



Hydrogeological Assessment

**126, 136, and 140 Bradford Street, Barrie,
Ontario**

Crown (Bradford) Developments Inc.

1 December 2023

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1. Introduction

GHD was retained by Crown Communities Developments Inc. and Crown (Bradford) Developments Inc. (Crown) to complete a hydrogeological investigation in support of the proposed mixed use residential and retail development, which is proposed to include the properties at 126, 136 and 140 Bradford Street in Barrie, Ontario (Site). The Site is currently utilized for multiple commercial operations, and the location is shown on **Figure 1.1**.

The proposed residential and retail development is planned to front Bradford Street with address 126 Bradford Street, Barrie, Ontario. The proposal includes one (1) mixed-use building with two residential towers, each forty-five (45) storeys in height and a shared six (6) storey podium with commercial at-grade. As a whole, the proposal will result in a total gross floor area (GFA) of approximately 51,383 m², comprised of 51,049 m² of residential GFA and 333 m² of retail/commercial GFA.

The objectives of this investigation were to:

- Assess current groundwater conditions and assess potential impacts to the local groundwater regime (quality and quantity).
- Assess the requirement for groundwater control during construction and long-term for a groundwater taking Environmental and Activity Sector Registration (EASR) or Permit to Take Water (PTTW) and options for mitigation measures.
- Provide groundwater conditions and water balance analysis for pre and post development conditions to evaluate the amount of water surplus, and provide information for storm water management recommendations (to be developed by others).

Environmental investigations (GHD, 2023)¹ were undertaken by GHD concurrently with the hydrogeological assessment that included the following activities:

1. Borehole advancement and installation of monitoring wells in selected boreholes to facilitate the collection of groundwater levels to determine groundwater flow conditions.
2. Single well response testing (SWRT) to determine the horizontal hydraulic conductivity of the saturated geologic deposits.
3. Groundwater level monitoring to determine stable levels and seasonal water table fluctuations.
4. Collection of a groundwater water sample for laboratory analysis that would be used to assess options for the management of groundwater potentially collected during the construction of the development.

This report is organized into the following Sections:

Section 1.0 – Introduction: outlines the purpose, objectives and scope of work, and presents the report organization.

Section 2.0 – Background: Outlines previous investigations carried out at the Site and provides description of the existing Site conditions, background information and surrounding land uses, as well as an outline of the proposed development. The regional environmental setting, including the physiography, topography, main surface water features surrounding the Site, and the surficial geology is presented.

Section 3.0 – Methodology: Describes the field activities and methodologies used to assess the site environmental conditions and to determine potential impacts associated with the undertaking.

¹ Phase Two Environmental Site Assessment 126, 136 and 140 Bradford Street Barrie, Ontario. Crown Communities Development Inc. (GHD, January 20, 2023)

Section 4.0 – Physical Setting: Provides a detailed description of the Site geology, hydrogeology and the hydrogeologic properties of the underlying stratigraphy, and an evaluation of the potential temporary construction water takings for the development and any longer-term takings, and water balance.

Section 5.0 – Summary and Conclusions: Provides a summary of the study findings.

References, Figures, Tables and Appendices are provided following the text of this report, as indicated in the Table of Contents.

2. Background

2.1 Site Description

The Site is located in an area that has been developed for mixed industrial, commercial, and residential purposes since the early 1900s. It is situated within the designated 'City Centre' which permits a broad range of uses including residential, retail and commercial (**Figure 2.1**).

The Site is approximately 0.45 hectares in size and is occupied by one centrally located commercial building with frontage along Bradford Street. Commercial uses include a NAPA Autocare Centre (126 Bradford Street), Barrie Foot Clinic (136 Bradford Street) and Get Moving Physio (140 Bradford Street). The NAPA Autocare Centre is an automotive repair facility while the operations conducted by Barrie Foot Clinic and Get Moving Physio are limited to professional health related services. The commercial building is largely surrounded by asphalt covered parking space.

The Site and adjacent properties have full municipal water and sewer services. Potable water is supplied by the City of Barrie, which obtains water from 12 active deep drilled wells, four of which are located in proximity to the Site (Wells 11, 12, 14, and 15) (**Figure 2.2**).

2.2 Previous Investigations

The following background reports for the Site were provided by Crown, and were reviewed during this hydrogeological assessment:

- Environmental Site Assessment 126 & 140 Bradford Street Barrie, Skelton, Brumwell & Associates Inc. May 11, 2007.
- Phase 2 Environmental Site Assessment Site Specific Remediation 126, 140, 144 & 146 Bradford Street Jackson's Toyota Barrie Ontario. Geospec Engineering Ltd. (September 29, 2003).

In addition to the above, GHD completed a Phase One Environmental Site Assessment (GHD, January 2023) to support the proposed development. The assessment included Site reconnaissance, information provided by Site representatives and regulatory agencies, and review of related documents and Site history. Based on the results of the Phase One ESA, the following APECs were identified to be associated with the Site.

APEC #1 – Automotive Maintenance and Repair Facility (Off-Site)

APEC #2 – Automotive Maintenance and Repair Facility (On-Site)

APEC #3 – Former Used Oil AST (On-Site)

APEC #4 – Fill of Unknown Quality (On-Site)

APEC #5 – Pole Mounted Transformer (On-Site)

APEC #6 – Bulk and Used Oil ASTs (On-Site)

APEC #7 – De-Icing Activities (On-Site and Off-Site)

2.3 Regional Setting

The Site is located in the Simcoe Lowlands Physiographic Region (Chapman and Putnam 1984)², which is characterized by a sand plain (**Figure 2.3**). The Site is situated near a topographical low drainage area adjacent to the shore of Kempenfelt Bay of Lake Simcoe. Overall, the Site topography is relatively flat at an elevation of approximately 225 metres above mean sea level (mAMSL) and slopes slightly eastward towards Kempenfelt Bay, which is located approximately 350 metres to the east of the Site.

No water bodies are located on the Site, the closest surface water is Bunker's Creek, which is located approximately 200 m north of the Site (**Figure 2.4**). The creek flows to the east and discharges to Lake Simcoe at Kempenfelt Bay. Lake Simcoe is at an elevation between about 219 to 220 mAMSL.

Regional surficial geology mapping of the area (Ministry of Natural Resources and Forestry, 2018) indicates that the Site and surrounding lands are underlain by coarse textured glaciolacustrine deposits (**Figure 2.5**). During the last glacial period Kempenfelt Bay was carved by ice which extended farther to the west, and was gradually infilled with sand, silt and clay under deep water conditions, before lake levels dropped and Kempenfelt Bay retreated to its present configuration. Older glacial deposits and channel deposits underlie the Site. The Kempenfelt Bay area is considered to be an erosional 'tunnel channel' feature (Barnett 1986 and 1990), infilled by coarse-grained deposits overlain by fine grained glaciolacustrine sediments, which are bounded by steep sided valleys.

Overburden underlying the Site is more than 100 m in thickness, and is generally described as a thick sequence of Pleistocene glacial deposits and channel deposits overlying limestone, dolostone, and shale of the Ottawa Group and Simcoe Group part of the Shadow Lake Formation (OGS, 1991).

The surficial geology and general stratigraphic framework for the Site and surrounding area, based on the regional mapping and previous investigations consists of the following deposits:

- Fill - silt, sand, and gravel, with wood, brick debris, and building rubble.
- Glaciolacustrine Deposits – sand, silty sand, and silt and clay.
- Channel Deposits - sand and gravel, silt and clay.
- Bedrock – limestone, dolostone, and shale.

The location of recorded Ministry of Environment, Conservation and Parks (MECP) water well records within 500 metres of the Site is shown on **Figure 2.6**, and a summary of selected records is presented in **Appendix H**. Based on review of the MECP well records, the majority of wells are observation wells, test holes, monitoring wells, abandoned wells, have other status or are unknown. Aside from the City of Barrie municipal water supply wells, there are only a few private water supply wells within 500 metres of the Site. These were completed prior to 1975, and it is anticipated they are no longer in use, as they are situated within the urban area with municipal water service.

The majority of the well records indicate the Site is underlain by soft loose fine sand, silt and clay layers, which become coarser textured at depth, i.e., greater than approximately 40 mBGS. The sand, silt and clay deposits are underlain by sand and gravel deposits, which is interpreted to represent the municipal aquifer.

Source Water Protection

The Site is located within the Lake Simcoe and Couchiching Black River Source Water Protection area (SGBLS SPP January 26, 2015)³, and situated within the City of Barrie Wellhead Protection Area B (WHPA B) for Wells 11, 12, 14, and 15 (with a vulnerability score of 6) (**Figure 2.2**). The Site is also located within a source water protection Significant Groundwater Recharge Area, Highly Vulnerable Aquifer and also falls within issues contributing area for sodium and chloride. The Site is subject to the Source Water policies related to these designations.

² Chapman, L.J. and Putnam, D.F., 1984. The Physiography of Southern Ontario. Ontario Geological Survey, Special Volume 2.

³ Approved South Georgian Bay Lake Simcoe Source Protection Plan; This document contains the Source Protection Plans for:
-Lakes Simcoe and Couchiching / Black River Source Protection Area -Nottawasaga Valley Source Protection Area -Severn Sound Source Protection Area (Approval Date: January 26, 2015, Effective: July 1, 2015, Amended: June 16, 2021).

City of Barrie Environmental Risk Management

The Site is situated within municipal water supply Source Water Protection areas, and the City of Barrie Environmental Risk Management stipulates that building supports are not permitted to be constructed within the municipal supply aquifer, and permanent long term groundwater seepage to a building foundation drainage system (e.g., weepers) is not allowed (City of Barrie, 2021)⁴.

Based on the City of Barrie's, Environmental Risk Assessment internal regional model (City of Barrie, January 20, 2023), the following groundwater conditions are anticipated to underlie the Site:

- Depth to Water Table - 2m.
- Depth to Perched Water – 2m.
- Depth to Aquifer A1 - 2m.
- Depth to Aquitard C1 – 4m.
- Depth to Aquifer A2 - 21m.
- Depth to Aquitard C2 - 31m.
- Depth to Confined Municipal Aquifer – 49m.
- Depth to Uppermost Significant Aquifer - 49m.
- Cumulative Transmissivity to Base of A1 – Low 38 m²/day.
- Cumulative Transmissivity to Base of A2 - Low 45m²/day.
- Cumulative Transmissivity to Base of A3 – High 3,618 m²/day.

Municipal Water Supply

As outlined in the Lakes Simcoe and Couchiching-Black River Source Protection Area Approved Assessment Report, Chapter 8 City of Barrie (SGBLS, 2015):

The water supply wells are constructed in deep overburden aquifers. The municipal wells in the core area are constructed within a channelized aquifer unit described as the Barrie-Borden tunnel valley aquifer. The aquifers underlying the City of Barrie are part of a regionally extensive and complex aquifer system, within which four major sand and gravel aquifer units have been identified. Locally, these are referred to as the upper, intermediate and shallow/deep lower aquifers. The municipal aquifers are identified regionally as part of the A3 and A4 aquifer systems (Golder Associates, 2004). These aquifers are locally overlain by relatively thick protective clay and silt aquitard deposits, however localized windows exist in areas. The aquifers in the vicinity of Barrie are productive, with relatively high transmissivities, ranging from approximately 250 to over 3,000 m²/day. Transmissivities in the core area of Barrie are high, ranging from approximately 1,000 to over 3,000 m²/day.

The capture zones and resultant wellhead protection areas for these wellfields are fairly broad and extend outward through the coarse grained and highly conductive deep aquifer systems. Whereas the wellhead protection areas are encompassed by a high to medium vulnerability area, the protective aquitard layers overlying the deep production aquifers provide effective barriers to surficial activities in most areas. The exception to this is that a portion of local recharge is possibly captured by Well 11. This is supported by the available groundwater quality data, which suggests that the water extracted contains elevated concentrations of industrial solvents, chloride and nitrate.

Wells 11 and 14 are located in Heritage Park, along the north shore of Kempenfelt Bay, adjacent to the City docks, and accessed off Lakeshore Drive. Wells 12 and 15 are located in Centennial Park, on the west shore of Kempenfelt Bay. Well 15 is located north of Well 12 and is adjacent to the City marina.

⁴ City of Barrie Deep Drilling Terms of Reference (September 2021).

Table 2.1 – City of Barrie Municipal Production Well Details

Well Name/ MOE ID#	PTTW ³ Max (m ³ /day)	2002 Average Use (m ³ /day)	MOE Well #	Easting ¹	Northing ¹	Elevation (mAMSL)	Screen Interval (mAMSL)
Well 11 Heritage	9100	2285	19264	604690	4915816	220	173.2-159.1
Well 12 Centennial Beach	9100	5955	20696	604499	4914593	221	155.2-137.0
Well 14 Heritage	9100	1467	27877	604661	4915782	220	177.6-158.5
Well 15 Centennial Beach	9100	5716	28705	604412	4915199	220	174.4-153.4

Wells 11, 12 and 14 have been identified to have a Drinking Water Issue due to elevated chloride concentrations. Recent reported chloride concentrations are 110 mg/L at Well 11, 85 mg/L at Well 14, and 197 mg/L at Well 12. The trend in chloride concentrations at these wells indicates that chloride concentrations would approach or exceed the ODWQS limit of 250 mg/L within a 50 year period. In addition to chloride, Well 11 and Well 12 also exhibit increasing concentration trends of sodium, which are projected to exceed the ODWQS limit of 200 mg/L in 50 years.

In addition, Wells 11, 12, 14, and 15 located in the Lakeshore area have low concentrations of volatile organic compounds (VOC) detected on more than one occasion. The presence and trends of the VOC at these wells were reviewed to determine if a Drinking Water Issue designation is warranted. Based on the evaluation of the existing data it was determined that there was insufficient evidence to support the inclusion of the VOCs as a Drinking Water Issue (SGBLS, 2015).

3. Methodology

Cognizant of the objectives of the project, the following activities were undertaken:

- Borehole advancement and installation of monitoring wells in selected boreholes to facilitate the collection of groundwater levels to determine groundwater flow conditions.
- Single Well Response Tests (SWRT) to determine hydraulic conductivity and groundwater flux of the saturated stratigraphic deposits investigated.
- Groundwater monitoring (to continue for the duration of six-months to determine seasonal fluctuations of the groundwater table).
- Collection of a groundwater water sample from selected monitoring wells to assess options for the management of groundwater potentially collected during the construction of the development.

The investigative activities listed above were completed concurrently with environmental and geotechnical investigations (GHD, 2023 a,b) undertaken by GHD. Details of these investigations are summarized in the following sections, and GHD's field investigation methodology and protocols are provided in **Appendix A**.

3.1 Borehole Advancement and Monitoring Well Installations

The hydrogeological drilling activities consisted of advancing boreholes completed November 23, 2022 under the full-time supervision of experienced GHD technical representatives. The drilling activities consisted of the advancement of four (4) environmental boreholes to 6.0 metres below ground surface (mBGS) and installation of a monitoring well in each borehole. The drilling and monitoring well installation methods and procedures are presented in **Appendix A**.

The well completion details for the monitoring wells are presented on **Table 3.1**, and the monitoring well and borehole locations are shown on **Figure 3.1**.

The drilling work was carried out utilizing a Geoprobe 7822DT drill rig equipped with solid stem augers supplied and operated by drilling subcontractor Strata Drilling Group Inc (Strata) under the full-time supervision of a GHD technical representative. All monitoring wells were installed by Strata consistent with the requirements of Regulation 903 – Wells (R.R.O 1990) and O. Reg. 153/04 (as amended).

The boreholes were advanced through overburden using solid stem augers (216 mm outside diameters). Soil samples were generally collected continuously to the termination of the borehole using a 32-mm outside diameter dual tube sampling system. The detailed description of the soil, groundwater conditions and stratigraphy as encountered at the borehole locations are recorded on the accompanying borehole logs presented in **Appendix B**.

Monitoring wells were constructed with 50 mm (2-inch) Schedule 40 PVC screen and casing. The well screens are either 1.5 m (5 feet) or 3 m (10 feet) in length and pre-slotted (No. 10 slot). Silica sand pack was placed at the tip of the monitoring well screen and typically extends 0.6 m above the screen. The remaining annular space was sealed with bentonite, and the wells were completed with a protective monument style casing and concrete collar.

The as-drilled borehole locations and ground surface elevations will be obtained by GHD on completion of planned additional geotechnical drilling.

3.2 Hydraulic Testing

Single well response testing was completed at each monitoring well to estimate the horizontal hydraulic conductivity of the saturated geologic deposits underlying the Site. All four (4) monitoring wells had insufficient water columns at the time of testing to facilitate a falling head SWRT. The monitoring wells are screened within the overburden.

Single well response tests involve the injection or removal of a known volume of water into/from the well and measuring the water level response in the well until it returns to static conditions (i.e., falling/rising head test). The results of the hydraulic testing were analysed using the Bouwer and Rice (1976)⁵ aquifer test solution for unconfined conditions using the software AQTESOLV™. These solutions were used to determine the horizontal hydraulic conductivity of the geologic deposits within the immediate vicinity of the screened interval of each monitoring well. The AQTESOLV™ analysis reports are presented in **Appendix C** and are summarized in **Table 3.2**.

Prior to undertaking the SWRT, the monitoring wells were developed to repair the formation damage as a result of the drilling action and to restore the natural hydraulic properties of the formation. A Waterra® check valve and new dedicated polyethylene tubing was used to develop the wells. The well development results in the surging and agitation of the water column to remove fine materials in the well pack and surrounding geologic formation to achieve a silt free condition prior to sampling. Development activities involved the removal of approximately five to ten well volumes using an inertial pump, depending on the groundwater availability and the recharge characteristics of each groundwater monitoring well. Well volumes were determined by measuring the depth of water between the static groundwater level and the bottom of the well. The development method is described in **Appendix B**.

3.3 Groundwater Level Monitoring

Groundwater level monitoring was conducted from January 23 to June 7, 2023 to collect of six-months of monitoring through the spring freshet to determine seasonal fluctuations. Bi-monthly manual groundwater levels were collected using an electronic water level meter. Two (2) monitoring wells (MW01-22, and MW03-22) were equipped with electronic data loggers to continuously record water levels and provide a detailed record groundwater response to climatic conditions throughout the period.

⁵ Bouwer, H. and R.C. Rice, 1976. A slug test method for determining hydraulic conductivity of unconfined aquifers with completely or partially penetrating wells, Water Resources Research, vol 12, no. 3, pp. 423-428.

Groundwater levels were measured with reference to the surveyed top of riser pipe. The depth to water below top of riser pipe was converted to depth in metres below ground surface (mBGS), and these levels are presented in **Table 3.3** and **3.4**. The manual groundwater elevation data are presented on the hydrograph in **Appendix D**.

3.4 Groundwater Quality

One groundwater sample was collected from monitoring well MW01-22 on January 23, 2023 for laboratory analysis of the parameters listed in City of Barrie Sanitary and Storm Sewer Use By-Law 2021-002 and Provincial Water Quality Objectives (PWQO) to assess water quality for discharge to the sewer.

Prior to sampling, the wells were purged using low-flow methods to ensure that the sample collected was representative of groundwater quality. Purging of the well was considered complete when three consistent field measurement readings of pH, conductivity, and temperature had been obtained after each removed.

The samples were submitted under chain of custody procedures to ALS Canada Limited (ALS), an analytical laboratory in Waterloo, Ontario for analysis. The laboratory certificates of analysis are presented in **Appendix E**. The groundwater analytical results are shown in **Table 3.5** and discussed in Section 4.0.

3.5 Water Balance

A water balance analysis was undertaken for the extent of the Site's due diligence boundary (approximately 0.45 ha) to determine the amount of water surplus generated for the existing and proposed Site conditions. A water balance analysis has been conducted on one development scenario as shown on the Conceptual Site Plan dated October 25, 2022 (Innovative Planning Solutions) presented in **Appendix G**. GHD understands that the stormwater management (SWM) plan for the site is still under development, therefore the water balance assessment provided represents uncontrolled post-development conditions which can be used during the SWM design process. The proposed Site conditions include residential and retail buildings, roadway, and landscaped areas.

The Site is located within the jurisdiction of the Lake Simcoe Region Conservation Area (LSRCA); however, the Site is not located within any regulated areas. LSRCA regulated areas associated with nearby creeks are located approximately 130 m to the north (Bunkers Creek) and 150 m to the south (Dymont Creek) of the Site.

Climate data for the water balance model, including daily air temperature and precipitation data between 1973 and 2022 was obtained from Environment Canada's Meteorological Service of Canada. The continuous weather data record provided by Environment Canada was obtained mainly from Barrie WPCC (Climate ID: 6110557) and Shanty Bay (Climate ID: 6117684) weather stations, with data from Barrie Landfill (Climate ID: 6110556), Midhurst (Climate ID: 6115099), and Barrie-Oro (Climate ID: 6117700) weather stations supplementing for missing records. The Barrie WPCC and Shanty Bay weather stations are located approximately 0.6 and 5.3 kilometres from the Site, respectively. The Barrie Landfill, Midhurst, and Barrie-Oro are located approximately 3.4, 9.6, and 16.2 kilometres from the Site, respectively.

The water balance surplus was estimated using the most recent version of the water balance model developed by Meteorological Service of Canada (MSC, see Johnstone and Louie, 1983). The new MSC's water balance method accounts for snow accumulation and melt (degree day method of USACE, 1956), potential evapotranspiration (Thornthwaite and Mather, 1955), soil storage (Phillips, 1976), actual evapotranspiration, and moisture deficit and surplus. The MSC program calculates a 'water surplus' as the final product, which is the total water available in a given month to run off as surface overland flow and/or infiltrate to the ground and recharge the groundwater table. The MSC water balance model uses continuous daily precipitation and air temperature data. The use of daily data allows for more accurate modelling of snowmelt and snow storage, which are of particular importance in a cold weather/winter climate (Johnstone and Louie, 1983).

4. Geology and Hydrogeology

The following sections provide a description of the geology and hydrogeology of the Site, based on the results of the investigations completed and on the available background information. The investigative locations are presented on **Figure 3.1.** and hydrogeologic profiles are shown on **Figures 4.1 and 4.2.**

4.1 Site Geology

The following surficial materials and geologic deposits underlie the Site (see **Figures 4.1 and 4.2**):

- **Surficial Material (0 to 1.7 mBGS)** – asphalt and sand fill.
- **Glaciolacustrine Deposit (1.7 to greater than 6.1 mBGS)** – sand.

The Site is underlain by a thin layer of asphalt (less than 10 cm thick) and fill comprised of sand. The sand fill is typically brown, loose, poorly graded, moist and contains occasional brick fragments. The fill extends to depths in the range of 1.5 to 1.6 mBGS.

The fill is underlain by a glaciolacustrine deposit comprised of sand that is brown, loose, poorly graded and moist. The deposit becomes grey and saturated at a depth in the range of 2.6 to 3.1 mBGS, and extends to the termination depth of the boreholes at 6.1 mBGS.

4.2 Site Hydrogeology

The Site is primarily underlain by unsaturated fill and a loose sand deposit, which forms an unconfined aquifer underlying the Site.

The hydrogeological field investigations completed for the Site included hydrogeologic testing and assessment of the groundwater conditions. The SWRTs were completed at representative groundwater monitoring wells. A summary of the hydrogeologic properties is presented in **Table 3.2.**

Fill (unsaturated) – No testing was completed on the fill, due to the thin nature of the fill and primarily unsaturated conditions at the time of drilling. Groundwater level monitoring to date indicates the fill is unsaturated.

Glaciolacustrine (Aquifer) – The sand deposit forms an aquifer, which allows for significant groundwater flow across the Site. The hydraulic conductivity (K_h) of the sand is 6.2×10^{-3} cm/s (geometric mean), which is representative of an aquifer.

4.3 Groundwater Levels

Manual groundwater level monitoring events were conducted from January 23, 2023 to June 7, 2023. Monitoring demonstrates fully recovered stable water level conditions in each well, as well as seasonal fluctuations. Groundwater levels were collected using a Solinst electronic water level meter. All groundwater levels collected from the on-site monitoring wells are summarized in **Table 3.3** in metres below ground surface (mBGS), and the depth to the water table is presented on **Figure 4.3**, based on May 18, 2023 monitoring event. Based on a review on ground water levels collected to date, the water table is present within the sand deposit at depths ranging from approximately 1.98 to 3.1 mBGS.

All groundwater levels collected from the on-site monitoring wells are summarized in **Table 3.4** in metres above mean sea level (mAMSL). Based on a review on ground water levels collected to date, the water table is present within the sand deposit at depths ranging from approximately 222.28 to 221.56 mAMSL. A hydrograph of the levels is presented in **Appendix D.**

4.4 Groundwater Management - Quality

In the event groundwater takings are required during construction, the collected water is anticipated to be discharged to an onsite sanitary or storm sewer system. Groundwater samples were collected from MW1-22 for analysis of the parameters listed in the City of Barrie Sanitary and Storm Sewer Use By-Law 2021-002 and Provincial Water Quality Objectives (PWQO) to assess water quality for discharge to the sewer. Results from the laboratory analyses are presented in **Table 3.5** and the laboratory analytical report is provided in **Appendix E**. Based on review of **Table 3.5**, the following parameters had concentrations above the by-law and PWQO criteria:

Table 3.6 Groundwater Analytical Exceedances

Criteria	MW01-22
The City of Barrie – Storm Sewer	Total Suspended Solids (TSS)
PWQO	Aluminum (total) Chromium (total) Iron (total) Silver (total) Silver (dissolved) Alkalinity, total (as CaCO ₃) Phosphorous (total)

As the water that accumulates in the excavation will primarily be a combination of stormwater seepage and runoff and direct precipitation, the groundwater sample analytical results alone are not representative of the actual excavation discharge water quality. Pre-treatment methods such as settlement, filter bags and/or other methods may be required to lower total suspended solids (TSS) to meet the storm sewer use criteria. Additional sample collection will be required from the construction water takings prior to discharge to the City's sewer. A permit for discharge of private water must be obtained, and confirmatory sampling undertaken prior to discharge to the sewer for the construction activities.

5. Water Taking Evaluation

The proposed development will be constructed with no underground levels (i.e., slab on grade). The majority of the development would not require groundwater takings but given the water table is encountered at depths of up to 1.96 mBGS it is possible the installation of underground utilities would require some groundwater takings.

Shallow underground utilities, associated with the proposed residential and retail development, are anticipated to be installed within the proposed parking lot and building footprint. It is considered that servicing could extend up to 3 mBGS (or more) into the overburden for utility installations. These may require progressive open trench segments of up to 15 metres in length.

Dewatering is anticipated to be required to lower the groundwater levels below the base of the utility servicing trench excavations to provide safe dry working conditions.

5.1 Construction Dewatering Estimate – Utility Excavations

A summary of the relevant depths and corresponding elevations is provided as follows:

Table 5.1 Summary of Relevant Construction Dewatering Depths – Proposed Utility Excavations

Construction Excavation	Depth (m BGS)	mAMSL
a) Ground	0.00	224.10*
b) Water Table	1.82	222.28
c) Bottom Excavation	3.00	221.10
d) Bottom Dewatering	4.00	220.10

Note: mBGS - metres below ground surface
mAMSL- metres above mean sea level
* Ground elevation references average ground level conditions on site

The required water table drawdown is anticipated to be about 2.18 metres, based on the above (222.28 mAMSL – 220.10 mAMSL = 2.18 m).

The temporary water takings and area of influence during an open cut excavation were determined using the field test results and the analytical solution for groundwater seepage (unconfined flow) to a trench (CGS, 2013), as presented below.

EQUATION AND PARAMETERS

(1)

$$Q = \frac{\pi K (H^2 - h_w^2)}{\ln \frac{R_o}{r_w}}$$

(2)

$$r_w = \sqrt{\frac{ab}{\pi}}$$

(3)

$$R_o = 3000 h_w \sqrt{k}$$

where:

Q = constant pumping rate (m³/day)
K = hydraulic conductivity (m/day)
H = Height of groundwater pressure (m)
h_w = Dewatering height (m)
R_o = Radius of influence (m)
r_w = Radius of footprint (shaft) (m)
a = Length of excavation (m)
b = Width of excavation (m)

Note: Height measurements are relative to base of active groundwater flow system (assumed to be competent bedrock at base of excavation).

The analytical model input parameters are provided on **Appendix F.1**, and are summarized as follows:

Q = calculated groundwater seepage rate for an excavation with dimensions 15.0 x 3.0 m
K = 5.348 m/day (6.19 x10⁻³ cm/sec)
H = 2.18 m height of water table
h_w = 0.0 m dewatering height
R_o = 57.19 m
r_w = 5.73 m
a = 15.0 m
b = 3.0 m

The analytical solution provides a good estimation of potential long term (steady state) groundwater seepage. The geometric hydraulic conductivity of the sand was utilized to estimate the groundwater seepage into the utility excavation. The geometric hydraulic conductivity of the sand was calculated as 6.19×10^{-3} cm/sec.

The groundwater seepage to the excavation is estimated to be approximately 41.38 cubic metres per day (m^3/day) (**Appendix F.1**) or 41,380 litres per day (L/day), or 28.73 litres per minute (L/min). As the estimate above is for steady state conditions, it does not consider water taking rates at the commencement of dewatering. During this period, water takings can be higher to remove water storage in the immediate vicinity of the excavation. A safety factor of 3X is applied to the estimated steady state groundwater seepage rate to account for this short-term increased water taking. The maximum short term construction water takings are estimated to be up to 124.14 m^3/day (124,140 L/day) based on a 3X safety factor.

A Ministry of the Environment, Conservation and Parks (MECP) Environmental Activity and Sector Registration (EASR) is required for construction water takings between 50,000 to 400,000 litres per day (L/day), and a Permit To Take Water (PTTW) is required for construction water takings of greater than 400,000 L/day. The predicted water takings for the utility trench excavations are estimated to be up to 124,140 L/day. The predicted takings are below the MECP EASR limit of 50,000 L/day. Based on this, an EASR is anticipated to be required for the construction groundwater takings for the utility trench excavations.

6. Water Balance

Under existing conditions, the site consists of 100% impervious area and 0% pervious area. Once the site has been developed, approximately 88% of the Site will consist of impervious area (i.e., buildings, paved surfaces, etc.) and 12% pervious area (i.e., landscaped areas). Native soil deposits consisting of sand deposits were encountered in the boreholes. Based on the geotechnical information and related investigations, the general underlying soil type is described as sand and a soil holding capacity of 100 mm was selected.

GHD estimated the existing pervious and impervious areas based on available aerial imagery, as presented in **Table 6.1**. The proposed development areas were estimated based on the development concept shown on the Conceptual Site Plan and are presented in **Table 6.2**.

Table 6.1 Existing Conditions Areas

	Area (ha)	Total Percent Area (%)
Pervious (landscaped areas)	0.00	0
Impervious (building, pavement)	0.45	100
Total Site Area:	0.45	100

Table 6.2 Proposed Conditions Areas

	Area (ha)	Total Percent Area (%)
Pervious (landscaped areas)	0.05	12
Impervious (building, pavement)	0.40	88
Total Site Area:	0.45	100

Water surplus is the total water available in a given month to runoff as surface overland flow and/or infiltrate to the ground and recharge the groundwater table. Under the proposed development scenario, the amount of runoff would decrease as a result of the increase in pervious area and decrease in impervious area. The annual average water balance volume calculations for existing and proposed Site conditions are presented in **Table 6.3** below and in **Appendix G**.

Table 6.3 Annual Average Water Balance – Uncontrolled Condition

Site Condition	Site Area (ha)	Rainfall Volume (m ³)	Evapotranspiration Volume (m ³)	Water Surplus (m ³)	Infiltration Volume (m ³)	Runoff Volume (m ³)
Existing	0.45	4,330	2,158	2,172	0	2,172
Proposed	0.45	4,330	2,202	2,128	166	1,962
Difference	-	-	44	-44	166	-210

Based on the water balance calculations, it is estimated that the average annual water surplus for existing Site conditions is approximately 2,172 cubic metres (m³). The water surplus of 2,172 m³ is determined by subtracting the existing conditions evapotranspiration volume total of approximately 2,158 m³ from the existing conditions rainfall volume total of 4,330 m³ ($4,330 \text{ m}^3 - 2,158 \text{ m}^3 = 2,172 \text{ m}^3$).

It is estimated that there will be a decrease in the amount of water surplus from existing conditions to the uncontrolled proposed conditions of approximately 44 m³ annually. The decrease in water surplus is determined by subtracting the existing conditions water surplus of 2,172 m³ from the proposed conditions water surplus of 2,128 m³.

Under the proposed development, the amount of runoff would decrease as a result of the decrease in impervious area and increase in pervious surfaces. While the existing hydrogeological conditions will be improved upon, additional storm water management controls could be considered to enhance infiltration and evapotranspiration within the proposed development area to further reduce runoff and further improve upon existing hydrological conditions.

The proposed Conceptual Site Plan provided to GHD as part of the water balance assessment has not indicated the inclusion of any SWM control features. If SWM control features are eventually included in the proposed works and have been sized as part of the SWM design, it is recommended that the water balance assessment be updated to include the controlled post-development scenario.

The location, design, and construction of the stormwater management controls should be in accordance with, at a minimum, the following guidance documents:

- Stormwater Management Planning and Design Manual (MECP, 2003).
- Low Impact Development Stormwater Management Planning and Design Guide (CVC & TRCA, 2010).
- Low Impact Development Stormwater Management Guidance Manual – Draft Version (MECP, 2017).
- Technical Guidelines for Stormwater Management Submissions (LSRCA, 2022).

It should be noted that additional construction measures could be required to meet required guidelines. These guidelines include maintaining a minimum of 1.0 m buffer from the seasonally high groundwater table and 4.0 m buffer from building foundations for infiltrative LID measures. The following stormwater management controls could be further evaluated for feasibility at the site:

- Should infiltrative LID measures be deemed feasible, and area is available (i.e., 4.0 m from building foundations), permeable pavement on sidewalks or other paved areas would allow precipitation to drain from the surface to a stone reservoir where it can infiltrate into the underlying soils.
- Surface runoff from the Site could be directed to a bioswale or potential bioretention facilities or to underground infiltration galleries (if deemed feasible). Enhanced grassed swales or bioretention facilities could be located within any of the proposed landscaped areas.

Additional construction measures that could enhance infiltration and evapotranspiration include:

- Reduction of grading to 0.5 - 1.0% slope in paved and landscaped areas, and swales to allow for additional evapotranspiration and infiltration.
- Scarification, or tilling of the soil to a depth of approximately 300 mm, would enhance evapotranspiration and infiltration within the landscaped areas to overcome soil compaction that occurs during construction.

7. Summary and Conclusions

Based on the results of the hydrogeological investigation and monitoring undertaken to date, the following summary and conclusions are provided:

1. The Site is underlain by a thin layer of fill (up to 1.7 mBGS) and a sand deposit which extends to a depth of at least 6.1 mBGS. The fill was unsaturated at the time of investigation, and the water table was encountered within the sand.
2. The hydraulic conductivity of the sand deposit is 6.2×10^{-3} cm/s, which is representative of an aquifer.
3. Groundwater level monitoring conducted from January 23, 2023 to June 07, 2023, the water table within the sand deposit ranges from 222.28 to 221.56 mAMSL, and depth ranging from 1.98 to 3.1 mBGS.
4. The proposed development concept plan contains one (1) mixed-use building with two residential towers, each forty-five (45) storeys in height and a shared six (6) storey podium with commercial at-grade. The proposed development will be constructed with no underground levels (i.e., slab on grade). The majority of the development would not require groundwater takings but given the water table is encountered at depths of up to 2.06 mBGS it is possible the installation of underground utilities would require some groundwater takings.
5. The construction groundwater takings for the proposed utility excavations are anticipated to be up to 142.12 m³/day (142,120 L/day) based on a 3X safety factor. The typical groundwater taking is estimated to be approximately 41385 m³/day (41,380 L/day) once groundwater levels are lowered and during a dry period. The predicted groundwater takings are above the MECP EASR limit of 50,000 L/day. Based on this, an EASR is anticipated to be required for the construction groundwater takings for the utility excavations.
6. In the event that water takings are required during development construction activities, the groundwater is not anticipated to meet the City of Barrie Storm Sewer Use By-Law 2021-002 or Provincial Water Quality Objectives (PWQO). The discharge would be a combination of groundwater, surface water runoff and precipitation into the excavation and would require further assessment to confirm its quality and requirement for pre-treatment. Prior to discharge to the sewer, a sewer-use discharge permit will be required, as applicable.
7. Based on the water balance calculations, it is estimated that the difference between the average annual water surplus for existing and proposed Site conditions is approximately -44 cubic metres (m³) for the proposed uncontrolled development scenario. Under the proposed development scenario, the amount of runoff would decrease because of the decrease in impervious area and increase in pervious area. If considered, stormwater management controls should concentrate on enhancing infiltration and evapotranspiration further within the developed area to improve hydrological conditions further. GHD recommends that the water balance be updated to include the controlled post-development scenario once the post-development drainage areas and any SWM designs have been finalized.

All of Which is Respectfully Submitted,
GHD

A handwritten signature in purple ink that reads "Michael McKerrall". The script is cursive and fluid.

Michael McKerrall, P. Geo.

A handwritten signature in blue ink that reads "Philip J. Smart". The script is cursive and fluid.

Philip J. Smart, M. Sc., P. Geo.

A handwritten signature in blue ink that reads "Sarah Andrew". The script is cursive and fluid.

Sarah Andrew, P. Eng.

8. References

- Bouwer, H. and R.C. Rice, 1976. A slug test method for determining hydraulic conductivity of unconfined aquifers with completely or partially penetrating wells, *Water Resources Research*, vol 12, no. 3, pp. 423-428.
- Canadian Geotechnical Society/Southern Ontario Section - Toronto Group, International Association of Hydrogeologists/ Canadian National Chapter, February 13, 2013. *Applied Groundwater Hydraulics for Underground Construction. Symposium, Groundwater Aspects of Underground Construction in the Greater Toronto Area.*
- Chapman, L.J. and Putnam, D.F., 1984. *The Physiography of Southern Ontario.* Ontario Geological Survey, Special Volume 2.
- GHD, January 20, 2023a. *Geotechnical Report. Proposed Centre Wellington Elementary School, 39 Kirvan Street, Fergus, Ontario.* Prepared for Infrastructure Ontario. IO Project No. 255-UPNCWES.
- GHD, January 20, 2023b. *Phase Two Environmental Site Assessment. Proposed Centre Wellington Elementary School, 39 Kirvan Street, Fergus, Ontario.* Prepared for Infrastructure Ontario. IO Project No. 255-UPNCWES.
- Johnstone, K. and P.Y.T. Louie, 1983. *Water balance tabulations for Canadian climate stations.* Hydrometeorology Division, Canadian Climate Centre, Atmospheric Environment Service, Environment Canada. DS#8-83.
- MECP, 2003. *Stormwater Management Planning and Design Manual*
- MECP, 2017. *Low Impact Development Stormwater Management Guidance Manual – Draft Version*
- Ministry of the Environment (MOE) 1995. *MOEE Hydrogeological Technical Information Requirements For Land Development Applications.* April 1995.
- Ministry of the Environment (MOE) 1990 Wells. *Regulation under the Ontario Water Resources Act. Regulation 903 of the Revised Regulations of Ontario, 1990.*
- Ministry of the Environment (MOE) 2003b. *Stormwater Management Planning and Design Manual.* March 2003.
- Mississippi-Rideau Source Protection Plan, Approved August 27, 2014. *Mississippi Valley Source Protection Plan, Rideau Valley Source Protection Plan.*
- MNR NRVIS, 2018. *ANSI & SEA.* ANSI & SEA Accessed. Produced by GHD under license from Ontario Ministry of Natural Resources, © Queen's Printer 2019.
- MNR NRVIS, 2018. *Site Location Map.* Produced by GHD under license from Ontario Ministry of Natural Resources and Forestry, © Queen's Printer 2019.
- MNR NRVIS, 2018. *Land Use (Aerial Image).* Produced by GHD under license from Ontario Ministry of Natural Resources and Forestry, © Queen's Printer 2019, accessed via ESRI Basemap Imagery on 2015.
- MNR NRVIS, 2018. *Physiography.* Produced by GHD under license from Ontario Ministry of Natural Resources and Forestry, © Queen's Printer 2019; Chapman, L.J. and Putnam, D.F. 2007. *Physiography of southern Ontario;* Ontario Geological Survey, Miscellaneous Release - Data 228.
- MNR NRVIS, 2018. *Regional Topography.* Produced by GHD under license from Ontario Ministry of Natural Resources and Forestry, © Queen's Printer 2019.

MNR NRVIS, 2018. *Surficial Geology*. Produced by GHD under license from Ontario Ministry of Natural Resources and Forestry, © Queen's Printer 2019; Ontario Geological Survey 2003. Surficial geology of southern Ontario; Ontario Geological Survey, Miscellaneous Release -- Data 128.

Ontario Geological Survey (1991), Bedrock Geology of Ontario, Southern Sheet – Map 2544, Scale 1:1,000,000.

Phillips, D.W., 1976. Monthly water balance tabulations for climatological stations in Canada. Atmospheric Environment Service, Environment Canada.

Soil Engineers Ltd., December 2021. A Geotechnical Investigation for Proposed Public School Southeast of Elliot Avenue East and Kirvan Street, Township of Centre Wellington. Prepared for Sorbara Storybrook LP as Operator for Nigus Fergus Joint Venture.

Stantec Consulting Ltd., August 19, 2022. Children's Hospital of Eastern Ontario (CHEO) 1Door4Care Functional Servicing Study (Preliminary). Project # 160401543. Prepared for Infrastructure Ontario.

Terraprobe, January 6, 2009. Hydrogeological Study Proposed Residential Subdivision Nigus Property Township of Centre Wellington, Ontario. Prepared for Sorbara Development Group.

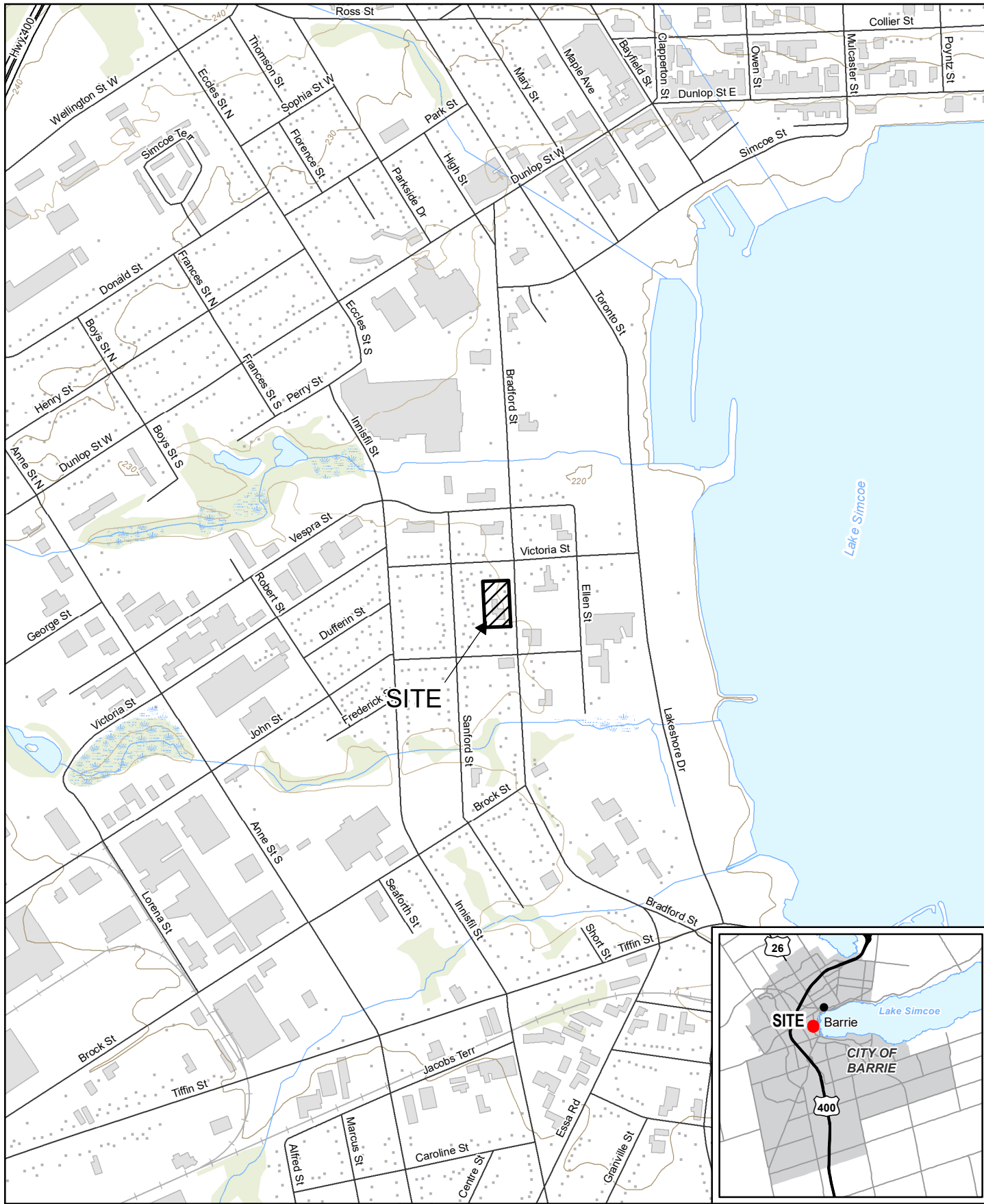
Theis, C. V., 1935. The Relation Between the Lowering of the Piezometric Surface and the Rate and Duration of Discharge of a Well Using Groundwater Storage. Trans. Amer. Geophys. Union, 2, pp. 519-524.

Thornthwaite, C.W. and J. R. Mather, 1955. The water balance, Publications in Climatology, Vol. 8, No. 1, Drexel Institute of Technology, Centerton, New Jersey.

Toronto and Region Conservation Authority and Credit Valley Conservation Authority 2010. Low Impact Development Stormwater Management Planning and Design Guide (Version 1.0).

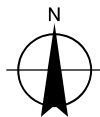
W.D. Reynolds and D.E. Elrick. 1986. A method for simultaneous in-situ measurement in the vadose zone of field saturated hydraulic conductivity, sorptivity and the conductivity-pressure head relationship.

Figures



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Grid: NAD 1983 UTM Zone 17N

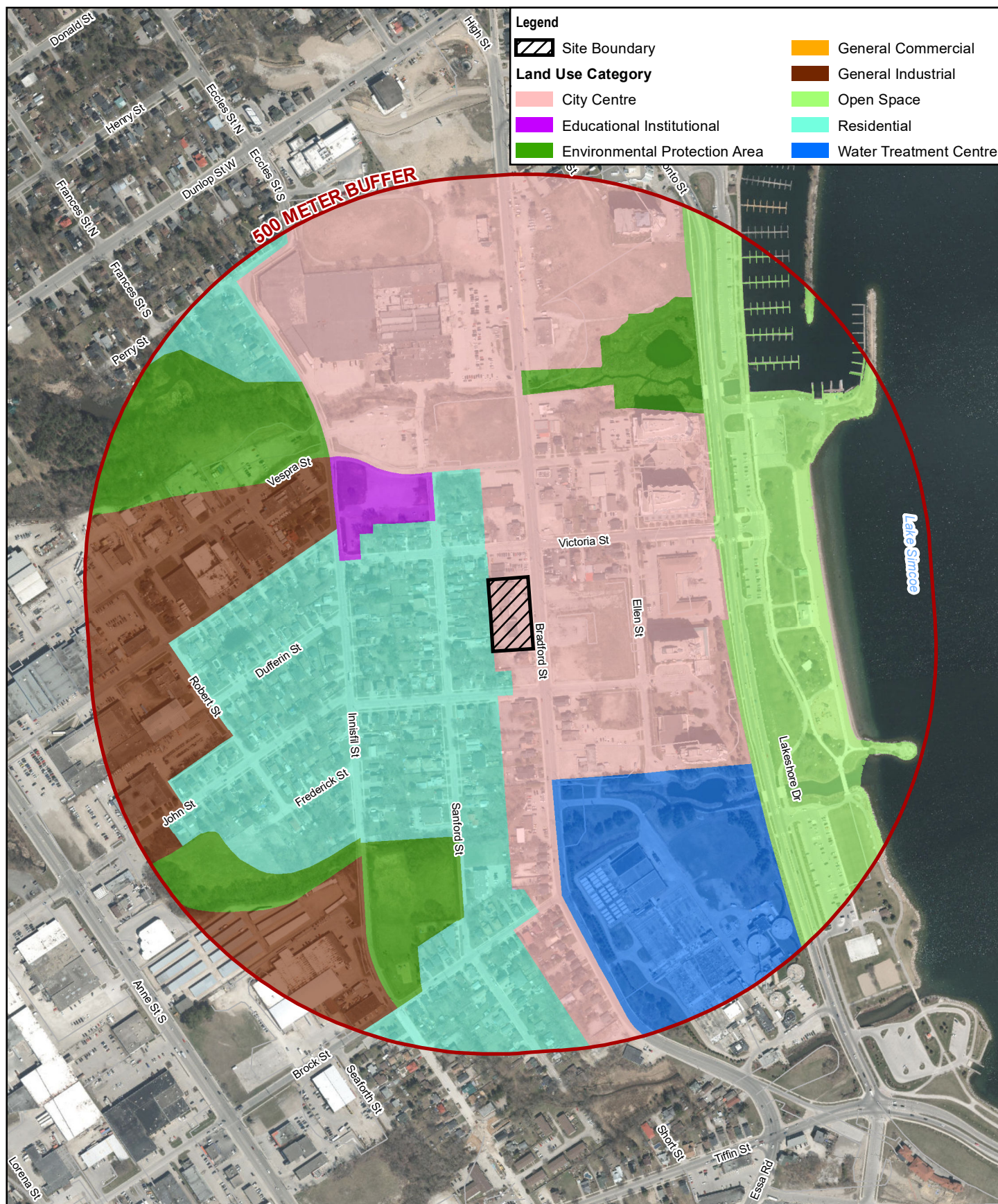


**CROWN (BRADFORD) COMMUNITIES
DEVELOPMENT INC.
126 AND 140 BRADFORD STREET, BARRIE, ONTARIO
HYDROGEOLOGICAL ASSESSMENT**

Project No. 12593831
Revision No. -
Date Feb 8, 2023

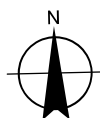
SITE LOCATION MAP

FIGURE 1.1



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Grid: NAD 1983 UTM Zone 17N

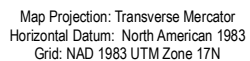
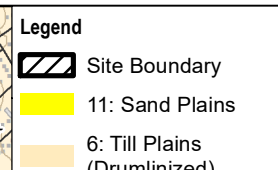


**CROWN (BRADFORD) COMMUNITIES
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126 AND 140 BRADFORD STREET, BARRIE, ONTARIO
HYDROGEOLOGICAL ASSESSMENT**

Project No. 12593831
Revision No. -
Date Feb 8, 2023

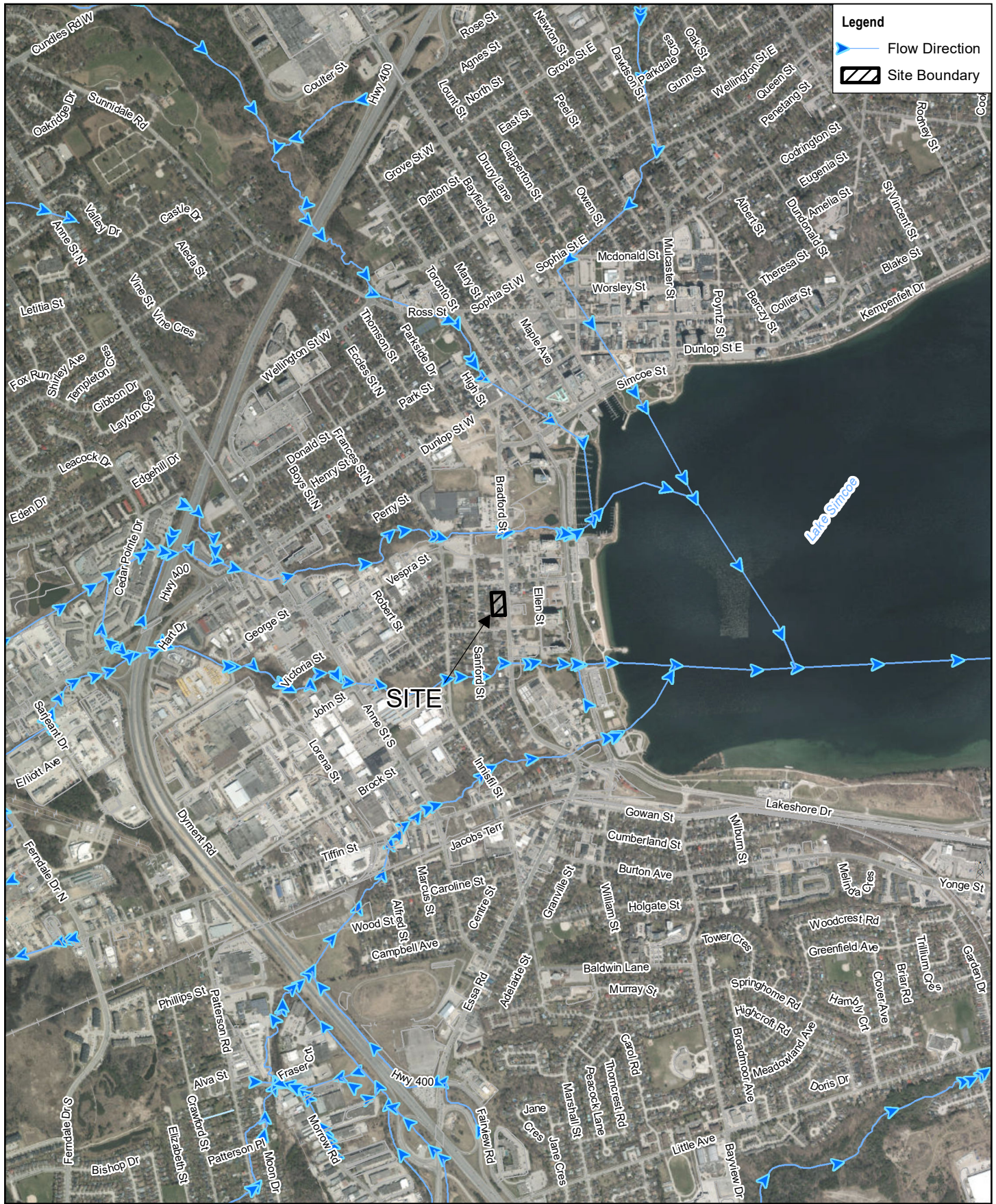
LAND USE ZONING MAP

FIGURE 2.1



Project No. **12593831**
Revision No. **-**
Date **Feb 8, 2023**

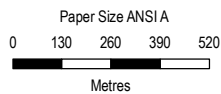
FIGURE 2.3



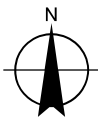
Legend

Flow Direction

Site Boundary



Map Projection: Transverse Mercator
Horizontal Datum: North American 1983
Grid: NAD 1983 UTM Zone 17N

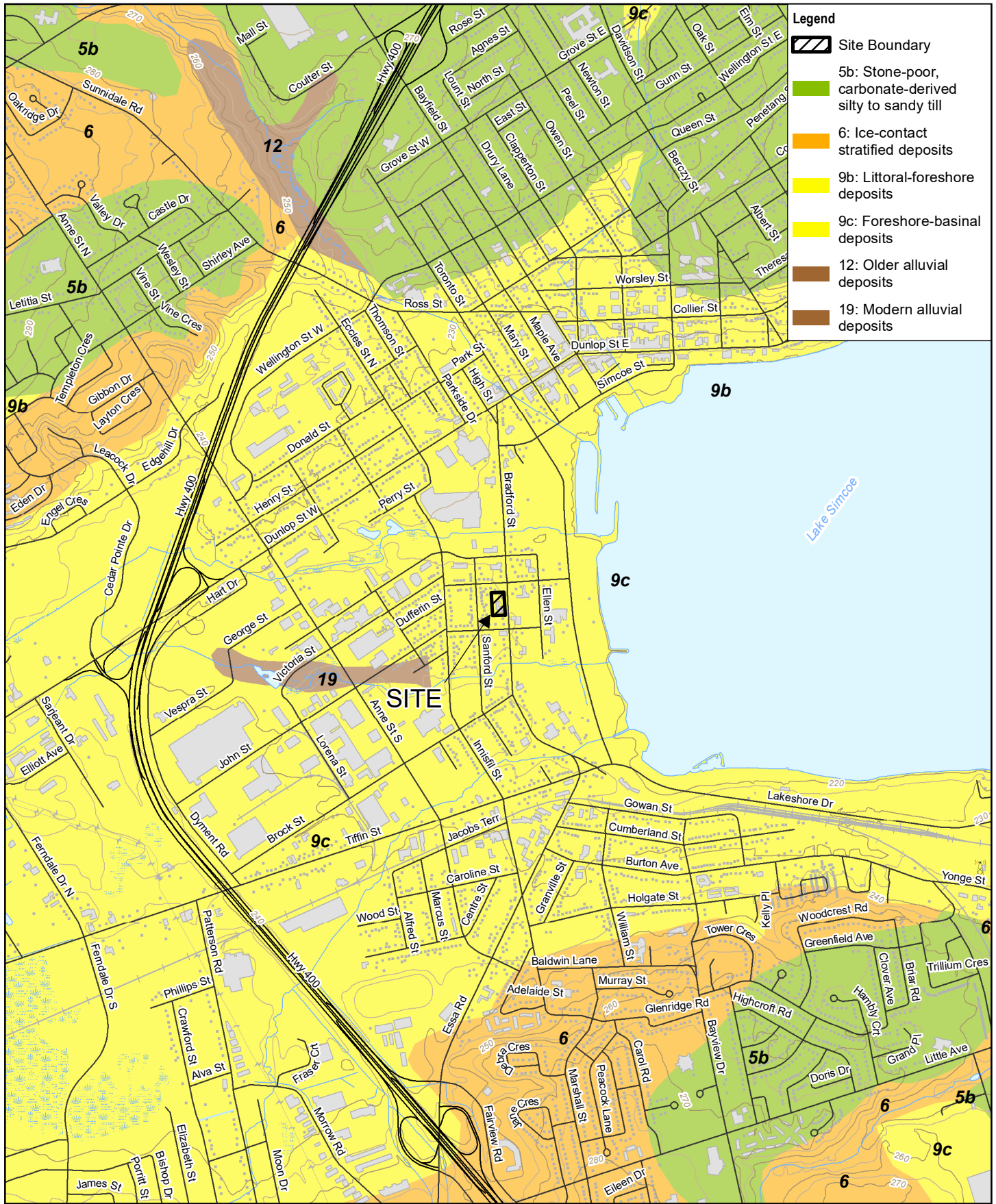


**CROWN (BRADFORD) COMMUNITIES
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126 AND 140 BRADFORD STREET, BARRIE, ONTARIO
HYDROGEOLOGICAL ASSESSMENT**

Project No. 12593831
Revision No. -
Date Feb 8, 2023

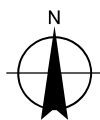
SURFACE WATER FLOW DIRECTION

FIGURE 2.4



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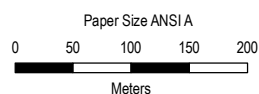
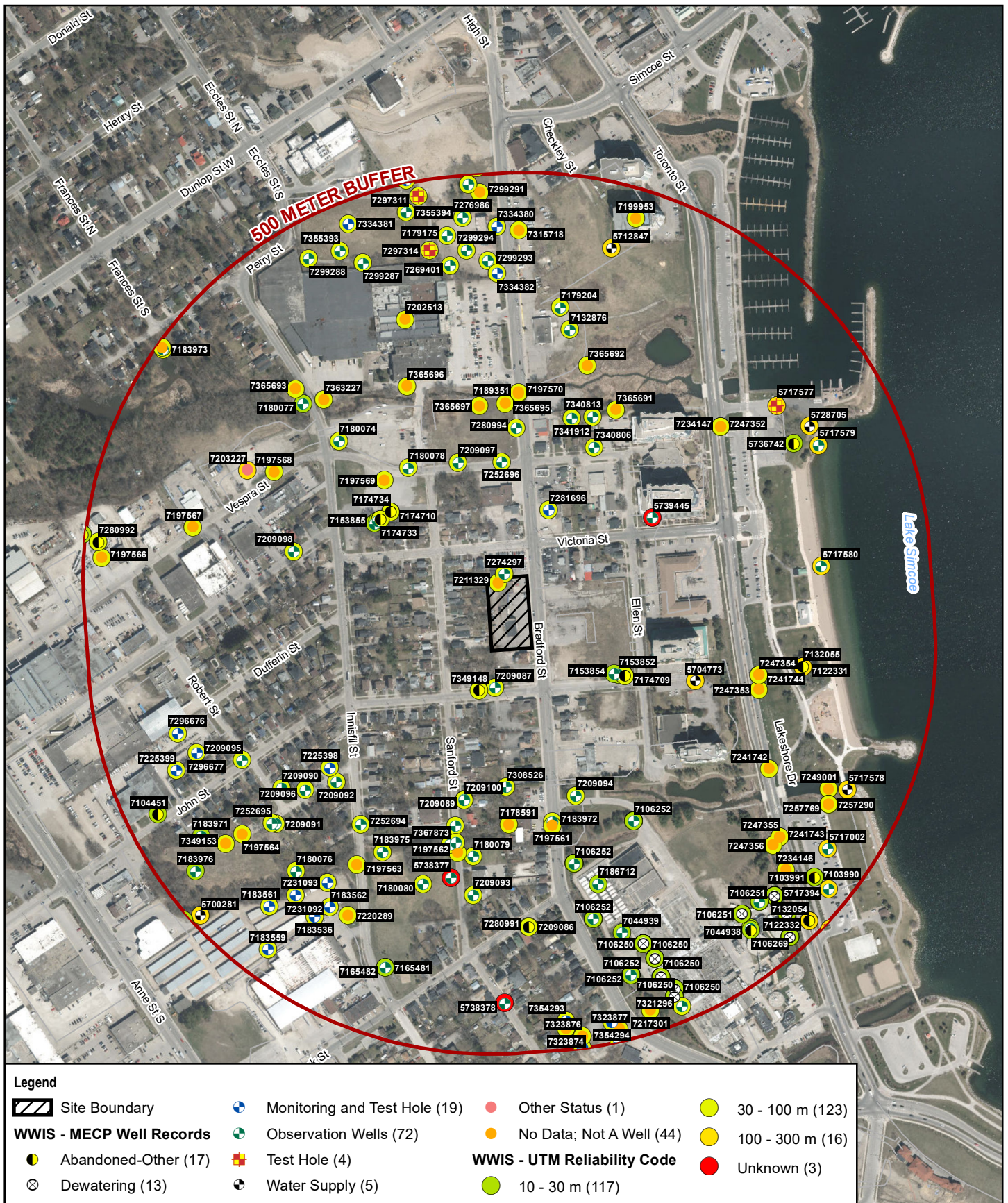


**CROWN (BRADFORD) COMMUNITIES
DEVELOPMENT INC.**
126 AND 140 BRADFORD STREET, BARRIE, ONTARIO
HYDROGEOLOGICAL ASSESSMENT

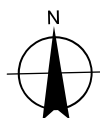
Project No. 12593831
Revision No. -
Date Feb 8, 2023

SURFICIAL GEOLOGY

FIGURE 2.5



Map Projection: Transverse Mercator
Horizontal Datum: North American 1983
Grid: NAD 1983 UTM Zone 17N

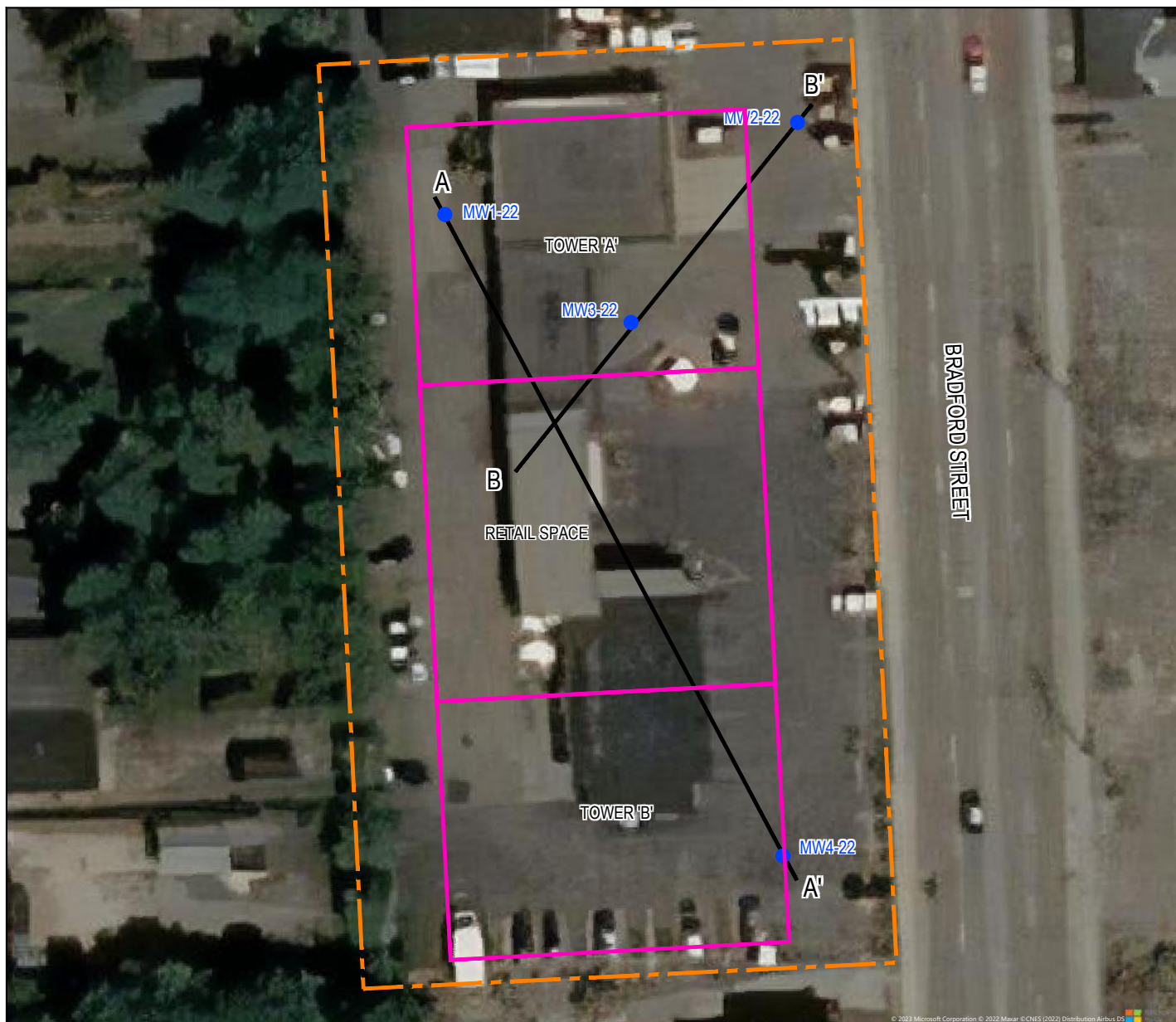


**CROWN (BRADFORD) COMMUNITIES
DEVELOPMENT INC.**
126 AND 140 BRADFORD STREET, BARRIE, ONTARIO
HYDROGEOLOGICAL ASSESSMENT

Project No. 12593831
Revision No. -
Date Feb 8, 2023

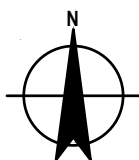
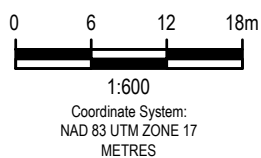
MECP WATER WELL RECORDS

FIGURE 2.6



LEGEND

- PROPERTY BOUNDARY
- MONITORING WELL LOCATION (GHD, NOVEMBER 2022)
- A — A' LOCATION OF CROSS-SECTION



CROWN (BRADFORD) COMMUNITIES DEVELOPMENT INC.
 126 AND 140 BRADFORD STREET
 BARRIE, ONTARIO
 HYDROGEOLOGICAL ASSESSMENT
**BOREHOLE AND MONITORING WELL
 LOCATION PLAN**

Project No. 12593831
 Date February 2023

FIGURE 3.1



LEGEND

MW104-19

—

 WELL DESIGNATION

—

 GROUND SURFACE

—

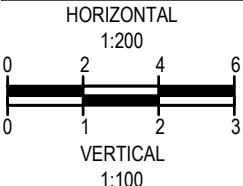
 STRATIGRAPHIC BOUNDARY

—

 GROUNDWATER ELEVATION (MAY 18, 2023)

—

 SCREENED INTERVAL

 ASPHALT SAND

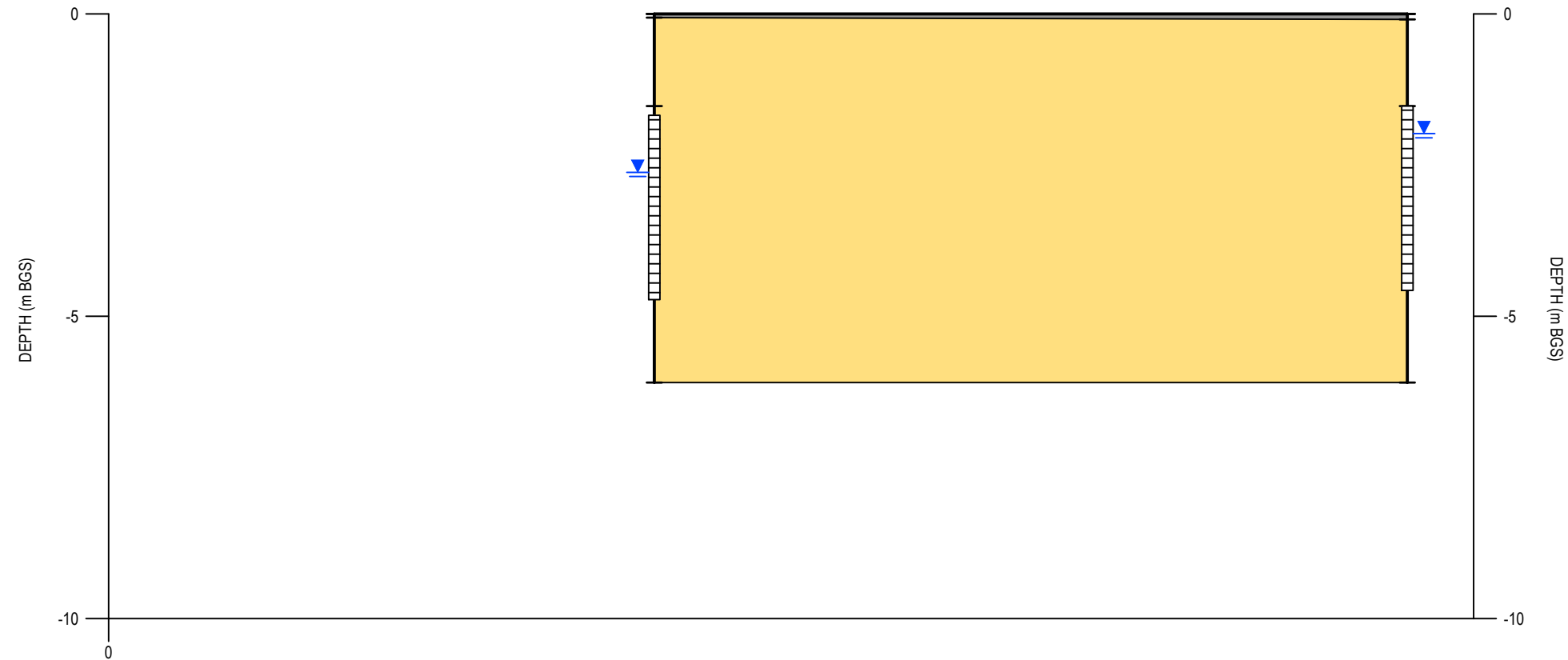
CROWN (BRADFORD) COMMUNITIES
DEVELOPMENT INC.
126 AND 140 BRADFORD STREET BARRIE,
ONTARIO
HYDROGEOLOGICAL ASSESSMENT
GEOLOGIC CROSS-SECTION A-A'

Project No. 12593831
Date June 2023

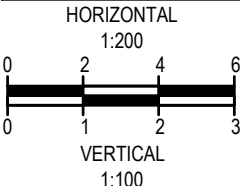
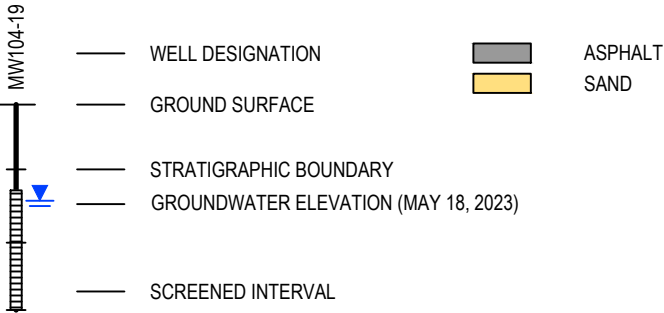
FIGURE 4.1

B
SOUTHWEST

B'
NORTHEAST



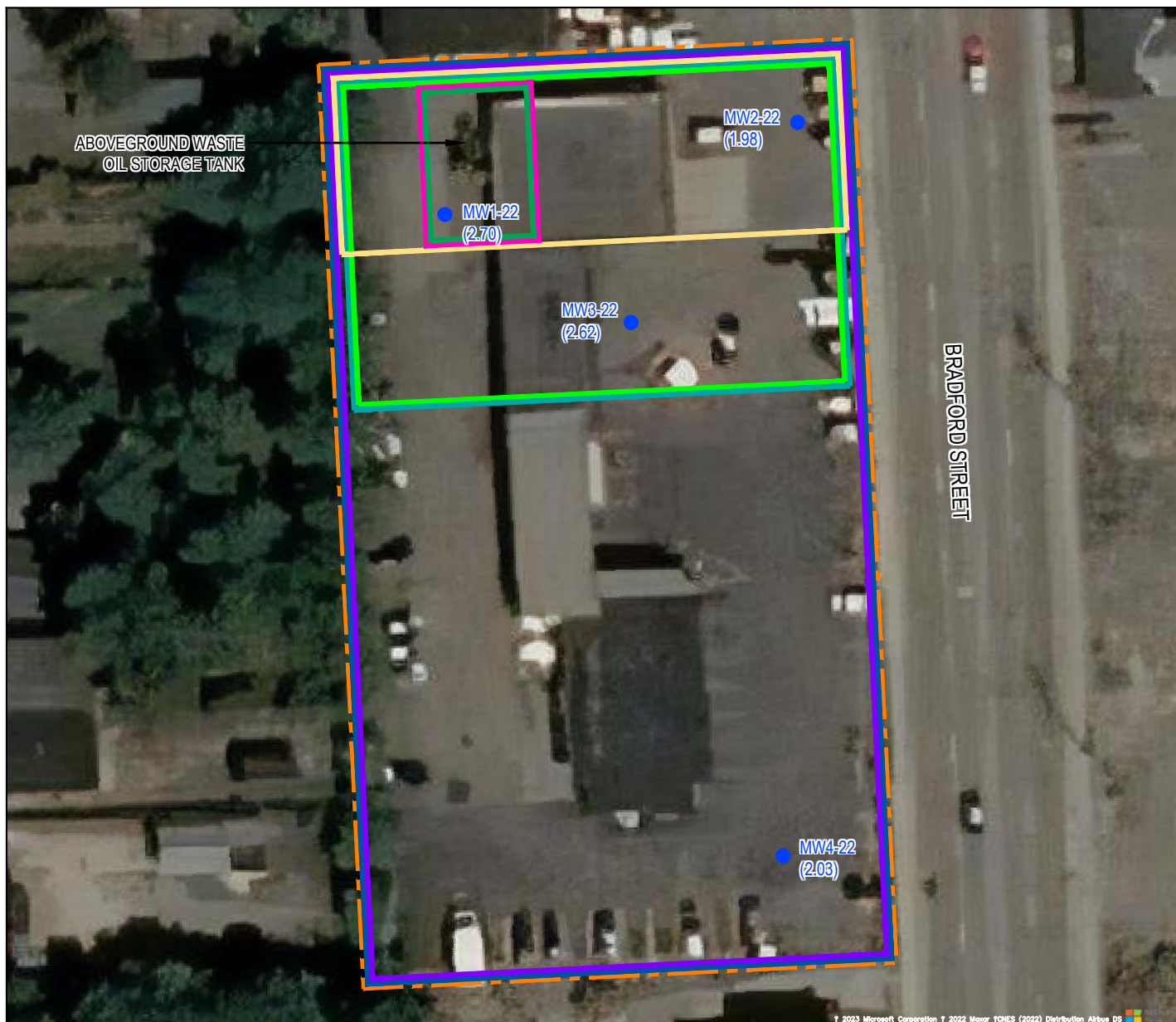
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CROWN (BRADFORD) COMMUNITIES
DEVELOPMENT INC.
126 AND 140 BRADFORD STREET BARRIE,
ONTARIO
HYDROGEOLOGICAL ASSESSMENT
GEOLOGIC CROSS-SECTION B-B'

Project No. 12593831
Date June 2023

FIGURE 4.2

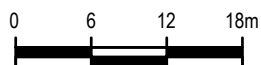


LEGEND

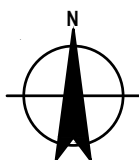
- PROPERTY BOUNDARY
- APEC #1 (OFF-SITE)**
AUTOMOTIVE MAINTENANCE AND REPAIR FACILITY
- APEC #2 (ON-SITE)**
AUTOMOTIVE MAINTENANCE AND REPAIR FACILITY
- APEC #3 (ON-SITE)**
FORMER WASTE OIL AST
- APEC #4 (ON-SITE)**
FILL OF UNKNOWN QUALITY
- APEC #5 (ON-SITE)**
BULK OIL ASTs
- APEC #6 (ON-SITE)**
WASTE OIL AST
- APEC #7 (ON-SITE AND OFF-SITE)**
DE-ICING ACTIVITIES
- MONITORING WELL LOCATION (GHD, NOVEMBER 2022)
- (3.06) DEPTH TO GROUNDWATER (m BGS)

PCAS POTENTIALLY CONTRIBUTING TO APECS ON THE SITE

- 27 - GARAGES AND MAINTENANCE AND REPAIR OF RAILCARS, MARINE VEHICLES AND AVIATION VEHICLES
- 28 - GASOLINE AND ASSOCIATED PRODUCTS STORAGE IN FIXED TANKS
- 30 - IMPORTATION OF FILL MATERIAL OF UNKNOWN QUALITY



1:600
Coordinate System:
NAD 83 UTM ZONE 17
METRES



CROWN (BRADFORD) COMMUNITIES DEVELOPMENT INC.
126 AND 140 BRADFORD STREET BARRIE, ONTARIO
HYDROGEOLOGICAL ASSESSMENT

DEPTH TO WATER TABLE
(MAY 18, 2023)

Project No. 12593831
Date June 2023

FIGURE 4.3

Tables

Table 3.1

Monitoring Well Completion Details
Hydrogeological Assessment
126 & 140 Bradford Street, Barrie, Ontario
Crown (Bradford) Communities
Developments Inc.

Well ID	Date Installed	Easting	Northing	Ground	Top of Riser	Total Depth	Screened Interval		Sandpack Interval		Screened Material
				Elevation	Elevation	Drilled	(m BGS)		(m BGS)		
				(m AMSL)	(m AMSL)	(m BGS)	Top	Bottom	Top	Bottom	
Monitoring Wells											
MW1-22	23-Nov-22	604012.9	4914999.6	224.97	224.90	6.10	1.52	4.57	1.22	4.57	Sand
MW2-22	23-Nov-22	604045.6	4915010.9	223.78	223.65	6.10	1.52	4.57	1.22	4.57	Sand
MW3-22	23-Nov-22	604030.9	4914993.6	224.67	224.58	6.10	1.68	4.72	1.37	4.72	Sand
MW4-22	23-Nov-22	604046.6	4914940.4	223.86	223.79	6.10	1.52	4.57	1.22	4.57	Sand
Bore Hole											
BH5-23	22-Feb-23	604036.4	4914988.3	223.71	-	28	-	-	-	-	-
BH6-23	22-Feb-23	604037.2	4914936.6	223.61	-	28	-	-	-	-	-

Notes:

m AMSL meters above mean sea level

m BGS meters below ground surface

Benchmark ID RTCM 3731

Benchmark coordinates **N:** 4914748.421 **E:** 602787.491

Benchmark elevation 237.282 mAMSL

Coordinates are provided in UTM NAD 83 northings and eastings

Table 3.2
Summary of Hydraulic Conductivity
Hydrogeological Assessment
126 & 140 Bradford Street, Barrie, Ontario
Crown (Bradford) Communities
Developments Inc.

Borehole ID	Geologic Unit (Screened):	Screen Depth (mBGS)	Hydraulic Conductivity (cm/s)		Method
			Falling	Rising	
<u>Sand</u>					
MW1-22	Sand	1.52 - 4.57	-	5.57E-03	Bouwer-Rice
MW2-22	Sand	1.52 - 4.57	-	7.02E-03	Dagan
			-	4.21E-03	Bouwer-Rice
MW3-22	Sand	1.68 - 4.72	-	4.75E-03	Dagan
			-	3.28E-03	Bouwer-Rice
MW4-22	Sand	1.52 - 4.57	-	4.02E-03	Dagan
			-	1.34E-02	Bouwer-Rice
			-	1.56E-02	Dagan
			GEOMEAN	6.19E-03	

Table 3.3

Summary of Groundwater Levels (mBGS) Hydrogeological Assessment 126 & 140 Bradford Street, Barrie, Ontario Crown (Bradford) Communities Developments Inc.				
	MW1-22	MW2-22	MW3-22	MW4-22
Top of Riser (mAMSL):	224.90	223.65	224.58	223.79
Ground Surface (mAMSL):	224.97	223.78	224.67	223.86
23-Jan-23	3.02	2.19	2.87	2.21
14-Mar-23	3.00	2.17	2.80	2.30
22-Mar-23	2.92	2.10	2.80	2.13
18-May-23	2.70	1.98	2.62	2.03
7-Jun-23	2.84	2.07	2.73	2.08

Notes:

- No data available (inaccessible, not found, damaged, destroyed, not m
- mBGS metres below ground surface
- mAMSL metres above mean sea level

Table 3.4

Summary of Groundwater Elevation (mAMSL)
Hydrogeological Assessment
126 & 140 Bradford Street, Barrie, Ontario
Crown (Bradford) Communities
Developments Inc.

	MW1-22	MW2-22	MW3-22	MW4-22
Top of Riser (mAMSL):	224.898	223.653	224.575	223.785
Ground Surface (mAMSL):	224.973	223.778	224.671	223.86
23-Jan-23	221.96	221.59	221.81	221.66
14-Mar-23	221.97	221.61	221.87	221.56
22-Mar-23	222.06	221.68	221.88	221.74
18-May-23	222.28	221.80	222.06	221.84
7-Jun-23	222.14	221.71	221.94	221.79

Notes:

- No data available (inaccessible, not found, damaged, destroyed, not measured)
- mBGS metres below ground surface
- mAMSL metres above mean sea level

Table 3.5

Groundwater Analytical Results Summary
Hydrogeological Assessment
126 and 140 Bradford Street, Barrie, Ontario
Crown (Bradford) Communities
Developments Inc.

Sample Location:		MW1-22			MW1-22	
Sample ID:		GW-12593831-012423-PH-MW1			GW-12593831-012423-PH-MW1	
Sample Date:		01/24/2023			01/24/2023	
Field SDG:		WT2301880			WT2301882	
Parameters	Units	BARRIE Sanitary a	Storm b	PWQO c		
Volatile Organic Compounds						
1,1,2,2-Tetrachloroethane	mg/L	0.06	-	0.07	ND(0.0005)	--
1,2-Dichlorobenzene	mg/L	0.05	-	0.0025	ND(0.0005)	--
1,4-Dichlorobenzene	mg/L	0.08	-	0.004	ND(0.0005)	--
Benzene	mg/L	0.01	-	0.1	ND(0.0005)	--
Ethylbenzene	mg/L	0.06	-	0.008	ND(0.0005)	--
m&p-Xylenes	mg/L	-	-	0.002	ND(0.0004)	--
Methylene chloride	mg/L	0.09	-	0.1	ND(0.001)	--
o-Xylene	mg/L	-	-	0.04	ND(0.0003)	--
Tetrachloroethene	mg/L	0.06	-	0.05	ND(0.0005)	--
Toluene	mg/L	0.02	-	0.0008	ND(0.0005)	--
Trichloroethene	mg/L	0.05	-	0.02	ND(0.0005)	--
Xylenes (total)	mg/L	0.03	-	-	ND(0.0005)	--
Semi-Volatile Organic Compounds						
1-Methylnaphthalene	mg/L	-	-	0.002	ND(0.00001)	--
2-Methylnaphthalene	mg/L	-	-	0.002	ND(0.00001)	--
Acenaphthene	mg/L	-	-	-	ND(0.00001)	--
Acenaphthylene	mg/L	-	-	-	ND(0.00001)	--
Anthracene	mg/L	-	-	0.0000008	ND(0.00001)	--
Benzo(a)anthracene	mg/L	-	-	0.0000004	ND(0.00001)	--
Benzo(a)pyrene	mg/L	-	-	-	ND(0.000005)	--
Benzo(b)fluoranthene/Benzo(j)fluoranthene	mg/L	-	-	-	ND(0.00001)	--
Benzo(g,h,i)perylene	mg/L	-	-	0.00000002	ND(0.00001)	--
Benzo(k)fluoranthene	mg/L	-	-	0.0000002	ND(0.00001)	--
Chrysene	mg/L	-	-	0.0000001	ND(0.00001)	--
Dibenz(a,h)anthracene	mg/L	-	-	0.000002	ND(0.000005)	--
Fluoranthene	mg/L	-	-	0.0000008	ND(0.00001)	--
Fluorene	mg/L	-	-	0.0002	ND(0.00001)	--
Hexachlorobenzene	mg/L	0.0001	-	0.0000065	ND(0.000008)	--
Indeno(1,2,3-cd)pyrene	mg/L	-	-	-	ND(0.00001)	--
Naphthalene	mg/L	-	-	0.007	ND(0.00005)	--
Phenanthrene	mg/L	-	-	0.00003	ND(0.00002)	--
Pyrene	mg/L	-	-	-	ND(0.00001)	--
Total PAH	mg/L	0.05	-	-	ND(0.00007)	--
Total Metals						
Aluminum	mg/L	50	-	0.075	1.11 ^c	1.24 ^c
Antimony	mg/L	5	-	0.02	0.00047	0.00045
Arsenic	mg/L	1	-	0.005	0.00076	0.00087
Barium	mg/L	5	-	-	0.0566	0.0574
Beryllium	mg/L	-	-	0.011	--	0.000053
Bismuth	mg/L	5	-	-	ND(0.000050)	--
Boron	mg/L	-	-	0.2	--	0.042
Cadmium	mg/L	0.7	0.001	0.0002	0.0000285	0.0000302
Chromium	mg/L	2	0.08	0.001	0.00664 ^c	0.00725 ^c
Cobalt	mg/L	5	-	0.0009	0.00062	0.00069
Copper	mg/L	2	0.01	0.005	0.00434	0.00467
Gold	mg/L	5	-	-	ND(0.0001) DLA	--
Iron	mg/L	50	-	0.3	1.35 ^c	1.50 ^c
Lead	mg/L	0.7	0.05	0.005	0.00265	0.00272
Manganese	mg/L	5	-	-	0.122	0.136
Mercury	mg/L	0.01	-	0.0002	ND(0.0000050)	--
Molybdenum	mg/L	5	-	0.04	0.00317	0.00325

Table 3.5

Groundwater Analytical Results Summary
Hydrogeological Assessment
126 and 140 Bradford Street, Barrie, Ontario
Crown (Bradford) Communities
Developments Inc.

Sample Location:					MW1-22	
Sample ID:					GW-12593831-012423-PH-MW1	GW-12593831-012423-PH-MW1
Sample Date:					01/24/2023	01/24/2023
Field SDG:					WT2301880	WT2301882
Parameters						
Units						
BARRIE						
Sanitary Storm						
PWQO						
Nickel	mg/L	2	0.05	0.025	0.00189	0.00220
Phosphorus	mg/L	10	-	0.01	--	0.106 ^c
Platinum	mg/L	5	-	-	ND(0.0001) DLA	--
Rhodium	mg/L	5	-	-	ND(0.000025) DLA	--
Selenium	mg/L	1	-	0.1	0.00140	0.00141
Silver	mg/L	0.4	-	0.0001	0.000352 ^c	0.000765 ^c
Sodium	mg/L	-	-	-	--	294
Sulfur	mg/L	-	-	-	--	10.2
Thallium	mg/L	-	-	0.0003	--	0.000015
Tin	mg/L	5	-	-	0.00060	--
Tungsten	mg/L	-	-	0.03	--	ND(0.00010)
Uranium	mg/L	-	-	0.005	--	0.000485
Vanadium	mg/L	5	-	0.006	0.00208	0.00232
Zinc	mg/L	2	0.04	0.03	0.0088	0.0067
Zirconium	mg/L	-	-	0.004	--	0.00055
Dissolved Metals						
Aluminum (dissolved)	mg/L	50	-	0.075	--	0.0058
Antimony (dissolved)	mg/L	5	-	0.02	--	0.00047
Arsenic (dissolved)	mg/L	1	-	0.005	--	0.00016
Barium (dissolved)	mg/L	5	-	-	--	0.0636
Beryllium (dissolved)	mg/L	-	-	0.011	--	ND(0.000020)
Bismuth (dissolved)	mg/L	5	-	-	--	ND(0.000050)
Boron (dissolved)	mg/L	-	-	0.2	--	0.040
Cadmium (dissolved)	mg/L	0.7	0.001	0.0002	--	0.0000118
Caesium (dissolved)	mg/L	-	-	-	--	ND(0.000010)
Calcium (dissolved)	mg/L	-	-	-	--	112
Chromium (dissolved)	mg/L	2	0.08	0.001	--	0.00072
Cobalt (dissolved)	mg/L	5	-	0.0009	--	ND(0.00010)
Copper (dissolved)	mg/L	2	0.01	0.005	--	0.00140
Iron (dissolved)	mg/L	50	-	0.3	--	ND(0.010)
Lead (dissolved)	mg/L	0.7	0.05	0.005	--	ND(0.000050)
Lithium (dissolved)	mg/L	-	-	-	--	ND(0.0010)
Magnesium (dissolved)	mg/L	-	-	-	--	6.47
Manganese (dissolved)	mg/L	5	-	-	--	0.0314
Molybdenum (dissolved)	mg/L	5	-	0.04	--	0.00302
Nickel (dissolved)	mg/L	2	0.05	0.025	--	ND(0.00050)
Phosphorus (dissolved)	mg/L	10	-	0.01	--	ND(0.050)
Potassium (dissolved)	mg/L	-	-	-	--	5.66
Rubidium (dissolved)	mg/L	-	-	-	--	0.00315
Selenium (dissolved)	mg/L	1	-	0.1	--	0.00208 DTSE
Silicon (dissolved)	mg/L	-	-	-	--	4.57
Silver (dissolved)	mg/L	0.4	-	0.0001	--	0.000285 ^c
Sodium (dissolved)	mg/L	-	-	-	--	274
Strontium (dissolved)	mg/L	-	-	-	--	0.418
Tellurium (dissolved)	mg/L	-	-	-	--	ND(0.00020)
Thallium (dissolved)	mg/L	-	-	0.0003	--	ND(0.000010)
Thorium (dissolved)	mg/L	-	-	-	--	ND(0.00010)
Tin (dissolved)	mg/L	5	-	-	--	0.00010
Titanium (dissolved)	mg/L	-	-	-	--	ND(0.00030)
Tungsten (dissolved)	mg/L	-	-	0.03	--	ND(0.00010)
Uranium (dissolved)	mg/L	-	-	0.005	--	0.000447
Vanadium (dissolved)	mg/L	5	-	0.006	--	ND(0.00050)
Zinc (dissolved)	mg/L	2	0.04	0.03	--	0.0011
Zirconium (dissolved)	mg/L	-	-	0.004	--	ND(0.00030)

Table 3.5

Groundwater Analytical Results Summary
Hydrogeological Assessment
126 and 140 Bradford Street, Barrie, Ontario
Crown (Bradford) Communities
Developments Inc.

Sample Location:					MW1-22	
Sample ID:					GW-12593831-012423-PH-MW1	GW-12593831-012423-PH-MW1
Sample Date:					01/24/2023	01/24/2023
Field SDG:					WT2301880	WT2301882
Parameters	Units	BARRIE		PWQO		
General Chemistry		Sanitary	Storm			
Alkalinity, bicarbonate	mg/L	-	-	-	--	248
Alkalinity, carbonate	mg/L	-	-	-	--	ND(2.0)
Alkalinity, hydroxide	mg/L	-	-	-	--	ND(2.0)
Alkalinity, phenolphthalein	mg/L	-	-	-	--	ND(2.0)
Alkalinity, total (as CaCO3)	mg/L	-	-	0.025	--	248 ^c
Ammonia-N	mg/L	-	-	-	--	0.0343
Anion sum	meq/L(me/L)	-	-	-	--	19.7
Anion/Cation ratio	%	-	-	-	--	-3.96
Biochemical oxygen demand (BOD)	mg/L	300	15	-	ND(3.0) BODL	--
Cation sum	meq/L(me/L)	-	-	-	--	18.2
Chemical oxygen demand (COD)	mg/L	600	-	-	15	--
Chloride (dissolved)	mg/L	1500	-	-	367 DLDS	453 DLDS
Color (true)	TCU	-	-	-	--	2.2
Conductivity	uS/cm	-	-	-	--	1920
Cyanide (total)	mg/L	1.2	-	0.005	ND(0.0020)	--
Dissolved organic carbon (DOC) (dissolved)	mg/L	-	-	-	--	1.34
Fluoride	mg/L	10	-	-	ND(0.100) DLDS	ND(0.100) DLDS
Hardness	mg/L	-	-	-	--	306
Hydrogen sulfide (calculated)	mg/L	-	-	-	ND(0.011)	ND(0.011)
Mineral oil and grease	mg/L	-	-	-	ND(5.0)	--
Nitrate (as N)	mg/L	-	-	-	--	20.6 DLDS
Nitrite (as N)	mg/L	-	-	-	--	ND(0.050) DLDS
Oil and grease	mg/L	-	-	0	ND(5.0)	--
Oil and grease, animal and vegetable	mg/L	150	-	-	ND(5)	--
Orthophosphate (dissolved)	mg/L	-	-	-	--	ND(0.0010)
pH, field	s.u.	-	6.0-9.5	6.5-8.5	--	8.25
pH, lab	s.u.	6.0-9.5	6.0-9.5	6.5-8.5	7.50	8.07
Phenolics (total)	mg/L	0.1	-	0.001	ND(0.0010)	--
Phosphorus	mg/L	10	-	0.01	0.0647 ^c	0.0752 ^c
Sulfate (dissolved)	mg/L	1500	-	-	22.9 DLDS	25.6 DLDS
Sulfide	mg/L	1	-	-	ND(0.010)	ND(0.010)
Temperature, field	Deg C	60	30	see hardcopy	--	7.20
Total dissolved solids (TDS)	mg/L	-	-	-	--	1070 DLDS
Total kjeldahl nitrogen (TKN)	mg/L	100	-	-	0.155	0.280 TKNI
Total organic nitrogen (dissolved)	mg/L	-	-	-	--	0.246
Total suspended solids (TSS)	mg/L	350	15	-	5.0	31.7 ^b
Turbidity	NTU	-	-	10% of natural see hardcopy	--	0.11
Un-ionized ammonia (as NH3) (calculated)	mg/L	-	-	-	--	0.0011

Footnotes:
ND - Not detected at the associated reporting limit.

Appendices

Appendix A

Field Investigation Methodology and Protocols

Appendix A

Field Investigation Methodology and Protocols

Utility Locates

Prior to initiating the subsurface investigation activities, all applicable utility companies (gas, telephone, network cables, pipelines and sewers) were contacted through Ontario One-Call. Also, a private utility locator was utilized to demarcate the location of the respective underground utilities to ensure the lines were not damaged during the investigation work.

Health and Safety

A Site-specific Health and Safety Plan (HASP) outlining specific job tasks and their related hazards was prepared and implemented by GHD prior to initiating field activities. The HASP presents the visually observed Site conditions and identifies potential physical hazards to field personnel. All GHD field and project staff working on and/or visiting the site were required to sign the HASP to document their knowledge of the potential hazards while on-site.

All drilling activities were conducted under Level D Personal Protective Equipment (PPE), which consisted of protective gloves, hard hats, safety glasses, safety boots and reflective vests at all times.

Soil Classification

The soil was logged using the Unified Soil Classification System (USGS), making special note of any visual or olfactory evidence of potential impacts.

Monitoring Well Installation

Monitoring wells were installed in selected boreholes by the licensed water well drillers consistent with Regulation 903 – Wells. GHD technical staff supervised the monitoring well construction and well development to ensure conformance with GHD's Standard Operating Procedures.

The monitoring wells were constructed with 2-inch (~50 mm) Schedule 40 PVC screen and casing. The screen length used for the monitoring wells was 1.5 or 3.0 metres on average and pre-slotted (No. 10 slot). The annular space between the monitoring well screen and surrounding geological formation were backfilled with No. 3 grade silica sand to an average height of 0.6 metres above the top of the screen. The remaining annular space was backfilled with bentonite. Some monitoring wells were installed with minor alteration to the above installation details, due to the specific conditions encountered.

To complete the instrumentation, an expandable J-plug was installed on the riser style casing to cover the top of the riser pipe to protect against debris falling into the well and surface runoff infiltration. All wells were installed in a flushmount or monument configuration with concrete collar around the protective casing. Each groundwater monitoring well was instrumented with dedicated sampling equipment consisting of polyethylene tubing and Waterra foot valves for monitoring well development and installation.

Monitoring Well Development

Subsequent to the monitoring well installation, each well was developed to ensure hydraulic connection with the screened hydrostratigraphic unit. A hydraulic connection ensures that groundwater levels and samples are representative of the subsurface condition. Development also aids in achieving low-turbidity samples.

The wells were developed using dedicated 5/8" (~16 mm) diameter polyethylene tubing with a Waterra foot valve. Well development activities were undertaken until purged water was clear. In cases where a well was purged dry before sufficient development, the well water level was allowed to recover before continuing.

Surveying

Subsequent to installation, all wells and boreholes were surveyed for vertical and lateral control, and for water table elevation reference, using a geodetic benchmark to tie in vertical elevations relative to metres above mean sea level (mAMSL) at the Site. The ground surface and top of riser pipe elevation of each of well were surveyed with respect to this benchmark.

Water Level Measurements

The measurement of groundwater levels in monitoring wells was required during the hydrogeological investigation in order to determine the presence and depth of groundwater. Water level measurements were used to determine: hydraulic head, hydraulic gradients and the direction of groundwater flow.

Since many decisions concerning the vertical and horizontal flow of groundwater through various types of geologic conditions depend on groundwater/fluid measurements, the accuracy of the measurements made at an appropriate level of precision is very important. Typically, the precision required is 1 mm, and the equipment employed had measurement resolution at this level.

Manual groundwater level measurements were measured using a Solinst water level meter. Measurements were obtained by lowering the electrode, attached to a graduated polyethylene tape, slowly into the well until the indicator sounded. To ensure accuracy, all fluid level readings were double-checked in the field when recorded.

In order to provide reliable data, each round of water level measurements was collected over as short a period of time as possible. Barometric pressure can affect groundwater levels and, therefore, observation of significant weather changes during the period of water level measurements was noted. Rainfall events and groundwater pumping can also affect groundwater level measurements. Personnel collecting water level data noted if any of these controls are in effect during the groundwater level collection period.

Groundwater Sampling

Prior to initiating groundwater sample collection, the wells were purged of the standing stagnant groundwater volume using a dedicated Waterra foot valve and polyethylene tubing. Purging was performed until the water in the well was representative of the actual conditions in the hydrostratigraphic unit. Stabilization was achieved by the removal of at least three times the volume of standing water in the well. Purging was considered complete once purged groundwater field parameters including conductivity, temperature and pH were stable. Stabilization was achieved when field measurements for conductivity and temperature were within a range of plus or minus 10 percent of the average for the last three readings and field measurements for pH were within a range of plus or minus 0.1 pH unit of the average for the last three readings.

The wells were purged using dedicated inertial pumps. In the event of a slowly recharging well, the well was pumped dry to ensure all standing water was removed from the sand pack and then allowed to recover prior to sample collection.

In the event of a well with groundwater that contains a high amount of silt or sediment after well development, a 0.75"x36" PVC water bailer was used to collect the water.

Water samples were collected directly from the dedicated tubing or bailer to laboratory supplied sample containers. Samples were relinquished to an accredited analytical laboratory under Chain of Custody protocols.

Single Well Response Tests

Single well response tests (SWRT) were completed in selected monitoring well installations to determine the hydraulic conductivity of the screened geologic formation. The SWRT consisted of falling head tests (slug tests), and rising head tests (recovery tests) as described in the sections below.

1.1 Falling Head Test (Slug Test)

The slug test involves causing a sudden change in water level in a well and measuring the water level response within that well. Water level change may be induced by suddenly injecting or emplacing a known quantity or "slug" into the well. The slug can water or solid (stainless steel, polyvinyl chloride). A detailed description of the procedure is provided, as follows:

- i) The static water level was determined prior to any testing of the well.
- ii) A datalogger, programmed to measure water pressure at an appropriate interval (eg. 5 seconds), was installed in the well at a known depth.
- iii) A slug of known dimensions was set in place just above the static water level.
- iv) The slug was then released instantaneously until it was completely submerged in the water column.
- v) After the initial positive displacement of the water column, water levels were monitored manually.
- vi) When the water level reached approximately 90 percent of the original observed (static) water level, the slug was then rapidly removed from the water column to initiate a "rising-head" test.

1.2 Rising Head Test (Recovery Test)

The recovery test also involves causing a sudden change in water level in a well and measuring the water level response within that well. Water level change may be induced by suddenly removing a known quantity or "slug" out of the well. The slug is usually a stainless steel or polyvinyl chloride rod.

Recovery tests were carried out after the slug tests described above. Water level monitoring continued until the water level was within 10 percent of the original static level.

Appendix B

Stratigraphic and Instrumentation Logs



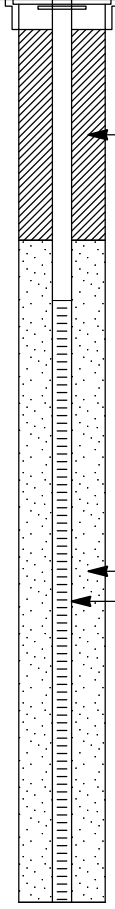
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: Phase Two Environmental Site Assessment
PROJECT NUMBER: 12593831
CLIENT: Crown (Bradford) Communities Developments Inc.
LOCATION: 126 and 140 Bradford Street, Barrie, Ontario

HOLE DESIGNATION: MW1-22
DATE COMPLETED: 23 November 2022
DRILLING METHOD: Direct Push
FIELD PERSONNEL: Chanel McMahon

File: \\GHDNET\GHD\CAMISS\SAUGA\PROJECTS\6621\2593831\TECH\12593831-MI.GPJ Library File: GHD_ENVIRO_V04.GLB Report: OVERBURDEN LOG Date: 20/1/23

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH BGS	MONITOR INSTALLATION	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' Value	PID (ppm)
0.5	ASPHALT	0.06	 Bentonite Sand Pack Well Screen	1		35		0.1
1.0	SP-SAND (FILL), loose, poorly graded, brown, moist			2		35		0.0
1.5	SP-SAND, loose, poorly graded, brown, moist	1.52		3		45		0.3
2.0				4		45		0.2
2.5				5		75		0.0
3.0	- greyish brown, wet from 3.05 to 6.10m BGS			6		75		0.0
3.5				7		90		0.3
4.0				8		90		0.2
4.5								
5.0								
5.5								
6.0	END OF BOREHOLE @ 6.10m BGS	6.10						
6.5								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS



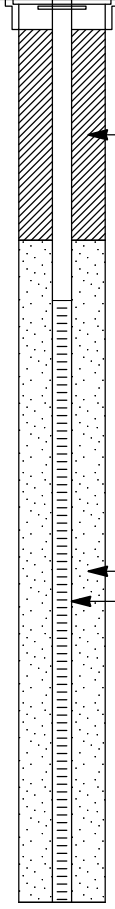


STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: Phase Two Environmental Site Assessment
PROJECT NUMBER: 12593831
CLIENT: Crown (Bradford) Communities Developments Inc.
LOCATION: 126 and 140 Bradford Street, Barrie, Ontario

HOLE DESIGNATION: MW2-22
DATE COMPLETED: 23 November 2022
DRILLING METHOD: Direct Push
FIELD PERSONNEL: Chanel McMahon

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH BGS	MONITOR INSTALLATION	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' Value	PID (ppm)
0.5	ASPHALT	0.09	 Bentonite Sand Pack Well Screen	1		40		0.5
1.0	SP-SAND (FILL), loose, poorly graded, brown, moist			2		40		0.6
1.5	SP-SAND, loose, poorly graded, brown, moist	1.52		3		60		0.5
2.0				4		70		0.3
2.5	- greyish brown, wet from 2.59 to 6.10m BGS			5		70		0.5
3.0				6		70		0.8
3.5				7		90		0.0
4.0				8		90		0.1
4.5								
5.0								
5.5								
6.0	END OF BOREHOLE @ 6.10m BGS	6.10						
6.5								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS



File: \\GHDNET\GHD\CAMISS\SAUGA\PROJECTS\6621\2593831\TECH\12593831-MI.GPJ Library File: GHD_ENVIRO_V04.GLB Report: OVERBURDEN LOG Date: 20/1/23

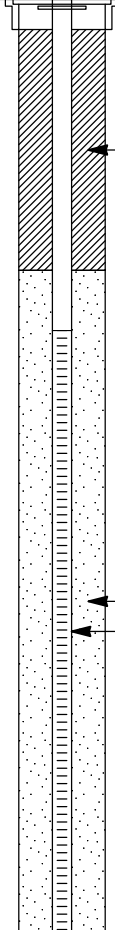


STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: Phase Two Environmental Site Assessment
PROJECT NUMBER: 12593831
CLIENT: Crown (Bradford) Communities Developments Inc.
LOCATION: 126 and 140 Bradford Street, Barrie, Ontario

HOLE DESIGNATION: MW3-22
DATE COMPLETED: 23 November 2022
DRILLING METHOD: Direct Push
FIELD PERSONNEL: Chanel McMahon

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH BGS	MONITOR INSTALLATION	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' Value	PID (ppm)
0.06	ASPHALT	0.06		1		50		0.7
0.5	SP-SAND (FILL), loose, poorly graded, brown, moist			2		50		0.6
1.0				3		85		0.5
1.52	SP-SAND, loose, poorly graded, brown, moist	1.52		4		85		0.5
2.0				5		80		0.1
2.5				6		80		0.0
3.0	- brownish grey, wet from 3.20 to 6.10m BGS			7		95		0.3
3.5				8		95		0.1
4.0								
4.5								
5.0								
5.5								
6.0	END OF BOREHOLE @ 6.10m BGS	6.10						
6.5								

WELL DETAILS

Screened interval:
1.68 to 4.72m BGS
Length: 3.05m
Diameter: 51mm
Slot Size: #10
Material: PVC
Sand Pack:
1.37 to 4.72m BGS
Material: Silica

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS



File: \\GHDNET\GHD\CAMISS\SAUGA\PROJECTS\6212593831\TECH\12593831-MI.GPJ Library File: GHD_ENVIRO_V04.GLB Report: OVERBURDEN LOG Date: 20/1/23

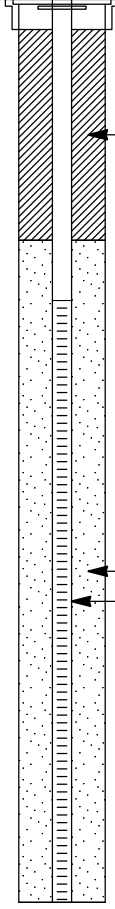


STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: Phase Two Environmental Site Assessment
PROJECT NUMBER: 12593831
CLIENT: Crown (Bradford) Communities Developments Inc.
LOCATION: 126 and 140 Bradford Street, Barrie, Ontario

HOLE DESIGNATION: MW4-22
DATE COMPLETED: 23 November 2022
DRILLING METHOD: Direct Push
FIELD PERSONNEL: Chanel McMahon

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH BGS	MONITOR INSTALLATION	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' Value	PID (ppm)
0.5	ASPHALT	0.09	 Bentonite Sand Pack Well Screen	1		50		0.2
1.0	SP-SAND (FILL), loose, poorly graded, brown, moist			2		50		0.3
1.5	- brick fragments from 1.37 to 1.52m BGS			3		80		0.7
2.0	SP-SAND, loose, poorly graded, brown, moist	1.68		4		80		0.7
2.5				5		80		0.6
3.0	- greyish brown, wet from 3.05 to 6.10m BGS			6		80		0.6
3.5				7		80		0.5
4.0				8		80		0.6
4.5								
5.0								
5.5								
6.0	END OF BOREHOLE @ 6.10m BGS	6.10						
6.5								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

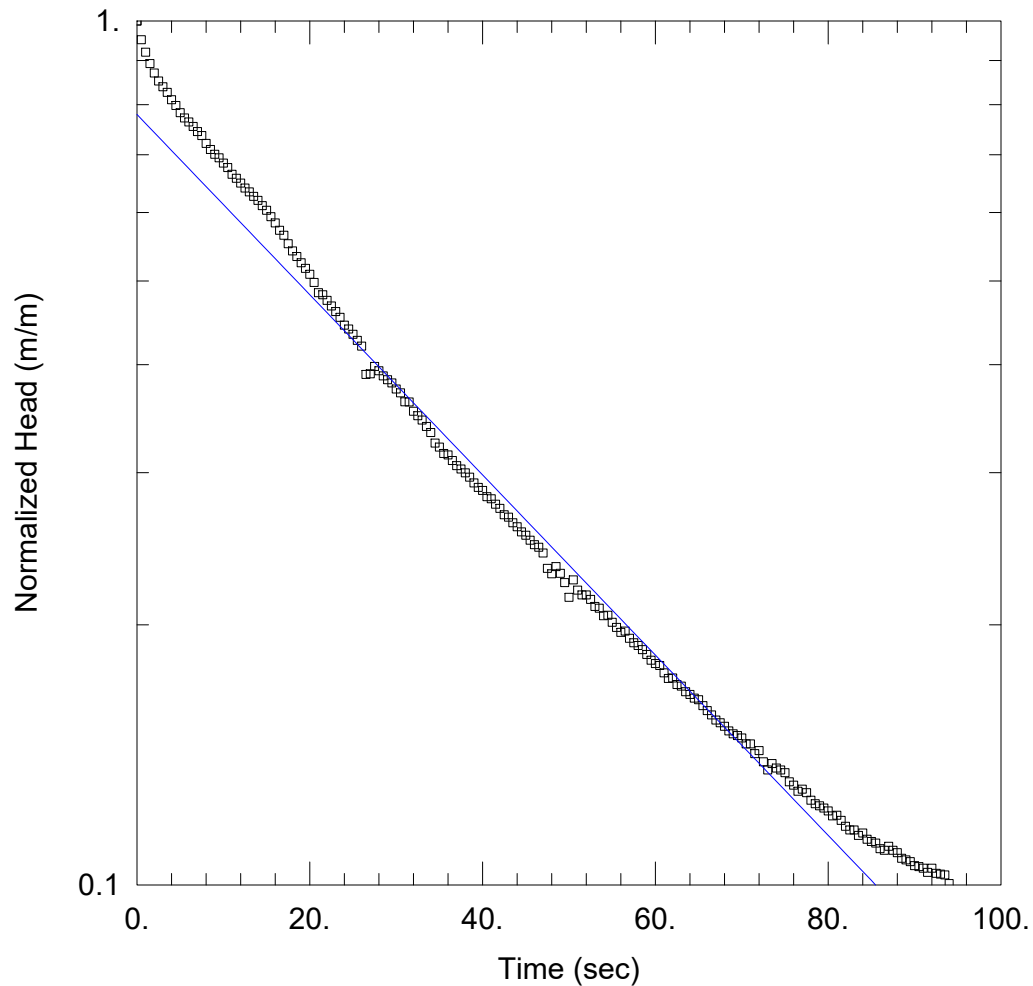
CHEMICAL ANALYSIS



File: \\GHDNET\GHD\CAMISS\SAUGA\PROJECTS\6621\2593831\TECH\12593831-MI.GPJ Library File: GHD_ENVIRO_V04.GLB Report: OVERBURDEN LOG Date: 20/1/23

Appendix C

Single Well Response Test Analyses



MW1-22 RISING HEAD TEST

Data Set: \...\MW1-22 RH BR.aqt

Date: 02/07/23

Time: 17:55:13

PROJECT INFORMATION

Company: GHD

Client: Crown Communities Developments

Project: 12593831

Location: 126 & 140 Bradford Street

Test Well: MW1-22

Test Date: 1/23/23

AQUIFER DATA

Saturated Thickness: 1.73 m

Anisotropy Ratio (K_z/K_r): 1.

WELL DATA (MW1-22)

Initial Displacement: 0.4285 m

Static Water Column Height: 1.73 m

Total Well Penetration Depth: 1.73 m

Screen Length: 1.73 m

Casing Radius: 0.0255 m

Well Radius: 0.108 m

Gravel Pack Porosity: 0.3

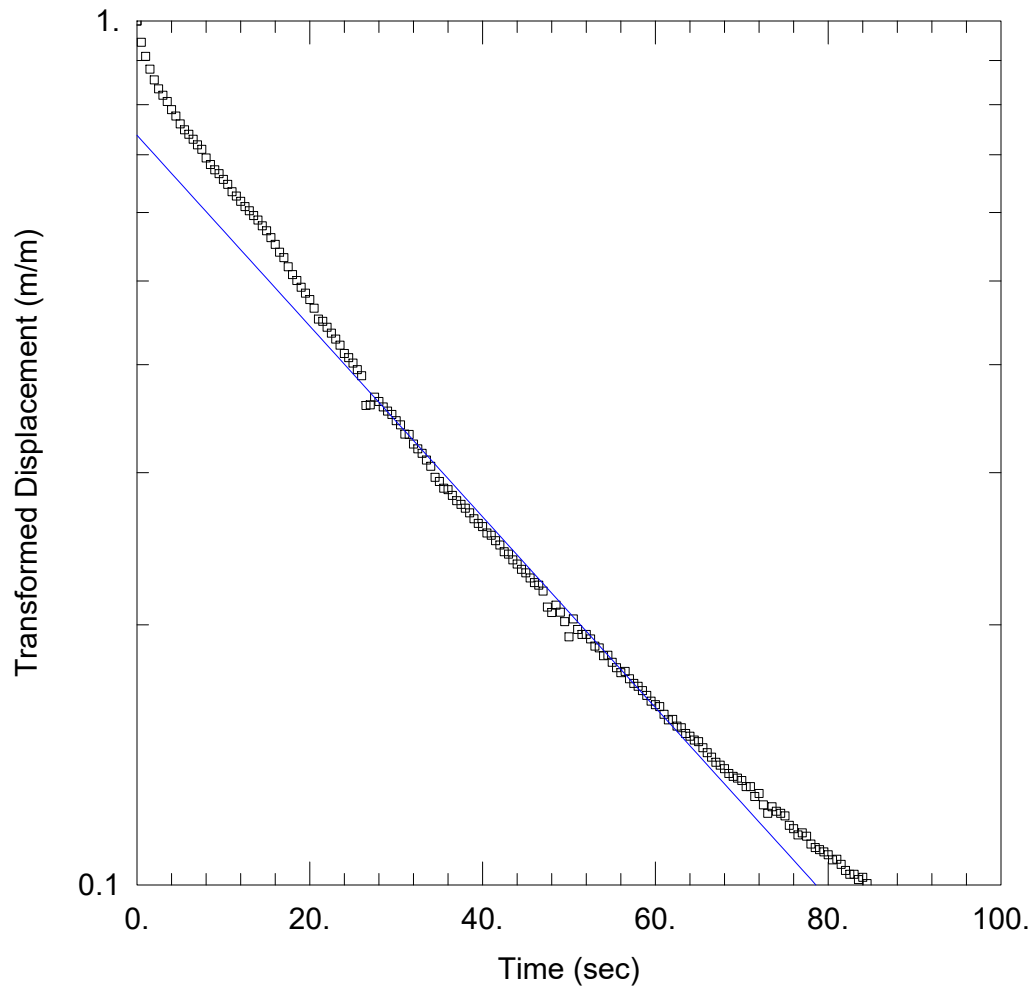
SOLUTION

Aquifer Model: Unconfined

Solution Method: Bouwer-Rice

$K = 0.005572$ cm/sec

$y_0 = 0.3339$ m



MW1-22 RISING HEAD TEST

Data Set: \...\MW1-22 RH DG.aqt

Date: 02/07/23

Time: 17:55:30

PROJECT INFORMATION

Company: GHD

Client: Crown Communities Developments

Project: 12593831

Location: 126 & 140 Bradford Street

Test Well: MW1-22

Test Date: 1/23/23

AQUIFER DATA

Saturated Thickness: 1.73 m

Anisotropy Ratio (K_z/K_r): 1.

WELL DATA (MW1-22)

Initial Displacement: 0.4285 m

Static Water Column Height: 1.73 m

Total Well Penetration Depth: 1.73 m

Screen Length: 1.73 m

Casing Radius: 0.0255 m

Well Radius: 0.108 m

Gravel Pack Porosity: 0.3

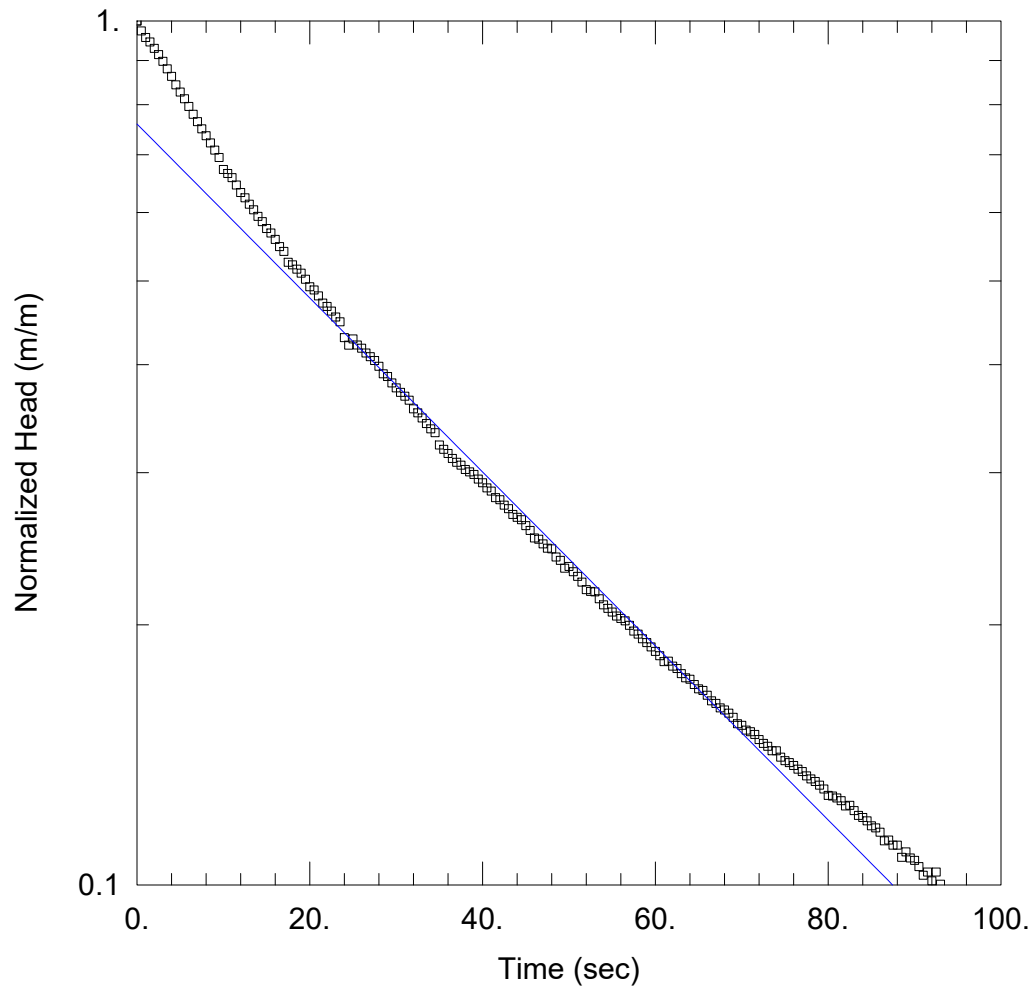
SOLUTION

Aquifer Model: Unconfined

Solution Method: Dagan

$K = 0.00702$ cm/sec

$y_0 = 0.3266$ m



MW2-22 RISING HEAD TEST

Data Set: \...\MW2-22 RH BR.aqt

Date: 02/07/23

Time: 17:55:50

PROJECT INFORMATION

Company: GHD

Client: Crown Communities Developments

Project: 12593831

Location: 126 & 140 Bradford Street

Test Well: MW2-22

Test Date: 1/23/23

AQUIFER DATA

Saturated Thickness: 2.59 m

Anisotropy Ratio (K_z/K_r): 1.

WELL DATA (MW2-22)

Initial Displacement: 0.4561 m

Static Water Column Height: 2.59 m

Total Well Penetration Depth: 2.59 m

Screen Length: 2.59 m

Casing Radius: 0.0255 m

Well Radius: 0.108 m

Gravel Pack Porosity: 0.3

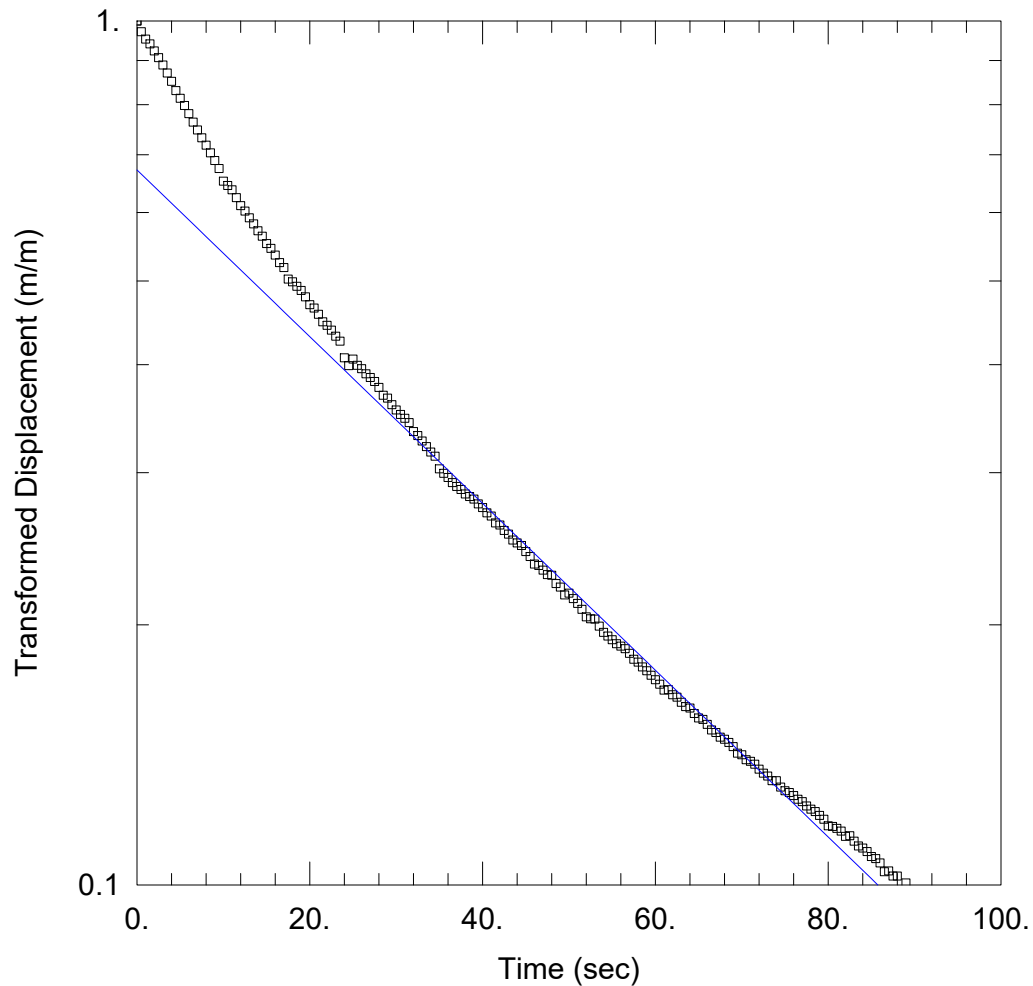
SOLUTION

Aquifer Model: Unconfined

Solution Method: Bouwer-Rice

$K = 0.004206$ cm/sec

$y_0 = 0.3466$ m



MW2-22 RISING HEAD TEST

Data Set: \...\MW2-22 RH DG.aqt

Date: 02/07/23

Time: 17:56:08

PROJECT INFORMATION

Company: GHD

Client: Crown Communities Developments

Project: 12593831

Location: 126 & 140 Bradford Street

Test Well: MW2-22

Test Date: 1/23/23

AQUIFER DATA

Saturated Thickness: 2.59 m

Anisotropy Ratio (K_z/K_r): 1.

WELL DATA (MW2-22)

Initial Displacement: 0.4561 m

Static Water Column Height: 2.59 m

Total Well Penetration Depth: 2.59 m

Screen Length: 2.59 m

Casing Radius: 0.0255 m

Well Radius: 0.108 m

Gravel Pack Porosity: 0.3

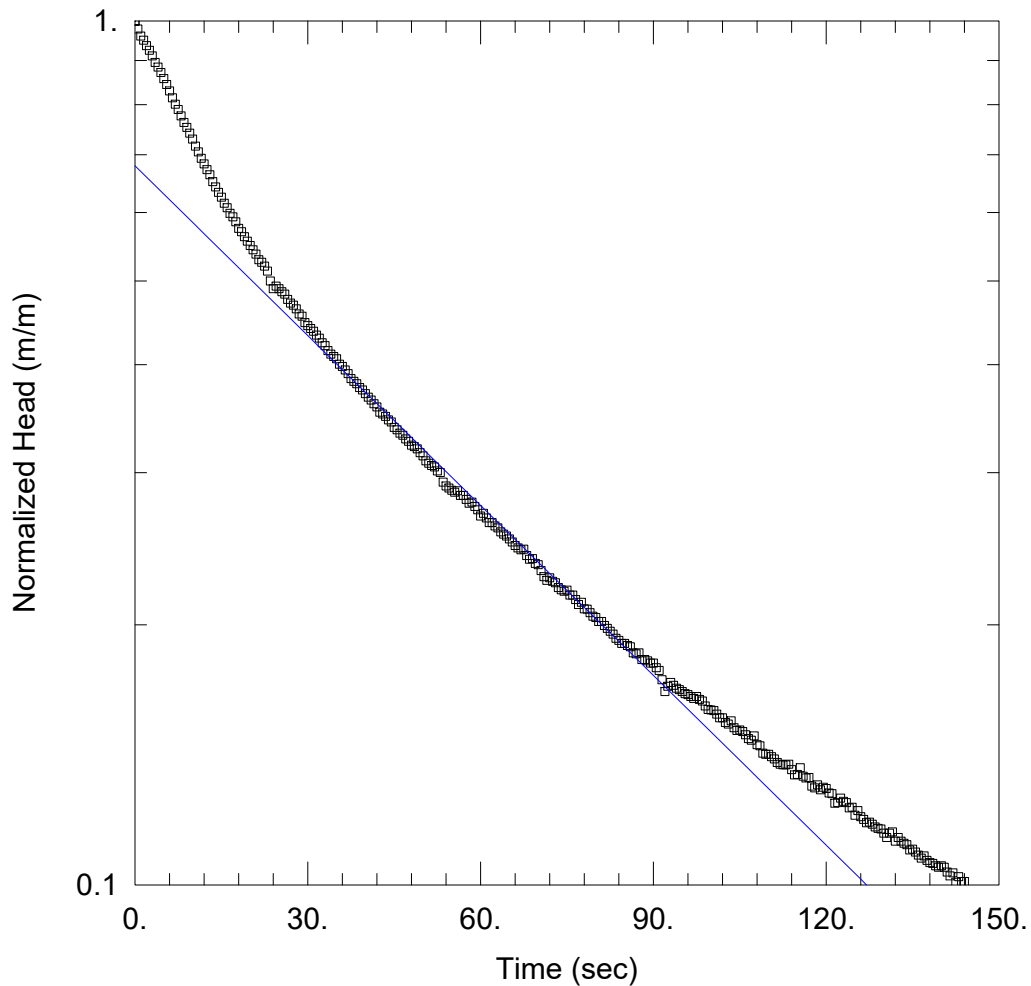
SOLUTION

Aquifer Model: Unconfined

Solution Method: Dagan

$K = 0.004752$ cm/sec

$y_0 = 0.3157$ m



MW3-22 RISING HEAD TEST

Data Set: \...\MW3-22 RH BR.aqt

Date: 02/07/23

Time: 17:56:19

PROJECT INFORMATION

Company: GHD

Client: Crown Communities Developments

Project: 12593831

Location: 126 & 140 Bradford Street

Test Well: MW3-22

Test Date: 1/23/23

AQUIFER DATA

Saturated Thickness: 1.93 m

Anisotropy Ratio (K_z/K_r): 1.

WELL DATA (MW3-22)

Initial Displacement: 0.4618 m

Total Well Penetration Depth: 1.93 m

Casing Radius: 0.0255 m

Static Water Column Height: 1.93 m

Screen Length: 1.93 m

Well Radius: 0.108 m

Gravel Pack Porosity: 0.3

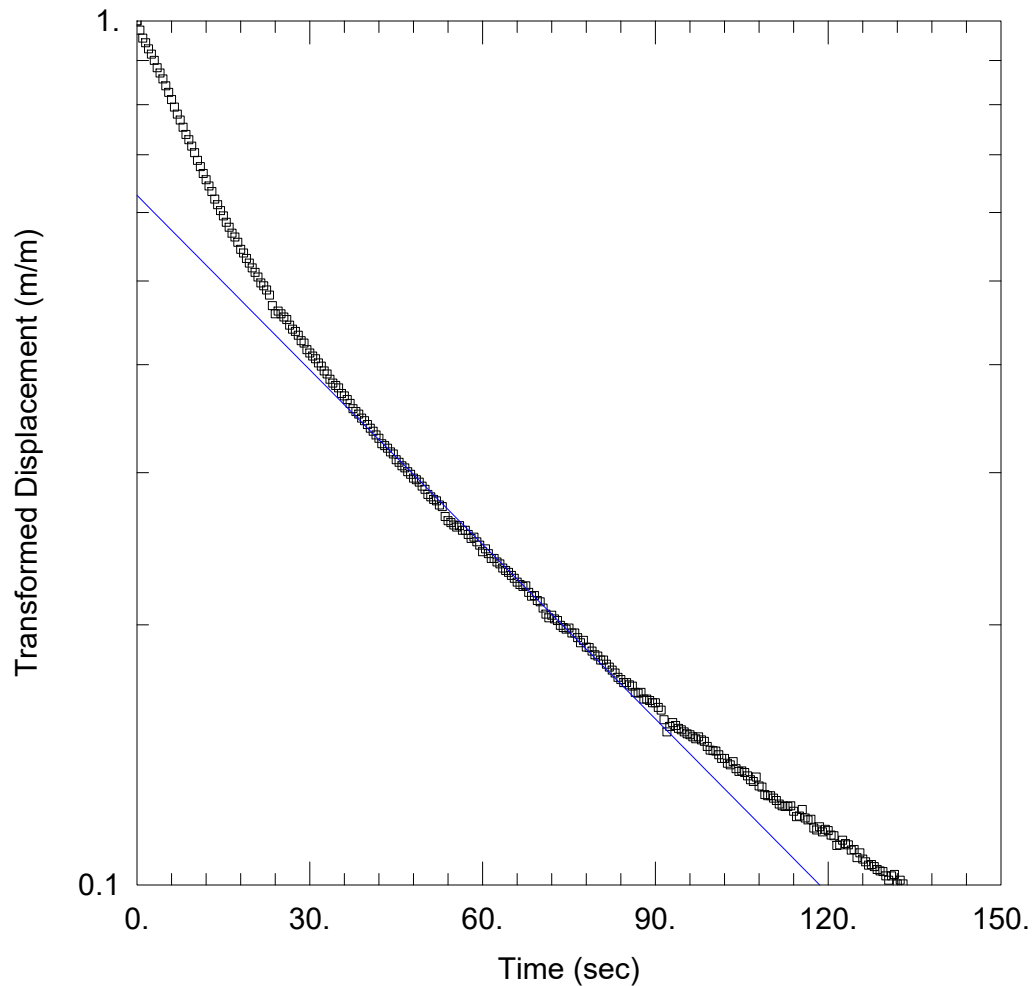
SOLUTION

Aquifer Model: Unconfined

Solution Method: Bouwer-Rice

$K = 0.003282$ cm/sec

$y_0 = 0.3139$ m



MW3-22 RISING HEAD TEST

Data Set: \...\MW3-22 RH DG.aqt

Date: 02/07/23

Time: 17:56:31

PROJECT INFORMATION

Company: GHD

Client: Crown Communities Developments

Project: 12593831

Location: 126 & 140 Bradford Street

Test Well: MW3-22

Test Date: 1/23/23

AQUIFER DATA

Saturated Thickness: 1.93 m

Anisotropy Ratio (K_z/K_r): 1.

WELL DATA (MW3-22)

Initial Displacement: 0.4618 m

Total Well Penetration Depth: 1.93 m

Casing Radius: 0.0255 m

Static Water Column Height: 1.93 m

Screen Length: 1.93 m

Well Radius: 0.108 m

Gravel Pack Porosity: 0.3

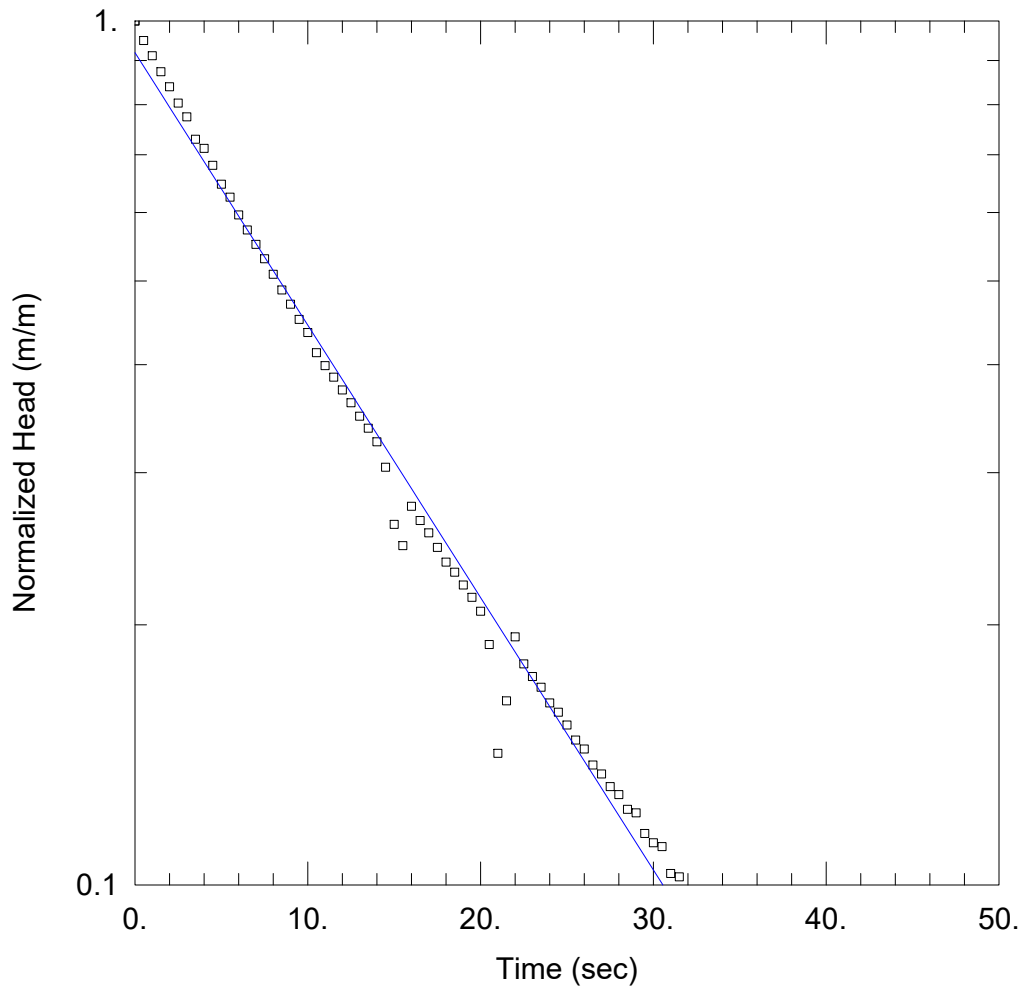
SOLUTION

Aquifer Model: Unconfined

Solution Method: Dagan

$K = 0.004021$ cm/sec

$y_0 = 0.3036$ m



MW4-22 RISING HEAD TEST

Data Set: \...\MW4-22 RH BR.aqt

Date: 02/07/23

Time: 17:56:48

PROJECT INFORMATION

Company: GHD

Client: Crown Communities Developments

Project: 12593831

Location: 126 & 140 Bradford Street

Test Well: MW4-22

Test Date: 1/23/23

AQUIFER DATA

Saturated Thickness: 2.52 m

Anisotropy Ratio (K_z/K_r): 1.

WELL DATA (MW4-22)

Initial Displacement: 0.4316 m

Total Well Penetration Depth: 2.52 m

Casing Radius: 0.0255 m

Static Water Column Height: 2.52 m

Screen Length: 2.52 m

Well Radius: 0.108 m

Gravel Pack Porosity: 0.3

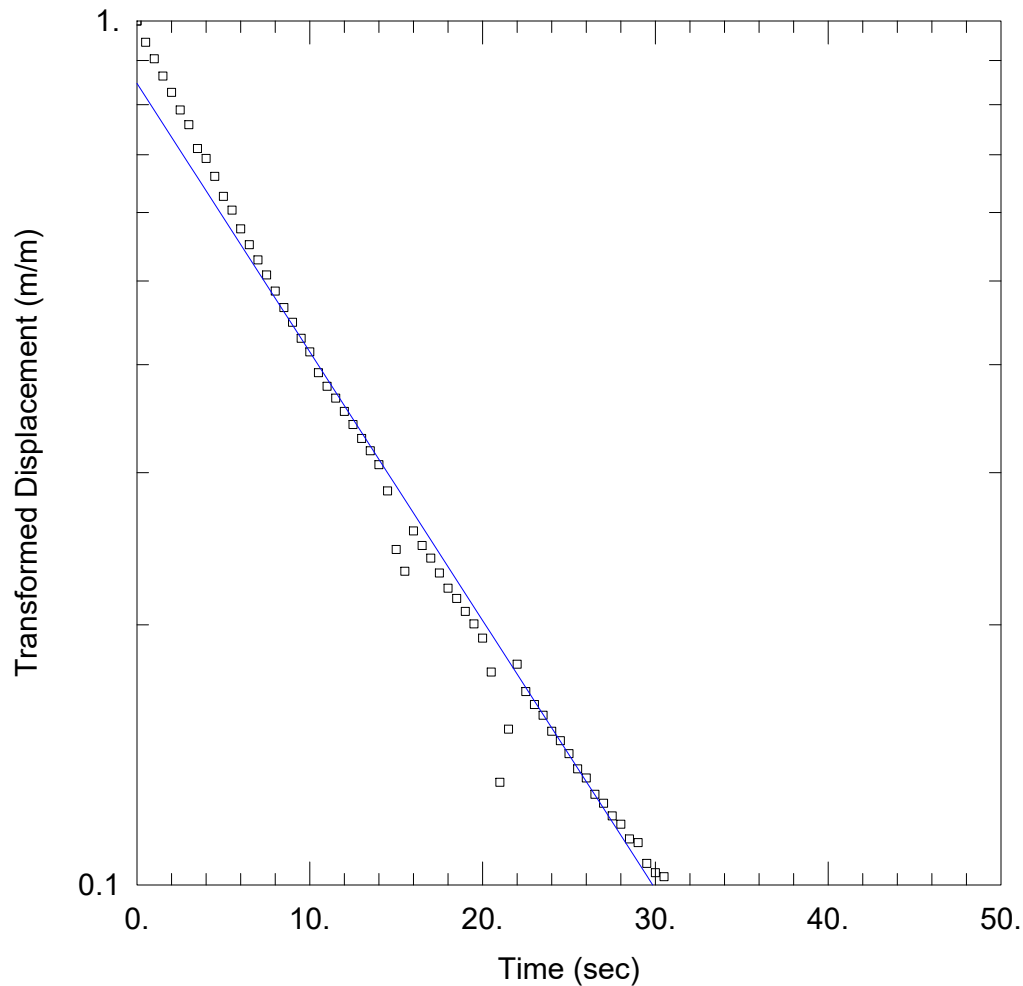
SOLUTION

Aquifer Model: Unconfined

$K = 0.0134$ cm/sec

Solution Method: Bouwer-Rice

$y_0 = 0.3966$ m



MW4-22 RISING HEAD TEST

Data Set: \...\MW4-22 RH DG.aqt

Date: 02/07/23

Time: 17:57:00

PROJECT INFORMATION

Company: GHD

Client: Crown Communities Developments

Project: 12593831

Location: 126 & 140 Bradford Street

Test Well: MW4-22

Test Date: 1/23/23

AQUIFER DATA

Saturated Thickness: 2.52 m

Anisotropy Ratio (K_z/K_r): 1.

WELL DATA (MW4-22)

Initial Displacement: 0.4316 m

Total Well Penetration Depth: 2.52 m

Casing Radius: 0.0255 m

Static Water Column Height: 2.52 m

Screen Length: 2.52 m

Well Radius: 0.108 m

Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined

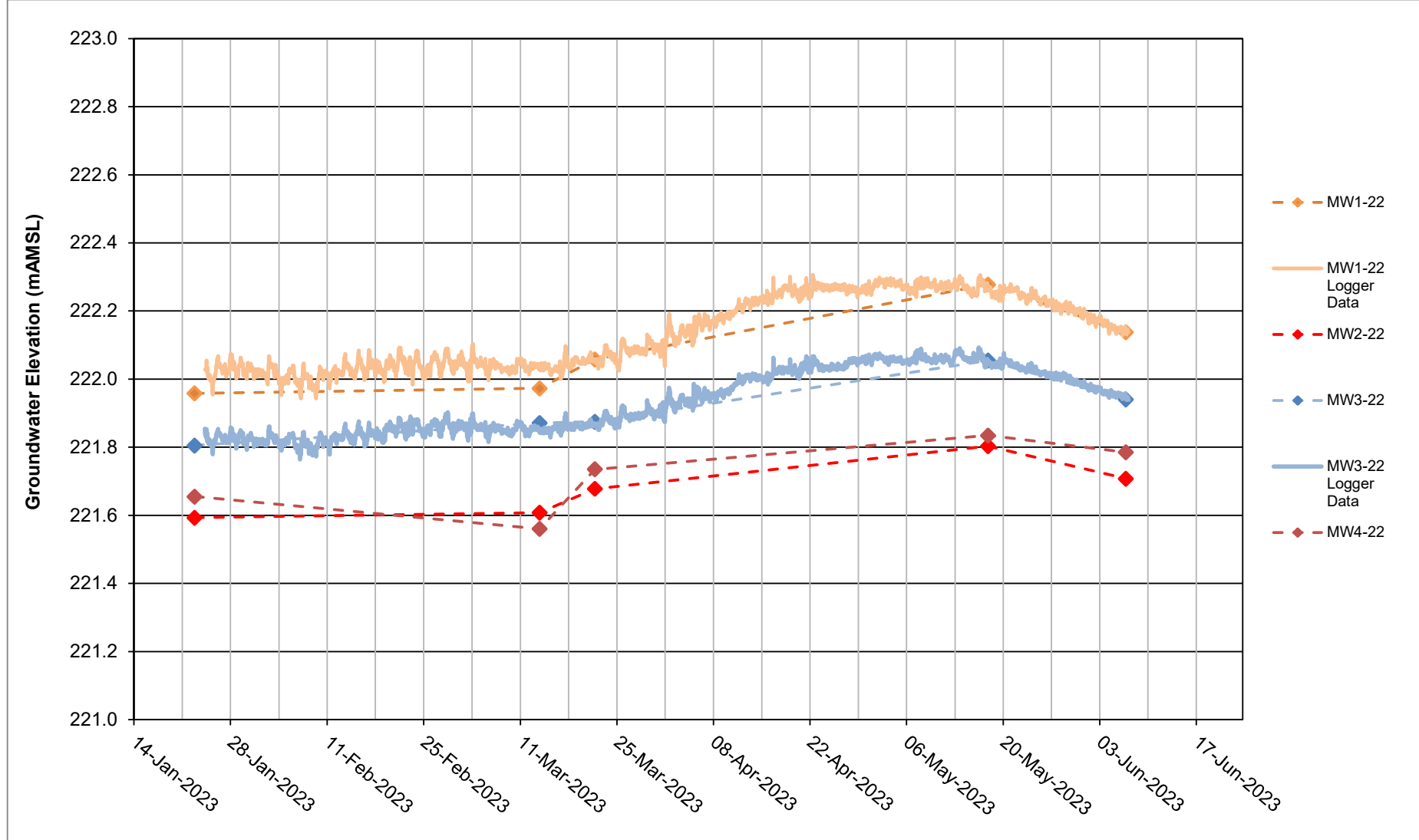
Solution Method: Dagan

$K = 0.0156$ cm/sec

$y_0 = 0.3703$ m

Appendix D

Groundwater Level Hydrographs



Appendix E

Laboratory Analytical Reports

CERTIFICATE OF ANALYSIS

Work Order	: WT2301880	Page	: 1 of 4
Client	: GHD Limited	Laboratory	: Waterloo - Environmental
Contact	: Jennifer Balkwill	Account Manager	: Rick Hawthorne
Address	: 455 Phillip Street Waterloo ON Canada N2L 3X2	Address	: 60 Northland Road, Unit 1 Waterloo ON Canada N2V 2B8
Telephone	: ----	Telephone	: +1 519 886 6910
Project	: 12593831-05.001	Date Samples Received	: 25-Jan-2023 11:20
PO	: 735-005527	Date Analysis	: 25-Jan-2023
		Commenced	
C-O-C number	: ----	Issue Date	: 03-Feb-2023 09:59
Sampler	: ----		
Site	: ----		
Quote number	: 12593831-05.001-SSOW-735-005527		
No. of samples received	: 1		
No. of samples analysed	: 1		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Danielle Gravel	Supervisor - Semi-Volatile Instrumentation	Organics, Waterloo, Ontario
Greg Pokocky	Supervisor - Inorganic	Inorganics, Waterloo, Ontario
Greg Pokocky	Supervisor - Inorganic	Metals, Waterloo, Ontario
Janice Leung	Supervisor - Organics Instrumentation	Organics, Burnaby, British Columbia
Jeremy Gingras	Team Leader - Semi-Volatile Instrumentation	Organics, Waterloo, Ontario
Miles Gropen	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Metals, Burnaby, British Columbia
Sarah Birch	VOC Section Supervisor	Organics, Waterloo, Ontario



General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances
LOR: Limit of Reporting (detection limit).

<i>Unit</i>	<i>Description</i>
µg/L	micrograms per litre
mg/L	milligrams per litre
pH units	pH units

>: greater than.

<: less than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Qualifiers

<i>Qualifier</i>	<i>Description</i>
BODL	Limit of Reporting for BOD was increased to account for the largest volume of sample tested.
DLA	Detection Limit adjusted for required dilution.
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.



Analytical Results

WT2301880-001

Sub-Matrix: Water

(Matrix: Water)

Client sample ID: GW-12593831-012423-PH-MW1

Client sampling date / time: 24-Jan-2023 11:10

Analyte	CAS Number	Result	LOR	Unit	Method	Prep Date	Analysis Date	QCLot
Physical Tests								
pH	----	7.50	0.10	pH units	E108	26-Jan-2023	26-Jan-2023	814811
Solids, total suspended [TSS]	----	5.0	3.0	mg/L	E160	-	29-Jan-2023	817586
Anions and Nutrients								
Chloride	16887-00-6	367 ^{DLDS}	2.50	mg/L	E235.Cl	26-Jan-2023	26-Jan-2023	814814
Fluoride	16984-48-8	<0.100 ^{DLDS}	0.100	mg/L	E235.F	26-Jan-2023	26-Jan-2023	814815
Kjeldahl nitrogen, total [TKN]	----	0.155	0.050	mg/L	E318	27-Jan-2023	27-Jan-2023	814435
Phosphorus, total	7723-14-0	0.0647	0.0020	mg/L	E372-U	26-Jan-2023	26-Jan-2023	814436
Sulfate (as SO4)	14808-79-8	22.9 ^{DLDS}	1.50	mg/L	E235.SO4	26-Jan-2023	26-Jan-2023	814813
Cyanides								
Cyanide, strong acid dissociable (Total)	----	<0.0020	0.0020	mg/L	E333	26-Jan-2023	26-Jan-2023	814854
Total Sulfides								
Sulfide, total (as H2S)	7783-06-4	<0.011	0.011	mg/L	E395-H	-	30-Jan-2023	818048
Sulfide, total (as S)	18496-25-8	<0.010	0.010	mg/L	E395-H	-	30-Jan-2023	818048
Total Metals								
Aluminum, total	7429-90-5	1.11	0.0030	mg/L	E420	25-Jan-2023	25-Jan-2023	814039
Antimony, total	7440-36-0	0.00047	0.00010	mg/L	E420	25-Jan-2023	25-Jan-2023	814039
Arsenic, total	7440-38-2	0.00076	0.00010	mg/L	E420	25-Jan-2023	25-Jan-2023	814039
Barium, total	7440-39-3	0.0566	0.00010	mg/L	E420	25-Jan-2023	25-Jan-2023	814039
Bismuth, total	7440-69-9	<0.000050	0.000050	mg/L	E420	25-Jan-2023	25-Jan-2023	814039
Cadmium, total	7440-43-9	0.0000285	0.0000050	mg/L	E420	25-Jan-2023	25-Jan-2023	814039
Chromium, total	7440-47-3	0.00664	0.00050	mg/L	E420	25-Jan-2023	25-Jan-2023	814039
Cobalt, total	7440-48-4	0.00062	0.00010	mg/L	E420	25-Jan-2023	25-Jan-2023	814039
Copper, total	7440-50-8	0.00434	0.00050	mg/L	E420	25-Jan-2023	25-Jan-2023	814039
Gold, total	7440-57-5	<0.100 ^{DLA}	0.100	µg/L	E462.PM	02-Feb-2023	02-Feb-2023	816679
Iron, total	7439-89-6	1.35	0.010	mg/L	E420	25-Jan-2023	25-Jan-2023	814039
Lead, total	7439-92-1	0.00265	0.000050	mg/L	E420	25-Jan-2023	25-Jan-2023	814039
Manganese, total	7439-96-5	0.122	0.00010	mg/L	E420	25-Jan-2023	25-Jan-2023	814039
Mercury, total	7439-97-6	<0.0000050	0.0000050	mg/L	E508	26-Jan-2023	26-Jan-2023	814466
Molybdenum, total	7439-98-7	0.00317	0.000050	mg/L	E420	25-Jan-2023	25-Jan-2023	814039
Nickel, total	7440-02-0	0.00189	0.00050	mg/L	E420	25-Jan-2023	25-Jan-2023	814039
Selenium, total	7782-49-2	0.00140	0.000050	mg/L	E420	25-Jan-2023	25-Jan-2023	814039
Silver, total	7440-22-4	0.000352	0.000010	mg/L	E420	25-Jan-2023	25-Jan-2023	814039
Tin, total	7440-31-5	0.00060	0.00010	mg/L	E420	25-Jan-2023	25-Jan-2023	814039
Vanadium, total	7440-62-2	0.00208	0.00050	mg/L	E420	25-Jan-2023	25-Jan-2023	814039
Zinc, total	7440-66-6	0.0088	0.0030	mg/L	E420	25-Jan-2023	25-Jan-2023	814039
Platinum, total	7440-06-4	<0.100 ^{DLA}	0.100	µg/L	E462.PM	02-Feb-2023	02-Feb-2023	816679
Rhodium, total	7440-16-6	<0.0250 ^{DLA}	0.0250	µg/L	E462.PM	02-Feb-2023	02-Feb-2023	816679
Aggregate Organics								
Biochemical oxygen demand [BOD]	----	<3.0 ^{BODL}	3.0	mg/L	E550	-	26-Jan-2023	814744
Chemical oxygen demand [COD]	----	15	10	mg/L	E559-L	-	26-Jan-2023	814746
Oil & grease (gravimetric)	----	<5.0	5.0	mg/L	E567	01-Feb-2023	02-Feb-2023	820905
Oil & grease, animal/vegetable (gravimetric)	----	<5.0	5	mg/L	EC567A.SG	-	02-Feb-2023	-
Oil & grease, mineral (gravimetric)	----	<5.0	5.0	mg/L	E567SG	01-Feb-2023	02-Feb-2023	820904
Phenols, total (4AAP)	----	<0.0010	0.0010	mg/L	E562	26-Jan-2023	26-Jan-2023	814434
Volatile Organic Compounds								
Benzene	71-43-2	<0.50	0.50	µg/L	E611D	31-Jan-2023	31-Jan-2023	818749



Analytical Results

WT2301880-001

Sub-Matrix: Water

(Matrix: Water)

Client sample ID: GW-12593831-012423-PH-MW1

Client sampling date / time: 24-Jan-2023 11:10

Analyte	CAS Number	Result	LOR	Unit	Method	Prep Date	Analysis Date	QCLot
Volatile Organic Compounds								
Dichlorobenzene, 1,2-	95-50-1	<0.50	0.50	µg/L	E611D	31-Jan-2023	31-Jan-2023	818749
Dichlorobenzene, 1,4-	106-46-7	<0.50	0.50	µg/L	E611D	31-Jan-2023	31-Jan-2023	818749
Dichloromethane	75-09-2	<1.0	1.0	µg/L	E611D	31-Jan-2023	31-Jan-2023	818749
Ethylbenzene	100-41-4	<0.50	0.50	µg/L	E611D	31-Jan-2023	31-Jan-2023	818749
Tetrachloroethane, 1,1,2,2-	79-34-5	<0.50	0.50	µg/L	E611D	31-Jan-2023	31-Jan-2023	818749
Tetrachloroethylene	127-18-4	<0.50	0.50	µg/L	E611D	31-Jan-2023	31-Jan-2023	818749
Toluene	108-88-3	<0.50	0.50	µg/L	E611D	31-Jan-2023	31-Jan-2023	818749
Trichloroethylene	79-01-6	<0.50	0.50	µg/L	E611D	31-Jan-2023	31-Jan-2023	818749
Xylene, m+p-	179601-23-1	<0.40	0.40	µg/L	E611D	31-Jan-2023	31-Jan-2023	818749
Xylene, o-	95-47-6	<0.30	0.30	µg/L	E611D	31-Jan-2023	31-Jan-2023	818749
Xylenes, total	1330-20-7	<0.50	0.50	µg/L	E611D	31-Jan-2023	31-Jan-2023	818749
Volatile Organic Compounds Surrogates								
Bromofluorobenzene, 4-	460-00-4	92.1	1.0	%	E611D	31-Jan-2023	31-Jan-2023	818749
Difluorobenzene, 1,4-	540-36-3	103	1.0	%	E611D	31-Jan-2023	31-Jan-2023	818749
Polycyclic Aromatic Hydrocarbons								
Acenaphthene	83-32-9	<0.010	0.010	µg/L	E641A	27-Jan-2023	30-Jan-2023	815792
Acenaphthylene	208-96-8	<0.010	0.010	µg/L	E641A	27-Jan-2023	30-Jan-2023	815792
Anthracene	120-12-7	<0.010	0.010	µg/L	E641A	27-Jan-2023	30-Jan-2023	815792
Benz(a)anthracene	56-55-3	<0.010	0.010	µg/L	E641A	27-Jan-2023	30-Jan-2023	815792
Benzo(a)pyrene	50-32-8	<0.0050	0.0050	µg/L	E641A	27-Jan-2023	30-Jan-2023	815792
Benzo(b+j)fluoranthene	n/a	<0.010	0.010	µg/L	E641A	27-Jan-2023	30-Jan-2023	815792
Benzo(g,h,i)perylene	191-24-2	<0.010	0.010	µg/L	E641A	27-Jan-2023	30-Jan-2023	815792
Benzo(k)fluoranthene	207-08-9	<0.010	0.010	µg/L	E641A	27-Jan-2023	30-Jan-2023	815792
Chrysene	218-01-9	<0.010	0.010	µg/L	E641A	27-Jan-2023	30-Jan-2023	815792
Dibenz(a,h)anthracene	53-70-3	<0.0050	0.0050	µg/L	E641A	27-Jan-2023	30-Jan-2023	815792
Fluoranthene	206-44-0	<0.010	0.010	µg/L	E641A	27-Jan-2023	30-Jan-2023	815792
Fluorene	86-73-7	<0.010	0.010	µg/L	E641A	27-Jan-2023	30-Jan-2023	815792
Indeno(1,2,3-c,d)pyrene	193-39-5	<0.010	0.010	µg/L	E641A	27-Jan-2023	30-Jan-2023	815792
Methylnaphthalene, 1-	90-12-0	<0.010	0.010	µg/L	E641A	27-Jan-2023	30-Jan-2023	815792
Methylnaphthalene, 2-	91-57-6	<0.010	0.010	µg/L	E641A	27-Jan-2023	30-Jan-2023	815792
Naphthalene	91-20-3	<0.050	0.050	µg/L	E641A	27-Jan-2023	30-Jan-2023	815792
Phenanthrene	85-01-8	<0.020	0.020	µg/L	E641A	27-Jan-2023	30-Jan-2023	815792
Pyrene	129-00-0	<0.010	0.010	µg/L	E641A	27-Jan-2023	30-Jan-2023	815792
PAHs, total (CCME sewer 18)	n/a	<0.070	0.07	µg/L	E641A	27-Jan-2023	30-Jan-2023	815792
Polycyclic Aromatic Hydrocarbons Surrogates								
Chrysene-d12	1719-03-5	101	0.1	%	E641A	27-Jan-2023	30-Jan-2023	815792
Naphthalene-d8	1146-65-2	95.1	0.1	%	E641A	27-Jan-2023	30-Jan-2023	815792
Phenanthrene-d10	1517-22-2	101	0.1	%	E641A	27-Jan-2023	30-Jan-2023	815792
Organochlorine Pesticides								
Hexachlorobenzene	118-74-1	<0.0080	0.0080	µg/L	E660F	27-Jan-2023	27-Jan-2023	815790
Organochlorine Pesticides Surrogates								
Decachlorobiphenyl	2051-24-3	102	0.10	%	E660F	27-Jan-2023	27-Jan-2023	815790
Tetrachloro-m-xylene	877-09-8	126	0.10	%	E660F	27-Jan-2023	27-Jan-2023	815790

Please refer to the General Comments section for an explanation of any qualifiers detected.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: WT2301880	Page	: 1 of 10
Client	: GHD Limited	Laboratory	: Waterloo - Environmental
Contact	: Jennifer Balkwill	Account Manager	: Rick Hawthorne
Address	: 455 Phillip Street Waterloo ON Canada N2L 3X2	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: ----	Telephone	: +1 519 886 6910
Project	: 12593831-05.001	Date Samples Received	: 25-Jan-2023 11:20
PO	: 735-005527	Issue Date	: 03-Feb-2023 09:59
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: 12593831-05.001-SSOW-735-005527		
No. of samples received	: 1		
No. of samples analysed	: 1		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.

CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.

DQO: Data Quality Objective.

LOR: Limit of Reporting (detection limit).

RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "----" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- Quality Control Sample Frequency Outliers occur - please see following pages for full details.



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water** Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Aggregate Organics : Biochemical Oxygen Demand - 5 day										
HDPE [BOD HT-4d] GW-12593831-012423-PH-MW1	E550	24-Jan-2023	----	----	----		26-Jan-2023	4 days	2 days	✓
Aggregate Organics : Chemical Oxygen Demand by Colourimetry (Low Level)										
Amber glass total (sulfuric acid) GW-12593831-012423-PH-MW1	E559-L	24-Jan-2023	----	----	----		26-Jan-2023	28 days	2 days	✓
Aggregate Organics : Mineral Oil & Grease by Gravimetry										
Amber glass (hydrochloric acid) GW-12593831-012423-PH-MW1	E567SG	24-Jan-2023	01-Feb-2023	28 days	8 days	✓	02-Feb-2023	40 days	1 days	✓
Aggregate Organics : Oil & Grease by Gravimetry										
Amber glass (hydrochloric acid) GW-12593831-012423-PH-MW1	E567	24-Jan-2023	01-Feb-2023	28 days	8 days	✓	02-Feb-2023	40 days	1 days	✓
Aggregate Organics : Phenols (4AAP) in Water by Colorimetry										
Amber glass total (sulfuric acid) GW-12593831-012423-PH-MW1	E562	24-Jan-2023	26-Jan-2023	----	----		26-Jan-2023	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP] GW-12593831-012423-PH-MW1	E235.Cl	24-Jan-2023	26-Jan-2023	----	----		26-Jan-2023	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE [ON MECP] GW-12593831-012423-PH-MW1	E235.F	24-Jan-2023	26-Jan-2023	----	----		26-Jan-2023	28 days	2 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Sulfate in Water by IC										
HDPE [ON MECP] GW-12593831-012423-PH-MW1	E235.SO4	24-Jan-2023	26-Jan-2023	----	----		26-Jan-2023	28 days	2 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) GW-12593831-012423-PH-MW1	E318	24-Jan-2023	27-Jan-2023	----	----		27-Jan-2023	28 days	3 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid) GW-12593831-012423-PH-MW1	E372-U	24-Jan-2023	26-Jan-2023	----	----		26-Jan-2023	28 days	2 days	✓
Cyanides : Total Cyanide										
HDPE - total (sodium hydroxide) GW-12593831-012423-PH-MW1	E333	24-Jan-2023	26-Jan-2023	----	----		26-Jan-2023	14 days	2 days	✓
Organochlorine Pesticides : OCP Analysis by GC-MS-MS										
Amber glass/Teflon lined cap GW-12593831-012423-PH-MW1	E660F	24-Jan-2023	27-Jan-2023	7 days	3 days	✓	27-Jan-2023	40 days	0 days	✓
Physical Tests : pH by Meter										
HDPE [ON MECP] GW-12593831-012423-PH-MW1	E108	24-Jan-2023	26-Jan-2023	----	----		26-Jan-2023	14 days	2 days	✓
Physical Tests : TSS by Gravimetry										
HDPE [ON MECP] GW-12593831-012423-PH-MW1	E160	24-Jan-2023	----	----	----		29-Jan-2023	7 days	5 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) GW-12593831-012423-PH-MW1	E641A	24-Jan-2023	27-Jan-2023	14 days	3 days	✓	30-Jan-2023	40 days	3 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) GW-12593831-012423-PH-MW1	E508	24-Jan-2023	26-Jan-2023	----	----		26-Jan-2023	28 days	2 days	✓

Page : 5 of 10
 Work Order : WT2301880
 Client : GHD Limited
 Project : 12593831-05.001



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Total Metals : Total metals in Water by CRC ICPMS										
HDPE total (nitric acid) GW-12593831-012423-PH-MW1	E420	24-Jan-2023	25-Jan-2023	----	----		25-Jan-2023	180 days	1 days	✓
Total Metals : Total Precious Metals in Water by Triple Quad ICPMS										
HDPE total (nitric acid) GW-12593831-012423-PH-MW1	E462.PM	24-Jan-2023	02-Feb-2023	----	----		02-Feb-2023	180 days	10 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) GW-12593831-012423-PH-MW1	E395-H	24-Jan-2023	----	----	----		30-Jan-2023	7 days	6 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) GW-12593831-012423-PH-MW1	E611D	24-Jan-2023	31-Jan-2023	----	----		31-Jan-2023	14 days	7 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).



Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Duplicates (DUP)							
Biochemical Oxygen Demand - 5 day	E550	814744	1	20	5.0	5.0	✔
Chemical Oxygen Demand by Colourimetry (Low Level)	E559-L	814746	1	8	12.5	5.0	✔
Chloride in Water by IC	E235.Cl	814814	1	9	11.1	5.0	✔
Fluoride in Water by IC	E235.F	814815	1	2	50.0	5.0	✔
pH by Meter	E108	814811	1	10	10.0	5.0	✔
Phenols (4AAP) in Water by Colorimetry	E562	814434	1	8	12.5	5.0	✔
Sulfate in Water by IC	E235.SO4	814813	1	1	100.0	5.0	✔
Total Cyanide	E333	814854	1	11	9.0	5.0	✔
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	814435	1	19	5.2	5.0	✔
Total Mercury in Water by CVAAS	E508	814466	1	10	10.0	5.0	✔
Total metals in Water by CRC ICPMS	E420	814039	1	20	5.0	5.0	✔
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	814436	1	19	5.2	5.0	✔
Total Precious Metals in Water by Triple Quad ICPMS	E462.PM	816679	1	1	100.0	5.0	✔
Total Sulfide by Colourimetry (Automated Flow)	E395-H	818048	1	15	6.6	5.0	✔
TSS by Gravimetry	E160	817586	1	19	5.2	4.7	✔
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	818749	1	20	5.0	5.0	✔
Laboratory Control Samples (LCS)							
Biochemical Oxygen Demand - 5 day	E550	814744	1	20	5.0	5.0	✔
Chemical Oxygen Demand by Colourimetry (Low Level)	E559-L	814746	1	8	12.5	5.0	✔
Chloride in Water by IC	E235.Cl	814814	1	9	11.1	5.0	✔
Fluoride in Water by IC	E235.F	814815	1	2	50.0	5.0	✔
Mineral Oil & Grease by Gravimetry	E567SG	820904	1	5	20.0	5.0	✔
OCP Analysis by GC-MS-MS	E660F	815790	1	10	10.0	5.0	✔
Oil & Grease by Gravimetry	E567	820905	1	4	25.0	5.0	✔
PAHs by Hexane LVI GC-MS	E641A	815792	1	2	50.0	5.0	✔
pH by Meter	E108	814811	1	10	10.0	5.0	✔
Phenols (4AAP) in Water by Colorimetry	E562	814434	1	8	12.5	5.0	✔
Sulfate in Water by IC	E235.SO4	814813	1	1	100.0	5.0	✔
Total Cyanide	E333	814854	1	11	9.0	5.0	✔
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	814435	1	19	5.2	5.0	✔
Total Mercury in Water by CVAAS	E508	814466	1	10	10.0	5.0	✔
Total metals in Water by CRC ICPMS	E420	814039	1	20	5.0	5.0	✔
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	814436	1	19	5.2	5.0	✔
Total Precious Metals in Water by Triple Quad ICPMS	E462.PM	816679	1	1	100.0	5.0	✔
Total Sulfide by Colourimetry (Automated Flow)	E395-H	818048	1	15	6.6	5.0	✔
TSS by Gravimetry	E160	817586	1	19	5.2	4.7	✔



Matrix: **Water**

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Control Samples (LCS) - Continued							
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	818749	1	20	5.0	5.0	✔
Method Blanks (MB)							
Biochemical Oxygen Demand - 5 day	E550	814744	1	20	5.0	5.0	✔
Chemical Oxygen Demand by Colourimetry (Low Level)	E559-L	814746	1	8	12.5	5.0	✔
Chloride in Water by IC	E235.Cl	814814	1	9	11.1	5.0	✔
Fluoride in Water by IC	E235.F	814815	1	2	50.0	5.0	✔
Mineral Oil & Grease by Gravimetry	E567SG	820904	1	5	20.0	5.0	✔
OCP Analysis by GC-MS-MS	E660F	815790	1	10	10.0	5.0	✔
Oil & Grease by Gravimetry	E567	820905	1	4	25.0	5.0	✔
PAHs by Hexane LVI GC-MS	E641A	815792	1	2	50.0	5.0	✔
Phenols (4AAP) in Water by Colorimetry	E562	814434	1	8	12.5	5.0	✔
Sulfate in Water by IC	E235.SO4	814813	1	1	100.0	5.0	✔
Total Cyanide	E333	814854	1	11	9.0	5.0	✔
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	814435	1	19	5.2	5.0	✔
Total Mercury in Water by CVAAS	E508	814466	1	10	10.0	5.0	✔
Total metals in Water by CRC ICPMS	E420	814039	1	20	5.0	5.0	✔
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	814436	1	19	5.2	5.0	✔
Total Precious Metals in Water by Triple Quad ICPMS	E462.PM	816679	1	1	100.0	5.0	✔
Total Sulfide by Colourimetry (Automated Flow)	E395-H	818048	1	15	6.6	5.0	✔
TSS by Gravimetry	E160	817586	1	19	5.2	4.7	✔
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	818749	1	20	5.0	5.0	✔
Matrix Spikes (MS)							
Chemical Oxygen Demand by Colourimetry (Low Level)	E559-L	814746	1	8	12.5	5.0	✔
Chloride in Water by IC	E235.Cl	814814	1	9	11.1	5.0	✔
Fluoride in Water by IC	E235.F	814815	1	2	50.0	5.0	✔
Phenols (4AAP) in Water by Colorimetry	E562	814434	1	8	12.5	5.0	✔
Sulfate in Water by IC	E235.SO4	814813	1	1	100.0	5.0	✔
Total Cyanide	E333	814854	1	11	9.0	5.0	✔
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	814435	1	19	5.2	5.0	✔
Total Mercury in Water by CVAAS	E508	814466	1	10	10.0	5.0	✔
Total metals in Water by CRC ICPMS	E420	814039	1	20	5.0	5.0	✔
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	814436	1	19	5.2	5.0	✔
Total Precious Metals in Water by Triple Quad ICPMS	E462.PM	816679	0	1	0.0	5.0	✖
Total Sulfide by Colourimetry (Automated Flow)	E395-H	818048	1	15	6.6	5.0	✔
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	818749	1	20	5.0	5.0	✔



Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
pH by Meter	E108 Waterloo - Environmental	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally $20 \pm 5^{\circ}\text{C}$). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
TSS by Gravimetry	E160 Waterloo - Environmental	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at $104 \pm 1^{\circ}\text{C}$, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
Chloride in Water by IC	E235.Cl Waterloo - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F Waterloo - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Sulfate in Water by IC	E235.SO4 Waterloo - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318 Waterloo - Environmental	Water	Method Fialab 100, 2018	TKN in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021).
Total Cyanide	E333 Waterloo - Environmental	Water	ISO 14403 (mod)	Total or Strong Acid Dissociable (SAD) Cyanide is determined by Continuous Flow Analyzer (CFA) with in-line UV digestion followed by colourimetric analysis. Method Limitation: High levels of thiocyanate (SCN) may cause positive interference (up to 0.5% of SCN concentration).
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U Waterloo - Environmental	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Total Sulfide by Colourimetry (Automated Flow)	E395-H Vancouver - Environmental	Water	APHA 4500 -S E-Auto-Colorimetry	Sulfide is determined using the gas dialysis automated methylene blue colourimetric method. Results expressed "as H ₂ S" if reported represent the maximum possible H ₂ S concentration based on the total sulfide concentration in the sample. The H ₂ S calculation converts Total Sulphide as (S ₂ -) and reports it as Total Sulphide as (H ₂ S)



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total metals in Water by CRC ICPMS	E420 Waterloo - Environmental	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Total Precious Metals in Water by Triple Quad ICPMS	E462.PM Vancouver - Environmental	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Triple Quadrupole ICPMS.
Total Mercury in Water by CVAAS	E508 Waterloo - Environmental	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
Biochemical Oxygen Demand - 5 day	E550 Waterloo - Environmental	Water	APHA 5210 B (mod)	Samples are diluted and incubated for a specified time period, after which the oxygen depletion is measured using a dissolved oxygen meter. Free chlorine is a negative interference in the BOD method; please advise ALS when free chlorine is present in samples.
Chemical Oxygen Demand by Colourimetry (Low Level)	E559-L Waterloo - Environmental	Water	APHA 5220 D (mod)	Samples are analyzed using the closed reflux colourimetric method.
Phenols (4AAP) in Water by Colorimetry	E562 Waterloo - Environmental	Water	EPA 9066	This automated method is based on the distillation of phenol and subsequent reaction of the distillate with alkaline ferricyanide (K ₃ Fe(CN) ₆) and 4-amino-antipyrine (4-AAP) to form a red complex which is measured colorimetrically.
Oil & Grease by Gravimetry	E567 Vancouver - Environmental	Water	BC MOE Lab Manual (Oil & Grease) (mod)	The entire water sample is extracted with hexane and the extract is evaporated to dryness. The residue is then weighed to determine Oil and Grease.
Mineral Oil & Grease by Gravimetry	E567SG Vancouver - Environmental	Water	BC MOE Lab Manual (Oil & Grease) (mod)	The entire water sample is extracted with hexane, followed by silica gel treatment after which the extract is evaporated to dryness. The residue is then weighed to determine Mineral Oil and Grease.
VOCs (Eastern Canada List) by Headspace GC-MS	E611D Waterloo - Environmental	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PAHs by Hexane LVI GC-MS	E641A Waterloo - Environmental	Water	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are analyzed by large volume injection (LVI) GC-MS.
OCP Analysis by GC-MS-MS	E660F	Water	EPA 8270E (mod)	Pesticides are analyzed by GC-MS-MS



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
	Waterloo - Environmental			
Animal & Vegetable Oil & Grease by Gravimetry	EC567A.SG Vancouver - Environmental	Water	APHA 5520 (mod)	Animal & vegetable oil and grease is calculated as follows: Oil & Grease (gravimetric) minus Mineral Oil & Grease (gravimetric)
Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Digestion for TKN in water	EP318 Waterloo - Environmental	Water	APHA 4500-Norg D (mod)	Samples are digested at high temperature using Sulfuric Acid with Copper catalyst, which converts organic nitrogen sources to Ammonia, which is then quantified by the analytical method as TKN. This method is unsuitable for samples containing high levels of nitrate. If nitrate exceeds TKN concentration by ten times or more, results may be biased low.
Digestion for Total Phosphorus in water	EP372 Waterloo - Environmental	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.
Oil & Grease Extraction for Gravimetry	EP567 Vancouver - Environmental	Water	BC MOE Lab Manual (Oil & Grease) (mod)	The entire water sample is extracted with hexane by liquid-liquid extraction.
VOCs Preparation for Headspace Analysis	EP581 Waterloo - Environmental	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into the GC/MS-FID system.
PHCs and PAHs Hexane Extraction	EP601 Waterloo - Environmental	Water	EPA 3511 (mod)	Petroleum Hydrocarbons (PHCs) and Polycyclic Aromatic Hydrocarbons (PAHs) are extracted using a hexane liquid-liquid extraction.
Pesticides, PCB, and Neutral Extractable Chlorinated Hydrocarbons Extraction	EP660 Waterloo - Environmental	Water	EPA 3511 (mod)	Samples are extracted from aqueous sample using an organic solvent liquid-liquid extraction.

QUALITY CONTROL REPORT

Work Order	: WT2301880	Page	: 1 of 12
Client	: GHD Limited	Laboratory	: Waterloo - Environmental
Contact	: Jennifer Balkwill	Account Manager	: Rick Hawthorne
Address	: 455 Phillip Street Waterloo ON Canada N2L 3X2	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	:	Telephone	: +1 519 886 6910
Project	: 12593831-05.001	Date Samples Received	: 25-Jan-2023 11:20
PO	: 735-005527	Date Analysis Commenced	: 25-Jan-2023
C-O-C number	: ----	Issue Date	: 03-Feb-2023 09:59
Sampler	: ----		
Site	: ----		
Quote number	: 12593831-05.001-SSOW-735-005527		
No. of samples received	: 1		
No. of samples analysed	: 1		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Danielle Gravel	Supervisor - Semi-Volatile Instrumentation	Waterloo Organics, Waterloo, Ontario
Greg Pokocky	Supervisor - Inorganic	Waterloo Inorganics, Waterloo, Ontario
Greg Pokocky	Supervisor - Inorganic	Waterloo Metals, Waterloo, Ontario
Janice Leung	Supervisor - Organics Instrumentation	Vancouver Organics, Burnaby, British Columbia
Jeremy Gingras	Team Leader - Semi-Volatile Instrumentation	Waterloo Organics, Waterloo, Ontario
Miles Gropen	Department Manager - Inorganics	Vancouver Inorganics, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Vancouver Metals, Burnaby, British Columbia
Sarah Birch	VOC Section Supervisor	Waterloo Organics, Waterloo, Ontario



General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.

CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percent Difference

= Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.



Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 814811)											
WT2301934-007	Anonymous	pH	----	E108	0.10	pH units	7.44	7.48	0.536%	4%	----
Physical Tests (QC Lot: 817586)											
WT2301874-001	Anonymous	Solids, total suspended [TSS]	----	E160	7.5	mg/L	93.0	89.0	4.40%	20%	----
Anions and Nutrients (QC Lot: 814435)											
WT2301805-003	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	0.500	mg/L	3.47	3.96	0.492	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 814436)											
WT2301805-002	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0200	mg/L	1.18	1.00	16.8%	20%	----
Anions and Nutrients (QC Lot: 814813)											
WT2301880-001	GW-12593831-012423-PH-MW1	Sulfate (as SO4)	14808-79-8	E235.SO4	1.50	mg/L	22.9	22.1	3.41%	20%	----
Anions and Nutrients (QC Lot: 814814)											
WT2301880-001	GW-12593831-012423-PH-MW1	Chloride	16887-00-6	E235.Cl	2.50	mg/L	367	366	0.211%	20%	----
Anions and Nutrients (QC Lot: 814815)											
WT2301880-001	GW-12593831-012423-PH-MW1	Fluoride	16984-48-8	E235.F	0.100	mg/L	<0.100	<0.100	0	Diff <2x LOR	----
Cyanides (QC Lot: 814854)											
FC2300261-001	Anonymous	Cyanide, strong acid dissociable (Total)	----	E333	0.0200	mg/L	<0.0200	<0.0200	0	Diff <2x LOR	----
Total Sulfides (QC Lot: 818048)											
VA23A1888-001	Anonymous	Sulfide, total (as S)	18496-25-8	E395-H	0.010	mg/L	0.013	0.013	0.0004	Diff <2x LOR	----
Total Metals (QC Lot: 814039)											
WT2301849-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0300	mg/L	<0.0300	<0.0300	0	Diff <2x LOR	----
		Antimony, total	7440-36-0	E420	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.00100	mg/L	0.0566	0.0578	2.01%	20%	----
		Bismuth, total	7440-69-9	E420	0.000500	mg/L	<0.000500	<0.000500	0	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0000500	mg/L	<0.0000500	<0.0000500	0	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.00500	mg/L	<0.00500	<0.00500	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00090	mg/L	<0.00090	<0.00090	0	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.100	mg/L	<0.100	<0.100	0	Diff <2x LOR	----



Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Total Metals (QC Lot: 814039) - continued											
WT2301849-001	Anonymous	Lead, total	7439-92-1	E420	0.000500	mg/L	0.000683	<0.000500	0.000183	Diff <2x LOR	----
		Manganese, total	7439-96-5	E420	0.00100	mg/L	0.314	0.317	0.903%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000500	mg/L	<0.000500	<0.000500	0	Diff <2x LOR	----
		Nickel, total	7440-02-0	E420	0.00500	mg/L	<0.00500	<0.00500	0	Diff <2x LOR	----
		Selenium, total	7782-49-2	E420	0.000500	mg/L	<0.000500	<0.000500	0	Diff <2x LOR	----
		Silver, total	7440-22-4	E420	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		Vanadium, total	7440-62-2	E420	0.00500	mg/L	<0.00500	<0.00500	0	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0300	mg/L	<0.0300	<0.0300	0	Diff <2x LOR	----
Total Metals (QC Lot: 814466)											
TY2300642-001	Anonymous	Mercury, total	7439-97-6	E508	0.000100	mg/L	<0.100 µg/L	<0.000100	0	Diff <2x LOR	----
Total Metals (QC Lot: 816679)											
WT2301880-001	GW-12593831-012423-PH-MW1	Gold, total	7440-57-5	E462.PM	0.100	µg/L	<0.100	<0.100	0	Diff <2x LOR	----
		Platinum, total	7440-06-4	E462.PM	0.100	µg/L	<0.100	<0.100	0	Diff <2x LOR	----
		Rhodium, total	7440-16-6	E462.PM	0.0250	µg/L	<0.0250	<0.0250	0	Diff <2x LOR	----
Aggregate Organics (QC Lot: 814434)											
WP2300660-002	Anonymous	Phenols, total (4AAP)	----	E562	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Aggregate Organics (QC Lot: 814744)											
WT2301959-001	Anonymous	Biochemical oxygen demand [BOD]	----	E550	2.0	mg/L	<2.0	<2.0	0.0%	30%	----
Aggregate Organics (QC Lot: 814746)											
WT2301759-001	Anonymous	Chemical oxygen demand [COD]	----	E559-L	10	mg/L	16	17	0.9	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 818749)											
WT2301952-001	Anonymous	Benzene	71-43-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloromethane	75-09-2	E611D	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethylene	127-18-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Toluene	108-88-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethylene	79-01-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611D	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----



Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 817586)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Anions and Nutrients (QCLot: 814435)						
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 814436)						
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 814813)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 814814)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 814815)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Cyanides (QCLot: 814854)						
Cyanide, strong acid dissociable (Total)	----	E333	0.002	mg/L	<0.0020	----
Total Sulfides (QCLot: 818048)						
Sulfide, total (as S)	18496-25-8	E395-H	0.01	mg/L	<0.010	----
Total Metals (QCLot: 814039)						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----



Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 814039) - continued						
Silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
Tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	----
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Total Metals (QCLot: 814466)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Total Metals (QCLot: 816679)						
Gold, total	7440-57-5	E462.PM	0.02	µg/L	<0.020	----
Platinum, total	7440-06-4	E462.PM	0.02	µg/L	<0.020	----
Rhodium, total	7440-16-6	E462.PM	0.005	µg/L	<0.0050	----
Aggregate Organics (QCLot: 814434)						
Phenols, total (4AAP)	----	E562	0.001	mg/L	<0.0010	----
Aggregate Organics (QCLot: 814744)						
Biochemical oxygen demand [BOD]	----	E550	2	mg/L	<2.0	----
Aggregate Organics (QCLot: 814746)						
Chemical oxygen demand [COD]	----	E559-L	10	mg/L	<10	----
Aggregate Organics (QCLot: 820904)						
Oil & grease, mineral (gravimetric)	----	E567SG	5	mg/L	<5.0	----
Aggregate Organics (QCLot: 820905)						
Oil & grease (gravimetric)	----	E567	5	mg/L	<5.0	----
Volatile Organic Compounds (QCLot: 818749)						
Benzene	71-43-2	E611D	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.5	µg/L	<0.50	----
Dichloromethane	75-09-2	E611D	1	µg/L	<1.0	----
Ethylbenzene	100-41-4	E611D	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.5	µg/L	<0.50	----
Tetrachloroethylene	127-18-4	E611D	0.5	µg/L	<0.50	----
Toluene	108-88-3	E611D	0.5	µg/L	<0.50	----
Trichloroethylene	79-01-6	E611D	0.5	µg/L	<0.50	----
Xylene, m+p-	179601-23-1	E611D	0.4	µg/L	<0.40	----
Xylene, o-	95-47-6	E611D	0.3	µg/L	<0.30	----
Polycyclic Aromatic Hydrocarbons (QCLot: 815792)						
Acenaphthene	83-32-9	E641A	0.01	µg/L	<0.010	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	<0.010	----



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 815792) - continued						
Anthracene	120-12-7	E641A	0.01	µg/L	<0.010	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	<0.010	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	<0.0050	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	<0.010	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	<0.010	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	<0.010	----
Chrysene	218-01-9	E641A	0.01	µg/L	<0.010	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	<0.0050	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	<0.010	----
Fluorene	86-73-7	E641A	0.01	µg/L	<0.010	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	<0.010	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	<0.010	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	<0.010	----
Naphthalene	91-20-3	E641A	0.05	µg/L	<0.050	----
Phenanthrene	85-01-8	E641A	0.02	µg/L	<0.020	----
Pyrene	129-00-0	E641A	0.01	µg/L	<0.010	----
Organochlorine Pesticides (QCLot: 815790)						
Hexachlorobenzene	118-74-1	E660F	0.008	µg/L	<0.0080	----



Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: Water

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 814811)									
pH	----	E108	----	pH units	7 pH units	101	98.0	102	----
Physical Tests (QCLot: 817586)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	89.3	85.0	115	----
Anions and Nutrients (QCLot: 814435)									
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	4 mg/L	105	75.0	125	----
Anions and Nutrients (QCLot: 814436)									
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.845 mg/L	95.3	80.0	120	----
Anions and Nutrients (QCLot: 814813)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	99.5	90.0	110	----
Anions and Nutrients (QCLot: 814814)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 814815)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	100.0	90.0	110	----
Cyanides (QCLot: 814854)									
Cyanide, strong acid dissociable (Total)	----	E333	0.002	mg/L	0.25 mg/L	93.8	80.0	120	----
Total Sulfides (QCLot: 818048)									
Sulfide, total (as H2S)	7783-06-4	E395-H	----	mg/L	0.085 mg/L	113	80.0	120	----
Sulfide, total (as S)	18496-25-8	E395-H	0.01	mg/L	0.08 mg/L	112	80.0	120	----
Total Metals (QCLot: 814039)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	0.1 mg/L	114	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	0.05 mg/L	110	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	0.05 mg/L	108	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.0125 mg/L	104	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	0.05 mg/L	106	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.005 mg/L	107	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.0125 mg/L	102	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.0125 mg/L	102	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.0125 mg/L	102	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	0.05 mg/L	98.1	80.0	120	----



Sub-Matrix: Water					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	LCS	Low	High	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 814039) - continued									
Lead, total	7439-92-1	E420	0.00005	mg/L	0.025 mg/L	105	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.0125 mg/L	107	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.0125 mg/L	105	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.025 mg/L	104	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	0.05 mg/L	107	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.005 mg/L	99.0	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.025 mg/L	107	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.025 mg/L	106	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.025 mg/L	105	80.0	120	----
Total Metals (QCLot: 814466)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0.0001 mg/L	102	80.0	120	----
Total Metals (QCLot: 816679)									
Gold, total	7440-57-5	E462.PM	0.02	µg/L	10 µg/L	97.4	80.0	120	----
Platinum, total	7440-06-4	E462.PM	0.02	µg/L	10 µg/L	95.8	80.0	120	----
Rhodium, total	7440-16-6	E462.PM	0.005	µg/L	10 µg/L	103	80.0	120	----
Aggregate Organics (QCLot: 814434)									
Phenols, total (4AAP)	----	E562	0.001	mg/L	0.02 mg/L	102	85.0	115	----
Aggregate Organics (QCLot: 814744)									
Biochemical oxygen demand [BOD]	----	E550	2	mg/L	198 mg/L	105	85.0	115	----
Aggregate Organics (QCLot: 814746)									
Chemical oxygen demand [COD]	----	E559-L	10	mg/L	100 mg/L	112	85.0	115	----
Aggregate Organics (QCLot: 820904)									
Oil & grease, mineral (gravimetric)	----	E567SG	5	mg/L	50 mg/L	99.2	70.0	130	----
Aggregate Organics (QCLot: 820905)									
Oil & grease (gravimetric)	----	E567	5	mg/L	100 mg/L	110	70.0	130	----
Volatile Organic Compounds (QCLot: 818749)									
Benzene	71-43-2	E611D	0.5	µg/L	100 µg/L	111	70.0	130	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.5	µg/L	100 µg/L	108	70.0	130	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.5	µg/L	100 µg/L	107	70.0	130	----
Dichloromethane	75-09-2	E611D	1	µg/L	100 µg/L	120	70.0	130	----
Ethylbenzene	100-41-4	E611D	0.5	µg/L	100 µg/L	100	70.0	130	----
Tetrachloroethane, 1,1,1,2,2-	79-34-5	E611D	0.5	µg/L	100 µg/L	119	70.0	130	----
Tetrachloroethylene	127-18-4	E611D	0.5	µg/L	100 µg/L	98.3	70.0	130	----
Toluene	108-88-3	E611D	0.5	µg/L	100 µg/L	104	70.0	130	----



Sub-Matrix: Water					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	LCS	Low	High	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 818749) - continued									
Trichloroethylene	79-01-6	E611D	0.5	µg/L	100 µg/L	106	70.0	130	----
Xylene, m+p-	179601-23-1	E611D	0.4	µg/L	200 µg/L	105	70.0	130	----
Xylene, o-	95-47-6	E611D	0.3	µg/L	100 µg/L	102	70.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 815792)									
Acenaphthene	83-32-9	E641A	0.01	µg/L	0.5263 µg/L	106	50.0	140	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	0.5263 µg/L	104	50.0	140	----
Anthracene	120-12-7	E641A	0.01	µg/L	0.5263 µg/L	98.4	50.0	140	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	0.5263 µg/L	116	50.0	140	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	0.5263 µg/L	102	50.0	140	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	0.5263 µg/L	107	50.0	140	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	0.5263 µg/L	111	50.0	140	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	0.5263 µg/L	108	50.0	140	----
Chrysene	218-01-9	E641A	0.01	µg/L	0.5263 µg/L	113	50.0	140	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	0.5263 µg/L	109	50.0	140	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	0.5263 µg/L	114	50.0	140	----
Fluorene	86-73-7	E641A	0.01	µg/L	0.5263 µg/L	111	50.0	140	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	0.5263 µg/L	118	50.0	140	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	0.5263 µg/L	108	50.0	140	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	0.5263 µg/L	110	50.0	140	----
Naphthalene	91-20-3	E641A	0.05	µg/L	0.5263 µg/L	101	50.0	140	----
Phenanthrene	85-01-8	E641A	0.02	µg/L	0.5263 µg/L	111	50.0	140	----
Pyrene	129-00-0	E641A	0.01	µg/L	0.5263 µg/L	118	50.0	140	----
Organochlorine Pesticides (QCLot: 815790)									
Hexachlorobenzene	118-74-1	E660F	0.008	µg/L	0.2 µg/L	116	50.0	150	----



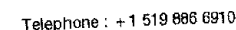
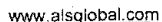
Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 814435)										
WT2301805-003	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	28.1 mg/L	2.5 mg/L	112	70.0	130	----
Anions and Nutrients (QCLot: 814436)										
WT2301805-002	Anonymous	Phosphorus, total	7723-14-0	E372-U	ND mg/L	0.1 mg/L	ND	70.0	130	----
Anions and Nutrients (QCLot: 814813)										
WT2301880-001	GW-12593831-012423-PH-MW1	Sulfate (as SO4)	14808-79-8	E235.SO4	488 mg/L	500 mg/L	97.7	75.0	125	----
Anions and Nutrients (QCLot: 814814)										
WT2301880-001	GW-12593831-012423-PH-MW1	Chloride	16887-00-6	E235.Cl	482 mg/L	500 mg/L	96.5	75.0	125	----
Anions and Nutrients (QCLot: 814815)										
WT2301880-001	GW-12593831-012423-PH-MW1	Fluoride	16984-48-8	E235.F	5.03 mg/L	5 mg/L	101	75.0	125	----
Cyanides (QCLot: 814854)										
FC2300261-001	Anonymous	Cyanide, strong acid dissociable (Total)	----	E333	0.226 mg/L	0.25 mg/L	90.5	75.0	125	----
Total Sulfides (QCLot: 818048)										
VA23A1888-002	Anonymous	Sulfide, total (as S)	18496-25-8	E395-H	0.911 mg/L	1 mg/L	91.1	75.0	125	----
Total Metals (QCLot: 814039)										
WT2301850-001	Anonymous	Aluminum, total	7429-90-5	E420	0.109 mg/L	0.1 mg/L	109	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0524 mg/L	0.05 mg/L	105	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0554 mg/L	0.05 mg/L	111	70.0	130	----
		Barium, total	7440-39-3	E420	ND mg/L	0.0125 mg/L	ND	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.0558 mg/L	0.05 mg/L	112	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00539 mg/L	0.005 mg/L	108	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0133 mg/L	0.0125 mg/L	107	70.0	130	----
		Cobalt, total	7440-48-4	E420	0.0128 mg/L	0.0125 mg/L	102	70.0	130	----
		Copper, total	7440-50-8	E420	0.0126 mg/L	0.0125 mg/L	101	70.0	130	----
		Iron, total	7439-89-6	E420	ND mg/L	0.05 mg/L	ND	70.0	130	----
		Lead, total	7439-92-1	E420	0.0266 mg/L	0.025 mg/L	106	70.0	130	----
		Manganese, total	7439-96-5	E420	ND mg/L	0.0125 mg/L	ND	70.0	130	----
		Molybdenum, total	7439-98-7	E420	0.0126 mg/L	0.0125 mg/L	101	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0260 mg/L	0.025 mg/L	104	70.0	130	----



Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 814039) - continued										
WT2301850-001	Anonymous	Selenium, total	7782-49-2	E420	0.0550 mg/L	0.05 mg/L	110	70.0	130	----
		Silver, total	7440-22-4	E420	0.00476 mg/L	0.005 mg/L	95.2	70.0	130	----
		Tin, total	7440-31-5	E420	0.0269 mg/L	0.025 mg/L	108	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.0270 mg/L	0.025 mg/L	108	70.0	130	----
		Zinc, total	7440-66-6	E420	0.0286 mg/L	0.025 mg/L	114	70.0	130	----
Total Metals (QCLot: 814466)										
WT2301849-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000983 mg/L	0.0001 mg/L	98.3	70.0	130	----
Aggregate Organics (QCLot: 814434)										
WP2300660-002	Anonymous	Phenols, total (4AAP)	----	E562	0.0207 mg/L	0.02 mg/L	103	75.0	125	----
Aggregate Organics (QCLot: 814746)										
WT2301759-001	Anonymous	Chemical oxygen demand [COD]	----	E559-L	105 mg/L	100 mg/L	105	75.0	125	----
Volatile Organic Compounds (QCLot: 818749)										
WT2301952-001	Anonymous	Benzene	71-43-2	E611D	103 µg/L	100 µg/L	103	60.0	140	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	99.1 µg/L	100 µg/L	99.1	60.0	140	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	98.2 µg/L	100 µg/L	98.2	60.0	140	----
		Dichloromethane	75-09-2	E611D	114 µg/L	100 µg/L	114	60.0	140	----
		Ethylbenzene	100-41-4	E611D	89.1 µg/L	100 µg/L	89.1	60.0	140	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	109 µg/L	100 µg/L	109	60.0	140	----
		Tetrachloroethylene	127-18-4	E611D	88.5 µg/L	100 µg/L	88.5	60.0	140	----
		Toluene	108-88-3	E611D	93.2 µg/L	100 µg/L	93.2	60.0	140	----
		Trichloroethylene	79-01-6	E611D	98.2 µg/L	100 µg/L	98.2	60.0	140	----
		Xylene, m+p-	179601-23-1	E611D	189 µg/L	200 µg/L	94.6	60.0	140	----
		Xylene, o-	95-47-6	E611D	91.2 µg/L	100 µg/L	91.2	60.0	140	----

[illegible]

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

* For any water pumpless application (i.e., a Regulated Drinking Water (RDW) system), please submit using an authorized DWV COC form.

N-540; B-425; G-352; OGG-385; MM-599; CN-526; SC-201; OR-251

CERTIFICATE OF ANALYSIS

Work Order	: WT2301882	Page	: 1 of 5
Client	: GHD Limited	Laboratory	: Waterloo - Environmental
Contact	: Jennifer Balkwill	Account Manager	: Rick Hawthorne
Address	: 455 Phillip Street Waterloo ON Canada N2L 3X2	Address	: 60 Northland Road, Unit 1 Waterloo ON Canada N2V 2B8
Telephone	: ----	Telephone	: +1 519 886 6910
Project	: 12593831-05.001	Date Samples Received	: 25-Jan-2023 11:20
PO	: 735-005527	Date Analysis	: 25-Jan-2023
		Commenced	
		Issue Date	: 31-Jan-2023 16:39
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: 12593831-05.001-SSOW-735-005527		
No. of samples received	: 1		
No. of samples analysed	: 1		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Greg Pokocky	Supervisor - Inorganic	Inorganics, Waterloo, Ontario
Greg Pokocky	Supervisor - Inorganic	Metals, Waterloo, Ontario
Jon Fisher	Department Manager - Inorganics	Inorganics, Waterloo, Ontario
Miles Gropen	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia
Rick Hawthorne	Project Manager	Administration, Waterloo, Ontario



General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances
LOR: Limit of Reporting (detection limit).

Unit	Description
-	no units
%	percent
°C	degrees celsius
µS/cm	microsiemens per centimetre
CU	colour units (1 cu = 1 mg/l pt)
meq/L	milliequivalents per litre
mg/L	milligrams per litre
NTU	nephelometric turbidity units
pH units	pH units

>: greater than.

<: less than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Qualifiers

Qualifier	Description
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
DTSE	Dissolved Se concentration exceeds total. Positive bias on D-Se suspected due to signal enhancement from volatile selenium species. Contact ALS if an alternative test to address this interference is needed.
TKNI	TKN result may be biased low due to Nitrate interference. Nitrate-N is > 10x TKN.



Analytical Results

WT2301882-001

Sub-Matrix: Water

(Matrix: Water)

Client sample ID: GW-12593831-012423-PH-MW1

Client sampling date / time: 24-Jan-2023 11:10

Analyte	CAS Number	Result	LOR	Unit	Method	Prep Date	Analysis Date	QCLot
Field Tests								
pH, field	----	8.25	0.01	pH units	EF001	-	30-Jan-2023	-
Temperature, field	----	7.20	0.01	°C	EF001	-	30-Jan-2023	-
Physical Tests								
Alkalinity, bicarbonate (as CaCO ₃)	----	248	2.0	mg/L	E290	26-Jan-2023	26-Jan-2023	814532
Alkalinity, carbonate (as CaCO ₃)	----	<2.0	2.0	mg/L	E290	26-Jan-2023	26-Jan-2023	814532
Alkalinity, hydroxide (as CaCO ₃)	----	<2.0	2.0	mg/L	E290	26-Jan-2023	26-Jan-2023	814532
Alkalinity, phenolphthalein (as CaCO ₃)	----	<2.0	2.0	mg/L	E290	26-Jan-2023	26-Jan-2023	814532
Alkalinity, total (as CaCO ₃)	----	248	2.0	mg/L	E290	26-Jan-2023	26-Jan-2023	814532
Colour, true	----	2.2	2.0	CU	E329-L	26-Jan-2023	26-Jan-2023	814021
Conductivity	----	1920	2.0	µS/cm	E100	26-Jan-2023	26-Jan-2023	814533
Hardness (as CaCO ₃), dissolved	----	306	0.50	mg/L	EC100	-	25-Jan-2023	-
pH	----	8.07	0.10	pH units	E108	26-Jan-2023	28-Jan-2023	814531
Solids, total dissolved [TDS]	----	1070 ^{DLDS}	20	mg/L	E162	-	27-Jan-2023	815946
Solids, total suspended [TSS]	----	31.7	3.0	mg/L	E160	-	27-Jan-2023	815952
Turbidity	----	0.11	0.10	NTU	E121	-	26-Jan-2023	814562
Anions and Nutrients								
Ammonia, total (as N)	7664-41-7	0.0343	0.0050	mg/L	E298	26-Jan-2023	27-Jan-2023	815290
Ammonia, un-ionized (as NH ₃), field	7664-41-7	0.0011	0.001	mg/L	EC298A	-	30-Jan-2023	-
Chloride	16887-00-6	453 ^{DLDS}	2.50	mg/L	E235.Cl	26-Jan-2023	26-Jan-2023	814535
Fluoride	16984-48-8	<0.100 ^{DLDS}	0.100	mg/L	E235.F	26-Jan-2023	26-Jan-2023	814536
Kjeldahl nitrogen, total [TKN]	----	0.280 ^{TKNI}	0.050	mg/L	E318	27-Jan-2023	27-Jan-2023	815288
Nitrate (as N)	14797-55-8	20.6 ^{DLDS}	0.100	mg/L	E235.NO3	26-Jan-2023	26-Jan-2023	814537
Nitrite (as N)	14797-65-0	<0.050 ^{DLDS}	0.050	mg/L	E235.NO2	26-Jan-2023	26-Jan-2023	814538
Nitrogen, total organic	----	0.246	0.131	mg/L	EC363	-	30-Jan-2023	-
Phosphate, ortho-, dissolved (as P)	14265-44-2	<0.0010	0.0010	mg/L	E378-U	27-Jan-2023	29-Jan-2023	816223
Phosphorus, total	7723-14-0	0.0752	0.0020	mg/L	E372-U	27-Jan-2023	30-Jan-2023	815289
Sulfate (as SO ₄)	14808-79-8	25.6 ^{DLDS}	1.50	mg/L	E235.SO4	26-Jan-2023	26-Jan-2023	814534
Organic / Inorganic Carbon								
Carbon, dissolved organic [DOC]	----	1.34	0.50	mg/L	E358-L	30-Jan-2023	30-Jan-2023	817837
Total Sulfides								
Sulfide, total (as H ₂ S)	7783-06-4	<0.011	0.011	mg/L	E395-H	-	30-Jan-2023	818048
Sulfide, total (as S)	18496-25-8	<0.010	0.010	mg/L	E395-H	-	30-Jan-2023	818048
Ion Balance								
Anion sum	----	19.7	0.10	meq/L	EC101	-	31-Jan-2023	-
Cation sum	----	18.2	0.10	meq/L	EC101	-	31-Jan-2023	-
Ion balance (APHA)	----	-3.96	0.01	%	EC101	-	31-Jan-2023	-
Total Metals								
Aluminum, total	7429-90-5	1.24	0.0030	mg/L	E420	25-Jan-2023	25-Jan-2023	814039
Antimony, total	7440-36-0	0.00045	0.00010	mg/L	E420	25-Jan-2023	25-Jan-2023	814039
Arsenic, total	7440-38-2	0.00087	0.00010	mg/L	E420	25-Jan-2023	25-Jan-2023	814039
Barium, total	7440-39-3	0.0574	0.00010	mg/L	E420	25-Jan-2023	25-Jan-2023	814039
Beryllium, total	7440-41-7	0.000053	0.000020	mg/L	E420	25-Jan-2023	25-Jan-2023	814039
Boron, total	7440-42-8	0.042	0.010	mg/L	E420	25-Jan-2023	25-Jan-2023	814039
Cadmium, total	7440-43-9	0.0000302	0.0000050	mg/L	E420	25-Jan-2023	25-Jan-2023	814039
Chromium, total	7440-47-3	0.00725	0.00050	mg/L	E420	25-Jan-2023	25-Jan-2023	814039
Cobalt, total	7440-48-4	0.00069	0.00010	mg/L	E420	25-Jan-2023	25-Jan-2023	814039



Analytical Results

WT2301882-001

Sub-Matrix: Water

(Matrix: Water)

Client sample ID: GW-12593831-012423-PH-MW1

Client sampling date / time: 24-Jan-2023 11:10

Analyte	CAS Number	Result	LOR	Unit	Method	Prep Date	Analysis Date	QCLot
Total Metals								
Copper, total	7440-50-8	0.00467	0.00050	mg/L	E420	25-Jan-2023	25-Jan-2023	814039
Iron, total	7439-89-6	1.50	0.010	mg/L	E420	25-Jan-2023	25-Jan-2023	814039
Lead, total	7439-92-1	0.00272	0.000050	mg/L	E420	25-Jan-2023	25-Jan-2023	814039
Manganese, total	7439-96-5	0.136	0.00010	mg/L	E420	25-Jan-2023	25-Jan-2023	814039
Molybdenum, total	7439-98-7	0.00325	0.000050	mg/L	E420	25-Jan-2023	25-Jan-2023	814039
Nickel, total	7440-02-0	0.00220	0.00050	mg/L	E420	25-Jan-2023	25-Jan-2023	814039
Phosphorus, total	7723-14-0	0.106	0.050	mg/L	E420	25-Jan-2023	25-Jan-2023	814039
Selenium, total	7782-49-2	0.00141	0.000050	mg/L	E420	25-Jan-2023	25-Jan-2023	814039
Silver, total	7440-22-4	0.000765	0.000010	mg/L	E420	25-Jan-2023	25-Jan-2023	814039
Sodium, total	7440-23-5	294	0.050	mg/L	E420	25-Jan-2023	25-Jan-2023	814039
Thallium, total	7440-28-0	0.000015	0.000010	mg/L	E420	25-Jan-2023	25-Jan-2023	814039
Tungsten, total	7440-33-7	<0.00010	0.00010	mg/L	E420	25-Jan-2023	25-Jan-2023	814039
Uranium, total	7440-61-1	0.000485	0.000010	mg/L	E420	25-Jan-2023	25-Jan-2023	814039
Vanadium, total	7440-62-2	0.00232	0.00050	mg/L	E420	25-Jan-2023	25-Jan-2023	814039
Zinc, total	7440-66-6	0.0067	0.0030	mg/L	E420	25-Jan-2023	25-Jan-2023	814039
Zirconium, total	7440-67-7	0.00055	0.00020	mg/L	E420	25-Jan-2023	25-Jan-2023	814039
Dissolved Metals								
Aluminum, dissolved	7429-90-5	0.0058	0.0010	mg/L	E421	25-Jan-2023	25-Jan-2023	814092
Antimony, dissolved	7440-36-0	0.00047	0.00010	mg/L	E421	25-Jan-2023	25-Jan-2023	814092
Arsenic, dissolved	7440-38-2	0.00016	0.00010	mg/L	E421	25-Jan-2023	25-Jan-2023	814092
Barium, dissolved	7440-39-3	0.0636	0.00010	mg/L	E421	25-Jan-2023	25-Jan-2023	814092
Beryllium, dissolved	7440-41-7	<0.000020	0.000020	mg/L	E421	25-Jan-2023	25-Jan-2023	814092
Bismuth, dissolved	7440-69-9	<0.000050	0.000050	mg/L	E421	25-Jan-2023	25-Jan-2023	814092
Boron, dissolved	7440-42-8	0.040	0.010	mg/L	E421	25-Jan-2023	25-Jan-2023	814092
Cadmium, dissolved	7440-43-9	0.0000118	0.0000050	mg/L	E421	25-Jan-2023	25-Jan-2023	814092
Calcium, dissolved	7440-70-2	112	0.050	mg/L	E421	25-Jan-2023	25-Jan-2023	814092
Cesium, dissolved	7440-46-2	<0.000010	0.000010	mg/L	E421	25-Jan-2023	25-Jan-2023	814092
Chromium, dissolved	7440-47-3	0.00072	0.00050	mg/L	E421	25-Jan-2023	25-Jan-2023	814092
Cobalt, dissolved	7440-48-4	<0.00010	0.00010	mg/L	E421	25-Jan-2023	25-Jan-2023	814092
Copper, dissolved	7440-50-8	0.00140	0.00020	mg/L	E421	25-Jan-2023	25-Jan-2023	814092
Iron, dissolved	7439-89-6	<0.010	0.010	mg/L	E421	25-Jan-2023	25-Jan-2023	814092
Lead, dissolved	7439-92-1	<0.000050	0.000050	mg/L	E421	25-Jan-2023	25-Jan-2023	814092
Lithium, dissolved	7439-93-2	<0.0010	0.0010	mg/L	E421	25-Jan-2023	25-Jan-2023	814092
Magnesium, dissolved	7439-95-4	6.47	0.0050	mg/L	E421	25-Jan-2023	25-Jan-2023	814092
Manganese, dissolved	7439-96-5	0.0314	0.00010	mg/L	E421	25-Jan-2023	25-Jan-2023	814092
Molybdenum, dissolved	7439-98-7	0.00302	0.000050	mg/L	E421	25-Jan-2023	25-Jan-2023	814092
Nickel, dissolved	7440-02-0	<0.00050	0.00050	mg/L	E421	25-Jan-2023	25-Jan-2023	814092
Phosphorus, dissolved	7723-14-0	<0.050	0.050	mg/L	E421	25-Jan-2023	25-Jan-2023	814092
Potassium, dissolved	7440-09-7	5.66	0.050	mg/L	E421	25-Jan-2023	25-Jan-2023	814092
Rubidium, dissolved	7440-17-7	0.00315	0.00020	mg/L	E421	25-Jan-2023	25-Jan-2023	814092
Selenium, dissolved	7782-49-2	0.00208	0.000050	mg/L	E421	25-Jan-2023	25-Jan-2023	814092
Silicon, dissolved	7440-21-3	4.57	0.050	mg/L	E421	25-Jan-2023	25-Jan-2023	814092
Silver, dissolved	7440-22-4	0.000285	0.000010	mg/L	E421	25-Jan-2023	25-Jan-2023	814092
Sodium, dissolved	7440-23-5	274	0.050	mg/L	E421	25-Jan-2023	25-Jan-2023	814092
Strontium, dissolved	7440-24-6	0.418	0.00020	mg/L	E421	25-Jan-2023	25-Jan-2023	814092
Sulfur, dissolved	7704-34-9	10.2	0.50	mg/L	E421	25-Jan-2023	25-Jan-2023	814092



Analytical Results

WT2301882-001

Sub-Matrix: Water

(Matrix: Water)

Client sample ID: GW-12593831-012423-PH-MW1

Client sampling date / time: 24-Jan-2023 11:10

Analyte	CAS Number	Result	LOR	Unit	Method	Prep Date	Analysis Date	QCLot
Dissolved Metals								
Tellurium, dissolved	13494-80-9	<0.00020	0.00020	mg/L	E421	25-Jan-2023	25-Jan-2023	814092
Thallium, dissolved	7440-28-0	<0.000010	0.000010	mg/L	E421	25-Jan-2023	25-Jan-2023	814092
Thorium, dissolved	7440-29-1	<0.00010	0.00010	mg/L	E421	25-Jan-2023	25-Jan-2023	814092
Tin, dissolved	7440-31-5	0.00010	0.00010	mg/L	E421	25-Jan-2023	25-Jan-2023	814092
Titanium, dissolved	7440-32-6	<0.00030	0.00030	mg/L	E421	25-Jan-2023	25-Jan-2023	814092
Tungsten, dissolved	7440-33-7	<0.00010	0.00010	mg/L	E421	25-Jan-2023	25-Jan-2023	814092
Uranium, dissolved	7440-61-1	0.000447	0.000010	mg/L	E421	25-Jan-2023	25-Jan-2023	814092
Vanadium, dissolved	7440-62-2	<0.00050	0.00050	mg/L	E421	25-Jan-2023	25-Jan-2023	814092
Zinc, dissolved	7440-66-6	0.0011	0.0010	mg/L	E421	25-Jan-2023	25-Jan-2023	814092
Zirconium, dissolved	7440-67-7	<0.00030	0.00030	mg/L	E421	25-Jan-2023	25-Jan-2023	814092
Dissolved metals filtration location	----	Field	-	-	EP421	-	25-Jan-2023	814092

Please refer to the General Comments section for an explanation of any qualifiers detected.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: WT2301882	Page	: 1 of 12
Client	: GHD Limited	Laboratory	: Waterloo - Environmental
Contact	: Jennifer Balkwill	Account Manager	: Rick Hawthorne
Address	: 455 Phillip Street Waterloo ON Canada N2L 3X2	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: ----	Telephone	: +1 519 886 6910
Project	: 12593831-05.001	Date Samples Received	: 25-Jan-2023 11:20
PO	: 735-005527	Issue Date	: 31-Jan-2023 16:39
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: 12593831-05.001-SSOW-735-005527		
No. of samples received	: 1		
No. of samples analysed	: 1		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.

CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.

DQO: Data Quality Objective.

LOR: Limit of Reporting (detection limit).

RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "----" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- Matrix Spike outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.



Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Water**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Matrix Spike (MS) Recoveries								
Dissolved Metals	WT2301882-001	GW-12593831-0124 23-PH-MW1	Phosphorus, dissolved	7723-14-0	E421	138 % ^{MES}	70.0-130%	Recovery greater than upper data quality objective
Dissolved Metals	WT2301882-001	GW-12593831-0124 23-PH-MW1	Selenium, dissolved	7782-49-2	E421	133 % ^{MES}	70.0-130%	Recovery greater than upper data quality objective

Result Qualifiers

Qualifier	Description
MES	Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water** Evaluation: * = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) GW-12593831-012423-PH-MW1	E298	24-Jan-2023	26-Jan-2023	----	----		27-Jan-2023	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP] GW-12593831-012423-PH-MW1	E235.Cl	24-Jan-2023	26-Jan-2023	----	----		26-Jan-2023	28 days	2 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001										
HDPE [ON MECP] GW-12593831-012423-PH-MW1	E378-U	24-Jan-2023	27-Jan-2023	----	----		29-Jan-2023	7 days	5 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE [ON MECP] GW-12593831-012423-PH-MW1	E235.F	24-Jan-2023	26-Jan-2023	----	----		26-Jan-2023	28 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE [ON MECP] GW-12593831-012423-PH-MW1	E235.NO3	24-Jan-2023	26-Jan-2023	----	----		26-Jan-2023	7 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE [ON MECP] GW-12593831-012423-PH-MW1	E235.NO2	24-Jan-2023	26-Jan-2023	----	----		26-Jan-2023	7 days	2 days	✓



Matrix: Water

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Sulfate in Water by IC										
HDPE [ON MECP] GW-12593831-012423-PH-MW1	E235.SO4	24-Jan-2023	26-Jan-2023	----	----		26-Jan-2023	28 days	2 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) GW-12593831-012423-PH-MW1	E318	24-Jan-2023	27-Jan-2023	----	----		27-Jan-2023	28 days	3 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid) GW-12593831-012423-PH-MW1	E372-U	24-Jan-2023	27-Jan-2023	----	----		30-Jan-2023	28 days	6 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) GW-12593831-012423-PH-MW1	E421	24-Jan-2023	25-Jan-2023	----	----		25-Jan-2023	180 days	1 days	✓
Field Tests : Field pH,EC,Salinity,Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine										
HDPE total (nitric acid) GW-12593831-012423-PH-MW1	EF001	24-Jan-2023	----	----	----		30-Jan-2023	----	----	
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) GW-12593831-012423-PH-MW1	E358-L	24-Jan-2023	30-Jan-2023	----	----		30-Jan-2023	28 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE [ON MECP] GW-12593831-012423-PH-MW1	E290	24-Jan-2023	26-Jan-2023	----	----		26-Jan-2023	14 days	2 days	✓
Physical Tests : Colour (True) by Spectrometer (2 CU)										
HDPE [ON MECP] GW-12593831-012423-PH-MW1	E329-L	24-Jan-2023	26-Jan-2023	----	----		26-Jan-2023	48 hrs	57 hrs	✓
Physical Tests : Conductivity in Water										
HDPE [ON MECP] GW-12593831-012423-PH-MW1	E100	24-Jan-2023	26-Jan-2023	----	----		26-Jan-2023	28 days	2 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : pH by Meter										
HDPE [ON MECP] GW-12593831-012423-PH-MW1	E108	24-Jan-2023	26-Jan-2023	----	----		26-Jan-2023	14 days	2 days	✓
Physical Tests : TDS by Gravimetry										
HDPE [ON MECP] GW-12593831-012423-PH-MW1	E162	24-Jan-2023	----	----	----		27-Jan-2023	7 days	3 days	✓
Physical Tests : TSS by Gravimetry										
HDPE [ON MECP] GW-12593831-012423-PH-MW1	E160	24-Jan-2023	----	----	----		27-Jan-2023	7 days	3 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE [ON MECP] GW-12593831-012423-PH-MW1	E121	24-Jan-2023	----	----	----		26-Jan-2023	3 days	2 days	✓
Total Metals : Total metals in Water by CRC ICPMS										
HDPE total (nitric acid) GW-12593831-012423-PH-MW1	E420	24-Jan-2023	25-Jan-2023	----	----		25-Jan-2023	180 days	1 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) [ON MECP] GW-12593831-012423-PH-MW1	E395-H	24-Jan-2023	----	----	----		30-Jan-2023	7 days	6 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).



Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water** Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	814532	1	4	25.0	5.0	✓
Ammonia by Fluorescence	E298	815290	1	17	5.8	5.0	✓
Chloride in Water by IC	E235.Cl	814535	1	10	10.0	5.0	✓
Colour (True) by Spectrometer (2 CU)	E329-L	814021	1	6	16.6	5.0	✓
Conductivity in Water	E100	814533	1	7	14.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	814092	1	11	9.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	817837	1	10	10.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	816223	1	12	8.3	5.0	✓
Fluoride in Water by IC	E235.F	814536	1	3	33.3	5.0	✓
Nitrate in Water by IC	E235.NO3	814537	1	11	9.0	5.0	✓
Nitrite in Water by IC	E235.NO2	814538	1	11	9.0	5.0	✓
pH by Meter	E108	814531	1	13	7.6	5.0	✓
Sulfate in Water by IC	E235.SO4	814534	1	3	33.3	5.0	✓
TDS by Gravimetry	E162	815946	1	18	5.5	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	815288	1	17	5.8	5.0	✓
Total metals in Water by CRC ICPMS	E420	814039	1	20	5.0	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	815289	1	20	5.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395-H	818048	1	15	6.6	5.0	✓
TSS by Gravimetry	E160	815952	1	9	11.1	4.7	✓
Turbidity by Nephelometry	E121	814562	1	7	14.2	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	814532	1	4	25.0	5.0	✓
Ammonia by Fluorescence	E298	815290	1	17	5.8	5.0	✓
Chloride in Water by IC	E235.Cl	814535	1	10	10.0	5.0	✓
Colour (True) by Spectrometer (2 CU)	E329-L	814021	1	6	16.6	5.0	✓
Conductivity in Water	E100	814533	1	7	14.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	814092	1	11	9.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	817837	1	10	10.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	816223	1	12	8.3	5.0	✓
Fluoride in Water by IC	E235.F	814536	1	3	33.3	5.0	✓
Nitrate in Water by IC	E235.NO3	814537	1	11	9.0	5.0	✓
Nitrite in Water by IC	E235.NO2	814538	1	11	9.0	5.0	✓
pH by Meter	E108	814531	1	13	7.6	5.0	✓
Sulfate in Water by IC	E235.SO4	814534	1	3	33.3	5.0	✓
TDS by Gravimetry	E162	815946	1	18	5.5	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	815288	1	17	5.8	5.0	✓



Matrix: **Water**

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Control Samples (LCS) - Continued							
Total metals in Water by CRC ICPMS	E420	814039	1	20	5.0	5.0	✔
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	815289	1	20	5.0	5.0	✔
Total Sulfide by Colourimetry (Automated Flow)	E395-H	818048	1	15	6.6	5.0	✔
TSS by Gravimetry	E160	815952	1	9	11.1	4.7	✔
Turbidity by Nephelometry	E121	814562	1	7	14.2	5.0	✔
Method Blanks (MB)							
Alkalinity Species by Titration	E290	814532	1	4	25.0	5.0	✔
Ammonia by Fluorescence	E298	815290	1	17	5.8	5.0	✔
Chloride in Water by IC	E235.Cl	814535	1	10	10.0	5.0	✔
Colour (True) by Spectrometer (2 CU)	E329-L	814021	1	6	16.6	5.0	✔
Conductivity in Water	E100	814533	1	7	14.2	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	814092	1	11	9.0	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	817837	1	10	10.0	5.0	✔
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	816223	1	12	8.3	5.0	✔
Fluoride in Water by IC	E235.F	814536	1	3	33.3	5.0	✔
Nitrate in Water by IC	E235.NO3	814537	1	11	9.0	5.0	✔
Nitrite in Water by IC	E235.NO2	814538	1	11	9.0	5.0	✔
Sulfate in Water by IC	E235.SO4	814534	1	3	33.3	5.0	✔
TDS by Gravimetry	E162	815946	1	18	5.5	5.0	✔
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	815288	1	17	5.8	5.0	✔
Total metals in Water by CRC ICPMS	E420	814039	1	20	5.0	5.0	✔
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	815289	1	20	5.0	5.0	✔
Total Sulfide by Colourimetry (Automated Flow)	E395-H	818048	1	15	6.6	5.0	✔
TSS by Gravimetry	E160	815952	1	9	11.1	4.7	✔
Turbidity by Nephelometry	E121	814562	1	7	14.2	5.0	✔
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	815290	1	17	5.8	5.0	✔
Chloride in Water by IC	E235.Cl	814535	1	10	10.0	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	814092	1	11	9.0	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	817837	1	10	10.0	5.0	✔
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	816223	1	12	8.3	5.0	✔
Fluoride in Water by IC	E235.F	814536	1	3	33.3	5.0	✔
Nitrate in Water by IC	E235.NO3	814537	1	11	9.0	5.0	✔
Nitrite in Water by IC	E235.NO2	814538	1	11	9.0	5.0	✔
Sulfate in Water by IC	E235.SO4	814534	1	3	33.3	5.0	✔
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	815288	1	17	5.8	5.0	✔
Total metals in Water by CRC ICPMS	E420	814039	1	20	5.0	5.0	✔
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	815289	1	20	5.0	5.0	✔
Total Sulfide by Colourimetry (Automated Flow)	E395-H	818048	1	15	6.6	5.0	✔



Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Water	E100 Waterloo - Environmental	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 Waterloo - Environmental	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally $20 \pm 5^\circ\text{C}$). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
Turbidity by Nephelometry	E121 Waterloo - Environmental	Water	APHA 2130 B (mod)	Turbidity is measured by the nephelometric method, by measuring the intensity of light scatter under defined conditions.
TSS by Gravimetry	E160 Waterloo - Environmental	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at $104 \pm 1^\circ\text{C}$, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
TDS by Gravimetry	E162 Waterloo - Environmental	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at $180 \pm 2^\circ\text{C}$ for 16 hours or to constant weight, with gravimetric measurement of the residue.
Chloride in Water by IC	E235.Cl Waterloo - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F Waterloo - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC	E235.NO2 Waterloo - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC	E235.NO3 Waterloo - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Sulfate in Water by IC	E235.S04 Waterloo - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 Waterloo - Environmental	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia by Fluorescence	E298 Waterloo - Environmental	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318 Waterloo - Environmental	Water	Method Fialab 100, 2018	TKN in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021).
Colour (True) by Spectrometer (2 CU)	E329-L Waterloo - Environmental	Water	APHA 2120 C (mod)	Colour (True Colour) is determined by filtering a sample through a 0.45 micron membrane filter followed by analysis of the filtrate using the platinum-cobalt colourimetric method. Colour measurements can be highly pH dependent, and apply to the pH of the sample as received (at time of testing), without pH adjustment.
Dissolved Organic Carbon by Combustion (Low Level)	E358-L Waterloo - Environmental	Water	APHA 5310 B (mod)	Dissolved Organic Carbon (Non-Purgeable), also known as NPOC (dissolved), is a direct measurement of DOC after a filtered (0.45 micron) sample has been acidified and purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO ₂ . NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U Waterloo - Environmental	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U Waterloo - Environmental	Water	APHA 4500-P F (mod)	Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter. Field filtration is recommended to ensure test results represent conditions at time of sampling.
Total Sulfide by Colourimetry (Automated Flow)	E395-H Vancouver - Environmental	Water	APHA 4500 -S E-Auto-Colorimetry	Sulfide is determined using the gas dialysis automated methylene blue colourimetric method. Results expressed "as H ₂ S" if reported represent the maximum possible H ₂ S concentration based on the total sulfide concentration in the sample. The H ₂ S calculation converts Total Sulphide as (S ₂ ⁻) and reports it as Total Sulphide as (H ₂ S)



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total metals in Water by CRC ICPMS	E420 Waterloo - Environmental	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Metals in Water by CRC ICPMS	E421 Waterloo - Environmental	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Hardness (Calculated)	EC100 Waterloo - Environmental	Water	APHA 2340B	"Hardness (as CaCO3), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Ion Balance using Dissolved Metals	EC101 Waterloo - Environmental	Water	APHA 1030E	Cation Sum, Anion Sum, and Ion Balance are calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Dissolved species are used where available. Minor ions are included where data is present. Ion Balance cannot be calculated accurately for waters with very low electrical conductivity (EC).
Un-ionized and Ionized Ammonia (Calculation) (Field Temperature and pH)	EC298A Waterloo - Environmental	Water	CCME CWQG Ammonia	Un-ionized ammonia is calculated from test results for total ammonia, field temperature and pH, and is expressed in units of mg/L "as N".
Total Organic Nitrogen (Calculation)	EC363 Waterloo - Environmental	Water	APHA 4500-NORG (TKN)/NH3-NITROGEN (NH3)	Total Organic Nitrogen is a calculated parameter. Total Organic Nitrogen = Total Kjeldahl Nitrogen - Ammonia.
Field pH,EC,Salinity,Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine	EF001 Waterloo - Environmental	Water	Field Measurement (Client Supplied)	Field pH,EC,Salinity,Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3 or Chloramine measurements provided by client and recorded on ALS report may affect the validity of results.
Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 Waterloo - Environmental	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in water	EP318 Waterloo - Environmental	Water	APHA 4500-Norg D (mod)	Samples are digested at high temperature using Sulfuric Acid with Copper catalyst, which converts organic nitrogen sources to Ammonia, which is then quantified by the analytical method as TKN. This method is unsuitable for samples containing high levels of nitrate. If nitrate exceeds TKN concentration by ten times or more, results may be biased low.

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Work Order : WT2301882
Client : GHD Limited
Project : 12593831-05.001



Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Dissolved Organic Carbon for Combustion	EP358 Waterloo - Environmental	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Digestion for Total Phosphorus in water	EP372 Waterloo - Environmental	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.
Dissolved Metals Water Filtration	EP421 Waterloo - Environmental	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.

QUALITY CONTROL REPORT

Work Order : **WT2301882**

Client : GHD Limited

Contact : Jennifer Balkwill

Address : 455 Phillip Street
Waterloo ON Canada N2L 3X2

Telephone :

Project : 12593831-05.001

PO : 735-005527

C-O-C number : ----

Sampler : ----

Site : ----

Quote number : 12593831-05.001-SSOW-735-005527

No. of samples received : 1

No. of samples analysed : 1

Page : 1 of 17

Laboratory : Waterloo - Environmental

Account Manager : Rick Hawthorne

Address : 60 Northland Road, Unit 1
Waterloo, Ontario Canada N2V 2B8

Telephone : +1 519 886 6910

Date Samples Received : 25-Jan-2023 11:20

Date Analysis Commenced : 25-Jan-2023

Issue Date : 31-Jan-2023 16:39

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	Position	Laboratory Department
Greg Pokocky	Supervisor - Inorganic	Waterloo Inorganics, Waterloo, Ontario
Greg Pokocky	Supervisor - Inorganic	Waterloo Metals, Waterloo, Ontario
Jon Fisher	Department Manager - Inorganics	Waterloo Inorganics, Waterloo, Ontario
Miles Gropen	Department Manager - Inorganics	Vancouver Inorganics, Burnaby, British Columbia
Rick Hawthorne	Project Manager	Waterloo Administration, Waterloo, Ontario



General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.

CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percent Difference

= Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.



Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 814021)											
WT2301870-002	Anonymous	Colour, true	----	E329-L	2.0	CU	<2.0	<2.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 814531)											
WT2301882-001	GW-12593831-012423-PH-MW1	pH	----	E108	0.10	pH units	8.07	8.07	0.00%	4%	----
Physical Tests (QC Lot: 814532)											
WT2301882-001	GW-12593831-012423-PH-MW1	Alkalinity, total (as CaCO3)	----	E290	2.0	mg/L	248	248	0.0969%	20%	----
Physical Tests (QC Lot: 814533)											
WT2301882-001	GW-12593831-012423-PH-MW1	Conductivity	----	E100	2.0	µS/cm	1920	1910	0.104%	10%	----
Physical Tests (QC Lot: 814562)											
WT2301870-003	Anonymous	Turbidity	----	E121	0.10	NTU	<0.10	<0.10	0	Diff <2x LOR	----
Physical Tests (QC Lot: 815946)											
WT2301629-001	Anonymous	Solids, total dissolved [TDS]	----	E162	20	mg/L	143	132	11	Diff <2x LOR	----
Physical Tests (QC Lot: 815952)											
WT2301983-006	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	<3000 µg/L	<3.0	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 814534)											
WT2301882-001	GW-12593831-012423-PH-MW1	Sulfate (as SO4)	14808-79-8	E235.SO4	1.50	mg/L	25.6	25.9	0.967%	20%	----
Anions and Nutrients (QC Lot: 814535)											
WT2301882-001	GW-12593831-012423-PH-MW1	Chloride	16887-00-6	E235.Cl	2.50	mg/L	453	450	0.548%	20%	----
Anions and Nutrients (QC Lot: 814536)											
WT2301882-001	GW-12593831-012423-PH-MW1	Fluoride	16984-48-8	E235.F	0.100	mg/L	<0.100	<0.100	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 814537)											
WT2301882-001	GW-12593831-012423-PH-MW1	Nitrate (as N)	14797-55-8	E235.NO3	0.100	mg/L	20.6	20.6	0.0458%	20%	----
Anions and Nutrients (QC Lot: 814538)											
WT2301882-001	GW-12593831-012423-PH-MW1	Nitrite (as N)	14797-65-0	E235.NO2	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 815288)											
WT2301873-001	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	0.250	mg/L	6.80	6.75	0.672%	20%	----
Anions and Nutrients (QC Lot: 815289)											



Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Anions and Nutrients (QC Lot: 815289) - continued											
WT2301860-001	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0200	mg/L	2.65	2.70	1.66%	20%	----
Anions and Nutrients (QC Lot: 815290)											
WT2301873-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0500	mg/L	2.63	2.63	0.0494%	20%	----
Anions and Nutrients (QC Lot: 816223)											
WT2301882-001	GW-12593831-012423-PH-MW1	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 817837)											
WT2301882-001	GW-12593831-012423-PH-MW1	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	1.34	1.71	0.37	Diff <2x LOR	----
Total Sulfides (QC Lot: 818048)											
VA23A1888-001	Anonymous	Sulfide, total (as S)	18496-25-8	E395-H	0.010	mg/L	0.013	0.013	0.0004	Diff <2x LOR	----
Total Metals (QC Lot: 814039)											
WT2301849-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0300	mg/L	<0.0300	<0.0300	0	Diff <2x LOR	----
		Antimony, total	7440-36-0	E420	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.00100	mg/L	0.0566	0.0578	2.01%	20%	----
		Beryllium, total	7440-41-7	E420	0.000200	mg/L	<0.000200	<0.000200	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.100	mg/L	<0.100	<0.100	0	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0000500	mg/L	<0.0000500	<0.0000500	0	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.00500	mg/L	<0.00500	<0.00500	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00090	mg/L	<0.00090	<0.00090	0	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.100	mg/L	<0.100	<0.100	0	Diff <2x LOR	----
		Lead, total	7439-92-1	E420	0.000500	mg/L	0.000683	<0.000500	0.000183	Diff <2x LOR	----
		Manganese, total	7439-96-5	E420	0.00100	mg/L	0.314	0.317	0.903%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000500	mg/L	<0.000500	<0.000500	0	Diff <2x LOR	----
		Nickel, total	7440-02-0	E420	0.00500	mg/L	<0.00500	<0.00500	0	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	0.500	mg/L	<0.500	<0.500	0	Diff <2x LOR	----
		Selenium, total	7782-49-2	E420	0.000500	mg/L	<0.000500	<0.000500	0	Diff <2x LOR	----
		Silver, total	7440-22-4	E420	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		Sodium, total	7440-23-5	E420	0.500	mg/L	324	331	2.01%	20%	----
		Thallium, total	7440-28-0	E420	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E420	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		Vanadium, total	7440-62-2	E420	0.00500	mg/L	<0.00500	<0.00500	0	Diff <2x LOR	----



Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Total Metals (QC Lot: 814039) - continued											
WT2301849-001	Anonymous	Zinc, total	7440-66-6	E420	0.0300	mg/L	<0.0300	<0.0300	0	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	0.00200	mg/L	<0.00200	<0.00200	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 814092)											
WT2301856-002	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0085	0.0085	0.00003	Diff <2x LOR	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.27 µg/L	0.00027	0.000004	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	3.52 µg/L	0.00344	2.07%	20%	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	108 µg/L	0.107	1.01%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.020 µg/L	<0.000020	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.010	mg/L	174 µg/L	0.176	1.02%	20%	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0083 µg/L	0.0000091	0.0000008	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	63.6	64.6	1.51%	20%	----
		Cesium, dissolved	7440-46-2	E421	0.000010	mg/L	0.000013	0.000013	0.0000002	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.50 µg/L	<0.00050	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.10 µg/L	<0.00010	0	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	2.65 µg/L	0.00264	0.385%	20%	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	0.378 µg/L	0.000372	0.000006	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0078	0.0076	0.0001	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	40.6	40.2	1.01%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.0460	0.0463	0.744%	20%	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	10.2 µg/L	0.0105	2.80%	20%	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.50 µg/L	<0.00050	0	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E421	0.050	mg/L	2.34	2.33	0.514%	20%	----
		Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.00278	0.00278	0.122%	20%	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.325 µg/L	0.000325	0	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	6.60	6.67	1.11%	20%	----
		Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.010 µg/L	<0.000010	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	0.050	mg/L	72000 µg/L	72.4	0.667%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	1.04	1.06	1.91%	20%	----
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	25.6	25.8	0.928%	20%	----
		Tellurium, dissolved	13494-80-9	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	0.021 µg/L	0.000020	0.0000006	Diff <2x LOR	----



Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Dissolved Metals (QC Lot: 814092) - continued											
WT2301856-002	Anonymous	Thorium, dissolved	7440-29-1	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E421	0.00010	mg/L	0.00147	0.00150	2.29%	20%	----
		Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	1.84 µg/L	0.00178	2.83%	20%	----
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	0.85 µg/L	0.00087	0.00002	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	2.8 µg/L	0.0027	0.0001	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----



Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 814021)						
Colour, true	----	E329-L	2	CU	<2.0	----
Physical Tests (QCLot: 814532)						
Alkalinity, bicarbonate (as CaCO ₃)	----	E290	1	mg/L	1.3	----
Alkalinity, carbonate (as CaCO ₃)	----	E290	1	mg/L	<1.0	----
Alkalinity, hydroxide (as CaCO ₃)	----	E290	1	mg/L	<1.0	----
Alkalinity, phenolphthalein (as CaCO ₃)	----	E290	1	mg/L	<1.0	----
Alkalinity, total (as CaCO ₃)	----	E290	1	mg/L	1.3	----
Physical Tests (QCLot: 814533)						
Conductivity	----	E100	1	µS/cm	<1.0	----
Physical Tests (QCLot: 814562)						
Turbidity	----	E121	0.1	NTU	<0.10	----
Physical Tests (QCLot: 815946)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Physical Tests (QCLot: 815952)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Anions and Nutrients (QCLot: 814534)						
Sulfate (as SO ₄)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 814535)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 814536)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 814537)						
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 814538)						
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	<0.010	----
Anions and Nutrients (QCLot: 815288)						
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 815289)						
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 815290)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 816223)						



Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Anions and Nutrients (QCLot: 816223) - continued						
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Organic / Inorganic Carbon (QCLot: 817837)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Total Sulfides (QCLot: 818048)						
Sulfide, total (as S)	18496-25-8	E395-H	0.01	mg/L	<0.010	----
Total Metals (QCLot: 814039)						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	----
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
Silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	<0.00010	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	----
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----
Dissolved Metals (QCLot: 814092)						
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----



Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 814092) - continued						
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	<0.000050	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	<0.000010	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	<0.00020	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	<0.00020	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	<0.50	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	<0.00020	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	<0.00010	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	<0.00010	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----



Sub-Matrix: **Water**

<i>Analyte</i>	<i>CAS Number</i>	<i>Method</i>	<i>LOR</i>	<i>Unit</i>	<i>Result</i>	<i>Qualifier</i>
Dissolved Metals (QCLot: 814092) - continued						
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	----



Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: Water

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 814021)									
Colour, true	----	E329-L	2	CU	25 CU	106	85.0	115	----
Physical Tests (QCLot: 814531)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 814532)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	150 mg/L	106	85.0	115	----
Physical Tests (QCLot: 814533)									
Conductivity	----	E100	1	µS/cm	1409 µS/cm	99.3	90.0	110	----
Physical Tests (QCLot: 814562)									
Turbidity	----	E121	0.1	NTU	200 NTU	96.5	85.0	115	----
Physical Tests (QCLot: 815946)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	95.1	85.0	115	----
Physical Tests (QCLot: 815952)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	88.5	85.0	115	----
Anions and Nutrients (QCLot: 814534)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 814535)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 814536)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 814537)									
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	2.5 mg/L	99.6	90.0	110	----
Anions and Nutrients (QCLot: 814538)									
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	0.5 mg/L	98.5	90.0	110	----
Anions and Nutrients (QCLot: 815288)									
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	4 mg/L	106	75.0	125	----
Anions and Nutrients (QCLot: 815289)									
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.845 mg/L	94.7	80.0	120	----
Anions and Nutrients (QCLot: 815290)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	97.4	85.0	115	----
Anions and Nutrients (QCLot: 816223)									
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.0212 mg/L	103	80.0	120	----



Sub-Matrix: Water					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	LCS	Low	High	
Analyte	CAS Number	Method	LOR	Unit					
Organic / Inorganic Carbon (QCLot: 817837)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	101	80.0	120	----
Total Sulfides (QCLot: 818048)									
Sulfide, total (as H2S)	7783-06-4	E395-H	----	mg/L	0.085 mg/L	113	80.0	120	----
Sulfide, total (as S)	18496-25-8	E395-H	0.01	mg/L	0.08 mg/L	112	80.0	120	----
Total Metals (QCLot: 814039)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	0.1 mg/L	114	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	0.05 mg/L	110	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	0.05 mg/L	108	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.0125 mg/L	104	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.005 mg/L	108	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	0.05 mg/L	112	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.005 mg/L	107	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.0125 mg/L	102	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.0125 mg/L	102	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.0125 mg/L	102	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	0.05 mg/L	98.1	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.025 mg/L	105	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.0125 mg/L	107	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.0125 mg/L	105	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.025 mg/L	104	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	0.5 mg/L	114	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	0.05 mg/L	107	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.005 mg/L	99.0	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	2.5 mg/L	107	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	0.05 mg/L	105	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.005 mg/L	102	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.00025 mg/L	115	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.025 mg/L	106	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.025 mg/L	105	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.005 mg/L	101	80.0	120	----
Dissolved Metals (QCLot: 814092)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	0.1 mg/L	111	80.0	120	----



Sub-Matrix: Water					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	LCS	Low	High	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 814092) - continued									
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	0.05 mg/L	104	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	0.05 mg/L	108	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.0125 mg/L	101	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.005 mg/L	107	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	0.05 mg/L	106	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	0.05 mg/L	110	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.005 mg/L	106	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	2.5 mg/L	105	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.0025 mg/L	111	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.0125 mg/L	103	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.0125 mg/L	105	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.0125 mg/L	103	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	0.05 mg/L	103	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.025 mg/L	105	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.0125 mg/L	106	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	2.5 mg/L	108	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.0125 mg/L	103	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.0125 mg/L	103	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.025 mg/L	103	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	0.5 mg/L	109	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	2.5 mg/L	102	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.005 mg/L	108	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	0.05 mg/L	106	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	0.5 mg/L	105	60.0	140	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.005 mg/L	103	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	2.5 mg/L	108	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.0125 mg/L	110	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	2.5 mg/L	102	80.0	120	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.005 mg/L	106	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	0.05 mg/L	107	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.005 mg/L	107	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.025 mg/L	103	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.0125 mg/L	103	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.005 mg/L	108	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.00025 mg/L	114	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.025 mg/L	106	80.0	120	----



Sub-Matrix: Water					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 814092) - continued									
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.025 mg/L	103	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.005 mg/L	106	80.0	120	----



Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 814534)										
WT2301882-001	GW-12593831-012423-PH-MW1	Sulfate (as SO4)	14808-79-8	E235.SO4	492 mg/L	500 mg/L	98.5	75.0	125	----
Anions and Nutrients (QCLot: 814535)										
WT2301882-001	GW-12593831-012423-PH-MW1	Chloride	16887-00-6	E235.Cl	489 mg/L	500 mg/L	97.8	75.0	125	----
Anions and Nutrients (QCLot: 814536)										
WT2301882-001	GW-12593831-012423-PH-MW1	Fluoride	16984-48-8	E235.F	4.98 mg/L	5 mg/L	99.7	75.0	125	----
Anions and Nutrients (QCLot: 814537)										
WT2301882-001	GW-12593831-012423-PH-MW1	Nitrate (as N)	14797-55-8	E235.NO3	ND mg/L	12.5 mg/L	ND	75.0	125	----
Anions and Nutrients (QCLot: 814538)										
WT2301882-001	GW-12593831-012423-PH-MW1	Nitrite (as N)	14797-65-0	E235.NO2	2.58 mg/L	2.5 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 815288)										
WT2301873-001	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	ND mg/L	2.5 mg/L	ND	70.0	130	----
Anions and Nutrients (QCLot: 815289)										
WT2301860-001	Anonymous	Phosphorus, total	7723-14-0	E372-U	ND mg/L	0.1 mg/L	ND	70.0	130	----
Anions and Nutrients (QCLot: 815290)										
WT2301873-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	ND mg/L	0.1 mg/L	ND	75.0	125	----
Anions and Nutrients (QCLot: 816223)										
WT2301882-001	GW-12593831-012423-PH-MW1	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0161 mg/L	0.0196 mg/L	82.2	70.0	130	----
Organic / Inorganic Carbon (QCLot: 817837)										
WT2301882-001	GW-12593831-012423-PH-MW1	Carbon, dissolved organic [DOC]	----	E358-L	6.04 mg/L	5 mg/L	121	70.0	130	----
Total Sulfides (QCLot: 818048)										
VA23A1888-002	Anonymous	Sulfide, total (as S)	18496-25-8	E395-H	0.911 mg/L	1 mg/L	91.1	75.0	125	----
Total Metals (QCLot: 814039)										
WT2301850-001	Anonymous	Aluminum, total	7429-90-5	E420	0.109 mg/L	0.1 mg/L	109	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0524 mg/L	0.05 mg/L	105	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0554 mg/L	0.05 mg/L	111	70.0	130	----



Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 814039) - continued										
WT2301850-001	Anonymous	Barium, total	7440-39-3	E420	ND mg/L	0.0125 mg/L	ND	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.00564 mg/L	0.005 mg/L	113	70.0	130	----
		Boron, total	7440-42-8	E420	ND mg/L	0.05 mg/L	ND	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00539 mg/L	0.005 mg/L	108	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0133 mg/L	0.0125 mg/L	107	70.0	130	----
		Cobalt, total	7440-48-4	E420	0.0128 mg/L	0.0125 mg/L	102	70.0	130	----
		Copper, total	7440-50-8	E420	0.0126 mg/L	0.0125 mg/L	101	70.0	130	----
		Iron, total	7439-89-6	E420	ND mg/L	0.05 mg/L	ND	70.0	130	----
		Lead, total	7439-92-1	E420	0.0266 mg/L	0.025 mg/L	106	70.0	130	----
		Manganese, total	7439-96-5	E420	ND mg/L	0.0125 mg/L	ND	70.0	130	----
		Molybdenum, total	7439-98-7	E420	0.0126 mg/L	0.0125 mg/L	101	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0260 mg/L	0.025 mg/L	104	70.0	130	----
		Phosphorus, total	7723-14-0	E420	0.517 mg/L	0.5 mg/L	103	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0550 mg/L	0.05 mg/L	110	70.0	130	----
		Silver, total	7440-22-4	E420	0.00476 mg/L	0.005 mg/L	95.2	70.0	130	----
		Sodium, total	7440-23-5	E420	ND mg/L	2.5 mg/L	ND	70.0	130	----
		Thallium, total	7440-28-0	E420	0.0515 mg/L	0.05 mg/L	103	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.00538 mg/L	0.005 mg/L	108	70.0	130	----
		Uranium, total	7440-61-1	E420	0.000296 mg/L	0.00025 mg/L	118	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.0270 mg/L	0.025 mg/L	108	70.0	130	----
		Zinc, total	7440-66-6	E420	0.0286 mg/L	0.025 mg/L	114	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.00528 mg/L	0.005 mg/L	106	70.0	130	----
Dissolved Metals (QCLot: 814092)										
WT2301882-001	GW-12593831-012423-PH-MW1	Aluminum, dissolved	7429-90-5	E421	0.125 mg/L	0.1 mg/L	125	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.0534 mg/L	0.05 mg/L	107	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0648 mg/L	0.05 mg/L	130	70.0	130	----
		Barium, dissolved	7440-39-3	E421	ND mg/L	0.0125 mg/L	ND	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.00607 mg/L	0.005 mg/L	121	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.0485 mg/L	0.05 mg/L	97.0	70.0	130	----
		Boron, dissolved	7440-42-8	E421	0.058 mg/L	0.05 mg/L	115	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00523 mg/L	0.005 mg/L	105	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	2.5 mg/L	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E421	0.00284 mg/L	0.0025 mg/L	114	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0140 mg/L	0.0125 mg/L	112	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0137 mg/L	0.0125 mg/L	109	70.0	130	----



Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 814092) - continued										
WT2301882-001	GW-12593831-012423-PH-MW1	Copper, dissolved	7440-50-8	E421	0.0125 mg/L	0.0125 mg/L	100	70.0	130	----
		Iron, dissolved	7439-89-6	E421	0.056 mg/L	0.05 mg/L	112	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0245 mg/L	0.025 mg/L	98.0	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	0.0158 mg/L	0.0125 mg/L	126	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	2.5 mg/L	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E421	ND mg/L	0.0125 mg/L	ND	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	0.0141 mg/L	0.0125 mg/L	112	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0263 mg/L	0.025 mg/L	105	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	0.690 mg/L	0.5 mg/L	138	70.0	130	MES
		Potassium, dissolved	7440-09-7	E421	ND mg/L	2.5 mg/L	ND	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.00550 mg/L	0.005 mg/L	110	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0664 mg/L	0.05 mg/L	133	70.0	130	MES
		Silicon, dissolved	7440-21-3	E421	ND mg/L	0.5 mg/L	ND	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00481 mg/L	0.005 mg/L	96.2	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	ND mg/L	2.5 mg/L	ND	70.0	130	----
		Strontium, dissolved	7440-24-6	E421	ND mg/L	0.0125 mg/L	ND	70.0	130	----
		Sulfur, dissolved	7704-34-9	E421	ND mg/L	2.5 mg/L	ND	70.0	130	----
		Tellurium, dissolved	13494-80-9	E421	0.00527 mg/L	0.005 mg/L	105	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.0496 mg/L	0.05 mg/L	99.1	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.00531 mg/L	0.005 mg/L	106	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.0264 mg/L	0.025 mg/L	106	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.0150 mg/L	0.0125 mg/L	120	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.00562 mg/L	0.005 mg/L	112	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	ND mg/L	0.00025 mg/L	ND	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.0299 mg/L	0.025 mg/L	119	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.0254 mg/L	0.025 mg/L	102	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.00586 mg/L	0.005 mg/L	117	70.0	130	----

Qualifiers

Qualifier	Description
MES	Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).



COC Number: 20 -

Page

Environmental Division
Waterloo
Work Order Reference
WT2301882



Telephone : +1 519 886 6910

Report To		Contact and company name below will appear on the final report		Reports / Recipients		Turnaround Time (TAT) Requested		
Company:	GHD Ltd. (GHDL100)	Select Report Format: ☒ PDF ☐ EXCEL ☐ EDD (DIGITAL)		☒ Routine [R] if received by 3pm M-F - no surcharges apply				
Contact:	Jennifer Balkwill	Merge QC/QCI Reports with COA ☐ YES ☐ NO ☐ N/A		☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum				
Phone:	519-884-0510	☐ Compare Results to Criteria on Report - provide details below if box checked		☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum				
Company address below will appear on the final report		Select Distribution: ☒ EMAIL ☐ MAIL ☐ FAX		☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum				
Street:	455 Phillip St.	Email 1 or Fax: jennifer.balkwill@ghd.com		☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum				
City/Province:	Waterloo, ON	Email 2: See SSOW/PO		☐ Same day [E2] if received by 10am M-S - 200% rush surcharge. At fees may apply to rush resuests on weekends, statutory holidays and routine tests				
Postal Code:	N2L 3X2	Email 3:		Date and Time Required for all E&P TATs:				
Invoice To		Same as Report To ☒ YES ☐ NO		Invoice Recipients		For tests that can not be performed according to the TAT.		
Copy of Invoice with Report ☐ YES ☒ NO		Select Invoice Distribution: ☒ EMAIL ☐ MAIL ☐ FAX		Analysis Request		Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below		
Company:	GHD Ltd. (GHDL100)	Email 1 or Fax: AccountsPayableCDN@ghd.com		Project Information				
Contact:		Email 2:		Oil and Gas Required Fields (client use)				
ALS Account # / Quote #: WT2023GHDL1000003		AFE/Cost Center:		PO#				
Job #: 12593831-05.001		Major/Minor Code:		Routing Code:				
PO / AFE: 735-005527		Requisitioner:						
LSD:		Location:						
ALS Lab Work Order # (lab use only):		ALS Contact: Rick H		Sampler: <i>Pete Hardcastle</i>				
ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)		Date (dd-mm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS		
	Pre-label: GW-12593831-004 23- PH - PW1		24-01-23	11:10AM	Water	6		
Drinking Water (DW) Samples (client use)		Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel QOC only)		SAMPLE RECEIPT DETAILS (lab use only)				
Are samples taken from a Regulated DW System? ☐ YES ☒ NO				Cooling Method: ☐ NONE ☒ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED				
Are samples for human consumption/ use? ☐ YES ☒ NO		Metals: Al, Sb, As, Ba, Be, B, Cd, Cr, Co, Cu, Fe, P, Pb, Mn, Mo, Ni, Se, Ag, Na, TL, W, U, V, Zn, Zr (Compare to PWQO/ODWS)		Submission Comments identified on Sample Receipt Notification: ☐ YES ☒ NO				
				Cooler Custody Seals Intact: ☒ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A				
				INITIAL COOLER TEMPERATURES °C: -0.9°C FINAL COOLER TEMPERATURES °C: 5.7°C				
SHIPMENT RELEASE (client use)		INITIAL SHIPMENT RECEPTION (lab use only)		FINAL SHIPMENT RECEPTION (lab use only)				
Released by: <i>Peter Hardcastle</i>	Date: <i>Jan. 25/2023</i>	Time: <i>11:15AM</i>	Received by: <i>[Signature]</i>	Date: <i>1/25/2023</i>	Time: <i>11:20am</i>	Received by: <i>[Signature]</i>	Date: <i>Jan. 25, 2023</i>	Time: <i>2:15PM</i>

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

Failure to complete all portions of this form may delay analysis. Please fill in this form **LEGIBLY**. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white-report copy.

It is also worth reminding you that you can always find the nearest printer to you by using the printer locator on the HP website.

WHITE - LABORATORY COPY

YELLOW - CLIENT COPY

AUG 2020 FROM

GC-352; MM-599; N-540

Appendix F

Construction Water Taking Estimates

APPENDIX F.1

ESTIMATED WATER TAKINGS AND AREA OF INFLUENCE (STEADY STATE)
HYDROGEOLOGICAL ASSESSMENT
126 140 BRADFORD STREET, BARRIE, ONTARIO
CROWN (BRADFORD) COMMUNITIES DEVELOPMENTS INC.

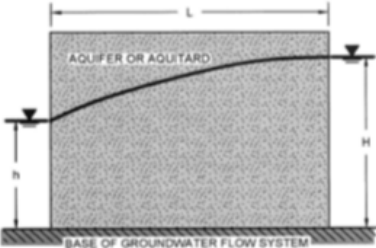
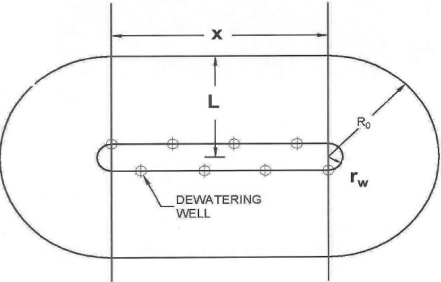
Flow to a Trench for a *Unconfined Aquifer*

Information

Steady State flow to a trench for an unconfined aquifer.
Use this equation when $a/b > 1.5$.
Equation 4.0
$$Q = \frac{\pi K (H^2 - h^2)}{\ln R_0 / r_w} + 2 \left[\frac{x K (H^2 - h^2)}{2L} \right]$$

Equation 4.1
$$r_w = \frac{a + b}{\pi}$$

Ro is determined by the Siechardt Equation: $R_o = 3000(H-hw)K^{0.5}$ when K is in m/s



Enter Parameters

Shaft or Trench Eq'n Check:

5.0

6.19E-03

5.34816

2.18

0

15

15

3

5.73

3.141592654

This number must be greater than 1.5; if not, then use a Shaft equation.

Input Hydraulic Conductivity in cm/s

Hydraulic Conductivity converted to m/day

Input height of groundwater pressure

Input dewatering height

Input length of trench

Input length of excavation

Input width of excavation

Input/calculate radius of trench

Pi

Calculating L and Ro using:

11.6589888

30

0.3

m²/day

days

Ro=1.5(Tt/S)^{0.5}

51.22 m

Input transmissivity in m²/day

Input pumping duration in days

Input storage coefficient

Line source distance; distance of influence

Alternative equation by Bear (Bear, J., 1979. **Hydraulics of Groundwater**, McGraw-Hill, New York, 569p) $R_o = 1.5(Tt/S)^{0.5}$ where T is transmissivity in m²/day, t is pumping duration in days. Ro will be in metres.

Note: L and Ro are the same distance

*Note: Height measurements are relative to base of active groundwater

*Note: The above Ro is for comparison. It is not the Ro used to calculate Q below.

Enter additional K values (optional)

K=

6.19E-03

cm/s

K2=

1.00E-06

cm/s

K3=

1.00E-05

cm/s

K4=

1.00E-04

cm/s

K5=

1.00E-03

cm/s

K6=

1.00E-02

cm/s

K7=

1.00E-01

cm/s

K8=

1.00E+00

cm/s

K9=

1.00E+01

cm/s

K10=

1.00E+02

cm/s

K=

5.34816

m/day

K2=

0.000864

m/day

K3=

0.00864

m/day

K4=

0.0864

m/day

K5=

0.864

m/day

K6=

8.64

m/day

K7=

86.4

m/day

K8=

864

m/day

K9=

8640

m/day

K10=

86400

m/day

Calculated flow rate using Equation 4.0

Results for Ro (radius of influence)

L= Ro=

57.19

m

L2= Ro2=

6.39

m

L3= Ro3=

7.80

m

L4= Ro4=

12.27

m

L5= Ro5=

20.68

m

L6= Ro6=

71.13

m

L7= Ro7=

212.55

m

L8= Ro8=

659.73

m

L9= Ro9=

2073.86

m

L10= R10=

6545.73

m

Flow Results in m³/day

Q=

41.38

m³/day

Q2=

0.13

m³/day

Q3=

0.50

m³/day

Q4=

2.20

m³/day

Q5=

13.03

m³/day

Q6=

59.88

m³/day

Q7=

386.01

m³/day

Q8=

2,811.53

m³/day

Q9=

22,194.07

m³/day

Q10=

184,163.12

m³/day

Flow Results in L/min

Q=

28.73

L/min

Q2=

0.09

L/min

Q3=

0.35

L/min

Q4=

1.53

L/min

Q5=

9.05

L/min

Q6=

41.58

L/min

Q7=

268.05

L/min

Q8=

1,952.33

L/min

Q9=

15,411.56

L/min

Q10=

127,882.87

L/min

Flow Results in gal/min

Q=

6.32

gal/min

Q2=

0.02

gal/min

Q3=

0.08

gal/min

Q4=

0.34

gal/min

Q5=

1.99

gal/min

Q6=

9.15

gal/min

Q7=

58.96

gal/min

Q8=

429.45

gal/min

Q9=

3,390.07

gal/min

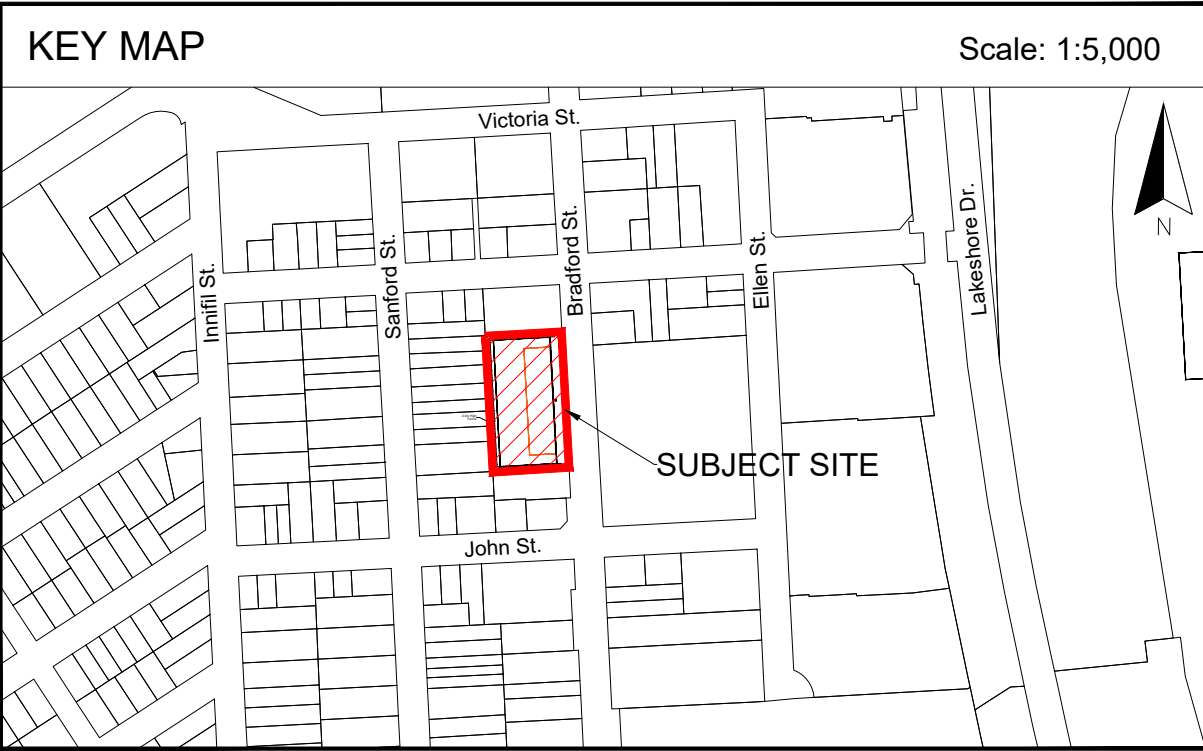
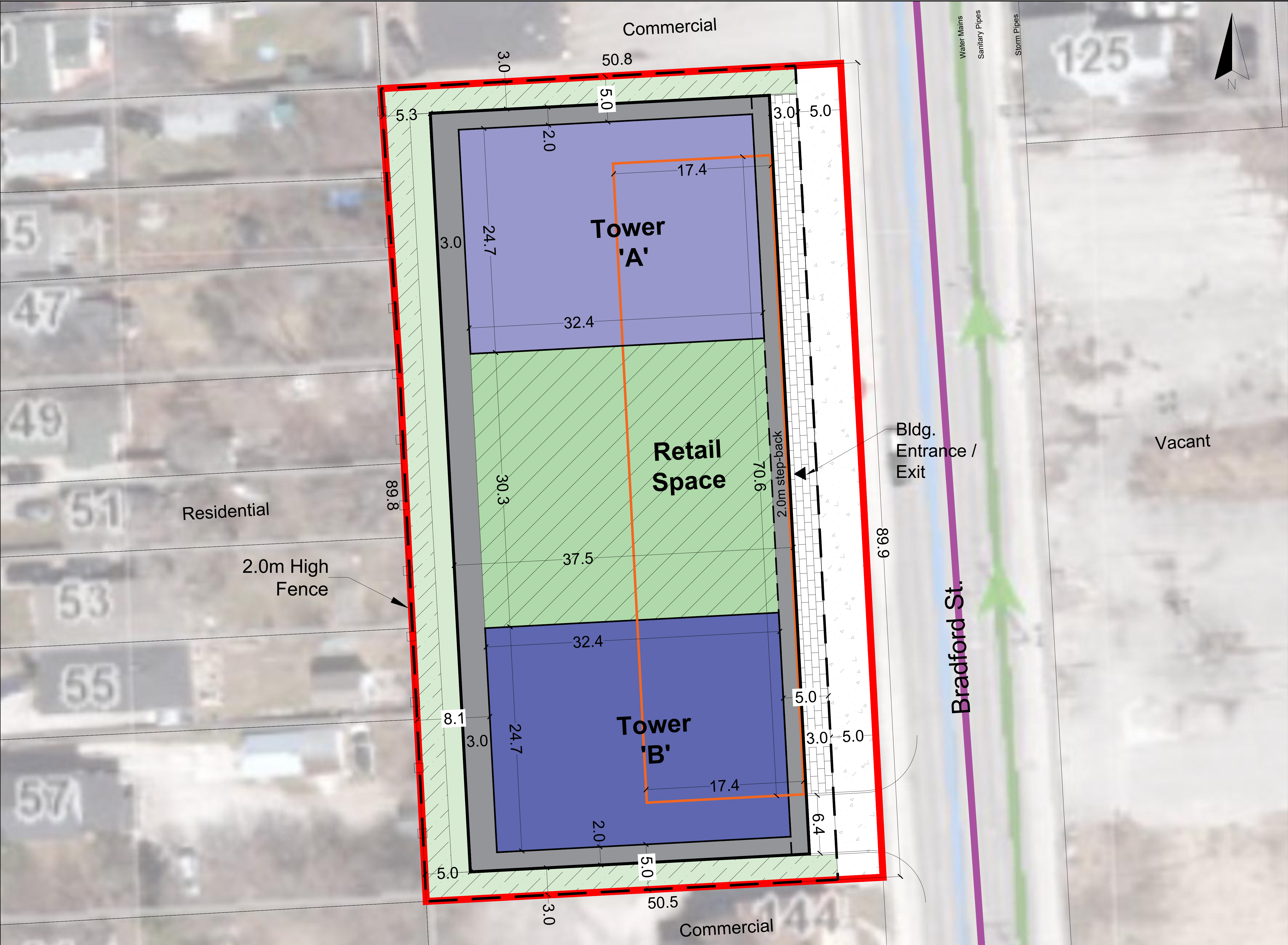
Q10=

28,130.27

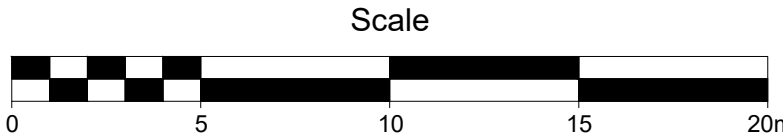
gal/min

Appendix G

Water Balance



CONCEPTUAL SITE PLAN



- LEGEND**
- Subject Site (4,534.3m² / 0.4ha - County of Simcoe)
 - Development Limit (4,085.3m² / 0.4ha)
 - Proposed 5.0m Road Widening (to be confirmed)
 - Proposed Podium Parking - 8 Storeys
 - Area: 3,138.9m² (33,786.8ft²) / floor
 - Total Parking Spaces: 752 spaces
 - Proposed Mixed Use Building - 41 storeys incl. parking podium (740 units)
 - Retail Area: 1,228.0m² (13,218.0ft²)
 - Retail G.F.A.: 982.4m² (based on 80% of 'retail area'. Remaining 20% for lobby, mail room, office, etc)
 - Tower 'A': 33 storeys excl. podium parking (370 units)
 - Tower Area: 803.0m² (8,643.4ft²) per floor
 - Tower 'B': 33 storeys excl. podium parking (370 units)
 - Tower Area: 803.0m² (8,643.4ft²) per floor
 - TOTAL RESIDENTIAL G.F.A.: 49,822.0m² (536,279.5ft²)
 - Podium Amenity Area: 982.6m²
 - 3.0m Landscape Buffer Area

Source: City of Barrie, Comprehensive Zoning By-Law 2009-141
Barrie, Discover More, 2020 Imagery
Note: Information shown is approximate and subject to change.

CONCEPTUAL SITE PLAN - 740 UNITS

126 BRADFORD ST, BARRIE

SCHEDULE OF REVISIONS			
No.	Date	Description	By



INNOVATIVE PLANNING SOLUTIONS
PLANNERS • PROJECT MANAGERS • LAND DEVELOPERS
647 WELHAM ROAD, UNIT 9, BARRIE, ON, L4N 0B7
tel: 705 • 812 • 3281 fax: 705 • 812 • 3438 e: info@ipsconsultinginc.com www.ipsconsultinginc.com

Date:	October 25, 2022	Drawn By:	A.S.
File:	22-1254	Checked:	K.B.

Table G.1

Land Type Parameters
Hydrogeological Assessment
126 and 140 Bradford Street, Barrie, Ontario
Crown (Bradford) Communities
Development Inc.

Pervious Area (Sand - 100 mm Holding Capacity)

Month	Temperature (°C)	Precipitation (mm)	Rainfall (mm)	Snowmelt (mm)	Potential Evapotranspiration (mm)	Actual Evapotranspiration (mm)	Water Surplus (mm)
January	-7.6	88	18	23	1	1	39
February	-6.9	65	13	29	1	1	41
March	-1.7	61	32	92	8	8	117
April	5.6	69	64	47	30	30	82
May	12.6	77	77	1	77	77	17
June	17.8	84	84	0	112	110	3
July	20.7	79	79	0	134	111	0
August	19.9	94	94	0	118	98	0
September	15.5	88	88	0	79	69	5
October	9	82	82	0	40	39	8
November	2.8	84	69	12	13	13	40
December	-3.4	84	29	22	3	3	42
Total		955	729	226	616	560	395

Impervious Area (Pavement, Gravel - 10 mm Holding Capacity)

Month	Temperature (°C)	Precipitation (mm)	Rainfall (mm)	Snowmelt (mm)	Potential Evapotranspiration (mm)	Actual Evapotranspiration (mm)	Water Surplus (mm)
January	-7.6	88	18	23	1	1	39
February	-6.9	65	13	29	1	1	41
March	-1.7	61	32	92	8	8	116
April	5.6	69	64	47	30	30	81
May	12.6	77	77	1	77	65	17
June	17.8	84	84	0	112	83	5
July	20.7	79	79	0	134	78	2
August	19.9	94	94	0	118	87	6
September	15.5	88	88	0	79	68	18
October	9	82	82	0	40	39	38
November	2.8	84	69	12	13	13	67
December	-3.4	84	29	22	3	3	48
Total		955	729	226	616	476	479

Table G.2

Existing Conditions Water Balance Calculations
Hydrogeological Assessment
126 and 140 Bradford Street, Barrie, Ontario
Crown (Bradford) Communities Development
Inc.

<i>Detail</i>	<i>Units</i>	<i>Impervious Area</i>	<i>Pervious Area</i>	<i>Total</i>
<u>Input Information</u>				
Land Type	%	100	0	100
Area ¹	ha	0.45	0.00	0.45
Soil Type		Sand	Sand	
Hydrologic Soil Group		A	A	
<u>Pervious Infiltration Factor</u> ²				
Topography		-	0.3	
Soil		-	0.4	
Land Type		-	0.1	
TOTAL		0	0.8	
<u>Average Annual Depth</u>				
Precipitation	mm	955	955	
Evapotranspiration	mm	476	560	
<u>Output Information</u>				
Annual Rainfall Volume	m ³	4,330	0	4,330
Annual Evapotranspiration Volume	m ³	2,158	0	2,158
Precipitation Surplus	m ³	2,172	0	2,172
Annual Groundwater Recharge Volume	m ³	0	0	0
Annual Runoff Volume	m ³	2,172	0	2,172

Notes:

1. Total developable site area.
2. Table 3.1 from the Stormwater Management Planning and Design Manual (MECP, March 2003).

Table G.3

**Proposed Water Balance Calculations
Hydrogeological Assessment
126 and 140 Bradford Street, Barrie, Ontario
Crown (Bradford) Communities
Development Inc.**

<i>Detail</i>	<i>Units</i>	<i>Impervious Area</i>	<i>Pervious Area</i>	<i>Total</i>
<u>Input Information</u>				
Land Type	%	88	12	100
Area ¹	ha	0.40	0.05	0.45
Soil Type		Sand	Sand	
Hydrologic Soil Group		A	A	
<u>Pervious Infiltration Factor</u> ²				
Topography		-	0.3	
Soil		-	0.4	
Land Type		-	0.1	
TOTAL		0	0.8	
<u>Average Annual Depth</u>				
Precipitation	mm	955	955	
Evapotranspiration	mm	476	560	486
<u>Output Information</u>				
Annual Rainfall Volume	m ³	3,829	501	4,330
Annual Evapotranspiration Volume	m ³	1,908	294	2,202
Precipitation Surplus	m ³	1,921	207	2,128
Annual Groundwater Recharge Volume	m ³	0	166	166
Annual Runoff Volume	m ³	1,921	41	1,962

Notes:

1. Total developable site area.
2. Table 3.1 from the Stormwater Management Planning and Design Manual (MECP, March 2003)

Table G.4

Summary of Calculations
Hydrogeological Assessment
126 and 140 Bradford Street, Barrie, Ontario
Crown (Bradford) Communities
Development Inc.

<i>Details</i>	<i>Precipitation</i>	<i>Evapotranspiration</i>	<i>Precipitation Surplus</i>	<i>Infiltration</i>	<i>Runoff</i>
	<i>(m³)</i>	<i>(m³)</i>	<i>(m³)</i>	<i>(m³)</i>	<i>(m³)</i>
Pre-Development					
Existing Conditions	4,330	2,158	2,172	-	2,172
Percentage of Annual Precipitation		50%		0%	50%
Post-Development					
Proposed Conditions - Uncontrolled	4,330	2,202	2,128	166	1,962
Percentage of Annual Precipitation		51%		4%	45%
Pre- to Post-Development Difference					
Proposed Conditions - Uncontrolled	0	44	-44	166	-210
Percentage Change		2%	-2%	-	-10%

Appendix H

MECP Well Records

MECP WELL RECORD LISTINGS

Ministry of the Environment, Conservation & Parks (MECP)

© Water Well Information System (WWIS). Ministry of the Environment, Conservation, and Parks. 2021.

Powered by Location Intelligence



DISCLAIMER: All effort has been taken to ensure the accuracy of the data is the same as the source. There are instances where the original PDF document is different and in those cases, the PDF should be used instead.

18	Easting:	485404.00	Latitude: 44.377354 Longitude: -79.6991	Well ID: 5700281
	Northing:	5015919.00		
	Elev (masl):	224.49		
LOCATION	Lot:	n/a	Tag: Audit No: Contractor License: 2514 Well Completion Date: 04/23/1966 Received Date: 07/04/1966	
	Con:	n/a		
	Municipality:	SIMCOE		
	Township:	BARRIE CITY		
	Street:			
WELL	City:	n/a	Well Depth (m): 10.9728 Depth to Bedrock (m): n/a Depth to Water: ft Water Kind: FRESH	
	Well Status:	Water Supply		
	Prim. Use:	n/a		
	Sec. Use:	n/a		
	Boring Method:	Cable Tool		
PUMP TEST	Test Method:	CLEAR	Pipe ID: 10926744 Pump Test ID: 995700281 Flowing: N Pump Duration (hr): 1 Pump Duration (m): 30	
	Pump Set (m):	n/a		
	SWL (ft)	10		
	Final Level:	33 ft		
	Pump Rate:	20 GPM		
	Recom. Rate:	15 GPM		

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	930625779	n/a	inch	<null>	n/a	6 ft
2	930625780	6	inch	STEEL	n/a	33 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	PREVIOUSLY DUG	n/a	n/a	n/a	0	15 ft
2	FINE SAND	n/a	n/a	YELLOW	15	33 ft
3	COARSE SAND	n/a	n/a	GREY	33	36 ft

End of Record

17	Easting:	628261.20	Latitude: 44.379749 Longitude: -79.691264	Well ID: 5704773
	Northing:	4938499.00		
	Elev (masl):	222.39		
LOCATION	Lot:	025	Tag: Audit No: Contractor License: 4610 Well Completion Date: 11/26/1964 Received Date: 01/12/1965	
	Con:	05		
	Municipality:	SIMCOE		
	Township:	BARRIE CITY (VESPREA)		
	Street:			
WELL	City:	n/a	Well Depth (m): 87.1728 Depth to Bedrock (m): n/a Depth to Water: ft Water Kind: FRESH	
	Well Status:	Water Supply		
	Prim. Use:	n/a		
	Sec. Use:	n/a		
	Boring Method:	Cable Tool		
PUMP TEST	Test Method:	CLEAR	Pipe ID: 10931230 Pump Test ID: 995704773 Flowing: Y Pump Duration (hr): 26 Pump Duration (m): 0	
	Pump Set (m):	n/a		
	SWL (ft)	-6		
	Final Level:	208 ft		
	Pump Rate:	155 GPM		
	Recom. Rate:	165 GPM		

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
1	930631481	8	inch	STEEL	n/a	260 ft
2	930631482	7	inch	STEEL	n/a	260 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	STONES	n/a	n/a	0	9 ft
2	SILT	n/a	n/a	GREY	9	38 ft
3	CLAY	MEDIUM SAND	n/a	BLUE	38	70 ft
4	MEDIUM SAND	n/a	n/a	BROWN	70	106 ft
5	CLAY	n/a	n/a	BLUE	106	135 ft
6	MEDIUM SAND	n/a	n/a	BROWN	135	147 ft
7	COARSE SAND	GRAVEL	n/a	n/a	147	152 ft
8	CLAY	n/a	n/a	BLUE	152	157 ft
9	MEDIUM SAND	n/a	n/a	n/a	157	172 ft
10	FINE SAND	n/a	n/a	n/a	172	225 ft
11	FINE SAND	COARSE SAND	n/a	n/a	225	258 ft
12	MEDIUM SAND	n/a	n/a	n/a	258	275 ft
13	GRAVEL	MEDIUM SAND	n/a	n/a	275	282 ft
14	CLAY	n/a	n/a	BLUE	282	286 ft

End of Record

17	Easting:	598644.40	Latitude: 44.384604 Longitude: -79.692298	Well ID: 5712847
	Northing:	4878903.00		
	Elev (masl):	221.83		
LOCATION	Lot:	n/a	Tag: Audit No: Contractor License: 4816 Well Completion Date: 08/28/1975 Received Date: 02/24/1976	
	Con:	n/a		
	Municipality:	SIMCOE		
	Township:	BARRIE CITY		
	Street:			
WELL	City:	n/a	Well Depth (m): 56.388 Depth to Bedrock (m): n/a Depth to Water: ft Water Kind: FRESH	
	Well Status:	Water Supply		
	Prim. Use:	n/a		
	Sec. Use:	n/a		
	Boring Method:	Rotary (Convent.)		
PUMP TEST	Test Method:	CLEAR	Pipe ID: 10939177 Pump Test ID 995712847 Flowing: N Pump Duration (hr): 7 Pump Duration (m): 0	
	Pump Set (m):	n/a		
	SWL (ft)	4		
	Final Level:	68 ft		
	Pump Rate:	360 GPM		
	Recom. Rate:	400 GPM		

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
1	930640582	8	inch	STEEL	n/a	170 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	n/a	n/a	n/a	0	4 ft
2	SAND	GRAVEL	n/a	n/a	4	54 ft
3	CLAY	SAND	LAYERED	n/a	54	132 ft
4	FINE SAND	n/a	n/a	n/a	132	141 ft
5	CLAY	n/a	n/a	n/a	141	146 ft
6	CLAY	n/a	n/a	n/a	146	168 ft
7	MEDIUM SAND	COARSE SAND	n/a	n/a	168	185 ft

End of Record

17	Easting:	604189.40	Latitude: 44.377818 Longitude: -79.689311	Well ID: 5717002
	Northing:	4911964.00		
	Elev (masl):			

Elev (masl): 220.02

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY
Street:
City: n/a

WELL

Well Status: Observation Wells
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Rotary (Convent.)

PUMP TEST

Test Method: CLEAR
Pump Set (m): n/a
SWL (ft): 4
Final Level: 4 ft
Pump Rate: 60 GPM
Recom. Rate: n/a GPM

Tag:
Audit No:
Contractor License: 2801
Well Completion Date: 08/25/1980
Received Date: 10/28/1980

Well Depth (m): 89.3064
Depth to Bedrock (m): 290
Depth to Water:
Water Kind:

Pipe ID: 10943266
Pump Test ID: 995717002
Flowing: N
Pump Duration (hr): 2
Pump Duration (m): 0

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	930645457	10	inch	STEEL	n/a	66 ft
2	930645458	2	inch	STEEL	n/a	211 ft
3	930645459	1	inch	STEEL	n/a	214 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	GRAVEL	CEMENTED	n/a	0	15 ft
2	FINE SAND	CLAY	LAYERED	GREY	15	57 ft
3	CLAY	SANDY	HARD	GREY	57	78 ft
4	CLAY	HARD	n/a	GREY	78	94 ft
5	FINE SAND	CLAY	LAYERED	GREY	94	100 ft
6	FINE GRAVEL	FINE SAND	LAYERED	n/a	100	108 ft
7	GRAVEL	SAND	BOULDERS	n/a	108	113 ft
8	CLAY	HARD	n/a	GREY	113	114 ft
9	FINE SAND	n/a	n/a	GREY	114	136 ft
10	GRAVEL	SAND	BOULDERS	n/a	136	141 ft
11	GRAVEL	SAND	CLAY	n/a	141	149 ft
12	SAND	PACKED	n/a	GREY	149	153 ft
13	GRAVEL	SAND	CLAY	n/a	153	162 ft
14	FINE SAND	n/a	n/a	GREY	162	167 ft
15	GRAVEL	SAND	BOULDERS	n/a	167	209 ft
16	SAND	MARL	FINE GRAVEL	n/a	209	224 ft
17	CLAY	HARD	n/a	GREY	224	226 ft
18	GRAVEL	SAND	BOULDERS	n/a	226	235 ft
19	SAND	GRAVEL	MARL	n/a	235	289 ft
20	CLAY	n/a	n/a	GREY	289	290 ft
21	SAND	GRAVEL	MARL	n/a	290	293 ft

End of Record

17	Easting:	582864.30
	Northing:	4950824.00
	Elev (masl):	219.95

Latitude: 44.377368
Longitude: -79.689321

Well ID: **5717394**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY
Street:
City: n/a

WELL

Well Status: Observation Wells
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Rotary (Convent.)

Tag:
Audit No:
Contractor License: 2801
Well Completion Date: 03/17/1981
Received Date: 05/25/1981

Well Depth (m): 93.2688
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind: FRESH

PUMP TEST

Test Method:
 Pump Set (m):
 SWL (ft)
 Final Level:
 Pump Rate:
 Recom. Rate:

Pipe ID:
 Pump Test ID
 Flowing:
 Pump Duration (hr):
 Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
1	930645957	10	inch	STEEL	n/a	70 ft
2	930645958	2	inch	STEEL	n/a	210 ft
3	930645959	1	inch	STEEL	n/a	280 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	n/a	n/a	n/a	0	16 ft
2	SAND	CLAY	SOFT	GREY	16	60 ft
3	CLAY	GRAVEL	SILTY	GREY	60	100 ft
4	SAND	GRAVEL	BOULDERS	GREY	100	110 ft
5	FINE SAND	LOOSE	n/a	GREY	110	138 ft
6	GRAVEL	CLAY	LAYERED	GREY	138	162 ft
7	GRAVEL	BOULDERS	SAND	GREY	162	209 ft
8	GRAVEL	SAND	LOOSE	GREY	209	296 ft
9	MEDIUM SAND	LOOSE	n/a	GREY	296	306 ft

End of Record

17	Easting:	596714.30	Latitude: 44.382776 Longitude: -79.689828	Well ID: 5717577
	Northing:	4922424.00		
	Elev (masl):	220.03		
LOCATION	Lot:	n/a	Tag: Audit No: Contractor License: 2801 Well Completion Date: 07/01/1981 Received Date: 09/22/1981	
	Con:	n/a		
	Municipality:	SIMCOE		
	Township:	BARRIE CITY		
	Street:			
WELL	City:	n/a	Well Depth (m): 69.4944 Depth to Bedrock (m): n/a Depth to Water: Water Kind:	
	Well Status:	Test Hole		
	Prim. Use:	n/a		
	Sec. Use:	n/a		
	Boring Method:	Rotary (Convent.)		
PUMP TEST	Test Method:	n/a	Pipe ID: 10943837 Pump Test ID: 995717577 Flowing: N Pump Duration (hr): 72 Pump Duration (m): 0	
	Pump Set (m):	n/a		
	SWL (ft)	6		
	Final Level:	18 ft		
	Pump Rate:	650 GPM		
	Recom. Rate:	n/a GPM		

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
1	930646171	12	inch	STEEL	n/a	99 ft
2	930646172	10	inch	STEEL	n/a	150 ft
3	930646173	8	inch	STEEL	n/a	162 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	n/a	n/a	n/a	0	14 ft
2	SAND	GRAVEL	SILT	n/a	14	42 ft
3	SAND	CLAY	GRAVEL	n/a	42	70 ft
4	CLAY	GRAVEL	SANDY	n/a	70	75 ft
5	CLAY	SILTY	n/a	GREY	75	87 ft
6	CLAY	GRAVEL	HARD	n/a	87	99 ft
7	CLAY	FINE GRAVEL	SANDY	n/a	99	126 ft

8	CLAY	SAND	LAYERED	n/a	126	142	ft
9	MEDIUM SAND	n/a	n/a	n/a	142	148	ft
10	SAND	GRAVEL	CLAY	n/a	148	150	ft
11	SAND	GRAVEL	n/a	n/a	150	153	ft
12	CLAY	n/a	n/a	n/a	153	157	ft
13	SAND	GRAVEL	CLAY	n/a	157	176	ft
14	COARSE SAND	CLAY	SILTY	n/a	176	184	ft
15	SAND	GRAVEL	n/a	n/a	184	198	ft
16	SAND	GRAVEL	SILT	n/a	198	220	ft
17	SAND	SILTY	n/a	n/a	220	228	ft

End of Record

17	Easting:	604014.40	Latitude: 44.378471 Longitude: -79.688971	Well ID: 5717578
	Northing:	4907473.00		
	Elev (masl):	219.88		
LOCATION	Lot:	n/a	Tag: Audit No: Contractor License: 2801 Well Completion Date: 05/26/1981 Received Date: 09/22/1981	
	Con:	n/a		
	Municipality:	SIMCOE		
	Township:	BARRIE CITY		
	Street:			
WELL	City:	n/a	Well Depth (m): 91.7448 Depth to Bedrock (m): 267 Depth to Water: Water Kind:	
	Well Status:	Water Supply		
	Prim. Use:	n/a		
	Sec. Use:	n/a		
	Boring Method:	Rotary (Convent.)		
PUMP TEST	Test Method:		Pipe ID: Pump Test ID Flowing: Pump Duration (hr): Pump Duration (m):	
	Pump Set (m):			
	SWL (ft)			
	Final Level:			
	Pump Rate:			
	Recom. Rate:			

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
-------	---------	-----------------	----------------	----------	-----------	--------------

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	n/a	n/a	n/a	0	19 ft
2	CLAY	SAND	LAYERED	n/a	19	64 ft
3	CLAY	SILTY	n/a	GREY	64	175 ft
4	CLAY	SILTY	LAYERED	GREY	175	196 ft
5	GRAVEL	SAND	MARL	n/a	196	200 ft
6	CLAY	FINE GRAVEL	SANDY	GREY	200	267 ft
7	CLAY	GRAVEL	MARL	GREY	267	280 ft
8	CLAY	GRAVEL	n/a	GREY	280	301 ft

End of Record

17	Easting:	591814.40	Latitude: 44.382318 Longitude: -79.689211	Well ID: 5717579
	Northing:	4869923.00		
	Elev (masl):	219.69		
LOCATION	Lot:	n/a	Tag: Audit No: Contractor License: 2801 Well Completion Date: 04/29/1981 Received Date: 09/22/1981	
	Con:	n/a		
	Municipality:	SIMCOE		
	Township:	BARRIE CITY		
	Street:			
WELL	City:	n/a	Well Depth (m): 89.916 Depth to Bedrock (m): n/a Depth to Water: Water Kind:	
	Well Status:	Observation Wells		
	Prim. Use:	n/a		
	Sec. Use:	n/a		
	Boring Method:	Rotary (Convent.)		

PUMP TEST

Test Method:
 Pump Set (m): n/a
 SWL (ft): 6
 Final Level: n/a ft
 Pump Rate: n/a GPM
 Recom. Rate: n/a GPM

Pipe ID:
 Pump Test ID: 995717579
 Flowing: N
 Pump Duration (hr): n/a
 Pump Duration (m): n/a

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	930646174	10	inch	STEEL	n/a	103 ft
2	930646175	2	inch	STEEL	n/a	210 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	n/a	n/a	n/a	0	16 ft
2	CLAY	GRAVEL	SILTY	GREY	16	28 ft
3	GRAVEL	SILT	FINE SAND	n/a	28	38 ft
4	CLAY	SAND	SILTY	n/a	38	71 ft
5	CLAY	FINE GRAVEL	SILTY	GREY	71	85 ft
6	GRAVEL	CLAY	SAND	n/a	85	104 ft
7	CLAY	FINE GRAVEL	SILTY	GREY	104	147 ft
8	GRAVEL	SAND	BOULDERS	n/a	147	155 ft
9	SAND	n/a	n/a	n/a	155	157 ft
10	SAND	GRAVEL	BOULDERS	n/a	157	175 ft
11	FINE SAND	SILTY	n/a	n/a	175	182 ft
12	SAND	GRAVEL	BOULDERS	n/a	182	222 ft
13	SAND	CLAY	LAYERED	n/a	222	243 ft
14	CLAY	SILTY	n/a	GREY	243	274 ft
15	SAND	FINE GRAVEL	BOULDERS	n/a	274	282 ft
16	SAND	GRAVEL	BOULDERS	n/a	282	295 ft

End of Record

17

Easting: 598514.40
 Northing: 4878823.00
 Elev (masl): 219.34

Latitude: 44.380968
 Longitude: -79.689241

Well ID: **5717580**

LOCATION

Lot: n/a
 Con: n/a
 Municipality: SIMCOE
 Township: BARRIE CITY
 Street:
 City: n/a

Tag:
 Audit No:
 Contractor License: 2801
 Well Completion Date: 05/08/1981
 Received Date: 09/22/1981

WELL

Well Status: Observation Wells
 Prim. Use: n/a
 Sec. Use: n/a
 Boring Method: Rotary (Convent.)

Well Depth (m): 92.0496
 Depth to Bedrock (m): 290
 Depth to Water:
 Water Kind:

PUMP TEST

Test Method: n/a
 Pump Set (m): n/a
 SWL (ft): 9
 Final Level: n/a ft
 Pump Rate: n/a GPM
 Recom. Rate: n/a GPM

Pipe ID: 10943840
 Pump Test ID: 995717580
 Flowing: N
 Pump Duration (hr): n/a
 Pump Duration (m): n/a

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	930646176	10	inch	STEEL	n/a	99 ft
2	930646177	2	inch	STEEL	n/a	248 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	n/a	n/a	n/a	0	11 ft
2	SAND	FINE GRAVEL	n/a	n/a	11	15 ft

3	SAND	SILT	WOOD FRAGMENTS	n/a	15	32	ft
4	CLAY	SILTY	n/a	GREY	32	55	ft
5	CLAY	SANDY	n/a	GREY	55	66	ft
6	FINE SAND	n/a	n/a	n/a	66	67	ft
7	CLAY	SANDY	HARD	GREY	67	110	ft
8	CLAY	FINE SAND	SILT	GREY	110	126	ft
9	CLAY	SILTY	SOFT	GREY	126	138	ft
10	SAND	GRAVEL	CLAY	n/a	138	142	ft
11	FINE GRAVEL	SAND	SILT	n/a	142	145	ft
12	CLAY	SILTY	n/a	n/a	145	154	ft
13	MEDIUM SAND	COARSE GRAVEL	n/a	n/a	154	181	ft
14	FINE SAND	n/a	n/a	n/a	181	240	ft
15	MEDIUM SAND	n/a	n/a	n/a	240	258	ft
16	MEDIUM SAND	n/a	n/a	n/a	258	260	ft
17	FINE SAND	CLAY	SILTY	n/a	260	279	ft
18	GRAVEL	SAND	CLAY	n/a	279	285	ft
19	GRAVEL	CLAY	MARL	n/a	285	287	ft
20	GRAVEL	CLAY	n/a	n/a	287	290	ft
21	FINE SAND	GRAVEL	MARL	n/a	290	302	ft

End of Record

n/a	Easting:	<null>	Latitude: 44.382536 Longitude: -79.689336	Well ID: 5728705
	Northing:	<null>		
	Elev (masl):			
LOCATION	Lot:	n/a	Tag: Audit No: 88724 Contractor License: 2801 Well Completion Date: 11/19/1991 Received Date: 12/19/1991	
	Con:	n/a		
	Municipality:	SIMCOE		
	Township:	BARRIE CITY		
	Street:			
WELL	City:	n/a	Well Depth (m): 67.6656 Depth to Bedrock (m): 208 Depth to Water: ft Water Kind: FRESH	
	Well Status:	Water Supply		
	Prim. Use:	n/a		
	Sec. Use:	n/a		
	Boring Method:	Rotary (Reverse)		
PUMP TEST	Test Method:	CLEAR	Pipe ID: 10954849 Pump Test ID: 995728705 Flowing: N Pump Duration (hr): 24 Pump Duration (m): 0	
	Pump Set (m):	n/a		
	SWL (ft)	8		
	Final Level:	33 ft		
	Pump Rate:	140GPM		
	Recom. Rate:	140GPM		

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	930660167	23	inch	STEEL	n/a	145 ft
2	930660168	15	inch	STEEL	n/a	146 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	n/a	n/a	n/a	0	16 ft
2	SILT	SAND	GRAVEL	n/a	16	64 ft
3	CLAY	GRAVEL	SILTY	GREY	64	83 ft
4	SAND	SILTY	n/a	GREY	83	97 ft
5	GRAVEL	SAND	CLAY	n/a	97	100 ft
6	SILT	SAND	PACKED	GREEN	100	108 ft
7	CLAY	GRAVEL	SILTY	GREY	108	140 ft
8	SILT	SAND	n/a	GREY	140	142 ft
9	SAND	SILT	n/a	n/a	142	146 ft
10	GRAVEL	SAND	n/a	n/a	146	149 ft
11	GRAVEL	SAND	MARL	n/a	149	158 ft
12	GRAVEL	SAND	MARL	GREY	158	175 ft
13	SAND	GRAVEL	SILTY	GREY	175	185 ft

14	GRAVEL	SAND	MARL	n/a	185	208	ft
15	GRAVEL	SAND	MARL	n/a	208	217	ft
16	CLAY	SANDY	n/a	GREY	217	222	ft

End of Record

17	Easting:	596432.50
	Northing:	4876003.00
	Elev (masl):	220.76

Latitude: 44.38235
Longitude: -79.689592

Well ID: **5736742**

LOCATION

Lot: 024
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY
Street:
City: n/a

Tag:
Audit No: 232051
Contractor License: 2801
Well Completion Date: 03/26/2002
Received Date: 03/26/2002

WELL

Well Status: Abandoned-Other
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Rotary (Convent.)

Well Depth (m): 79.5528
Depth to Bedrock (m): 246
Depth to Water:
Water Kind:

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
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FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	n/a	n/a	n/a	0	12 ft
2	SAND	SILT	n/a	n/a	12	66 ft
3	CLAY	SILTY	n/a	n/a	66	160 ft
4	GRAVEL	SAND	MARL	n/a	160	171 ft
5	SAND	GRAVEL	BOULDERS	n/a	171	192 ft
6	SAND	GRAVEL	MARL	n/a	192	210 ft
7	GRAVEL	SAND	BOULDERS	n/a	210	246 ft
8	GRAVEL	SAND	MARL	n/a	246	251 ft
9	CLAY	n/a	n/a	GREY	251	255 ft
10	GRAVEL	SAND	n/a	n/a	255	261 ft

End of Record

17	Easting:	628513.10
	Northing:	4954612.00
	Elev (masl):	225.85

Latitude: 44.37766
Longitude: -79.695182

Well ID: **5738377**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY
Street:
City: n/a

Tag:
Audit No: 159686
Contractor License: 6809
Well Completion Date: 09/17/2003
Received Date: 12/01/2003

WELL

Well Status: Observation Wells
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Other Method

Well Depth (m): 4.572
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind: FRESH

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	930835712	2	inch	PLASTIC	n/a	3 ft
2	930835713	2	inch	PLASTIC	n/a	11 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	n/a	n/a	n/a	0	2 ft
2	UNKNOWN TYPE	n/a	n/a	n/a	2	6 ft
3	SAND	SILTY	n/a	BROWN	6	10 ft
4	SAND	SILTY	n/a	GREY	10	14 ft
5	SILT	n/a	n/a	GREY	14	15 ft

End of Record

17	Easting:	624140.10	Latitude: 44.376238 Longitude: -79.694423	Well ID: 5738378
	Northing:	4946747.00		
	Elev (masl):	226.79		

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY
Street:
City: n/a

Tag:
Audit No: 159685
Contractor License: 6809
Well Completion Date: 09/23/2003
Received Date: 12/01/2003

WELL

Well Status: Observation Wells
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Not Known

Well Depth (m): 4.572
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind: FRESH

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	930835714	2	inch	PLASTIC	n/a	4 ft
2	930835715	2	inch	PLASTIC	n/a	10 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	n/a	n/a	n/a	0	5 ft
2	SAND	n/a	n/a	BROWN	5	10 ft
3	SILT	SANDY	n/a	GREY	10	13 ft
4	SAND	n/a	n/a	GREY	13	14 ft
5	SILT	CLAYEY	n/a	GREY	14	15 ft

End of Record

17	Easting:	580357.80	Latitude: 44.381583 Longitude: -79.691831	Well ID: 5739445
	Northing:	4941839.00		
	Elev (masl):	222.20		

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPREA)
Street: 37 ELLEN STREET
City: BARRIE

Tag: A015592
Audit No: Z16426
Contractor License: 7215
Well Completion Date: 09/27/2004
Received Date: 01/05/2005

WELL

Well Status: Observation Wells
Prim. Use: n/a
Sec. Use:

Well Depth (m): 0
Depth to Bedrock (m): n/a
Depth to Water:

V Boring Method: Other Method

PUMP TEST
Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Water Kind:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	930868863	n/a	n/a	PLASTIC	0	1 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

17

Easting:	633588.00
Northing:	4994362.00
Elev (masl):	221.64

Latitude: 44.376968
Longitude: -79.690565

Well ID: **7044938**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY
Street: 249 BRADFORD ST.
City: BARRIE

Tag: A050810
Audit No: Z51751
Contractor License: 7075
Well Completion Date: 03/17/2007
Received Date: 06/14/2007

WELL

Well Status: Observation Wells
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Rotary (Air)

Well Depth (m): 16.764
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind: FRESH

PUMP TEST

Test Method: CLEAR
Pump Set (m): n/a
SWL (ft): 6.3
Final Level: n/a ft
Pump Rate: n/a GPM
Recom. Rate: n/a GPM

Pipe ID: 11775057
Pump Test ID: 11779206
Flowing: n/a
Pump Duration (hr): n/a
Pump Duration (m): n/a

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	930900882	6.125	inch	<null>	-2	49 ft
2	930900883	5	inch	<null>	49	51 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	TOPSOIL	n/a	n/a	BLACK	0	1 ft
2	CLAY	SAND	SOFT	GREY	1	23 ft
3	CLAY	SILT	SOFT	GREY	23	48 ft
4	SAND	SILT	n/a	BROWN	48	55 ft

End of Record

17

Easting:	617127.00
Northing:	4903732.00
Elev (masl):	224.62

Latitude: 44.376973
Longitude: -79.692561

Well ID: **7044939**

CATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township:

Tag: A050771
Audit No: Z51750
Contractor License: 7075
Well Completion Date: 03/20/2007

LOC	Street:	249 BRADFORD ST	Received Date:	06/14/2007
	City:	BARRIE		
WELL	Well Status:	Observation Wells	Well Depth (m):	7.62
	Prim. Use:	n/a	Depth to Bedrock (m):	n/a
	Sec. Use:	n/a	Depth to Water:	ft
	Boring Method:	Rotary (Air)	Water Kind:	FRESH
PUMP TEST	Test Method:	CLEAR	Pipe ID:	11775130
	Pump Set (m):	n/a	Pump Test ID	11779238
	SWL (ft)	7.3	Flowing:	n/a
	Final Level:	n/a ft	Pump Duration (hr):	n/a
	Pump Rate:	n/a GPM	Pump Duration (m):	n/a
	Recom. Rate:	n/a GPM		

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
1	930900884	6.125	inch	STEEL	-1.5	21 ft
2	930900885	5	inch	STEEL	19	21 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	TOPSOIL	n/a	n/a	BLACK	0	1 ft
2	SAND	SILT	n/a	BROWN	1	25 ft

End of Record

17	Easting:	582377.00	Latitude: 44.377506 Longitude: -79.689536	Well ID: 7103990
	Northing:	4832379.00		
	Elev (masl):	220.02		

LOCATION	Lot:	n/a	Tag: A066575 Audit No: Z73359 Contractor License: 7075 Well Completion Date: 02/08/2008 Received Date: 04/15/2008
	Con:	n/a	
	Municipality:	SIMCOE	
	Township:	BARRIE CITY	
	Street:	249 BRADFORD ST.	
WELL	City:	n/a	Well Depth (m): 0 Depth to Bedrock (m): n/a Depth to Water: m Water Kind:
	Well Status:	<null>	
	Prim. Use:	n/a	
	Sec. Use:	n/a	
PUMP TEST	Boring Method:	n/a	
	Test Method:		
	Pump Set (m):		
	SWL (ft)		
	Final Level:		
	Pump Rate:		
	Recom. Rate:		

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
0	1001625309	n/a	cm	<null>	n/a	n/a m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

18	Easting:	333424.00	Latitude: 44.377506 Longitude: -79.689536	Well ID: 7103991
	Northing:	4886583.00		
	Elev (masl):	220.02		

LOCATION
WELL
PUMP TEST

Lot:
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY
Street: 249 BRADFORD ST.
City: Barrie

Tag: A066575
Audit No: Z73358
Contractor License: 7075
Well Completion Date: 02/08/2008
Received Date: 04/15/2008

Well Status: Abandoned-Other
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Boring

Well Depth (m): 0
Depth to Bedrock (m): n/a
Depth to Water: m
Water Kind:

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
0	1001625321	n/a	cm	<null>	n/a	n/a m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

17

Easting:	519826.00
Northing:	4870785.00
Elev (masl):	225.38

Latitude: 44.378495
Longitude: -79.699695

Well ID: **7104451**

LOCATION
WELL
PUMP TEST

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPREA)
Street: 114 JOHN STREET
City: Barrie

Tag:
Audit No: Z62421
Contractor License: 7241
Well Completion Date: 01/08/2008
Received Date: 01/24/2008

Well Status: Abandoned-Other
Prim. Use: n/a
Sec. Use: n/a
Boring Method: n/a

Well Depth (m): 0
Depth to Bedrock (m): n/a
Depth to Water: m
Water Kind:

Test Method: n/a
Pump Set (m): n/a
SWL (ft): n/a
Final Level: n/a m
Pump Rate: n/a LPM
Recom. Rate: n/a LPM

Pipe ID: 1001609066
Pump Test ID: 1001609067
Flowing: N
Pump Duration (hr): n/a
Pump Duration (m): n/a

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
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FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	n/a	n/a	n/a	n/a	0	n/a m

End of Record

17

Easting:

442439.00

Northing:

4857903.00

Elev (masl):

224.19

Latitude:

44.376843

Longitude:

-79.692237

Well ID:

7106250

LOCATION

Lot:

n/a

Con:

n/a

Municipality:

SIMCOE

Township:

BARRIE CITY

Street:

249 BRADFORD ST.

City:

n/a

WELL

Well Status:

Dewatering

Prim. Use:

n/a

Sec. Use:

n/a

Boring Method:

n/a

PUMP TEST

Test Method:

n/a

Pump Set (m):

n/a

SWL (ft)

3.27

Final Level:

n/a m

Pump Rate:

n/a

Recom. Rate:

n/a

Tag:

A065728

Audit No:

M01886

Contractor License:

6875

Well Completion Date:

03/06/2008

Received Date:

06/11/2008

Well Depth (m):

8.3

Depth to Bedrock (m):

n/a

Depth to Water:

m

Water Kind:

FRESH

Pipe ID:

1002700373

Pump Test ID

1002700385

Flowing:

n/a

Pump Duration (hr):

n/a

Pump Duration (m):

n/a

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
0	1002700402	n/a	n/a	PLASTIC	n/a	5.2 m
0	1002700384	n/a	n/a	PLASTIC	n/a	6.1 m
0	1002700393	n/a	n/a	PLASTIC	n/a	4.6 m
0	1002700375	n/a	n/a	PLASTIC	n/a	4.9 m
0	1002700366	n/a	n/a	PLASTIC	n/a	5.2 m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	n/a	n/a	BROWN	0	3 m
2	SAND	SILTY	n/a	BROWN	3	8.2 m
3	CLAY	TILL	SILTY	GREY	8.2	8.3 m

End of Record

17	Easting:	668182.00	Latitude: 44.376843 Longitude: -79.692237	Well ID: 7106250
	Northing:	4859793.00		
	Elev (masl):	224.27		
LOCATION	Lot:	n/a	Tag: A065728 Audit No: M01886 Contractor License: 6875 Well Completion Date: 03/06/2008 Received Date: 06/11/2008	
	Con:	n/a		
	Municipality:	SIMCOE		
	Township:	BARRIE CITY		
	Street:	249 BRADFORD ST.		
WELL	City:	n/a	Well Depth (m): 0 Depth to Bedrock (m): n/a Depth to Water: m Water Kind: FRESH	
	Well Status:	Dewatering		
	Prim. Use:	n/a		
	Sec. Use:	n/a		
	Boring Method:	n/a		
PUMP TEST	Test Method:	n/a	Pipe ID: 1002700382 Pump Test ID: 1002700376 Flowing: n/a Pump Duration (hr): n/a Pump Duration (m): n/a	
	Pump Set (m):	n/a		
	SWL (ft)	2.5		
	Final Level:	n/a m		
	Pump Rate:	n/a		
	Recom. Rate:	n/a		

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
0	1002700393	n/a	n/a	PLASTIC	n/a	4.6 m
0	1002700402	n/a	n/a	PLASTIC	n/a	5.2 m
0	1002700375	n/a	n/a	PLASTIC	n/a	4.9 m
0	1002700384	n/a	n/a	PLASTIC	n/a	6.1 m

0 1002700366 n/a n/a PLASTIC n/a 5.2 m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	n/a	n/a	BROWN	0	3 m
2	SAND	SILTY	n/a	BROWN	3	8.2 m
3	CLAY	TILL	SILTY	GREY	8.2	8.3 m

End of Record

17	Easting:	668167.00	Latitude: 44.37667 Longitude: -79.692066	Well ID: 7106250
	Northing:	4859757.00		
	Elev (masl):	224.27		
LOCATION	Lot:	n/a	Tag: A065728 Audit No: M01886 Contractor License: 6875 Well Completion Date: 03/03/2008 Received Date: 06/11/2008	
	Con:	n/a		
	Municipality:	SIMCOE		
	Township:	BARRIE CITY		
	Street:	249 BRADFORD ST.		
WELL	City:	n/a	Well Depth (m): 0 Depth to Bedrock (m): n/a Depth to Water: m Water Kind: FRESH	
	Well Status:	Dewatering		
	Prim. Use:	n/a		
	Sec. Use:	n/a		
	Boring Method:	Jetting		
PUMP TEST	Test Method:	n/a	Pipe ID: 1002700364 Pump Test ID: 1002700367 Flowing: n/a Pump Duration (hr): n/a Pump Duration (m): n/a	
	Pump Set (m):	n/a		
	SWL (ft)	2.5		
	Final Level:	n/a m		
	Pump Rate:	n/a		
	Recom. Rate:	n/a		

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
0	1002700402	n/a	n/a	PLASTIC	n/a	5.2 m
0	1002700393	n/a	n/a	PLASTIC	n/a	4.6 m
0	1002700375	n/a	n/a	PLASTIC	n/a	4.9 m
0	1002700366	n/a	n/a	PLASTIC	n/a	5.2 m
0	1002700384	n/a	n/a	PLASTIC	n/a	6.1 m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	n/a	n/a	BROWN	0	3 m
2	SAND	SILTY	n/a	BROWN	3	8.2 m
3	CLAY	TILL	SILTY	GREY	8.2	8.3 m

End of Record

17	Easting:	668184.00	Latitude: 44.376462 Longitude: -79.691982	Well ID: 7106250
	Northing:	4859777.00		
	Elev (masl):	224.19		
LOCATION	Lot:	n/a	Tag: A065728 Audit No: M01886 Contractor License: 6875 Well Completion Date: 03/06/2008 Received Date: 06/11/2008	
	Con:	n/a		
	Municipality:	SIMCOE		
	Township:	BARRIE CITY		
	Street:	249 BRADFORD ST.		
WELL	City:	n/a	Well Depth (m): 0 Depth to Bedrock (m): n/a Depth to Water: m Water Kind: FRESH	
	Well Status:	Dewatering		
	Prim. Use:	n/a		
	Sec. Use:	n/a		
	Boring Method:	n/a		
PUMP TEST	Test Method:	n/a	Pipe ID: 1002700391 Pump Test ID: 1002700367 Flowing: n/a Pump Duration (hr): n/a	
	Pump Set (m):	n/a		
	SWL (ft)	2.5		
	Final Level:	n/a		

PUMP

Pump Rate: n/a m
 Recom. Rate: n/a

Pump Duration (m): n/a

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
0	1002700402	n/a	n/a	PLASTIC	n/a	5.2 m
0	1002700384	n/a	n/a	PLASTIC	n/a	6.1 m
0	1002700375	n/a	n/a	PLASTIC	n/a	4.9 m
0	1002700393	n/a	n/a	PLASTIC	n/a	4.6 m
0	1002700366	n/a	n/a	PLASTIC	n/a	5.2 m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	n/a	n/a	BROWN	0	3 m
2	SAND	SILTY	n/a	BROWN	3	8.2 m
3	CLAY	TILL	SILTY	GREY	8.2	8.3 m

End of Record

17

Easting: 668200.00
 Northing: 4859782.00
 Elev (masl): 224.39

Latitude: 44.376316
 Longitude: -79.691772

Well ID: **7106250**

LOCATION

Lot: n/a
 Con: n/a
 Municipality: SIMCOE
 Township: BARRIE CITY
 Street: 249 BRADFORD ST.
 City: n/a

Tag: A065728
 Audit No: M01886
 Contractor License: 6875
 Well Completion Date: 03/07/2008
 Received Date: 06/11/2008

WELL

Well Status: Dewatering
 Prim. Use: n/a
 Sec. Use: n/a
 Boring Method: n/a

Well Depth (m): 0
 Depth to Bedrock (m): n/a
 Depth to Water: m
 Water Kind: FRESH

PUMP TEST

Test Method: n/a
 Pump Set (m): n/a
 SWL (ft): 2.5
 Final Level: n/a m
 Pump Rate: n/a
 Recom. Rate: n/a

Pipe ID: 1002700404
 Pump Test ID: 1002700367
 Flowing: n/a
 Pump Duration (hr): n/a
 Pump Duration (m): n/a

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
0	1002700402	n/a	n/a	PLASTIC	n/a	5.2 m
0	1002700393	n/a	n/a	PLASTIC	n/a	4.6 m
0	1002700375	n/a	n/a	PLASTIC	n/a	4.9 m
0	1002700366	n/a	n/a	PLASTIC	n/a	5.2 m
0	1002700384	n/a	n/a	PLASTIC	n/a	6.1 m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	n/a	n/a	BROWN	0	3 m
2	SAND	SILTY	n/a	BROWN	3	8.2 m
3	CLAY	TILL	SILTY	GREY	8.2	8.3 m

End of Record

17

Easting: 668163.00
 Northing: 4859749.00
 Elev (masl): 224.39

Latitude: 44.376235
 Longitude: -79.691787

Well ID: **7106250**

LOCATION

Lot: n/a
 Con: n/a
 Municipality: SIMCOE
 Township: BARRIE CITY
 Street: 249 BRADFORD ST.

Tag: A065728
 Audit No: M01886
 Contractor License: 6875
 Well Completion Date: 03/06/2008
 Received Date:

L	City:	n/a				06/11/2008
	Well Status:	Dewatering			Well Depth (m):	0
	Prim. Use:	n/a			Depth to Bedrock (m):	n/a
	Sec. Use:	n/a			Depth to Water:	m
WELL	Boring Method:	Jetting			Water Kind:	FRESH
	Test Method:	n/a			Pipe ID:	1002700391
	Pump Set (m):	n/a			Pump Test ID	1002700385
	SWL (ft)	2.53			Flowing:	n/a
PUMP TEST	Final Level:	n/a m			Pump Duration (hr):	n/a
	Pump Rate:	n/a			Pump Duration (m):	n/a
	Recom. Rate:	n/a				

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
0	1002700384	n/a	n/a	PLASTIC	n/a	6.1 m
0	1002700375	n/a	n/a	PLASTIC	n/a	4.9 m
0	1002700402	n/a	n/a	PLASTIC	n/a	5.2 m
0	1002700393	n/a	n/a	PLASTIC	n/a	4.6 m
0	1002700366	n/a	n/a	PLASTIC	n/a	5.2 m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	n/a	n/a	BROWN	0	3 m
2	SAND	SILTY	n/a	BROWN	3	8.2 m
3	CLAY	TILL	SILTY	GREY	8.2	8.3 m

End of Record

17	Easting:	442447.00	Latitude: 44.377315 Longitude: -79.690168	Well ID: 7106251
	Northing:	4857905.00		
	Elev (masl):	220.86		

LOCATION	Lot:	n/a			Tag:	A065730
	Con:	n/a			Audit No:	M01885
	Municipality:	SIMCOE			Contractor License:	6875
	Township:	BARRIE CITY			Well Completion Date:	02/28/2008
WELL	Street:	249 BRADFORD ST.			Received Date:	06/11/2008
	City:	Barrie				
	Well Status:	Dewatering			Well Depth (m):	9.2
	Prim. Use:	n/a			Depth to Bedrock (m):	n/a
PUMP TEST	Sec. Use:	n/a			Depth to Water:	m
	Boring Method:	n/a			Water Kind:	
	Test Method:	n/a			Pipe ID:	1002700595
	Pump Set (m):	n/a			Pump Test ID	1002700596
	SWL (ft)	3.5			Flowing:	n/a
	Final Level:	n/a m			Pump Duration (hr):	n/a
	Pump Rate:	n/a			Pump Duration (m):	n/a
	Recom. Rate:	n/a				

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
0	1002700593	n/a	n/a	PLASTIC	n/a	6.2 m
0	1002700575	n/a	n/a	PLASTIC	n/a	6.2 m
0	1002700566	n/a	n/a	PLASTIC	n/a	7.5 m
0	1002700584	n/a	n/a	PLASTIC	n/a	6.2 m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	n/a	n/a	BROWN	0	6.1 m
2	SAND	SILT	FINE-GRAINED	BROWN	6.1	9.2 m

End of Record

17	Easting:	614856.00	Latitude: 44.377132 Longitude: -79.690687	Well ID: 7106251
	Northing:	4885425.00		
	Elev (masl):	220.86		
LOCATION	Lot:	n/a		Tag: A065730
	Con:	n/a		Audit No: M01885
	Municipality:	SIMCOE		Contractor License: 6875
	Township:	BARRIE CITY		Well Completion Date: 02/27/2008
	Street:	249 BRADFORD ST.		Received Date: 06/11/2008
WELL	City:	Barrie		
	Well Status:	Dewatering		Well Depth (m): 0
	Prim. Use:	n/a		Depth to Bedrock (m): n/a
	Sec. Use:	n/a		Depth to Water: m
	Boring Method:	n/a		Water Kind:
PUMP TEST	Test Method:	n/a		Pipe ID: 1002700591
	Pump Set (m):	n/a		Pump Test ID: 1002700567
	SWL (ft)	3.5		Flowing: n/a
	Final Level:	n/a m		Pump Duration (hr): n/a
	Pump Rate:	n/a		Pump Duration (m): n/a
	Recom. Rate:	n/a		

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
0	1002700584	n/a	n/a	PLASTIC	n/a	6.2 m
0	1002700593	n/a	n/a	PLASTIC	n/a	6.2 m
0	1002700575	n/a	n/a	PLASTIC	n/a	6.2 m
0	1002700566	n/a	n/a	PLASTIC	n/a	7.5 m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	n/a	n/a	BROWN	0	6.1 m
2	SAND	SILT	FINE-GRAINED	BROWN	6.1	9.2 m

End of Record

17	Easting:	614846.00	Latitude: 44.377315 Longitude: -79.690168	Well ID: 7106251
	Northing:	4885459.00		
	Elev (masl):	220.45		
LOCATION	Lot:	n/a		Tag: A065730
	Con:	n/a		Audit No: M01885
	Municipality:	SIMCOE		Contractor License: 6875
	Township:	BARRIE CITY		Well Completion Date: 02/28/2008
	Street:	249 BRADFORD ST.		Received Date: 06/11/2008
WELL	City:	Barrie		
	Well Status:	Dewatering		Well Depth (m): 0
	Prim. Use:	n/a		Depth to Bedrock (m): n/a
	Sec. Use:	n/a		Depth to Water: m
	Boring Method:	n/a		Water Kind:
PUMP TEST	Test Method:	n/a		Pipe ID: 1002700564
	Pump Set (m):	n/a		Pump Test ID: 1002700594
	SWL (ft)	4		Flowing: n/a
	Final Level:	n/a m		Pump Duration (hr): n/a
	Pump Rate:	n/a		Pump Duration (m): n/a
	Recom. Rate:	n/a		

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
0	1002700566	n/a	n/a	PLASTIC	n/a	7.5 m
0	1002700593	n/a	n/a	PLASTIC	n/a	6.2 m
0	1002700575	n/a	n/a	PLASTIC	n/a	6.2 m
0	1002700584	n/a	n/a	PLASTIC	n/a	6.2 m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	n/a	n/a	BROWN	0	6.1 m
2	SAND	SILT	FINE-GRAINED	BROWN	6.1	9.2 m

End of Record

17	Easting:	577872.00	Latitude: 44.377106 Longitude: -79.689985	Well ID: 7106251
	Northing:	4782801.00		
	Elev (masl):	220.45		
LOCATION	Lot:	n/a	Tag: A065730 Audit No: M01885 Contractor License: 6875 Well Completion Date: 02/29/2008 Received Date: 06/11/2008	
	Con:	n/a		
	Municipality:	SIMCOE		
	Township:	BARRIE CITY		
	Street:	249 BRADFORD ST.		
WELL	City:	Barrie	Well Depth (m): 0 Depth to Bedrock (m): n/a Depth to Water: m Water Kind:	
	Well Status:	Dewatering		
	Prim. Use:	n/a		
	Sec. Use:	n/a		
	Boring Method:	n/a		
PUMP TEST	Test Method:	n/a	Pipe ID: 1002700582 Pump Test ID: 1002700567 Flowing: n/a Pump Duration (hr): n/a Pump Duration (m): n/a	
	Pump Set (m):	n/a		
	SWL (ft)	3.5		
	Final Level:	n/a m		
	Pump Rate:	n/a		
	Recom. Rate:	n/a		

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
0	1002700575	n/a	n/a	PLASTIC	n/a	6.2 m
0	1002700584	n/a	n/a	PLASTIC	n/a	6.2 m
0	1002700566	n/a	n/a	PLASTIC	n/a	7.5 m
0	1002700593	n/a	n/a	PLASTIC	n/a	6.2 m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	n/a	n/a	BROWN	0	6.1 m
2	SAND	SILT	FINE-GRAINED	BROWN	6.1	9.2 m

End of Record

17	Easting:	577874.00	Latitude: 44.376853 Longitude: -79.689953	Well ID: 7106251
	Northing:	4782803.00		
	Elev (masl):	220.45		
LOCATION	Lot:	n/a	Tag: A065730 Audit No: M01885 Contractor License: 6875 Well Completion Date: 02/29/2008 Received Date: 06/11/2008	
	Con:	n/a		
	Municipality:	SIMCOE		
	Township:	BARRIE CITY		
	Street:	249 BRADFORD ST.		
WELL	City:	Barrie	Well Depth (m): 0 Depth to Bedrock (m): n/a Depth to Water: m Water Kind:	
	Well Status:	Dewatering		
	Prim. Use:	n/a		
	Sec. Use:	n/a		
	Boring Method:	Jetting		
PUMP TEST	Test Method:	n/a	Pipe ID: 1002700582 Pump Test ID: 1002700594 Flowing: n/a Pump Duration (hr): n/a Pump Duration (m): n/a	
	Pump Set (m):	n/a		
	SWL (ft)	3.5		
	Final Level:	n/a m		
	Pump Rate:	n/a		
	Recom. Rate:	n/a		

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
0	1002700584	n/a	n/a	PLASTIC	n/a	6.2 m

0	1002700566	n/a	n/a	PLASTIC	n/a	7.5	m
0	1002700593	n/a	n/a	PLASTIC	n/a	6.2	m
0	1002700575	n/a	n/a	PLASTIC	n/a	6.2	m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	n/a	n/a	BROWN	0	6.1 m
2	SAND	SILT	FINE-GRAINED	BROWN	6.1	9.2 m

End of Record

17	Easting:	568456.00	Latitude: 44.376495 Longitude: -79.692446	Well ID: 7106252
	Northing:	4808275.00		
	Elev (masl):	224.74		
LOCATION	Lot:	n/a	Tag: A065729 Audit No: M01887 Contractor License: 6875 Well Completion Date: 03/07/2008 Received Date: 06/11/2008	
	Con:	n/a		
	Municipality:	SIMCOE		
	Township:	BARRIE CITY		
	Street:	249 BRADFORD ST.		
WELL	City:	Barrie	Well Depth (m): 11 Depth to Bedrock (m): n/a Depth to Water: m Water Kind:	
	Well Status:	Observation Wells		
	Prim. Use:	n/a		
	Sec. Use:	n/a		
	Boring Method:	Jetting		
PUMP TEST	Test Method:	n/a	Pipe ID: 1002701594 Pump Test ID: 1002701579 Flowing: n/a Pump Duration (hr): n/a Pump Duration (m): n/a	
	Pump Set (m):	n/a		
	SWL (ft)	3.7		
	Final Level:	n/a m		
	Pump Rate:	n/a		
	Recom. Rate:	n/a		

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
0	1002701578	n/a	n/a	PLASTIC	n/a	10.5 m
0	1002701596	n/a	n/a	PLASTIC	n/a	9.5 m
0	1002701569	n/a	n/a	PLASTIC	n/a	10.5 m
0	1002701560	n/a	n/a	PLASTIC	n/a	10.5 m
0	1002701587	n/a	n/a	PLASTIC	n/a	10.5 m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	n/a	n/a	BROWN	0	4 m
2	SAND	n/a	SILTY	BROWN	4	9 m
3	CLAY	TILL	n/a	GREY	9	11 m

End of Record

17	Easting:	489012.00	Latitude: 44.376495 Longitude: -79.692446	Well ID: 7106252
	Northing:	4789039.00		
	Elev (masl):	224.84		
LOCATION	Lot:	n/a	Tag: A065729 Audit No: M01887 Contractor License: 6875 Well Completion Date: 03/07/2008 Received Date: 06/11/2008	
	Con:	n/a		
	Municipality:	SIMCOE		
	Township:	BARRIE CITY		
	Street:	249 BRADFORD ST.		
WELL	City:	Barrie	Well Depth (m): 0 Depth to Bedrock (m): n/a Depth to Water: m Water Kind:	
	Well Status:	Observation Wells		
	Prim. Use:	n/a		
	Sec. Use:	n/a		
	Boring Method:	n/a		
TEST	Test Method:	n/a	Pipe ID: 1002701598 Pump Test ID: 1002701561 Flowing: n/a	
	Pump Set (m):	n/a		
	SWL (ft)			

PUMP	Final Level:	8/65m	Pump Duration (hr):	n/a
	Pump Rate:	n/a	Pump Duration (m):	n/a
	Recom. Rate:	n/a		

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
0	1002701587	n/a	n/a	PLASTIC	n/a	10.5 m
0	1002701569	n/a	n/a	PLASTIC	n/a	10.5 m
0	1002701578	n/a	n/a	PLASTIC	n/a	10.5 m
0	1002701560	n/a	n/a	PLASTIC	n/a	10.5 m
0	1002701596	n/a	n/a	PLASTIC	n/a	9.5 m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	n/a	n/a	BROWN	0	4 m
2	SAND	n/a	SILTY	BROWN	4	9 m
3	CLAY	TILL	n/a	GREY	9	11 m

End of Record

17	Easting:	489024.00	Latitude:	44.37714	Well ID: 7106252
	Northing:	4789037.00	Longitude:	-79.692997	
	Elev (masl):	224.84			
LOCATION	Lot:	n/a	Tag:	A065729	
	Con:	n/a	Audit No:	M01887	
	Municipality:	SIMCOE	Contractor License:	6875	
	Township:	BARRIE CITY	Well Completion Date:	03/07/2008	
	Street:	249 BRADFORD ST.	Received Date:	06/11/2008	
WELL	City:	Barrie			
	Well Status:	Observation Wells	Well Depth (m):	0	
	Prim. Use:	n/a	Depth to Bedrock (m):	n/a	
	Sec. Use:	n/a	Depth to Water:	m	
	Boring Method:	n/a	Water Kind:		
PUMP TEST	Test Method:	n/a	Pipe ID:	1002701598	
	Pump Set (m):	n/a	Pump Test ID	1002701561	
	SWL (ft)	3.65	Flowing:	n/a	
	Final Level:	n/a m	Pump Duration (hr):	n/a	
	Pump Rate:	n/a	Pump Duration (m):	n/a	
	Recom. Rate:	n/a			

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
0	1002701569	n/a	n/a	PLASTIC	n/a	10.5 m
0	1002701587	n/a	n/a	PLASTIC	n/a	10.5 m
0	1002701578	n/a	n/a	PLASTIC	n/a	10.5 m
0	1002701560	n/a	n/a	PLASTIC	n/a	10.5 m
0	1002701596	n/a	n/a	PLASTIC	n/a	9.5 m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	n/a	n/a	BROWN	0	4 m
2	SAND	n/a	SILTY	BROWN	4	9 m
3	CLAY	TILL	n/a	GREY	9	11 m

End of Record

17	Easting:	489049.00	Latitude:	44.377764	Well ID: 7106252
	Northing:	4789041.00	Longitude:	-79.693259	
	Elev (masl):	221.38			
LOCATION	Lot:	n/a	Tag:	A065729	
	Con:	n/a	Audit No:	M01887	
	Municipality:	SIMCOE	Contractor License:	6875	
	Township:		Well Completion Date:	03/07/2008	

LOCATION	Street:	BARRIE ADOLF ST.	Received Date:	06/11/2008
	City:	Barrie		
WELL	Well Status:	Observation Wells	Well Depth (m):	0
	Prim. Use:	n/a	Depth to Bedrock (m):	n/a
PUMP TEST	Sec. Use:	n/a	Depth to Water:	m
	Boring Method:	n/a	Water Kind:	
	Test Method:	n/a	Pipe ID:	1002701576
	Pump Set (m):	n/a	Pump Test ID	1002701588
	SWL (ft)	1.99	Flowing:	n/a
	Final Level:	n/a m	Pump Duration (hr):	n/a
	Pump Rate:	n/a	Pump Duration (m):	n/a
	Recom. Rate:	n/a		

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
0	1002701587	n/a	n/a	PLASTIC	n/a	10.5 m
0	1002701560	n/a	n/a	PLASTIC	n/a	10.5 m
0	1002701569	n/a	n/a	PLASTIC	n/a	10.5 m
0	1002701596	n/a	n/a	PLASTIC	n/a	9.5 m
0	1002701578	n/a	n/a	PLASTIC	n/a	10.5 m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	n/a	n/a	BROWN	0	4 m
2	SAND	n/a	SILTY	BROWN	4	9 m
3	CLAY	TILL	n/a	GREY	9	11 m

End of Record

17	Easting:	489066.00
	Northing:	4789048.00
	Elev (masl):	221.38

Latitude: 44.378213
Longitude: -79.692307

Well ID: **7106252**

LOCATION	Lot:	n/a	Tag:	A065729
	Con:	n/a	Audit No:	M01887
LOCATION	Municipality:	SIMCOE	Contractor License:	6875
	Township:	BARRIE CITY	Well Completion Date:	03/07/2008
	Street:	249 BRADFORD ST.	Received Date:	06/11/2008
	City:	Barrie		
WELL	Well Status:	Observation Wells	Well Depth (m):	0
	Prim. Use:	n/a	Depth to Bedrock (m):	n/a
PUMP TEST	Sec. Use:	n/a	Depth to Water:	m
	Boring Method:	n/a	Water Kind:	
	Test Method:	n/a	Pipe ID:	1002701558
	Pump Set (m):	n/a	Pump Test ID	1002701588
	SWL (ft)	3.6	Flowing:	n/a
	Final Level:	n/a m	Pump Duration (hr):	n/a
	Pump Rate:	n/a	Pump Duration (m):	n/a
	Recom. Rate:	n/a		

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
0	1002701587	n/a	n/a	PLASTIC	n/a	10.5 m
0	1002701560	n/a	n/a	PLASTIC	n/a	10.5 m
0	1002701569	n/a	n/a	PLASTIC	n/a	10.5 m
0	1002701578	n/a	n/a	PLASTIC	n/a	10.5 m
0	1002701596	n/a	n/a	PLASTIC	n/a	9.5 m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	n/a	n/a	BROWN	0	4 m
2	SAND	n/a	SILTY	BROWN	4	9 m

3 CLAY TILL n/a GREY 9 11 m

End of Record

17	Easting:	399806.00	Latitude: 44.377255 Longitude: -79.690408	Well ID: 7106252
	Northing:	4698297.00		
	Elev (masl):	224.84		
LOCATION	Lot:	n/a	Tag: A065729 Audit No: M01887 Contractor License: 6875 Well Completion Date: 03/07/2008 Received Date: 06/11/2008	
	Con:	n/a		
	Municipality:	SIMCOE		
	Township:	BARRIE CITY		
	Street:	249 BRADFORD ST.		
WELL	City:	Barrie	Well Depth (m): 0 Depth to Bedrock (m): n/a Depth to Water: m Water Kind:	
	Well Status:	Observation Wells		
	Prim. Use:	n/a		
	Sec. Use:	n/a		
	Boring Method:	n/a		
PUMP TEST	Test Method:	n/a	Pipe ID: 1002701594 Pump Test ID: 1002701561 Flowing: n/a Pump Duration (hr): n/a Pump Duration (m): n/a	
	Pump Set (m):	n/a		
	SWL (ft)	3.65		
	Final Level:	n/a m		
	Pump Rate:	n/a		
	Recom. Rate:	n/a		

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
0	1002701578	n/a	n/a	PLASTIC	n/a	10.5 m
0	1002701560	n/a	n/a	PLASTIC	n/a	10.5 m
0	1002701587	n/a	n/a	PLASTIC	n/a	10.5 m
0	1002701596	n/a	n/a	PLASTIC	n/a	9.5 m
0	1002701569	n/a	n/a	PLASTIC	n/a	10.5 m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	n/a	n/a	BROWN	0	4 m
2	SAND	n/a	SILTY	BROWN	4	9 m
3	CLAY	TILL	n/a	GREY	9	11 m

End of Record

18	Easting:	348975.00	Latitude: 44.376941 Longitude: -79.690553	Well ID: 7106269
	Northing:	4883694.00		
	Elev (masl):	221.66		
LOCATION	Lot:	n/a	Tag: Z60747 Audit No: 6875 Contractor License: 6875 Well Completion Date: 05/21/2008 Received Date: 06/11/2008	
	Con:	n/a		
	Municipality:	SIMCOE		
	Township:	BARRIE CITY		
	Street:	249 BRADFORD ST.		
WELL	City:	Barrie	Well Depth (m): 0 Depth to Bedrock (m): n/a Depth to Water: m Water Kind:	
	Well Status:	Abandoned-Other		
	Prim. Use:	n/a		
	Sec. Use:	n/a		
	Boring Method:	Rotary (Air)		
PUMP TEST	Test Method:		Pipe ID: Pump Test ID: Flowing: Pump Duration (hr): Pump Duration (m):	
	Pump Set (m):			
	SWL (ft)			
	Final Level:			
	Pump Rate:			
	Recom. Rate:			

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
0	1001675260	0.15	cm	STEEL	n/a	9.2 m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	n/a	n/a	n/a	n/a	0	n/a m

End of Record

18	Easting:	496212.00	Latitude: 44.379856 Longitude: -79.689584	Well ID: 7122331
	Northing:	5036232.00		
	Elev (masl):	220.67		
LOCATION	Lot:	n/a	Tag: A065432 Audit No: Z095535 Contractor License: 7341 Well Completion Date: 04/04/2009 Received Date: 04/27/2009	
	Con:	n/a		
	Municipality:	SIMCOE		
	Township:	BARRIE CITY		
	Street:	LAKE SHORE DR.		
WELL	City:	Barrie	Well Depth (m): 7 Depth to Bedrock (m): n/a Depth to Water: m Water Kind: FRESH	
	Well Status:	Dewatering		
	Prim. Use:	n/a		
	Sec. Use:	n/a		
	Boring Method:	Jetting		
PUMP TEST	Test Method:		Pipe ID: Pump Test ID Flowing: Pump Duration (hr): Pump Duration (m):	
	Pump Set (m):			
	SWL (ft)			
	Final Level:			
	Pump Rate:			
	Recom. Rate:			

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1002524887	4.31	cm	PLASTIC	0	6 m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	n/a	n/a	BROWN	0	2 m
2	SAND	SILT	n/a	BROWN	2	7 m

End of Record

17	Easting:	561995.00	Latitude: 44.377021 Longitude: -79.689648	Well ID: 7122332
	Northing:	4891627.00		
	Elev (masl):	220.35		
LOCATION	Lot:	n/a	Tag: A065432 Audit No: Z095534 Contractor License: 7341 Well Completion Date: 04/04/2009 Received Date: 04/27/2009	
	Con:	n/a		
	Municipality:	SIMCOE		
	Township:	BARRIE CITY		
	Street:	LAKE SHORE DR.		
WELL	City:	Barrie	Well Depth (m): 11.5 Depth to Bedrock (m): n/a Depth to Water: m Water Kind: FRESH	
	Well Status:	Dewatering		
	Prim. Use:	n/a		
	Sec. Use:	n/a		
	Boring Method:	Jetting		
PUMP TEST	Test Method:		Pipe ID: Pump Test ID Flowing: Pump Duration (hr): Pump Duration (m):	
	Pump Set (m):			
	SWL (ft)			
	Final Level:			
	Pump Rate:			
	Recom. Rate:			

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
1	1002524901	5.41	cm	PLASTIC	0	10 m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	n/a	n/a	BROWN	0	4 m
2	PEAT	n/a	DENSE	BLACK	4	7 m
3	SAND	SILT	n/a	BROWN	7	11.5 m

End of Record

17	Easting:	637020.00	Latitude: 44.377021 Longitude: -79.689648	Well ID: 7132054
	Northing:	4870919.00		
	Elev (masl):	220.35		
LOCATION	Lot:	n/a	Tag: A065432 Audit No: Z095520 Contractor License: 7341 Well Completion Date: 10/05/2009 Received Date: 10/19/2009	
	Con:	n/a		
	Municipality:	SIMCOE		
	Township:	BARRIE CITY		
	Street:	LAKESHORE DRIVE		
WELL	City:	Barrie	Well Depth (m): 0 Depth to Bedrock (m): n/a Depth to Water: m Water Kind: FRESH	
	Well Status:	Abandoned-Other		
	Prim. Use:	n/a		
	Sec. Use:	n/a		
	Boring Method:	n/a		
PUMP TEST	Test Method:		Pipe ID: Pump Test ID Flowing: Pump Duration (hr): Pump Duration (m):	
	Pump Set (m):			
	SWL (ft)			
	Final Level:			
	Pump Rate:			
	Recom. Rate:			

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
0	1002898141	n/a	cm	<null>	n/a	n/a m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

17	Easting:	615015.00	Latitude: 44.379856 Longitude: -79.689584	Well ID: 7132055
	Northing:	4856880.00		
	Elev (masl):	220.67		
LOCATION	Lot:	n/a	Tag: A065432 Audit No: Z095521 Contractor License: 7341 Well Completion Date: 10/05/2009 Received Date: 10/19/2009	
	Con:	n/a		
	Municipality:	SIMCOE		
	Township:	BARRIE CITY		
	Street:	LAKESHORE DRIVE		
WELL	City:	Barrie	Well Depth (m): 0 Depth to Bedrock (m): n/a Depth to Water: m Water Kind: FRESH	
	Well Status:	Abandoned-Other		
	Prim. Use:	n/a		
	Sec. Use:	n/a		
	Boring Method:	n/a		
TEST	Test Method:		Pipe ID: Pump Test ID Flowing:	
	Pump Set (m):			
	SWL (ft)			

PUMP

Final Level:
 Pump Rate:
 Recom. Rate:

Pump Duration (hr):
 Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
0	1002898153	n/a	cm	<null>	n/a	n/a m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

n/a

Easting:	<null>
Northing:	<null>
Elev (masl):	222.42

Latitude: 44.383712
 Longitude: -79.693001

Well ID: **7132876**

LOCATION

Lot: 024
 Con: 05
 Municipality: SIMCOE
 Township: VESPREA TOWNSHIP
 Street: 51 -75 BRADFORD ST.
 City: BARRIE

Tag: A080230
 Audit No: Z82596
 Contractor License: 7190
 Well Completion Date: 09/24/2009
 Received Date: 10/29/2009

WELL

Well Status: Observation Wells
 Prim. Use: n/a
 Sec. Use: n/a
 Boring Method: Rotary (Convent.)

Well Depth (m): 9.144
 Depth to Bedrock (m): n/a
 Depth to Water: ft
 Water Kind:

PUMP TEST

Test Method:
 Pump Set (m):
 SWL (ft)
 Final Level:
 Pump Rate:
 Recom. Rate:

Pipe ID:
 Pump Test ID
 Flowing:
 Pump Duration (hr):
 Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1002980298	2	inch	PLASTIC	0	28 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SAND	GRAVEL	LOOSE	BROWN	0	20 ft
2	PEAT	n/a	LOOSE	BROWN	20	28 ft
3	SAND	SILT	DENSE	GREY	28	30 ft

End of Record

n/a

Easting:	<null>
Northing:	<null>
Elev (masl):	224.05

Latitude: 44.379853
 Longitude: -79.692459

Well ID: **7153852**

LOCATION

Lot: n/a
 Con: n/a
 Municipality: SIMCOE
 Township: BARRIE CITY (VESPREA)
 Street: JOHN ST.
 City: BARRIE

Tag: A066558
 Audit No: Z76725
 Contractor License: 7075
 Well Completion Date: 10/30/2010
 Received Date: 11/02/2010

WELL

Well Status: Observation Wells
 Prim. Use: n/a
 Sec. Use: n/a
 Boring Method: Rotary (Convent.)

Well Depth (m): 85.344
 Depth to Bedrock (m): n/a
 Depth to Water: <null>
 Water Kind:

PUMP TEST

Test Method:
 Pump Set (m):
 SWL (ft)
 Final Level:
 Pump Rate:
 Recom. Rate:

Pipe ID:
 Pump Test ID
 Flowing:
 Pump Duration (hr):
 Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
0	1003360051	2	inch	PLASTIC	n/a	200 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	TOPSOIL	n/a	n/a	BLACK	0	1 ft
2	FINE SAND	n/a	LOOSE	BROWN	1	48 ft
3	CLAY	n/a	HARD	GREY	48	111 ft
4	CLAY	SILT	LAYERED	GREY	111	138 ft
5	SAND	SILT	GRAVEL	BROWN	138	150 ft
6	FINE SAND	SILT	CEMENTED	GREY	150	218 ft
7	FINE SAND	n/a	LOOSE	BROWN	218	275 ft
8	CLAY	n/a	HARD	GREY	275	280 ft

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	224.14

Latitude: 44.379863
 Longitude: -79.692522

Well ID: **7153854**

LOCATION

Lot: n/a
 Con: n/a
 Municipality: SIMCOE
 Township: BARRIE CITY (VESPREA)
 Street: JOHN ST.
 City: BARRIE

Tag: A045947
 Audit No: Z76724
 Contractor License: 7075
 Well Completion Date: 10/31/2010
 Received Date: 11/02/2010

WELL

Well Status: Observation Wells
 Prim. Use: n/a
 Sec. Use: n/a
 Boring Method: Rotary (Convent.)

Well Depth (m): 54.864
 Depth to Bedrock (m): n/a
 Depth to Water: <null>
 Water Kind:

PUMP TEST

Test Method:
 Pump Set (m):
 SWL (ft)
 Final Level:
 Pump Rate:
 Recom. Rate:

Pipe ID:
 Pump Test ID
 Flowing:
 Pump Duration (hr):
 Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
0	1003360065	2	inch	PLASTIC	n/a	150 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	TOPSOIL	n/a	n/a	BLACK	0	1 ft
2	FINE SAND	n/a	LOOSE	BROWN	1	48 ft
3	CLAY	n/a	n/a	GREY	48	111 ft
4	CLAY	SILT	LAYERED	GREY	111	138 ft
5	SAND	SILT	GRAVEL	BROWN	138	150 ft
6	FINE SAND	SILT	CEMENTED	GREY	150	180 ft

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	225.24

Latitude: 44.381642
 Longitude: -79.696148

Well ID: **7153855**

LOCATION	Lot:		Tag:	A045976
	Con:	n/a	Audit No:	Z76727
	Municipality:	SIMCOE	Contractor License:	7075
	Township:	BARRIE CITY (VESPRE)	Well Completion Date:	10/27/2010
WELL	Street:	65 VESPRA ST.	Received Date:	11/02/2010
	City:	BARRIE		
	Well Status:	Observation Wells	Well Depth (m):	57.912
	Prim. Use:	n/a	Depth to Bedrock (m):	n/a
PUMP TEST	Sec. Use:	n/a	Depth to Water:	<null>
	Boring Method:	Rotary (Convent.)	Water Kind:	
	Test Method:		Pipe ID:	
	Pump Set (m):		Pump Test ID	
	SWL (ft)		Flowing:	
	Final Level:		Pump Duration (hr):	
	Pump Rate:		Pump Duration (m):	
	Recom. Rate:			

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
0	1003360081	2	inch	PLASTIC	n/a	160 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FINE SAND	n/a	LOOSE	BROWN	0	63 ft
2	CLAY	SILT	HARD	GREY	63	73 ft
3	CLAY	SILT	SOFT	GREY	73	90 ft
4	CLAY	n/a	HARD	GREY	90	101 ft
5	CLAY	GRAVEL	HARD	GREY	101	119 ft
6	CLAY	n/a	HARD	GREY	119	131 ft
7	SAND	SILT	LOOSE	BROWN	131	160 ft
8	GRAVEL	SAND	LOOSE	BROWN	160	190 ft

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	225.22

Latitude: 44.381668
Longitude: -79.696097

Well ID: **7153856**

LOCATION	Lot:	n/a	Tag:	A045974
	Con:	n/a	Audit No:	Z76726
	Municipality:	SIMCOE	Contractor License:	7075
	Township:	BARRIE CITY (VESPRE)	Well Completion Date:	10/24/2008
WELL	Street:	65 VESPRA ST.	Received Date:	11/02/2010
	City:	BARRIE		
	Well Status:	Observation Wells	Well Depth (m):	95.0976
	Prim. Use:	n/a	Depth to Bedrock (m):	n/a
PUMP TEST	Sec. Use:	n/a	Depth to Water:	<null>
	Boring Method:	Rotary (Convent.)	Water Kind:	
	Test Method:		Pipe ID:	
	Pump Set (m):		Pump Test ID	
	SWL (ft)		Flowing:	
	Final Level:		Pump Duration (hr):	
	Pump Rate:		Pump Duration (m):	
	Recom. Rate:			

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
0	1003360098	2	inch	PLASTIC	n/a	215 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FINE SAND	n/a	LOOSE	BROWN	0	63 ft
2	CLAY	SILT	HARD	GREY	63	73 ft

3	CLAY	SILT	SOFT	GREY	73	90	ft
4	CLAY	n/a	HARD	GREY	90	101	ft
5	CLAY	GRAVEL	HARD	GREY	101	119	ft
6	CLAY	n/a	HARD	GREY	119	131	ft
7	SAND	SILT	LOOSE	BROWN	131	160	ft
8	GRAVEL	SAND	LOOSE	BROWN	160	250	ft
9	FINE SAND	n/a	LOOSE	BROWN	250	312	ft

End of Record

n/a	Easting:	<null>	Latitude: 44.376691 Longitude: -79.696258	Well ID: 7165481
	Northing:	<null>		
	Elev (masl):	228.15		
LOCATION	Lot:	n/a	Tag: A106007 Audit No: Z122944 Contractor License: 7075 Well Completion Date: 11/24/2010 Received Date: 07/19/2011	
	Con:	n/a		
	Municipality:	SIMCOE		
	Township:	BARRIE CITY (VESPRE)		
	Street:	ANNE ST.		
City:	Barrie			
WELL	Well Status:	Observation Wells	Well Depth (m): 14.478 Depth to Bedrock (m): n/a Depth to Water: ft Water Kind:	
	Prim. Use:	n/a		
	Sec. Use:	n/a		
	Boring Method:	Boring		
PUMP TEST	Test Method:		Pipe ID: Pump Test ID Flowing: Pump Duration (hr): Pump Duration (m):	
	Pump Set (m):			
	SWL (ft)			
	Final Level:			
	Pump Rate:			
	Recom. Rate:			

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1003906470	2	inch	<null>	45	35 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SAND	n/a	DRY	BROWN	0	10 ft
2	SAND	n/a	WATER-BEARING	GREY	10	45 ft
3	n/a	n/a	SILT	GREY	45	47.5 ft

End of Record

n/a	Easting:	<null>	Latitude: 44.376691 Longitude: -79.696258	Well ID: 7165482
	Northing:	<null>		
	Elev (masl):	228.15		

LOCATION	Lot:	n/a	Tag: A106008 Audit No: Z122934 Contractor License: 7075 Well Completion Date: 11/24/2010 Received Date: 07/19/2011
	Con:	n/a	
	Municipality:	SIMCOE	
	Township:	BARRIE CITY (VESPra)	
	Street:	INNISFIL ST.	
City:	Barrie		

WELL	Well Status:	Observation Wells	Well Depth (m): 9.144 Depth to Bedrock (m): n/a Depth to Water: ft Water Kind:
	Prim. Use:	n/a	
	Sec. Use:	n/a	
	Boring Method:	Boring	

PUMP TEST	Test Method:		Pipe ID: Pump Test ID Flowing: Pump Duration (hr): Pump Duration (m):
	Pump Set (m):		
	SWL (ft)		
	Final Level:		
	Pump Rate:		
	Recom. Rate:		

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1003906483	2	inch	<null>	n/a	n/a ft
2	1003906484	2	inch	<null>	20	0 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	n/a	n/a	n/a	BROWN	0	10 ft
2	SAND	n/a	n/a	GREY	10	30 ft

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	223.90

Latitude: 44.379834
Longitude: -79.692359

Well ID: **7174709**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPREA)
Street: JOHN STREET ROAD ALLOWANCE
City: Barrie

Tag:
Audit No: Z125513
Contractor License: 7282
Well Completion Date: 11/04/2011
Received Date: 01/09/2012

WELL

Well Status: Abandoned-Other
Prim. Use: n/a
Sec. Use: n/a
Boring Method: n/a

Well Depth (m): 0
Depth to Bedrock (m): n/a
Depth to Water: m
Water Kind:

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
0	1004062903	n/a	cm	<null>	n/a	n/a m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	n/a	n/a	n/a	n/a	0	n/a m

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	225.14

Latitude: 44.381765
Longitude: -79.695894

Well ID: **7174710**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPREA)
Street: 65 VESPREA STREET
City: Barrie

Tag:
Audit No: Z125510
Contractor License: 7282
Well Completion Date: 11/04/2011
Received Date: 01/09/2012

WELL

Well Status: Abandoned-Other
Prim. Use: n/a
Sec. Use: n/a
Boring Method: n/a

Well Depth (m): 0
Depth to Bedrock (m): n/a
Depth to Water: m
Water Kind:

TEST

Test Method:
Pump Set (m):
SWL (ft)

Pipe ID:
Pump Test ID
Flowing:

PUMP

Final Level:
 Pump Rate:
 Recom. Rate:

Pump Duration (hr):
 Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
0	1004062912	n/a	cm	<null>	n/a	n/a m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

n/a

Easting:	<null>
Northing:	<null>
Elev (masl):	223.90

Latitude: 44.379834
 Longitude: -79.692359

Well ID: **7174731**

LOCATION

Lot: n/a
 Con: n/a
 Municipality: SIMCOE
 Township: BARRIE CITY (VESPRE)
 Street: JOHN STREET ROAD ALLOWANCE
 City: Barrie

Tag: A045943
 Audit No: Z125512
 Contractor License: 7282
 Well Completion Date: 11/04/2011
 Received Date: 01/10/2012

WELL

Well Status: Abandoned-Other
 Prim. Use: n/a
 Sec. Use: n/a
 Boring Method: n/a

Well Depth (m): 0
 Depth to Bedrock (m): n/a
 Depth to Water: m
 Water Kind:

PUMP TEST

Test Method:
 Pump Set (m):
 SWL (ft)
 Final Level:
 Pump Rate:
 Recom. Rate:

Pipe ID:
 Pump Test ID
 Flowing:
 Pump Duration (hr):
 Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
0	1004067057	n/a	cm	<null>	n/a	n/a m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

n/a

Easting:	<null>
Northing:	<null>
Elev (masl):	225.20

Latitude: 44.381686
 Longitude: -79.696059

Well ID: **7174732**

LOCATION

Lot: n/a
 Con: n/a
 Municipality: SIMCOE
 Township: BARRIE CITY (VESPRE)
 Street: 65 VESPRA STREET
 City: Barrie

Tag: A045974
 Audit No: Z125509
 Contractor License: 7282
 Well Completion Date: 11/03/2011
 Received Date: 01/10/2012

WELL

Well Status: Abandoned-Other
 Prim. Use: n/a
 Sec. Use: n/a
 Boring Method: n/a

Well Depth (m): 0
 Depth to Bedrock (m): n/a
 Depth to Water: m
 Water Kind:

PUMP TEST

Test Method:
 Pump Set (m):
 SWL (ft)
 Final Level:
 Pump Rate:
 Recom. Rate:

Pipe ID:
 Pump Test ID
 Flowing:
 Pump Duration (hr):
 Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
0	1004067076	n/a	cm	<null>	n/a	n/a m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

n/a

Easting:	<null>
Northing:	<null>
Elev (masl):	225.20

Latitude: 44.381686
 Longitude: -79.696059

Well ID: **7174733**

LOCATION

Lot: n/a
 Con: n/a
 Municipality: SIMCOE
 Township: BARRIE CITY (VESPRE)
 Street: 65 VESPRA STREET
 City: Barrie

Tag: A045976
 Audit No: Z125508
 Contractor License: 7282
 Well Completion Date: 11/03/2011
 Received Date: 01/10/2012

WELL

Well Status: Abandoned-Other
 Prim. Use: n/a
 Sec. Use: n/a
 Boring Method: n/a

Well Depth (m): 0
 Depth to Bedrock (m): n/a
 Depth to Water: m
 Water Kind:

PUMP TEST

Test Method:
 Pump Set (m):
 SWL (ft)
 Final Level:
 Pump Rate:
 Recom. Rate:

Pipe ID:
 Pump Test ID
 Flowing:
 Pump Duration (hr):
 Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
0	1004071420	n/a	cm	<null>	n/a	n/a m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

n/a

Easting:	<null>
Northing:	<null>
Elev (masl):	225.14

Latitude: 44.381765
 Longitude: -79.695894

Well ID: **7174734**

LOCATION

Lot: n/a
 Con: n/a
 Municipality: SIMCOE
 Township: BARRIE CITY (VESPRE)
 Street: 65 VESPRA STREET
 City: Barrie

Tag: A045946
 Audit No: Z125511
 Contractor License: 7282
 Well Completion Date: 11/04/2011
 Received Date: 01/10/2012

WELL

Well Status: Abandoned-Other
 Prim. Use:

Well Depth (m): 0
 Depth to Bedrock (m): n/a

WE	Sec. Use:	n/a	Depth to Water:	m
	Boring Method:	n/a	Water Kind:	
PUMP TEST	Test Method:		Pipe ID:	
	Pump Set (m):		Pump Test ID	
	SWL (ft)		Flowing:	
	Final Level:		Pump Duration (hr):	
	Pump Rate:		Pump Duration (m):	
	Recom. Rate:			

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
0	1004071429	n/a	cm	<null>	n/a	n/a m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

n/a	Easting:	<null>	Latitude:	44.378226	Well ID: 7178591	
	Northing:	<null>	Longitude:	-79.694253		
	Elev (masl):	221.73				
LOCATION	Lot:	n/a			Tag:	A089528
	Con:	n/a			Audit No:	M05435
	Municipality:	SIMCOE			Contractor License:	7314
	Township:	BARRIE CITY (VESPRA)			Well Completion Date:	12/15/2011
	Street:				Received Date:	03/28/2012
WELL	City:	n/a				
	Well Status:	<null>			Well Depth (m):	0
	Prim. Use:	n/a			Depth to Bedrock (m):	n/a
	Sec. Use:	n/a			Depth to Water:	
	Boring Method:				Water Kind:	
PUMP TEST	Test Method:				Pipe ID:	
	Pump Set (m):				Pump Test ID	
	SWL (ft)				Flowing:	
	Final Level:				Pump Duration (hr):	
	Pump Rate:				Pump Duration (m):	
	Recom. Rate:					

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
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FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

n/a	Easting:	<null>	Latitude:	44.384814	Well ID: 7179175	
	Northing:	<null>	Longitude:	-79.694847		
	Elev (masl):	224.72				
LOCATION	Lot:	n/a			Tag:	A105859
	Con:	n/a			Audit No:	Z146933
	Municipality:	SIMCOE			Contractor License:	7190
	Township:	BARRIE CITY (VESPRE)			Well Completion Date:	03/15/2012
	Street:	50 BRADFORD STREET PRINCE WALES SCHOOL			Received Date:	04/13/2012
	City:	Barrie				

WELL

Well Status: Observation Wells
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Rotary (Convent.)

Well Depth (m): 6.096
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind:

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1004241927	2	inch	PLASTIC	0	6 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	n/a	n/a	n/a	BLACK	0	0.2 ft
2	n/a	n/a	n/a	BROWN	0.2	0.5 ft
3	SAND	n/a	WATER-BEARING	BROWN	0.5	20 ft

End of Record

n/a

Easting: <null>
Northing: <null>
Elev (masl): 222.74

Latitude: 44.383966
Longitude: -79.693133

Well ID: **7179204**

LOCATION

Lot: 024
Con: 05
Municipality: SIMCOE
Township: BARRIE CITY (VESPRE)
Street: 51 BRADFORD STREET 75
City: Barrie

Tag: A118138
Audit No: Z133865
Contractor License: 7190
Well Completion Date: 01/03/2012
Received Date: 04/13/2012

WELL

Well Status: Observation Wells
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Rotary (Convent.)

Well Depth (m): 6.858
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind: Untested

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1004243858	2	inch	PLASTIC	17.5	0 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SAND	GRAVEL	n/a	BROWN	0	22.5 ft

End of Record

n/a

Easting: <null>
Northing: <null>
Elev (masl): 223.72

Latitude: 44.382575
Longitude: -79.696654

Well ID: **7180074**

LOCATION

Lot: n/a
Con: n/a
Municipality:

Tag: A120774
Audit No: Z125501
Contractor License: 7282

LOCAL	Township:	BARRIE CITY (VESPRE)	Well Completion Date:	02/02/2012
	Street:	BARRIE RD ALLOWANCE	Received Date:	04/26/2012
	City:	n/a		
WELL	Well Status:	Observation Wells	Well Depth (m):	5.1816
	Prim. Use:	n/a	Depth to Bedrock (m):	n/a
	Sec. Use:	n/a	Depth to Water:	ft
	Boring Method:	Boring	Water Kind:	
PUMP TEST	Test Method:		Pipe ID:	
	Pump Set (m):		Pump Test ID	
	SWL (ft)		Flowing:	
	Final Level:		Pump Duration (hr):	
	Pump Rate:		Pump Duration (m):	
	Recom. Rate:			

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1004291434	2	inch	PLASTIC	0	12 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	TOPSOIL	SAND	SOFT	BROWN	0	1 ft
2	SAND	GRAVEL	SOFT	BROWN	1	5 ft
3	SAND	SILT	SOFT	BLACK	5	17 ft

End of Record

n/a	Easting:	<null>	Latitude: 44.377805 Longitude: -79.697589	Well ID: 7180076
	Northing:	<null>		
	Elev (masl):	223.63		
LOCATION	Lot:	025	Tag: A120804 Audit No: Z125505 Contractor License: 7282 Well Completion Date: 01/27/2012 Received Date: 04/26/2012	
	Con:	05		
	Municipality:	SIMCOE		
	Township:	BARRIE CITY (VESPRE)		
	Street:	DAYMENTS CREEK		
WELL	City:	Barrie	Well Depth (m): 4.572 Depth to Bedrock (m): n/a Depth to Water: ft Water Kind:	
	Well Status:	Observation Wells		
	Prim. Use:	n/a		
	Sec. Use:	n/a		
	Boring Method:	Boring		
PUMP TEST	Test Method:		Pipe ID: Pump Test ID Flowing: Pump Duration (hr): Pump Duration (m):	
	Pump Set (m):			
	SWL (ft)			
	Final Level:			
	Pump Rate:			
	Recom. Rate:			

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1004291458	2	inch	PLASTIC	0	10 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	TOPSOIL	SAND	SOFT	BROWN	0	2 ft
2	SILT	SAND	SOFT	BROWN	2	5 ft
3	SAND	SILT	SOFT	BLACK	5	n/a ft
4	n/a	n/a	n/a	n/a	n/a	15 ft

End of Record

n/a	Easting:	<null>	Latitude: 44.383004 Longitude: -79.697185	Well ID: 7180077
	Northing:	<null>		
	Elev (masl):	222.97		

LOCATION	Lot:	n/a	Tag:	A120775
	Con:	n/a	Audit No:	Z125500
	Municipality:	SIMCOE	Contractor License:	7282
	Township:	BARRIE CITY (VESPREA)	Well Completion Date:	01/11/2012
WELL	Street:	EAST END BUNKAS CREEK	Received Date:	04/26/2012
	City:	Barrie		
	Well Status:	Observation Wells	Well Depth (m):	3.9624
	Prim. Use:	n/a	Depth to Bedrock (m):	n/a
PUMP TEST	Sec. Use:	n/a	Depth to Water:	ft
	Boring Method:	Boring	Water Kind:	
	Test Method:		Pipe ID:	
	Pump Set (m):		Pump Test ID	
	SWL (ft)		Flowing:	
	Final Level:		Pump Duration (hr):	
	Pump Rate:		Pump Duration (m):	
	Recom. Rate:			

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
1	1004291469	2	inch	PLASTIC	0	8 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	TOPSOIL	n/a	SOFT	BROWN	0	2 ft
2	SAND	n/a	SOFT	BROWN	2	4 ft
3	SAND	SILT	SOFT	BLACK	4	13 ft

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	224.65

Latitude: 44.382247
Longitude: -79.695595

Well ID: **7180078**

LOCATION	Lot:	n/a	Tag:	A120807
	Con:	n/a	Audit No:	Z125502
	Municipality:	SIMCOE	Contractor License:	7282
	Township:	BARRIE CITY (VESPREA)	Well Completion Date:	01/26/2012
WELL	Street:	CITY OF BARRIE RD ALLOWANCE	Received Date:	04/26/2012
	City:	n/a		
	Well Status:	Observation Wells	Well Depth (m):	5.334
	Prim. Use:	n/a	Depth to Bedrock (m):	n/a
PUMP TEST	Sec. Use:	n/a	Depth to Water:	ft
	Boring Method:	Boring	Water Kind:	
	Test Method:		Pipe ID:	
	Pump Set (m):		Pump Test ID	
	SWL (ft)		Flowing:	
	Final Level:		Pump Duration (hr):	
	Pump Rate:		Pump Duration (m):	
	Recom. Rate:			

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
1	1004291479	2	inch	PLASTIC	0	7.5 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SAND	GRAVEL	SOFT	BROWN	0	1 ft
2	SAND	GRAVEL	SOFT	BLACK	1	17.5 ft

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	223.99

Latitude: 44.37789
Longitude: -79.694825

Well ID: **7180079**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPRE)
Street: SANFORD ST RD ALLOWANCE
City: n/a

WELL

Well Status: Observation Wells
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Boring

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Tag: A120805
Audit No: Z125504
Contractor License: 7282
Well Completion Date: 02/03/2012
Received Date: 04/26/2012

Well Depth (m): 7.4676
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1004291490	2	inch	PLASTIC	0	14.5 ft
2	1004291491	n/a	inch	<null>	n/a	n/a ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	TOPSOIL	n/a	SOFT	BROWN	0	1 ft
2	SAND	n/a	SOFT	BROWN	1	13 ft
3	SAND	WOOD FRAGMENTS	n/a	BLACK	13	24.5 ft

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	225.68

Latitude: 44.377602
Longitude: -79.695622

Well ID: **7180080**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPRE)
Street: BROCH PARK
City: n/a

WELL

Well Status: Observation Wells
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Boring

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Tag: A120806
Audit No: Z125503
Contractor License: 7282
Well Completion Date: 01/27/2012
Received Date: 04/26/2012

Well Depth (m): 5.0292
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1004291503	2	inch	PLASTIC	0	6.5 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	TOPSOIL	SAND	SOFT	BROWN	0	2 ft
2	SAND	GRAVEL	SOFT	BROWN	2	5.5 ft

3	SAND	GRAVEL	SOFT	BLACK	5.5	12	ft
4	SAND	WOOD FRAGMENTS	SOFT	BLACK	12	16.5	ft

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	226.10

Latitude: 44.377289
Longitude: -79.697324

Well ID: **7183536**

LOCATION	Lot:	n/a	Tag:	A131167
	Con:	n/a	Audit No:	Z150716
	Municipality:	SIMCOE	Contractor License:	7241
	Township:	BARRIE CITY (VESPRE)	Well Completion Date:	06/06/2012
	Street:	91 ANNE ST S	Received Date:	07/06/2012
WELL	City:	BARRIE		
	Well Status:	Monitoring and Test Hole	Well Depth (m):	6.1
	Prim. Use:	n/a	Depth to Bedrock (m):	n/a
	Sec. Use:	n/a	Depth to Water:	m
	Boring Method:	Other Method	Water Kind:	
PUMP TEST	Test Method:		Pipe ID:	
	Pump Set (m):		Pump Test ID	
	SWL (ft)		Flowing:	
	Final Level:		Pump Duration (hr):	
	Pump Rate:		Pump Duration (m):	
	Recom. Rate:			

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1004340129	1.03	cm	OPEN HOLE	0	3.1 m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	SAND	GRAVEL	BROWN	0	1.5 m
2	SAND	SILT	SOFT	BROWN	1.5	3.1 m
3	SAND	SILT	WATER-BEARING	GREY	3.1	6.1 m

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	226.09

Latitude: 44.376946
Longitude: -79.698072

Well ID: **7183559**

LOCATION	Lot:	n/a	Tag:	A131011
	Con:	n/a	Audit No:	Z150717
	Municipality:	SIMCOE	Contractor License:	7241
	Township:	BARRIE CITY (VESPRE)	Well Completion Date:	06/06/2012
	Street:	91 ANNE STREET NORTH	Received Date:	07/06/2012
WELL	City:	BARRIE		
	Well Status:	Monitoring and Test Hole	Well Depth (m):	6.1
	Prim. Use:	n/a	Depth to Bedrock (m):	n/a
	Sec. Use:	n/a	Depth to Water:	m
	Boring Method:	Other Method	Water Kind:	
PUMP TEST	Test Method:		Pipe ID:	
	Pump Set (m):		Pump Test ID	
	SWL (ft)		Flowing:	
	Final Level:		Pump Duration (hr):	
	Pump Rate:		Pump Duration (m):	
	Recom. Rate:			

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1004341101	4.03	cm	PLASTIC	0	3.1 m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	SAND	GRAVEL	BROWN	0	1.5 m
2	SAND	SILT	SOFT	BROWN	1.5	3.1 m
3	SAND	SILT	WATER-BEARING	GREY	3.1	6.1 m

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	225.00

Latitude: 44.377423
Longitude: -79.698024

Well ID: **7183561**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPREA)
Street: 91 ANNE STREET SOUTH
City: BARRIE

Tag: A131018
Audit No: Z150719
Contractor License: 7241
Well Completion Date: 06/06/2012
Received Date: 07/06/2012

WELL

Well Status: Monitoring and Test Hole
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Other Method

Well Depth (m): 4.5
Depth to Bedrock (m): n/a
Depth to Water: m
Water Kind:

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1004341182	4.03	cm	PLASTIC	0	1.5 m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	SAND	GRAVEL	BROWN	0	1.5 m
2	SAND	SILT	SOFT	BROWN	1.5	3.1 m
3	SAND	SILT	WATER-BEARING	GREY	3.1	4.5 m

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	225.52

Latitude: 44.377385
Longitude: -79.697083

Well ID: **7183562**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPREA)
Street: 91 ANNE STREET S
City: BARRIE

Tag: A131159
Audit No: Z150715
Contractor License: 7241
Well Completion Date: 06/06/2012
Received Date: 07/06/2012

WELL

Well Status: Monitoring and Test Hole
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Other Method

Well Depth (m): 6.1
Depth to Bedrock (m): n/a
Depth to Water: m
Water Kind:

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1004341228	4.03	cm	PLASTIC	0	3.1 m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	SAND	GRAVEL	BROWN	0	1.5 m
2	SAND	SILT	SOFT	BROWN	1.5	3.1 m
3	SAND	SILT	WATER-BEARING	GREY	3.1	6.1 m

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	226.29

Latitude: 44.378235
Longitude: -79.699035

Well ID: **7183971**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPREA)
Street: JOHN ST. (IMMEDIATELY VEST OF 113 JOHN ST.)
City: BARRIE

Tag: A132071
Audit No: Z62886
Contractor License: 7282
Well Completion Date: 06/01/2012
Received Date: 07/12/2012

WELL

Well Status: Observation Wells
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Boring

Well Depth (m): 4.6
Depth to Bedrock (m): n/a
Depth to Water: m
Water Kind:

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
0	1004081767	0.52	cm	PLASTIC	n/a	3 m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	n/a	LOOSE	BROWN	0	0.8 m
2	SAND	n/a	SOFT	BROWN	0.8	1.8 m
3	SAND	n/a	SOFT	BLACK	1.8	4.6 m

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	221.78

Latitude: 44.378245
Longitude: -79.693575

Well ID: **7183972**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPREA)
Street: BRADFORD ST. ROAD ALLOWANCE
City: BARRIE

Tag: A132052
Audit No: Z62888
Contractor License: 7282
Well Completion Date: 07/12/2012
Received Date: 07/12/2012

WELL

Well Status: Observation Wells
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Other Method

Well Depth (m): 4.2
Depth to Bedrock (m): n/a
Depth to Water: m
Water Kind:

TEST

Test Method:
Pump Set (m):
SWL (ft)

Pipe ID:
Pump Test ID
Flowing:

PUMP

Final Level:
 Pump Rate:
 Recom. Rate:

Pump Duration (hr):
 Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
0	1004175900	5.7	cm	PLASTIC	n/a	2.76 m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	MEDIUM SAND	n/a	LOOSE	BROWN	0	4.2 m

End of Record

n/a

Easting:	<null>
Northing:	<null>
Elev (masl):	224.91

Latitude: 44.383676
 Longitude: -79.699329

Well ID: **7183973**

LOCATION

Lot: n/a
 Con: n/a
 Municipality: SIMCOE
 Township: BARRIE CITY (VESPRE)
 Street: 39 PERRY ST.
 City: BARRIE

Tag: A132054
 Audit No: Z62883
 Contractor License: 7282
 Well Completion Date: 06/05/2012
 Received Date: 07/12/2012

WELL

Well Status: Observation Wells
 Prim. Use: n/a
 Sec. Use: n/a
 Boring Method: Boring

Well Depth (m): 4.5
 Depth to Bedrock (m): n/a
 Depth to Water: m
 Water Kind:

PUMP TEST

Test Method:
 Pump Set (m):
 SWL (ft)
 Final Level:
 Pump Rate:
 Recom. Rate:

Pipe ID:
 Pump Test ID
 Flowing:
 Pump Duration (hr):
 Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
0	1004175910	5.7	cm	PLASTIC	n/a	1.2 m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	TOPSOIL	CLAY	LOOSE	BROWN	0	3 m
2	SILT	CLAY	LOOSE	GREY	3	4.5 m

End of Record

n/a

Easting:	<null>
Northing:	<null>
Elev (masl):	222.91

Latitude: 44.377978
 Longitude: -79.696229

Well ID: **7183975**

LOCATION

Lot: 025
 Con: 05
 Municipality: SIMCOE
 Township: BARRIE CITY (VESPRE)
 Street: BROCK PARK
 City: BARRIE

Tag: A132058
 Audit No: Z62885
 Contractor License: 7282
 Well Completion Date: 06/05/2012
 Received Date: 07/12/2012

WELL

Well Status: Observation Wells
 Prim. Use: n/a
 Sec. Use: n/a
 Boring Method: Boring

Well Depth (m): 4.6
 Depth to Bedrock (m): n/a
 Depth to Water: m
 Water Kind:

PUMP TEST

Test Method:
 Pump Set (m):
 SWL (ft)
 Final Level:
 Pump Rate:
 Recom. Rate:

Pipe ID:
 Pump Test ID
 Flowing:
 Pump Duration (hr):
 Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
0	1004175931	0.52	cm	PLASTIC	n/a	3 m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	n/a	LOOSE	BROWN	0	0.9 m
2	SAND	n/a	SOFT	BROWN	0.9	1.8 m
3	SAND	n/a	SOFT	BLACK	1.8	4.6 m

End of Record

n/a

Easting:	<null>
Northing:	<null>
Elev (masl):	226.18

Latitude: 44.37785
 Longitude: -79.699144

Well ID: **7183976**

LOCATION

Lot: n/a
 Con: n/a
 Municipality: SIMCOE
 Township: BARRIE CITY (VESPREA)
 Street: FREDERICK STREET UNOPENED
 City: BARRIE

Tag: A132600
 Audit No: Z62887
 Contractor License: 7282
 Well Completion Date: 06/01/2012
 Received Date: 07/12/2012

WELL

Well Status: Observation Wells
 Prim. Use: n/a
 Sec. Use: n/a
 Boring Method: Boring

Well Depth (m): 4.6
 Depth to Bedrock (m): n/a
 Depth to Water: m
 Water Kind:

PUMP TEST

Test Method:
 Pump Set (m):
 SWL (ft)
 Final Level:
 Pump Rate:
 Recom. Rate:

Pipe ID:
 Pump Test ID
 Flowing:
 Pump Duration (hr):
 Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
0	1004175942	0.52	cm	PLASTIC	n/a	3 m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	n/a	LOOSE	BROWN	0	0.8 m
2	SAND	n/a	SOFT	BROWN	0.8	1.8 m
3	SAND	n/a	SOFT	BLACK	1.8	4.6 m

End of Record

n/a

Easting:	<null>
Northing:	<null>
Elev (masl):	223.62

Latitude: 44.377526
 Longitude: -79.6929

Well ID: **7186712**

LOCATION

Lot: n/a
 Con: n/a
 Municipality: SIMCOE
 Township: BARRIE CITY (VESPREA)
 Street: 249 BRADFORD ST.
 City: BARRIE

Tag: A132070
 Audit No: Z62894
 Contractor License: 7282
 Well Completion Date: 08/21/2012
 Received Date: 09/06/2012

WELL

Well Status: Observation Wells
 Prim. Use:

Well Depth (m): 14.3
 Depth to Bedrock (m): n/a

WE	Sec. Use:	n/a	Depth to Water:	m
	Boring Method:	Boring	Water Kind:	
PUMP TEST	Test Method:		Pipe ID:	
	Pump Set (m):		Pump Test ID	
	SWL (ft)		Flowing:	
	Final Level:		Pump Duration (hr):	
	Pump Rate:		Pump Duration (m):	
	Recom. Rate:			

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
0	1004176010	0.05	cm	PLASTIC	n/a	11.3 m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SAND	n/a	SOFT	BROWN	0	13.7 m
2	SILT	n/a	SOFT	GREY	13.7	14.3 m

End of Record

n/a	Easting:	<null>	Latitude: 44.383029 Longitude: -79.693832	Well ID: 7189351
	Northing:	<null>		
	Elev (masl):	222.03		
LOCATION	Lot:	n/a	Tag: A120771 Audit No: Z62882 Contractor License: 7282 Well Completion Date: 06/06/2012 Received Date: 11/12/2012	
	Con:	n/a		
	Municipality:	SIMCOE		
	Township:	BARRIE CITY (VESPRE)		
	Street:			
WELL	City:	n/a	Well Depth (m): 0 Depth to Bedrock (m): n/a Depth to Water: Water Kind:	
	Well Status:	<null>		
	Prim. Use:	n/a		
	Sec. Use:	n/a		
	Boring Method:			
PUMP TEST	Test Method:		Pipe ID: Pump Test ID Flowing: Pump Duration (hr): Pump Duration (m):	
	Pump Set (m):			
	SWL (ft)			
	Final Level:			
	Pump Rate:			
	Recom. Rate:			

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
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FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

n/a	Easting:	<null>	Latitude: 44.3782 Longitude: -79.693576	Well ID: 7197561
	Northing:	<null>		
	Elev (masl):	221.98		
LOCATION	Lot:	n/a	Tag: A143840 Audit No: C20737 Contractor License: 7282 Well Completion Date: 06/07/2012 Received Date: 02/19/2013	
	Con:	n/a		
	Municipality:	SIMCOE		
	Township:	BARRIE CITY (VESPRE)		
	Street:			
WELL	City:	n/a		
	Well Status:			
	Prim. Use:			
	Sec. Use:			
	Boring Method:			
PUMP TEST	Test Method:			
	Pump Set (m):			
	SWL (ft)			
	Final Level:			
	Pump Rate:			
	Recom. Rate:			

WELL
PUMP TEST

Well Status: <null>
Prim. Use: n/a
Sec. Use: n/a
Boring Method:

Well Depth (m): 0
Depth to Bedrock (m): n/a
Depth to Water:
Water Kind:

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
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FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	223.45

Latitude: 44.377938
Longitude: -79.695063

Well ID: **7197562**

LOCATION
WELL
PUMP TEST

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPREA)
Street:
City: n/a

Tag: A143842
Audit No: C20739
Contractor License: 7282
Well Completion Date: 11/28/2012
Received Date: 02/19/2013

Well Status: <null>
Prim. Use: n/a
Sec. Use: n/a
Boring Method:

Well Depth (m): 0
Depth to Bedrock (m): n/a
Depth to Water:
Water Kind:

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
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FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	224.67

Latitude: 44.377848
Longitude: -79.696634

Well ID: **7197563**

LOCATION

Lot: n/a
Con: n/a
Municipality:

Tag: A143843
Audit No: C20738
Contractor License: 7282

LOCAL	Township:	BARRIE CITY (VESPRE)	Well Completion Date:	11/27/2012
	Street:		Received Date:	02/19/2013
	City:	n/a		
WELL	Well Status:	<null>	Well Depth (m):	0
	Prim. Use:	n/a	Depth to Bedrock (m):	n/a
	Sec. Use:	n/a	Depth to Water:	
	Boring Method:		Water Kind:	
PUMP TEST	Test Method:		Pipe ID:	
	Pump Set (m):		Pump Test ID	
	SWL (ft)		Flowing:	
	Final Level:		Pump Duration (hr):	
	Pump Rate:		Pump Duration (m):	
	Recom. Rate:			

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
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FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

n/a	Easting:	<null>	Latitude: 44.378237 Longitude: -79.698395	Well ID: 7197564
	Northing:	<null>		
	Elev (masl):	226.20		
LOCATION	Lot:	n/a	Tag: A143884 Audit No: C20742 Contractor License: 7282 Well Completion Date: 12/02/2012 Received Date: 02/19/2013	
	Con:	n/a		
	Municipality:	SIMCOE		
	Township:	BARRIE CITY (VESPRE)		
	Street:			
WELL	City:	n/a	Well Depth (m): 0 Depth to Bedrock (m): n/a Depth to Water: Water Kind:	
	Well Status:	<null>		
	Prim. Use:	n/a		
	Sec. Use:	n/a		
	Boring Method:			
PUMP TEST	Test Method:		Pipe ID: Pump Test ID Flowing: Pump Duration (hr): Pump Duration (m):	
	Pump Set (m):			
	SWL (ft)			
	Final Level:			
	Pump Rate:			
	Recom. Rate:			

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
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FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

n/a	Easting:	<null>	Latitude: 44.383695 Longitude: -79.699341	Well ID: 7197565
	Northing:	<null>		
	Elev (masl):	224.94		

LOCATION	Lot:	n/a	Tag:	A143845
	Con:	n/a	Audit No:	C20701
	Municipality:	SIMCOE	Contractor License:	7282
	Township:	BARRIE CITY (VESPRE)	Well Completion Date:	06/06/2012
	Street:		Received Date:	02/19/2013
WELL	City:	n/a		
	Well Status:	<null>	Well Depth (m):	0
	Prim. Use:	n/a	Depth to Bedrock (m):	n/a
	Sec. Use:	n/a	Depth to Water:	
PUMP TEST	Boring Method:		Water Kind:	
	Test Method:		Pipe ID:	
	Pump Set (m):		Pump Test ID	
	SWL (ft)		Flowing:	
	Final Level:		Pump Duration (hr):	
	Pump Rate:		Pump Duration (m):	
	Recom. Rate:			

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
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FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

n/a	Easting:	<null>	Latitude:	44.381384	Well ID: 7197566
	Northing:	<null>	Longitude:	-79.700409	
	Elev (masl):	225.31			
LOCATION	Lot:	n/a	Tag:	A143846	
	Con:	n/a	Audit No:	C20700	
	Municipality:	SIMCOE	Contractor License:	7282	
	Township:	BARRIE CITY (VESPRE)	Well Completion Date:	12/03/2012	
	Street:		Received Date:	02/19/2013	
WELL	City:	n/a			
	Well Status:	<null>	Well Depth (m):	0	
	Prim. Use:	n/a	Depth to Bedrock (m):	n/a	
	Sec. Use:	n/a	Depth to Water:		
	Boring Method:		Water Kind:		
PUMP TEST	Test Method:		Pipe ID:		
	Pump Set (m):		Pump Test ID		
	SWL (ft)		Flowing:		
	Final Level:		Pump Duration (hr):		
	Pump Rate:		Pump Duration (m):		
	Recom. Rate:				

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
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FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	225.01

Latitude: 44.381683
Longitude: -79.698971

Well ID: **7197567**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPRE)
Street:
City: n/a

WELL

Well Status: <null>
Prim. Use: n/a
Sec. Use: n/a
Boring Method:

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Tag: A143847
Audit No: C20702
Contractor License: 7282
Well Completion Date: 12/03/2012
Received Date: 02/19/2013

Well Depth (m): 0
Depth to Bedrock (m): n/a
Depth to Water:
Water Kind:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
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FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	224.93

Latitude: 44.382262
Longitude: -79.697678

Well ID: **7197568**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPRE)
Street:
City: n/a

WELL

Well Status: <null>
Prim. Use: n/a
Sec. Use: n/a
Boring Method:

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Tag: A143839
Audit No: C20703
Contractor License: 7282
Well Completion Date: 12/02/2012
Received Date: 02/19/2013

Well Depth (m): 0
Depth to Bedrock (m): n/a
Depth to Water:
Water Kind:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
-------	---------	-----------------	----------------	----------	-----------	--------------

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	224.91

Latitude: 44.382117
Longitude: -79.695974

Well ID: **7197569**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPREA)
Street:
City: n/a

WELL

Well Status: <null>
Prim. Use: n/a
Sec. Use: n/a
Boring Method:

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Tag: A143838
Audit No: C20704
Contractor License: 7282
Well Completion Date: 05/12/2012
Received Date: 02/19/2013

Well Depth (m): 0
Depth to Bedrock (m): n/a
Depth to Water:
Water Kind:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
-------	---------	-----------------	----------------	----------	-----------	--------------

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	222.03

Latitude: 44.383038
Longitude: -79.693832

Well ID: **7197570**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPREA)
Street:
City: n/a

WELL

Well Status: <null>
Prim. Use: n/a
Sec. Use: n/a
Boring Method:

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Tag: A143848
Audit No: C20705
Contractor License: 7282
Well Completion Date: 06/17/2012
Received Date: 02/19/2013

Well Depth (m): 0
Depth to Bedrock (m): n/a
Depth to Water:
Water Kind:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
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FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	221.21

Latitude: 44.384924
Longitude: -79.691907

Well ID: **7199953**

LOCATION
Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPRE)
Street:
City: n/a

Tag: A141959
Audit No: C16159
Contractor License: 7241
Well Completion Date: 03/17/2013
Received Date: 04/08/2013

WELL
Well Status: <null>
Prim. Use: n/a
Sec. Use: n/a
Boring Method:

Well Depth (m): 0
Depth to Bedrock (m): n/a
Depth to Water:
Water Kind:

PUMP TEST
Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
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FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	224.29

Latitude: 44.383903
Longitude: -79.695545

Well ID: **7202513**

LOCATION
Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPRE)
Street:
City: n/a

Tag: A137282
Audit No: C19701
Contractor License: 7147
Well Completion Date: 05/09/2013
Received Date: 06/03/2013

WELL
Well Status: <null>
Prim. Use: n/a
Sec. Use: n/a
Boring Method:

Well Depth (m): 0
Depth to Bedrock (m): n/a
Depth to Water:
Water Kind:

PUMP TEST
Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
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FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	224.95

Latitude: 44.382294
Longitude: -79.698092

Well ID: **7203227**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPRE)
Street: 80 BRADFORD ST.
City: BARRIE

Tag: A087724
Audit No: Z77116
Contractor License: 7314
Well Completion Date: 05/08/2013
Received Date: 06/17/2013

WELL

Well Status: Other Status
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Boring

Well Depth (m): 9.7
Depth to Bedrock (m): n/a
Depth to Water: m
Water Kind:

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
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FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SAND	SILT	GRAVEL	BROWN	0	2.2 m
2	SAND	SILT	WATER-BEARING	BROWN	2.2	9.7 m

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	225.85

Latitude: 44.37708
Longitude: -79.694002

Well ID: **7209086**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPRE)
Street: NORTH SIDE OF BROCK ST. RD. ALLOWANCE SOUTH C
City: Barrie

Tag: A150957
Audit No: Z161888
Contractor License: 7282
Well Completion Date: 07/26/2013
Received Date: 10/03/2013

WELL

Well Status: Observation Wells
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Other Method

Well Depth (m): 4.1148
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind:

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
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1 1004639710 2. inch PLASTIC 0 8.5 ft
049

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SAND	SILT	LOOSE	BROWN	0	13.5 ft

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	225.30

Latitude: 44.379758
Longitude: -79.694382

Well ID: **7209087**

LOCATION
Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPRA)
Street: SOUTH SIDE OF JOHN ST. RD. ALLOWANCE NOTH OF 1
City: Barrie

Tag: A150958
Audit No: Z161887
Contractor License: 7282
Well Completion Date: 07/26/2013
Received Date: 10/03/2013

WELL
Well Status: Observation Wells
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Other Method

Well Depth (m): 3.5052
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind:

PUMP TEST
Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1004639720	2. inch	inch	PLASTIC	0	6.5 ft
		049				

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SAND	SILT	LOOSE	BROWN	0	11.5 ft

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	225.88

Latitude: 44.378531
Longitude: -79.694924

Well ID: **7209089**

LOCATION
Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPRA)
Street: EAST SIDE OF SANDFORD ST. RD. ALLOWANCE WEST
City: Barrie

Tag: A150959
Audit No: Z161886
Contractor License: 7282
Well Completion Date: 07/26/2013
Received Date: 10/03/2013

WELL
Well Status: Observation Wells
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Boring

Well Depth (m): 3.9624
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind:

PUMP TEST
Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1004639742	2.049	inch	PLASTIC	0	3 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SAND	SILT	LOOSE	BROWN	0	9.5 ft
2	SAND	SILT	WATER-BEARING	BROWN	9.5	13 ft

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	225.71

Latitude: 44.378734
Longitude: -79.697756

Well ID: **7209090**

LOCATION
Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPREA)
Street: WEST SIDE OF ROBERT ST. RD. ALLOWANCE EAST OF
City: Barrie

Tag: A143861
Audit No: Z161879
Contractor License: 7282
Well Completion Date: 07/26/2013
Received Date: 10/03/2013

WELL
Well Status: Observation Wells
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Boring

Well Depth (m): 4.572
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind:

PUMP TEST
Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1004639757	2.049	inch	PLASTIC	0	5 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SAND	SILT	SOFT	BROWN	0	11 ft
2	SAND	SILT	WATER-BEARING	BROWN	11	15 ft
3	n/a	n/a	n/a	n/a	15	n/a ft

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	225.51

Latitude: 44.378339
Longitude: -79.697866

Well ID: **7209091**

LOCATION
Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPREA)
Street: SOUTH SIDE OF FREDERICK ST. RD. ALLOWANCE WES
City: Barrie

Tag: A143859
Audit No: Z161880
Contractor License: 7282
Well Completion Date: 07/26/2013
Received Date: 10/03/2013

WELL
Well Status: Observation Wells
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Boring

Well Depth (m): 4.2672
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind:

TEST
Test Method:
Pump Set (m):
SWL (ft)

Pipe ID:
Pump Test ID
Flowing:

PUMP

Final Level:
 Pump Rate:
 Recom. Rate:

Pump Duration (hr):
 Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1004639768	2.049	inch	PLASTIC	0	4 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SAND	SILT	LOOSE	BROWN	0	7 ft
2	SAND	SILT	WATER-BEARING	BROWN	7	14 ft

End of Record

n/a

Easting:	<null>
Northing:	<null>
Elev (masl):	225.94

Latitude: 44.378778
 Longitude: -79.696902

Well ID: **7209092**

LOCATION

Lot: n/a
 Con: n/a
 Municipality: SIMCOE
 Township: BARRIE CITY (VESPRE)
 Street: SOUTH SIDE OF FREDERICK ST. RD. ALLOWANCE IMMI
 City: Barrie

Tag: A143862
 Audit No: Z161882
 Contractor License: 7282
 Well Completion Date: 07/26/2013
 Received Date: 10/03/2013

WELL

Well Status: Observation Wells
 Prim. Use: n/a
 Sec. Use: n/a
 Boring Method: Boring

Well Depth (m): 4.572
 Depth to Bedrock (m): n/a
 Depth to Water: ft
 Water Kind:

PUMP TEST

Test Method:
 Pump Set (m):
 SWL (ft)
 Final Level:
 Pump Rate:
 Recom. Rate:

Pipe ID:
 Pump Test ID
 Flowing:
 Pump Duration (hr):
 Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1004639779	2.049	inch	PLASTIC	0	8 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SAND	SILT	LOOSE	BROWN	0	10 ft
2	SAND	SILT	WATER-BEARING	BROWN	10	15 ft

End of Record

n/a

Easting:	<null>
Northing:	<null>
Elev (masl):	226.40

Latitude: 44.377458
 Longitude: -79.694847

Well ID: **7209093**

LOCATION

Lot: n/a
 Con: n/a
 Municipality: SIMCOE
 Township: BARRIE CITY (VESPRE)
 Street: EAST SIDE OF SANDFORD ST. RD. ALLOWANCE WEST
 City: Barrie

Tag: A143863
 Audit No: Z161881
 Contractor License: 7282
 Well Completion Date: 07/26/2013
 Received Date: 10/03/2013

WELL

Well Status: Observation Wells
 Prim. Use: n/a
 Sec. Use: n/a
 Boring Method: Boring

Well Depth (m): 3.9624
 Depth to Bedrock (m): n/a
 Depth to Water: ft
 Water Kind:

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
1	1004639840	2.049	inch	PLASTIC	0	3 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SAND	SILT	LOOSE	BROWN	0	5 ft
2	SAND	SILT	WATER-BEARING	BROWN	5	13 ft

End of Record**n/a**

Easting:	<null>
Northing:	<null>
Elev (masl):	221.42

Latitude: 44.37852
Longitude: -79.693192

Well ID: 7209094

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPREA)
Street: 249 BRADFORD ST.
City: Barrie

Tag: A143864
Audit No: Z161878
Contractor License: 7282
Well Completion Date: 07/26/2013
Received Date: 10/03/2013

WELL

Well Status: Observation Wells
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Boring

Well Depth (m): 3.9624
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind:

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
1	1004639914	2.049	inch	PLASTIC	0	3 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SAND	SILT	LOOSE	BROWN	0	5 ft
2	SAND	SILT	WATER-BEARING	BROWN	5	13 ft

End of Record**n/a**

Easting:	<null>
Northing:	<null>
Elev (masl):	225.55

Latitude: 44.379065
Longitude: -79.698352

Well ID: 7209095

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPREA)
Street: NORTH SIDE OF JOHN ST. RD ALLOWANCE WEST OF J
City: Barrie

Tag: A143860
Audit No: Z161883
Contractor License: 7282
Well Completion Date: 07/26/2013
Received Date: 10/03/2013

WELL

Well Status: Observation Wells
Prim. Use:

Well Depth (m): 4.572
Depth to Bedrock (m): n/a

WE
PUMP TEST

Sec. Use: n/a
Boring Method: Boring

Depth to Water: ft
Water Kind:

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1004639928	2.049	inch	PLASTIC	0	5 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SAND	SILT	LOOSE	BROWN	0	5 ft
2	SAND	SILT	WATER-BEARING	BROWN	5	15 ft

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	225.74

Latitude: 44.378703
Longitude: -79.697393

Well ID: **7209096**

LOCATION
WELL
PUMP TEST

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPRE)
Street: NORTH SIDE OF JOHN ST. ROAD ALLOWANCE SOUTH ()
City: Barrie

Tag: A132065
Audit No: Z161884
Contractor License: 7282
Well Completion Date: 07/26/2013
Received Date: 10/03/2013

Well Status: Observation Wells
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Boring

Well Depth (m): 4.4196
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind:

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1004639945	2.049	inch	PLASTIC	0	4.5 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SAND	SILT	LAYERED	BROWN	0	6 ft
2	SAND	SILT	WATER-BEARING	BROWN	6	14.5 ft

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	224.44

Latitude: 44.382284
Longitude: -79.694815

Well ID: **7209097**

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPRE)
Street: NORTH SIDE OF VESPRE ST. ROAD ALLOWANCE NORT
City: Barrie

Tag: A143865
Audit No: Z161875
Contractor License: 7282
Well Completion Date: 07/26/2013
Received Date: 10/03/2013

WELL

Well Status: Observation Wells
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Boring

Well Depth (m): 3.9624
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind:

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1004639959	2.049	inch	PLASTIC	0	3 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SAND	SILT	DRY	BROWN	0	6 ft
2	SAND	WATER-BEARING	LOOSE	BROWN	6	13 ft

End of Record

n/a

Easting: <null>
Northing: <null>
Elev (masl): 225.25

Latitude: 44.381368
Longitude: -79.697422

Well ID: **7209098**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPREA)
Street: NORTH SIDE OF VICROTTIA ST. RD. ALLOWANCE IMMEC
City: Barrie

Tag: A143866
Audit No: Z174572
Contractor License: 7282
Well Completion Date: 07/25/2013
Received Date: 10/03/2013

WELL

Well Status: Observation Wells
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Boring

Well Depth (m): 3.9624
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind:

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1004640025	2.049	inch	PLASTIC	0	4 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SAND	SILT	DRY	BROWN	0	7 ft
2	SAND	SILT	WATER-BEARING	BROWN	7	13 ft

End of Record

n/a

Easting: <null>
Northing: <null>
Elev (masl): 225.85

Latitude: 44.378522
Longitude: -79.694924

Well ID: **7209100**

LOCATION

Lot: n/a
Con: n/a
Municipality:

Tag: A150955
Audit No: Z161885
Contractor License: 7282

LOCAL	Township:	BARRIE CITY (VESPRE)	Well Completion Date:	07/26/2013
	Street:	EAST SIDE OF SANDFORD ST. RD ALLOWANCE WEST (	Received Date:	10/03/2013
	City:	Barrie		
WELL	Well Status:	Observation Wells	Well Depth (m):	4.572
	Prim. Use:	n/a	Depth to Bedrock (m):	n/a
	Sec. Use:	n/a	Depth to Water:	ft
	Boring Method:	Boring	Water Kind:	
PUMP TEST	Test Method:		Pipe ID:	
	Pump Set (m):		Pump Test ID	
	SWL (ft)		Flowing:	
	Final Level:		Pump Duration (hr):	
	Pump Rate:		Pump Duration (m):	
	Recom. Rate:			

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1004640089	2.049	inch	PLASTIC	0	5 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SAND	SILT	LOOSE	BROWN	0	9.5 ft
2	SAND	SILT	LOOSE	BROWN	9.5	15 ft

End of Record

n/a	Easting:	<null>	Latitude:	44.380927	Well ID: 7211329
	Northing:	<null>	Longitude:	-79.694268	
	Elev (masl):	225.08			

LOCATION	Lot:	n/a	Tag:	A152053
	Con:	n/a	Audit No:	C23161
	Municipality:	SIMCOE	Contractor License:	7215
	Township:	BARRIE CITY (VESPRE)	Well Completion Date:	09/07/2013
	Street:		Received Date:	11/19/2013
WELL	City:	n/a		
	Well Status:	<null>	Well Depth (m):	0
	Prim. Use:	n/a	Depth to Bedrock (m):	n/a
	Sec. Use:	n/a	Depth to Water:	
PUMP TEST	Boring Method:		Water Kind:	
	Test Method:		Pipe ID:	
	Pump Set (m):		Pump Test ID	
	SWL (ft)		Flowing:	
	Final Level:		Pump Duration (hr):	
	Pump Rate:		Pump Duration (m):	
	Recom. Rate:			

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
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FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

n/a	Easting:	<null>	Latitude:	44.376095	Well ID: 7217301
	Northing:	<null>	Longitude:	-79.692166	
	Elev (masl):	224.36			

LOCATION	Lot:	n/a	Tag:	A143869
	Con:	n/a	Audit No:	C21511
	Municipality:	SIMCOE	Contractor License:	7282
	Township:	BARRIE CITY	Well Completion Date:	07/19/2013
	Street:		Received Date:	03/06/2014
WELL	City:	n/a		
	Well Status:	<null>	Well Depth (m):	0
	Prim. Use:	n/a	Depth to Bedrock (m):	n/a
	Sec. Use:	n/a	Depth to Water:	
PUMP TEST	Boring Method:		Water Kind:	
	Test Method:		Pipe ID:	
	Pump Set (m):		Pump Test ID	
	SWL (ft)		Flowing:	
	Final Level:		Pump Duration (hr):	
	Pump Rate:		Pump Duration (m):	
	Recom. Rate:			

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
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FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

n/a	Easting:	<null>	Latitude:	44.377292	Well ID: 7220289
	Northing:	<null>	Longitude:	-79.696809	
	Elev (masl):	225.79			
LOCATION	Lot:	n/a	Tag:	A102029	
	Con:	n/a	Audit No:	C20043	
	Municipality:	SIMCOE	Contractor License:	6032	
	Township:	BARRIE CITY (VESPREA)	Well Completion Date:	08/30/2013	
	Street:		Received Date:	05/14/2014	
WELL	City:	n/a			
	Well Status:	<null>	Well Depth (m):	0	
	Prim. Use:	n/a	Depth to Bedrock (m):	n/a	
	Sec. Use:	n/a	Depth to Water:		
	Boring Method:		Water Kind:		
PUMP TEST	Test Method:		Pipe ID:		
	Pump Set (m):		Pump Test ID		
	SWL (ft)		Flowing:		
	Final Level:		Pump Duration (hr):		
	Pump Rate:		Pump Duration (m):		
	Recom. Rate:				

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
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FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	225.84

Latitude: 44.378941
Longitude: -79.696999

Well ID: **7225398**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPREA)
Street: 114 JOHN STREET
City: Barrie

WELL

Well Status: Monitoring and Test Hole
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Direct Push

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Tag: A155561
Audit No: Z190838
Contractor License: 7241
Well Completion Date: 07/04/2014
Received Date: 08/13/2014

Well Depth (m): 5.4864
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1005271447	2	inch	PLASTIC	0	8 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SAND	SILT	LOOSE	BROWN	0	18 ft

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	225.01

Latitude: 44.378978
Longitude: -79.699383

Well ID: **7225399**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPREA)
Street: 114 JOHN STREET
City: Barrie

WELL

Well Status: Monitoring and Test Hole
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Other Method

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Tag: A155562
Audit No: Z190881
Contractor License: 7241
Well Completion Date: 07/04/2014
Received Date: 08/13/2014

Well Depth (m): 5.4864
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1005271459	2	inch	PLASTIC	0	8 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SAND	SILT	LOOSE	BROWN	0	18 ft

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	224.07

Latitude: 44.377535
Longitude: -79.697607

Well ID: **7231092**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPra)
Street: 91 ANNE ST S
City: BARRIE

Tag: A131062
Audit No: Z150713
Contractor License: 7241
Well Completion Date: 06/06/2012
Received Date: 07/06/2012

WELL

Well Status: Monitoring and Test Hole
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Direct Push

Well Depth (m): 6.1
Depth to Bedrock (m): n/a
Depth to Water: m
Water Kind:

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1005359774	4.03	cm	PLASTIC	0	3.1 m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	SAND	GRAVEL	BROWN	0	1.5 m
2	SAND	SILT	SOFT	BROWN	1.5	3.1 m
3	SAND	SILT	WATER-BEARING	GREY	3.1	6.1 m

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	223.63

Latitude: 44.377664
Longitude: -79.697102

Well ID: **7231093**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPra)
Street: 91 ANNE ST S
City: BARRIE

Tag: A118694
Audit No: Z150714
Contractor License: 7241
Well Completion Date: 06/06/2012
Received Date: 07/06/2012

WELL

Well Status: Monitoring and Test Hole
Prim. Use: n/a
Sec. Use: Test Hole
Boring Method: Direct Push

Well Depth (m): 6.1
Depth to Bedrock (m): n/a
Depth to Water: m
Water Kind:

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1005359788	4.03	cm	PLASTIC	0	3.1 m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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1	FILL	SAND	GRAVEL	BROWN	0	1.5	m
2	SAND	SILT	SOFT	BROWN	1.5	3.1	m
3	SAND	SILT	SOFT	GREY	3.1	6.1	m

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	220.17

Latitude: 44.377601
Longitude: -79.689974

Well ID: **7234146**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPREA)
Street:
City: n/a

Tag: A160670
Audit No: C27357
Contractor License: 6926
Well Completion Date: 09/11/2014
Received Date: 12/22/2014

WELL

Well Status: <null>
Prim. Use: n/a
Sec. Use: n/a
Boring Method:

Well Depth (m): 0
Depth to Bedrock (m): n/a
Depth to Water:
Water Kind:

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
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FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	220.73

Latitude: 44.38257
Longitude: -79.690717

Well ID: **7234147**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPREA)
Street:
City: n/a

Tag: A160661
Audit No: C27180
Contractor License: 6926
Well Completion Date: 08/12/2014
Received Date: 12/22/2014

WELL

Well Status: <null>
Prim. Use: n/a
Sec. Use: n/a
Boring Method:

Well Depth (m): 0
Depth to Bedrock (m): n/a
Depth to Water:
Water Kind:

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
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FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	220.08

Latitude: 44.378737
Longitude: -79.690174

Well ID: **7241742**

LOCATION
Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPREA)
Street:
City: n/a

Tag: A162896
Audit No: C28984
Contractor License: 6926
Well Completion Date: 03/12/2015
Received Date: 05/25/2015

WELL
Well Status: <null>
Prim. Use: n/a
Sec. Use: n/a
Boring Method:

Well Depth (m): 0
Depth to Bedrock (m): n/a
Depth to Water:
Water Kind:

PUMP TEST
Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
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FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	220.05

Latitude: 44.377971
Longitude: -79.690053

Well ID: **7241743**

LOCATION
Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPREA)
Street:
City: n/a

Tag: A162896
Audit No: C29530
Contractor License: 6926
Well Completion Date: 04/06/2015
Received Date: 05/25/2015

WELL
Well Status: <null>
Prim. Use: n/a
Sec. Use: n/a
Boring Method:

Well Depth (m): 0
Depth to Bedrock (m): n/a
Depth to Water:
Water Kind:

PUMP TEST
Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
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FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	221.25

Latitude: 44.379783
Longitude: -79.690277

Well ID: **7241744**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPREA)
Street:
City: n/a

Tag: A162896
Audit No: C28967
Contractor License: 6926
Well Completion Date: 03/02/2015
Received Date: 05/25/2015

WELL

Well Status: <null>
Prim. Use: n/a
Sec. Use: n/a
Boring Method:

Well Depth (m): 0
Depth to Bedrock (m): n/a
Depth to Water:
Water Kind:

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
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FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	220.73

Latitude: 44.38257
Longitude: -79.690717

Well ID: **7247352**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPREA)
Street:
City: n/a

Tag: A160661
Audit No: C28111
Contractor License: 6926
Well Completion Date: 12/17/2014
Received Date: 08/26/2015

WELL

Well Status: <null>
Prim. Use: n/a
Sec. Use: n/a
Boring Method:

Well Depth (m): 0
Depth to Bedrock (m): n/a
Depth to Water:
Water Kind:

TEST

Test Method:
Pump Set (m):
SWL (ft)

Pipe ID:
Pump Test ID
Flowing:

PUMP

Final Level:
 Pump Rate:
 Recom. Rate:

Pump Duration (hr):
 Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
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FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	221.14

Latitude: 44.379621
 Longitude: -79.69028

Well ID: **7247353**

LOCATION

Lot: n/a
 Con: n/a
 Municipality: SIMCOE
 Township: BARRIE CITY (VESPREA)
 Street:
 City: n/a

Tag: A162896
 Audit No: C30244
 Contractor License: 6926
 Well Completion Date: 06/29/2015
 Received Date: 08/26/2015

WELL

Well Status: <null>
 Prim. Use: n/a
 Sec. Use: n/a
 Boring Method:

Well Depth (m): 0
 Depth to Bedrock (m): n/a
 Depth to Water:
 Water Kind:

PUMP TEST

Test Method:
 Pump Set (m):
 SWL (ft)
 Final Level:
 Pump Rate:
 Recom. Rate:

Pipe ID:
 Pump Test ID
 Flowing:
 Pump Duration (hr):
 Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
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FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	221.25

Latitude: 44.379783
 Longitude: -79.690277

Well ID: **7247354**

LOCATION

Lot: n/a
 Con: n/a
 Municipality: SIMCOE
 Township: BARRIE CITY (VESPREA)
 Street:
 City: n/a

Tag: A162896
 Audit No: C29736
 Contractor License: 6926
 Well Completion Date: 04/27/2015
 Received Date: 08/26/2015

WELL

Well Status: <null>
 Prim. Use: n/a
 Sec. Use: n/a
 Boring Method:

Well Depth (m): 0
 Depth to Bedrock (m): n/a
 Depth to Water:
 Water Kind:

PUMP TEST

Test Method:
 Pump Set (m):
 SWL (ft)
 Final Level:
 Pump Rate:
 Recom. Rate:

Pipe ID:
 Pump Test ID
 Flowing:
 Pump Duration (hr):
 Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
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FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

n/a

Easting:	<null>
Northing:	<null>
Elev (masl):	220.05

Latitude: 44.377971
 Longitude: -79.690053

Well ID: **7247355**

LOCATION

Lot: n/a
 Con: n/a
 Municipality: SIMCOE
 Township: BARRIE CITY (VESPREA)
 Street:
 City: n/a

Tag: A162896
 Audit No: C30177
 Contractor License: 6926
 Well Completion Date: 05/12/2015
 Received Date: 08/26/2015

WELL

Well Status: <null>
 Prim. Use: n/a
 Sec. Use: n/a
 Boring Method:

Well Depth (m): 0
 Depth to Bedrock (m): n/a
 Depth to Water:
 Water Kind:

PUMP TEST

Test Method:
 Pump Set (m):
 SWL (ft)
 Final Level:
 Pump Rate:
 Recom. Rate:

Pipe ID:
 Pump Test ID
 Flowing:
 Pump Duration (hr):
 Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
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FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

n/a

Easting:	<null>
Northing:	<null>
Elev (masl):	220.07

Latitude: 44.377882
 Longitude: -79.690156

Well ID: **7247356**

LOCATION

Lot: n/a
 Con: n/a
 Municipality: SIMCOE
 Township: BARRIE CITY (VESPREA)
 Street:
 City: n/a

Tag: A162896
 Audit No: C30238
 Contractor License: 6926
 Well Completion Date: 06/29/2015
 Received Date: 08/26/2015

:LL

Well Status: <null>
 Prim. Use:

Well Depth (m): 0
 Depth to Bedrock (m): n/a

WE
PUMP TEST

Sec. Use: n/a
Boring Method:

Depth to Water:
Water Kind:

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
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FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	219.87

Latitude: 44.378484
Longitude: -79.689264

Well ID: **7249001**

LOCATION
WELL
PUMP TEST

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPRE)
Street: LAKESHORE DRIVE
City: Barrie

Tag: A139406
Audit No: Z103048
Contractor License: 7314
Well Completion Date:
Received Date: 09/30/2015

Well Status: <null>
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Boring

Well Depth (m): 5
Depth to Bedrock (m): n/a
Depth to Water: m
Water Kind:

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1005739854	2	cm	PLASTIC	0	3 m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	TOPSOIL	n/a	n/a	BLACK	0	0.24 m
2	SAND	FILL	n/a	BROWN	0.24	5 m

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	225.35

Latitude: 44.378297
Longitude: -79.696548

Well ID: **7252694**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPRE)
Street: INNISFILL ST
City: Barrie

Tag: A196053
Audit No: Z214645
Contractor License: 7201
Well Completion Date: 10/29/2015
Received Date: 11/23/2015

WELL

Well Status: Observation Wells
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Rotary (Convent.)

Well Depth (m): 4.572
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind:

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1005827437	1.875	inch	PLASTIC	0	5 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SAND	GRAVEL	LOOSE	BROWN	0	9 ft
2	SAND	SILT	LOOSE	GREY	9	15 ft

End of Record

n/a

Easting: <null>
Northing: <null>
Elev (masl): 225.59

Latitude: 44.378349
Longitude: -79.697928

Well ID: **7252695**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPRE)
Street: FREDRICK ST
City: Barrie

Tag: A196058
Audit No: Z214643
Contractor License: 7201
Well Completion Date: 10/28/2015
Received Date: 11/23/2015

WELL

Well Status: Observation Wells
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Rotary (Convent.)

Well Depth (m): 4.572
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind:

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1005827448	1.875	inch	PLASTIC	0	5 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SAND	GRAVEL	LOOSE	BROWN	0	8 ft
2	SAND	SILT	LOOSE	GREY	8	15 ft

End of Record

n/a

Easting: <null>
Northing: <null>
Elev (masl): 223.74

Latitude: 44.382276
Longitude: -79.694138

Well ID: **7252696**

LOCATION

Lot: n/a
Con: n/a
Municipality:

Tag: A196052
Audit No: Z214644
Contractor License: 7201

LOCAL	Township:	BARRIE CITY (VESPRE)	Well Completion Date:	11/02/2015
	Street:	VESPRE ST	Received Date:	11/23/2015
	City:	Barrie		
WELL	Well Status:	Observation Wells	Well Depth (m):	4.572
	Prim. Use:	n/a	Depth to Bedrock (m):	n/a
	Sec. Use:	n/a	Depth to Water:	ft
PUMP TEST	Boring Method:	Rotary (Convent.)	Water Kind:	
	Test Method:		Pipe ID:	
	Pump Set (m):		Pump Test ID	
	SWL (ft)		Flowing:	
	Final Level:		Pump Duration (hr):	
	Pump Rate:		Pump Duration (m):	
	Recom. Rate:			

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1005827538	1.875	inch	PLASTIC	0	5 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SAND	GRAVEL	LOOSE	BROWN	0	4 ft
2	SAND	SILT	LOOSE	GREY	4	15 ft

End of Record

n/a	Easting:	<null>	Latitude:	44.378244	Well ID: 7252697
	Northing:	<null>	Longitude:	-79.695081	
	Elev (masl):	224.52			

LOCATION	Lot:	n/a	Tag:	A196057
	Con:	n/a	Audit No:	Z214642
	Municipality:	SIMCOE	Contractor License:	7201
WELL	Township:	BARRIE CITY (VESPRE)	Well Completion Date:	10/29/2015
	Street:	STANFORD ST	Received Date:	11/23/2015
	City:	Barrie		
PUMP TEST	Well Status:	Observation Wells	Well Depth (m):	4.572
	Prim. Use:	n/a	Depth to Bedrock (m):	n/a
	Sec. Use:	n/a	Depth to Water:	ft
PUMP TEST	Boring Method:	Rotary (Convent.)	Water Kind:	
	Test Method:		Pipe ID:	
	Pump Set (m):		Pump Test ID	
	SWL (ft)		Flowing:	
	Final Level:		Pump Duration (hr):	
	Pump Rate:		Pump Duration (m):	
	Recom. Rate:			

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1005827589	1.875	inch	PLASTIC	0	5 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SAND	GRAVEL	LOOSE	BROWN	0	6 ft
2	SAND	SILT	LOOSE	GREY	6	15 ft

End of Record

n/a	Easting:	<null>	Latitude:	44.378313	Well ID: 7257290
	Northing:	<null>	Longitude:	-79.689267	
	Elev (masl):	220.02			

LOCATION	Lot:	n/a	Tag:	A178193
	Con:	n/a	Audit No:	C31563
	Municipality:	SIMCOE	Contractor License:	6926
	Township:	BARRIE CITY (VESPRE)	Well Completion Date:	10/22/2015
	Street:		Received Date:	02/02/2016
WELL	City:	n/a		
	Well Status:	<null>	Well Depth (m):	0
	Prim. Use:	n/a	Depth to Bedrock (m):	n/a
	Sec. Use:	n/a	Depth to Water:	
PUMP TEST	Boring Method:		Water Kind:	
	Test Method:		Pipe ID:	
	Pump Set (m):		Pump Test ID	
	SWL (ft)		Flowing:	
	Final Level:		Pump Duration (hr):	
	Pump Rate:		Pump Duration (m):	
	Recom. Rate:			

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
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FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

n/a	Easting:	<null>	Latitude:	44.378313	Well ID: 7257769
	Northing:	<null>	Longitude:	-79.689267	
	Elev (masl):	220.02			

LOCATION	Lot:	n/a	Tag:	A178193
	Con:	n/a	Audit No:	C32190
	Municipality:	SIMCOE	Contractor License:	6926
	Township:	BARRIE CITY (VESPRE)	Well Completion Date:	12/21/2015
	Street:		Received Date:	02/17/2016
WELL	City:	n/a		
	Well Status:	<null>	Well Depth (m):	0
	Prim. Use:	n/a	Depth to Bedrock (m):	n/a
	Sec. Use:	n/a	Depth to Water:	
PUMP TEST	Boring Method:		Water Kind:	
	Test Method:		Pipe ID:	
	Pump Set (m):		Pump Test ID	
	SWL (ft)		Flowing:	
	Final Level:		Pump Duration (hr):	
	Pump Rate:		Pump Duration (m):	
	Recom. Rate:			

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
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FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	225.44

Latitude: 44.375711
Longitude: -79.693242

Well ID: **7260337**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPra)
Street: 220 BRADFORD STREET
City: BARRIE

WELL

Well Status: Monitoring and Test Hole
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Rotary (Convent.)

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Tag: A200939
Audit No: Z228163
Contractor License: 7241
Well Completion Date: 02/23/2016
Received Date: 03/31/2016

Well Depth (m): 6.096
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1006048002	2	inch	PLASTIC	0	10 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SAND	SILT	SOFT	BROWN	0	20 ft

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	224.55

Latitude: 44.38448
Longitude: -79.694817

Well ID: **7269401**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPra)
Street: 50 BRADFORD STREET
City: Barrie

WELL

Well Status: Observation Wells
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Rotary (Convent.)

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Tag: A156710
Audit No: Z228543
Contractor License: 7190
Well Completion Date: 07/07/2016
Received Date: 08/18/2016

Well Depth (m): 9.144
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1006235347	2	inch	PLASTIC	0	20 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SAND	SILT	DENSE	BROWN	0	10 ft
2	SAND	SILT	DENSE	GREY	10	30 ft

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	225.06

Latitude: 44.381025
Longitude: -79.694165

Well ID: **7274297**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPREA)
Street: 120 BRADFORD STREET
City: BARRIE

Tag: A210326
Audit No: Z230486
Contractor License: 7360
Well Completion Date: 10/04/2016
Received Date: 11/02/2016

WELL

Well Status: Observation Wells
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Boring

Well Depth (m): 6.096
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind: Untested

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
1	1006388699	2	inch	PLASTIC	0	10 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	n/a	n/a	n/a	0	5 ft
2	SAND	n/a	n/a	BROWN	5	10 ft
3	SAND	n/a	WATER-BEARING	n/a	10	20 ft

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	224.32

Latitude: 44.385009
Longitude: -79.694592

Well ID: **7276986**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPREA)
Street: 50 BRADFORD ST
City: Barrie

Tag: A177528
Audit No: Z238666
Contractor License: 7190
Well Completion Date: 09/28/2016
Received Date: 12/13/2016

WELL

Well Status: Observation Wells
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Rotary (Convent.)

Well Depth (m): 4.572
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind: Untested

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
1	1006485808	6	inch	OPEN HOLE	0	1 ft
2	1006485809	6	inch	PLASTIC	-2	5 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	n/a	n/a	n/a	BLACK	0	0.167 ft
2	SAND	GRAVEL	LOOSE	BROWN	0.167	1 ft
3	SAND	n/a	LOOSE	BROWN	1	10 ft
4	SAND	n/a	LOOSE	GREY	10	15 ft

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	225.85

Latitude: 44.37708
Longitude: -79.694002

Well ID: **7280991**

LOCATION
Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPRA)
Street: 43 BROCK ST
City: Barrie

Tag:
Audit No: Z210756
Contractor License: 7282
Well Completion Date: 07/06/2016
Received Date: 02/13/2017

WELL
Well Status: Abandoned-Other
Prim. Use: n/a
Sec. Use: n/a
Boring Method: n/a

Well Depth (m): 0
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind:

PUMP TEST
Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
0	1006575623	n/a	inch	<null>	n/a	n/a ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
0	n/a	n/a	n/a	n/a	n/a	n/a ft

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	225.42

Latitude: 44.381556
Longitude: -79.700456

Well ID: **7280992**

LOCATION
Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPRA)
Street: 140 VESPRA ST
City: Barrie

Tag:
Audit No: Z249316
Contractor License: 7282
Well Completion Date: 07/06/2016
Received Date: 02/13/2017

WELL
Well Status: Abandoned-Other
Prim. Use: n/a
Sec. Use: n/a
Boring Method: n/a

Well Depth (m): 0
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind:

PUMP TEST
Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
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0 1006575630 n/a inch <null> n/a n/a ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
0	n/a	n/a	n/a	n/a	n/a	n/a ft

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	222.55

Latitude: 44.382642
Longitude: -79.693891

Well ID: **7280994**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPRA)
Street: 100 BRADFORD ST
City: Barrie

Tag: A198447
Audit No: Z210735
Contractor License: 7282
Well Completion Date: 09/09/2016
Received Date: 02/13/2017

WELL

Well Status: Observation Wells
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Boring

Well Depth (m): 4.2672
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind:

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1006575684	2	inch	PLASTIC	0	4 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	GRAVEL	n/a	BROWN	0	9 ft
2	SAND	n/a	WATER-BEARING	BLACK	9	14 ft

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	223.29

Latitude: 44.381719
Longitude: -79.693435

Well ID: **7281696**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPRA)
Street: 111 BRADOF RD ST
City: Barrie

Tag: A216588
Audit No: Z246456
Contractor License: 7109
Well Completion Date: 02/01/2017
Received Date: 02/24/2017

WELL

Well Status: Monitoring and Test Hole
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Rotary (Convent.)

Well Depth (m): 6.096
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind: Untested

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1006599098	6	inch	<null>	0	1 ft
2	1006599099	2	inch	PLASTIC	-3	15 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	n/a	n/a	DENSE	BLACK	0	0.333 ft
2	SAND	GRAVEL	LOOSE	BROWN	0.333	1 ft
3	FINE SAND	SILT	WATER-BEARING	BROWN	1	15 ft
4	SILT	SAND	DENSE	BROWN	15	20 ft

End of Record

n/a	Easting:	<null>	Latitude: 44.379391 Longitude: -79.699336	Well ID: 7296676
	Northing:	<null>		
	Elev (masl):	224.59		
LOCATION	Lot:	n/a	Tag: A199250 Audit No: Z268379 Contractor License: 7241 Well Completion Date: 09/11/2017 Received Date: 10/05/2017	
	Con:	n/a		
	Municipality:	SIMCOE		
	Township:	BARRIE CITY (VESPRE)		
	Street:	114 JOHN ST.		
WELL	City:	BARRIE	Well Depth (m): 5.4864 Depth to Bedrock (m): n/a Depth to Water: ft Water Kind:	
	Well Status:	Monitoring and Test Hole		
	Prim. Use:	n/a		
	Sec. Use:	Monitoring		
	Boring Method:	Other Method		
PUMP TEST	Test Method:		Pipe ID: Pump Test ID Flowing: Pump Duration (hr): Pump Duration (m):	
	Pump Set (m):			
	SWL (ft)			
	Final Level:			
	Pump Rate:			
	Recom. Rate:			

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1006956698	2	inch	PLASTIC	0	8 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	n/a	n/a	n/a	BLACK	0	0.5 ft
2	FILL	n/a	n/a	BROWN	0.5	2 ft
3	SAND	n/a	n/a	BROWN	2	12 ft
4	SAND	n/a	n/a	GREY	12	18 ft

End of Record

n/a	Easting:	<null>	Latitude: 44.379163 Longitude: -79.699052	Well ID: 7296677
	Northing:	<null>		
	Elev (masl):	225.03		
LOCATION	Lot:	n/a	Tag: A199251 Audit No: Z268380 Contractor License: 7241 Well Completion Date: 09/11/2017 Received Date: 10/05/2017	
	Con:	n/a		
	Municipality:	SIMCOE		
	Township:	BARRIE CITY (VESPRE)		
	Street:	114 JOHN ST.		
WELL	City:	BARRIE	Well Depth (m): 5.4864 Depth to Bedrock (m): n/a Depth to Water: ft Water Kind:	
	Well Status:	Monitoring and Test Hole		
	Prim. Use:	n/a		
	Sec. Use:	Monitoring		
	Boring Method:	Other Method		

PUMP TEST

Test Method:
 Pump Set (m):
 SWL (ft)
 Final Level:
 Pump Rate:
 Recom. Rate:

Pipe ID:
 Pump Test ID
 Flowing:
 Pump Duration (hr):
 Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1006957041	2	inch	PLASTIC	0	8 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	n/a	n/a	n/a	BLACK	0	0.5 ft
2	FILL	n/a	n/a	BROWN	0.5	2 ft
3	SAND	n/a	n/a	BROWN	2	12 ft
4	SAND	n/a	n/a	GREY	12	18 ft

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	226.21

Latitude: 44.385269
 Longitude: -79.695264

Well ID: **7297311**

LOCATION

Lot: n/a
 Con: n/a
 Municipality: SIMCOE
 Township: BARRIE CITY (VESPRE)
 Street: 125 DUNLOP ST WEST
 City: Barrie

Tag: A234432
 Audit No: Z268751
 Contractor License: 7320
 Well Completion Date: 09/19/2017
 Received Date: 10/16/2017

WELL

Well Status: Test Hole
 Prim. Use: n/a
 Sec. Use: n/a
 Boring Method: Boring

Well Depth (m): 5.3
 Depth to Bedrock (m): n/a
 Depth to Water: m
 Water Kind: Untested

PUMP TEST

Test Method:
 Pump Set (m):
 SWL (ft)
 Final Level:
 Pump Rate:
 Recom. Rate:

Pipe ID:
 Pump Test ID
 Flowing:
 Pump Duration (hr):
 Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1006940774	5.1	cm	PLASTIC	0	2.2 m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SAND	SILT	LOOSE	BROWN	0	3.9 m
2	SAND	SILT	WATER-BEARING	BROWN	3.9	5.3 m

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	225.51

Latitude: 44.384664
 Longitude: -79.695127

Well ID: **7297314**

LOCATION

Lot: n/a
 Con: n/a
 Municipality: SIMCOE
 Township: BARRIE CITY (VESPRE)
 Street: 125 DUNLOP ST WEST
 City: Barrie

Tag: A234431
 Audit No: Z268752
 Contractor License: 7320
 Well Completion Date: 09/19/2017
 Received Date: 10/16/2017

WELL
PUMP TEST

Well Status: Test Hole
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Boring

Well Depth (m): 4.5
Depth to Bedrock (m): n/a
Depth to Water: m
Water Kind: Untested

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1006940843	5.1	cm	PLASTIC	0	1.5 m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SAND	SILT	LOOSE	BROWN	0	3.3 m
2	SAND	SILT	WATER-BEARING	BROWN	3.3	4.5 m

End of Record

n/a

Easting:	<null>
Northing:	<null>
Elev (masl):	225.57

Latitude: 44.38455
Longitude: -79.696171

Well ID: **7299287**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPREA)
Street: 125 DUNLOP STREET WEST
City: BARRIE

Tag: A229653
Audit No: Z271510
Contractor License: 7190
Well Completion Date: 09/01/2017
Received Date: 11/17/2017

WELL

Well Status: Observation Wells
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Auger

Well Depth (m): 5.334
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind:

PUMP TEST

Test Method: n/a
Pump Set (m): n/a
SWL (ft): 11
Final Level: n/a ft
Pump Rate: n/a GPM
Recom. Rate: n/a GPM

Pipe ID: 1007032119
Pump Test ID: 1007032120
Flowing: n/a
Pump Duration (hr): n/a
Pump Duration (m): n/a

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1007032125	2	inch	PLASTIC	7.5	0 ft
2	1007032126	4	inch	PLASTIC	3	0 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	TOPSOIL	SAND	n/a	BROWN	0	1 ft
2	SAND	GRAVEL	n/a	BROWN	1	17.5 ft

End of Record

n/a

Easting:	<null>
Northing:	<null>
Elev (masl):	226.23

Latitude: 44.384622
Longitude: -79.697011

Well ID: **7299288**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township:

Tag: A229654
Audit No: Z271509
Contractor License: 7190
Well Completion Date:

LOCATION	Street:	BARRIE CITY (VESPREA) EST	Received Date:	09/01/2017
	City:	BARRIE		
WELL	Well Status:	Observation Wells	Well Depth (m):	5.334
	Prim. Use:	n/a	Depth to Bedrock (m):	n/a
PUMP TEST	Sec. Use:	n/a	Depth to Water:	ft
	Boring Method:	Auger	Water Kind:	
PUMP TEST	Test Method:	n/a	Pipe ID:	1007032133
	Pump Set (m):	n/a	Pump Test ID	1007032134
PUMP TEST	SWL (ft)	11	Flowing:	n/a
	Final Level:	n/a ft	Pump Duration (hr):	n/a
PUMP TEST	Pump Rate:	n/a GPM	Pump Duration (m):	n/a
	Recom. Rate:	n/a GPM		

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1007032139	2	inch	PLASTIC	7.5	0 ft
2	1007032140	4	inch	PLASTIC	3	0 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	TOPSOIL	SAND	n/a	BROWN	0	1 ft
2	SAND	GRAVEL	n/a	BROWN	1	17.5 ft

End of Record

n/a	Easting:	<null>	Latitude:	44.385285	Well ID: 7299291
	Northing:	<null>	Longitude:	-79.694309	
	Elev (masl):	224.30			

LOCATION	Lot:	n/a	Tag:	A229659
	Con:	n/a	Audit No:	Z271512
LOCATION	Municipality:	SIMCOE	Contractor License:	7190
	Township:	BARRIE CITY (VESPREA)	Well Completion Date:	09/01/2017
LOCATION	Street:	40 BRADFORD STREET	Received Date:	11/17/2017
	City:	BARRIE		
WELL	Well Status:	<null>	Well Depth (m):	4.572
	Prim. Use:	n/a	Depth to Bedrock (m):	n/a
WELL	Sec. Use:	Monitoring	Depth to Water:	ft
	Boring Method:	Rotary (Convent.)	Water Kind:	
PUMP TEST	Test Method:	n/a	Pipe ID:	1007032296
	Pump Set (m):	n/a	Pump Test ID	1007032297
PUMP TEST	SWL (ft)	10	Flowing:	n/a
	Final Level:	n/a ft	Pump Duration (hr):	n/a
PUMP TEST	Pump Rate:	n/a GPM	Pump Duration (m):	n/a
	Recom. Rate:	n/a GPM		

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1007032302	2	inch	PLASTIC	5	0 ft
2	1007032303	4	inch	PLASTIC	3	0 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	SAND	n/a	BROWN	0	5 ft
2	SAND	GRAVEL	n/a	BROWN	5	15 ft

End of Record

n/a	Easting:	<null>	Latitude:	44.384519	Well ID: 7299293
	Northing:	<null>	Longitude:	-79.694226	
	Elev (masl):	223.98			

LOCATION	Lot:		Tag:	A229661
	Con:	n/a	Audit No:	Z271511
	Municipality:	SIMCOE	Contractor License:	7190
	Township:	BARRIE CITY (VESPRE)	Well Completion Date:	09/01/2017
	Street:	50 BRADFORD STREET	Received Date:	11/17/2017
WELL	City:	BARRIE		
	Well Status:	Observation Wells	Well Depth (m):	4.572
	Prim. Use:	n/a	Depth to Bedrock (m):	n/a
	Sec. Use:	Monitoring	Depth to Water:	ft
PUMP TEST	Boring Method:	Rotary (Convent.)	Water Kind:	
	Test Method:	n/a	Pipe ID:	1007033031
	Pump Set (m):	n/a	Pump Test ID	1007033032
	SWL (ft)	10	Flowing:	n/a
	Final Level:	n/a ft	Pump Duration (hr):	n/a
	Pump Rate:	n/a GPM	Pump Duration (m):	n/a
	Recom. Rate:	n/a GPM		

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1007033037	2	inch	PLASTIC	5	0 ft
2	1007033038	4	inch	PLASTIC	3	0 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	SAND	n/a	BROWN	0	5 ft
2	SAND	GRAVEL	n/a	BROWN	5	15 ft

End of Record

n/a	Easting:	<null>	Latitude:	44.384648	Well ID: 7299294
	Northing:	<null>	Longitude:	-79.694549	
	Elev (masl):	223.88			

LOCATION	Lot:	n/a	Tag:	A229662
	Con:	n/a	Audit No:	Z260026
	Municipality:	SIMCOE	Contractor License:	7190
	Township:	BARRIE CITY (VESPRE)	Well Completion Date:	09/01/2017
	Street:	50 BRADFORD STREET	Received Date:	11/17/2017
WELL	City:	BARRIE		
	Well Status:	Observation Wells	Well Depth (m):	4.572
	Prim. Use:	n/a	Depth to Bedrock (m):	n/a
	Sec. Use:	n/a	Depth to Water:	ft
PUMP TEST	Boring Method:	Auger	Water Kind:	
	Test Method:	n/a	Pipe ID:	1007033046
	Pump Set (m):	n/a	Pump Test ID	1007033047
	SWL (ft)	10	Flowing:	n/a
	Final Level:	n/a ft	Pump Duration (hr):	n/a
	Pump Rate:	n/a GPM	Pump Duration (m):	n/a
	Recom. Rate:	n/a GPM		

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1007033052	2	inch	PLASTIC	5	0 ft
2	1007033053	4	inch	PLASTIC	3	0 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	SAND	n/a	BROWN	0	3 ft
2	SAND	GRAVEL	n/a	BROWN	3	15 ft

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	

Latitude: 44.378649
Longitude: -79.694269

Well ID: **7308526**

LOCATION

Lot: 025
Con: 05
Municipality: SIMCOE
Township: BARRIE CITY (VESPra)
Street: 168 BRADFORD STREET
City: BARRIE

WELL

Well Status: Observation Wells
Prim. Use: n/a
Sec. Use: Monitoring
Boring Method: Auger

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Tag: A235175
Audit No: Z269531
Contractor License: 7626
Well Completion Date: 10/04/2017
Received Date: 03/22/2018

Well Depth (m): 5.1816
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind: Untested

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1007237211	2	inch	PLASTIC	0	7 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SAND	n/a	DRY	BROWN	0	12 ft
2	SAND	n/a	WATER-BEARING	BROWN	12	17 ft

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	

Latitude: 44.384846
Longitude: -79.693729

Well ID: **7315718**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPra)
Street:
City: n/a

WELL

Well Status: <null>
Prim. Use: n/a
Sec. Use: n/a
Boring Method:

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Tag: A231312
Audit No: C29150
Contractor License: 7391
Well Completion Date: 07/18/2018
Received Date: 08/03/2018

Well Depth (m): 0
Depth to Bedrock (m): n/a
Depth to Water:
Water Kind:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
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FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	

Latitude: 44.376126
Longitude: -79.691676

Well ID: **7321296**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPra)
Street: 249 BRADFORD STREET
City: BARRIE

Tag: A139429
Audit No: Z265148
Contractor License: 7314
Well Completion Date:
Received Date: 10/30/2018

WELL

Well Status: Observation Wells
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Boring

Well Depth (m): 19.812
Depth to Bedrock (m): n/a
Depth to Water: m
Water Kind:

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1007585832	5	cm	PLASTIC	-1.5	55 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SAND	CLAY	SILT	BROWN	0	5 ft
2	SAND	GRAVEL	SOFT	BROWN	5	21 ft
3	CLAY	SILT	CLAY	GREY	21	27 ft
4	SAND	SILT	GRAVEL	BROWN	27	55 ft
5	GRAVEL	SANDY	SILT	BROWN	55	65 ft

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	

Latitude: 44.37593
Longitude: -79.693488

Well ID: **7323874**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPra)
Street: 220 BRADFORD STREET WEST
City: BARRIE

Tag: A254513
Audit No: Z284795
Contractor License: 7241
Well Completion Date: 08/23/2018
Received Date: 11/01/2018

WELL

Well Status: <null>
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Direct Push

Well Depth (m): 6.096
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind:

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1007593312	2	inch	PLASTIC	0.167	10 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SAND	n/a	LOOSE	BROWN	0	4 ft
2	SAND	n/a	WATER-BEARING	BROWN	4	20 ft

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	

Latitude: 44.375837
Longitude: -79.693239

Well ID: **7323876**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPRE)
Street: 220 BRADFORD ST WEST
City: BARRIE

Tag: A254515
Audit No: Z284659
Contractor License: 7241
Well Completion Date: 08/23/2018
Received Date: 11/01/2018

WELL

Well Status: <null>
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Direct Push

Well Depth (m): 6.096
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind:

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1007593333	2	inch	PLASTIC	0.167	10 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SAND	n/a	LOOSE	BROWN	0	5 ft
2	SAND	n/a	WATER-BEARING	BROWN	5	20 ft

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	

Latitude: 44.375903
Longitude: -79.69266

Well ID: **7323877**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPRE)
Street: 220 BRADFORD ST WEST
City: BARRIE

Tag: A254516
Audit No: Z284619
Contractor License: 7241
Well Completion Date: 08/23/2018
Received Date: 11/01/2018

WELL

Well Status: <null>
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Direct Push

Well Depth (m): 6.096
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind:

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1007593344	2	inch	PLASTIC	0.167	10 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SAND	n/a	LOOSE	BROWN	0	5 ft
2	SAND	n/a	WATER-BEARING	BROWN	5	20 ft

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	

Latitude: 44.384895
Longitude: -79.694067

Well ID: **7334380**

LOCATION
Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPREA)
Street: 50 BRADFORD ST
City: Barrie

Tag: A269985
Audit No: Z311922
Contractor License: 7320
Well Completion Date: 05/21/2019
Received Date: 05/31/2019

WELL
Well Status: Monitoring and Test Hole
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Other Method

Well Depth (m): 4.6
Depth to Bedrock (m): n/a
Depth to Water: m
Water Kind: Untested

PUMP TEST
Test Method: n/a
Pump Set (m): n/a
SWL (ft): n/a
Final Level: n/a m
Pump Rate: n/a LPM
Recom. Rate: n/a LPM

Pipe ID: 1007844962
Pump Test ID: 1007851662
Flowing: n/a
Pump Duration (hr): n/a
Pump Duration (m): n/a

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
1	1007850247	3.1	cm	PLASTIC	-0.7	1.5 m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SAND	STONES	FILL	BROWN	0	1.2 m
2	SAND	n/a	n/a	BROWN	1.2	2.1 m
3	SAND	n/a	WATER-BEARING	BROWN	2.1	4.6 m

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	

Latitude: 44.384993
Longitude: -79.696375

Well ID: **7334381**

LOCATION
Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPREA)
Street: 50 BRADFORD ST
City: Barrie

Tag: A269986
Audit No: Z311921
Contractor License: 7320
Well Completion Date: 05/21/2019
Received Date: 05/31/2019

WELL
Well Status: Monitoring and Test Hole
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Other Method

Well Depth (m): 6.1
Depth to Bedrock (m): n/a
Depth to Water: <null>
Water Kind: Untested

PUMP TEST
Test Method: n/a
Pump Set (m): n/a
SWL (ft): n/a
Final Level: n/a m
Pump Rate: n/a LPM
Recom. Rate: n/a LPM

Pipe ID: 1007844963
Pump Test ID: 1007851663
Flowing: n/a
Pump Duration (hr): n/a
Pump Duration (m): n/a

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1007850248	3.1	cm	PLASTIC	0	3 m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	TOPSOIL	n/a	n/a	BLACK	0	0.3 m
2	SAND	n/a	n/a	BROWN	0.3	4.3 m
3	SAND	n/a	WATER-BEARING	BROWN	4.3	6.1 m

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	

Latitude: 44.384373
Longitude: -79.694091

Well ID: **7334382**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPREA)
Street: 50 BRADFORD ST
City: Barrie

Tag: A269984
Audit No: Z311923
Contractor License: 7320
Well Completion Date: 05/21/2019
Received Date: 05/31/2019

WELL

Well Status: Monitoring and Test Hole
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Other Method

Well Depth (m): 4.6
Depth to Bedrock (m): n/a
Depth to Water: <null>
Water Kind: Untested

PUMP TEST

Test Method: n/a
Pump Set (m): n/a
SWL (ft): n/a
Final Level: n/a m
Pump Rate: n/a LPM
Recom. Rate: n/a LPM

Pipe ID: 1007844964
Pump Test ID: 1007851664
Flowing: n/a
Pump Duration (hr): n/a
Pump Duration (m): n/a

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1007850249	3.1	cm	PLASTIC	-0.7	1.5 m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SAND	STONES	FILL	BROWN	0	1.2 m
2	SAND	n/a	WATER-BEARING	BROWN	1.2	4.6 m

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	

Latitude: 44.382394
Longitude: -79.692691

Well ID: **7340806**

LOCATION

Lot: 025
Con: 05
Municipality: SIMCOE
Township: BARRIE CITY (VESPREA)
Street: 22 Vespra Street
City: Barrie

Tag: A269773
Audit No: M4C8BOK2
Contractor License: 7147
Well Completion Date: 09/11/2019
Received Date: 09/13/2019

WELL

Well Status: Observation Wells
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Auger

Well Depth (m): 3.7
Depth to Bedrock (m): n/a
Depth to Water: m
Water Kind: Untested

TEST

Test Method: n/a
Pump Set (m): n/a
SWL (ft)

Pipe ID: 1007615986
Pump Test ID: 1007615987
Flowing: n/a

PUMP	Final Level:	n/a m	Pump Duration (hr):	n/a
	Pump Rate:	n/a LPM	Pump Duration (m):	n/a
	Recom. Rate:	n/a LPM		

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1007616147	5	cm	PLASTIC	0	2.2 m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SAND	FILL	n/a	BROWN	0	2.7 m
2	SAND	n/a	n/a	BLUE	2.7	3.7 m

End of Record

n/a	Easting:	<null>	Latitude: 44.382736 Longitude: -79.692696	Well ID: 7340813
	Northing:	<null>		
	Elev (masl):			
LOCATION	Lot:	025	Tag: A269922 Audit No: P933US2B Contractor License: 7147 Well Completion Date: 09/11/2019 Received Date: 09/13/2019	
	Con:	05		
	Municipality:	SIMCOE		
	Township:	BARRIE CITY (VESPRE)		
	Street:	22 Vespra Street		
WELL	City:	Barrie	Well Depth (m): 3.7 Depth to Bedrock (m): n/a Depth to Water: m Water Kind: Untested	
	Well Status:	Observation Wells		
	Prim. Use:	n/a		
	Sec. Use:	n/a		
	Boring Method:	Auger		
PUMP TEST	Test Method:	n/a	Pipe ID: 1007616000 Pump Test ID: 1007616001 Flowing: n/a Pump Duration (hr): n/a Pump Duration (m): n/a	
	Pump Set (m):	n/a		
	SWL (ft)	n/a		
	Final Level:	n/a m		
	Pump Rate:	n/a LPM		
	Recom. Rate:	n/a LPM		

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1007616154	5	cm	PLASTIC	0	2.2 m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SAND	FILL	n/a	BROWN	0	2.7 m
2	SAND	n/a	n/a	BLUE	2.7	3.7 m

End of Record

n/a	Easting:	<null>	Latitude: 44.382731 Longitude: -79.693023	Well ID: 7341912
	Northing:	<null>		
	Elev (masl):			
LOCATION	Lot:	025	Tag: A269848 Audit No: OMKAI85R Contractor License: 7147 Well Completion Date: 09/06/2019 Received Date: 10/01/2019	
	Con:	05		
	Municipality:	SIMCOE		
	Township:	BARRIE CITY (VESPRE)		
	Street:	28 Vespra Street		
WELL	City:	Barrie	Well Depth (m): 8.5 Depth to Bedrock (m): n/a Depth to Water: m Water Kind: Untested	
	Well Status:	Observation Wells		
	Prim. Use:	n/a		
	Sec. Use:	n/a		
	Boring Method:	Auger		

PUMP TEST

Test Method: n/a
Pump Set (m): n/a
SWL (ft): n/a
Final Level: n/a m
Pump Rate: n/a LPM
Recom. Rate: n/a LPM

Pipe ID: 1007644748
Pump Test ID: 1007644749
Flowing: n/a
Pump Duration (hr): n/a
Pump Duration (m): n/a

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1007644931	5	cm	PLASTIC	0	5.4 m

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SAND	n/a	n/a	BROWN	0	8.5 m

End of Record

n/a

Easting:	<null>
Northing:	<null>
Elev (masl):	

Latitude: 44.379734
Longitude: -79.694634

Well ID: **7349148**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPREA)
Street: 54 JOHN STREET
City: BARNES

Tag: Z318925
Audit No: 7282
Contractor License: 7282
Well Completion Date: 09/25/2019
Received Date: 12/10/2019

WELL

Well Status: Abandoned-Other
Prim. Use: n/a
Sec. Use: n/a
Boring Method: n/a

Well Depth (m): 0
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind:

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft):
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
0	1008312592	n/a	inch	<null>	n/a	n/a ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
0	n/a	n/a	n/a	n/a	n/a	n/a ft

End of Record

n/a

Easting:	<null>
Northing:	<null>
Elev (masl):	

Latitude: 44.378141
Longitude: -79.698661

Well ID: **7349153**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPREA)
Street:
City: n/a

Tag: A143844
Audit No: C36196
Contractor License: 7282
Well Completion Date: 09/05/2019
Received Date: 12/10/2019

:LL

Well Status: <null>
Prim. Use:

Well Depth (m): 0
Depth to Bedrock (m): n/a

WE
PUMP TEST

Sec. Use: n/a
Boring Method:

Depth to Water:
Water Kind:

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
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FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	

Latitude: 44.37602
Longitude: -79.693486

Well ID: **7354293**

LOCATION
WELL
PUMP TEST

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPRE)
Street: 220 bradford st
City: Barrie

Tag: A288581
Audit No: Z330671
Contractor License: 7241
Well Completion Date: 02/03/2020
Received Date: 02/19/2020

Well Status: Monitoring and Test Hole
Prim. Use: n/a
Sec. Use: Monitoring
Boring Method: Direct Push

Well Depth (m): 10.668
Depth to Bedrock (m): n/a
Depth to Water:
Water Kind:

Test Method: n/a
Pump Set (m): n/a
SWL (ft): n/a
Final Level: n/a ft
Pump Rate: n/a GPM
Recom. Rate: n/a GPM

Pipe ID: 1008250086
Pump Test ID: 1008254418
Flowing: n/a
Pump Duration (hr): n/a
Pump Duration (m): n/a

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1008253725	2	Inch	PLASTIC	0	30 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SAND	n/a	n/a	BROWN	0	12 ft
2	SAND	n/a	n/a	BROWN	12	24 ft
3	SAND	SILT	n/a	BROWN	24	35 ft

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	

Latitude: 44.375985
Longitude: -79.692771

Well ID: **7354294**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPRE)
Street: 220 bradford st
City: Barrie

Tag: A280210
Audit No: Z327445
Contractor License: 7241
Well Completion Date: 01/30/2020
Received Date: 02/19/2020

WELL

Well Status: Monitoring and Test Hole
Prim. Use: n/a
Sec. Use: Monitoring
Boring Method: Direct Push

Well Depth (m): 10.668
Depth to Bedrock (m): n/a
Depth to Water:
Water Kind:

PUMP TEST

Test Method: n/a
Pump Set (m): n/a
SWL (ft) n/a
Final Level: n/a ft
Pump Rate: n/a GPM
Recom. Rate: n/a GPM

Pipe ID: 1008250087
Pump Test ID 1008254419
Flowing: n/a
Pump Duration (hr): n/a
Pump Duration (m): n/a

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1008253726	2	Inch	PLASTIC	0	30 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	SAND	n/a	n/a	BROWN	0	9 ft
2	SAND	n/a	n/a	BROWN	9	24 ft
3	SAND	SILT	n/a	BROWN	24	30 ft
4	SILT	n/a	n/a	GREY	30	35 ft

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	

Latitude: 44.384698
Longitude: -79.696519

Well ID: **7355393**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPREA)
Street: 155 dunlop street
City: Barrie

Tag: A139459
Audit No: Z330203
Contractor License: 7314
Well Completion Date: 12/31/2019
Received Date: 03/09/2020

WELL

Well Status: Observation Wells
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Boring

Well Depth (m): 1.524
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind:

PUMP TEST

Test Method: n/a
Pump Set (m): n/a
SWL (ft) n/a
Final Level: n/a ft
Pump Rate: n/a GPM
Recom. Rate: n/a GPM

Pipe ID: 1008288881
Pump Test ID 1008292847
Flowing: n/a
Pump Duration (hr): n/a
Pump Duration (m): n/a

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1008291992	5.2	Inch	PLASTIC	0	3 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	TOPSOIL	SILT	SANDY	BROWN	0	0.7 ft
2	FILL	SAND	SILT	BROWN	0.7	1.4 ft
3	SAND	SILT	GRAVEL	BROWN	1.4	5 ft

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	

Latitude: 44.3851
Longitude: -79.695468

Well ID: **7355394**

LOCATION	Lot:		Tag:	A139460
	Con:		Audit No:	Z330202
	Municipality:	SIMCOE	Contractor License:	7314
	Township:	BARRIE CITY (VESPRE)	Well Completion Date:	
WELL	Street:	155 dunlop st.	Received Date:	03/09/2020
	City:	Barrie		
	Well Status:	Observation Wells	Well Depth (m):	1.524
	Prim. Use:	n/a	Depth to Bedrock (m):	n/a
PUMP TEST	Sec. Use:	n/a	Depth to Water:	
	Boring Method:	Boring	Water Kind:	
	Test Method:	n/a	Pipe ID:	1008288882
	Pump Set (m):	n/a	Pump Test ID	1008292848
	SWL (ft)	n/a	Flowing:	n/a
	Final Level:	n/a ft	Pump Duration (hr):	n/a
	Pump Rate:	n/a GPM	Pump Duration (m):	n/a
	Recom. Rate:	n/a GPM		

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1008291993	5.2	Inch	PLASTIC	0	3 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	TOPSOIL	GRAVEL	SILT	BROWN	0	0.7 ft
2	SAND	SILT	GRAVEL	BROWN	0.7	5 ft

End of Record

n/a	Easting:	<null>	Latitude:	44.385377	Well ID: 7355395
	Northing:	<null>	Longitude:	-79.694483	
	Elev (masl):				

LOCATION	Lot:	n/a	Tag:	A139461
	Con:	n/a	Audit No:	Z330201
	Municipality:	SIMCOE	Contractor License:	7314
	Township:	BARRIE CITY (VESPRE)	Well Completion Date:	
WELL	Street:	155 dunlop street	Received Date:	03/09/2020
	City:	Barrie		
	Well Status:	Observation Wells	Well Depth (m):	1.524
	Prim. Use:	n/a	Depth to Bedrock (m):	n/a
PUMP TEST	Sec. Use:	n/a	Depth to Water:	
	Boring Method:	Boring	Water Kind:	
	Test Method:	n/a	Pipe ID:	1008288883
	Pump Set (m):	n/a	Pump Test ID	1008292849
	SWL (ft)	n/a	Flowing:	n/a
	Final Level:	n/a ft	Pump Duration (hr):	n/a
	Pump Rate:	n/a GPM	Pump Duration (m):	n/a
	Recom. Rate:	n/a GPM		

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1008291994	5.2	Inch	PLASTIC	0	3 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	SAND	GRAVEL	BROWN	0	0.7 ft
2	SAND	SILT	GRAVEL	BROWN	0.7	5 ft

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	

Latitude: 44.383045
Longitude: -79.696857

Well ID: **7363227**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPRE)
Street:
City: n/a

WELL

Well Status: <null>
Prim. Use: n/a
Sec. Use: n/a
Boring Method:

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Tag: A294848
Audit No: Z335771
Contractor License: 6946
Well Completion Date:
Received Date: 07/27/2020

Well Depth (m): 0
Depth to Bedrock (m): n/a
Depth to Water:
Water Kind:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
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FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	

Latitude: 44.382804
Longitude: -79.692331

Well ID: **7365691**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPRE)
Street:
City: n/a

WELL

Well Status: <null>
Prim. Use: n/a
Sec. Use: n/a
Boring Method:

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Tag: A301767
Audit No: Z334888
Contractor License: 6946
Well Completion Date: 07/09/2020
Received Date: 08/18/2020

Well Depth (m): 0
Depth to Bedrock (m): n/a
Depth to Water:
Water Kind:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
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FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	

Latitude: 44.383304
Longitude: -79.692746

Well ID: **7365692**

LOCATION	Lot:	n/a	Tag:	A301766
	Con:	n/a	Audit No:	Z334876
	Municipality:	SIMCOE	Contractor License:	6946
	Township:	BARRIE CITY (VESPREA)	Well Completion Date:	07/09/2020
	Street:		Received Date:	08/18/2020
WELL	City:	n/a	Well Depth (m):	0
	Well Status:	<null>	Depth to Bedrock (m):	n/a
	Prim. Use:	n/a	Depth to Water:	
	Sec. Use:	n/a	Water Kind:	
	Boring Method:			
PUMP TEST	Test Method:		Pipe ID:	
	Pump Set (m):		Pump Test ID	
	SWL (ft)		Flowing:	
	Final Level:		Pump Duration (hr):	
	Pump Rate:		Pump Duration (m):	
	Recom. Rate:			

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
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FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	

Latitude: 44.383176
Longitude: -79.697294

Well ID: **7365693**

LOCATION	Lot:	n/a	Tag:	A301754
	Con:	n/a	Audit No:	Z334875
	Municipality:	SIMCOE	Contractor License:	6946
	Township:	BARRIE CITY (VESPREA)	Well Completion Date:	07/13/2020
	Street:		Received Date:	08/18/2020
WELL	City:	n/a	Well Depth (m):	0
	Well Status:	<null>	Depth to Bedrock (m):	n/a
	Prim. Use:	n/a	Depth to Water:	
	Sec. Use:	n/a	Water Kind:	
	Boring Method:			
PUMP TEST	Test Method:		Pipe ID:	
	Pump Set (m):		Pump Test ID	
	SWL (ft)		Flowing:	
	Final Level:		Pump Duration (hr):	
	Pump Rate:		Pump Duration (m):	
	Recom. Rate:			

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
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FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	

Latitude: 44.382923
Longitude: -79.694048

Well ID: **7365695**

LOCATION
Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPRE)
Street:
City: n/a

Tag: A301753
Audit No: Z334879
Contractor License: 6946
Well Completion Date: 07/14/2020
Received Date: 08/18/2020

WELL
Well Status: <null>
Prim. Use: n/a
Sec. Use: n/a
Boring Method:

Well Depth (m): 0
Depth to Bedrock (m): n/a
Depth to Water:
Water Kind:

PUMP TEST
Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
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FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	

Latitude: 44.383156
Longitude: -79.695562

Well ID: **7365696**

LOCATION
Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPRE)
Street:
City: n/a

Tag: A294885
Audit No: Z334874
Contractor License: 6946
Well Completion Date: 07/16/2020
Received Date: 08/15/2020

WELL
Well Status: <null>
Prim. Use: n/a
Sec. Use: n/a
Boring Method:

Well Depth (m): 0
Depth to Bedrock (m): n/a
Depth to Water:
Water Kind:

PUMP TEST
Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
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FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	

Latitude: 44.38291
Longitude: -79.69445

Well ID: **7365697**

LOCATION

Lot: n/a
Con: n/a
Municipality: SIMCOE
Township: BARRIE CITY (VESPREA)
Street:
City: n/a

Tag: A301735
Audit No: Z334878
Contractor License: 6946
Well Completion Date: 07/09/2020
Received Date: 08/18/2020

WELL

Well Status: <null>
Prim. Use: n/a
Sec. Use: n/a
Boring Method:

Well Depth (m): 0
Depth to Bedrock (m): n/a
Depth to Water:
Water Kind:

PUMP TEST

Test Method:
Pump Set (m):
SWL (ft)
Final Level:
Pump Rate:
Recom. Rate:

Pipe ID:
Pump Test ID
Flowing:
Pump Duration (hr):
Pump Duration (m):

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
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FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
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End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	

Latitude: 44.378029
Longitude: -79.695174

Well ID: **7367873**

LOCATION

Lot: 025
Con: 05
Municipality: SIMCOE
Township: BARRIE CITY (VESPREA)
Street: 95 SANFORD ST.
City: BARRIE

Tag: A281427
Audit No: S6F8D2YW
Contractor License: 7190
Well Completion Date: 03/16/2020
Received Date: 08/28/2020

WELL

Well Status: Observation Wells
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Auger

Well Depth (m): 6.096
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind: Untested

PUMP TEST

Test Method: n/a
Pump Set (m): n/a
SWL (ft): 6
Final Level: n/a ft
Pump Rate: n/a GPM
Recom. Rate: n/a GPM

Pipe ID: 1008438611
Pump Test ID: 1008438612
Flowing: n/a
Pump Duration (hr): n/a
Pump Duration (m): n/a

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diamter	Diamter Units	Material	Top Depth	Bottom Depth
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1	1008438750	2	inch	PLASTIC	0	15	ft
2	1008438751	6	inch	STEEL	0	1	ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	n/a	n/a	BROWN	0	2 ft
2	SAND	n/a	n/a	BROWN	2	20 ft

End of Record

n/a	Easting:	<null>
	Northing:	<null>
	Elev (masl):	

Latitude: 44.378055
Longitude: -79.695085

Well ID: **7367874**

LOCATION

Lot: 025
Con: 05
Municipality: SIMCOE
Township: BARRIE CITY (VESPREA)
Street: 95 SANFORD ST.
City: BARRIE

Tag: A281428
Audit No: 6LJNUNZN
Contractor License: 7190
Well Completion Date: 03/19/2020
Received Date: 08/28/2020

WELL

Well Status: Observation Wells
Prim. Use: n/a
Sec. Use: n/a
Boring Method: Auger

Well Depth (m): 9.144
Depth to Bedrock (m): n/a
Depth to Water: ft
Water Kind: Untested

PUMP TEST

Test Method: n/a
Pump Set (m): n/a
SWL (ft): 6
Final Level: n/a ft
Pump Rate: n/a GPM
Recom. Rate: n/a GPM

Pipe ID: 1008438613
Pump Test ID: 1008438614
Flowing: n/a
Pump Duration (hr): n/a
Pump Duration (m): n/a

CASING DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Case ID	Casing Diameter	Diameter Units	Material	Top Depth	Bottom Depth
1	1008438752	2	inch	PLASTIC	0	25 ft
2	1008438753	6	inch	STEEL	0	1 ft

FORMATION DETAILS

Layer Value of "0" denotes a Null value and cannot be stratified and ordered.

Layer	Material	Material 2	Material 3	Colour	Top Depth	Bottom Depth
1	FILL	n/a	n/a	BROWN	0	2 ft
2	SAND	n/a	n/a	BROWN	2	30 ft

End of Record



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