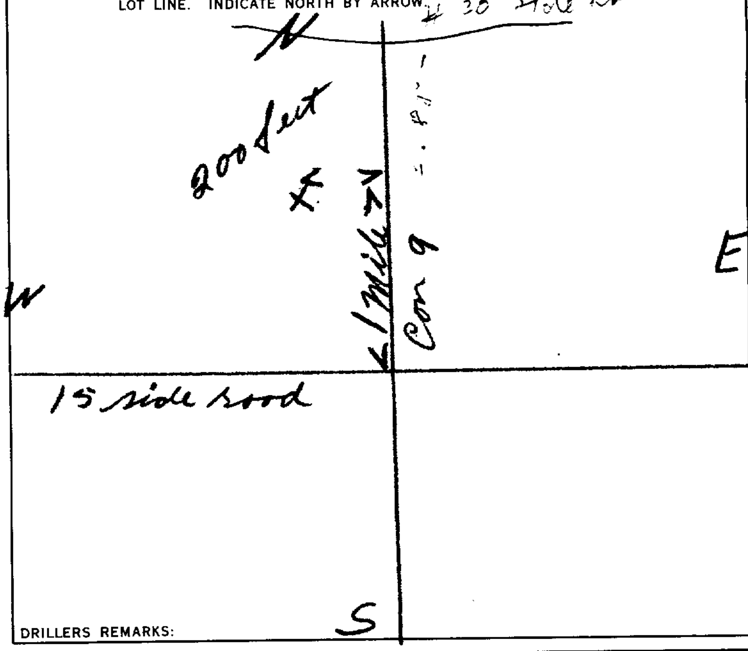
1 ☒ DOMESTIC 2 ☐ STOCK 3 ☐ IRRIGATION 4 ☐ INDUSTRIAL ☐ OTHER 5 ☐ COMMERCIAL 6 ☐ MUNICIPAL 7 ☐ PUBLIC SUPPLY 8 ☐ COOLING OR AIR CONDITIONING 9 ☐ NOT USED

METHOD OF DRILLING: 6

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

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW. # 30 Hole Rd



DRILLERS REMARKS:

CONTRACTOR

NAME OF WELL CONTRACTOR	Maurice Babiuk
LICENCE NUMBER	3174
ADDRESS	590 Burnhamthorpe Rd Etobicoke
NAME OF DRILLER OR BORER	Nelson McDonald
SIGNATURE OF CONTRACTOR	Maurice Babiuk
SUBMISSION DATE	DAY 20 MO. 7 YR. 69

OFFICE USE ONLY

DATA SOURCE	CONTRACTOR	DATE RECEIVED
1	1307	250969

DATE OF INSPECTION | INSPECTOR P/F

REMARKS:

CSS.S8

J.B

OWRC COPY

The Ontario Water Resources Commission Act

WATER WELL RECORD

30M/13W

Water management in Ontario

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

11

4903698 | MUNICIP. 49001 | CON. CON | 09

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON., BLOCK, TRACT, SURVEY, ETC.	LOT
PEEL	ALBION	IX	[illegible]

[redacted] RR#1 BOLTON

DATE COMPLETED: DAY 07th MO. 10th YR. 71

[redacted] 365460 | RC. 4 | ELEVATION 0850 | RC. 5 | BASIN CODE 24

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH – FEET FROM	DEPTH – FEET TO
BROWN	TOP SOIL			0	2
BROWN	CLAY	SAND		2	16
BLUE	CLAY	STONES		16	22
GREY	SAND		POROUS	22	42

31 | 0002002 | 0016605128 | 0022305112 | 0042228

32

41 WATER RECORD

WATER FOUND AT – FEET	KIND OF WATER
0022	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL (not tested)
	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	DEPTH – FEET TO
36	☒ 3 CONCRETE	3	0	0022 (22)
30	☒ 2 GALVANIZED	16 ga.	22	0042 (42)
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			

SCREEN

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

61 PLUGGING & SEALING RECORD

DEPTH SET AT – FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)

71 PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
1 ☐ PUMP 2 ☒ BAILER	0002 GPM.	01 HOURS 30 MINS.

STATIC LEVEL	WATER LEVEL END OF PUMPING	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
022 FEET	040 FEET	039	038	037	036 FEET

WATER LEVELS DURING: 1 ☐ PUMPING 2 ☒ RECOVERY

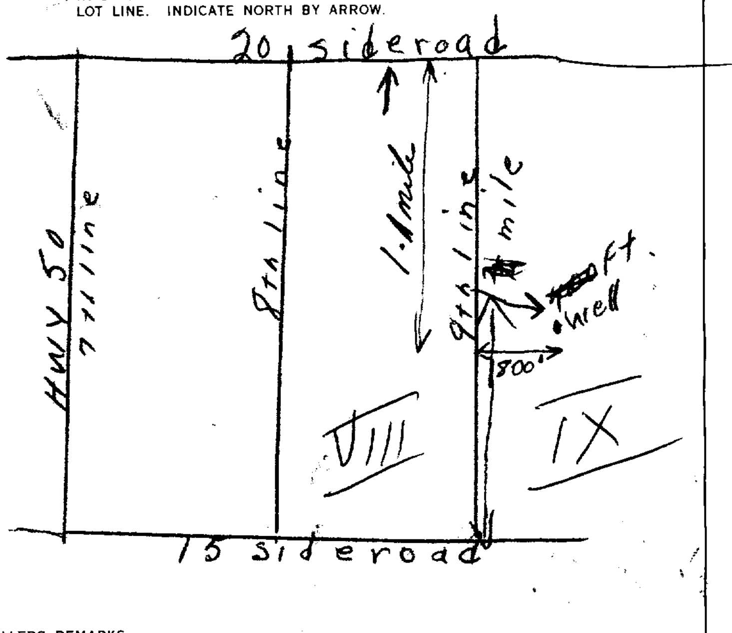
IF FLOWING, GIVE RATE: GPM. | PUMP INTAKE SET AT: FEET | WATER AT END OF TEST: 1 ☐ CLEAR 2 ☒ CLOUDY

RECOMMENDED PUMP TYPE: ☐ SHALLOW ☒ DEEP | RECOMMENDED PUMP SETTING 039 FEET | RECOMMENDED PUMPING RATE 0002 GPM.

000.1 GPM./FT. SPECIFIC CAPACITY

LOCATION OF WELL

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



DRILLERS REMARKS:

FINAL STATUS OF WELL

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

WATER USE 01

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

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

CONTRACTOR

NAME OF WELL CONTRACTOR: MERVIN MASON | LICENCE NUMBER: 3612

ADDRESS: RR#1 COLGAN

NAME OF DRILLER OR BORER: MERVIN MASON | LICENCE NUMBER: 3612

SIGNATURE OF CONTRACTOR: Mervin Mason | SUBMISSION DATE: DAY 29th MO. 10th YR. 71

OFFICE USE ONLY

DATA SOURCE 1 | CONTRACTOR 3612 | DATE RECEIVED 011171

DATE OF INSPECTION | INSPECTOR

REMARKS: CSS.S8

P | WI

OWRC COPY

B

MINISTRY OF THE ENVIRONMENT
The Ontario Water Resources Act
WATER WELL RECORD

30 M/13 W

Ontario

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

11 | 4904243 | MUNICIP. 49001 | CON. 08

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON., BLOCK, TRACT, SURVEY, ETC.	LOT
Peel	ALBION	VIII	018

[redacted] NSVIEW, ONTARIO

DATE COMPLETED: DAY 19 MO. 10 YR. 73

[redacted] 65287 | RC 4 | ELEVATION 0870 | RC 5 | BASIN CODE 24

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
	TOPSOIL			0	1
BROWN	SAND			1	15
BLUE	CLAY	STONES	DENSE SILTY	15	35

OWRC P-9

31 | 0001 | 02 | 0015628 | 0035305120 6

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
0012	☒ FRESH ☐ SALTY ☐ SULPHUR ☐ MINERAL
	☐ FRESH ☐ SALTY ☐ SULPHUR ☐ MINERAL
	☐ FRESH ☐ SALTY ☐ SULPHUR ☐ MINERAL
	☐ FRESH ☐ SALTY ☐ SULPHUR ☐ MINERAL
	☐ FRESH ☐ SALTY ☐ SULPHUR ☐ MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	TO
30	☒ CONCRETE	3	0	0015
24	☒ STEEL / GALVANIZED		15	0035
	☐ STEEL ☐ GALVANIZED ☐ CONCRETE ☐ OPEN HOLE			

SCREEN

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

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)

71 PUMPING TEST

PUMPING TEST METHOD: ☒ PUMP ☐ BAILER
PUMPING RATE: GPM
DURATION OF PUMPING: HOURS MINS

STATIC LEVEL: 008 FEET
WATER LEVEL END OF PUMPING: FEET
WATER LEVELS DURING: ☐ PUMPING ☒ RECOVERY
15 MINUTES: 18 FEET | 30 MINUTES / 45 MINUTES / 60 MINUTES: OVER NIGHT

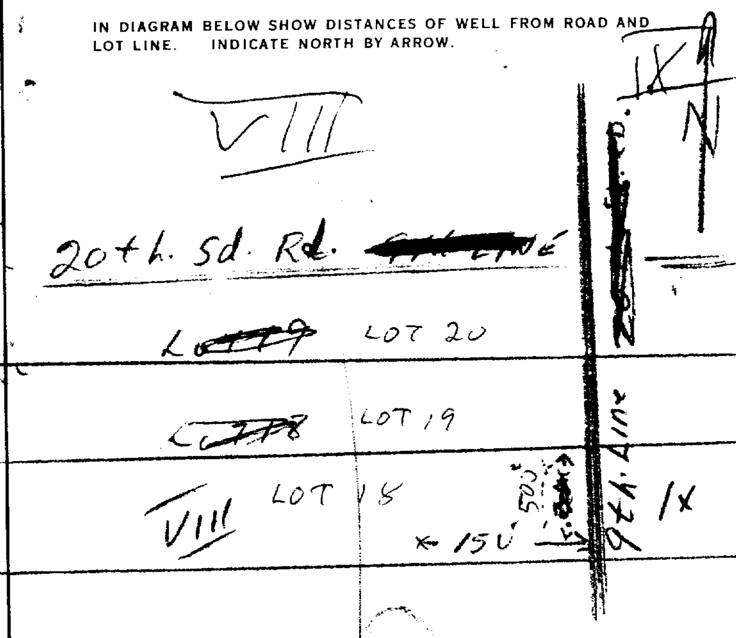
IF FLOWING, GIVE RATE: GPM
PUMP INTAKE SET AT: FEET
WATER AT END OF TEST: ☒ CLEAR ☐ CLOUDY

RECOMMENDED PUMP TYPE: ☐ SHALLOW ☒ DEEP
RECOMMENDED PUMP SETTING: 032 FEET
RECOMMENDED PUMPING RATE: 0002 GPM

GPM./FT. SPECIFIC CAPACITY

LOCATION OF WELL

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



DRILLERS REMARKS:

FINAL STATUS OF WELL

☒ WATER SUPPLY ☐ OBSERVATION WELL ☐ TEST HOLE ☐ RECHARGE WELL ☐ ABANDONED, INSUFFICIENT SUPPLY ☐ ABANDONED, POOR QUALITY ☐ UNFINISHED

WATER USE

01

☒ DOMESTIC ☐ STOCK ☐ IRRIGATION ☐ INDUSTRIAL ☐ OTHER ☐ COMMERCIAL ☐ MUNICIPAL ☐ PUBLIC SUPPLY ☐ COOLING OR AIR CONDITIONING ☐ NOT USED

METHOD OF DRILLING

☐ CABLE TOOL ☐ ROTARY (CONVENTIONAL) ☐ ROTARY (REVERSE) ☐ ROTARY (AIR) ☐ AIR PERCUSSION ☒ BORING ☐ DIAMOND ☐ JETTING ☐ DRIVING

CONTRACTOR

NAME OF WELL CONTRACTOR: Ontario Well Digging Co. | LICENCE NUMBER: 4102
ADDRESS: 137 Gorham St. Newmarket Ont.
NAME OF DRILLER OR BORER: Dave Moore | LICENCE NUMBER: 4102
SIGNATURE OF CONTRACTOR: Dave Moore | SUBMISSION DATE: DAY 1 MO. 1 YR. 74

OFFICE USE ONLY

DATA SOURCE: 1 | CONTRACTOR: 4102 | DATE RECEIVED: 140174
DATE OF INSPECTION: 10/3/75 | INSPECTOR: J.B.
REMARKS: CSS.S8
P JP
WI

MINISTRY OF THE ENVIRONMENT COPY

FORM 7 07-091

MINISTRY OF THE ENVIRONMENT
The Ontario Water Resources Act

WATER WELL RECORD

Ontario

30M/13W
93/77

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

11 | 4905241 | 49001 | CON | 09

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON., BLOCK, TRACT, SURVEY, ETC.	LOT 25-27
PEEL	ALBION	9	018

[redacted] BOLTON

DATE COMPLETED 48-53: DAY 25 MO. 11 YR. 77

[redacted] 65350 5 | ELEVATION 0860 | 5 | BASIN CODE 24

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
BROWN	TOP SOIL		HARD	0	1'
BROWN	SAND CLAY		"	1'	20.
GREY	CLAY		"	20	45.
GREY	SAND		LOOSE	45	57½

31 | 0001 60273 | 00206 2B0573 | 00452 0573 | 0058 22 877
32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
0020	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL — S
0050	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL — S
	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	DEPTH - FEET TO
30	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☑ CONCRETE 4 ☐ OPEN HOLE	2½	0	0038 (37½)
30	1 ☐ STEEL 2 ☑ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE		37½	0058 (57½)
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			

SCREEN

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

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)

71 PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
1 ☐ PUMP 2 ☑ BAILER	— GPM	00 HOURS 30 MINS

STATIC LEVEL	WATER LEVEL END OF PUMPING	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
005 FEET	040 FEET	040 FEET	037 FEET	30 FEET	037 FEET

WATER LEVELS DURING: 1 ☐ PUMPING 2 ☒ RECOVERY

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

RECOMMENDED PUMP TYPE: ☐ SHALLOW ☑ DEEP | RECOMMENDED PUMP SETTING 035 FEET | RECOMMENDED PUMPING RATE 0001 GPM

50-53 ____ GPM./FT. SPECIFIC CAPACITY

FINAL STATUS OF WELL: 1

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

WATER USE: 01

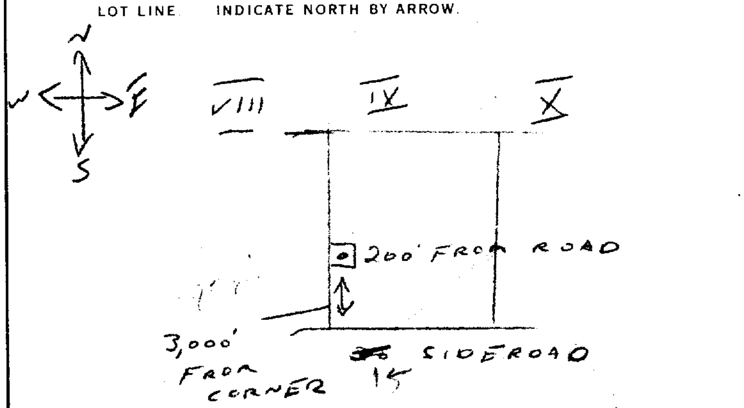
1 ☑ DOMESTIC 2 ☐ STOCK 3 ☐ IRRIGATION 4 ☐ INDUSTRIAL ☐ OTHER 5 ☐ COMMERCIAL 6 ☐ MUNICIPAL 7 ☐ PUBLIC SUPPLY 8 ☐ COOLING OR AIR CONDITIONING 9 ☐ NOT USED

METHOD OF DRILLING: 6

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

LOCATION OF WELL

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



81

DRILLERS REMARKS:

CONTRACTOR

NAME OF WELL CONTRACTOR: T.A.B. Well Boring | LICENCE NUMBER 4919
ADDRESS: Palgrave
NAME OF DRILLER OR BORER: Newman Horn | LICENCE NUMBER 4919
SIGNATURE OF CONTRACTOR: Newman Horn | SUBMISSION DATE DAY ____ MO. ____ YR. ____

OFFICE USE ONLY

DATA SOURCE 1 | CONTRACTOR 4919 | DATE RECEIVED 051277
DATE OF INSPECTION | INSPECTOR Aug 1978
REMARKS: CSS.S8 | P 8 | WI

MINISTRY OF THE ENVIRONMENT COPY

FORM 7 MOE 07-091

Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

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

(11) 4905547 MUNICIP 49001 CON. C & N LOT 18

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON., BLOCK, TRACT, SURVEY, ETC.	LOT
Peel	Albion - Caledon	8	18

[redacted] R.#1 Bolton Ontario

DATE COMPLETED: DAY 10 MO 10 YR 79

RC ELEVATION BC BASIN CODE

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
Black	Top Soil			0	1
Brown	Clay		Wet	1	16
			Brown Streaks	16	20
Blue	Clay			20	30
Blue	Clay & Sand			30	35
Grey	Sand		Fine & Wet	35	37½ 38
Blue	Clay & Sand		Mucky		

(31) 0018 0016 0020 0030 0035 0038
(32)

(41) WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
0007	1 FRESH 3 SULPHUR 2 SALTY 4 MINERAL — NOT TESTED #5
0030	1 FRESH 3 SULPHUR 2 SALTY 4 MINERAL — #5
	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	DEPTH - FEET TO
36	1 STEEL 2 GALVANIZED 3 CONCRETE 4 OPEN HOLE	3	0	17½ 0018
36	1 STEEL 2 GALVANIZED 3 CONCRETE 4 OPEN HOLE	16 Gauge	17½	37½ 0038
30	1 STEEL 2 GALVANIZED 3 CONCRETE 4 OPEN HOLE	16 Gauge	25½	37½ 0035

SCREEN

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

(61) PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT LEAD PACKER, ETC.)

(7) PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
1 ☒ PUMP 2 ☐ BAILER	0002 GPM	03 HOURS 00 MINS

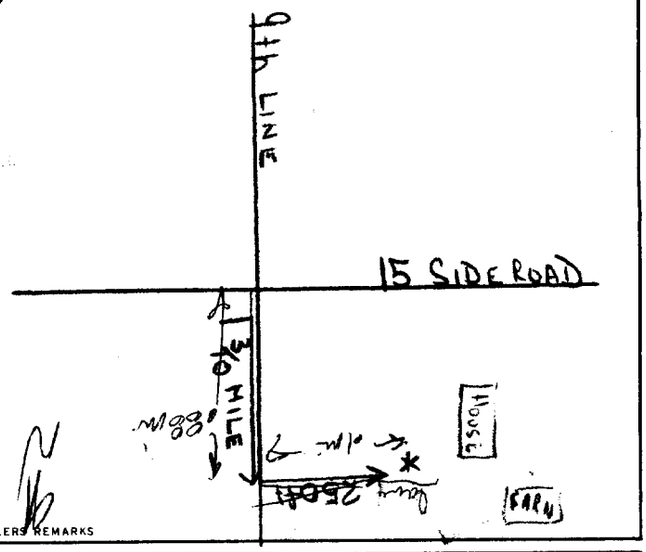
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING (1 ☐ PUMPING 2 ☒ RECOVERY)	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
015 FEET	035 FEET		034 FEET	033½ FEET	033 FEET	032½ FEET

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

RECOMMENDED PUMP TYPE	RECOMMENDED PUMP SETTING	RECOMMENDED PUMPING RATE
☐ SHALLOW ☐ DEEP	030 FEET	0002 GPM

LOCATION OF WELL

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



DRILLERS REMARKS

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

WATER USE (55-56): 1 ☐ DOMESTIC; 2 ☐ STOCK; 3 ☐ IRRIGATION; 4 ☐ INDUSTRIAL; ☐ OTHER; 5 ☐ COMMERCIAL; 6 ☐ MUNICIPAL; 7 ☐ PUBLIC SUPPLY; 8 ☐ COOLING OR AIR CONDITIONING; 9 ☐ NOT USED

METHOD OF DRILLING (57): 1 ☐ CABLE TOOL; 2 ☐ ROTARY (CONVENTIONAL); 3 ☐ ROTARY (REVERSE); 4 ☐ ROTARY (AIR); 5 ☐ AIR PERCUSSION; 6 ☒ BORING; 7 ☐ DIAMOND; 8 ☐ JETTING; 9 ☒ DRIVING

CONTRACTOR

NAME OF WELL CONTRACTOR: Glenn Mason — LICENCE NUMBER: 3662

ADDRESS: R.R.#1, Colgan, Ontario L0G 1G0

NAME OF DRILLER OR BORER: Glenn Mason — LICENCE NUMBER: 3662

SIGNATURE OF CONTRACTOR: Glenn Mason — SUBMISSION DATE: DAY 16 MO 10 YR 79

OFFICE USE ONLY

DATA SOURCE 1 — CONTRACTOR 3662 — DATE RECEIVED 211179

DATE OF INSPECTION — INSPECTOR

REMARKS: Log only 21/11/80 CSS.SS

MINISTRY OF THE ENVIRONMENT COPY

FORM NO. 0506-4-77

Ministry of the Environment
Ontario

The Ontario Water Resources Act
WATER WELL RECORD
30M43

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

11 4905606 #9001 CON 09

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON., BLOCK, TRACT, SURVEY ETC.	LOT
Region of Peel	Albion Twp	Conc. # 9	018

[redacted] R. # Bolton

DATE COMPLETED: DAY 27 (~~29~~) MO 05 (~~May~~) YR 79

[redacted] HING 865400 RC 5 ELEVATION 0875 RC 5 BASIN CODE 24

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
Brown	clay	sand	soft	0	21
Blue	clay	stones	hard	21	96
Blue	clay	sand&gravel seams	loose	96	98
Blue	clay	stones some sand seams	medium hard	98	219
Brown	sand	gravel, clay streaks	loose	119	226
Brown	sand (medium)	some gravel	loose	226	232

31 | 0021 6052885 | 0096 3051273 | 0098 3051128 | 0219 3051228 | 0226 2811105 | 0232 2609111177 |

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
0220-232	~~untested~~ #5
	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	DEPTH - FEET TO
~~.188~~ 06"	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	.188	+2"	0228
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER	LENGTH
014	~~5 3/4~~ 05750 INCHES	04 FEET

MATERIAL AND TYPE: Sta. st. wire wd. DEPTH TO TOP OF SCREEN: 0228 FEET

61 PLUGGING & SEALING RECORD

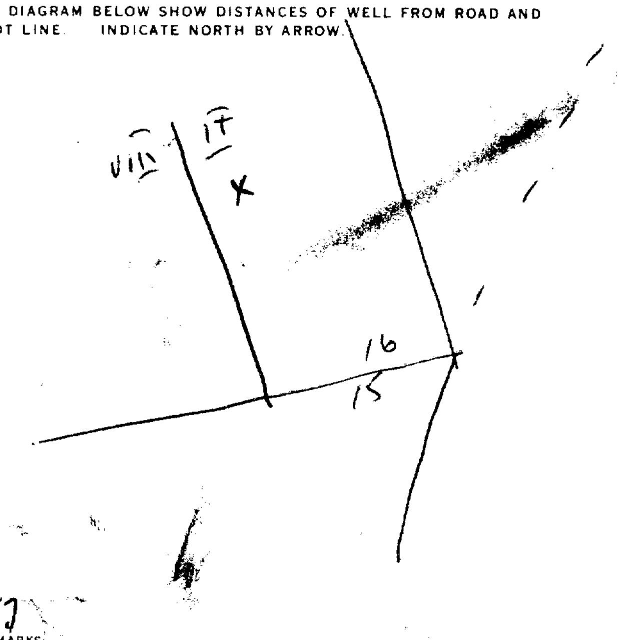
DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)

71 PUMPING TEST

PUMPING TEST METHOD	1 ☒ PUMP 2 ☐ BAILER
PUMPING RATE	0020 GPM
DURATION OF PUMPING	04 HOURS 00 MINS
STATIC LEVEL	026 FEET
WATER LEVEL END OF PUMPING	050 FEET
WATER LEVELS DURING	1 ☒ PUMPING 2 ☐ RECOVERY
15 MINUTES	036 FEET
30 MINUTES	042 FEET
45 MINUTES	049 FEET
60 MINUTES	049 FEET
IF FLOWING, GIVE RATE	GPM
PUMP INTAKE SET AT	110 FEET
WATER AT END OF TEST	1 ☒ CLEAR 2 ☐ CLOUDY
RECOMMENDED PUMP TYPE	☐ SHALLOW ☒ DEEP
RECOMMENDED PUMP SETTING	120 FEET
RECOMMENDED PUMPING RATE	0020 GPM

LOCATION OF WELL

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



1.1.157
DRILLERS REMARKS

FINAL STATUS OF WELL 3

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
☐ OTHER
5 ☐ COMMERCIAL
6 ☐ MUNICIPAL
7 ☐ PUBLIC SUPPLY
8 ☐ COOLING OR AIR CONDITIONING
9 ☐ NOT USED

METHOD OF DRILLING 2

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

CONTRACTOR

NAME OF WELL CONTRACTOR: NORTHERN WELL DRILLING — LICENCE NUMBER: 3903
ADDRESS: R.R.#1 Newmarket
NAME OF DRILLER OR BORER: Jerry W. Renwick — LICENCE NUMBER: 4508
SIGNATURE OF CONTRACTOR — SUBMISSION DATE: DAY ____ MO ____ YR ____

OFFICE USE ONLY

DATA SOURCE: 1 — CONTRACTOR: 3903 — DATE RECEIVED: 310180
DATE OF INSPECTION — INSPECTOR
REMARKS: CSS.S8
loc only 12/7/83

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FORM NO. 0506-4-77

Ministry of the Environment
Ontario

The Ontario Water Resources Act 30m13 4.

WATER WELL RECORD

1. PRINT ONLY IN SPACES PROVIDED
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11 4905627 MUNICIP 49001 CON CON 08

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON., BLOCK, TRACT, SURVEY, ETC	LOT
PEEL	ALBION TWP.	CON 8	018

[redacted] R.R. #1 BOLTON — DATE COMPLETED DAY 01 MO 05 YR. 79

865300 5 ELEVATION 0875 5 BASIN CODE 24

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	TO
	TOP SOIL			0	2
GREY	CLAY			2	28
GREY	SANDY CLAY			28	87
GREY	CLAY			87	199
GREY	SOFT SANDY CLAY			199	228
BLUE	HARD SANDY CLAY			228	340
BLUE	CLAY			340	398
BLUE	SILTY SAND			398	435
BLUE	CLAY			435	446
BLUE	SHALE			446	487

31 0002 02 | 0028205 | 008720581 | 0199205 | 0228205 8581 | 0340305 7881
32 0398305 | 0435328 81 | 0446305 | 0487317

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
0487	1 ☐ FRESH 2 ☒ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	TO
06"	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	.188	0	0395
04"	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE — CASING PULLED	.188	0	0446
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			

SCREEN

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

MATERIAL AND TYPE	DEPTH TO TOP OF SCREEN FEET
✓	✓

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)

71 PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
1 ☐ PUMP 2 ☒ BAILER	0004 GPM	HOURS MINS

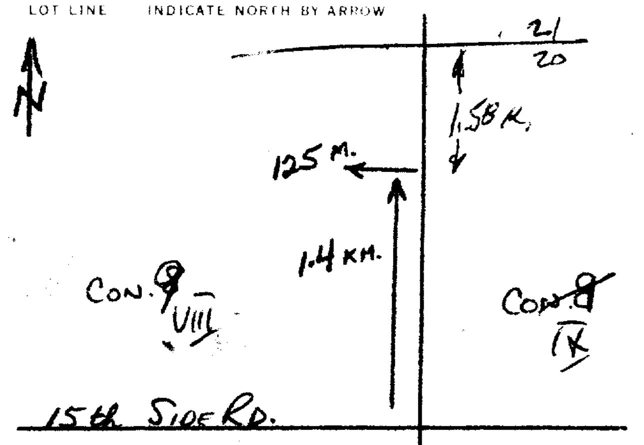
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING: 1 ☐ PUMPING 2 ☐ RECOVERY — 15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
FEET	FEET	FEET	FEET	FEET	FEET

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

RECOMMENDED PUMP TYPE ☐ SHALLOW ☐ DEEP — RECOMMENDED PUMP SETTING FEET — RECOMMENDED PUMPING RATE GPM

LOCATION OF WELL

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



FINAL STATUS OF WELL 1
1 ☐ WATER SUPPLY 2 ☐ OBSERVATION WELL 3 ☐ TEST HOLE 4 ☐ RECHARGE WELL 5 ☐ ABANDONED, INSUFFICIENT SUPPLY 6 ☐ ABANDONED, POOR QUALITY 7 ☐ UNFINISHED
SALT WATER — 4" CASING PULLED.

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

DRILLERS REMARKS: 1.1.21 4" CASING PULLED SALT WATER

CONTRACTOR

NAME OF WELL CONTRACTOR: KING CITY WELL DRILLING Co. LTD. — LICENCE NUMBER 3108
ADDRESS: BOX 192 KING CITY
NAME OF DRILLER OR BORER: CHET COUSE — LICENCE NUMBER
SIGNATURE OF CONTRACTOR: R. Geo Adams — SUBMISSION DATE DAY 7 MO. 5 YR. 79

OFFICE USE ONLY

DATA SOURCE 1 — CONTRACTOR 3108 — DATE RECEIVED 090480
DATE OF INSPECTION — INSPECTOR
REMARKS: Loc only 12/7/83 CSS.SS

MINISTRY OF THE ENVIRONMENT COPY

FORM NO. 0506—4—77 FORM 7

Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

30m13

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

11 4905855 MUNICIP 49001 CON. Con 09

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON. BLOCK, TRACT, SURVEY, ETC.	LOT
Peel County	Albion Twp. Town of Caledon	Con. W½ 9	017 Pt.17

[redacted] R.#1, Bolton, Ontario

DATE COMPLETED: DAY 17 MO 09 YR 81

UTM ZONE 17 NORTHING 4865000 RC 5 ELEVATION 0850 RC 5 BASIN CODE 24

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
Brown	Top Soil			0	2
Brown	Clay & Sand			2	32
Blue	Clay			32	55
Grey	Sand			55	60

31 0002602 0032605 28 0055305 0060228

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER	
0032	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL	NOT TESTED
0055	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	DEPTH - FEET TO
30	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☒ CONCRETE 4 ☐ OPEN HOLE	3	0	0020
30	1 ☐ STEEL 2 ☒ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	16 Gauge	20	0040
24	1 ☐ STEEL 2 ☒ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	16 Gauge	40	0060

SCREEN

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

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD, PACKER, ETC.)

71 PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
1 ☐ PUMP 2 ☒ BAILER	Bailer 1½ GPM	02 HOURS 00 MINS

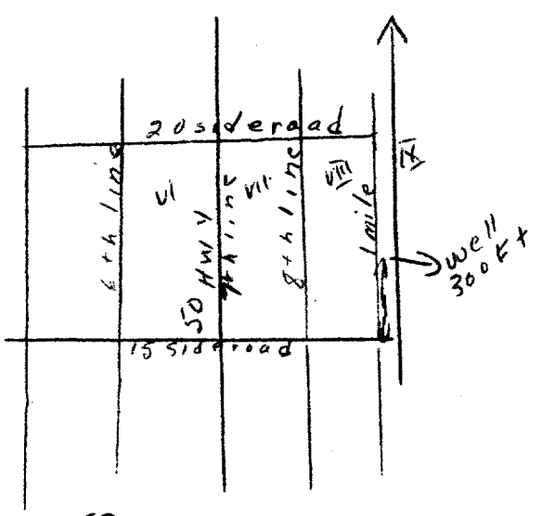
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING (1 ☐ PUMPING 2 ☒ RECOVERY)	30 MINUTES	60 MINUTES
032 FEET	057½ FEET	056½ FEET	056 FEET	055 FEET

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

RECOMMENDED PUMP TYPE	RECOMMENDED PUMP SETTING	RECOMMENDED PUMPING RATE
☐ SHALLOW ☒ DEEP	055 FEET	0002 1½ GPM

LOCATION OF WELL

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



DRILLERS REMARKS 1.1.159

FINAL STATUS OF WELL 54	1 ☒ WATER SUPPLY; 2 ☐ OBSERVATION WELL; 3 ☐ TEST HOLE; 4 ☐ RECHARGE WELL; 5 ☐ ABANDONED, INSUFFICIENT SUPPLY; 6 ☐ ABANDONED, POOR QUALITY; 7 ☐ UNFINISHED
WATER USE 55-56 01	1 ☒ DOMESTIC; 2 ☐ STOCK; 3 ☐ IRRIGATION; 4 ☐ INDUSTRIAL; ☐ OTHER; 5 ☐ COMMERCIAL; 6 ☐ MUNICIPAL; 7 ☐ PUBLIC SUPPLY; 8 ☐ COOLING OR AIR CONDITIONING; 9 ☐ NOT USED
METHOD OF DRILLING 57 6	1 ☐ CABLE TOOL; 2 ☐ ROTARY (CONVENTIONAL); 3 ☐ ROTARY (REVERSE); 4 ☐ ROTARY (AIR); 5 ☐ AIR PERCUSSION; 6 ☒ BORING; 7 ☐ DIAMOND; 8 ☐ JETTING; 9 ☐ DRIVING

CONTRACTOR

NAME OF WELL CONTRACTOR: Mervin Mason — LICENCE NUMBER: 3612

ADDRESS: R.R.#1, Colgan, Ontario L0G 1G0

NAME OF DRILLER OR BORER: Mervin Mason — LICENCE NUMBER: 3612

SIGNATURE OF CONTRACTOR: Mervin Mason — SUBMISSION DATE: DAY 19 MO 1 YR 82

OFFICE USE ONLY

DATA SOURCE 58: 1 — CONTRACTOR 59-62: 3612 — DATE RECEIVED 26 01 82

DATE OF INSPECTION — INSPECTOR

REMARKS: for only 17/7/83 CSS.S8

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FORM NO. 0506—4—77 FORM 7

Ministry of the Environment
Ontario

The Ontario Water Resources Act 3om13

WATER WELL RECORD

1. PRINT ONLY IN SPACES PROVIDED
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(11) 4905996 MUNICIP 49 001 CON CON 09

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON., BLOCK, TRACT, SURVEY, ETC	LOT
Peel County	Albion Twp., Town of Caledon	9	017 / 17

[redacted] .#2, Woodbridge, Ontario

DATE COMPLETED: DAY 04 MO 10 YR 82

[redacted] 365100 RC 5 ELEVATION 0850 RC 5 BASIN CODE 24

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
Brown	Top Soil			0	1
Brown	Clay			1	18
Blue	Clay			18	38
Grey	Sand			38	40
Blue	Clay			40	57

(31) 0001602 | 0018605 | 0038305 | 0040228 | 0057305

32

(41) WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
0038	NOT TESTED
	☐ FRESH ☐ SULPHUR ☐ SALTY ☐ MINERAL
	☐ FRESH ☐ SULPHUR ☐ SALTY ☐ MINERAL
	☐ FRESH ☐ SULPHUR ☐ SALTY ☐ MINERAL
	☐ FRESH ☐ SULPHUR ☐ SALTY ☐ MINERAL

(51) CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
30	☒ CONCRETE	3	0	0025
30	☒ STEEL	16 Gauge	25	0045
24	☒ GALVANIZED	16 Gauge	37	0057

SCREEN

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

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)

(71) PUMPING TEST

PUMPING TEST METHOD: ☐ PUMP ☒ BAILER
PUMPING RATE: 0001 GPM
DURATION OF PUMPING: 02 HOURS 00 MINS

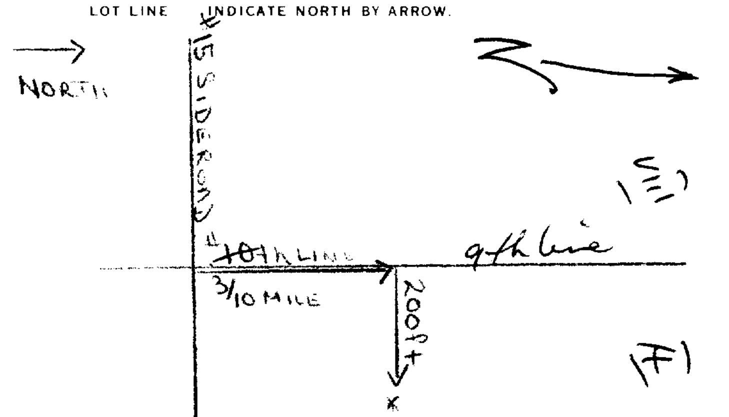
STATIC LEVEL	WATER LEVEL END OF PUMPING	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
038 FEET	055 FEET	054 FEET	054 / 53½ FEET	053 FEET	053 / 52½ FEET

WATER LEVELS DURING: ☐ PUMPING ☒ RECOVERY

IF FLOWING, GIVE RATE: GPM
PUMP INTAKE SET AT: FEET
WATER AT END OF TEST: ☐ CLEAR ☒ CLOUDY
RECOMMENDED PUMP TYPE: ☐ SHALLOW ☒ DEEP
RECOMMENDED PUMP SETTING: 054 FEET
RECOMMENDED PUMPING RATE: 0001 GPM

LOCATION OF WELL

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



DRILLERS REMARKS: 1.1.154

FINAL STATUS OF WELL 1

☒ WATER SUPPLY
☐ OBSERVATION WELL
☐ TEST HOLE
☐ RECHARGE WELL
☐ ABANDONED, INSUFFICIENT SUPPLY
☐ ABANDONED, POOR QUALITY
☐ UNFINISHED

WATER USE 01

☒ DOMESTIC
☐ STOCK
☐ IRRIGATION
☐ INDUSTRIAL
☐ OTHER
☐ COMMERCIAL
☐ MUNICIPAL
☐ PUBLIC SUPPLY
☐ COOLING OR AIR CONDITIONING
☐ NOT USED

METHOD OF DRILLING 6

☐ CABLE TOOL
☐ ROTARY (CONVENTIONAL)
☐ ROTARY (REVERSE)
☐ ROTARY (AIR)
☐ AIR PERCUSSION
☒ BORING
☐ DIAMOND
☐ JETTING
☐ DRIVING

CONTRACTOR

NAME OF WELL CONTRACTOR: Glenn Mason — LICENCE NUMBER 3662
ADDRESS: R.R.#1, Colgan, Ontario LOG 1G0
NAME OF DRILLER OR BORER: Glenn Mason — LICENCE NUMBER 3662
SIGNATURE OF CONTRACTOR: Glenn Mason
SUBMISSION DATE: DAY 11 MO 03 YR 83

OFFICE USE ONLY

DATA SOURCE: 1 | CONTRACTOR: 3662 | DATE RECEIVED: 160383
DATE OF INSPECTION: | INSPECTOR:
REMARKS: 12/7/83 CSS.S8

MINISTRY OF THE ENVIRONMENT COPY

FORM NO. 0506—4—77 FORM 7

30M13W. OEM

Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

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

11 | 4906291 | MUNICIP. | CON.

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON., BLOCK, TRACT, SURVEY, ETC.	LOT
[redacted]	ALBION	IX	17

[redacted] LGRAVE 15535 9th Line — DATE COMPLETED: DAY 20 MO JUNE YR. 84

65668 RC. ELEVATION 0269 RC. BASIN CODE

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	TO
BROWN	TOP SOIL		HARD	0	1'
BROWN	CLAY		"	1'	20'
GREY	CLAY, SAND, LAYERS		"	20	72

9th line E/S

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
50	☐ FRESH ☐ SULPHUR ☐ SALTY ☐ MINERAL
60 not stud	☐ FRESH ☐ SULPHUR ☐ SALTY ☐ MINERAL
70	☐ FRESH ☐ SULPHUR ☐ SALTY ☐ MINERAL
	☐ FRESH ☐ SULPHUR ☐ SALTY ☐ MINERAL
	☐ FRESH ☐ SULPHUR ☐ SALTY ☐ MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	TO
30	☐ STEEL ☒ GALVANIZED ☐ CONCRETE ☐ OPEN HOLE		0	72
	☐ STEEL ☐ GALVANIZED ☐ CONCRETE ☐ OPEN HOLE			
	☐ STEEL ☐ GALVANIZED ☐ CONCRETE ☐ OPEN HOLE			

SCREEN

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

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)

71 PUMPING TEST

PUMPING TEST METHOD: 1 ☐ PUMP 2 ☒ BAILER
PUMPING RATE: — GPM
DURATION OF PUMPING: 30 HOURS MINS

STATIC LEVEL	WATER LEVEL END OF PUMPING	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
10 FEET	65 FEET	60 FEET	55 FEET	52 FEET	50 FEET

WATER LEVELS DURING: 1 ☐ PUMPING 2 ☒ RECOVERY

IF FLOWING, GIVE RATE: — GPM
PUMP INTAKE SET AT: — FEET
WATER AT END OF TEST: 1 ☐ CLEAR 2 ☒ CLOUDY
RECOMMENDED PUMP TYPE: ☐ SHALLOW ☒ DEEP
RECOMMENDED PUMP SETTING: 65 FEET
RECOMMENDED PUMPING RATE: 2 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 ☐ UNFINISHED

WATER USE

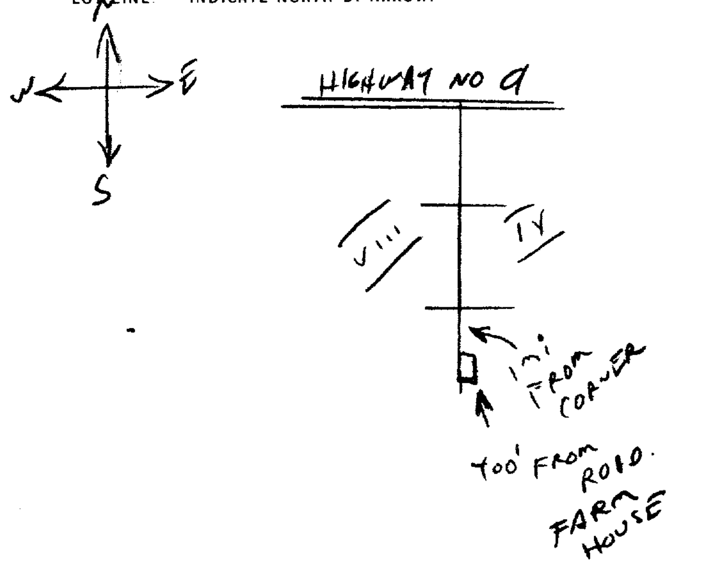
1 ☒ DOMESTIC
2 ☐ STOCK
3 ☐ IRRIGATION
4 ☐ INDUSTRIAL
☐ OTHER
5 ☐ COMMERCIAL
6 ☐ MUNICIPAL
7 ☐ PUBLIC SUPPLY
8 ☐ COOLING OR AIR CONDITIONING
9 ☐ NOT USED

METHOD OF DRILLING

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

7658 LOCATION OF WELL

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



DRILLERS REMARKS: 010-001-158

CONTRACTOR

NAME OF WELL CONTRACTOR: [signature] — LICENCE NUMBER: 4919
ADDRESS: Alliston
NAME OF DRILLER OR BORER: [signature] — LICENCE NUMBER: 4919
SIGNATURE OF CONTRACTOR: [signature] — SUBMISSION DATE: DAY MO. YR.

OFFICE USE ONLY

DATA SOURCE | CONTRACTOR | DATE RECEIVED: 020585
DATE OF INSPECTION | INSPECTOR
REMARKS

MINISTRY OF THE ENVIRONMENT COPY

FORM NO. 0506-4-77 FORM 7

Ministry of Environment and Energy
Ontario

The Ontario Water Resources Act
WATER WELL RECORD

FORMERLY 9th ALBION

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

11

4908344

Municipality 15534 Con. MT. PLEASANT RD
10 49001 14 CON 15 22 24 09

County or District	Township/Borough/City/Town/Village	Con block tract survey, etc.	Lot
PEEL	CALEDON EAST.		25 27

Owner's surname 28-47	First name	Address	Date completed
FAIRMOST HOMES LTD C/O [redacted]		15534 MT. PLEASENT.	26 day 05 month 98 year

21 Easting OWNER Northing ([redacted])

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth – feet From	Depth – feet To
BLACK	TOPSOIL			0	2
BROWN	SAND			2	11
GREY	SILTY SAND			11	24
GREY	CLAY	SILT STREAKS		24	46
GREY	HARD PACKED	SAND	AND CLAY	46	76

31
32

41 WATER RECORD

Water found at – feet	Kind of water
6 10-13	1 ☑ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 6 ☐ Gas 14
46 16-18	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

60

51 CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth – feet From	Depth – feet To
10-11 30"	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☑ Plastic 12	3" 8	0	13-16 75
17-18	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic 19	SAND BOTTOM	TO	20-23 75
24-25	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic 26			27-30

SCREEN

Sizes of opening (Slot No.) 31-33	Diameter 34-38	Length 39-40
1/8 th	30 inches	65 feet

Material and type	Depth at top of screen 41-44	30
FIBERGLASS	15 feet	

61 PLUGGING & SEALING RECORD

☑ Annular space ☐ Abandonment

Depth set at – feet From	Depth set at – feet To	Material and type (Cement grout, bentonite, etc.)
0 10-13	8 14-17	CLAY FILL AND HOLE PLUG
18-21	22-25	
26-29	30-33	80

71 PUMPING TEST

Pumping test method 10: 1 ☐ Pump 2 ☑ Bailer
Pumping rate 2 GPM 11-14
Duration of pumping 1 Hours 15-16 0 Mins 17-18

Static level	Water level end of pumping	Water levels during 25: 1 ☐ Pumping 2 ☐ Recovery			
6 19-21 feet	20 22-24 feet	15 minutes 26-28 feet	30 minutes 29-31 feet	45 minutes 32-34 feet	60 minutes 20 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 60 43-45 feet		Recommended pump rate 5 46-49 GPM	

50-53

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

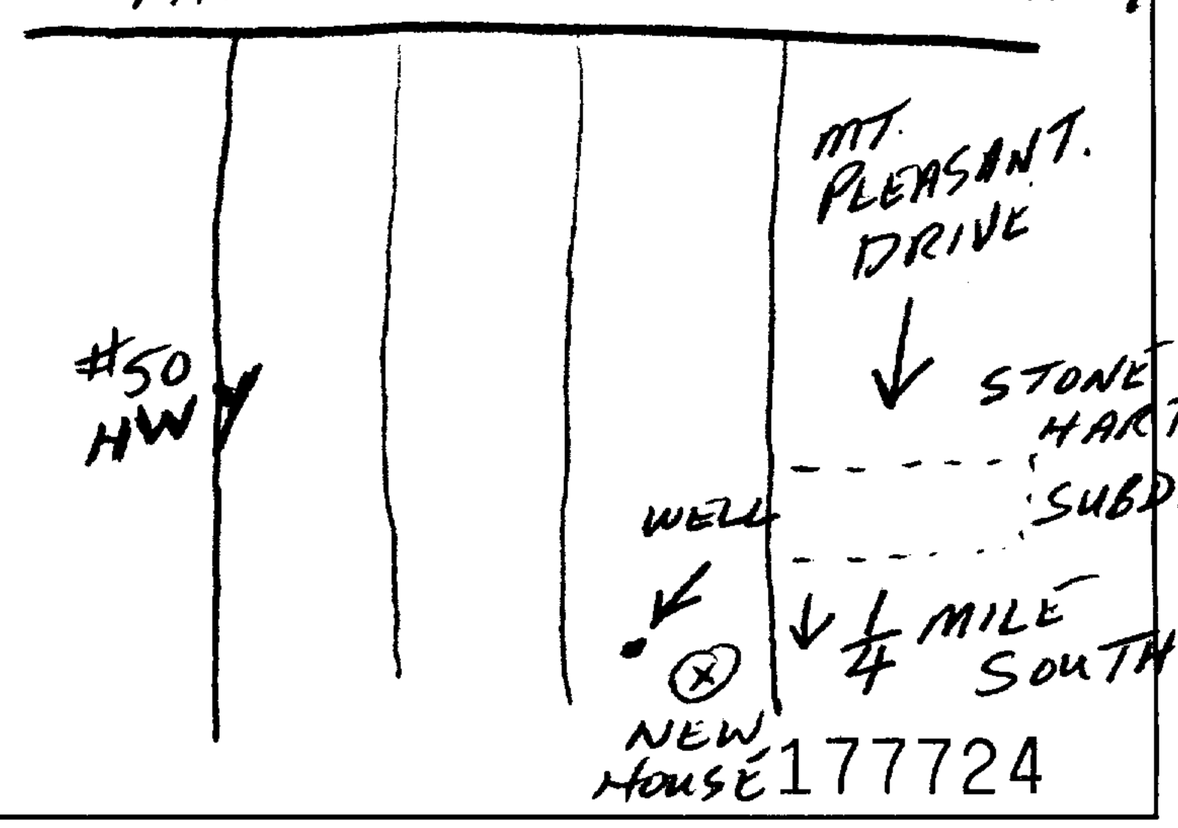
1 ☑ Domestic
2 ☐ Stock
3 ☐ Irrigation
4 ☐ Industrial
5 ☐ Commercial
6 ☐ Municipal
7 ☐ Public supply
8 ☐ Cooling & air conditioning
9 ☐ Not used
10 ☐ Other .....

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 .....

LOCATION OF WELL

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



Name of Well Contractor	Well Contractor's Licence No.
HAYDEN WATER WELLS	2552
Address R.R.#1 LUCAN	
Name of Well Technician J. HAYDEN	Well Technician's Licence No. T1034.
Signature of Technician/Contractor	Submission date day mo yr

MINISTRY USE ONLY

Data source 58	Contractor 59-62	Date received 63-68	80
	2552	JUL 16 1998	
Date of inspection	Inspector		
Remarks: CSS. S9			

0506 (07/94) Front Form 9

2 - MINISTRY OF ENVIRONMENT & ENERGY COPY

Ontario Ministry of the Environment

The Ontario Water Resources Act
WATER WELL RECORD

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

11 **4908800** Municipality 49001 Con CON 08

County or District	Township/Borough/City/Town/Village	Con block tract survey, etc.	Lot
Peel County	Town of CALEDON, Region of Peel	Con. 8	PtE½ 17
[redacted]	Address 15300 Mt. Pleasant Rd. R.R.#1, Bolton, ON	Date completed 03 day 04 month 01 year	

21 Northing RC Elevation RC Basin Code

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth - feet From	Depth - feet To
Black	Top Soil			0	2
Brown	Clay			2	10
Brown	Sand	Clay		10	12
Brown	Clay			12	16
Blue	Clay			16	35
Grey	Sand			35	36
Blue	Clay			36	45
Grey	Sand			45	46
Blue	Clay			46	48

31

32

41 WATER RECORD

Water found at - feet	Kind of water
9&36	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 5 ☐ Gas — NOT TESTED
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 5 ☐ Gas
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 5 ☐ Gas
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 5 ☐ Gas
	1 ☐ Fresh 2 ☐ Salty 3 ☐ Sulphur 4 ☐ Minerals 5 ☐ Gas

51 CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth - feet From	Depth - feet To
30	1 ☐ Steel 2 ☐ Galvanized 3 ☒ Concrete 4 ☐ Open hole 5 ☐ Plastic	3	0	7½
30	1 ☒ Steel 2 ☒ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic	16 Gauge	7½	27½
24	1 ☒ Steel 2 ☒ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic	16 Gauge	24	48

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	Depth set at - feet To	Material and type (Cement grout, bentonite, etc.)

71 PUMPING TEST

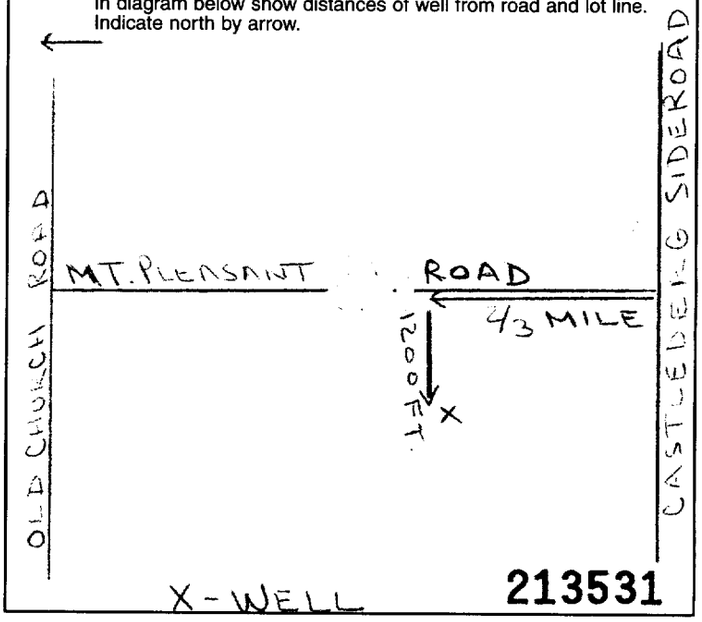
Pumping test method: 1 ☐ Pump 2 ☒ Bailer
Pumping rate: 2½ GPM
Duration of pumping: 4 Hours — Mins

Static level	Water level end of pumping	Water levels during: 1 ☐ Pumping 2 ☒ Recovery			
		15 minutes	30 minutes	45 minutes	60 minutes
09 feet	46 feet	45 feet	44½ feet	44 feet	43½ feet

If flowing give rate	Pump intake set at	Water at end of test
GPM	feet	☒ Clear ☐ Cloudy
Recommended pump type: ☐ Shallow ☒ Deep	Recommended pump setting: 45 feet	Recommended pump rate: 2½ 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 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 use 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

Name of Well Contractor	Well Contractor's Licence No.
Glenn Mason	3662
Address: R.R.#1, Tottenham, Ontario L0G 1W0	
Name of Well Technician	Well Technician's Licence No.
Glenn Mason	T-0284
Signature of Technician/Contractor	Submission date: 02 day 07 mo 2001 yr

MINISTRY USE ONLY

Data source 58 | Contractor 59-62: 3662 | Date received 63-68: JUL 06 2001
Date of inspection | Inspector
Remarks

2 - MINISTRY OF THE ENVIRONMENT COPY

Ontario Ministry of the Environment

Well Tag No. for Master Well (Place Sticker and/or Print Below)
A **A 079003**

Master Well Record for Cluster Well Construction

Regulation 903 Ontario Water Resources Act

6/51 Page 1 of 2

[redacted]

Address of Well Location (Street Number/Name, RR): 15462 Mt Pleasant
Township: | Lot: | Concession:
County/District/Municipality: | City/Town/Village: Caledon | Province: Ontario | Postal Code:
UTM Coordinates: NAD 83 | Zone: 17 | Easting: 593376 | Northing: 4865520 | GPS Unit Make: Etrex | Model: garmin
Mode of Operation: ☐ Undifferentiated ☐ Averaged ☐ Differentiated, specify

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

General Colour	Most Common Material	Other Materials	General Description	Depth (Metres) From	To
Brown	Sand	silt	Dense	0	2.44
Grey	Clay	silt	Dense	2.44	5.49

Hole Details

Depth (Metres) From	To	Diameter (Centimetres)
0	5.49	8.25

Water Use

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

Method of Construction

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

Status of Well

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

No Casing and Screen Used

Open Hole ☐ Yes ☐ No

Static Water Level Test

Metres

Construction Details

Inside Diameter (Centimetres)	Material (steel, plastic, fibreglass, concrete, galvanized)	Wall Thickness	Depth (Metres) From	To
5.20	Plastic	0.340	0	5.49

Screen

☐ Galvanized ☐ Steel ☐ Fibreglass ☐ Concrete ☑ Plastic
Outside Diameter (Centimetres): 6.03 | Slot No.: 10

Water Details

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

Disinfected ☐ Yes ☐ No If no, provide reason:
Date Master Well Completed (yyyy/mm/dd): 2009/02/09

Annular Space/Abandonment Sealing Record

Depth Set at (Metres) From	To	Type of Sealant Used (Material and Type)	Volume Used (Cubic Metres)
0	0.31	Concrete	
0.31	2.13	Bentonite	
2.13	5.49	Sand	

Cluster Information (Please also fill out the additional Cluster Well Information for Well Construction for each parcel of land and cluster.)

Total Wells in Cluster: 3
Total Wells on this Property: 3
Please indicate Number of Cluster Well Information Log Sheets Submitted: 1

Location of Well Cluster

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

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

[redacted]

Well Contractor and Well Technician Information

Business Name of Well Contractor: Strata Soil Sampling Inc.
Well Contractor's Licence No.: 7241
Business Address (Street No./Name, number, RR): 147 West Beaver Creek Rd
Municipality: Richmond Hill
Province: ON | Postal Code: L4B1C6 | Business E-mail Address:
Bus. Telephone No. (inc. area code): 9057649504 | Name of Well Technician (Last Name, First Name): Mitz Brown
Well Technician's Licence No.: T-2977 | Signature of Technician: [signature] | Date Submitted (yyyy/mm/dd): 2009/02/10

KR 2953

Audit No. M 04406 | Well Contractor No.
Date Received (yyyy/mm/dd): FEB 23 2009 | Date of Inspection (yyyy/mm/dd):
Remarks

1992 (11/2006)

Ministry's Copy

Ontario Ministry of the Environment

Well Tag No. for Master Well *(Print Well Tag No.)*
A 079003

Cluster Well Information for Cluster Well Construction

Regulation 903 Ontario Water Resources Act

6151 Page 2 of 2

[redacted]

Address of Well Location (Street Number/Name, RR): 15462 Mt Pleasant | Lot | Concession | Township | County/District/Municipality

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

Signature of Technician/Contractor | Date *(yyyy/mm/dd)*

Well # on Sketch	UTM Coordinates Zone	Easting	Northing	Full Depth of Hole (metres)	Hole Diameter (cm)	Method of Construction	Casing Material	Casing Length (metres)	Screen Interval (metres) From	To	Annular Space Sealant Used	Static Water Level (metres)	Abandonment Sealant Used	Comments	Date of Completion *(yyyy/mm/dd)*
#2	17	598044	4865312	5.49	8.25	Direct Push	Plastic	2.44	2.44	5.49	Bentonite Sand				2009/02/04
#3	17	598479	4864143	5.49	8.25	Direct Push	Plastic	2.44	2.44	5.49	Bentonite Sand				2009/02/09

Well Contractor and Well Technician Information

Business Name of Well Contractor: Straten Soil Sampling Inc. | Business Address (Street Number/Name, RR): 169 West Beaver Creek Rd | Municipality: Richmond Hill | Province: Ontario

Postal Code: L4B1C6 | Business Telephone No. *(inc. area code)*: 9057643043 | Well Contractor's Licence No.: 7241 | Business E-mail Address:

Name of Well Technician (First Name, Last Name): Mike Brown. | Well Technician's Licence No.: 12447 | Date Submitted *(yyyy/mm/dd)*: 2009/02/16. | Signature of Technician

KF 1953

Ministry's Copy

Date 1st Well in Cluster Constructed *(yyyy/mm/dd)*	Date Last Well in Cluster Constructed *(yyyy/mm/dd)*

Ministry Use Only

Date Received *(yyyy/mm/dd)*: FEB 23 2009 | Date Inspected *(yyyy/mm/dd)*:

Audit No.: C05068 | Remarks: M04406

1991 (11/2006)

Ontario

Ministry of the Environment

Measurements recorded in: ☐ Metric ☑ Imperial

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

Tag#: A160367

Well Record

Regulation 903 Ontario Water Resources Act

Page _____ of _____

[redacted]

Address of Well Location (Street Number/Name)	Township	Lot	Concession
# 15300 Mount Pleasant Rd.	Albion	#17	#8

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

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	17	594103	4865107		

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
Brown	Topsoil			0	2
Brown	Clay	Stones		2	20
Grey	Clay		Dense	20	145
Grey	Clay	Silt layers		145	155
Grey	Clay	Stones		155	196
Grey	Clay		Dense	196	310
Grey	Silt	Clay layers		310	423
Grey	Sand		Wet	423	436

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
0'	25'	Grout	

Method of Construction

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

Well Use

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

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
6"	Steel	.188"	+2'	428'
5"	Steel		428'	430'

Status of Well

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

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	Depth (m/ft) To
5"	Stainless	#12	430'	433'
5"	Stainless	#16	433'	436'

Results of Well Yield Testing

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

If pumping discontinued, give reason:

Pump intake set at *(m/ft)*

Pumping rate *(l/min / GPM)*

Duration of pumping _____ hrs + _____ min

Final water level end of pumping *(m/ft)*

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

Recommended pump depth (m/ft)
250'

Recommended pump rate *(l/min / GPM)*
3 GPM

Well production *(l/min / GPM)*
4 GPM

Disinfected?
☑ Yes ☐ No

	Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level		30'7		
1			1	
2			2	
3			3	
4			4	
5			5	
10			10	
15			15	
20			20	
25			25	
30			30	
40			40	
50			50	
60			60	

Water Details

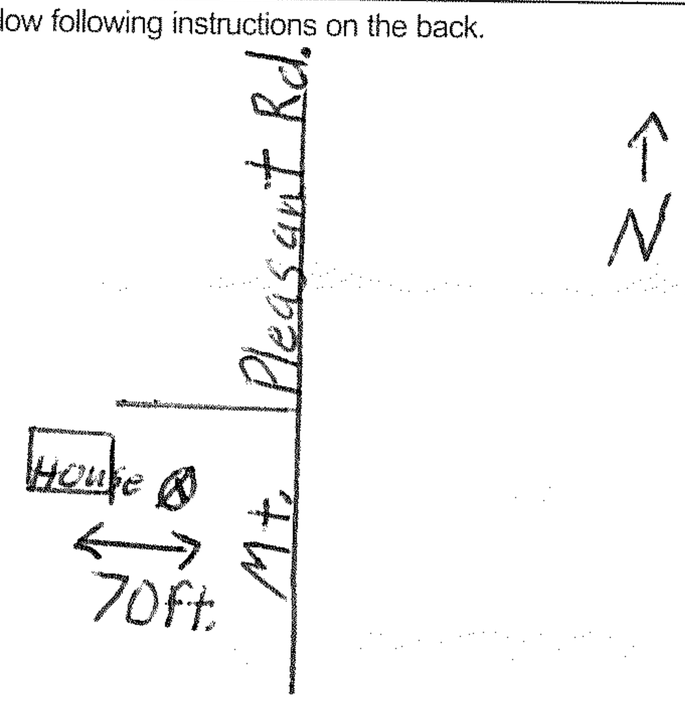
Water found at Depth	Kind of Water	
423 (m/ft) ☐ Gas	☑ Fresh ☑ Untested	☐ Other, *specify*
436 (m/ft) ☐ Gas	☑ Fresh ☑ Untested	☐ Other, *specify*
(m/ft) ☐ Gas	☐ Fresh ☐ Untested	☐ Other, *specify*

Hole Diameter

Depth (m/ft) From	Depth (m/ft) To	Diameter (cm/in)
+2'	436'	6"

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Ø-Well

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Highland Water Wells	3456

Business Address (Street Number/Name)	Municipality
Box 141, Durham	Grey

Province	Postal Code	Business E-mail Address
Ont	N0G1R0	

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
5193696363	Wilson, Clint

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
3456	Clint Wilson	20131227

Well owner's information package delivered	Date Package Delivered	Date Work Completed
☐ Yes ☐ No		20131220

Ministry Use Only

Audit No: Z184264

Received JAN 06 2014

Ministry's Copy

Ontario — Ministry of the Environment and Climate Change

Measurements recorded in: ☐ Metric ☒ Imperial

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

Tag#: A204307

Well Record

Regulation 903 Ontario Water Resources Act

[redacted]

Address of Well Location (Street Number/Name)	Township	Lot	Concession
6 MULLOY COURT	CALEDON	18	8

County/District/Municipality	City/Town/Village	Province	Postal Code
		Ontario	L7E 4J1

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	17	598743	4865433	LOT 2 STELLAR ESTATES	

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
	DECOMMISSION	36 inch dia. BORED WELL			
		32 Ft. deep.			
			Sand/topsoil	G.L	4
			sand	4	8
			hole plug	8	9
			sand	9	32

Annular Space

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

Method of Construction

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

Well Use

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

Construction Record - Casing

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

Construction Record - Screen

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

Status of Well

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

Water Details

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

Hole Diameter

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

Results of Well Yield Testing

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

If pumping discontinued, give reason:

Pump intake set at *(m/ft)*

Pumping rate *(l/min / GPM)*

Duration of pumping _____ hrs + _____ min

Final water level end of pumping *(m/ft)*

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

Recommended pump depth *(m/ft)*

Recommended pump rate *(l/min / GPM)*

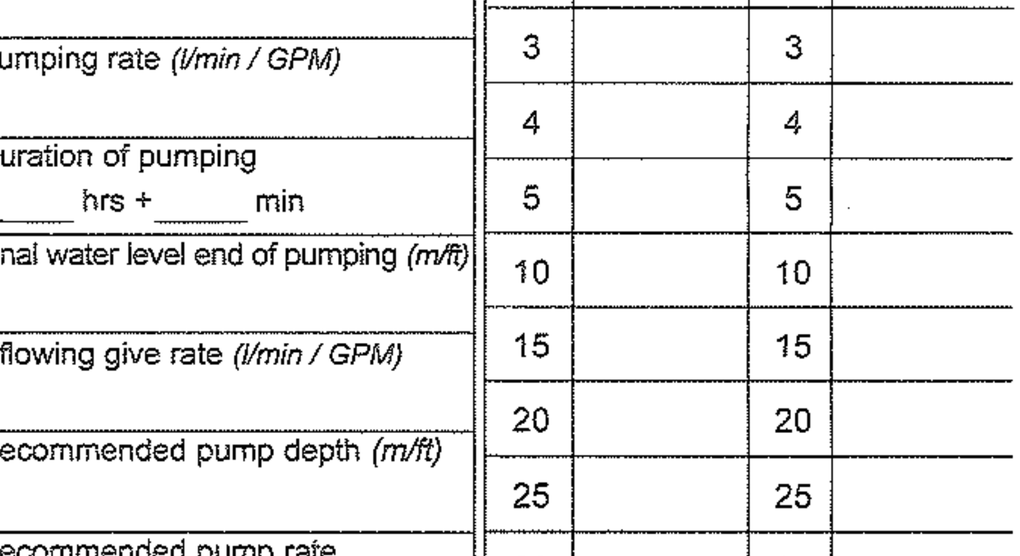
Well production *(l/min / GPM)*

Disinfected?
☒ Yes ☐ No

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

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
MALTBY'S WELL DRILLING	6409

Business Address (Street Number/Name)	Municipality
4459 LINE 5 TOTTENHAM	WEST GWILL

Province	Postal Code	Business E-mail Address
ONT.	L0G1W0	jjmaltby@hotmail.com.

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
9059551669	MALTBY MARK

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
3473	Mark Maltby	2017 04 07

Well owner's information package delivered	Date Package Delivered	Date Work Completed
☐ Yes ☐ No		2017 04 03

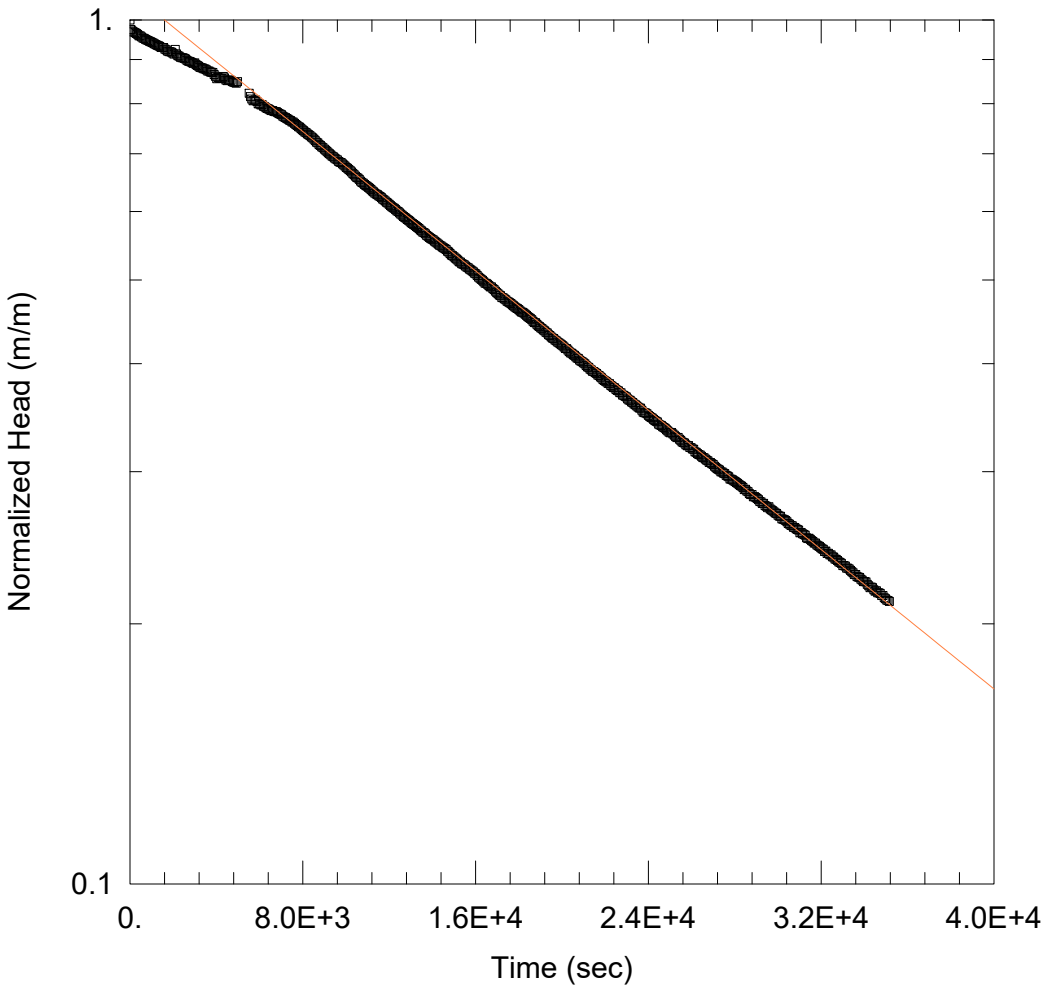
Ministry Use Only

Audit No. Z232586

APR 20 2017

Received

Appendix C Hydraulic Conductivity Testing Results



WELL TEST ANALYSIS

Data Set: W:\...\BH22-15A.aqt
Date: 08/30/22 Time: 17:36:58

PROJECT INFORMATION

Company: Ecometrix Incorporated
Client: Stellar Homes Inc.
Project: 22-3001
Location: Caledon, ON
Test Date: 19-Aug-2022

AQUIFER DATA

Saturated Thickness: 5. m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (BH22-15A)

Initial Displacement: 0.5625 m
Total Well Penetration Depth: 13.18 m
Casing Radius: 0.0254 m
Static Water Column Height: 13.18 m
Screen Length: 3. m
Well Radius: 0.0254 m

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 0.001985 m/day
y0 = 0.6056 m

Data Set: W:\Stellar Homes Inc\Projects\22-3001_Stellar Estates Phase 2\analysis\Slug Test\5 - Aqtesolv Analysis
Date: 08/30/22
Time: 17:37:10

PROJECT INFORMATION

Company: Ecometrix Incorporated
Client: Stellar Homes Inc.
Project: 22-3001
Location: Caledon, ON
Test Date: 19-Aug-2022

AQUIFER DATA

Saturated Thickness: 5. m
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: BH22-15A

X Location: 4865286.715 m
Y Location: 598825.028 m

Initial Displacement: 0.5625 m
Static Water Column Height: 13.18 m
Casing Radius: 0.0254 m
Well Radius: 0.0254 m
Well Skin Radius: 0.0254 m
Screen Length: 3. m
Total Well Penetration Depth: 13.18 m

No. of Observations: 579

Observation Data

Time (sec)	Displacement (m)	Time (sec)	Displacement (m)
29.	0.5484	1.788E+4	0.2612
60.	0.5477	1.794E+4	0.2607
120.	0.5459	1.8E+4	0.2599
180.	0.5447	1.806E+4	0.259
240.	0.5437	1.812E+4	0.2583
300.	0.5426	1.818E+4	0.2581
360.	0.5411	1.824E+4	0.2575
420.	0.5392	1.83E+4	0.2567
480.	0.5391	1.836E+4	0.256
540.	0.5376	1.842E+4	0.2551
600.	0.536	1.848E+4	0.2544
660.	0.5354	1.854E+4	0.2539
720.	0.534	1.86E+4	0.253
780.	0.5333	1.866E+4	0.252
840.	0.5325	1.872E+4	0.2511
900.	0.5313	1.878E+4	0.251
960.	0.5306	1.884E+4	0.2499
1020.	0.5298	1.89E+4	0.249
1080.	0.5289	1.896E+4	0.2484
1140.	0.5277	1.902E+4	0.2476
1200.	0.5267	1.908E+4	0.2471
1260.	0.5257	1.914E+4	0.2462
1320.	0.525	1.92E+4	0.2456
1380.	0.5241	1.926E+4	0.2447
1440.	0.5227	1.932E+4	0.2442
1500.	0.5226	1.938E+4	0.2431
1560.	0.5225	1.944E+4	0.2426
1620.	0.5203	1.95E+4	0.2416
1680.	0.5195	1.956E+4	0.2409
1740.	0.5178	1.962E+4	0.2406
1800.	0.5169	1.968E+4	0.2397

Time (sec)	Displacement (m)	Time (sec)	Displacement (m)
1860.	0.5169	1.974E+4	0.2392
1920.	0.5161	1.98E+4	0.2384
1980.	0.5149	1.986E+4	0.2379
2040.	0.5136	1.992E+4	0.2373
2100.	0.52	1.998E+4	0.2366
2160.	0.5137	2.004E+4	0.236
2220.	0.5113	2.01E+4	0.2352
2280.	0.5108	2.016E+4	0.2343
2340.	0.5093	2.022E+4	0.2342
2400.	0.5086	2.028E+4	0.2333
2460.	0.5085	2.034E+4	0.2323
2520.	0.5077	2.04E+4	0.2316
2580.	0.5069	2.046E+4	0.2314
2640.	0.505	2.052E+4	0.2305
2700.	0.5041	2.058E+4	0.2301
2760.	0.5035	2.064E+4	0.2292
2820.	0.5029	2.07E+4	0.2284
2880.	0.5018	2.076E+4	0.2282
2940.	0.5011	2.082E+4	0.2272
3000.	0.5017	2.088E+4	0.2266
3060.	0.4993	2.094E+4	0.2262
3120.	0.4983	2.1E+4	0.2255
3180.	0.4971	2.106E+4	0.2249
3240.	0.4957	2.112E+4	0.224
3300.	0.4952	2.118E+4	0.2231
3360.	0.4948	2.124E+4	0.2228
3420.	0.4937	2.13E+4	0.2218
3480.	0.4936	2.136E+4	0.2213
3540.	0.4925	2.142E+4	0.2205
3600.	0.4909	2.148E+4	0.2204
3660.	0.4908	2.154E+4	0.2197
3720.	0.4897	2.16E+4	0.2193
3780.	0.4892	2.166E+4	0.2183
3840.	0.489	2.172E+4	0.218
3900.	0.4862	2.178E+4	0.2172
3960.	0.4841	2.184E+4	0.2167
4020.	0.481	2.19E+4	0.2157
4080.	0.4824	2.196E+4	0.2152
4140.	0.4816	2.202E+4	0.2147
4200.	0.4814	2.208E+4	0.2143
4260.	0.4813	2.214E+4	0.2135
4320.	0.4837	2.22E+4	0.2134
4380.	0.4819	2.226E+4	0.2124
4440.	0.4793	2.232E+4	0.2119
4500.	0.4785	2.238E+4	0.2112
4560.	0.479	2.244E+4	0.211
4620.	0.479	2.25E+4	0.2101
4680.	0.4788	2.256E+4	0.2096
4740.	0.4772	2.262E+4	0.2093
4800.	0.4765	2.268E+4	0.2083
4860.	0.476	2.274E+4	0.2082
4920.	0.4753	2.28E+4	0.207
4980.	0.4772	2.286E+4	0.2068
5520.	0.4627	2.292E+4	0.2063
5580.	0.4585	2.298E+4	0.2059
5640.	0.4556	2.304E+4	0.2049
5700.	0.4534	2.31E+4	0.2043
5760.	0.454	2.316E+4	0.2041
5820.	0.4544	2.322E+4	0.2032
5880.	0.4526	2.328E+4	0.2029
5940.	0.4498	2.334E+4	0.2021
6000.	0.4497	2.34E+4	0.2017
6060.	0.4484	2.346E+4	0.2011
6120.	0.4488	2.352E+4	0.2005
6180.	0.4469	2.358E+4	0.2
6240.	0.4464	2.364E+4	0.1999

Time (sec)	Displacement (m)	Time (sec)	Displacement (m)
6300.	0.445	2.37E+4	0.1988
6360.	0.4442	2.376E+4	0.1978
6420.	0.4436	2.382E+4	0.1975
6480.	0.4427	2.388E+4	0.1973
6540.	0.4417	2.394E+4	0.1969
6600.	0.4417	2.4E+4	0.1961
6660.	0.4408	2.406E+4	0.1955
6720.	0.4405	2.412E+4	0.195
6780.	0.4404	2.418E+4	0.1947
6840.	0.4393	2.424E+4	0.194
6900.	0.4383	2.43E+4	0.1934
6960.	0.4377	2.436E+4	0.193
7020.	0.437	2.442E+4	0.1927
7080.	0.4352	2.448E+4	0.1915
7140.	0.4344	2.454E+4	0.1911
7200.	0.4336	2.46E+4	0.1909
7260.	0.4325	2.466E+4	0.1902
7320.	0.4317	2.472E+4	0.1898
7380.	0.4307	2.478E+4	0.1894
7440.	0.43	2.484E+4	0.1887
7500.	0.4287	2.49E+4	0.1881
7560.	0.4285	2.496E+4	0.1875
7620.	0.427	2.502E+4	0.1872
7680.	0.4257	2.508E+4	0.1873
7740.	0.4246	2.514E+4	0.1866
7800.	0.4231	2.52E+4	0.186
7860.	0.4226	2.526E+4	0.1853
7920.	0.421	2.532E+4	0.1848
7980.	0.4198	2.538E+4	0.1849
8040.	0.4186	2.544E+4	0.184
8100.	0.4172	2.55E+4	0.1835
8160.	0.4166	2.556E+4	0.1827
8220.	0.4152	2.562E+4	0.1824
8280.	0.4143	2.568E+4	0.1821
8340.	0.4132	2.574E+4	0.1813
8400.	0.4117	2.58E+4	0.1808
8460.	0.4107	2.586E+4	0.1809
8520.	0.4093	2.592E+4	0.18
8580.	0.4078	2.598E+4	0.1799
8640.	0.4061	2.604E+4	0.1793
8700.	0.4053	2.61E+4	0.1791
8760.	0.4035	2.616E+4	0.1779
8820.	0.4026	2.622E+4	0.1777
8880.	0.401	2.628E+4	0.1771
8940.	0.4001	2.634E+4	0.1766
9000.	0.3986	2.64E+4	0.1764
9060.	0.3974	2.646E+4	0.1758
9120.	0.3962	2.652E+4	0.1752
9180.	0.3948	2.658E+4	0.1751
9240.	0.3937	2.664E+4	0.1745
9300.	0.3925	2.67E+4	0.174
9360.	0.3913	2.676E+4	0.1737
9420.	0.3906	2.682E+4	0.173
9480.	0.3892	2.688E+4	0.1729
9540.	0.3882	2.694E+4	0.1724
9600.	0.3874	2.7E+4	0.172
9660.	0.3858	2.706E+4	0.1712
9720.	0.385	2.712E+4	0.1707
9780.	0.3847	2.718E+4	0.1701
9840.	0.3833	2.724E+4	0.1698
9900.	0.3822	2.73E+4	0.1695
9960.	0.3811	2.736E+4	0.1687
1.002E+4	0.3796	2.742E+4	0.1686
1.008E+4	0.3787	2.748E+4	0.1681
1.014E+4	0.3775	2.754E+4	0.1679
1.02E+4	0.3763	2.76E+4	0.1671

Time (sec)	Displacement (m)	Time (sec)	Displacement (m)
1.026E+4	0.375	2.766E+4	0.1668
1.032E+4	0.3734	2.772E+4	0.1665
1.038E+4	0.3724	2.778E+4	0.1655
1.044E+4	0.371	2.784E+4	0.1654
1.05E+4	0.3697	2.79E+4	0.1651
1.056E+4	0.369	2.796E+4	0.1647
1.062E+4	0.3677	2.802E+4	0.1644
1.068E+4	0.3661	2.808E+4	0.1639
1.074E+4	0.3648	2.814E+4	0.1636
1.08E+4	0.364	2.82E+4	0.163
1.086E+4	0.3628	2.826E+4	0.1626
1.092E+4	0.3617	2.832E+4	0.1623
1.098E+4	0.3611	2.838E+4	0.1618
1.104E+4	0.36	2.844E+4	0.1609
1.11E+4	0.3591	2.85E+4	0.161
1.116E+4	0.358	2.856E+4	0.1603
1.122E+4	0.3567	2.862E+4	0.16
1.128E+4	0.3558	2.868E+4	0.1592
1.134E+4	0.3545	2.874E+4	0.1588
1.14E+4	0.3536	2.88E+4	0.1588
1.146E+4	0.3531	2.886E+4	0.1578
1.152E+4	0.352	2.892E+4	0.1579
1.158E+4	0.3513	2.898E+4	0.1575
1.164E+4	0.3503	2.904E+4	0.1571
1.17E+4	0.349	2.91E+4	0.1566
1.176E+4	0.3483	2.916E+4	0.1559
1.182E+4	0.3472	2.922E+4	0.1557
1.188E+4	0.346	2.928E+4	0.155
1.194E+4	0.3453	2.934E+4	0.1551
1.2E+4	0.3441	2.94E+4	0.1542
1.206E+4	0.3429	2.946E+4	0.1539
1.212E+4	0.3419	2.952E+4	0.1533
1.218E+4	0.3411	2.958E+4	0.1537
1.224E+4	0.3405	2.964E+4	0.1528
1.23E+4	0.3393	2.97E+4	0.1524
1.236E+4	0.3382	2.976E+4	0.1521
1.242E+4	0.3375	2.982E+4	0.1516
1.248E+4	0.3364	2.988E+4	0.1512
1.254E+4	0.3353	2.994E+4	0.151
1.26E+4	0.3343	3.0E+4	0.1503
1.266E+4	0.3332	3.006E+4	0.1499
1.272E+4	0.3323	3.012E+4	0.1498
1.278E+4	0.3316	3.018E+4	0.1488
1.284E+4	0.3305	3.024E+4	0.1487
1.29E+4	0.3297	3.03E+4	0.1485
1.296E+4	0.3289	3.036E+4	0.1482
1.302E+4	0.3277	3.042E+4	0.1477
1.308E+4	0.327	3.048E+4	0.147
1.314E+4	0.3261	3.054E+4	0.1467
1.32E+4	0.3253	3.06E+4	0.1462
1.326E+4	0.3243	3.066E+4	0.1461
1.332E+4	0.3235	3.072E+4	0.1455
1.338E+4	0.3227	3.078E+4	0.1454
1.344E+4	0.3214	3.084E+4	0.1449
1.35E+4	0.3206	3.09E+4	0.1447
1.356E+4	0.3195	3.096E+4	0.1444
1.362E+4	0.3191	3.102E+4	0.1434
1.368E+4	0.3182	3.108E+4	0.1435
1.374E+4	0.3168	3.114E+4	0.143
1.38E+4	0.316	3.12E+4	0.1428
1.386E+4	0.315	3.126E+4	0.1425
1.392E+4	0.3142	3.132E+4	0.1415
1.398E+4	0.3136	3.138E+4	0.1412
1.404E+4	0.313	3.144E+4	0.1413
1.41E+4	0.3119	3.15E+4	0.1409
1.416E+4	0.3112	3.156E+4	0.1404

Time (sec)	Displacement (m)	Time (sec)	Displacement (m)
1.422E+4	0.3104	3.162E+4	0.1401
1.428E+4	0.3095	3.168E+4	0.1395
1.434E+4	0.3085	3.174E+4	0.1395
1.44E+4	0.308	3.18E+4	0.1388
1.446E+4	0.3071	3.186E+4	0.1385
1.452E+4	0.3064	3.192E+4	0.1383
1.458E+4	0.3058	3.198E+4	0.1378
1.464E+4	0.3051	3.204E+4	0.1374
1.47E+4	0.3037	3.21E+4	0.1372
1.476E+4	0.303	3.216E+4	0.1364
1.482E+4	0.3019	3.222E+4	0.1366
1.488E+4	0.3006	3.228E+4	0.1357
1.494E+4	0.3001	3.234E+4	0.1358
1.5E+4	0.2992	3.24E+4	0.1352
1.506E+4	0.2982	3.246E+4	0.1352
1.512E+4	0.2974	3.252E+4	0.1345
1.518E+4	0.2965	3.258E+4	0.1344
1.524E+4	0.2953	3.264E+4	0.1337
1.53E+4	0.295	3.27E+4	0.1336
1.536E+4	0.2938	3.276E+4	0.1332
1.542E+4	0.2934	3.282E+4	0.1327
1.548E+4	0.2929	3.288E+4	0.1325
1.554E+4	0.2919	3.294E+4	0.1322
1.56E+4	0.291	3.3E+4	0.1314
1.566E+4	0.2905	3.306E+4	0.1314
1.572E+4	0.2895	3.312E+4	0.1312
1.578E+4	0.2889	3.318E+4	0.1305
1.584E+4	0.2882	3.324E+4	0.1305
1.59E+4	0.2875	3.33E+4	0.1302
1.596E+4	0.2864	3.336E+4	0.1297
1.602E+4	0.2858	3.342E+4	0.1293
1.608E+4	0.2846	3.348E+4	0.1289
1.614E+4	0.2834	3.354E+4	0.1283
1.62E+4	0.2826	3.36E+4	0.1283
1.626E+4	0.2817	3.366E+4	0.1276
1.632E+4	0.281	3.372E+4	0.1274
1.638E+4	0.2799	3.378E+4	0.1273
1.644E+4	0.2789	3.384E+4	0.1267
1.65E+4	0.2788	3.39E+4	0.1264
1.656E+4	0.278	3.396E+4	0.1259
1.662E+4	0.2771	3.402E+4	0.1259
1.668E+4	0.2761	3.408E+4	0.1258
1.674E+4	0.2761	3.414E+4	0.125
1.68E+4	0.2748	3.42E+4	0.1245
1.686E+4	0.2742	3.426E+4	0.1239
1.692E+4	0.273	3.432E+4	0.1241
1.698E+4	0.2719	3.438E+4	0.1239
1.704E+4	0.2711	3.444E+4	0.1232
1.71E+4	0.2702	3.45E+4	0.1227
1.716E+4	0.2698	3.456E+4	0.1229
1.722E+4	0.2684	3.462E+4	0.1222
1.728E+4	0.2682	3.468E+4	0.1222
1.734E+4	0.2674	3.474E+4	0.122
1.74E+4	0.2668	3.48E+4	0.1213
1.746E+4	0.2657	3.486E+4	0.1213
1.752E+4	0.2653	3.492E+4	0.1206
1.758E+4	0.2647	3.498E+4	0.1203
1.764E+4	0.2642	3.504E+4	0.1198
1.77E+4	0.2633	3.51E+4	0.1197
1.776E+4	0.2626	3.516E+4	0.1194
1.782E+4	0.2618		

SOLUTION

Slug Test
Aquifer Model: Confined

Solution Method: Bouwer-Rice
ln(Re/rw): 4.603

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.001985	m/day
y0	0.6056	m

K = 2.297E-6 cm/sec
T = K*b = 0.009925 m²/day (0.001149 sq. cm/sec)

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
K	0.001876	5.135E-6	+/- 1.009E-5	365.3	m/day
y0	0.574	0.0008832	+/- 0.001735	650.	m

C.I. is approximate 95% confidence interval for parameter
t-ratio = estimate/std. error
No estimation window

K = 2.171E-6 cm/sec
T = K*b = 0.00938 m²/day (0.001086 sq. cm/sec)

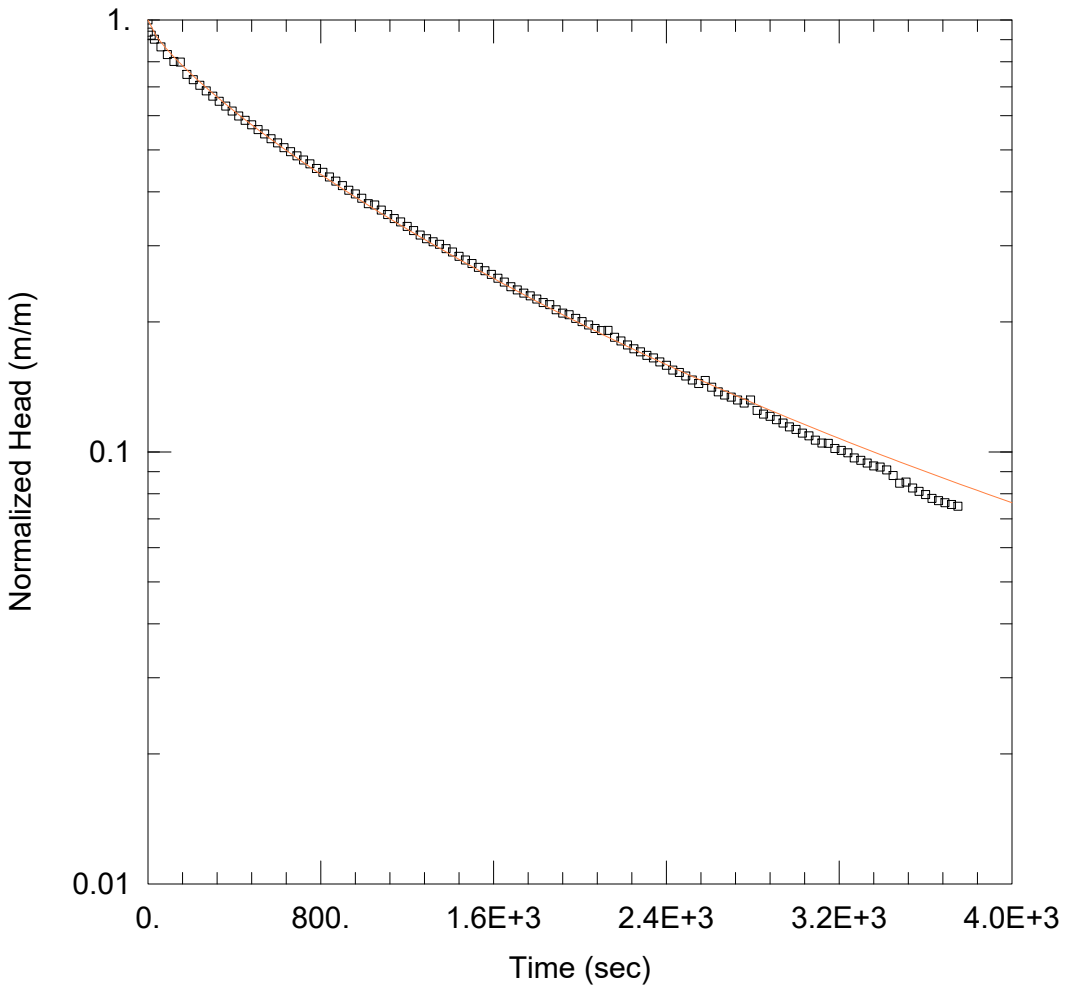
Parameter Correlations

	K	y0
K	1.00	0.76
y0	0.76	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . . . 0.03319 m^2
Variance . . . . . 5.752E-5 m^2
Std. Deviation . . . . . 0.007584 m
Mean . . . . . -0.0004053 m
No. of Residuals 579
No. of Estimates 2



WELL TEST ANALYSIS

Data Set: W:\...\BH22-15B Slug In.aqt
Date: 08/30/22 Time: 17:38:49

PROJECT INFORMATION

Company: Ecometrix Incorporated
Client: Stellar Homes Inc.
Project: 22-3001
Location: Caledon, ON
Test Date: 19-Aug-2022

AQUIFER DATA

Saturated Thickness: 5. m

WELL DATA (BH22-15B)

Initial Displacement: 0.5625 m
Total Well Penetration Depth: 3.19 m
Casing Radius: 0.0254 m
Static Water Column Height: 3.19 m
Screen Length: 3. m
Well Radius: 0.0254 m

SOLUTION

Aquifer Model: Unconfined
Solution Method: KGS Model

Kr = 0.02505 m/day
Kz/Kr = 1.
Ss = 0.002771 m^{-1}

Data Set: W:\Stellar Homes Inc\Projects\22-3001_Stellar Estates Phase 2\analysis\Slug Test\5 - Aqtesolv Analysis
Date: 08/30/22
Time: 17:38:59

PROJECT INFORMATION

Company: Ecometrix Incorporated
Client: Stellar Homes Inc.
Project: 22-3001
Location: Caledon, ON
Test Date: 19-Aug-2022

AQUIFER DATA

Saturated Thickness: 5. m
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: BH22-15B

X Location: 4865287.246 m
Y Location: 598828.14 m

Initial Displacement: 0.5625 m
Static Water Column Height: 3.19 m
Casing Radius: 0.0254 m
Well Radius: 0.0254 m
Well Skin Radius: 0.0254 m
Screen Length: 3. m
Total Well Penetration Depth: 3.19 m

No. of Observations: 127

Observation Data

Time (sec)	Displacement (m)	Time (sec)	Displacement (m)
2.	0.5271	1890.	0.12
15.	0.5185	1920.	0.1179
30.	0.5077	1950.	0.1169
60.	0.4872	1980.	0.1146
90.	0.4675	2010.	0.1127
120.	0.451	2040.	0.1107
150.	0.4493	2070.	0.1086
180.	0.4208	2100.	0.1074
210.	0.4089	2130.	0.1075
240.	0.3969	2160.	0.1036
270.	0.3854	2190.	0.1016
300.	0.3747	2220.	0.0995
330.	0.3645	2250.	0.0975
360.	0.3554	2280.	0.0959
390.	0.3462	2310.	0.0941
420.	0.3372	2340.	0.0928
450.	0.3295	2370.	0.0909
480.	0.3215	2400.	0.0893
510.	0.3134	2430.	0.087
540.	0.3064	2460.	0.0859
570.	0.2986	2490.	0.0843
600.	0.292	2520.	0.0825
630.	0.2847	2550.	0.081
660.	0.2786	2580.	0.0823
690.	0.2725	2610.	0.0794
720.	0.2667	2640.	0.0775
750.	0.2611	2670.	0.0762
780.	0.2549	2700.	0.0753
810.	0.2496	2730.	0.0742
840.	0.2435	2760.	0.073
870.	0.2382	2790.	0.0742

Time (sec)	Displacement (m)	Time (sec)	Displacement (m)
900.	0.2326	2820.	0.0702
930.	0.227	2850.	0.0688
960.	0.2225	2880.	0.068
990.	0.2174	2910.	0.0668
1020.	0.2113	2940.	0.0656
1050.	0.2098	2970.	0.0643
1080.	0.2042	3000.	0.0634
1110.	0.1993	3030.	0.0622
1140.	0.1951	3060.	0.0613
1170.	0.1917	3090.	0.0599
1200.	0.1871	3120.	0.059
1230.	0.183	3150.	0.0589
1260.	0.1787	3180.	0.0573
1290.	0.1753	3210.	0.0567
1320.	0.1725	3240.	0.056
1350.	0.1701	3270.	0.0545
1380.	0.1662	3300.	0.0538
1410.	0.1632	3330.	0.053
1440.	0.1596	3360.	0.0522
1470.	0.1565	3390.	0.0519
1500.	0.1535	3420.	0.0511
1530.	0.1504	3450.	0.0496
1560.	0.1478	3480.	0.0476
1590.	0.1449	3510.	0.0479
1620.	0.1419	3540.	0.0464
1650.	0.1391	3570.	0.0456
1680.	0.1357	3600.	0.0448
1710.	0.1334	3630.	0.0439
1740.	0.1311	3660.	0.0434
1770.	0.1293	3690.	0.0429
1800.	0.1271	3720.	0.0425
1830.	0.1247	3750.	0.0421
1860.	0.1233		

SOLUTION

Slug Test
Aquifer Model: Unconfined
Solution Method: KGS Model

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
Kr	0.02543	m/day
Ss	0.002597	m^{-1}
Kz/Kr	1.	

K = 2.944E-5 cm/sec
T = K*b = 0.1272 m²/day (0.01472 sq. cm/sec)

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
Kr	0.02505	0.0002655	+/- 0.0005254	94.35	m/day
Ss	0.002771	0.0001879	+/- 0.0003718	14.75	m^{-1}
Kz/Kr	1.	not estimated			

C.I. is approximate 95% confidence interval for parameter
t-ratio = estimate/std. error
No estimation window

K = 2.899E-5 cm/sec

T = K*b = 0.1253 m²/day (0.0145 sq. cm/sec)

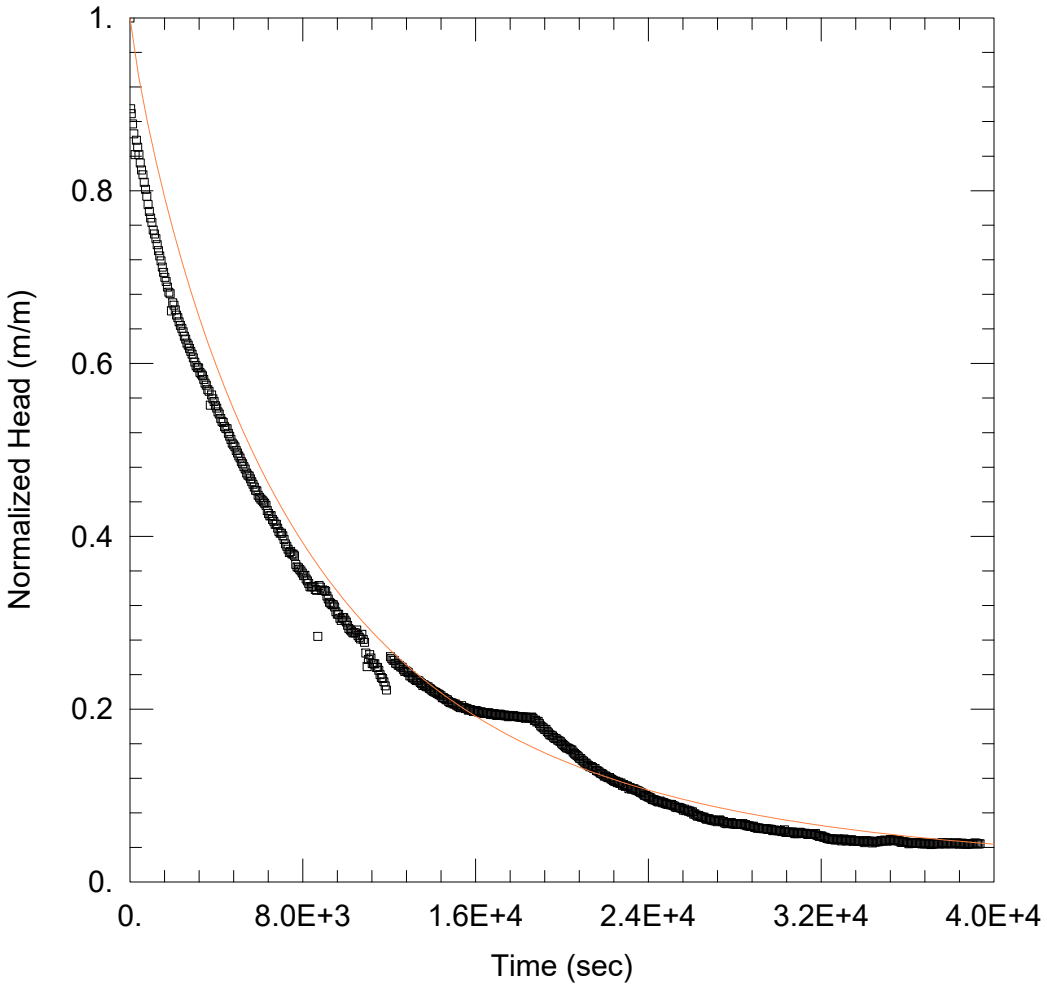
Parameter Correlations

	Kr	Ss
Kr	1.00	-0.94
Ss	-0.94	1.00

Residual Statistics

for weighted residuals

Sum of Squares . . . . . 0.003082 m^2
Variance . . . . . 2.466E-5 m^2
Std. Deviation . . . . . 0.004965 m
Mean . . . . . -0.001168 m
No. of Residuals 127
No. of Estimates 2



WELL TEST ANALYSIS

Data Set: W:\...\BH22-16 Slug Out_v2.aqt
Date: 09/09/22 Time: 11:07:38

PROJECT INFORMATION

Company: Ecometrix Incorporated
Client: Stellar Homes Inc.
Project: 22-3001
Location: Caledon, ON
Test Date: 19-Aug-2022

AQUIFER DATA

Saturated Thickness: 0.9 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (BH22-16)

Initial Displacement: 0.33 m
Total Well Penetration Depth: 1.22 m
Casing Radius: 0.0254 m
Static Water Column Height: 1.22 m
Screen Length: 1.22 m
Well Radius: 0.0254 m

SOLUTION

Aquifer Model: Confined
Solution Method: Cooper-Bredehoeft-Papadopulos
T = 2.0E-7 m^2/sec
S = 0.0001

Data Set: W:\Stellar Homes Inc\Projects\22-3001_Stellar Estates Phase 2\Analysis\Slug Test\5 - Aqtesolv Analysis
Date: 09/09/22
Time: 11:08:00

PROJECT INFORMATION

Company: Ecometrix Incorporated
Client: Stellar Homes Inc.
Project: 22-3001
Location: Caledon, ON
Test Date: 19-Aug-2022

AQUIFER DATA

Saturated Thickness: 0.9 m
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: BH22-16

X Location: 4865212.273 m
Y Location: 598765.629 m

Initial Displacement: 0.33 m
Static Water Column Height: 1.22 m
Casing Radius: 0.0254 m
Well Radius: 0.0254 m
Well Skin Radius: 0.0254 m
Screen Length: 1.22 m
Total Well Penetration Depth: 1.22 m

No. of Observations: 655

Observation Data

Time (sec)	Displacement (m)	Time (sec)	Displacement (m)
30.	0.2953	1.98E+4	0.0542
60.	0.2934	1.986E+4	0.0539
120.	0.2895	1.992E+4	0.0537
180.	0.2857	1.998E+4	0.053
240.	0.2778	2.004E+4	0.0525
300.	0.2833	2.01E+4	0.0521
360.	0.2806	2.016E+4	0.0516
420.	0.2778	2.022E+4	0.0512
480.	0.2746	2.028E+4	0.0511
540.	0.2719	2.034E+4	0.0509
600.	0.2701	2.04E+4	0.0505
660.	0.2672	2.046E+4	0.0504
720.	0.2645	2.052E+4	0.0496
780.	0.2619	2.058E+4	0.0491
840.	0.2587	2.064E+4	0.0486
900.	0.2561	2.07E+4	0.0483
960.	0.2536	2.076E+4	0.0478
1020.	0.2519	2.082E+4	0.0472
1080.	0.249	2.088E+4	0.0471
1140.	0.2475	2.094E+4	0.0465
1200.	0.2457	2.1E+4	0.0461
1260.	0.2434	2.106E+4	0.0454
1320.	0.2411	2.112E+4	0.0454
1380.	0.2391	2.118E+4	0.0447
1440.	0.2372	2.124E+4	0.0444
1500.	0.2348	2.13E+4	0.044
1560.	0.2328	2.136E+4	0.0441
1620.	0.2309	2.142E+4	0.0437
1680.	0.2293	2.148E+4	0.0433
1740.	0.2272	2.154E+4	0.0433
1800.	0.2252	2.16E+4	0.0425

Time (sec)	Displacement (m)	Time (sec)	Displacement (m)
1860.	0.2247	2.166E+4	0.0424
1920.	0.2181	2.172E+4	0.042
1980.	0.2212	2.178E+4	0.0415
2040.	0.2203	2.184E+4	0.0414
2100.	0.2185	2.19E+4	0.0411
2160.	0.2165	2.196E+4	0.0404
2220.	0.2155	2.202E+4	0.0405
2280.	0.2139	2.208E+4	0.0401
2340.	0.2126	2.214E+4	0.0398
2400.	0.2114	2.22E+4	0.0399
2460.	0.2101	2.226E+4	0.0394
2520.	0.2084	2.232E+4	0.0391
2580.	0.2073	2.238E+4	0.0387
2640.	0.2058	2.244E+4	0.0384
2700.	0.205	2.25E+4	0.0385
2760.	0.2038	2.256E+4	0.0379
2820.	0.2026	2.262E+4	0.0381
2880.	0.2016	2.268E+4	0.0376
2940.	0.2002	2.274E+4	0.0378
3000.	0.1985	2.28E+4	0.0369
3060.	0.1972	2.286E+4	0.0372
3120.	0.1965	2.292E+4	0.0365
3180.	0.1963	2.298E+4	0.0367
3240.	0.1946	2.304E+4	0.0365
3300.	0.194	2.31E+4	0.0356
3360.	0.1933	2.316E+4	0.036
3420.	0.1919	2.322E+4	0.0355
3480.	0.1905	2.328E+4	0.0355
3540.	0.1897	2.334E+4	0.0356
3600.	0.188	2.34E+4	0.0351
3660.	0.1874	2.346E+4	0.035
3720.	0.1821	2.352E+4	0.0348
3780.	0.186	2.358E+4	0.0345
3840.	0.1845	2.364E+4	0.0342
3900.	0.1835	2.37E+4	0.034
3960.	0.1819	2.376E+4	0.0336
4020.	0.181	2.382E+4	0.0331
4080.	0.1795	2.388E+4	0.033
4140.	0.1787	2.394E+4	0.0327
4200.	0.177	2.4E+4	0.0324
4260.	0.1759	2.406E+4	0.0323
4320.	0.1755	2.412E+4	0.032
4380.	0.1739	2.418E+4	0.0315
4440.	0.1732	2.424E+4	0.0314
4500.	0.1731	2.43E+4	0.0313
4560.	0.1713	2.436E+4	0.0311
4620.	0.1702	2.442E+4	0.0308
4680.	0.169	2.448E+4	0.0305
4740.	0.1676	2.454E+4	0.0309
4800.	0.1669	2.46E+4	0.0306
4860.	0.1662	2.466E+4	0.0302
4920.	0.1648	2.472E+4	0.0303
4980.	0.1638	2.478E+4	0.0299
5040.	0.1627	2.484E+4	0.0298
5100.	0.1619	2.49E+4	0.0296
5160.	0.1605	2.496E+4	0.0296
5220.	0.1597	2.502E+4	0.0294
5280.	0.1586	2.508E+4	0.0296
5340.	0.1577	2.514E+4	0.0292
5400.	0.1562	2.52E+4	0.029
5460.	0.1554	2.526E+4	0.0286
5520.	0.155	2.532E+4	0.0284
5580.	0.154	2.538E+4	0.0285
5640.	0.1529	2.544E+4	0.0284
5700.	0.1519	2.55E+4	0.0282
5760.	0.1508	2.556E+4	0.028

Time (sec)	Displacement (m)	Time (sec)	Displacement (m)
5820.	0.1496	2.562E+4	0.0274
5880.	0.1494	2.568E+4	0.0278
5940.	0.1477	2.574E+4	0.0272
6000.	0.1469	2.58E+4	0.0274
6060.	0.1462	2.586E+4	0.027
6120.	0.1458	2.592E+4	0.0271
6180.	0.1452	2.598E+4	0.0266
6240.	0.1446	2.604E+4	0.0268
6300.	0.1438	2.61E+4	0.0259
6360.	0.1419	2.616E+4	0.026
6420.	0.1407	2.622E+4	0.0255
6480.	0.1398	2.628E+4	0.0251
6540.	0.1399	2.634E+4	0.0254
6600.	0.1384	2.64E+4	0.025
6660.	0.1377	2.646E+4	0.0247
6720.	0.1366	2.652E+4	0.0247
6780.	0.1366	2.658E+4	0.0247
6840.	0.1351	2.664E+4	0.0243
6900.	0.1338	2.67E+4	0.0239
6960.	0.1332	2.676E+4	0.0242
7020.	0.1332	2.682E+4	0.0241
7080.	0.1322	2.688E+4	0.0237
7140.	0.1308	2.694E+4	0.0236
7200.	0.1291	2.7E+4	0.0235
7260.	0.1282	2.706E+4	0.0233
7320.	0.1271	2.712E+4	0.0235
7380.	0.1258	2.718E+4	0.023
7440.	0.1262	2.724E+4	0.0235
7500.	0.1253	2.73E+4	0.0237
7560.	0.1252	2.736E+4	0.0233
7620.	0.1246	2.742E+4	0.023
7680.	0.1213	2.748E+4	0.0231
7740.	0.1203	2.754E+4	0.0225
7800.	0.12	2.76E+4	0.0223
7860.	0.1194	2.766E+4	0.0223
7920.	0.1188	2.772E+4	0.0224
7980.	0.118	2.778E+4	0.0226
8040.	0.117	2.784E+4	0.0227
8100.	0.1171	2.79E+4	0.0222
8160.	0.1157	2.796E+4	0.0221
8220.	0.115	2.802E+4	0.0222
8280.	0.114	2.808E+4	0.022
8340.	0.1127	2.814E+4	0.0223
8400.	0.1127	2.82E+4	0.022
8460.	0.1128	2.826E+4	0.0221
8520.	0.1127	2.832E+4	0.022
8580.	0.1117	2.838E+4	0.0223
8640.	0.1114	2.844E+4	0.0218
8700.	0.0938	2.85E+4	0.0219
8760.	0.1132	2.856E+4	0.0215
8820.	0.1126	2.862E+4	0.0214
8880.	0.1113	2.868E+4	0.0214
8940.	0.1115	2.874E+4	0.0212
9000.	0.1113	2.88E+4	0.0212
9060.	0.111	2.886E+4	0.0213
9120.	0.1092	2.892E+4	0.0208
9180.	0.1081	2.898E+4	0.0208
9240.	0.1068	2.904E+4	0.0205
9300.	0.1064	2.91E+4	0.0206
9360.	0.1059	2.916E+4	0.0205
9420.	0.1059	2.922E+4	0.0204
9480.	0.105	2.928E+4	0.0204
9540.	0.1032	2.934E+4	0.0203
9600.	0.1023	2.94E+4	0.0204
9660.	0.1022	2.946E+4	0.0203
9720.	0.1007	2.952E+4	0.0201

Time (sec)	Displacement (m)	Time (sec)	Displacement (m)
9780.	0.0999	2.958E+4	0.0202
9840.	0.1009	2.964E+4	0.0201
9900.	0.1009	2.97E+4	0.0201
9960.	0.1	2.976E+4	0.0196
1.002E+4	0.0993	2.982E+4	0.0198
1.008E+4	0.098	2.988E+4	0.0198
1.014E+4	0.0968	2.994E+4	0.0196
1.02E+4	0.0963	3.0E+4	0.0196
1.026E+4	0.0958	3.006E+4	0.0195
1.032E+4	0.0951	3.012E+4	0.0196
1.038E+4	0.0952	3.018E+4	0.0192
1.044E+4	0.0951	3.024E+4	0.0193
1.05E+4	0.0962	3.03E+4	0.0199
1.056E+4	0.0941	3.036E+4	0.0189
1.062E+4	0.0934	3.042E+4	0.019
1.068E+4	0.0928	3.048E+4	0.019
1.074E+4	0.0946	3.054E+4	0.0189
1.08E+4	0.0926	3.06E+4	0.019
1.086E+4	0.0915	3.066E+4	0.0191
1.092E+4	0.0874	3.072E+4	0.0188
1.098E+4	0.0822	3.078E+4	0.0184
1.104E+4	0.085	3.084E+4	0.0185
1.11E+4	0.0868	3.09E+4	0.0184
1.116E+4	0.0855	3.096E+4	0.0187
1.122E+4	0.0834	3.102E+4	0.019
1.128E+4	0.0833	3.108E+4	0.0188
1.134E+4	0.0833	3.114E+4	0.0185
1.14E+4	0.082	3.12E+4	0.0185
1.146E+4	0.0819	3.126E+4	0.0186
1.152E+4	0.0808	3.132E+4	0.0184
1.158E+4	0.0792	3.138E+4	0.0181
1.164E+4	0.0781	3.144E+4	0.0185
1.17E+4	0.0777	3.15E+4	0.0181
1.176E+4	0.0764	3.156E+4	0.0181
1.182E+4	0.0749	3.162E+4	0.0183
1.188E+4	0.0733	3.168E+4	0.0181
1.206E+4	0.086	3.174E+4	0.0185
1.212E+4	0.0853	3.18E+4	0.0178
1.218E+4	0.0847	3.186E+4	0.0177
1.224E+4	0.0846	3.192E+4	0.0174
1.23E+4	0.0835	3.198E+4	0.0176
1.236E+4	0.0834	3.204E+4	0.0175
1.242E+4	0.0828	3.21E+4	0.0171
1.248E+4	0.0827	3.216E+4	0.0171
1.254E+4	0.0821	3.222E+4	0.0169
1.26E+4	0.082	3.228E+4	0.0166
1.266E+4	0.0812	3.234E+4	0.0165
1.272E+4	0.0804	3.24E+4	0.0164
1.278E+4	0.0806	3.246E+4	0.0163
1.284E+4	0.0802	3.252E+4	0.0163
1.29E+4	0.0799	3.258E+4	0.0164
1.296E+4	0.0787	3.264E+4	0.016
1.302E+4	0.0787	3.27E+4	0.0163
1.308E+4	0.078	3.276E+4	0.0161
1.314E+4	0.0778	3.282E+4	0.0164
1.32E+4	0.0773	3.288E+4	0.0162
1.326E+4	0.0769	3.294E+4	0.0157
1.332E+4	0.077	3.3E+4	0.0161
1.338E+4	0.0768	3.306E+4	0.0164
1.344E+4	0.0762	3.312E+4	0.0159
1.35E+4	0.0758	3.318E+4	0.0156
1.356E+4	0.075	3.324E+4	0.0159
1.362E+4	0.0753	3.33E+4	0.0159
1.368E+4	0.0749	3.336E+4	0.016
1.374E+4	0.0745	3.342E+4	0.0161
1.38E+4	0.0745	3.348E+4	0.0155

Time (sec)	Displacement (m)	Time (sec)	Displacement (m)
1.386E+4	0.0739	3.354E+4	0.0156
1.392E+4	0.0737	3.36E+4	0.0158
1.398E+4	0.0732	3.366E+4	0.0156
1.404E+4	0.0728	3.372E+4	0.0155
1.41E+4	0.0726	3.378E+4	0.0156
1.416E+4	0.0724	3.384E+4	0.0156
1.422E+4	0.072	3.39E+4	0.0154
1.428E+4	0.0718	3.396E+4	0.0156
1.434E+4	0.0715	3.402E+4	0.015
1.44E+4	0.0711	3.408E+4	0.0158
1.446E+4	0.0704	3.414E+4	0.0156
1.452E+4	0.0704	3.42E+4	0.0155
1.458E+4	0.07	3.426E+4	0.0154
1.464E+4	0.0696	3.432E+4	0.0156
1.47E+4	0.0696	3.438E+4	0.0149
1.476E+4	0.0689	3.444E+4	0.0154
1.482E+4	0.0685	3.45E+4	0.0152
1.488E+4	0.0685	3.456E+4	0.0154
1.494E+4	0.0683	3.462E+4	0.0154
1.5E+4	0.0679	3.468E+4	0.0154
1.506E+4	0.068	3.474E+4	0.0156
1.512E+4	0.0675	3.48E+4	0.0158
1.518E+4	0.0672	3.486E+4	0.0156
1.524E+4	0.0669	3.492E+4	0.0159
1.53E+4	0.0666	3.498E+4	0.0159
1.536E+4	0.0673	3.504E+4	0.0157
1.542E+4	0.0665	3.51E+4	0.0156
1.548E+4	0.0666	3.516E+4	0.0158
1.554E+4	0.0662	3.522E+4	0.0161
1.56E+4	0.0663	3.528E+4	0.0161
1.566E+4	0.0656	3.534E+4	0.0161
1.572E+4	0.0658	3.54E+4	0.0159
1.578E+4	0.0658	3.546E+4	0.0158
1.584E+4	0.0655	3.552E+4	0.0157
1.59E+4	0.0651	3.558E+4	0.0157
1.596E+4	0.0654	3.564E+4	0.0157
1.602E+4	0.0654	3.57E+4	0.0151
1.608E+4	0.0653	3.576E+4	0.0151
1.614E+4	0.0649	3.582E+4	0.0154
1.62E+4	0.0648	3.588E+4	0.0152
1.626E+4	0.065	3.594E+4	0.0151
1.632E+4	0.0646	3.6E+4	0.0151
1.638E+4	0.0643	3.606E+4	0.0146
1.644E+4	0.0645	3.612E+4	0.0149
1.65E+4	0.0645	3.618E+4	0.0148
1.656E+4	0.0645	3.624E+4	0.0149
1.662E+4	0.0646	3.63E+4	0.0148
1.668E+4	0.064	3.636E+4	0.0147
1.674E+4	0.0641	3.642E+4	0.0148
1.68E+4	0.0639	3.648E+4	0.015
1.686E+4	0.0643	3.654E+4	0.0148
1.692E+4	0.0639	3.66E+4	0.0149
1.698E+4	0.0636	3.666E+4	0.0145
1.704E+4	0.0638	3.672E+4	0.0147
1.71E+4	0.0641	3.678E+4	0.0145
1.716E+4	0.064	3.684E+4	0.0149
1.722E+4	0.0637	3.69E+4	0.0146
1.728E+4	0.0635	3.696E+4	0.0147
1.734E+4	0.0638	3.702E+4	0.0149
1.74E+4	0.0634	3.708E+4	0.0143
1.746E+4	0.0636	3.714E+4	0.0144
1.752E+4	0.0631	3.72E+4	0.0146
1.758E+4	0.0636	3.726E+4	0.0146
1.764E+4	0.0632	3.732E+4	0.0146
1.77E+4	0.0633	3.738E+4	0.0148
1.776E+4	0.0635	3.744E+4	0.0146

Time (sec)	Displacement (m)	Time (sec)	Displacement (m)
1.782E+4	0.0632	3.75E+4	0.0146
1.788E+4	0.0633	3.756E+4	0.0147
1.794E+4	0.0631	3.762E+4	0.015
1.8E+4	0.063	3.768E+4	0.0146
1.806E+4	0.0631	3.774E+4	0.0145
1.812E+4	0.0628	3.78E+4	0.0149
1.818E+4	0.0631	3.786E+4	0.0149
1.824E+4	0.0629	3.792E+4	0.0148
1.83E+4	0.0625	3.798E+4	0.0146
1.836E+4	0.0629	3.804E+4	0.0147
1.842E+4	0.0628	3.81E+4	0.0145
1.848E+4	0.0626	3.816E+4	0.0147
1.854E+4	0.0628	3.822E+4	0.0149
1.86E+4	0.063	3.828E+4	0.0148
1.866E+4	0.0625	3.834E+4	0.0148
1.872E+4	0.0617	3.84E+4	0.0144
1.878E+4	0.0618	3.846E+4	0.0147
1.884E+4	0.0611	3.852E+4	0.0148
1.89E+4	0.0613	3.858E+4	0.0145
1.896E+4	0.0605	3.864E+4	0.0147
1.902E+4	0.0596	3.87E+4	0.0145
1.908E+4	0.0592	3.876E+4	0.0144
1.914E+4	0.0588	3.882E+4	0.0145
1.92E+4	0.0582	3.888E+4	0.0145
1.926E+4	0.0583	3.894E+4	0.0145
1.932E+4	0.0574	3.9E+4	0.0146
1.938E+4	0.0569	3.906E+4	0.0147
1.944E+4	0.0562	3.912E+4	0.0148
1.95E+4	0.0561	3.918E+4	0.0148
1.956E+4	0.0558	3.924E+4	0.0146
1.962E+4	0.0552	3.93E+4	0.0145
1.968E+4	0.0548	3.936E+4	0.0146
1.974E+4	0.0547		

SOLUTION

Slug Test
Aquifer Model: Confined
Solution Method: Cooper-Bredehoeft-Papadopulos

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
T	2.0E-7	m^2/sec
S	0.0001	

K = T/b = 2.222E-7 m/sec (2.222E-5 cm/sec)
Ss = S/b = 0.0001111 1/m

Appendix D Water Quality Laboratory Results

Your Project #: 22-3001
Your C.O.C. #: 889160-01-01

Attention: Winnie Lee

EcoMetrix Incorporated
6800 Campobello Rd
Mississauga, ON
CANADA L5N 2L8

Report Date: 2022/08/03
Report #: R7237329
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2K9614
Received: 2022/07/26, 15:18

Sample Matrix: Water
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Anions	4	N/A	2022/07/29	CAM SOP-00435	SM 23 4110 B m
Conductivity	4	N/A	2022/07/27	CAM SOP-00414	SM 23 2510 m
Fluoride	4	2022/07/27	2022/07/27	CAM SOP-00449	SM 23 4500-F C m
Hardness (calculated as CaCO3)	4	N/A	2022/07/29	CAM SOP 00102/00408/00447	SM 2340 B
Dissolved Metals by ICPMS	4	N/A	2022/07/28	CAM SOP-00447	EPA 6020B m
Total Coliforms/ E. coli, CFU/100mL	4	N/A	2022/07/26	CAM SOP-00551	MECP E3407
Nitrate & Nitrite as Nitrogen in Water (1)	3	N/A	2022/07/29	CAM SOP-00440	SM 23 4500-NO3I/NO2B
Nitrate & Nitrite as Nitrogen in Water (1)	1	N/A	2022/08/02	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	4	2022/07/27	2022/07/27	CAM SOP-00413	SM 4500H+ B m
Total Phosphorus (Colourimetric)	4	2022/07/28	2022/08/02	CAM SOP-00407	SM 23 4500-P I

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.

Your Project #: 22-3001
Your C.O.C. #: 889160-01-01

Attention: Winnie Lee

EcoMetrix Incorporated
6800 Campobello Rd
Mississauga, ON
CANADA L5N 2L8

Report Date: 2022/08/03
Report #: R7237329
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2K9614
Received: 2022/07/26, 15:18

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.

Encryption Key

AUTHORIZED REPORT
RAPPORT AUTORISÉ

Bureau Veritas
03 Aug 2022 08:48:57

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Colby Coutu, Project Manager
Email: Colby.Coutu@bureauveritas.com
Phone# (905)817-5844

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This report has been generated and distributed using a secure automated process.
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For Service Group specific validation please refer to the Validation Signature Page.

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		TGW378		TGW379			TGW379		
Sampling Date		2022/07/26 13:00		2022/07/26 12:00			2022/07/26 12:00		
COC Number		889160-01-01		889160-01-01			889160-01-01		
	UNITS	**BH22-16**	**QC Batch**	**BH22-15A**	**RDL**	**QC Batch**	**BH22-15A Lab-Dup**	**RDL**	**QC Batch**
Calculated Parameters									
Hardness (CaCO3)	mg/L	370	8130398	250	1.0	8130398			
Inorganics									
Conductivity	umho/cm	670	8133476	500	1.0	8133476	500	1.0	8133476
Fluoride (F-)	mg/L	0.13	8133454	0.22	0.10	8133454	0.21	0.10	8133454
pH	pH	7.87	8133439	8.06		8133439	8.14		8133439
Total Phosphorus	mg/L	0.034	8135629	0.031	0.020	8135629			
Nitrite (N)	mg/L	0.018	8133327	<0.010	0.010	8133237			
Dissolved Chloride (Cl-)	mg/L	15	8137468	3.9	1.0	8137468			
Nitrate (N)	mg/L	2.94	8133327	<0.10	0.10	8133237			
Nitrate + Nitrite (N)	mg/L	2.96	8133327	<0.10	0.10	8133237			
Dissolved Bromide (Br-)	mg/L	<1.0	8137468	<1.0	1.0	8137468			
Dissolved Sulphate (SO4)	mg/L	59	8137468	18	1.0	8137468			

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

Bureau Veritas ID		TGW380	TGW381			TGW381		
Sampling Date		2022/07/26 10:30	2022/07/26 10:30			2022/07/26 10:30		
COC Number		889160-01-01	889160-01-01			889160-01-01		
	UNITS	**BH22-15B**	**DUP1**	**RDL**	**QC Batch**	**DUP1 Lab-Dup**	**RDL**	**QC Batch**
Calculated Parameters								
Hardness (CaCO3)	mg/L	380	390	1.0	8130398			
Inorganics								
Conductivity	umho/cm	650	650	1.0	8133476			
Fluoride (F-)	mg/L	0.14	0.13	0.10	8133454			
pH	pH	7.87	7.88		8133439			
Total Phosphorus	mg/L	0.022	<0.020	0.020	8135629			
Nitrite (N)	mg/L	<0.010	<0.010	0.010	8133327			
Dissolved Chloride (Cl-)	mg/L	7.1	7.1	1.0	8137468	7.1	1.0	8137468
Nitrate (N)	mg/L	<0.10	<0.10	0.10	8133327			
Nitrate + Nitrite (N)	mg/L	<0.10	<0.10	0.10	8133327			
Dissolved Bromide (Br-)	mg/L	<1.0	<1.0	1.0	8137468	<1.0	1.0	8137468
Dissolved Sulphate (SO4)	mg/L	51	51	1.0	8137468	51	1.0	8137468

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		TGW378	TGW379	TGW380	TGW381		
Sampling Date		2022/07/26 13:00	2022/07/26 12:00	2022/07/26 10:30	2022/07/26 10:30		
COC Number		889160-01-01	889160-01-01	889160-01-01	889160-01-01		
	UNITS	**BH22-16**	**BH22-15A**	**BH22-15B**	**DUP1**	**RDL**	**QC Batch**
Metals							
Dissolved Aluminum (Al)	ug/L	5.2	5.0	<4.9	<4.9	4.9	8134198
Dissolved Antimony (Sb)	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	8134198
Dissolved Arsenic (As)	ug/L	<1.0	4.4	1.1	1.1	1.0	8134198
Dissolved Boron (B)	ug/L	24	74	27	30	10	8134198
Dissolved Cadmium (Cd)	ug/L	<0.090	<0.090	<0.090	<0.090	0.090	8134198
Dissolved Calcium (Ca)	ug/L	110000	30000	100000	100000	200	8134198
Dissolved Chromium (Cr)	ug/L	<5.0	<5.0	<5.0	<5.0	5.0	8134198
Dissolved Cobalt (Co)	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	8134198
Dissolved Copper (Cu)	ug/L	1.1	<0.90	<0.90	<0.90	0.90	8134198
Dissolved Iron (Fe)	ug/L	<100	<100	240	260	100	8134198
Dissolved Lead (Pb)	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	8134198
Dissolved Magnesium (Mg)	ug/L	25000	43000	30000	31000	50	8134198
Dissolved Manganese (Mn)	ug/L	120	16	43	44	2.0	8134198
Dissolved Nickel (Ni)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	8134198
Dissolved Potassium (K)	ug/L	1700	1500	1500	1600	200	8134198
Dissolved Selenium (Se)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	8134198
Dissolved Sodium (Na)	ug/L	9300	27000	9600	9900	100	8134198
Dissolved Strontium (Sr)	ug/L	280	730	330	340	1.0	8134198
Dissolved Uranium (U)	ug/L	0.91	0.81	0.68	0.66	0.10	8134198
Dissolved Zinc (Zn)	ug/L	<5.0	<5.0	<5.0	<5.0	5.0	8134198

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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MICROBIOLOGY (WATER)

Bureau Veritas ID		TGW378	TGW379	TGW380	TGW381	
Sampling Date		2022/07/26 13:00	2022/07/26 12:00	2022/07/26 10:30	2022/07/26 10:30	
COC Number		889160-01-01	889160-01-01	889160-01-01	889160-01-01	
	UNITS	**BH22-16**	**BH22-15A**	**BH22-15B**	**DUP1**	**QC Batch**
Microbiological						
Background	CFU/100mL	NDOGT (1)	NDOGT (1)	NDOGT (1)	NDOGT (1)	8132247
Total Coliforms	CFU/100mL	NDOGT (1)	NDOGT (1)	NDOGT (1)	NDOGT (1)	8132247
Escherichia coli	CFU/100mL	NDOGT (1)	NDOGT (1)	NDOGT (1)	NDOGT (1)	8132247

QC Batch = Quality Control Batch
(1) NDOGT: No data due to overgrowth. Total coliforms and / or E.coli detected

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GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	4.3°C

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8133237	Nitrate (N)	2022/08/02	102	80 - 120	102	80 - 120	<0.10	mg/L	0.068	20		
8133237	Nitrite (N)	2022/08/02	106	80 - 120	107	80 - 120	<0.010	mg/L	1.9	20		
8133327	Nitrate (N)	2022/07/29	96	80 - 120	105	80 - 120	<0.10	mg/L	NC	20		
8133327	Nitrite (N)	2022/07/29	105	80 - 120	106	80 - 120	<0.010	mg/L	13	20		
8133439	pH	2022/07/27			102	98 - 103			0.97	N/A		
8133454	Fluoride (F-)	2022/07/27	105	80 - 120	99	80 - 120	<0.10	mg/L	6.2	20		
8133476	Conductivity	2022/07/27			101	85 - 115	<1.0	umho/cm	0.41	25		
8134198	Dissolved Aluminum (Al)	2022/07/28	92	80 - 120	100	80 - 120	<4.9	ug/L				
8134198	Dissolved Antimony (Sb)	2022/07/28	99	80 - 120	103	80 - 120	<0.50	ug/L	NC	20		
8134198	Dissolved Arsenic (As)	2022/07/28	93	80 - 120	99	80 - 120	<1.0	ug/L	2.2	20		
8134198	Dissolved Boron (B)	2022/07/28	95	80 - 120	100	80 - 120	<10	ug/L	0.99	20		
8134198	Dissolved Cadmium (Cd)	2022/07/28	94	80 - 120	100	80 - 120	<0.090	ug/L	NC	20		
8134198	Dissolved Calcium (Ca)	2022/07/28	95	80 - 120	103	80 - 120	<200	ug/L				
8134198	Dissolved Chromium (Cr)	2022/07/28	89	80 - 120	94	80 - 120	<5.0	ug/L	NC	20		
8134198	Dissolved Cobalt (Co)	2022/07/28	93	80 - 120	99	80 - 120	<0.50	ug/L	NC	20		
8134198	Dissolved Copper (Cu)	2022/07/28	91	80 - 120	96	80 - 120	<0.90	ug/L	NC	20		
8134198	Dissolved Iron (Fe)	2022/07/28	93	80 - 120	101	80 - 120	<100	ug/L				
8134198	Dissolved Lead (Pb)	2022/07/28	92	80 - 120	98	80 - 120	<0.50	ug/L	NC	20		
8134198	Dissolved Magnesium (Mg)	2022/07/28	91	80 - 120	101	80 - 120	<50	ug/L				
8134198	Dissolved Manganese (Mn)	2022/07/28	92	80 - 120	100	80 - 120	<2.0	ug/L				
8134198	Dissolved Nickel (Ni)	2022/07/28	89	80 - 120	95	80 - 120	<1.0	ug/L	3.4	20		
8134198	Dissolved Potassium (K)	2022/07/28	95	80 - 120	103	80 - 120	<200	ug/L				
8134198	Dissolved Selenium (Se)	2022/07/28	86	80 - 120	99	80 - 120	<2.0	ug/L	NC	20		
8134198	Dissolved Sodium (Na)	2022/07/28	NC	80 - 120	100	80 - 120	<100	ug/L	0.11	20		
8134198	Dissolved Strontium (Sr)	2022/07/28	91	80 - 120	100	80 - 120	<1.0	ug/L				
8134198	Dissolved Uranium (U)	2022/07/28	96	80 - 120	104	80 - 120	<0.10	ug/L	0.33	20		
8134198	Dissolved Zinc (Zn)	2022/07/28	88	80 - 120	97	80 - 120	<5.0	ug/L	NC	20		
8135629	Total Phosphorus	2022/08/02	87	80 - 120	108	80 - 120	<0.020	mg/L	6.6	20	108	80 - 120
8137468	Dissolved Bromide (Br-)	2022/07/29	98	80 - 120	100	80 - 120	<1.0	mg/L	NC	20		
8137468	Dissolved Chloride (Cl-)	2022/07/29	98	80 - 120	100	70 - 130	<1.0	mg/L	0.29	20		

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			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8137468	Dissolved Sulphate (SO4)	2022/07/29	101	80 - 120	102	80 - 120	<1.0	mg/L	0.23	20		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

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VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Cristina Carriere, Senior Scientific Specialist

Sonja Elavinamannil, Master of Biochemistry, Team Lead

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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26-Jul-22 15:18
Colby Coutu
C2K9614

Page 1 of 1

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		
Company Name:	#12046 EcoMetrix Incorporated	Company Name:	Ecometrix Incorporated	Quotation #:	C20252	ENV-1778
Attention:	Accounts Payable	Attention:	Winnie Lee	P.O. #:		Bottle Order #: 889160
Address:	6800 Campobello Rd Mississauga ON L5N 2L8	Address:		Project:	22-3001	
Tel:	(905) 794-2325 Fax: (905) 794-2338	Tel:	(905) 794-2325 Ext: 226 Fax:	Project Name:		COC #: C#889160-01-01
Email:	accountspayable@ecometrix.ca	Email:	wlee@ecometrix.ca	Site #:		Project Manager: Colby Coutu
				Sampled By:	W.Lee/G.Alipanopoulos	

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BUREAU VERITAS DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011)
☐ Table 1 ☐ Res/Park ☐ Medium/Fine
☐ Table 2 ☐ Ind/Comm ☐ Coarse
☐ Table 3 ☐ Agri/Other ☐ For RSC
☐ Table ___

Other Regulations
☐ CCME ☐ Sanitary Sewer Bylaw
☐ Reg 558 ☐ Storm Sewer Bylaw
☐ MISA Municipality ___
☐ PWQO ☐ Reg 406 Table ___
☑ Other ODWS

Special Instructions

Include Criteria on Certificate of Analysis (Y/N)? N

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects

Regular (Standard) TAT: ☑
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: ___ Time Required: ___ ☐
Rush Confirmation Number: ___ *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): (Metals) Hg / Cr VI	pH	Conductivity	Hardness (calculated as CaCO3)	Anions (Br,Cl,SO4)	Fluoride	Nitrate & Nitrite as Nitrogen	Total Phosphorus (Colourimetric)	Dissolved Metals by ICPMS	Total Coliforms/ E. coli, CFU/100mL	# of Bottles	Comments
1		BH22-16	July 26, 2022	13:00	GW	X	X	X	X	X	X	X	X	X	X	4	
2		BH22-15A	"	12:00	GW	X	X	X	X	X	X	X	X	X	X	4	
3		BH22-15B	"	10:30	GW	X	X	X	X	X	X	X	X	X	X	4	
4		DUP1	"	10:30	GW	X	X	X	X	X	X	X	X	X	X	4	
5					~~GW~~												
6																	
7																	
8																	
9																	
10																	

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
Winnie Lee Winnie Lee	22/07/26	15:17	TRINA	2022/07/26	15:18	0

Laboratory Use Only
Time Sensitive
Temperature (°C) on Recei: 5 | 5 | 3
Custody Seal: Present ☑ Intact ☑ — Yes / No

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/TERMS-AND-CONDITIONS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

** SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT WWW.BVNA.COM/RESOURCES/CHAIN-OF-CUSTODY-FORMS.

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

White: Bureau Veritas Yellow: Client

Bureau Veritas Canada (2019) Inc.

Your Project #: 22-3001
Your C.O.C. #: 908283-01-01

Attention: George Alipanopoulos

EcoMetrix Incorporated
6800 Campobello Rd
Mississauga, ON
CANADA L5N 2L8

Report Date: 2022/11/30
Report #: R7410676
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2Y3971
Received: 2022/11/23, 12:49

Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	2	N/A	2022/11/28	CAM SOP-00448	SM 23 2320 B m
Anions	2	N/A	2022/11/29	CAM SOP-00435	SM 23 4110 B m
Conductivity	2	N/A	2022/11/28	CAM SOP-00414	SM 23 2510 m
Fluoride	2	2022/11/28	2022/11/28	CAM SOP-00449	SM 23 4500-F C m
Dissolved Metals by ICPMS	2	N/A	2022/11/29	CAM SOP-00447	EPA 6020B m
Total Coliforms/ E. coli, CFU/100mL	2	N/A	2022/11/23	CAM SOP-00551	
Nitrate & Nitrite as Nitrogen in Water (1)	2	N/A	2022/11/27	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	2	2022/11/28	2022/11/28	CAM SOP-00413	SM 4500H+ B m
Total Phosphorus (Colourimetric)	2	2022/11/25	2022/11/28	CAM SOP-00407	SM 23 4500-P I

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.

Your Project #: 22-3001
Your C.O.C. #: 908283-01-01

Attention: George Alipanopoulos

EcoMetrix Incorporated
6800 Campobello Rd
Mississauga, ON
CANADA L5N 2L8

Report Date: 2022/11/30
Report #: R7410676
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2Y3971
Received: 2022/11/23, 12:49

Encryption Key

AUTHORIZED REPORT
RAPPORT AUTORISÉ

Bureau Veritas
30 Nov 2022 15:53:32

Please direct all questions regarding this Certificate of Analysis to:
Colby Coutu, Project Manager
Email: Colby.Coutu@bureauveritas.com
Phone# (905)817-5844

==========

This report has been generated and distributed using a secure automated process.
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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Bureau Veritas Job #: C2Y3971
Report Date: 2022/11/30

EcoMetrix Incorporated
Client Project #: 22-3001

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		UJQ878	UJQ879			UJQ879		
Sampling Date		2022/11/23 10:00	2022/11/23 09:35			2022/11/23 09:35		
COC Number		908283-01-01	908283-01-01			908283-01-01		
	UNITS	**BH22-15A**	**BH22-15B**	**RDL**	**QC Batch**	**BH22-15B Lab-Dup**	**RDL**	**QC Batch**
Inorganics								
Conductivity	umho/cm	500	580	1.0	8370759			
Fluoride (F-)	mg/L	0.22	0.15	0.10	8370760			
pH	pH	7.88	7.80		8370758			
Total Phosphorus	mg/L	0.031	0.12	0.020	8368416			
Alkalinity (Total as CaCO3)	mg/L	260	280	1.0	8370755			
Nitrite (N)	mg/L	<0.010	0.039	0.010	8368128	0.040	0.010	8368128
Dissolved Chloride (Cl-)	mg/L	3.9	4.4	1.0	8369485	4.3	1.0	8369485
Nitrate (N)	mg/L	<0.10	0.11	0.10	8368128	0.11	0.10	8368128
Nitrate + Nitrite (N)	mg/L	<0.10	0.14	0.10	8368128	0.15	0.10	8368128
Dissolved Bromide (Br-)	mg/L	<1.0	<1.0	1.0	8369485	<1.0	1.0	8369485
Dissolved Sulphate (SO4)	mg/L	13	35	1.0	8369485	35	1.0	8369485

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		UJQ878	UJQ879		
Sampling Date		2022/11/23 10:00	2022/11/23 09:35		
COC Number		908283-01-01	908283-01-01		
	UNITS	**BH22-15A**	**BH22-15B**	**RDL**	**QC Batch**
Metals					
Dissolved Aluminum (Al)	ug/L	<4.9	<4.9	4.9	8368396
Dissolved Antimony (Sb)	ug/L	0.86	<0.50	0.50	8368396
Dissolved Arsenic (As)	ug/L	4.4	<1.0	1.0	8368396
Dissolved Boron (B)	ug/L	67	29	10	8368396
Dissolved Cadmium (Cd)	ug/L	<0.090	<0.090	0.090	8368396
Dissolved Calcium (Ca)	ug/L	28000	78000	200	8368396
Dissolved Chromium (Cr)	ug/L	<5.0	<5.0	5.0	8368396
Dissolved Cobalt (Co)	ug/L	<0.50	<0.50	0.50	8368396
Dissolved Copper (Cu)	ug/L	<0.90	<0.90	0.90	8368396
Dissolved Iron (Fe)	ug/L	120	370	100	8368396
Dissolved Lead (Pb)	ug/L	<0.50	<0.50	0.50	8368396
Dissolved Magnesium (Mg)	ug/L	38000	31000	50	8368396
Dissolved Manganese (Mn)	ug/L	35	69	2.0	8368396
Dissolved Nickel (Ni)	ug/L	<1.0	<1.0	1.0	8368396
Dissolved Potassium (K)	ug/L	1500	1500	200	8368396
Dissolved Selenium (Se)	ug/L	<2.0	<2.0	2.0	8368396
Dissolved Sodium (Na)	ug/L	21000	7800	100	8368396
Dissolved Uranium (U)	ug/L	0.52	0.20	0.10	8368396
Dissolved Zinc (Zn)	ug/L	<5.0	<5.0	5.0	8368396

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

MICROBIOLOGY (WATER)

Bureau Veritas ID		UJQ878	UJQ879	
Sampling Date		2022/11/23 10:00	2022/11/23 09:35	
COC Number		908283-01-01	908283-01-01	
	UNITS	**BH22-15A**	**BH22-15B**	**QC Batch**
Microbiological				
Background	CFU/100mL	NDOGN (1)	NDOGN (1)	8363306
Total Coliforms	CFU/100mL	NDOGN (1)	NDOGN (1)	8363306
Escherichia coli	CFU/100mL	NDOGN (1)	NDOGN (1)	8363306

QC Batch = Quality Control Batch
(1) NDOGN: No data due to overgrowth. Total coliforms and / or E.coli not detected

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GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	5.7°C

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8368128	Nitrate (N)	2022/11/27	107	80 - 120	109	80 - 120	<0.10	mg/L	5.5	20		
8368128	Nitrite (N)	2022/11/27	111	80 - 120	109	80 - 120	<0.010	mg/L	3.0	20		
8368396	Dissolved Aluminum (Al)	2022/11/29	100	80 - 120	97	80 - 120	<4.9	ug/L				
8368396	Dissolved Antimony (Sb)	2022/11/29	102	80 - 120	99	80 - 120	<0.50	ug/L	NC	20		
8368396	Dissolved Arsenic (As)	2022/11/29	100	80 - 120	98	80 - 120	<1.0	ug/L	NC	20		
8368396	Dissolved Boron (B)	2022/11/29	NC	80 - 120	99	80 - 120	<10	ug/L	1.4	20		
8368396	Dissolved Cadmium (Cd)	2022/11/29	97	80 - 120	98	80 - 120	<0.090	ug/L	NC	20		
8368396	Dissolved Calcium (Ca)	2022/11/29	NC	80 - 120	101	80 - 120	<200	ug/L				
8368396	Dissolved Chromium (Cr)	2022/11/29	97	80 - 120	95	80 - 120	<5.0	ug/L	NC	20		
8368396	Dissolved Cobalt (Co)	2022/11/29	97	80 - 120	97	80 - 120	<0.50	ug/L	NC	20		
8368396	Dissolved Copper (Cu)	2022/11/29	100	80 - 120	99	80 - 120	<0.90	ug/L	NC	20		
8368396	Dissolved Iron (Fe)	2022/11/29	103	80 - 120	101	80 - 120	<100	ug/L				
8368396	Dissolved Lead (Pb)	2022/11/29	90	80 - 120	95	80 - 120	<0.50	ug/L	NC	20		
8368396	Dissolved Magnesium (Mg)	2022/11/29	NC	80 - 120	101	80 - 120	<50	ug/L				
8368396	Dissolved Manganese (Mn)	2022/11/29	100	80 - 120	97	80 - 120	<2.0	ug/L				
8368396	Dissolved Nickel (Ni)	2022/11/29	95	80 - 120	95	80 - 120	<1.0	ug/L	NC	20		
8368396	Dissolved Potassium (K)	2022/11/29	110	80 - 120	103	80 - 120	<200	ug/L				
8368396	Dissolved Selenium (Se)	2022/11/29	94	80 - 120	96	80 - 120	<2.0	ug/L	NC	20		
8368396	Dissolved Sodium (Na)	2022/11/29	NC	80 - 120	102	80 - 120	<100	ug/L	0.78	20		
8368396	Dissolved Uranium (U)	2022/11/29	94	80 - 120	95	80 - 120	<0.10	ug/L	NC	20		
8368396	Dissolved Zinc (Zn)	2022/11/29	88	80 - 120	90	80 - 120	<5.0	ug/L	NC	20		
8368416	Total Phosphorus	2022/11/28	105	80 - 120	99	80 - 120	<0.020	mg/L	NC	20	109	80 - 120
8369485	Dissolved Bromide (Br-)	2022/11/29	98	80 - 120	99	80 - 120	<1.0	mg/L	NC	20		
8369485	Dissolved Chloride (Cl-)	2022/11/29	97	80 - 120	97	70 - 130	<1.0	mg/L	1.0	20		
8369485	Dissolved Sulphate (SO4)	2022/11/29	100	80 - 120	99	80 - 120	<1.0	mg/L	0.14	20		
8370755	Alkalinity (Total as CaCO3)	2022/11/28			94	85 - 115	<1.0	mg/L	2.1	20		
8370758	pH	2022/11/28			102	98 - 103			0.17	N/A		
8370759	Conductivity	2022/11/28			100	85 - 115	<1.0	umho/cm	0	25		

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			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8370760	Fluoride (F-)	2022/11/28	89	80 - 120	100	80 - 120	<0.10	mg/L	1.9	20		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

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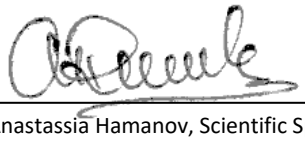
VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Anastassia Hamanov, Scientific Specialist

Sonja Elavinamannil, Master of Biochemistry, Team Lead

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Page 1 of 1

23-Nov-22 12:49
Colby Coutu
C2Y3971

AJH ENV-1766

nly:
Bottle Order #:
908283

COC #:
C#908283-01-01

Project Manager:
Colby Coutu

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:	
Company Name:	#12046 EcoMetrix Incorporated	Company Name:	Ecometrix Incorporated	Quotation #:	C20252
Attention:	Accounts Payable	Attention:	George Alipanopoulos	P.O. #:	
Address:	6800 Campobello Rd Mississauga ON L5N 2L8	Address:		Project:	22-3001
Tel:	(905) 794-2325 Fax: (905) 794-2338	Tel:	Fax:	Project Name:	
Email:	accountspayable@ecometrix.ca	Email:	galipanopoulos@ecometrix.ca	Site #:	
				Sampled By:	G. Alipanopoulos/R. Whyte

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BUREAU VERITAS DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011)
- ☐ Table 1 ☐ Res/Park ☐ Medium/Fine
- ☐ Table 2 ☐ Ind/Comm ☐ Coarse
- ☐ Table 3 ☐ Agri/Other ☐ For RSC
- ☐ Table ___

Other Regulations
- ☐ CCME ☐ Sanitary Sewer Bylaw
- ☐ Reg 558 ☐ Storm Sewer Bylaw
- ☐ MISA Municipality ___
- ☐ PWQO ☐ Reg 406 Table ___
- ☑ Other ODWS

Special Instructions

Include Criteria on Certificate of Analysis (Y/N)? N

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects

Regular (Standard) TAT: ☑
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: ___ Time Required: ___ ☐
Rush Confirmation Number: ___
(call lab for #)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr VI	pH	Conductivity	Hardness (calculated as CaCO3)	Anions (Br,Cl,SO4)	Fluoride	Nitrate & Nitrite as Nitrogen	Total Phosphorus (Colourimetric)	Dissolved Metals by ICPMS	Total Coliforms/ E. coli, CFU/100mL	Alkalinity	# of Bottles	Comments
1		BH22-15A	Nov. 23 2022	10:00	GW		X	X	X	X	X	X	X	X	X	X	4	
2		BH22-15B	11	9:35	GW		X	X	X	X	X	X	X	X	X	X	4	
3					GW													
4					GW													
5					GW													
6																		
7																		
8																		
9																		
10																		

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
George Alipanopoulos	22/11/23		JAC/DSP KMR	2022/11/23	12:49	

Laboratory Use Only ice

Time Sensitive	Temperature (°C) on Recei	Custody Seal	Yes	No
	5.7 | 5	Present		✓
		Intact		✓

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

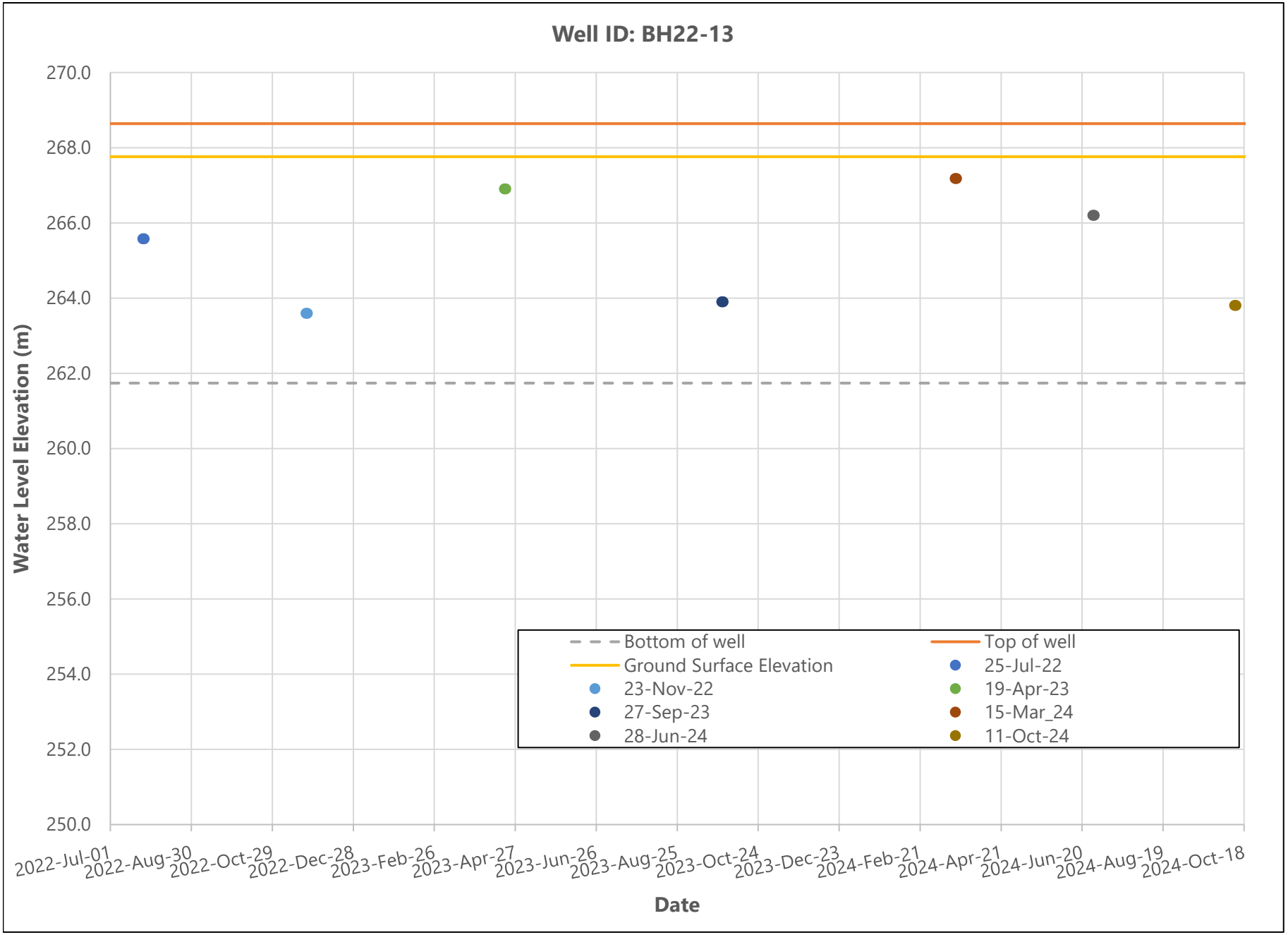
** SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/CHAIN-CUSTODY-FORMS-COCS.

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

White: Bureau Veritas Yellow: Client

Bureau Veritas Canada (2019) Inc.

Appendix E Water Level Graphs (Ecometrix)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Water Level Elevation (m)
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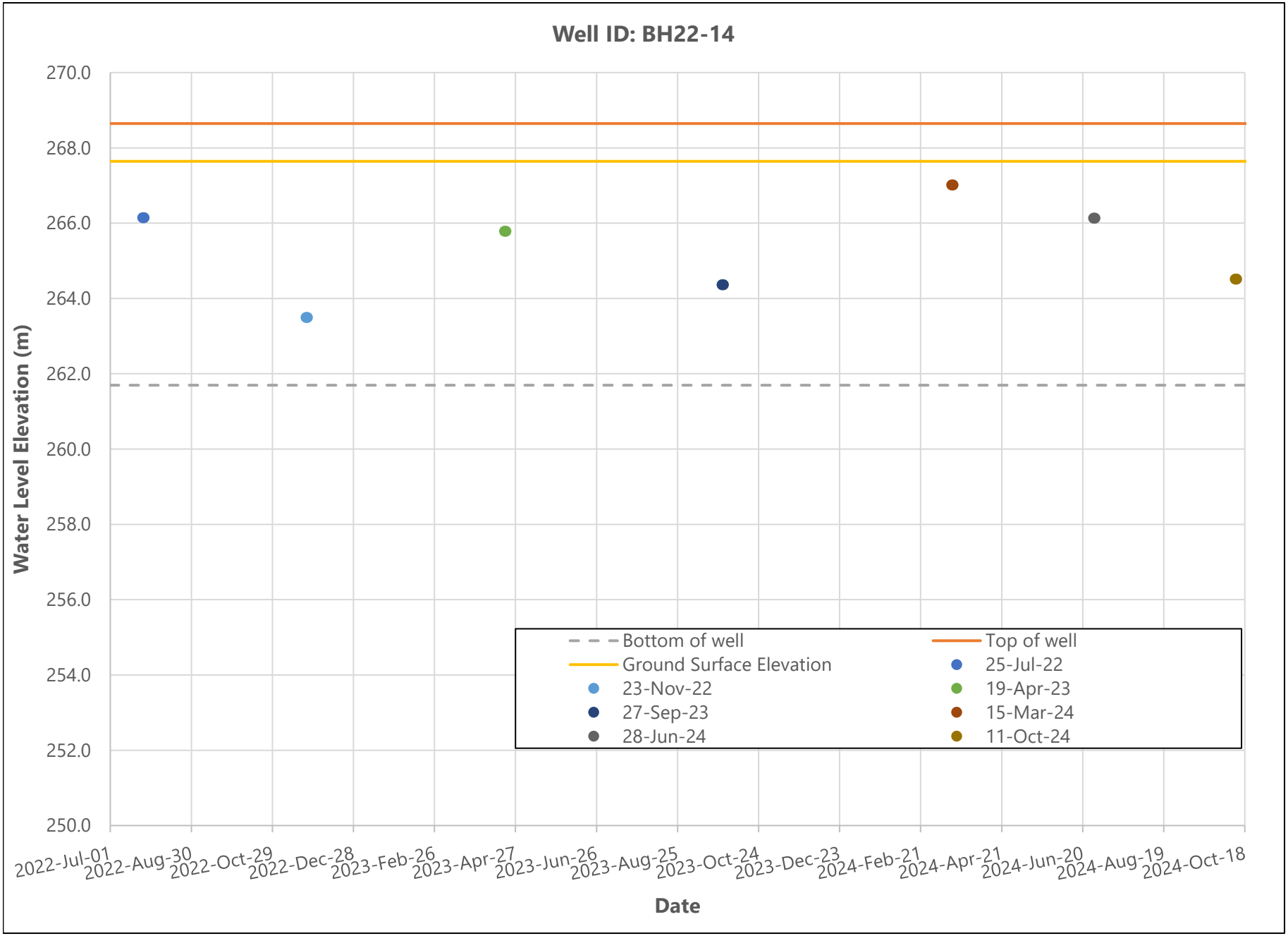
268.0
266.0
264.0
262.0
260.0
258.0
256.0
254.0
252.0
250.0
2022-Jul-01
2022-Aug-30
2022-Oct-29
2022-Dec-28
2023-Feb-26
2023-Apr-27
2023-Jun-26
2023-Aug-25
2023-Oct-24
2023-Dec-23
2024-Feb-21
2024-Apr-21
2024-Jun-20
2024-Aug-19
2024-Oct-18
Date
Bottom of well
Top of well
Ground Surface Elevation
25-Jul-22
23-Nov-22
19-Apr-23
27-Sep-23
15-Mar_24
28-Jun-24
11-Oct-24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266.0
264.0
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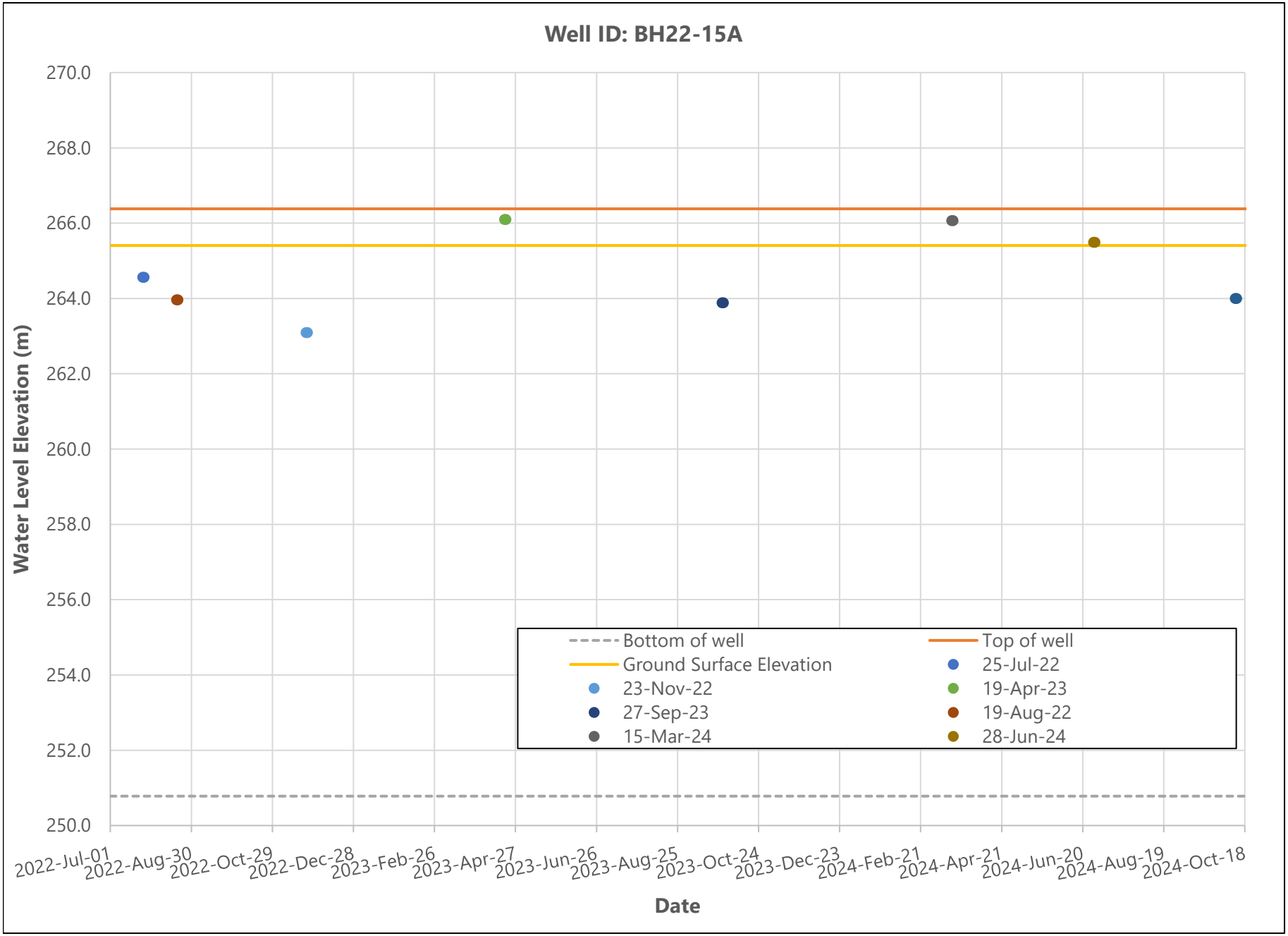
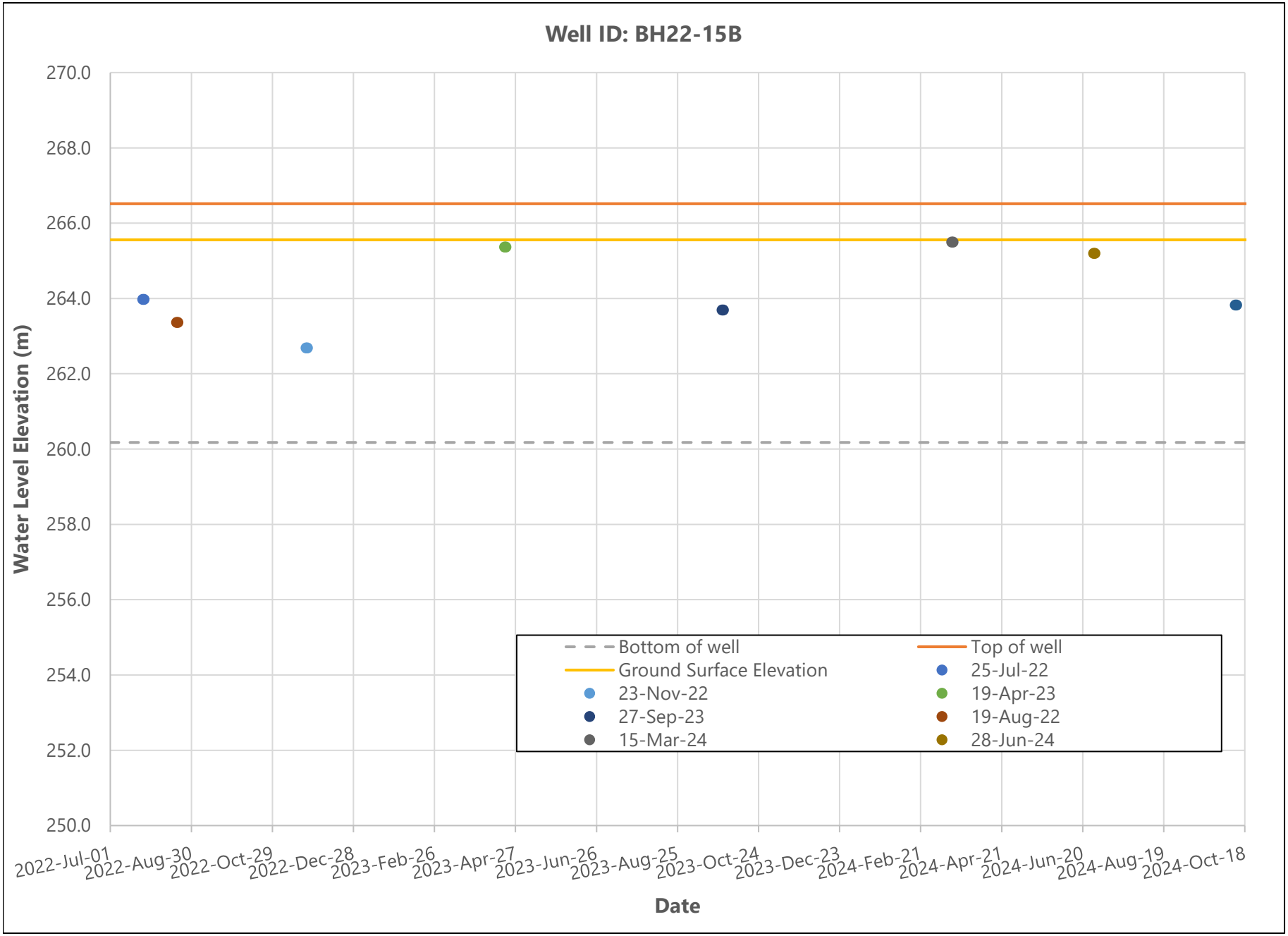
256.0
254.0
252.0
250.0
2022-Jul-01
2022-Aug-30
2022-Oct-29
2022-Dec-28
2023-Feb-26
2023-Apr-27
2023-Jun-26
2023-Aug-25
2023-Oct-24
2023-Dec-23
2024-Feb-21
2024-Apr-21
2024-Jun-20
2024-Aug-19
2024-Oct-18
Date
Bottom of well
Top of well
Ground Surface Elevation
25-Jul-22
23-Nov-22
19-Apr-23
27-Sep-23
15-Mar-24
28-Jun-24
11-Oct-24


Well ID: BH22-15A
Water Level Elevation (m)
270.0
268.0
266.0
264.0
262.0
260.0
258.0
256.0
254.0
252.0
250.0
2022-Jul-01
2022-Aug-30
2022-Oct-29
2022-Dec-28
2023-Feb-26
2023-Apr-27
2023-Jun-26
2023-Aug-25
2023-Oct-24
2023-Dec-23
2024-Feb-21
2024-Apr-21
2024-Jun-20
2024-Aug-19
2024-Oct-18
Date
Bottom of well
Top of well
Ground Surface Elevation
25-Jul-22
23-Nov-22
19-Apr-23
27-Sep-23
19-Aug-22
15-Mar-24
28-Jun-24


Well ID: BH22-15B
Water Level Elevation (m)
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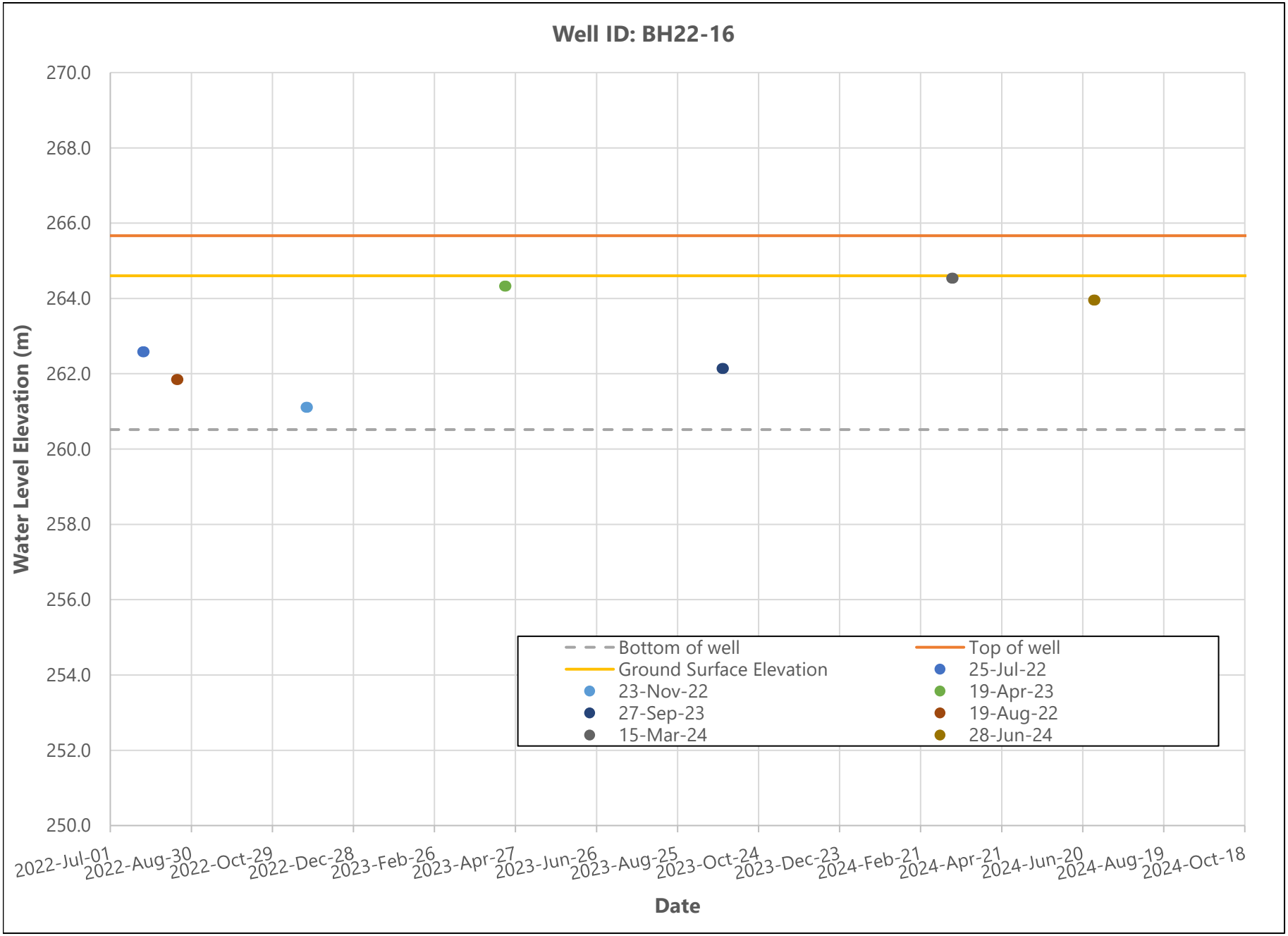
264.0
262.0
260.0
258.0
256.0
254.0
252.0
250.0
2022-Jul-01
2022-Aug-30
2022-Oct-29
2022-Dec-28
2023-Feb-26
2023-Apr-27
2023-Jun-26
2023-Aug-25
2023-Oct-24
2023-Dec-23
2024-Feb-21
2024-Apr-21
2024-Jun-20
2024-Aug-19
2024-Oct-18
Date
Bottom of well
Top of well
Ground Surface Elevation
25-Jul-22
23-Nov-22
19-Apr-23
27-Sep-23
19-Aug-22
15-Mar-24
28-Jun-24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Water Level Elevation (m)
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266.0
264.0
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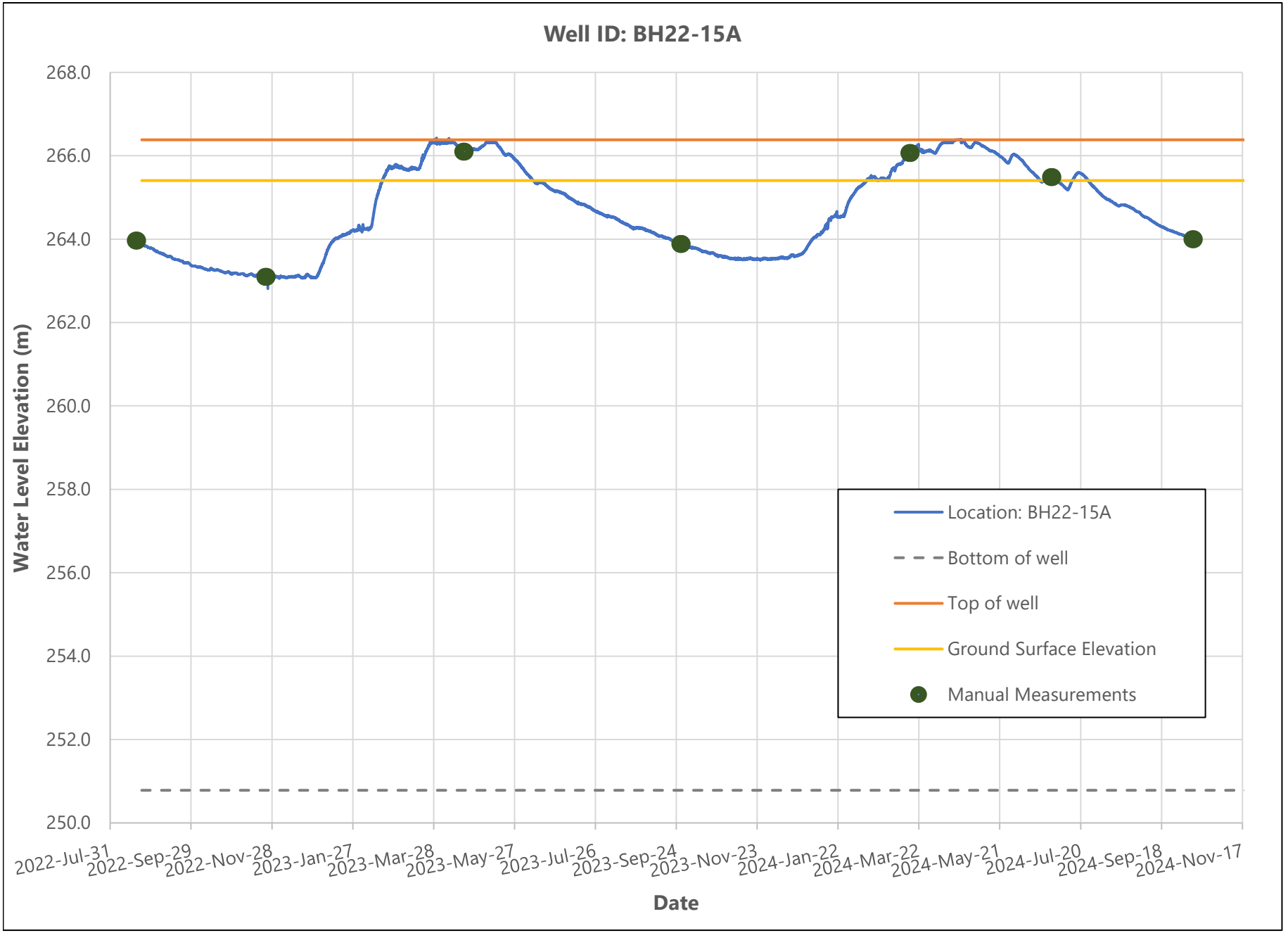
256.0
254.0
252.0
250.0
2022-Jul-01
2022-Aug-30
2022-Oct-29
2022-Dec-28
2023-Feb-26
2023-Apr-27
2023-Jun-26
2023-Aug-25
2023-Oct-24
2023-Dec-23
2024-Feb-21
2024-Apr-21
2024-Jun-20
2024-Aug-19
2024-Oct-18
Date
Bottom of well
Top of well
Ground Surface Elevation
25-Jul-22
23-Nov-22
19-Apr-23
27-Sep-23
19-Aug-22
15-Mar-24
28-Jun-24

Appendix F Water Level Graphs (Equipment)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Water Level Elevation (m)
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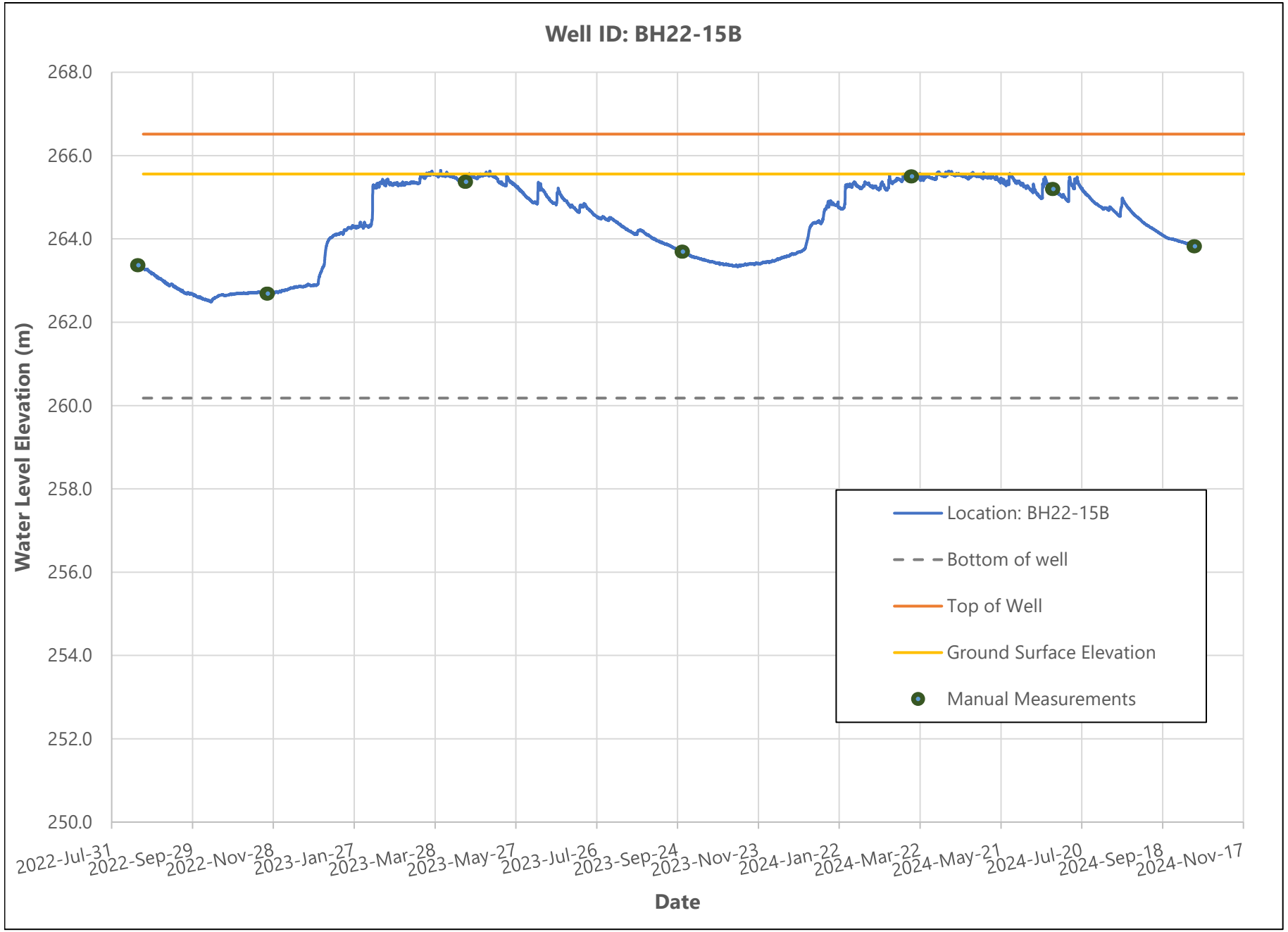
266.0
264.0
262.0
260.0
258.0
256.0
254.0
252.0
250.0
2022-Jul-31
2022-Sep-29
2022-Nov-28
2023-Jan-27
2023-Mar-28
2023-May-27
2023-Jul-26
2023-Sep-24
2023-Nov-23
2024-Jan-22
2024-Mar-22
2024-May-21
2024-Jul-20
2024-Sep-18
2024-Nov-17
Date
Location: BH22-15A
Bottom of well
Top of well
Ground Surface Elevation
Manual Measurements


Well ID: BH22-15B
Water Level Elevation (m)
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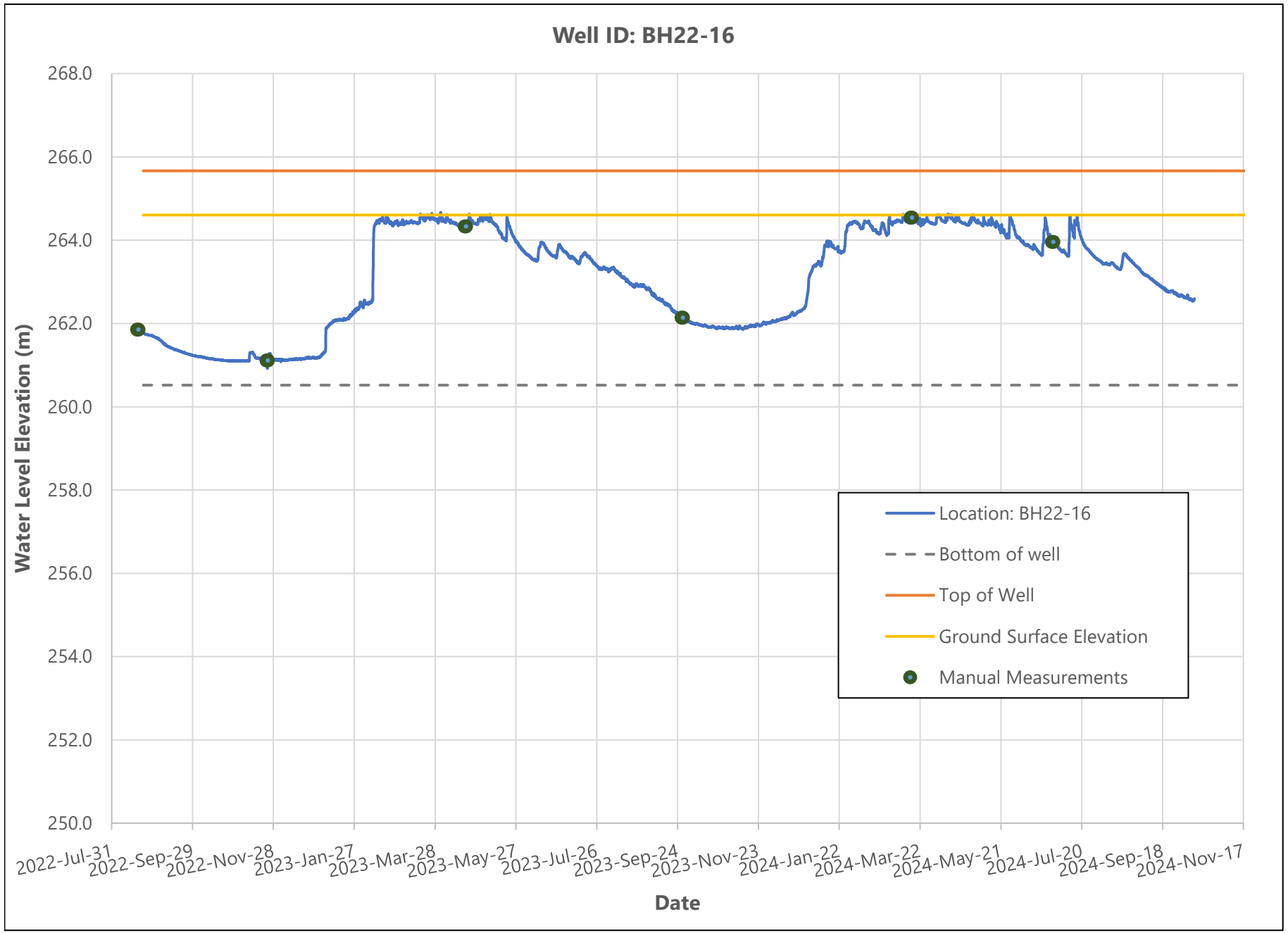
266.0
264.0
262.0
260.0
258.0
256.0
254.0
252.0
250.0
2022-Jul-31
2022-Sep-29
2022-Nov-28
2023-Jan-27
2023-Mar-28
2023-May-27
2023-Jul-26
2023-Sep-24
2023-Nov-23
2024-Jan-22
2024-Mar-22
2024-May-21
2024-Jul-20
2024-Sep-18
2024-Nov-17
Date
Location: BH22-15B
Bottom of well
Top of Well
Ground Surface Elevation
Manual Measurements


Well ID: BH22-16
Water Level Elevation (m)
268.0
266.0
264.0
262.0
260.0
258.0
256.0
254.0
252.0
250.0
2022-Jul-31
2022-Sep-29
2022-Nov-28
2023-Jan-27
2023-Mar-28
2023-May-27
2023-Jul-26
2023-Sep-24
2023-Nov-23
2024-Jan-22
2024-Mar-22
2024-May-21
2024-Jul-20
2024-Sep-18
2024-Nov-17
Date
Location: BH22-16
Bottom of well
Top of Well
Ground Surface Elevation
Manual Measurements

Appendix G Water Balance Calculations

Table 3.2: Summary of Treatment Train Components and Assumed Average Annual TSS Removal Rate

Treatment Train Component	Treatment Train Type No.	Average Annual TSS Removal Rate
In-line Filter System	1	40%
Grassed Swale	2	80%
Roadside Ditch	3	30%
Oil/Grit Separator	4	50%
Dry Stormwater Management Pond	5	60%

Note:
1. TSS – Total Suspended Solids.
2. For assumed average annual TSS removal rates, refer to Table 5 in the Wet Weather Flow Management Guidelines (City of Toronto, 2006).
3. The "In-line Filter System" represents presence a vegetated buffer strip between the lot(s) and natural feature(s).

Table 3.3: Estimation of Site Average Annual TSS Removal

Node	Treatment Train Components	Drainage Area (ha)	Percent of Site Area	Effective TSS Removal	Overall TSS Removal
1	4,5	1.34	33.5%	80%	26.8%
2	2	0.64	16.0%	80%	12.8%
3	na	na	na	na	na
4	2	2.02	50.5%	80%	40.4%
Total	-	4.00	100%		80.0%

Note:
1. Units: ha – hectares.
2. TSS – Total Suspended Solids.
3. na – not applicable.
4. The above calculations only include the Phase 2 site. No values are included for Node 3 as this sub-basin will not be subject to development and the area is outside of lot structure envelopes.

3.6 Stormwater Management Assessment – Water Balance

The water balance related stormwater management criterion is retention of storm runoff from the 90th percentile storm event, equivalent to 27 millimetres of rainfall, on the site through infiltration/filtration, evapotranspiration, and/or reuse. This is proposed to be achieved using Low Impact Development (LID) measures on the lots.

The estimated impervious area of the Phase 2 site is 3,530 square metres. This represents the driveway and roof areas of the respective proposed 5 lots. A 27 mm rainfall depth over this area represents 95.3 cubic metres or approximately 19.1 cubic metres per lot.

Approximately 140 cubic metres of storage will be provided in grassed swales on the lots. A minimum 50 metre in length of grassed infiltration swale with amended topsoil and filter media is proposed to be provided on each lot (i.e., 28 cubic metres of storage per lot). This indicates retention of storm water from the first 27 mm of rainfall on the site can be achieved with the proposed stormwater management approach and water balance target achieved. Design assumptions and summary computations are provided in Appendix B. Potential location and preliminary design of the LID measures are shown on the engineering drawings provided in Appendix C. The LID measures shown are preliminary and subject to detailed design at the engineering approval stage and Site Plan/Building Permit application stage.

Notwithstanding the above, it is suggested that at the Site Plan Approval/Building Permit application stage, that property owners be given the flexibility to incorporate other Low Impact Development techniques as long as a minimum of 28 cubic metres of storage is provided per lot. Potential other LID techniques could included water storage and re-use for irrigation, incorporation of rain gardens, use of permeable pavements, vegetated filter strips, and flow path elongation.

In addition to the above, as far as practical, storm water from the lots will be separated from storm water from the road(s) and directed via grading and sheet flow to grassed and naturalized areas.

3.7 Review and Discussion of Low Impact Development (LID) Options

A review was completed of Low Impact Development (LID) options for the proposed Stellar Estates Subdivision Phase 2 and opportunities for integration with the stormwater management planning. A comprehensive discussion of LID's has been provided by Credit Valley Conservation and Toronto and Region Conservation (2010) in the Low Impact Development Stormwater Management Planning and Design Guide.

The proposed stormwater management plan for the Stellar Estates Subdivision Phase 2 incorporates the following transport/conveyance controls and end-of-pipe management techniques:

- grassed swales
- oil/grit separator
- dry stormwater management pond

With respect to lot level controls, as far as practical, preliminary lot grading designs have directed storm water over grassed areas to adjacent open space areas versus the road network.

In general, due to the presence of low permeability soils on the site (i.e., soils with an infiltration rate less than 15 millimetres per hour), the application of infiltration type LID's is limited (i.e., soak-away pits, infiltration trenches). Applicable LID's include grassed swales and lengthening of flow paths, vegetated filter strips, and encouragement of rainwater harvesting and application of rain gardens and soft versus hard landscaping (i.e., permeable pavers).

In addition, the re-vegetation of agricultural areas, specifically the restoration of the MVPZ area and lot areas outside of the structure envelopes, and provision of a dense vegetation cover will result in localized areas on the project site with increased infiltration and evapotranspiration (relative to existing conditions). Where storm water from the lots is directed to MVPZ areas and lots areas outside of the structure envelopes, implicitly, these respective areas will act as vegetated filter strips.

For lot level controls, from a planning and implementation perspective, there are limitations on lot coverage and percent imperviousness that is/will be enacted by Town of Caledon Official Plan zoning provisions, the zoning by-law for the project, and the ORMCP. It will be important also, during the Site Plan/Building Permit application stage, that intent of lot grading, as shown of the grading plans, is retained and LID's measures such as grassed swales and vegetated filter strips are incorporated where applicable.