Hydrogeological Investigation - 80 Big Bay Point Road and 315 Bayview Drive, City of Barrie, ON.

June 21, 2021

Prepared for:
Tonlu Holdings Limited

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1.0 Introduction

Cambium Inc. (Cambium) was retained by Tonlu Holdings Limited (the Client) to complete a hydrogeological assessment of the property located at 80 Big Bay Point Road & 135 Bayview Drive, City of Barrie, Ontario (Site).

Hydrogeological investigation is required as part of the application process of Draft Subdivision Plan for the proposed industrial development at the Site and the total area of the property is approximately 15.5 hectares (41.07 acres) in size and an area of about 2.3 ha is designated as an Environmental Protection Area; therefore 13.2 ha is proposed for development.

It is proposed that the property be subdivided with up to 31 lots (manufacturing, processing, servicing, storage of goods and raw materials, industrial warehousing and similar uses), two new streets, and 3 blocks, such as Environmental Protection Block, Storm Water Management (SWM) block and Open Space block.

1.1 Scope of Work

This hydrogeological investigation was carried out with the following tasks:

- **Review of available background information**: a review of available geological and hydrogeological information for the site and surrounding areas and the previous investigation reports completed for the Site, was conducted to provide background information to allow for characterization of the Site's soil and groundwater conditions.

- **Detailed site inspection**: an inspection of the Site was completed to review existing site conditions including identification of any hydrogeological features such as significant areas of potential groundwater recharge or areas of groundwater discharge.

- **Measurement of groundwater levels:** groundwater levels were measured in the existing monitoring wells to establish and/or confirm the general groundwater flow condition.

- **Soil Infiltration Tests:** will be completed at selected locations using Guelph Permeametre in order to determine the soil infiltration characteristics for the design and construction of Low Impact Development (LID) measures.
- **Water Balance (Preliminary):** a preliminary water balance study was completed for the proposed development using the Thornthwaite-Mather approach and the climatic data obtained from Environment Canada.
- **Report Preparation:** a hydrogeological report was prepared presenting the results, findings, and recommendations of this investigation.

It should be noted that a geotechnical investigation was being completed concurrently at the Site by Cambium. The data or information obtained in the current and former investigations has been incorporated into this hydrogeological investigation report.

1.2 Site Description and Site Development

The total area of the property is approximately 15.5 hectares (41.07 acres) in size and leaving an area approximately 2.3 ha for Environmental Protection, an area of 13.2 ha is proposed for the development.

The Site is bound to the east by Welham Road, to the south by Big Bay Point Road and to the west by Bayview Drive with mostly commercial and industrial properties surrounding. It is proposed that the Site is to be developed into 31 industrial lots with water and wastewater services provided by the City of Barrie.

The proposed development constitutes a major development as defined by the Lake Simcoe Protection Plan (LSPP) and accordingly, subject to DP-4.8 and DP-6.40 of the LSPP, it is required to prepare a detailed water balance and hydrogeological report.

The regional location of the Site is outlined on Figure 1, the property and surrounding areas outlined on Figure 2 and the proposed development plan is included in Appendix A.

2.0 PAST INVESTIGATIONS

A number of geotechnical investigations were completed in the past at the Property, including:

1. *"Preliminary Geotechnical Investigation – Proposed Bayview Drive Industrial Development (Bayview Village) Barrie, Ontario"* prepared by Geospec Engineering Ltd. dated May 11, 2007 was prepared for Mansoura Development Inc. for a proposed industrial/commercial development located along the east side of Bayview Drive and north of Big Bay Point Road, Barrie.

During the investigation, a total of six (6) boreholes were drilled to a depth of 5 mbgs, and four (4) test pits extended to a depth from 1.5 to 3.3 mbgs. Four PVC standpipes (piezometers, from P1 through P4) were installed within the boreholes for long-term groundwater monitoring. It was reported that three (3) all the standpipes were removed and destroyed by others. However, during our site visit all piezometer standpipes were located on-site.
The native soils in the boreholes generally included sand and silt till and sand. Seepage and/or free flowing groundwater were encountered during the investigation at depths ranging from 1.4 to 3.8 m below the existing grade.
It was recommended, due to shallow water table conditions, that both short and long term groundwater control be implemented during the construction phase to maintain a dry floor slab. Borehole location plan and the borehole logs were provided in Appendix B1.

2. *Preliminary Geotechnical Investigation – Big Bay Point Village - Big Bay Point Road, Barrie, Ontario"* prepared by Geospec Engineering Ltd. dated June 20,2008 was prepared for Treelawn Construction for a proposed industrial/commercial development located along the east side of Bayview Drive and north of Big Bay Point Road, Barrie.

During the investigation a total of eight (8) boreholes were advanced to a depth of 5 mbgs, and five (5) monitoring wells were installed for the long-term groundwater monitoring.

The native soils at the Site generally included sandy silt to silty sand till deposits with trace gravel. Seepage and/or free flowing groundwater were encountered during the investigation at depths ranging from 0.9 to 2.8 m below the existing grade.

It was recommended, due to high groundwater table conditions, that the footings be founded above the water table where possible; otherwise, substantial dewatering will be required.

It should be noted that, during the previous investigations by Geospec it was reported that a total of eight (8) standpipe piezometers were installed at the Site. However, during Cambium's field work, a total of four (4) monitoring wells (MW101 to MW104) and four (4) standpipe piezometers (P1 to P4) were found.

All the previously installed piezometers as well as the monitoring wells were shown in the combined borehole location map.

Borehole location plan and the borehole logs were provided in Appendix B2.

3.0 ENVIRONMENTAL FEATURES

To assess environmental features, the databases maintained by the Ministry of Natural Resources and Forestry (MNRF), the Ministry of Environment, Conservation and Parks (MECP), and the Lake Simcoe Region Conservation Authority (LSRCA) were reviewed.

Based on the data reviewed, the Site is situated within the Barrie Creeks subwatershed, under the jurisdiction of the Lake Simcoe and Couchiching/Black River Source Protection Area. No wetlands or waterbodies are present at the Site. However, an un-named ephemeral creek is found circling the Site in the west and north portions of the property.

As per MNRF Natural Heritage System database, the Site is not located in any significant natural areas or areas of natural and scientific interests (ANSIs).

As shown on the MECP Source Water Protection Atlas map, the Site is not located in an Intake Protection Zone (IPZ), Wellhead Protection Area (WHPA-A, B, C and D), or a Highly Vulnerable Aquifer area. However, the Site is situated within a Significant Groundwater Recharge Area (SGRA) with a score of 4 and a groundwater Recharge Management Area known as WHPA Q.

The Site is located in a LSRCA regulation area, as shown on Figure 3. The regulated area represents the greatest physical extent of the combined hazards, plus a prescribed allowance as set out in the Conservation Authorities Act to protect and safeguard watershed health in terms of environmental areas such as wetlands, shorelines and watercourses. As seen in Figure 3, the Property is situated within the regulation area and as such regulation area development restrictions shall apply to the proposed development.

4.0 PHYSICAL SETTING

4.1 Topography and Drainage

The Site is located within the Barrie Creeks subwatershed of the Lake Simcoe watershed area. The Barrie subwatershed consists of Barrie Creeks, Lovers Creek and Hewitt's Creek. The Site falls within the Barrie Creeks subwatershed.

Based on the regional topographic map of the area, the Site slopes generally to the east, with the elevations ranging from approximately 280 meters above sea level (masl) in the west to about 270 mAMSL in the east, with general slope to the nearest water body, the Kempenfelt Bay.

Based on Site specific topographic map (Appendix A), the highest elevation of 275.64 masl was found in the east and southeast and a lowest elevation of approximately 269 masl in the west and northwest, with general topographic slope towards the local creek.

4.2 Physiography

According to Chapman and Putnam (1984), the Site is located in the Sand Plain area in the Simcoe Lowlands physiographic region. The lowlands were flooded by glacial Lake Algonquin, and as a result, are floored by sand, silt and clay (Chapman and Putnam, 1984).

4.3 Overburden Geology

Based on the Ministry of Northern Development and Mines, 1991. Quaternary Geology of Ontario, Southern Sheet, Map 2556, scale 1: 1,000,000, the surficial geology at the Site was characterized by ice-contact stratified deposits consisting mainly of sand and fine silt with varying amounts of gravel, with high infiltration capacity. The Paleozoic bedrock topography appears to strongly influence the overlying Quaternary sediment thickness and distribution.

4.4 Bedrock Geology

As per the Ontario Geological Survey, 1991. Bedrock Geology of Ontario, Southern Sheet, Map 2544, scale 1:1,000,000, the bedrock can be characterized as being from the Paleozoic

Era, belonging to the Middle Ordovician Simcoe Group, consisting primarily of limestone, dolostone, shale, arkose and sandstone.

The Simcoe Group consists of four formations that dip gently towards the southwest: Gull River Formation, Bobcaygeon Formation, Verulam Formation and the Lindsay Formation from oldest to youngest. Verulam Formation occurs along the shoreline of Kempenfelt Bay and expands west of the City of Barrie and ranges in thickness from 32 to 65 m and consists of fossiliferous limestone with inter-beds of calcareous shale.

5.0 HYDROGEOLOGY

Water well records on file with the Ministry of the Environment, Conservation and Parks (MECP) serve as a database for this hydrogeological assessment. The well locations were provided from the MECP interactive water well record database. According to the well records, there appears to be 15 wells within a 500 m radius around the property and were installed between the years 1957 and 2020. The locations of the recorded water wells are shown in Figure 4.

Water well (#5709123) was installed as for water supply, but abandoned due to insufficient supply and all the other wells were recorded as test holes, observation wells, abandoned wells or decommissioned wells.

Based on the details in the well records, a thick layer of overburden materials seems to be present in the study area. Bedrock was not encountered at the maximum explored depth of about 111 mbgs in a well identified as #5709123.

Overburden in the area consists mainly of sand and fine silt and gravel with minor clay content. All the well records can be found in Appendix C.

6.0 BOREHOLE DRILLING AND MONITORING WELL INSTALLATION

A borehole investigation was completed on April 15, 2021 to assess subsurface conditions at the Site. A total of five boreholes, designated as BH201-21 through BH205-21, were advanced throughout the Site. All of the boreholes were terminated to a depth of 6.6 m below ground surface (mbgs). The borehole locations and elevations were surveyed using a Sokkia RTK GPS system. The borehole elevations were tied to geodetic using a known benchmark.

Three (3) wells identified as MW203-21, MW204-21 and MW205-21 were completed as monitoring wells.

As mentioned earlier, four (4) piezometers and four (4) monitoring wells were installed at the Site in the previous investigations.

Figure 5 depicts the locations of boreholes and monitoring wells completed by Cambium, along with the piezometer/monitoring wells completed previously by other consultants. The observed soil stratigraphy and the details of monitoring wells installed by Cambium are presented in the borehole logs included in Appendix D.

6.1 Physical Laboratory Testing

Based on the results of the borehole investigation, the subsurface conditions at the Site consist of a surficial layer of topsoil overlying brown sand material, which overlies a brown sandy to clayey silt to silty clay layer in some of the borehole locations to the termination depths of 6.6 mbgs. The boreholes were terminated in native soils and bedrock was not encountered within the explored depths.

A cohesive layer of brown clayey silt to silty clay was encountered beneath the sand in boreholes BH201-21, BH204-21 and BH205-21, all extending to the termination depth of 6.6 mbgs.

Physical laboratory testing, including five (5) sieve and hydrometer analyses (LS-702, 705), was completed on selected soil samples to confirm the soil texture.

Table 1 Particle Size Distribution

Borehole	Depth (mbgs)	Description	% Gravel	% Sand	% Silt & Clay	% Moisture content	Percolation Time (min/cm)
BH202-21 SS3	1.5 – 2.0	Sand, trace Silt trace Gravel	1	95	4	4.3	7
BH203-21 SS3	1.5 – 2.0	Sand, trace Gravel trace Silt	6	90	4	4.9	6
BH205-21 SS2	0.8 – 1.2	Sand, some Gravel some Silt	11	78	11	17.8	8
BH201-21 SS7	6.1 – 6.6	Silty Clay, trace Sand & Gravel	1	9	23	67	>50
BH204-21 SS6	4.6 – 5.0	Sandy Clayey Silt	0	31	40	29	50

As per the data above, the percolation times (T) ranged from 6 min/cm to 8 min/cm, for the shallow soils, with a geometric average of 7 min/cm. The deeper soils (4.6 to 6.6 m) have lower percolation rates indicating that soils getting more fine-grained in nature with depth.

The grain size analyses of the soil samples have been included in Appendix E.

6.2 Groundwater Levels

Groundwater levels were measured on April 23 and May 26, 2021 in all the newly installed monitoring wells (MW203-21, MW204-21 and MW205-21) by Cambium and four (4) existing monitoring wells (MW101 to MW104) and four (4) piezometers previously installed by Geospec. The recorded groundwater levels are presented in Table 2 below.

Table 2: Well Details and Measured Groundwater Levels

Monitoring Well/Piezometer	Well Depth (mbgs)	Ground Elevation (masl)	23-Apr-21		26-May-21	
			Depth to Groundwater (mbgs)	Water table Elevation (masl)	Depth to Groundwater (mbgs)	Water table Elevation (masl)
MW203-21	6.6	268.93	2.16	266.77	2.19	266.74
MW204-21	6.6	268.39	2.03	266.36	2.10	266.29
MW205-21	6.6	267.43	0.54	266.89	0.75	266.68
MW101	5.1	269.61	2.26	267.35	2.27	267.34
MW102	5.1	268.34	1.06	267.28	1.28	267.06
MW103	5.1	270.53	3.77	266.76	4.29	266.24
MW104	5.1	271.18	4.30	266.88	4.29	266.89
P1	5.1	268.93	Dry	-	Dry	-
P2	5.1	268.56	1.29	267.27	1.41	267.15
P3	5.1	267.34	4.13	263.20	4.15	263.18
P4	5.1	269.12	Dry	-	Dry	-

As presented above, the measured groundwater levels in the monitoring wells during the spring months, ranged in depth from as shallow as 0.54 mbgs to as deep as 4.30 mbgs, and the elevations ranged from 266.24 masl to 267.35 masl, with an average groundwater elevation of 266.85 masl.

6.3 Inferred Groundwater Flow Direction

Based on the groundwater elevation data obtained from the latest monitoring event, a site-specific groundwater elevation contour map was prepared to present the inferred groundwater flow direction. As shown in Figure 6, the groundwater flow direction was inferred to be northwest generally following the topography toward the local surface drainage.

7.0 CONSTRUCTION DEWATERING

It is proposed that the property be subdivided with up to 31 lots (manufacturing, processing, servicing, storage of goods and raw materials, industrial warehousing and similar uses) and are being finished as slab-on-grade structures and that there may be strip footings required that will extend below the water table at some locations, to some extent. Therefore, no major construction dewatering was anticipated at the Site.

8.0 WATER BALANCE ASSESSMENT

A preliminary water balance for the Site was calculated for both pre-development and post-development conditions in order to assess the change in overall rate of infiltration.

8.1 Site Condition

The Site is currently a vacant land with treed areas. There are no creeks, ponds or wetlands located on the Subject Property.

It is understood that a 31-lot manufacturing, processing, servicing, storage of goods and raw materials, industrial warehousing development has been proposed.

Based on the available design information, the development area at the Site can be generally categorized into three (3) types as paved area, roof area, and landscape areas. A summary of the surface areas of the development is listed in Table 3.

Table 3 Pre- and Post-Development Site Statistics.

Type of Land Coverage	Pre-Development Area (m^2)	Post Development Area (m^2)
Paved Area	0	122,000
Building Roof Area	0	
Landscape/Vegetated Area	155,000	33,000
Total (m^2)	**155,000**	**155,000**

Since a detailed Site development plan was not available at the time of this report and the proposed development was for an industrial development, the total lot area was considered to be impervious occupied either by roof and/or paved area.

8.2 Site Level Water Balance

Based on the Thornthwaite and Mather methodology (1957), the water balance is an accounting of water in the hydrologic cycle. Precipitation (P) falls as rain and snow. It can run off towards lakes and streams (R), infiltrate to the groundwater table (I), or evaporate from ground or evapotranspiration by vegetation (ET). When long-term average values of P, R, I, and ET are used, there is minimal or no net change to groundwater storage (ΔS).

The annual water budget can be expressed as:

$P = ET + R + I + \Delta S$

Where:

P = Precipitation (mm/year)

ET = Evapotranspiration (mm/year)

R = Run-off (mm/year)

I = Infiltration (mm/year)

ΔS = Change in groundwater storage (taken as zero) (mm/year)

8.3 Climate Data

The climatic data including monthly average temperature and precipitation were obtained from Environment Canada for the Barrie WPCC weather station (Climate Identifier: 6110557) located about 4 km from the Site.

The data were available between the years 1973 to 2006 i.e. 33 years. Temporal variations of mean annual temperature and precipitation are shown in Figures 7 and 8.

Figure 7 Mean Annual Temperature at the Site

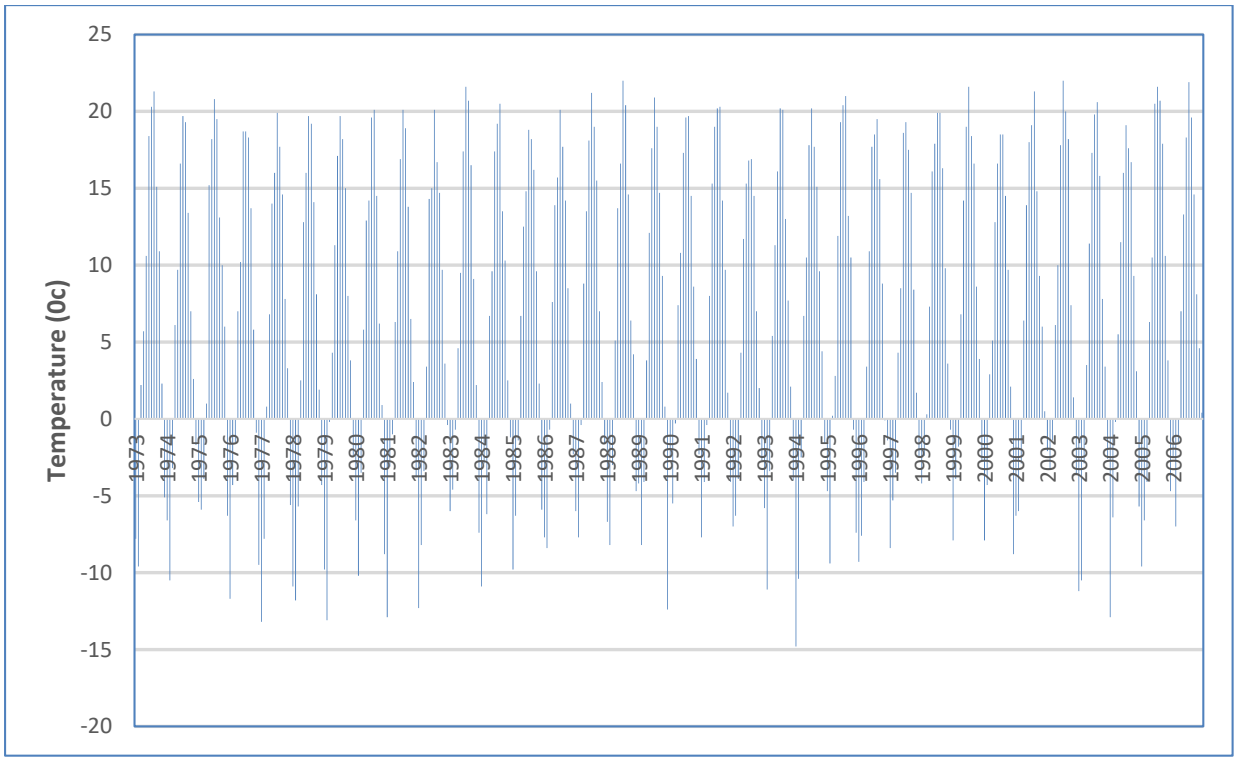
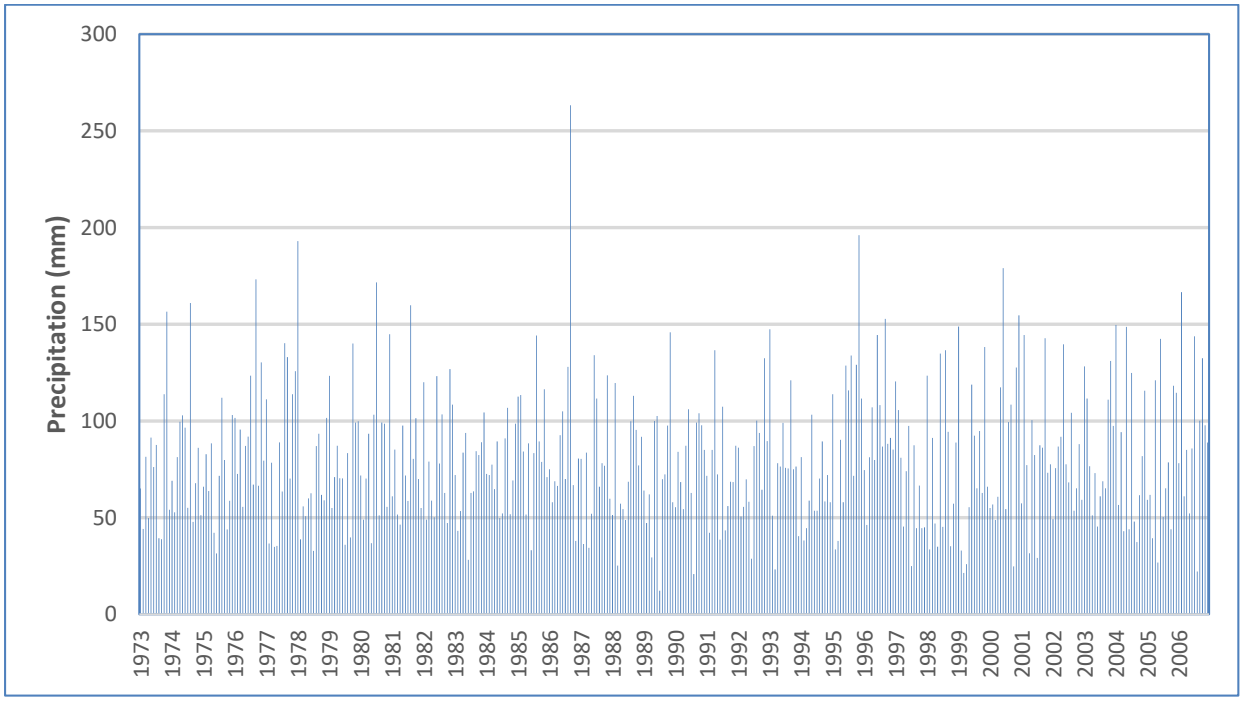
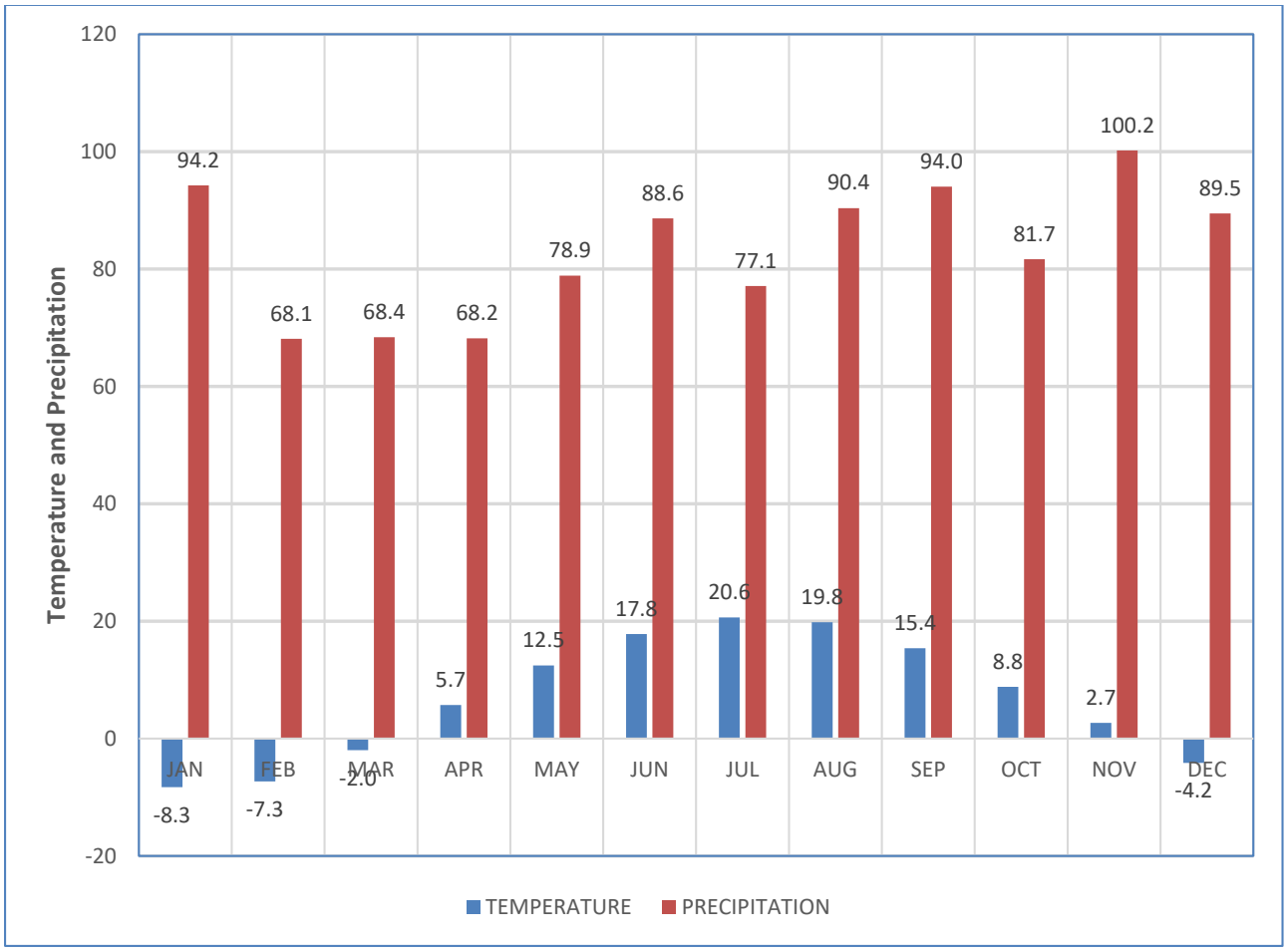


Figure 8 Mean Annual Precipitation at the Site



Average monthly variations of both temperature and precipitation were calculated for the period from 1973 to 2006 (33 years) and is presented below in Figure 9. The highest average temperature was recorded in the month of July, while the highest precipitation was in the month of November.

Figure 9 Mean Monthly Average Temperature and Precipitation at the Site



Based on the data for the precipitation and temperature, actual evapotranspiration was estimated to be about 545 mm/annum using the USGS Thornthwaite Monthly Water Balance methodology (Appendix F), and the average annual precipitation was recorded to be 933 mm/annum.

8.4 Infiltration and Runoff

As mentioned above, the actual evapotranspiration was estimated to be 545 mm/annum. Given the average annual precipitation of 933 mm/annum, there is a water surplus of 388 mm/annum occurring at the Site, part of which can either infiltrate into the subsurface or become run-off.

The rate of infiltration at a site is expected to vary, based on a number of factors to be considered in any infiltration model. To partition the available water surpluses into infiltration and surface run-off, the Ministry of Environment, Conservation and Parks (MECP) infiltration factor was used. The MECP Storm Water Management Planning and Design Manual (2003) methodology for calculating total infiltration based on topography, soil type and land cover was used, and a corresponding run-off component was calculated for the soil moisture storage conditions.

The calculation of infiltration and runoff in the stages of pre-development and post-development is provided in Appendix F, and are presented in Tables 4 to 7, below.

Table 4 Annual Pre-Development Water Balance

Land Use		Area (m^2)	Precipitation (m^3)	Evapotranspiration (m^3)	Infiltration (m^3)	Run-Off (m^3)
Impervious areas	Paved Area	0	0	0	0	0
	Roof Area	0	0	0	0	0
Pervious Areas	Landscape Area	155,000	144,615	84,475	33,077	27,063
		155,000	144,615	84,475	33,077	27,063
Assuming no infiltration occurring in paved and roof areas and 10% of precipitation to be evaporated from paved and roof areas.						

Table 5 Annual Post Development Water Balance

Land Use		Area (m^2)	Precipitation (m^3)	Evapotranspiration (m^3)	Infiltration (m^3)	Run-Off (m^3)
Impervious areas	Paved Area	133,000	124,089	12,409	0	111,680
	Roof Area					
Pervious Areas	Landscape Area	22,000	20,526	11,990	4,695	3,841
		155,000	144,615	24,399	4,695	115,521
Assuming no infiltration occurring in paved and roof areas and 10% of precipitation to be evaporated from paved and roof areas.						

Table 6 Comparison of Pre- and Post Development Water Balance

	Precipitation (m^3)	Evapotranspiration (m^3)	Infiltration (m^3)	Run-Off (m^3)
Pre-Development	**144,615**	**84,475**	**33,077**	**27,063**
Post-Development	**144,615**	**24,399**	**4,695**	**115,521**
Change in Volume			**28,382**	**88,458**
% Change			**86**	**327**

Table 7 Requirement of Infiltration from Roof Run-off

Volume of Pre-Development Infiltration (m^3/annum)	**33,077**
Volume of Post-Development Infiltration (m^3/annum)	**4,695**
Deficit from Pre to Post Development Infiltration (m^3/annum)	**28,382**
% of Roof Runoff required to match the pre-development Infiltration	**25**

Based on the above calculations, a summary of water balance is provided below:

1) There is a net increase in run-off at the Site of about 88,458 m^3/annum, from 27,063 m^3/annum to 115,521 m^3/annum. This increase is a result of the development of the Site with more impervious areas such as roof and paved areas, and reduction in pervious areas.

2) Without implementation of mitigation measures, there is a net deficit of about 28,382 m^3 /annum (or 86% decrease) in the post-development infiltration on a yearly basis.

3) There is a volume of 111,680 m^3/annum collected from the general roof and paved areas, which can be used for the enhanced infiltration for the purpose of implementing the Low Impact Development (LID) measures, if applicable. Based on the estimation, diversion of 25% of the general roof water for infiltration would maintain a balanced infiltration after the development.

8.5 Discussions on LID Measures

It is known that low impact development (LID) practices have received increasing attention as these strategies attempt to capture the runoff and mimic the natural hydrologic cycle.

The City of Barrie has introduced an Infiltration LID Screening Process to guide the selection and implementation of LID measures.

In general, there are two primary categories of LIDs. The first promotes the infiltration of Stormwater close to the source. These infiltration type LIDs are preferred when hydrogeological and physical conditions are optimal and allow for their emplacement. The second option captures and slowly releases the water to the surface water system through the process of storage and filtration. Storage and filtration type LIDs are to be considered when conditions do not permit infiltration LIDs to be implemented. According to the LID Screening Process, water sourced from the paved area (driveway and/or walkway) is not permitted for use of infiltration based LID practices. In other words, the LID measures such as permeable pavers or other open infiltration facility may not be allowed.

Given the proposed design, there is enough space available for the implementation of LID measures, either by means of infiltration galleries or infiltration trenches or any other suitable means. However, as Cambium is not providing any design of LID facilities, it would be beneficial to consult with design engineers for the LID design recommendations.

9.0 ASSESSMENT OF POTENTIAL IMPACTS

As discussed, there is no construction dewatering, for either short-term or long-term, due to the slab-on-grade structures being proposed at the Site. The potential impacts due to the Site development were assessed as follows.

9.1 Natural Features

As discussed, no natural surface water features including wetlands, ponds or creeks are located on the Site. The nearest water body Lake Simcoe is located at about 2.5 km from the Site and therefore, there should be no impacts on the local natural features, due to the site development.

9.2 Water Supply Wells near the Site

Given that no dewatering will be required for completion of the proposed development, impacts on the local water wells (private or public), if any, will not be anticipated to be associated with the dewatering activity. Moreover, all the properties surrounding the Site are under municipal water supply and as such no impacts are anticipated on the groundwater regime.

9.3 Considerations on Drinking Water Vulnerability

Based on the MECP Source Protection Information Atlas, the Site is not in Wellhead Protection Area (WHPA) or an Issue Contributing Area (ICA) and therefore there would not be any impacts either on water quality or quantity, as far as municipal well water supply is concerned.

9.3.1 Significant Groundwater Recharge Area

The Site is located in a Significant Groundwater Recharge Area with a vulnerable score of 4. Significant Groundwater Recharge Areas are areas on the landscape, that are characterized by porous soils, such as sand or gravel, which allows water to seep easily into the ground and flow to an aquifer. A recharge area is considered significant when it helps maintain the water level in an aquifer that supplies a community or private residence with drinking water.
Given that the Site is located in an urbanized area, the Site and its neighboring properties would be relying on the City's water supply. The proposed development may reduce the

pervious area at the Site, which result in decreased infiltration into subsurface or decrease in groundwater recharge.

However, considering that the municipal water wells are usually constructed in deep aquifers and no dewatering is required at the proposed development, the impact on the groundwater recharge are considered to be low to negligible.

9.3.2 Wellhead Protection Area – Q (Recharge Management Area)

The Site is identified to be an area of a Wellhead Protection Area – Q2 (Water Quantity), with low stress level. Any WHPA-Q area where significant or moderate drinking water stress has been identified, is an area where significant drinking water quantity threat activities can occur. Within these areas, future activities which take water without returning it to the same source or which reduce recharge to the aquifer are considered as significant water quantity threats.

As discussed, there is a net deficit in post-development water balance due to the Site development, reducing the groundwater recharge to the local groundwater regime. Therefore, Cambium recommends to implement the LID measures across the Site in order to reduce the infiltration deficit, although water quantity threat is considered low due to the proposed development.

10.0 CLOSURE

Tonlu Holdings Limited (Client) has retained Cambium Inc. to complete a hydrogeological assessment at 80 Big Bay Point Road and 135 Bayview Drive, Barrie, Ontario.

Groundwater levels were determined to range from as shallow as 0.54 mbgs to as deep as 4.30 mbgs and groundwater flow was estimated to be towards west and northwest. As the proposed development will be finished as slab-on-grade and therefore not expected to be significant dewatering efforts required for construction or operation of the proposed development. However, the proposed development will result in an infiltration deficit at the Site. The infiltration deficit can be accounted for if the runoff from roof surfaces (or a portion thereof) is captured and re-infiltrated at the Site.

Further, there were some regulated areas mapped on-site that could potential be influenced by the proposed development and therefore, regulation area development restrictions shall apply to the proposed development.

Adjacent landowners/properties are on City's water supply and therefore are not anticipated to be influenced from the proposed development. However detailed development plans should be reviewed (once prepared) to determine if dewatering is required during construction/operation of the development, and the potential influence of dewatering activities, if any. In addition, the water balance should also be reviewed when more detailed development plans with landscape areas are available.

Stormwater management and LID features should be designed by a qualified person. In-situ infiltration testing with a Guelph Permeametre should be completed at a later date (as needed) to provide the infiltration rates to design and implement the LID measures at the Site in order to compensate the infiltration deficit as determined.

Respectfully submitted,

Cambium Inc.

Skurli

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KDW/sk

11.0 SELECTED BIBLIAGRAPHY

Cambium. (2020a). *Geotechnical Investigation Report - Proposed North Whitby Sports Complex: Part of Lot 25, Concession 5, Whitby, Ontario.* Cambium Inc.

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

Dingman, S. L. (2008). *Physical Hydrology, Second Edition.*

Environment Canada. (2021). *https://weather.gc.ca/*.

Fetter, C. (2001). *Applied Hydrogeology (4th Edition).*

Ministry of the Environment. (2003). *Stormwater Management Planning and Design Manual .*

Ontario Geological Survey. (2007). *Paleozoic Geology of Southern Ontario; Miscellaneous Release - Data 219.*

Ontario Geological Survey. (2010). *Surficial geology of Southern Ontario; Miscellaneous Release - Data 128 - Revised.*

OGS. (2019). *Bedrock Geology of Ontario, southern sheet; Ontario Geological Survey, scale 1:250 000.*

OGS. (2019). Ontario's Quaternary Geology at a compilation scale of 1:1 000 000.

12.0 STANDARD LIMITATIONS

Limited Warranty

In performing work on behalf of a client, Cambium relies on its client to provide instructions on the scope of its retainer and, on that basis, Cambium determines the precise nature of the work to be performed. Cambium undertakes all work in accordance with applicable accepted industry practices and standards. Unless required under local laws, other than as expressly stated herein, no other warranties or conditions, either expressed or implied, are made regarding the services, work or reports provided.

Reliance on Materials and Information

The findings and results presented in reports prepared by Cambium are based on the materials and information provided by the client to Cambium and on the facts, conditions and circumstances encountered by Cambium during the performance of the work requested by the client. In formulating its findings and results into a report, Cambium assumes that the information and materials provided by the client or obtained by Cambium from the client or otherwise are factual, accurate and represent a true depiction of the circumstances that exist. Cambium relies on its client to inform Cambium if there are changes to any such information and materials. Cambium does not review, analyze or attempt to verify the accuracy or completeness of the information or materials provided, or circumstances encountered, other than in accordance with applicable accepted industry practice. Cambium will not be responsible for matters arising from incomplete, incorrect or misleading information or from facts or circumstances that are not fully disclosed to or that are concealed from Cambium during the provision of services, work or reports.

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When preparing reports, Cambium considers applicable legislation, regulations, governmental guidelines and policies to the extent they are within its knowledge, but Cambium is not qualified to advise with respect to legal matters. The presentation of information regarding applicable legislation, regulations, governmental guidelines and policies is for information only and is not intended to and should not be interpreted as constituting a legal opinion concerning the work completed or conditions outlined in a report. All legal matters should be reviewed and considered by an appropriately qualified legal practitioner.

Site Assessments

A site assessment is created using data and information collected during the investigation of a site and based on conditions encountered at the time and particular locations at which fieldwork is conducted. The information, sample results and data collected represent the conditions only at the specific times at which and at those specific locations from which the information, samples and data were obtained and the information, sample results and data may vary at other locations and times. To the extent that Cambium's work or report considers any locations or times other than those from which information, sample results and data was specifically received, the work or report is based on a reasonable

extrapolation from such information, sample results and data but the actual conditions encountered may vary from those extrapolations.

Only conditions at the site and locations chosen for study by the client are evaluated; no adjacent or other properties are evaluated unless specifically requested by the client. Any physical or other aspects of the site chosen for study by the client, or any other matter not specifically addressed in a report prepared by Cambium, are beyond the scope of the work performed by Cambium and such matters have not been investigated or addressed.

Reliance

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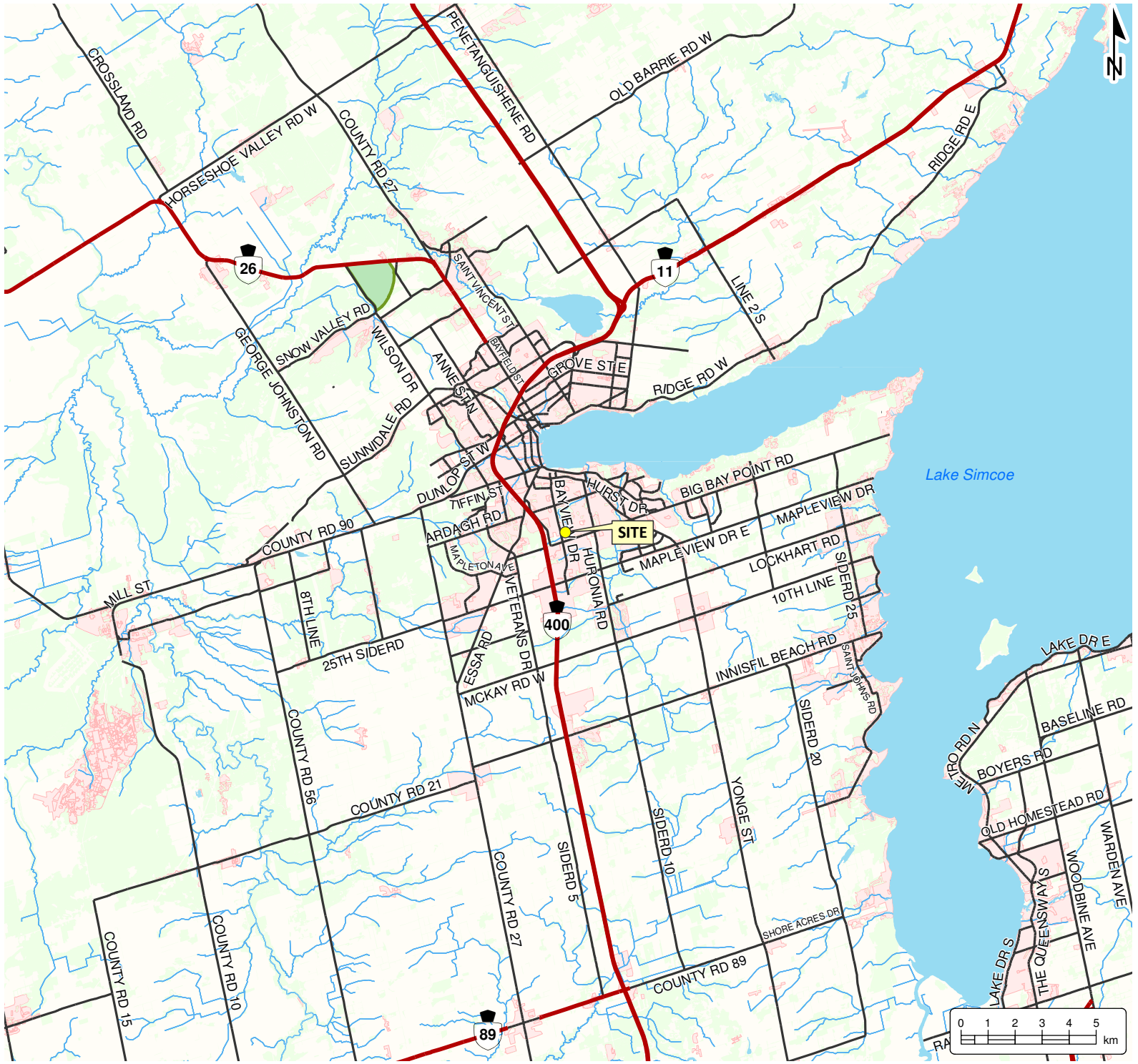
Personal Liability

The client expressly agrees that Cambium employees shall have no personal liability to the client with respect to a claim, whether in contract, tort and/or other cause of action in law. Furthermore, the client agrees that it will bring no proceedings nor take any action in any court of law against Cambium employees in their personal capacity.

List of Figures



HYDROGEOLOGICAL INVESTIGATION

ISABEL BERCASIO
C/O TONLU HOLDINGS
80 Big Bay Point Road & 315 Bayview Drive
Barrie, Ontario

LEGEND

- Highway
- Major Road
- Watercourse
- Water Area
- Provincial Park
- Wooded Area
- Built Up Area

Notes:
- Base mapping features are © Queen's Printer of Ontario, 2019 (this does not constitute an endorsement by the Ministry of Natural Resources or the Ontario Government).
- Distances on this plan are in metres and can be converted to feet by dividing by 0.3048.
- Cambium Inc. makes every effort to ensure this map is free from errors but cannot be held responsible for any damages due to error or omissions. This map should not be used for navigation or legal purposes. It is intended for general reference use only.

CAMBIUM
P.O. Box 325, 52 Hunter Street East
Peterborough, Ontario, K9H 1G5
Tel: (705) 742.7900 Fax: (705) 742.7907
www.cambium-inc.com

REGIONAL LOCATION PLAN

Project No.: 12689-001		Date: June 2021 Rev.:	
Scale: 1:200,000		Projection: NAD 1983 UTM Zone 17N	
Created by: MAT	Checked by: SK	Figure:	1

O:\GIS\MXDs\12600-12699\12689-001 Rinomato Group - 80 Big Bay Point Road & 315 Bayview Drive\2021-06-07 FIG 1 - Regional Location Plan.mxd

HYDROGEOLOGICAL INVESTIGATION

ISABEL BERCASIO
C/O TONLU HOLDINGS
80 Big Bay Point Road & 315 Bayview Drive
Barrie, Ontario

LEGEND

Site (approximate)

Notes:
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SITE LOCATION MAP

Project No.:	12689-001	Date:	June 2021
		Rev.:	
Scale:	1:4,000	Projection:	NAD 1983 UTM Zone 17N
Created by:	MAT	Checked by:	SK
Figure:	2		

O:\GIS\MXDs\12600-12699\12689-001 Rinomato Group - 80 Big Bay Point Road & 315 Bayview Drive\2021-06-07 FIG 2 - Site Location Map.mxd

HYDROGEOLOGICAL INVESTIGATION

ISABEL BERCASIO
C/O TONLU HOLDINGS
80 Big Bay Point Road & 315 Bayview Drive
Barrie, Ontario

LEGEND

- LRCSA Regulation
- Site (approximate)

Notes:
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LSRA REGULATION AREA MAP

Project No.: 12689-001		Date: June 2021 Rev.:	
Scale: 1:5,000		Projection: NAD 1983 UTM Zone 17N	
Created by: MAT	Checked by: SK	Figure:	3

O:\GIS\MXDs\12600-12699\12689-001 Rinomato Group - 80 Big Bay Point Road & 315 Bayview Drive\2021-06-07 FIG 3 - LSRA Regulation Area.mxd

HYDROGEOLOGICAL INVESTIGATION

ISABEL BERCASIO
C/O TONLU HOLDINGS
80 Big Bay Point Road & 315 Bayview Drive
Barrie, Ontario

LEGEND

- Water Well Record
- 500m Study Area
- Site (approximate)

Notes:
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MECP WELL RECORDS WITHIN 500m OF SITE

Project No.: 12689-001		Date: June 2021	Rev.:
Scale: 1:9,000		Projection: NAD 1983 UTM Zone 17N	
Created by: MAT	Checked by: SK	Figure: 4	

O:\GIS\MXDs\12600-12699\12689-001 Rinomato Group - 80 Big Bay Point Road & 315 Bayview Drive\2021-06-07 FIG 4 - MECP Well Records.mxd

HYDROGEOLOGICAL INVESTIGATION

ISABEL BERCASIO
C/O TONLU HOLDINGS
80 Big Bay Point Road & 315 Bayview Drive
Barrie, Ontario

LEGEND

- Borehole (Cambium Inc.)
- Monitoring Well (Cambium Inc.)
- Monitoring Well (installed by others)
- Piezometer (installed by others)
- Site (approximate)

Notes:
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www.cambium-inc.com

BOREHOLE LOCATION MAP

Project No.: 12689-001		Date: June 2021	Rev.:
Scale: 1:3,000		Projection: NAD 1983 UTM Zone 17N	
Created by: MAT	Checked by: SK	Figure: 5	

O:\GIS\MXDs\12600-12699\12689-001 Rinomato Group - 80 Big Bay Point Road & 315 Bayview Drive\2021-06-07 FIG 5 - Borehole Location Map.mxd

HYDROGEOLOGICAL INVESTIGATION

ISABEL BERCASIO
C/O TONLU HOLDINGS
80 Big Bay Point Road & 315 Bayview Drive
Barrie, Ontario

LEGEND

- Monitoring Well (Cambium Inc.)
- Monitoring Well (installed by others)
- Groundwater Contours (0.25m intervals)
- Site (approximate)
- (266.36) Groundwater Elevation (April 23, 2021)
- Groundwater Flow Direction

Notes:
- Base mapping features are © Queen's Printer of Ontario, 2019 (this does not constitute an endorsement by the Ministry of Natural Resources or the Ontario Government).
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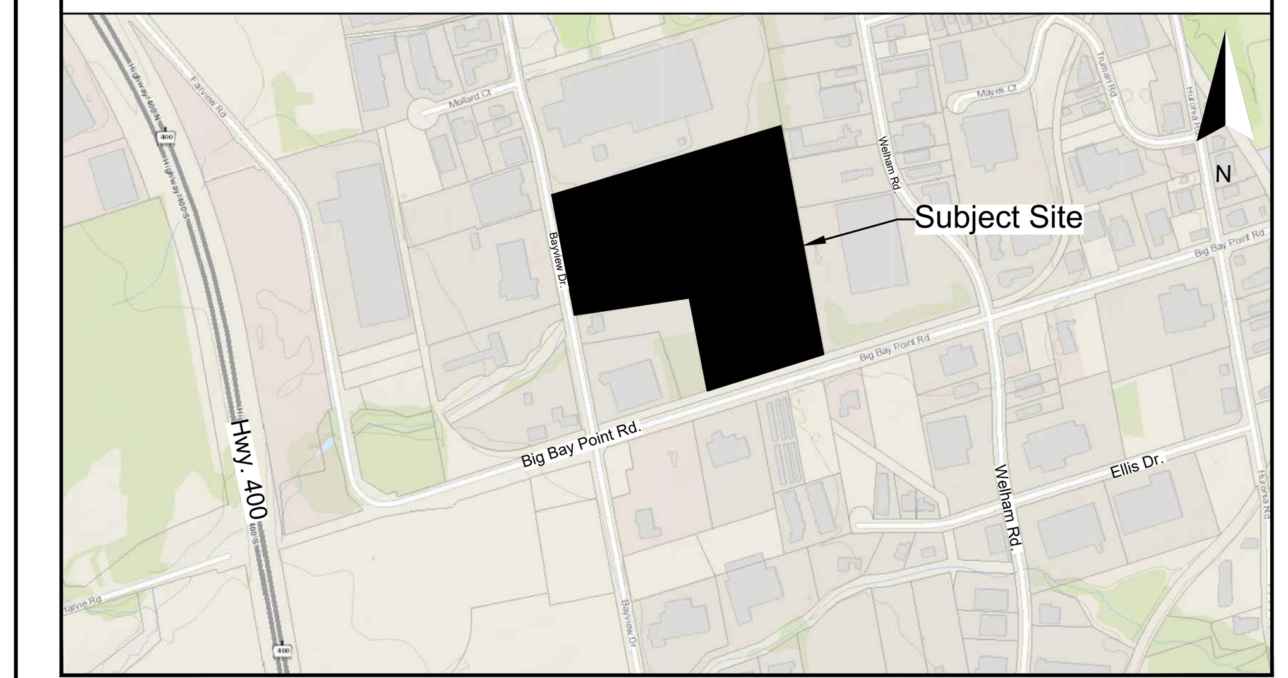
INFERRED GROUNDWATER FLOW DIRECTION MAP

Project No.: 12689-001		Date: June 2021 Rev.:	
Scale: 1:3,000		Projection: NAD 1983 UTM Zone 17N	
Created by: MAT	Checked by: SK	Figure:	6

O:\GIS\MXDs\12600-12699\12689-001 Rinomato Group - 80 Big Bay Point Road & 315 Bayview Drive\2021-06-07 FIG 6 - Inferred Groundwater Flow Direction Map.mxd

Appendix A
Proposed Development Plan

KEY MAP



DRAFT PLAN OF SUBDIVISION

Part of West Half of Lot 9, Concession 13,
Geographic Township of Innisfil,
City of Barrie,
County of Simcoe

Scale 1:1,000

0 20 40 60 80 100m

LEGEND

SUBJECT LANDS
PHASE LINE
WOODLOT

OWNER'S CERTIFICATE
I HEREBY AUTHORIZE INNOVATIVE PLANNING SOLUTIONS TO PREPARE THIS DRAFT PLAN OF SUBDIVISION AND SUBMIT THIS DRAFT PLAN OF SUBDIVISION FOR APPROVAL.

DATE ______ OWNER'S NAME: ______

SURVEYOR'S CERTIFICATE
I CERTIFY THAT THE BOUNDARIES OF THE LAND TO BE SUBDIVIDED AND THEIR RELATIONSHIP TO ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN.

DATE ______ SURVEYOR'S NAME: ______

ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51(17) OF THE PLANNING ACT

a) SHOWN ON PLAN
b) SHOWN ON PLAN
c) SEE KEY PLAN
d) RESIDENTIAL
e) SHOWN ON PLAN
f) SHOWN ON PLAN
g) SHOWN ON PLAN
h) MUNICIPAL WATER
i) SAND, SILT GLACIAL TILL
j) SHOWN ON PLAN
k) MUNICIPAL WATER & SEWAGE
l) NONE

LAND USE STATISTICS

LAND USE	LOT No.	BLOCK No.	AREA (ha)
Industrial Lots	1 - 31		9.7
SWM		32	1.7
Environmental Protection		33	2.5
Streets			1.7
TOTAL:	**31**	**33**	**15.6**

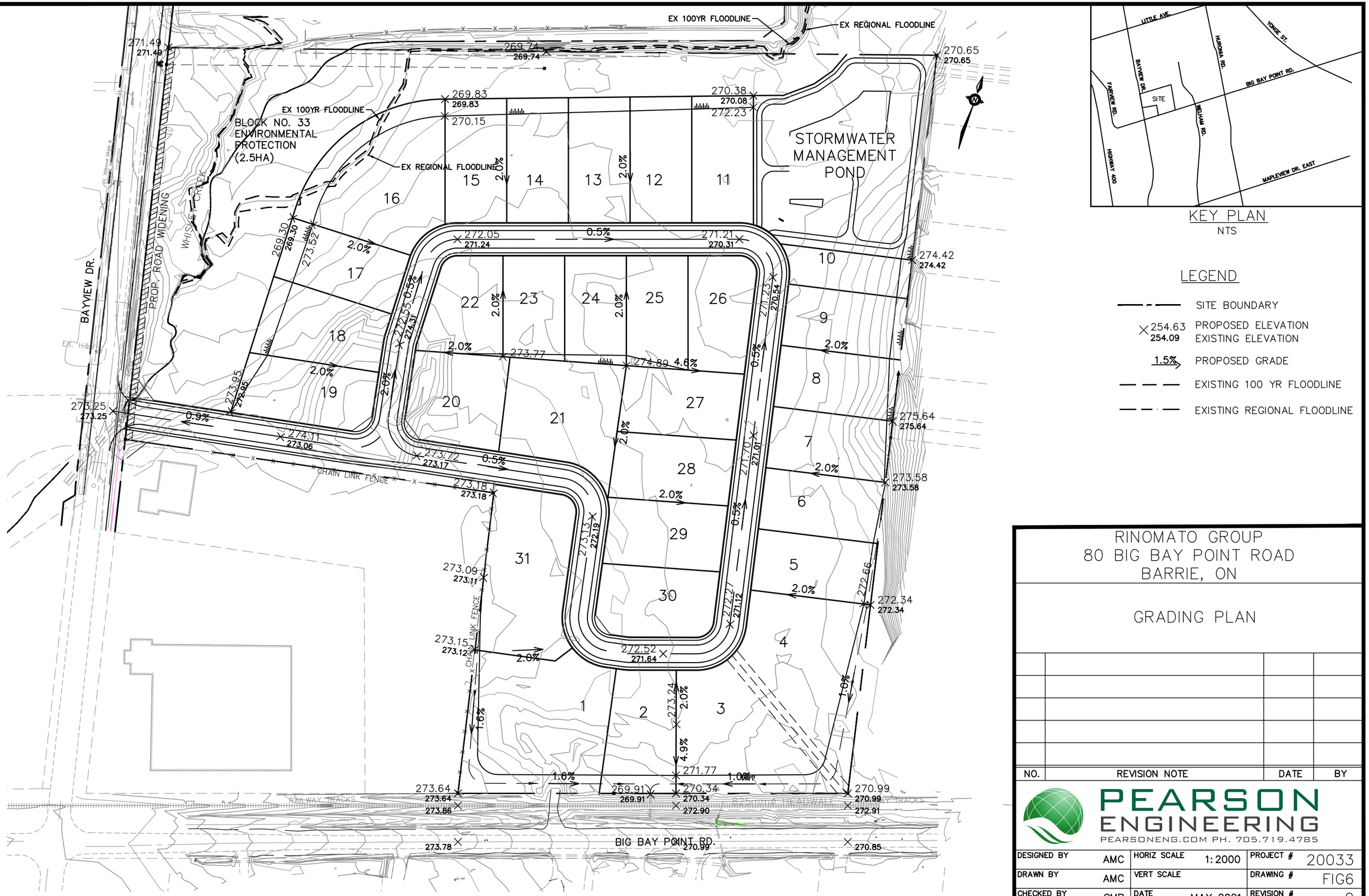
General Industrial (GI) Zone		
Provisions	**Provided**	**Required**
Lot Area (min.)	700.0m²	2,219.6m²
Lot Frontage (min.)	15.0m	35.1m
Front Yard (min.)	7.0m	> 7.0m
Side Yard (min.)	3.0m	> 3.0m
Side Yard Adjoining Street (min.)	7.0m	>7.0m
Rear Yard (min.)	7.0m	>7.0m
Lot Coverage (max.)	60%	< 60%
Building Height (max.)	--	--

SCHEDULE OF REVISIONS

No.	Date	Description	By
2	Mar. 12, 2021	Remove future road allowance; Update land-use stats;	A.S.
3	Mar. 18, 2021	Revise limits of phasing plans;	A.S.
4	June 14, 2021	Remove open space; Revise Road Widening; Identify service easement;	A.S.

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

Date:	May 25, 2021	Drawn By:	A.S.
File:	20-915	Checked:	D.V.



KEY PLAN
NTS

LEGEND

- SITE BOUNDARY
- 254.63 / 254.09 — PROPOSED ELEVATION / EXISTING ELEVATION
- 1.5% — PROPOSED GRADE
- EXISTING 100 YR FLOODLINE
- EXISTING REGIONAL FLOODLINE

RINOMATO GROUP
80 BIG BAY POINT ROAD
BARRIE, ON

GRADING PLAN

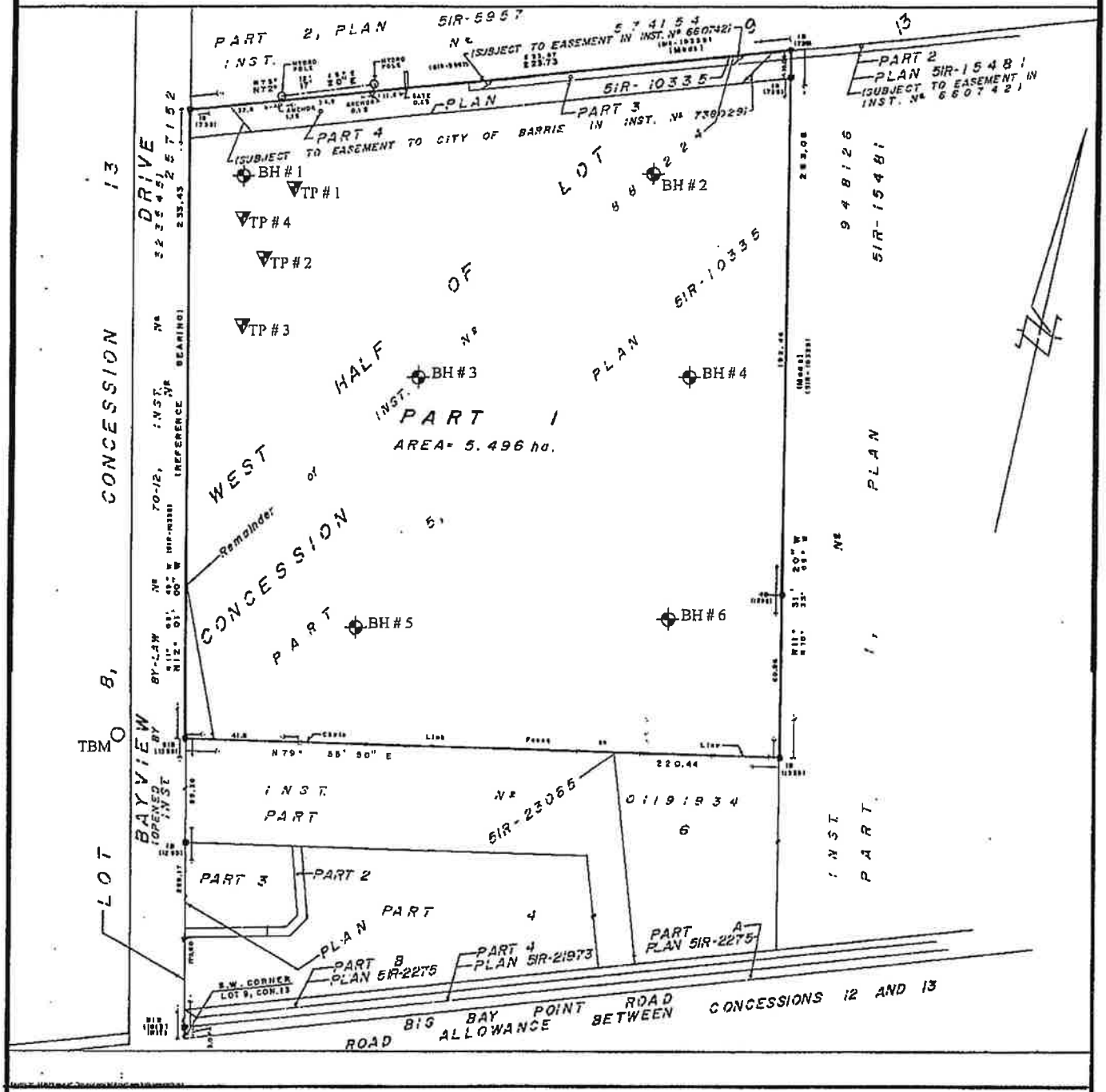
NO.	REVISION NOTE	DATE	BY

PEARSON ENGINEERING
PEARSONENG.COM PH. 705.719.4785

DESIGNED BY	AMC	HORIZ SCALE 1:2000	PROJECT # 20033
DRAWN BY	AMC	VERT SCALE	DRAWING # FIG6
CHECKED BY	GMP	DATE MAY 2021	REVISION # 0

Appendix B1

Borehole Logs- Geospec Engineering



- BoreHole
- Test Pit
- Temporary Bench Mark

BH	ELEVATION
BH # 1	97.29
BH # 2	97.33
BH # 3	96.21
BH # 4	98.11
BH # 5	97.40
BH # 6	101.52
TBM	100.00

NOTE:
TBM located on top of base flange of the Fire Hydrant at Del Canada, with an assumed elevation of 100.00

TEST HOLE PLAN

GEOSPEC ENGINEERING LTD.
287 Tiffin Street, Unit 10
Barrie, Ontario, L4N 7R8
TEL: (705) 722-4638
FAX: (705) 722-4958

CLIENT: Mansoura Development Inc.	PROJECT #: 07 - 1357	ENCLOSURE #: 1
PROJECT: Bayview Drive Industrial Developer (Bayview Village)	DATE: May 14, 2007	SCALE: NTS

GEOSPEC ENGINEERING LTD.
287 Tiffin Street, Unit 10, Barrie, Ontario L4N 7R8 TEL: (705) 722-4638 FAX: (705) 722-4958

BOREHOLE LOG

CLIENT:	Mansoura Development Inc.	**BOREHOLE N°:**	1
PROJECT NAME:	Bayview Drive Industrial Development	**BORING DATE:**	April 11, 2007
PROJECT N°:	07-1357	**SAMPLING METHOD:**	Split Spoon
GROUND ELEVATION:	97.29 m	**BORING METHOD:**	Standard Auger

Elevation (m)	Soil Description (Unified Soil Classification System)	Water Level (m)	Depth (m)	N' Value per 0.3 m	N' Value (Blows/0.3 m) 20 40 60 80	Water Content (%) 10 20 30
97.29	25 cm **Topsoil** over **Sand & Silt Till (Weathered)** brown, moist, compact to loose intermittent organic inclusions		0.2 0.4 0.6 0.8 1.0 1.2	8 4		
96.2	**Sand & Silt (Till)** brown to grey, moist, compact to very dense intermittent cobbles & boulders *Gradation @ 2.0 m* *Silt 55%* *Sand 39%* *Gravel 6%*		1.4 1.6 1.8 2.0 2.2 2.4 2.6 2.8 3.0 3.2 3.4 3.6 3.8 4.0 4.2 4.4 4.6 4.8 5.0	9 27 30 70		
92.3	**END OF BOREHOLE** Dry Cave at 4.9 m		5.2 5.4 5.6 5.8 6.0 6.2 6.4 6.6 6.8 7.0 7.2 7.4 7.6 7.8 8.0			

GEOSPEC ENGINEERING LTD.
287 Tiffin Street, Unit 10, Barrie, Ontario L4N 7R8 TEL: (705) 722-4638 FAX: (705) 722-4958

BOREHOLE LOG

CLIENT:	Mansoura Development Inc.	**BOREHOLE N°:**	2
PROJECT NAME:	Bayview Drive Industrial Development	**BORING DATE:**	April 11, 2007
PROJECT N°:	07-1357	**SAMPLING METHOD:**	Split Spoon
GROUND ELEVATION:	97.33 m	**BORING METHOD:**	Standard Auger

Elevation (m)	Soil Description (Unified Soil Classification System)	Water Level (m)	Depth (m)	N' Value per 0.3 m	N' Value (Blows/0.3 m) 20 40 60 80	Water Content (%) 10 20 30
97.33						
	30 cm **Topsoil** over **Sand** with trace silt & gravel brown, moist, very loose to compact intermittent layering *Gradation @ 1.2 m* *Sand 99%* *Silt 1%* *Gravel 1%*	▼ 1.4	0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0 2.2 2.4 2.6 2.8 3.0 3.2 3.4 3.6 3.8 4.0 4.2	3 9 16 11 11		
93.0						
	Sand & Silt (Till) grey, saturated, compact		4.4 4.6 4.8 5.0	21		
92.3						
	END OF BOREHOLE Wet Cave at 1.5 m Water at 1.4 m 19 mm PVC Standpipe Installed Standpipe removed by others.		5.2 5.4 5.6 5.8 6.0 6.2 6.4 6.6 6.8 7.0 7.2 7.4 7.6 7.8 8.0			

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BOREHOLE LOG

CLIENT:	Mansoura Development Inc.	**BOREHOLE N°:**	3
PROJECT NAME:	Bayview Drive Industrial Development	**BORING DATE:**	April 11, 2007
PROJECT N°:	07-1357	**SAMPLING METHOD:**	Split Spoon
GROUND ELEVATION:	96.21 m	**BORING METHOD:**	Standard Auger

Elevation (m)	Soil Description (Unified Soil Classification System)	Water Level (m)	Depth (m)	N' Value per 0.3 m	N' Value (Blows/0.3 m) 20 40 60 80	Water Content (%) 10 20 30
96.21						
	50 cm **Topsoil** over **Sand & Silt (Till)** brown, moist, compact intermittent cobbles and boulders		0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0 2.2 2.4 2.6 2.8 3.0 3.2 3.4 3.6 3.8 4.0 4.2 4.4 4.6 4.8	5 12 33 37 35		
	Gradation @ 2.7 m *Sand 49%* *Silt 36%* *Gravel 15%*	▼ 3.8				
5.0			5.0	34		
	END OF BOREHOLE Wet Cave at 4.9 m Water at 3.8 m 19 mm PVC Standpipe Installed Standpipe removed by others.		5.2 5.4 5.6 5.8 6.0 6.2 6.4 6.6 6.8 7.0 7.2 7.4 7.6 7.8 8.0			

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287 Tiffin Street, Unit 10, Barrie, Ontario L4N 7R8 TEL: (705) 722-4638 FAX: (705) 722-4958

BOREHOLE LOG

CLIENT:	Mansoura Development Inc.	**BOREHOLE N°:**	4
PROJECT NAME:	Bayview Drive Industrial Development	**BORING DATE:**	April 11, 2007
PROJECT N°:	07-1357	**SAMPLING METHOD:**	Split Spoon
GROUND ELEVATION:	98.11 m	**BORING METHOD:**	Standard Auger

Elevation (m)	Soil Description (Unified Soil Classification System)	Water Level (m)	Depth (m)	N' Value per 0.3 m	N' Value (Blows/0.3 m) 20 40 60 80	Water Content (%) 10 20 30
98.11	30 cm **Topsoil** over **Sand** with trace silt & gravel brown, moist, to saturated, very loose		0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8	5 4		
95.7		▼ 2.0	2.0 2.2 2.4	2		
	Sand & Silt (Till) brown, moist to wet, compact intermittent cobbles and boulders *Gradation @ 3.5 m* *Sand 60%* *Silt 40%* *Gravel <1%*		2.6 2.8 3.0 3.2 3.4 3.6 3.8 4.0 4.2 4.4 4.6 4.8	17 17		
93.1			5.0	30		
	END OF BOREHOLE Wet Cave at 2.1 m Water at 2.0 m		5.2 5.4 5.6 5.8 6.0 6.2 6.4 6.6 6.8 7.0 7.2 7.4 7.6 7.8 8.0			

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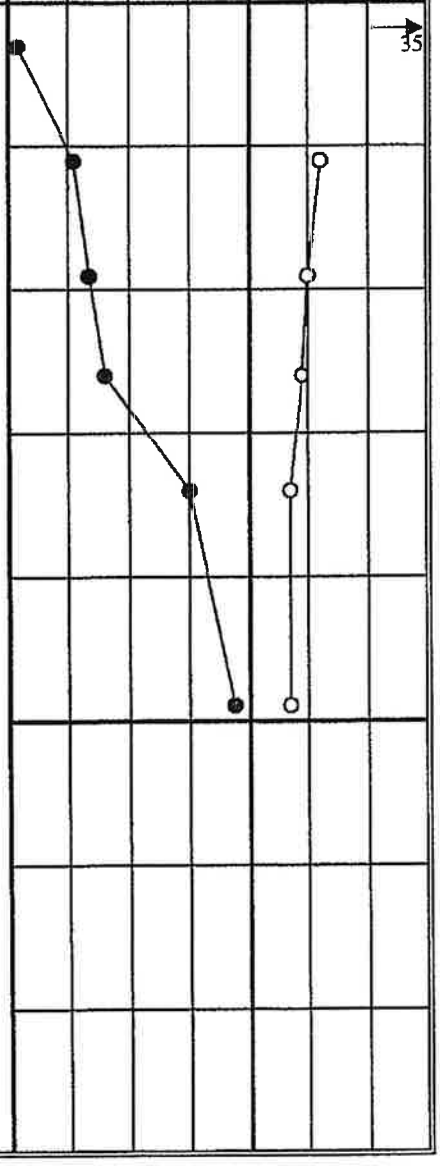
BOREHOLE LOG

CLIENT:	Mansoura Development Inc.	**BOREHOLE N°:**	5
PROJECT NAME:	Bayview Drive Industrial Development	**BORING DATE:**	April 11, 2007
PROJECT N°:	07-1357	**SAMPLING METHOD:**	Split Spoon
GROUND ELEVATION:	97.40 m	**BORING METHOD:**	Standard Auger

Elevation (m)	Soil Description (Unified Soil Classification System)	Water Level (m)	Depth (m)	N' Value per 0.3 m	N' Value (Blows/0.3 m) 20 40 60 80	Water Content (%) 10 20 30
97.40	40 cm **Topsoil** over **Sand & Silt (Till)** brown, moist, compact to very dense intermittent cobbles and boulders		0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0 2.2 2.4 2.6 2.8 3.0 3.2 3.4 3.6 3.8 4.0 4.2 4.4 4.6 4.8	3 22 27 32 60		
92.4	sandier with depth		5.0	75		
	END OF BOREHOLE Dry Cave at 4.9 m 19 mm PVC Standpipe Installed Standpipe removed by others.		5.2 5.4 5.6 5.8 6.0 6.2 6.4 6.6 6.8 7.0 7.2 7.4 7.6 7.8 8.0			



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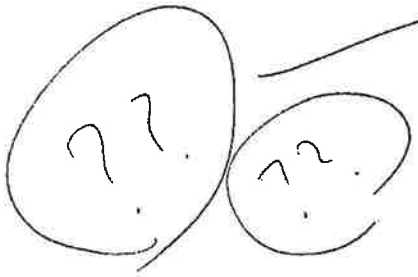
BOREHOLE LOG

CLIENT:	Mansoura Development Inc.	**BOREHOLE N°:**	6
PROJECT NAME:	Bayview Drive Industrial Development	**BORING DATE:**	April 11, 2007
PROJECT N°:	07-1357	**SAMPLING METHOD:**	Split Spoon
GROUND ELEVATION:	101.52 m	**BORING METHOD:**	Standard Auger

Elevation (m)	Soil Description (Unified Soil Classification System)	Water Level (m)	Depth (m)	N' Value per 0.3 m	N' Value (Blows/0.3 m) 20 40 60 80	Water Content (%) 10 20 30
101.52	Veneer of **Topsoil** over **Silt & Sand Fill** brown, moist, loose intermittent organic inclusions		0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0 2.2 2.4	4 7 8		
98.9	**Sand** brown, moist, compact intermittent cobbles and boulders		2.6 2.8 3.0 3.2 3.4 3.6 3.8 4.0 4.2 4.4 4.6 4.8	12 8		
96.5	**END OF BOREHOLE** Dry Cave at 4.9 m		5.0 5.2 5.4 5.6 5.8 6.0 6.2 6.4 6.6 6.8 7.0 7.2 7.4 7.6 7.8 8.0	15		



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TEST PIT VISUAL LOGS

GEOSPEC ENGINEERING LTD. PROJECT N°: 07-1357

TEST HOLE N°: 1- ~24 meters south of 279 Bayview Drive, 43 m east of Bayview Drive				
DEPTH (cm)	**COLOUR**	**DENSITY**	**MOISTURE**	**SOIL DESCRIPTION**
0-70	Dark Brown/Black	Loose	Moist	Veneer of **Topsoil** over **Silt & Sand Fill** with organic inclusions
70-85	Black		Moist	**Topsoil**
85-115	Rusty Brown	Loose	Moist	**Sand & Silt Till** with gravel & cobbles
115-220	Light Brown	Loose to Compact	Moist	**Sand & Silt Till** with gravel & cobbles NB: No Visual or Olfactory Evidence of Environmental Impact, 5 or 6 tires north of test pit No Free Flowing Groundwater

TEST HOLE N°: 2- ~50 meters south of 279 Bayview Drive, 53 meters east of Bayview Drive				
DEPTH (cm)	**COLOUR**	**DENSITY**	**MOISTURE**	**SOIL DESCRIPTION**
0-10	Black		Moist	**Topsoil**
10-250	Dark Brown/Black	Loose	Moist	**Silt & Sand Fill** with organic inclusions & asphalt pieces
250-300	Black/Dark Grey		Moist	**Peaty Topsoil** with grass
300-330	Grey	Loose	Very Moist	**Sand & Silt Till** with gravel & cobbles NB: No Visual or Olfactory Evidence of Environmental Impact, stockpiles of visible fill north of test pit No Free Flowing Groundwater

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TEST PIT VISUAL LOGS

GEOSPEC ENGINEERING LTD. PROJECT N°: 07-1357

TEST HOLE N°: 3- ~75 meters south of 279 Bayview Drive, 25 meters east of Bayview Drive				
DEPTH (cm)	**COLOUR**	**DENSITY**	**MOISTURE**	**SOIL DESCRIPTION**
0-10	Black		Moist	**Topsoil**
10-180	Dark Brown	Loose	Moist	**Silt & Sand Fill**
180-200	Dark Brown		Moist	**Topsoil**
200-250	Brown	Compact	Moist	**Sand & Silt Till** NB: No Visual or Olfactory Evidence of Environmental Impact No Free Flowing Groundwater

TEST HOLE N°: 4- ~35 meters south of 279 Bayview Drive, 25 meters east of Bayview Drive				
DEPTH (cm)	**COLOUR**	**DENSITY**	**MOISTURE**	**SOIL DESCRIPTION**
0-30	Dark Brown		Moist	**Topsoil**
30-70	Rusty Brown	Loose	Moist	**Sand & Silt** with trace gravel (Weathered Till)
70-150	Brown	Loose to Compact	Moist	**Sand & Silt Till** with gravel, cobbles & boulders NB: No Visual or Olfactory Evidence of Environmental Impact No Free Flowing Groundwater

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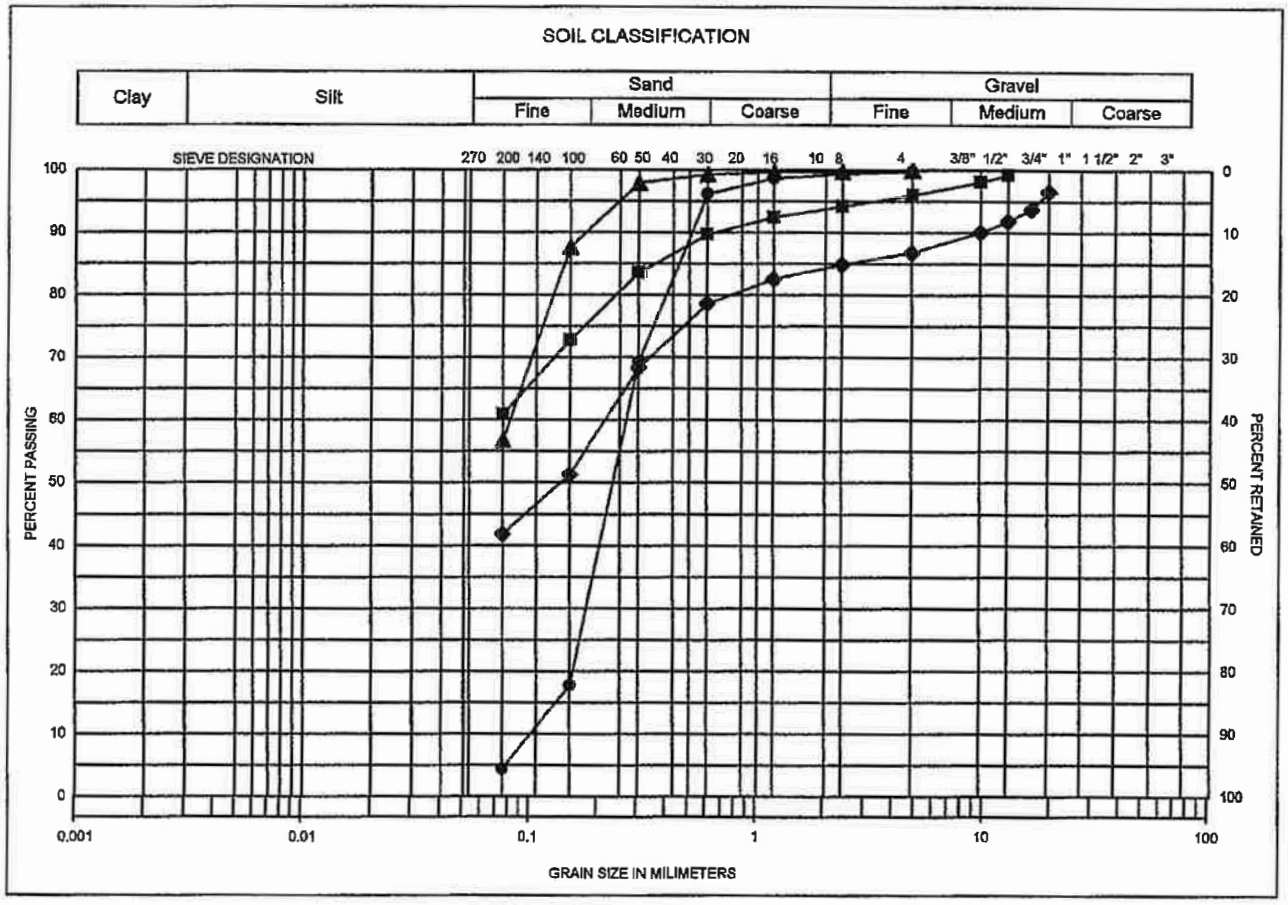
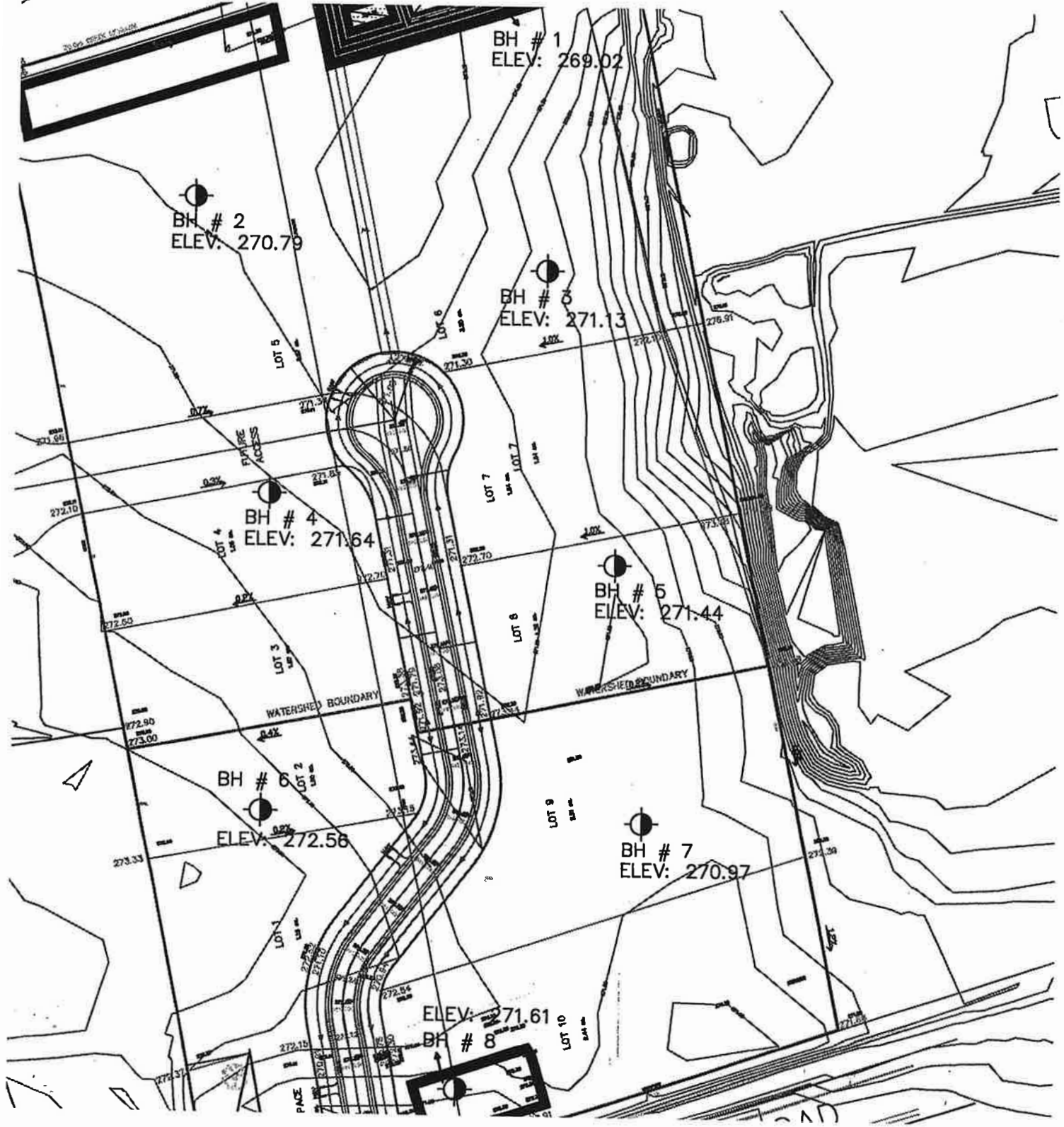
GRAIN SIZE DISTRIBUTION CHART

CLIENT:	Mansoura Development Inc.	**DATE:**	May 4, 2007
		ENCLOSURE N°:	9
PROJECT:	Bayview Drive, Industrial Development	**PROJECT N°:**	07-1357
SAMPLE N°:	56/Native	**DATE SAMPLED:**	April 11, 2007
SAMPLE TYPE:	Split Spoon	**DATE RECEIVED:**	April 12, 2007
SAMPLED BY:	FG	**DATE TESTED:**	April 20, 2007
SAMPLED FROM:	BH 1/2.0 m — Silt & Sand with trace gravel (Till)	BH 2/1.2 m — Sand with trace silt & gravel	
	BH 3/2.7 m — Sand & Silt with some gravel (Till)	BH 4/3.5 m — Sand & Silt with trace gravel (Till)	



Appendix B2

Borehole Logs- Geospec Engineering



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FAX: (705) 722-4958

PROJECT NAME

Big Bay Point Village
Barrie

LEGEND

CITY OF BARRIE SYMBOLS

- C.M. , S.I.B. , S.S.I.B.
- I.B. , STK , P.K.
- R.I.B. , I.P.
- C.C.
- B.M., G.B.M.
- G.S.M. #
- P.I.
- B.H.#

B.H. locations are approximate

TITLE

BOREHOLE PLAN

PROJECT #	ENCLOSURE
08 - 1464	***1***

CLIENT

Treelawn Group

DATE	PLOT
June - 08	***June - 08***

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BOREHOLE LOG

CLIENT:	Treelawn Construction	BOREHOLE N°:	1
PROJECT NAME:	Big Bay Point Village	BORING DATE:	27-May-08
PROJECT N°:	07-1464	SAMPLING METHOD:	Split Spoon
GROUND ELEVATION:	269.02 m	BORING METHOD:	Solid Stem

Elevation (m)	Soil Description (Unified Soil Classification System)	Water Level (m)	Depth (m)	N' Value per 0.3 m	N' Value (Blows/0.3 m) 20 40 60 80	Water Content (%) 10 20 30
269.0						
	25 cm TOPSOIL, black, moist, over		0.2			
	SAND, trace to some silt, layered		0.4	3	●	○
	brown, very loose to compact, moist		0.6			
			0.8			
			1.0			
			1.2	18	●	○
			1.4			
			1.6			
			1.8			
			2.0	8	●	○
			2.2			
			2.4			
			2.6			
266.2		▼ 2.8	2.8	12	●	○
	wet to saturated		3.0			
			3.2			
265.6			3.4			
	TILL, silt & sand, trace of gravel		3.6	15		
	grey, compact to dense, moist		3.8			
			4.0			
			4.2		●	○
			4.4	31		
	Gradation @ 5.0m: Silt 52%		4.6			
	Sand 43%		4.8			
264.0	*Gravel 5%*		5.0	33	●	○
	END OF BOREHOLE		5.2			
	Wet cave at 1.8m on completion		5.4			
			5.6			
	19 mm PVC standpipe installed to 4.6m		5.8			
	Water level measured at 2.8 m below ground		6.0			
	on June 12, 2007		6.2			
			6.4			
			6.6			
			6.8			
			7.0			
			7.2			
			7.4			
			7.6			
			7.8			
			8.0			

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BOREHOLE LOG

CLIENT:	Treelawn Construction	BOREHOLE N°:	2
PROJECT NAME:	Big Bay Point Village	BORING DATE:	27-May-08
PROJECT N°:	07-1464	SAMPLING METHOD:	Split Spoon
GROUND ELEVATION:	270.79 m	BORING METHOD:	Solid Stem

Elevation (m)	Soil Description (Unified Soil Classification System)	Water Level (m)	Depth (m)	N' Value per 0.3 m	N' Value (Blows/0.3 m) 20	40	60	80	Water Content (%) 10	20	30
270.8	**25 cm TOPSOIL**, black, moist, over		0.2								
	SAND, trace to some silt & gravel, layered		0.4	2	●						○
	brown to grey, very loose to compact, moist		0.6								
	Gradation @ 1.2m: Sand 91%		0.8								
	Silt 9%		1.0								
	Gravel <1%		1.2	10	●					○	
			1.4								
269.2		▼ 1.6	1.6								
			1.8								
			2.0	10	●						○
	wet to saturated		2.2								
			2.4								
			2.6								
	some gravel		2.8	9	●					○	
			3.0								
			3.2								
			3.4		●					○	
	gravelly		3.6	11							
			3.8								
			4.0								
			4.2								
			4.4								
			4.6								
			4.8								
265.8	more silty, layered		5.0	12	●					○	
	END OF BOREHOLE		5.2								
	Dry and open to 1.5 m on completion		5.4								
			5.6								
			5.8								
			6.0								
			6.2								
			6.4								
			6.6								
			6.8								
			7.0								
			7.2								
			7.4								
			7.6								
			7.8								
			8.0								

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BOREHOLE LOG

CLIENT:	Treelawn Construction	BOREHOLE N°:	3
PROJECT NAME:	Big Bay Point Village	BORING DATE:	27-May-08
PROJECT N°:	07-1464	SAMPLING METHOD:	Split Spoon
GROUND ELEVATION:	271.13 m	BORING METHOD:	Solid Stem

Elevation (m)	Soil Description (Unified Soil Classification System)	Water Level (m)	Depth (m)	N' Value per 0.3 m	N' Value (Blows/0.3 m) 20	40	60	80	Water Content (%) 10	20	30
271.1											
	30 cm TOPSOIL, black, moist, over		0.2								
	SAND, trace to some silt, layered		0.4	4	●						○
	brown, very loose to compact, moist		0.6								
270.2		▼ 0.9	0.8								
			1.0								
			1.2	7	●						○
	some gravel		1.4								
			1.6								
			1.8								
	wet to saturated		2.0	11	●					○	
			2.2								
			2.4								
			2.6								
			2.8	8	●						○
			3.0								
			3.2								
267.7			3.4		●					○	
	SILT & SAND, trace of gravel		3.6	7							
	grey, loose, moist		3.8								
			4.0								
			4.2		●						○
			4.4	6							
			4.6								
266.2			4.8								
266.1	**TILL**, silt & sand, trace of gravel		5.0	12	●					○	
	END OF BOREHOLE		5.2								
	Wet cave at 1.5m on completion		5.4								
			5.6								
	19 mm PVC standpipe installed to 4.6m		5.8								
	Water level measured at 0.9 m below ground		6.0								
	on June 12, 2007		6.2								
			6.4								
			6.6								
			6.8								
			7.0								
			7.2								
			7.4								
			7.6								
			7.8								
			8.0								

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BOREHOLE LOG

CLIENT:	Treelawn Construction	BOREHOLE N°:	4
PROJECT NAME:	Big Bay Point Village	BORING DATE:	27-May-08
PROJECT N°:	07-1464	SAMPLING METHOD:	Split Spoon
GROUND ELEVATION:	271.64 m	BORING METHOD:	Solid Stem

Elevation (m)	Soil Description (Unified Soil Classification System)	Water Level (m)	Depth (m)	N' Value per 0.3 m	N' Value (Blows/0.3 m) 20 40 60 80	Water Content (%) 10 20 30
271.6	**25 cm TOPSOIL**, black, moist, over		0.2			
	SAND, trace of silt & gravel, layered brown to grey, very loose to compact, moist		0.4	3	●	○
			0.6			
			0.8			
			1.0			
	little or no gravel		1.2	13	●	○
			1.4			
			1.6			
270.1	wet to saturated	▽ 1.5	1.8			
			2.0	13	●	○
			2.2			
			2.4			
			2.6			
			2.8	17	●	○
			3.0			
			3.2			
	Gradation @ 3.5m: Sand 91%		3.4		●	○
	Silt 9%		3.6	16		
			3.8			
			4.0			
			4.2			
			4.4			
			4.6			
			4.8			
266.6			5.0	21	●	○
	END OF BOREHOLE		5.2			
			5.4			
	19 mm PVC standpipe installed to 4.6m		5.6			
	No free water level observed		5.8			
	on June 12, 2007		6.0			
			6.2			
			6.4			
			6.6			
			6.8			
			7.0			
			7.2			
			7.4			
			7.6			
			7.8			
			8.0			

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BOREHOLE LOG

CLIENT:	Treelawn Construction	BOREHOLE N°:	5
PROJECT NAME:	Big Bay Point Village	BORING DATE:	27-May-08
PROJECT N°:	07-1464	SAMPLING METHOD:	Split Spoon
GROUND ELEVATION:	271.44 m	BORING METHOD:	Solid Stem

Elevation (m)	Soil Description (Unified Soil Classification System)	Water Level (m)	Depth (m)	N' Value per 0.3 m	N' Value (Blows/0.3 m) 20 40 60 80	Water Content (%) 10 20 30
271.4	**15 cm TOPSOIL**, black, moist, over		0.2			
	SAND, trace of silt, layered		0.4	5	●	○
	brown, loose to compact, moist		0.6			
			0.8			
			1.0			
			1.2	10	●	○
			1.4			
269.9	very moist to saturated	▼ 1.5	1.6			
			1.8			
	trace of gravel		2.0	11	●	○
			2.2			
			2.4			
			2.6			
	more silty		2.8	6	●	○
			3.0			
			3.2			
267.9			3.4		●	○
	SILT & SAND, trace of gravel		3.6	8		
	grey, loose, moist		3.8			
			4.0			
			4.2			
			4.4			
			4.6			
266.5			4.8			
266.4	**TILL**, silt & sand, grey, compact, wet		5.0	13	●	○
	END OF BOREHOLE		5.2			
	Wet cave at 1.5m on completion		5.4			
			5.6			
			5.8			
			6.0			
			6.2			
			6.4			
			6.6			
			6.8			
			7.0			
			7.2			
			7.4			
			7.6			
			7.8			
			8.0			

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BOREHOLE LOG

CLIENT:	Treelawn Construction	BOREHOLE N°:	6
PROJECT NAME:	Big Bay Point Village	BORING DATE:	27-May-08
PROJECT N°:	07-1464	SAMPLING METHOD:	Split Spoon
GROUND ELEVATION:	272.56 m	BORING METHOD:	Solid Stem

Elevation (m)	Soil Description (Unified Soil Classification System)	Water Level (m)	Depth (m)	N' Value per 0.3 m	N' Value (Blows/0.3 m) 20 40 60 80	Water Content (%) 10 20 30
272.6	**25 cm TOPSOIL**, black, moist, over		0.2			
	SAND, trace of silt, layered		0.4	3	●	○
	brown to grey, very loose to compact		0.6			
	moist		0.8			
			1.0			
			1.2	3	●	○
			1.4			
			1.6			
			1.8			
			2.0	19	●	○
			2.2			
			2.4			
270.0		▽ 2.6	2.6			
	very wet to saturated		2.8	19	●	○
			3.0			
			3.2			
			3.4		●	
			3.6	18		○
			3.8			
			4.0			
			4.2		●	
			4.4	18		○
			4.6			
			4.8			
267.6	some silt, loose		5.0	8	●	○
	END OF BOREHOLE		5.2			
	Moist and open to 2.1m on completion		5.4			
			5.6			
			5.8			
			6.0			
			6.2			
			6.4			
			6.6			
			6.8			
			7.0			
			7.2			
			7.4			
			7.6			
			7.8			
			8.0			

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BOREHOLE LOG

CLIENT:	Treelawn Construction	BOREHOLE N°:	7
PROJECT NAME:	Big Bay Point Village	BORING DATE:	27-May-08
PROJECT N°:	07-1464	SAMPLING METHOD:	Split Spoon
GROUND ELEVATION:	270.97 m	BORING METHOD:	Solid Stem

Elevation (m)	Soil Description (Unified Soil Classification System)	Water Level (m)	Depth (m)	N' Value per 0.3 m	N' Value (Blows/0.3 m) 20	40	60	80	Water Content (%) 10	20	30
271.0											
	25 cm TOPSOIL, black, moist, over		0.2								
	SAND, trace to some silt, layered		0.4	3	●						○
	brown to grey, very loose to compact		0.6								
	moist to wet		0.8								
270.0		▼ 1.0	1.0								
			1.2	5	●					○	
			1.4								
	trace of gravel		1.6								
			1.8								
	saturated		2.0	13	●					○	
			2.2								
			2.4								
268.3			2.6								
	SILT & SAND, layered		2.8	10	●						○
	grey, compact, moist		3.0								
			3.2								
			3.4			●					○
			3.6	26							
			3.8								
			4.0								
			4.2								
			4.4								
			4.6								
266.1			4.8								
266.0	**TILL**, silt & sand, grey, compact, moist		5.0	13	●						○
	END OF BOREHOLE		5.2								
	Moist and open to 1.5m on completion		5.4								
			5.6								
	19 mm PVC standpipe installed to 4.6m		5.8								
	Water level measured at 1.0 m below ground		6.0								
	on June 12, 2007		6.2								
			6.4								
			6.6								
			6.8								
			7.0								
			7.2								
			7.4								
			7.6								
			7.8								
			8.0								

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BOREHOLE LOG

CLIENT:	Treelawn Construction	**BOREHOLE N°:**	8
PROJECT NAME:	Big Bay Point Village	**BORING DATE:**	27-May-08
PROJECT N°:	07-1464	**SAMPLING METHOD:**	Split Spoon
GROUND ELEVATION:	271.61 m	**BORING METHOD:**	Solid Stem

Elevation (m)	Soil Description (Unified Soil Classification System)	Water Level (m)	Depth (m)	N' Value per 0.3 m	N' Value (Blows/0.3 m) 20	40	60	80	Water Content (%) 10	20	30
271.6											
	25 cm TOPSOIL, black, moist, over **SAND,** trace of silt, layered brown to grey, very loose to compact moist		0.2 0.4 0.6 0.8 1.0	2	●				○		
			1.2 1.4	6	●					○	
270.0		▼ 1.6	1.6 1.8								
	more silt, saturated		2.0 2.2 2.4 2.6	23		●					○
	trace of gravel		2.8	17	●					○	
268.5			3.0								
	TILL, sandy silt, grey, compact to dense, wet		3.2 3.4 3.6 3.8 4.0	18		●				○	
	Gradation @ 5.0m: Silt 67% *Sand 28%* *Gravel 5%*		4.2 4.4 4.6 4.8								
266.6			5.0	36		●			○		
	END OF BOREHOLE Moist and open to 4.6m on completion 19 mm PVC standpipe installed to 4.6m Water level measured at 1.6 m below ground on June 12, 2007		5.2 5.4 5.6 5.8 6.0 6.2 6.4 6.6 6.8 7.0 7.2 7.4 7.6 7.8 8.0								

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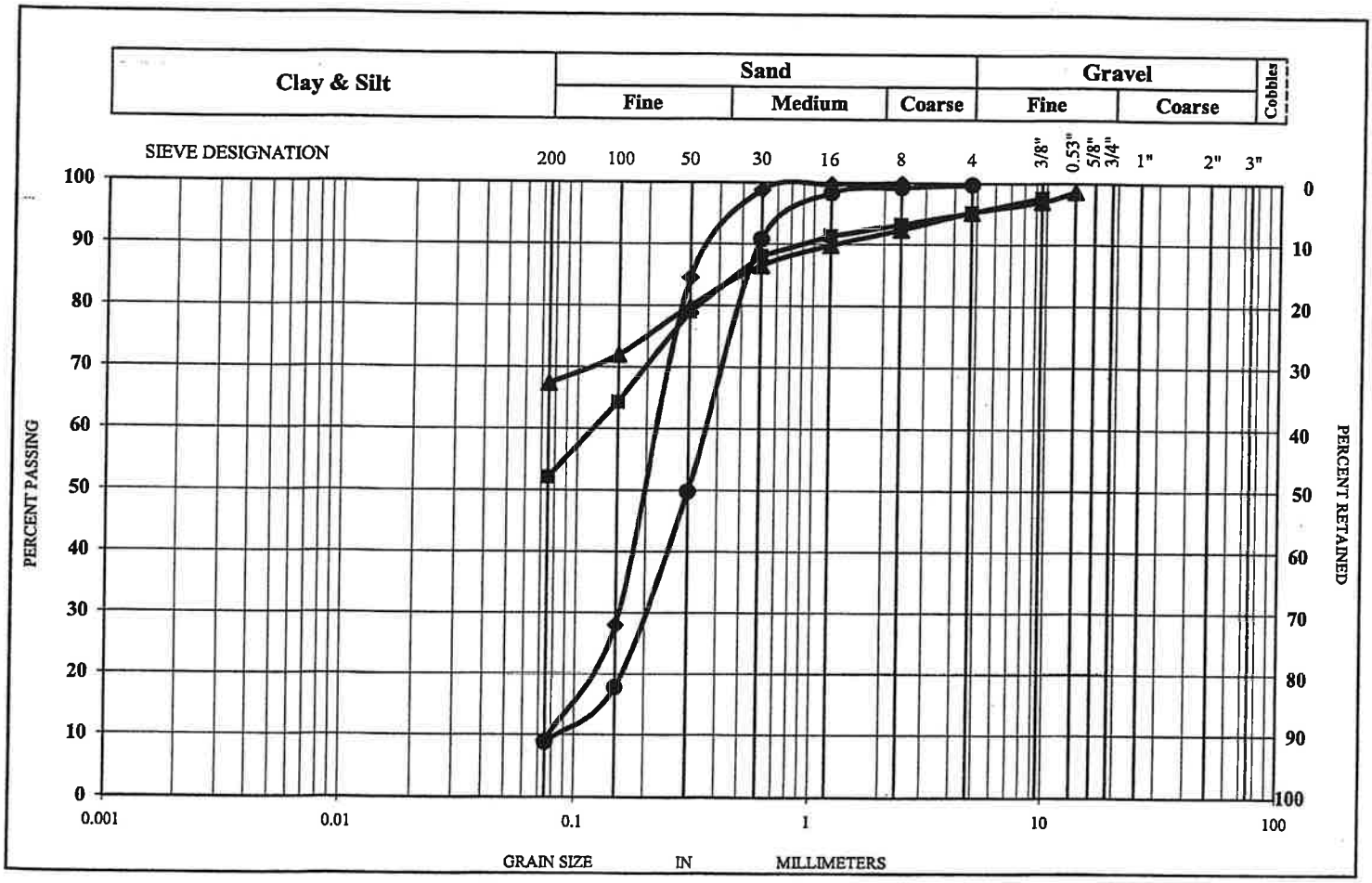
GRAIN SIZE DISTRIBUTION CHART

CLIENT:	Treelawn Group	**DATE:**	June 9, 2008
		ENCLOSURE N°:	10
PROJECT:	Big Bay Point Village	**PROJECT N°:**	08 - 1464
LAB N° / TYPE:	80 / Original Undisturbed	**DATE SAMPLED:**	May 27, 2008
SAMPLED BY:	F.G.	**DATE RECEIVED:**	May 27, 2008
SAMPLED TYPE:	Split Spoon	**DATE TESTED:**	June 3, 2008
SAMPLED FROM:	BH 1 / 5.0 m — Silt & Sand, trace of gravel		BH 2 / 1.2 m — Sand, trace of silt & gravel
	BH 4 / 3.5 m — Sand, trace of silt		BH 8 / 5.0 m — Sandy Silt, trace of gravel

BH = BoreHole

UNIFIED SOIL CLASSIFICATION SYSTEM *(ASTM D 2487)*



Appendix C
MECP Well Records

UTM 17 Z 610510719 E
9 R 4911123 19 N
Elev. 9 R 09301
Basin 22

ONTARIO

The Water-well Drillers Act, 1954
Department of Mines

57 No. 1448
GROUND WATER BRANCH
MAY 14 1958
ONTARIO WATER RESOURCES COMMISSION

Water-Well Record

County or ~~Territorial District~~ SIMCOE Township, ~~Village, Town or City~~ INNISFIL.

[redacted] in Village, Town or City)

Address BARRIE, ONT.

(day) (month) (year)

Pipe and Casing Record

Casing diameter(s) 4"
Length(s) 90'
Type of screen SLOTTED PIPE.
Length of screen 10'

Pumping Test

Static level 43
Pumping rate 4 G.P.M.
Pumping level 48'
Duration of test 3 HRS.

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	No. of feet water rises	Kind of water (fresh, salty, or sulphur)
SANDY TOPSOIL	0	1	90'	47'	FRESH.
SAND.	1	76			
HARD BLUE CLAY	76	79			
MED. FINE SAND	79	90			

Water Record

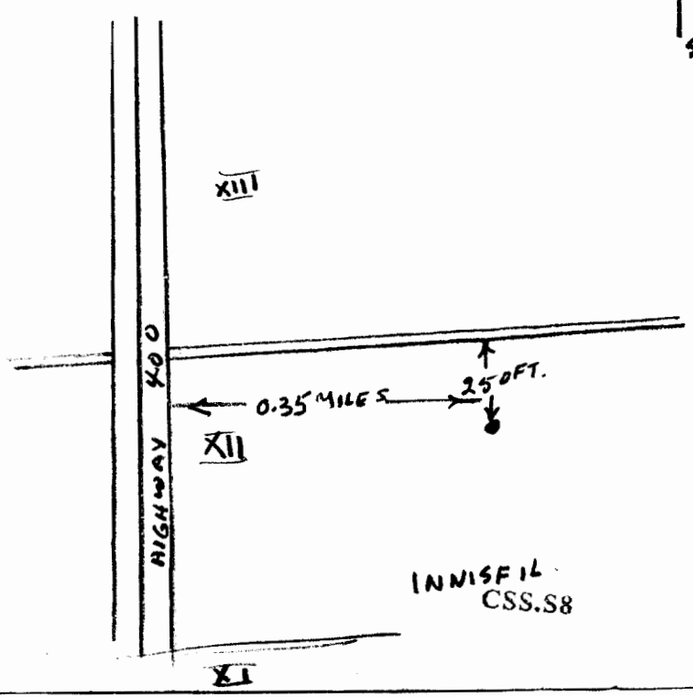
For what purpose(s) is the water to be used?
DOMESTIC & FOR CHICKENS.
Is water clear or cloudy? CLEAR.
Is well on upland, in valley, or on hillside?
UPLAND
Drilling firm F. WRIGHT & SON
Address 265 MAPLE ST.
COLLINGWOOD
Name of Driller G. R. WRIGHT.
Address SAME
Licence Number 260

I certify that the foregoing statements of fact are true.

Date Nov. 14/57 G. R. Wright.
Signature of Licensee

Location of Well

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



Form 5

UTM 17 Z 605310 E

Con. R 4911319 N

Elev. Lot R 910

Basin 22

WATER RESOURCES DIVISION 57 № 1451

JAN [illegible] 1965

ONTARIO WATER RESOURCES COMMISSION

The Ontario Water Resources Commission Act

WATER WELL RECORD

County or District Simcoe Township, Village, Town or City Innisfil

Con. 12 Lot 9 HB Date completed 23 (day) Dec. (month) 1964 (year)

Owner Sky-Line FARMS LDT (print in block letters) Address BRANCH, RR#4 BARRIE

Casing and Screen Record	
Inside diameter of casing	6¼"
Total length of casing	69 ft.
Type of screen	6" Johnson S.S. slot 14
Length of screen	3 ft.
Depth to top of screen	76 ft.
Diameter of finished hole	6¼"

Pumping Test	
Static level	46
Test-pumping rate	15 G.P.M.
Pumping level	65 ft.
Duration of test pumping	1 hr.
Water clear or cloudy at end of test	clear
Recommended pumping rate	7 G.P.M.
with pump setting of	55 feet below ground surface

Well Log: Overburden and Bedrock Record	From ft.	To ft.	Water Record: Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
Dug well	0	45		
coarse sand	45	60		
fine sand	60	75		
medium yellow sand	75	79	76	fresh

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

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

Drilling or Boring Firm H. HAMMERS Well Driller

Address RR#3 Barrie, Ont.

Licence Number 1303

Name of Driller or Borer A. HAMMERS

Address RR#5 Barrie, Ont.

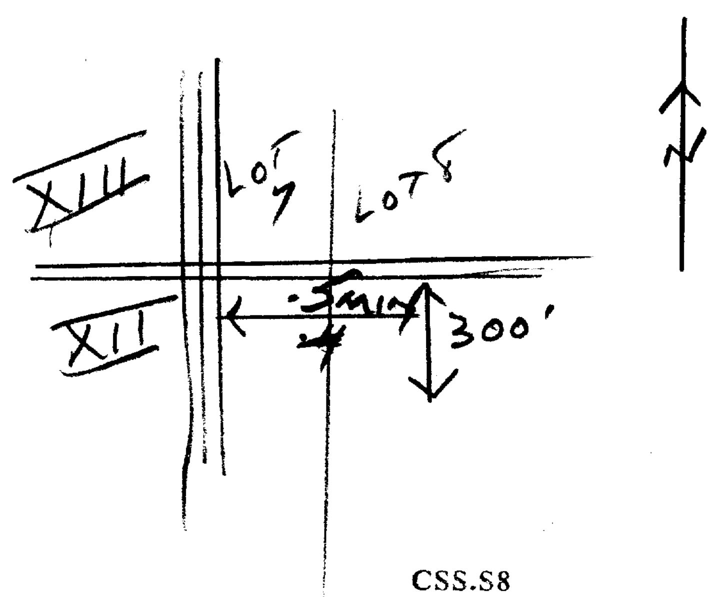
Date Dec. 24/64

Henry Hammers

(Signature of Licensed Drilling or Boring Contractor)

Location of Well

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



Form 7 15M-60-4138

OWRC COPY

CSS.S8

C4

UTM 17Z 605793 E

R 49 11 51 6 N

Elev. 89 R 0896

Basin 22

GROUND WATER BRANCH
JU 57 No. 1452
ONTARIO WATER RESOURCES COMMISSION

The Ontario Water Resources Commission Act

WATER WELL RECORD

County or District Simcoe Township, Village, Town or City INNISFIL TWP

Con. XI Lot 10 Date completed 5 (day) May (month) 1961 (year)

Owner [redacted] (print in block letters) Address STROUD

Casing and Screen Record

Inside diameter of casing 30"

Total length of casing 20 ft

Type of screen

Length of screen

Depth to top of screen

Diameter of finished hole 30"

Pumping Test

Static level 10 ft

Test-pumping rate 5 G.P.M.

Pumping level

Duration of test pumping

Water clear or cloudy at end of test clear

Recommended pumping rate 3 G.P.M.

with pump setting of feet below ground surface

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Water Record: Depth(s) at which water(s) found	Water Record: Kind of water (fresh, salty, sulphur)
BROWN CLAY	0	10	10	FRESH
GRAVEL	10	20		

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

House

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

Drilling or Boring Firm ONTARIO DRILLING COMPANY

Address R.R. # 1 NEWMARKET, ONT.

Licence Number 703

Name of Driller or Borer R WEDDELL

Address

Date

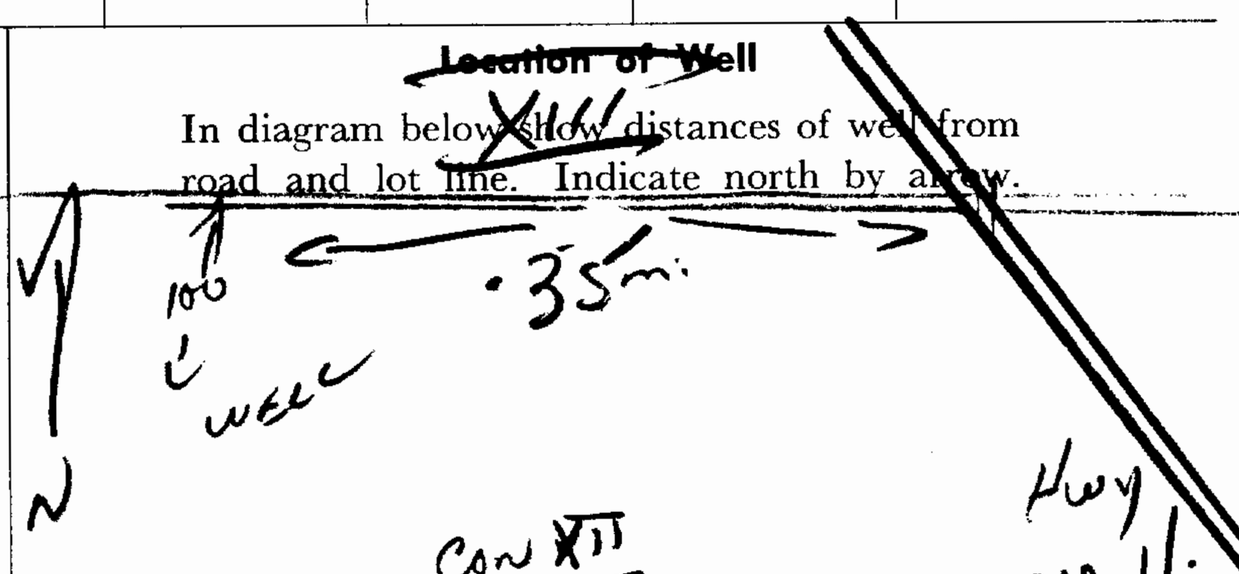
(Signature of Licensed Drilling or Boring Contractor)

Form 7 15M Sets 60-5930

OWRC COPY

Location of Well

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



PLOTTED IN LOT 10.
.35 MI FROM ROAD BETWEEN LOTS 10 & 11
WHICH IS 1.25 MI FROM HWY 11

CSS.S8

310/SE

The Ontario Water Resources Commission Act

WATER WELL RECORD

Water management in Ontario

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

11 | 5709123 | MUNICIP. 57005 | CON. CON 13

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON., BLOCK, TRACT, SURVEY, ETC.	LOT
Simcoe	Barrie Out Innisfil	XII	008

[redacted] Bayview Ave.

DATE COMPLETED: DAY 08 MO 09 YR 72

[redacted] 911560 | RC. 4 | ELEVATION 0925 | RC. 6 | BASIN CODE 22

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH – FEET FROM	TO
Brown	Clay	Stones	hard	0	5
Grey	sandy clay	& some gravel	Packed	5	43
Grey	clay	~~x~~	hard	43	64
Grey	fine sand	& silt & clay	Layered	64	155
Grey	Clay		hard	155	218
Grey	Sand	& clay	Layered & packed	218	257
Grey	clay		hard	257	299
Grey	Sand	~~packed~~	packed	299	366

31 | 0005605112 | 0043205281 | 0064205 | 0155208605 | 0218205 | 0257228205 | 1

32 | 0299205 | 0366228 | 1/72

41 WATER RECORD

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

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH – FEET FROM	TO
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			

NO TEST

SCREEN

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

MATERIAL AND TYPE: None | DEPTH TO TOP OF SCREEN FEET

61 PLUGGING & SEALING RECORD

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

71 PUMPING TEST

PUMPING TEST METHOD: 1 ☐ PUMP 2 ☐ BAILER | PUMPING RATE GPM. | DURATION OF PUMPING HOURS MINS.

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

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

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

GPM./FT. SPECIFIC CAPACITY

FINAL STATUS OF WELL

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

WATER USE

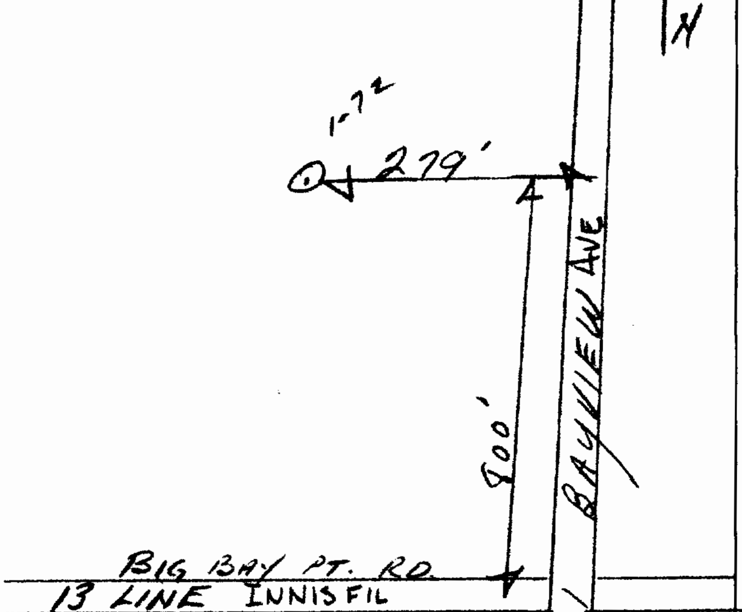
1 ☐ DOMESTIC
2 ☐ STOCK
3 ☐ IRRIGATION
4 ☐ INDUSTRIAL
☐ OTHER
5 ☐ COMMERCIAL
6 ☐ MUNICIPAL
7 ☐ PUBLIC SUPPLY
8 ☐ COOLING OR AIR CONDITIONING
9 ☐ NOT USED

METHOD OF DRILLING

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

LOCATION OF WELL

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



DRILLERS REMARKS:

CONTRACTOR

NAME OF WELL CONTRACTOR: International Water Supply | LICENCE NUMBER: 2801

ADDRESS: P.O Box 310 Barrie Ont

NAME OF DRILLER OR BORER: C Magel | LICENCE NUMBER:

SIGNATURE OF CONTRACTOR: [signature] | SUBMISSION DATE: DAY 27 MO. SEPT YR. 72

OFFICE USE ONLY

DATA SOURCE 1 | CONTRACTOR 2801 | DATE RECEIVED 290972

DATE OF INSPECTION | INSPECTOR

REMARKS:

CSS.58

OWRC COPY

310/SE

The Ontario Water Resources Commission Act

WATER WELL RECORD

Water management in Ontario

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11 | 5709124 | MUNICIP. 57005 | CON. CON 13

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON., BLOCK, TRACT, SURVEY, ETC.	LOT
SIMCOE	BARRIE ONT Innisfil	XIII	8 008

[redacted] BAYVIEW AVE.

DATE COMPLETED: DAY 14 MO 09 YR 72

[redacted] 9115110 | RC. 4 | ELEVATION 0925 | RC. 6 | BASIN CODE 22

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH – FEET FROM	DEPTH – FEET TO
Brown	Clay	& stones	hard	0	5
Grey	sandy clay some gravel		packed	5	43
Grey	Clay		hard	43	64
Grey	fine sand silt & clay		Layers	64	150
				150	

31 | 0005605112 | 0043205128 11 | 0064205 | 0150208 0005

32

41 WATER RECORD

WATER FOUND AT – FEET	KIND OF WATER
0064	1 ☒ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
0150	1 ☒ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH – FEET FROM	DEPTH – FEET TO
06	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			0044
02	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE		44'9"	0139
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			

SCREEN

SIZE(S) OF OPENING (SLOT NO.) 020 | DIAMETER 02.000 INCHES | LENGTH 10 FEET

MATERIAL AND TYPE: T.G.B 2" ayed | DEPTH TO TOP OF SCREEN 0139 FEET

61 PLUGGING & SEALING RECORD

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

71 PUMPING TEST

PUMPING TEST METHOD: 1 ☒ PUMP 2 ☐ BAILER | PUMPING RATE 0020 GPM. | DURATION OF PUMPING 01 HOURS 30 MINS.

STATIC LEVEL	WATER LEVEL END OF PUMPING	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
040	072	042	043	042	042

WATER LEVELS DURING: 1 ☐ PUMPING 2 ☒ RECOVERY

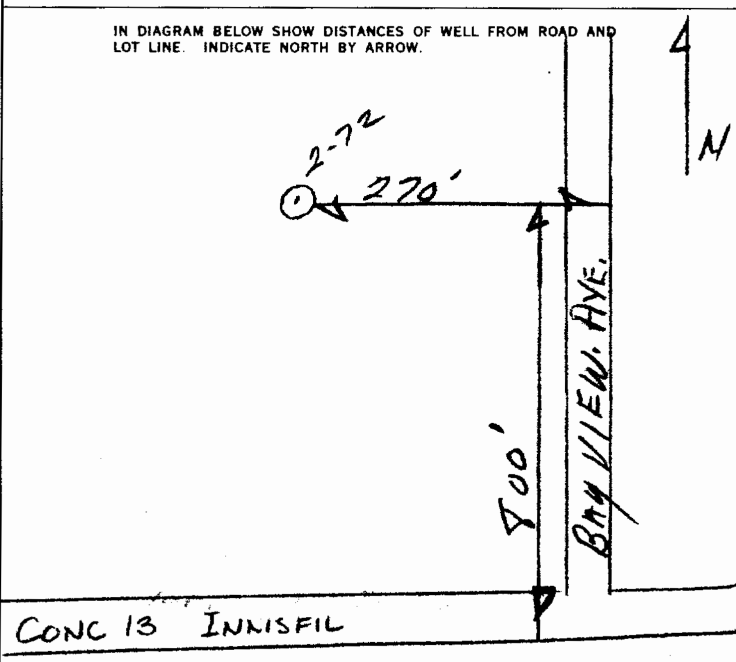
IF FLOWING, GIVE RATE: none GPM. | PUMP INTAKE SET AT — FEET | WATER AT END OF TEST: 1 ☐ CLEAR 2 ☒ CLOUDY

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

000.6 GPM./FT. SPECIFIC CAPACITY

LOCATION OF WELL

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



DRILLERS REMARKS:

FINAL STATUS OF WELL

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

WATER USE

09

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

METHOD OF DRILLING

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

CONTRACTOR

NAME OF WELL CONTRACTOR: International Water Supply | LICENCE NUMBER 2801

ADDRESS: P.O. Box 310 Barrie Ont

NAME OF DRILLER OR BORER: C. Mogil | LICENCE NUMBER

SIGNATURE OF CONTRACTOR: [signature] | SUBMISSION DATE DAY 27 MO. SEPT YR. 72

OFFICE USE ONLY

DATA SOURCE 1 | CONTRACTOR 2801 | DATE RECEIVED 290972

DATE OF INSPECTION | INSPECTOR

REMARKS:

OWRC COPY

MINISTRY OF THE ENVIRONMENT
The Ontario Water Resources Act

WATER WELL RECORD

Ontario

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

11 | 5713423 | MUNICIP 57005 | CON. CON 12 | 31 D5E

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON., BLOCK, TRACT, SURVEY, ETC.	LOT
SIMCOE	INNISFIL	CON 12	009

OWNER (SURNAME FIRST)	ADDRESS	DATE COMPLETED
[redacted]	RR#4 BARRIE ONT	DAY 16 MO 10 YR. 75

21 | UTM ZONE 17 | EASTING 605700 | NORTHING 4911450 | 5 | ELEVATION 0875 | 5 | BASIN CODE 23

[redacted]

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	TO
BROWN	SAND			0	50
GREY				50	55

31 0050628 0055200

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
0045 / 45-55	1 ☒ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	TO
05	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	188	0	0052 / 52
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER	LENGTH
012	05000 INCHES	03 FEET

MATERIAL AND TYPE: STAINLESS STEEL — DEPTH TO TOP OF SCREEN: 0052 FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
~~49~~	~~52~~	4" HEADER
		RUBBER PACKER

71 PUMPING TEST

PUMPING TEST METHOD: 1 ☐ PUMP 2 ☒ BAILER — PUMPING RATE 0010 GPM — DURATION OF PUMPING 02 HOURS 00 MINS

STATIC LEVEL	WATER LEVEL END OF PUMPING	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
025 FEET	035 FEET	035 FEET	035 FEET	035 FEET	035 FEET

WATER LEVELS DURING: 1 ☒ PUMPING 2 ☐ RECOVERY

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

RECOMMENDED PUMP TYPE: ☐ SHALLOW ☒ DEEP | RECOMMENDED PUMP SETTING 045 FEET | RECOMMENDED PUMPING RATE 0005 GPM

50-53 ____ GPM./FT. SPECIFIC CAPACITY

FINAL STATUS OF WELL 1

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

WATER USE 01

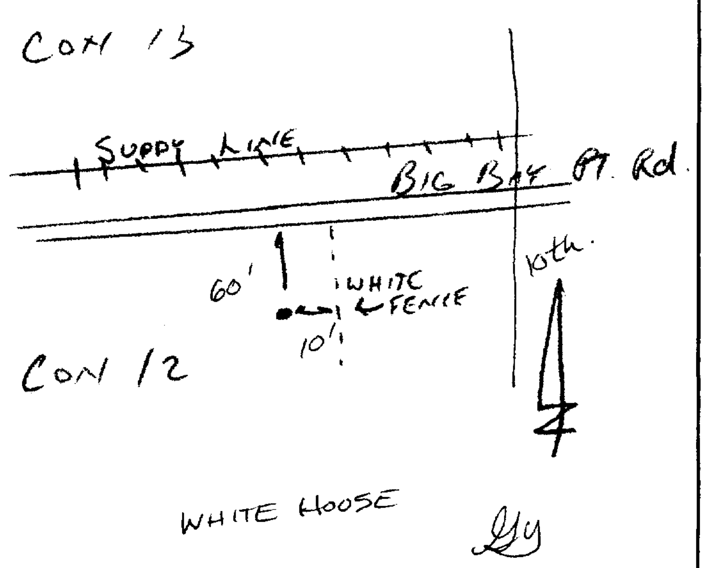
1 ☒ DOMESTIC, 2 ☐ STOCK, 3 ☐ IRRIGATION, 4 ☐ INDUSTRIAL, ☐ OTHER, 5 ☐ COMMERCIAL, 6 ☐ MUNICIPAL, 7 ☐ PUBLIC SUPPLY, 8 ☐ COOLING OR AIR CONDITIONING, 9 ☐ NOT USED

METHOD OF DRILLING 1

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

LOCATION OF WELL

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



DRILLERS REMARKS:

CONTRACTOR

NAME OF WELL CONTRACTOR	LICENCE NUMBER
KNELSEN WATER WELLS	3203
ADDRESS: RR#1 BARRIE ONT	
NAME OF DRILLER OR BORER: WAYNE KNELSEN	LICENCE NUMBER 3213
SIGNATURE OF CONTRACTOR: [signature]	SUBMISSION DATE DAY 1 MO 12 YR 75

OFFICE USE ONLY

DATA SOURCE 1 | CONTRACTOR 3203 | DATE RECEIVED 230876

DATE OF INSPECTION | INSPECTOR

REMARKS

P May 27/7

WI

MINISTRY OF THE ENVIRONMENT COPY

FORM 7 MOE 07-091

Ministry of the Environment

Ontario

31D5E

The Ontario Water Resources Act

WATER WELL RECORD

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

11 | 5715034 | MUNICIP. 5750.1 | CON.

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON., BLOCK, TRACT, SURVEY, ETC.	LOT 25-27
SIMCOE	BARRIE CITY		
[redacted] ARRIE			DATE COMPLETED 48-53 DAY 00 MO 00 YR 00

12050 | RC 5 | ELEVATION 0845 | RC 5 | BASIN CODE 22

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
	SAND			0	24

31 | 0024 28

32

41 WATER RECORD

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

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
10-11 30	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			13-16
17-18	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			20-23
24-25	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			27-30

SCREEN

SIZE(S) OF OPENING (SLOT NO.) 31-33	DIAMETER 34-38 INCHES	LENGTH 39-40 FEET
MATERIAL AND TYPE	DEPTH TO TOP OF SCREEN 41-44 FEET	80

61 PLUGGING & SEALING RECORD

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

71 PUMPING TEST

PUMPING TEST METHOD 10: 1 ☐ PUMP 2 ☐ BAILER

PUMPING RATE 11-14 GPM | DURATION OF PUMPING 15-16 HOURS 17-18 MINS

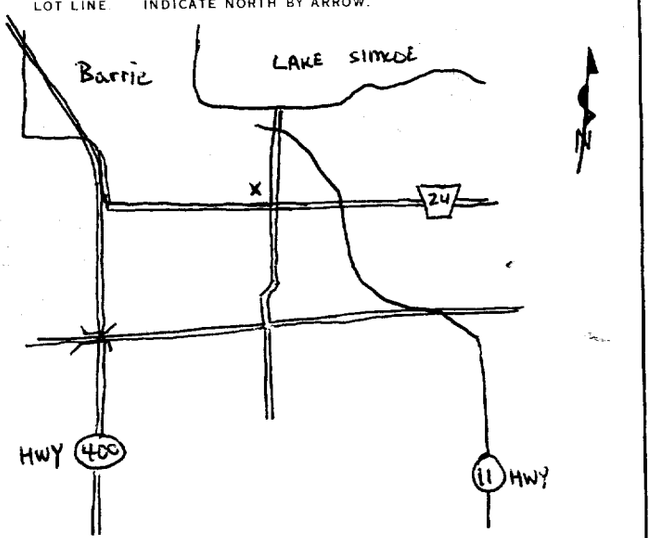
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING 25: 1 ☐ PUMPING 2 ☐ RECOVERY	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
19-21 017 FEET	22-24 FEET		26-28 FEET	29-31 FEET	32-34 FEET	35-37 FEET

IF FLOWING, GIVE RATE 38-41 GPM	PUMP INTAKE SET AT FEET	WATER AT END OF TEST 42: 1 ☐ CLEAR 2 ☐ CLOUDY
RECOMMENDED PUMP TYPE ☐ SHALLOW ☐ DEEP	RECOMMENDED PUMP SETTING 43-45 FEET	RECOMMENDED PUMPING RATE 46-49 GPM

50-53

LOCATION OF WELL

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



DRILLERS REMARKS:

FINAL STATUS OF WELL 54: 2

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

WATER USE 55-56: 09

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

METHOD OF DRILLING 57: 6

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

CONTRACTOR

NAME OF WELL CONTRACTOR: UNKNOWN | LICENCE NUMBER

ADDRESS

NAME OF DRILLER OR BORER | LICENCE NUMBER

SIGNATURE OF CONTRACTOR | SUBMISSION DATE DAY ____ MO. ____ YR. ____

OWC 2-9

OFFICE USE ONLY

DATA SOURCE 58: 1 | CONTRACTOR 59-62: 0001 | DATE RECEIVED 63-68: 06 02 78 | 80

DATE OF INSPECTION | INSPECTOR

REMARKS: This record was created for the purpose of giving this well an M-O-E well number.

CSS.S8

FORM NO. 0506—4—77

MINISTRY OF THE ENVIRONMENT COPY

Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

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

11 — 5724267 — MUNICIP 5,7,0,0,5 — CON.

COUNTY OR DISTRICT: [redacted] — TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: NISFIL — CON. BLOCK, TRACT, SURVEY ETC: XIII — LOT: 8

[redacted] 4 BARRIE, ONT — DATE COMPLETED: DAY 29 MO NOV 88

RC. — ELEVATION — RC. — BASIN CODE — II — III — IV

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
Black	TOPSOIL			0	1/2
Brown	Clay	Stones		1/2	8
Grey	Clay			8	127
Grey	Sand			127	130

31

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
127-130	1 ☒ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
15-18	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
20-23	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
25-28	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
30-33	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
6	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC	.188	+2	127
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC			
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC			

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER INCHES	LENGTH FEET
14	6	3

MATERIAL AND TYPE: STAINLESS — DEPTH TO TOP OF SCREEN: 127 FEET

61 PLUGGING & SEALING RECORD

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

71 PUMPING TEST

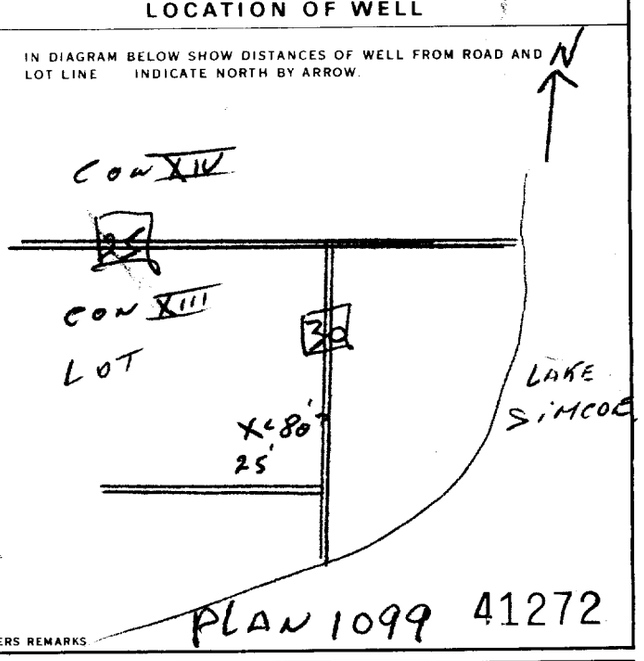
PUMPING TEST METHOD: 1 ☐ PUMP 2 ☐ BAILER — PUMPING RATE: 15 GPM — DURATION OF PUMPING: 2 HOURS — MINS

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

IF FLOWING GIVE RATE	PUMP INTAKE SET AT	WATER AT END OF TEST	RECOMMENDED PUMP TYPE	RECOMMENDED PUMP SETTING	RECOMMENDED PUMPING RATE
GPM	FEET	1 ☒ CLEAR 2 ☐ CLOUDY	☐ SHALLOW ☒ DEEP	60 FEET	10 GPM

LOCATION OF WELL

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



DRILLERS REMARKS: PLAN 1099 41272

FINAL STATUS OF WELL

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

WATER USE

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

METHOD OF CONSTRUCTION

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

CONTRACTOR

NAME OF WELL CONTRACTOR: HENRY HAMMERS — WELL CONTRACTOR'S LICENCE NUMBER: 2514

ADDRESS: 544 St. Vincent St. BARRIE, ONT

NAME OF WELL TECHNICIAN: HENRY HAMMERS — WELL TECHNICIAN'S LICENCE NUMBER: 7052

SIGNATURE OF TECHNICIAN/CONTRACTOR: Henry Hammers — SUBMISSION DATE: DAY ____ MO ____ YR. ____

OFFICE USE ONLY

DATA SOURCE — CONTRACTOR: 2514 — DATE RECEIVED: DEC 21 1988

DATE OF INSPECTION — INSPECTOR

REMARKS: CSS.ES

MINISTRY OF THE ENVIRONMENT COPY

FORM NO. 0506 (11/86) FORM 9

Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

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

11 | 5724382 | MUNICIP 57005 | CON. 13

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON., BLOCK, TRACT, SURVEY ETC.	LOT
[redacted]	[redacted]	Plan M327	9

[redacted] Bay Point Estates, Keswick Ont.

DATE COMPLETED: DAY 4 MO 12 YR. 88

RC. | ELEVATION | RC. | BASIN CODE | II | III | IV

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	DEPTH - FEET TO
	Fill			0	2
Brown	Sand	Str Clay		2	34
Red	Sand			34	62
Gray	Clay			62	68
	Sand			68	71
Gray	Clay			71	77
	Sand		Fine Cemented	77	109
	Sand			109	125

31
32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
125	☑ FRESH

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
5	☑ STEEL	.188	0	118

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER	LENGTH
6	5 INCHES	7½ FEET

MATERIAL AND TYPE: SS
DEPTH TO TOP OF SCREEN: 118 FEET

61 PLUGGING & SEALING RECORD

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

71 PUMPING TEST

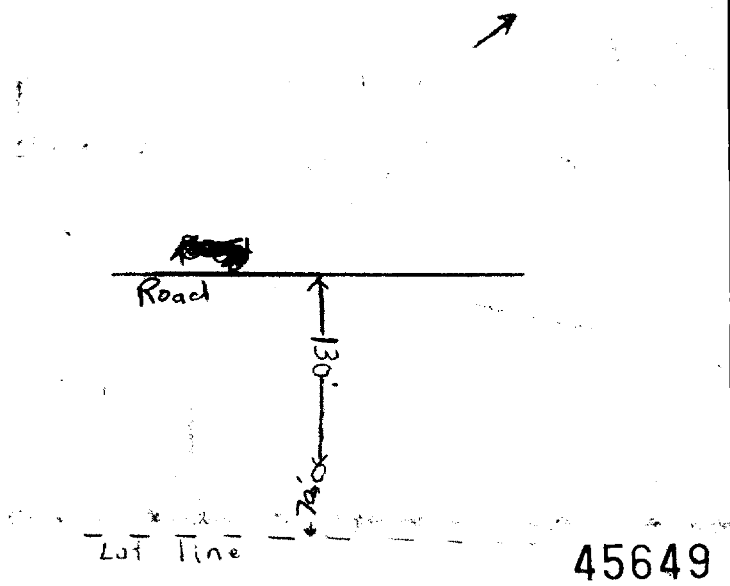
PUMPING TEST METHOD: 1 ☐ PUMP 2 ☑ BAILER
PUMPING RATE: 5 GPM
DURATION OF PUMPING: ___ HOURS ___ MINS

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

IF FLOWING, GIVE RATE: ___ GPM
PUMP INTAKE SET AT: 120 FEET
WATER AT END OF TEST: 1 ☑ CLEAR 2 ☐ CLOUDY
RECOMMENDED PUMP TYPE: ☐ SHALLOW ☑ DEEP
RECOMMENDED PUMP SETTING: 120 FEET
RECOMMENDED PUMPING RATE: 5 GPM

LOCATION OF WELL

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



45649

DRILLERS REMARKS

FINAL STATUS OF WELL

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

WATER USE

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

METHOD OF CONSTRUCTION

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

CONTRACTOR

NAME OF WELL CONTRACTOR: BURTON DRILLING
WELL CONTRACTOR'S LICENCE NUMBER: 1456
ADDRESS: RRH1 ORO STATION
NAME OF WELL TECHNICIAN: DAVID BURTON
WELL TECHNICIAN'S LICENCE NUMBER: T0547
SIGNATURE OF TECHNICIAN/CONTRACTOR: D R Burt
SUBMISSION DATE: DAY 6 MO 12 YR. 88

OFFICE USE ONLY

DATA SOURCE | CONTRACTOR 1456 | DATE RECEIVED JAN 30 1989
DATE OF INSPECTION | INSPECTOR
REMARKS
WDE
CSS.ES

MINISTRY OF THE ENVIRONMENT COPY

FORM NO. 0506 (11/86) FORM 9

Ministry of Environment and Energy
Ontario

The Ontario Water Resources Act
WATER WELL RECORD

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

11

5733745

Municipality 57005 Con. CON 13

County or District	Township/Borough/City/Town/Village	Con block tract survey, etc.	Lot
Simcoe	Innisfil	13 PL.1131	8

[redacted]

Address: Toronto

Date completed: 9 day 6 month 89 year

21 | Northing | RC | Elevation | RC | Basin Code | ii | iii | iv

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth – feet From	To
Brown	Sand			0	25
Gray	gravel	clay	HD.	25	43
Gray	Sand		fine w/ls	43	48

31

32

WATER RECORD

Water found at – feet	Kind of water
43	☑ Fresh ☐ Salty ☐ Sulphur ☐ Minerals ☐ Gas
	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals ☐ Gas
	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals ☐ Gas
	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals ☐ Gas
	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals ☐ Gas

CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth – feet From	To
6	☑ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic	.188	+1	43
	☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic			
	☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic			

SCREEN

Sizes of opening (Slot No.)	Diameter	Length
#4	6 inches	5 feet

Material and type	Depth at top of screen
Stainless	43 feet

PLUGGING & SEALING RECORD

☐ Annular space ☐ Abandonment

Depth set at – feet From	To	Material and type (Cement grout, bentonite, etc.)
8	10	Bentonite

PUMPING TEST

Pumping test method: ☐ Pump ☑ Bailer	Pumping rate: 8 GPM	Duration of pumping: 1 Hours ... Mins	
Static level: 3' feet	Water level end of pumping: 35 feet	Water levels during: ☐ Pumping ☑ Recovery	
15 minutes: 10 feet	30 minutes: 4' feet	45 minutes: 3 feet	60 minutes: 3 feet
If flowing give rate: GPM	Pump intake set at: feet	Water at end of test: ☐ Clear ☐ Cloudy	
Recommended pump type: ☐ Shallow ☑ Deep	Recommended pump setting: 35 feet	Recommended pump rate: 8 GPM	

FINAL STATUS OF WELL

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

WATER USE

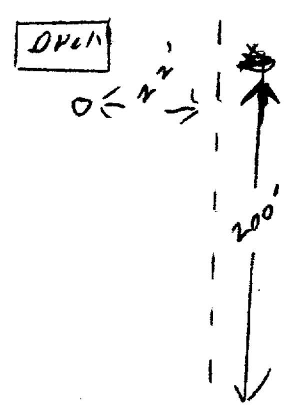
☑ Domestic ☐ Stock ☐ Irrigation ☐ Industrial ☐ Commercial ☐ Municipal ☐ Public supply ☐ Cooling & air conditioning ☐ Not used ☐ Other ....

METHOD OF CONSTRUCTION

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

LOCATION OF WELL

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



165392

Name of Well Contractor: Marchildon Drilling	Well Contractor's Licence No.: 3660
Address: RR #1 Shanty Bay	
Name of Well Technician: Peter Marchildon	Well Technician's Licence No.: T0364
Signature of Technician/Contractor: [signature]	Submission date: day 18 mo 6 yr 98

MINISTRY USE ONLY

Data source	Contractor 3660	Date received OCT 0 8 1998
Date of inspection	Inspector	
Remarks		CSS. ES9

0506 (07/94) Front Form 9

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Ontario | Ministry of the Environment

The Ontario Water Resources Act
WATER WELL RECORD

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

11 | **5735781** | Municipality: 57005 | Con.: CON 12

County or District	Township/Borough/City/Town/Village	Con block tract survey, etc.	Lot
Simcoe [redacted]	Barrie (Innisfil)	XII	8

Address: [redacted] Big Bay Point Rd | Date completed: 20 day 11 month 00 year

21 | UTM | Northing | RC | Elevation | RC | Basin Code

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth - feet From	Depth - feet To
formerly Hills residence		MOE # 57-1448			
~~[illegible]~~			BENTONITE	64	10
			NATIVE MATERIAL	10	0
			CASING CUT OFF @		
			12 FT BELOW GROUND		

31
32

41 WATER RECORD

Water found at - feet	Kind of water
	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals ☐ Gas
	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals ☐ Gas
	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals ☐ Gas
	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals ☐ Gas
	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals ☐ Gas

51 CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth - feet From	To
	☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic			
	☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic			
	☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic			

SCREEN

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

61 PLUGGING & SEALING RECORD

☐ Annular space ☒ Abandonment

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

71 PUMPING TEST

Pumping test method: ☐ Pump ☐ Bailer | Pumping rate GPM | Duration of pumping Hours Mins

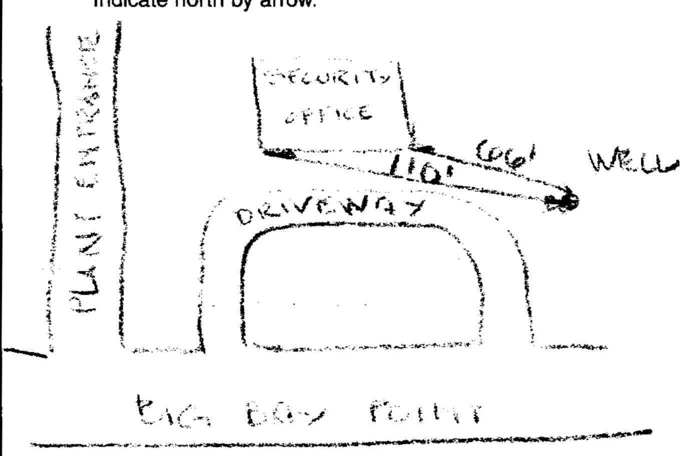
Static level feet | Water level end of pumping feet | Water levels during ☐ Pumping ☐ Recovery: 15 minutes feet, 30 minutes feet, 45 minutes feet, 60 minutes feet

If flowing give rate GPM | Pump intake set at feet | Water at end of test ☐ Clear ☐ Cloudy

Recommended pump type ☐ Shallow ☐ Deep | Recommended pump setting feet | Recommended pump rate GPM

LOCATION OF WELL

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



218229

FINAL STATUS OF WELL

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

WATER USE

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

METHOD OF CONSTRUCTION

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

Name of Well Contractor: [illegible] Water Supply | Well Contractor's Licence No.: 2801
Address: PO Box 316 Barrie
Name of Well Technician: J. [illegible] | Well Technician's Licence No.: T-0424
Signature of Technician/Contractor: [illegible] | Submission date: 21 day 12 mo 00 yr

MINISTRY USE ONLY
Data source | Contractor: 2801 | Date received: JAN 03 2001
Date of inspection | Inspector
Remarks

CSS.ES1

2 - MINISTRY OF THE ENVIRONMENT COPY

0506 (11/98) Front Form 9

Ontario Ministry of the Environment

Well Ta[g] ... [nu]mber below)

AO56686

A056686

Well Record

Regulation 903 Ontario Water Resources Act

page ___ of ___

Instructions for Completing Form

- For use in the **Province of Ontario** only. This document is a permanent **legal** document. Please retain for future reference.
- All Sections **must** be completed in full to avoid delays in processing. Further instructions and explanations are available on the back of this form.
- Questions regarding completing this application can be directed to the Water Well Help Desk (Toll Free) at 1-888-396-9355.
- **All metre measurements shall be reported to 1/10th of a metre.**
- Please print clearly in blue or black ink only.

Ministry Use Only

[redacted]

Address of Well Location (County/District/Municipality)	Township	Lot	Concession
320 ~~YOUNGE ST~~ YONGE ST.	BARRIE.		

RR#/Street Number/Name	City/Town/Village	Site/Compartment/Block/Tract etc.
320 ~~YOUNG ST.~~ YONGE ST.	BARRIE.	

GPS Reading	NAD	Zone	Easting	Northing	Unit Make/Model	Mode of Operation:
	83	17	0605960 UTM	4913798	GARMIN	ELEV. ☐ Undifferentiated ☒ ~~Averaged~~ ☐ Differentiated, specify

Log of Overburden and Bedrock Materials (see instructions)

General Colour	Most common material	Other Materials	General Description	Depth From (Metres)	Depth To (Metres)
BRN	FILL	SAND	LOOSE	0	0.61
BRN	SAND	SILT	LOOSE.	0.61	2.44
GRY	SAND	SILT	SATURATED	2.44	3.66

Hole Diameter

Depth From (Metres)	Depth To (Metres)	Diameter Centimetres
0	3.66	8.89

Water Record

Water found at ___ Metres	Kind of Water
___ m ☐ Gas ☐ Other:	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals
___ m ☐ Gas ☐ Other:	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals
___ m ☐ Gas ☐ Other:	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals

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

Chlorinated ☐ Yes ☐ No

Construction Record

Inside diam centimetres	Material	Wall thickness centimetres	Depth From (Metres)	Depth To (Metres)
Casing				
3.81	☐ Steel ☐ Fibreglass ☒ Plastic ☐ Concrete ☐ Galvanized	0.25	0	2.13
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
Screen				
Outside diam: 3.67	☐ Steel ☐ Fibreglass ☒ Plastic ☐ Concrete ☐ Galvanized	Slot No. 10	2.13	3.66
No Casing or Screen				
	☐ Open hole			

Test of Well Yield

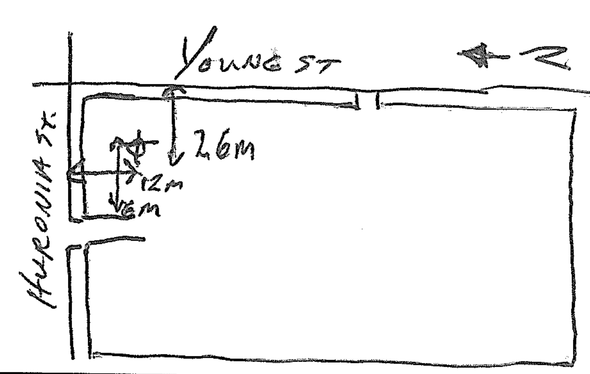
Pumping test method	Draw Down Time min	Draw Down Water Level Metres	Recovery Time min	Recovery Water Level Metres
Pump intake set at - (metres)	Static Level			
Pumping rate - (litres/min)	1		1	
Duration of pumping ___ hrs + ___ min	2		2	
Final water level end of pumping ___ metres	3		3	
Recommended pump type. ☐ Shallow ☐ Deep	4		4	
Recommended pump depth. ___ metres	5		5	
Recommended pump rate. (litres/min)	10		10	
	15		15	
If flowing give rate - (litres/min)	20		20	
	25		25	
If pumping discontinued, give reason.	30		30	
	40		40	
	50		50	
	60		60	

Plugging and Sealing Record ☒ Annular space ☐ Abandonment

Depth set at - Metres From	To	Material and type (bentonite slurry, neat cement slurry) etc.	Volume Placed (cubic metres)
0	0.3	CONCRETE.	
0.3	1.83	BENTONITE.	
1.83	3.66	SAND.	

Location of Well

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



Method of Construction

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

Water Use

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

Final Status of Well

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

Audit No.	Date Well Completed (YYYY MM DD)
Z 66264	07 05 28

Was the well owner's information package delivered?	Date Delivered (YYYY MM DD)
☐ Yes ☒ No	

Well Contractor/Technician Information

Name of Well Contractor	Well Contractor's Licence No.
STRATA SOIL SAMPLING	7241

Business Address (street name, number, city etc.): 197 WEST BEAVER CREEK RICHMOND HILL

Name of Well Technician (last name, first name)	Well Technician's Licence No.
FENELIUS JOHN	T-3019 ~~1756~~

Signature of ~~Technician/~~Contractor	Date Submitted (YYYY MM DD)
X [signature]	07 05 28

Ministry Use Only

Data Source	Contractor 7241
Date Received (YYYY MM DD) JUN 14 2007	Date of Inspection (YYYY MM DD)
Remarks	Well Record Number

0506E (08/2006) Ministry's Copy *Cette formule est disponible en français*

Ontario — Ministry of the Environment

Well Tag No. (Place Sticker and/or Print Below)
Tag#: A138276

Well Record

Regulation 903 Ontario Water Resources Act

Measurements recorded in: ☒ Metric ☐ Imperial

Page 1 of 1

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
HOST	KILMER SERVICE CENTERS INC		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
40 KING ST W.	TORONTO	ON	M5H3Y2	

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
201 FAIRVIEW DRIVE	CITY OF BARRIE		

County/District/Municipality	City/Town/Village	Province	Postal Code
SIMCOE	BARRIE	Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	17	604108	4911815		

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	To
	50mm MONITORING WELL REPAIRED				
	AFTER BEING BROKE OFF BELOW GROUND LEVEL				
	WELL # 126				

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
0	2m	BENTONITE	40 KG

Results of Well Yield Testing

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

If pumping discontinued, give reason:

Pump intake set at (m/ft)

Pumping rate (l/min / GPM)

Duration of pumping ____ hrs + ____ min

Final water level end of pumping (m/ft)

If flowing give rate (l/min / GPM)

Recommended pump depth (m/ft)

Recommended pump rate (l/min / GPM)

Well production (l/min / GPM)

Disinfected? ☒ Yes ☐ No

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

Method of Construction

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

Well Use

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

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	To
50mm	PVC	Sch40	+.7	26m
REPLACED TOP 2m OF CASING				

Status of Well

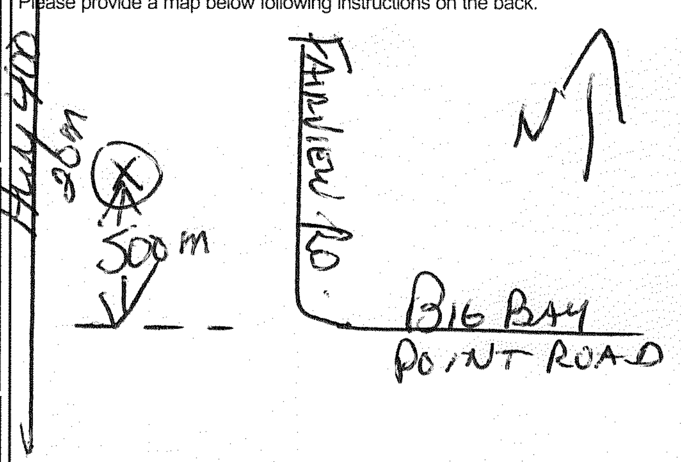
☐ Water Supply ☐ Replacement Well ☐ Test Hole ☐ Recharge Well ☐ Dewatering Well ☒ Observation and/or Monitoring Hole ☐ Alteration (Construction) ☐ Abandoned, Insufficient Supply ☐ Abandoned, Poor Water Quality ☐ Abandoned, other, specify ☐ Other, specify

Construction Record - Screen

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

Map of Well Location

Please provide a map below following instructions on the back.



Water Details

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

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

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

Hole Diameter

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

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
ALLAN WRIGHT WATER WELLS	5528

Business Address (Street Number/Name)	Municipality
4121 Hwy 93	HILLSDALE

Province	Postal Code	Business E-mail Address
ON	L0L 1V0	awww@bellnet.ca

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
7058355646	ALLAN WRIGHT

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
0250	[signature]	

Comments:

Well owner's information package delivered	Date Package Delivered	Date Work Completed
☐ Yes ☒ No		20130722

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Stay at home except for essential travel and follow the **restrictions and public health measures (https://covid-19.ontario.ca/zones-and-restrictions)**.

Ontario

Map: Well records

This map allows you to search and view well record information from reported wells in Ontario.

Full dataset is available in the Open Data catalogue (https://data.ontario.ca/dataset/well-records).

Go Back to Map ()

Well ID

Well ID Number: 7211292
Well Audit Number: *Z174535*
Well Tag Number: *A150881*
This table contains information from the original well record and any subsequent updates.

Well Location

Address of Well Location	316 BAYVIEW DR
Township	BARRIE CITY (INNISFIL)

Lot	
Concession	
County/District/Municipality	SIMCOE
City/Town/Village	BARRIE
Province	ON
Postal Code	n/a
UTM Coordinates	NAD83 — Zone 17 Easting: 605000.00 Northing: 4911903.00
Municipal Plan and Sublot Number	
Other	

Overburden and Bedrock Materials Interval

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To
BRWN	SAND	FILL		0 ft	5 ft
BRWN	SILT	SAND	GRVL	5 ft	20 ft
BRWN	SILT	CLAY	SAND	20 ft	40 ft
BRWN	SILT	SAND	CLAY	40 ft	50 ft

Annular Space/Abandonment Sealing Record

Depth From	Depth To	Type of Sealant Used (Material and Type)	Volume Placed
0 ft	19 ft	BENTONITE	

0 ft	24 ft	BENTONITE
0 ft	29 ft	BENTONITE

Method of Construction & Well Use

Method of Construction	Well Use
Boring	
	Monitoring

Status of Well

Observation Wells

Construction Record - Casing

Inside Diameter	Open Hole or material	Depth From	Depth To
2 inch	PLASTIC		
2 inch	PLASTIC		
2 inch	PLASTIC		

Construction Record - Screen

Outside Diameter	Material	Depth From	Depth To
2 inch	PLASTIC	30 ft	40 ft
2 inch	PLASTIC	25 ft	30 ft

Well Contractor and Well Technician Information

Well Contractor's Licence Number: 7201

Results of Well Yield Testing

After test of well yield, water was
If pumping discontinued, give reason
Pump intake set at
Pumping Rate
Duration of Pumping
Final water level
If flowing give rate
Recommended pump depth
Recommended pump rate
Well Production
Disinfected?

Draw Down & Recovery

Draw Down Time(min)	Draw Down Water level	Recovery Time(min)	Recovery Water level
SWL			
1		1	
2		2	
3		3	

4	4
5	5
10	10
15	15
20	20
25	25
30	30
40	40
45	45
50	50
60	60

Water Details

Water Found at Depth	Kind

Hole Diameter

Depth From	Depth To	Diameter
0 ft	30 ft	8.25 inch
0 ft	30 ft	8.25 inch

0 ft	40 ft	8.25 inch

Audit Number: Z174535

Date Well Completed: November 07, 2013

Date Well Record Received by MOE: November 16, 2013

Updated: June 04, 2021
Published: April 16, 2021

Related

How to use a Ministry of the Environment map (/page/how-use-ministry-environment-map#wells)

Technical documentation: Metadata record (https://data.ontario.ca/dataset/well-records/resource/3031344e-e3f2-48d5-888c-c1deadfd2f77)

Ontario

Ministry of the Environment

Measurements recorded in: ☐ Metric ☐ Imperial

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

A123233

Well Record

Regulation 903 Ontario Water Resources Act

Page _____ of _____

[redacted]

Address of Well Location (Street Number/Name)	Township	Lot	Concession
215 MacDonalds Rd	Grey Highlands		

County/District/Municipality	City/Town/Village	Province	Postal Code
Grey	Eugenia	Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	17	540204	4907123		

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
		PDW		0	120

Annular Space

Depth Set at (m/ft) From	Depth Set at (m/ft) To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
120	50	3/4 clear stone	
50	2	10 Bags Hole Plug	
2	0	1 Bag Cement	

Method of Construction

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

Well Use

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

Construction Record - Casing

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

Construction Record - Screen

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

Status of Well

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

Water Details

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

Hole Diameter

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

Results of Well Yield Testing

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

If pumping discontinued, give reason:

Pump intake set at *(m/ft)*

Pumping rate *(l/min / GPM)*

Duration of pumping _____ hrs + _____ min

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

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

Recommended pump depth *(m/ft)*

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

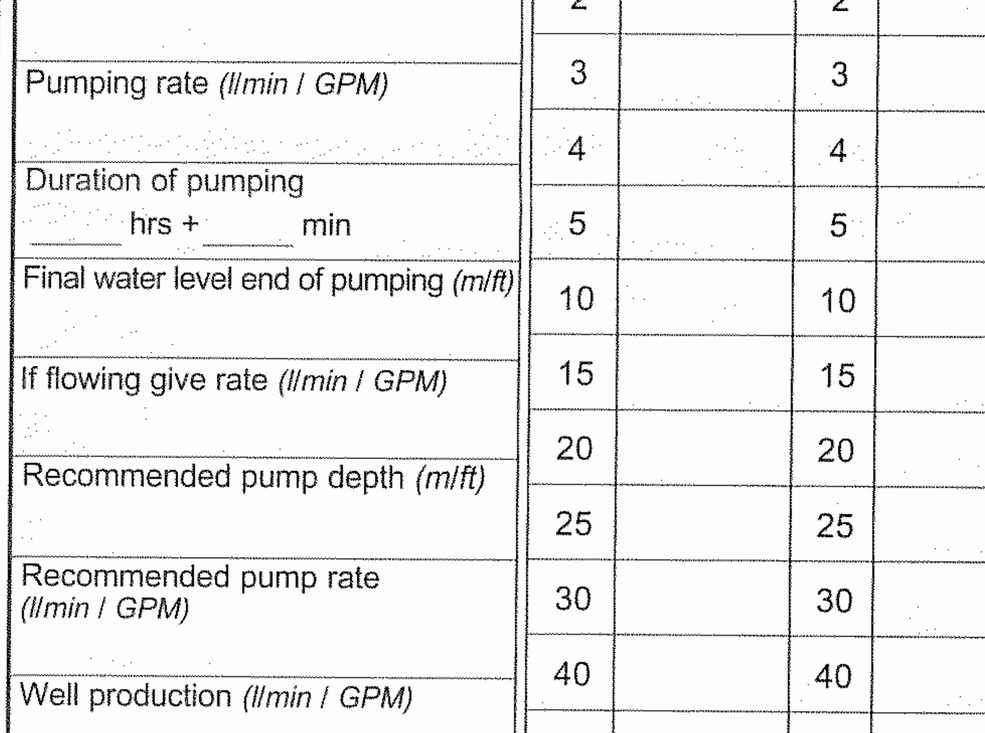
Well production *(l/min / GPM)*

Disinfected? ☐ Yes ☐ No

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

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Georgian Bay Well Drilling and Water Treatment Ltd	7521

Business Address (Street Number/Name)	Municipality
636281 Euphrasia Holland Line	

Province	Postal Code	Business E-mail Address
ON	N0C1H0	georgianbaywelldrilling@gmail.com

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
5199862074	Louis Lones

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
2896		20130919

Well owner's information package delivered	Date Package Delivered	Date Work Completed
☐ Yes ☐ No	20130919	20130526

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Appendix D

Borehole Logs-Cambium

Peterborough
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T: 866-217-7900
www.cambium-inc.com

Log of Borehole: BH201-21

Client:	Tonlu Holdings Limited	**Project Name:**	80 Big Bay Point Rd & 315 Bayview Dr	**Project No.:**	12689-001
Contractor:	Landshark Drilling	**Method:**	Solid Stem Augers	**Date Completed:**	April 15, 2021
Location:	80 Big Bay Point Rd & 315 Bayview Dr, Barrie ON	**UTM:**	17T, 605562 m E, 4911969 m N	**Elevation:**	271.73 mASL

SUBSURFACE PROFILE			SAMPLE							
Elevation (m) / Depth	Lithology	Description	Number	Type	% Recovery	SPT (N)	% Moisture (25 50 75)	SPT (N) (10 20 30 40)	Well Installation	Remarks
271 / 0		Topsoil: Black topsoil, some organics, very loose, moist	1A	SS	60	2				
		Sand: Brown sand, trace gravel, very loose, moist	1B							
		-loose	2	SS	100	6				
270 / 2		Sand: Brown sand, some gravel, trace silt, loose, moist	3	SS	65	8				
		-compact, wet	4	SS	100	11			▼	
269 / 3			5	SS	100	11				
268 / 4										
267 / 5			6A	SS	100	16				
		Silty Clay: Brown silty clay, trace sand, trace gravel, stiff, wetter than plastic limit	6B							GSA SS7: 1% Gravel 9% Sand 23% Silt 67% Clay
266 / 6		-grey	7	SS	90	10				
265 / 7		Borehole terminated at 6.6 mbgs								Caving measured at 5.2 mbgs, groundwater observed at 2.4 mbgs upon completion

Logged By: CM **Input By:** CM

Peterborough
Barrie
Oshawa
Kingston
T: 866-217-7900
www.cambium-inc.com

Log of Borehole: BH202-21

Client:	Tonlu Holdings Limited	**Project Name:**	80 Big Bay Point Rd & 315 Bayview Dr	**Project No.:**	12689-001
Contractor:	Landshark Drilling	**Method:**	Solid Stem Augers	**Date Completed:**	April 15, 2021
Location:	80 Big Bay Point Rd & 315 Bayview Dr, Barrie ON	**UTM:**	17T, 605392 m E, 4911905 m N	**Elevation:**	271.99 mASL

SUBSURFACE PROFILE			SAMPLE								
Elevation (m) / Depth	Lithology	Description	Number	Type	% Recovery	SPT (N)	% Moisture (25 50 75)	SPT (N) (10 20 30 40)	Well Installation	Remarks
0 / 271		Topsoil: Black topsoil, some organics, loose, moist	1A							
		Sand: Brown sand, trace gravel, trace silt, loose, moist	1B	SS	60	7				
1			2	SS	60	10				
270			3	SS	70	6				GSA SS3: 1% Gravel 95% Sand 4% Silt and Clay
2		-wet	4	SS	45	7			▼	
269										
3		-compact	5	SS	75	10				
268										
4			6	SS	100	12				
267										
5										
266		-grey, some silt, some clay, compact	7	SS	100	29				
6										
265		Borehole terminated at 6.6 mbgs								Caving measured at 4.9 mbgs, groundwater observed at 2.4 mbgs upon completion
7										

Logged By: CM **Input By:** CM

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Oshawa
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Log of Borehole: MW203-21

Client:	Tonlu Holdings Limited	**Project Name:**	80 Big Bay Point Rd & 315 Bayview Dr	**Project No.:**	12689-001
Contractor:	Landshark Drilling	**Method:**	Hollow Stem Augers	**Date Completed:**	April 15, 2021
Location:	80 Big Bay Point Rd & 315 Bayview Dr, Barrie ON	**UTM:**	17T, 605531 m E, 4911753 m N	**Elevation:**	271.51 mASL

Elevation (m) / Depth	Description	Number	Type	% Recovery	SPT (N)	Well Installation	Remarks
271 / 0	Topsoil: Black topsoil, some organics, loose, moist	1A				Monument	Top of Standpipe (TOS) elevation: 272.58 mASL. Groundwater measured at 2.16 mbgs (269.36 mASL) on April 23, 2021
	Sand: Brown sand, trace gravel, loose, moist	1B	SS	100	7	Cap	
270 / 1	Sand: Brown sand, trace gravel, trace silt, dense, moist	2	SS	70	32	Bentonite Plug	
		3	SS	75	37	PVC Standpipe	GSA SS3: 6% Gravel 90% Sand 4% Silt and Clay
269 / 2	-compact, wet	4	SS	100	28		
268 / 3		5	SS	100	15		
267 / 4						Sand Pack	
		6	SS	100	26	PVC Screen	
266 / 5							
265 / 6	-grey, some silt, trace clay	7	SS	90	27	Cap	
264 / 7	Borehole terminated at 6.6 mbgs						

% Moisture: 25 50 75

SPT (N): 10 20 30 40

Logged By: CM **Input By:** CM

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Log of Borehole: MW204-21

Client:	Tonlu Holdings Limited	**Project Name:**	80 Big Bay Point Rd & 315 Bayview Dr	**Project No.:**	12689-001
Contractor:	Landshark Drilling	**Method:**	Hollow Stem Augers	**Date Completed:**	April 15, 2021
Location:	80 Big Bay Point Rd & 315 Bayview Dr, Barrie ON	**UTM:**	17T, 605334 m E, 4912052 m N	**Elevation:**	270.97 mASL

SUBSURFACE PROFILE			SAMPLE							
Elevation (m) / Depth	Lithology	Description	Number	Type	% Recovery	SPT (N)	% Moisture (25 50 75)	SPT (N) (10 20 30 40)	Well Installation	Remarks
0 / 270		Topsoil: Black topsoil, some organics, loose, moist	1A	SS	80	5			Monument; Cap	Top of Standpipe (TOS) elevation: 272.03 mASL. Groundwater measured at 2.03 mbgs (268.94 mASL) on April 23, 2021
1		Sand: Brown sand, trace gravel, loose, moist	1B							
			2	SS	80	7			Bentonite Plug; PVC Standpipe	
2 / 269		Sand: Brown sand, some gravel, trace silt, compact, moist	3	SS	75	13				
		-wet	4	SS	70	11				
3 / 268			5	SS	95	12				
4 / 267									Sand Pack; PVC Screen	
5 / 266		Clayey Silt: Brown sandy clayey silt, stiff, wetter than plastic limit	6	SS	100	13				GSA SS6: 0% Gravel 31% Sand 40% Silt 29% Clay
6 / 265		-grey, very stiff	7	SS	100	19			Cap	
7 / 264		Borehole terminated at 6.6 mbgs								

Logged By: CM **Input By:** CM

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Log of Borehole: MW205-21

Client:	Tonlu Holdings Limited	**Project Name:**	80 Big Bay Point Rd & 315 Bayview Dr	**Project No.:**	12689-001
Contractor:	Landshark Drilling	**Method:**	Hollow Stem Augers	**Date Completed:**	April 15, 2021
Location:	80 Big Bay Point Rd & 315 Bayview Dr, Barrie ON	**UTM:**	17T, 605503 m E, 4912109 m N	**Elevation:**	270.02 mASL

Elevation (m)	Depth	Description	Number	Type	% Recovery	SPT (N)	Well Installation	Remarks
270	0	Topsoil: Black topsoil, some organics, loose, moist	1A				Monument	Top of Standpipe (TOS) elevation: 271.07 mASL. Groundwater measured at 0.542 mbgs (269.47 mASL) on April 23, 2021
		Sand: Brown sand, trace gravel, loose, moist	1B	SS	90	6	Cap	
269	1	Sand: Brown sand, some gravel, some silt, compact, wet	2	SS	40	14	Bentonite Plug	
			3	SS	100	13	PVC Standpipe	GSA SS2: 11% Gravel 78% Sand 11% Silt and Clay
268	2		4	SS	30	22		
267	3		5	SS	80	12		
266	4						Sand Pack	
		Silty Clay: Brown to grey silty clay, trace sand, very stiff, wetter than plastic limit	6	SS	95	16	PVC Screen	
265	5							
264	6		7	SS	80	22	Cap	
263	7	Borehole terminated at 6.6 mbgs						

% Moisture: 25 50 75

SPT (N): 10 20 30 40

Logged By: CM **Input By:** CM

Appendix E
Grain Size Analysis Data

Grain Size Distribution Chart

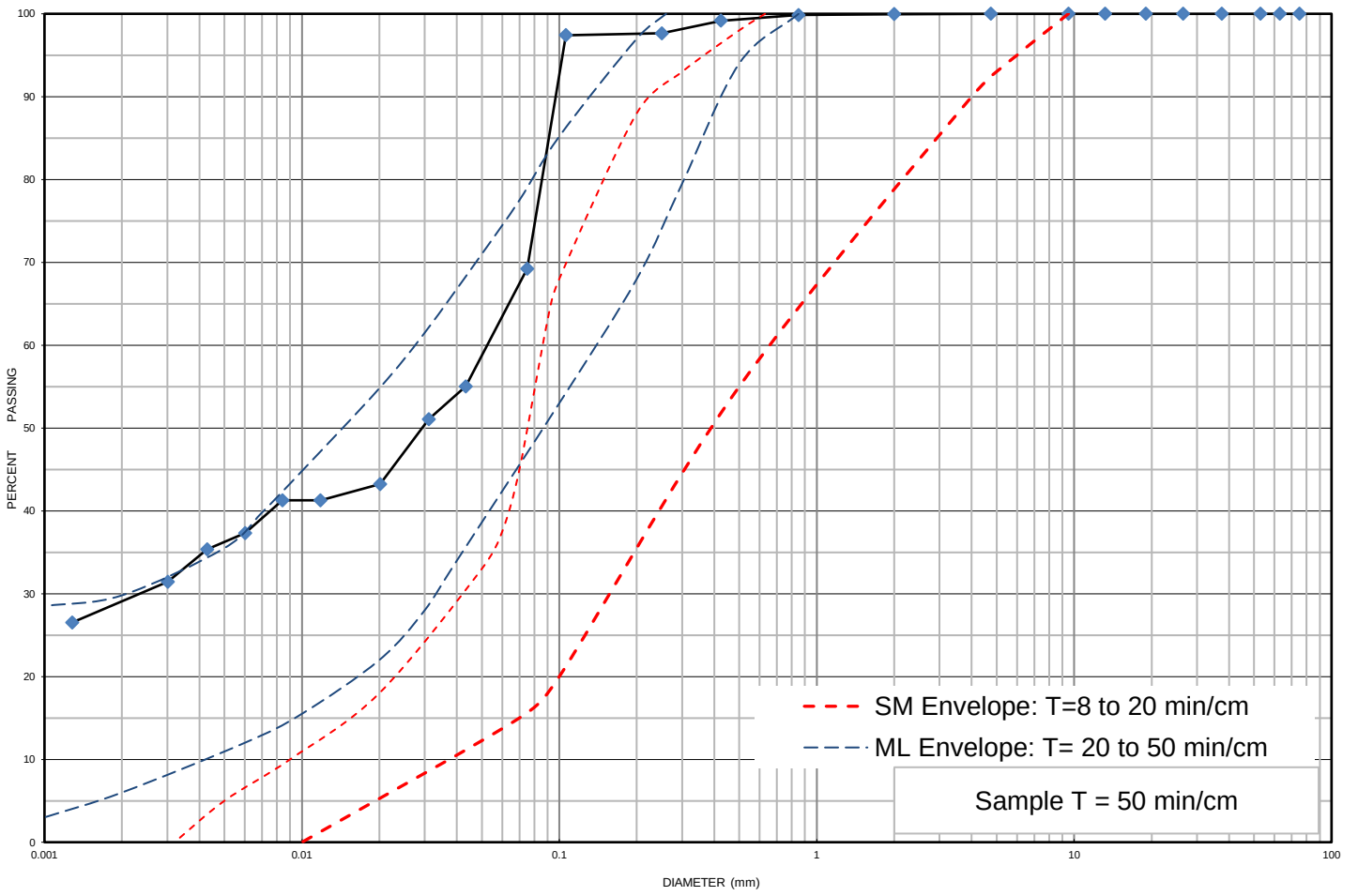
Project Number: *12689-001* **Client:** *Rinomato Group of Companies*

Project Name: *80 Big Bay Point Road & 315 Bayview Drive, Barrie*

Sample Date: *March 15, 2021* **Sampled By:** *Chris Malliaros - Cambium Inc.*

Location: *BH 204-21 SS 6* **Depth:** *4.6 m to 5 m* **Lab Sample No:** *S-21-0401*

UNIFIED SOIL CLASSIFICATION SYSTEM					
CLAY & SILT (<0.075 mm)	SAND (<4.75 mm to 0.075 mm)			GRAVEL (>4.75 mm)	
	FINE	MEDIUM	COARSE	FINE	COARSE



MIT SOIL CLASSIFICATION SYSTEM								
CLAY	SILT	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	BOULDERS
		SAND			GRAVEL			

Borehole No.	Sample No.	Depth	Gravel	Sand	Silt	Clay	Moisture
BH 204-21	SS 6	4.6 m to 5 m	0	31	40	29	23.2

Description	Classification	D_{60}	D_{30}	D_{10}	C_u	C_c
Sandy Clayey Silt	ML	0.5200	0.0024	0.0000	-	-

Additional information availabe upon request

Issued By: _____ *Date Issued:* *June 1, 2021*

(Senior Project Manager)

Cambium Inc. (Laboratory)
866.217.7900 | cambium-inc.com
194 Sophia St.| Peterborough | ON | K9H 1E5

Grain Size Distribution Chart

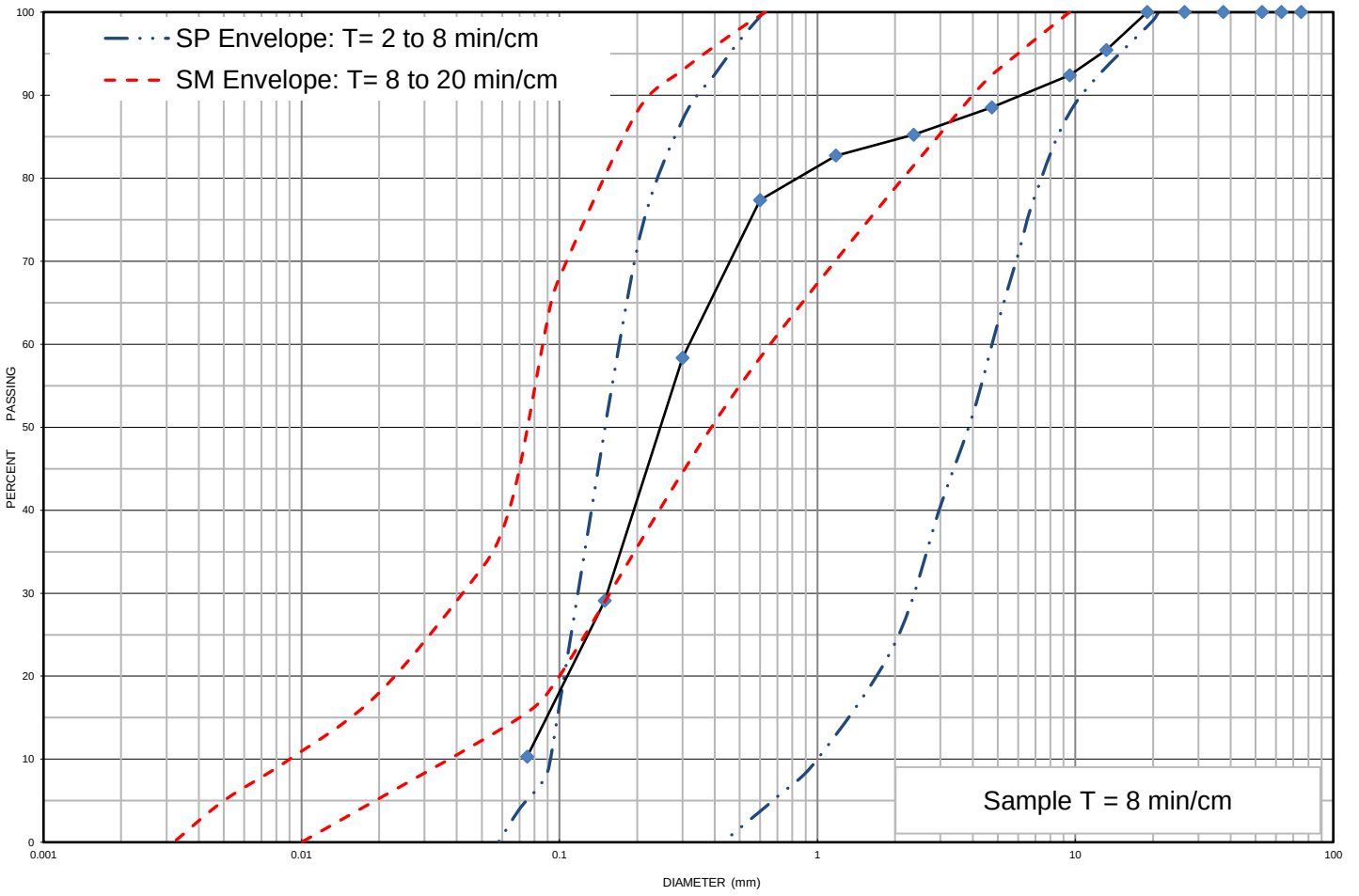
Project Number: *12689-001* **Client:** *Rinomato Group of Companies*

Project Name: *80 Big Bay Point Road & 315 Bayview Drive, Barrie*

Sample Date: *March 15, 2021* **Sampled By:** *Chris Malliaros - Cambium Inc.*

Location: *BH 205-21 SS 2* **Depth:** *0.8 m to 1.2 m* **Lab Sample No:** *S-21-0402*

UNIFIED SOIL CLASSIFICATION SYSTEM					
CLAY & SILT (<0.075 mm)	SAND (<4.75 mm to 0.075 mm)			GRAVEL (>4.75 mm)	
	FINE	MEDIUM	COARSE	FINE	COARSE



MIT SOIL CLASSIFICATION SYSTEM								
CLAY	SILT	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	BOULDERS
		SAND			GRAVEL			

Borehole No.	Sample No.	Depth	Gravel	Sand	Silt	Clay	Moisture
BH 205-21	SS 2	0.8 m to 1.2 m	11	78	11		17.8

Description	Classification	D_{60}	D_{30}	D_{10}	C_u	C_c
Sand some Gravel some Silt	SP	0.320	0.155	0.000	-	-

Additional information available upon request

Issued By: _____ *Date Issued:* *June 2, 2021*

(Senior Project Manager)

Cambium Inc. (Laboratory)
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Grain Size Distribution Chart

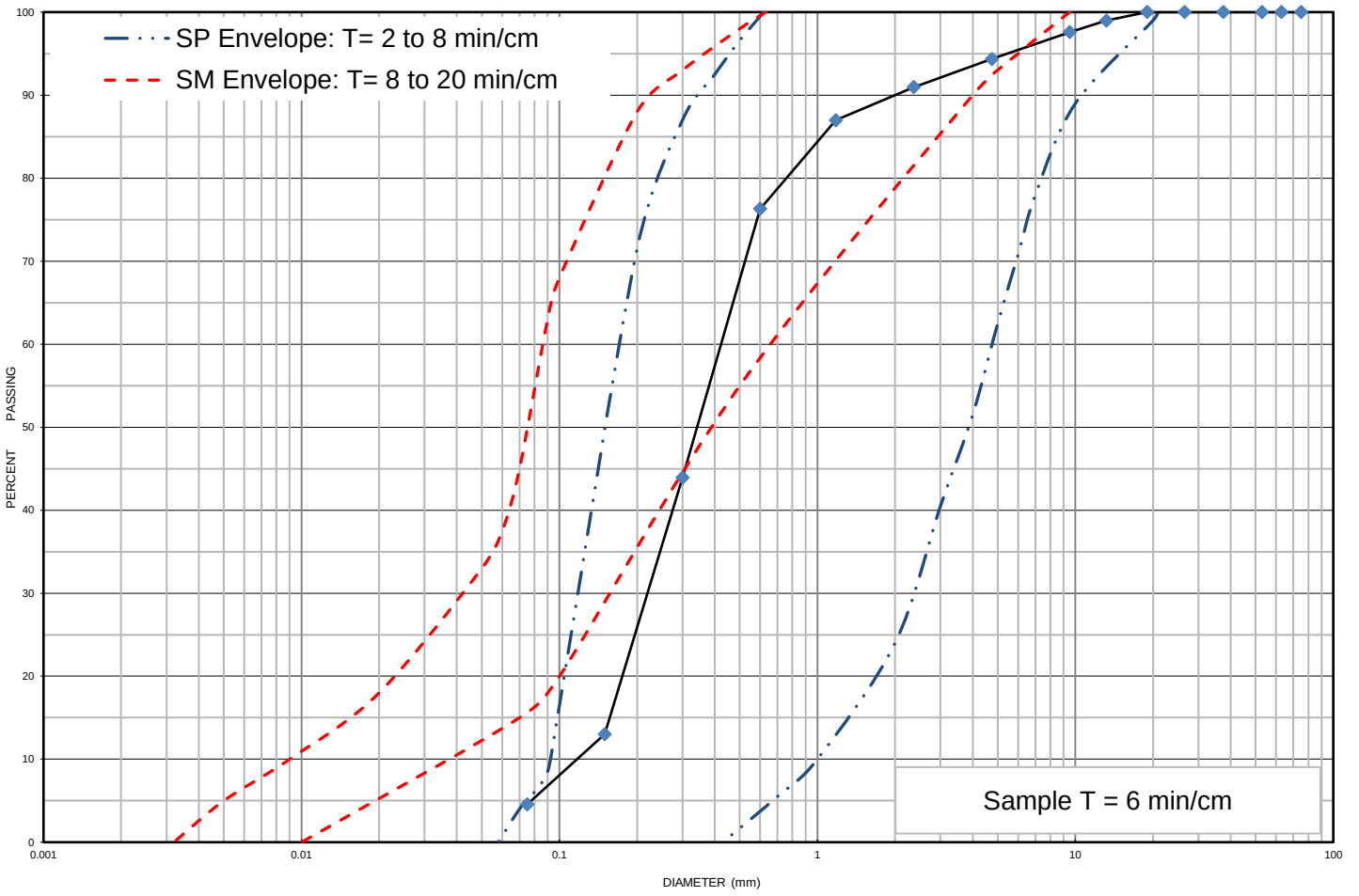
Project Number: *12689-001* **Client:** *Rinomato Group of Companies*

Project Name: *80 Big Bay Point Road & 315 Bayview Drive, Barrie*

Sample Date: *March 15, 2021* **Sampled By:** *Chris Malliaros - Cambium Inc.*

Location: *BH 203-21 SS 3* **Depth:** *1.5 m to 2 m* **Lab Sample No:** *S-21-0403*

UNIFIED SOIL CLASSIFICATION SYSTEM					
CLAY & SILT (<0.075 mm)	SAND (<4.75 mm to 0.075 mm)			GRAVEL (>4.75 mm)	
	FINE	MEDIUM	COARSE	FINE	COARSE



MIT SOIL CLASSIFICATION SYSTEM								
CLAY	SILT	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	BOULDERS
		SAND			GRAVEL			

Borehole No.	Sample No.	Depth	Gravel	Sand	Silt	Clay	Moisture
BH 203-21	SS 3	1.5 m to 2 m	6	90	4		4.9

Description	Classification	D_{60}	D_{30}	D_{10}	C_u	C_c
Sand trace Gravel trace Silt	SP	0.425	0.2250	0.1	3.40	0.95

Additional information available upon request

Issued By: _____ *Date Issued:* *June 2, 2021*

(Senior Project Manager)

Cambium Inc. (Laboratory)
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194 Sophia St. | Peterborough | ON | K9H 1E5

Grain Size Distribution Chart

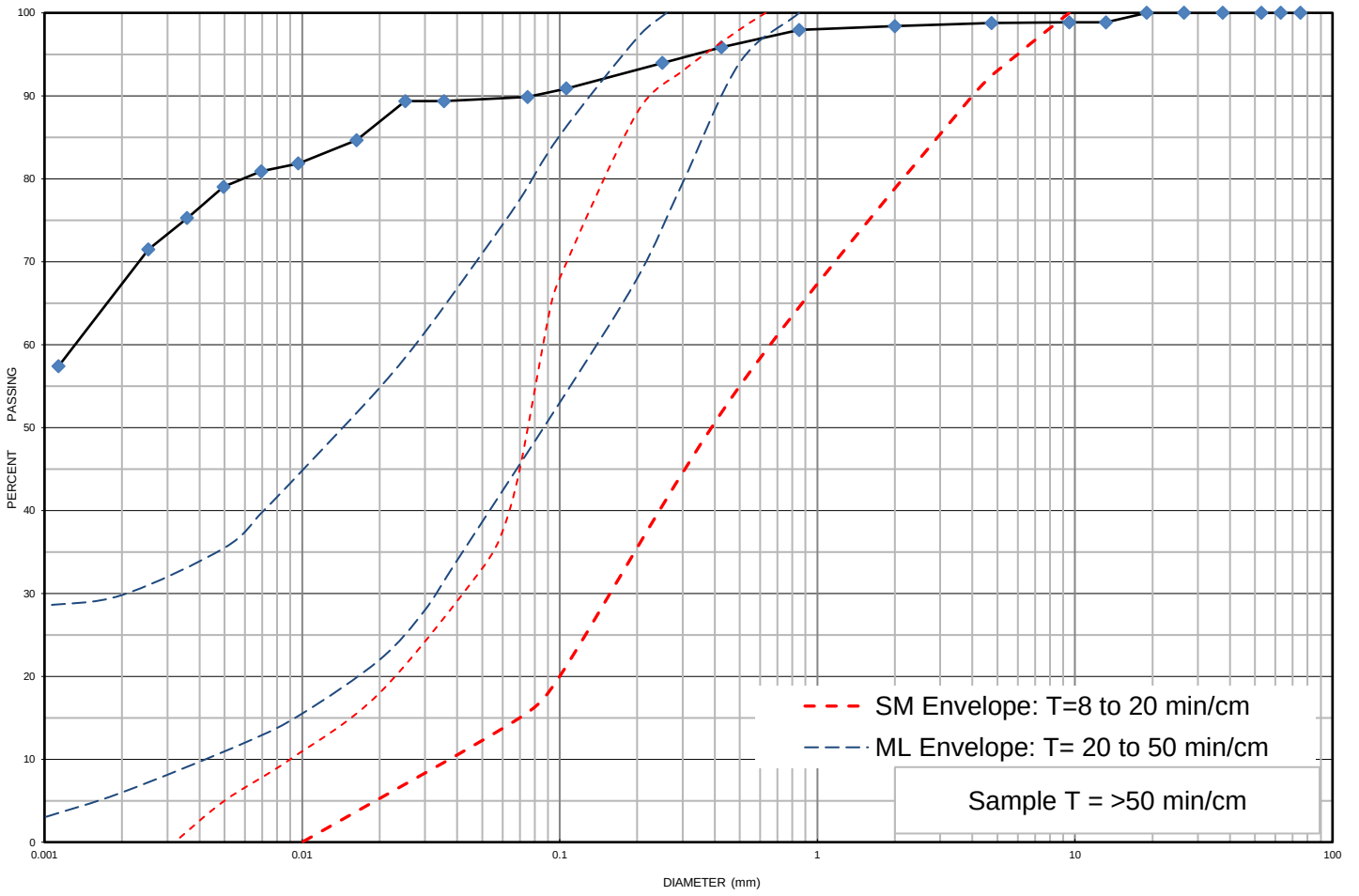
Project Number: *12689-001* **Client:** *Rinomato Group of Companies*

Project Name: *80 Big Bay Point Road & 315 Bayview Drive, Barrie*

Sample Date: *March 15, 2021* **Sampled By:** *Chris Malliaros - Cambium Inc.*

Location: *BH 201-21 SS 7* **Depth:** *6.1 m to 6.6 m* **Lab Sample No:** *S-21-0404*

UNIFIED SOIL CLASSIFICATION SYSTEM					
CLAY & SILT (<0.075 mm)	SAND (<4.75 mm to 0.075 mm)			GRAVEL (>4.75 mm)	
	FINE	MEDIUM	COARSE	FINE	COARSE



MIT SOIL CLASSIFICATION SYSTEM								
CLAY	SILT	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	BOULDERS
		SAND			GRAVEL			

Borehole No.	Sample No.	Depth	Gravel	Sand	Silt	Clay	Moisture
BH 201-21	SS 7	6.1 m to 6.6 m	1	9	23	67	41.0

Description	Classification	D_{60}	D_{30}	D_{10}	C_u	C_c
Silty Clay trace Sand trace Gravel	CL	0.0014	0.0000	0.0000	-	-

Additional information availabe upon request

Issued By: _____ *Date Issued:* *June 1, 2021*

(Senior Project Manager)

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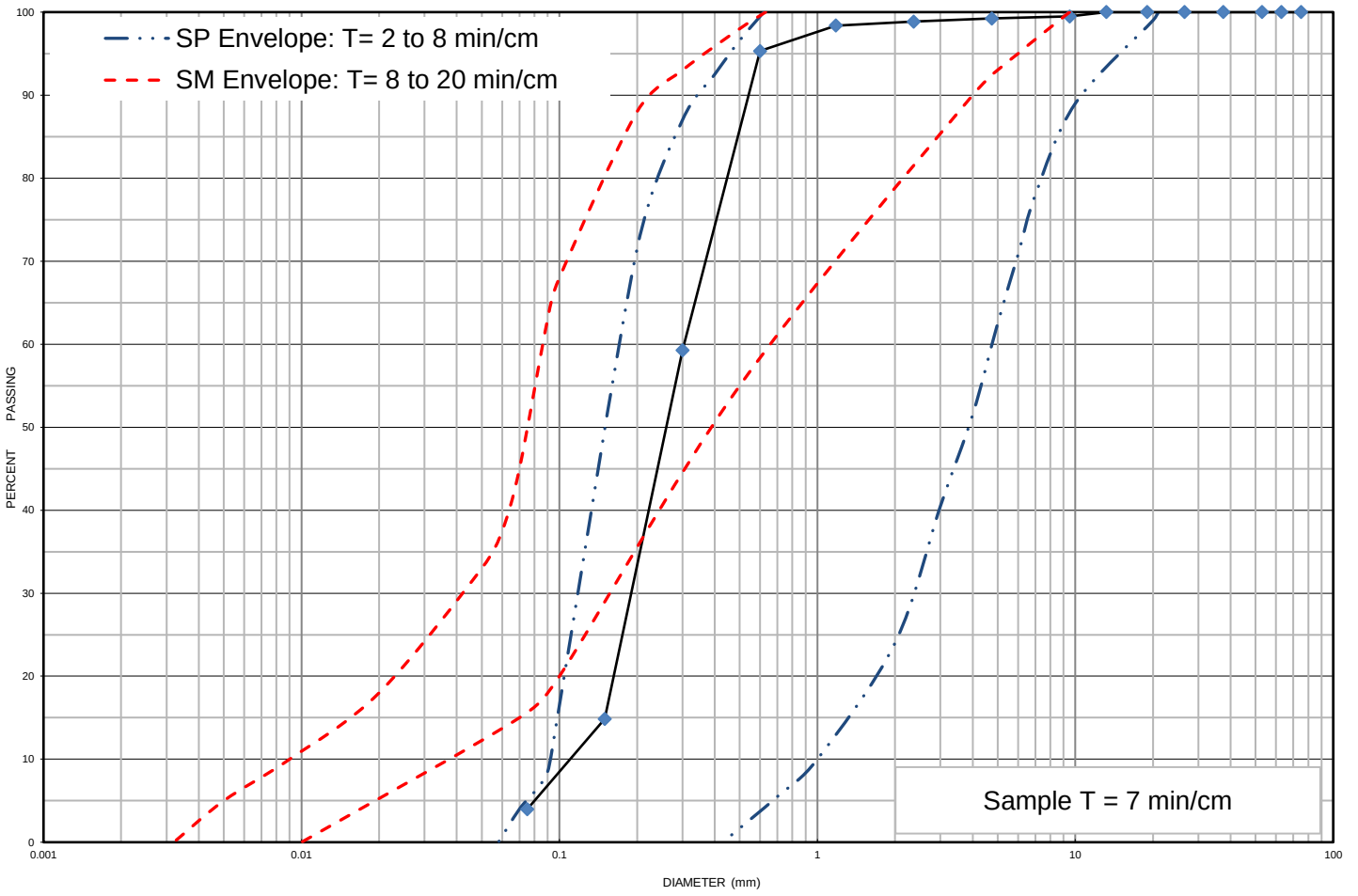
Grain Size Distribution Chart

Project Number:	*12689-001*	**Client:**	*Rinomato Group of Companies*		
Project Name:	*80 Big Bay Point Road & 315 Bayview Drive, Barrie*				
Sample Date:	*March 15, 2021*	**Sampled By:**	*Chris Malliaros - Cambium Inc.*		
Location:	*BH 202-21 SS 3*	**Depth:**	*1.5 m to 2 m*	**Lab Sample No:**	*S-21-0405*

UNIFIED SOIL CLASSIFICATION SYSTEM					
CLAY & SILT (<0.075 mm)	SAND (<4.75 mm to 0.075 mm)			GRAVEL (>4.75 mm)	
	FINE	MEDIUM	COARSE	FINE	COARSE



MIT SOIL CLASSIFICATION SYSTEM								
CLAY	SILT	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	BOULDERS
		SAND			GRAVEL			

Borehole No.	Sample No.	Depth	Gravel	Sand	Silt	Clay	Moisture
BH 202-21	SS 3	1.5 m to 2 m	1	95	4		4.3

Description	Classification	D_{60}	D_{30}	D_{10}	C_u	C_c
Sand trace Silt trace Gravel	SP	0.310	0.195	0.120	2.58	1.02

Additional information available upon request

Issued By: _____ *Date Issued:* *June 2, 2021*

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Appendix F
Water Budget Calculations

	THORNTHWAITE-TYPE MONTHLY WATER-BALANCE MODEL												
	modified from Dingman 2001: ex. 7-13, Box 7-3 using ET model of Hamon (1963)												
	Input Data				Computed Values				**Surplus**	**388**	mm/yr		
Location:	**Barrie, ON**			**Lat. =**	**44.2**	**degree**			***SOILmax =***	**150**	**mm**		
					0.77	rad							
Declination (deg)	-21.3	-13.3	-2.0	9.8	18.9	23.3	21.3	13.7	3.0	-9.0	-18.6	-23.3	
Declination (rad)	-0.37	-0.23	-0.03	0.17	0.33	0.41	0.37	0.24	0.05	-0.16	-0.32	-0.41	
DayLength (hr)*	9.0	10.2	11.7	13.3	14.6	15.3	15.0	13.8	12.4	10.8	9.5	8.7	
*For lat. > 66.5, replace #NUM! with 24 in summer; 0 in winter.													

			MONTHLY WATER BALANCE DATA										
			Temperatures in C, water-balance terms in mm.										
Month:	**J**	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**	**Year**
P	**83**	**62**	**58**	**62**	**82**	**85**	**77**	**90**	**94**	**78**	**89**	**74**	933
T	**-7.7**	**-6.6**	**-2.1**	**5.6**	**12.3**	**17.9**	**20.8**	**19.7**	**15.3**	**8.7**	**2.7**	**-3.5**	
F	0.00	0.00	0.00	0.93	1.00	1.00	1.00	1.00	1.00	1.00	0.45	0.00	
RAIN	0	0	0	58	82	85	77	90	94	78	40	0	604
SNOW	83	62	58	4	0	0	0	0	0	0	49	74	329
PACK	183	244	302	20	0	0	0	0	0	0	27	100	
MELT	0	0	0	286	20	0	0	0	0	0	22	0	329
INPUT (W_m)	0	0	0	344	103	85	77	90	94	78	62	0	932
PET	0	0	0	40	68	100	116	100	69	40	23	0	557
W_m - PET	0	0	0	304	35	-15	-39	-10	25	38	39	0	
SOIL	150	150	150	150	150	136	105	98	123	150	150	150	
Δ SOIL	0	0	0	0	0	-14	-31	-7	25	27	0	0	
ET	0	0	0	40	68	99	108	97	69	40	23	0	545
SURP=W-ET-Δ SOIL	0	0	0	304	35	0	0	0	0	10	39	0	388
DEFIC=PET-ET	0	0	0	0	0	1	8	3	0	0	0	0	12

DETAILED WATER BALANCE CALCULATIONS
80 Big Bay Point Drive and 315 Bayview Street, City of Barrie

1 Climate Information

Precipitation	933	mm/a
Actual Evapotranspiration	545	mm/a
Water Surplus	388	mm/a

2 Infiltration Rates

Table 2 Approach - Infiltration factors

Topography: Flat to rolling Land	0.25
Soil Type: predominantly open sandy to silty	0.2
Cover: Open Land	0.1
Total	**0.55**

Infiltration (0.55 x 388)	213	mm/a
Run-off (388-213)	117	mm/a

Table 3 Approach - Typical Recharge Rates

Coarse Sand and Gravel	>250	mm/a
Fine to medium sand	200-250	mm/a
Silty sand to sandy silt	150-200	mm/a
Silt	125-150	mm/a
Clayey Silt	100- 125	mm/a
Clay	<100	mm/a

Site development area is underlain predominantly by sandy silt soils

Based on the above, the recharge rate is typically 150-200 mm/a

3 Pre-Development Property Statistics

	ha	m2
Paved Area	0	0
Roof Area	0	0
Landscape Area	15.5	155,000
Total	**15.5**	**155,000**

4 Post-Development Property Statistics

	ha	m2
Paved Area	13.3	133000
Total Building Roof Area		
Landscape Area	2.2	22,000
Total Land Area	**15.5**	**155,000**

5 Pre-Development Water Balance

Land Use		Area (m^2)	Precipitation (m^3)	Evapotranspiration (m^3)	Infiltration (m^3)	Run-off (m^3)
Impervious Areas	**Paved Area**	0	0	0	0	0
	Roof Area					
Pervious Areas	**Landscape Area**	155,000	144615	84475	33077	27063
		155,000	**144,615**	**84,475**	**33,077**	**27,063**

Assuming no infiltration occurring in paved and roof areas, and 10% of precipitation to be evaporated from paved and roof areas.

6 Post-Development Water Balance

Land Use		Area (m^2)	Precipitation (m^3)	Evapotranspiration (m3)	Infiltration (m^3)	Run-off (m^3)
Impervious Areas	Paved Area	133000	124089	12409	0	111680
	Roof Area					
Pervious Areas	Landscape Area	22000	20526	11990	4695	3841
		155,000	**144,615**	**24,399**	**4,695**	**115,521**

7 Comparision of Pre- and Post -Development

	Precipitation (m^3)	Evapotranspiration (m3)	Infiltration (m^3)	Run-off (m^3)
Pre-Development	**144,615**	**84475**	**33077**	**27,063**
Post-Development	**144,615**	**24398.9**	**4695**	**115,521**
Change in Volume			**28,382**	**88,458**
Change in %			**86**	**327**

8 Requirement for Infiltration of Roof Run-off

Volume of Pre-Development Infiltration (m^3/annum)	**33077**
Volume of Post-Development Infiltration (m^3/annum)	**4695**
Deficit from Pre to Post Development Infiltration (m^3/annum)	**28382**
Percentage of Roof Runoff required to match the pre-development infiltration (%)	**25**