

PRELIMINARY HYDROGEOLOGICAL INVESTIGATION TULLAMORE LANDS 0 & 12245 TORBRAM ROAD CALEDON, ONTARIO

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1 Introduction

1.1 **Project Background**

Toronto Inspection Ltd. (TIL) was retained by the Tullamore Industrial GP Limited (the Client) to conduct a hydrogeological investigation for the lands on the northwest corner of Airport Road and Mayfield Road in Caledon, Ontario, otherwise known as the "Tullamore Lands" and which will herein be referred to as the Site. This preliminary hydrogeological investigation has been completed in accordance with the Conservation Authority Guidelines for Development Applications – Hydrogeological Assessment Submissions (June 2013) and the Regional Municipality of Peel (Region of Peel) guidance document Guidelines for Hydrogeological Assessment and Reporting Requirements – New Developments on Municipal Services (July 2009), using the information available at the time of its preparation.

The purpose of the current hydrogeological investigation report was to provide a summary of the regulatory environmental framework relevant to the development of the Site and an overview of soil and groundwater conditions at the Site for consideration in detailed design. Information reviewed on the proposed development plan for the Site included a Site Plan prepared by Turner Fleisher Architects Inc., dated July 14, 2021, as well as a DRAFT Functional Servicing and Stormwater Management Report by C.F. Crozier and Associates Inc. inclusive of Preliminary Site Grading Plan (Crozier, 2021). These were reviewed for consideration and inclusion within a preliminary qualitative assessment of groundwater control requirements during construction and corresponding impact and mitigation assessment at this preliminary design stage. Quantitative assessments for requirements for groundwater control during construction will be prepared in the detailed design stage and presented in a future revision to this report.

1.2 Description of Proposed Development

The Site Plan and Site Servicing and Grading Plan that formed the basis for the understanding of the proposed development and the development of the scope of the preliminary hydrogeological investigation report is provided in **Appendix A**. It is our understanding that an industrial subdivision is proposed for the Site which will be constructed in phases and which will include a total of twelve (12) buildings of various sizes. It is understood that the buildings will each be constructed as slab-on-grade with no underground levels. It was assumed for this investigation that the footings for the foundations will be completed within 1.2 m below the future established grade. Concerning water and wastewater servicing for the Site, water service will be provided by municipal watermains on Airport Road/Torbram Road and Mayfield Road; sanitary service will be provided road. Stormwater will be managed on-Site via a wet pond which is proposed to discharge to a tributary of the West Humber River which passes through the Site.

1.3 Site Description

The Site is irregular in shape within an approximate total area of 146.86 ha. The Site is bounded by Airport Road to the east, Mayfield Road to the south, Torbram Road to the west, and private lands to the north. At the time of the investigation, the Site was occupied by two agricultural



farmhouses each with accessory buildings to support agricultural operations on shallow-rooted crops for the majority of the lands.

The Site is approximately flat over most of its area except for lands within the floodplains of existing perennial watercourses where topography steepens significantly. Two perennial streams, each reaches of regional drainage for the Humber River Watershed, are located within the Site boundaries. Additionally, a number of streams, assumed ephemeral based on observations of historical satellite imagery from Google Earth, drain the agricultural lands to two on-Site ponds of unknown depth. Additional discussion of land drainage and topography is provided in **Section 3.1**.

Surrounding land uses include residential, commercial, and industrial. The location of the Site with context for the land-uses in the surrounding area is shown in **Figure 1**.

1.4 Objectives of the Hydrogeological Investigation

The report herein identifies regulations which may be relevant to the development of the Site from a groundwater perspective. The report also develops a conceptual understanding of the Site setting by characterizing the existing geological and hydrogeological conditions at the Site; including groundwater elevations, groundwater flow direction, hydraulic properties of soils and groundwater quality. Based on the conceptual understanding of the Site and proposed development, a preliminary assessment of potential impacts from construction and options for mitigation, as may be necessary, are provided.

1.5 Scope of Work

1.5.1 Conceptual Understanding

A conceptual understanding of the proposed development in the context of the regional and local geological and hydrogeological systems was developed through the review of existing reports and available geological and hydrogeological data. These included:

- Mapping and reports by the Toronto and Region Conservation Authority (TRCA);
- Geological information from the Ontario Geological Survey (OGS);
- Geological and hydrogeological data from the Oak Ridges Moraine Groundwater Program (ORMGP);
- Mapping from the Ontario Ministry of Natural Resources and Forestry (MNRF);
- Source water protection information for the Credit Valley -Toronto and Region-Central Lake Ontario Source Protection Region;
- Ministry of the Environment, Conservation, and Parks (MECP) Water Well Information System (WWIS) and Permit to Take Water (PTTW) database;
- DRAFT Functional Servicing and Stormwater Management Report Tullamore Lands (Crozier, 2021); and
- Geotechnical Investigation Airport Road and Mayfield Road (TIL, 2021)



1.5.2 Field Investigation

The soil and groundwater conditions at the Site as reported on herein were investigated and characterized during TIL's 2021 geotechnical drilling program for the Site. In total, 38 boreholes were advanced across the Site between May 21, 2021, and June 3, 2021. Boreholes were completed using continuous-flight solid-stem augers to depths ranging from 2.44 m below ground surface to 6.63 mbgs. Of the 38 boreholes, 16 were completed as monitoring wells and constructed of 0.051 m (2 in) diameter polyvinyl chloride (PVC) riser pipe and 10 ft (3.048 m) long PVC slotted screens, except for one (21BH-22 (MW)) where a shallow monitoring well with a 1 m screen was installed. All monitoring wells were installed with stick-up above ground and protected within monument casings. Monitoring wells were installed according to the relevant provisions of Reg. 903 by a licensed drilling contractor with TIL field staff in attendance. Monitoring wells were used to measure static groundwater levels, to conduct in-situ hydraulic conductivity testing and to collect representative groundwater quality samples.

Additional borehole investigations have been proposed by TIL upon confirmation of building locations and as part of the detailed design for proposed stormwater management facilities.

Once it is determined that monitoring wells installed on the Site are no longer required, they should be properly abandoned by a licensed well contractor as per Reg. 903 with the abandonment logs submitted to the Ministry of the Environment, Conservation, and Parks (MECP).

1.5.3 Data Analysis

The data analysis component of this study included the following tasks:

- Determination of soil stratigraphy and hydrostratigraphy;
- Determination of preliminary groundwater level elevations;
- Determination of the hydraulic conductivity of soils;
- Assessment of groundwater quality;
- Evaluation of potential dewatering requirements during and after construction;
- Evaluation of potential impacts to surrounding receptors within the anticipated dewatering and construction zones of influence.



2 Relevant Regulations and Policies

Environmental regulations and policies which may be relevant to the development of the Site and for which this investigation has been completed in accordance with are listed below and discussed briefly:

- Town of Caledon Official Plan Office Consolidation April 2018;
- Region of Peel Official Plan Office Consolidation December 2018;
- Durham Region Sewer Use By-Law Number 55-2013;
- Lake Simcoe Protection Plan (2009);
- Ontario Water Resource Act (1990);
- O.Reg. 387/04: Water Taking and Transfer;
- The Clean Water Act (2006); and
- South Georgian Bay Lake Simcoe Source Protection Plan (2019).

Town of Caledon Official Plan

The Town of Caledon (Town) Official Plan identifies development and land-use objectives within the Town and conforms to the Region of Peel Official Plan as an overall framework, including respecting the protection of the natural environment by identifying key Environmental Policy Areas (EPAs) where new development is prohibited. Based on Official Plan mapping (Schedule 'A'), the Site is located within the Town's designated Rural Lands and a portion of the Site, where an existing tributary (West Tributary) is located, is within the Provincial Greenbelt Plan Area and by association, also the Town's Environmental Policy Areas.

The Regional Municipality of Peel Official Plan

The Region of Peel Official Plan identifies development and land-use objectives for the long-term economic and sustainable growth of the Region of Peel. To that end, recognizing that integral to sustainable growth is a healthy environmental ecosystem, the Region of Peel Official Plan identifies environmental policies for new development in and around sensitive environmental areas of the regional Greenlands System which focus on protecting, restoring, and enhancing those sensitive environmental areas. Based on a review of the Official Plan maps (Schedule 'D' and Schedule 'D4'), the Site is located within the Region of Peel's Rural System and Natural Heritage System of the Greenbelt Plan. The Site is not located within any vulnerable drinking water areas of the Region of Peel's groundwater drinking systems.

It is our understanding that the Region of Peel is currently undergoing a Settlement Area Boundary Expansion which includes the Site and identifies the subject lands as future employment area (Crozier, 2021).

The Regional Municipality of Peel Wastewater By-Law

The Region of Peel, under the provisions and powers of By-Law Number 53-2010, is responsible for managing the discharge of private water, including groundwater and stormwater, to their municipal sanitary and combined sewers and storm sewers by either direct or indirect routes. If any private water on the Site will require discharge to the Region of Peel's sanitary and combined sewers, a discharge agreement with the Region of Peel will be required.



TRCA Policies and Regulations (O.Reg. 166/06)

Under Section 28 of the Conservation Authorities Act, the local conservation authorities are mandated to protect the health and integrity of the regional greenspace system and to maintain or improve the hydrological and ecological functions performed by valley and stream corridors. The Toronto and Region Conservation Authority (TRCA), through its regulatory mandate, is responsible for issuing permits under Ontario Regulation (O.Reg.) 166/06, Development, Interference with Wetlands and Alterations to Shorelines and Watercourses for development proposals or site alteration work within the regulated areas.

A preliminary review indicates that areas of the Site which are within the floodplain and/or erosion hazard limits of the numerous perennial and ephemeral streams that traverse through the Site are located within TRCA regulated areas. As such, a permit under O.Reg. 166/06 will be required for the development of these areas.

Ontario Water Resource Act (1990)

Under Section 34 of the OWRA, a PTTW is required from the MECP for any water taking that is greater than 50,000 L/day. For construction site dewatering or road construction, water takings of more than 50,000 L/day but less than 400,000 L/day may be registered on the Environmental Activity and Sector Registry (EASR) under O.Reg. 63/16: *Registrations Under Part II.2 of the Act – Water Taking*. Water takings during construction that will exceed more than 400,000 L/day will require a PTTW issued by the MECP as will water takings post-construction that will exceed 50,000 L/day.

O.Reg. 387/04: Water Taking and Transfer Regulation

O.Reg. 387/04 under the OWRA outlines prohibited water taking and transfer activities, which must be evaluated by the MECP prior to issuing a PTTW or applicants who are self-registering on the EASR. The regulation also clarifies which activities are exempt from water taking permit requirements and outlines the data collection and reporting commitments for PTTW and EASR registration holders. Any water taking activity that is regulated by the OWRA will need to be undertaken in accordance with O.Reg. 387/04.

The Clean Water Act, 2006

The MECP mandates the protection of existing and future sources of drinking water under the CWA. Initiatives undertaken under the CWA include the delineation vulnerable areas including: Well Head Protection Areas (WHPAs); Significant Groundwater Recharge Areas (SGRAs); Intake Protection Zones (IPZs); and Highly Vulnerable Aquifer areas (HVAs). Other initiatives include the assessment of drinking water quantity threats (WHPA Q1 & Q2 and IPZ-Q) within Source Protection Regions. Source Protection Plans are developed under the CWA which include the restriction and prohibition of certain types of activities and land-uses within vulnerable drinking water. Regional and local municipalities are responsible for the implementation of Source Water Protection policies and initiatives with support from the relevant conservation authorities within their jurisdictions.

Based on a review of the MECP Source Water Protection Information Atlas, the Site falls within the Toronto and Region Source Protection Area (TRSPA) within the CTC Source Protection Region. Per the Approved Source Protection Plan: CTC Source Protection Region Plan amended March 25, 2019, (CTC SPP, 2019), the Site is not located within any areas where



restrictive land-use policies associated with vulnerable drinking water areas apply. Instead, best management practices with respect to materials handling are encouraged, these include salt and snow management as well as the management and appropriate containment of potential sources of contamination at the surface.



3 Regional Geological and Hydrogeological Understanding

3.1 Topography and Drainage

The Site is located within a tributary area of the West Branch of the West Humber River Subwatershed belonging to the main Humber River Watershed. The regional topography within the Humber River Watershed slopes from the topographic highs associated with the Oak Ridges Moraine to the north, where the headwaters of the watershed originate, to the topographic lows of Lake Ontario in the south. A topographic map of the area surrounding the Site is shown in **Figure 2**.

Based on a review of the topographic contours in the area of the Site, the topographic relief is shown to have a gentle slope (1-2%) in a southeasterly direction towards the tributaries of the West Humber River and steeping in the riparian areas of those tributaries. Elevation change across the Site ranges from approximate elevation 248 masl to 230 masl between the north and south with an approximate average elevation of 241-242 masl. There are two (2) main tributary branches of the West Humber River that are present on-Site which, for consistency with concurrent studies for the proposed development, will be referred to as the West Tributary and East Tributary. The West Tributary flows through the Greenbelt Plan Area while the East Tributary traverses through the centre of the Site and drains the agricultural lands on and just north of the Site. The West Tributary and East Tributary are identified in **Figure 1**.

3.2 Physiography

The Site is located within the South Slope physiographic region. The South Slope physiographic region is located on the southern flank of the Oak Ridges Moraine and is characterized by rolling terrain which is underlain by glacial till deposits of clay and loam texture. As a result of the terrain and relative imperviousness of the fine-grained overburden materials, runoff rates over the South Slope physiographic region are comparatively higher than groundwater recharge rates. Therefore, total annual flows and water quality within the local tributaries over this till plain are predominantly influenced by overland drainage and changes thereto that are occurring in the area (TRCA, 2008).

A physiographic map of the Site and the surrounding area is presented in **Figure 3**.

3.3 Surficial Geology

Mapping of regional surficial geological deposits by the OGS (2003), available through OGSEarth, has identified predominantly glaciofluvial-derived deposits of silty to clayey till occurring over the study area while the floodplains of the watercourses are occupied by modern alluvial deposits which will be comprised of heterogeneous mixtures of sand, silt, clay and gravel.

The surficial geology at the Site and in the surrounding area is presented in Figure 4.

3.4 Bedrock Geology

Regional geological mapping from the OGS (2011), available through OGSEarth, indicates that shale bedrock of the Georgian Bay Formation and Queenston Formation underlies the overburden soils in this area. A shallow bedrock environment (<20 m) is expected at the Site where bedrock elevations are sloping in a southeasterly direction from approximate elevation 235 masl to 220 masl across the Site in this direction from the north to the south. (ORMGP, 2021).



The bedrock geology at the Site and in the surrounding area is presented in Figure 5.

3.5 Hydrogeology

The understanding of regional geology and hydrogeology under which the current report has been prepared is based on the related information and mapping prepared by the TRCA (2008) and the Oak Ridges Moraine Groundwater Program (ORMGP). The ORMGP, through its online mapping portal, provides the most accessible and up-to-date consensus on regional hydrogeological mapping and a comprehensive compilation of pertinent hydrogeological data relevant to the current investigation.

3.5.1 Hydrostratigraphy

The following hydrostratigraphic units overlie the bedrock (from youngest to oldest) in the area of the Site:

- A. Recent Deposits
- B. Halton Till (Aquitard)
- C. Oak Ridges Moraine (Aquifer)
- D. Newmarket Till (Aquitard)

Lower Sediments

- E. Thorncliffe Formation (Aquifer)
- F. Sunnybrook Drift (Aquitard)
- G. Scarborough Formation (Aquifer)

A conceptualization of the regional hydrostratigraphy through the subwatershed is depicted in **Figure 6**. The cross-section illustrates the hydrostratigraphic profile through the subwatershed which was adopted for regional groundwater flow modelling studies in the Humber River Watershed (Earthfx, 2006). A description of each hydrostratigraphic unit depicted in **Figure 6** and a determination of its presence in the study area is provided below:

- **Recent Deposits** Consists of the surficial geologic deposits described in **Section 3.3**.
- Halton Till The Halton Till was deposited approximately 13,000 years before present (B.P.) during the last glacial advance in the area and occurs at or near the ground surface over most of the study area. The Halton Till is texturally variable; however, is generally characterized by sandy silt to clayey silt till units with interbeds of silt, clay, sand and gravel. Based on ORMGP mapping, the deposits of the Halton Till aquitard are expected at the ground surface and to an approximate average depth of 9-10 mbgs.
- Oak Ridges Moraine Aquifer Complex (ORMAC) The materials of the ORMAC were deposited approximately 12,000 to 13,000 years B.P. Regionally, the aquifer is 160 km long and 5 to 20 km wide with a thickness of approximately 150 m. The prototypical deposits of the ORMAC consist of glaciofluvial to glaciolacustrine-derived deposits of stratified fine sands and silts, with coarse sand and gravel occurring locally. Based on ORMGP mapping, the deposits of the ORMAC are expected to be encountered from approximate elevations of 240 masl to 230 masl from north to south across the development area and may be absent from the hydrostratigraphic progression toward the southeast portion of the Site. At the Site, the deposits of the ORMAC are expected to be confined below the overlying deposits of the Halton Till aquitard.



- **Newmarket Till** The Newmarket Till Aquitard was deposited by the Laurentide ice sheet approximately 18,000 to 20,000 years B.P. and is a massive, dense, over-consolidated formation consisting of sandy silt to silty sand diamicton marking the separation between the overlying ORMAC and the Thorncliffe Aquifer, Sunnybrook Aquitard, and Scarborough Aquifer, collectively the Lower Sediments. The Newmarket Till formation is expected to be encountered as a thin material deposit (<5 m) overlying the bedrock.
- Lower Sediments The aquifer and aquitard formations of the Lower Sediments are not expected in the hydrostratigraphic progression of unconsolidated sediments between the ground surface and top of bedrock at the Site based on mapping presented by the ORMGP and shallow depth of bedrock.

3.5.2 Groundwater Flow

At a regional scale, groundwater flows generally in a southeasterly direction through the watershed towards Lake Ontario. Shallow groundwater flow will be influenced locally by variations in surficial geological materials as these are known to offer limited recharge potential, and by the many watercourses that meander within the subwatershed and which may have minor contributions from groundwater discharge.



4 Site Geology and Hydrogeology

The current understanding of the geological materials and hydrogeological characteristics of the Site is based on the investigations conducted at the Site by TIL in 2021. The findings from TIL's investigations of soil and groundwater conditions at the Site are described in the following sections.

4.1 Overburden

The overburden deposits at the Site were investigated to a maximum depth of 6.63 mbgs across the Site. From the discrete points of investigation, a top-course of soil/reworked fill from existing agricultural land uses was encountered generally within a depth of 1 mbgs. Underlying these was a laterally continuous fine-grained aquitard comprised fairly consistently of clayey silt textured materials in a stiff to very stiff consistency. Exceptions to this general observation of the underlying Site geology are found in areas slightly removed from the tributaries on-Site where deposits of sandy silt were encountered below the clayey silt mantle at 21BH-6 at an approximate depth of 4.73 mbgs. Based on the spread of boreholes completed across the Site and the observations and characterizations of the soils from those boreholes, the deposit of sand and gravel encountered to be isolated to this area. Considering the understanding of regional hydrostratigraphy from the previous section, the sand gravel deposits and like deposits of the ORMAC may become more prevalent in areas north of the Site where the deposits of the ORMAC may be expected at shallower elevations and in greater thicknesses.

A comprehensive detailing of the soils encountered during the drilling investigation on-Site is provided in the geotechnical investigation report by TIL (2021) provided under separate cover. The borehole logs included in TIL's geotechnical investigation are attached as **Appendix B**.

4.2 Bedrock

Bedrock was not encountered at the terminal depths of the borehole investigation.

4.3 Groundwater Conditions

4.3.1 On-Site Monitoring Network

A monitoring network consisting of 16 on-Site monitoring wells was established as part of the subsurface investigation undertaken by TIL and included in the testing, sampling and monitoring programs for the current hydrogeological study. The locations of the monitoring wells included in the current investigation are illustrated together with static water level elevations from a monitoring event on June 22, 2021, in plan view in **Figure 7**. Cross-section illustrations of the underlying geological environment for the Site are provided in **Figure 8** and **Figure 9** in an east-west and north-south orientation through the Site, respectively. A summary of the monitoring well construction details is provided in **Table 4-1**.



Table 4-1 Monitoring Weil Construction Details							
Well ID	Ground Elevation	Screen Interval	Well Diameter	Screen Length	Screened Unit		
	(masl)	(mbgs / masl)	(m)	(m)			
21BH-02 (MW)	232.99	3.05 - 6.1 / 229.94 - 226.89	0.051	3.048	Clayey Sllt		
21BH-03 (MW)	235.52	3.05 - 6.1 / 232.47 - 229.42	0.051	3.048	Clayey Sllt		
21BH-07 (MW)	240.17	3.05 - 6.1 / 237.12 - 234.07	0.051	3.048	Clayey Silt		
21BH-10 (MW)	243.38	3.05 - 6.1 / 240.33 - 237.28	0.051	3.048	Sandy to Clayey Silt		
21BH-13 (MW)	248.37	3.05 - 6.1 / 245.32 - 242.27	0.051	3.048	Clayey Silt/Sandy Silt		
21BH-16 (MW)	239.92	3.05 - 6.1 / 236.87 - 233.82	0.051	3.048	Sandy Silt		
21BH-18 (MW)	240.63	3.05 - 6.1 / 237.58 - 234.53	0.051	3.048	Clayey Silt		
21BH-20 (MW)	245.32	3.05 - 6.1 / 242.27 - 239.22	0.051	3.048	Clayey Silt to Sandy Silt		
21BH-22 (MW)	242.39	1.44 - 2.44 / 240.95 - 239.95	0.051	1	Fill		
21BH-23 (MW)	247.76	3.05 - 6.1 / 244.71 - 241.66	0.051	3.048	Clayey Silt		
21BH-25 (MW)	247.05	3.05 - 6.1 / 244 - 240.95	0.051	3.048	Clayey Silt		
21BH-29 (MW)	243.27	3.05 - 6.1 / 240.22 - 237.17	0.051	3.048	Clayey Silt		
21BH-30 (MW)	240.55	3.05 - 6.1 / 237.5 - 234.45	0.051	3.048	Clayey Silt		
21BH-33 (MW)	238.48	3.05 - 6.1 / 235.43 - 232.38	0.051	3.048	Clayey Silt/Sandy Silt		
21BH-36 (MW)	242.22	3.05 - 6.1 / 239.17 - 236.12	0.051	3.048	Sandy Silt		
21BH-37 (MW)	240.13	3.05 - 6.1 / 237.08 - 234.03	0.051	3.048	Sandy Silt		

Table 4-1 Monitoring Well Construction Details

4.3.2 Groundwater Levels

All monitoring wells included in the current investigation were installed between May 25th and June 3rd, 2021, and groundwater levels from all monitoring wells were collected each week for the following 3 weeks for inclusion in this report. Based on observations during this time, a delayed response from the groundwater system was observed at several monitoring wells due to the low permeability materials encountered on-Site. A summary of static groundwater level measurements is presented in **Table 4-2** in mbgs and **Table 4-3** in masl, respectively.

Based on the observations from the groundwater level monitoring undertaken on June 22, 2021, groundwater levels varied between two distinct areas, including one, in areas adjacent to the surface drainage features observed in the agricultural fields and tributary valleys, and two, in areas removed from those features. In areas believed nearer to the drainage features, including 21BH-13 (MW), 21BH-16 (MW), 21BH-20 (MW), 21BH-22 (MW), 21BH-23 (MW) and 21BH-33 (MW), the depths to groundwater from the monitoring wells at these locations were recorded between 0.9 mbgs to 2.46 mbgs. One exception to this general observation was observed at 21BH-3 along the south portion of the East Tributary where the monitoring well was reported as dry over the current monitoring period. By comparison, at the location of wells completed at locations more removed from these features, the depths to groundwater were reported between 3.19 mbgs and 5.87 mbgs, and an average of approximately 5 mbgs.

It should be noted that the shallow groundwater table at the Site will fluctuate coincidentally with seasonal trends in precipitation and snowmelt, which both supply recharge to the groundwater system. Correspondingly, the groundwater table is typically highest in the spring, when recharge is higher, and lowest in the summer and late fall/early winter when recharge is lower. The variability as a cause of recharge can vary from 1 m to 3 m throughout the year. As current



monitoring has been conducted only in the month of June, it is anticipated that groundwater levels on-Site at the time of monitoring had already begun trending down. Additionally, considering the dry weather that has persisted in Southern Ontario during the period of monitoring, it possible that groundwater levels are lower now than they may otherwise be under normal climatic conditions at this time.

A long-term groundwater level monitoring program is underway at the Site to capture the seasonal variability in the shallow groundwater system and to determine the high groundwater level for this Site. Monitoring is scheduled to be completed monthly for a period of 12 months and will be supplemented by continuous hourly readings from level loggers instrumented in two wells on-Site. The results of long-term monitoring will be reported in a future revision of this report.

Well ID	Screen Interval	7-Jun-21	14-Jun-21	14-Jun-21
21BH-2 (MW)	3.05 - 6.1	NA	5.34	5.36
21BH-3 (MW)	3.05 - 6.1	Dry	NA	Dry
21BH-7 (MW)	3.05 - 6.1	4.63	4.72	4.52
21BH-10 (MW)	3.05 - 6.1	4.48	4.01	3.19
21BH-13 (MW)	3.05 - 6.1	2.26	1.81	1.87
21BH-16 (MW)	3.05 - 6.1	0.71	0.76	0.90
21BH-18 (MW)	3.05 - 6.1	5.07	4.98	3.96
21BH-20 (MW)	2.75 - 5.8	NA	1.15	1.28
21BH-22 (MW)	1.44 - 2.44	1.08	1.11	1.41
21BH-23 (MW)	3.05 - 6.1	1.54	1.55	1.60
21BH-25 (MW)	3.05 - 6.1	Dry	NA	5.87
21BH-29 (MW)	3.05 - 6.1	Dry	NA	5.53
21BH-30 (MW)	3.05 - 6.1	Dry	NA	5.71
21BH-33 (MW)	3.05 - 6.1	NA	2.34	2.46
21BH-36 (MW)	3.05 - 6.1	Dry	5.26	4.58
21BH-37 (MW)	3.05 - 6.1	Dry	Dry	5.61

 Table 4-2
 Groundwater Levels (mbgs)

Notes:

1. water levels measured from existing ground surface

2. NA indicates water levels not taken.

Well ID	Screen Interval	7-Jun-21	14-Jun-21	14-Jun-21				
21BH-2 (MW)	229.94 - 226.89	NA	227.65	227.63				
21BH-3 (MW)	232.47 - 229.42	Dry	NA	Dry				
21BH-7 (MW)	237.12 - 234.07	235.54	235.45	235.65				
21BH-10 (MW)	240.33 - 237.28	238.90	239.37	240.19				
21BH-13 (MW)	245.32 - 242.27	246.11	246.56	246.50				
21BH-16 (MW)	236.87 - 233.82	239.21	239.16	239.02				
21BH-18 (MW)	237.58 - 234.53	235.56	235.65	236.67				
21BH-20 (MW)	242.57 - 239.52	NA	244.17	244.04				
21BH-22 (MW)	240.95 - 239.95	241.31	241.28	240.98				

Table 4-3Groundwater Elevations (masl)

Well ID	Screen Interval	7-Jun-21	14-Jun-21	14-Jun-21		
21BH-23 (MW)	244.71 - 241.66	246.22	246.21	246.16		
21BH-25 (MW)	244 - 240.95	Dry	NA	241.18		
21BH-29 (MW)	240.22 - 237.17	Dry	NA	237.74		
21BH-30 (MW)	237.5 - 234.45	Dry	NA	234.84		
21BH-33 (MW)	235.43 - 232.38	NA	236.14	236.02		
21BH-36 (MW)	239.17 - 236.12	Dry	236.96	237.64		
21BH-37 (MW)	237.08 - 234.03	Dry	Dry	234.52		

Table 4-3 Groundwater Elevations (masl)

Notes:

1. water levels measured from existing ground surface

2. NA indicates water levels not taken.

4.3.3 Groundwater Flow

Based on preliminary monitoring results, local groundwater flow is anticipated to be influenced by the existing West Tributary and East Tributary as well as the land drainage features which currently assist in draining the agricultural lands. The available data suggest the general direction for local groundwater flow direction is to the southeast and is generally a subdued reflection of the land topography and underlying bedrock surface.

The groundwater flow direction will be discussed further in a future revision to this report in light of additional monitoring information which will be gathered during the long-term monitoring program.

4.3.4 Hydraulic Conductivity

Single well hydraulic response testing in the form of rising-head tests was conducted between June 14th and June 22nd, 2021, to measure the in-situ hydraulic conductivity (K) of the screened overburden materials. Testing could only be completed at select monitoring wells which had sufficient water column at the time of testing to register a drawdown response to complete the testing. At the time of writing, select monitoring wells had either not fully recovered from a test previously started or had testing initiated on the final monitoring event included in this report. The results from the testing of these outstanding monitoring wells will therefore be included in a future revision to this report.

Prior to testing, each well was developed in order to mitigate the influence of native, near-well materials disturbed during the drilling program. During the rising head test, a pseudo-instantaneous drop in the water level was achieved by extracting water from the well using a manual inertial pump. The water level recovery was measured by a datalogger taking readings at pre-programmed intervals and left in place to record recovery. For the test, sufficient recovery to conclude the testing was considered to be at or above approximately 85% of the pre-test water column.

The hydraulic conductivity was estimated using the Hvorslev (1951) method with the data recorded by the dataloggers. The corresponding analyses are presented in **Appendix C**. A summary of hydraulic conductivities is presented in **Table 4-4**.

Well ID	Screen Interval (mbgs)	Material Tested	Hvorslev Method K (m/s)
21BH-2 (MW)	3.05 - 6.1	Clayey Sllt	Pending
21BH-7 (MW)	3.05 - 6.1	Clayey Silt	3.6 x 10 ⁻⁹
21BH-10 (MW)	3.05 - 6.1	Sandy to Clayey Silt	2.4 x 10 ⁻⁹
21BH-13 (MW)	3.05 - 6.1	Clayey Silt/Sandy Silt	1.5 x 10 ⁻⁹
21BH-16 (MW)	3.05 - 6.1	Sandy Silt	2.2 x 10 ⁻⁶
21BH-18 (MW)	3.05 - 6.1	Clayey Silt	1.5 x 10 ⁻⁹
21BH-20 (MW)	2.75 - 5.8	Clayey Silt to Sandy Silt	3.6 x 10 ⁻⁷
21BH-22 (MW)	1.44 - 2.44	Fill	6.1 x 10 ⁻⁶
21BH-23 (MW)	3.05 - 6.1	Clayey Silt	5.5 x 10 ⁻⁶
21BH-25 (MW)	3.05 - 6.1	Clayey Silt	Pending
21BH-29 (MW)	3.05 - 6.1	Clayey Silt	Pending
21BH-30 (MW)	3.05 - 6.1	Clayey Silt	Pending
21BH-33 (MW)	3.05 - 6.1	Clayey Silt/Sandy Silt	1.4 x 10 ⁻⁸
21BH-36 (MW)	3.05 - 6.1	Sandy Silt	Pending
21BH-37 (MW)	3.05 - 6.1	Sandy Silt	Pending

 Table 4-4
 Summary of Hydraulic Conductivity Calculations

The results of in-situ testing suggest that the clayey silt to sandy silt materials screened by most of the monitoring wells on-Site are of low to very low hydraulic conductivity. Estimates of saturated horizontal hydraulic conductivity for these materials ranged from 1.5×10^{-9} m/s and 3.7×10^{-7} m/s, with a geometric mean of 6.8×10^{-9} m/s. Meanwhile, testing results from 21BH-16 (MW), 21BH-20 (MW) and 21BH-23 have indicated that there is potential for zones of moderately higher permeability to be encountered as well, including within the fill deposits and native deposits with reduced clay percentage; however, these zones are expected to be limited in extent and not indicative of the prevailing bulk response of the overburden under an induced flow gradient. Textbook figures for a glacial till material described as clayey silt to sandy silt range on the order of 10^{-12} m/s to 10^{-6} m/s (Freeze & Cherry, 1979); therefore, the results of testing for this investigation are within the range of literature.

Based on the understanding of the local Site hydrogeology, anticipated depths of excavation for construction of services, and range in hydraulic conductivity estimates, the hydraulic conductivity which is assumed to be representative of the overburden for evaluating requirements for groundwater control during construction, is approximately 6×10^{-8} m/s. This is considered representative of ground conditions within the anticipated depth of construction at the time of writing; however, following a review of testing results from those tests that are outstanding, a revision to this figure may be warranted.

4.3.5 Groundwater Quality

Unfiltered groundwater quality samples were collected from 21BH-7 (MW) on June 7, 2021. The collected samples were sent to SGS Environmental Services in Lakefield, Ontario. The samples were analyzed for the parameters and against their corresponding sanitary and storm sewer discharge criteria listed in the Region of Peel *Wastewater By-Law Number 53-2010* (By-Law 53-

2010). A summary of groundwater quality results relative to By-Law 53-2010 is provided in **Table 4-5**. The laboratory Certificates of Analysis and Chain of Custody are provided in **Appendix D**.

The laboratory analytical results indicated that both Manganese (total) and Zinc (total) were above the concentrations for discharge to the municipal storm sewers per the *Table 2 – Limits for Storm Sewer Discharge* of By-Law 53-2010. Additionally, the parameter Sulphate was found at concentrations exceeding the discharge criteria outlined in the *Table 1 – Limits for Sanitary Sewer Discharge* of By-Law 53-2010. It is anticipated that the elevated concentrations of Sulphate identified by this sample are a result of the recent and historical uses of the Site for agriculture purposes and potential application of fertilizers and animal waste that have taken place. It is recommended that additional groundwater samples, distributed spatially across the Site, be collected to determine the extent of elevated concentrations for sulphate in groundwater and identify potential alternative on-Site or off-Site sources.

Sample ID	Units	Peel Sanitary By-law	Peel Storm By-law	RL	21BH-7 (MW)
		Limit	Limit		07-Jun-21
E. Coli	cfu/100mL		200	2	0
рН	no unit	5.5-10.0	6.0-9.0	0.05	7.27
Biochemical Oxygen Demand (BOD5)	mg/L	300	15	2	< 4 ↑
Total Suspended Solids	mg/L	350	15	2	13
Fluoride	mg/L	10		0.06	0.17
Cyanide (total)	mg/L	2	0.02	0.01	< 0.01
Total Kjeldahl Nitrogen	as N mg/L	100	1	0.5	< 0.5
4AAP-Phenolics	mg/L	1.0	0.008	0.002	< 0.002
Sulphate	mg/L	1500		2	3500
Oil & Grease (total)	mg/L			2	< 2
Oil & Grease (animal/vegetable)	mg/L	150		4	< 4
Oil & Grease (mineral/synthetic)	mg/L	15		4	< 4
Mercury (total)	mg/L	0.01	0.0004	0.000010	< 0.00001
Aluminum (total)	mg/L	50		0.001	0.271
Antimony (total)	mg/L	5		0.0009	< 0.0009
Arsenic (total)	mg/L	1	0.02	0.0002	0.0010
Cadmium (total)	mg/L	0.7	0.008	0.000003	0.000025
Chromium (total)	mg/L	5	0.08	0.00008	0.00087
Copper (total)	mg/L	3	0.05	0.0002	0.0027
Cobalt (total)	mg/L	5		0.000004	0.00732
Lead (total)	mg/L	3	0.120	0.00001	0.00042
Manganese (total)	mg/L	5	0.05	0.00001	0.429
Molybdenum (total)	mg/L	5		0.00004	0.00190
Nickel (total)	mg/L	3	0.08	0.0001	0.0187

Table 4-5 Groundwater Quality Results



Sample ID	Units	Peel Sanitary By-law	Peel Storm By-law	RL	21BH-7 (MW)
		Limit	Limit		07-Jun-21
Phosphorus (total)	mg/L	10	0.4	0.003	0.017
Selenium (total)	mg/L	1	0.02	0.00004	0.00134
Silver (total)	mg/L	5	0.12	0.00005	<0.00005
Tin (total)	mg/L	5		0.00006	0.00238
Titanium (total)	mg/L	5		0.00005	0.00998
Zinc (total)	mg/L	3	0.04	0.002	0.063
Polychlorinated Biphenyls (PCBs) - Total	mg/L	0.001	0.0004	0.0001	< 0.0001
Benzene	mg/L	0.01	0.002	0.0005	< 0.0005
Chloroform	mg/L	0.04	0.002	0.0005	< 0.0005
1,2-Dichlorobenzene	mg/L	0.05	0.0056	0.0005	< 0.0005
1,4-Dichlorobenzene	mg/L	0.08	0.0068	0.0005	< 0.0005
cis-1,2-Dichloroethene	mg/L	4	0.0056	0.0005	< 0.0005
trans-1,3-Dichloropropene	mg/L	0.14	0.0056	0.0005	< 0.0005
Ethylbenzene	mg/L	0.016	0.002	0.0005	< 0.0005
Methylene Chloride	mg/L	2	0.0052	0.0005	< 0.0005
1,1,2,2-Tetrachloroethane	mg/L	1.4	0.017	0.0005	< 0.0005
Methyl ethyl ketone	mg/L	8.0		0.02	< 0.02
Styrene	mg/L	0.2		0.0005	< 0.0005
Tetrachloroethylene (perchloroethylene)	mg/L	1	0.0044	0.0005	< 0.0005
Toluene	mg/L	0.27	0.002	0.0005	< 0.0005
Trichloroethylene	mg/L	0.4	0.008	0.0005	< 0.0005
Xylene (total)	mg/L	1.4	0.0044	0.0005	< 0.0005
m-p-xylene	mg/L			0.0005	< 0.0005
o-xylene	mg/L			0.0005	< 0.0005
di-n-Butyl Phthalate	mg/L	0.08	0.015	0.002	< 0.002
Bis(2-ethylhexyl)phthalate	mg/L	0.012	0.0088	0.002	< 0.002
Nonylphenol	mg/L	0.02		0.001	< 0.001
Nonylphenol Ethoxylates	mg/L	0.2		0.01	< 0.01
Nonylphenol diethoxylate	mg/L			0.01	< 0.01
Nonylphenol monoethoxylate	mg/L			0.01	< 0.01

Table 4-5 Groundwater Quality Results

Notes: Highlighted cells indicate an exceedance of storm sewer criteria. Highlighted cells indicate an exceedance of both storm and sanitary criteria.

↑ Reporting limit increased



5 Short-Term and Long-Term Groundwater Control

The assessment of short-term and long-term groundwater control is deferred to a future stage in the detailed design of the site servicing and stormwater management pond where the details around potential excavation dimensions and methods of construction may be available. At that time, it is anticipated that additional groundwater level monitoring data will be available as well, including data representative of seasonal high groundwater conditions to inform the assessment. Moreover, information that may become available from concurrent environmental impact studies being undertaken for the proposed development, will be critical to the development of a groundwater and dewatering management plan during construction which respects the sensitivities of the surrounding natural environment, namely the West Tributary and East Tributary areas and downstream terrestrial and aquatic habitats.

The underlying hydrogeological conditions of the Site describe by an unconfined clayey silt to sandy silt aquitard formation of very low permeability and in areas nearer to existing drainage features may contain discrete and disconnected deposits of moderately higher permeability. In general, the response of the groundwater system during construction is anticipated to be dominated by the very low permeability materials. The aquitard materials were found to extend to the terminal depths of the current investigation, a depth of 6.63 mbgs. The representative bulk hydraulic conductivity of the aquitard unit within the anticipated depths of excavation for the proposed development was assumed equivalent to 6×10^8 m/s. Under these conditions, the Zone of Influence (ZOI) of dewatering activities is not likely to expand more than 10 m from any excavation. Based on the anticipated areas of dewatering, impacts from water takings, including to land stability and sensitive receptors are not expected.

Based on our understanding of the proposed development and requirements for construction at this time, the soil and groundwater conditions observed at the time of writing suggest the groundwater dewatering effort during construction will likely not be significant for the construction of services as well as the stormwater management pond. It is anticipated that adequate control for construction may be provided by strategically placed filtered sumps within the excavations. Notwithstanding, the most effective dewatering measures for the prevalent ground conditions and the design of the dewatering operations are the sole responsibility of the dewatering contractor on-Site at that time.

Long-term groundwater dewatering is not expected for the proposed development considering buildings will be constructed slab-on-grade. Recommendations from TIL's concurrent geotechnical investigation should be reviewed for foundation preparation and construction of the floor slabs for future buildings.

Potential dewatering rates and the necessary regulatory permitting instruments to facilitate groundwater takings and discharge will be provided in a future revision of this report which will be prepared in the detailed design stage. The assessment will include further resolution of potential impacts from dewatering and a monitoring plan, if necessary, to mitigate and/or manage potential impacts.



6 Potential Receptors and Impacts

6.1 **Potential Receptors**

Sensitive groundwater receptors are classified as those receptors, either natural or anthropogenic, which rely on either the quantity or quality of groundwater inputs and which may be impacted by activities for groundwater control. From a groundwater perspective, potential receptors might include domestic and/or permitted water takers, vulnerable drinking water areas, and ecological receptors and their habitat. An understanding of the prevalence of these receptors near the Site area was ascertained by:

- Identifying potential ecological receptors and their habitats within a 500 m radius of the Site by reviewing relevant background documentation and accessing the MNRF's Natural Heritage Areas mapping and querying the Natural Heritage Information Centre (NHIC);
- Identifying vulnerable drinking water areas susceptible to impacts to groundwater quantity or quality by accessing the MECPs Source Water Protection Information Atlas;
- Identifying individual domestic water wells within a 500 m radius of the Site which may still be active by querying the MECP (2020b) Water Well Information System; and
- Identifying permitted water takers under the OWRA within a 500 m radius of the Site by querying the MECP (2020c) PTTW database.

6.2 Ecological Receptors

Based on a review of the MNRF's Natural Heritage Areas mapping portal, the Site is located within 500 m of woodlots, watercourses, and wetlands which are located in or traverse through the Site, including areas protected under the Greenbelt Plan as Protected Countryside. The Site is not shown to be located within or near Areas of Natural Scientific Interest (ANSIs). The NHIC Report for a 1 square km area inclusive of the Site suggests that Redside Dace habitat exists near the Site. An export from the MNRF Natural Heritage Area mapping portal is provided as **Figure 10**.

It is our understanding that this habitat has been identified in the West Tributary while the East Tributary is contributing habitat to Redside Dace (Crozier, 2021).

The discharge of groundwater and stormwater to a natural watercourse can alter the habitat of sensitive species like Redside Dace, particularly impacts from sediment loading and changes to the thermal regime, which are harmful to their prosperity in those habitats and is therefore warranted in a dewatering discharge plan if needed. We understand the detailed design stage for the stormwater management system for the Site will include provisions to maintain the habitat of Redside Dace in the area which are being developed in coordination with the aquatic ecologists on the consultant team (Crozier, 2021).

6.3 Vulnerable Drinking Water Areas

Based on a review of the CTC Source Protection Plan, the Site is not located within any vulnerable drinking water areas defined by the CWA. An export from the Source Water Protection Information Atlas is provided as **Figure 11** for illustration purposes.



6.4 MECP Water Well Record Search

A query of the MECP's WWIS for a 500 m search radius around the Site returned a total of 53 well records which are categorized based on their last known status in **Table 6-1**. **Appendix E** provides the list of MECP water well records returned by the search.

Primary Well Use	Number of Wells within 500 m Buffer of Study Area	Percentage of Total
Water Supply	25	47%
Monitoring/Observation/Test Hole	8	15%
Abandoned/Unfinished	10	19%
Unknown	10	19%
Total	53	100%

 Table 6-1
 Water Well Records within 500 m Buffer

Water supply wells comprise 47% of all well records found within a 500 m buffer of the Site, the majority of which were filed for domestic water supply wells. The records show that these wells were installed between 1956 and 2008 and, considering surrounding rural residential land uses, some are presumed to be active for other uses considering municipal water service is available to the areas with the sear radius.

It is recommended that a private water well survey be undertaken during the detailed design stage in accordance with the Region of Peel guidance document *Guidelines for Hydrogeological Assessment and Reporting Requirements – New Developments on Municipal Services* (July 2009). The private water well survey will document existing private wells, if any, that remain active in the areas near the Site and the details of their construction. Monitoring of private wells may be required during construction at the discretion of the well owner to document potential impacts during construction to their well, both from a quantity and quality perspective.

6.5 **Permitted Water Users**

A search was conducted of the MECP (2020c) PTTW database to identify the permitted groundwater takers within 500 m of the Site boundary. There are no active groundwater PTTWs currently identified within the search area.



7 Impact Assessment and Mitigation

7.1 Potential Short-Term Impacts

Groundwater System

Impacts to the groundwater system during construction can include a temporary lowering of the groundwater table during construction dewatering or the introduction of contamination from dry and wet weather spills. Based on the current findings of this investigation, limited groundwater dewatering is anticipated during construction. However, construction sites that store and handle fuels and other chemicals in the short-term are susceptible to spill risks and groundwater contamination.

A Spill Prevention and Response Plan is recommended during construction to mitigate potential spills and it is recommended that potentially hazardous materials be stored in designated areas with appropriate containment as well as away from areas of high vehicle traffic. Assuming protocols are in place for managing construction-related sources of groundwater contamination, no short-term impacts to the groundwater system are anticipated.

Surface Water System

Short-term impacts to the surface water system include changes in the hydrologic regime caused by land grading changes or the deposition of sediment, hazardous materials, or other deleterious substances into waterbodies and watercourses. As the development area is adjacent to sensitive ecological habitat for Redside Dace, potential impacts to these receptors are warranted during construction.

Potential impacts are anticipated to be effectively mitigated where a Site-specific Spill Prevention and Response Plan as well as an Erosion and Sediment Control (ESC) Plan are in place. Where a Groundwater and Dewatering Discharge Plan is required during construction, it should also consider the potential impacts of discharge to these habitats and includes strategies for mitigation and contingency action. Routine monitoring of ESC measures will ensure the form and function of these controls in preventing off-Site impacts to the sensitive surface water system adjacent to the Site. No unacceptable impacts to the surface water system during construction are anticipated where environmental controls are stabilized and monitored during the construction period.

Other Groundwater Users

Impacts to other groundwater users include impacts to both the quantity and quality of groundwater available to private water supplies as well as permitted groundwater takers through the reduction in recharge or introduction of contamination to the water supply aquifer.

In the short-term, limited groundwater takings within the development area are proposed nor are unacceptable losses to groundwater recharge anticipated. Therefore, no impacts to the quantity of groundwater available are anticipated. Impacts from contamination are expected to be mitigable where a Spill Prevention and Response Plan is in place and best management practices for the storage and use of potential sources of contamination are followed. Correspondingly, no unacceptable impacts to other groundwater users during construction are expected.



7.2 Potential Long-Term Impacts

Groundwater System

Long-term impacts to the groundwater system may include reductions in annual recharge which have a compounding effect on groundwater levels as well as from land-uses where high-risk activities are proposed, including, for example, industrial and commercial areas where hazardous materials may be stored/used, where hazardous waste is generated, and where significant quantities of road salt are used for winter ice management. Best management practices for the storage and handling of chemicals and road salt over the long-term are encouraged.

Considering the results of the in-situ conductivity testing of this study and the textures of the underlying soils, the Site is not anticipated to be an area of significant groundwater recharge. Therefore, adverse impacts to the component of groundwater recharge in the Site's water balance are not anticipated following the development of the Site. However, as existing watercourses on-Site are anticipated to rely more strongly on surface runoff, the retention and release of overland drainage at a quantity and quality appropriate to the ultimate receptor will be integral to maintaining the Site's water balance over the long-term.

Surface Water System

Potential long-term impacts to the surface water system from new development can include reductions in the catchments which are tributary to the system as well as the introduction of urban contaminants from the new development area which may alter the quality of surface water.

It is our understanding that the water balance for the Site is forthcoming as the criteria for the water balance are under development at the current conceptual design stage. The factual soil and groundwater data of this hydrogeological investigation and future monitoring may be used to inform the Low Impact Development (LID) Mitigation Plan for the Site's water balance. The assessment and mitigation of long-term impacts is being undertaken by others.

Potential Long-Term Impacts to Other Groundwater Users

As no long-term water takings from local water supply aquifers are required in the long-term and no adverse reductions in groundwater recharge are expected, no unacceptable long-term impacts to other groundwater users identified in this investigation are expected.



8 Summary

A summary of the hydrogeological investigation, completed in support of the proposed development is included below:

- The Site falls within the CTC Source Protection Region; however, no vulnerable drinking water areas are present at the Site.
- The Site is located within the West Humber River Subwatershed, which is under the jurisdiction of the TRCA. Two tributaries of the West Humber River, named the West Tributary and East Tributary in this study, are conveyed through the Site and are located within the TRCA's regulated areas. A permit from the TRCA will be required for construction in these areas. No ground-disturbing works are proposed with the vegetation buffer for the West Tributary, which is located within Protected Countryside of the Greenbelt Plan.
- The proposed development area of the Site slopes gently towards the southeast from approximately 250 masl to 230 masl except in areas adjacent to the watercourses and land drainage features on-Site where topography steepens.
- The Site is situated in the South Slope physiographic region. In the area of the Site, this
 physiographic region is characterized at the surface by relatively impermeable deposits of
 glacial origin comprised of clay and loam. Groundwater infiltration across the South Slope
 physiographic region is limited by these soils; therefore, the total annual flow of the
 watercourses that are conveyed through this area is supported primarily by surface runoff.
- The overburden material generally consists of topsoil or fill up to a depth of approximately
 1 mbgs, and is underlain by fine-grained glacial deposits of clayey silt to sandy silt. With
 the exception of an isolated deposit of sand and gravel at the north boundary of the Site,
 these fine-grained deposits were encountered to the maximum depth of investigation of
 6.63 mbgs.
- Groundwater levels have been monitored at the Site in June of 2021, including weekly for three weeks after monitoring well installation. Based on the observations from the groundwater level monitoring undertaken on June 22, 2021, groundwater levels varied between two distinct areas. In areas adjacent to the surface drainage features observed in the agricultural fields and tributary valleys, the depths to groundwater from the monitoring wells at these locations were recorded between 0.9 mbgs to 2.46 mbgs. By comparison, at the location of wells completed at locations more removed from these features, the depths to groundwater were reported between 3.19 mbgs and 5.87 mbgs, and an average of approximately 5 mbgs. A long-term monitoring program is currently underway and will investigate the shallow groundwater system and corresponding variability further for a future assessment of requirements for groundwater control during construction.
- The underlying hydrogeological conditions of the Site describe an unconfined clayey silt to sandy silt aquitard formation of very low permeability and in areas nearer to existing drainage features may contain discrete and disconnected deposits of moderately higher permeability. In general, the response of the groundwater system during construction is anticipated to be dominated by the very low permeability materials. The representative



bulk hydraulic conductivity of the aquitard unit within the anticipated depths of excavation for the proposed development was assumed equivalent to 6×10^{-8} m/s.

- Based on laboratory analyses, the groundwater quality does not meet the discharge criteria for the Table 1 Limits for Sanitary Sewer Discharge or Table 2 Limits for Storm Sewer Discharge of the Region of Peel Wastewater By-Law 55-2013. Based on the analytical results, both Manganese (total) and Zinc (Total) were detected at concentrations above the Table 2 criteria, while sulphate, which does not have a limit in Table 2, was found at a concentration above the Table 1 criteria.
- Based on our understanding of the proposed development and requirements for construction at this time, the soil and groundwater conditions suggest that the groundwater dewatering effort during construction will likely not be significant for the construction of services as well as the stormwater management pond. The assessment of short-term requirements for groundwater control has been deferred to the detailed design stage where further information for this assessment will be available, including sensitivities for dewatering discharge planning and results of the long-term monitoring program. The permitting instrument for groundwater takings and discharge, should any be required, will also be identified during that assessment.
- A review of the MECP WWIS for the area within a 500 m radius of the Site identified a total of 53 records, including 25 for water supply.
- Potential long-term impacts to the groundwater system and surface water system identified in this investigation are the subject of future assessments being undertaken by other members of the consultant team. The West Tributary is identified as Redside Dace habitat while the East Tributary is identified as contributing habitat for Redside Dace. The mitigation of impact to the water balance of these features and the quality of future inputs to these features are proposed to be addressed by the implementation of LIDs and end of pipe controls.

Based on the findings of the current report, the following recommendations are offered:

- It is recommended that additional groundwater samples, distributed spatially across the Site, be collected to determine the extent of elevated concentrations for sulphate in groundwater and identify potential alternative on-Site or off-Site sources. These samples should be supplemented by surface water quality samples in the watercourses on-Site if they will be proposed as a receptor to discharge of construction water, direct or indirect.
- A private water well survey is recommended for this area prior to construction activities to verify and document the status of active private water wells and to establish a monitoring program for these wells with the owners for the construction period.
- A Spill Prevention and Response Plan, ESC Plan, and Dewatering Management Plan should be implemented with routine monitoring during construction to limit potential impacts to the groundwater system and surface water system as well as the off-Site release of sediment during open excavation.

9 References

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10 General Statement of Limitation

The comments presented in this report are based on the soil and groundwater samples gathered from the borehole/monitoring well locations indicated on the plan of this report. There is no warranty expressed or implied or representations made by Toronto Inspection Ltd. that this program has discovered all potential environmental risks or liabilities associated with the subject site.

Although we consider this report to be representative of the subsurface conditions at the subject property in the areas investigated, any interpretation of factual data or unexpected soil conditions which exhibit noticeable discolouration, odour, etc. in areas not investigated in this report, should be discussed in consultation with us prior to any initiation of activity. Our responsibility is limited to an accurate assessment of the soil condition prevailing at the locations investigated at the time of the study.

To the fullest extent permitted by law, the client's maximum aggregate recovery against Toronto Inspection Ltd., its directors, employees, sub-contractors and representatives, for any and all claims by Tullamore Industrial GP Limited for all causes including, but not limited to, claims of breach of contract, breach of warranty and/or negligence, shall be the amount of fees paid to Toronto Inspection Ltd. for its professional engineering services rendered with respect to the particular site which is the subject of the claim by the client.

Any use and/or interpretation of the data presented in this report, and any decisions made on it by the third party are responsibility of the third party. Toronto Inspection Ltd. accepts no responsibility for loss of time and damages, if any, suffered by the third party as a result of decisions or actions based on this report.

Any legal actions arising directly or indirectly from this work and/or Toronto Inspection Ltd.'s performance of the services shall be filed no longer than two years from the date of Toronto Inspection Ltd.'s substantial completion of the services. Toronto Inspection Ltd. shall not be responsible to the client for lost revenues, loss of profits, cost of content, claims of customers, or other special indirect, consequential, or punitive damages.

Yours truly,

Toronto Inspection Ltd.



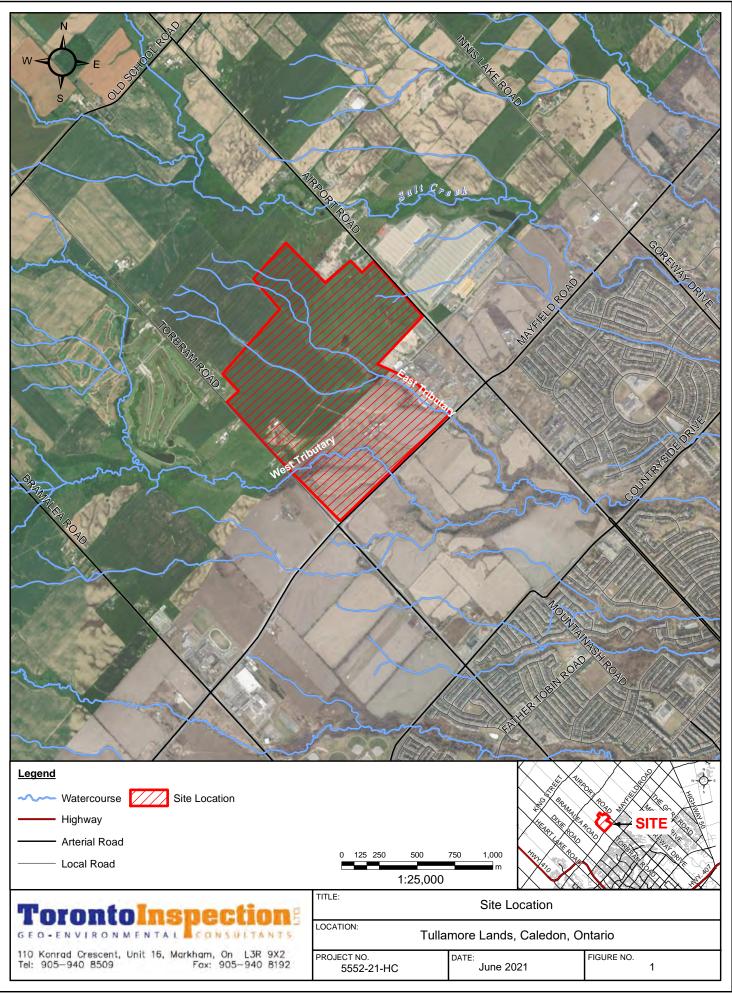
Tabitha Lee, M.A.Sc., P.Eng. Senior Hydrogeologist

Sanjay Goel, B.E.S. Environmental Scientist Vice-President

Preliminary Hydrogeological Investigation Tullamore Lands, Caledon, Ontario

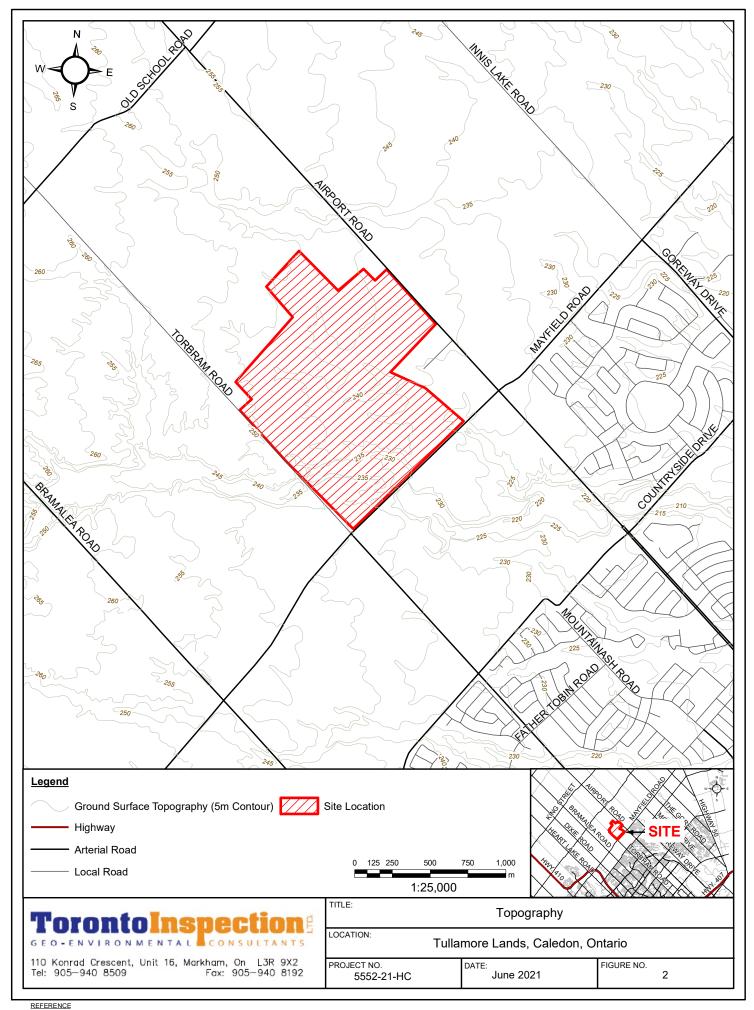


FIGURES

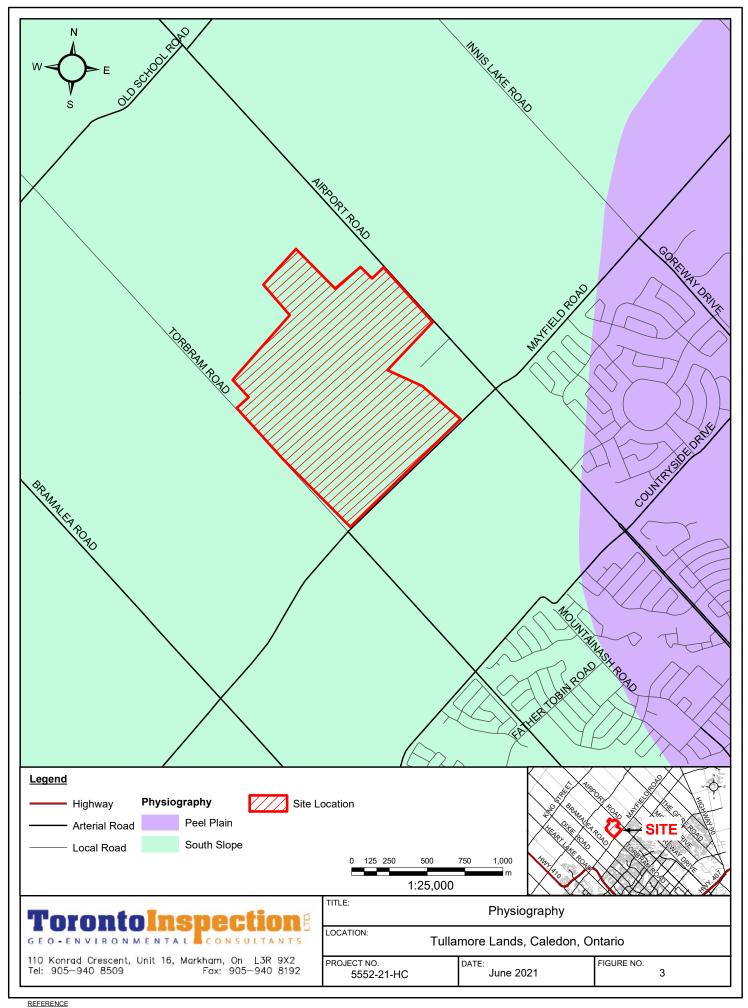


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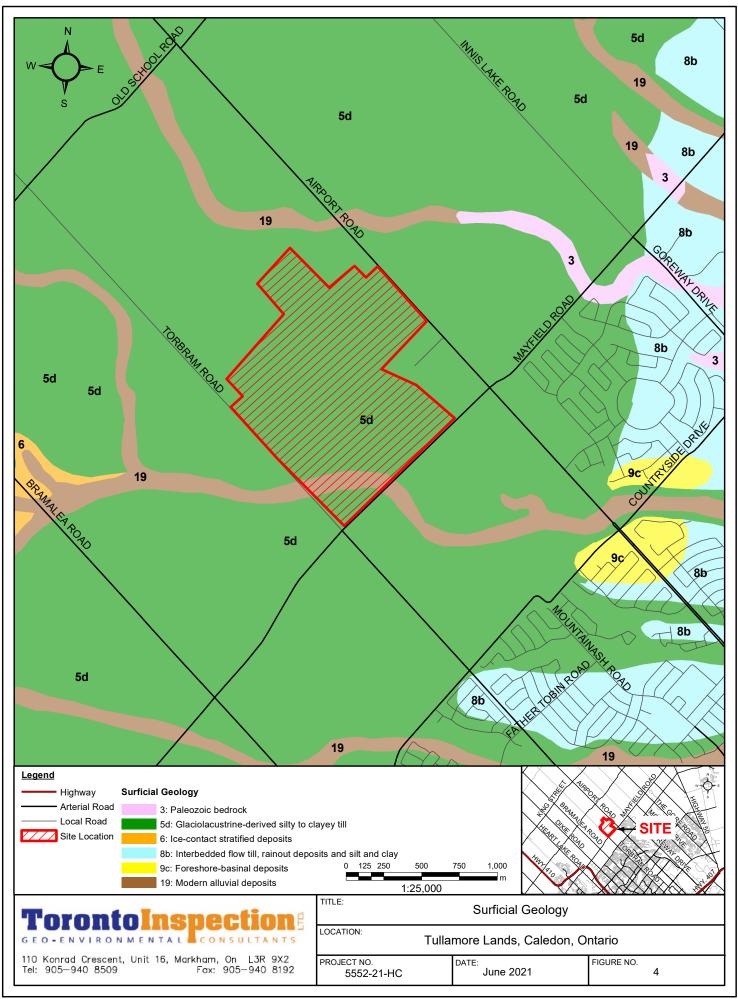
<u>KETERENCE</u> Service Layer Credits: Source: ESRI, DigitalGlobe, GeoEye, and Earthstar Geographics. Produced under license from the Ontario Ministry of Natural Resources. Copyright (c) Queens Printer 2017.



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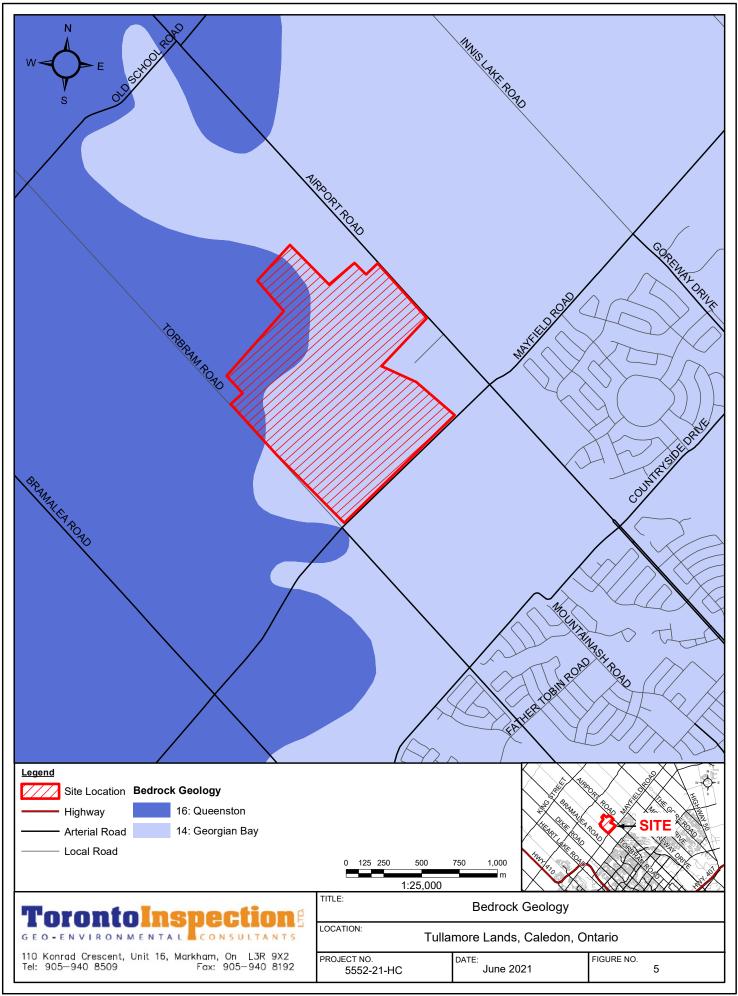


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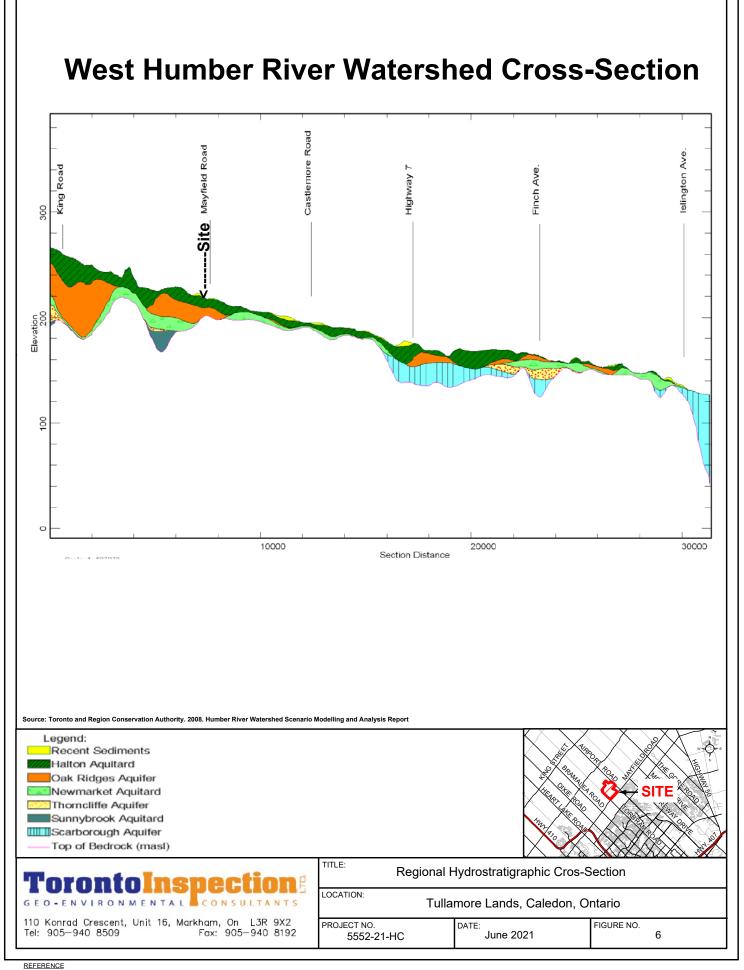
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Service Layer Credits: Source: Ontario Geological Survey 2010. Surficial geology of Southern Ontario; Ontario Geological Survey, Miscellaneous Release--Data 128-REV. Produced under license from the Ontario Ministry of Natural Resources. Copyright (c) Queens Printer 2017.

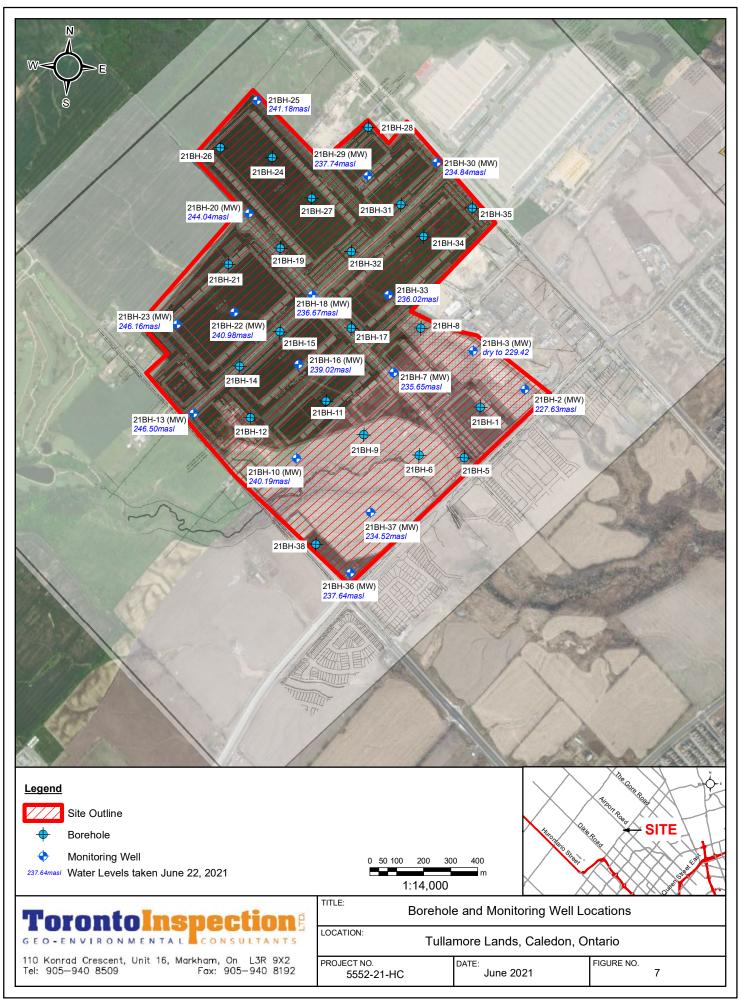


REFERENCE

NEL EXCENSE Service Layer Credits: Source: Armstrong, D.K. and Dodge, J.E.P. 2007. Paleozoic geology of southern Ontario; Ontario Geological Survey, Miscellaneous Release–Data 219. Produced under license from the Ontario Ministry of Natural Resources. Copyright (c) Queens Printer 2017.

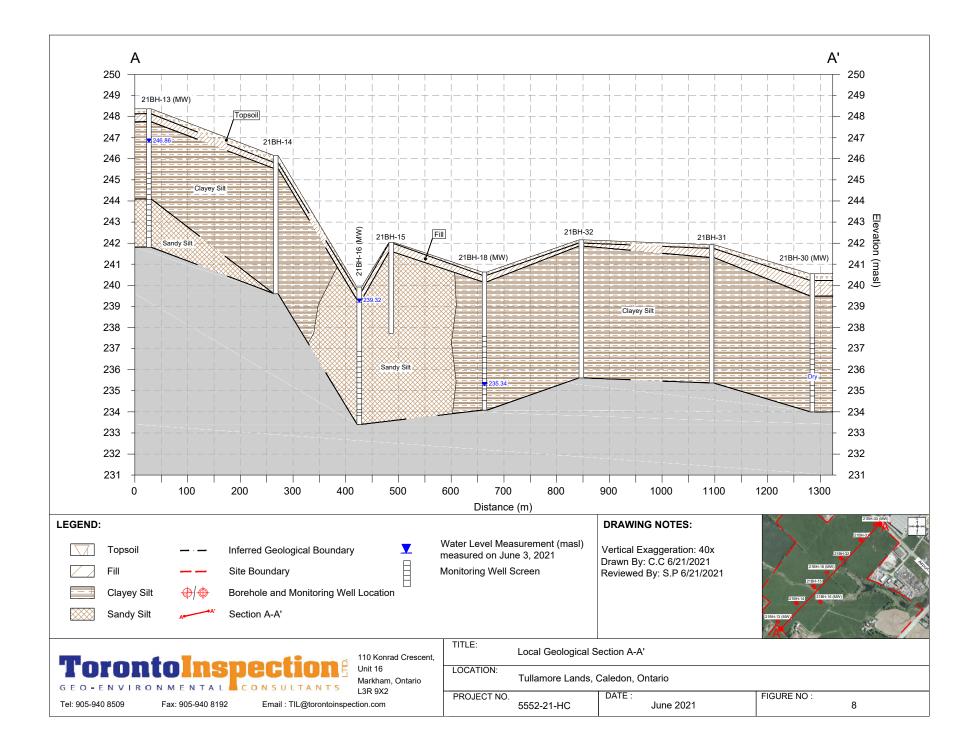


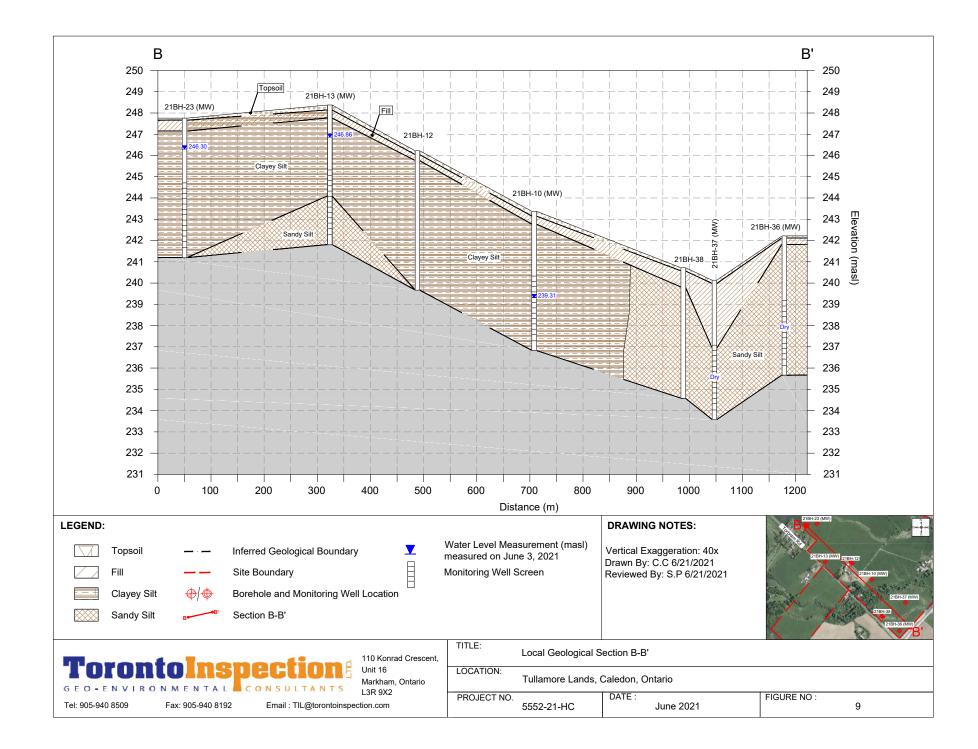
Service Layer Credits: Source: Produced under license from the Ontario Ministry of Natural Resources. Copyright (c) Queens Printer 2017.



REFERENCE

Service Layer Credits: Source: ESRI, DigitalGlobe, GeoEye, and Earthstar Geographics. Produced under license from the Ontario Ministry of Natural Resources. Copyright (c) Queens Printer 2017.





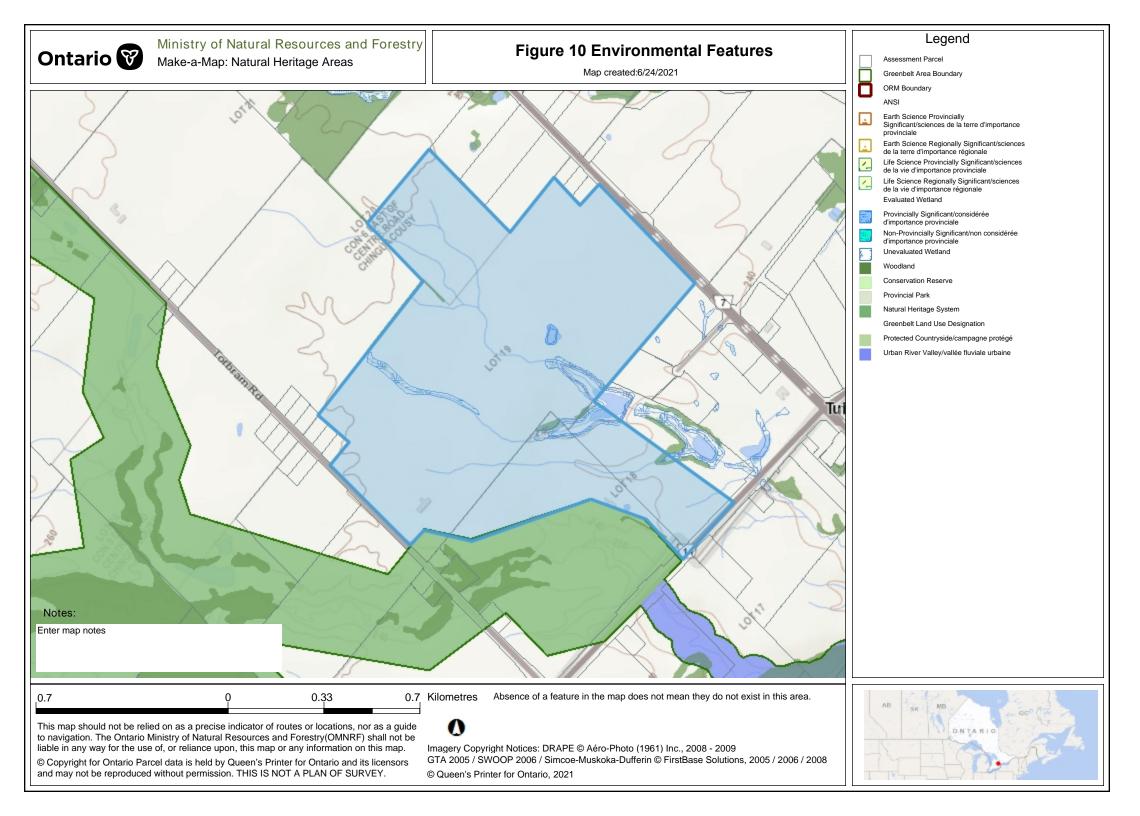
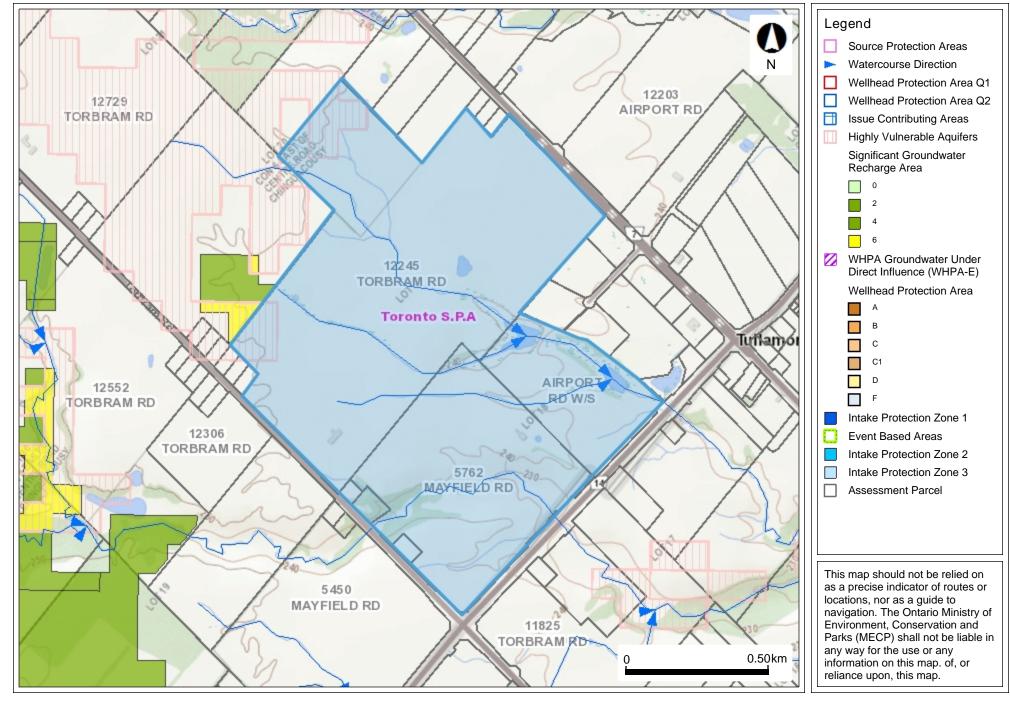


Figure 11 Vulnerable Drinking Water Areas



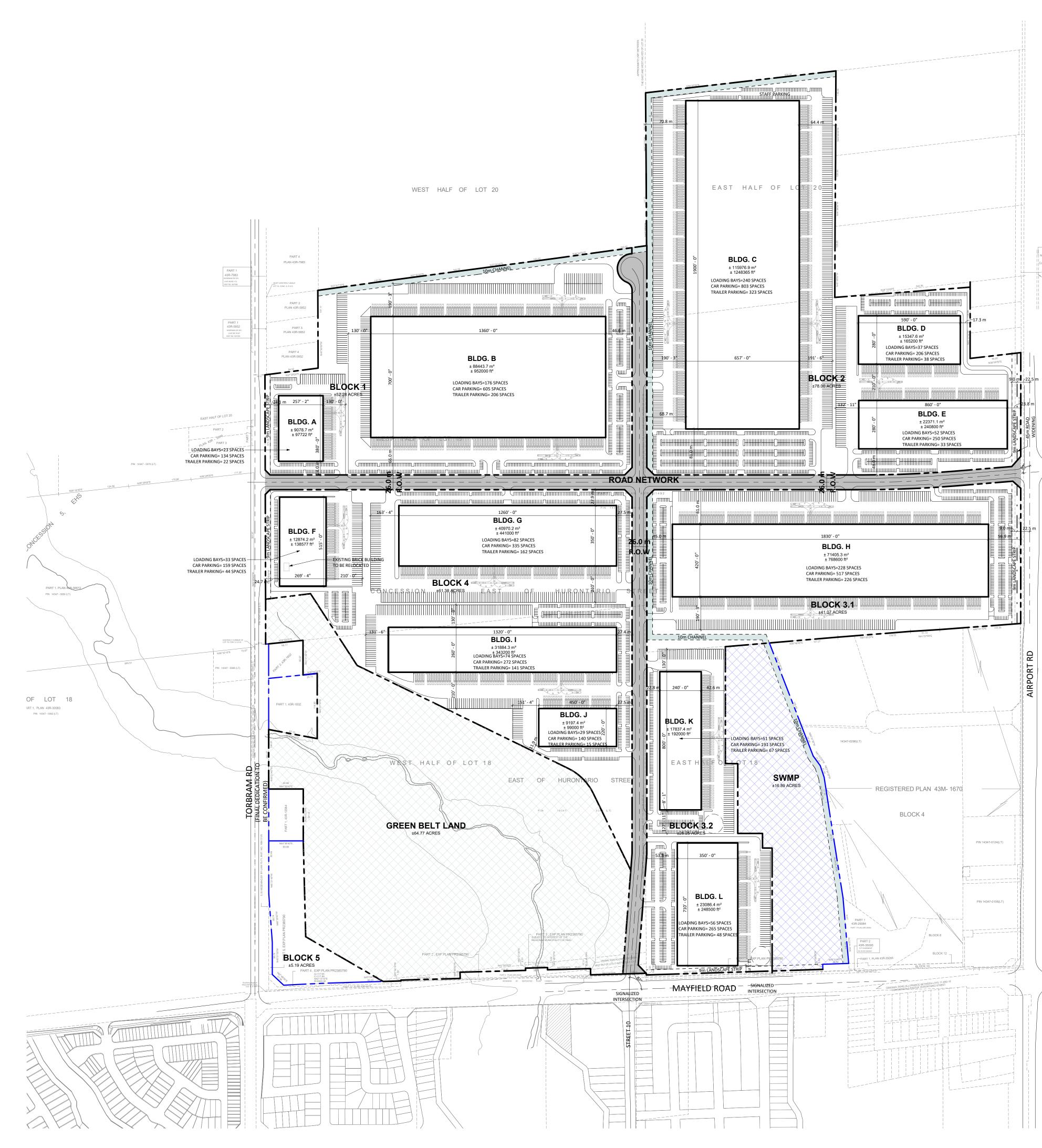
Ontario 😵 © Queen's Printer for Ontario, 2021

Map Created: 6/29/2021 Map Center: 43.79098 N, -79.77419 W



APPENDIX A

Site Plan and Preliminary Site Grading Plan



Widenning by No. 18669 Ching || Northerly Corner Lot 19, | Conc. 6, EHS SOUTH EAST HALF OF LOT 2 CONCESSION 1 || Westerly Corner LOT 1, Con. 1

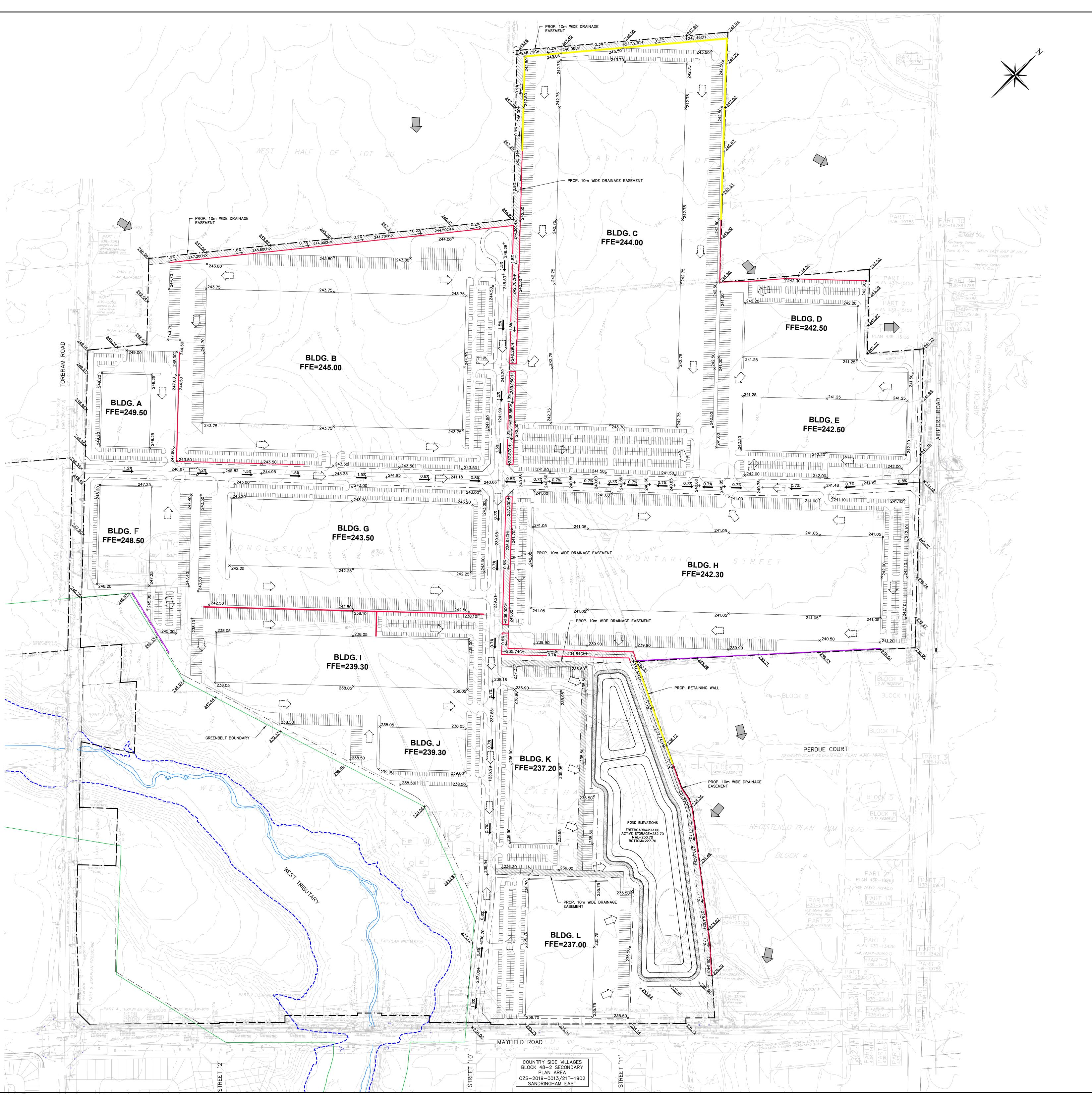
TURNER FLEISCHER Turner Fleischer Architects Inc.

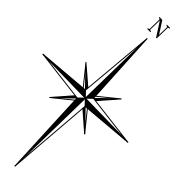
67 Lesmill Road Toronto, ON, M3B 2T8 T 416 425 2222 turnerfleischer.com

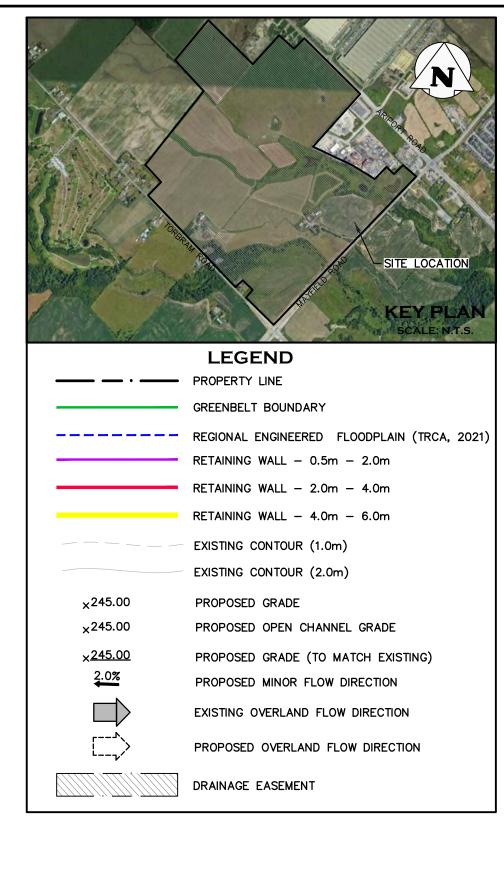
This drawing, as an instrument of service, is provided by and is Architects Inc. The contractor must verify and accept responsit	bility for all dimensions and conditions
on site and must notify Turner Fleischer Architects Inc. of any information. This drawing is not to be scaled. The architect is r survey, structural, mechanical, electrical, etc., information shor appropriate consultant's drawings before proceeding with the applicable codes and requirements of authorities having jurisd drawings not specifically marked 'For Construction' must assu	not responsible for the accuracy of wn on this drawing. Refer to the work. Construction must conform to all iction. The contractor working from
for any corrections or damages resulting from his work. STATISTICS	· ·
SITE STATS BLOCK 1	±52.28 ACRES
BUILDING A AREA LOADING SPACE CAR PARKING	±97,722 S.F. 23 SPACES 134 SPACES
TRAILER PARKING BUILDING B AREA LOADING SPACE	22 SPACES ±952,000 S.F.
CAR PARKING TRAILER PARKING	176 SPACES 605 SPACES 206 SPACES
BLOCK 2 BUILDING C AREA LOADING SPACE	±78.00 ACRES ±1,248,365 S.F. 240 SPACES
CAR PARKING TRAILER PARKING BUILDING D AREA	803 SPACES 323 SPACES
LOADING DAREA LOADING SPACE CAR PARKING TRAILER PARKING	±165,200 S.F. 37 SPACES 206 SPACES 38 SPACES
BUILDING E AREA LOADING SPACE	±240,800 S.F. 52 SPACES
CAR PARKING TRAILER PARKING	250 SPACES 33 SPACES
BLOCK 3 BUILDING H AREA LOADING SPACE CAR PARKING	±67.32 ACRES ±768,600 S.F. 228 SPACES 517 SPACES
TRAILER PARKING BUILDING K AREA	223 SPACES ±192,000 S.F.
LOADING SPACE CAR PARKING TRAILER PARKING	51 SPACES 191 SPACES 67 SPACES
BUILDING L AREA LOADING SPACE CAR PARKING	±248,500 S.F. 56 SPACES 265 SPACES
TRAILER PARKING BLOCK 4	48 SPACES ±61.38 ACRES
BUILDING F AREA LOADING SPACE CAR PARKING	±138,600 S.F. 33 SPACES 159 SPACES
TRAILER PARKING BUILDING G AREA LOADING SPACE	44 SPACES ±441,000 S.F. 82 SPACES
CAR PARKING TRAILER PARKING BUILDING I AREA	335 SPACES 162 SPACES ±343,200 S.F.
LOADING SPACE CAR PARKING TRAILER PARKING	74 SPACES 272 SPACES 141 SPACES
BUILDING J AREA LOADING SPACE	±99,000 S.F. 29 SPACES
CAR PARKING TRAILER PARKING BLOCK 5	140 SPACES 15 SPACES ±5.19 ACRES
CHANNEL ROAD NETWORK SWMP	±5.19 ACRES ±6.43 ACRES ±17.04 ACRES ±16.93 ACRES
GREEN BELT/ SWMP TOTAL SITE AREA	±64.77 ACRES ±362.91 ACRES
TOTAL BOILDING AREA TOTAL LOADING SPACE TOTAL CAR PARKING TOTAL TRAILER PARKING	±4,934,987 S.F. 1081 SPACES 3877 SPACES 1322 SPACES
9 2021-07-14 ISSUED FOR COORDINATIO 8 2021-07-09 ISSUED FOR COORDINATIO 6 2021-06-21 ISSUED FOR COORDINATIO	N YSK N YSK
5 2021-06-07 ISSUED FOR REVIEW 4 2021-03-05 ISSUED FOR REVIEW 3 2021-02-26 ISSUED FOR REVIEW # DATE DESCRIPT	YSK HHO HHO ION BY
<u> </u>	
PROJECT	
TULLAMORE L	ANDS
CALEDON, ON	
DRAWING	
SITE PLAN	N
PROJECT NO. 20.302SD	
20.302SD PROJECT DATE 2021-03-05	
DRAWN BY HHO	
CHECKED BY JJK SCALE	
1 : 3500 N	

DRAWING NO.

A100







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SCALE: 1:2000							
		1					
OA ISSUED FOR GRADING COORDINAT	 ION	2021/JUN/23					
No. ISSUE / REVISION	Stamp	YYYY/MMM/DD					
Stump	Stamp						
BEARING NOTE:		- nn					
BEARINGS ARE UTM GRID, DERIVED FROM NETWORK OBSERVATIONS, UTM ZONE 17, N		IE "TOPNET" GPS					
ELEVATION NOTE:							
ELEVATIONS HERON ARE GEODETIC IN ORIC	GIN AND WERE DERIVED FRO	M GPS					
OBSERVATION USING THE "TOPNET" GPS N 1987 DATUM	ETWORK AND REFERED TO	THE CGVD-1928:					
SITE BENCHMARK:	WAS SET ON THE NORTH	FAST CORNER OF					
A CUT CROSS HAVING ELEVATION 242.51 m WAS SET ON THE NORTHEAST CORNER OF THE INTERSECTION BETWEEN MAYFIELD ROAD AND TORBRAM ROAD							
SITE PLAN NOTES:							
DESIGN ELEMENTS ARE BASED ON SITE PL DRAWING No.: A1-18 REV54 (2021/JUN/0		RCHITECT INC.					
PROJECT No.: 20.302SD	(0)						
DRAWING NOTES:							
THIS DRAWING IS THE EXCLUSIVE PROPERT THE REPRODUCTION OF ANY PART OF IT							
OFFICE IS STRICTLY PROHIBITED.	WITHOUT FRICK WRITTEN CO	ISENT OF THIS					
THE CONTRACTOR SHALL VERIFY ALL DIME REPORT ANY DISCREPANCIES OR OMISSION	NSIONS, LEVELS, AND DATU	MS ON SITE AND CONSTRUCTION.					
THIS DRAWING IS TO BE READ AND UNDER	RSTOOD IN CONJUNCTION WI	TH ALL OTHER					
PLANS AND DOCUMENTS APPLICABLE TO T ALL EXISTING UNDERGROUND UTILITIES TO							
CONTRACTOR PRIOR TO CONSTRUCTION.							
	RE LANDS						
I TOWN OF	CALEDON						
Drawing							
PRELIMINARY	GRADING PL	AN					
	2800 High P	-					
I (III) CROZII	MILTON, ON						
	NEERC	0026 T					
	NEEKS 905-875-4 WWW.CFCR						

2020-5842 00 ^{Fig.} **C103**

Scale 1: 2000 Fig.



APPENDIX B

Borehole Logs

Proj	ject No.	<u>5552-21-GB</u>	Log	сſ	Bo	ore	ehc	ble	<u>2</u> ′	B	<u>Н-С</u>)1			
			•									Dwg No	o. <u>2</u>		
Proj	ject:	Geotechnical Investiga	ation								-	Sheet N	lo. <u>1</u>		of <u>1</u>
Loc	ation:	Aiport Road and Mayf	field Road, C	Cal	edon,	Ont	ario								
Drill	Date Drilled: 5/21/21 Drill Type: Track Mounted Drill Rig Datum: Geodetic			-	Auger Sar SPT (N) V Dynamic (Shelby Tu Field Vane	alue Cone Te be	est N Value			Headspace Reading (ppm) Natural Moisture X Plastic and Liquid Limit Image: Compression of the second secon					Natural
G W L	S Y B	Soil Description	ELEV.	DEPTH	20		·0 6	60 8		1 Na Atter	tural Moist	00 30 ture Conter s (% Dry W	00 nt % (eight)		Unit Weight
		und Surface	236.25	н о	Shear St	rength 10	00	20	kPa 00				0		kN/m3
	FILL bro - sor - trac - mo CLA - ver - bro	YEY SILT y stiff to stiff wn, grey below 4.5m ce to some gravel	236.07 235.64 	1 2 3 4 5 6	0 10 10 10 10 10 10 10 10 10 10 10 10 10						< * *				
J 6/18/21	NOT Upoi	OF BOREHOLE E: n completion of drilling: free water													
LGBE3 5552-21-GB.GPJ 6/18/21															

NOTE: THE BOREHOLE DATA NEEDS INTERPRETATION ASSISTANCE BY TORONTO INSPECTION LTD. BEFORE USE BY OTHERS
TOronto Inspection Ltd.

ORE USE BI UTHERS									
Time	Water Level (m)	Depth to Cave (m)							

Project No.	<u>5552-21-GB</u>	Log	of B	ore	ehc	ble	<u>2</u> ′	1BI				<u>V)</u>		
Project:	Geotechnical Investigation	n								Dwg No Sheet N		_ of _ 1		
Location:	Aiport Road and Mayfiel		Caledor	n, Onta	ario						0. <u> </u>			
			-				1	Heads	pace Re	ading (ppn	1)	•		
Date Drilled:	5/21/21		Auger SPT (N			0 0			I Moistur	re uid Limit	I	× ⊣		
Drill Type:	Track Mounted Drill Rig		 Dynam Shelby 	ic Cone Te Tube	st		I		fined Co iin at Fail	mpression lure	\otimes	⊗		
Datum:	Geodetic		_ Field V	ane Test		S	•	Penetr	ometer					
	Soil Description	ELEV. m		20 4 Strength	N Value	60 8	0 kPa	1 Nat	00 2 ural Mois	Reading (pp 200 30 ture Conten s (% Dry W	10 nt %	Natur Unit Weigl		
	und Surface SOIL	232.99 232.84	0	10	10 	20	00	1	0	20 30)	kN/m		
🗱 – bro	- (REWORKED) own clayey silt me rootlets & topsoil	-232.38						×						
- trad	ce gravel me sandy silt	Д	1	\$				*						
	YEY SILT / TILL											2		
- bro	f to hard own, grey below 6.0m			ð				*						
trac - sor - mo	ce to some gravel me sandy silt vist	-	2									2		
	not	-		ð	-2-0-1-0			*						
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÷ —		- 227.45	5	1										
: — —		-	6									77		
×		226.44		ð				*				2		
NOT														
- no	n completion of drilling: free water													
	REHOLE DATA NEEDS INTERPRETATIO		CE BY TOR	ONTO IN	SPECT	ION LTD	. BEFOF			Wat		Depth to		
	Inspection Lt	.u.						Tin	ie	Lev (m		Cave (m)		

Time	Water Level (m)	Depth to Cave (m)
June 3, 2021	5.54m	

		-									[Dwg No	o. <u>4</u>		/)
Project:		Geotechnical Investigation	n								- 5	Sheet N	No1	<u>1</u> a	of _
Location	:	Aiport Road and Mayfiel	d Road, (Cal	edon	, Ont	ario								
Date Dril Drill Type		5/21/21 Track Mounted Drill Rig		_	Auger S SPT (N) Dynamic Shelby 1	Value Cone T	est	0	⊠ 2 ■	Natur Plasti Uncor	space Rea al Moisture c and Liqu nfined Cor ain at Failu	e iid Limit npressior	⊢	• × ⊸	
Datum: •⊓•		Geodetic		-	Field Va	ne Test			S	Penet	rometer			•	
SYMBOL	Grou	Soil Description	ELEV. m	DEPTH		Strength	N Value	60	80 kPa 200	Na Atter	itural Moist berg Limits	00 3 ure Conte s (% Dry V	00 nt %		Natu Ur Wei kN/
	TOP		235.52 235.39	0	Ô						×				
	- brov	wn clayey silt ne rootlets & topsoil	 234.76		<u> </u>									8	
F		YEY SILT / TILL	-4	1	ď						<u> </u>				
	- brov	to hard wn, grey below 6.0m e to some gravel	_												
	- sea	ms of fine sand asional layers of clayey silt till				Å				*					
		e sandy silt		2											
	-		-			þ				*					
	-		_	3											
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	_														
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	END	OF BOREHOLE	228.97		0										
		o completion of drilling:													
	- no f	ree water													
		EHOLE DATA NEEDS INTERPRETATIO					ISPECT		D. BEFOI	RE USE	BY OTHE	ERS	<u> </u>		
non	to	Inspection Lt	h						Γ	Tir	ne	Wa Lev		De	epth Cave

Time	Water Level (m)	Depth to Cave (m)
June 3, 2021	Dry	

Project No.	<u>5552-21-GB</u> Log of Borehole <u>21BH-04</u>									
		Dwg No. <u>5</u>								
Project:	Geotechnical Investigation Sheet No									
Location:	Aiport Road and Mayfield Road, Q	Caledon, Ontario								
Date Drilled: Drill Type: Datum:	5/21/21 Track Mounted Drill Rig Geodetic	Auger Sample Image: Sample<								
- bro bro - trac - CLA - stif - bro - trac	Soil Description ELEV. m 238.67 238.62 238.62 238.62 238.06 238.	N Value Headspace Reading (ppm) 100 Natural Unit Weight Atterberg Limits (% Dry Weight) 0 4 100 200 300 100 200 30 Unit Weight kN/m3 Weight kN/m3								

G W L	Y B O L	Soil Description	ELEV. m	DEP T H	Shear	Strenath		0 80	kPa		ural Moisto erg Limits	00 300 ure Content % 5 (% Dry Weight	· ·	Unit Weight kN/m3
		Ground Surface TOPSOIL FILL (REWORKED) - brown clayey silt - trace to some rootlets & topsoil - moist to very moist CLAYEY SILT / TILL - stiff to very stiff - brown, grey below 6.0m - trace gravel, trace sand - seams of fine sand - moist - moist	m 238.67 238.62 - - - - -	H 0 1 2 3 4		Strenath			kPa					kN/m3
			-	5		3 3				*				
		END OF BOREHOLE NOTE: Upon completion of drilling: - no free water HE BOREHOLE DATA NEEDS INTERPRETATION					ISPECTI	ON LTD.	BEFOF	RE USE I	-	Water		apth to Cave
101	O	nto Inspection Ltd								Tin	ne	Level (m)	(Cave (m)

-UR	URE USE BT UTHERS									
	Time	Water Level (m)	Depth to Cave (m)							

Project No.	<u>5552-21-GB</u> Log of Borehole <u>21BH-05</u>									
			Dwg No. 6							
Project:	Geotechnical Investigation Sheet No. 1 of									
Location:	Aiport Road and Mayfield Road, Caledon, Ontario									
Date Drilled: Drill Type: Datum:	5/25/21 Track Mounted Drill Rig Geodetic	Auger Sample ⊠ SPT (N) Value O ☑ Dynamic Cone Test	Headspace Reading (ppm) Natural Moisture Plastic and Liquid Limit Unconfined Compression Strain at Failure Penetrometer							
TOF FILI FILI FILI da so so so CL4 str str str str str	Soil Description Soil Description Soil Description ELEV. m 237.16 236.96 236.96 236.56 236.56 236.56 236.56 236.56 236.56 236.56 236.56 236.56 236.56 236.56	N Value P P P P 20 40 60 80 Shear Strength 100 200 F P 1 1	Headspace Reading (ppm) 100 200 300 Natural Moisture Content % Atterberg Limits (% Dry Weight) 10 20 30 X X X X X X X X X X X X X							

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13 0

15 0

NOTE: THE BOREHOLE DATA NEEDS INTERPRETATION ASSISTANCE BY TORONTO INS	DECTION I TO BEFORE LISE BY OTHERS
NOTE. THE BOREHOLE DATA NEEDS INTERFRETATION ASSISTANCE BT TORONTO INS	FEGHUN LID. DEFORE USE BI UTHERS

230.61

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END OF BOREHOLE NOTE: Upon completion of drilling: - no free water

- moist

OKE 03E BI OTTE	110	
Time	Water Level (m)	Depth to Cave (m)

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×

Project No.	5552-21-GB	og c	Dt B	ore	nol	e <u>2</u>	<u>18</u>			7				
Project:	Geotechnical Investigation										of 1			
Project:		C heo								Sheet No. <u>1</u> of <u>1</u>				
_ocation:		Aiport Road and Mayfield Road, Caledon, Ontario								n)	•			
Date Drilled:	5/25/21		Auger S		,	N N C	Natural	Moisture		•	×			
Drill Type:	Track Mounted Drill Rig		Dynami	c Cone Te			Unconf		npression	⊢ ⊗	—			
Datum:	Geodetic		Shelby Field Va	Tube ane Test		S	% Strai Penetro	n at Failu ometer	ure	▲	•			
S Y			P		N Value		10	0 20	teading (pp 00 30	0	Natura			
	Soil Description	ELEV. m _277.78		20 40 Strength 10		80 kPa 200	Natu Atterb		ure Conter (% Dry W 0 30		Weigh kN/m			
	PSOIL L (REWORKED)	277.53 277.32	° 3 ℃					X						
bro	own sandy silt me rootlets & topsoil	=									8			
l l l - tra	ce clayey silt	-	1	8 8			+	······································			Ø			
► moist SILTY SAND - dense to very dense - brown, grey below 1.5m - some gravel, some sandy silt	TY SAND	276.38												
	own, grey below 1.5m	1		X	3			<u>.</u>						
- gra	avelly at 2.3m - ssible cobbles or boulders at 3.2m	, –	2				/				8			
- po	pist to very moist				50/\$0mm		×				zz			
—	-	274.45	3		0/75mm		×							
NO Upo - ref	D OF BOREHOLE TE: in completion of drilling: fusal to augery on probable bles or boulders ater level at 1.4m	217.73												

NOTE: THE BOREHOLE DATA NEEDS INTERPRETATION ASSISTANCE BY TORONTO INSPECTION LTD. BEFORE USE BY OTHERS
TORONTO INSPECTION LTD. Time

LGBE3 5552-21-GB.GPJ 6/18/21

Time Le	ater vel n)	Depth to Cave (m)

											Dwg No			
Project:	Geotechnical Investig									. :	Sheet I	No. <u>1</u>	_ (of _
Location:	Aiport Road and Ma	yfield Road,	Са	ledon	, Ont	ario								
Date Drill	led: 5/25/21		_	Auger S	ample		Σ			pace Rea al Moistur	ading (pp e	m)	• ×	
Drill Type		Rig		SPT (N) Dynamic		est		2 -		c and Liqu	uid Limit mpressio		— `	I
Patum:	Geodetic	-	_	Shelby T Field Va				1	% Stra	ain at Fail rometer		" ®	2	
S G M M M M M M M M M M M M M M M M M M	Soil Description	ELEV		2		N Value	i0 i	30	1 Nat	00 2 tural Moist	Reading (p 200 3 ture Conte s (% Dry V	00 ent %		Nati Ur Wei
ها اد	Ground Surface TOPSOIL	240.17 239.94	T F C		Strength 1	00	2	kPa 00				30 		kN/
	FILL (REWORKED) - brown clayey silt	239.94		Ô						×			Ø	
	- some rootlets & topsoil - moist	239.50			27									
	CLAYEY SILT / TILL - very stiff	/	1		P					*				
	- brown, grey below 4.5m - trace to some gravel	_			28									
	 seams of fine sand moist to very moist 		2		φ					*				
-		_			P						*		8	
		_	3		9									
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		- 235.	63	16										
		_	6	$\begin{bmatrix} 0 \\ 0 \end{bmatrix}$						*				
- PEODDER														
		_	e	15										
<u> </u>	END OF BOREHOLE	233.62		U						*			4	
	NOTE: Upon completion of drilling:													
	- no free water													
														<u> </u>

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ORE USE BI UTHE	110	
Time	Water Level (m)	Depth to Cave (m)
June 3, 2021	4.54m	

roject No.	<u>5552-21-GB</u>	.og d	5	IВ	ore	enc	JIE	<u> </u>	IЫ			0		
roject:	Geotechnical Investigation										Dwg N Sheet I	-		
ocation:	Aiport Road and Mayfield I	Road, C	a	ledon	. Ont	ario				•	oncer	NO	0	_
Pate Drilled: Prill Type: Patum:	5/25/21 Track Mounted Drill Rig Geodetic	rill Rig		Auger S SPT (N) Dynamic Shelby ∃ Field Va	Value Cone T Tube	est	0		Natura Plastic Uncor % Stra	al Moistu and Liq	uid Limit mpressio	·	×	
	Soil Description	ELEV.	DEPTH			N Value		80 kPa	1	00 2	Reading () 200 3 ture Conte s (% Dry V	300	1 lv	latur Unit Veig
	und Surface	238.39	0	Snear	Strength 1	00 -:-:-:-:		200 KPa				30 - : - : - : - :	k	κN/n
- bro - trac - sor	- (REWORKED) own clayey silt ce rootlets & topsoil me sandy silt	_		φ 1						X				
- pog	ce gravel ckets of organics at 4.5m & 6.0m list to very moist, wet layers		1	θ							*			
			2	¢							*			
		-			8					×	/			
		-	3	13	/					×	<			
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		-	6	18							<u> </u>			
		231.84												
- hit														
- wa	ter level at 0.0m (flowing out)													

NOTE: THE BOREHOLE DATA NEEDS INTERPRETATION ASSISTANCE BY TORONTO INSPECTION LTD. BEFORE USE BY OTHERS
TORONTO INSPECTION LTD.
Time

Time	Water Level (m)	Depth to Cave (m)

Project No.	5552-21-GB	Log of Boreho	le <u>2</u> ^	<u>1BH-09</u>		
				Dwg No.	10	
Project:	Geotechnical Investigat	ion		Sheet No.	_1_ of	1
Location:	Aiport Road and Mayfie	eld Road, Caledon, Ontario				
Date Drilled: Drill Type: Datum:	5/25/21 Track Mounted Drill Rig Geodetic	Auger Sample SPT (N) Value Dynamic Cone Test Shelby Tube Field Vane Test		Headspace Reading (ppm) Natural Moisture Plastic and Liquid Limit Unconfined Compression % Strain at Failure Penetrometer	× ×	

	S				,			N	Value						leading (p			Natura
G W L	SY MB OL	Soil Description	ELEV.			2	0	40	-	50 i	80	1 Nat	100 tural M	20 Ioisti	00 30 ure Conte	00 nt %	-	Unit
Ľ	ē		m	Ť	She		u Strengt	h	C		kPa				ure Conte (% Dry W			Weight kN/m3
	L	Ground Surface	239.51	0		1		100		2	200	· · · · · ·	10	2	0 3	0	\mathbb{H}	KI WIIIO
	<u></u>	TOPSOIL	239.28		8			24										
	****	FILL (REWORKED) - brown sandy silt to clayey silt - some rootlets & topsoil			φ			3 I - 3					1	\$			Ø	
	****	- brown sandy silt to clayey silt			1:1:		10.000	<u>.</u> .:	0.10					1.0			12	
	****	- some rootlets & topsoil	238.74			15	12.213	22		· · · · · · · · · · · · · · · · · · ·				201	••••••••			
	1941.	CLAYEY / SANDY SILT TILL	긔	1		ര്							+ *					
	1 D	- soft to very stiff / compact				T							1				\square	
		- son to very still / compact			1000	::\	12.212	212	222				1 :: : !	1:1				
	111	_ some gravel	-				04							1:				
		- some gravel - seams of fine sand			-1.1.		0							×				
		moist to very moist		2			T:::	÷.		•••••••		• • • • • • • • •	· · · · · ·	1				
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		NOTE			1	: :	1 I I I	313	111				1.1	11				
		Upon completion of drilling: - no free water																
		- no free water																
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NOTE: THE BOREHOLE DATA NEEDS INTERPRETATION ASSISTANCE BY TORONTO INSPECTION LTD. BEF

-UR			
	Time	Water Level (m)	Depth to Cave (m)

Project No.	<u>5552-21-GB</u>	_og d	of Boreho	ble <u>2</u> ′	1BH-10 (N	NΝ	/)
		-			Dwg No.	11	
Project:	Geotechnical Investigation	1			Sheet No.	_1_	of <u>1</u>
Location:	Aiport Road and Mayfield	Road, C	aledon, Ontario				
Date Drilled:	5/26/21		Auger Sample SPT (N) Value	O 🛛	Headspace Reading (ppm) Natural Moisture	×	
Drill Type:	Track Mounted Drill Rig		Dynamic Cone Test Shelby Tube		Plastic and Liquid Limit Unconfined Compression % Strain at Failure	8	
Datum:	Geodetic		Field Vane Test	S	Penetrometer	▲	
• G• Y	Soil Description	ELEV.	D N Value	9	Headspace Reading (ppm) 100 200 300		Natural Unit

°G	SY MBOL	Soil Description	ELEV.	DEP							1	00 2	200 3	800		Unit
۰L	• B 0		m	T H	Shea	20 ar Str	renath			30 kPa	Attert	berg Limit	ture Conte s (% Dry V	Veight)		Weight kN/m3
* *	• L	Ground Surface	243.38	0			1	00	2	00	1	0	20	30		KIN/III3
	<u> </u>	TOPSOIL	243.15		Z		2 (- 2 - 2 - 2 - 2 (- 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2			· · · · · · · · · · · · ·					1	
		FILL (REWORKED) ─ - brown clayey silt to sandy silt ∖ - some rootlets & topsoil			Q	21						1	X			
		- brown clayey slit to sandy slit				X.				••••••••••		· · · · /·			-14	
	911	- some rootiets & topson					25					/				
	110	SANDY / CLAYEY SILT TILL		1		1	Õ—					*			-12	
	<i>M</i>	- compact to dense / very stiff to hard				-	1								12	
	í X	- brown, grey below 4.5m														
	ø	- some gravel	7			÷	33			•••••••••		e de la				
		- seams of fine sand			0.00	÷ [-	ð					×				
	10	– moist to very moist	-	2			- -								- [4	
	X															
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X	XIIII		236.83													
		END OF BOREHOLE														
		NOTE:				1										
		Upon completion of drilling: - no free water				1										
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LGBE3 5552-21-GB.GPJ 6/18/21																
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NOTE: THE BOREHOLE DATA NEEDS INTERPRETATION ASSISTANCE BY TORONTO INSPECTION LTD. BEFORE USE BY OTHERS

Toronto Inspection Ltd.

ORE USE BI UTHERS											
Time	Water Level (m)	Depth to Cave (m)									
June 3, 2021	4.07m										

Project No.	5552-21-GB	Log of Boreh	ole <u>2</u>	<u>1BH-11</u>	
				Dwg No.	12
Project:	Geotechnical Investigati	on		Sheet No.	_1_ of _1_
Location:	Aiport Road and Mayfie	ld Road, Caledon, Ontario			
Date Drilled: Drill Type: Datum:	5/26/21 Track Mounted Drill Rig Geodetic	Auger Sample SPT (N) Value Dynamic Cone Test Shelby Tube Field Vane Test		Headspace Reading (ppm) Natural Moisture Plastic and Liquid Limit Unconfined Compression % Strain at Failure Penetrometer	× × ×

S Y				N Value							Headspace Reading (ppm) 100 200 300				Natural
SY M B O L	Soil Description	ELEV.	DEPTH		20) 4	40	60 8	30	Na	itural Mois	ture Conten s (% Dry We	t %		Unit Weiał
	Ground Surface	m 240.78			ar St	trength 1	00	2	kPa 00			20 30			Weigh kN/m
<u>N 1/</u>	TOPSOIL	240.55	0									-2-2-2-2-		7	
	FILL (REWORKED) ─- dark brown to brown clayey silt ∖- some rootlets & topsoil			Ô							×			$\langle \rangle$	
	dark brown to brown clayey silt	240.17			÷.						<u> }</u>			2	
	- some rootiets & topsoli - moist	/			20):::::::::::::::::::::::::::::::::::::					1				
1 III	CLAYEY SILT / TILL		1		Ð)					<u> </u>	< −		A	
VIII	 verv stiff, brown 			200	÷1	<u>(:::::</u>							i i i i i i i i f	4	
11.141	 trace gravel, trace sandy silt moist to very moist 	_				$\int \cdots$									
КШИ	- moist to very moist					8				· · · · · · · · · ·					
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ИШ											11117				
ШИ	_	_	4												
/ I.		236.52									/				
9/]	SANDY SILT TILL										/				
í B	 compact brown, grey below 6.0m 			200	19	<u></u>								$\overline{\lambda}$	
10	- some gravel, some clayey silt				φ						¥				
	- moist		5	-0-0-0							-			4	
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nuu	_	234.23			-	<u></u>			· · · · · ·					4	
	END OF BOREHOLE NOTE:														
	Upon completion of drilling:														
	- no free water														
					-										
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NOTE: THE BOREHOLE DATA NEEDS INTERPRETATION ASSISTANCE BY TORONTO INSPECTION LTD. BEFORE USE BY OTHERS

Toronto Inspection Ltd.

ORE USE BT UTHE												
Time	Water Level (m)	Depth to Cave (m)										

Project No.	5552-21-GB	LUY	of Boreho			No. 13	
Project:	Geotechnical Investigatio	'n			-	No. <u>13</u>	of 1
Location:	Aiport Road and Mayfield		Caledon, Ontario				
Date Drilled: Drill Type: Datum:	5/26/21 Track Mounted Drill Rig Geodetic		 Auger Sample SPT (N) Value Dynamic Cone Test Shelby Tube Field Vane Test 		Headspace Reading (p Natural Moisture Plastic and Liquid Limi Unconfined Compress % Strain at Failure Penetrometer	t	• × T
G SY MB	Soil Description	ELEV.	N Valu E P T H Shear Strength	e 60 80 kPa	Headspace Reading 100 200 Natural Moisture Cor Atterberg Limits (% Dry	300	Natura Unit Weigh kN/m3
FILL - dar - or - mo - CLA - stif - bro - trac - sor - sor - cla	Ground Surface TOPSOIL FILL (REWORKED) - dark brown to brown clayey silt - some rootlets & topsoil - moist to very moist CLAYEY SILT / TILL - stiff to hard - brown, grey below 4.5m - trace to some gravel - some silty clay at 4.5m - moist to very moist - moist to very moist - moist to very moist						
NOT Upor	OF BOREHOLE TE: n completion of drilling: free water	_ _ 239.67			*		

NOTE: THE BOREHOLE DATA NEEDS INTERPRETATION ASSISTANCE BY TORONTO INSPECTION LTD. BEFORE USE BY OTHERS
TORONTO INSPECTION LTD. Time

ORE USE BY OTHE												
Time	Time Water Level (m)											

		-									Dwg No			
Project:	Geotechnical Investigatio				<u> </u>					-	Sheet I	No	1	of _
Location:	Aiport Road and Mayfield	d Road, C	a	eaon	, Ont	ario								
Date Drilled:	5/26/21		-	Auger Sa	ample			3		space Rea al Moistur		m)	• ×	
Drill Type:	Track Mounted Drill Rig		SPT (N) Value O						Plastic and Liquid Limit					4
Datum:	Geodetic			Shelby T Field Var				8 }	% Stra	ain at Fail rometer		··· (⊗ ▲	
						N Value	5	5	He	eadspace F	Reading (p	opm)		
	Soil Description	ELEV.	DEPTH	2				80	1		00 3	00	-	Natu Ur Wei
	ound Surface PSOIL	248.37 248.14	н о	Shear S	Strength 1	00	2	kPa				30 		kN/
FIL	L (REWORKED) rown clayey silt	240.14		Ŏ						×				
- tra	ace rootlets & topsoil oist				22									
	AYEY SILT / TILL ery stiff, brown	-	1)									
≚ tra	ace gravel loist to very moist	246.86	6		2					1				
		_	2		P						<u> </u>			
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SA	NDY SILT TILL	244.10								/				
Eline - gr					33					×				
	ome gravel, some clayey silt oist	-	5		$-\gamma$			· · · · · · · · · · · · · · · · · · ·						
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	D OF BOREHOLE	241.81											-22	-
Up	D TE: on completion of drilling: o free water													
- 16														
	DREHOLE DATA NEEDS INTERPRETATIO		J I CE B							BY OTH	FRS	1		L

 Time
 Water Level (m)
 Depth to Cave (m)

 June 3, 2021
 1.51m

Pr	oject No.	5552-21-GB	Log	D	f B	ore	ehc	ble	<u>2</u> ′	<u>IB</u>	 -1	4			
											I	Dwg No	. <u>15</u>		
Pr	oject:	Geotechnical Investiga	ation									Sheet N	lo. <u>1</u>	_ of _	1
Lc	ocation:	Aiport Road and May	field Road, C	Cal	edon	, On	ario								
Dr Da	ate Drilleo ill Type: atum:	d: 5/26/21 Track Mounted Drill F Geodetic		- - -	Auger Sa SPT (N) Dynamic Shelby T Field Va	Value Cone T Tube	est		2	Natura Plastic Uncon % Stra Penetr	I Moistur and Liqu fined Cor in at Fail rometer adspace F	iid Limit npressior ure Reading (p	• × 		
G W L	S Y B O L	Soil Description	ELEV. m	DEPTH		20 Strength	40		80 kPa	Nat Attert	00 2 tural Moist berg Limits	00 30 ure Conter s (% Dry W	00 nt % /eight)	Un Weig kN/r	ght
Ţ	FI	Ground Surface OPSOIL ILL (REWORKED) brown clayey silt some rootlets & topsoil moist LAYEY SILT / TILL very stiff brown, grey below 6.0m trace to some gravel some sandy silt till below 6.0m moist to very moist	246.16 245.83 245.55 	0 1 2 3 4 5								0 3	0		
		ND OF BOREHOLE	239.61			0					*			8	
LGBE3 5552-21-GB.GPJ 6/18/21	N U	OT BOREHOLE OTE: pon completion of drilling: water level at 6.1m													

NOTE: THE BOREHOLE DATA NEEDS INTERPRETATION ASSISTANCE BY TORONTO INSPECTION LTD. BEFORE USE BY OTHERS
TOronto Inspection Ltd.

-0	URE USE BY UTHERS											
	Time	Water Level (m)	Depth to Cave (m)									
L												

Pi	oject N	No.	5552-21-GB	.og () [.]	fΒ	ore	ehc	ble	<u>2</u> ′	1BI	H- 1	5			
				-						_	_	I	Dwg No	o. <u>16</u>		
Pi	oject:		Geotechnical Investigation									. :	Sheet N	lo. <u>1</u>	_ (of <u>1</u>
Lo	cation	:	Aiport Road and Mayfield	Road, C	Ca	ledon	, Ont	ario								
D	ate Dri ill Typ atum:		5/26/21 Track Mounted Drill Rig Geodetic Soil Description	ELEV.		Auger S SPT (N) Dynamic Shelby 1 Field Va	Value Cone T Tube ne Test	N Value	0	80	Natura Plastic Uncor % Stra Penet	al Moistur c and Liqu afined Con ain at Fail rometer eadspace F 00 2	uid Limit mpression ure Reading (p	Pm) 00	•	Natural Unit Weight
	Õ		Ind Surface	m 242.04	H U	Shear	Strenath	00		kPa 200				Veight) 30		kN/m3
		- brow - som - moi - CLA - very dense - brow - som - som - sea	(REWORKED) wn clayey silt ne rootlets & topsoil st YEY / SANDY SILT TILL y stiff to hard / compact to very	<pre>241.99 241.58</pre>	1	Ö		50/250m				*				
Ţ		-		238.24	L							/				
		-		237.72	4			50/25mr	n							
LGBE3 5552-21-GB.GPJ 6/18/21		NOT Upon - refu or bo	OF BOREHOLE E: n completion of drilling: isal to augery on probable cobble ulder er level at 3.8m													

NOTE: THE BOREHOLE DATA NEEDS INTERPRETATION ASSISTANCE BY TORONTO INSPECTION LTD. BEFORE USE BY OTHERS
TORONTO INSPECTION LTD.
Time

URE USE BT UTHERS											
Time	Water Level (m)	Depth to Cave (m)									

Project:	Geotechnical Investigation													o. <u>17</u> No. <u>1</u>		
Location:	Aiport Road and Mayfield I	Road, C	ale	edon	, Or	nta	ario						Sheet I	NO		' _
Date Drilled: Drill Type: Datum:	5/27/21 Track Mounted Drill Rig Geodetic		- : - :	Auger S SPT (N) Dynamic Shelby T Field Va	Value Cone Fube	εTe	est	0		Natu Plast Unco	ral M tic ar onfin rain	Noistur nd Liqu ed Coi at Fail	uid Limit mpressio	- -	×	
	Soil Description	ELEV. m	DEPTH	Shear	20 Strengt	4 h 10			80 kPa 200	N	100 atura	2 al Moist g Limits	ture Conte s (% Dry V	00 ent %	1 ,	Nat Ur We kN/
TOP	SOIL . (REWORKED)	239.92 239.72	0	ရို					200			}				
- sor		23 939 .32	1	6		0.000										
- cor - bro	DY SILT TILL npact to very dense wn, grey below 3.0m			Υ												
- stra	ne gravel, some clayey silt atified clayey silt at 6.1m ssible shale pieces at 6.4m		2	ų.								×				
- mo	ist to very moist	_		<u> </u>	23							/ *				
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	OF BOREHOLE	233.41							0 		*					
	E: n completion of drilling: ter level at 2.0m															
	REHOLE DATA NEEDS INTERPRETATION] [:::	:	::::						<u> ::::</u>			

Time	Water Level (m)	Depth to Cave (m)
June 3, 2021	0.6m	

Project	No.	5552-21-GB	Log	0	f B	ore	ehc	ble	<u>2</u> ′	1Bł	 -1	7		
			•									Dwg No	b. <u>18</u>	
Project:		Geotechnical Investigation	on								5	Sheet N	lo. <u>1</u>	of
Location	n:	Aiport Road and Mayfiel	d Road, C	Cal	edon	, Ont	ario							
Date Dr Drill Typ Datum:		5/27/21 Track Mounted Drill Rig Geodetic			Auger Sa SPT (N) Dynamic Shelby T Field Va	Value Cone To ube				Natura Plastic Uncon % Stra Penetr	pace Rea Il Moisture and Liqu fined Con in at Failu rometer	e id Limit npressior ire		×
G M		Soil Description	ELEV.	DE			N Value			1	adspace R	0 3	00	Natura Unit
G M W B L O L	Grou	Soil Description	m 240.60	DEPTH		Strenath	10 00		80 kPa 200		ural Moist berg Limits		nt % /eight) i0	Weigh kN/m3
	TOP: FILL - brov - son - moi - CLA - stiff - brov - trac - occ	SOIL (REWORKED) wn clayey silt ne rootlets & topsoil	240.60 240.40 239.99 	0 1 2 3 4 5		B					*			
Ţ	_		- 234.50 - 234.05	0 ⁶		8					*			
.GBE3 5552-21-GB.GPJ 6/18/21	NOT Upor	OF BOREHOLE E: a completion of drilling: er level at 6.1m												

NOTE: THE BOREHOLE DATA NEEDS INTERPRETATION ASSISTANCE BY TORONTO INSPECTION LTD. BEF	ORE USE BY OTHE	ERS
Toronto Inspection Ltd.	Time	

Time Water Cave (m) (m)

ate Drilled: 5/ rill Type: Tr atum: Gr Ground Ground Ground FILL (RE FILL (RE - brown - trace to - moist - very sti - very sti - brown,	EWORKED) clayey silt o some rootlets & topsoil Y SILT TILL		EV. n 63 48	AL SF Dy St Fit	iger Sa PT (N) vnamic ielby T eld Var	ample Value Cone ube ne Te	e Test st N 40				Natura Plastic Uncor % Stra Peneti He <u>1</u> Na Atter	space Re al Moistur c and Liqu fined Co ain at Fail rometer adspace I adspace 2 00 2 unal Mois berg Limit	Sheet ading (p re uid Limit npressid lure Reading (200 ture Cont	(ppm) 300 ent %		
ate Drilled: 5/ rill Type: <u>Tr</u> atum: <u>G</u> atum: <u>G</u> <u>Ground</u> <u>Ground</u> <u>Ground</u> <u>Ground</u> <u>Ground</u> <u>Ground</u> <u>Ground</u> <u>Ground</u> <u>ClayEn</u> - brown - trace to - moist - clayEn - brown, - some g	27/21 rack Mounted Drill Rig eodetic Soil Description Surface IL EWORKED) clayey silt o some rootlets & topsoil Y SILT TILL iff grey below 4.5m	EL! 240.6 240.4	EV. n 63 48	AL SF Dy St Fit	iger Sa PT (N) namic nelby T eld Var 2 Shear S 7	ample Value Cone ube ne Te	e Test st <u>40</u>	Value		30 kPa	Natura Plastic Uncor % Stra Peneti He <u>1</u> Na Atter	al Moistur c and Liqu ifined Co ain at Fail rometer adspace I 00 2 tural Mois berg Limit	re uid Limit mpressio lure Reading (200 ture Cont s (% Dry	(ppm) 300 ent % Weight)		Natur Unit
rill Type: Tr atum: Gr Ground Ground Ground FILL (RE FILL (RE - brown of - trace to - moist - cLAYEN - very sti - brown, - some g	rack Mounted Drill Rig eodetic Soil Description Surface IL EWORKED) clayey silt o some rootlets & topsoil Y SILT TILL iff grey below 4.5m	ELI n 240.6 240.4	n 63 48	SF Dy Sr Fit	PT (N) mamic helby T eld Var 2 Shear S	Value Cone ube ne Te	e Tesi st N 	Value		30 kPa	Natura Plastic Uncor % Stra Peneti He <u>1</u> Na Atter	al Moistur c and Liqu ifined Co ain at Fail rometer adspace I 00 2 tural Mois berg Limit	re uid Limit mpressio lure Reading (200 ture Cont s (% Dry	(ppm) 300 ent % Weight)		Natur Uni
rill Type: Tr atum: Gr Ground Ground Ground FILL (RE FILL (RE - brown of - trace to - moist - cLAYEN - very sti - brown, - some g	rack Mounted Drill Rig eodetic Soil Description Surface IL EWORKED) clayey silt o some rootlets & topsoil Y SILT TILL iff grey below 4.5m	ELI n 240.6 240.4	n 63 48	Dy St Fit	rnamic nelby T eld Var 2 Shear S	Cone ube ne Te	e Tesi st <u>40</u>	Value	0 8	- - 	Plastic Uncor % Stra Penete He 1 Na Atter	c and Liqu Ifined Co ain at Fail rometer adspace I 00 2 tural Mois berg Limit	uid Limit mpressio lure Reading (200 ture Cont s (% Dry	(ppm) 300 Weight)		Natur Uni
atum: G	eodetic Soil Description Surface IL EWORKED) clayey silt o some rootlets & topsoil Y SILT TILL iff grey below 4.5m	ELI n 240.6 240.4	n 63 48	Field DUPTH 0	eld Var 2 Shear S	ne Te	N 40 th			kPa	% Stra Penetr He 1 Na Atter	ain at Fail rometer adspace 00 2 tural Mois berg Limit	Reading (200 ture Cont s (% Dry	(ppm) 300 ent % Weight)	⊗ ▲ 	Uni
Ground TOPSOI FILL (RE - brown - trace to - moist - CLAYEN - brown, - some g - some g	Surface IL EWORKED) clayey silt o some rootlets & topsoil Y SILT TILL iff grey below 4.5m	n 240.6 240.4	n 63 48	н •	Shear S	20 Streng	<u>40</u> th			kPa	1 Na Atter	00 2 tural Mois berg Limit	ture Cont s (% Dry	300 ent % Weight)		Uni
Ground TOPSOI FILL (RE - brown - trace to - moist - CLAYEN - brown, - some g - some g	Surface IL EWORKED) clayey silt o some rootlets & topsoil Y SILT TILL iff grey below 4.5m	240.6 240.4	63 48	н •	Shear S	Streng	th	6		kPa	Atter	berg Limit	s (% Dry	Weight)		Wein
- trace to - trace to	EWORKED) clayey silt o some rootlets & topsoil Y SILT TILL iff grey below 4.5m			1	Ž								1.5.25.2.2			kN/m
│- trace to <u>- moist</u> ─ CLAYEN - very sti - brown, ─- some g	o some rootlets & topsoil Y SILT TILL iff grey below 4.5m			1									×			
− <mark>CLAYE1</mark> - very sti - brown, −- some g	iff grey below 4.5m			1					• • • • • • • •				/			
brown, ─- some g	grey below 4.5m	_		-		þ						+				
	Javel, some sandy sit	-														
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NOTE:	BOREHOLE			-												
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OTE: THE BOREHO		UN ASSIST		E BY	TORC									1::::		

Time	Water Level (m)	Depth to Cave (m)
June 3, 2021	5.29m	

Project No.	<u>5552-21-GB</u>	_og d	of Borehole 21BH-19	
			Dwg No. <u>20</u>	
Project:	Geotechnical Investigation		Sheet No. 1 of	_1
Location:	Aiport Road and Mayfield	Road, C	Caledon, Ontario	
Date Drilled: Drill Type: Datum:	5/27/21 Track Mounted Drill Rig Geodetic		Auger Sample ⊠ Headspace Reading (ppm) ● SPT (N) Value O ⊠ Natural Moisture X Dynamic Cone Test Image: Cone Test Shelby Tube Image: Cone Test Shelby Tube Unconfined Compression % Strain at Failure ⊗ Field Vane Test Image: Shelby Tube Image: Shelby Tube <td></td>	
G Y W B L O L Gro	Soil Description	ELEV. m 242.70	E 100 200 300 P 20 40 60 80 Natural Moisture Content % Atterberg Limits (% Dry Weight) W H Shear Strength kPa 100 200 30 kI	latural Unit Veight N/m3
	PSOIL _ (REWORKED)	242.50		-
v v v v v v v v v v v v v v v v v v v	own clayey silt me rootlets & topsoil			
	YEY SILT TILL			
- bro	y stifft to hard wn, grey below 3.0m ne gravel, some sandy silt	_	<u> </u>	
- gra	avelly at 6.2m ist to very moist, wet at 6.2m		₿	
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END	OF BOREHOLE	236.07		
- wa	r E: n completion of drilling: ter level at 0.8m /e-in at 5.2m			
8/21				
5552-21-GB.GPJ 6/18/21				
E3 22				

NOTE: THE BOREHOLE DATA NEEDS INTERPRETATION ASSISTANCE	FORE USE BY OTH	ERS	
Toronto Inspection Ltd.	Time	Water Level (m)	Depth to Cave (m)

eotechnical Investigation iport Road and Mayfield /27/21 rack Mounted Drill Rig eodetic Soil Description Surface IL EWORKED) clayey silt rootlets & topsoil sandy silt Y / SANDY SILT TILL iff to hard / compact to dense grey below 4.5m o some gravel aper at 4.5m um sand layer at 6.0m to 6.2m o very moist, wet at 6.0m		 _	Auger S SPT (N Dynam Shelby Field V	Sample) Value ic Cone	Test t N Value 40 6	50 E	2	Natura Plastic Uncon % Stra Penetr He 1 Nat	space Rea al Moisture c and Liqu fined Con ain at Failu rometer eadspace R 00 20 tural Moist berg Limits	e npression ure Reading (p 00 30 ure Conte 5 (% Dry W	m) 1 & (pm) 00 nt %		
/27/21 rack Mounted Drill Rig eodetic Soil Description Surface IL EWORKED) clayey silt rootlets & topsoil sandy silt Y / SANDY SILT TILL iff to hard / compact to dense grey below 4.5m o some gravel nyer at 4.5m um sand layer at 6.0m to 6.2m	ELEV. m 245.32 245.04 	B 1 2	Auger S SPT (N Dynam Shelby Field V	Sample) Value ic Cone Tube ane Tes 20	Test t N Value		30 kPa	Natura Plastic Uncon % Stra Penetr He 1 Nat	al Moisture c and Liqu nfined Con ain at Failu rometer eadspace R 00 20 tural Moistr berg Limits	e npression ure Reading (p 00 30 ure Conte 5 (% Dry W	pm) 00 nt % /eight)		Nati Ur Wei
Surface IL EWORKED) clayey silt cootlets & topsoil sandy silt Y / SANDY SILT TILL iff to hard / compact to dense grey below 4.5m o some gravel ayer at 4.5m um sand layer at 6.0m to 6.2m	m 245.32 245.04 244.71	0 8 1 2			1		kPa	Atter	berg Limits	6 (% Dry W	/eight)		We
EWORKED) clayey silt ootlets & topsoil sandy silt Y / SANDY SILT TILL iff to hard / compact to dense grey below 4.5m o some gravel ayer at 4.5m um sand layer at 6.0m to 6.2m	244.71	2	D	20 20 20					;	× × ×			
	_	4	C						×				
BOREHOLE	 	5	Č		8			×		<			
ompletion of drilling: evel at 2.0m n at 5.9m													
	mpletion of drilling: evel at 2.0m at 5.9m	BOREHOLE mpletion of drilling: evel at 2.0m at 5.9m	BOREHOLE mpletion of drilling: evel at 2.0m at 5.9m	BOREHOLE mpletion of drilling: evel at 2.0m at 5.9m DLE DATA NEEDS INTERPRETATION ASSISTANCE BY TOR	BOREHOLE mpletion of drilling: evel at 2.0m at 5.9m DLE DATA NEEDS INTERPRETATION ASSISTANCE BY TORONTO	BOREHOLE mpletion of drilling: evel at 2.0m at 5.9m	BOREHOLE mpletion of drilling: evel at 2.0m i at 5.9m	BOREHOLE mpletion of drilling: evel at 2.0m at 5.9m DLE DATA NEEDS INTERPRETATION ASSISTANCE BY TORONTO INSPECTION LTD. BEFOR	BOREHOLE mpletion of drilling: evel at 2.0m h at 5.9m DLE DATA NEEDS INTERPRETATION ASSISTANCE BY TORONTO INSPECTION LTD. BEFORE USE	BOREHOLE mpletion of drilling: evel at 2.0m hat 5.9m DLE DATA NEEDS INTERPRETATION ASSISTANCE BY TORONTO INSPECTION LTD. BEFORE USE BY OTHE	BOREHOLE	BOREHOLE mpletion of drilling: evel at 2.0m at 5.9m DLE DATA NEEDS INTERPRETATION ASSISTANCE BY TORONTO INSPECTION LTD. BEFORE USE BY OTHERS	BOREHOLE mpletion of drilling: evel at 2.0m at 5.9m Due Data NEEDS INTERPRETATION ASSISTANCE BY TORONTO INSPECTION LTD. BEFORE USE BY OTHERS DISPECTION Ltd. Time Water Dec

Time	Water Level (m)	Depth to Cave (m)
June 3, 2021	1.04m	

Project No.	<u>5552-21-GB</u>	Log	of E	Bor	eho	ole	<u>2</u> ′	1BF	<u> 1-2</u>	<u>21</u>		
		-							[Dwg No	. <u>22</u>	
Project:	Geotechnical Investigat	ion							5	Sheet N	lo. <u>1</u>	_ of _1_
Location:	Aiport Road and Mayfie	eld Road, C	aled	on, On	tario							
Date Drilled: Drill Type: Datum:	5/31/21 Track Mounted Drill Ri Geodetic	g	- SPT Dyna - Shell	r Sample (N) Value mic Cone oy Tube Vane Test				Natural Plastic a Unconfii % Strain Penetro	Moisture and Liqu ned Cor n at Failu ometer	iid Limit npression	⊢ ⊗	
	Soil Description	ELEV.		20	40		80	100	0 20	00 30 ure Conter s (% Dry W	00	Natural Unit Weight
	ound Surface	m 246.75	H She	ear Strength	100		kPa 200	10		20 3		kN/m3
FILI bro so CL/ - ve bro so so se se se se	PSOIL L (REWORKED) own clayey silt me rootlets & topsoil oist AYEY SILT TILL ry stiff to hard own, grey below 4.5m me gravel, some sand y silt silt layer at 4.5m ams of fine sand me sand with gravel at 6.0m oist to very moist, wet at 6.0m	246.65 246.14 		15 11 20 20 20 20 20 20 20 20 20 20 20 20 20								
					\mathbf{h}				/			
		240.51	6		50/1401	mm 		×			· · · · · · · · · · · · · · · · · · ·	
NO Upo - wa	D OF BOREHOLE TE: on completion of drilling: ater level at 4.4m ve-in at 5.5m											

NOTE: THE BOREHOLE DATA NEEDS INTERPRETATION ASSISTANCE BY TORONTO INSPECTION LTD. BEFORE USE BY OTHERS
TORONTO Inspection Ltd.

ORE USE BY OT	HERS	
Time	Water Level (m)	Depth to Cave (m)

Location: Aiport Road and Mayfield Road, Caledon, Ontario Date Drilled: 5/31/21 Drill Type: Track Mounted Drill Rig Datum: Geodetic ELEV: D Soil Description Auger Sample Soil Description Auger Sample Soil Description Auger Sample Auger Sample Soil Description Auger Sample Soil Description ELEV: D Soil Description ELEV:											[Dwg No	b. <u>23</u>	
Date Drilles:	Project:	Geotechnical Investigation									- 5	Sheet N	No. <u>1</u>	_ of _
Date Drilled: 5/31/21 Ager Sample Natural Volume Natural Volume </td <td>Location:</td> <td>Aiport Road and Mayfield</td> <td>Road, C</td> <td>Cal</td> <td>edon</td> <td>, Ont</td> <td>ario</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	Location:	Aiport Road and Mayfield	Road, C	Cal	edon	, Ont	ario							
Drill Type: Track Mounted Drill Rig Self (N) Value Deator (Self (N) Value) Plastic and Log (Init) Datum: Geodetic Field Van Test Self (N) Value Plastic and Log (Init) Plastic and Log (Init) Datum: Geodetic Field Van Test Self (N) Value Plastic and Log (Init) Plastic and Log (Init) Datum: Geodetic Field Van Test Self (N) Value Notice Plastic and Log (Init) Plastic and Log (Init) Cround Surface 242.33 Field Van Test 20 10 20 30 10 20 30 10 20 30 10 20 30 10 20 30 10 20 30 10 20 30 10 20 30 10 20 30 10 20 30 10 20 10 20 10 20 10 20 10 20 10 20 10 20 10 20 10 20 10 10 20 10 10 20 10 10 10 10 10 10 10	Date Drill	 led: 5/31/21		-	Auger Sa	ample						•	m)	• ×
Datum: Geodetic Simily Tube State a Failure Ponetorial Soil Description ELEV. Ponetorial					. ,		est	0 2	3	Plastic	c and Liqu	iid Limit	, H	<u> </u>
Soil Description ELEV. Pitel Sterright on the S	Datum:	v								% Stra	ain at Failu		· &	•
Note: The BOREHOLE DATA NEEDS INTERPRETATION ASSISTANCE BY TORONTO INSPECTION LTD. BEFORE USE BY OTHERS							N Value	5		He	eadspace F	Reading (p	pm)	Not
TOPSOL 24.53 PHL (REWORKED) 241.42 - brown sandy sill to clayey sill 241.42 - brown clayes yeally at 2.3m - gravelly at 2.3m - gravelly at 2.3m - gravelly at 2.3m - moist to very moist, wet pockets - gravelly at 2.3m - Propositio completion of drilling: - refusal to augory at 2.4m on probable - water level at 2.3m - water level at 2.3m	We B	Soil Description		T			40 6	i0 8		Na	tural Moist	ure Conte	nt %	Ur Vei
PILL (REWORKED) -brown sandy slift to clayey slit - brown codets & topsolit to 12m -brown clayey slit with gravel below - gravely at 2.3m -gravely at 2.3m - moist to very moist, wet pockets -gravely at 2.4m - refusal to augery at 2.4m on probable boulders -gravel very moist, wet pockets - very moist uper yet 2.4m on probable boulders -wet revel at 2.3m - water level at 2.3m -wet revel at 2.3m	• • •		242.39		3	1	00	2	00 KFa		10 2	20 3	30	
FILL (REWORKED) 241.21 - some rodlets & topsoli to 1.2m - some rodlets & topsoli to 1.2m - orgavelly at 2.3m - gravelly at 2.3m - bossible cobble or boulder at 2.3m - gravelly at 2.3m - bossible cobble or duilder at 2.3m - gravelly at 2.3m - bossible cobble or duilder at 2.3m - gravelly at 2.3m - bossible cobble or duilders - gravelly at 2.3m - retusal to augery at 2.4m on probable boulders - water level at 2.3m - water level at 2.3m - gravelly at 2.3m			_		φ							×		
brown sandy silt to clayey silt or proven clayey silt with gravel below 1.2m or proven clayey silt with gravel below 1.2m or proven clayer silt with gravel below or proven clayer sinterpreter silt with gravele below or proven clayer sinterpr			241.42	1	Å									
• brown clayey silt with gravel below - gravelly at 2.3m - oravelly at 2.3m - oravelly at 2.3m - oravelly at 2.3m - moist to very moist, wet pockets - gravelly at 2.3m - moist to very moist, wet pockets - gravelly at 2.3m - refusal to augery at 2.4m on probable boulders - oravelly at 2.3m - water level at 2.3m - water level at 2.3m		 brown sandy silt to clayey silt 	241.21											Ŕ
P- gravelly at 2.3m moist to very moist, wet pockets Page 200 Page	∃₩₩	 brown clayey silt with gravel below 				g						X		
Image: Second		- gravelly at 2.3m - possible cobble or boulder at 2.3m	-	2			50(75mm							
Upon completion of drilling: - rotusal to augery at 2.4m on probable - valer level at 2.3m - water level at 2.3m		END OF BOREHOLE	239.95				Ø			×				
boulders - water level at 2.3m NOTE: THE BOREHOLE DATA NEEDS INTERPRETATION ASSISTANCE BY TORONTO INSPECTION LTD. BEFORE USE BY OTHERS		Upon completion of drilling:												
NOTE: THE BOREHOLE DATA NEEDS INTERPRETATION ASSISTANCE BY TORONTO INSPECTION LTD. BEFORE USE BY OTHERS		boulders												
Motor Dooth				LE E	BY TORC		ISPECTI	ON LTD	. BEFOF	RE USE	BY OTHE			Dert

Time	Water Level (m)	Depth to Cave (m)
June 3, 2021	1.18m	

roject No.	<u>5552-21-GB</u>	Log	D	fΒ	ore	ehc	ble	<u>2</u> ′	1Bł					<u>/)</u>
roject:	Geotechnical Investigat	tion									Dwg No Sheet I	-		of <u>1</u>
ocation:	Aiport Road and Mayfie		Cal	edon	, Ont	ario							—	
ate Drillec rill Type: atum:	d: <u>5/31/21</u> Track Mounted Drill Ri Geodetic	ig	_	Auger S SPT (N) Dynamic Shelby ⊺ Field Va	Value Cone T Tube	est		2	Natura Plastic Uncon % Stra	I Moistur	uid Limit mpressio	ŀ	• 	
• S • MB • O	Soil Description	ELEV.	DEPTH		20 Strength	N Value		30kPa	1 Nat	00 2 ural Mois	Reading (p 200 3 ture Conte s (% Dry V	00 nt %		Natural Unit Weight
XXXX TC	Ground Surface	247.76 247.66	н 0	Snear	Strengtn 1	00	2	кра 00				30		kN/m3
888 – - t	ILL (REWORKED) brown sandy silt to clayey silt some rootlets & topsoil	247.15		Q						X				
-r −C	moist	/_	1		21 \$					}	k			
- t	very stiff to hard brown, grey below 4.5m some gravel, some sandy silt moist to very moist, wet pockets	246.30)											
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	ND OF BOREHOLE OTE: pon completion of drilling: water level at 1.7m	241.20												
	BOREHOLE DATA NEEDS INTERPRETA			3Y TOR		NSPECT	ION LTE). BEFOF	REUSE	BY OTH	ERS		_	

Toronto Inspection Ltd.

ORE USE BY OTHE	RS	
Time	Water Level (m)	Depth to Cave (m)
June 3, 2021	1.46m	

Project No.	5552-21-GB	Log	of Borehole <u>21BH-24</u>
		Ŭ	Dwg No. 25
Project:	Geotechnical Investiga	ation	Sheet No of
Location:	Aiport Road and May	field Road, C	Caledon, Ontario
Date Drilled: Drill Type: Datum:	5/31/21 Track Mounted Drill F Geodetic	Rig	Auger Sample Image: Sample </td
	Soil Description	ELEV. m	N Value Headspace Reading (ppm) Natu D P 20 40 60 80 Natural Moisture Content % Value H Shear Strength 00 200 00 Weight) Weight)
FiL FIL - br - cL - st - st - st - st	bund Surface PSOIL L (REWORKED) own clayey silt own crootlets & topsoil oist AYEY SILT TILL iff to very stiff own, grey below 2.3m ome gravel, some sandy silt oist to very moist	245.18 245.05 244.57 	$\begin{bmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 $
		238.62	8
	D OF BOREHOLE TE:	200.02	
Upo	on completion of drilling: ater level at 6.0m		

 Image: Note: The Borehole data needs interpretation assistance by toronto inspection Ltd. Before use by others

 Toronto Inspection Ltd.

 Time
 Water Level (m)

 (m)

ORE USE BT UTHE	-RO	
Time	Water Level (m)	Depth to Cave (m)

un in at	Controbation Investigation											Dwg No			
roject:	Geotechnical Investigation		<u></u>	lodor		taria					-	Sheet N	NO. <u>I</u>	_ c	л
ocation:	Aiport Road and Mayfield	Roau,	Ua	leuor	i, Or	itano									
ate Drilled:	5/31/21		_	Auger S							space Re al Moistu	ading (ppi re	m)	• ×	
orill Type:	Track Mounted Drill Rig		_	SPT (N) Dynami		Test					c and Liq nfined Co	uid Limit mpressior			
atum:	Geodetic		_	Shelby Field Va		t		t t			ain at Fai rometer	lure	' @	•	
• • s			Τ_			N Val	lue			He	eadspace	Reading (p	pm)	П	Natu
	Soil Description	ELEV.	DEPT H	Chase	20	40	60	80			tural Mois berg Limit	ture Conte s (% Dry V	00 nt % Veight)	- 1	Uni Weig
• ^Ľ Grou	ind Surface SOIL	247.05	н 0	Snear	Strength	100		20	kPa 0				30 	\mathbf{H}	kN/n
🗱 – brov	(REWORKED) wn clayey silt	246.44		Q							X			0	
- trac	e to some rootlets & topsoil st				23				· · · · · · · · · · · · · · · · · · ·						
- stiff	YEY SILT / TILL to very stiff	-	1		9							*		8	
- trac	wn, grey below 3.0m e to some gravel	-			28						· · · · · · · · · · · · ·				
- siltv	e sandy silť v clay at 6.0m st to very moist		2		0							X		Ø	
- 110					29										
		1			φ		0.00					*		1	
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		_	5	$\left \begin{array}{c} q \\ \end{array} \right $					· · · · · · · · · · · · · · · · · · ·					8	
:							3133								
		-	6	8											
	OF BOREHOLE	240.49												4	
	ree water														

Time	Water Level (m)	Depth to Cave (m)
June 3, 2021	Dry	

<u>21BH-26</u>
Dwg No. 27
Sheet No. <u>1</u> of _1
Headspace Reading (ppm) • Natural Moisture X Plastic and Liquid Limit • Unconfined Compression ⊗ % Strain at Failure ⊗ Penetrometer ▲
Headspace Reading (ppm) 100 200 300 Unit Natural Moisture Content % Veigt Veigt Pa 10 20 30
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NOTE: THE BOREHOLE DATA NEEDS INTERPRETATION ASSISTANCE BY TORONTO INSPECTION LTD. BEFORE USE BY OTHERS
TORONTO INSPECTION LTD. Time

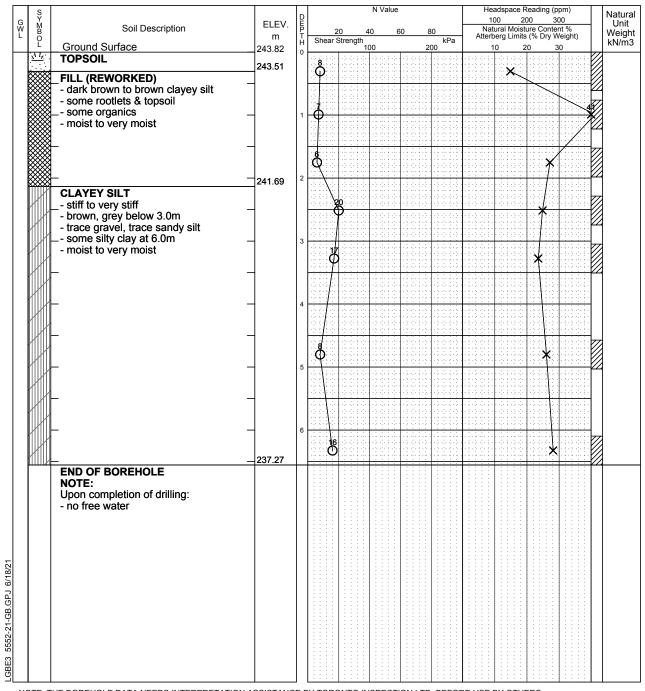
Time	Water Level (m)	Depth to Cave (m)

Proje	ct No.	5552-21-GB	Log	01	f Bore	eh	ole	2	1BI	H-2	27			
			U								Dwg No	b. <u>28</u>		
Proje	ct:	Geotechnical Investiga	ation							. :	Sheet N	No	1_0	of <u>1</u>
Locat	tion:	Aiport Road and Mayf	ield Road, C	Cal	ledon, Ont	ario								
Date Drill 1 Datur		6/1/21 Track Mounted Drill F Geodetic	Rig	-	Auger Sample SPT (N) Value Dynamic Cone Tr Shelby Tube Field Vane Test				Natura Plastic Uncon % Stra Penetr	al Moistur and Liqu fined Cou ain at Fail rometer	uid Limit mpressior ure		×	
G M BO		Soil Description	ELEV.	DHD		N Val			1	00 2		00	- 1	Natural Unit
	Grou	und Surface	m 243.65	DUPTH 0	20 2 Shear Strength	40 00		80 kPa 200			ture Conte s (% Dry V 20 3	Veight) 30		Weight kN/m3
	FILL	SOIL . (REWORKED) wn clayey silt ne rootlets & topsoil	243.48 243.04		Ô					×				
	🚺 \- mo		/_	1	8					1	*			
	- stifi - bro	f to very stiff wn, grey below 6.0m												
	- trace to some gra - trace sandy silt - seams of fine sar - moist to very moi	ce to some gravel ce sandy silt			8					>	k			
			-	2										4
			-		₿						*			
	_		_	3										
					4						*			
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	<u> </u>		-	4									•	
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				5									- 2 22	
	—		_										•	
	_		_	6									· -	
			237.10		ð						×			
	NOT Upor	OF BOREHOLE E: n completion of drilling: free water												
GBE3 5552-21-GB.GPJ 6/18/21														

 Image: Image:

ORE USE BI UTHE		
Time	Water Level (m)	Depth to Cave (m)

Project No.	5552-21-GB Log of Borehole 21BH-28					
				Dwg No.	29	
Project:	Geotechnical Investigation			Sheet No.	_1_ of _1_	
Location:	Aiport Road and Mayfield Road, Caledon, Ontario					
Date Drilled: Drill Type: Datum:	6/1/21 Track Mounted Drill Rig Geodetic	Auger Sample SPT (N) Value Dynamic Cone Test Shelby Tube Field Vane Test		Headspace Reading (ppm) Natural Moisture Plastic and Liquid Limit Unconfined Compression % Strain at Failure Penetrometer	× × ⊗ ▲	



NOTE: THE BOREHOLE DATA NEEDS INTERPRETATION ASSISTANCE BY TORONTO INSPECTION LTD. BEFORE USE BY OTHERS

Toronto Inspection Ltd.

URE USE BT UTHERS						
Time	9	Water Level (m)	Depth to Cave (m)			

Pro	oject No.	5552-21-GB	Log	D.	fΒ	ore	ehc	ble	21	1BI	H- 2	9	(M	W	/)
			C)wg N	•		
Pro	oject:	Geotechnical Investiga	ition								. 5	Sheet I	No	1	of <u>1</u>
Lo	cation:	Aiport Road and Mayfi	ield Road, C	Ca	ledon	, Ont	ario								
Date Drilled: Drill Type: Datum:		6/2/21 Track Mounted Drill R Geodetic	lig	-	Shelby T Field Va	Value Cone T Tube				Natura Plastic Uncor % Stra Penet	pace Rea al Moisture and Liqui fined Com in at Failu rometer adspace R	id Limit npressio ire	n n	• × ⊗ ▲	Natural
•G• •W•	Ϋ́ Μ Β	Soil Description	ELEV.	DEPT			40 (60 E	30		00 20 tural Moistu berg Limits	0 3 ure Conte	ent %	-	Unit Weight
• - • • •			m 243.27	н о	Shear	Strength 1	00	2	kPa 00		10 2		30		kN/m3
	Fill Fill Fill - bro - trac - CLA - stif - bro - trac - sor	Dund Surface PSOIL L (REWORKED) own sandy silt to clayey silt ace rootlets & topsoil	243.07 242.66 	1 2 3 4 5		27					X				
	—		_	6											
			236.72		ð								*		
LGBE3 5552-21-GB.GPJ 6/18/21	NOT Upor	OF BOREHOLE E: n completion of drilling: free water													

NOTE: THE BOREHOLE DATA NEEDS INTERPRETATION ASSISTANCE BY TORONTO INSPECTION LTD. BEFORE USE BY OTHERS
TORONTO INSPECTION LTD.
Time

ORE USE BI OTHE	110	
Time	Water Level (m)	Depth to Cave (m)
June 3, 2021	Dry	

Project No.	<u>5552-21-GB</u>	Log	of	Bore	ehe	le <u>2</u> ′	IBH-	-30 (<u>/)</u>
Project:	Geotechnical Investigat	ion						Sheet No		of <u>1</u>
Location:	Aiport Road and Mayfie	eld Road, (aled	on, Ont	ario					
Date Drilled: Drill Type: Datum:	6/2/21 Track Mounted Drill Ri Geodetic	g	SP1 Dyn She	er Sample (N) Value amic Cone T Iby Tube d Vane Test	est ·		Natural Moi Plastic and	Liquid Limit Compression Failure	× ×	(ł
	Soil Description Sound Surface PSOIL L (REWORKED) own clayey silt me to trace rootlets & topsoil Dist AYEY SILT / TILL ff to very stiff own, grey below 6.0m ice to some gravel ice sandy silt me silty clay at 6.0m Dist to very moist	ELEV. m 240.55 240.23 - 239.49 - - - - - - - - - - - - - -		ear Strength	N Value 40 60 00	80 200 kPa	100 Natural M	ace Reading (ppm 200 300 Aoisture Content 9 imits (% Dry Weig 20 30 X X X X X X X X	%	Natural Unit Weight kN/m3
				14						

	-	5							<		
END OF BOREHOLE NOTE: Upon completion of drilling: - no free water	234.00								×		

NOTE: THE BOREHOLE DATA NEEDS INTERPRETATION ASSISTANCE BY TORONTO INSPECTION LTD. BEFORE USE BY OTHERS
TORONTO INSPECTION LTD.
Time

ONE OOL DI OTTIL		
Time	Water Level (m)	Depth to Cave (m)
June 3, 2021	Dry	

Р	roject	No.	5552-21-GB Log of Borehole 21BH-31													
				•									Dwg N	o. <u>32</u>		
Ρ	roject	:	Geotechnical Investigation	า									Sheet I	No1	<u> </u>	of <u>1</u>
L	ocatio	n:	Aiport Road and Mayfield	Road, (Ca	ledor	i, Ont	ario								
D	Date Drilled: Drill Type: Datum:		6/2/21 Track Mounted Drill Rig Geodetic		_	Auger S SPT (N) Dynami Shelby Field Va	Value c Cone T Tube	est		2	Natura Plastic Uncon % Stra	al Moistur c and Liqu	uid Limit mpressio		• 	
G W L	S Y B O L		Soil Description	ELEV.	DEP T H		20 4	N Value		30	1	00 2	Reading (p 200 3 ture Conte s (% Dry V	00		Natural Unit Weight
	Ŭ L		und Surface	m 241.93	T H 0		Strenath	00		kPa 00				Veight) 30		kN/m3
		FILL	SOIL (REWORKED) wn clayey silt	241.75		Ô							×			
	H	<u>\- moi</u> − CLA	YEY SILT	<u>_</u>	1		\$						*			
		- stiff - bro 6.0m	f to very stiff wn, grey fissures, grey below h	_												
		- trac	ce gravel ist to very moist	_	2		ð						×			
		_		_		1	Į									
		_			3											
		_		_		4	5						*			
				_	4											
					5	18							*			
					5											
					6											
				235.37	0	1							*			
LGBE3 5552-21-GB.GPJ 6/18/21		NOT Upor	OF BOREHOLE E: n completion of drilling: free water	235.37												

NOTE: THE BOREHOLE DATA NEEDS INTERPRETATION ASSISTANCE BY TORONTO INSPECTION LTD. BEFORE USE BY OTHERS

-06	ORE USE BY OTHERS										
	Time	Water Level (m)	Depth to Cave (m)								

Project	t No.	5552-21-GB	.og (D	fΒ	ore	ehc	ole	21	B	<mark>-1-</mark> 3	<u>82</u>			
			-									Dwg No	o. <u>33</u>		
Project	t:	Geotechnical Investigation									. 8	Sheet N	lo. <u>1</u>	_ (of <u>1</u>
Locatio	on:	Aiport Road and Mayfield I	Road, C	Cal	ledor	n, Onta	ario								
Date D Drill Ty Datum:	vpe:	6/2/21 Track Mounted Drill Rig Geodetic		_	Shelby) Value c Cone Te	est			Natura Plastic Uncon % Stra	pace Rea al Moisture and Liqu fined Con ain at Failu rometer	e id Limit npressior	· –	×	
GWL SYMBOL	Grou	Soil Description	ELEV. m	DEPTH	Shear	Strenath	N Value 0 6	<u>60 80</u> 20	Headspace Reading (ppm) 100 200 300 Natural Moisture Content % Atterberg Limits (% Dry Weight) 10 20 30			00 nt % /eight)		Natural Unit Weight kN/m3	
	FILL	SOIL (REWORKED) wn clayey silt	242.16 242.01 241.86	0	å							×			
	<u>- mo</u> - CLA	ce rootlets & topsoil ist YEY SILT f to very stiff	-	1		8					*	/			
	- bro	wn, grey below 2.3m ce gravel	-			28					×				
	-		-	2		29									
		-		3								*			
	Ĺ			3	ð							*			
	-		-	4							/				
	_		-		18						/				
	-			5	$\left \begin{array}{c} \mathbf{\varphi} \\ \mathbf{\varphi} \end{array} \right $										
	-			6											
			235.61	0	(ß)	(
	NOT	• OF BOREHOLE E: n completion of drilling: free water													
LGBE3 5552-21-GB.GPJ 6/18/21															
LGBE3 5552-2 ⁻															

 Sector in the borehole data needs interpretation assistance by toronto inspection Ltd.

 Toronto Inspection Ltd.

-0	ORE USE BY UTHERS											
	Time	Water Level (m)	Depth to Cave (m)									
L												

Pi	roject	No.	5552-21-GB	Log) [.]	f B	ore	ehc	ble	<u>2</u> ′	<u>IB</u>	H- 3	33	(M	<u> </u>	/)
												[Dwg N	o. <u>34</u>	ł	
Pi	roject	:	Geotechnical Investigat	ion								. 5	Sheet I	No	<u>1</u>	of <u>1</u>
Lo	ocatio	n:	Aiport Road and Mayfe	eld Road, C	à	ledon	, Ont	ario								
D	Date Drilled: Drill Type: Datum:		6/2/21 Track Mounted Drill Ri Geodetic	g	-	Shelby T Field Va	Value c Cone T Tube	est N Value		3	Natura Plastic Uncon % Stra Penetr	pace Rea al Moisture and Liqu fined Cor ain at Failu rometer adspace F	e id Limit npressio ure Reading (j	n opm)	× ⊸ ⊗ ▲	Natural
.g.	SY MBO		Soil Description	ELEV.	DEPT	4		40 6	60 8	30		00 20 tural Moist berg Limits		800 ent % Veight)	-	Unit Weight
	0 L	Grou	und Surface	238.48 238.27	Ĥ 0	Shear	Strength 1	00	20	kPa 00				30		kN/m3
		FILL - bro - trac - son - moi CLA	(REWORKED) wn clayey silt ce rootlets & topsoil ne sandy silt st YEY SILT	238.02	1							X	×			
		- bro - trac	to very stiff wn, grey below 4.5m æ gravel st to very moist	-	2		β					2	K			
		_		-	3								* *			
		_		234.49	4								/			
		_		_	5	đ						*				
	91	SAN	DY SILT TILL	232.68	6							/				
		- son	npact, grey ne gravel, some clayey silt ist				ð				>	k				
LGBE3 5552-21-GB.GPJ 6/18/21		NOT Upor	OF BOREHOLE	231.92												
LGBE3 5552																

NOTE: THE BOREHOLE DATA NEEDS INTERPRETATION ASSISTANCE BY TORONTO INSPECTION LTD. BEFORE USE BY OTHERS
TORONTO INSPECTION LTD.
Time

Time	Water Level (m)	Depth to Cave (m)									
June 3, 2021	3.99m										

Project No.	<u>5552-21-GB</u> LOG	0	of Borehole 2	<u>1BH-34</u>
				Dwg No. 35
Project:	Geotechnical Investigation			Sheet No. <u>1</u> of <u>1</u>
Location:	Aiport Road and Mayfield Road,	Ca	aledon, Ontario	
Date Drilled: Drill Type: Datum:	6/2/21 Track Mounted Drill Rig Geodetic		Auger Sample Image: SPT (N) Value Dynamic Cone Test Shelby Tube Field Vane Test	Headspace Reading (ppm) Natural Moisture Plastic and Liquid Limit Unconfined Compression % Strain at Failure Penetrometer
TOP FILL - brc - trai - mo - CLA - stif brc	YEY SILT / TILL f to very stiff wn ce to some gravel	ə 1	N Value 20 40 60 80 Shear Strength 1 1 1 1 1 1 1 1 1 1 1 1 1	Headspace Reading (ppm) 100 200 300 Natural Moisture Content % Atterberg Limits (% Dry Weight) 10 20 30 X

18 0

19

16 0

NOTE: THE BOREHOLE DATA NEEDS INTERPRETATION ASSISTANCE BY TORONTO INSPECTION LTD. BEFORE	USE BY OTHERS
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234.80

234.04

Toronto Inspection Ltd.

LGBE3 5552-21-GB.GPJ 6/18/21

SANDY SILT TILL - compact, brown - some gravel, some silty sand - trace clay - moist END OF BOREHOLE NOTE: Upon completion of drilling: - no free water

ONE OCE DI OTTIE		
Time	Water Level (m)	Depth to Cave (m)

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										[Dwg No	o. <u>36</u>	
roject:	Geotechnical Investigation									5	Sheet N	No. <u>1</u>	of
ocation:	Aiport Road and Mayfield	Road, C	Ca	ledor	i, On	tario							
ate Drilled: rill Type: atum:	6/2/21 Track Mounted Drill Rig Geodetic		- - -	Auger S SPT (N) Dynami Shelby Field Va	Value c Cone 1				Natura Plastic Uncon % Stra Penetr	Dace Rea I Moisture and Liqu fined Con in at Failu ometer adspace R	e id Limit npression ire	⊢ ^n ⊗	`
	Soil Description	ELEV.	DEPTH		20	40	60	80	1		0 3	00	Natu Ur Wei
	und Surface SOIL	m 238.65	н о	Shear	Strength	100		kPa 200		0 2		Veignt) 30 1	kN/i
FILL	(REWORKED)	238.45 238.19		φ.						X			
- trac	wn clayey silt ce rootlets & topsoil	1											
	YEY SILT	-	1	- Ç						<u> </u>	(
- bro	f to very stiff wn, grey below 4.5m												
- trac	ce gravel ce silty clay			6	₿					*			
- clay	ist to very moist yey silt till at 6.0m	-	2										F2
- 110	ist to very moist	_		-0							*		
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		7	3	ð	\$						×		
		-											8
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LHT .										/			
		-	6	11					/				
		232.09		8					×				Ø
NOT	OF BOREHOLE E: n completion of drilling: ter level at 6.0m												

NOTE: THE BOREHOLE DATA NEEDS INTERPRETATION ASSISTANCE BY TORONTO INSPECTION LTD. BEFORE USE BY OTHERS
TORONTO INSPECTION LTD. Time

LGBE3 5552-21-GB.GPJ 6/18/21

ORE USE BY OTHE	RS	
Time	Water Level (m)	Depth to Cave (m)

Proje	ct No.	5552-21-GB	Log	D	fΒ	ore	eho	ble	<u>2</u> ′	1BF	<u> </u>	36 ((M)	<u> </u>	/)
												Dwg No	b. <u>37</u>	,	
Proje	ct:	Geotechnical Investigat	ion									Sheet N	lo	<u>1</u> o	of <u>1</u>
Locat	tion:	Aiport Road and Mayfie	eld Road, C	a	edon	, Ont	ario								
Drill ⊺ Datui	m:	6/3/21 Track Mounted Drill Ri Geodetic	g	-	Auger S SPT (N) Dynamie Shelby ⁻ Field Va	Value Cone T Tube	ēst			Natural Plastic Unconf % Strai Penetro	Moistur and Liqu ined Co n at Fail ometer	uid Limit mpressior		• 	
•G• Y •G• N		Soil Description	ELEV.	DEP		20			80	10	0 2		00	-	Natural Unit
	Gro	und Surface	m 242.22	T H O		Strenath	00		kPa	Atterb			/eight) 0		Weight kN/m3
	FILL	SOIL . (REWORKED)	⁄ 242.12 241.82		Q Q						>	k			
0	- trac	wn sandy silt ce rootlets & topsoil	<i>†</i> 1							• • • • • • •					
, to	<u>- mo</u> SAN	IDY SILT TILL		1	φ						<u> </u>			-0	
	- sor	npact to dense ne gravel, some clayey silt													
	/ −- mo	151				þ					×				
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	-		_											-	
	-			6	1						×				
	END	OF BOREHOLE	235.67											-4	
	NOT														
	- no	free water													
2															
6/18/															
B.GPJ															
2-21-G															
LGBE3 5552-21-GB.GPJ 6/18/21															
LGBE:											· · · ·				
NOTE		REHOLE DATA NEEDS INTERPRETAT				- או הדואר						FRS			

FORE USE	BY OTHE	ERS	
Tin	ne	Water Level (m)	Depth to Cave (m)
June 7	, 2021	Dry	

Project No.	5552-21-GB	Log	of Boreho	ole <u>2</u>	1BH-37 (I	<u> </u>	<u>')</u>
		-			Dwg No.	38	
Project:	Geotechnical Investigation	n			Sheet No	. <u>1</u> o	f <u>1</u>
Location:	Aiport Road and Mayfield	d Road, C	aledon, Ontario				
Date Drilled:	6/3/21		- Auger Sample - SPT (N) Value	O 🛛	Headspace Reading (ppm) Natural Moisture	×	
Drill Type:	Track Mounted Drill Rig		Dynamic Cone Test		Plastic and Liquid Limit Unconfined Compression	⊢ ⊗	
Datum:	Geodetic		Shelby Tube Field Vane Test	∎ \$	% Strain at Failure Penetrometer	▲	
• • S • • Y •G• M		FLEV	D E	le	Headspace Reading (ppm 100 200 300	i)	Natural Unit

• • G	Y M B O L		ELEV.	DE						1(00 20	0 3	00	Unit
•N•	B	Soil Description	m	DHPTH	20	40	6	0 8	0	Nat Atterb	ural Moist berg Limits	ure Conte (% Dry V	nt % /eight)	Weight kN/m3
		Ground Surface	240.13	н 0		ength 100		20	kPa 00				0	kN/m3
		TOPSOIL	239.98	0	i i i i				-) - (-) -					
		FILL (REWORKED) brown sandy silt to clayey silt - trace rootlets & topsoil to 1.0m - trace to some gravel moist to very moist		1							×			
		-	_	2	Ŏ J						*			
		- SANDY SILT TILL	236.93	3	8						*			
		 - compact brown, grey below 6.0m some gravel, some clayey silt moist to very moist 	_	4										
	6/ 10 X	-		5	8						*			
				6	ð						*			
LGBE3 5552-21-GB.GPJ 6/18/21		END OF BOREHOLE NOTE: Upon completion of drilling: - no free water												

NOTE: THE BOREHOLE DATA NEEDS INTERPRETATION ASSISTANCE BY TORONTO INSPECTION LTD. BEFORE USE BY OTHERS

ONE OOL DI OTTIL		-
Time	Water Level (m)	Depth to Cave (m)
June 7, 2021	Dry	

Project No	5552-21-GB	Log	of Borehole 21BH-38	
		Ũ	Dwg No. <u>39</u>	
Project:	Geotechnical Investigat	tion	Sheet No of	_1_
Location:	Aiport Road and Mayfie	eld Road, C	aledon, Ontario	
Location: Date Drille Drill Type: Datum:	Aiport Road and Mayfie	eld Road, C	Auger Sample Image: SPT (N) Value Image: Plastic and Liquid Limit Dynamic Cone Test Image: Plastic and Liquid Limit Image: Plastic and Liquid Limit Sheby Tube Image: Plastic and Liquid Limit Image: Plastic and Liquid Limit Field Vane Test Image: Plastic and Failure Image: Plastic and Failure Image: Plastic and Liquid Limit Image: Plastic and Liquid Limit Image: Plastic and Failure Image: Plastic and Liquid Limit Image: Plastic and Liquid Limit Image: Plastic and Liquid Limit Image: Plastic and Liquid Limit Image: Plastic and Liquid Limit Image: Plastic and Liquid Limit Image: Plastic and Liquid Limit Image: Plastic and Liquid Limit Image: Plastic and Liquid Limit Image: Plastic and Liquid Limit Image: Plastic and Liquid Limit Image: Plastic and Liquid Limit Image: Plastic and Liquid Limit Image: Plastic and Liquid Limit Image: Plastic and Liquid Limit Image: Plastic and Test Image: Plastic and Liquid Limit Image: Plastic and Liquid Limit Image: Plastic and Test Image: Plastic and Liquid Limit Image: Plastic and Liquid Limit Image: Plastic and Liquid Limit Image: Plastic and Liquid Limit Image: Plastic and Liquid Limit Image: Plastic and Liquid Limit	1 Unit Veight N/m3
	IND OF BOREHOLE IOTE: Ipon completion of drilling: no free water	234.58		

NOTE: THE BOREHOLE DATA NEEDS INTERPRETATION ASSISTANCE BY TORONTO INSPECTION LTD. BEFORE USE BY OTHERS

ORE USE BY OTHE	:K5	
Time	Water Level (m)	Depth to Cave (m)



APPENDIX C

Hydraulic Conductivity Analysis

In-Situ Hydra	aulic Con	ductivity	Analys	es:		21BH	1-7 (M	W)							
Company:			Toronto	Inspectio	n Ltd.										
Client:			Tullamo	re Industi	rial GF	Limi	ted					-			
Project:			5552-21									-			
ocation:			Tullamo	re Lands,	Cale	don, C	DN					-			
est Well:			21BH-7									-			
est Date:			June 9,	2021								-			
est Conducte	ed By:		СМ									-			
est Analyzed	By:		PG												
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ffective Well			6.10				ened U					Claye			
nitial Water L			4.54				en Len					1.560)		
vailable Drav	-	-	1.56				at Tin			H _o): ıs (m) (р \.	0.79			
Borehole Rad			0.0508	_					Radit	is (m) (κ _c):	0.026)		
Solution Meth	lod: ∣⊦	lvorslev (1951					very (-				77%			
Early K (m/s)			NA 3.6E-09):				NA 2000	20		
/lid K (m/s)							o (s):						00		
.ate K (m/s)			NA			Late	To (s):					NA			



In-Situ Hydraulic C	Conductivity	Analyses:		21BH-10 (M	/W)			
Company:		Toronto Ins	pection Ltd					
Client:		Tullamore I					-	
Project:		5552-21-H	2				-	
Location:		Tullamore I	ands, Cale	don, ON			-	
Test Well:		21BH-10 (N	/W)				-	
Test Date:		June 7, 202					-	
Test Conducted By:		СМ					-	
Test Analyzed By:		PG						
1.000 (OH-H)/(4-H)								
0.100 0	50000	100000	150000 E	200000 Elapsed Time (s	250000 s)	300000	350000	400000
Effective Well Depth	(mbgs):	6.10		Screened U	nit:		Sandy to Clay	ey Silt
Initial Water Level (m		3.88		Screen Len	gth (m) (L _e):		2.220	
Available Drawdown		2.22			$e = 0 (m) (H_o)$:	1.83	
Borehole Radius (m)	(R _b):	0.0508		Monitoring	Well Radius (m) (R _c):	0.026	
Solution Method:	Hvorslev (195)	•	Recovery (%	%):		93%	
Early K (m/s)		NA		Early To (s)			NA	
Mid K (m/s)		1.5E-09		Mid To (s):			360000	
Late K (m/s)		NA		Late To (s):			NA	



In-Situ Hydraulic	Conductivit	y Analyses:		21BH-13 (MW)				
Company:		Toronto Insp	ection Ltd	I.					
Client:		Tullamore In							
Project:		5552-21-HC							
_ocation:		Tullamore La	ands, Cale	edon, ON					
Fest Well:		21BH-13 (M	W)						
Fest Date:		June 7, 2021							
Fest Conducted By:		СМ							
Test Analyzed By:		PG							
1.000									
(0H-H)/(H-H)									
0.010	50000 100	0000 150000	200000	250000 Elapsed Time	300000 (s)	350000	400000	450000	500000
Effective Well Dep		6.10		Screened l				y Silt/Claye	ey Silt
nitial Water Level		1.51		Screen Ler			3.048	5	
Available Drawdov Borehole Radius (I	. ,	4.59 0.0508		Head at Tir Monitoring			4.24 c): 0.026		
Solution Method:	Hvorslev (19		•	Recovery (93%		
Early K (m/s)	I.	NA		Early To (s):		NA		
Mid K (m/s)		3.4E-09		Mid To (s):			1300	00	
.ate K (m/s)		NA		Late To (s)	:		NA		



In-Situ Hydraulic Conductivity	v Analyses:	21BH-16 (MW)	
Company:	Toronto Inspection Lto	I.	
Client:	Tullamore Industrial G	P Limited	•
Project:	5552-21-HC		•
Location:	Tullamore Lands, Cale	edon, ON	•
Test Well:	21BH-16 (MW)		
Test Date:	June 9, 2021		
Test Conducted By:	СМ		
Test Analyzed By:	PG		
1.000 (OH-H)/(H-H)			
0.100 0 100 20	00 300 400	500 600 700	800 900 1000
·		Elapsed Time (s)	
Effective Well Depth (mbgs):	6.10	Screened Unit:	Sandy Silt
nitial Water Level (mbgs) (H):	0.68	Screen Length (m) (L _e):	3.048
Available Drawdown (m):	5.42	Head at Time = 0 (m) (H_o):	1.21
Borehole Radius (m) (R _b):	0.0508	Monitoring Well Radius (m) (R _c):	0.026
	1) 🔻	Recovery (%):	100%
Solution Method: Hvorslev (195		,	
Solution Method: Hvorslev (195 Early K (m/s) Mid K (m/s)	NA 2.2E-06	Early To (s): Mid To (s):	NA 200



est Well: 21BH-18 (MW) est Date: June 9, 2021 est Conducted By: CM est Analyzed By: PG 1000 0 0.100 0 0.100 0 0.100 0 0.100 0 0.100 0 0.100 0 0.100 0 0.100 0 0.100 0 0.100 0 0.100 0 0.100 20000 100000 20000 100000 50000 100000 20000 100000 20000 100000 20000 100000 50000 100000 50000 100000 100000 Elapsed Time (s) Iffective Well Depth (mbgs): 6.10 Screened Unit: Clayey Silt sitial Water Level (mbgs) (H): 3.96 Screened Length (m) (L_a): 2.140 vail	In-Situ Hydrauli	c Conduct	tivity Ana	lyses:		21BH	-18 (N	/W)				
Itent: Tullamore Industrial GP Limited roject: 5562-21-HC occation: Tullamore Lands, Caledon, ON est Well: 21BH-18 (MW) est Date: June 9, 2021 est Conducted By: CM est Analyzed By: PG 1.000 0 0.100 0 0.100 0 0.100 0 0.100 0 0.000 20000 0.000 20000 0.000 20000 0.000 20000 0.000 20000 0.000 20000 0.000 20000 0.000 20000 0.000 20000 0.000 20000 0.0000 20000 0.0000 20000 0.0000 20000 0.0000 20000 0.0000 20000 0.0000 20000 0.0000 20000 0.0000 20000 <t< th=""><th>Company</th><th></th><th>Tor</th><th>onto Inspe</th><th>ection I tr</th><th>d.</th><th></th><th></th><th></th><th></th><th></th><th></th></t<>	Company		Tor	onto Inspe	ection I tr	d.						
roject: 5552-21-HC ocation: Tullamore Lands, Caledon, ON est Well: 21BH-18 (MW) est Date: June 9, 2021 est Analyzed By: PG 1.000 0.100 0.000 0.000							ed					
Operation: Tullamore Lands, Caledon, ON est Well: 21BH-18 (MW) est Date: June 9, 2021 est Conducted By: CM est Analyzed By: PG 1.000 0 0.1000 0.0000 0.10000 0.0000 0.100000 0.0000 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>54</td> <td></td> <td></td> <td></td> <td></td> <td></td>							54					
est Well: 21BH-18 (MW) est Date: June 9, 2021 est Conducted By: CM est Analyzed By: PG 1.000 0 0.100 0 0.100 0 0.100 0 0.100 0 0.100 0 0.100 0 0.100 0 0.100 0 0.100 0 0.100 0 0.100 0 0.100 0 0.100 0 0.100 0 0.100 0 0.100 0 0.100 20000 30000 40000 Socool 70000 80000 90000 100000 Elapsed Time (s) 100000 Screened Unit: Clayey Silt nitial Water Level (mbgs) (H): 3.96 Screened Linit: Clayey Silt nitial Water Level (mbgs) (H): 3.96 Screenel Length (m) (L_a): 2.140 vailable Drawdown	Location:				nds. Cale	edon. O	N					
est Date: June 9, 2021 est Onducted By: PG 1.000 0 0.1000 0.0000 0.10000 0.0000 0.100000 0.000						, -						
est Conducted By: CM est Analyzed By: PG 1.000 0 0.1000 20000 30000 50000 Elapsed Time (s) ffective Well Depth (mbgs): 6.10 Screenel Unit: Clayey Silt vailable Drawdown (m): 2.14 Head at Time = 0 (m) (L_a): 1.83 iorentole Radius (m) (R_b): 0.00508)							
est Analyzed By: PG 1.000 0 <td></td> <td>/</td> <td></td> <td>,</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>		/		,								
1.000 0 <td></td>												
0 10000 20000 30000 40000 50000 60000 70000 80000 90000 100000 Elapsed Time (s) ffective Well Depth (mbgs): 6.10 Screened Unit: Clayey Silt nitial Water Level (mbgs) (H): 3.96 Screen Length (m) (L _e): 2.140 vailable Drawdown (m): 2.14 Head at Time = 0 (m) (H _o): 1.83 orehole Radius (m) (R _b): 0.0508 Monitoring Well Radius (m) (R _c): 0.026 solution Method: Hvorslev (1951) Image: Recovery (%): 100% arly K (m/s) NA Early To (s): NA Mid To (s): 380000												
Kecovery (%): 100% arly K (m/s) NA Early To (s): NA Id K (m/s) 1.5E-09 Mid To (s): 380000	0 Effective Well De nitial Water Leve Available Drawdo	pth (mbgs) I (mbgs) (H wn (m):	: 6.10 1): 3.96 2.14) 5 4	400000	Elapsed Screer Screer Head a	Time ned U n Leng at Tim	(s) nit: gth (m) (l e = 0 (m)	_ _e): (H₀):	Clay 2.14 1.83	rey Silt 0	1000000
NA Early To (s): NA lid K (m/s) 1.5E-09 Mid To (s): 380000					•		-		ius (m) (R	-		
lid K (m/s) 1.5E-09 Mid To (s): 380000		TIVOISIE		•				-			/0	
	Mid K (m/s)			E-09							000	
	Late K (m/s)		NA							NA		



In-Situ Hydraulic Cond	luctivity Analy	ses:	21BH-20 (MW)		
Company:	Toror	to Inspection	Ltd.			
Client:	Tullar	nore Industria	I GP Limited			
Project:		21-HC				
Location:	Tullar	nore Lands, C	Caledon, ON			
Test Well:		-20 (MW)				
Test Date:	June	9, 2021				
Test Conducted By:	CM					
Test Analyzed By:	PG					
1.000						
(0H-H)/(4-H)						
₩ 0.100						
(îq						
E						
0.010	500	1000	1500	2000	2500	3000
			Elapsed Time (s)			
ffective Well Depth (mb			Screened Unit:	() (1)	Sandy to Clay	vey Silt
nitial Water Level (mbgs			Screen Length		3.048	
Vailable Drawdown (m): Borehole Radius (m) (Rь)		8	Head at Time = Monitoring We		4.69 c): 0.026	
	orslev (1951)	▼	Recovery (%):	- 、 , (-	100%	
Early K (m/s)	NA		Early To (s):		NA	
Mid K (m/s)	3.6E-	07	Mid To (s):		1200	
.ate K (m/s)	NA		Late To (s):		NA	



In-Situ Hydraulic Cor	nductivity Analy	ses:	21BH-22	2 (MW)			
Company:	Toron	to Inspection	Ltd.				
Client:		nore Industrial					
Project:	5552-	21-HC					
Location:	Tullar	nore Lands, C	aledon, ON				
Test Well:	21BH	-22 (MW)					
Test Date:	June	7, 2021					
Test Conducted By:	CM						
Test Analyzed By:	PG						
1.000							
(0H-H)/(U-H)							
₩ 0.100							
÷							
0.010	100	200	300	400	500	600	
Ū			Elapsed Tir				
Effective Well Depth (n			Screened			ill	
nitial Water Level (mbg				ength (m) (l		.000	
Available Drawdown (n Borehole Radius (m) (F		8		Time = 0 (m)		.11 .026	
	Hvorslev (1951)	•	Recovery			00%	
Early K (m/s)	NA		Early To	(s):	Ν	IA	
Mid K (m/s)	6.1E-	06	Mid To (s	s):		60	
.ate K (m/s)	NA		Late To (s):	N	IA	



In-Situ Hydraulic C	Conductivity Analy	ses:	21BH-23 (MW)			
Company:	Toront	o Inspection	Ltd.			
Client:	Tullarr	ore Industria	I GP Limited			
Project:	5552-2	21-HC				
Location:	Tullar	ore Lands, C	aledon, ON			
Test Well:	21BH-	23 (MW)				
Test Date:	June 7					
Test Conducted By:	CM	*				
Test Analyzed By:	PG					
1.000						
(он-н)/(ч-н)						
Ĕ, 0.100		\rightarrow				
Ŷ.						
E I						
0.010						
0	100	200	300 Elapsed Time (s)	400	500	600
Effective Well Depth	(mbgs): 6.10		Screened Unit:		Clayey Silt	
nitial Water Level (n			Screen Length	(m) (L _e):	3.048	
Available Drawdowr			Head at Time =	0 (m) (H _o):	4.18	
Borehole Radius (m) (R _b): 0.0508	}	Monitoring Wel	l Radius (m) (R _c): 0.026	
Solution Method:	Hvorslev (1951)	•	Recovery (%):		100%	
Early K (m/s)	NA		Early To (s):		NA	
Mid K (m/s)	5.5E-0	6	Mid To (s):		80	
.ate K (m/s)	NA		Late To (s):		NA	



In-Situ Hydraulic Conduct	ivity Analyses:	21BH-33 (MW)
Company:	Toronto Inspection Ltd	d.
Client:	Tullamore Industrial C	GP Limited
Project:	5552-21-HC	
Location:	Tullamore Lands, Cal	edon, ON
Test Well:	21BH-33 (MW)	
Test Date:	June 14, 2021	
Test Conducted By:	PG	
Test Analyzed By:	PG	
1.000		
(위 +))(4 - 또)		
0.010 0 20000	40000 60000 80000	100000 120000 140000 160000 180000 200000 Elapsed Time (s)
Effective Well Depth (mbgs):		Screened Unit: Clayey Silt / Sandy Silt
nitial Water Level (mbgs) (H		Screen Length (m) (L _e): 3.048
Available Drawdown (m): Borehole Radius (m) (R _b):	3.71 0.0508	Head at Time = 0 (m) (H _o): 3.01 Monitoring Well Radius (m) (R _c): 0.026
	v (1951)	Recovery (%): 100%
Early K (m/s)	NA	Early To (s): NA
Mid K (m/s)	1.4E-08	Mid To (s): 32000
₋ate K (m/s)	NA	Late To (s): NA





APPENDIX D

Groundwater Quality Certificate of Analysis







CA14802-JUN21 R1

5552

Prepared for



First Page

CLIENT DETAILS		LABORATORY DETAILS	
Client	Toronto Inspection Ltd.	Project Specialist	Brad Moore Hon. B.Sc
		Laboratory	SGS Canada Inc.
Address	110 Konrad Crescent, Unit 16	Address	185 Concession St., Lakefield ON, K0L 2H0
	Markham, ON		
	L3R 9X2. Canada		
Contact	Simran Panesar	Telephone	705-652-2143
Telephone	416-996-3214	Facsimile	705-652-6365
Facsimile	905 940 8192	Email	brad.moore@sgs.com
Email	lab@torontoinspection.com;simran@torontoinspection.com	SGS Reference	CA14802-JUN21
Project	5552	Received	06/07/2021
Order Number		Approved	06/15/2021
Samples	Ground Water (1)	Report Number	CA14802-JUN21 R1
		Date Reported	06/15/2021

COMMENTS

RL - SGS Reporting Limit Temperature of Sample upon Receipt: 9 degrees C Cooling Agent Present:Yes Custody Seal Present:Yes

Chain of Custody Number:022205

SIGNATORIES





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Client: Toronto Inspection Ltd.

Project: 5552

Project Manager: Simran Panesar

ry		San	nple Number	8
3				
		s	ample Name	21BH-7 (MW)
abarao PL 52 2010			•	Ground Water
-			•	07/06/2021
	RI		-	Result
Onito			-	Result
				- 4 +
				< 4 ↑
			15	13
as N mg/L	0.5	100	1	< 0.5
		San	nole Number	8
anics		Cul		Ū
			•	21BH-7 (MW)
charge - BL_53_2010			•	Ground Water
arge - BL_53_2010		:	Sample Date	07/06/2021
arge - BL_53_2010 Units	RL	L1	Sample Date	07/06/2021 Result
-	RL			
-	RL 0.06			
Units		L1		Result
Units mg/L	0.06	L1 10	L2	Result
Units mg/L mg/L mg/L	0.06	L1 10 2	L2	Result 0.17 < 0.01
Units mg/L mg/L mg/L mg/L	0.06 0.01 2	L1 10 2 1500	L2	Result 0.17 < 0.01
Units mg/L mg/L mg/L mg/L mg/L	0.06 0.01 2 0.001 0.0009	L1 10 2 1500 50 5	L2	Result 0.17 < 0.01
Units mg/L mg/L mg/L mg/L mg/L mg/L	0.06 0.01 2 0.001 0.0009 0.0002	L1 10 2 1500 50 5 1	L2	Result 0.17 < 0.01
Units mg/L mg/L mg/L mg/L mg/L	0.06 0.01 2 0.001 0.0009	L1 10 2 1500 50 5	L2	Result 0.17 < 0.01
Units mg/L mg/L mg/L mg/L mg/L mg/L mg/L	0.06 0.01 2 0.001 0.0009 0.0002 0.00000 3	L1 10 2 1500 50 5 1 0.7	L2 0.02 0.02 0.02 0.008	Result 0.17 < 0.01
Units mg/L mg/L mg/L mg/L mg/L mg/L mg/L	0.06 0.01 2 0.001 0.0009 0.0002 0.00000 3 0.00008	L1 10 2 1500 50 5 1 0.7 5	L2 0.02 0.02 0.02 0.008 0.08	Result 0.17 < 0.01
Units mg/L mg/L mg/L mg/L mg/L mg/L mg/L	0.06 0.01 2 0.001 0.0009 0.0002 0.00000 3	L1 10 2 1500 50 5 1 0.7	L2 0.02 0.02 0.02 0.008	Result 0.17 < 0.01
	arge - BL_53_2010 ge - BL_53_2010 Units mg/L mg/L as N mg/L nics	arge - BL_53_2010 ge - BL_53_2010 Units RL mg/L 2 mg/L 2 as N mg/L 0.5 nics	s arge - BL_53_2010 S ge - BL_53_2010 S Units RL L1 mg/L 2 300 mg/L 2 350 as N mg/L 0.5 100 nics Sar sarge - BL_53_2010 S	Sample Name arge - BL_53_2010 Sample Matrix ge - BL_53_2010 Sample Date Units RL L1 L2 mg/L 2 300 15 mg/L 2 350 15 as N mg/L 0.5 100 1 nics Sample Number arge - BL_53_2010 Sample Matrix



Client: Toronto Inspection Ltd.

Project: 5552

Project Manager: Simran Panesar

PACKAGE: SANSEW - Metals and Inor	rganics		Sa	mple Number	8
(WATER)					
			s	ample Name	21BH-7 (MW)
L1 = SANSEW / WATER / Peel Table 1 - Sanitary Sewer D	Discharge - BL_53_2010		s	ample Matrix	Ground Water
L2 = SANSEW / WATER / Peel Table 2 - Storm Sewer Dis	scharge - BL_53_2010			Sample Date	07/06/2021
Parameter	Units	RL	L1	L2	Result
Metals and Inorganics (continued)					
Lead (total)	mg/L	0.00009	3	0.12	0.00042
Manganese (total)	mg/L	0.00001	5	0.05	0.429
Molybdenum (total)	mg/L	0.00004	5		0.00190
Nickel (total)	mg/L	0.0001	3	0.08	0.0187
Phosphorus (total)	mg/L	0.003	10	0.4	0.017
Selenium (total)	mg/L	0.00004	1	0.02	0.00134
Silver (total)	mg/L	0.00005	5	0.12	< 0.00005
Tin (total)	mg/L	0.00006	5		0.00238
Titanium (total)	mg/L	0.00005	5		0.00998
Zinc (total)	mg/L	0.002	3	0.04	0.063



Client: Toronto Inspection Ltd.

Project: 5552

Project Manager: Simran Panesar

PACKAGE: SANSEW - Microbiology (W	/ATER)		Sar	nple Number	8
			s	ample Name	21BH-7 (MW)
L1 = SANSEW / WATER / Peel Table 1 - Sanitary Sewer Di	ischarge - BL_53_2010		S	ample Matrix	Ground Water
L2 = SANSEW / WATER / Peel Table 2 - Storm Sewer Disc	charge - BL_53_2010			Sample Date	07/06/2021
Parameter	Units	RL	L1	L2	Result
Microbiology					
E. Coli	cfu/100mL			200	0
E. Coll	cfu/100mL	-		200	0
PACKAGE: SANSEW - Nonylphenol and	d		Sar	nple Number	8
	u				
Ethoxylates (WATER)					
			S	ample Name	21BH-7 (MW)
L1 = SANSEW / WATER / Peel Table 1 - Sanitary Sewer Di	ischarge - BL_53_2010		S	ample Matrix	Ground Water
L2 = SANSEW / WATER / Peel Table 2 - Storm Sewer Disc	charge - BL_53_2010			Sample Date	07/06/2021
Parameter	Units	RL	L1	L2	Result
Nonylphenol and Ethoxylates					
Nonylphenol	mg/L	0.001	0.02		< 0.001
Nonylphenol Ethoxylates	mg/L	0.01	0.02		< 0.01
		0.01	0.2		< 0.01
Nonylphenol diethoxylate	mg/L				
Nonylphenol monoethoxylate	mg/L	0.01			< 0.01
			Sa	nple Number	8
PACKAGE: SANSEW - Oil and Grease	(WATER)				
				ample Name	21BH-7 (MW)
L1 = SANSEW / WATER / Peel Table 1 - Sanitary Sewer Di	ischarge - BL_53_2010			ample Matrix	Ground Water
L2 = SANSEW / WATER / Peel Table 2 - Storm Sewer Disc	charge - BL_53_2010			Sample Date	07/06/2021
Parameter	Units	RL	L1	L2	Result
Oil and Grease					
Oil & Grease (total)	mg/L	2			< 2
Oil & Grease (animal/vegetable)	mg/L	4	150		< 4
					< 4
Oil & Grease (mineral/synthetic)	mg/L	4	15		\ 4



Client: Toronto Inspection Ltd.

Project: 5552

Project Manager: Simran Panesar

PACKAGE: SANSEW - Other (ORP) (WA	ATER)		S	ample Number	8
				Sample Name	21BH-7 (MW)
L1 = SANSEW / WATER / Peel Table 1 - Sanitary Sewer Dise	charge - BL_53_2010			Sample Matrix	Ground Water
L2 = SANSEW / WATER / Peel Table 2 - Storm Sewer Disch	-			Sample Date	07/06/2021
Parameter	Units	RL	L1	L2	Result
Other (ORP)					
					7
pH	No unit	0.05	10	9	7.27
Mercury (total)	mg/L	0.00001	0.01	0.0004	< 0.00001
			-		0
PACKAGE: SANSEW - PCBs (WATER)			5	ample Number	8
				Sample Name	21BH-7 (MW)
L1 = SANSEW / WATER / Peel Table 1 - Sanitary Sewer Disc	charge - BL_53_2010			Sample Matrix	Ground Water
L2 = SANSEW / WATER / Peel Table 2 - Storm Sewer Discha	narge - BL_53_2010			Sample Date	07/06/2021
Parameter	Units	RL	L1	L2	Result
PCBs					
Polychlorinated Biphenyls (PCBs) - Total	mg/L	0.0001	0.001	0.0004	< 0.0001
			1		
PACKAGE: SANSEW - Phenols (WATER	R)		S	ample Number	8
				Sample Name	21BH-7 (MW)
L1 = SANSEW / WATER / Peel Table 1 - Sanitary Sewer Disc	charge - Bl 53 2010			Sample Matrix	Ground Water
L2 = SANSEW / WATER / Peel Table 1 - Standard Sewer Disch	-			Sample Date	07/06/2021
Parameter	Units	RL	L1	L2	Result
	Onits			L£	Result
Phenols					
4AAP-Phenolics	mg/L	0.002	1	0.008	< 0.002
PACKAGE: SANSEW - SVOCs (WATER	R)		S	ample Number	8
				Sample Name	21BH-7 (MW)
L1 = SANSEW / WATER / Peel Table 1 - Sanitary Sewer Disc	charge - BL_53_2010			Sample Matrix	Ground Water
L2 = SANSEW / WATER / Peel Table 2 - Storm Sewer Disch	-			Sample Date	07/06/2021
Parameter	Units	RL	L1	L2	Result



Client: Toronto Inspection Ltd.

Project: 5552

Project Manager: Simran Panesar

PACKAGE: SANSEW - SVOCs (WATER	र)		Sa	mple Number	8
	,		5	Sample Name	21BH-7 (MW)
L1 = SANSEW / WATER / Peel Table 1 - Sanitary Sewer Dis	scharge - BL_53_2010		s	Sample Matrix	Ground Water
L2 = SANSEW / WATER / Peel Table 2 - Storm Sewer Disch	-			Sample Date	07/06/2021
Parameter	Units	RL	L1	L2	Result
SVOCs					
di-n-Butyl Phthalate	mg/L	0.002	0.08	0.015	< 0.002
Bis(2-ethylhexyl)phthalate	mg/L	0.002	0.012	0.0088	< 0.002
PACKAGE: SANSEW - VOCs (WATER)			Sa	mple Number	8
			5	Sample Name	21BH-7 (MW)
L1 = SANSEW / WATER / Peel Table 1 - Sanitary Sewer Disc	charge - BL_53_2010		s	Sample Matrix	Ground Water
L2 = SANSEW / WATER / Peel Table 2 - Storm Sewer Disch	1arge - BL_53_2010			Sample Date	07/06/2021
Parameter	Units	RL	L1	L2	Result
VOCs					
Chloroform	mg/L	0.0005	0.04	0.002	< 0.0005
Chioroionn					
1,2-Dichlorobenzene	mg/L	0.0005	0.05	0.0056	< 0.0005
	mg/L mg/L	0.0005	0.05 0.08	0.0056	< 0.0005 < 0.0005
1,2-Dichlorobenzene					
1,2-Dichlorobenzene 1,4-Dichlorobenzene	mg/L	0.0005	0.08	0.0068	< 0.0005
1,2-Dichlorobenzene 1,4-Dichlorobenzene cis-1,2-Dichloroethene	mg/L mg/L	0.0005 0.0005	0.08	0.0068 0.0056	< 0.0005 < 0.0005
1,2-Dichlorobenzene 1,4-Dichlorobenzene cis-1,2-Dichloroethene trans-1,3-Dichloropropene	mg/L mg/L	0.0005 0.0005 0.0005	0.08 4 0.14	0.0068 0.0056 0.0056	< 0.0005 < 0.0005 < 0.0005
1,2-Dichlorobenzene 1,4-Dichlorobenzene cis-1,2-Dichloroethene trans-1,3-Dichloropropene Methylene Chloride	mg/L mg/L mg/L mg/L	0.0005 0.0005 0.0005 0.0005	0.08 4 0.14 2	0.0068 0.0056 0.0056 0.0052	< 0.0005 < 0.0005 < 0.0005 < 0.0005
1,2-Dichlorobenzene 1,4-Dichlorobenzene cis-1,2-Dichloroethene trans-1,3-Dichloropropene Methylene Chloride 1,1,2,2-Tetrachloroethane	mg/L mg/L mg/L mg/L mg/L	0.0005 0.0005 0.0005 0.0005 0.0005	0.08 4 0.14 2 1.4	0.0068 0.0056 0.0056 0.0052	< 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005
1,2-Dichlorobenzene 1,4-Dichlorobenzene cis-1,2-Dichloroethene trans-1,3-Dichloropropene Methylene Chloride 1,1,2,2-Tetrachloroethane Methyl ethyl ketone	mg/L mg/L mg/L mg/L mg/L mg/L	0.0005 0.0005 0.0005 0.0005 0.0005 0.0005	0.08 4 0.14 2 1.4 8	0.0068 0.0056 0.0056 0.0052	< 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.0005 < 0.02



Client: Toronto Inspection Ltd.

Project: 5552

Project Manager: Simran Panesar

PACKAGE: SANSEW - VOCs - BTEX	(WATER)		Sar	nple Number	8
			s	ample Name	21BH-7 (MW)
L1 = SANSEW / WATER / Peel Table 1 - Sanitary Sewer	r Discharge - BL_53_2010		S	ample Matrix	Ground Water
L2 = SANSEW / WATER / Peel Table 2 - Storm Sewer D	Discharge - BL_53_2010			Sample Date	07/06/2021
Parameter	Units	RL	L1	L2	Result
VOCs - BTEX					
Benzene	mg/L	0.0005	0.01	0.002	< 0.0005
Ethylbenzene	mg/L	0.0005	0.16	0.002	< 0.0005
Toluene	mg/L	0.0005	0.27	0.002	< 0.0005
Xylene (total)	mg/L	0.0005	1.4	0.0044	< 0.0005
m-p-xylene	mg/L	0.0005			< 0.0005
o-xylene	mg/L	0.0005			< 0.0005



EXCEEDANCE SUMMARY

				SANSEW / WATER	SANSEW / WATE
				/Peel Table 1-	/ Peel Table 2
				Sanitary Sewer	Storm Sewer
				Discharge -	Discharge -
				BL_53_2010	BL_53_2010
Parameter	Method	Units	Result	L1	L2
1BH-7 (MW)					
Manganese	SM 3030/EPA 200.8	mg/L	0.429		0.05
Zinc	SM 3030/EPA 200.8	mg/L	0.063		0.04
Sulphate	US EPA 375.4	mg/L	3500	1500	



QC SUMMARY

Anions by discrete analyzer

Method: US EPA 375.4 | Internal ref.: ME-CA-[ENVIEWL-LAK-AN-026

Parameter	QC batch	Units	Inits RL	Method	Duplicate		LC	S/Spike Blank		Matrix Spike / Ref.		
	Reference			Blank	RPD	AC	Spike		ry Limits %)	Spike Recovery	Recove	ry Limits %)
						(%)	Recovery (%)	Low	High	(%)	Low	High
Sulphate	DIO5041-JUN21	mg/L	2	<2	0	20	108	80	120	100	75	125

Biochemical Oxygen Demand

Method: SM 5210 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-007

Parameter	QC batch	Units	nits RL	Method	Dup	Duplicate		S/Spike Blank		Matrix Spike / Ref.		
	Reference			Blank	RPD	AC	Spike		ery Limits %)	Spike Recovery		ry Limits %)
						(%)	Recovery (%)	Low	High	(%)	Low	High
Biochemical Oxygen Demand (BOD5)	BOD0015-JUN21	mg/L	2	< 2	26	30	89	70	130	71	70	130

Cyanide by SFA

Method: SM 4500 | Internal ref.: ME-CA-IENVISFA-LAK-AN-005

Parameter	QC batch	Units	RL	Method	Dup	uplicate L		LCS/Spike Blank		Matrix Spike / Ref.		f.
	Reference			Blank	RPD	AC	Spike		ry Limits %)	Spike Recovery		ery Limits %)
						(%)	Recovery (%)	Low	High	(%)	Low	High
Cyanide (total)	SKA0096-JUN21	mg/L	0.01	<0.01	ND	10	92	90	110	77	75	125



QC SUMMARY

Fluoride by Specific Ion Electrode

Method: SM 4500 | Internal ref.: ME-CA-[ENVIEWL-LAK-AN-014

Parameter	QC batch	Units	RL	Method	Dup	olicate	LC	S/Spike Blank		Matrix Spike / R		
	Reference			Blank	RPD	AC	Spike		ery Limits %)	Spike Recovery		ry Limits %)
						(%)	Recovery (%)	Low	High	(%)	Low	High
Fluoride	EWL0177-JUN21	mg/L	0.06	<0.06	3	10	98	90	110	98	75	125

Mercury by CVAAS

Method: EPA 7471A/SM 3112B | Internal ref.: ME-CA-IENVISPE-LAK-AN-004

Parameter	QC batch			Method	Duplicate		LC	S/Spike Blank		Matrix Spike / Ref.		
	Reference			Blank	RPD	AC	Spike		ery Limits %)	Spike Recovery		ry Limits %)
						(%)	Recovery (%)	Low	High	(%)	Low	High
Mercury (total)	EHG0010-JUN21	mg/L	0.00001	< 0.00001	ND	20	109	80	120	NV	70	130



QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-IENVISPE-LAK-AN-006

Parameter	QC batch	Units	RL	Method	Dup	licate	LC	S/Spike Blank		Matrix Spike / Ref.		
	Reference			Blank	RPD	AC (%)	Spike Recovery	Recover (%	•	Spike Recovery		ry Limits %)
						(70)	(%)	Low	High	(%)	Low	High
Silver (total)	EMS0059-JUN21	mg/L	0.00005	<0.00005	ND	20	104	90	110	110	70	130
Aluminum (total)	EMS0059-JUN21	mg/L	0.001	<0.001	1	20	95	90	110	96	70	130
Arsenic (total)	EMS0059-JUN21	mg/L	0.0002	<0.0002	7	20	101	90	110	110	70	130
Cadmium (total)	EMS0059-JUN21	mg/L	0.000003	<0.000003	5	20	102	90	110	112	70	130
Cobalt (total)	EMS0059-JUN21	mg/L	0.000004	<0.000004	2	20	102	90	110	118	70	130
Chromium (total)	EMS0059-JUN21	mg/L	0.00008	<0.00008	5	20	100	90	110	103	70	130
Copper (total)	EMS0059-JUN21	mg/L	0.0002	<0.0002	1	20	99	90	110	106	70	130
Manganese (total)	EMS0059-JUN21	mg/L	0.00001	<0.00001	1	20	100	90	110	96	70	130
Molybdenum (total)	EMS0059-JUN21	mg/L	0.00004	<0.00004	3	20	104	90	110	106	70	130
Nickel (total)	EMS0059-JUN21	mg/L	0.0001	<0.0001	5	20	101	90	110	107	70	130
Lead (total)	EMS0059-JUN21	mg/L	0.00009	<0.00001	1	20	107	90	110	123	70	130
Phosphorus (total)	EMS0059-JUN21	mg/L	0.003	<0.003	6	20	104	90	110	NV	70	130
Antimony (total)	EMS0059-JUN21	mg/L	0.0009	<0.0009	9	20	96	90	110	115	70	130
Selenium (total)	EMS0059-JUN21	mg/L	0.00004	<0.00004	11	20	102	90	110	122	70	130
Tin (total)	EMS0059-JUN21	mg/L	0.00006	<0.00006	ND	20	101	90	110	NV	70	130
Titanium (total)	EMS0059-JUN21	mg/L	0.00005	<0.00005	11	20	106	90	110	NV	70	130
Zinc (total)	EMS0059-JUN21	mg/L	0.002	<0.002	8	20	98	90	110	102	70	130



QC SUMMARY

Microbiology

Method: SM 9222D | Internal ref.: ME-CA-[ENVIMIC-LAK-AN-006

Parameter	QC batch	Units	RL	Method	Duplicate		LC	S/Spike Blank		Matrix Spike / Ref.			
Reference	Reference			Blank	RPD	AC	Spike	Recovery Limits (%)		Spike Recovery		very Limits (%)	
					(%)	Recovery (%)	Low	High	(%)	Low	High		
E. Coli	BAC9140-JUN21	cfu/100mL	-	ACCEPTED	ACCEPTE								
					D								

Nonylphenol and Ethoxylates

Method: ASTM D7065-06 | Internal ref.: ME-CA-IENVIGC-LAK-AN-015

Parameter	QC batch	Units	RL	Method	Dup	licate	LC	S/Spike Blank		M	atrix Spike / Ref	<i>i</i> .
	Reference			Blank	RPD	AC	Spike	Recove	ry Limits %)	Spike Recovery		ry Limits %)
						(%)	Recovery (%)	Low	High	(%)	Low	High
Nonylphenol diethoxylate	GCM0149-JUN21	mg/L	0.01	<0.01			93	55	120			
Nonylphenol Ethoxylates	GCM0149-JUN21	mg/L	0.01	< 0.01								
Nonylphenol monoethoxylate	GCM0149-JUN21	mg/L	0.01	<0.01			92	55	120			
Nonylphenol	GCM0149-JUN21	mg/L	0.001	<0.001			94	55	120			



QC SUMMARY

Oil & Grease

Method: MOE E3401 | Internal ref.: ME-CA-[ENV]GC-LAK-AN-019

Parameter	QC batch	Units	RL	Method	Dup	olicate	LC	S/Spike Blank		Ma	atrix Spike / Rei	F.
	Reference			Blank	RPD	AC	Spike		ery Limits %)	Spike Recovery	Recove	ry Limits %)
						(%)	Recovery (%)	Low	High	(%)	Low	High
Oil & Grease (total)	GCM0136-JUN21	mg/L	2	<2	NSS	20	100	75	125			

Oil & Grease-AV/MS

Method: MOE E3401/SM 5520F | Internal ref.: ME-CA-IENVIGC-LAK-AN-019

Parameter	QC batch	Units	RL	Method	Dup	licate	LC	S/Spike Blank		м	atrix Spike / Ref	
	Reference			Blank	RPD	AC	Spike	Recove (۹	•	Spike Recovery	Recover	ry Limits %)
						(%)	Recovery (%)	Low	High	(%)	Low	High
Oil & Grease (animal/vegetable)	GCM0136-JUN21	mg/L	4	< 4	NSS	20	NA	70	130			
Oil & Grease (mineral/synthetic)	GCM0136-JUN21	mg/L	4	< 4	NSS	20	NA	70	130			

рΗ

Method: SM 4500 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch	Units	RL	Method	Dup	olicate	LC	S/Spike Blank		м	atrix Spike / Ref	
	Reference			Blank	RPD	AC	Spike		ry Limits %)	Spike Recovery	Recover	ry Limits
						(%)	Recovery (%)	Low	High	(%)	Low	High
рН	EWL0161-JUN21	No unit	0.05	NA	0		100			NA		



QC SUMMARY

Phenols by SFA

Method: SM 5530B-D | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-006

Parameter	QC batch	Units	RL	Method	Dup	olicate	LC	S/Spike Blank		м	atrix Spike / Re	ıf.
	Reference			Blank	RPD	AC	Spike		ry Limits %)	Spike Recovery		ery Limits %)
						(%)	Recovery (%)	Low	High	(%)	Low	High
4AAP-Phenolics	SKA0089-JUN21	mg/L	0.002	<0.002	2	10	106	80	120	112	75	125

Polychlorinated Biphenyls

Method: MOE E3400/EPA 8082A | Internal ref.: ME-CA-IENVIGC-LAK-AN-001

Parameter	QC batch	Units	RL	Method	Duj	olicate	LC	S/Spike Blank		M	latrix Spike / Ref	f.
	Reference			Blank	RPD	AC	Spike		ery Limits %)	Spike Recovery		ery Limits %)
						(%)	Recovery (%)	Low	High	(%)	Low	High
Polychlorinated Biphenyls (PCBs) -	GCM0138-JUN21	mg/L	0.0001	<0.0001	NSS	30	99	60	140	NSS	60	140
Total												



QC SUMMARY

Semi-Volatile Organics

Method: EPA 3510C/8270D | Internal ref.: ME-CA-[ENVIGC-LAK-AN-005

Parameter	QC batch	Units	RL	Method	Dup	licate	LC	S/Spike Blank		м	atrix Spike / Re	f.
	Reference			Blank	RPD	AC	Spike	Recovei (۹	•	Spike Recovery		ery Limits %)
						(%)	Recovery (%)	Low	High	(%)	Low	High
Bis(2-ethylhexyl)phthalate	GCM0231-JUN21	mg/L	0.002	< 0.002	NSS	30	110	50	140	NSS	50	140
di-n-Butyl Phthalate	GCM0231-JUN21	mg/L	0.002	< 0.002	NSS	30	114	50	140	NSS	50	140

Suspended Solids

Method: SM 2540D | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-004

Parameter	QC batch	Units	RL	Method	Duj	plicate	LC	S/Spike Blank		м	atrix Spike / Re	f.
	Reference			Blank	RPD	AC	Spike		ery Limits (%)	Spike Recovery		ry Limits %)
						(%)	Recovery (%)	Low	High	(%)	Low	High
Total Suspended Solids	EWL0201-JUN21	mg/L	2	< 2	5	10	100	90	110	NA		

Total Nitrogen

Method: SM 4500-N C/4500-NO3- F | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-002

Parameter	QC batch	Units	RL	Method	Duj	olicate	LC	S/Spike Blank		N	latrix Spike / Re	F.
	Reference			Blank	RPD	AC	Spike		ery Limits %)	Spike Recovery		ry Limits %)
						(%)	Recovery (%)	Low	High	(%)	Low	High
Total Kjeldahl Nitrogen	SKA0135-JUN21	as N mg/L	0.5	<0.5	6	10	97	90	110	101	75	125



QC SUMMARY

Volatile Organics

Method: EPA 5030B/8260C | Internal ref.: ME-CA-[ENVIGC-LAK-AN-004

Parameter	QC batch	Units	RL	Method	Dup	icate	LC	S/Spike Blank		Ма	atrix Spike / Ref	<i>I</i> .
	Reference			Blank	RPD	AC (%)	Spike Recovery	Recover (%	•	Spike Recovery		ory Limits
						(%)	(%)	Low	High	(%)	Low	High
1,1,2,2-Tetrachloroethane	GCM0161-JUN21	mg/L	0.0005	<0.0005	ND	30	96	60	130	99	50	140
1,2-Dichlorobenzene	GCM0161-JUN21	mg/L	0.0005	<0.0005	ND	30	97	60	130	102	50	140
1,4-Dichlorobenzene	GCM0161-JUN21	mg/L	0.0005	<0.0005	ND	30	96	60	130	101	50	140
Benzene	GCM0161-JUN21	mg/L	0.0005	<0.0005	ND	30	96	60	130	100	50	140
Chloroform	GCM0161-JUN21	mg/L	0.0005	<0.0005	ND	30	96	60	130	99	50	140
cis-1,2-Dichloroethene	GCM0161-JUN21	mg/L	0.0005	<0.0005	ND	30	97	60	130	99	50	140
Ethylbenzene	GCM0161-JUN21	mg/L	0.0005	<0.0005	ND	30	96	60	130	101	50	140
m-p-xylene	GCM0161-JUN21	mg/L	0.0005	<0.0005	ND	30	96	60	130	102	50	140
Methyl ethyl ketone	GCM0161-JUN21	mg/L	0.02	<0.02	ND	30	90	50	140	94	50	140
Methylene Chloride	GCM0161-JUN21	mg/L	0.0005	<0.0005	ND	30	96	60	130	99	50	140
o-xylene	GCM0161-JUN21	mg/L	0.0005	<0.0005	ND	30	97	60	130	103	50	140
Styrene	GCM0161-JUN21	mg/L	0.0005	<0.0005	ND	30	96	60	130	102	50	140
Tetrachloroethylene	GCM0161-JUN21	mg/L	0.0005	<0.0005	ND	30	95	60	130	101	50	140
(perchloroethylene)												
Toluene	GCM0161-JUN21	mg/L	0.0005	<0.0005	ND	30	96	60	130	101	50	140
trans-1,3-Dichloropropene	GCM0161-JUN21	mg/L	0.0005	<0.0005	ND	30	98	60	130	99	50	140
Trichloroethylene	GCM0161-JUN21	mg/L	0.0005	<0.0005	ND	30	95	60	130	100	50	140



QC SUMMARY

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.

Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.

LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.

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

Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.

Duplicate Qualifier: for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL. Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

LEGEND

FOOTNOTES

NSS Insufficient sample for analysis.

- RL Reporting Limit.
- ↑ Reporting limit raised.
- ↓ Reporting limit lowered.
- NA The sample was not analysed for this analyte
- ND Non Detect

Samples analysed as received. Solid samples expressed on a dry weight basis. "Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.

Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated. This document is issued, on the Client's behalf, by the Company under its General Conditions of Service available on request and accessible at http://www.sgs.com/terms_and_conditions.htm. The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any other holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents.

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-- End of Analytical Report --



APPENDIX E

Water Well Records

Water Wel	Record	S				June 30, 2 1:48:57			
TOWNSHIP CON LOT	UTM	DATE CNTR	CASING DIA	WATER	PUMP TEST	WELL USE	SCREEN	WELL	FORMATION
BRAMPTON CITY (CHING	17 599947 4848423 W	2019-07 7230						7345102 (C45658) A271681 P	
BRAMPTON CITY (CHING 06 016	17 599820 4849188 W	2008-03 3349	6.25	FR 0089	25/66/5/3:0	ОТ		7102705 (Z69807) A054388	BLCK LOAM LOOS 0002 GREY SAND GRVL CLAY 0055 GREY SHLE 0089
BRAMPTON CITY (CHING HS E 06	17 599144 4848473 W	7314						7354443 (C38625) A139397 P	
BRAMPTON CITY (CHING HS E 06 016	17 599786 4849208 W	1949-07 4620	6 6			NU		4901533 ()	LOAM CLAY 0001 CLAY 0011 HPAN CLAY GRVL 0018 SHLE 0019
BRAMPTON CITY (CHING HS E 06 016	17 598924 4848376 W	1964-10 1325	30	FR 0051	21/25/20/1:0	DO		4901535 ()	LOAM 0003 BRWN CLAY 0021 HPAN 0036 BLUE CLAY SILT 0051
BRAMPTON CITY (CHING HS E 06 016	17 599322 4849731 W	1965-09 1307	30	FR 0054	30//0/:	DO		4901536 ()	BRWN LOAM CLAY 0012 GREY CLAY 0049 GREY SHLE 0054
BRAMPTON CITY (CHING HS E 06 017	17 599465 4848773 W	1974-12 3903	5	UK 0042	18/60/2/3:0	DO		4904554 ()	BRWN CLAY SOFT 0012 BLUE CLAY SOFT 0039 UNKN 0065
BRAMPTON CITY (CHING HS E 06 017	17 599511 4849036 W	1956-05 1612	4	SA 0080	23//1/0:30	DO		4901537 ()	LOAM 0002 BLUE CLAY 0060 MSND 0078 GRVL 0082
BRAMPTON CITY (CHING HS E 06 017	17 599501 4849041 W	1958-06 1307	36	FR 0038	20//2/:	DO		4901538 ()	BRWN LOAM CLAY 0012 GREY CLAY 0036 GRVL 0038
BRAMPTON CITY (CHING HS E 06 017	17 599154 4848448 W	1965-09 1325	30	FR 0046	39/54/2/0:30	ST DO		4901540 ()	LOAM MSND 0002 BRWN CLAY MSND 0009 BLUE CLAY 0027 BLUE CLAY MSND 0046 BLUE MSND 0056
BRAMPTON CITY (CHING HS E 06 017	17 599653 4849123 W	1974-02 3413	30 18	FR 0050	42/45/5/2:0	DO		4904363 ()	PRDG 0045 SHLE 0060
BRAMPTON CITY (CHING HS E 06 017	17 599640 4849223 W	1972-04 1307	30	FR 0042	25/43/0/1:0	DO		4903827 ()	BRWN OBDN 0012 GREY CLAY 0042 GREY CSND 0045 GREY SHLE 0053
BRAMPTON CITY (CHING HS E 06 017	17 599665 4849243 W	1968-06 3512	7	FR 0080	45///:	NU		4903116 () A	LOAM 0001 YLLW CLAY 0012 BLUE CLAY 0071 BLUE SHLE 0100
BRAMPTON CITY (CHING HS E 06 017	17 599907 4849069 W	1965-05 2514	6 6	SA 0049	28/56/2/2:0	ST DO		4901539 ()	LOAM 0002 BRWN CLAY 0012 BLUE CLAY BLDR 0046 BLUE SHLE 0057
BRAMPTON CITY (TORON	17 599914 4849558 W	2015-11 7230						7259795 (C32326) A199757 P	
BRAMPTON CITY (TORON	17 599860 4849463 W	2019-08 7644	2.38		///:	MT	0010 10	7344630 (Z320043) A272085	BRWN SILT CLAY SLTY 0020

TOWNSHIP CON LOT	UTM	DATE CNTR	CASING DIA	WATER	PUMP TEST	WELL USE	SCREEN	WELL	FORMATION
BRAMPTON CITY (TORON	17 599850 4849394 W	2019-08 7644	2.38		///:	MT	0010 10	7344631 (Z320045) A272086	BRWN SILT CLAY SLTY 0020
BRAMPTON CITY (TORON CON 07 017	17 599847 4849395 W	2011-09 4011			6///:	ОТ		7168990 (Z134773) A	
BRAMPTON CITY (TORON CON 07 017	17 599847 4849395 W	2011-09 4011	4.71		21///:	ОТ		7168989 (Z134774) A	
BRAMPTON CITY (TORON CON 07 018	17 599851 4849388 W	1989-09 4919	30 30	UK 0050	40/58/10/1:0	DO		4907194 (62509)	BRWN LOAM HARD 0001 BRWN CLAY HARD 0020 GREY CLAY HARD 0050 GREY SAND LOOS 0060
CALEDON TOWN (ALBION	17 599521 4849992 W	2014-09 7241	2			MT	0014 10	7230867 (Z195893) A168796	BRWN CLAY 0014 GREY CLAY 0024
CALEDON TOWN (ALBION	17 599811 4849431 W	2019-08 7644	2.38		///:	MT	0010 10	7344632 (Z320044) A275910	BRWN SILT CLAY SLTY 0020
CALEDON TOWN (ALBION	17 599914 4849697 W	2019-11 7324						7352603 (C46895) A241043 P	
CALEDON TOWN (ALBION	17 599147 4850255 W	2013-05 6490						7231824 (C08464) P	
CALEDON TOWN (ALBION	17 599596 4849702 W	2011-09 7215	2			ТН	0020 10	7170025 (Z133751) A117890	BRWN FILL 0001 BRWN CLAY 0011 GREY CLAY 0020
CALEDON TOWN (ALBION	17 599548 4850005 W	2014-09 7241	2			MT	0015 10	7230866 (Z195894) A168797	BRWN CLAY 0015 GREY CLAY 0025
CALEDON TOWN (ALBION	17 599057 4850449 W	2012-05 6946						7188749 (C18346) A112926 P	
CALEDON TOWN (ALBION	17 599301 4850003 W	2014-09 7241	2			MT	0015 10	7230865 (Z195892) A170590	BRWN CLAY 0015 GREY CLAY 0025
CALEDON TOWN (ALBION CON 01 001	17 599802 4849594 W	2015-05 7147	19.6	FR 0005				7242250 (Z203294) A	
CALEDON TOWN (ALBION CON 01 001	17 599915 4849623 W	1969-03 1307	30	FR 0041	30///:	DO		4903239 ()	BRWN LOAM 0006 GREY CLAY STNS 0040 GREY SHLE 0041
CALEDON TOWN (ALBION CON 01 001	17 599565 4849623 W	1972-11 1307	30	FR 0052	18/50/2/1:0	DO		4903999 ()	BRWN OBDN 0010 GREY CLAY 0051 GRVL 0052
CALEDON TOWN (ALBION CON 01 001	17 599823 4849596 W	2015-05 7147	19.6	FR 0005				7242460 (Z203309) A	

TOWNSHIP CON LOT	UTM	DATE CNTR	CASING DIA	WATER	PUMP TEST	WELL USE	SCREEN	WELL	FORMATION
CALEDON TOWN (ALBION CON 01 001	17 599798 4849529 W	2015-05 7147	5.90	FR 0007				7242236 (Z203303) A	
CALEDON TOWN (ALBION CON 01 001	17 599808 4849561 W	2015-05 7147	47.2					7242459 (Z203308) A	
CALEDON TOWN (ALBION CON 01 002	17 599049 4850234 W	2013-06 1663	30	UT		NU		7205662 (Z170216) A	BRWN FILL 0004 GREY 0030
CALEDON TOWN (ALBION CON 01 002	17 598965 4850173 W	1970-10 1307	30	FR 0035	10/33/2/1:0	DO		4903516 ()	BRWN LOAM 0012 GREY CLAY 0034 MSND 0035
CALEDON TOWN (ALBION CON 01 003	17 598807 4850410 W	1962-08 1307	30	FR 0037	16//1/:	DO		4900005 ()	BRWN LOAM 0012 GREY CLAY STNS 0030 GREY SHLE 0037
CALEDON TOWN (CALEDO	17 599684 4849401 W	2007-02 6607	2.00				0005 15	7042519 (Z64639) A053601	BLCK FILL 0002 BRWN CLAY SILT 0010 GREY CLAY 0020
CALEDON TOWN (CHINGU	17 599292 4849522 W	2016-06 7190	6 1.5	UT 0017		МО	0015 10	7269470 (Z238608) A156764	GREY GRVL LOOS 0001 BRWN CLAY SILT DNSE 0015 GREY CLAY SILT DNSE 0025
CALEDON TOWN (CHINGU 06 018	17 599690 4849430 W	2008-04 6607	0.30	FR 0028				7109629 (Z60579) A	
CALEDON TOWN (CHINGU HS E 05 018	17 598545 4848512 W	1983-09 3662				NU		4906134 ()	BLCK LOAM 0001 BRWN CLAY 0017 BLUE CLAY STNS HARD 0025 GREY SAND GRVL 0026 BLUE CLAY STNS HARD 0046
CALEDON TOWN (CHINGU HS E 05 020	17 597797 4849333 W	1983-10 3349	6 6	FR 0049	2/46/7/1:0	DO		4906194 ()	BLCK LOAM 0001 GREY CLAY 0035 BLUE SHLE 0080
CALEDON TOWN (CHINGU HS E 05 020	17 597615 4849473 W	1976-11 1307	30	FR 0038	15/36/4/1:0	DO		4905023 ()	BRWN LOAM 0010 GREY CLAY 0036 CSND WBRG 0038
CALEDON TOWN (CHINGU HS E 06 018	17 599561 4850123 W	1975-01 1307	30	FR 0050	30/48/2/1:0	DO		4904610 ()	BRWN LOAM 0012 GREY CLAY 0048 GRVL 0050
CALEDON TOWN (CHINGU HS E 06 018	17 599507 4849413 W	1975-07 1307	30	FR 0060	30/57/2/1:0	DO		4904710 ()	BRWN LOAM 0011 GREY CLAY 0058 GRVL 0060
CALEDON TOWN (CHINGU HS E 06 018	17 598849 4850234 W	1992-03 4919	30 30	UK 0020 UK 0040	20/40/10/1:0	DO		4907705 (110913)	BRWN LOAM HARD 0001 BRWN CLAY HARD 0020 GREY CLAY SAND LYRD 0060
CALEDON TOWN (CHINGU HS E 06 018	17 599669 4849455 W	2004-09 6607	1.97	0016		NU	0002 18	4909576 (Z19514) A015808	GREY SILT CLAY 0015 GREY CLAY SILT 0020
CALEDON TOWN (CHINGU HS E 06 018	17 599619 4849541 W	1990-02 4919	30 30	UK 0040 UK 0058	40/58/10/1:0	DO		4907348 (62600)	BRWN LOAM HARD 0001 BRWN CLAY HARD 0020 GREY CLAY SAND GRVL 0060
CALEDON TOWN (CHINGU HS E 06 019	17 598410 4848873 W	1971-09 1307	30	FR 0033	15/31/4/1:0	DO		4903693 ()	BRWN LOAM 0010 GREY CLAY 0033

TOWNSHIP CON LOT	UTM	DATE CNTR	CASING DIA	WATER	PUMP TEST	WELL USE	SCREEN	WELL	FORMATION
CALEDON TOWN (CHINGU HS E 06 019	17 598065 4849173 W	1979-09 3132	6	FR 0039	11/37/2/1:30	NU		4905631() A	BRWN CLAY SOFT 0015 BLUE CLAY STNS SOFT 0040 BLUE BLDR HARD 0049 BLUE SHLE SOFT 0088 BLUE SHLE HARD 0120 BLUE SHLE CLAY HARD 0129 BLUE SHLE HARD 0240
CALEDON TOWN (CHINGU HS E 06 019	17 598865 4850223 W	1980-05 4919	30 30	UK 0055	20/55//0:30	DO		4905745 ()	BRWN LOAM HARD 0001 BRWN CLAY HARD 0020 GREY CLAY HARD 0055 GREY SAND LOOS 0058
CALEDON TOWN (CHINGU HS E 06 020	17 598506 4850328 W	1967-08 3514	77	FR 0065	30/70/2/2:0	DO		4901543 ()	BRWN CLAY 0018 GREY CLAY GRVL 0052 BLUE SHLE 0070
CALEDON TOWN (CHINGU HS E 06 020	17 597965 4849323 W	1980-09 2224	30	FR 0026	6/20/6/0:30	DO		4905701 ()	GREY SAND 0015 GREY CLAY STNS 0025 GREY SAND GRVL 0027

Notes:

UTM: UTM in Zone, Easting, Northing and Datum is NAD83; L: UTM estimated from Centroid of Lot; W: UTM not from Lot Centroid DATE CNTR: Date Work Completedand Well Contractor Licence Number CASING DIA: .Casing diameter in inches

WATER: Unit of Depth in Fee. See Table 4 for Meaning of Code

1. Core Material and Descriptive terms

Code	Description	Code	Description	Code	Description	Code	Description	Code	Description
BLDR	BOULDERS	FCRD	FRACTURED	IRFM	IRON FORMATION	PORS	POROUS	SOFT	SOFT
BSLT	BASALT	FGRD	FINE-GRAINED	LIMY	LIMY	PRDG	PREVIOUSLY DUG	SPST	SOAPSTONE
CGRD	COARSE-GRAINED	FGVL	FINE GRAVEL	LMSN	LIMESTONE	PRDR	PREV. DRILLED	STKY	STICKY
CGVL	COARSE GRAVEL	FILL	FILL	LOAM	TOPSOIL	QRTZ	QUARTZITE	STNS	STONES
CHRT	CHERT	FLDS	FELDSPAR	LOOS	LOOSE	QSND	QUICKSAND	STNY	STONEY
CLAY	CLAY	FLNT	FLINT	LTCL	LIGHT-COLOURED	QTZ	QUARTZ	THIK	THICK
CLN (LEAN	FOSS	FOSILIFEROUS	LYRD	LAYERED	ROCK	ROCK	THIN	THIN
CLYY	CLAYEY	FSND	FINE SAND	MARL	MARL	SAND	SAND	TILL	TILL
CMTD	CEMENTED	GNIS	GNEISS	MGRD	MEDIUM-GRAINED	SHLE	SHALE	UNKN	UNKNOWN TYPE
CONG	CONGLOMERATE	GRNT	GRANITE	MGVL	MEDIUM GRAVEL	SHLY	SHALY	VERY	VERY
CRYS	CRYSTALLINE	GRSN	GREENSTONE	MRBL	MARBLE	SHRP	SHARP	WBRG	WATER-BEARING
CSND	COARSE SAND	GRVL	GRAVEL	MSND	MEDIUM SAND	SHST	SCHIST	WDFR	WOOD FRAGMENTS
DKCL	DARK-COLOURED	GRWK	GREYWACKE	MUCK	MUCK	SILT	SILT	WTHD	WEATHERED
DLMT	DOLOMITE	GVLY	GRAVELLY	OBDN	OVERBURDEN	SLTE	SLATE		
DNSE	DENSE	GYPS	GYPSUM	PCKD	PACKED	SLTY	SILTY		
DRTY	DIRTY	HARD	HARD	PEAT	PEAT	SNDS	SANDSTONE		
DRY	DRY	HPAN	HARDPAN	PGVL	PEA GRAVEL	SNDY	SANDYOAPSTONE		

PUMP TEST: Static Water Level in Feet / Water Level After Pumping in Feet / Pump Test Rate in GPM / Pump Test Duration in Hour : Minutes WELL USE: See Table 3 for Meaning of Code SCREEN: Screen Depth and Length in feet WELL: WEL (AUDIT #) Well Tag . A: Abandonment; P: Partial Data Entry Only FORMATION: See Table 1 and 2 for Meaning of Code

2. Cor	e Color	3	. Well Use		
WHIT GREY BLUE GREN YLLW BRWN RED BLCK	BLUE GREEN YELLOW BROWN	DO ST IR IN CO MN PS AC	Domestic Livestock Irrigation Industrial	OT TH DE MO MT	Test Hole

4. Water Detail

Code	Description	Code	Description
FR	Fresh	GS	Gas
SA	Salty	IR	Iron

SU Sulphur

MN Mineral

UK Unknown