Tribal Development Management Services Inc.

Preliminary Geotechnical Investigation
Proposed Mixed-Use Development (Phase 3 Land)
Britannia Road and First Line
Milton, Ontario

Project Number
BRM-23015226-A0-301

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Executive Summary

The Proponent, Tribal Development Management Services Inc. (doing business as "Matthews"), is advancing the development of lands located adjacent to the CN Logistics Hub in the Town of Milton. Official Plan and Zoning By-law Amendments are being pursued to designate the subject lands as Industrial Area to be included within the Sustainable Halton Plan (SHP) Urban Area Boundary. The site will seek the entitlements associated with the Employment Zone, with site-specific provisions to support the intended development.

A Phase 3 Preliminary Geotechnical Investigation was completed for the subject lands to support the proposed industrial development. The investigation included drilling and sampling of boreholes across the site and laboratory testing to characterize subsurface soil and groundwater conditions. The subsurface profile generally consists of topsoil and reworked soils overlying very stiff to hard clayey glacial till, which extends to the depths investigated. Localized sandy silt till was encountered in limited areas. Groundwater levels were observed at variable depths across the site, and seasonal fluctuations are anticipated.

Based on the findings of the investigation, the subsurface conditions are considered suitable for the proposed industrial development, including slab-on-grade buildings, parking areas, and internal access roads. Preliminary recommendations are provided for site grading, foundation design, slab-on-grade construction, pavement structures, excavation practices, and seismic site classification. Shallow foundations bearing on native soils or engineered fill are considered feasible, subject to final grading and detailed design. The recommendations presented herein are preliminary and intended to support early-stage planning and entitlement activities.

1. Introduction

This report presents the results of a preliminary Geotechnical Investigation carried out at the site of a proposed Industrial development (Phase 3) in the Town of Milton, Ontario. The work was authorized by Mr. Davin McCully on behalf of Tribal Development Management Services Inc. (the Client).

The site is irregular in shape and is located on the northeast quadrant of Britannia Road and First Line. The Phase 3 property currently comprises agricultural and natural space and occupies an area of approximately 75.1 hectares (186 acres). Based on the Preliminary Parcel Identification Map dated 2023-06-20 provided by the Client, the proposed construction will comprise four (4) industrial slab on grade buildings without basement and associated access roads, loading and parking areas.

The purpose of this preliminary study was to determine the subsurface conditions at the site by drilling thirty-three (33) boreholes, designated 3-1 to 3-33, over the site. Based on the borehole information, preliminary geotechnical engineering guidelines for the design and construction of the proposed development are to be provided. Specifically, preliminary recommendations and/or comments regarding foundation type, design geotechnical reactions/resistances, groundwater conditions, excavation and backfill, slab-on-grade construction, permanent drainage requirements, earthquake considerations and pavement structures were to be provided.

Concurrent with this program, Hydrogeological Investigation has been carried out by EXP's hydrogeology team. The results of hydrogeological investigation are presented under a separate cover.

The comments and recommendations given in this report are based on the assumption that the above-described design concept will proceed into construction. If changes are made either in the design phase or during construction, this office must be retained to review these modifications. The result of this review may be a modification of our recommendations or the requirement of additional field or laboratory work to check whether the changes are acceptable from a geotechnical viewpoint

2. Site Description

The site is approximately retangular in shape and located at the southwest quadrant of Lower Base Line West and First Line. The subject site is bordered by existing farmland to the west, Fist Line to the north, Lower Base Line West to the east and existing railway track to the south, in the Town of Milton, Ontario. At the time of this field investigation, the site was covered by topsoil and vegetations. Farm dwellings were noted at the site.

3. Procedure

Drilling and sampling operations, carried out from June 18 to 27, 2024, were completed by a combination of auger and split-spoon techniques with drilling equipment owned and operated by a specialist contractor. All boreholes were advanced to depths of approximately 7.7 to 8.2 m below existing grades. A 50 mm diameter monitoring well was installed in each of Boreholes 3-2, 3-3, 3-5, 3-8 to 3-10, 3-12, 3-13, 3-17 to 3-21, 3-23, and 3-25 to 3-28 permitting further monitoring of the groundwater levels as well as hydrogeological well testing and groundwater sampling. A 25 mm diameter piezometer was installed in each of Boreholes 3-1, 3-4, 3-29 and 3-33 permitting further monitoring of the groundwater levels. Approximate borehole locations are shown on the attached Borehole Location Plan (Drawing No. 1).

A representative of EXP Services Inc. (EXP) was present throughout the fieldwork to monitor and direct the drill operations, and to record borehole information. Representative samples of the subsurface soils in the boreholes were recovered at regular intervals using conventional 50 mm O.D. split spoon sampling equipment driven in accordance with Standard Penetration Test procedures (ASTM D1586). All split spoon samples were returned to EXP's Brampton laboratory for testing which included moisture content and unit weight determinations on selected samples. Three (3) selected soil samples were subjected to grain size analyses and all of these samples were subjected to Atterberg Limits testing. One (1) soil sample was also analyzed for pH and water soluble sulphate. The lab testing results are shown on the borehole logs as well as attached in Appendix A of this report. Water levels were monitored in the open boreholes prior to backfilling and subsequently on July 30 and August 8, 2024, in selected boreholes equipped with monitoring wells and piezometers.

The borehole locations were established in the field by EXP personnel. The tops of borehole elevations were surveyed by EXP using a Sokkia GCS3 Global Navigation Satellite System (GNSS) receiver based on information derived from the TopNET Live Network Service Global Positioning System (GPS).

4. Subsurface Conditions

The detailed soil profiles encountered in each borehole and the results of moisture content and unit weight determinations are indicated on the attached borehole logs. It should be noted that the soil boundaries indicated on the borehole logs are inferred from non-continuous sampling and observations during drilling. These boundaries are intended to reflect approximate transition zones for the purpose of geotechnical design and should not be interpreted as exact planes of geological change.

The "Notes on Sample Description" preceding the borehole logs form an integral part of and should be read in conjunction with this report.

The soil stratigraphy at the site consists of topsoil and reworked native soils over native deposits predominated by glacial till of clayey textures. Localized sandy silt till was also encountered The following is a brief description of the soil conditions encountered in the boreholes during the investigation.

Topsoil

Topsoil with thicknesses ranging from 100 mm to 350 mm was encountered surficially in all boreholes. The thickness of the topsoil in each borehole is shown on the borehole log.

It should be noted that topsoil measurements were carried out at the borehole locations only and could differ at other locations on the site. If required, a more detailed test pit program should be carried out to more accurately quantify the amount of topsoil to be removed for construction purposes.

Fill Material

Localized fill material consists of sand and gravel as encountered in Borehole 3-18 below the topsoil. The fill material should be expected in the area where the existing farm dwellings and facilities exist.

Reworked Till

Reworked till was encountered in all boreholes below the topsoil, except for Borehole 3-18. The reworked till is considered to be disturbed parent material. The reworked till was fully penetrated at depth of ~0.7 m. This material generally comprises brown silty clay with trace gravel and trace sand. Moisture contents in the reworked native soil varied between approximately 14 and 32 percent.

Clayey Silt Till to Silty Clay Till

Deposits of clayey silt till to silty clay till (clayey till) were encountered in all boreholes below the fill or reworked till. All boreholes were terminated in this stratum at approximately 7.7 to 8.2 m depth (~Elevation 171.2 to 177.4 m). The clayey till contains silty sand layers/seams, trace gravel, some sand and occasional cobbles and boulders. The clayey till is brown in colour with oxidized pockets, changing to grey with depth. The consistency of the clayey till was assessed as stiff to hard, but generally very stiff to hard. Moisture content of the clayey till ranges from approximately 7 to 30 percent.

Grain size analyses on three (3) clayey till samples from Boreholes 3-6 and 3-23 indicated 3% to 11% gravel, 20% to 31% sand, 40 to 46% silt and 18% to 37% clay.

The Atterberg Limits testing carried out on the same samples from yield 13 to 16% Plastic Limits (PL), 22 to 30% Liquid Limit (LL) and corresponding Plastic Index (PI) 9 to 14. The measured moisture content of these samples is near or below the Plastic Limits of the samples, indicating an over consolidated state.

Groundwater Conditions

Groundwater conditions were assessed in the open boreholes during the course of the fieldwork and subsequent groundwater readings were taken in monitoring wells in selected boreholes on July 30 and Aug 8, 2024. Short term and subsequent groundwater levels are recorded on the attached borehole logs.

Upon completion of drilling, free water was observed in Boreholes 3-20 and 3-25 at depths of approximately 6.1 to 7.5 m below existing grade. The remaining boreholes were dry upon completion of augering. The subsequent groundwater levels were recorded between about 0.1 to 5.9 m below existing grade in monitoring wells/piezometers installed at the site. A summary of groundwater observations in the monitoring wells is presented in the following Table 1.

Table 1: Groundwater Level Readings

Borehole No.	Date of Measurement	Water Level (m)	Water Elevation (m)	Note
BH3-1	July 30, 2024 August 8, 2024	0.46 0.67	184.9 184.7	25 mm Piezometer
BH3-2	July 30, 2024 August 8, 2024	1.77 5.54	183.9 180.1	50 mm Monitoring Well
BH3-3	July 30, 2024 August 8, 2024	0.09 0.37	183.7 183.4	50 mm Monitoring Well
BH3-4	July 30, 2024 August 8, 2024	2.96 1.06	179.9 181.8	25 mm Piezometer
BH3-5	July 30, 2024 August 8, 2024	0.64 1.10	185.0 184.6	50 mm Monitoring Well
BH3-8	July 30, 2024 August 8, 2024	0.37 0.58	184.3 184.1	50 mm Monitoring Well
BH3-9	July 30, 2024 August 8, 2024	0.14 0.75	183.1 182.5	50 mm Monitoring Well
BH3-10	July 30, 2024 August 8, 2024	0.81 4.18	180.7 177.3	50 mm Monitoring Well
BH3-12	July 30, 2024 August 8, 2024	0.63 0.97	182.8 182.5	50 mm Monitoring Well
BH3-13	July 30, 2024 August 8, 2024	0.32 0.52	185.0 184.8	50 mm Monitoring Well
BH3-17	July 30, 2024 August 8, 2024	0.34 0.53	182.2 182.0	50 mm Monitoring Well
BH3-18	July 30, 2024 August 8, 2024	0.63 3.37	184.2 181.5	50 mm Monitoring Well
BH3-19	-	-	-	50 mm Monitoring Well
BH3-20	July 30, 2024 August 8, 2024	0.15 0.18	180.5 180.5	50 mm Monitoring Well
BH3-21	July 30, 2024 August 8, 2024	0.79 3.69	182.6 179.7	50 mm Monitoring Well
BH3-23	July 30, 2024 August 8, 2024	0.66 0.94	180.6 180.3	50 mm Monitoring Well
BH3-25	July 30, 2024 August 8, 2024	0.24 0.32	179.6 179.5	50 mm Monitoring Well
BH3-26	July 30, 2024 August 8, 2024	0.40 0.66	182.3 182.1	50 mm Monitoring Well
BH3-27	July 30, 2024 August 8, 2024	3.89 5.94	178.0 176.0	50 mm Monitoring Well

Borehole No.	Date of Measurement	Water Level (m)	Water Elevation (m)	Note
BH3-28	July 30, 2024 August 8, 2024	0.88 2.41	179.5 177.9	50 mm Monitoring Well
BH3-29	July 30, 2024 August 8, 2024	0.51 0.60	180.0 179.9	25 mm Piezometer
BH3-33	July 30, 2024 August 8, 2024	0.96 0.96	178.2 178.2	25 mm Piezometer

The groundwater elevations reflect the conditions at the time of the investigation. Seasonal fluctuation of the groundwater levels at the site should be anticipated.

For detailed groundwater information, it should be referred to the hydrogeological investigation report.

5. Preliminary Geotechnical Assessment

5.1 Site Grading

The site grading plan is unknown at the time of preparing this preliminary geotechnical investigation report. Given the range of collar elevations of the boreholes drilled within the proposed development limits of approximately 179.2 to 185.7 m (relief of approximately 6.5 m), it is anticipated that some regrading (cut and fill operations) will be carried out at the site. The following procedures are recommended for the construction of fill sections for pavement and building areas at the site, where required.

- All existing topsoil, reworked till, vegetation and associated roots, and obviously disturbed native materials should be removed from beneath the proposed building areas and areas that are within the zone of influence of the building foundations.

- The exposed subgrade surface should be proof-rolled with a heavy roller and examined by a geotechnical engineer. Any soft areas detected during the proofrolling process should be sub-excavated.

- The area can then be brought up to the final subgrade level with approved on-site or imported material placed in lifts not exceeding 200 mm and compacted to the following requirements:

    I. Within the building areas - 100 percent for foundation support and a minimum of 98 percent standard Proctor maximum dry density (SPMDD) for slab-on-grade support. For heavily loaded slabs, 100% SPMDD is recommended.

    II. Pavement areas - 98 percent SPMDD for the upper 600 mm and a minimum of 95 percent SPMDD to within 600 mm of final subgrade level.

    III. General backfill including trench backfill and backfill adjacent to foundation walls - minimum of 98 percent SPMDD.

- All backfilling and compaction operations should be monitored on a full-time basis by qualified geotechnical personnel to approve material, evaluate placement operations and confirm the specified degree of compaction is achieved uniformly throughout the fill.

- Where free-draining backfill is required, or in confined areas, imported granular material conforming to OPSS Granular ‘B’ is recommended.

5.2 Foundation Considerations

Soil conditions on the site are considered suitable for construction of the proposed industrial buildings and associated loading and parking areas. Since final site grades have not yet been established, two (2) foundation schemes are being presented for consideration, namely footings on native soils and footings on engineered fill.

5.2.1 Footings on Native Soil

Based on the results of the investigation, conditions are suitable to support the proposed structure at Boreholes 3-2, 3-3, 3-5, 3-6, 3-8 to 3-10, 3-12 to 3-14, 3-17 to 3-21, 3-23, and 3-25 to 3-28, which were drilled within/near the proposed building footprint. At these locations the proposed structure can be supported on conventional spread and strip footings or drilled short piers founded at a depth of 1.2 m below the existing grade (~Elevation 179.1 to 184.5 m) on the very stiff to hard clayey tills. The footings/piers can be designed for a geotechnical reaction at Serviceability Limit States (SLS) of 300 kPa and factored geotechnical resistance of 450 kPa at Ultimate Limit States (ULS), subject to geotechnical inspection during construction.

It should be noted that a relatively weaker layer of silty clay till stratum was encountered in Boreholes 3-2, 3-5, 3-6, 3-8 to 3-10, 3-12 to 3-14, 3-17 to 3-19, 3-21, 3-23, 3-26 to 3-28 at depths ranging from 4.5 to 7.8 m below the existing grade. Depending on the final site grading plan and foundation design, It is recommended that the footings be founded as high as possible to avoid overstressing the lower weaker soils. Once the site grading plan and foundation design is available, EXP should be retained to review the site grading plan and foundation design. A more detailed investigation should be carried out and further fine-tunning of the recommendations will be provided where appropriate.

The following Table 2 shows the highest elevations at the borehole locations where the afore mentioned geotechnical reactions/resistances can be applied.

Table 2: Highest Elevation at Borehole Locations Where Recommended Geotechnical Reaction/Resistance can be Applied

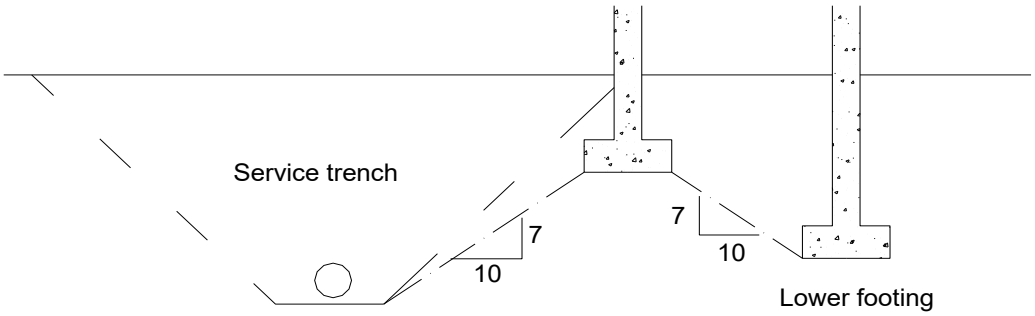
Borehole No.	Existing Grade Elevation (m)	Spread and Strip Footing/Drilled Pier SLS 300 kPa/ULS 450 kPa ~ Elevation (Depth Below Existing Grade (m))
BH3-2	185.63	184.4 (1.2)
BH3-3	183.74	182.5 (1.2)
BH3-5	185.65	184.5 (1.2)
BH3-6	184.64	183.4 (1.2)
BH3-8	184.93	183.7 (1.2)
BH3-9	183.25	182.1 (1.2)
BH3-10	181.50	180.3 (1.2)
BH3-12	183.47	182.3 (1.2)
BH3-13	185.36	184.2 (1.2)
BH3-14	185.36	184.2 (1.2)
BH3-17	182.53	181.3 (1.2)
BH3-18	184.85	183.7 (1.2)
BH3-19	181.36	180.2 (1.2)
BH3-20	180.66	179.5 (1.2)
BH3-21	183.41	182.2 (1.2)
BH3-23	181.21	180.0 (1.2)
BH3-25	179.82	178.6 (1.2)
BH3-26	182.72	181.5 (1.2)
BH3-27	181.92	180.7 (1.2)
BH3-28	180.33	179.1 (1.2)

5.2.2 Footings on Engineered Fill

Depending on the final grading plan of the site, the proposed industrial building structure may also be supported on footings founded on engineered fill developed over the competent native soils. A Geotechnical Reaction of 150 kPa at SLS and factored Geotechnical Resistance of 225 kPa at ULS can be utilized for footings placed on engineered fills. It is recommended the engineered fill be constructed to design floor subgrade level prior to installation of footings. This will ensure the engineered fill placed will be suitable for foundations as well as slab-on-grade support. Engineered fill construction in the winter months is not recommended. Recommendations for construction of Engineered Fill are summarized in Appendix B.

5.3 Foundations General

Footings/drilled piers at different elevations should be located such that higher footings/drilled piers are set below a line drawn up at 10 Horizontal to 7 Vertical from the near edge of the lower footing/drilled piers. This concept should also be applied to excavations for new foundations in relation to existing foundations or underground services. This concept is illustrated in the following sketch.



FOOTINGS NEAR SERVICE TRENCHES OR AT DIFFERENT ELEVATIONS

All footings/drilled piers exposed to freezing conditions must be provided with a minimum of 1.2 m of earth cover or equivalent insulation for frost protection, depending on the final grade requirements.

Provided that the soil is not disturbed due to groundwater, precipitation, traffic, etc., and the aforementioned geotechnical reactions/resistances are not exceeded, then total and differential settlements should be small and within the normally tolerated limits of 25 mm and 19 mm, respectively.

As mentioned previously, all footing bases must be reviewed to confirm founding soil and the conditions prior to pouring concrete. If the footings are not poured on the same day of the excavation work, the excavated footing bases should be covered with a 50 mm thick mud slab immediately after inspection and cleaning, in order to avoid disturbance of the founding soil due to construction activity and weathering.

The recommended bearing capacities have been calculated by EXP from the borehole information for the design stage only. The investigation and comments are necessarily on-going as new information of underground conditions becomes available. For example, it should be appreciated that modifications to bearing levels may be required if unforeseen subsoil conditions are revealed after the excavation is exposed to full view or if final design decisions differ from those assumed in this report. For this reason, this office should be retained to review final foundation drawings and to provide field inspections during the construction stage. As stated before, the results of this geotechnical study should therefore be regarded as very preliminary at best due to the limited number of boreholes drilled to the required depth for the proposed development.

5.4 Floor Slabs and Permanent Drainage

The floor slabs can be constructed as a slab-on-grade on the native clayey till or on an engineered fill subgrade. A modulus of subgrade reaction k of 50 and 30 MPa/m (~180 and 110 psi/in) on native soils and engineered fill respectively, may be used for the design of the floor slabs.

All topsoil, reworked till, vegetation and associated roots, unsuitable material and other deleterious material must be removed from the entire underfloor areas. Following site grading, the exposed subgrade surface should then be thoroughly proof-rolled with a heavy vibratory roller. Any soft spots detected should be dug out and replaced with compactible fill in the manner described in Section 5.6 - "Backfill Considerations" section of this report. The site can then be filled to the required grades as outlined in Section 5.1 – “Site Grading”.

A 200 mm layer of 19 mm clear crushed stone should be placed between the prepared subgrade and the floor slab to serve as a moisture barrier. Also, within any unheated areas, loading docks and entrances to the building, Styrofoam insulation should be provided below the floor slab and against the foundation walls to protect against frost heave.

Based on the soil and groundwater conditions at the site, underfloor drains will not be required in the engineered fill areas. Within cut areas, the requirements will have to be reviewed once the floor slab elevations are established. Perimeter drains are not required if the floor slab of building is set at least 200 mm above the existing exterior grade. Around the perimeter of the building, the ground surface should be sloped on a positive grade away from the structure to promote surface water run-off and reduce groundwater infiltration adjacent to the foundations.

5.5 Excavations and Groundwater Control

All excavation must be carried out in accordance with the most recent Occupational Health and Safety Act. The glacial till is classified as Type 2 soil. Where loose/soft materials are encountered locally, or within zones of persistent seepage at depth, it may be necessary to flatten the side slopes.

It should be noted that the presence of cobbles and boulders in glacial till deposits may influence the progress of excavation. Consequently, provisions should be made in the contract documents to cover any delays caused by these obstructions.

The final excavation depth is unknown, however, it is anticipated that all excavation will be carried out within clayey till. No major problems with groundwater are anticipated. Some seepage of free water from more pervious seams and layers within the tills should be anticipated during construction. It should be possible to control and remove any such seepage by pumping from temporary sumps and ditches and/or oversized excavations.

5.6 Backfill Considerations

Backfill used to satisfy underfloor slab requirements, in footings and service trenches, etc., should be compactible fill, i.e., inorganic soil with its moisture content close to its optimum moisture content determined in the standard Proctor maximum dry density test. For ease of compaction and quality control in confined areas, sand fill such as Ontario Provincial Standard Specifications (OPSS) 1010 Granular 'B' is recommended. The backfill should be placed in lifts not more than 200 mm thick in the loose state, each lift being compacted to at least 98 percent SPMDD under the floor slab and 95 percent elsewhere, before subsequent lifts are placed. The degree of compaction achieved in the field should be checked by in-place density tests.

The majority of excavated material will likely consist of the glacial till and tend to be bulky. In general, the excavated material can be reused for engineered fill subject to the removal of any topsoil inclusions or other obviously unsuitable material. Some water content adjustment may be required for efficient compaction depending upon the material type and weather conditions at the time of construction. Any organic or excessively wet or otherwise deleterious material should not be used for engineered fill purposes. In confined areas or if there are any shortfall of suitable on-site excavated material, the use of imported granular material conforming to OPSS Granular 'B' or equivalent are recommended.

In general, the on-site soils are not free draining and therefore should not be used where this characteristic is required. Imported granular material conforming to OPSS Granular 'B' would also be suitable for these purposes.

5.7 Earthquake Considerations

The recommendations for the geotechnical aspects to determine the earthquake loading for design in accordance with Section 4.1.8 in the Ontario Building Code (OBC) 2024, are presented below.

5.7.1 Subsoil Conditions

The subsoil and groundwater information at this site have been examined in relation to Section 4.1.8.4 of the OBC (2024). The subsoils generally consist of glacial tills interbedded with sandy/silty layers seams. It is anticipated that the floor slabs of the proposed structures will be founded on clayey tills or engineered fill.

5.7.2 Depth of Boreholes

Table 4.1.8.4.A. Site Classification for Seismic Site Response in OBC 2024 indicated that to determine the site classification, the average properties in the top 30 m (below the lowest basement level) are to be used. Site Classification can be determined using the average shear wave velocity (Va30) as per the classifications stated in Table 4.1.8.4-B. If in-situ measurements are not available, the site designation shall be determined based on the energy-corrected average standard penetration resistance (SPT) N60 or the average undrained shear strength Su in accordance with Table 4.1.8.4.B.

There are no shear wave measurements carried out at this site and therefore, the Site Class will be determined based on the energy-corrected average SPT. The boreholes advanced at this site terminated at depths of about 7.7 to 8.2 m below existing grade. Therefore, the site classification recommendation would be based on the available information as well as our interpretation of conditions below the boreholes based on our knowledge of the soil conditions in the area.

5.7.3 Site Classification

Based on the above assumptions and currently available information, the Site Class for the proposed building is “D” as per Table 4.1.8.4.B, Site Classification for Seismic Site Response, OBC 2024. According to Section A-4.1.8.4 of OBC 2024, the in-situ measurements of shear wave velocity can be utilized to lower the demand in the seismic design. Therefore, field shear wave velocity measurements are recommended to be performed through non-intrusive (e.g. multichannel analysis of surface waves) and / or intrusive (e.g. downhole / cross hole techniques, or SCPT) geophysical tests.

5.8 Parking Areas and Internal Access Roads

The recommended pavement structures provided in Table 3 are based upon an estimate of the subgrade soil properties determined from visual examination and textural classification of the soil samples. A functional design life of 8 to 10 years has been used to establish the pavement recommendations. This represents the number of years to the first rehabilitation, assuming regular maintenance is carried out. Other thickness combinations can be used provided the Granular Base Equivalency (GBE) is maintained and any minimum component thickness specified by the Town of Milton is met.

Table 3: Recommended Pavement Structure Thickness

Pavement Layer	Compaction Requirements	Light-Duty Parking (Cars)	Heavy Duty Traffic (Trucks) Loading Docks and Access Road
Asphaltic Concrete (OPSS 310)	Minimum 92 % MRD**	40 mm HL3 50 mm HL8	40 mm HL3 85 mm HL8
19 mm Crusher Run Limestone	100 % SPMDD*	150 mm	150 mm
50 mm Crusher Run Limestone	100 % SPMDD*	300 mm	450 mm

* Denotes standard Proctor maximum dry density, ASTM-D698

** Denotes Maximum Relative density, MTO LS-264

Where rigid pavements are required such as the truck loading dock apron area and dolly pads for trailer parking, recommended pavement structures are summarized in Table 4.

Table 4: Recommended Pavement Structure Thickness (Rigid)

Pavement Layer	Compaction Requirements	Concrete Pads Adjacent to Loading Docks	Concrete Dolly Pads
Concrete CSA Class C-2 32 MPa	-	230 mm	200 mm (1)
19 mm Crusher-run Limestone (OPSS 1010)	100% SPMDD	200 mm	70 mm
50 mm Crusher-run Limestone (OPSS 1010)	100% SPMDD	-	500 mm

Notes: (1) The concrete dolly pads should be 200mm thick with shrinkage steel.

The concrete for this project should be C-2 Class as a minimum, i.e., 32 MPa, 0.45 maximum water/cement ratio. The nominal aggregate size in the mix should be 37.5 mm and the air content should range from 4 to 7%.

The subgrade must be compacted to 98 percent SPMDD for at least the upper 600 mm.

The long-term performance of the pavement structure is highly dependent upon the subgrade support conditions. Stringent construction control procedures should be maintained to ensure uniform subgrade moisture and density conditions are achieved. In addition, the need for adequate drainage cannot be over-emphasized. The finished pavement surface should be free of depressions and should be sloped (preferably at a minimum grade of two percent) to provide effective surface drainage toward catch basins. Subdrains should be installed to intercept excess subsurface moisture and to prevent subgrade softening. This is particularly important in heavy-duty pavement areas.

Additional comments on the construction of parking areas and access roadways are as follows:

1. As part of the subgrade preparation, proposed parking areas and access roadways should be stripped of topsoil, reworked tills and associated rootlets and other obvious objectionable material. Fill required to raise the grade to design elevations should conform to backfill requirements outlined in previous sections of this report. The subgrade should be proof-rolled in the full-time presence of qualified geotechnical personnel. Soft or spongy subgrade areas should be sub-excavated and properly replaced with suitable approved backfill compacted to 98 percent SPMDD. The final subgrade surface should then be properly shaped and crowned.

2. Assuming that satisfactory cross-falls have been provided for subdrainage, subdrains extending from and between catch basins may be satisfactory. Further, subdrains should also be installed along the perimeter of pavement areas as well as around landscaped areas.

3. The most severe loading conditions on light-duty pavement areas and the subgrade may occur during construction. Consequently, special provisions such as restricted access lanes, half-loads during paving, etc., may be required, especially if construction is carried out during unfavorable weather.

4. To minimize the problems of differential movement between the pavement and catchbasins/manholes due to frost action, the backfill around the structures should consist of free-draining granular.

5. To prevent water ponding at the lower pavement areas of the loading docks, it is recommended that catchbasins be provided to drain the surface run-offs.

5.9 Potential for Sulphate Attack

One (1) native soil sample identified as Borehole 3-14 SS3 was analyzed for pH and water soluble sulphate. The pH value of the soil sample is 7.90. The soluble sulphate content in the samples analyzed was reported as 300 µg/g (0.03%). Table 3 of the Canadian Standards Association (CSA) A.23.1-09 lists 0.1 % sulphate as the minimum concentration of sulphate in soil that warrants additional requirements for concrete. At the measured concentration, the degree of exposure to sulphate attack is considered to be “negligible” and therefore normal Portland cement (Type 10) can be used in subsurface concrete. The Certificate of Analysis was attached in Appendix C of this report.

6. General Comments

The information presented in this report is based on a limited investigation designed to provide information to support an overall assessment of the current geotechnical conditions of the subject property. The conclusions presented in this report reflect site conditions existing at the time of the investigation.

EXP should be retained for a general review of the final design and specifications to verify that this report has been properly interpreted and implemented. If not accorded the privilege of making this review, EXP will assume no responsibility for interpretation of the recommendations in the report.

The comments given in this report are preliminary in nature and intended only for the guidance of design engineers. More boreholes are required to determine the localized underground conditions between the widely spaced boreholes which may affect construction costs, techniques, sequencing, equipment, scheduling, etc. Contractors bidding on or undertaking the works using this preliminary information should, in this light, decide on their own investigations as well as their own interpretations of the factual borehole results so that they may draw their own conclusions as to how the subsurface conditions may affect them.

More specific information, with respect to the conditions between samples, or the lateral and vertical extent of materials, may become apparent during excavation operations. Consequently, during the future development of the property, conditions not observed during this investigation may become apparent; should this occur, EXP should be contacted to assess the situation, and additional testing and reporting may be required. EXP has qualified personnel to provide assistance in regard to future geotechnical and environmental issues related to this property.

We trust this report is satisfactory for your purposes. Should you have any questions, please do not hesitate to contact this office.

EXP Services Inc.

Jack Li, P. Eng.
Senior Engineer
Geotechnical Division

Stephen S. M. Cheng
Digitally signed by Stephen S. M. Cheng
Date: 2026.06.16 12:03:25 -04'00'

Stephen S. M. Cheng, P.Eng.
Discipline Manager
Geotechnical Division

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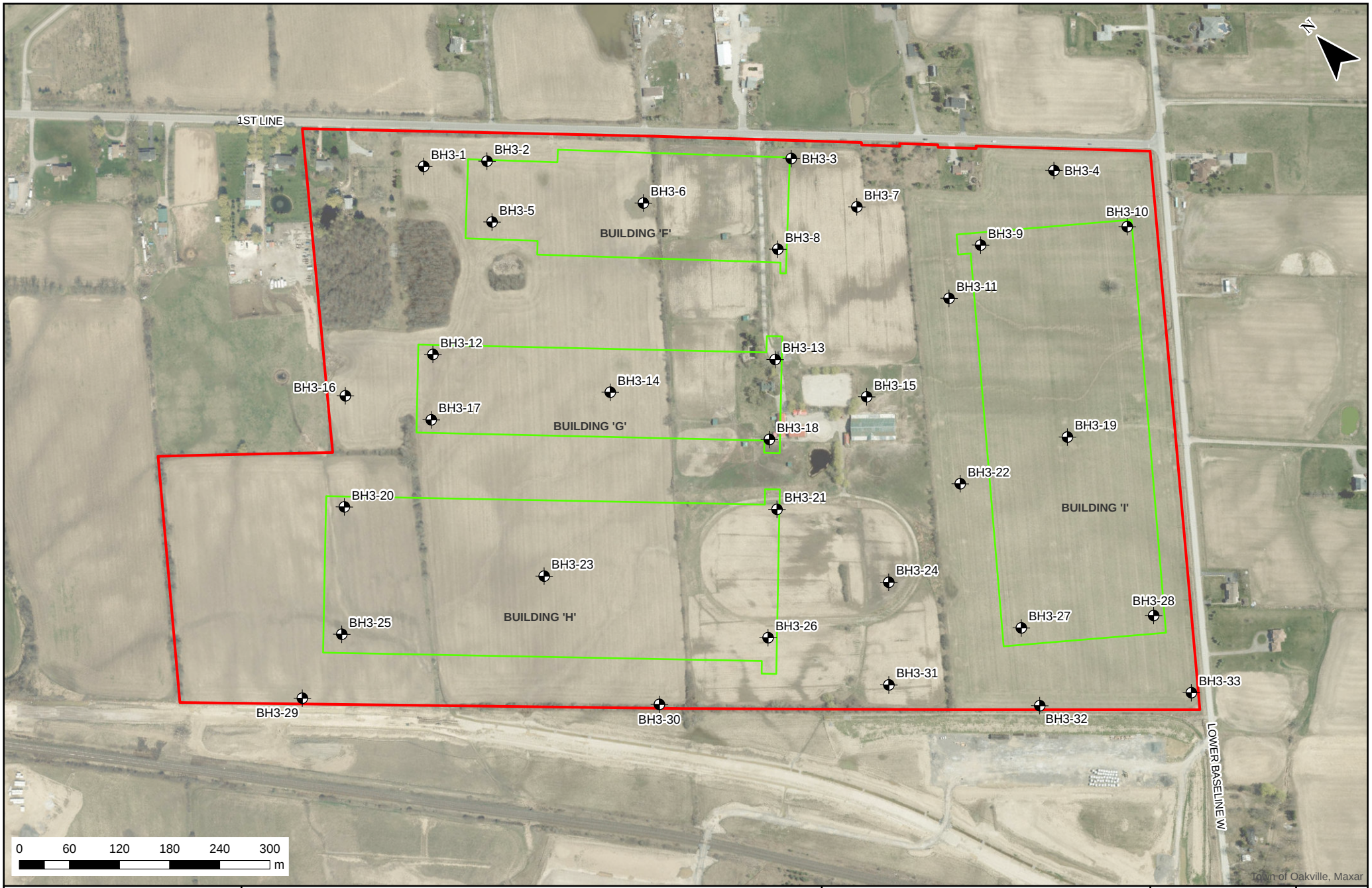
Drawings:

Borehole Location Plan
Notes on Sample Descriptions
Borehole Logs



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LEGEND:
- APPROXIMATE SITE BOUNDARY
- PROPOSED BUILDING
- BOREHOLE (EXP, 2024)

TITLE AND LOCATION:

BOREHOLE LOCATION PLAN

GEOTECHNICAL INVESTIGATION
DEVELOPMENT LANDS (PHASE 3)
AT BRITANNIA ROAD AND FIRST LINE
MILTON, ONTARIO

PROJECT NO.: BRM-23015226-A0	DWN: JA
SCALE: AS NOTED	CHKD: JL
DATE: JUNE 2024	DWG. NO.: 1

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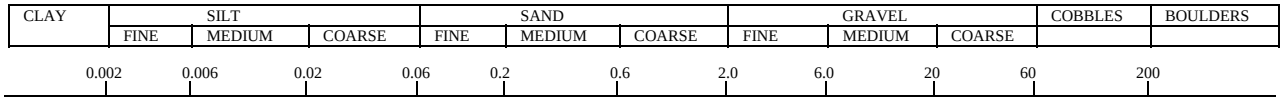
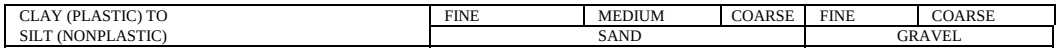
Notes on Sample Descriptions and Soil Types — Drawing 1A

1. All sample descriptions included in this report follow the Canadian Foundations Engineering Manual soil classification system. This system follows the standard proposed by the International Society for Soil Mechanics and Foundation Engineering. Laboratory grain size analyses provided by **exp** also follow the same system. Others may use different classification systems; one such system is the Unified Soil Classification. Please note that, with the exception of those samples where a grain size analysis has been made, all samples are classified visually. Visual classification is not sufficiently accurate to provide exact grain sizing or precise differentiation between size classification systems.

ISSMFE SOIL CLASSIFICATION



EQUIVALENT GRAIN DIAMETER IN MILLIMETERS



UNIFIED SOIL CLASSIFICATION

2. Fill: Where fill is designated on the borehole log it is defined as indicated by the sample recovered during the boring process. The reader is cautioned that fills are heterogeneous in nature and variable in density or degree of compaction. The borehole description may therefore not be applicable as a general description of site fill materials. All fills should be expected to contain obstruction such as wood, large concrete pieces or subsurface basements, floors, tanks, etc., none of these may have been encountered in the boreholes. Since boreholes cannot accurately define the contents of the fill, test pits are recommended to provide supplementary information. Despite the use of test pits, the heterogeneous nature of fill will leave some ambiguity as to the exact composition of the fill. Most fills contain pockets, seams, or layers of organically contaminated soil. This organic material can result in the generation of methane gas and/or significant ongoing and future settlements. Fill at this site may have been monitored for the presence of methane gas and, if so, the results are given on the borehole logs. The monitoring process does not indicate the volume of gas that can be potentially generated nor does it pinpoint the source of the gas. These readings are to advise of the presence of gas only, and a detailed study is recommended for sites where any explosive gas/methane is detected. Some fill material may be contaminated by toxic/hazardous waste that renders it unacceptable for deposition in any but designated land fill sites; unless specifically stated the fill on this site has not been tested for contaminants that may be considered toxic or hazardous. This testing and a potential hazard study can be undertaken if requested. In most residential/commercial areas undergoing reconstruction, buried oil tanks are common and are generally not detected in a conventional geotechnical site investigation.

3. Till: The term till on the borehole logs indicates that the material originates from a geological process associated with glaciation. Because of this geological process the till must be considered heterogeneous in composition and as such may contain pockets and/or seams of material such as sand, gravel, silt or clay. Till often contains cobbles (60 to 200 mm) or boulders (over 200 mm). Contractors may therefore encounter cobbles and boulders during excavation, even if they are not indicated by the borings. It should be appreciated that normal sampling equipment cannot differentiate the size or type of any obstruction. Because of the horizontal and vertical variability of

till, the sample description may be applicable to a very limited zone; caution is therefore essential when dealing with sensitive excavations or dewatering programs in till materials.

4. Excerpt from “OHSA Regulations for Construction Projects,” Part III, Section 226:

- **Soil Types**

Type 1 Soil

a) is hard, very dense and only able to be penetrated with difficulty by a small sharp object;
b) has a low natural moisture content and a high degree of internal strength;
c) has no signs of water seepage; and
d) can be excavated only by mechanical equipment.

Type 2 Soil

a) is very stiff, dense and can be penetrated with moderate difficulty by a small sharp object;
b) has a low to medium natural moisture content and a medium degree of internal strength; and
c) has a damp appearance after it is excavated.

Type 3 Soil

a) is stiff to firm and compact to loose in consistency or is previously excavated soil;
b) exhibits signs of surface cracking;
c) exhibits signs of water seepage;
d) if it is dry, may run easily into a well-defined conical pile; and
e) has a low degree of internal strength.

Type 4 Soil

a) is soft to very soft and very loose in consistency, very sensitive and upon disturbance is significantly reduced in natural strength;
b) runs easily or flows, unless it is completely supported before excavating procedures;
c) has almost no internal strength;
d) is wet or muddy; and
e) exerts substantial fluid pressure on its supporting system. O. Reg. 213/91, s. 226.

Log of Borehole 3 - 1

Project No. BRM-23015226-A0 | Drawing No. 2

Project: Geotechnical and Hydrogeoligical Investigation | Sheet No. 1 of 1

Location: Britannia rd and First line, Milton (Phase 3)

See Borehole Location Plan

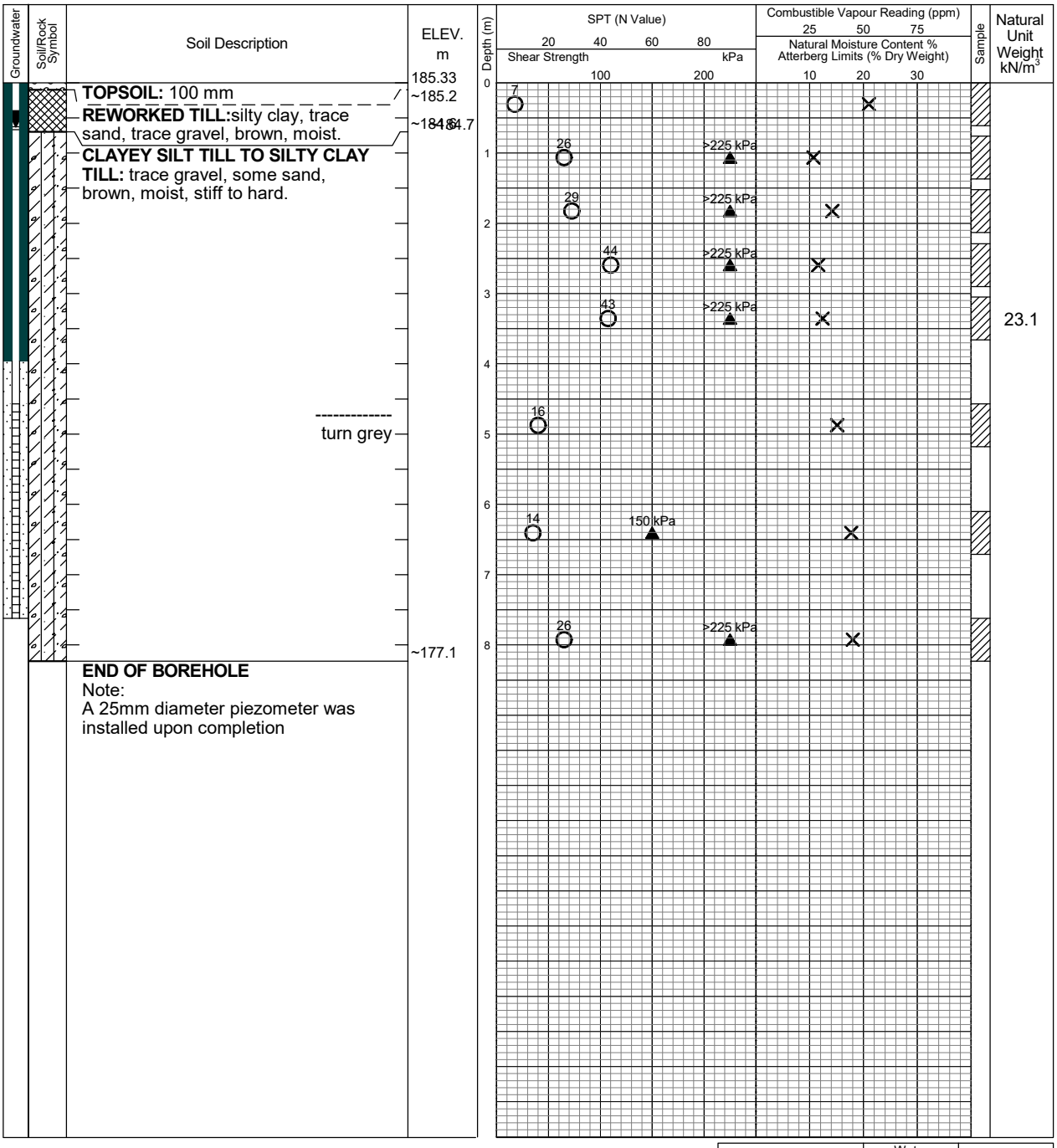
Date Drilled: June 17, 2024

Drill Type: Solid Auger 110mm

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test (S)

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer



Elapsed Time	Water Level (m)	Hole Open to (m)
Upon Completion	Dry	Open
July 30, 2024	0.46	
Aug 8, 2024	0.67	

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Log of Borehole 3 - 2

Project No. BRM-23015226-A0 Drawing No. 3

Project: Geotechnical and Hydrogeoligical Investigation Sheet No. 1 of 1

Location: Britannia rd and First line, Milton (Phase 3)

See Borehole Location Plan

Date Drilled: June 17, 2024

Drill Type: Solid Auger 110mm

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer

Groundwater	Soil/Rock Symbol	Soil Description	ELEV. m	Depth (m)
		TOPSOIL: 100 mm	185.63	0
		REWORKED TILL: silty clay, trace sand, trace gravel, brown, moist.	~185.5	
		CLAYEY SILT TILL TO SILTY CLAY TILL: trace gravel, some sand, brown, moist, stiff to hard.	~184.9	
		---------- oxidized		1
				2
				3
		---------- turn grey		4
			~180.1	5
				6
				7
			~177.4	8
		END OF BOREHOLE Note: A 50mm diameter monitoring well was installed upon completion		

SPT (N Value): 20 40 60 80
Shear Strength: 100 200 kPa

7
28 >225 kPa
31 >225 kPa
42 >225 kPa
34 >225 kPa
19
14 150 kPa
27 >225 kPa

Combustible Vapour Reading (ppm): 25 50 75
Natural Moisture Content % Atterberg Limits (% Dry Weight): 10 20 30

Sample

Natural Unit Weight kN/m³: 23.1

Elapsed Time	Water Level (m)	Hole Open to (m)
Upon Completion	Dry	Open
July 30, 2024	1.77	
Aug 8, 2024	5.54	

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Log of Borehole 3 - 3

Project No. BRM-23015226-A0 | Drawing No. 4

Project: Geotechnical and Hydrogeoligical Investigation | Sheet No. 1 of 1

Location: Britannia rd and First line, Milton (Phase 3)

See Borehole Location Plan

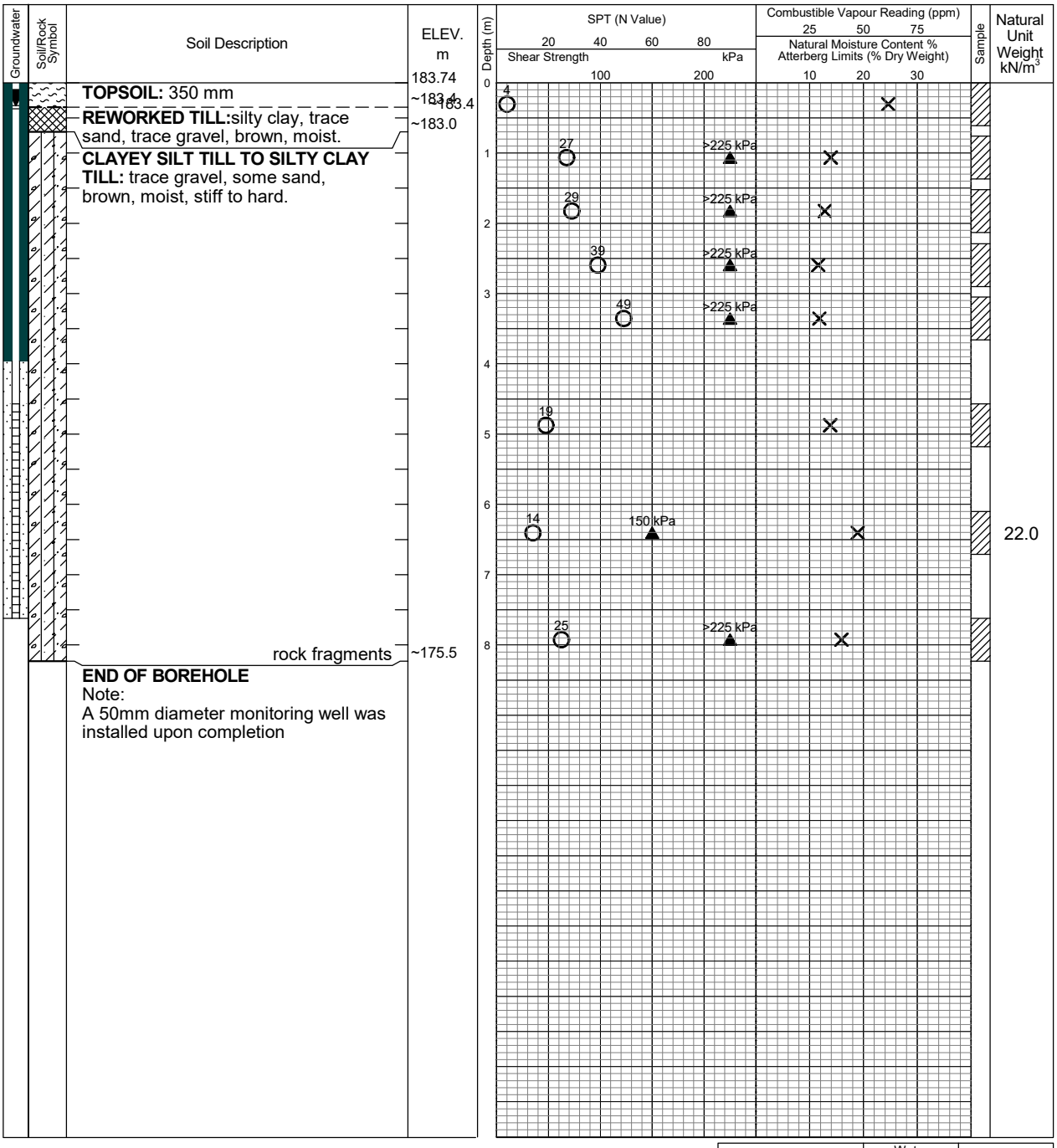
Date Drilled: June 20, 2024

Drill Type: Solid Auger 110mm

Datum: Geodetic

Auger Sample | SPT (N) Value | Dynamic Cone Test | Shelby Tube | Field Vane Test (S)

Combustible Vapour Reading | Natural Moisture | Plastic and Liquid Limit | Undrained Triaxial at % Strain at Failure | Penetrometer



Elapsed Time	Water Level (m)	Hole Open to (m)
Upon Completion	Dry	Open
July 30, 2024	0.09	
Aug 8, 2024	0.37	

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Log of Borehole 3 - 4

Project No. BRM-23015226-A0 | Drawing No. 5

Project: Geotechnical and Hydrogeoligical Investigation | Sheet No. 1 of 1

Location: Britannia rd and First line, Milton (Phase 3)

See Borehole Location Plan

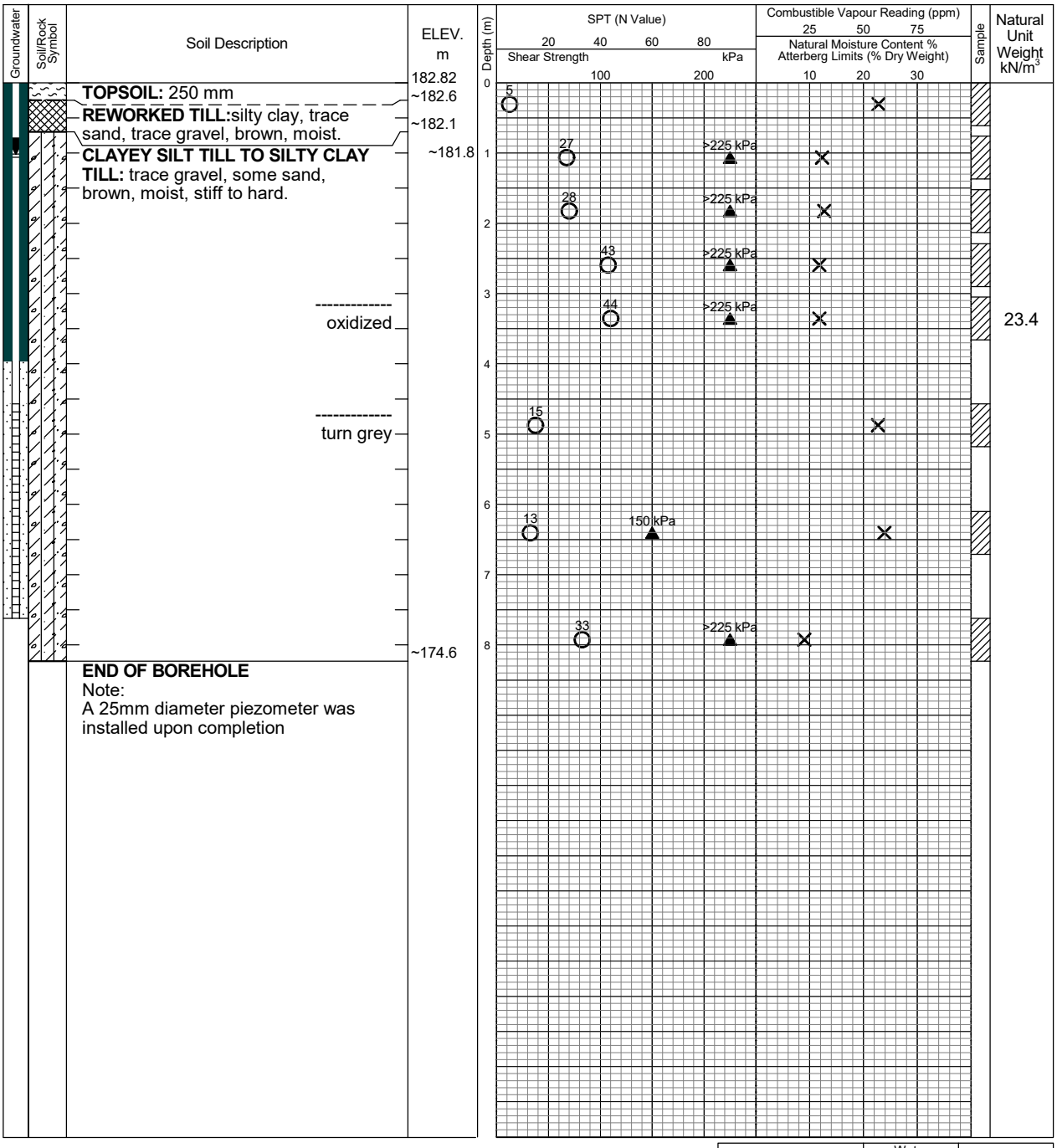
Date Drilled: June 25, 2024

Drill Type: Solid Auger 110mm

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test (S)

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer



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Elapsed Time	Water Level (m)	Hole Open to (m)
Upon Completion	Dry	Open
July 30, 2024	2.96	
Aug 8, 2024	1.06	

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Log of Borehole 3 - 5

Project No. BRM-23015226-A0 Drawing No. 6

Project: Geotechnical and Hydrogeoligical Investigation Sheet No. 1 of 1

Location: Britannia rd and First line, Milton (Phase 3)

See Borehole Location Plan

Date Drilled: June 17, 2024

Drill Type: Solid Auger 110mm

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer

Groundwater	Soil/Rock Symbol	Soil Description	ELEV. m	Depth (m)
		TOPSOIL: 100 mm	185.65	0
		REWORKED TILL: silty clay, trace sand, trace gravel, brown, moist.	~185.6	
		CLAYEY SILT TILL TO SILTY CLAY TILL: trace gravel, some sand, brown, moist, very stiff to hard.	~185.0	
			~184.6	1
				2
				3
		---------- turn grey		4
				5
				6
				7
			~177.4	8
		END OF BOREHOLE Note: A 50mm diameter monitoring well was installed upon completion		

SPT (N Value): 20 40 60 80
Shear Strength: 100 200 kPa

5
27 >225 kPa
29 >225 kPa
38 >225 kPa
30 >225 kPa
23
21 200 kPa
23 >225 kPa

Combustible Vapour Reading (ppm): 25 50 75
Natural Moisture Content % Atterberg Limits (% Dry Weight): 10 20 30

Sample

Natural Unit Weight kN/m³: 23.5

Elapsed Time	Water Level (m)	Hole Open to (m)
Upon Completion	Dry	Open
July 30, 2024	0.64	
Aug 8, 2024	1.1	

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Log of Borehole 3 - 6

Project No. BRM-23015226-A0 Drawing No. 7

Project: Geotechnical and Hydrogeoligical Investigation Sheet No. 1 of 1

Location: Britannia rd and First line, Milton (Phase 3)

See Borehole Location Plan

Date Drilled: June 17, 2024

Drill Type: Solid Auger 110mm

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test (S)

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer

Groundwater	Soil/Rock Symbol	Soil Description	ELEV. m	Depth (m)	SPT (N Value) / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	Sample	Natural Unit Weight kN/m³
		TOPSOIL: 150 mm	184.64	0				
		REWORKED TILL: silty clay, trace sand, trace gravel, brown, moist.	~184.5					
		CLAYEY SILT TILL TO SILTY CLAY TILL: trace gravel, some sand, brown, moist, stiff to hard.	~183.9	1	6, 23, 31, 36, 29	>225 kPa		22.7
		turn grey		5	15			
				6	10			
				7	>100 kPa			
				8	20			
		END OF BOREHOLE	~176.4					

Elapsed Time	Water Level (m)	Hole Open to (m)
Upon Completion	Dry	Open

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EXPLOGBRAMPTON TRIBAL MILTON BH LOGS.GPJ NEW.GDT 9/9/24

Log of Borehole 3 - 7

Project No. BRM-23015226-A0 Drawing No. 8

Project: Geotechnical and Hydrogeoligical Investigation Sheet No. 1 of 1

Location: Britannia rd and First line, Milton (Phase 3)

See Borehole Location Plan

Date Drilled: June 21, 2024

Drill Type: Solid Auger 110mm

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test (S)

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer

Groundwater	Soil/Rock Symbol	Soil Description	ELEV. m	Depth (m)
		TOPSOIL: 300 mm	184.53	0
		REWORKED TILL:silty clay, trace sand, trace gravel, brown, moist.	~184.2	
		CLAYEY SILT TILL TO SILTY CLAY TILL: trace gravel, some sand, brown, moist, stiff to hard.	~183.8	
		END OF BOREHOLE	~176.3	8

SPT (N Value) 20 40 60 80
Shear Strength kPa 100 200
Combustible Vapour Reading (ppm) 25 50 75
Natural Moisture Content % Atterberg Limits (% Dry Weight) 10 20 30

Depth (m)	SPT (N)	Shear Strength
0	6	
1	31	>225 kPa
2	40	>225 kPa
3	47	>225 kPa
3	35	>225 kPa
5	13	150 kPa
6	16	150 kPa
8	16	>225 kPa

Sample | Natural Unit Weight kN/m³: 22.8

Elapsed Time	Water Level (m)	Hole Open to (m)
Upon Completion	Dry	Open

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Log of Borehole 3 - 8

Project No. BRM-23015226-A0 | Drawing No. 9

Project: Geotechnical and Hydrogeoligical Investigation | Sheet No. 1 of 1

Location: Britannia rd and First line, Milton (Phase 3)

See Borehole Location Plan

Date Drilled: June 20, 2024

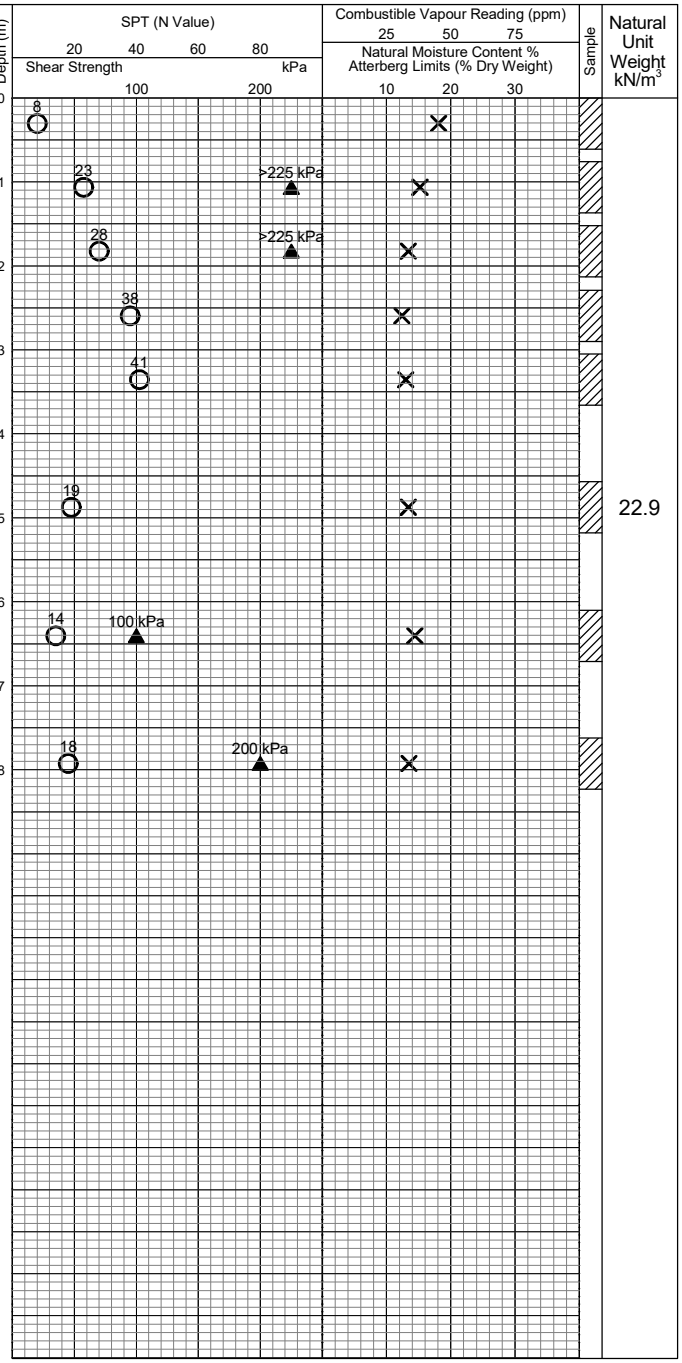
Drill Type: Solid Auger 110mm

Datum: Geodetic

Auger Sample | SPT (N) Value | Dynamic Cone Test | Shelby Tube | Field Vane Test (S)

Combustible Vapour Reading | Natural Moisture | Plastic and Liquid Limit | Undrained Triaxial at % Strain at Failure | Penetrometer

Soil Description	ELEV. m
TOPSOIL: 330 mm	184.93
REWORKED TILL: silty clay, trace sand, trace gravel, brown, moist.	~184.6 ~184.4 ~184.2
CLAYEY SILT TILL TO SILTY CLAY TILL: trace gravel, some sand, brown, moist, stiff to hard.	
END OF BOREHOLE Note: A 50mm diameter monitoring well was installed upon completion	~176.7



Natural Unit Weight kN/m³: 22.9

Elapsed Time	Water Level (m)	Hole Open to (m)
Upon Completion	Dry	Open
July 30, 2024	0.37	
Aug 8, 2024	0.58	

exp.
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Log of Borehole 3 - 9

Project No. BRM-23015226-A0 Drawing No. 10

Project: Geotechnical and Hydrogeoligical Investigation Sheet No. 1 of 1

Location: Britannia rd and First line, Milton (Phase 3)

See Borehole Location Plan

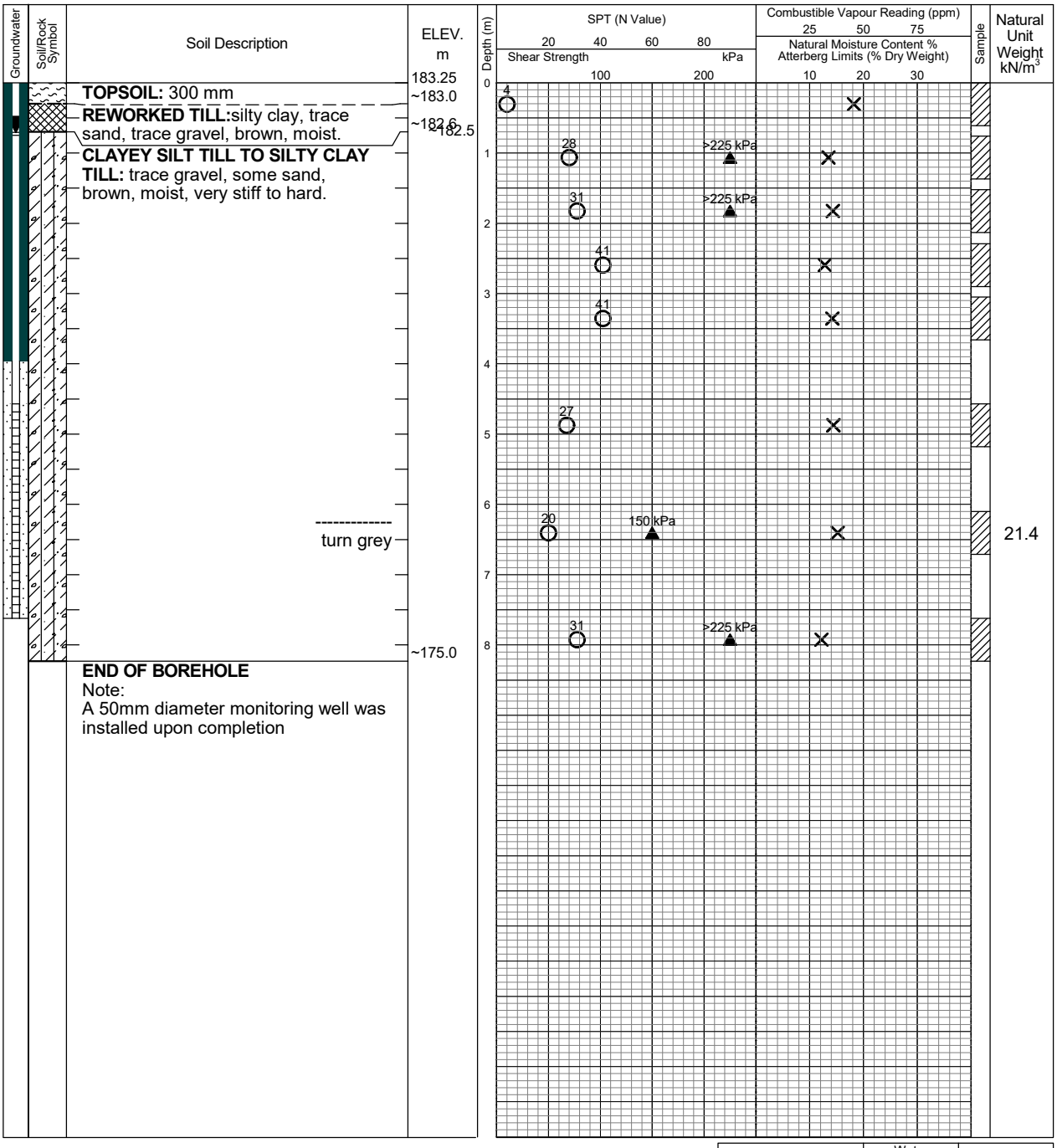
Date Drilled: June 25, 2024

Drill Type: Solid Auger 110mm

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer



Elapsed Time	Water Level (m)	Hole Open to (m)
Upon Completion	Dry	Open
July 30, 2024	0.14	
Aug 8, 2024	0.75	

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Log of Borehole 3 - 10

Project No. BRM-23015226-A0 Drawing No. 11

Project: Geotechnical and Hydrogeoligical Investigation Sheet No. 1 of 1

Location: Britannia rd and First line, Milton (Phase 3)

See Borehole Location Plan

Date Drilled: June 25, 2024

Drill Type: Solid Auger 110mm

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test (S)

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer

Soil Description	ELEV. m	Depth (m)
TOPSOIL: 230 mm	181.50	0
	~181.3	
REWORKED TILL: silty clay, trace sand, trace gravel, brown, moist.	~180.8	
CLAYEY SILT TILL TO SILTY CLAY TILL: trace gravel, some sand, brown, moist, stiff to hard.		1
		2
		3
	~177.3	4
turn grey		5
		6
		7
END OF BOREHOLE Note: A 50mm diameter monitoring well was installed upon completion	~173.3	

SPT (N Value) — Shear Strength kPa: 20 40 60 80 / 100 200

Combustible Vapour Reading (ppm): 25 50 75

Natural Moisture Content % Atterberg Limits (% Dry Weight): 10 20 30

Depth (m)	SPT (N)	Shear Strength (kPa)	Natural Moisture Content %
0	4		
1	27	>225 kPa	
2	34	>225 kPa	
3	46		
4	32		
5	15	150 kPa	
6	14		
7	50/125mm	> 225 kPa	

Natural Unit Weight kN/m³: 22.4

Elapsed Time	Water Level (m)	Hole Open to (m)
Upon Completion	Dry	Open
July 30, 2024	0.81	
Aug 8, 2024	4.18	

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Log of Borehole 3 - 11

Project No. BRM-23015226-A0 Drawing No. 12

Project: Geotechnical and Hydrogeoligical Investigation Sheet No. 1 of 1

Location: Britannia rd and First line, Milton (Phase 3)

See Borehole Location Plan

Date Drilled: June 25, 2024

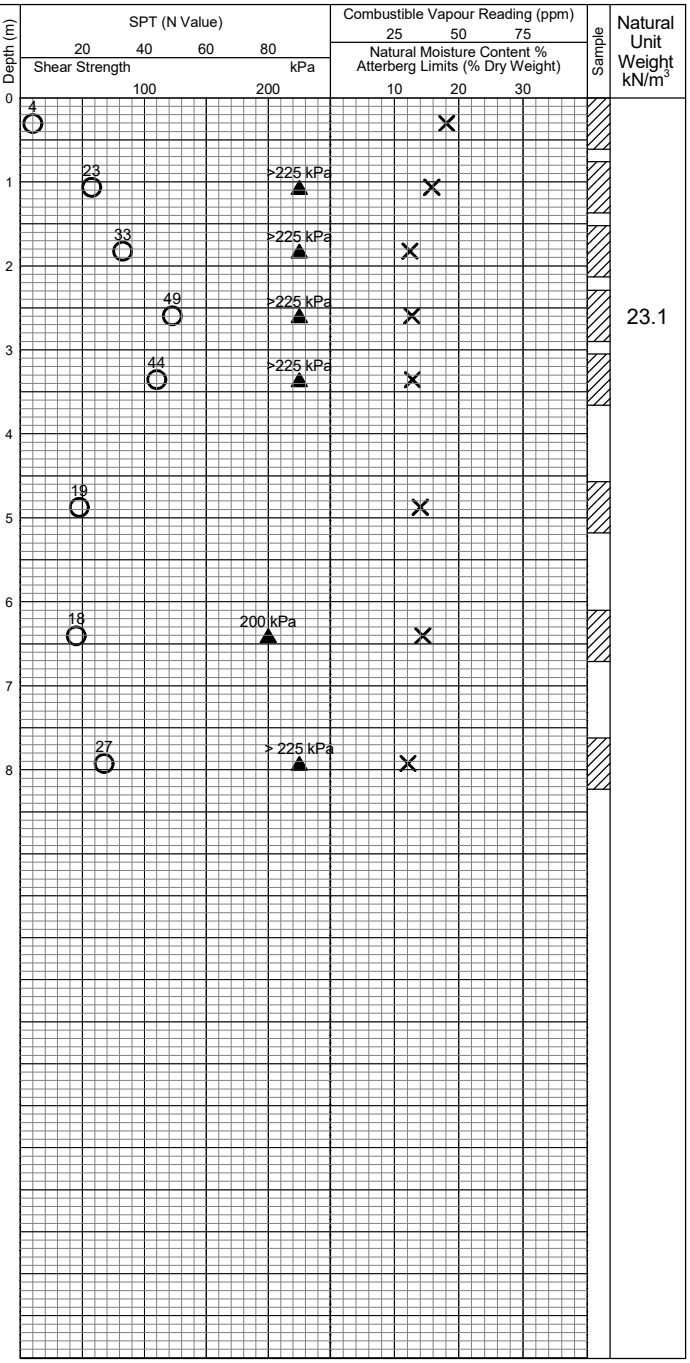
Drill Type: Solid Auger 110mm

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test (S)

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer

Soil Description	ELEV. m
	183.42
TOPSOIL: 200 mm	~183.2
REWORKED TILL:silty clay, trace sand, trace gravel, brown, moist.	~182.7
CLAYEY SILT TILL TO SILTY CLAY TILL: trace gravel, some sand, brown, moist, very stiff to hard.	
turn grey	
rock fragments	~175.2
END OF BOREHOLE	



Natural Unit Weight kN/m³: 23.1

Elapsed Time	Water Level (m)	Hole Open to (m)
Upon Completion	Dry	Open

exp.
New identity of Trow Associates Inc.

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Log of Borehole 3 - 12

Project No. BRM-23015226-A0 Drawing No. 13

Project: Geotechnical and Hydrogeoligical Investigation Sheet No. 1 of 1

Location: Britannia rd and First line, Milton (Phase 3)

See Borehole Location Plan

Date Drilled: June 18, 2024

Drill Type: Solid Auger 110mm

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer

Groundwater	Soil/Rock Symbol	Soil Description	ELEV. m	Depth (m)	SPT (N Value) / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	Sample	Natural Unit Weight kN/m³
		TOPSOIL: 100 mm	183.47	0				
		REWORKED TILL: silty clay, trace sand, trace gravel, brown, moist.	~183.4					
		CLAYEY SILT TILL TO SILTY CLAY TILL: trace gravel, some sand, containing shale fragments, brown, moist, stiff to hard.	~182.8	1	6, 26, >225 kPa			
				2	31, >225 kPa; 37, >225 kPa			
				3	22, >225 kPa			22.3
				4				
				5	13, 100 kPa			
		---------- turn grey		6	17, 200 kPa			
				7				
			~182.5	8	62, >225 kPa			
		END OF BOREHOLE Note: A 50mm diameter monitoring well was installed upon completion	~175.2					

SPT (N Value): 20, 40, 60, 80
Shear Strength kPa: 100, 200
Combustible Vapour Reading (ppm): 25, 50, 75
Natural Moisture Content % / Atterberg Limits (% Dry Weight): 10, 20, 30

Elapsed Time	Water Level (m)	Hole Open to (m)
Upon Completion	Dry	Open
July 30, 2024	0.63	
Aug 8, 2024	0.97	

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exp.
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Log of Borehole 3 - 13

Project No. BRM-23015226-A0 Drawing No. 14

Project: Geotechnical and Hydrogeoligical Investigation Sheet No. 1 of 1

Location: Britannia rd and First line, Milton (Phase 3)

See Borehole Location Plan

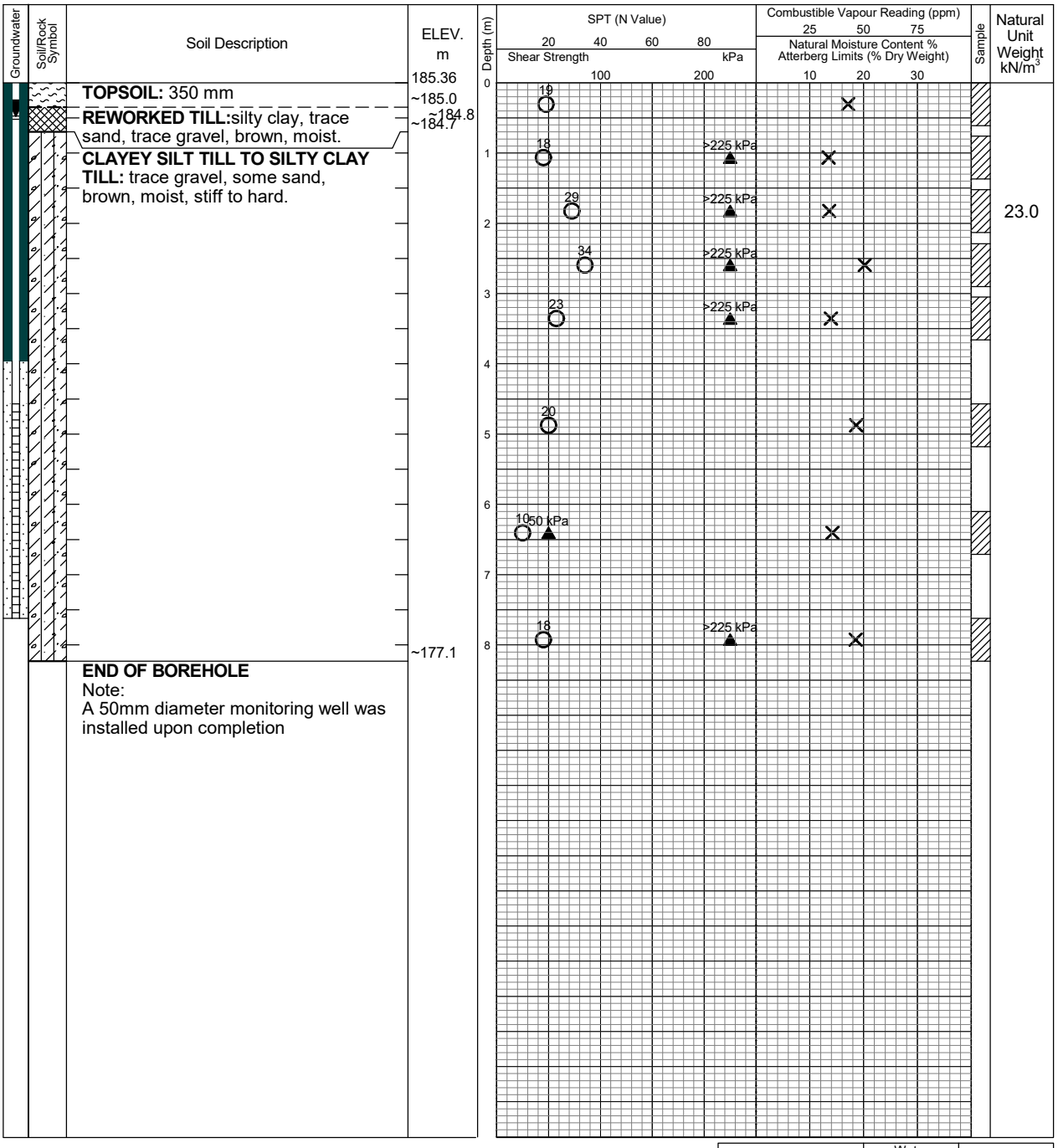
Date Drilled: June 20, 2024

Drill Type: Solid Auger 110mm

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer



Elapsed Time	Water Level (m)	Hole Open to (m)
Upon Completion	Dry	Open
July 30, 2024	0.32	
Aug 8, 2024	0.52	

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New identity of Trow Associates Inc.

EXPLOGBRAMPTON TRIBAL MILTON BH LOGS.GPJ NEW.GDT 9/9/24

Log of Borehole 3 - 14

Project No. BRM-23015226-A0 Drawing No. 15

Project: Geotechnical and Hydrogeoligical Investigation Sheet No. 1 of 1

Location: Britannia rd and First line, Milton (Phase 3)

See Borehole Location Plan

Date Drilled: June 20, 2024

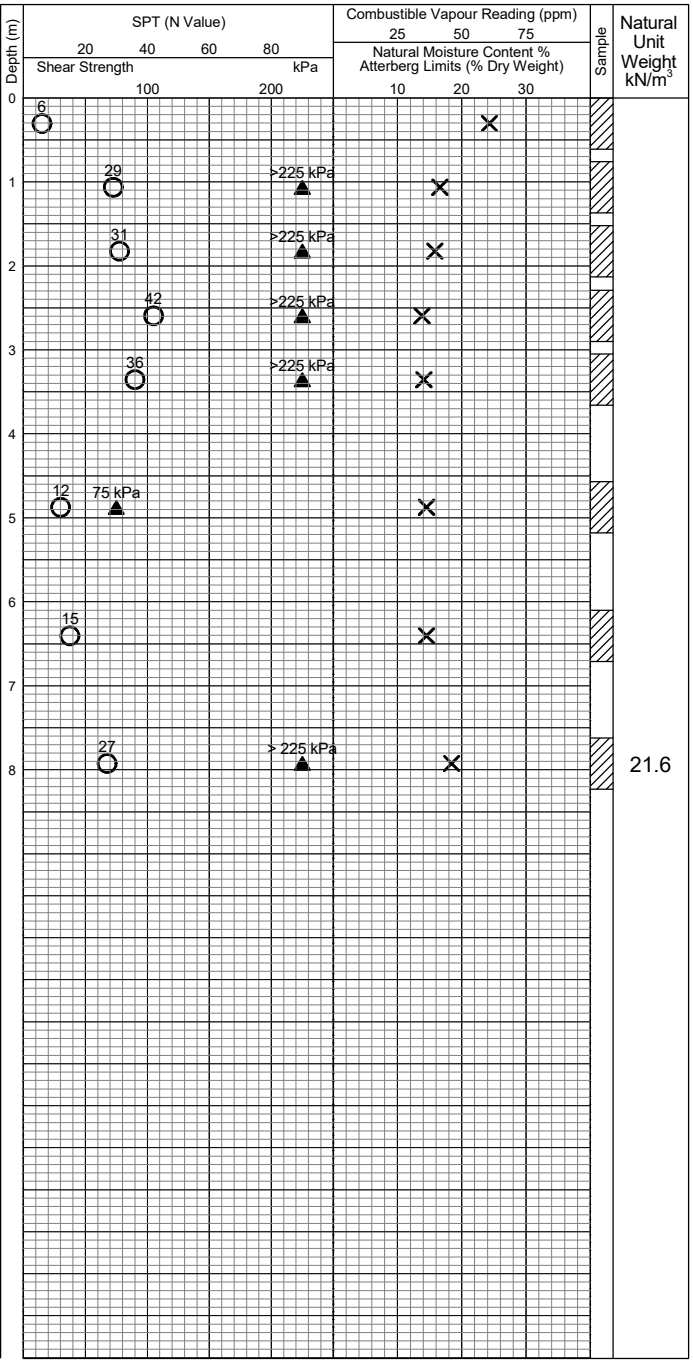
Drill Type: Solid Auger 110mm

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test (S)

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer

Groundwater	Soil/Rock Symbol	Soil Description	ELEV. m
		TOPSOIL: 150 mm	185.36
		REWORKED TILL: silty clay, trace sand, trace gravel, brown, moist.	~185.2
		CLAYEY SILT TILL TO SILTY CLAY TILL: trace gravel, some sand, brown, moist, stiff to hard.	~184.7
		oxidized	
		END OF BOREHOLE	~177.1



Elapsed Time	Water Level (m)	Hole Open to (m)
Upon Completion	Dry	Open

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exp.
New identity of Trow Associates Inc.

Log of Borehole 3 - 15

Project No. BRM-23015226-A0 Drawing No. 16

Project: Geotechnical and Hydrogeoligical Investigation Sheet No. 1 of 1

Location: Britannia rd and First line, Milton (Phase 3)

See Borehole Location Plan

Date Drilled: June 21, 2024

Drill Type: Solid Auger 110mm

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test (S)

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer

Groundwater	Soil/Rock Symbol	Soil Description	ELEV. m	Depth (m)	SPT (N Value) / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	Sample	Natural Unit Weight kN/m³
		TOPSOIL: 150 mm	184.29	0	8			
			~184.1					
		REWORKED TILL:silty clay, trace sand, trace gravel, trace root fragment, brown, moist.	~183.6	1	16	>225 kPa		
		CLAYEY SILT TILL TO SILTY CLAY TILL: trace gravel, some sand, brown, moist, very stiff to hard.		2	32	>225 kPa		
					37	>225 kPa		
				3	34	>225 kPa		23.0
				4				
				5	15	100 kPa		
				6	20			
				7				
				8	25	>225 kPa		
			~176.1					
		END OF BOREHOLE						

Elapsed Time	Water Level (m)	Hole Open to (m)
Upon Completion	Dry	Open

New identity of Trow Associates Inc.

Log of Borehole 3 - 16

Project No. BRM-23015226-A0 Drawing No. 17

Project: Geotechnical and Hydrogeoligical Investigation Sheet No. 1 of 1

Location: Britannia rd and First line, Milton (Phase 3)

See Borehole Location Plan

Date Drilled: June 18, 2024

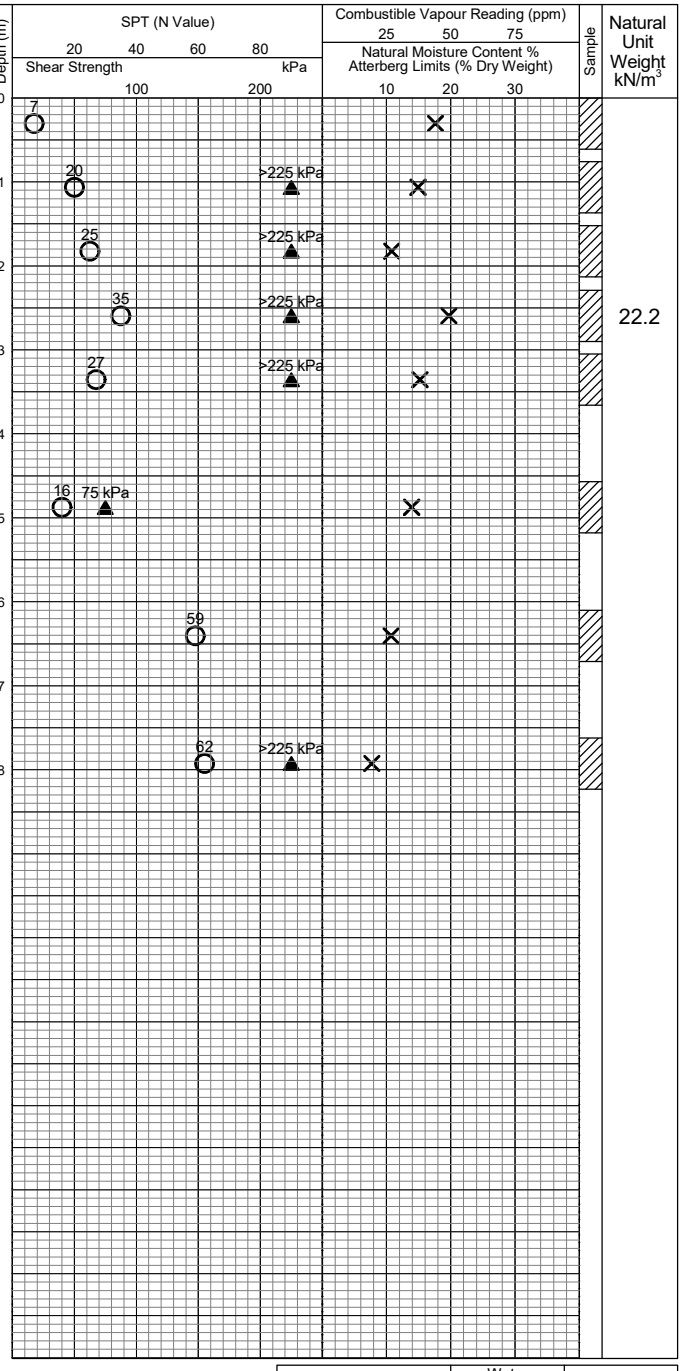
Drill Type: Solid Auger 110mm

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer

Groundwater	Soil/Rock Symbol	Soil Description	ELEV. m
			182.77
		TOPSOIL: 100 mm	~182.7
		REWORKED TILL:silty clay, trace sand, trace gravel, brown, moist.	~182.1
		CLAYEY SILT TILL TO SILTY CLAY TILL: trace gravel, some sand, containing shale fragments, brown, moist, very stiff to hard.	
		rock fragments	
			~174.5
		END OF BOREHOLE	



Elapsed Time	Water Level (m)	Hole Open to (m)
Upon Completion	Dry	Open

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New identity of Trow Associates Inc.

Log of Borehole 3 - 17

Project No. BRM-23015226-A0 Drawing No. 18

Project: Geotechnical and Hydrogeoligical Investigation Sheet No. 1 of 1

Location: Britannia rd and First line, Milton (Phase 3)

See Borehole Location Plan

Date Drilled: June 18, 2024

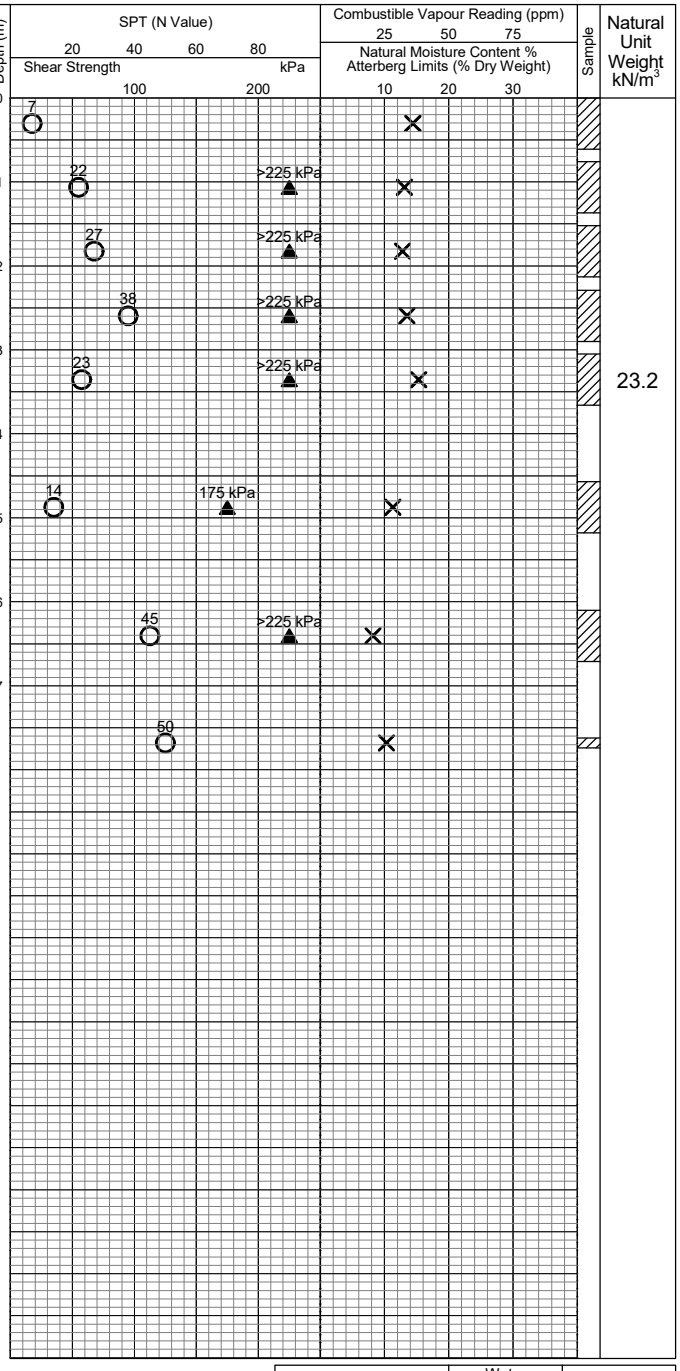
Drill Type: Solid Auger 110mm

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer

Groundwater	Soil/Rock Symbol	Soil Description	ELEV. m
		TOPSOIL: 100 mm	182.53
		REWORKED TILL: silty clay, trace sand, trace gravel, brown, moist.	~182.4
		CLAYEY SILT TILL TO SILTY CLAY TILL: trace gravel, some sand, containing shale fragments, brown, moist, stiff to hard.	~182.0
		oxidized	~181.8
		turn grey	
		END OF BOREHOLE	~174.8
		Note: A 50mm diameter monitoring well was installed upon completion	



Elapsed Time	Water Level (m)	Hole Open to (m)
Upon Completion	Dry	Open
July 30, 2024	0.34	
Aug 8, 2024	0.53	

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Log of Borehole 3 - 18

Project No. BRM-23015226-A0 Drawing No. 19

Project: Geotechnical and Hydrogeoligical Investigation Sheet No. 1 of 1

Location: Britannia rd and First line, Milton (Phase 3)

See Borehole Location Plan

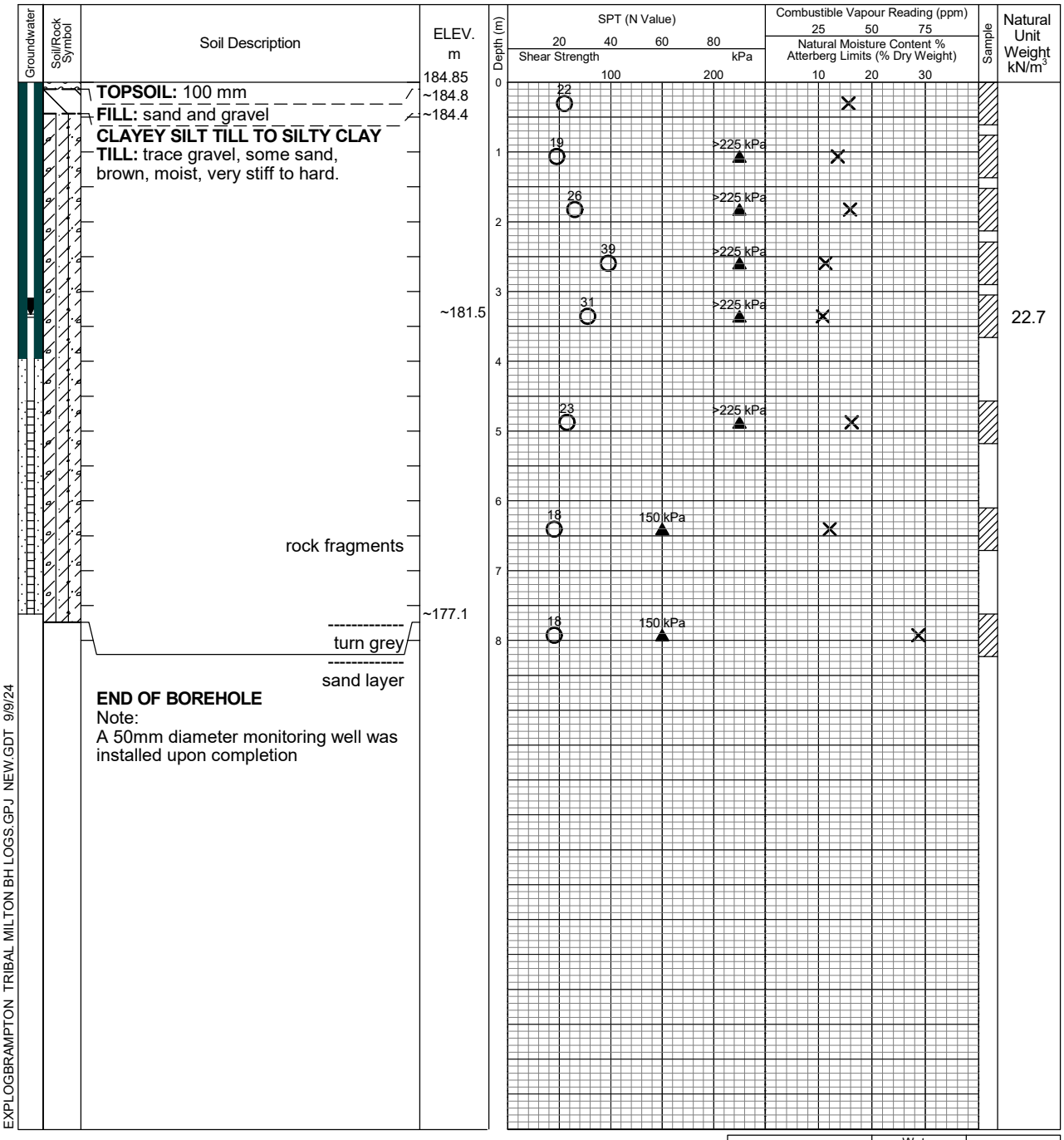
Date Drilled: June 21, 2024

Drill Type: Solid Auger 110mm

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer



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Elapsed Time	Water Level (m)	Hole Open to (m)
Upon Completion	Dry	Open
July 30, 2024	0.63	
Aug 8, 2024	3.37	

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Log of Borehole 3 - 19

Project No. BRM-23015226-A0 Drawing No. 20

Project: Geotechnical and Hydrogeoligical Investigation Sheet No. 1 of 1

Location: Britannia rd and First line, Milton (Phase 3)

See Borehole Location Plan

Date Drilled: June 26, 2024

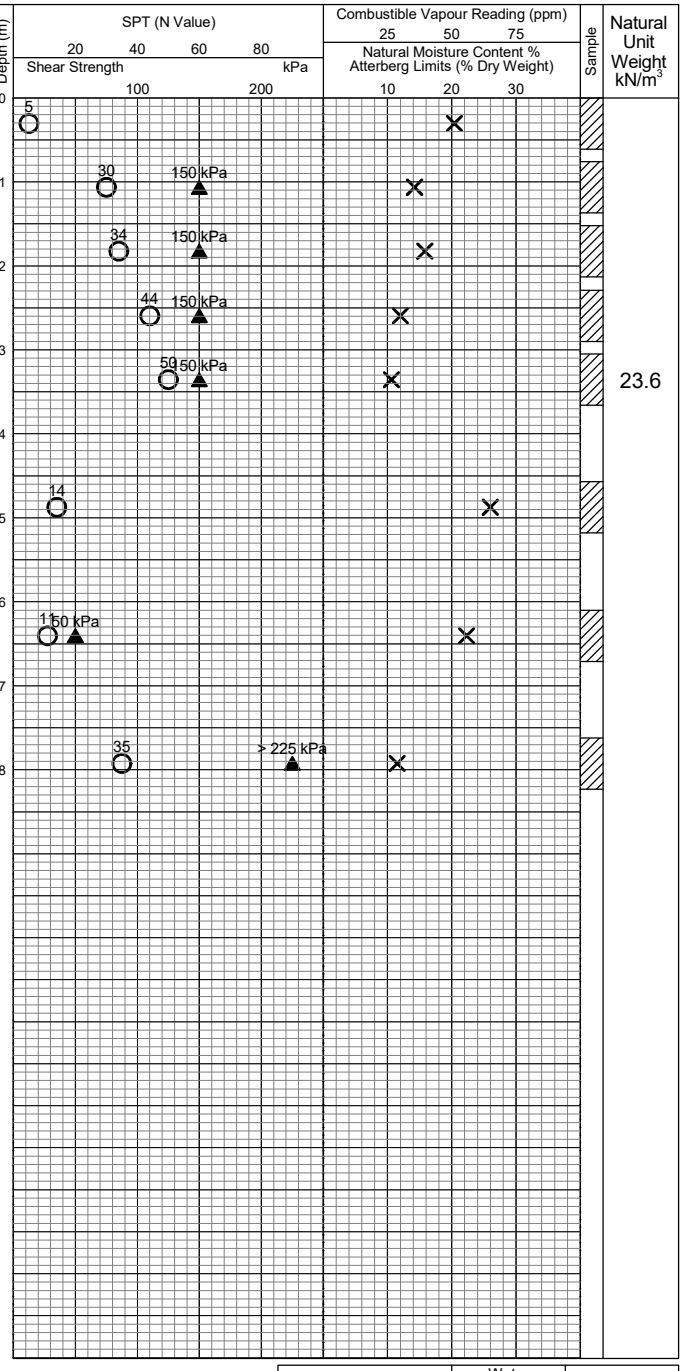
Drill Type: Solid Auger 110mm

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test (S)

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer

Groundwater	Soil/Rock Symbol	Soil Description	ELEV. m
			181.36
		TOPSOIL: 200 mm	~181.2
		REWORKED TILL: silty clay, trace sand, trace gravel, brown, moist.	~180.7
		CLAYEY SILT TILL TO SILTY CLAY TILL: trace gravel, some sand, brown, moist, stiff to hard.	
		---------- turn grey	
			~173.6
		END OF BOREHOLE Note: A 50mm diameter monitoring well was installed upon completion	



Elapsed Time	Water Level (m)	Hole Open to (m)
Upon Completion	Dry	Open

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Log of Borehole 3 - 20

Project No. BRM-23015226-A0 Drawing No. 21

Project: Geotechnical and Hydrogeoligical Investigation Sheet No. 1 of 1

Location: Britannia rd and First line, Milton (Phase 3)

See Borehole Location Plan

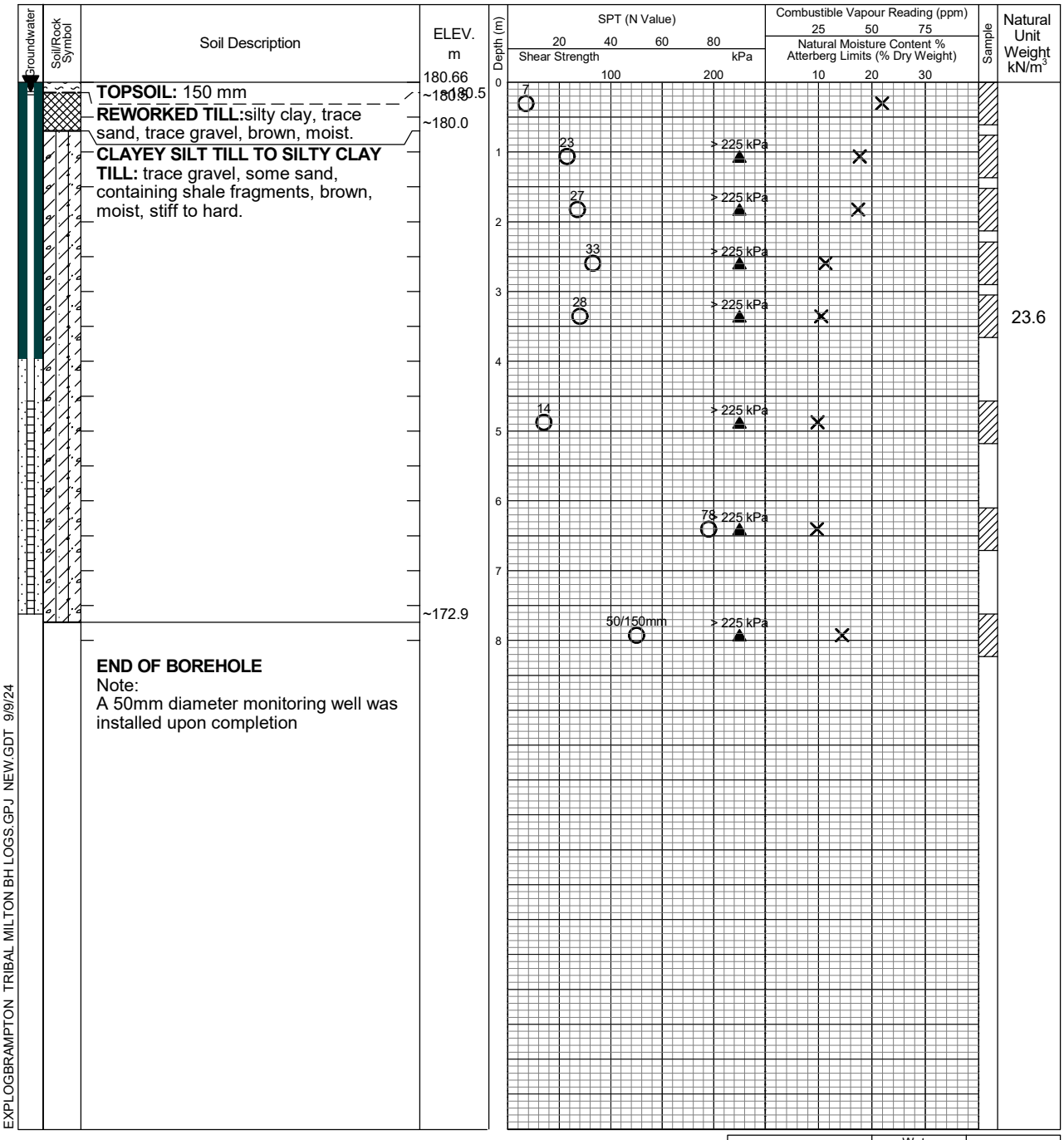
Date Drilled: June 19, 2024

Drill Type: Solid Auger 110mm

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test (S)

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer



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Elapsed Time	Water Level (m)	Hole Open to (m)
Upon Completion	6.1	6.1
July 30, 2024	0.15	
Aug 8, 2024	0.18	

exp.
New identity of Trow Associates Inc.

Log of Borehole 3 - 21

Project No. BRM-23015226-A0 Drawing No. 22

Project: Geotechnical and Hydrogeoligical Investigation Sheet No. 1 of 1

Location: Britannia rd and First line, Milton (Phase 3)

See Borehole Location Plan

Date Drilled: June 21, 2024

Drill Type: Solid Auger 110mm

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test (S)

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer

Groundwater	Soil/Rock Symbol	Soil Description	ELEV. m	Depth (m)
		TOPSOIL: 300 mm	183.41	0
		REWORKED TILL: silty clay, trace sand, trace gravel, brown, moist.	~183.1	
		CLAYEY SILT TILL TO SILTY CLAY TILL: trace gravel, some sand, brown, moist, stiff to hard.	~182.7	
		rock fragments	~179.7	3
		turn grey	~175.7	7
		END OF BOREHOLE		8

Note:
A 50mm diameter monitoring well was installed upon completion

SPT (N Value) / Shear Strength (kPa)

Depth (m)	SPT (N)	Shear Strength
0	6	
1	24	> 225 kPa
2	32	> 225 kPa
2	42	> 225 kPa
3	41	> 225 kPa
5	17	> 225 kPa
6	10	100 kPa
8	21	> 225 kPa

Combustible Vapour Reading (ppm) 25 50 75
Natural Moisture Content % / Atterberg Limits (% Dry Weight) 10 20 30

Sample

Natural Unit Weight kN/m³: 22.2

Elapsed Time	Water Level (m)	Hole Open to (m)
Upon Completion	Dry	Open
July 30, 2024	0.79	
Aug 8, 2024	3.69	

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New identity of Trow Associates Inc.

Log of Borehole 3 - 22

Project No. BRM-23015226-A0 Drawing No. 23

Project: Geotechnical and Hydrogeoligical Investigation Sheet No. 1 of 1

Location: Britannia rd and First line, Milton (Phase 3)

See Borehole Location Plan

Date Drilled: June 26, 2024

Drill Type: Solid Auger 110mm

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test (S)

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer

Groundwater	Soil/Rock Symbol	Soil Description	ELEV. m	Depth (m)
		TOPSOIL: 250 mm	182.65	0
		REWORKED TILL: silty clay, trace sand, trace gravel, brown, moist.	~182.4	
		CLAYEY SILT TILL TO SILTY CLAY TILL: trace gravel, some sand, brown, moist, stiff to hard.	~182.0	
		---------- turn grey		
			~174.9	8
		END OF BOREHOLE		

SPT (N Value): 20 40 60 80
Shear Strength: 100 200 kPa
Combustible Vapour Reading (ppm): 25 50 75
Natural Moisture Content % Atterberg Limits (% Dry Weight): 10 20 30

Sample | Natural Unit Weight kN/m³

4, 29, 39, 47, 46, 13, 8, 27
> 225 kPa
100 kPa
1/8

22.9

Elapsed Time	Water Level (m)	Hole Open to (m)
Upon Completion	Dry	Open

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EXPLOGBRAMPTON TRIBAL MILTON BH LOGS.GPJ NEW.GDT 9/9/24

Log of Borehole 3 - 23

Project No. BRM-23015226-A0 | Drawing No. 24

Project: Geotechnical and Hydrogeoligical Investigation | Sheet No. 1 of 1

Location: Britannia rd and First line, Milton (Phase 3)

See Borehole Location Plan

Date Drilled: June 19, 2024

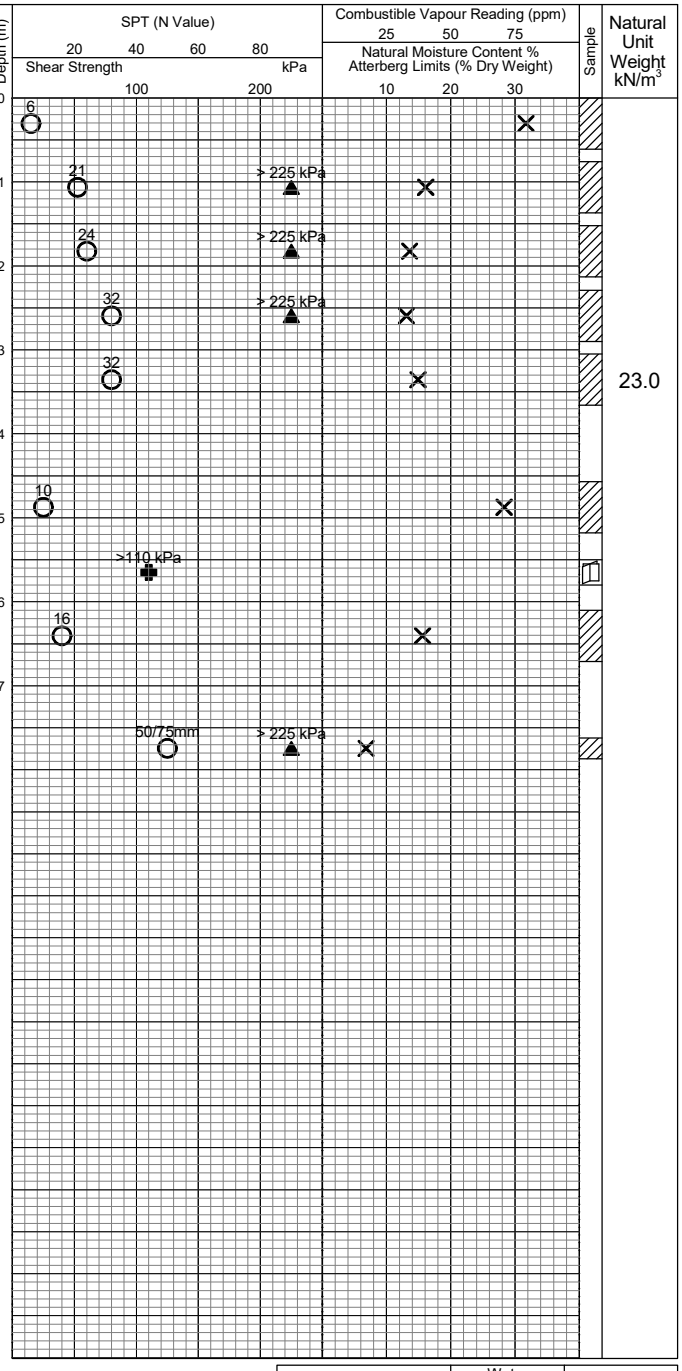
Drill Type: Solid Auger 110mm

Datum: Geodetic

Auger Sample | SPT (N) Value | Dynamic Cone Test | Shelby Tube | Field Vane Test (S)

Combustible Vapour Reading | Natural Moisture | Plastic and Liquid Limit | Undrained Triaxial at % Strain at Failure | Penetrometer

Soil Description	ELEV. m
	181.21
TOPSOIL: 300 mm	~180.9
REWORKED TILL: silty clay, trace sand, trace gravel, brown, moist.	~180.5
CLAYEY SILT TILL TO SILTY CLAY TILL: trace gravel, some sand, containing shale fragments, brown, moist, stiff to hard.	~180.3
oxidized	
turn grey	
END OF BOREHOLE Note: A 50mm diameter monitoring well was installed upon completion	~173.5



Sample

Natural Unit Weight kN/m³: 23.0

Elapsed Time	Water Level (m)	Hole Open to (m)
Upon Completion	Dry	Open
July 30, 2024	0.66	
Aug 8, 2024	0.94	

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New identity of Trow Associates Inc.

EXPLOGBRAMPTON TRIBAL MILTON BH LOGS.GPJ NEW.GDT 9/9/24

Log of Borehole 3 - 24

Project No. BRM-23015226-A0 Drawing No. 25

Project: Geotechnical and Hydrogeoligical Investigation Sheet No. 1 of 1

Location: Britannia rd and First line, Milton (Phase 3)

See Borehole Location Plan

Date Drilled: June 24, 2024

Drill Type: Solid Auger 110mm

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer

Groundwater	Soil/Rock Symbol	Soil Description	ELEV. m	Depth (m)	SPT (N Value) / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	Sample	Natural Unit Weight kN/m³
		TOPSOIL: 200 mm	181.51	0	5			
		REWORKED TILL:silty clay, trace sand, trace gravel, brown, moist.	~181.3					
		CLAYEY SILT TILL TO SILTY CLAY TILL: trace gravel, some sand, brown, moist, very stiff to hard.	~180.8	1	24 > 225 kPa			
				2	33 > 225 kPa 36 > 225 kPa			
		oxidized		3	34 > 225 kPa			23.3
		turn grey		4				
				5	18 > 225 kPa			
				6	21 > 225 kPa			
				7				
			~173.8	8	30 > 225 kPa			
		END OF BOREHOLE						

Elapsed Time	Water Level (m)	Hole Open to (m)
Upon Completion	Dry	Open

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exp.
New identity of Trow Associates Inc.

Log of Borehole 3 - 25

Project No. BRM-23015226-A0 Drawing No. 26

Project: Geotechnical and Hydrogeoligical Investigation Sheet No. 1 of 1

Location: Britannia rd and First line, Milton (Phase 3)

See Borehole Location Plan

Date Drilled: June 18, 2024

Drill Type: Solid Auger 110mm

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test (S)

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer

Groundwater	Soil/Rock Symbol	Soil Description	ELEV. m	Depth (m)	SPT (N Value) / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	Sample	Natural Unit Weight kN/m³
		TOPSOIL: 150 mm	179.82	0				
		REWORKED TILL: silty clay, trace sand, trace gravel, brown, moist.	~179.5					
		CLAYEY SILT TILL TO SILTY CLAY TILL: trace gravel, some sand, brown, moist, very stiff to hard.	~179.1	1	13; 15 > 225 kPa			
				2	31 > 225 kPa; 34 > 225 kPa			
				3	24 > 225 kPa			22.7
		turn grey		4				
				5	23 > 225 kPa			
				6	42 > 225 kPa			
		spoon wet	~171.6	7				
		END OF BOREHOLE Note: A 50mm diameter monitoring well was installed upon completion		8	34 > 225 kPa			

Elapsed Time	Water Level (m)	Hole Open to (m)
Upon Completion	7.46	Open
July 30, 2024	0.24	
Aug 8, 2024	0.32	

New identity of Trow Associates Inc.

EXPLOGBRAMPTON TRIBAL MILTON BH LOGS.GPJ NEW.GDT 9/9/24

Log of Borehole 3 - 26

Project No. BRM-23015226-A0 Drawing No. 27

Project: Geotechnical and Hydrogeoligical Investigation Sheet No. 1 of 1

Location: Britannia rd and First line, Milton (Phase 3)

See Borehole Location Plan

Date Drilled: June 24, 2024

Drill Type: Solid Auger 110mm

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test (S)

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer

Groundwater	Soil/Rock Symbol	Soil Description	ELEV. m	Depth (m)	SPT (N Value) / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	Sample	Natural Unit Weight kN/m³
		TOPSOIL: 250 mm	182.72 ~182.5	0	6			
		REWORKED TILL: silty clay, trace sand, trace gravel, brown, moist.	~182.1	1	23	> 225 kPa		
		CLAYEY SILT TILL TO SILTY CLAY TILL: trace gravel, some sand, brown, moist, stiff to hard.		2	32	> 225 kPa		
					37	> 225 kPa		
				3	32	> 225 kPa		22.5
		turn grey		4				
				5	12	100 kPa		
				6	17			
			~175.0	7				
		END OF BOREHOLE Note: A 50mm diameter monitoring well was installed upon completion		8	29	> 225 kPa		

Elapsed Time	Water Level (m)	Hole Open to (m)
Upon Completion	Dry	Open
July 30, 2024	0.40	
Aug 8, 2024	0.66	

New identity of Trow Associates Inc.

EXPLOGBRAMPTON TRIBAL MILTON BH LOGS.GPJ NEW.GDT 9/9/24

Log of Borehole 3 - 27

Project No. BRM-23015226-A0 Drawing No. 28

Project: Geotechnical and Hydrogeoligical Investigation Sheet No. 1 of 1

Location: Britannia rd and First line, Milton (Phase 3)

See Borehole Location Plan

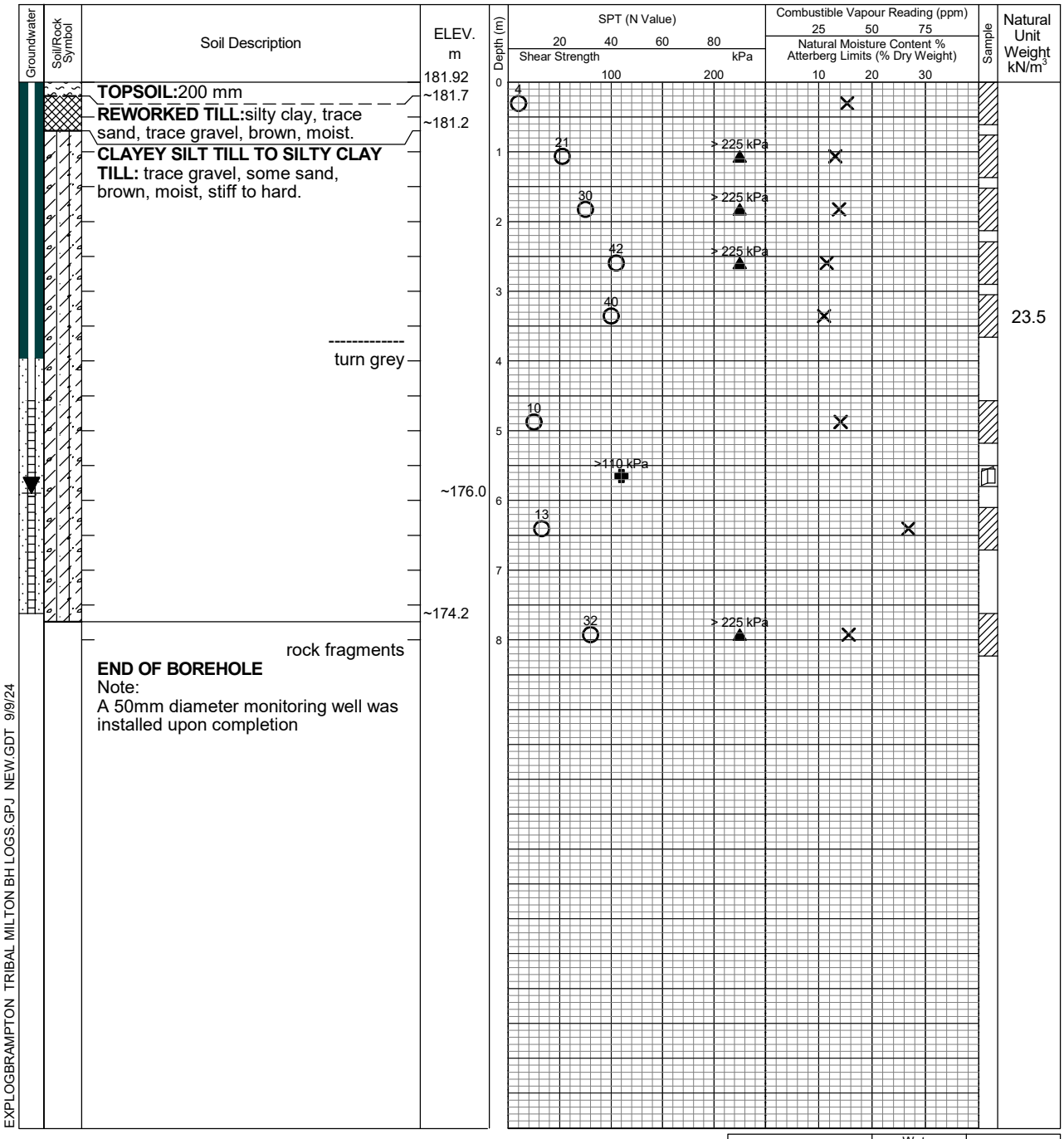
Date Drilled: June 26, 2024

Drill Type: Solid Auger 110mm

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test (S)

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer



Elapsed Time	Water Level (m)	Hole Open to (m)
Upon Completion	Dry	Open
July 30, 2024	3.89	
Aug 8, 2024	5.94	

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New identity of Trow Associates Inc.

Log of Borehole 3 - 28

Project No. BRM-23015226-A0 Drawing No. 29

Project: Geotechnical and Hydrogeoligical Investigation Sheet No. 1 of 1

Location: Britannia rd and First line, Milton (Phase 3)

See Borehole Location Plan

Date Drilled: June 27, 2024

Drill Type: Solid Auger 110mm

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test (S)

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer

Groundwater	Soil/Rock Symbol	Soil Description	ELEV. m	Depth (m)
		TOPSOIL: 200 mm	180.33	0
		REWORKED TILL:silty clay, trace sand, trace gravel, brown, moist.	~180.1	
		CLAYEY SILT TILL TO SILTY CLAY TILL: trace gravel, some sand, brown, moist, stiff to hard.	~179.6	
		oxidized	~177.9	2
		turn grey		4
		sand layer		6
			~172.6	7
		END OF BOREHOLE Note: A 50mm diameter monitoring well was installed upon completion		8

SPT (N Value) 20 40 60 80
Shear Strength 100 200 kPa
Combustible Vapour Reading (ppm) 25 50 75
Natural Moisture Content % Atterberg Limits (% Dry Weight) 10 20 30
Sample
Natural Unit Weight kN/m³

5, 25, 28, 40, 31, 15, 11, 37
> 225 kPa
100 kPa

Elapsed Time	Water Level (m)	Hole Open to (m)
Upon Completion	Dry	Open
July 30, 2024	0.88	
Aug 8, 2024	2.41	

EXPLOGBRAMPTON TRIBAL MILTON BH LOGS.GPJ NEW.GDT 9/9/24

exp.
New identity of Trow Associates Inc.

Log of Borehole 3 - 29

Project No. BRM-23015226-A0 | Drawing No. 30

Project: Geotechnical and Hydrogeoligical Investigation | Sheet No. 1 of 1

Location: Britannia rd and First line, Milton (Phase 3)

See Borehole Location Plan

Date Drilled: June 19, 2024

Drill Type: Solid Auger 110mm

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test (S)

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer

Soil Description	ELEV. m	Depth (m)
TOPSOIL: 200 mm	180.54	0
REWORKED TILL: silty clay, trace sand, trace gravel, brown, moist.	~180.3	
	~179.9	
CLAYEY SILT TILL TO SILTY CLAY TILL: trace gravel, some sand, brown, moist, very stiff to hard.	~179.8	1
oxidized		2
		3
		4
		5
		6
		7
	~172.8	8
sand and gravel layer		
END OF BOREHOLE		
Note: A 25mm diameter piezometer was installed upon completion		

SPT (N Value): 7, 21, 25, 38, 34, 15, 16, 35
Shear Strength (kPa): > 225 kPa, > 225 kPa, > 225 kPa, > 225 kPa, 175 kPa, 150 kPa, > 225 kPa
Combustible Vapour Reading (ppm) 25 50 75
Natural Moisture Content % / Atterberg Limits (% Dry Weight) 10 20 30
Natural Unit Weight kN/m³: 23.5

Elapsed Time	Water Level (m)	Hole Open to (m)
Upon Completion	Dry	Open
July 30, 2024	0.51	
Aug 8, 2024	0.6	

EXPLOGBRAMPTON TRIBAL MILTON BH LOGS.GPJ NEW.GDT 9/9/24

New identity of Trow Associates Inc.

Log of Borehole 3 - 30

Project No. BRM-23015226-A0 Drawing No. 31

Project: Geotechnical and Hydrogeoligical Investigation Sheet No. 1 of 1

Location: Britannia rd and First line, Milton (Phase 3)

See Borehole Location Plan

Date Drilled: June 19, 2024

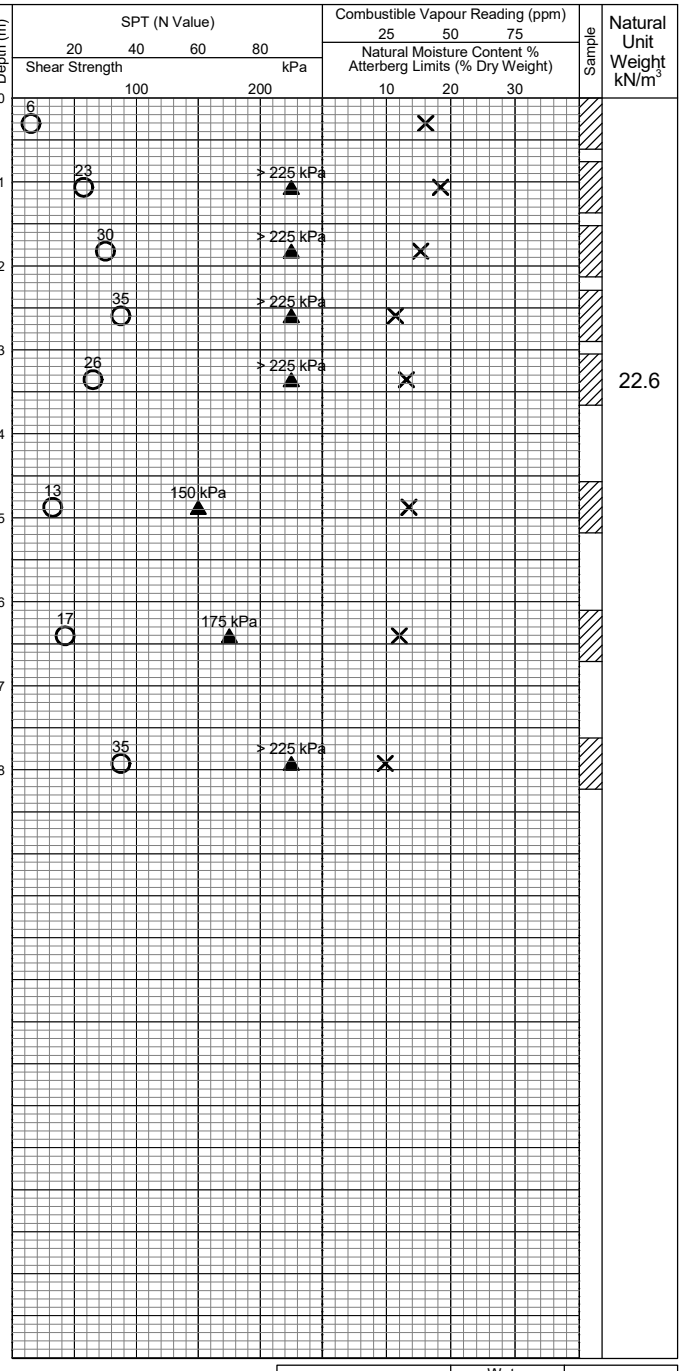
Drill Type: Solid Auger 110mm

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer

Groundwater	Soil/Rock Symbol	Soil Description	ELEV. m
			181.12
		TOPSOIL: 150 mm	~181.0
		REWORKED TILL:silty clay, trace sand, trace gravel, brown, moist.	~180.4
		CLAYEY SILT TILL TO SILTY CLAY TILL: trace gravel, some sand, brown, moist, stiff to hard.	
		oxidized	
			~173.4
		END OF BOREHOLE	



Elapsed Time	Water Level (m)	Hole Open to (m)
Upon Completion	Dry	Open

New identity of Trow Associates Inc.

EXPLOGBRAMPTON TRIBAL MILTON BH LOGS.GPJ NEW.GDT 9/9/24

Log of Borehole 3 - 31

Project No. BRM-23015226-A0 Drawing No. 32

Project: Geotechnical and Hydrogeoligical Investigation Sheet No. 1 of 1

Location: Britannia rd and First line, Milton (Phase 3)

See Borehole Location Plan

Date Drilled: June 24, 2024

Drill Type: Solid Auger 110mm

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test (S)

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer

Soil Description	ELEV. m	Depth (m)
	182.10	0
TOPSOIL: 250 mm	~181.9	
REWORKED TILL: silty clay, trace sand, trace gravel, brown, moist.	~181.4	
CLAYEY SILT TILL TO SILTY CLAY TILL: trace gravel, some sand, brown, moist, stiff to hard.		1
---------- oxidized		2
		3
---------- turn grey		4
		5
		6
		7
	~174.4	8
END OF BOREHOLE		

SPT (N Value): 20 40 60 80
Shear Strength kPa: 100 200
Combustible Vapour Reading (ppm): 25 50 75
Natural Moisture Content % / Atterberg Limits (% Dry Weight): 10 20 30

5
28 > 225 kPa
31 > 225 kPa
37 > 225 kPa
37 > 225 kPa
14 100 kPa
12 100 kPa
24 200 kPa

Natural Unit Weight kN/m³: 22.6

Elapsed Time	Water Level (m)	Hole Open to (m)
Upon Completion	Dry	Open

New identity of Trow Associates Inc.

EXPLOGBRAMPTON TRIBAL MILTON BH LOGS.GPJ NEW.GDT 9/9/24

Log of Borehole 3 - 32

Project No. BRM-23015226-A0 | Drawing No. 33

Project: Geotechnical and Hydrogeoligical Investigation | Sheet No. 1 of 1

Location: Britannia rd and First line, Milton (Phase 3)

See Borehole Location Plan

Date Drilled: June 26, 2024

Drill Type: Solid Auger 110mm

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test (S)

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer

Soil Description	ELEV. m	Depth (m)	SPT (N Value) / Shear Strength kPa	Natural Moisture Content % / Atterberg Limits (% Dry Weight)	Natural Unit Weight kN/m³
TOPSOIL: 150 mm	180.54	0	4		
REWORKED TILL: silty clay, trace sand, trace gravel, brown, moist.	~180.4				
CLAYEY SILT TILL TO SILTY CLAY TILL: trace gravel, some sand, brown, moist, stiff to hard.	~179.8	1	29, > 225 kPa		
		2	36, > 225 kPa		
---------- oxidized		2	44, > 225 kPa		
		3	40, > 225 kPa		22.2
---------- turn grey		4			
		5	15		
		6	14, 100 kPa		
	~172.8	7			
END OF BOREHOLE		8	38, > 225 kPa		

Elapsed Time	Water Level (m)	Hole Open to (m)
Upon Completion	Dry	Open

exp.
New identity of Trow Associates Inc.

EXPLOGBRAMPTON TRIBAL MILTON BH LOGS.GPJ NEW.GDT 9/9/24

Log of Borehole 3 - 33

Project No. BRM-23015226-A0 | Drawing No. 34

Project: Geotechnical and Hydrogeoligical Investigation | Sheet No. 1 of 1

Location: Britannia rd and First line, Milton (Phase 3)

See Borehole Location Plan

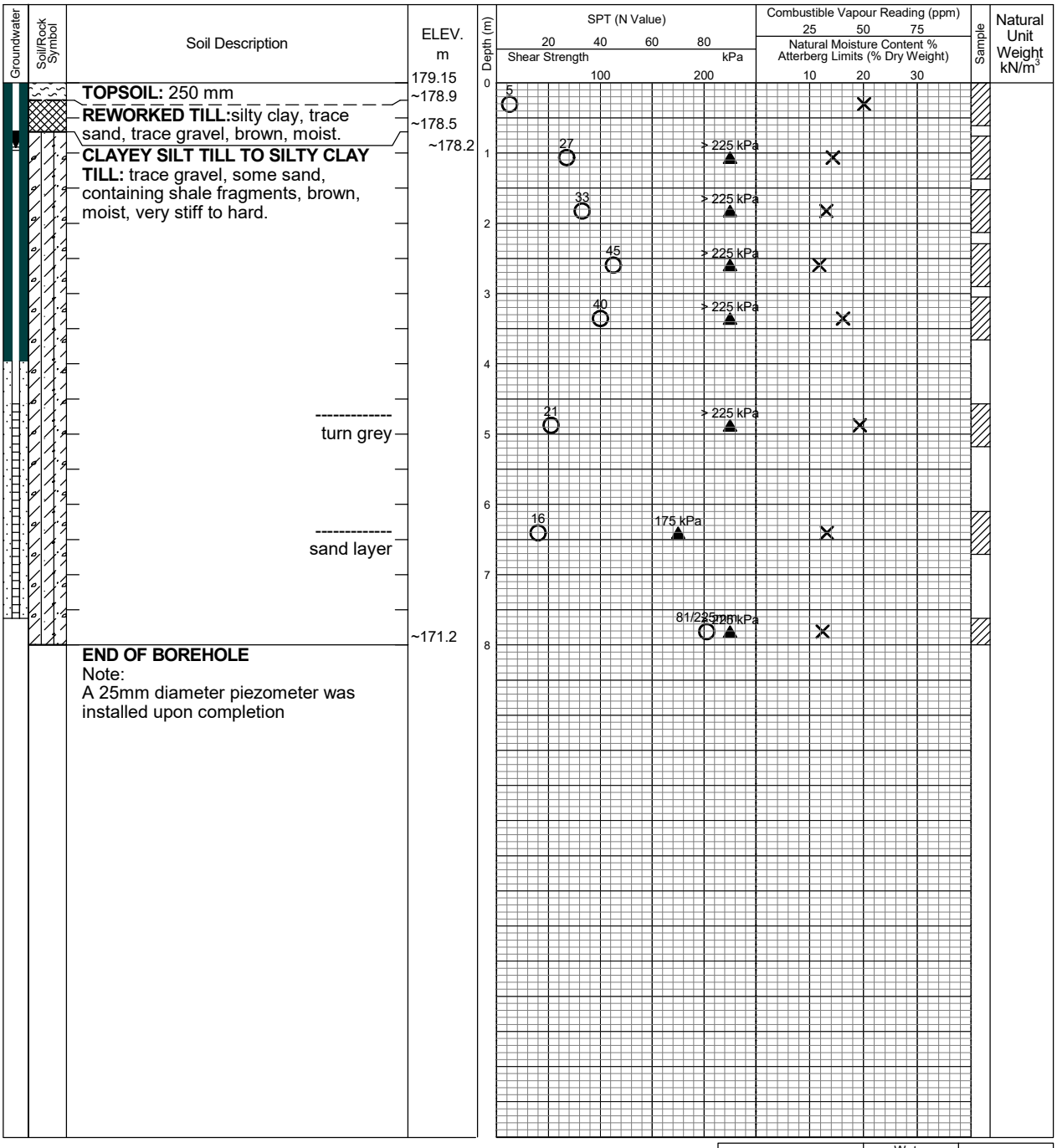
Date Drilled: June 27, 2024

Drill Type: Solid Auger 110mm

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test (S)

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer



Elapsed Time	Water Level (m)	Hole Open to (m)
Upon Completion	Dry	Open
July 30, 2024	0.96	
Aug 8, 2024	0.96	

EXPLOGBRAMPTON TRIBAL MILTON BH LOGS.GPJ NEW.GDT 9/9/24

New identity of Trow Associates Inc.

Appendix A:
Results of Lab Testing

exp Services Inc.
1595 Clark Boulevard, Brampton
Ontario, Canada, L6T 4V1
Telephone: (905) 793-9800
Fax: (905) 793-0641

Grain Size Analysis & Hydrometer Test Report

ST08

Sample Test No.: 449628-2 **Report No.:** 1 **Date Reported:** 16-Jul-24

Project No.: brm-23015226-a0 301
Project Name: Geo Phase 3

Grain Size Proportion (%)

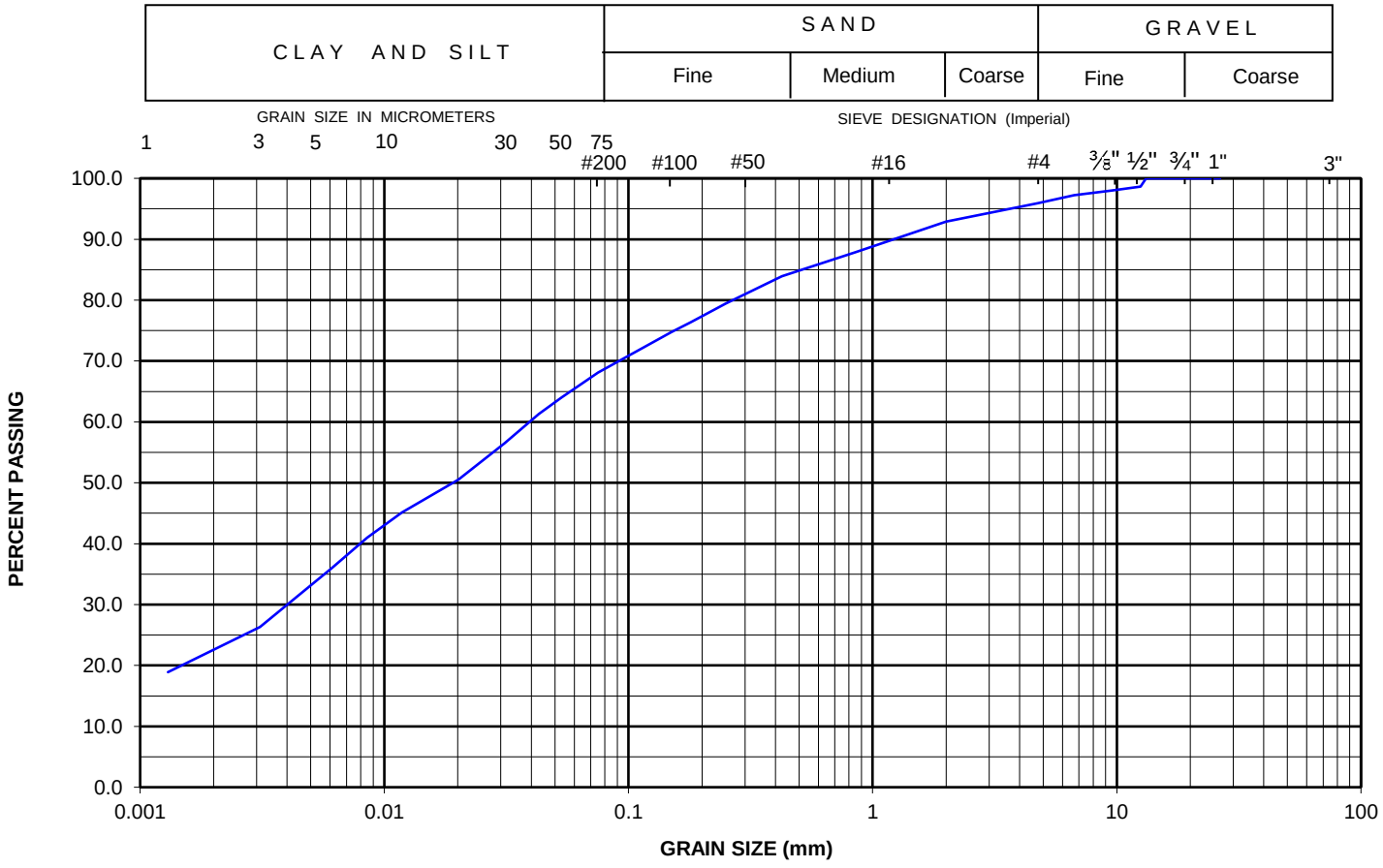
Gravel (> 4.75mm):	**4.1**
Sand (> 75μm, < 4.75mm):	**27.8**
Silt (> 2μm), < 75μm):	**46.3**
Clay (< 2μm):	**21.8**
Total:	**100.0**

Sample Information

Location: BH 3-6
Sample Method: SS
Sample No.: 3
Depth:
Sample Description: Silty Clay Till, trace Gravel, sandy; Brown
Sampled By: J. W.
Sampling Date: 6/17/2024
Date Received: 6/17/2024
Client Sample ID:
Comments:

Grain Size (mm)	% Passing	Grain Size (mm)	% Passing
26.5	100.0	**0.0429**	61.3
22.4	100.0	**0.0311**	56.5
19	100.0	**0.0201**	50.5
16	100.0	**0.0118**	45.1
13.2	100.0	**0.0085**	41.0
12.5	98.6	**0.0061**	36.0
9.5	98.0	**0.0031**	26.3
6.7	97.2	**0.0013**	18.9
4.75	95.9		
2	92.9		
0.85	87.9		
0.425	83.9		
0.25	79.4		
0.18	76.4		
0.15	74.7		
0.075	68.1		
0.053	64.0		

UNIFIED SOIL CLASSIFICATION SYSTEM



Project Manager: Yuanpeng Li **Approved By:** *Original Signed By* **Date Approved:** 16-Jul-24
Arcadio Petrola, Lab Supervisor

exp Services Inc.
1595 Clark Boulevard, Brampton
Ontario, Canada, L6T 4V1
Telephone: (905) 793-9800
Fax: (905) 793-0641

Plasticity Index Test Report

ST03

Project No.: Brm-23015226-A0
Sample Number: 449628-3
Date Sampled: June 17, 2024
Date Received: June 17, 2024

Date Reported: July 17, 2024
Borehole No: BH 3-6 / SS3
Sample Depth:

Liquid Limit

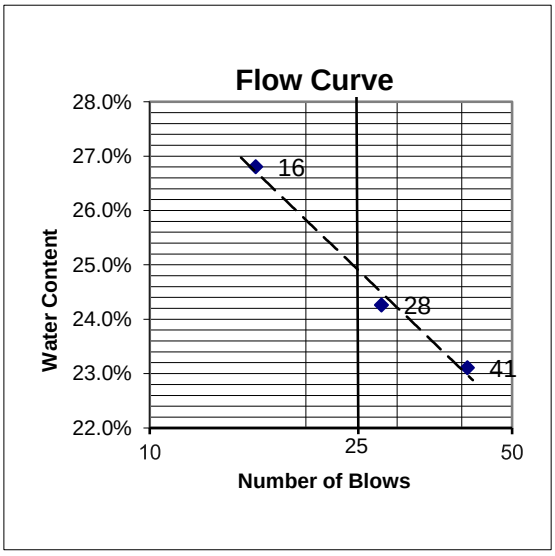
Trial Number	1	2	3	4	5
Number of Blows	41	28	16		
Moisture Tin ID	6	9	19		
Mass of Soil and Tin, g	26.298	24.851	24.081		
Mass of Dry Soil and Tin, g	24.500	23.275	22.294		
Mass of Tin, g	16.720	16.780	15.628		
Mass of Water, g	1.798	1.576	1.787		
Mass of Dry Soil, g	7.780	6.495	6.666		
Water Content	23.1%	24.3%	26.8%		

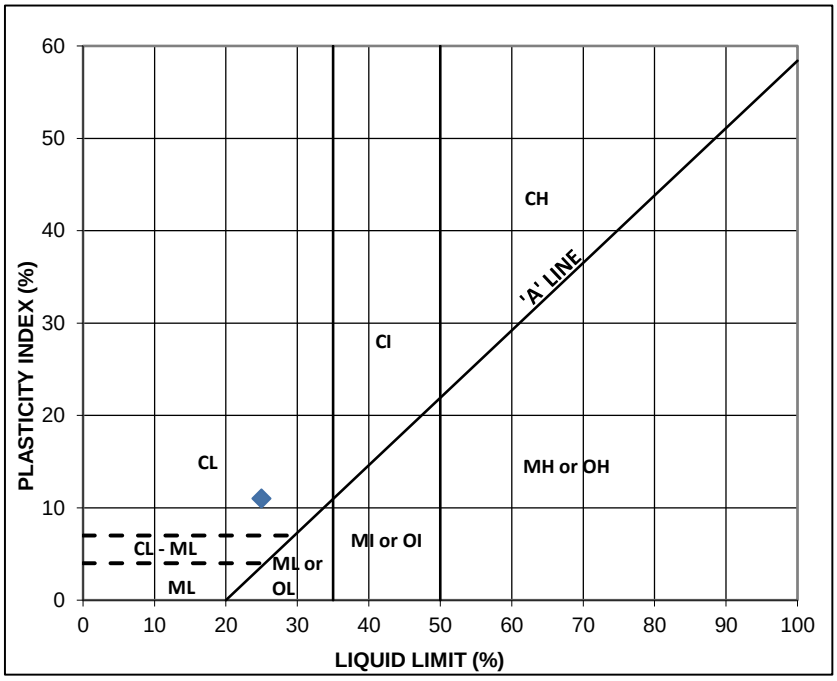
Plastic Limit

Trial Number	1	2	3
Moisture Tin ID	7	11	21
Mass of Soil and Tin, g	25.570	24.638	23.781
Mass of Dry Soil and Tin, g	24.495	23.701	22.792
Mass of Tin, g	16.799	16.740	15.571
Mass of Water, g	1.075	0.937	0.989
Mass of Dry Soil, g	7.696	6.961	7.221
Water Content	14.0%	13.5%	13.7%

Summary of Results

Liquid Limit *(LL)* : 25
Plastic Limit *(PL)* : 14
Plasticity Index *(PI)* : 11
Classification: **CL**





Tested By: **E. Charles Geonzon**
Lab. Technician

Checked By: **Arcadio Petrola, CET**
Senior Lab. Technician

exp Services Inc.
1595 Clark Boulevard, Brampton
Ontario, Canada, L6T 4V1
Telephone: (905) 793-9800
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Grain Size Analysis & Hydrometer Test Report

ST08

Sample Test No.: 449633-2 **Report No.:** 2 **Date Reported:** 16-Jul-24

Project No.: brm-23015226-a0 301
Project Name: Geo Phase 3

Grain Size Proportion (%)

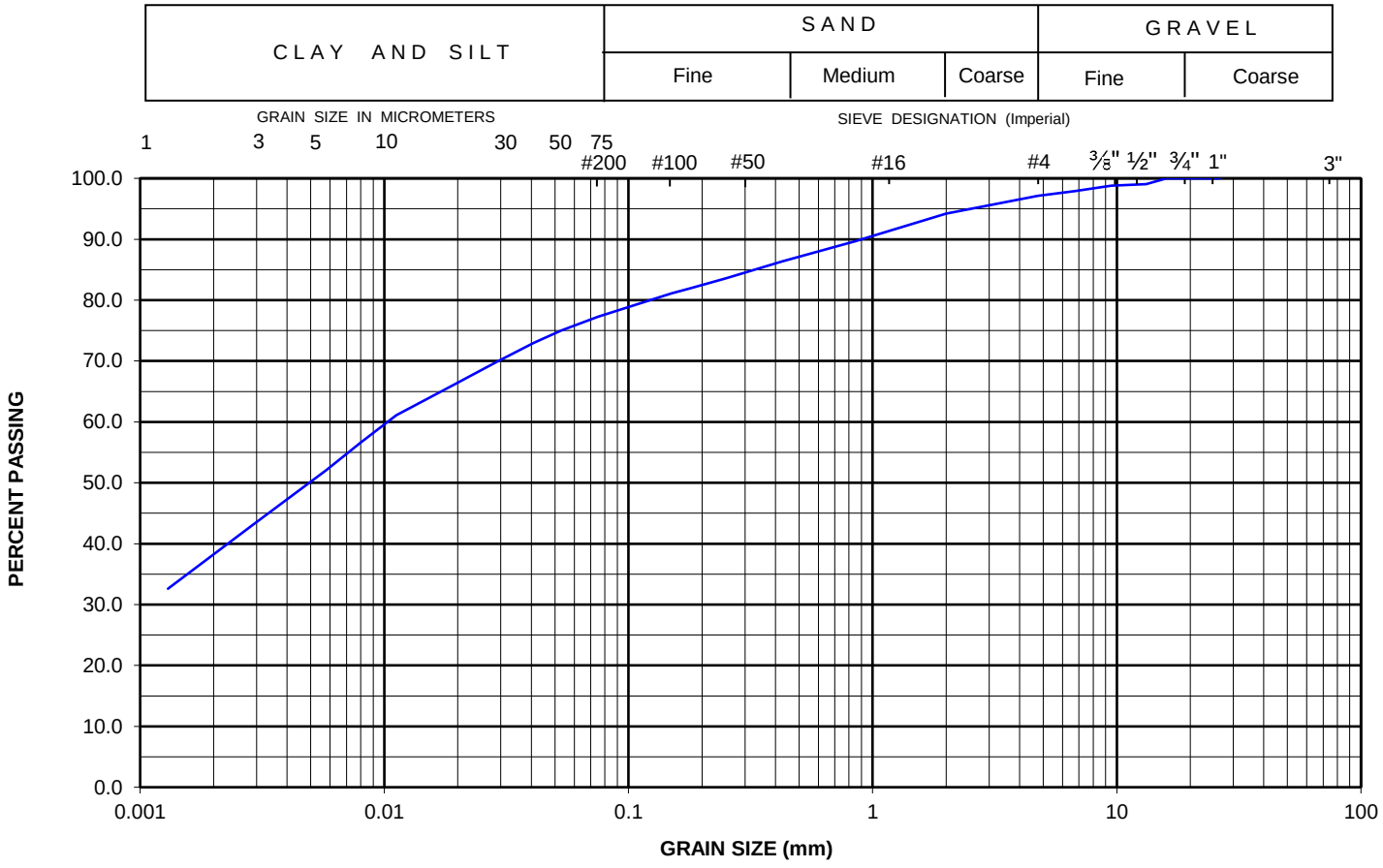
Gravel (> 4.75mm):	**2.9**
Sand (> 75μm, < 4.75mm):	**19.8**
Silt (> 2μm), < 75μm):	**40.1**
Clay (< 2μm):	**37.2**
Total:	**100.0**

Sample Information

Location: BH 3-6
Sample Method: SS
Sample No.: 7
Depth:
Sample Description: Silty Clay Till, some Sand, trace Gravel; Grey
Sampled By: J. W.
Sampling Date: 6/17/2024
Date Received: 6/17/2024
Client Sample ID:
Comments:

Grain Size (mm)	% Passing	Grain Size (mm)	% Passing
26.5	100.0	**0.0294**	70.0
22.4	100.0	**0.0190**	66.0
19	100.0	**0.0112**	61.1
16	100.0	**0.0080**	56.6
13.2	99.1	**0.0058**	52.1
9.5	98.8	**0.0029**	43.1
6.7	97.9	**0.0013**	32.6
4.75	97.1		
2	94.2		
0.85	89.7		
0.425	86.4		
0.25	83.6		
0.18	82.0		
0.15	81.1		
0.075	77.3		
0.053	75.0		
0.041	73.0		

UNIFIED SOIL CLASSIFICATION SYSTEM



Project Manager: Yuanpeng Li **Approved By:** *Original Signed By* **Date Approved:** 16-Jul-24
Arcadio Petrola, Lab Supervisor

exp Services Inc.
1595 Clark Boulevard, Brampton
Ontario, Canada, L6T 4V1
Telephone: (905) 793-9800
Fax: (905) 793-0641

Plasticity Index Test Report

ST03

Project No.: Brm-23015226-A0
Sample Number: 449633-3
Date Sampled: June 17, 2024
Date Received: June 17, 2024

Date Reported: July 17, 2024
Borehole No: BH 3-6 / SS7
Sample Depth:

Liquid Limit

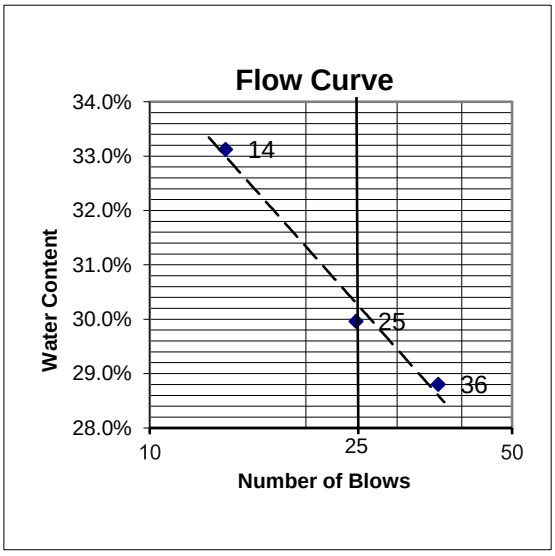
Trial Number	1	2	3	4	5
Number of Blows	36	25	14		
Moisture Tin ID	18	28	36		
Mass of Soil and Tin, g	25.193	24.994	24.796		
Mass of Dry Soil and Tin, g	23.248	22.828	22.552		
Mass of Tin, g	16.496	15.600	15.778		
Mass of Water, g	1.945	2.166	2.244		
Mass of Dry Soil, g	6.752	7.228	6.774		
Water Content	28.8%	30.0%	33.1%		

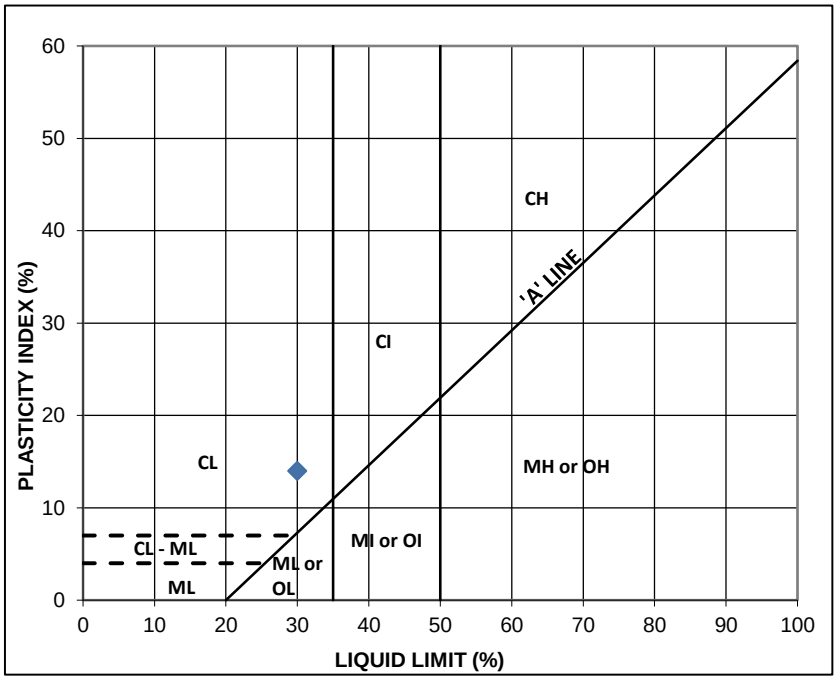
Plastic Limit

Trial Number	1	2	3
Moisture Tin ID	1	12	24
Mass of Soil and Tin, g	26.073	26.119	26.225
Mass of Dry Soil and Tin, g	24.811	24.614	24.906
Mass of Tin, g	16.763	15.395	16.441
Mass of Water, g	1.262	1.505	1.319
Mass of Dry Soil, g	8.048	9.219	8.465
Water Content	15.7%	16.3%	15.6%

Summary of Results

Liquid Limit *(LL)* : 30
Plastic Limit *(PL)* : 16
Plasticity Index *(PI)* : 14
Classification: **CL**





Tested By: **E. Charles Geonzon**
Lab. Technician

Checked By: **Arcadio Petrola, CET**
Senior Lab. Technician

exp Services Inc.
1595 Clark Boulevard, Brampton
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Grain Size Analysis & Hydrometer Test Report

ST08

Sample Test No.: 449833-2 **Report No.:** 3 **Date Reported:** 16-Jul-24

Project No.: brm-23015226-a0 301
Project Name: Geo Phase 3

Grain Size Proportion (%)

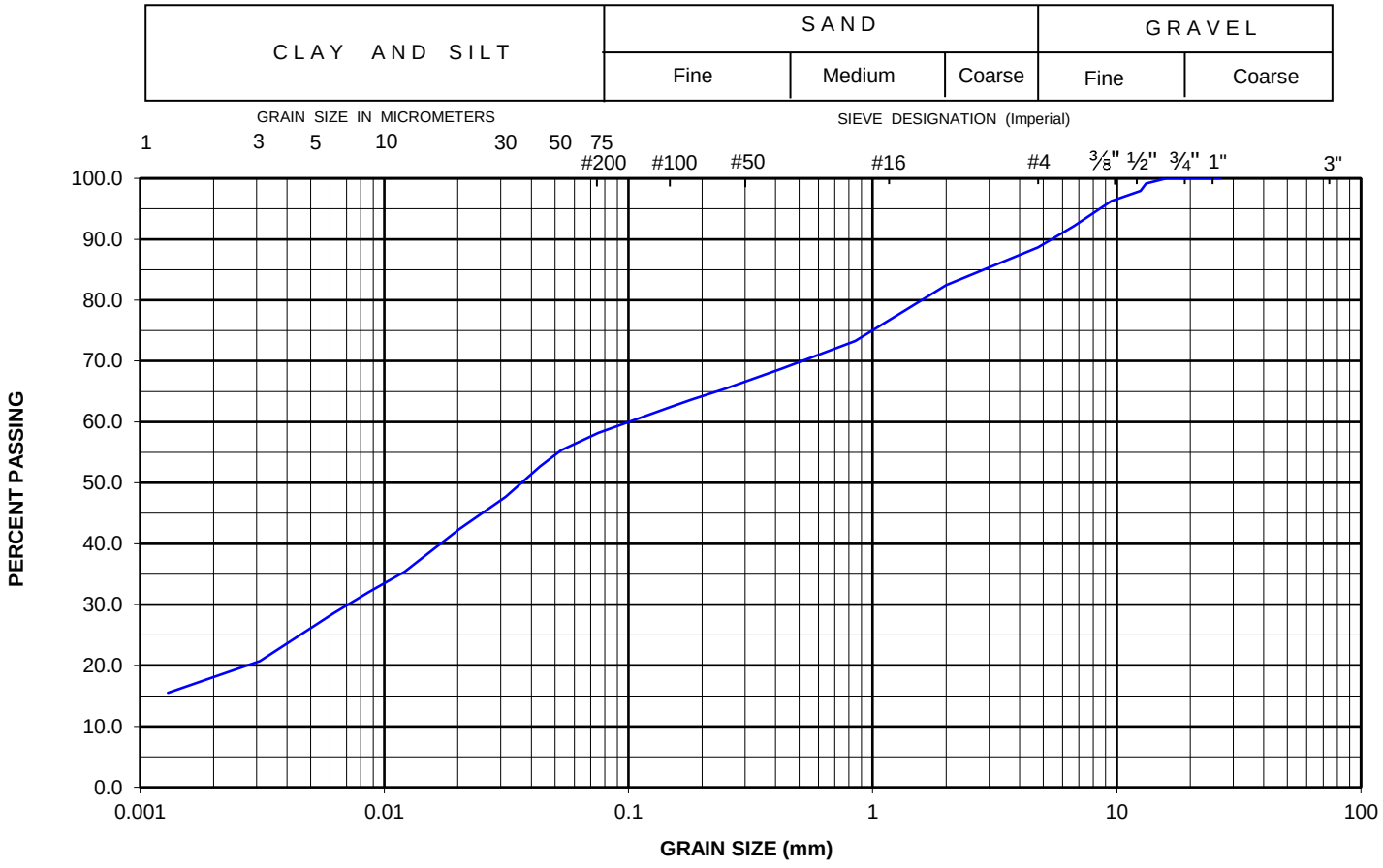
Gravel (> 4.75mm):	**11.3**
Sand (> 75μm, < 4.75mm):	**30.5**
Silt (> 2μm), < 75μm):	**40.7**
Clay (< 2μm):	**17.5**
Total:	**100.0**

Sample Information

Location: BH 3-23
Sample Method: SS
Sample No.: 8
Depth:
Sample Description: Clayey Silt Till, some Gravel, sandy; Reddish Brown
Sampled By: J. W.
Sampling Date: 6/19/2024
Date Received: 6/19/2024
Client Sample ID:
Comments:

Grain Size (mm)	% Passing	Grain Size (mm)	% Passing
26.5	100.0	**0.0434**	52.7
22.4	100.0	**0.0314**	47.7
19	100.0	**0.0203**	42.4
16	100.0	**0.0121**	35.4
13.2	99.1	**0.0086**	32.0
12.5	97.9	**0.0062**	28.6
9.5	96.3	**0.0031**	20.7
6.7	92.2	**0.0013**	15.5
4.75	88.7		
2	82.5		
0.85	73.3		
0.425	68.8		
0.25	65.5		
0.18	63.6		
0.15	62.5		
0.075	58.2		
0.053	55.4		

UNIFIED SOIL CLASSIFICATION SYSTEM



Project Manager: Yuanpeng Li **Approved By:** *Original Signed By* **Date Approved:** 16-Jul-24
Arcadio Petrola, Lab Supervisor

exp Services Inc.
1595 Clark Boulevard, Brampton
Ontario, Canada, L6T 4V1
Telephone: (905) 793-9800
Fax: (905) 793-0641

Plasticity Index Test Report

ST03

Project No.: Brm-23015226-A0
Sample Number: 449833-3
Date Sampled: June 19, 2024
Date Received: June 19, 2024

Date Reported: July 17, 2024
Borehole No: BH 3-23 / SS8
Sample Depth:

Liquid Limit

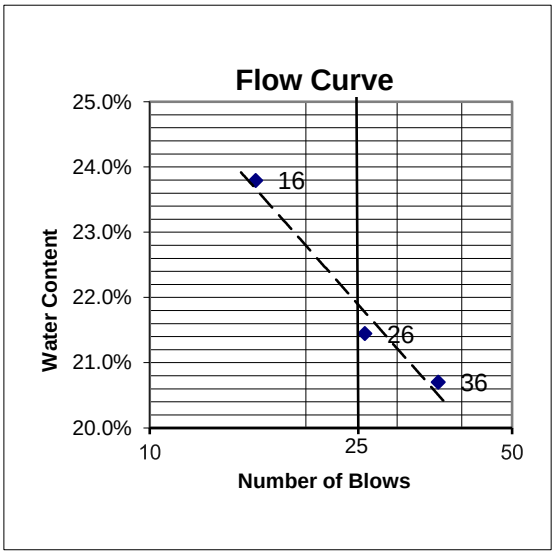
Trial Number	1	2	3	4	5
Number of Blows	36	26	16		
Moisture Tin ID	3	16	25		
Mass of Soil and Tin, g	25.145	26.992	25.992		
Mass of Dry Soil and Tin, g	23.701	25.181	24.192		
Mass of Tin, g	16.727	16.738	16.628		
Mass of Water, g	1.444	1.811	1.800		
Mass of Dry Soil, g	6.974	8.443	7.564		
Water Content	20.7%	21.4%	23.8%		

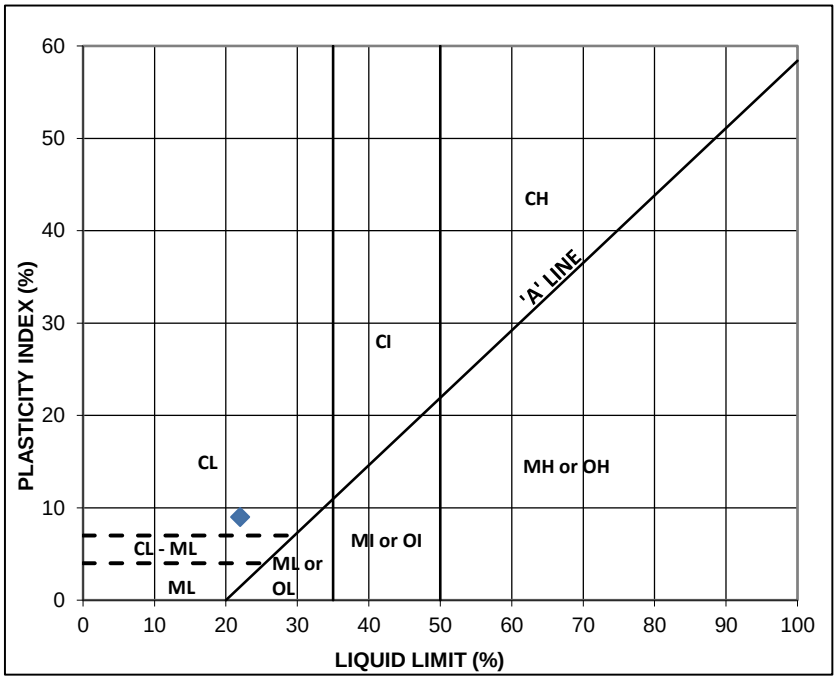
Plastic Limit

Trial Number	1	2	3
Moisture Tin ID	4	20	35
Mass of Soil and Tin, g	24.968	24.794	24.969
Mass of Dry Soil and Tin, g	23.917	23.870	23.930
Mass of Tin, g	15.501	16.681	15.614
Mass of Water, g	1.051	0.924	1.039
Mass of Dry Soil, g	8.416	7.189	8.316
Water Content	12.5%	12.9%	12.5%

Summary of Results

Liquid Limit *(LL)* : 22
Plastic Limit *(PL)* : 13
Plasticity Index *(PI)* : 9
Classification: **CL**





Tested By: **E. Charles Geonzon**
Lab. Technician

Checked By: **Arcadio Petrola, CET**
Senior Lab. Technician

Appendix B:
Engineered Fill Recommendations

Foundations placed on engineered fill comprising native soil from the site - or imported materials - may be designed for an SLS geotechnical reaction of 150 kPa (ULS factored geotechnical resistance of 225 kPa).

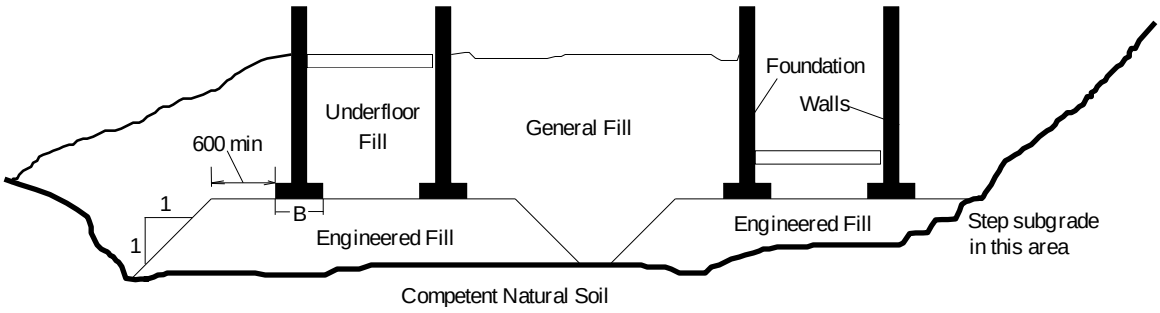
Additional comments with regard to engineered fill are as follows:

- The area must be stripped of all topsoil, existing fill material or other deleterious material and proof-rolled. Soft spots must be dug out. The stripped native subgrade must be examined and approved by a geotechnical engineer prior to placement of fill.

- The approved engineered fill must be placed in loose lifts not exceeding 200 mm and compacted to 100% Standard Proctor dry density throughout. Granular fill is preferred.

- Full time geotechnical inspection during placement of engineered fill is required.

- The fill must be placed such that the specified geometry is achieved as follows:.



Foundations on Engineered Fill (schematic)

- A minimum footing width of 500 mm (20 inches) is suggested. It is recommended that poured concrete basement walls should be reinforced with 2 – 15M rebars above the footings and below the window sill.
- All excavations must be done in accordance with the Occupational Health and Safety Regulations of Ontario.

Appendix C:
Certificates of Analyses

Your Project #: BRM-23015226-A0/301
Site#: BRAMPTON GEOTECHNICAL
Site Location: BRITANNIA ROAD AND FIRST LINE, MILTON
Your C.O.C. #: N/A

Attention: Jack Li

exp Services Inc
Brampton Branch
1595 Clark Blvd
Brampton, ON
CANADA L6T 4V1

Report Date: 2024/07/10
Report #: R8228553
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4K5258
Received: 2024/07/05, 14:27

Sample Matrix: Soil
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
pH CaCl2 EXTRACT	1	2024/07/09	2024/07/09	CAM SOP-00413	EPA 9045 D m
Sulphate (20:1 Extract)	1	2024/07/09	2024/07/10	CAM SOP-00464	MOE E3013 m

Remarks:

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

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

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

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

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Your Project #: BRM-23015226-A0/301
Site#: BRAMPTON GEOTECHNICAL
Site Location: BRITANNIA ROAD AND FIRST LINE, MILTON
Your C.O.C. #: N/A

Attention: Jack Li

exp Services Inc
Brampton Branch
1595 Clark Blvd
Brampton, ON
CANADA L6T 4V1

Report Date: 2024/07/10
Report #: R8228553
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4K5258
Received: 2024/07/05, 14:27

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Patricia Legette, Project Manager
Email: Patricia.Legette@bureauveritas.com
Phone# (905)817-5799

==========

This report has been generated and distributed using a secure automated process.
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Bureau Veritas Job #: C4K5258
Report Date: 2024/07/10

exp Services Inc
Client Project #: BRM-23015226-A0/301
Site Location: BRITANNIA ROAD AND FIRST LINE, MILTON
Sampler Initials: JL

RESULTS OF ANALYSES OF SOIL

Bureau Veritas ID		ZQN328		
Sampling Date		2024/06/26 15:00		
COC Number		N/A		
	UNITS	**BOREHOLE 3-14-SS3**	**RDL**	**QC Batch**
Inorganics				
Available (CaCl2) pH	pH	7.90		9503336
Soluble (20:1) Sulphate (SO4)	ug/g	300	20	9502323

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C4K5258
Report Date: 2024/07/10

exp Services Inc
Client Project #: BRM-23015226-A0/301
Site Location: BRITANNIA ROAD AND FIRST LINE, MILTON
Sampler Initials: JL

TEST SUMMARY

Bureau Veritas ID: ZQN328
Sample ID: BOREHOLE 3-14-SS3
Matrix: Soil

Collected: 2024/06/26
Shipped:
Received: 2024/07/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
pH CaCl2 EXTRACT	AT	9503336	2024/07/09	2024/07/09	Taslima Aktar
Sulphate (20:1 Extract)	SKAL/EC	9502323	2024/07/09	2024/07/10	Alina Dobreanu

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GENERAL COMMENTS

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

Package 1	9.0°C

Results relate only to the items tested.

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Bureau Veritas Job #: C4K5258
Report Date: 2024/07/10

QUALITY ASSURANCE REPORT

exp Services Inc
Client Project #: BRM-23015226-A0/301
Site Location: BRITANNIA ROAD AND FIRST LINE, MILTON
Sampler Initials: JL

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9502323	Soluble (20:1) Sulphate (SO4)	2024/07/10	NC	70 - 130	96	70 - 130	<20	ug/g	18	35
9503336	Available (CaCl2) pH	2024/07/09			100	97 - 103			0.37	N/A

N/A = Not Applicable

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

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

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

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

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

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Bureau Veritas Job #: C4K5258
Report Date: 2024/07/10

exp Services Inc
Client Project #: BRM-23015226-A0/301
Site Location: BRITANNIA ROAD AND FIRST LINE, MILTON
Sampler Initials: JL

VALIDATION SIGNATURE PAGE

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

Cristina Carriere

Cristina Carriere, Senior Scientific Specialist

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6740 Campobello Road, Mississauga, Ontario L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5779 Toll Free: 800-563-6266
CAM FCD-01191/6

CHAIN OF CUSTODY RECORD

Invoice Information

Company Name: EXP Services Inc.
Contact Name: Jack Li
Address: 1595 Clark Boulevard, Brampton, Ont. L6T 4V1
Phone: 416-319-5773 Fax: 905-793-0641
Email: jack.li@exp.com

Report Information (if differs from invoice)

Company Name:
Contact Name:
Address:
Phone: Fax:
Email:

Project Information (where applicable)

Quotation #: Stream 3
P.O. #/ AFE#: Brampton Geotechnical
Project #: BRM-23015226-A0 / 301
Site Location: Britannia Road and First Line, Milton
Site #:
Site Location Province: Ontario
Sampled By: Jack Li

Turnaround Time (TAT) Required

[x] Regular TAT (5-7 days) Most analyses

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Rush TAT (Surcharges will be applied)
[ ] 1 Day [ ] 2 Days [ ] 3-4 Days

Date Required: /
Rush Confirmation #:

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

Regulation 153

[ ] Table 1 [ ] Res/Park [ ] Med/ Fine
[ ] Table 2 [ ] Ind/Comm [ ] Coarse
[ ] Table 3 [ ] Agri/ Other
[ ] Table _____
FOR RSC (PLEASE CIRCLE) Y / N
No

Other Regulations

[ ] CCME [ ] Sanitary Sewer Bylaw
[ ] MISA [ ] Storm Sewer Bylaw
[ ] PWQO Region
[ ] Other (Specify)
[ ] REG 558 (MIN. 3 DAY TAT REQUIRED)
[ ] REG 406 Table

Include Criteria on Certificate of Analysis: Y / N ✓

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

LABORATORY USE ONLY

CUSTODY SEAL Y / N: Present N, Intact N
COOLER TEMPERATURES: 9 | 9 | 9
COOLING MEDIA PRESENT: (Y) / N

	SAMPLE IDENTIFICATION	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	# OF CONTAINERS SUBMITTED	FIELD FILTERED (CIRCLE) Metals / Hg / CrVI	BTEX/ PHC F1	PHCs F2 - F4	VOCs	REG 153 METALS & INORGANICS	REG 153 ICPMS METALS	REG 153 ICPMS (Hg, Cr VI, ICPMS Metals, HWS - B)	pH & SULPHATE	mSPLP METALS	TCLP (Metals, BAP, VOC)	Ignitability					HOLD- DO NOT ANALYZE	COMMENTS
1	Borehole 3-14 - SS3	26-Jun-24	3:00pm	Soil	1								X									
2																						
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)
Jack Li	6/28/2024	12:00pm			

NONT-2024-07-512