TOWN OF CALEDON
PLANNING
RECEIVED
March 28, 2024

12892 Dixie Road Proposed Industrial Development

Geotechnical Investigation

Project Location:

12892 Dixie Road
Caledon, ON

Prepared for:

Tribal Partners (Canada) Inc.
201-2700 Steeles Avenue West
Vaughan, ON L4K 3C8

Prepared by:

MTE Consultants
123 St. George Street
London, ON N6A 3A1

Revised February 23, 2024

MTE File No.: 48023-200

Engineers, Scientists, Surveyors.

Contents

1.0 Introduction 1
2.0 Field and Laboratory Program 1
3.0 Soil Conditions 2
3.1 Topsoil 2
3.2 Pavement Structure 2
3.3 Fill 2
3.4 Glacial Till Deposits 3
3.5 Sands and Silts 3
4.0 Groundwater Conditions 4
5.0 Discussion and Recommendations 4
5.1 General 4
5.2 Slope Stability Analysis 5
5.3 Site Preparation 6
5.4 Site Servicing 7
5.4.1 Excavations and Dewatering 7
5.4.2 Pipe Bedding 7
5.4.3 Trench Backfilling 8
5.5 Foundation Design 8
5.6 Concrete Slab-on-Grade 9
5.7 Pavements 10
5.8 Stormwater Infiltration 11
5.9 Stormwater Management Area 11
5.10 Construction inspection and Testing 12
6.0 Limitations of Report 13

Tables

Table 1 - Results of Glacial Till Deposits Particle Size Distribution Analyses 3
Table 2 - Results of Sand and Silt Deposits Particle Size Distribution Analyses 3
Table 3 – Groundwater Measurements 4
Table 4 – Soil Parameter used in Slope Analysis 5
Table 5 - Engineered Fill Requirements 7
Table 6 - Pavement Design 10

Appendices

Appendix A Figures
Appendix B Borehole Logs
Appendix C Laboratory Test Results

1.0 Introduction

MTE Consultants Inc. (MTE) was retained by Tribal Partners (Canada) Inc. (Tribal Partners) to conduct a geotechnical investigation for the properties located at 12892 Dixie Road in Caledon, Ontario, as shown on **Figure 1 in Appendix A**. The site is currently used for agricultural purposes and is approximately 195 acres in area. The site contains associated agricultural buildings, with exterior parking and driveway areas.

Based on the preliminary plan provided by Ware Malcomb, the proposed development will consist of multiple large industrial buildings with associated driveways and parking lot areas. Ground surface elevations at the borehole locations range from 264.5 to 272.0 m.

The purpose of this geotechnical investigation is to determine the soil and groundwater conditions in the area of the proposed development and provide geotechnical engineering recommendations for site grading, site servicing, foundations, floor slabs, pavement design, and subdrainage requirements.

2.0 Field and Laboratory Program

The fieldwork for this investigation was carried out between October 19 and 29, 2020 and February 8 to 11, 2021 and involved the drilling of fifty-seven boreholes (Boreholes MW101-20 to MW157-21) to depths ranging from 3.5 to 12.0 m. The locations of the boreholes are shown on the Site Plan, **Figure 1 in Appendix A**.

Private and public utility companies were contacted prior to the start of drilling activities in order to isolate underground utilities near the boring locations.

The boreholes were advanced with a CME 75 track mounted drill rig equipped with continuous flight solid stem and hollow stem augers, supplied and operated by Tri-Phase Group and Orbit Gallant Drilling.

Representative soil samples were recovered throughout the depths explored. Standard Penetration Tests (SPT) were carried out during sampling operations in the boreholes using conventional split spoon equipment. The SPT N-values recorded are plotted on the borehole logs in **Appendix B**.

Cohesive soil samples were tested using a pocket penetrometer to determine approximate shear strengths. The results of the penetrometer testing are plotted on the appended borehole logs.

Upon completion of drilling, monitoring wells were installed in MW101-20 to MW107-20 and MW157-20. The remaining boreholes were backfilled with soil cuttings and bentonite in accordance with Ontario Regulation 468/10 (formerly O. Reg. 903) under the provinces Water Resources Act.

Eight 50 mm diameter monitoring wells were installed in Boreholes MW101-20 to MW107-20 and MW157-20 to allow measurement of stabilized groundwater levels and groundwater sampling and testing, if required. The installations comprised 1.5 m filtered screen and bentonite seals above the screen. Stabilized water level measurements were taken by MTE on November 23 and December 14, 2020. Details of the installation and groundwater observations and measurements are provided on the appended borehole logs.

The monitoring wells were installed in accordance to Ontario Regulation 468/10. A licensed well technician must properly decommission all wells before construction. The construction, maintenance and abandonment of the wells are regulated under the province's Water Resources Act.

The fieldwork was monitored throughout by a member of our geotechnical engineering staff, who directed the drilling procedures; documented SPT tests; conducted pocket penetrometer tests; documented the soil stratigraphies; monitored the groundwater conditions; and transported the recovered soil samples back to our office for further classification.

The ground surface elevations at the borehole locations were surveyed by MTE OLS Ltd. and referenced to geodetic datum.

All of the soil samples collected were submitted for moisture content testing, seven soil samples were submitted for particle size distribution analyses and one for Atterberg limit determinations. The results of the laboratory tests are provided in **Appendix C**. The remaining soil samples will be stored for a period of 1 month and will be discarded of at that time without prior request from the client to extend storage time.

3.0 Soil Conditions

Reference is provided to the appended borehole logs for soil stratigraphy details, SPT N-values, moisture content profiles, and groundwater observations and measurements. Soil conditions encountered at the site typically include topsoil overlying glacial till deposits.

3.1 Topsoil

Topsoil was encountered surficially in all of the boreholes with the exception of MW102-20. The topsoil was 50 to 400 mm thick (average thickness = 245 mm). The topsoil is dark brown in colour and typically ranges in composition from clayey silt to silt to silty clay. Topsoil was determined through visual observation and no nutrient testing for applicable plant growth was performed as part of the scope of work for this project.

3.2 Pavement Structure

Concrete and asphalt were encountered in MW102-20. The concrete and asphalt encountered were both 150 mm thick.

3.3 Fill

Fill was encountered beneath the topsoil or pavement structure in all of the boreholes, except BH144-21 to BH147-21, and extended to depths of 0.8 to 1.7 m. The underlying fill was grey to brown in colour and typically ranges in composition from clayey silt to silt to sandy silt. Organic content was encountered in the fill material in Boreholes MW101-20, MW103-20, MW105-20, BH109-20, BH110-20, BH113-20, BH118-20, BH129-20, BH132-20, and BH141-20. Asphalt, plastic, and wood fragments were encountered in the fill in Borehole MW102-20 and MW103-20.

The SPT N-values measured in the fill ranged from 5 to above 50 blows per 300 mm penetration of the split spoon sampler indicating loose to very dense conditions. It is noted that the loose conditions were encountered in the upper portions in Boreholes MW101-20, MW107-20, BH132-20, BH134-20, BH135-20, BH136-20, BH138-20, and BH139-20.

The insitu moisture content in the fill ranged from about 4 to 26% indicating moist to wet conditions or drier than the plastic limit to at the plastic limit.

3.4 Glacial Till Deposits

Glacial till was encountered beneath the fill materials in all of the boreholes and extends to the termination depth of each borehole except MW102-20. The till typically ranges in composition clayey silt to sandy silt. The results of four particle size distribution analyses conducted on the till are provided in **Appendix C** and summarized in the following table;

Table 1 - Results of Glacial Till Deposits Particle Size Distribution Analyses

Borehole Number	Sample Depth (m)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)
MW101-20	9.1 – 9.8	6	40	41	13
MW103-20	6.1 – 6.7	1	26	66	7
MW105-20	4.6 – 5.0	1	28	43	28
BH116-20	3.0 – 3.7	7	25	40	28

SPT N-values measured in the till typically increase with depth and ranged from 7 to greater than 50 blows per 300 mm penetration of the split spoon sampler indicating loose to very dense or stiff to hard conditions. Shear strength measured in the clayey silt ranged from 50 to 200 kPa, indicating stiff to hard conditions. Insitu moisture contents in the till ranged from 4 to 27% indicating moist to wet conditions or drier than to at the plastic limit. The clayey silt till had a liquid limit of 26% and plastic limit of 16% based on one Atterberg limit test. Cobbles and/or boulders should be anticipated in the glacial till soils.

3.5 Sands and Silts

Sand and silt soils were encountered within the glacial till deposits in Boreholes MW103-20, MW104-20, MW106-20, MW107-20, BH123-20 and BH140-20, BH144-21, BH145-21, BH150-21, BH151-21, BH154-21 and MW157-21 and to the termination depth of MW102-20. The granular deposits were about 0.2 to 1.7 m where fully penetrated. The soils typically ranged in composition from sand to silty sand to gravelly sand to sand and gravel to silt. The results of three particle size distribution analyses conducted on the sand and silt deposits are provided in **Appendix C** and summarized in the following table;

Table 2 - Results of Sand and Silt Deposits Particle Size Distribution Analyses

Borehole Number	Sample Depth (m)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)
MW104-20	9.9 – 10.5	1	70	22	7
MW106-20	10.7– 11.3	1	9	78	12
MW107-20	9.9 – 10.5	8	44	35	15

SPT N-values measured in the sand and silt soils ranged from 3 to greater than 50 blows per 300 mm penetration of the split spoon sampler indicating compact to very dense conditions. Insitu moisture contents in the sands and silts ranged from 7 to 23% indicating very moist to saturated conditions.

4.0 Groundwater Conditions

Groundwater observations were carried out in the open boreholes at the time of drilling and are summarized on the borehole logs. Groundwater was noted within the glacial till or silts and sands in MW101-20 to MW104-20, MW106-20, MW107-20, BH123-20, BH140-20, BH145-21, BH151-21 and MW157-21 advanced at the site at depths of 2.3 to 10.7 m below the ground surface. The remaining boreholes were dry during drilling.

Groundwater levels were measured in the monitoring wells installed in MW101-20 to MW107-20 on November 23 and December 14, 2020 at depth of 5.5 to 8.8 m beneath the ground surface or Elevations 257.5 to 262.5 m. The results of the measured groundwater levels are summarized in the table below:

Table 3 – Groundwater Measurements

Borehole	Ground Surface Elevation (m)	Measured Groundwater Level November 23, 2020		Measured Groundwater Level December 14, 2020	
		Depth (m)	Elevation (m)	Depth (m)	Elevation (m)
MW101-20	267.0	7.6	259.4	7.6	259.4
MW102-20	267.6	7.3	260.3	7.3	260.3
MW103-20	268.0	5.5	262.5	5.5	262.5
MW104-20	272.1	Dry	-	Dry	-
MW105-20	264.7	5.6	259.1	5.7	259.0
MW106-20	266.3	8.8	257.5	8.6	257.7
MW107-20	268.4	8.1	260.3	8.2	260.2

Additional groundwater level measurements are provided in the hydrogeological report under separate cover. It should be noted that the groundwater levels can vary and are subject to seasonal fluctuations and local variations.

5.0 Discussion and Recommendations

5.1 General

The project involves the design of the proposed industrial development located at the southwest corner of Dixie Road and Old School Road in Caledon, Ontario. Based on the preliminary plan provided by Ware Malcomb, the proposed development will consist of multiple large warehouse buildings with slab-on-grade construction and associated driveways and parking lot areas.

The subsurface stratigraphy at the site generally comprises topsoil and fill materials overlying glacial till deposits interlayered with sands and silts at depth. Groundwater levels were measured in the monitoring wells installed in MW101-20 to MW107-20 on November 23 and December 14, 2020 at depth of 5.5 to 8.8 m beneath the ground surface or Elevations 257.5 to 262.5 m. No free groundwater was encountered during drilling in the majority of the shallow boreholes at the site.

5.2 Stability Analysis

Based on the results of this geotechnical investigation, the proposed industrial development will be feasible. The following subsections of this report contain geotechnical recommendations pertaining to development of the property; including, site grading, site servicing, foundations, floor slabs, pavement design and subdrainage requirements.Slope

The site slopes down to the southwest from Elevation 271.4 to 259.5 towards the tributary watercourse. It is understood the intent is to construct a development to the north and east of the creek with appropriate offsets. Given the slope feature to the south and west of the property, a slope stability analysis was completed and the results are provided in the following paragraphs.

The existing southwest valley slope is considered to be lightly vegetated with mostly grasses and weeds with occasional trees and bushes. The trees present on the slope are typically vertical. No evidence of rotational slides, tension cracks, slumps, or bulges were observed at the time of the site visit. Some bank erosion is present along the creek at the toe of the slope. The change in elevation over the south valley slope ranges from approximately 4 to 5 meters and is generally sloped at inclinations of about 2.1 to 5.4 horizontal to 1.0 vertical as shown on the **Cross Sections A-A' to C-C' on Figures 3 in Appendix A.**

In order to analyze the stability of the existing slope, boreholes were advanced to provide the subsurface stratigraphy (MW105-20, BH146-21 and BH147-21), detailed cross sections were surveyed by MTE OLS and a computer model was prepared using the GeoStudio 2019 Basic Edition Software by GEO-SLOPE International Ltd. The software calculates the factor of safety against failure by calculating all forces and moments for a series of idealized vertical slices through the ground with a bottom boundary chosen to represent a "trial" failure surface. A factor of safety for slope stability is then defined as the total forces or moments acting to destabilize the slope divided by the total forces acting to resist failure. A factor of safety of unity indicates incipient failure since the analytical destabilizing and stabilizing forces are equal. The minimum factor of safety specified by the Toronto Region Conservation Authority (TRCA) is 1.5 and will be used for these analyses.

The general soil profile at the site comprises topsoil overlying native glacial till deposits. The composition of the glacial till deposits is generally sandy silt to clayey silt. Groundwater was measured in MW105-20 at 5.6 m below the ground surface or Elevation 259.0 m on December 14, 2020. No free groundwater was encountered in BH146-21 and BH147-21.

The soil parameters used in the slope stability analyses were based on field and laboratory testing from the boreholes advanced near the slope, as well as empirical correlations and are noted in the following table;

Table 4 – Soil Parameter used in Slope Analysis

Soil Type	Unit Weight (kN/m^3)	Effective Cohesion (kPa)	Angle of Internal Friction (°)
Topsoil and Fill	17.0	0	24
Glacial Till	22.0	0	32

The groundwater levels used for the analyses were based on the groundwater level measurements in the monitoring wells installed at the site and previous knowledge on local seasonal fluctuations. It is noted that in the spring (rainy) season, groundwater pressure can be considerably higher than those measured during the rest of the year. Also, slope surface

infiltration during significant rainfall and snow melt can increase the groundwater pressure by saturating the soil material above the water table and on the face of the slope.

The slope stability analyses were carried out for a number of potential failure modes. The various failures analyzed include shallow translational type failures of the residual soil, medium depth rotational failures at the top and bottom of the slope, and deep rotational failures though the entire height of the slope.

The results of the slope stability modeling indicate the existing cross section profiles have factors of safety against slope failure of at least 1.5 for Sections A-A' and B-B', indicating the slope is stable under the current conditions. The factor of safety at Section C-C' is 1.3 at the current inclination of the slope of 2.1 horizontal to 1 vertical. An inclination of 2.5 horizontal to 1 vertical yields a factor of safety of 1.5 as per TRCA recommendations. The stable slope would be projected about 1.3 m from the existing top of slope at Section C-C'. The factors of safety are closely related to the steepness of the slopes, porewater pressure and the soil strength. The minimum Factor of Safety for an active habitable residence is 1.5 as per TRCA.

A minimum toe erosion allowance of 5 m should be allotted for the south valley slope as per the *Ontario Ministry of Natural Resources Technical Guide for River and Stream Systems: Erosion Hazard Limit, Table 3 Determination of Toe Erosion Allowance.*

The sum of the toe erosion allowance and suitable top of slope setback at Sections C-C' are plotted as the 'Stable Slope Setback' line on **Figures 1 to 3** (**Site Plan and Cross Sections A-A' to C-C') in Appendix A**. The development, including parking areas, should be constructed outside (landward) of the Stable Slope Setback line.

No additional fill should be placed at the crest/top of the slope. If material is to be placed along the face of the slope for regrading, it should be engineered free draining granular material to prevent build-up of pore water pressure within the soil structure. No excavation work should be conducted at the toe of slope. All excavation work should be minimized as much as possible, and grading of the development should adhere to existing grades where it is feasible. If grading is undertaken, the slopes should adhere to the stable slope inclinations. No infiltration or stormwater management infrastructure should be placed within the slope setback areas. The tableland area surrounding the slopes should be topsoiled and seeded as soon as possible after construction to minimize surface erosion. It is recommended that excavations be monitored by a geotechnical engineer to verify subsoil conditions.

5.3 Site Preparation

The first construction activity that will be required for the proposed development will be grading. Prior to carrying out any cutting and engineering fill operations, the topsoil and any fill materials must be removed and stockpiled. The average topsoil thickness measured in the boreholes was about 245 mm thick. It is recommended that the average thickness across the site be increased by 100 mm for removal/stripping calculations to account for variations at the site. The fill soils at the site are anticipated to be the product of reworked native soils caused by agricultural activities. The fill soils vary in depth from 0.8 to 1.7 m and can be used in landscaping areas, as required.

The majority of the native soils above the groundwater table are suitable for reuse as engineered fill provided they are close to optimum water content for compaction purposes, if engineered fill is required. All fill should be placed in maximum 300 mm thick lifts and compacted to the following percentages;

Table 5 - Engineered Fill Requirements

Fill Use	Minimum Compaction Required
Structural fill to support buildings	100% SPMDD
Subgrade fill beneath pavements or services	95% SPMDD
Bulk fill in landscape area	90% SPMDD

The subgrade soils are susceptible to disturbance and it is recommended that construction traffic on the subgrade be minimized.

Structural fill used for raising grades beneath the buildings should comprise granular material such as OPSS Granular 'A' or 'B'. Subgrade fill material beneath the proposed pavement areas and services should meet the requirements of OPSS Select Subgrade Material. Any imported fill should be tested and verified by a geotechnical engineer prior to placement.

Structural fill pads should extend a minimum 0.3 m beyond the edge of the footing envelope of any building and down to subgrade at an angle of 45 degrees to the horizontal. Full time testing by geotechnical personnel is recommended during fill placement and compaction to monitor material quality, lift thickness, and verify the compaction by insitu density testing.

In order to minimize the effects of weather and groundwater, fill operations onsite should be carried out in the dry summer months.

5.4 Site Servicing

5.4.1 Excavations and Dewatering

The development will be serviced with full municipal services. It is anticipated that the invert levels for the watermain and sewers will be at conventional depths.

Temporary excavations to conventional depths for installation of underground pipes at this site must comply with the Ontario Occupational Health and Safety Act and Regulations for Construction Projects. The fill materials would be classified as Type 3 soils and temporary side slopes must be cut at an inclination of 1 horizontal to 1 vertical or less above the base of the excavation, exclusive of groundwater effects. The glacial till deposits would be classified as Type 2 soils and temporary side slopes must be cut at an inclination of 1 horizontal to 1 vertical or less at a level 1.2 m above the base of the excavation.

Trench side slopes must be continuously inspected especially after periods of heavy rainfall or snow melt to identify areas of instability. Surface water should be directed away from entering the trench.

Groundwater inflow should not be expected above 5.0 m below the ground surface. It is our geotechnical opinion that any nuisance dewatering should be adequately handled by sumps and pumps. Every excavation that a worker may be required to enter shall be kept reasonably free of water (O. Reg. 213/91, s. 230).

It should be noted that an Environmental Activity and Sector Registry (EASR) or Permit to Take Water (PTTW) will not be required for the dewatering system for sewer installations at the site.

5.4.2 Pipe Bedding

It is anticipated invert elevation of the pipes will be at conventional 2 to 3 m depths below ground surface. No bearing problems are anticipated for pipes set on properly dewatered native

inorganic subsoil or imported structural fill. The bedding material may need to be thickened if sub-excavation encounters soft or spongy soil from the base of the service trench.

Pipe bedding for water and sewer services should be conventional Class 'B' pipe bedding comprising a minimum 150 mm thick layer of OPSS Granular 'A' aggregate below the pipe invert. Granular 'A' type aggregate should be provided around the pipe to at least 300 mm above the pipe and the bedding aggregate should be compacted to a minimum 95% Standard Proctor Maximum Dry Density (SPMDD).

A well-graded clear stone such as Coarse Aggregate for HL4 Asphaltic Concrete (OPSS 1003) could be used in the sewer trenches as bedding below the spring line of the pipe to facilitate sump pump dewatering, if necessary. The clear stone should be compacted with a plate tamper and fully wrapped with a non-woven filter cloth.

5.4.3 Trench Backfilling

The trenches above the specified pipe bedding should be backfilled with inorganic onsite soils placed in 300 mm thick lifts and compacted to at least 95% SPMDD. Wet or saturated native soils are not considered suitable for reuse as trench backfill. Any additional material required at the site should comprise imported granular soils such as OPSS Select Subgrade Material.

To minimize potential problems, backfilling operations should follow closely after excavation so that only a minimal length of trench is exposed. Care should be taken to protect side slopes of excavations by diverting surface run-off away from the excavations. If construction extends into the winter, then additional steps should be taken to minimize frost and ensure that frozen material is not used as backfill.

All materials and construction services required for the work should be in accordance with the relevant sections of the Ontario Provincial Standard Specifications.

5.5 Foundation Design

It is understood that the proposed building design will be constructed with spread or strip footings and slab-on-grade floors.

In general, the undisturbed compact to very dense or very stiff to hard native glacial till soils or approved structural fill is considered suitable to support building foundations. Building footings constructed on the undisturbed native glacial till soils or approved structural fill may be designed for a factored geotechnical bearing resistance at Ultimate Limit States (ULS) of 300 kPa, and soil bearing resistance for 25 mm of settlement at Serviceability Limit States (SLS) of 200 kPa. The upper loose soils in BH138-20, BH144-21 and BH145-21 are not suitable for foundations and will need to be removed to a depth of about 1.5, 3.0 and 2.1 m, respectively. All fill soils should be removed from proposed building footprints.

The founding materials are susceptible to disturbance by construction activity, especially during wet weather and care should be taken to preserve the integrity of the material as bearing strata.

The soil in trenches beneath footings for sewer and watermain services, if applicable, shall be compacted by tamping up to the level of the footing base, or shall be filled with concrete having a strength not less than 10 MPa, to support the footing.

The footing areas must be inspected by a geotechnical engineer to ensure that the soil conditions encountered at the time of construction are suitable to support the design resistances prior to pouring concrete. Any loose, disturbed, organic and deleterious material identified during the inspection should be removed from the footing areas and replaced with structural fill or concrete.

All exterior floor slabs and footings in unheated areas must be provided with a minimum 1.4 m of earth cover after final grading in order to minimize the potential of damage due to frost action, as per Ontario Provincial Standard Drawing, OPSD 3090.101, dated November 2010. If construction is undertaken during the winter, the subgrade soil and concrete should be protected from freezing.

Where spread footings are constructed at different elevations, the difference in elevation in the individual footing should not be greater than one half of the clear distance between the footings. The lower footing should be constructed first so that if it is necessary to construct the lower footings at a greater depth than anticipated, the elevation of the upper footings can be adjusted accordingly. Stepped strip footings should be constructed in accordance with OBC Section 9.15.3.8.

A Site Classification 'D' should be used for earthquake load and effects in accordance with Table 4.1.8.4.A. of the 2012 Ontario Building Code.

All excavations at the site should be carried out in conformance with the Ontario Occupational Health and Safety Act and Regulations for Construction Projects. The fill materials would be classified as Type 3 soils and temporary side slopes must be cut at an inclination of 1 horizontal to 1 vertical or less above the base of the excavation, exclusive of groundwater effects. The glacial till deposits would be classified as Type 2 soils and temporary side slopes must be cut at an inclination of 1 horizontal to 1 vertical or less at a level 1.2 m above the base of the excavation.

5.6 Concrete Slab-on-Grade

It is understood that the floor slab for the proposed buildings will be constructed using conventional concrete slab-on-grade techniques, following removal of any topsoil, and inspecting the subgrade soils.

Any additional material required to raise grades below the floor slab should be comprised of granular soil, and be compacted to 98% SPMDD. A minimum 150 mm thick layer of Granular 'A' material uniformly compacted to 100% SPMDD should be provided directly beneath the slab for leveling and support purposes.

A modulus of subgrade reaction of 25 to 30 MPa/m should be used in the design of the floor slab.

No special underfloor drains are required, provided the exterior grades are lower than the floor slab and positively sloped away from the building.

If a moisture-sensitive floor finish is to be applied to the slab, then we recommend that a 15 mil polyethylene moisture vapour barrier be installed directly beneath the slab as per Article 9.13.2.7 of the Ontario Building Code. The purpose of the vapour barrier is to reduce moisture transfer by diffusion as per Article 5.5.1.2 of the Ontario Building Code. Joints in the vapour barrier should be lapped not less than 100 mm.

The water to cement ratio and slump of the concrete utilized in the floor slab should be strictly controlled to minimize shrinkage of the slab. Control joints should be sawed into the slabs at regular intervals within 12 hours of initial concrete placement in order to prelocate shrinkage cracks.

5.7 Pavements

Concrete testing should be performed onsite to determine the slump, temperature, and air entrainment; and concrete cylinders should be cast for compressive strength testing.

It is understood pavements will be constructed for the proposed roadways and parking areas at the site. The pavement subgrade soils will comprise native inorganic soils or imported structural fill.

The pavement component thicknesses in the following table are recommended based on the proposed pavement usage, the frost-susceptibility and strength of the subgrade soils, and the Benkelman beam spring rebound coefficient for silt and clay glacial till soils;

Table 6 - Pavement Design

Pavement Component	Light Duty	Heavy Duty
Asphalt Hot Mix	90 mm	120 mm
OPSS 1010 Granular ‘A’ Base	150 mm	150 mm
OPSS 1010 Granular ‘B’ Subbase	350 mm	450 mm

Heavy duty pavements should be used for main access ways to the development and where large vehicles will frequent, such as garbage and fire trucks.

Samples of aggregates should be checked for conformance to OPSS 1010 prior to utilization on site and during construction. The Granular 'B' subbase and Granular 'A' base courses must be compacted to 100% SPMDD, as verified by insitu density testing.

The asphaltic concrete paving materials should conform to the requirements of OPSS 1150. The asphalt should be placed and compacted in accordance with OPSS 310. The Performance Graded Asphalt Cement designation for the asphaltic concrete is 58-28.

The asphaltic concrete should comprise 40 mm of HL3 surface over 50 mm of HL8 binder for the light duty pavement option and 50 mm of HL3 surface over 70 mm of HL8 binder for the heavy duty pavement option.

The pavement design is based on the assumption that construction will be carried out during the drier time of the year and that the subgrade soil is stable as determined by proof-rolling inspected by a geotechnical engineer. If the subgrade is wet and unstable, additional granular subbase will be required.

All materials and construction services required for the work should be in accordance with the relevant sections of the Ontario Provincial Standard Specifications.

It is strongly recommended to install subdrains beneath the low areas of pavement and connected to catchbasins. The purpose of the subdrains is to remove excess subsurface water in order to improve overall pavement serviceability and increase the pavement life.

The work of subdrain installation shall be in accordance with OPSS 405 and OPSD 216.021. The subdrain shall be 100 or 150 mm diameter perforated pipe conforming to OPSS 1801 or 1840, and wrapped with geotextile conforming to OPSS 1860.

5.8 Stormwater Infiltration

It is understood that at-source infiltration of stormwater runoff from the development may also be considered for this site. Soak-away pits generally require soils with a minimum percolation rate of 15 mm/hr and a minimum separation between the bottom of the pit and the seasonally high water table of 1 m (MOE, 2003). Seven particle size distribution analyses were carried out on the soils encountered at the site. They are plotted on **Tables 101 and 102 in Appendix C**.

Due to the compactness of the native soils and the depth of the granular deposits, it is our opinion that at-source infiltration of stormwater runoff is not feasible for this development due to the low permeability of the upper glacial till soils. Insitu infiltration testing could be performed in the exact areas of proposed LID measures to accurately measure the infiltration of the soils in those areas.

5.9 Stormwater Management Area

It is understood that multiple Stormwater Management (SWM) areas are proposed for the industrial development.

SWM inlet/outlet structure footings constructed on the compact undisturbed native glacial till soils encountered at depths of at least 1.2 m may be designed for a factored geotechnical bearing resistance at Ultimate Limit States (ULS) of 300 kPa, and soil bearing resistance for 25 mm of settlement at Serviceability Limit States (SLS) of 200 kPa.

The footing areas must be inspected by a geotechnical engineer to ensure that the soil conditions encountered at the time of construction are suitable to support the design resistances prior to pouring concrete. Any loose, disturbed, organic and deleterious material identified during the inspection should be removed from the footing areas and replaced with structural fill or concrete.

Embankments for the SWM blocks should be at an inclination of 3.0 horizontal to 1.0 vertical or less from the base of the excavation and can be constructed with onsite native soils. The native soils should be placed in 300 mm thick lifts and compacted to at least 95% SPMDD. The embankment surfaces should be topsoiled and sodded to prevent surface erosion. Inclination of steeper than 3.0 horizontal to 1.0 vertical would require the use of imported granular material and/or mechanical stabilization. If steeper inclinations are required, further geotechnical recommendations would be required, specific to the proposed design such as the use of geogrid within the berms.

Minor groundwater seepage should be expected where the excavations extend into sand/silt seams in the glacial till soils. Any groundwater seepage should be adequately handled by pumping with sumps.

A clay liner may be required as the native soils at the site have varying amounts of clay content. The soils used for a clay liner should have the following characteristics:

- A minimum of 20% clay content;
- Clay soils within 3% of optimum moisture content for compaction purposes;
- A minimum plastic limit of 20%; and,
- A minimum plasticity index of 10%.

5.10 Construction inspection and Testing

MTE recommends that geotechnical inspection and testing procedures be conducted throughout the various phases of the project.

Engineer site visits should be conducted to confirm geotechnical bearing resistances for footings. Soil compaction testing should be carried out on structural fill beneath the building, foundation wall backfill, and subslab granular fill. Laboratory and field testing of the pavement structure components (granulars and asphaltic concrete) should be conducted, as well as concrete testing for foundations.

MTE offers soil compaction, concrete, and asphalt testing as well as soil inspection services through our Stratford and London offices.

6.0 Limitations of Report

Services performed by MTE Consultants Inc. (MTE) were conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the Geotechnical Engineering & Consulting profession practicing under similar conditions in the same geographic area where the services are provided. No other warranty or representation expressed or implied as to the accuracy of the information, conclusions or recommendations is included or intended in this report.

This report was completed for the sole use of the Client. This report is not intended to be exhaustive in scope or to imply a risk-free site. As such, this report may not deal with all issues potentially applicable to the site and may omit aspects which are or may be of interest to the reader.

In addition, it should be recognized that a soil sample result represents one distinct portion of a site at the time it is collected, and that the findings of this report are based on conditions as they existed during the time period of the investigation. The material in the report reflects our best judgment using the information available at the time the report was written. The soil and groundwater conditions between and beyond the test holes may differ from those encountered in the test holes. Should subsurface conditions arise that are different from those in the test holes MTE should be notified to determine whether or not changes should be made as a result of these conditions.

It should be recognized that the passage of time may affect the views, conclusions and recommendations (if any) provided in this report because groundwater conditions of a property can change, along with regulatory requirements. All design details were not known at the time of submission of this report and it is recommended MTE should be retained to review the final design documents prior to construction to confirm they are consistent with our report recommendations. Should additional or new information become available, MTE recommends that it be brought to our attention in order that we may determine whether it affects the contents of this report.

Any use which another party makes of this report, or any reliance on, or decisions to be made based upon it, are the responsibility of such parties. MTE accepts no responsibility for liabilities incurred by or damages, if any, suffered by another party as a result of decisions made or actions taken, based upon this report. Others with interest in the site should undertake their own investigations and studies to determine how or if the condition affects them or their plans. The contractors bidding on this project or undertaking the construction should make their own interpretation of the factual information and draw their own conclusions as to how subsurface conditions may affect their work.

The benchmark and elevations provided in this report are primarily established to identify differences between the test hole locations and should not be used for other purposes such as, planning, development, grading, and excavation.

All of which is respectfully submitted,

MTE Consultants Inc.

Brett Thorner, P.Eng.
Geotechnical Engineer
519-204-6510 ext. 2226
bthorner@MTE85.com

Dan Gonser, P.Eng
Geotechnical Engineer
519-721-7952 ext. 2343
dgonser@MTE85.com

DMG:BXT

M:\48043\200\Reports\2024-02-23 REV\48043-200_2024-02-23_12892 DIxie Rd_GeotechnicalReport_Final_REV02.docx

Appendix A

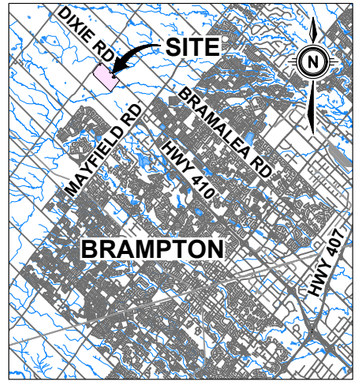
Figures

Figure 1 - Site Plan

Figure 2 - Cross Section Location Plan

Figure 3 - Cross Sections

CAD: P:\P_48043\200\48043-200-MS2_FIGURE 1.DWG



KEY PLAN (nts)

LEGEND

- SITE
- BOREHOLE
- MONITORING WELL (Phase II ESA)
- MONITORING WELL (Hydrogeological Assessment)

REFERENCES

2020 AERIAL IMAGE, WATERCOURSE DATA, REGION OF PEEL;
WARE MALCOMB, SITE PLAN, JOB No. TOR23-0063-00, SHEET No. A100, DECEMBER 12 - 2023; AND
LAND INFORMATION ONTARIO, ROAD AND WATER NETWORK, © KING'S PRINTER FOR ONTARIO, 2024 (key plan)

NOTES

THIS FIGURE IS SCHEMATIC ONLY AND TO BE READ IN CONJUNCTION WITH ACCOMPANYING TEXT.

ALL LOCATIONS ARE APPROXIMATE.

0 40 80 120 160 200m

MTE
Engineers, Scientists, Surveyors

PROJECT
GEOTECHNICAL SLOPE ASSESSMENT
12892 DIXIE ROAD
CALEDON, ONTARIO

TITLE
SITE PLAN

Drawn: DCH	Scale: 1:4,000	Figure: 1
Checked:	Project No.: 48043-200	
Date: 2024-03-03	Rev No.: 0	

Plot Date: March 4, 2024 - 10:11 AM

CAD: P:\48043\200\48043-200-MS2_FIGURE 2.DWG

PROJECT NORTH

LEGEND

- SITE
- BOREHOLE
- MONITORING WELL (Hydrogeological Assessment)
- TOE OF SLOPE
- TOP OF SLOPE
- TOP OF STABLE SLOPE (2.5:1)
- 5m STABLE SLOPE SETBACK
- A A' CROSS-SECTION

REFERENCES

2020 AERIAL IMAGE, WATERCOURSE DATA, REGION OF PEEL; AND
WARE MALCOMB, SITE PLAN, JOB No. TOR23-0063-00, SHEET No. A100, DECEMBER 12 - 2023.

NOTES

THIS FIGURE IS SCHEMATIC ONLY AND TO BE READ IN CONJUNCTION WITH ACCOMPANYING TEXT.

ALL LOCATIONS ARE APPROXIMATE.

0 12.5 25 37.5 50m

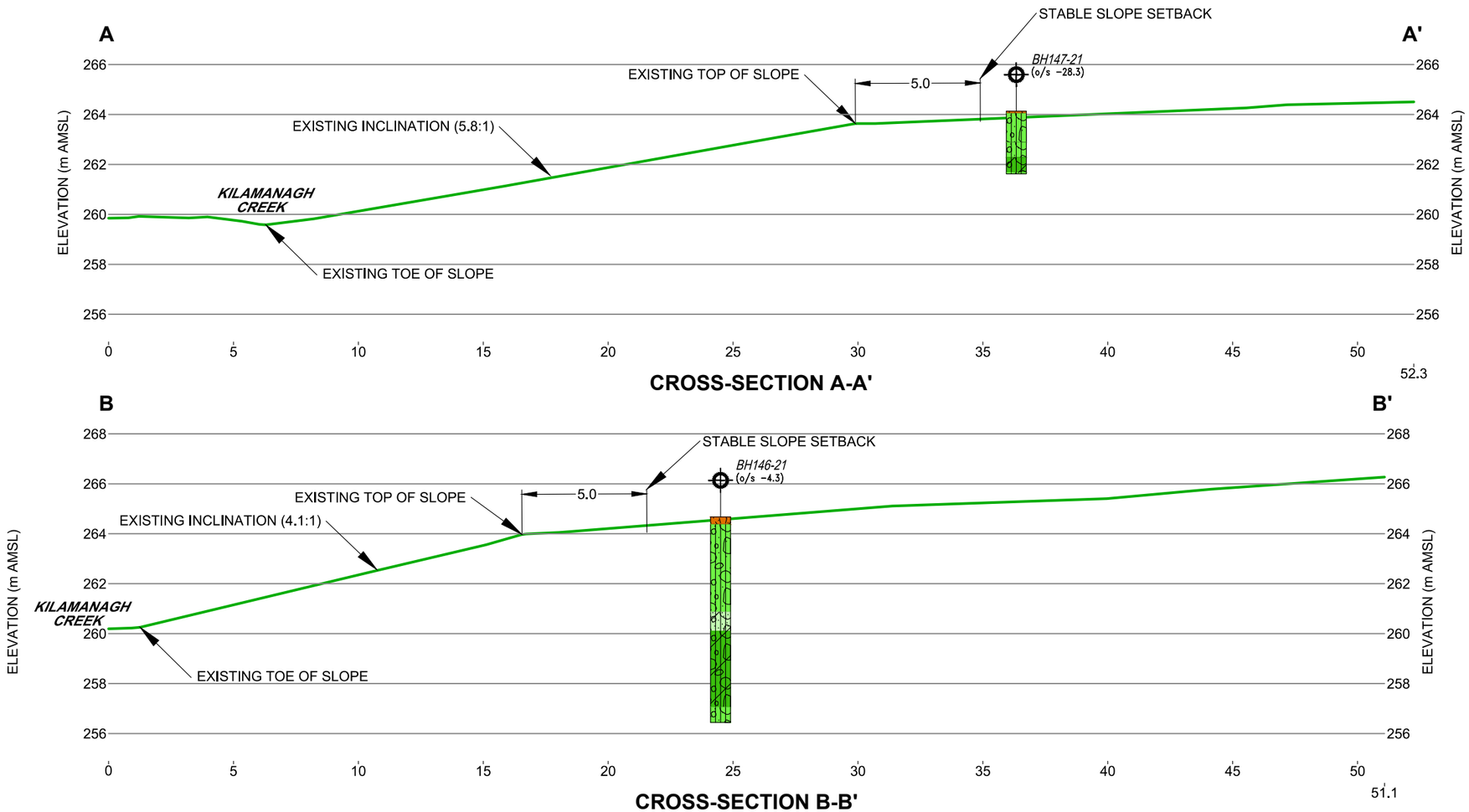
MTE
Engineers, Scientists, Surveyors

PROJECT
GEOTECHNICAL SLOPE ASSESSMENT
12892 DIXIE ROAD
CALEDON, ONTARIO

TITLE
CROSS-SECTION LOCATION PLAN

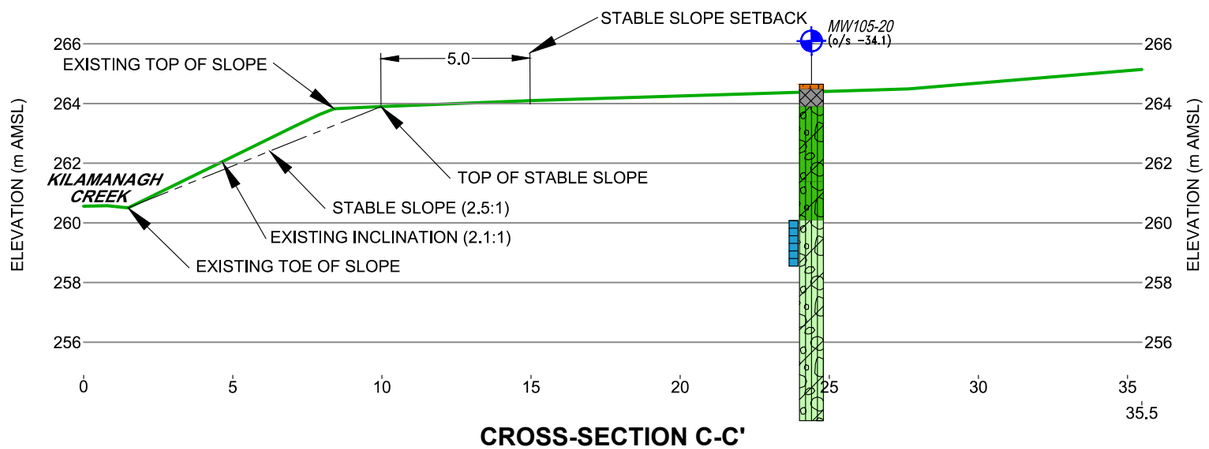
Drawn: DCH	Scale: 1:1,250	Figure: 2
Checked:	Project No.: 48043-200	
Date: 2024-03-04	Rev No.: 0	

Plot Date: March 4, 2024 - 10:16 AM



CROSS-SECTION A-A'

CROSS-SECTION B-B'



CROSS-SECTION C-C'

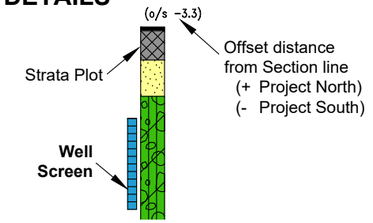
LEGEND

- BOREHOLE
- MONITORING WELL (Hydrogeological Assessment)

SIMPLIFIED STRATIGRAPHY

- TOPSOIL
- FILL
- CLAYEY SILT
- CLAYEY SANDY SILT TILL
- CLAYEY SILT TILL
- SANDY SILT TILL

TYPICAL INSTALLATION DETAILS



REFERENCES

MTE, EXISTING GRADE, PROJECT No. 48043-200, FILE No. 48043-200-XR2.

NOTES

THIS FIGURE IS SCHEMATIC ONLY AND TO BE READ IN CONJUNCTION WITH ACCOMPANYING TEXT.

WIDTH OF BOREHOLES FOR ILLUSTRATION PURPOSES ONLY AND DO NOT CORRESPOND TO ACTUAL SPATIAL EXTENT.

THE GEOLOGIC SEQUENCE PRESENTED HEREIN IS BASED ON PROFESSIONAL INTERPRETATION FROM THE OVERBURDEN SEDIMENTS RECORDED DURING DRILLING, ACTUAL GEOLOGICAL CONDITIONS MAY VARY BETWEEN AND BEYOND LOCATIONS.

ALL LOCATIONS ARE APPROXIMATE.

0 2 4 6 8 10m

MTE
Engineers, Scientists, Surveyors

PROJECT
GEOTECHNICAL SLOPE ASSESSMENT
12892 DIXIE ROAD
CALEDON, ONTARIO

TITLE
CROSS-SECTIONS

Drawn: DCH	Scale: 1:200	Figure: 3
Checked:	Project No.: 48043-200	
Date: 2024-03-04	Rev No.: 0	

CAD: P:\P\48043\200\48043-200-MS2_FIGURE 2.DWG
Plot Date: March 4, 2024 - 10:17 AM

Appendix B

Borehole Logs

Abbreviations and Symbols

Boreholes MW101-20 to MW157-21

The following are abbreviations and symbols commonly used on borehole logs, figures and reports.

Sample Types

AS	Auger Sample
CS	Chunk Sample
BS	Bulk Sample
GS	Grab Sample
WS	Wash Sample
SS	Split Spoon
RC	Rock Core
SC	Soil Core
TW	Thinwall, Open
TP	Thinwall, Piston

Soil Tests

PP	Pocket Penetrometer
FV	Field Vane
SPT	Standard Penetration Test
CPT	Cone Penetration Test
WC	Water Content
WL	Water Level

Penetration Resistance

Standard Penetration Test, N (ASTM D1586)	The number of blows by a 63.5 kg (140 lb) hammer dropped 760 mm (30 in.) required to drive a 50 mm (2 in.) open spilt spoon sampler for a distance of 300 mm (12 in.).
Dynamic Cone Penetration Resistance	The number of blows by a 63.5 kg (140 lb) hammer dropped 760 mm (30 in.) required to drive an uncased 50 mm (2 in.) diameter, 60o cone attached to “A” size drill rods for a distance of 300 mm (12 in.).

Soil Description

Cohesive Soils	Undrained Shear Strength (Cu)	
Consistency	kPa	psf
Very Soft	0 to 12	0 to 250
Soft	12 to 25	250 to 500
Firm	25 to 50	500 to 1,000
Stiff	50 to 100	1,000 to 2,000
Very Stiff	100 to 200	2,000 to 4,000
Hard	Above 200	Above 4,000

Cohesionless Soils	
Relative Density	SPT N Value
Very Loose	0 to 4
Loose	4 to 10
Compact	10 to 30
Dense	30 to 50
Very Dense	Above 50

WH	Sampler advanced by static weight of hammer
WR	Sampler advanced by static weight of drilling rods
PH	Sampler advanced by hydraulic force
PM	Sampler advanced by manual force

DTPL	Drier than Plastic Limit
APL	About Plastic Limit
WTPL	Wetter than Plastic Limit
mbgs	Metres below Ground Surface

ID Number: MW101-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

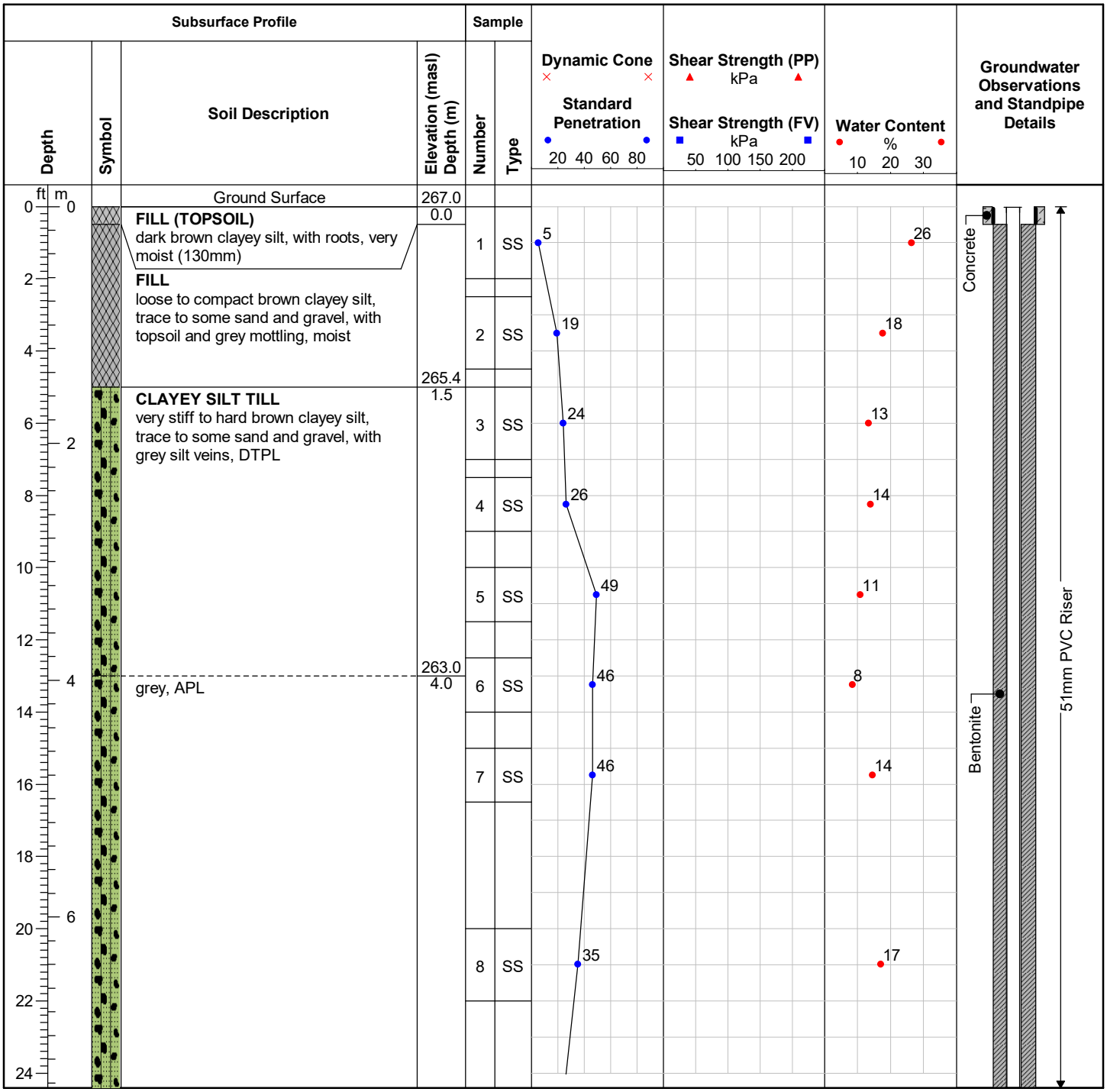
Drill Date: 10/29/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Hollow Stem Auger

Protective Cover: Monument



Field Technician: MBC

Drafted by: B. Graul

Reviewed by: B. Thorner

Water level measured at 7.5 mbgs on Dec 14, 2020

ID Number: MW101-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

Drill Date: 10/29/2020

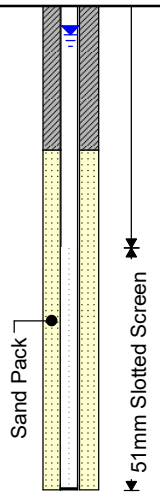
Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Hollow Stem Auger

Protective Cover: Monument

Depth	Symbol	Soil Description	Elevation (masl) / Depth (m)	Sample Number	Sample Type	Dynamic Cone / Standard Penetration	Shear Strength (PP) kPa / Shear Strength (FV) kPa	Water Content %	Groundwater Observations and Standpipe Details
			259.3 / 7.6						
26	8	sand seams		9	SS	20		10	
28				10	SS	29		10	
30			257.8 / 9.1						
		SILT AND SAND TILL compact to very dense grey silt and sand, some clay, trace gravel, very moist		11	SS	19		10	
32			257.1 / 9.9						
34	10	wet		12	SS	96/180mm		10	
36			256.3 / 10.7						
		SANDY SILT TILL very dense sandy silt, some clay and gravel, wet		13	SS	50/125mm		9	
38				14	SS	50/75mm		13	
40	12		254.9 / 12.0						
		Drilling Terminated							
42									
44									
46	14								
48									



Field Technician: MBC

Drafted by: B. Graul

Reviewed by: B. Thorner

Water level measured at 7.5 mbgs on Dec 14, 2020

ID Number: MW102-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

Drill Date: 10/23/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Hollow Stem Auger

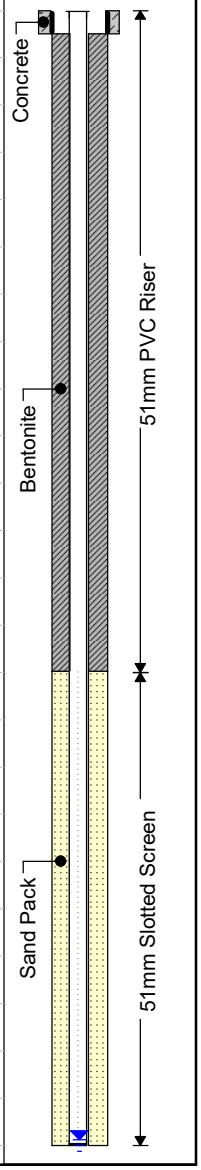
Protective Cover: N/A

Depth (ft / m)	Soil Description	Elevation (masl) / Depth (m)	Sample Number	Sample Type	Standard Penetration (Dynamic Cone)	Shear Strength (PP) kPa / Shear Strength (FV) kPa	Water Content %
0 / 0	Ground Surface	267.6					
	CONCRETE Concrete: 150mm	0.0					
	PAVEMENT STRUCTURE ASPHALT: 150mm		1	SS	10		
	FILL grey clayey silt, trace sand, DTPL	266.6 / 0.9					
2 / 0	brown, sandy silt, trace gravel, trace asphalt, moist		2	SS	25		
4		265.9					
6 / 2	**CLAYEY SILT TILL** brown clayey silt, trace to some sand and gravel, DTPL	1.7	3	SS	27		
8	sand seam	265.0 / 2.6	4	SS	26		
10		264.3					
12 / 4	**SANDY SILT TILL** brown sandy silt, trace to some clay, moist	3.3 / 263.7	5	SS	71		
14	**CLAYEY SILT TILL** grey clayey silt, trace sand and gravel, DTPL to APL	3.8	6	SS	20		
16		262.8					
	SANDY SILT TILL brown sandy silt, some clay, very moist	4.8	7	SS	24		
18			8	SS	142		
		261.8					
20 / 6	**SAND AND GRAVEL** brown sand and gravel, wet	5.8					
	SILTY SAND brown silty sand, trace clay and gravel, wet		9	SS			
22							
24			10	SS	117		

Standard Penetration: 20 40 60 80

Shear Strength kPa: 50 100 150 200

Water Content %: 10 20 30



Field Technician: SKC

Drafted by: SKC

Reviewed by: B. Thorner

Water level measured at 7.3mbgs on Dec 14, 2020

ID Number: MW102-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

Drill Date: 10/23/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Hollow Stem Auger

Protective Cover: N/A

Subsurface Profile				Sample		Dynamic Cone / Standard Penetration	Shear Strength (PP) kPa / Shear Strength (FV) kPa	Water Content %	Groundwater Observations and Standpipe Details
Depth	Symbol	Soil Description	Elevation (masl) Depth (m)	Number	Type	20 40 60 80	50 100 150 200	10 20 30	
			259.9						
26 — 8		**SILT** grey silt, some clay, wet	7.6	11	SS	59			
		Drilling Terminated	259.3 8.2						
28									
30									
32 — 10									
34									
36									
38									
40 — 12									
42									
44									
46 — 14									
48									

Field Technician: SKC

Drafted by: SKC

Reviewed by: B. Thorner

MTE

Water level measured at 7.3mbgs on Dec 14, 2020

ID Number: MW103-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

Drill Date: 10/19/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Hollow Stem Auger

Protective Cover: Monument

Depth (ft / m)	Symbol	Soil Description	Elevation (masl) / Depth (m)	Sample Number	Sample Type	Dynamic Cone / Standard Penetration (20 40 60 80)	Shear Strength (PP) kPa / Shear Strength (FV) kPa (50 100 150 200)	Water Content % (10 20 30)
		Ground Surface	268.0					
0 / 0		**FILL (TOPSOIL)** dark brown clayey silt, with rootlets, very moist (80mm)	0.0	1	SS	13		13
		FILL stiff brown clayey silt, some sand, trace gravel, with rootlets, moist	267.3 / 0.8					
4		very dense light brown sandy silt, some gravel, with black plastic pieces (drainage tile) and wood pieces, moist		2	SS	68		4
			266.5 / 1.5					
6 / 2		**CLAYEY SILT TILL** hard brown clayey silt, trace to some sand and gravel, DTPL		3	SS	32		12
8				4	SS	52		
10				5	SS	31		12
12 / 4			264.1					
		SANDY SILT TILL very dense brown sandy silt, trace clay, moist	3.9	6	SS	64		15
14			263.7 / 4.3					
		CLAYEY SILT TILL hard grey clayey silt, trace to some sand and gravel, APL		7	SS	51		8 16
16		**SILTY SAND** very dense brown silty sand, trace clay, wet						
18								
20 / 6			261.9					
		SAND dense grey/brown sand, some silt and gravel, wet	6.2	8	SS	34		12 17
22		**SANDY SILT TILL** dense grey sandy silt, trace to some clay, trace gravel, wet						
24								

Groundwater Observations and Standpipe Details: Concrete; Bentonite; Sand Pack; 51mm PVC Riser; 51mm Slotted Screen

Field Technician: MBC

Drafted by: B. Graul

Reviewed by: B. Thorner

Water level measured at 5.6mbgs on Dec 14, 2020

ID Number: MW103-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

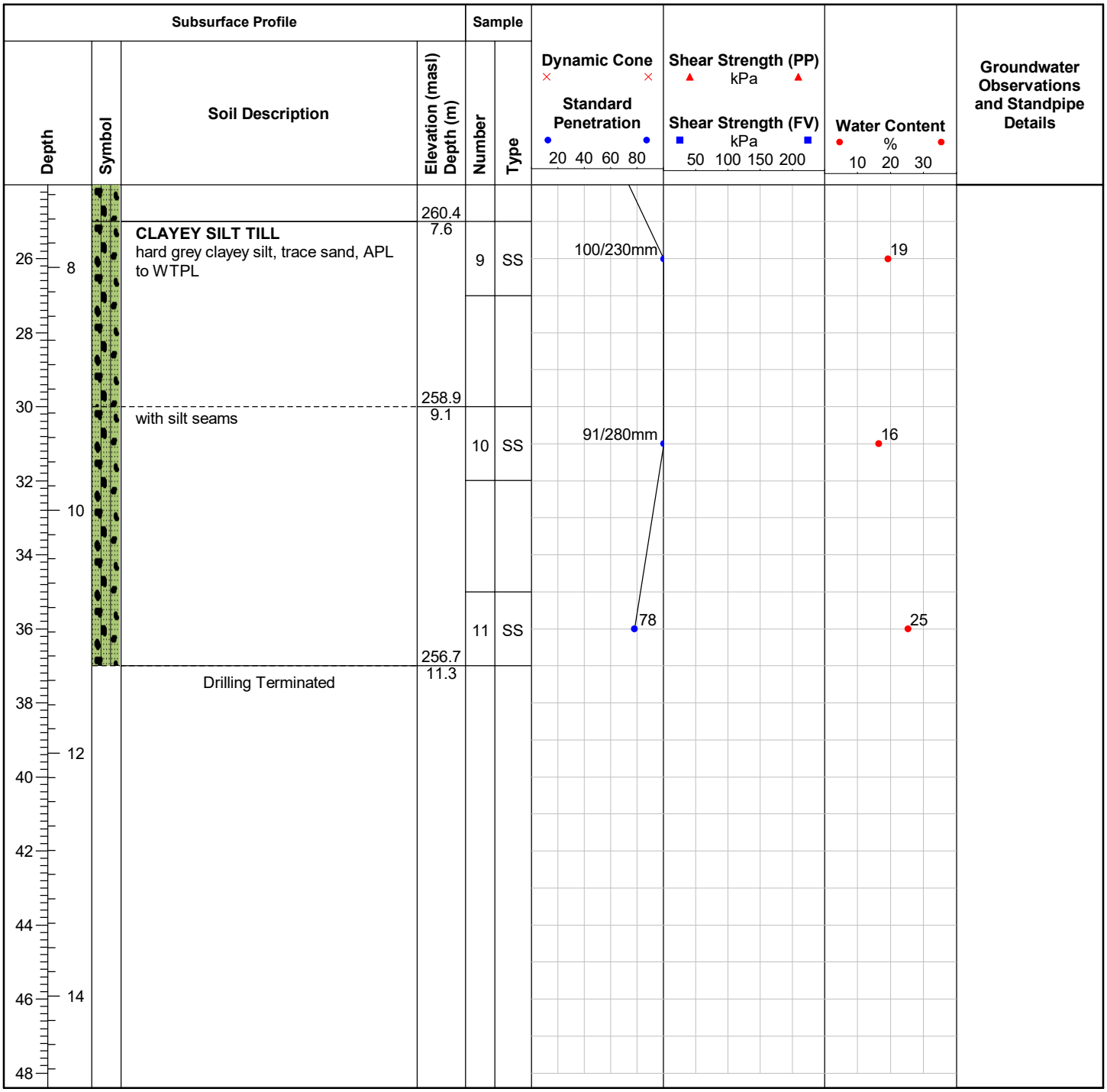
Drill Date: 10/19/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Hollow Stem Auger

Protective Cover: Monument



Field Technician: MBC

Drafted by: B. Graul

Reviewed by: B. Thorner

MTE

Sheet: 2 of 2

Water level measured at 5.6mbgs on Dec 14, 2020

ID Number: MW104-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

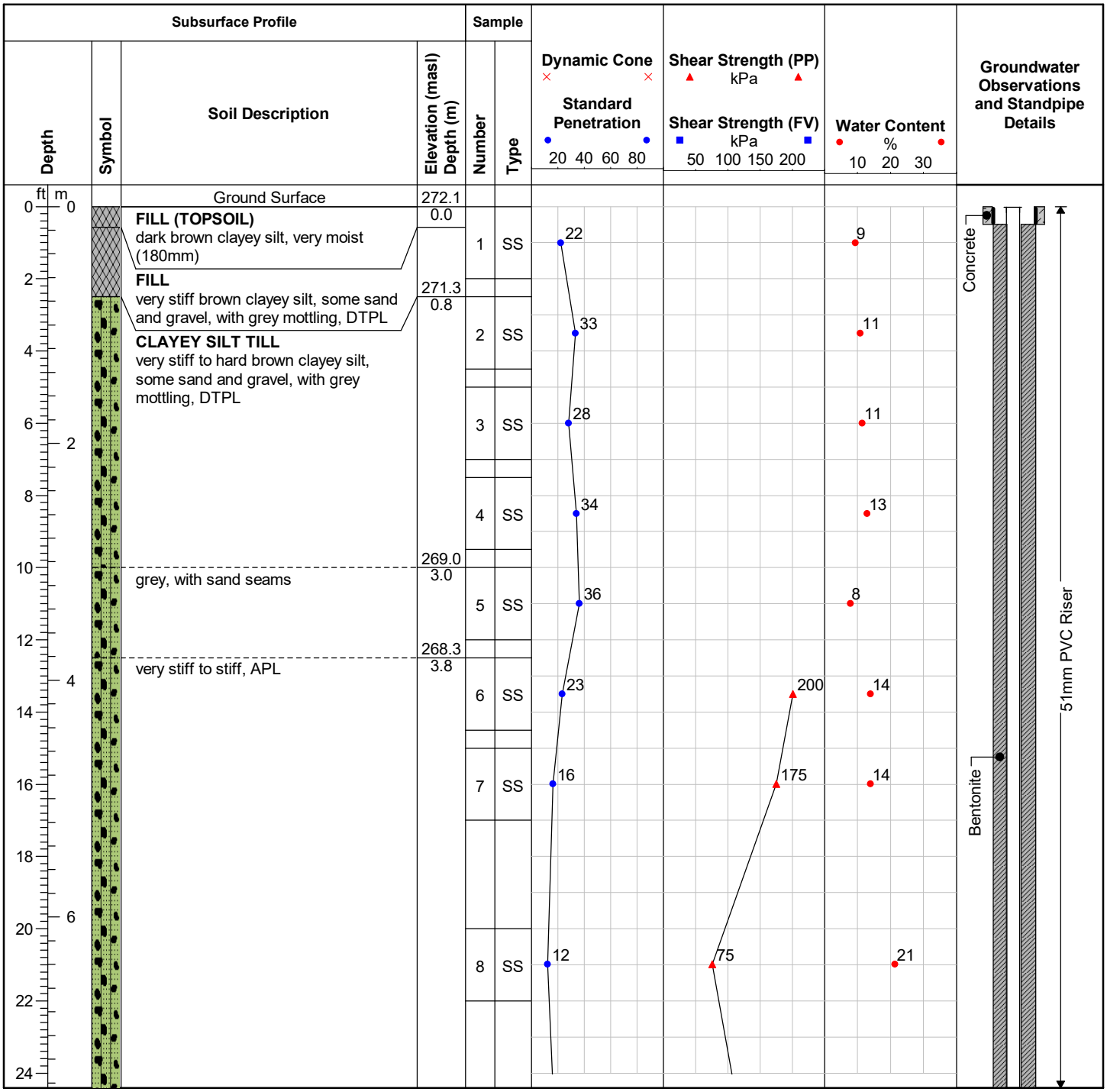
Drill Date: 10/21/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Hollow Stem Auger

Protective Cover: Monument



Field Technician: MBC

Drafted by: B. Graul

Reviewed by: B. Thorner

No water level measured as borehole was dry on Dec 14, 2020

ID Number: MW104-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

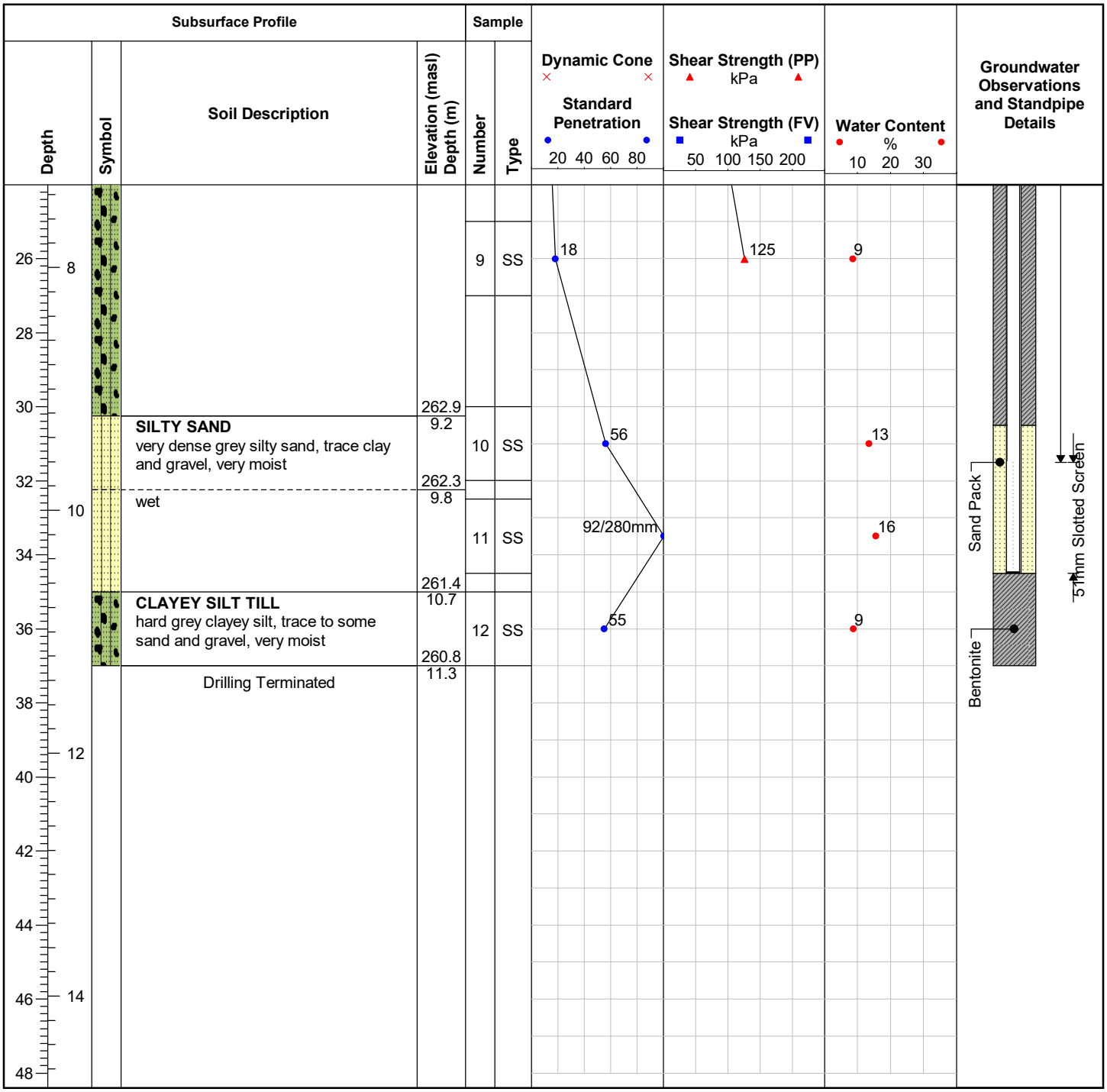
Drill Date: 10/21/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Hollow Stem Auger

Protective Cover: Monument



Field Technician: MBC

Drafted by: B. Graul

Reviewed by: B. Thorner

MTE

Sheet: 2 of 2

No water level measured as borehole was dry on Dec 14, 2020

ID Number: MW105-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

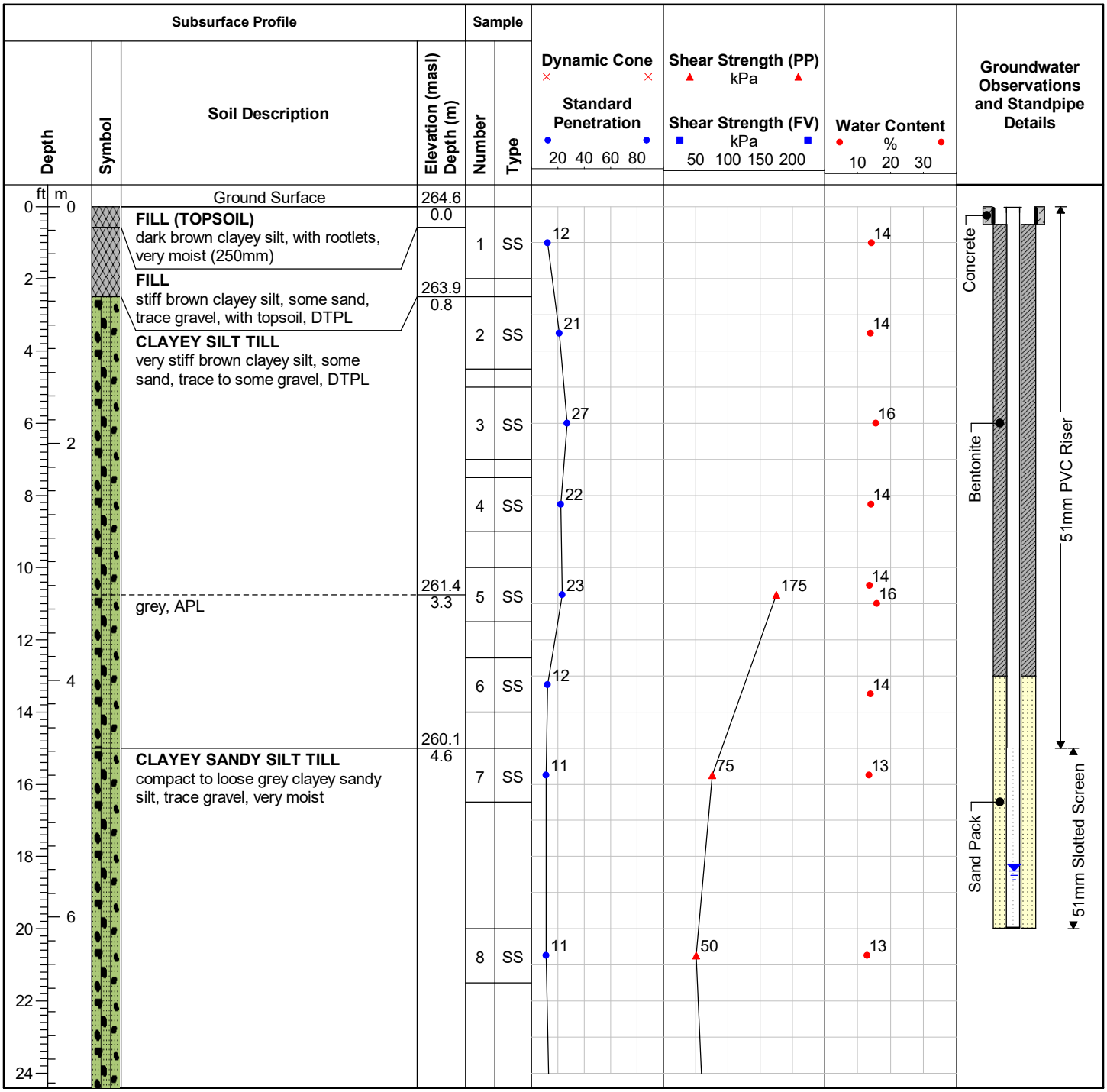
Drill Date: 10/28/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Hollow Stem Auger

Protective Cover: Monument



Field Technician: MBC

Drafted by: B. Graul

Reviewed by: B. Thorner

Water level measured at 5.6 mbgs on Dec 14, 2020

ID Number: MW105-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

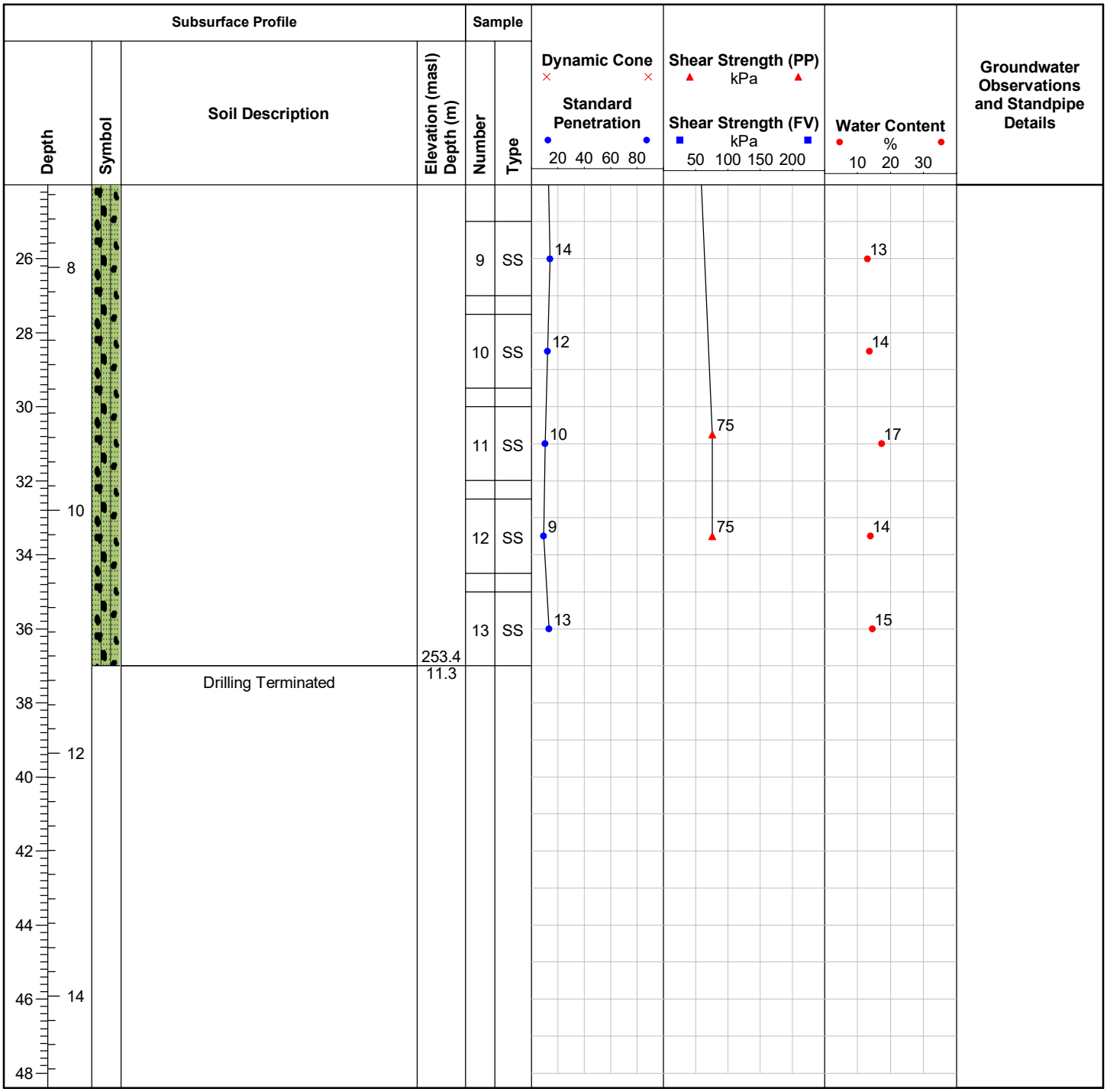
Drill Date: 10/28/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Hollow Stem Auger

Protective Cover: Monument



Field Technician: MBC

Drafted by: B. Graul

Reviewed by: B. Thorner

Water level measured at 5.6 mbgs on Dec 14, 2020

ID Number: MW106-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

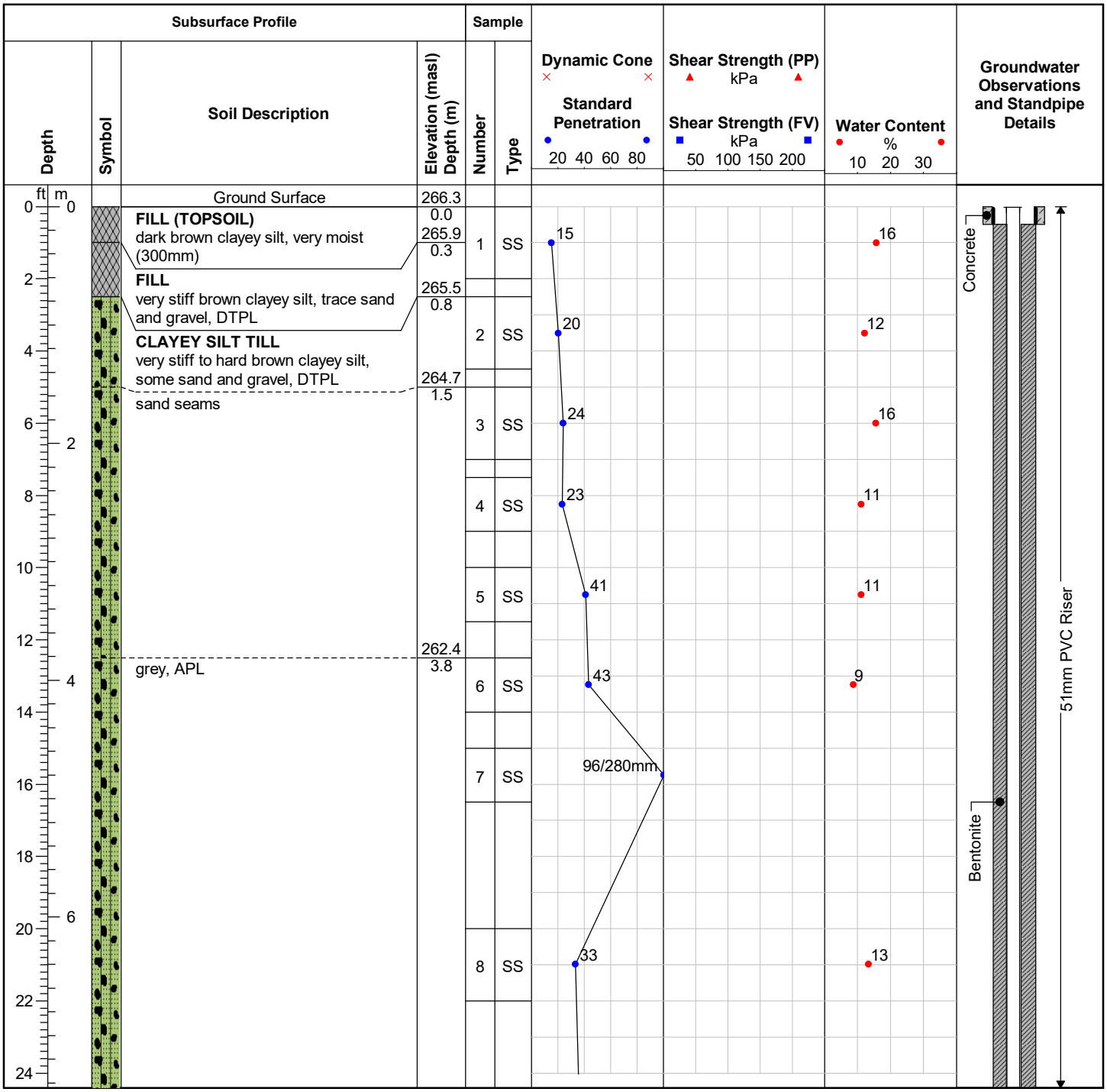
Drill Date: 10/28/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Hollow Stem Auger

Protective Cover: Monument



Field Technician: MBC

Drafted by: B. Graul

Reviewed by: B. Thorner

Water level measured at 8.6 mbgs on Dec 14, 2020

ID Number: MW106-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

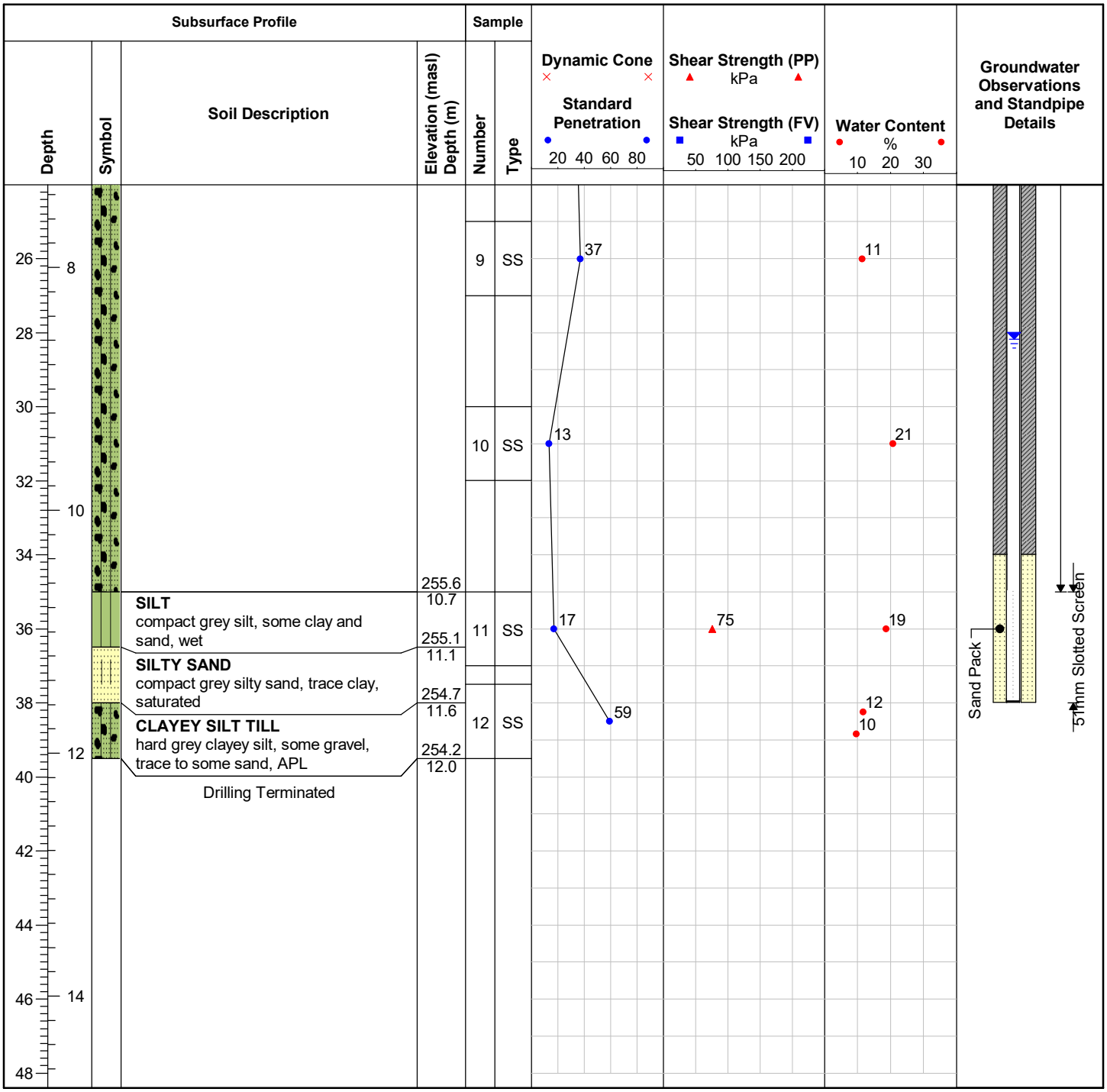
Drill Date: 10/28/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Hollow Stem Auger

Protective Cover: Monument



Field Technician: MBC

Drafted by: B. Graul

Reviewed by: B. Thorner

Water level measured at 8.6 mbgs on Dec 14, 2020

ID Number: MW107-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

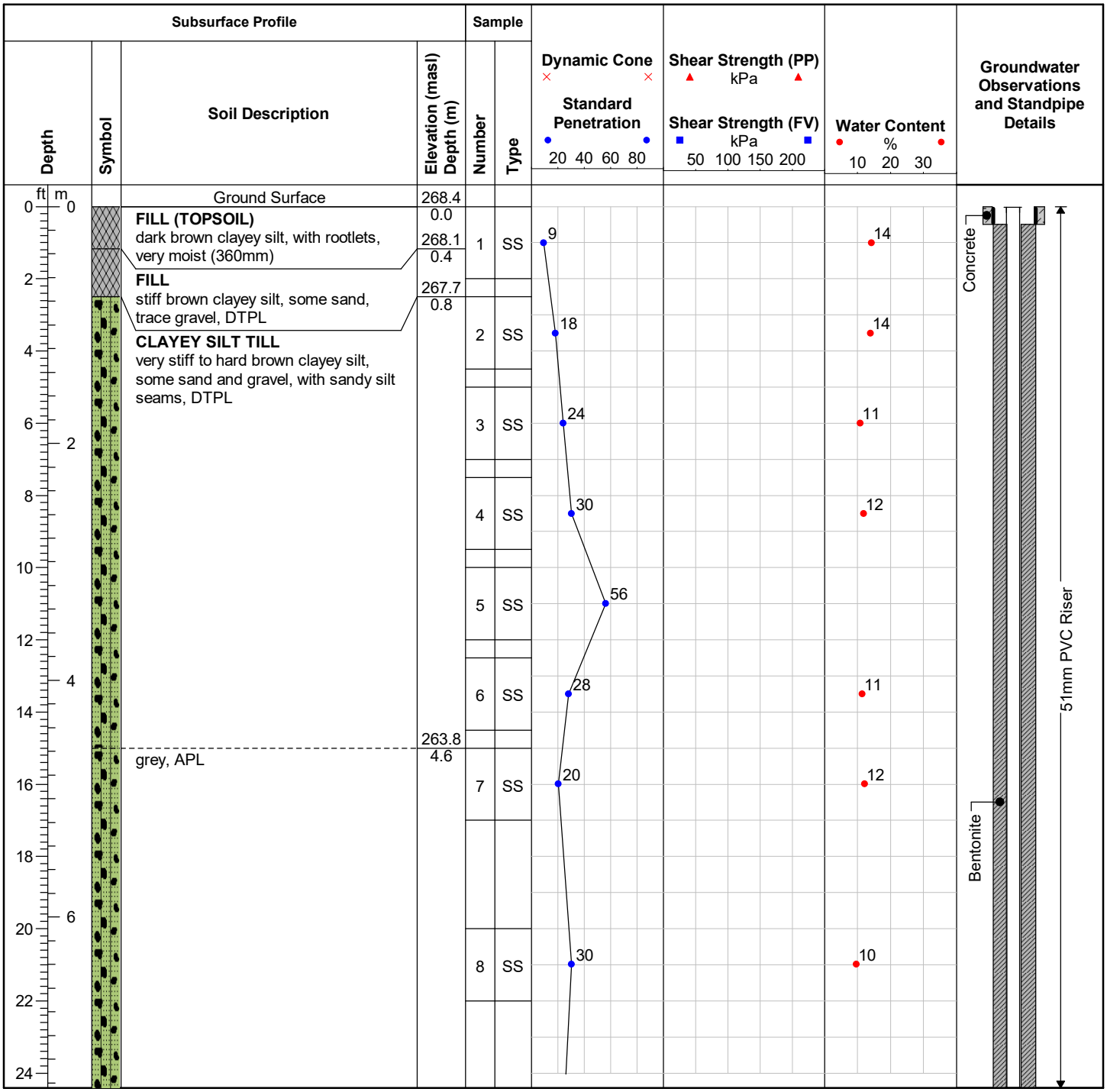
Drill Date: 10/26/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Hollow Stem Auger

Protective Cover: Monument



Field Technician: MBC

Drafted by: B. Graul

Reviewed by: B. Thorner

Water level measured at 8.2 mbgs on Dec 14, 2020

ID Number: MW107-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

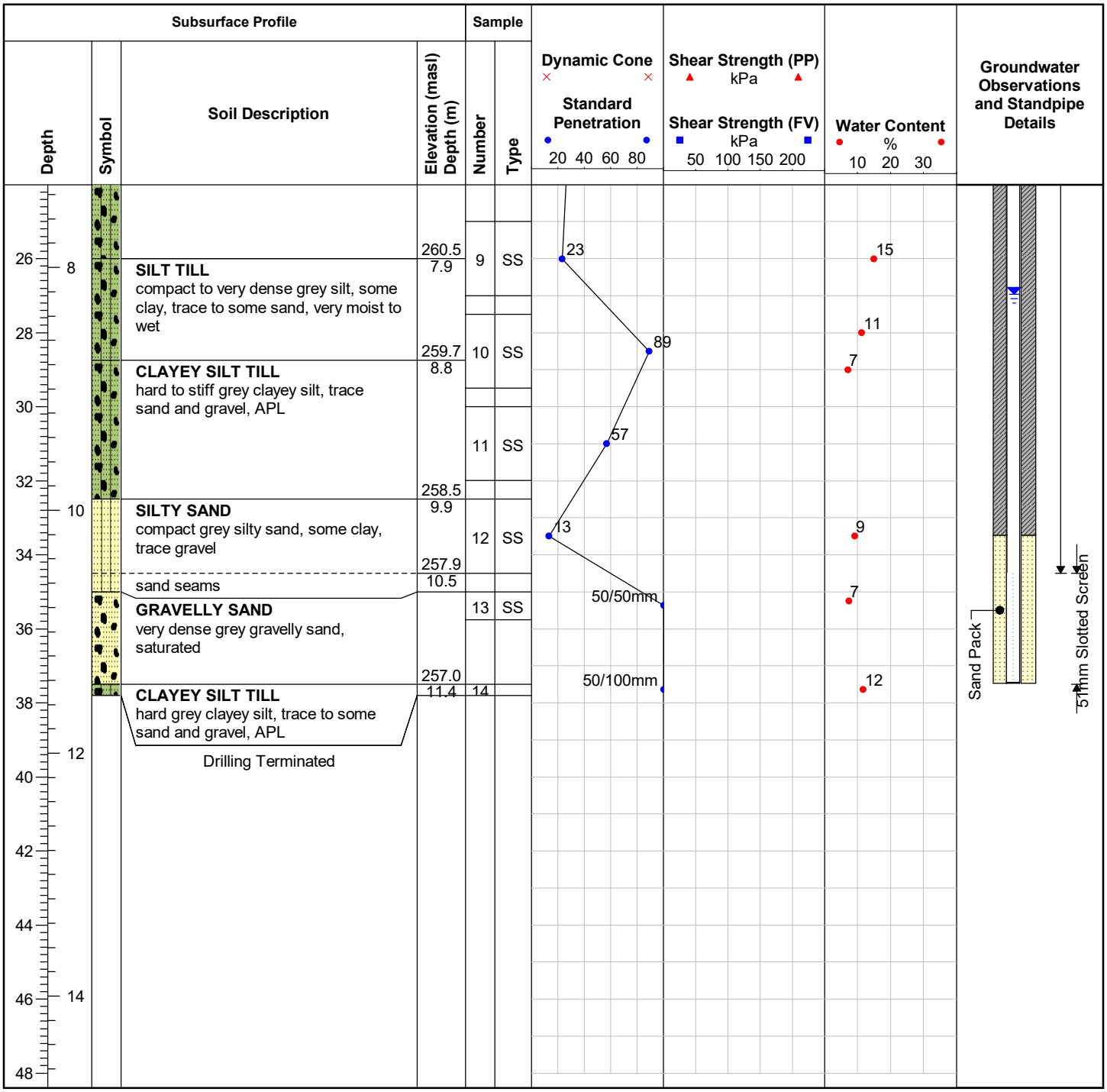
Drill Date: 10/26/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Hollow Stem Auger

Protective Cover: Monument



Field Technician: MBC

Drafted by: B. Graul

Reviewed by: B. Thorner

Water level measured at 8.2 mbgs on Dec 14, 2020

ID Number: BH108-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

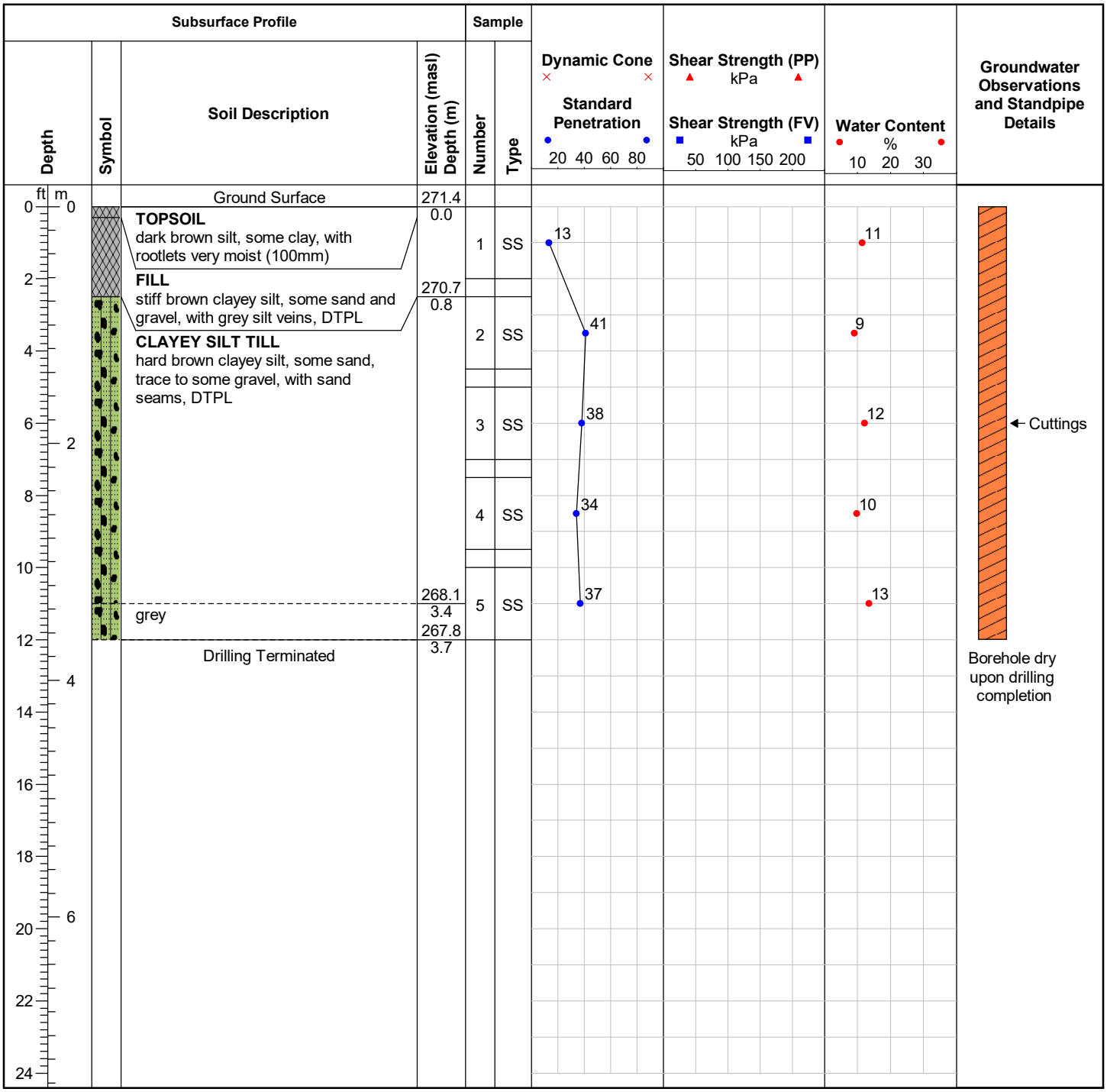
Drill Date: 10/20/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:



Field Technician: MBC

Drafted by: B. Graul

Reviewed by: B. Thorner

Sheet: 1 of 1

ID Number: BH109-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

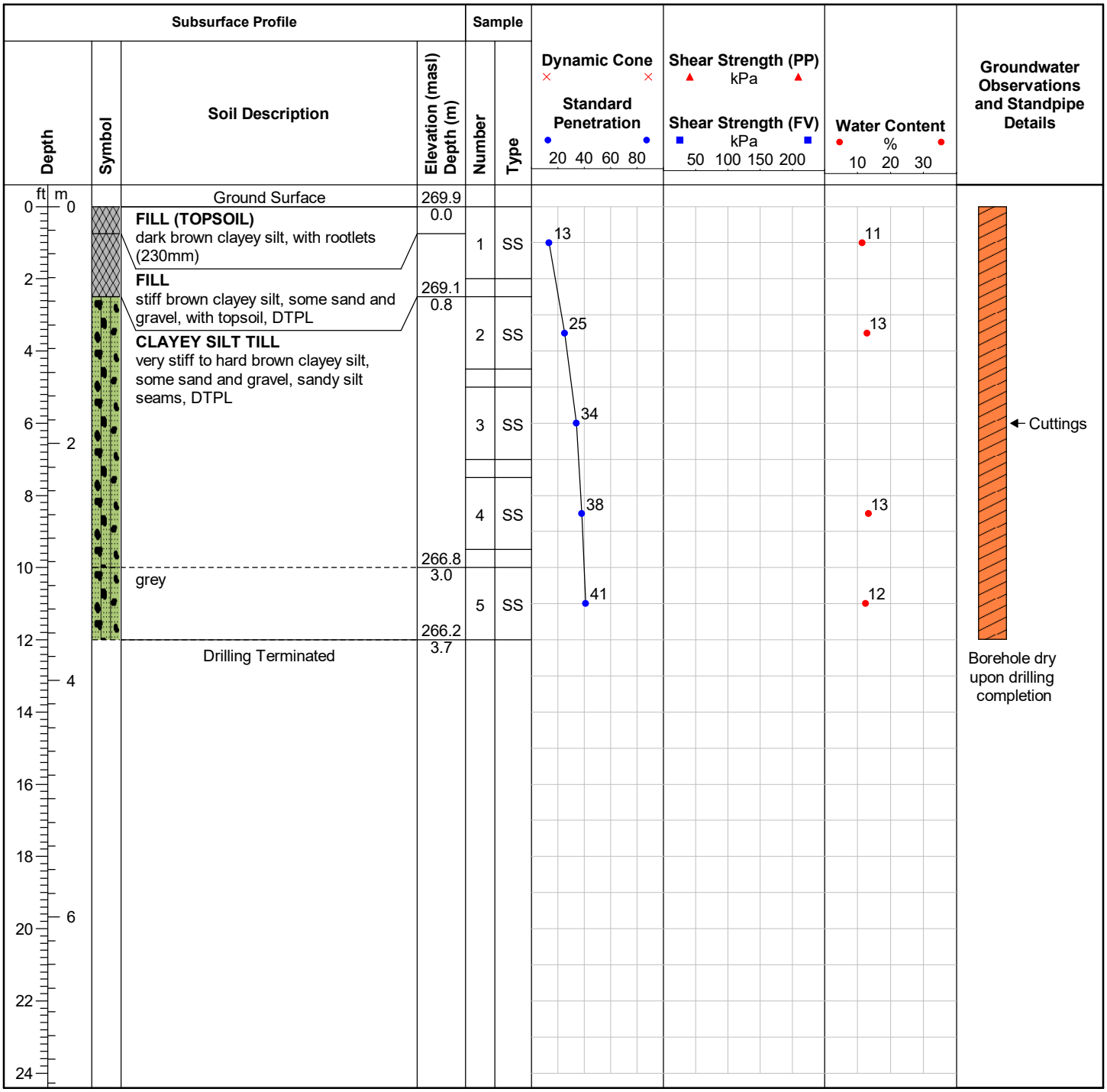
Drill Date: 10/19/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:



Field Technician: MBC

Drafted by: B. Graul

Reviewed by: B. Thorner

Sheet: 1 of 1

ID Number: BH110-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

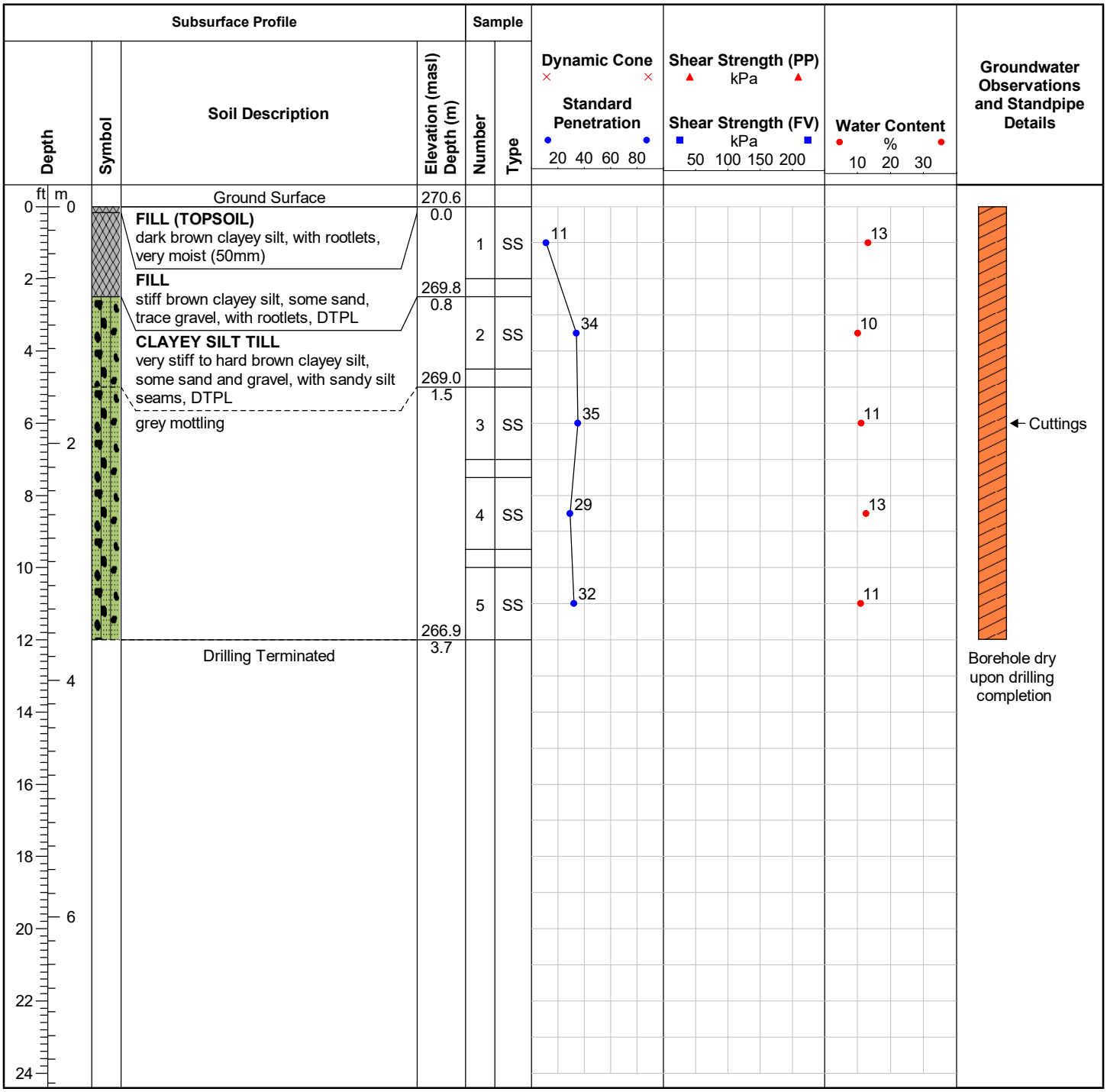
Drill Date: 10/19/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:



Field Technician: MBC

Drafted by: B. Graul

Reviewed by: B. Thorner

Sheet: 1 of 1

ID Number: BH111-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

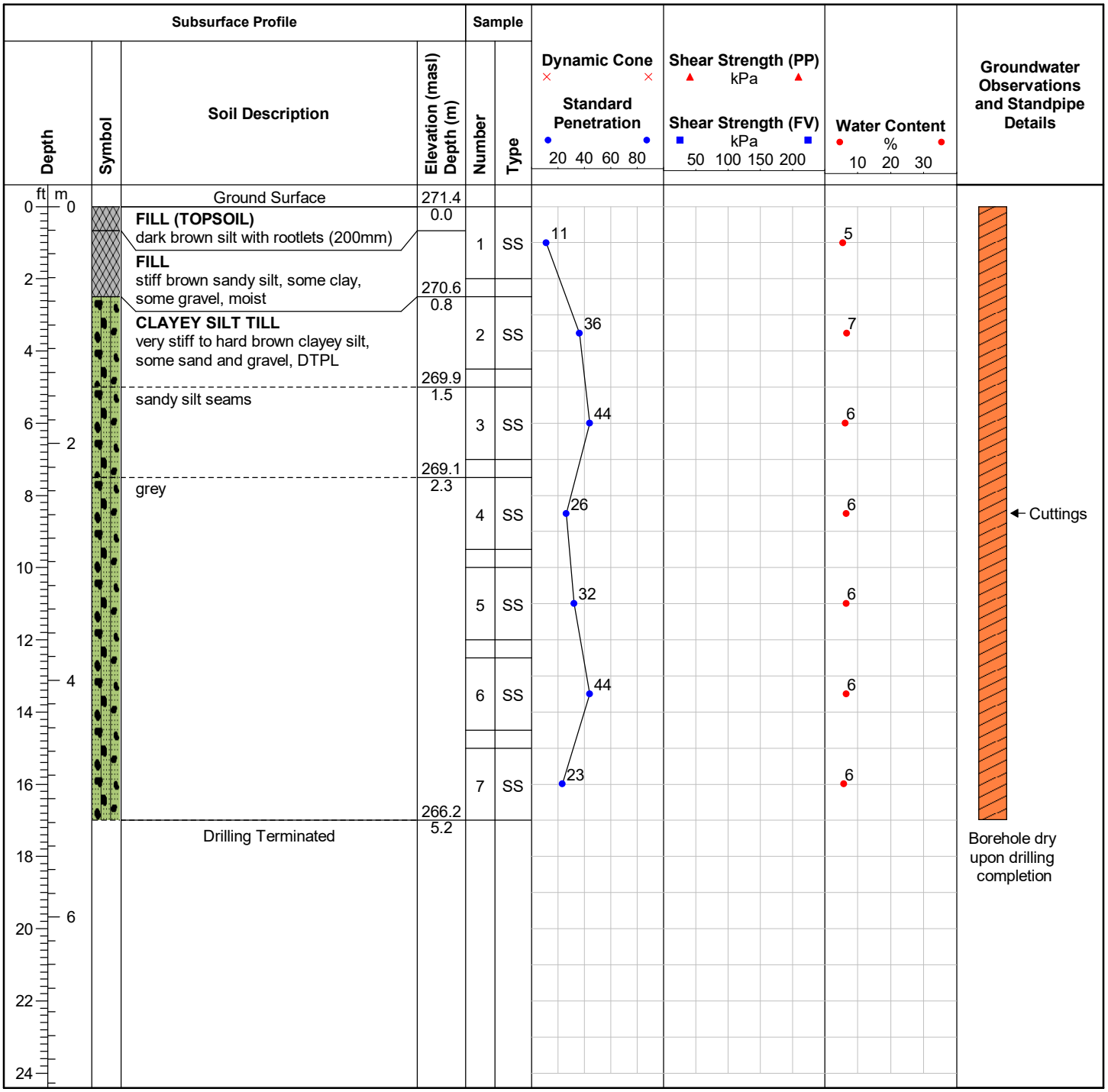
Drill Date: 10/20/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:



Field Technician: MBC

Drafted by: B. Graul

Reviewed by: B. Thorner

Sheet: 1 of 1

ID Number: BH112-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

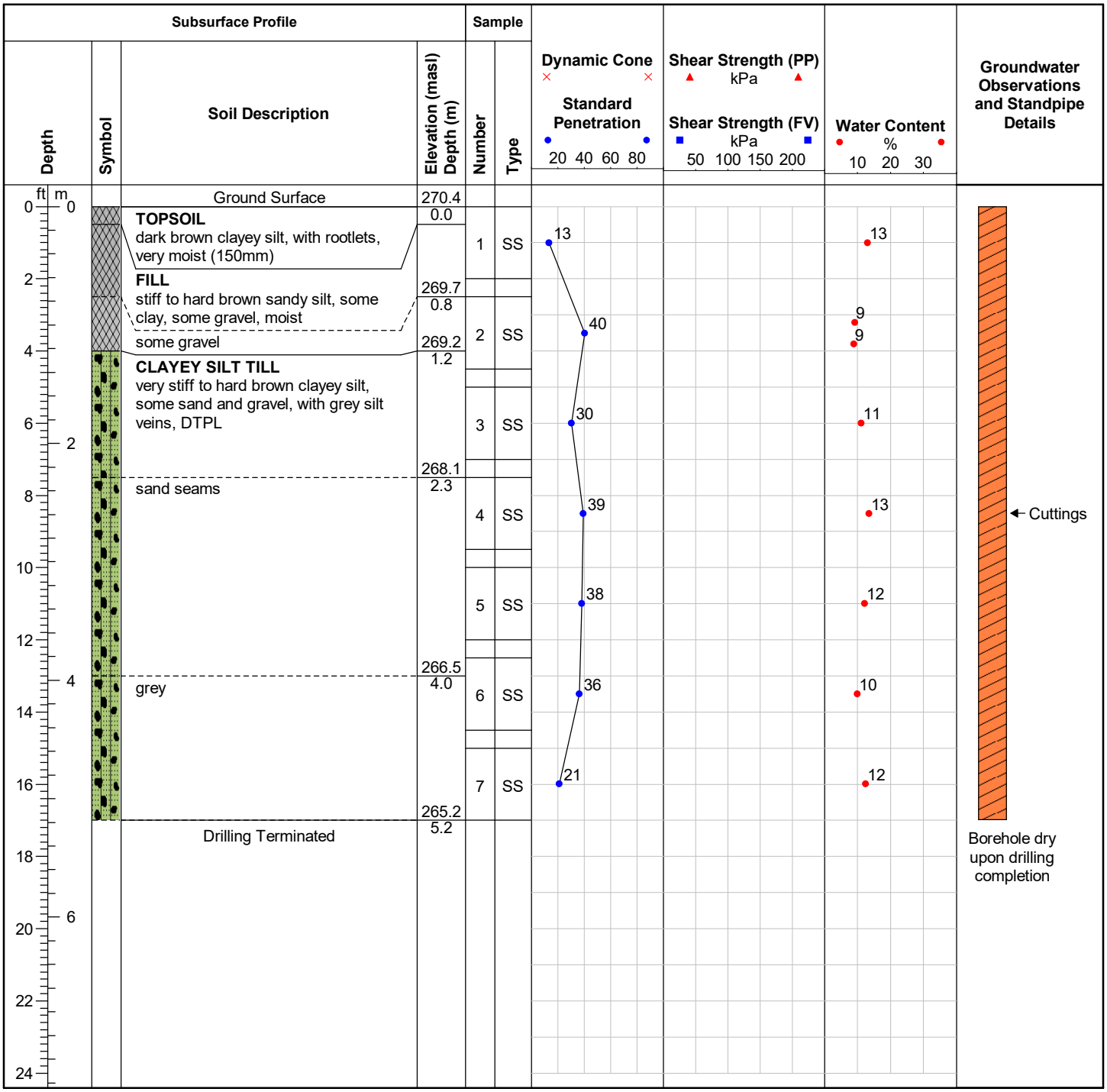
Drill Date: 10/20/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:



Field Technician: MBC

Drafted by: B. Graul

Reviewed by: B. Thorner

Sheet: 1 of 1

ID Number: BH113-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

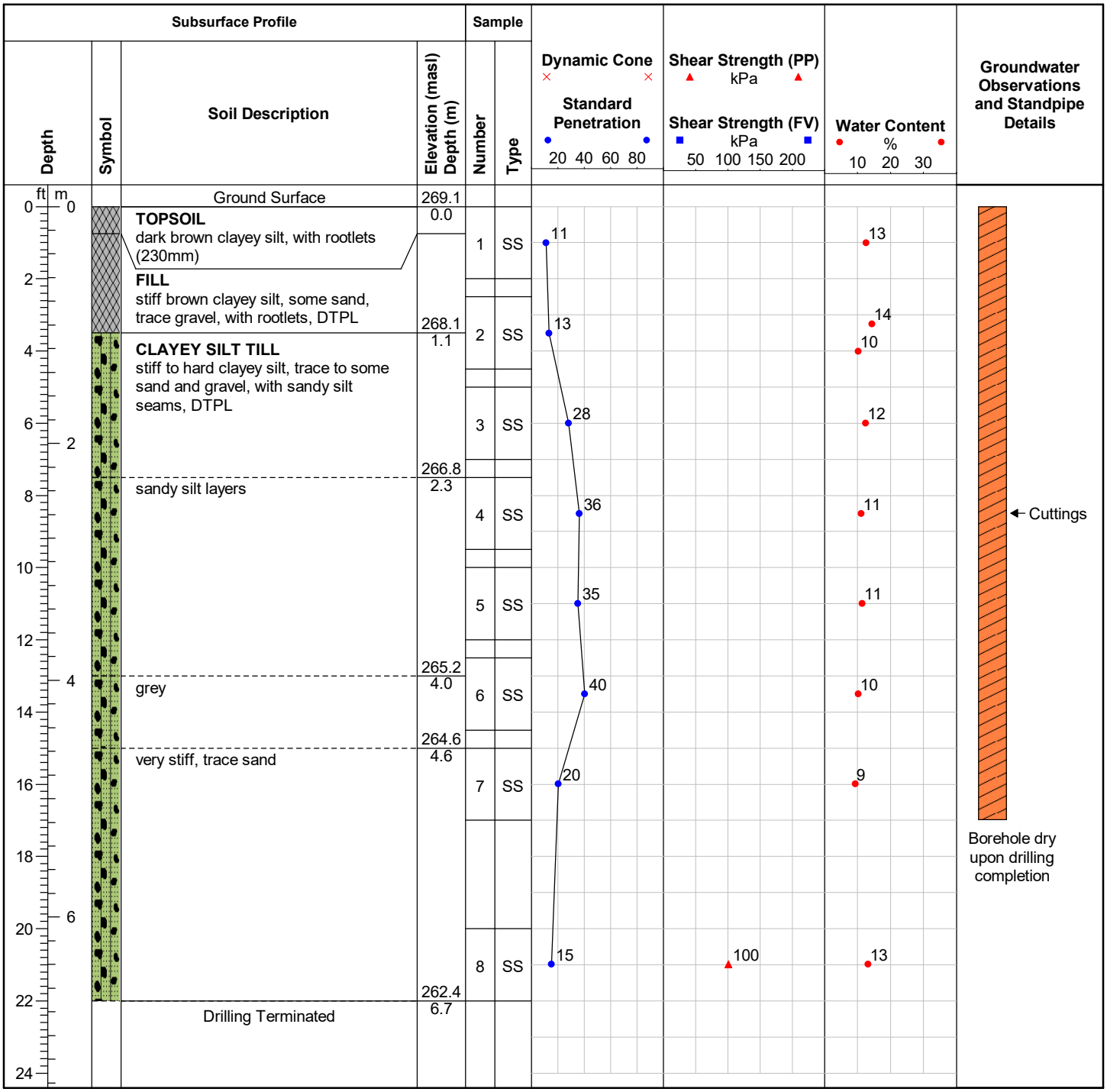
Drill Date: 10/20/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:



Field Technician: MBC

Drafted by: B. Graul

Reviewed by: B. Thorner

Sheet: 1 of 1

ID Number: BH114-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

Drill Date: 10/21/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:

Depth (ft / m)	Symbol	Soil Description	Elevation (masl) / Depth (m)	Sample Number	Sample Type	Dynamic Cone / Standard Penetration	Shear Strength (PP) kPa / Shear Strength (FV) kPa	Water Content %	Groundwater Observations and Standpipe Details
		Ground Surface	271.5						
0 / 0		**FILL (TOPSOIL)** dark brown silt, with rootlets, very moist (200mm)	0.0	1	SS	14		10	
2 /		**FILL** stiff brown clayey silt, some sand, trace gravel, DTPL	270.7 0.8	2	SS	40		8	
4 /		**SANDY SILT TILL** dense brown sandy silt, some clay and gravel, moist	269.9 1.5	3	SS	34		9	← Cuttings
6 / 2		**CLAYEY SILT TILL** hard brown clayey silt, trace to some sand and gravel, DTPL		4	SS	33		11	
8 /				5	SS	44		11	
10 /									
12 / 4		Drilling Terminated	267.8 3.7						Borehole dry upon drilling completion
14 /									
16 /									
18 /									
20 / 6									
22 /									
24 /									

Field Technician: MBC

Drafted by: B. Graul

Reviewed by: B. Thorner

MTE

Sheet: 1 of 1

ID Number: BH115-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

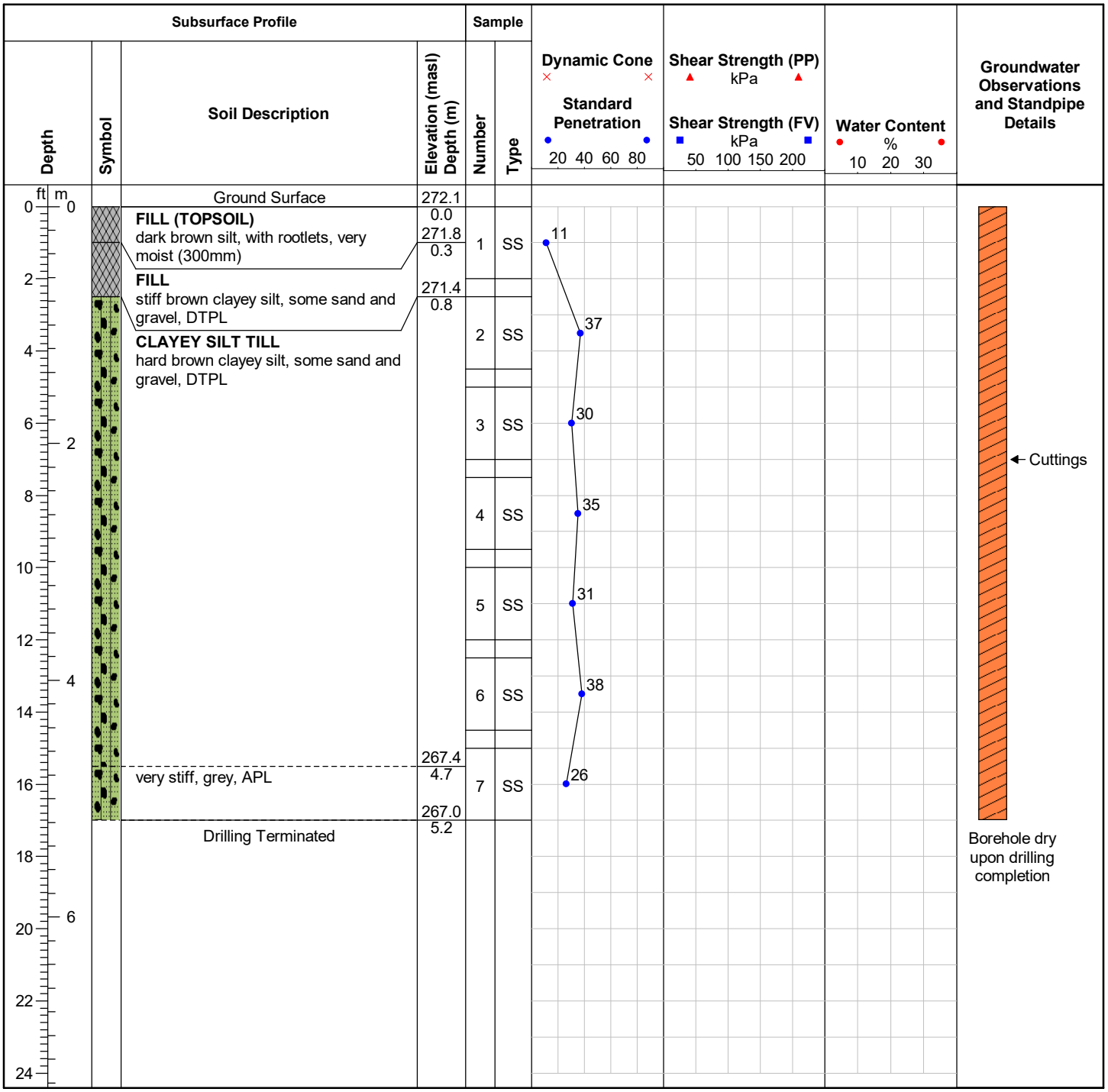
Drill Date: 10/21/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:



Field Technician: MBC

Drafted by: B. Graul

Reviewed by: B. Thorner

Sheet: 1 of 1

ID Number: BH116-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

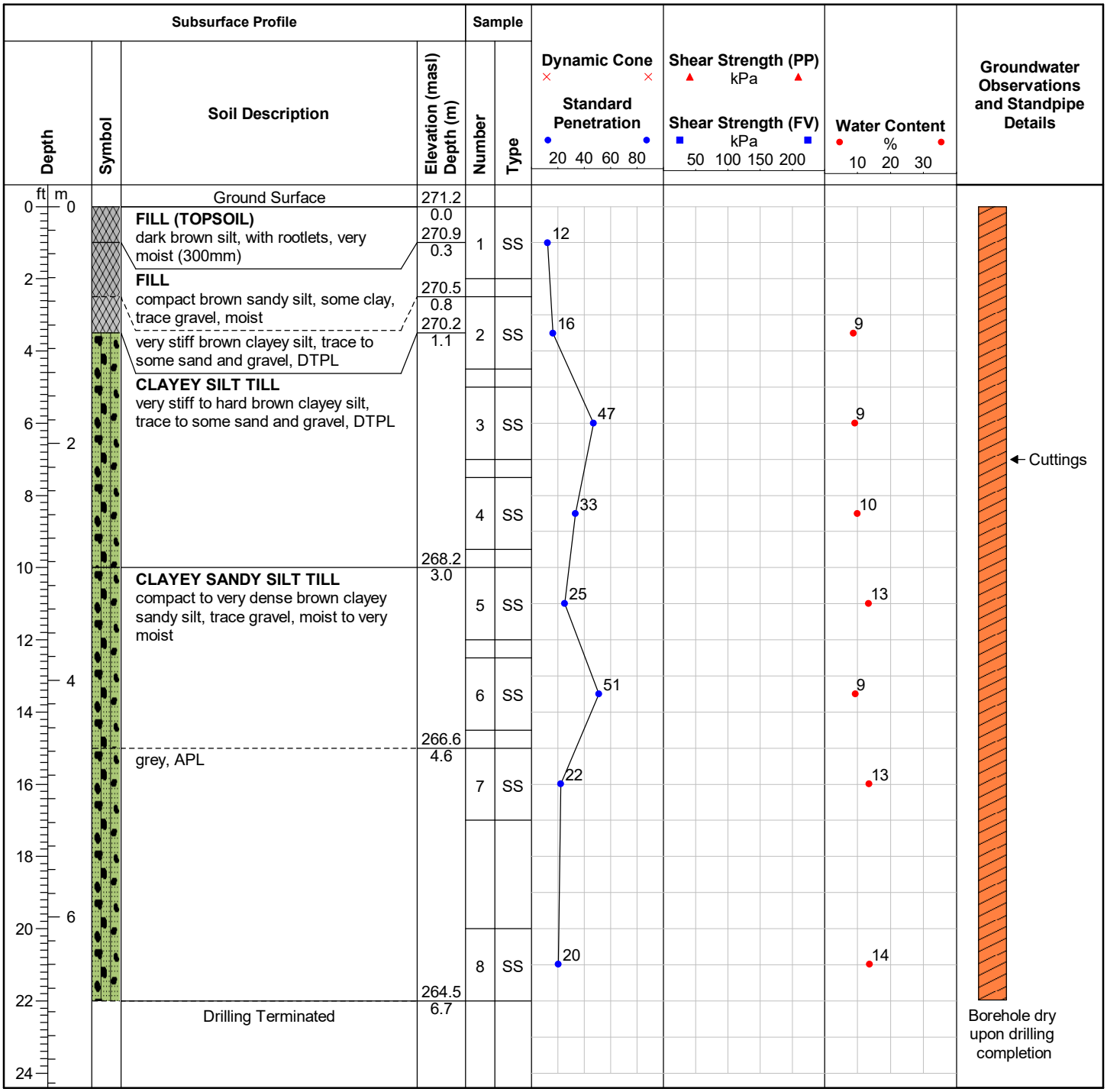
Drill Date: 10/21/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:



Field Technician: MBC

Drafted by: B. Graul

Reviewed by: B. Thorner

Sheet: 1 of 1

ID Number: BH117-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

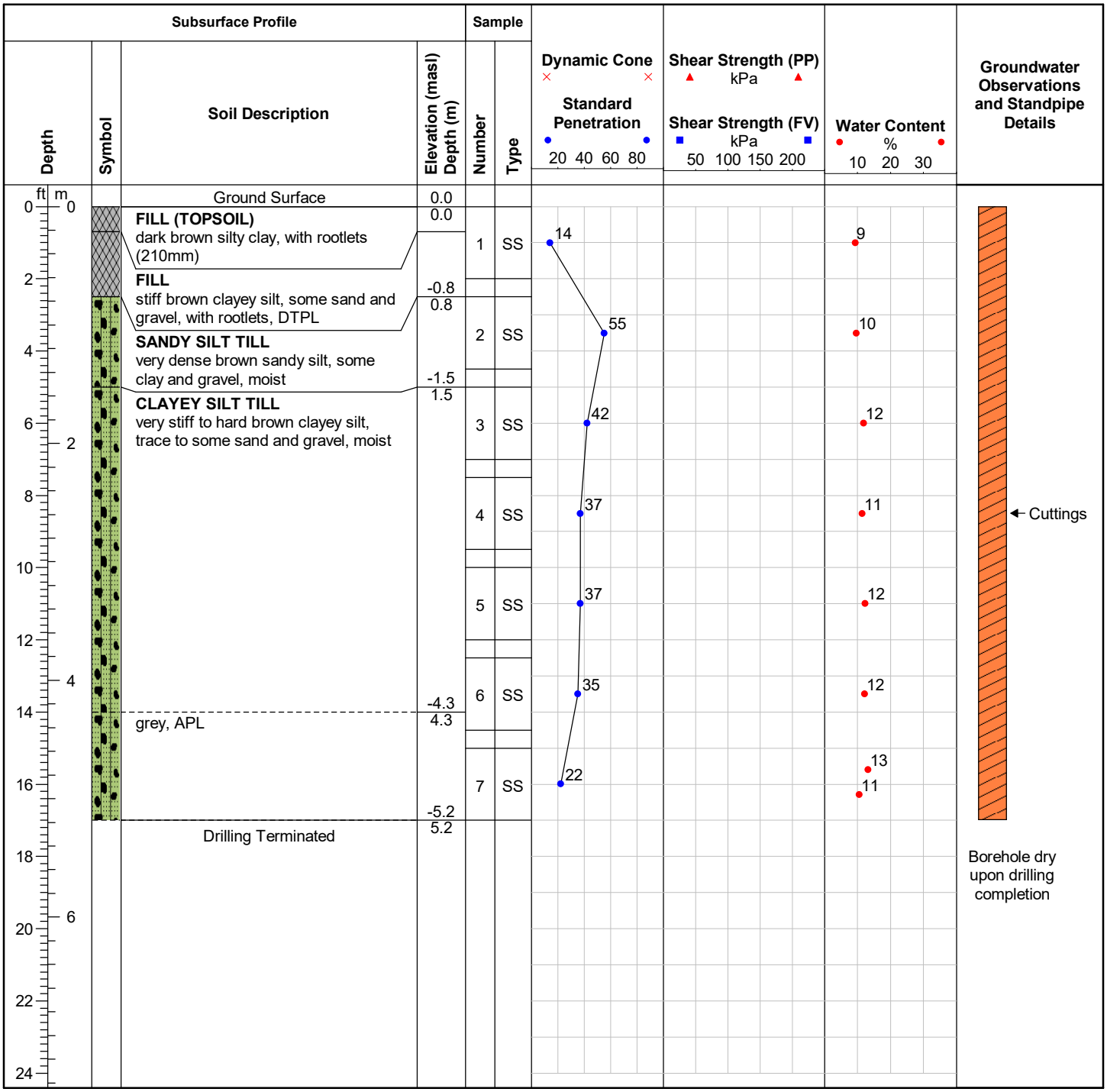
Drill Date: 10/22/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:



Field Technician: MBC

Drafted by: B. Graul

Reviewed by: B. Thorner

Sheet: 1 of 1

ID Number: BH118-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

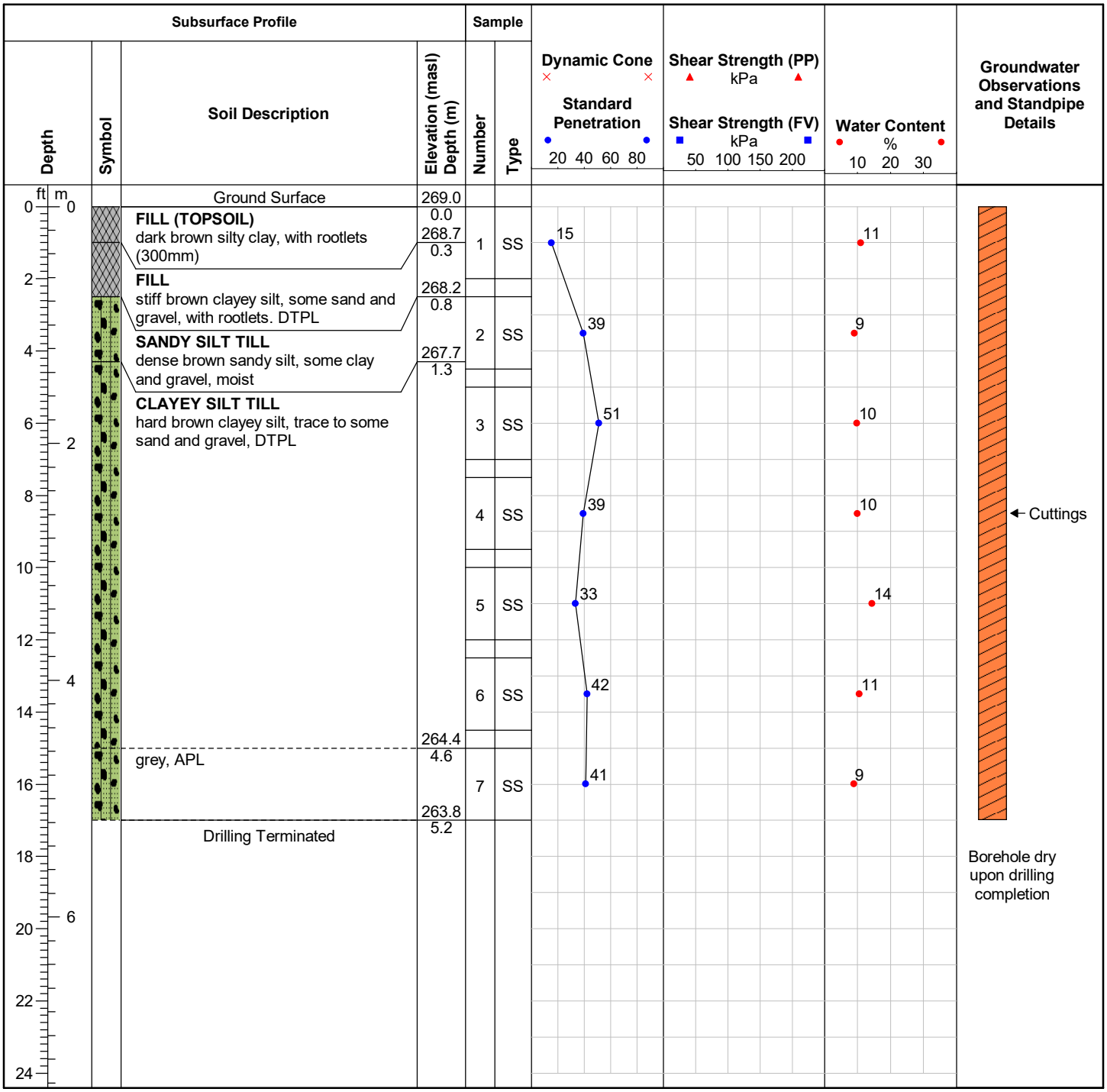
Drill Date: 10/22/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:



Field Technician: MBC

Drafted by: B. Graul

Reviewed by: B. Thorner

Sheet: 1 of 1

ID Number: BH119-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

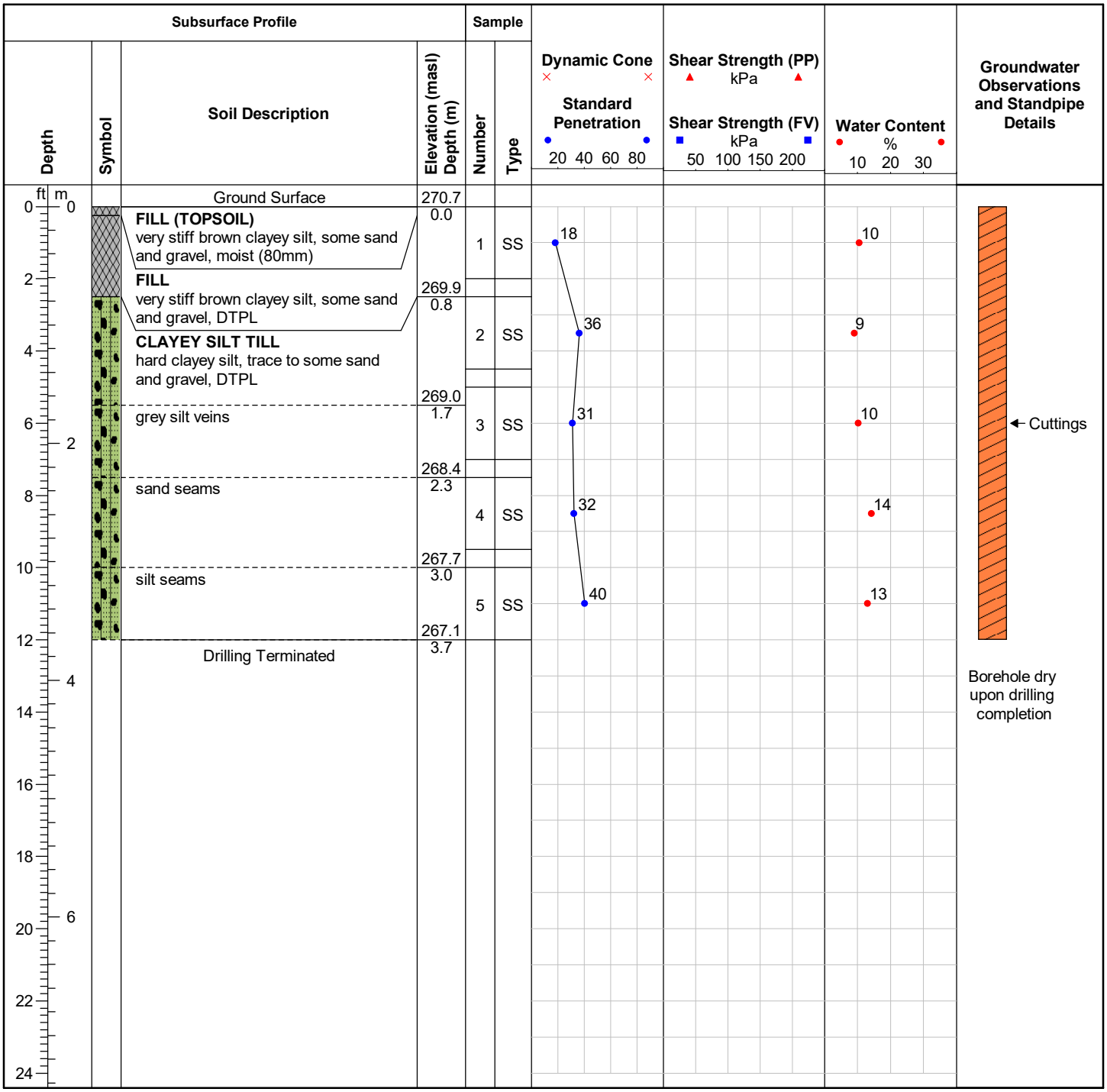
Drill Date: 10/22/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:



Field Technician: MBC

Drafted by: B. Graul

Reviewed by: B. Thorner

Sheet: 1 of 1

ID Number: BH120-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

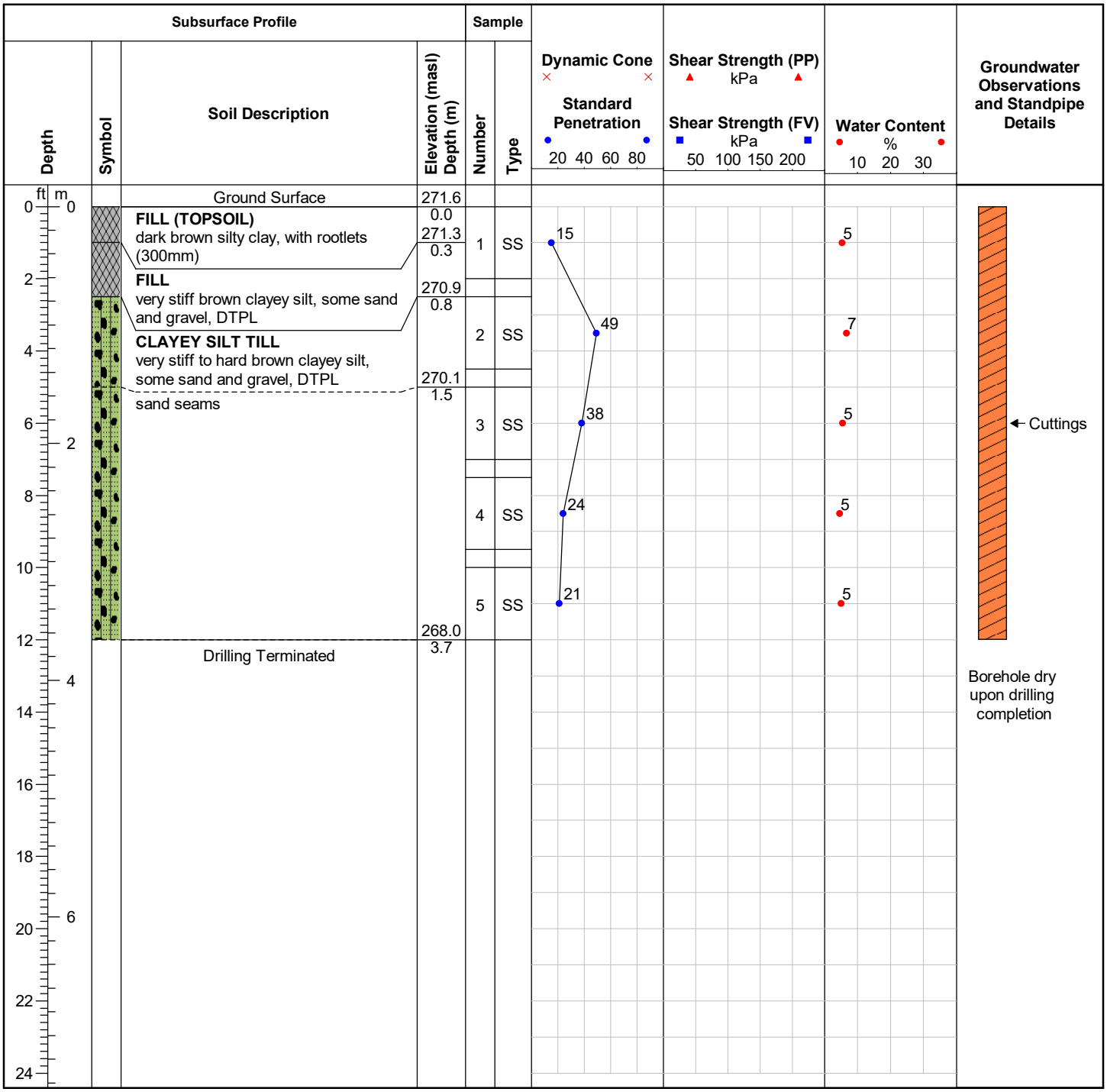
Drill Date: 10/22/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:



Field Technician: MBC

Drafted by: B. Graul

Reviewed by: B. Thorner

Sheet: 1 of 1

ID Number: BH121-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

Drill Date: 10/22/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Hollow Stem Auger

Protective Cover:

Depth (ft / m)	Symbol	Soil Description	Elevation (masl) / Depth (m)	Sample Number	Sample Type	Dynamic Cone: Standard Penetration (20 40 60 80)	Shear Strength (PP) kPa / Shear Strength (FV) kPa (50 100 150 200)	Water Content % (10 20 30)	Groundwater Observations and Standpipe Details
0 ft / 0 m		Ground Surface	269.3						
		FILL (TOPSOIL) dark brown clayey silt, with rootlets (300mm)	0.0 / 269.0 / 0.3	1	SS	16		10	
2 ft / 0.6 m		**FILL** very stiff brown clayey silt, some sand and gravel, DTPL	268.5 / 0.8 / 268.2	2	SS	36		9	
4 ft / 1.2 m		**SANDY SILT TILL** dense brown sandy silt, some clay and gravel, with grey silt veins, moist	1.1						
6 ft / 1.8 m		**CLAYEY SILT TILL** hard to very stiff clayey silt, some sand and gravel, with grey silt veins, DTPL		3	SS	32		13	← Cuttings
8 ft / 2.4 m				4	SS	27		12	
10 ft / 3.0 m				5	SS	44		13	
12 ft / 3.7 m		Drilling Terminated	265.6 / 3.7						Borehole dry upon drilling completion
14 ft / 4.3 m									
16 ft / 4.9 m									
18 ft / 5.5 m									
20 ft / 6.1 m									
22 ft / 6.7 m									
24 ft / 7.3 m									

Field Technician: MBC

Drafted by: B. Graul

Reviewed by: B. Thorner

MTE

Sheet: 1 of 1

ID Number: BH122-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

Drill Date: 10/22/2020

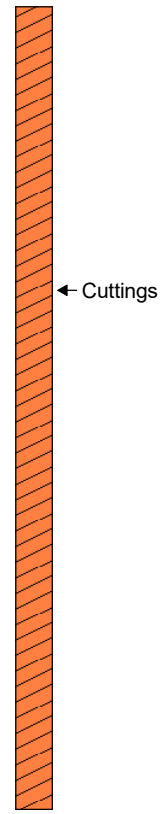
Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:

Depth (ft / m)	Soil Description	Elevation (masl) / Depth (m)	Sample Number	Sample Type	Dynamic Cone / Standard Penetration (20 40 60 80)	Shear Strength (PP) kPa / Shear Strength (FV) kPa (50 100 150 200)	Water Content % (10 20 30)
	Ground Surface	271.0					
0	**FILL (TOPSOIL)** dark brown silty clay, with rootlets, (200mm)	0.0 / 270.5	1	SS	14		8, 10
2	**FILL** stiff brown clayey silt, some sand and gravel, APL	0.5 / 269.8	2	SS	51		9
4	**SANDY SILT TILL** very dense brown sandy silt, some clay and gravel, with grey silt veins, moist	1.2	3	SS	35		8
6	**CLAYEY SILT TILL** hard to very stiff brown clayey silt, trace to some sand and gravel, DTPL		4	SS	27		11
8			5	SS	33		9
10			6	SS	34		9
12	grey, APL	267.2 / 3.8	7	SS	23		10
14		265.8 / 5.2					
16	Drilling Terminated						
18							
20							
22							
24							



Groundwater Observations and Standpipe Details: Borehole dry upon drilling completion

Field Technician: MBC

Drafted by: B. Graul

Reviewed by: B. Thorner

Sheet: 1 of 1

ID Number: BH123-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

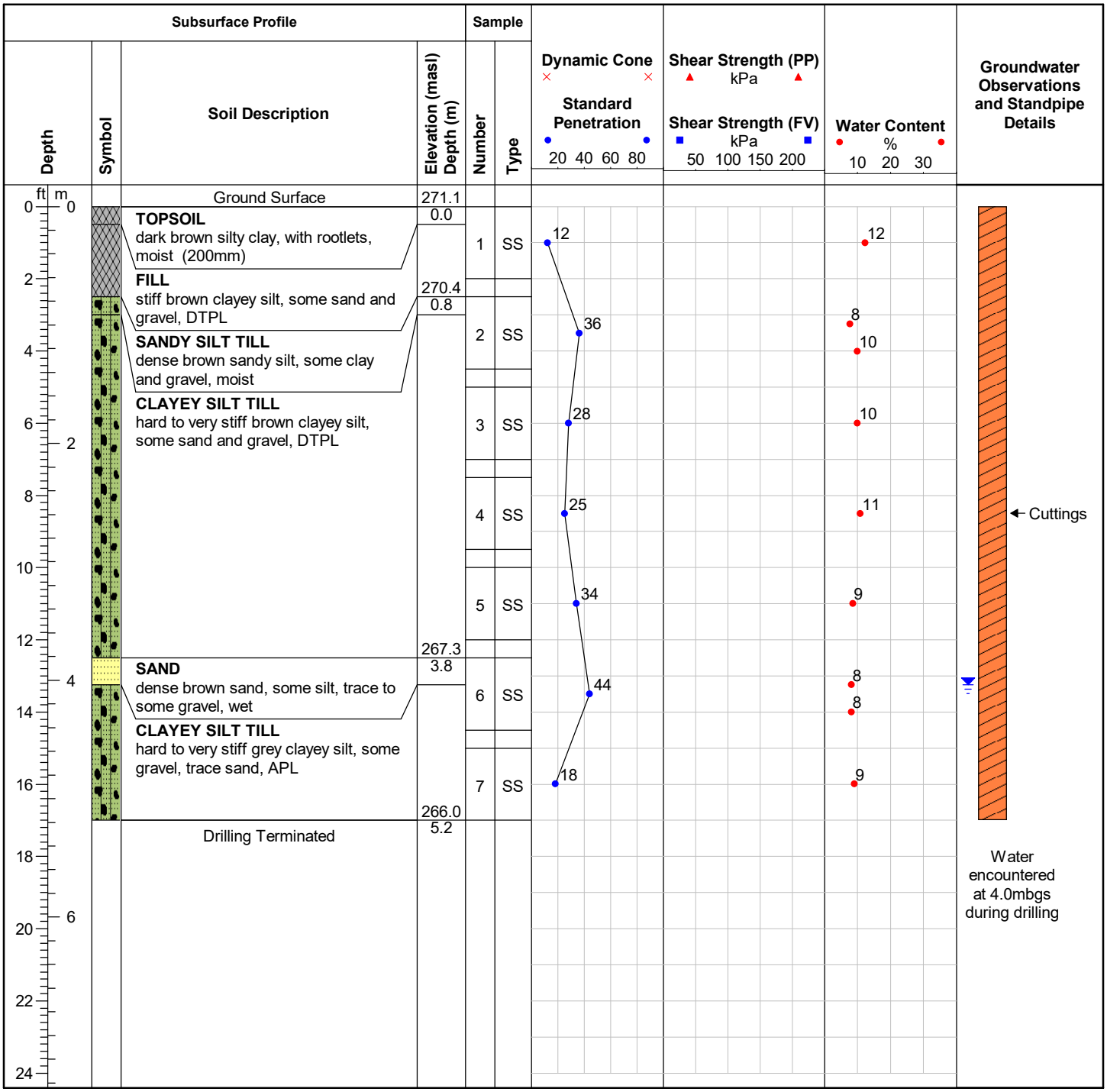
Drill Date: 10/22/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:



Field Technician: MBC

Drafted by: B. Graul

Reviewed by: B. Thorner

Sheet: 1 of 1

ID Number: BH124-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

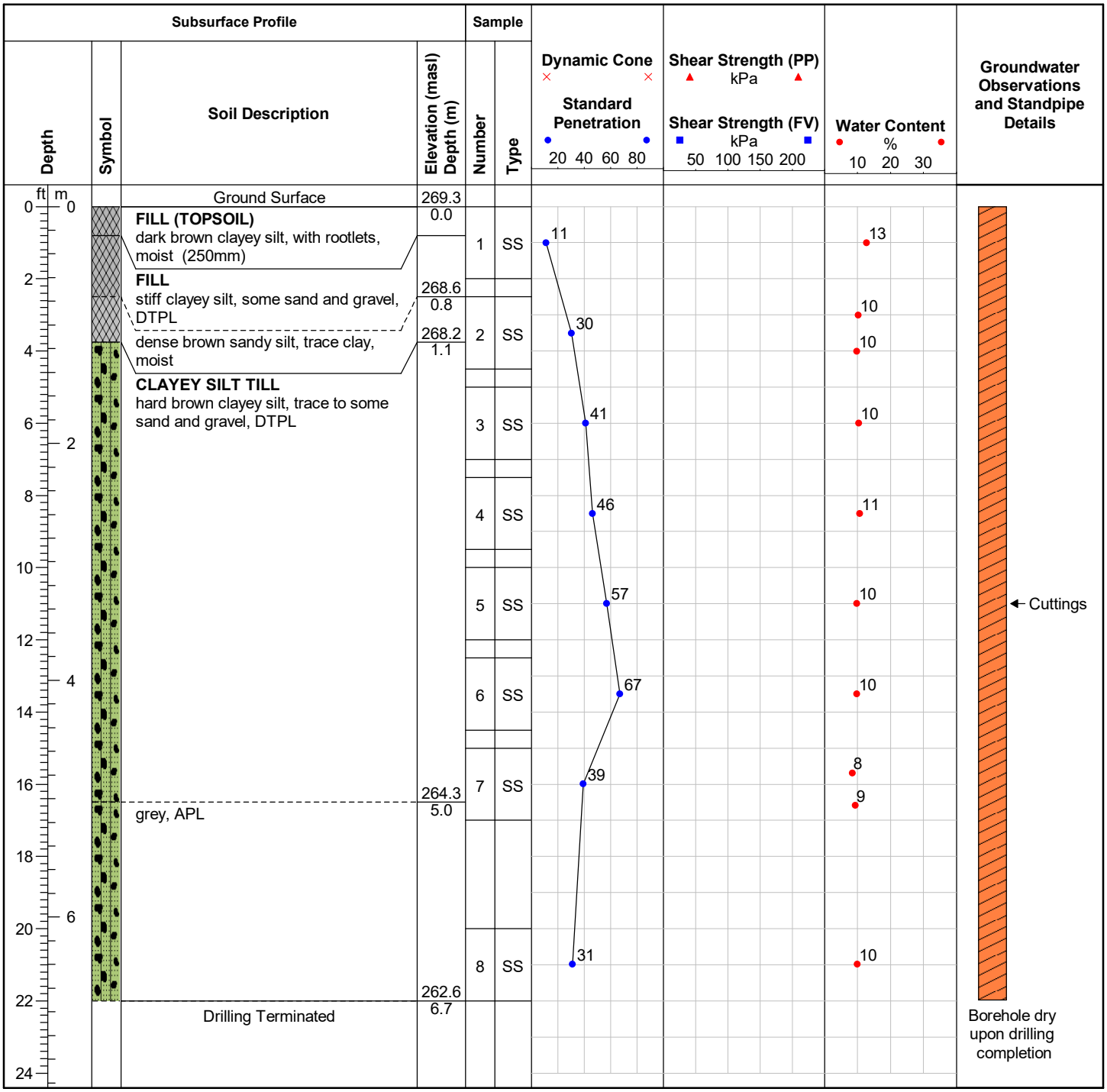
Drill Date: 10/20/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:



Field Technician: MBC

Drafted by: B. Graul

Reviewed by: B. Thorner

Sheet: 1 of 1

ID Number: BH125-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

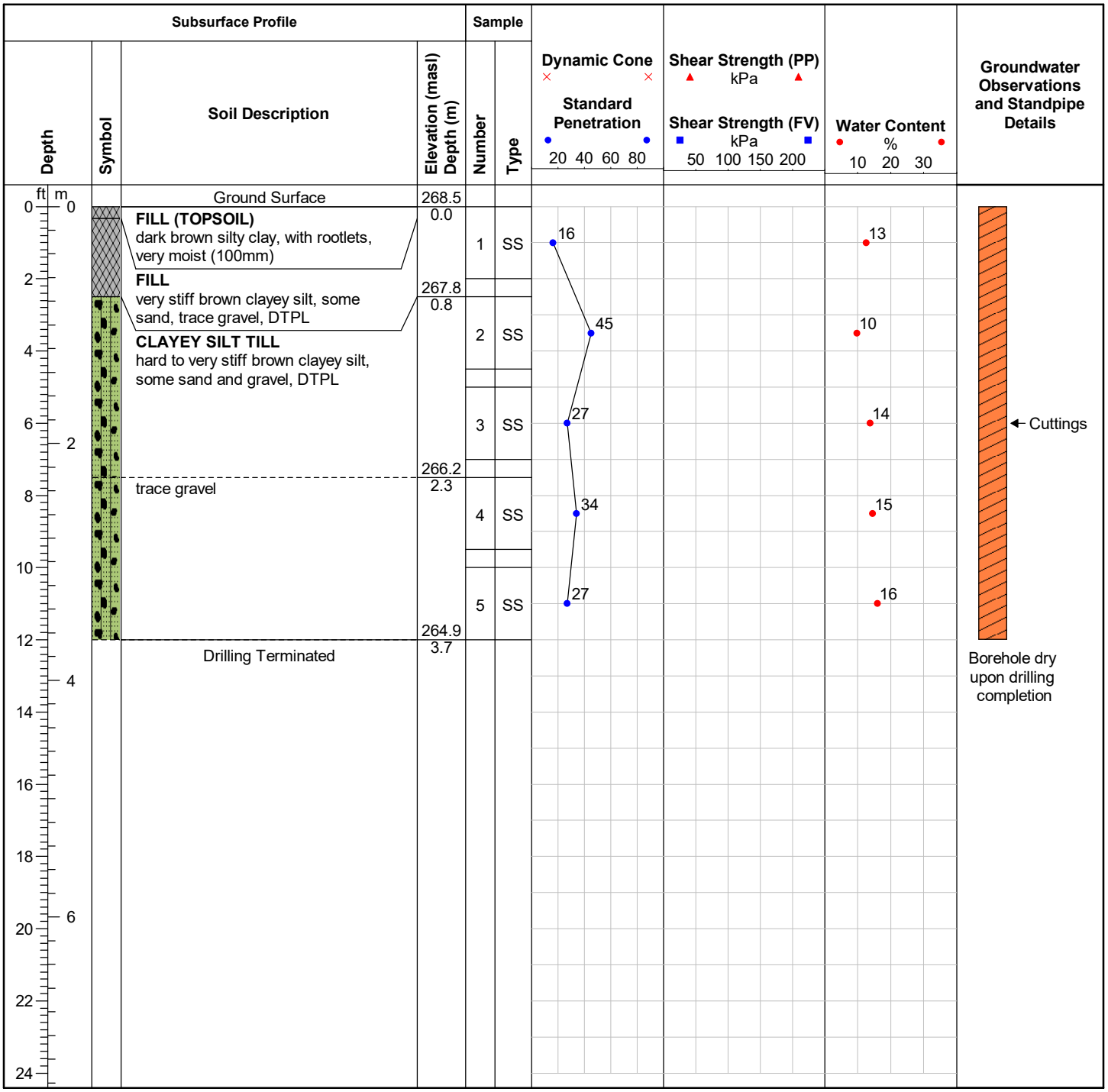
Drill Date: 10/26/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:



Field Technician: MBC

Drafted by: B. Graul

Reviewed by: B. Thorner

Sheet: 1 of 1

ID Number: BH126-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

Drill Date: 10/26/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:

Depth (ft / m)	Symbol	Soil Description	Elevation (masl) / Depth (m)	Sample Number	Sample Type	Dynamic Cone / Standard Penetration (20 40 60 80)	Shear Strength (PP) kPa / Shear Strength (FV) kPa (50 100 150 200)	Water Content % (10 20 30)	Groundwater Observations and Standpipe Details
		Ground Surface	269.3						
0		**FILL (TOPSOIL)** dark brown clayey silt, with rootlets, very moist (200mm)	0.0	1	SS	11		14	
2		**FILL** stiff brown clayey silt, trace to some sand and gravel, DTPL	268.5 / 0.8	2	SS	21		11	
4		**CLAYEY SILT TILL** very stiff to hard brown clayey silt, trace to some sand and gravel, DTPL		3	SS	34		11	← Cuttings
6				4	SS	39		10	
8				5	SS	34		11	
10			265.8						Borehole dry upon drilling completion
12		Drilling Terminated	3.5						
14									
16									
18									
20									
22									
24									

Field Technician: MBC

Drafted by: B. Graul

Reviewed by: B. Thorner

MTE

Sheet: 1 of 1

ID Number: BH127-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

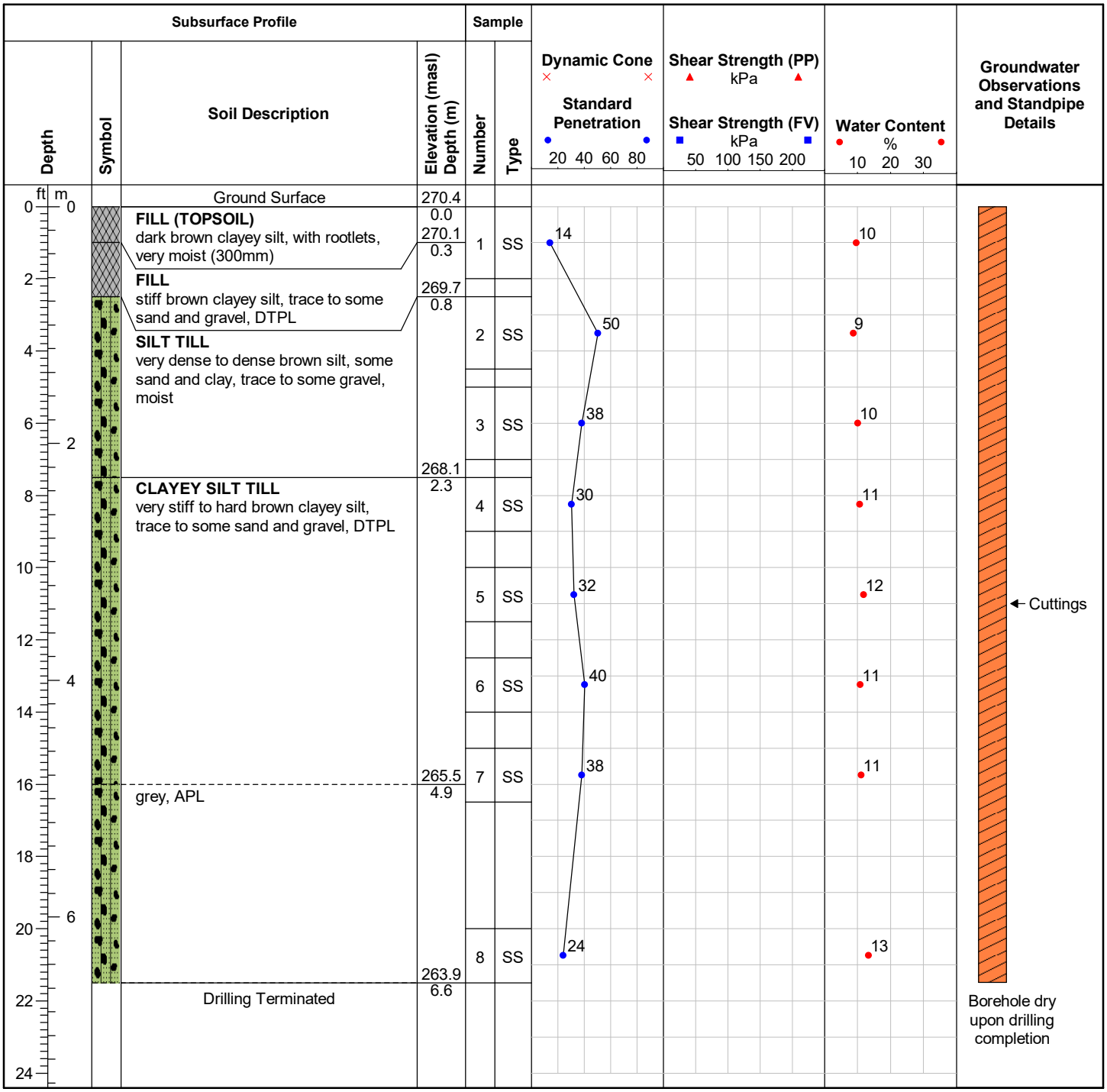
Drill Date: 10/20/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:



Field Technician: MBC

Drafted by: B. Graul

Reviewed by: B. Thorner

Sheet: 1 of 1

ID Number: BH128-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

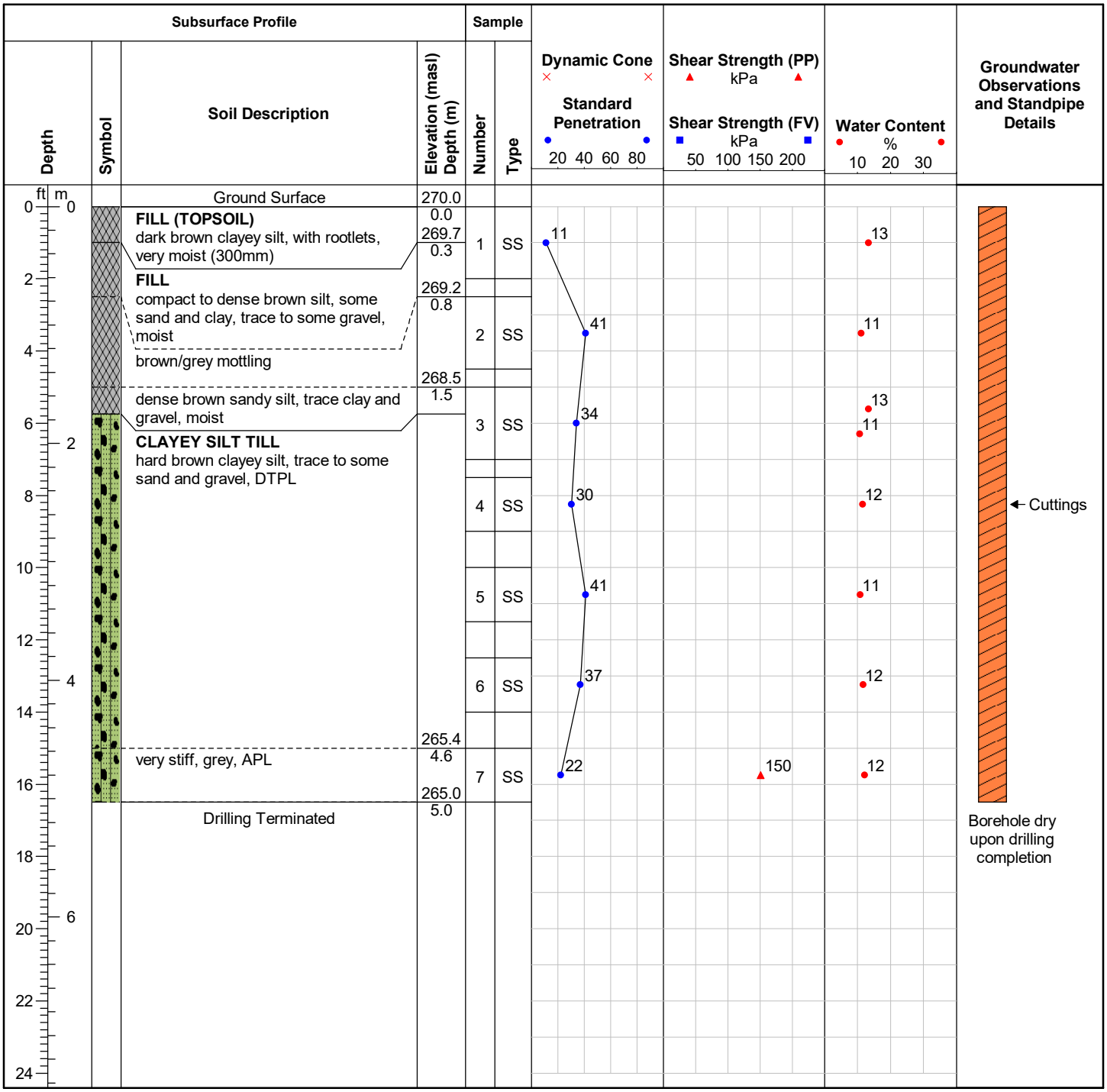
Drill Date: 10/26/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:



Field Technician: MBC

Drafted by: B. Graul

Reviewed by: B. Thorner

Sheet: 1 of 1

ID Number: BH129-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

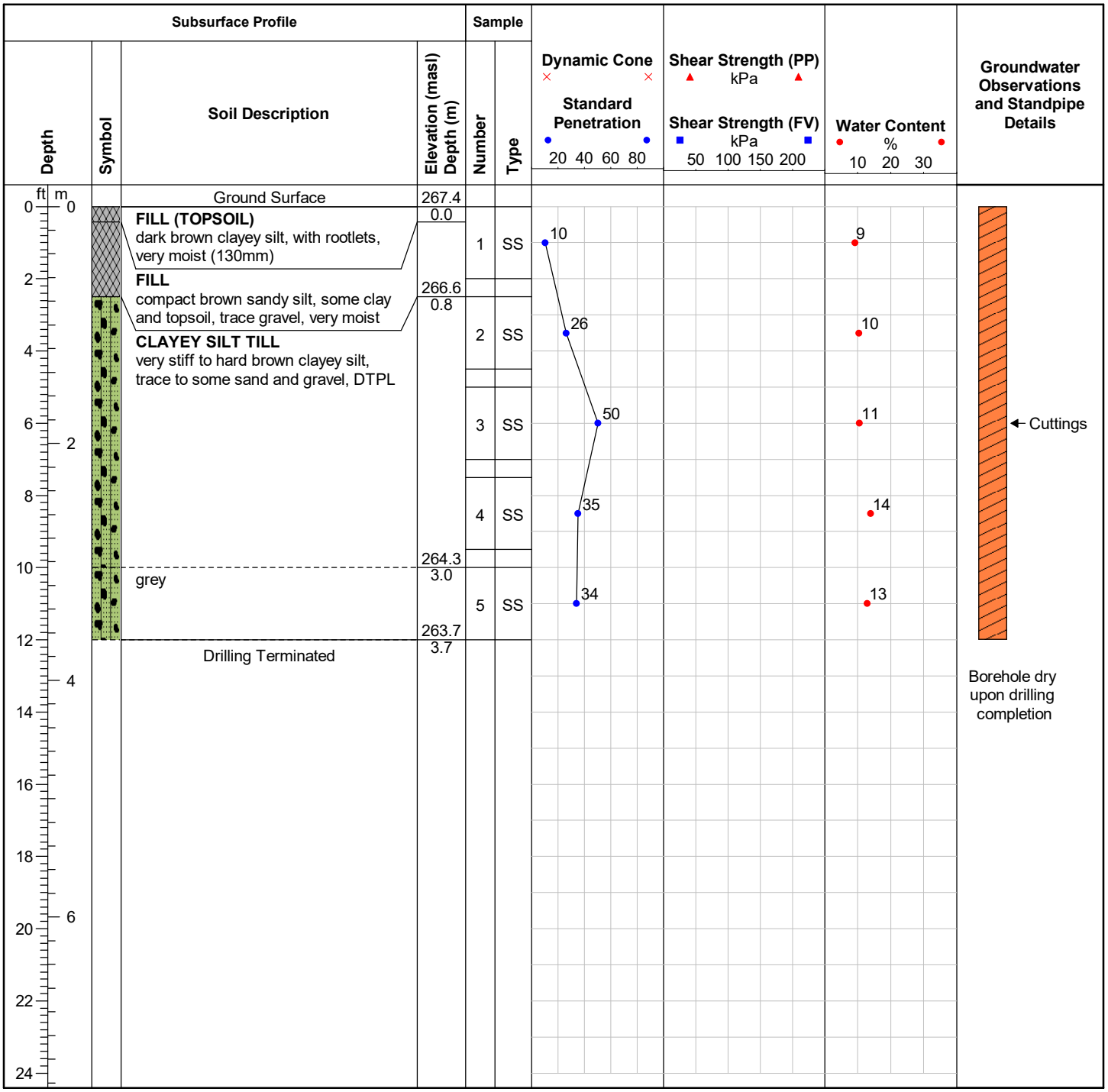
Drill Date: 10/26/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:



Field Technician: MBC

Drafted by: B. Graul

Reviewed by: B. Thorner

Sheet: 1 of 1

ID Number: BH130-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

Drill Date: 10/27/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:

Depth (ft / m)	Symbol	Soil Description	Elevation (masl) / Depth (m)	Sample Number	Sample Type	Dynamic Cone / Standard Penetration (20 40 60 80)	Shear Strength (PP) kPa / Shear Strength (FV) kPa (50 100 150 200)	Water Content % (10 20 30)	Groundwater Observations and Standpipe Details
0 ft / 0 m		Ground Surface	269.4						
		FILL (TOPSOIL) compact brown silt, some sand and clay, trace gravel, moist (250mm)	0.0	1	SS	15		9	
2 ft / 0.5 m		**FILL** compact brown silt, some sand and clay, trace gravel, moist	268.6 / 0.8	2	SS	24		12	
4 ft / 1 m		**CLAYEY SILT** very stiff to hard brown clayey silt, trace sand and gravel, with grey silt veins, DTPL		3	SS	29		12	
6 ft / 2 m				4	SS	34		13	
10 ft / 3 m				5	SS	54		10	
12 ft / 4 m		Drilling Terminated	265.9 / 3.5						Cuttings; Borehole dry upon drilling completion
20 ft / 6 m									
24 ft									

Field Technician: MBC

Drafted by: B. Graul

Reviewed by: B. Thorner

MTE

ID Number: BH131-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

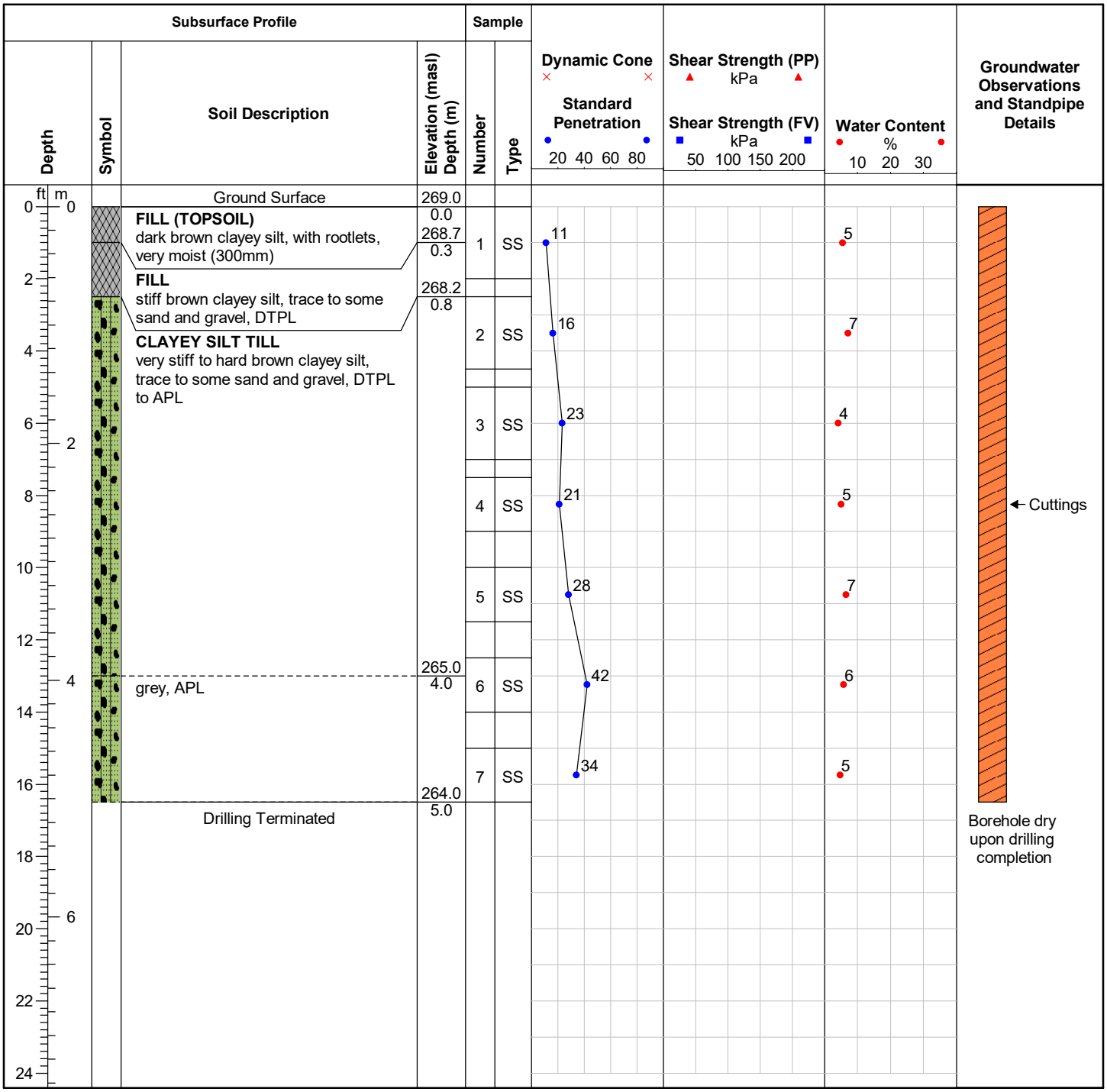
Drill Date: 10/27/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:



Field Technician: MBC

Drafted by: B. Graul

Reviewed by: B. Thorner

Sheet: 1 of 1

ID Number: BH132-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

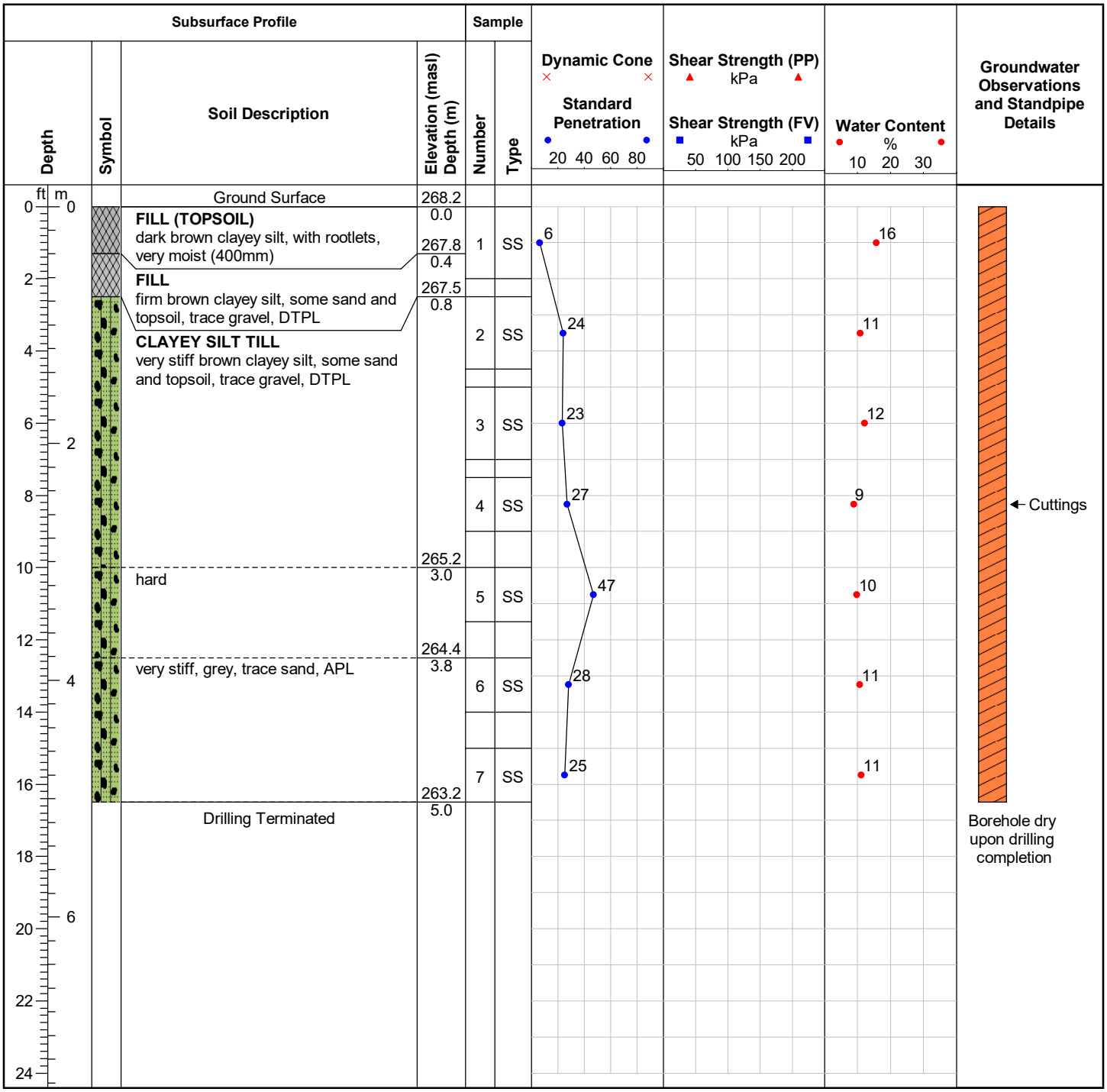
Drill Date: 10/27/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:



Field Technician: MBC

Drafted by: B. Graul

Reviewed by: B. Thorner

Sheet: 1 of 1

ID Number: BH133-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

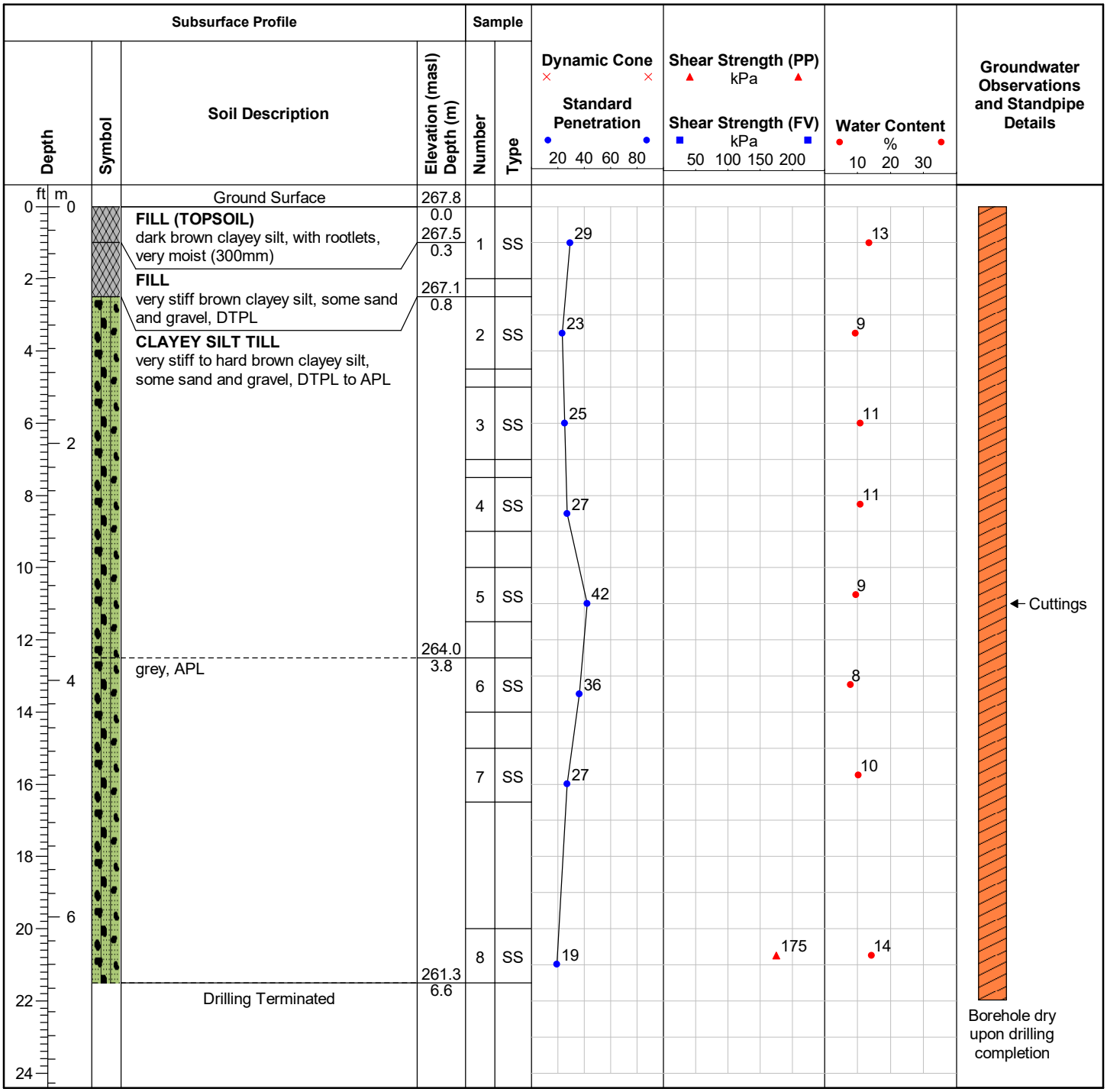
Drill Date: 10/27/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:



Field Technician: MBC

Drafted by: B. Graul

Reviewed by: B. Thorner

Sheet: 1 of 1

ID Number: BH134-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

Drill Date: 10/27/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:

Depth (ft / m)	Symbol	Soil Description	Elevation (masl) / Depth (m)	Sample Number	Sample Type	Dynamic Cone / Standard Penetration (20 40 60 80)	Shear Strength (PP) kPa / Shear Strength (FV) kPa (50 100 150 200)	Water Content % (10 20 30)	Groundwater Observations and Standpipe Details
0 ft / 0 m		Ground Surface	269.1						
		TOPSOIL dark brown clayey silt, with rootlets, very moist (380mm)	0.0 268.7 0.4	1	SS	8		6	
2 ft / 2 m		**FILL** stiff brown clayey silt, some sand and gravel, DTPL	268.3 0.8	2	SS	38		8	
4		**CLAYEY SILT TILL** hard to very stiff brown clayey silt, some sand and gravel, DTPL		3	SS	23		8	Cuttings
6 ft / 2 m				4	SS	29		7	
8				5	SS	45		5	
10			265.6						
12 ft / 4 m		Drilling Terminated	3.5						Borehole dry upon drilling completion
14									
16									
18 ft / 6 m									
20									
22									
24									

Field Technician: MBC

Drafted by: B. Graul

Reviewed by: B. Thorner

MTE

Sheet: 1 of 1

ID Number: BH135-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

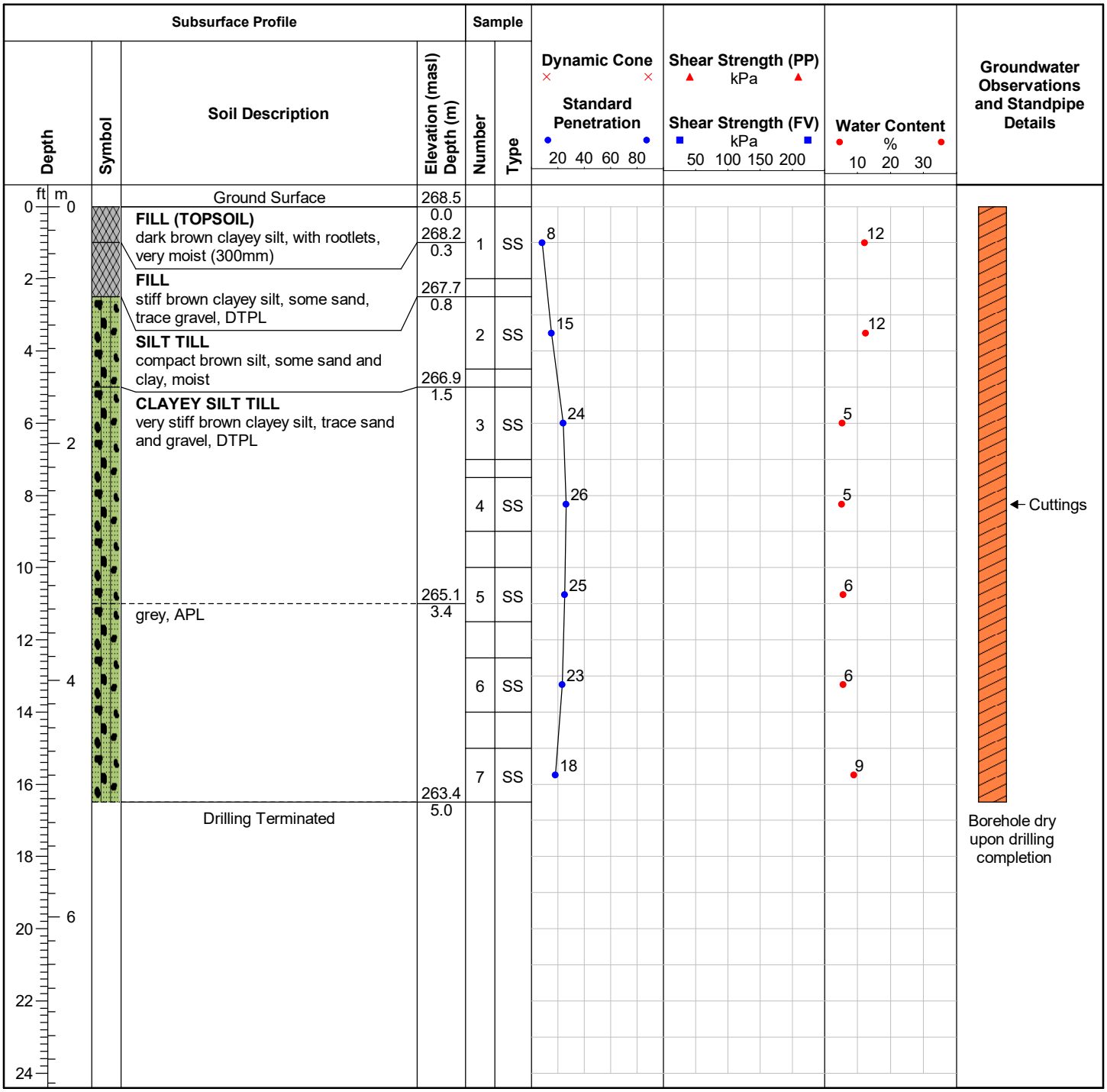
Drill Date: 10/27/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:



Field Technician: MBC

Drafted by: B. Graul

Reviewed by: B. Thorner

Sheet: 1 of 1

ID Number: BH136-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

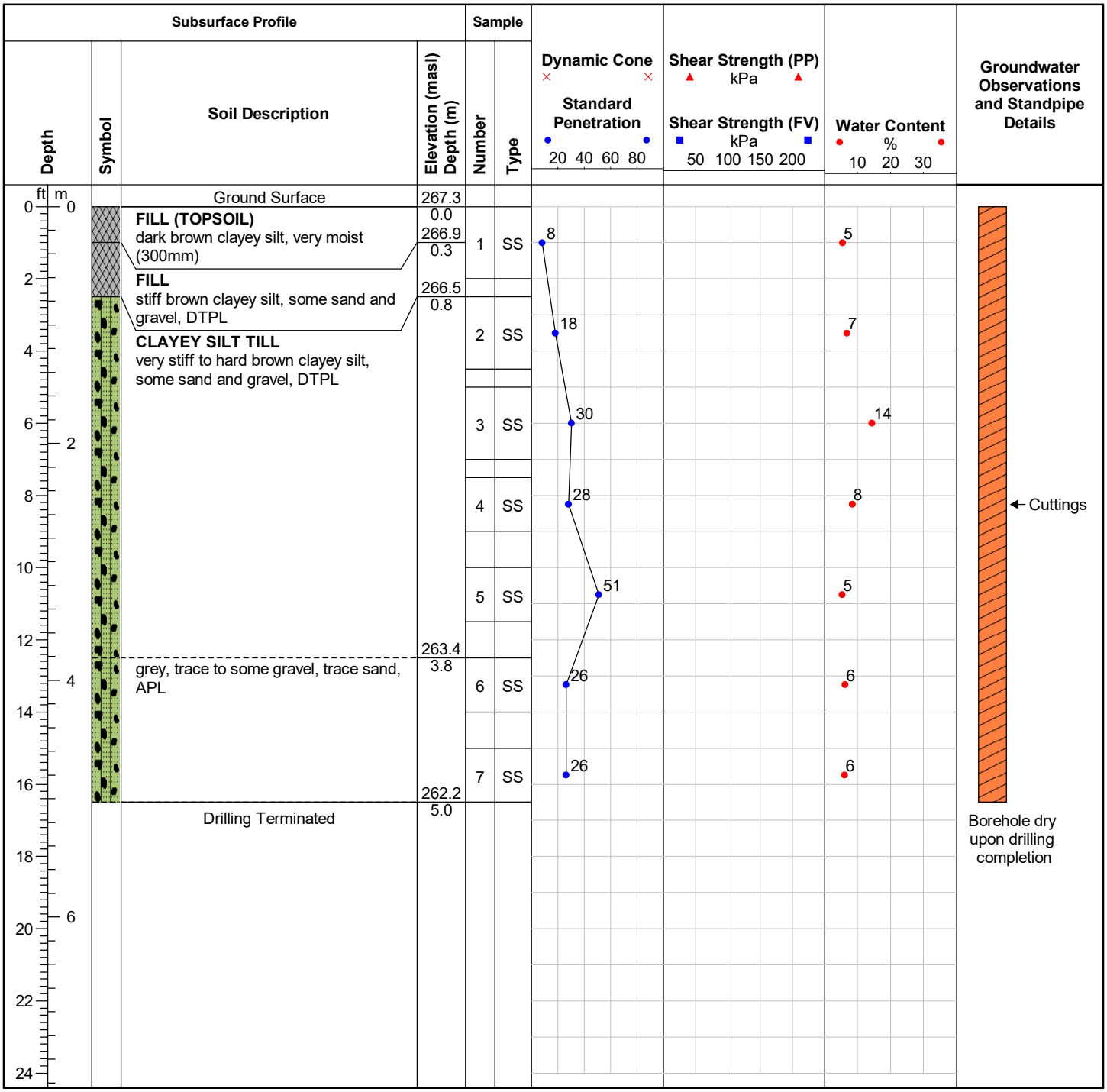
Drill Date: 10/27/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:



Field Technician: MBC

Drafted by: B. Graul

Reviewed by: B. Thorner

Sheet: 1 of 1

ID Number: BH137-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

Drill Date: 10/28/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:

Depth (ft / m)	Symbol	Soil Description	Elevation (masl) / Depth (m)	Sample Number	Sample Type	Dynamic Cone – Standard Penetration (20 40 60 80)	Shear Strength (PP) kPa / Shear Strength (FV) kPa (50 100 150 200)	Water Content % (10 20 30)	Groundwater Observations and Standpipe Details
0 ft / 0 m		Ground Surface	269.6						
0		**FILL (TOPSOIL)** dark brown clayey silt, with rootlets, very moist (380mm)	0.0 / 269.2 / 0.4	1	SS	14		13	
2		**FILL** stiff brown clayey silt, some sand and gravel, DTPL	268.8 / 0.8	2	SS	20		14	
4		**CLAYEY SILT TILL** very stiff brown clayey silt, trace to some sand and gravel, DTPL		3	SS	23		12	
6 / 2				4	SS	27		11	
8				5	SS	28		11	
10			266.1 / 3.5						
12 / 4		Drilling Terminated							← Cuttings
14									Borehole dry upon drilling completion
16									
18									
20 / 6									
22									
24									

Field Technician: MBC

Drafted by: B. Graul

Reviewed by: B. Thorner

MTE

Sheet: 1 of 1

ID Number: BH138-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

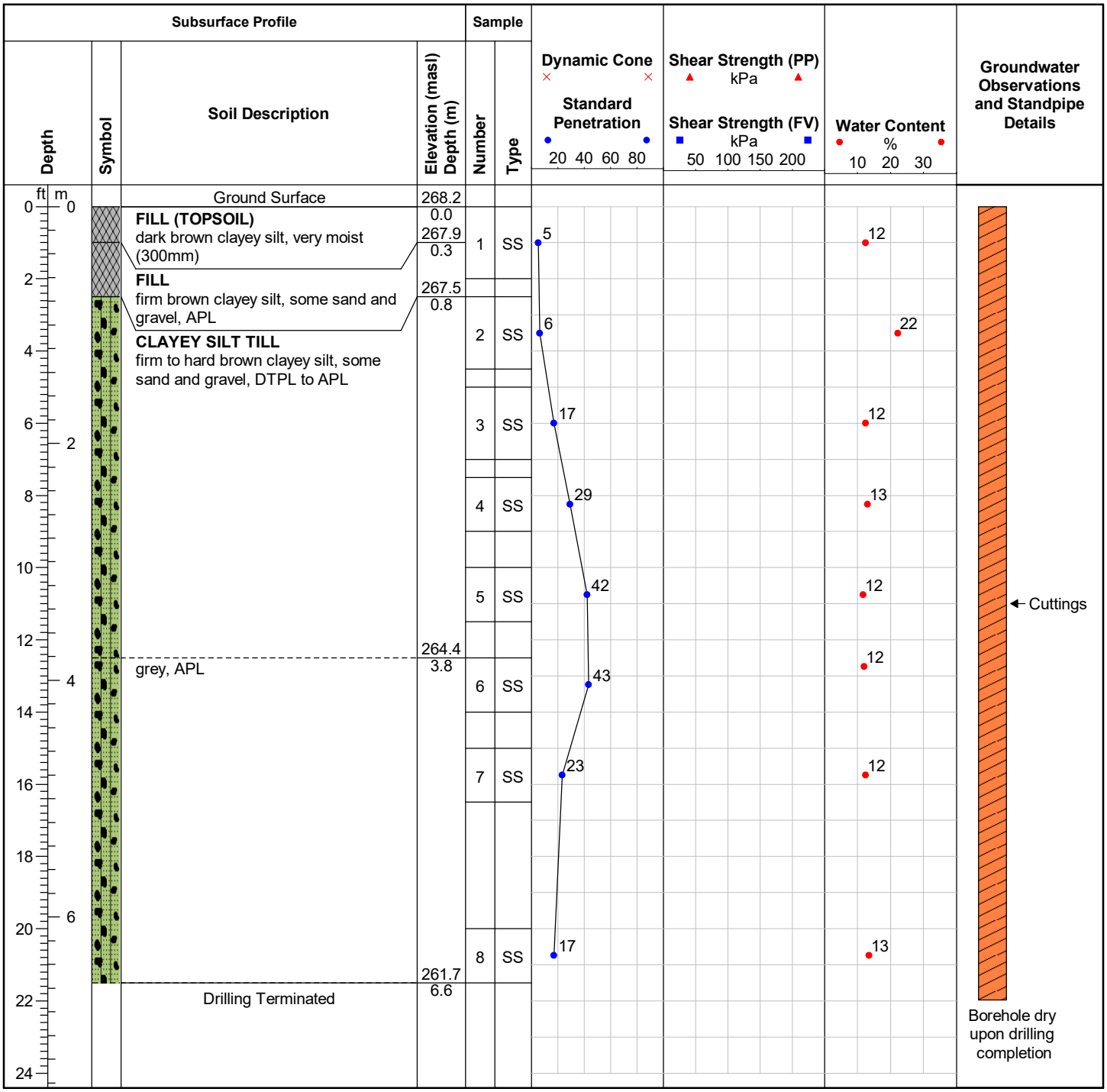
Drill Date: 10/27/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:



Field Technician: MBC

Drafted by: B. Graul

Reviewed by: B. Thorner

Sheet: 1 of 1

ID Number: BH139-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

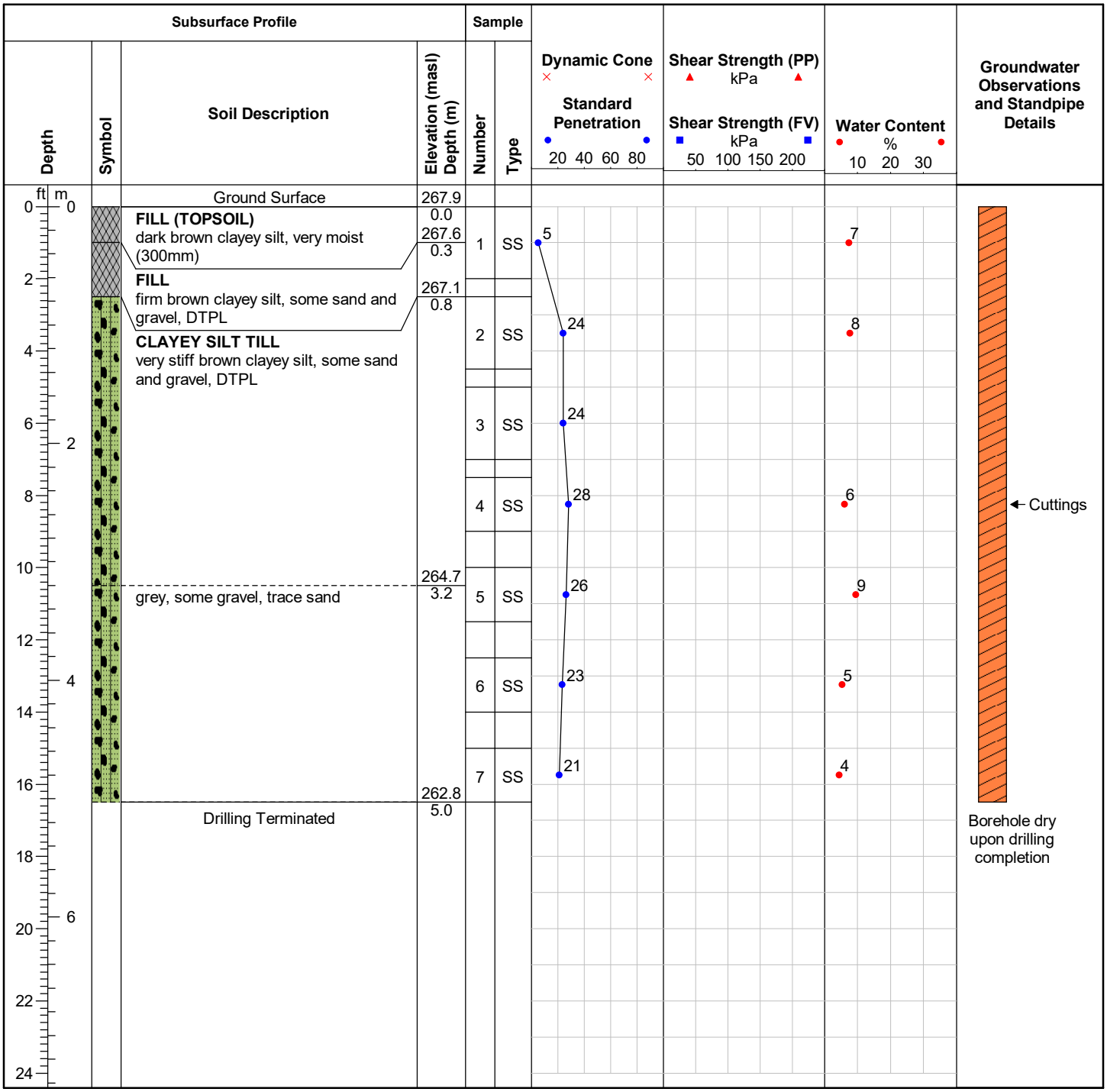
Drill Date: 10/27/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:



Field Technician: MBC

Drafted by: B. Graul

Reviewed by: B. Thorner

Sheet: 1 of 1

ID Number: BH140-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

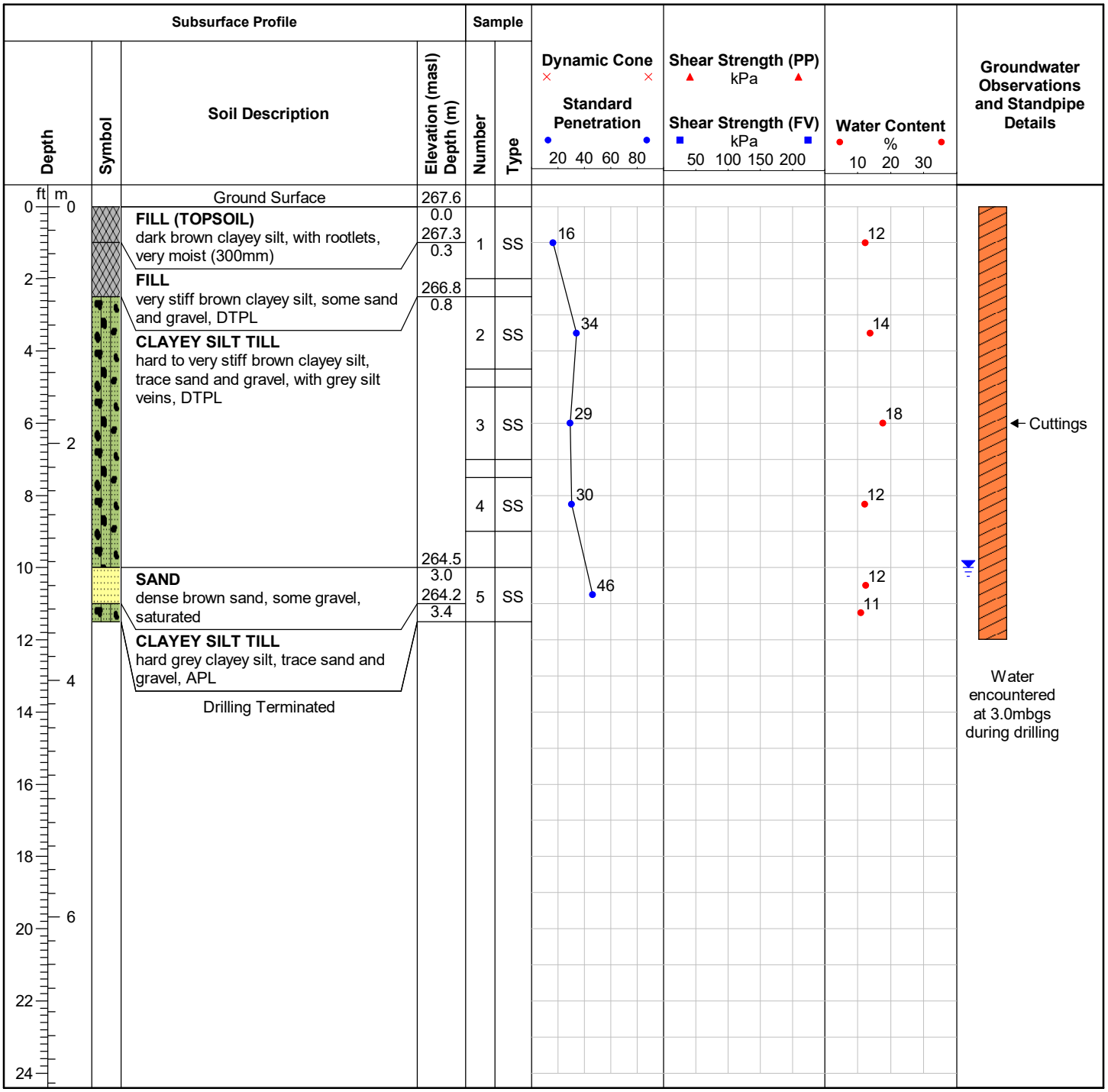
Drill Date: 10/28/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:



Field Technician: MBC

Drafted by: B. Graul

Reviewed by: B. Thorner

Sheet: 1 of 1

ID Number: BH141-20

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

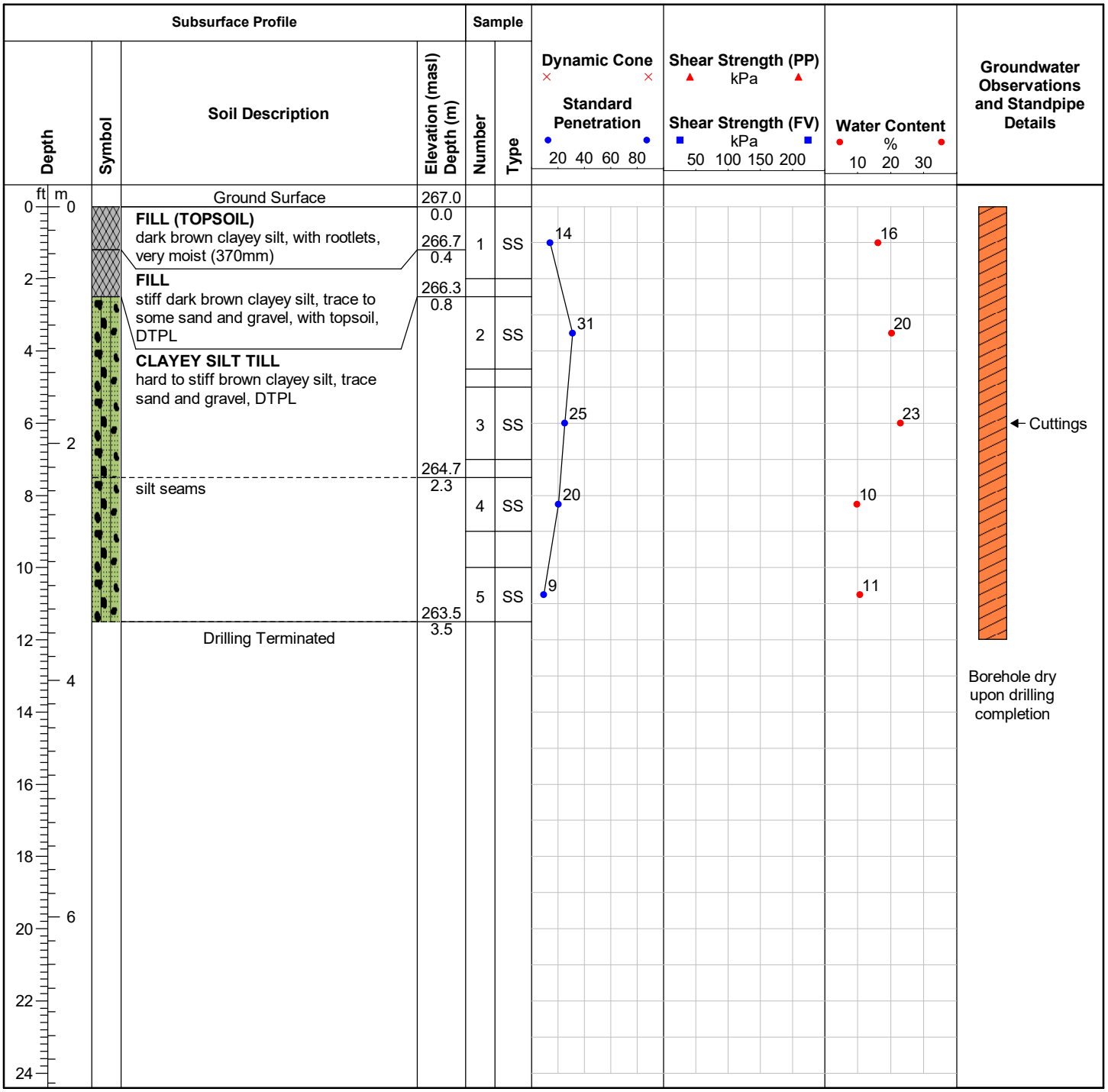
Drill Date: 10/28/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:



Field Technician: MBC

Drafted by: B. Graul

Reviewed by: B. Thorner

Sheet: 1 of 1

ID Number: BH142-21

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

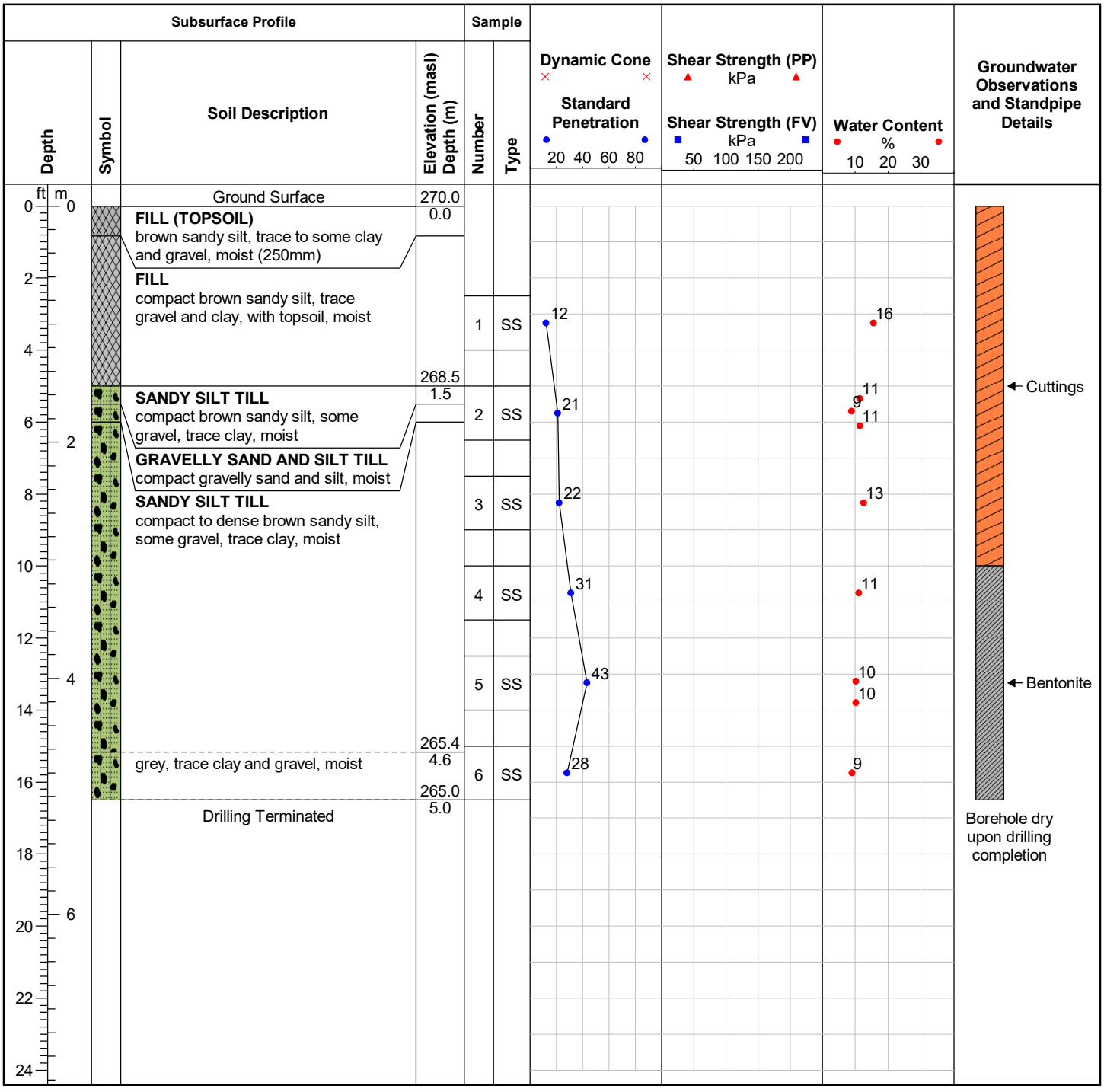
Drill Date: 2/9/2021

Drilling Contractor: Orbit Garant Drilling

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:



Field Technician: B. Jagger

Drafted by: B. Graul

Reviewed by: B. Thorner

Sheet: 1 of 1

ID Number: BH143-21

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

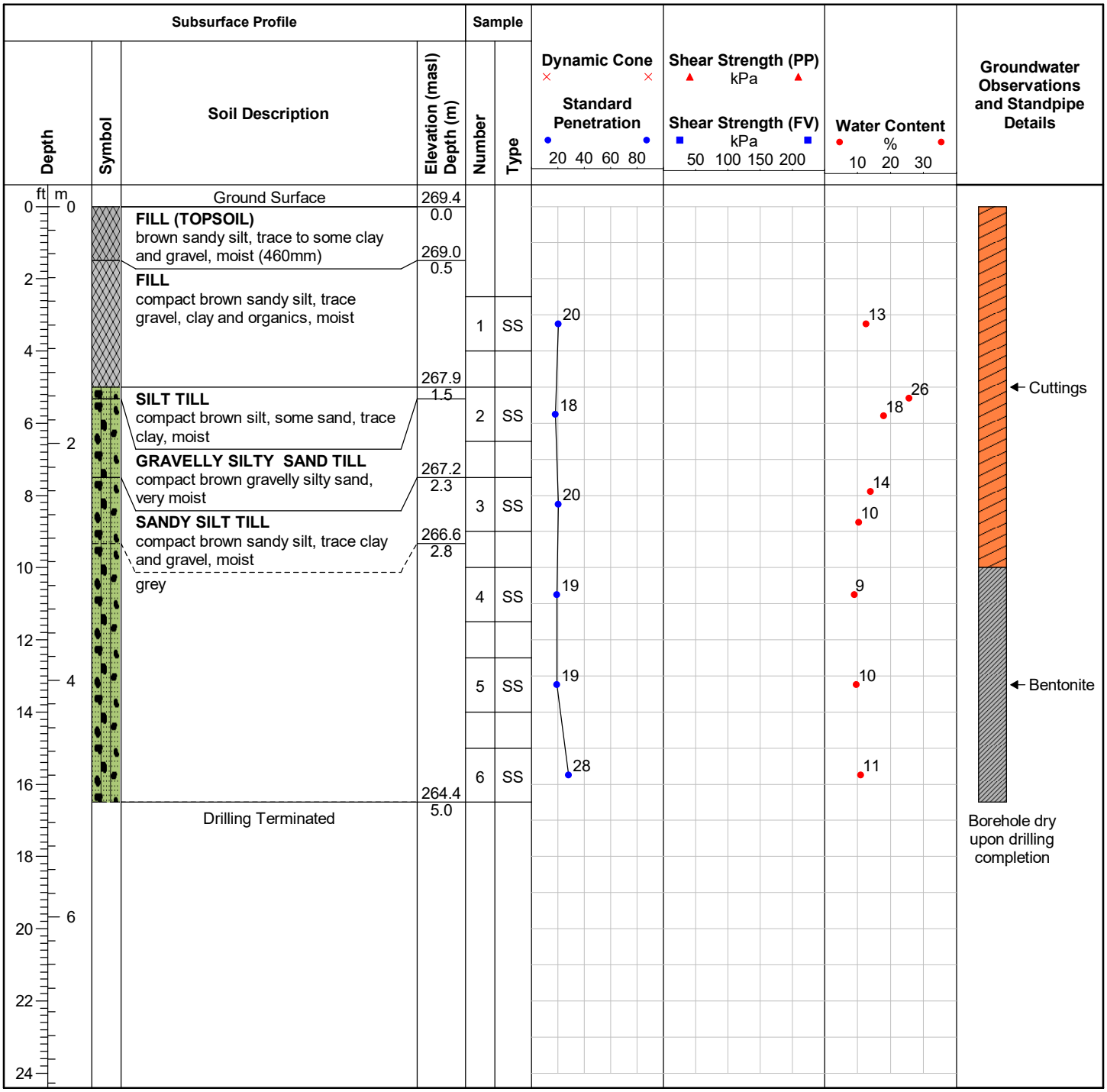
Drill Date: 2/9/2021

Drilling Contractor: Orbit Garant Drilling

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:



Field Technician: B. Jagger

Drafted by: B. Graul

Reviewed by: B. Thorner

Sheet: 1 of 1

ID Number: BH144-21

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

Drill Date: 2/9/2021

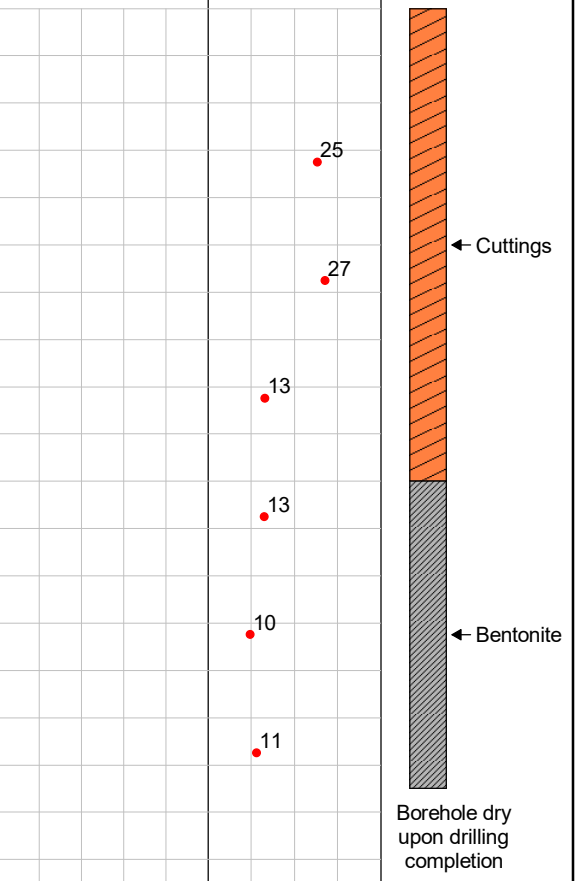
Drilling Contractor: Orbit Garant Drilling

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:

Depth (ft / m)	Symbol	Soil Description	Elevation (masl) / Depth (m)	Sample Number	Sample Type	Dynamic Cone / Standard Penetration	Shear Strength (PP) kPa / Shear Strength (FV) kPa	Water Content %	Groundwater Observations and Standpipe Details
0 / 0		Ground Surface	270.6						
		TOPSOIL brown sandy silt, trace to some clay and gravel, moist (760mm)	0.0 / 269.8						
2 /		**SANDY SILT TILL** loose brown sandy silt, trace clay and gravel, moist	0.8 / 269.1	1	SS	9		25	
4 /		**SILT TILL** loose brown silt, some sand trace clay, moist	1.5 / 268.3	2	SS	8		27	
6 / 2		**SAND** loose brown sand, some silt, trace gravel, very moist	2.3 / 267.5	3	SS	6		13	
8 /		**GRAVELLY SILTY SAND TILL** compact brown gravelly silty sand, very moist	3.0 / 266.8	4	SS	28		13	
10 /		**SANDY SILT TILL** compact grey sandy silt, trace clay and gravel, moist	3.8 / 265.5	5	SS	21		10	
12 / 4				6	SS	23		11	
14 /		Drilling Terminated	5.0						
16 /									
18 /									
20 / 6									
22 /									
24 /									



Field Technician: B. Jagger

Drafted by: B. Graul

Reviewed by: B. Thorner

MTE

Sheet: 1 of 1

ID Number: BH145-21

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

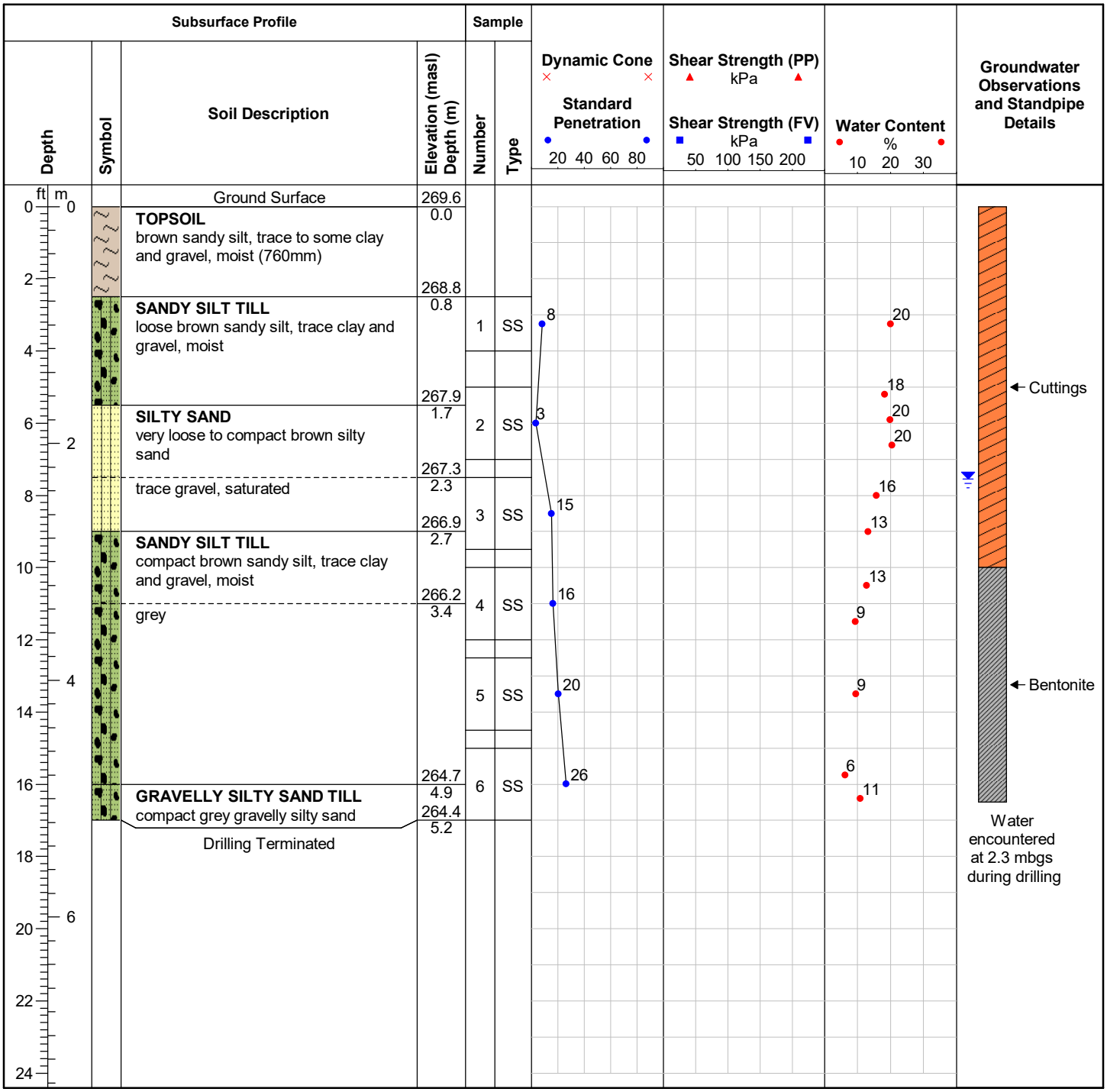
Drill Date: 2/8/2021

Drilling Contractor: Orbit Garant Drilling

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:



Field Technician: B. Jagger

Drafted by: B. Graul

Reviewed by: B. Thorner

Sheet: 1 of 1

ID Number: BH146-21

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

Drill Date: 2/8/2021

Drilling Contractor: Orbit Garant Drilling

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:

Depth (ft / m)	Soil Description	Elevation (masl) / Depth (m)	Sample Number	Sample Type	Standard Penetration (Dynamic Cone)	Shear Strength (PP) kPa / Shear Strength (FV) kPa	Water Content %	Groundwater Observations and Standpipe Details
	Ground Surface	264.7						
0	**TOPSOIL** brown sandy silt, some clay, trace gravel, moist (300mm)	0.0 / 264.4 / 0.3						
2	**SANDY SILT TILL** compact brown sandy silt, some clay, trace gravel, moist		1	SS	16		16	
4			2	SS	28		17	
6			3	SS	23		17	← Cuttings
8			4	SS	25		16	
10			5	SS	10		15	
12	**CLAYEY SANDY SILT TILL** compact grey clayey sandy silt, trace gravel, DTPL	260.9 / 3.8 / 260.1 / 4.6	6	SS	7		16	
14	**CLAYEY SILT TILL** firm to stiff grey clay and silt, trace sand and gravel, DTPL		7	SS	10		17	← Bentonite
16								
18								
20								
22								
24								

Field Technician: B. Jagger

Drafted by: B. Graul

Reviewed by: B. Thorner

MTE

ID Number: BH146-21

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

Drill Date: 2/8/2021

Drilling Contractor: Orbit Garant Drilling

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:

Depth	Symbol	Soil Description	Elevation (masl) / Depth (m)	Sample Number	Sample Type	Dynamic Cone / Standard Penetration (20 40 60 80)	Shear Strength (PP) kPa / Shear Strength (FV) kPa (50 100 150 200)	Water Content % (10 20 30)	Groundwater Observations and Standpipe Details
			257.1						
26		**SANDY SILT TILL** compact grey sandy silt, some clay, trace gravel, moist	7.6	8	SS	11		12	
28			256.4						Borehole dry upon drilling completion
		Drilling Terminated	8.2						
30									
32									
34									
36									
38									
40									
42									
44									
46									
48									

8 10 12 14

Field Technician: B. Jagger

Drafted by: B. Graul

Reviewed by: B. Thorner

MTE

ID Number: BH147-21

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

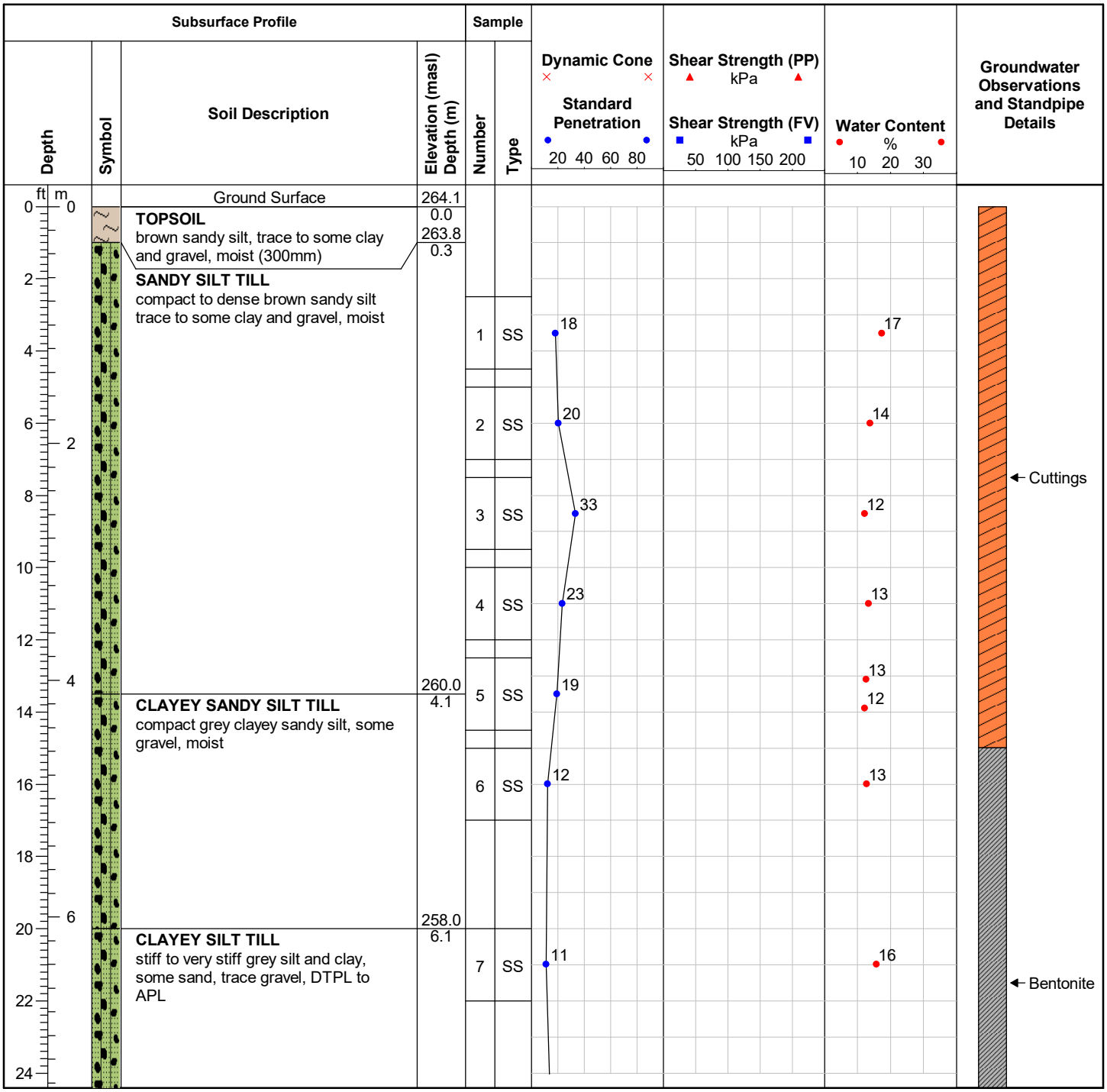
Drill Date: 2/8/2021

Drilling Contractor: Orbit Garant Drilling

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:



Field Technician: B. Jagger

Drafted by: B. Graul

Reviewed by: B. Thorner

MTE

ID Number: BH147-21

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

Drill Date: 2/8/2021

Drilling Contractor: Orbit Garant Drilling

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:

Depth	Symbol	Soil Description	Elevation (masl) Depth (m)	Sample Number	Sample Type	Dynamic Cone / Standard Penetration (20 40 60 80)	Shear Strength (PP) kPa / Shear Strength (FV) kPa (50 100 150 200)	Water Content % (10 20 30)	Groundwater Observations and Standpipe Details
26 – 8									
		SANDY SILT TILL compact grey sandy silt, some clay, trace gravel, very moist	256.1 8.1	8	SS	15		13, 8	Borehole dry upon drilling completion
28		Drilling Terminated							
30									
32 – 10									
34									
36									
38									
40 – 12									
42									
44									
46 – 14									
48									

Field Technician: B. Jagger

Drafted by: B. Graul

Reviewed by: B. Thorner

MTE

ID Number: BH148-21

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

Drill Date: 2/8/2021

Drilling Contractor: Orbit Garant Drilling

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:

Depth (ft / m)	Soil Description	Elevation (masl) / Depth (m)	Sample Number	Sample Type	Standard Penetration (Dynamic Cone)	Shear Strength (PP) kPa / Shear Strength (FV) kPa	Water Content %
0 / 0	Ground Surface	268.2					
	FILL (TOPSOIL) brown sandy silt, trace to some clay and gravel, moist (360mm)	0.0 / 267.8 / 0.4					
2	**FILL** compact brown sandy silt, trace clay and gravel, with topsoil, moist		1	SS	28		15
4		266.6					
6 / 2	**SANDY SILT TILL** dense brown sandy silt, trace clay and gravel, moist	1.5 / 265.9	2	SS	31		17
8	**SILT TILL** compact brown silt, some clay and sand, trace gravel	2.3 / 265.1	3	SS	23		20
10	**SANDY SILT TILL** compact brown sandy silt, trace clay and gravel, moist	3.0	4	SS	27		15
12							
14 / 4	grey, some gravel	264.1 / 4.1	5	SS	24		11 / 10
16		263.1	6	SS	24		11
18	Drilling Terminated	5.0					
20 / 6							
22							
24							

Groundwater Observations and Standpipe Details: Cuttings; Bentonite; Borehole dry upon drilling completion

Field Technician: B. Jagger

Drafted by: B. Graul

Reviewed by: B. Thorner

MTE

Sheet: 1 of 1

ID Number: BH149-21

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

Drill Date: 2/9/2021

Drilling Contractor: Orbit Garant Drilling

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:

Depth (ft / m)	Symbol	Soil Description	Elevation (masl) / Depth (m)	Sample Number	Sample Type	Dynamic Cone / Standard Penetration (20 40 60 80)	Shear Strength (PP) kPa / Shear Strength (FV) kPa (50 100 150 200)	Water Content % (10 20 30)	Groundwater Observations and Standpipe Details
0 ft / 0 m		Ground Surface	266.0						
		FILL (TOPSOIL) brown sandy silt, trace to some clay and gravel, moist (410mm)	0.0 / 265.6						
		FILL compact brown sandy silt, some clay, trace gravel, with topsoil, moist	0.4	1	SS	13		17	
4			264.5						
		SANDY SILT TILL compact brown sandy silt, trace to some gravel, trace clay, moist	1.5	2	SS	22		14	
8				3	SS	28		15	
10				4	SS	30		14	
12			262.2						
		grey, some clay	3.8	5	SS	13		12	
16			261.0	6	SS	13		15	
		Drilling Terminated	5.0						

Cuttings

Bentonite

Borehole dry upon drilling completion

Field Technician: B. Jagger

Drafted by: B. Graul

Reviewed by: B. Thorner

MTE

ID Number: BH150-21

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

Drill Date: 2/9/2021

Drilling Contractor: Orbit Garant Drilling

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:

Depth (ft / m)	Soil Description	Elevation (masl) / Depth (m)	Sample Number	Sample Type	Dynamic Cone – Standard Penetration (20 40 60 80)	Shear Strength (PP) kPa / Shear Strength (FV) kPa (50 100 150 200)	Water Content % (10 20 30)
	Ground Surface	268.1					
0 – 2 ft	**FILL (TOPSOIL)** brown sandy silt, trace to some clay and gravel, moist (760mm)	0.0 / 267.3					
2 – 4 ft	**FILL** compact brown sandy silt, trace clay and gravel, with topsoil, moist	0.8 / 266.6	1	SS	19		16
4 – 6 ft	**SANDY SILT TILL** compact to dense brown sandy silt, trace clay and gravel, moist	1.5 / 264.8	2	SS	21		16
6 – 8 ft			3	SS	25		13
8 – 10 ft			4	SS	36		12, 13
10 – 12 ft	**SILTY SAND** dense brown silty sand, trace gravel, moist	3.3 / 264.3					
12 – 14 ft	**SANDY SILT TILL** compact to dense grey sandy silt, trace clay and gravel, moist	3.8	5	SS	37		9, 10
14 – 16 ft			6	SS	20		10
16 – 18 ft	Drilling Terminated	5.0 / 263.0					
18 – 24 ft							

Groundwater Observations and Standpipe Details: ← Cuttings; ← Bentonite; Borehole dry upon drilling completion

Field Technician: B. Jagger

Drafted by: B. Graul

Reviewed by: B. Thorner

MTE

ID Number: BH151-21

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

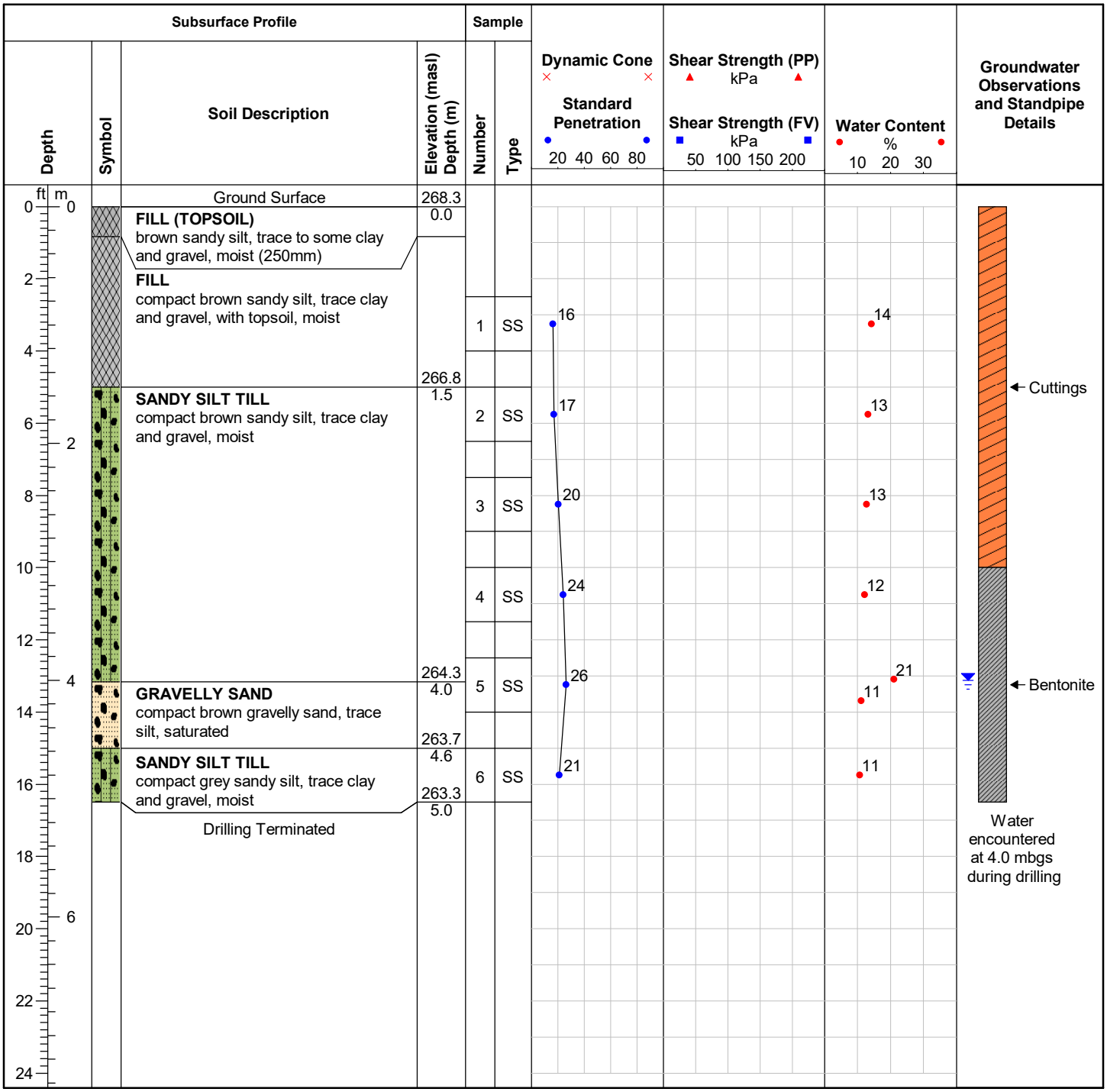
Drill Date: 2/10/2021

Drilling Contractor: Orbit Garant Drilling

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:



Field Technician: B. Jagger

Drafted by: B. Graul

Reviewed by: B. Thorner

Sheet: 1 of 1

ID Number: BH152-21

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

Drill Date: 2/10/2021

Drilling Contractor: Orbit Garant Drilling

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:

Depth (ft / m)	Symbol	Soil Description	Elevation (masl) / Depth (m)	Sample Number	Sample Type	Dynamic Cone – Standard Penetration	Shear Strength (PP) kPa / Shear Strength (FV) kPa	Water Content %	Groundwater Observations and Standpipe Details
0 ft / 0 m		Ground Surface	267.7						
		FILL (TOPSOIL) brown sandy silt, trace to some clay and gravel, moist (760mm)	0.0 / 266.9						
2		**FILL** compact brown sandy silt, trace clay and gravel, with topsoil, moist	0.8 / 266.2	1	SS	20		16	
4		**SANDY SILT TILL** compact to dense brown sandy silt, trace clay and gravel, moist	1.5	2	SS	28		15	← Cuttings
6 / 2				3	SS	33		13	
8				4	SS	23		18	
10				5	SS	28		17	← Bentonite
12 / 4				6	SS	40		11, 12	
14		grey	263.0 / 4.7 / 262.7						
16		Drilling Terminated	5.0						Borehole dry upon drilling completion
18									
20 / 6									
22									
24									

Field Technician: B. Jagger

Drafted by: B. Graul

Reviewed by: B. Thorner

MTE

ID Number: BH153-21

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

Drill Date: 2/10/2021

Drilling Contractor: Orbit Garant Drilling

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:

Depth (ft / m)	Soil Description	Elevation (masl) / Depth (m)	Sample Number	Sample Type	Dynamic Cone / Standard Penetration	Shear Strength (PP) kPa / Shear Strength (FV) kPa	Water Content %
0 / 0	Ground Surface	268.0					
	FILL (TOPSOIL) brown sandy silt, trace to some clay and gravel, moist (180mm)	0.0					
	FILL compact brown sandy silt, trace clay and gravel, with topsoil, moist		1	SS	19		15
		266.5					
	SANDY SILT TILL compact to dense brown sandy silt, trace clay and gravel, moist	1.5	2	SS	25		13
			3	SS	22		14
			4	SS	24		12
			5	SS	23		13
		263.4					
	some clay	4.6	6	SS	14		13
		263.0					
	Drilling Terminated	5.0					

Groundwater Observations and Standpipe Details: ← Cuttings; ← Bentonite; Borehole dry upon drilling completion

Field Technician: B. Jagger

Drafted by: B. Graul

Reviewed by: B. Thorner

MTE

Sheet: 1 of 1

ID Number: BH154-21

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

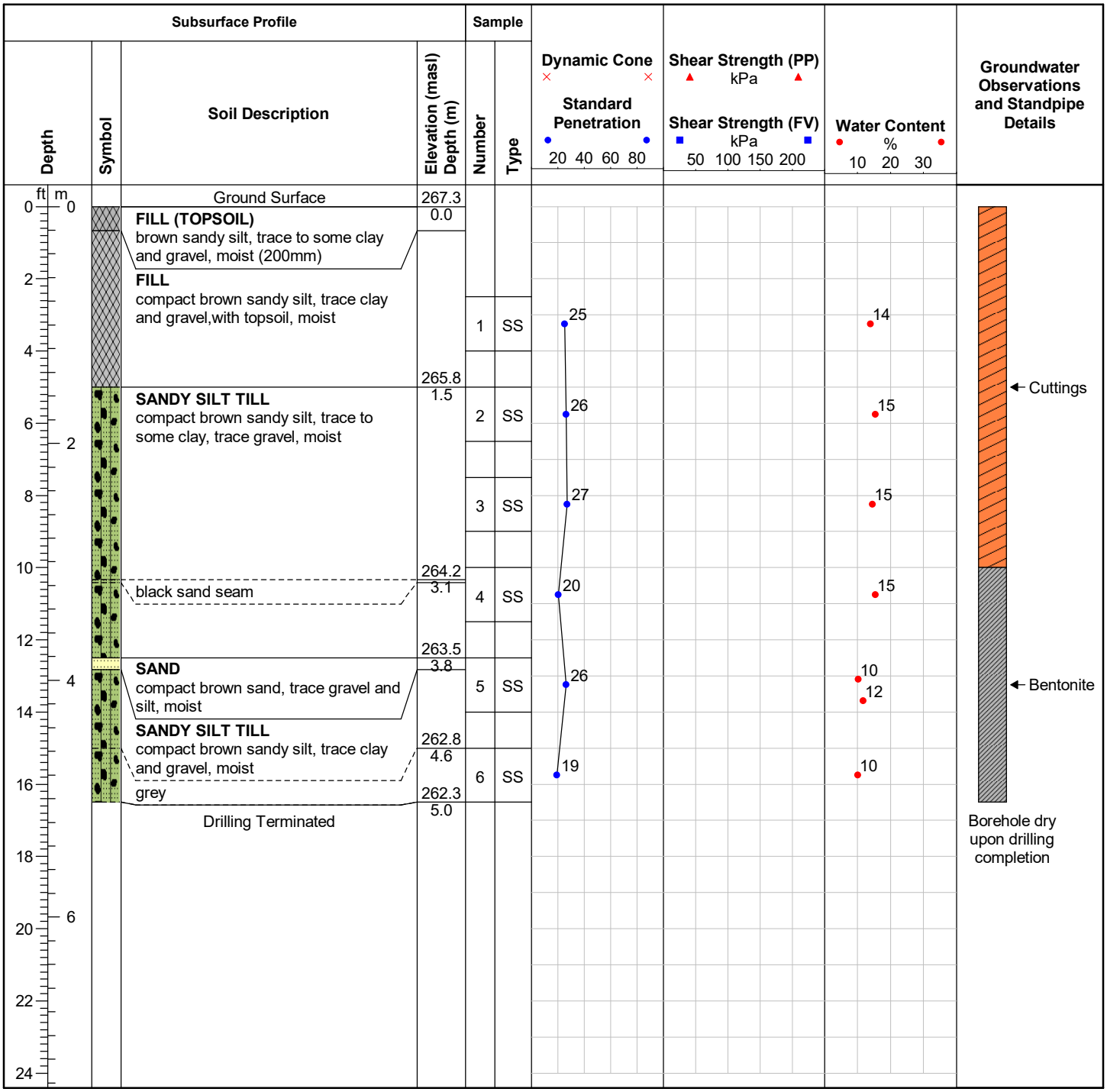
Drill Date: 2/10/2021

Drilling Contractor: Orbit Garant Drilling

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:



Field Technician: B. Jagger

Drafted by: B. Graul

Reviewed by: B. Thorner

Sheet: 1 of 1

ID Number: BH155-21

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

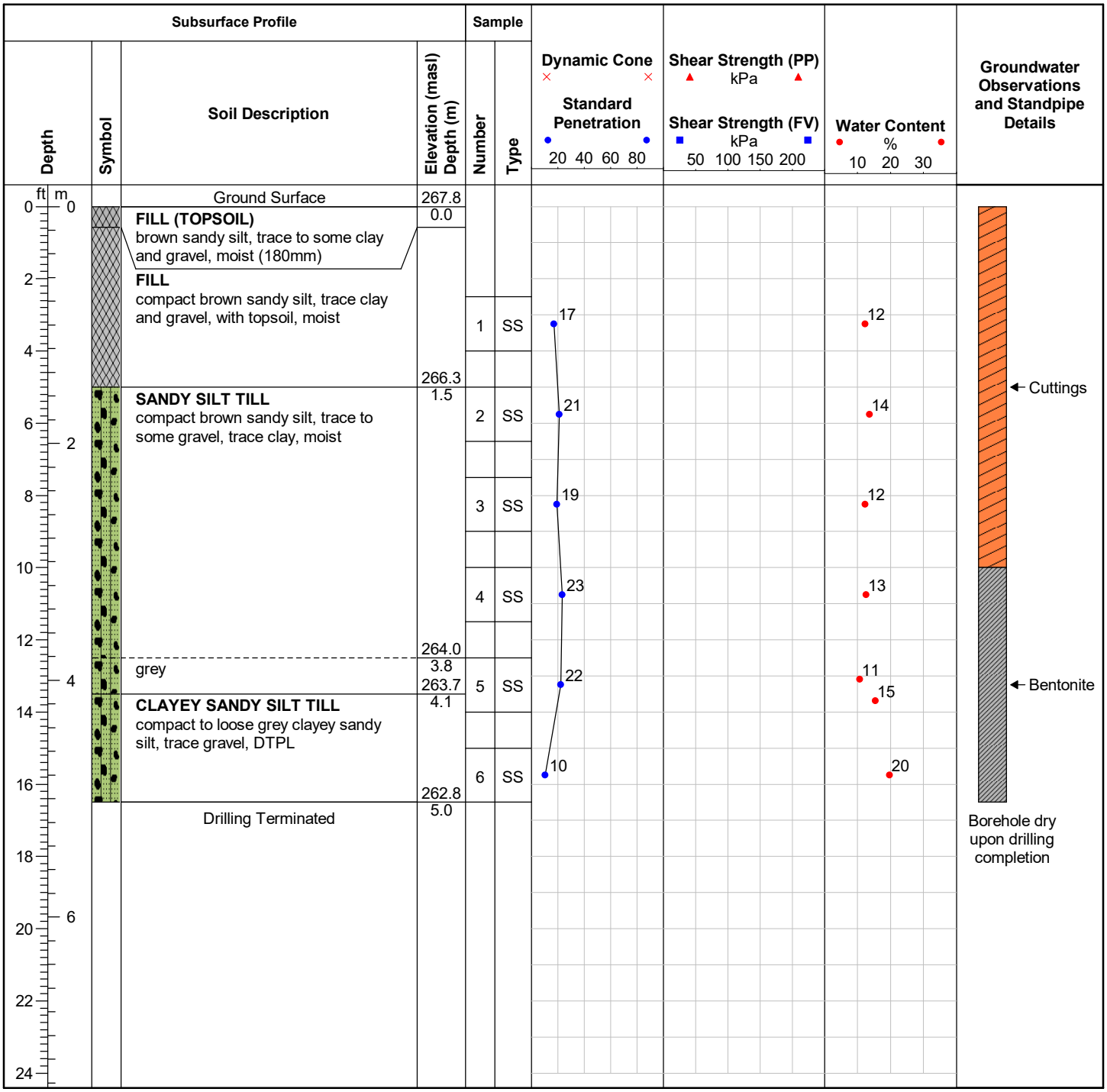
Drill Date: 2/10/2021

Drilling Contractor: Orbit Garant Drilling

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:



Field Technician: B. Jagger

Drafted by: B. Graul

Reviewed by: B. Thorner

Sheet: 1 of 1

ID Number: BH156-21

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

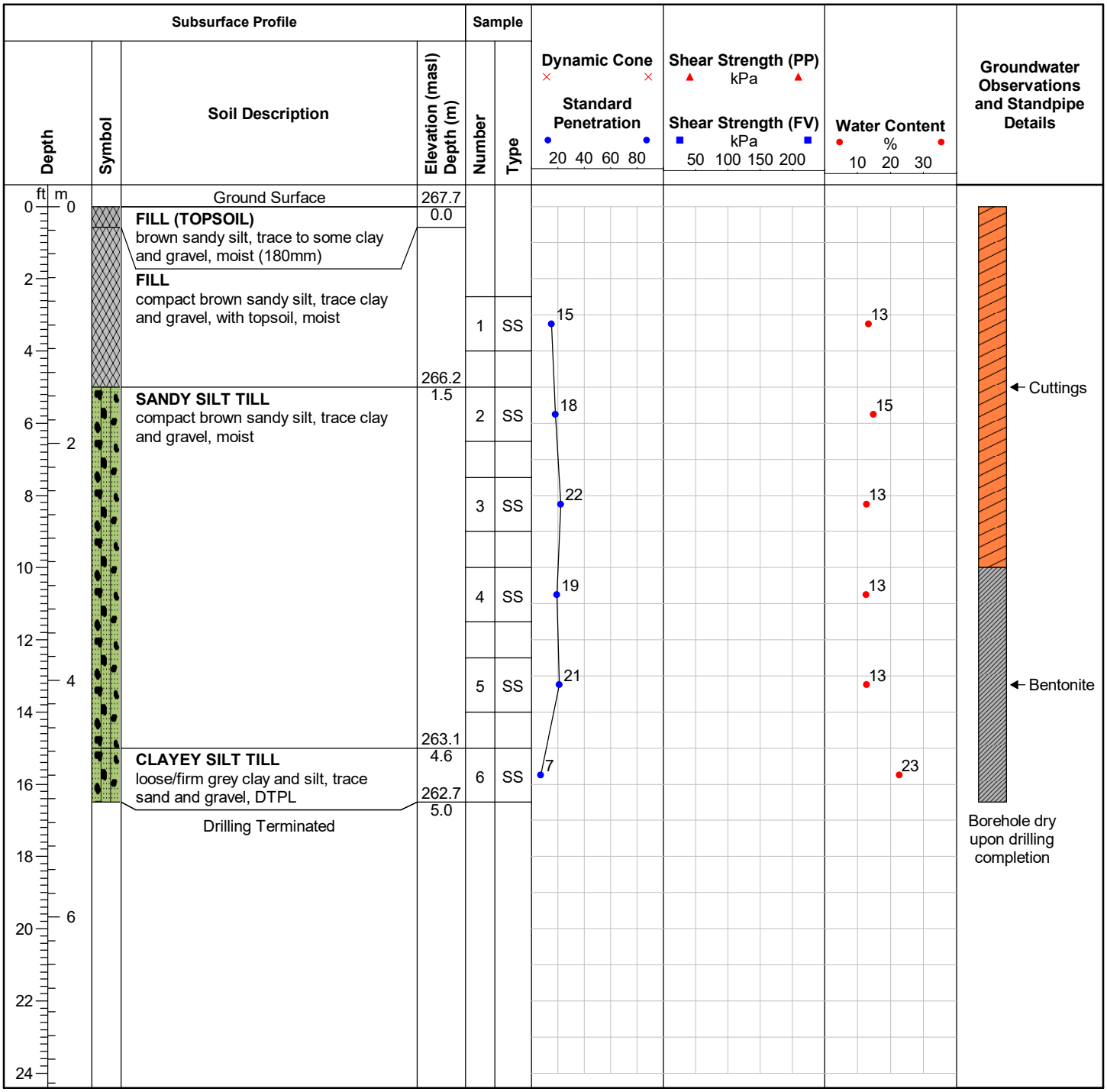
Drill Date: 2/10/2021

Drilling Contractor: Orbit Garant Drilling

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover:



Field Technician: B. Jagger

Drafted by: B. Graul

Reviewed by: B. Thorner

Sheet: 1 of 1

ID Number: MW157-21

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

Drill Date: 2/10/2021

Drilling Contractor: Orbit Garant Drilling

Drill Rig: CME 75

Drill Method: Hollow Stem Auger

Protective Cover:

Depth (ft / m)	Symbol	Soil Description	Elevation (masl) / Depth (m)	Sample Number	Sample Type	Dynamic Cone – Standard Penetration	Shear Strength (PP) kPa / Shear Strength (FV) kPa	Water Content %	Groundwater Observations and Standpipe Details
		Ground Surface	265.5						
0 / 0		**FILL (TOPSOIL)** brown sandy silt, trace to some clay and gravel, moist (760mm)	0.0						
			264.8						
2		**FILL** compact brown sandy silt, trace clay and gravel, with topsoil, moist	0.8	1	SS	24		11	
			264.0						
6 / 2		**SANDY SILT TILL** compact to dense brown sandy silt, trace clay and gravel, moist	1.5	2	SS	30		13	
8				3	SS	38		12	
10				4	SS	36		12	
12 / 4		grey	261.7						
			3.8	5	SS	33		12	
16				6	SS	20		14	
18									
20 / 6				7	SS	13		11	
22									
24									

Dynamic Cone – Standard Penetration: 20 40 60 80

Shear Strength (PP) kPa / Shear Strength (FV) kPa: 50 100 150 200

Water Content %: 10 20 30

Groundwater Observations and Standpipe Details: Concrete; Bentonite; 51mm PVC Riser

Field Technician: B. Jagger

Drafted by: B. Graul

Reviewed by: B. Thorner

Water encountered at 9.1 mbgs during drilling

ID Number: MW157-21

Project: 12892 Dixie Road: Engineering Consulting Services

Project No: 48043-100

Client: Tribal Partners (Canada) Inc.

Site Location: 12892 Dixie Road, Caledon, ON

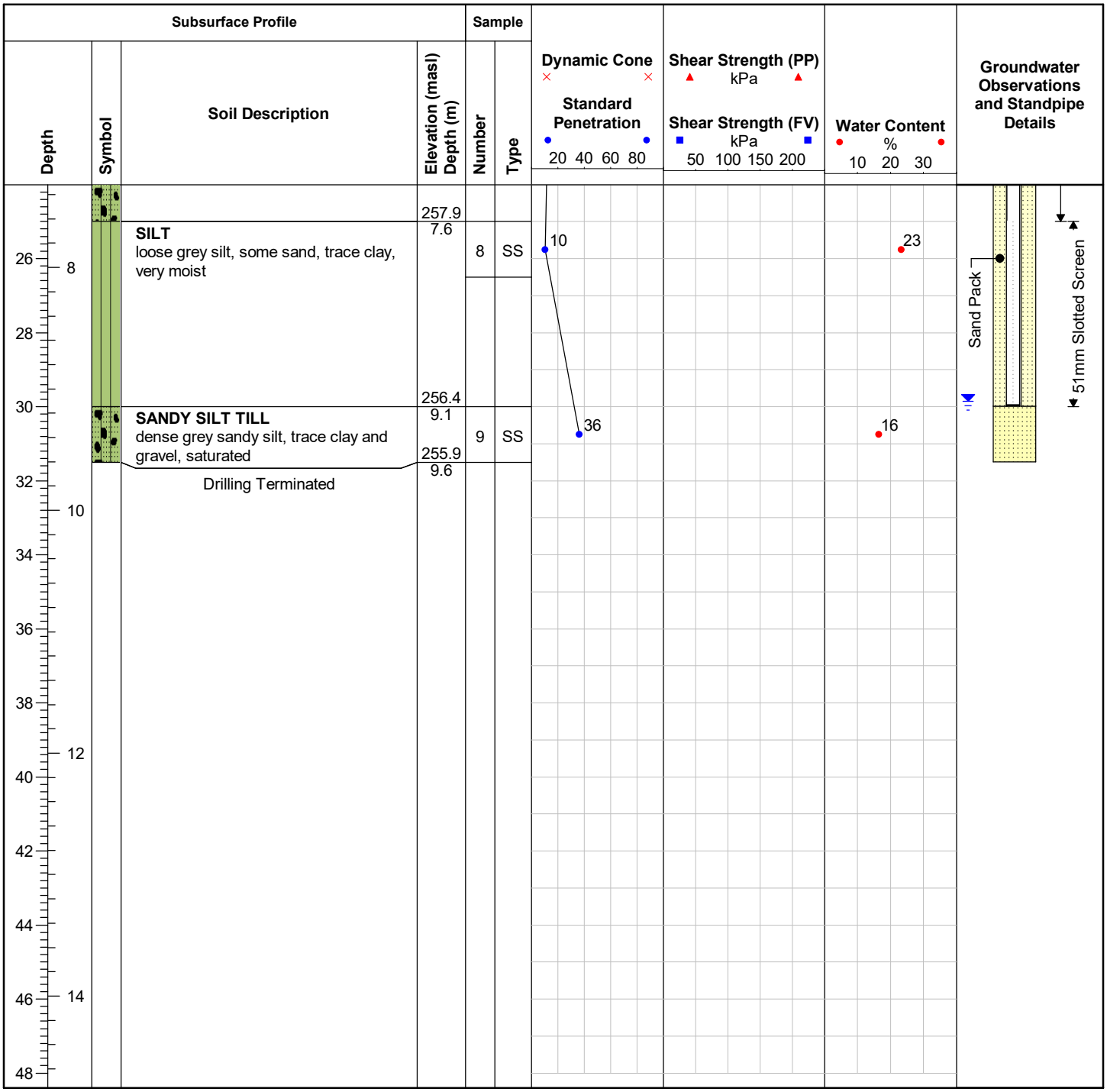
Drill Date: 2/10/2021

Drilling Contractor: Orbit Garant Drilling

Drill Rig: CME 75

Drill Method: Hollow Stem Auger

Protective Cover:



Field Technician: B. Jagger

Drafted by: B. Graul

Reviewed by: B. Thorner

Water encountered at 9.1 mbgs during drilling

ID Number: BH201-20

Project Name: 12892 Dixie Road: Engineering Consulting Services

MTE File No.: 48043-100

Client: Tribal Partners

Site Location: 12824 & 12892 Dixie Road, Caledon, ON

Drill Date: 10/23/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover: N/A

Subsurface Profile			Sample							Well Completion Details
Depth (ft / m)	Symbol	Soil Description	Elevation (masl) Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis	PID (ppm)	Hydrocarbon (ppm)	
0 / 0		**TOPSOIL** Dark brown, clayey silt with rootlets, damp	0.0							
			0.2		SS	60	Metals, OCs, CPs, PHCs	0	0	
2		**FILL** Brown, clayey silt with sand, some gravel, moist								
				2	SS	60		0	0	
4										
6 / 2		**CLAYEY SILT** Brown, trace sand and gravel, moist	1.7	3	SS	100		0	0	
8				4	SS	80		0	0	
10			2.9							
12										

Field Technician: SKC

Drafted by: SKC

Reviewed by: TJJ

MTE

ID Number: BH202-20

Project Name: 12892 Dixie Road: Engineering Consulting Services

MTE File No.: 48043-100

Client: Tribal Partners

Site Location: 12824 & 12892 Dixie Road, Caledon, ON

Drill Date: 10/23/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover: N/A

Subsurface Profile			Sample							Well Completion Details
Depth (ft / m)	Symbol	Soil Description	Elevation (masl) Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis	PID (ppm)	Hydrocarbon (ppm)	
0 / 0		**TOPSOIL** Dark brown, clayey silt with rootlets, damp to moist	0.0							
		FILL Brown, clayey silt, some sand and gravel, moist		1	SS	70	Metals, OCs, CPs, PHCs	0	0	
2		Orange sand seam at 0.91m								
				2	SS	85		0	0	
4										
		CLAYEY SILT Brown to grey, some sand and gravel, moist	1.5	3	SS	100		0	0	
6 / 2										
8				4	SS	100		0	0	
10				5	SS	100		0	0	
12			3.7							

Field Technician:

Drafted by:

Reviewed by:

MTE

ID Number: BH203-20

Project Name: 12892 Dixie Road: Engineering Consulting Services

MTE File No.: 48043-100

Client: Tribal Partners

Site Location: 12824 & 12892 Dixie Road, Caledon, ON

Drill Date: 10/23/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover: N/A

Subsurface Profile			Sample							Well Completion Details
Depth (ft / m)	Symbol	Soil Description	Elevation (masl) Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis	PID (ppm)	Hydrocarbon (ppm)	
0 / 0		**TOPSOIL** Dark brown, clayey silt with rootlets, damp	0.0							
		FILL Brown, clayey silt with sand, trace to some gravel, moist		1	SS	0	Metals	0	0	
2				2	SS	90		0	0	
4										
6 / 2		**CLAYEY SILT** Light brown to grey, trace sand and gravel, moist	1.5	3	SS	90		0	0	
8				4	SS	95		0	0	
10										
12										

Field Technician: SKC

Drafted by: SKC

Reviewed by: TJJ

MTE

ID Number: BH204-20

Project Name: 12892 Dixie Road: Engineering Consulting Services

MTE File No.: 48043-100

Client: Tribal Partners

Site Location: 12824 & 12892 Dixie Road, Caledon, ON

Drill Date: 10/23/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover: N/A

Subsurface Profile			Sample							Well Completion Details
Depth (ft / m)	Symbol	Soil Description	Elevation (masl) Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis	PID (ppm)	Hydrocarbon (ppm)	
0 / 0		**TOPSOIL** Dark brown, clayey silt with rootlets, damp	0.0							
		FILL Brown, clayey silt, trace sand and gravel, trace rootlets Higher gravel content from 0.15m to 0.30m		1	SS	70	PHCs	0	0	
2				2	SS	80		0	0	
4		Grey mottling at 1.22m								
6 / 2		**CLAYEY SILT** Light brown to grey, trace sand and gravel, moist	1.7	3	SS	75		0	0	
8				4	SS	85		0	0	
10			2.9							
12										

Field Technician:

Drafted by:

Reviewed by:

MTE

ID Number: BH205-20

Project Name: 12892 Dixie Road: Engineering Consulting Services

MTE File No.: 48043-100

Client: Tribal Partners

Site Location: 12824 & 12892 Dixie Road, Caledon, ON

Drill Date: 10/23/2020

Drilling Contractor: Tri-Phase Group

Drill Rig: CME 75

Drill Method: Solid Stem Auger

Protective Cover: N/A

Subsurface Profile			Sample							Well Completion Details
Depth (ft / m)	Symbol	Soil Description	Elevation (masl) Depth (m)	Number	Type	Recovery (%)	Soil Sample Lab Analysis	PID (ppm)	Hydrocarbon (ppm)	
0 / 0		**TOPSOIL** Dark brown, clayey silt with rootlets, damp to moist								
			0.2	1	SS	90	Metals, OCs, CPs, PHCs	0	0	
		FILL Brown, clayey silt, some sand and gravel, moist								
2										
		Grey mottling at 1.22m		2	SS	100		0	0	
4										
		CLAYEY SILT Brown to grey, some sand, trace gravel, mosit	1.5	3	SS	80		0	0	
6 / 2										
8				4	SS	85		0	0	
10			2.9							
12										

Field Technician:

Drafted by:

Reviewed by:

MTE

Appendix C

Laboratory Test Results

Tables 101 to 103

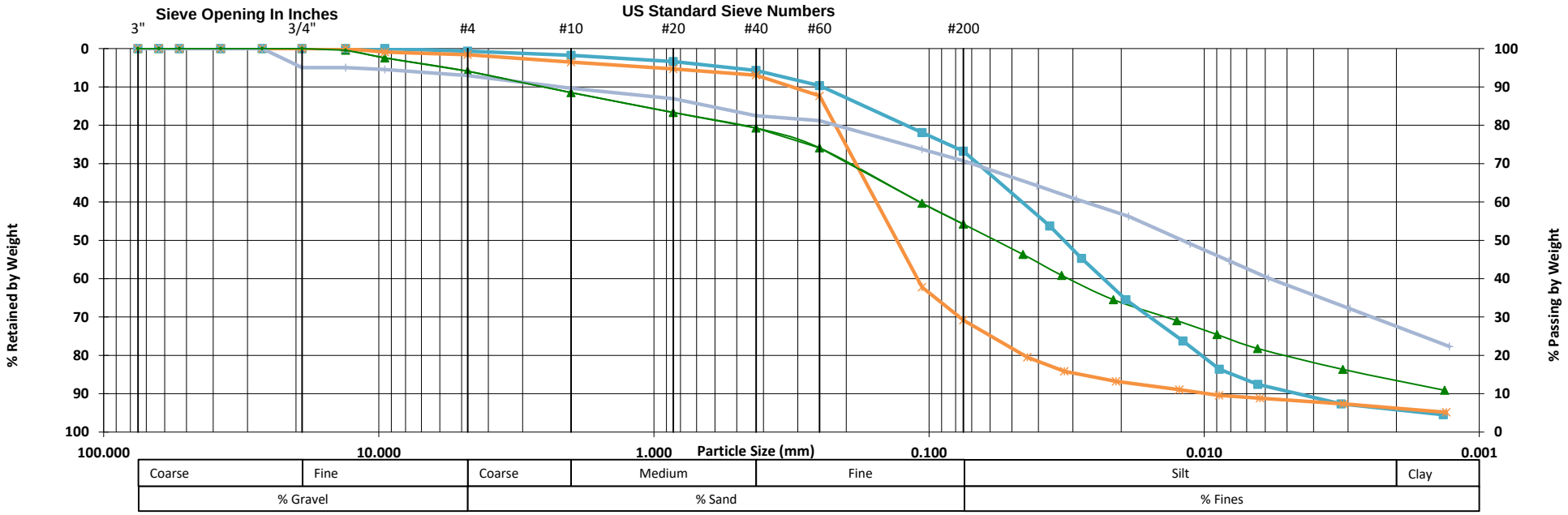
Particle Size Distribution Analysis Test Results

Project Name: 12982 Dixie Road Geotechnical Investigation
Client: Tribal Partners Inc.
Project Location: 12982 Dixie Road, Caledon, ON

Date Sampled: Oct. 19-29, 2020
Date Tested: Nov. 17-24, 2020

MTE File No.: 48043-200
Table No.: 101

Unified Soil Classification



Symbol	Borehole ID	Sample #	*Sample Depth*	Description
▲	MW101-20	SS-11	9.1-9.8 mbgs	SILT and SAND, some Clay, trace Gravel
■	MW103-20	SS-8	6.1-6.7 mbgs	Sandy SILT, trace Clay and Gravel
✳	MW104-20	SS-11	9.9-10.5 mbgs	Silty SAND, trace Clay and Gravel
+	MW105-20	SS-7	4.6-5.0 mbgs	Clayey Sandy SILT, trace Gravel

CERTIFIED BY CCIL Canadian Council of Independent Laboratories
For specific tests as listed on www.ccil.com

NOTES:

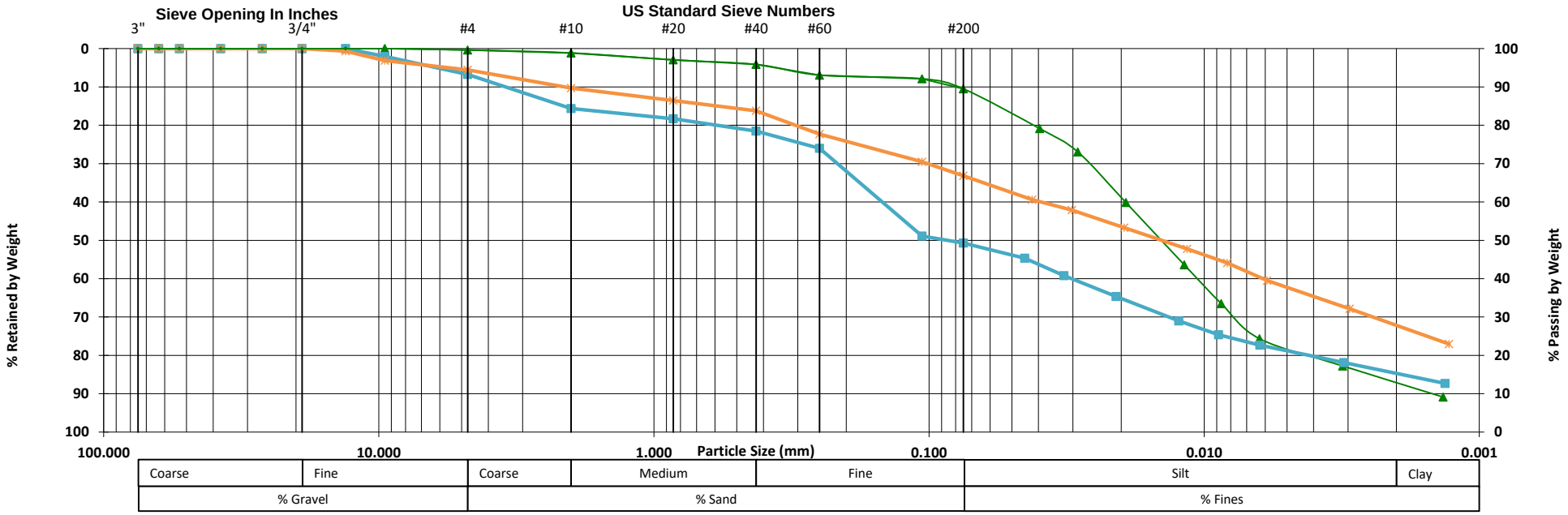
Particle Size Distribution Analysis Test Results

Project Name: 12982 Dixie Road Geotechnical Investigation
Client: Tribal Partners Inc.
Project Location: 12982 Dixie Road, Caledon, ON

Date Sampled: Oct. 19-29, 2020
Date Tested: Nov. 17-24, 2020

MTE File No.: 48043-200
Table No.: 102

Unified Soil Classification



Symbol	Borehole ID	Sample #	*Sample Depth*	Description
▲	MW106-20	SS-11	10.7-11.3 mbgs	SILT, some Clay and Sand
■	MW107-20	SS-12	9.9-10.5 mbgs	Silty SAND, some Clay, trace Gravel
✳	BH116-20	SS-5	3.0-3.7 mbgs	Clayey Sandy SILT, trace Gravel

CERTIFIED BY CCIL Canadian Council of Independent Laboratories
For specific tests as listed on www.ccil.com

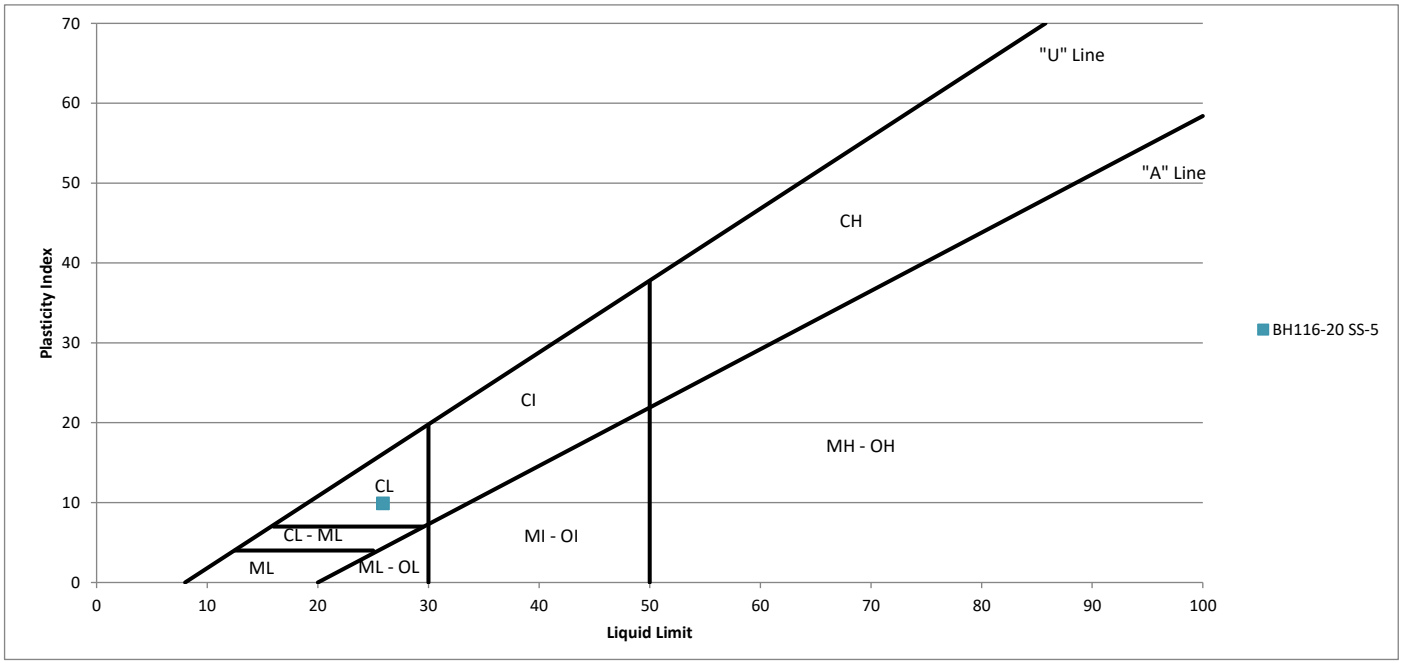
NOTES:

Atterberg Limit Test Results

Project Name: 12982 Dixie Road Geotechnical Investigation
Client: Tribal Partners Inc.
Project Location: 12982 Dixie Road, Caledon, ON

Date Sampled: Oct. 21, 2020
Date Tested: Nov. 24-25, 2020

MTE File No.: 48043-100
Table No.: 103



Borehole	Sample #	Sample Depth	Moisture Content (%)	Liquid Limit (W_L)	Plastic Limit (W_P)	Plasticity Index (I_P)
BH116-20	SS-5	3.0-3.7 mbgs	13	26	16	10

CERTIFIED BY CCIL Canadian Council of Independent Laboratories For specific tests as listed on www.ccil.com

NOTES: