Report on
Geotechnical Investigation and Slope Stability Assessment Proposed Buildings 1720 Sherwood Forrest Circle Mississauga, Ontario

Prepared For:

Sherwood Forrest Limited Partnership

Project No: 23-162-102
Date: July 24, 2023

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1. INTRODUCTION

DS Consultants Ltd. (DS) was retained by Sherwood Forrest Limited Partnership (the client) to undertake a geotechnical investigation and slope stability assessment for the proposed development, located at 1720 Sherwood Forrest Circle in Mississauga, Ontario.

It is understood that the project will consist of low-rise buildings with one level of basement.

The client has provided us with a report entitled "Geotechnical Investigation and Slope Stability Assessment, Proposed Carmel Heights Seniors Development, 1720 Sherwood Forest Circle, Mississauga, Ontario", prepared by Terraprobe Inc., File No. 1-17-0362-01, dated November 23, 2017. In the report by Terraprobe, a total of 17 boreholes (No. 1 to 17) were drilled in 2017 to depths ranging from 8.1 to 15.7 m. The location plan and logs of the boreholes by Terraprobe are attached in **Appendix A**.

In 2023, DS drilled 4 additional boreholes (BH23-100 to BH23-103) at the site for the geotechnical investigation and slope stability assessment.

The purpose of this investigation was to determine the subsurface conditions at the borehole locations and from the findings in the boreholes make engineering recommendations for the following:

1. Foundations
2. Floor slab and permanent drainage
3. Earth Pressures
4. Earthquake considerations
5. Excavations, backfill and groundwater control
6. Pavements
7. Slope stability assessment

This geotechnical investigation and slope stability assessment report deals with the geotechnical and slope stability aspects of the site only. Environmental and hydrogeological investigations are beyond the scope of work of this investigation.

This report is provided on the basis of the terms of reference presented above and, on the assumption, that the design will be in accordance with the applicable codes and standards. If there are any changes in the design features relevant to the geotechnical analyses, or if any questions arise concerning the geotechnical aspects of the codes and standards, this office should be

contacted to review the design. It may then be necessary to carry out additional borings and reporting before the recommendations of this office can be relied upon.

The site investigation and recommendations follow generally accepted practice for geotechnical consultants in Ontario. The format and contents are guided by client specific needs and economics and do not conform to generalized standards for services. Laboratory testing for most part follows ASTM or CSA Standards or modifications of these standards that have become standard practice.

This report has been prepared for Argo Development Corporation and its designers. Third party use of this report without DS Consultants Ltd. (DS) consent is prohibited.

2. FIELD AND LABORATORY WORK

Four (4) boreholes (BH23-100 to BH23-103) were drilled by DS at the site to depths ranging from 6.7 to 15.8 m. The boreholes were drilled with solid stem continuous flight auger equipment by drilling sub-contractors under the direction and supervision of DS personnel. Samples were retrieved at regular intervals with a 50 mm O.D. split-barrel sampler driven with a hammer weighing 624 N and dropping 760 mm in accordance with the Standard Penetration Test (SPT) method. The samples were logged in the field and returned to the DS laboratory for detailed examination by the project engineer and for laboratory testing.

As well as visual examination in the laboratory, all soil samples for the boreholes drilled by DS were tested for moisture contents. Grain size analyses and Atterberg Limits tests were conducted on selected soil samples and the results are presented in **Drawings 6 to 7.**

Groundwater level observations were made during drilling and in the open boreholes at the completion of the drilling operations. Two (2) boreholes (BH23-101 and BH23-102) were equipped with 50mm dia. monitoring wells for the long-term groundwater level monitoring.

The surface elevations at the borehole locations were surveyed by DS staff using differential GPS system. It should be noted that the elevations at the as-drilled borehole locations were not provided by a professional surveyor and should be considered approximate. Contractors performing any work referenced to the borehole elevations should confirm the borehole elevations for their work.

3. SOIL AND GROUNDWATER CONDITIONS

The locations of the boreholes (BH23-100 to BH23-103) by DS are shown on **Drawing 1**. Notes on sample description are presented on **Drawing 1B**. The subsurface conditions encountered in boreholes are presented in the individual borehole logs (**Drawing 2** to **5**). The results of grain size

analyses are presented in **Drawing 6** and on the borehole logs**.** The results of Atterberg Limits tests are presented in **Drawing 7** and on the borehole logs**.**

The location plan and logs of the previous boreholes (No. 1 to 17) by Terraprobe are attached in **Appendix A**.

3.1 Soil Conditions

In the boreholes, fill materials with asphalt pavement or topsoil at surface were found. The native soils below the fill consisted of cohesionless deposits and clayey silt to silty clay till deposits.

The subsurface conditions encountered in boreholes are summarized in the following paragraphs.

Asphalt Pavement and Topsoil:

A pavement structure consisting of 65 to 140 mm asphalt overlying granular base was encountered in BH23-100 by DS and in Boreholes 2, 6 and 8 by Terraprobe.

A surficial layer of topsoil of 50mm to 390 mm thick was found in all other boreholes, as shown in the borehole logs. It should be noted that the thickness of the topsoil explored at the borehole locations may not be representative for the site and should not be relied on to calculate the amount of topsoil at the site.

Fill Materials:

Below the pavement structure and topsoil, fill materials were found in all boreholes, extending to depths ranging from 1.0 to 2.5 m. The fill materials consisted of very loose to compact sand/silty sand to sandy silt and soft to very stiff clayey silt, with inclusions of topsoil and organics. The SPT 'N' values measured in the fill materials ranged from 3 to 18 blows per 300 mm penetration.

Cohesionless Deposits (Gravelly sand, Sand and Gravel, Sand and Silt to Sandy Silt):

Below the fill materials, cohesionless deposits of gravelly sand to sand and gravel, with some layers of sand and silt to sandy silt, were encountered in all boreholes, extending to depths ranging from 4.6 to 9.7 m. In Boreholes 7, 15 and 17 by Terraprobe, the cohesionless deposits extended to the explored depth of 8.2 m.

These cohesionless deposits were found in compact to very dense state (typically dense to very dense), with measured SPT 'N' values ranging from 14 to more than 50 blows per 300 mm penetration. Some cohesionless deposits were found to be wet to saturated and below groundwater table.

Grain size analyses of two gravelly sand to sand and gravel samples samples (BH23-100/SS3 and BH23-103/SS5) were conducted by DS and the results are presented in **Drawing 6** and on the borehole logs, with the following fractions:

Clay: 3%
Silt: 11%
Sand: 42 to 45%
Gravel: 41 to 44%

Grain size analyses of selected cohesionless soil samples were also conducted by Terraprobe and the results are presented on the borehole logs in **Appendix A**.

Clayey Silt to Silty Clay Till:

Below the cohesionless deposits, clayey silt to silty clay till deposits were encountered in all boreholes, except for Boreholes 7, 15 and 17 by Terraprobe. The clayey silt to silty clay till deposits were found below depths ranging from 4.6 to 9.7 m, extending to the maximum explored borehole depth of 15.8 m.

The clayey silt to silty clay till deposits were found to have a very stiff to hard consistency (typically hard), with measured SPT 'N' values ranging from 17 to more than 50 blows per 300 mm penetration.

Grain size analyses of two clayey silt to silty clay till samples (BH23-100/SS7 and BH23-101/SS7) were conducted by DS and the results are presented in **Drawing 6** and on the borehole logs, with the following fractions:

Clay: 18 to 25%
Silt: 43 to 49%
Sand: 25 to 27%
Gravel: 6 to 7%

Atterberg Limits tests of two clayey silt to silty clay till samples (BH23-100/SS7 and BH23-101/SS7) were conducted by DS and the results are presented in **Drawing 7** and on the borehole logs.

Grain size analyses and Atterberg Limits tests of selected clayey silt samples were also conducted by Terraprobe and the results are presented on the borehole logs in **Appendix A**.

3.2 Groundwater Conditions

The groundwater levels measured in the monitoring wells in the boreholes are shown in the borehole logs and are summarized on **Table 3.2** below. Short-term (not stabilized) groundwater levels observed during the drilling operations in the boreholes without monitoring wells are also listed on **Table 3.2** below.

Table 3.2: Summary of Groundwater Levels

Borehole No.	Ground Surface Elev. (m)	Borehole Depth (m)	Groundwater Depth/Elev. in monitoring Wells (m)	Short-term Groundwater Depth during Drilling (m)	Borehole Location Note
DS Boreholes:					
BH23-100	115.6	6.7	--	Dry	Near slope
BH23-101	116.3	15.8	15.0 /101.3		Near slope
BH23-102	116.0	15.8	Dry		Near slope
BH23-103	116.1	9.7	--	5.5	
Terraprobe Boreholes:					
1	116.2	15.5	13.3 /102.9		Near slope
2	116.2	15.7	--	Dry	Near slope
3	115.8	15.5	14.8 /101.0		Near slope
4	116.1	15.5	--	7.6	Near slope
5	116.1	15.5	12.9 /103.2		Near slope
6	116.2	8.2	--	5.0	
7	115.9	8.2	7.1 /108.8		
8	116.3	15.7	14.2 /102.1		Near slope
9	116.2	8.2	5.8 /110.4		
10	116.3	8.2	--	Dry	Near slope
11	116.1	8.2	5.5 /110.6		
12	116.4	8.2	6.4 /110.0		
13	116.0	8.2	7.0 /109.0		Near slope
14	115.8	8.2	Dry		
15	116.0	8.2	--	7.0	
16	115.9	8.1	--	Dry	
17	115.8	8.2	--	6.4	

It should be noted that the groundwater levels can vary and are subject to seasonal fluctuations in response to major weather events.

4. GEOTECHNICAL DISCUSSION AND RECOMMENDATIONS

Based on the borehole information, geotechnical discussion and recommendations for the proposed development are presented as follows. In this report, the soil and groundwater conditions are interpreted as relevant to the design and construction of the proposed buildings. Comments relating to construction are intended for the guidance of the design engineer to establish constructability.

The construction methods described in this report must not be considered as being specifications or direct recommendations to the contractors, or as being the only suitable methods. Prospective contractors should evaluate all of the factual information, obtain additional subsurface information as they might deem necessary and should select their construction methods, sequencing and equipment based on their own experience in similar ground conditions. The readers of this report are also reminded that the conditions are known only at the borehole locations and conditions may vary significantly in-between.

4.1 Foundations

It is understood that the project will consist of low-rise to mid-rise buildings with one level of basement. It is assumed that the basement floor slab will be about 3 m below the existing ground. Footings will be within 1 to 2 m below the basement floor.

Based on the borehole information, the proposed buildings with one level of basement can be supported by spread and strip footings founded on the undisturbed native soils at the anticipated founding levels for a bearing capacity of 350 kPa at SLS (serviceability limit states), and for a factored geotechnical resistance of 525 kPa at ULS (ultimate limit states).

Footings designed to the specified bearing capacity at the serviceability limit states (SLS) are expected to settle less than 25 mm total and 19 mm differential.

In the vicinity of the existing buried utilities, all footings must be lowered to undisturbed native soils, or alternatively the services must be structurally bridged.

New footings close to any existing structures must match the existing footing base level. If adjacent existing footings are higher than the proposed new footings, underpinning of the existing footings may be required.

All footing bases must be inspected by this office prior to pouring concrete to confirm the beating capacity of the founding soils.

The excavated footing bases must be covered with 50 mm thick mud slab immediately after inspection and cleaning, in order to avoid disturbance of the founding soil due to water and construction activity.

All footings exposed to seasonal freezing conditions must have at least 1.2 m of soil cover for frost protection.

Where it is necessary to place footings at different levels, the upper footing must be founded below an imaginary 10 horizontal to 7 vertical line drawn up from the base of the lower footing. The lower footing must be installed first to help minimize the risk of undermining the upper footing.

It should be noted that the recommended bearing capacities have been calculated by DS from the borehole information for the design stage only. The investigation and comments are necessarily on-going as new information of the underground conditions becomes available. For example, more specific information is available with respect to conditions between boreholes when foundation construction is underway. The interpretation between boreholes and the recommendations of this report must therefore be checked through field inspections provided by DS to validate the information for use during the construction stage.

4.2 Floor Slab and Permanent Drainage

With one level of basement, the floor slab can be supported on grade provided all fill and disturbed native soils are removed and the base thoroughly proof rolled. The backfill required to raise the grade can consist of inorganic soil, placed in shallow lifts and compacted to 98 percent of Standard Proctor Maximum Dry Density (SPMDD).

A moisture break consisting of at least 200 mm of 19 mm clear crushed stone should be installed under the floor slab.

Underfloor drainage system and perimeter drainage system around the exterior basement walls will be required. The perimeter drainage system shown on **Drawing 8** is recommended for the basement walls where open cut procedures are used.

4.3 Earth Pressures

The lateral earth pressures acting on basement walls and retaining structures may be calculated from the following expression:

$$p = K(\gamma h + q)$$

where p	=	Lateral earth pressure in kPa acting at depth h
K	=	Earth pressure coefficient equal to 0.40 for vertical walls and horizontal backfill used for permanent construction
γ	=	Unit weight of backfill, a value of 21.0 kN/m^3 may be assumed
H	=	Depth to point of interest in metres
Q	=	Equivalent value of surcharge on the ground surface in kPa

The above expression assumes that the perimeter drainage system prevents the buildup of any hydrostatic pressure behind the wall.

4.4 Earthquake Considerations

Based on the borehole information and according to Table 4.1.8.4.A of OBC 2012, the subject site for the proposed buildings can be classified as 'Class C' for seismic site response.

4.5 Excavation, Backfill and Groundwater Control

It is understood that the proposed buildings will include one level of basement or parking levels below ground. It is assumed that excavations to underside of footings will continue to a depth of 4 to 5 m below the existing ground. Sumps and elevator pits may require localized excavations to continue approximately one metre deeper.

Excavations can be carried out with heavy hydraulic backhoe. No major problems with groundwater are anticipated for excavations above groundwater and to a depth of 4 to 5 m. It is expected that any seepage, which occurs during wet periods, can be removed by pumping from sumps for excavations above groundwater.

Groundwater was found in some boreholes at depths of 5 to 7 m or deeper. Positive dewatering will be required for any excavation (if any) below groundwater. Otherwise, it will result in an unstable base and flowing sides. The groundwater table must be lowered to at least 1.0 m below the excavation base.

It should be noted that the till is a non-sorted sediment and therefore may contain boulders. Possible large obstructions such as buried concrete pieces are also anticipated in the fill material. Provisions must be made in the excavation contract for the removal of possible boulders in the till or obstructions in the fill material.

All excavations must be carried out in accordance with the most recent Occupational Health and Safety Act (OHSA). In accordance with OHSA, the fill and cohesionless deposits (gravelly sand, sand and gravel, sand and silt to sandy silt) can be classified as Type 3 Soil above groundwater table and Type 4 Soil below groundwater table. Very stiff to hard clayey silt to silty clay deposits can be classified as Type 3 Soil above groundwater table and Type 4 Soil below groundwater table.

The select inorganic fill and native soils free from topsoil and organics can be used as general construction backfill where it can be compacted with sheep's foot type compactors. Loose lifts of soil, which are to be compacted, should not exceed 200 mm.

Depending on the time of construction and weather, some excavated material may be too wet to compact and will require aeration prior to its use.

Imported granular fill, which can be compacted with hand-held equipment, should be used in confined areas.

Underfloor fill should be compacted to at least 98 percent of Standard Proctor Maximum Dry Density (SPMDD).

The excavated soils are not considered to be free draining. Where free draining backfill is required, imported granular fill such as OPSS Granular B should be used.

It should be noted that the excavated soils are subject to moisture content increase during wet weather which would make these materials too wet for adequate compaction. Stockpiles should be compacted at the surface or be covered with tarpaulins to minimize moisture uptake.

4.6 Pavements

The recommended pavement structures provided in **Table 4.6** are based upon an estimate of the subgrade soil properties determined from visual examination and textural classification of the soil samples. The values may need to be adjusted based on the city /regional standards. Consequently, the recommended pavement structures should be considered for preliminary design purposes only. A functional design life of eight to ten years has been used to establish the pavement recommendations. This represents the number of years to the first rehabilitation, assuming regular maintenance is carried out. If required, a more refined pavement structure design can be performed based on specific traffic data and design life requirements and will involve specific laboratory tests to determine frost susceptibility and strength characteristics of the subgrade soils, as well as specific data input from the client.

Table 4.6: Recommended Pavement Structure Thickness

Pavement Layer	Compaction Requirements	Light Duty Parking (Cars)	Heavy Duty Parking (Delivery Trucks)
Asphaltic Concrete	Min. 92% of Maximum Relative Density (MRD)	40 mm HL 3 or SP 12.5 40 mm HL 8 or SP 19.0	40 mm HL 3 or SP 12.5 80 mm HL 8 or SP 19.0
OPSS Granular A Base (or 20mm Crusher Run Limestone)	100% SPMDD*	150 mm	150 mm
OPSS Granular B (or 50mm Crusher Run Limestone)	100% SPMDD	250 mm	350 mm

* Denotes Standard Proctor Maximum Dry Density, ASTM-D698
The subgrade must be compacted to 98% SPMDD for at least the upper 500 mm unless accepted by DS Consultants Ltd.

The long-term performance of the pavement structure is highly dependent upon the subgrade support conditions. Stringent construction control procedures should be maintained to ensure

uniform subgrade moisture and density conditions are achieved. In addition, the need for adequate drainage cannot be over-emphasized. The finished pavement surface and underlying subgrade should be free of depressions and should be sloped (preferably at a minimum grade of two percent) to provide effective surface drainage toward catch basins. Surface water should not be allowed to pond adjacent to the outside edges of pavement areas. Subdrains should be installed to intercept excess subsurface moisture and prevent subgrade softening. This is particularly important in heavy-duty pavement areas.

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

1) As part of the subgrade preparation, proposed parking areas and access roadways should be stripped of topsoil and other obvious objectionable material. Fill required to raise the grades to design elevations should conform to backfill requirements outlined in previous sections of this report. The subgrade should be properly shaped, crowned then proof-rolled in the full time presence of a representative of this office. Soft or spongy subgrade areas should be sub-excavated and properly replaced with suitable approved backfill compacted to 98% SPMDD.

2) The locations and extent of sub-drainage required within the paved areas should be reviewed by this office in conjunction with the proposed lot grading. Assuming that satisfactory crossfalls in the order of two percent have been provided, subdrains extending from and between catch basins may be satisfactory. In the event that shallower crossfalls are considered, a more extensive system of sub-drainage may be necessary and should be reviewed by DS Consultants Ltd.

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

4) It is recommended that DS Consultants Ltd. be retained to review the final pavement structure designs and drainage plans prior to construction to ensure that they are consistent with the recommendations of this report.

5. SLOPE STABILITY ASSESSMENTS

This section presents stability assessments of the slopes at the site to determine the locations of the long-term stable top of slope (LTSTOS) line, as required by Credit Valley Conservation (CVC). The top of bank had been staked out by CVC on August 3, 2018, as shown **on Drawing 1**.

5.1 Site and Slope Conditions

A site visit was made on July 11, 2023 by a senior geotechnical engineer from DS Consultants Ltd. (DS). Selected photographs (Photos B1 to B20) taken during our site visit are presented in **Appendix B**. A Google Image showing the slope site and surrounding areas is also presented in **Appendix B**.

A total of 11 slope profiles (X1-X1 to X11-X11) were derived from the topographic map (**Drawing 1**) provided by the client. The locations of the slope profiles are shown on **Drawing 1**. The slope profiles are presented on **Drawings 9 to 19**.

For the convenience of discussion, it is assumed that Mississauga Road near the site is in the south-north alignment, and Dundas Street is in the east-west alignment.

Based on our site observations, the site and slope conditions are described as follows:

- The subject slopes are located at the southwest corner of Mississauga Road and Dundas Street.
- The major slope of approximately 10 to 17 m in height is along the west side of Mississauga Road. There is also a slope along the south side of Dundas Street, which is up to 10 m in height.
- The steepness of the slopes ranged from 1.4H:1V (at Cross-Section X7-X7) to flatter than 2.0H:1V.
- The slopes were covered with trees, grasses and other vegetation (see Photos in **Appendix B**), and were generally well protected from surface erosion. No seepage from the slope surface was found during the site visit. No evidence of slope failures was observed during our site visit.
- The toes of the slopes were along Mississauga Road and Dundas Street. The slope toe areas were well covered with grass and other vegetation and were well protected from erosions.
- There are no creek/watercourses within 15 m from the toe of the slopes. Credit River is located far away to the northeast side of Mississauga Road and is more than 80 m away from the toe of the subject slopes.

5.2 Soil Parameters for Slope Stability Analyses

Based on the borehole information and site observations, soil parameters used in the slope stability analyses are given on **Table 5.2**.

Table 5.2: Soil Parameters for Long-term Slope Stability Analyses

Soil Type	Unit Weight (kN/m^3)	Cohesion c' (kPa)	Friction Angle ϕ' (degree)
Slope surface layer	19.5	10	29
Fill material	19.5	1	29
Gravelly sand to sand & gravel	21	0	36
Clayey silt to silty clay till	21.5	9	32

To take into consideration the vegetation and tree roots on the slopes and to prevent shallow surficial failures in the analyses, a soil layer of up to 0.5 m thick along the slope surface is assumed to have a cohesion value of 10 kPa.

5.3 Erosion Considerations

As indicated in Section 5.2 above, the toes of the slopes were along Mississauga Road and Dundas Street. The slope toe areas were well covered with grass and other vegetation and were well protected from erosions. There are no creek/watercourses within 15 m from the toes of the slopes. Credit River is located far away to the northeast side of Mississauga Road and is more than 80 m away from the toe of the subject slopes.

In accordance with the Provincial Guidelines entitled "Understanding Natural Hazards" and according to the soil and creek conditions, no erosion allowance at the toes of the slopes should be required for the setback of the long-term stable slopes.

5.4 Stability Analyses of Existing Slopes

Eleven (11) slope profiles of the existing slopes at Cross-Sections X1-X1 through X11-X11 (see **Drawing 1** for locations) were derived from the topographic map (**Drawing 1**), as shown on **Drawings 9** to **19.**

The slope at Cross-Section X7-X7 is steep (1.4H:1V) and the slope at Cross-Section X10-X10 is relatively flatter (2H:1V). Long-term stability analyses of the existing slopes at the critical/typical Cross-Sections X7-X7 and X10-X10 have been carried out with the computer program SLIDE (Version 2018) using the Morgenstern-Price, Spencer, Bishop and Janbu methods. The analysis results are presented in **Drawings 20 and 21**.

The calculated factor of safety (FS) of the existing slope (1.4H:1V) at Cross-Section X7-X7 is FS=1.18 (see **Drawing 20**), which is less than the minimum acceptable value of 1.5. Therefore, the existing

slope (1.4H:1V) at Cross-Section X7-X7 is considered not stable in terms of long-term stability based on CVC's requirements.

The calculated factor of safety (FS) of the existing slope (2.0H:1V) at Cross-Section X10-X10 is FS=1.662 (see **Drawing 21**), which is greater than the minimum acceptable value of 1.5. Therefore, the existing slope (2.0H:1V) at Cross-Section X10-X10 is considered stable in terms of long-term stability based on CVC's requirements.

5.5 Stability Analyses of Long-term Stable Slope

Based on the slope stability analysis results presented above, the existing slope (1.4H:1V) at Cross-Section X7-X7 is considered not stable in terms of long-term stability based on CVC's requirements.

In order to determine the long-term stable slope at the site, stability analysis of the modified 1.8H:1V slope at Cross-Section X7-X7, has been carried out. The results are presented on **Drawing 22**. The calculated factor of safety of the 1.8H:1V slope on **Drawing 22** is FS=1.563, which is greater than the minimum acceptable value of 1.5. The 1.8H:1V slope shown on **Drawing 22** is considered stable in terms of long-term stability.

Based on the slope stability analysis results, it can be concluded that a slope of 1.8H:1V is stable in terms of long-term stability.

Accordingly, the long-term stable slopes at Cross-Section X1-X1 through Cross-Section X11-X11 are presented on **Drawing 9** through **Drawing 19**, respectively.

5.6 Long-term Stable Top of Slope (LTSTOS)

Credit Valley Conservation (CVC) had staked out the top of slope on August 3, 2018, as shown on **Drawing 1**.

Based on the slope stability analysis results presented above, the long-term stable slopes at Cross-Section X1-X1 through Cross-Section X11-X11 are presented on **Drawing 9** through **Drawing 19**. The points representing the long-term stable top of slope (LTSTOS) at the Cross-Sections are determined using the following criteria:

- If the stable top of slope determined in the slope stability analysis in this study is further away from the toe of the slope than the staked top of slope by CVC, then the stable top of slope determined in the slope stability analysis in this study is considered as the long-term stable top of slope (LTSTOS), such as at Cross-Sections X3-X3 to X5-X5, X7-X7 and X11.
- If the stable top of slope determined in the slope stability analysis in this study is the same as or closer to the toe of the slope than the staked top of slope by CVC, then the staked top of slope by CVC is considered as the long-term stable top of slope (LTSTOS), such as at Cross-Sections X1-X1, X2-X2, X6-X6, and X8-X8 to X10-X10.

Accordingly, the points representing the long-term stable top of slope (LTSTOS) at the Cross-Sections are as follows.

- Point 'S1' on **Drawing 9** represents the long-term stable top of slope at Cross-Section X1-X1
- Point 'S2' on **Drawing 10** represents the long-term stable top of slope at Cross-Section X2-X2
- Point 'S3' on **Drawing 11** represents the long-term stable top of slope at Cross-Section X3-X3
- Point 'S4' on **Drawing 12** represents the long-term stable top of slope at Cross-Section X4-X4
- Point 'S5' on **Drawing 13** represents the long-term stable top of slope at Cross-Section X5-X5
- Point 'S6' on **Drawing 14** represents the long-term stable top of slope at Cross-Section X6-X6
- Point 'S7' on **Drawing 15** represents the long-term stable top of slope at Cross-Section X7-X7
- Point 'S8' on **Drawing 16** represents the long-term stable top of slope at Cross-Section X8-X8
- Point 'S9' on **Drawing 17** represents the long-term stable top of slope at Cross-Section X9-X9
- Point 'S10' on **Drawing 18** represents the long-term stable top of slope at Cross-Section X10-X10
- Point 'S11' on **Drawing 19** represents the long-term stable top of slope at Cross-Section X11-X11

Based on the long-term stable top of slope at Cross-Sections X1-X1 to X11-X11, and our field observations, the recommended long-term stable top of slope line (Line S0-S1-S2-S3-S4-S5-S6-S7-S8-S9-S10-S11-S12) is shown on **Drawing 1**.

This long-term stable top of slope (LTSTOS) line must be reviewed by Credit Valley Conservation (CVC) for their approval.

6. GENERAL COMMENTS AND LIMITATIONS OF REPORT

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

This report is intended solely for the Client named. The material in it reflects our best judgment in light of the information available to DS at the time of preparation. Unless otherwise agreed in writing by DS, it shall not be used to express or imply warranty as to the fitness of the property for a particular purpose. No portion of this report may be used as a separate entity, it is written to be read in its entirety.

The sub-surface conditions are interpreted as relevant to the design and construction of the proposed sanitary sewer. Comments relating to construction are intended for the guidance of the design engineer to establish constructability and must not be considered as being specifications or recommendations to the prospective contractors, or as being the only suitable methods. Prospective contractors should evaluate all of the factual information, obtain additional subsurface information as they might deem necessary and should select their construction methods, sequencing and equipment based on their own experience in similar ground conditions. The readers of this report are also reminded that the conditions are known only at the borehole locations and in view of the generally wide spacing of the boreholes, conditions may vary significantly between boreholes.

The conclusions and recommendations given in this report are based on information determined at the test hole locations. The information contained herein in no way reflects on the environment aspects of the project, unless otherwise stated. Subsurface and groundwater conditions between and beyond the test holes may differ from those encountered at the test hole locations, and conditions may become apparent during construction, which could not be detected or anticipated at the time of the site investigation. The benchmark and elevations used in this report are primarily to establish relative elevation differences between the test hole locations and should not be used for other purposes, such as grading, excavating, planning, development, etc.

The design recommendations given in this report are applicable only to the project described in the text and then only if constructed substantially in accordance with the details stated in this report.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. DS accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. We accept no responsibility for any decisions made or actions taken as a result of this report unless we are specifically advised of and participate in such action, in which case our responsibility will be as agreed to at that time.

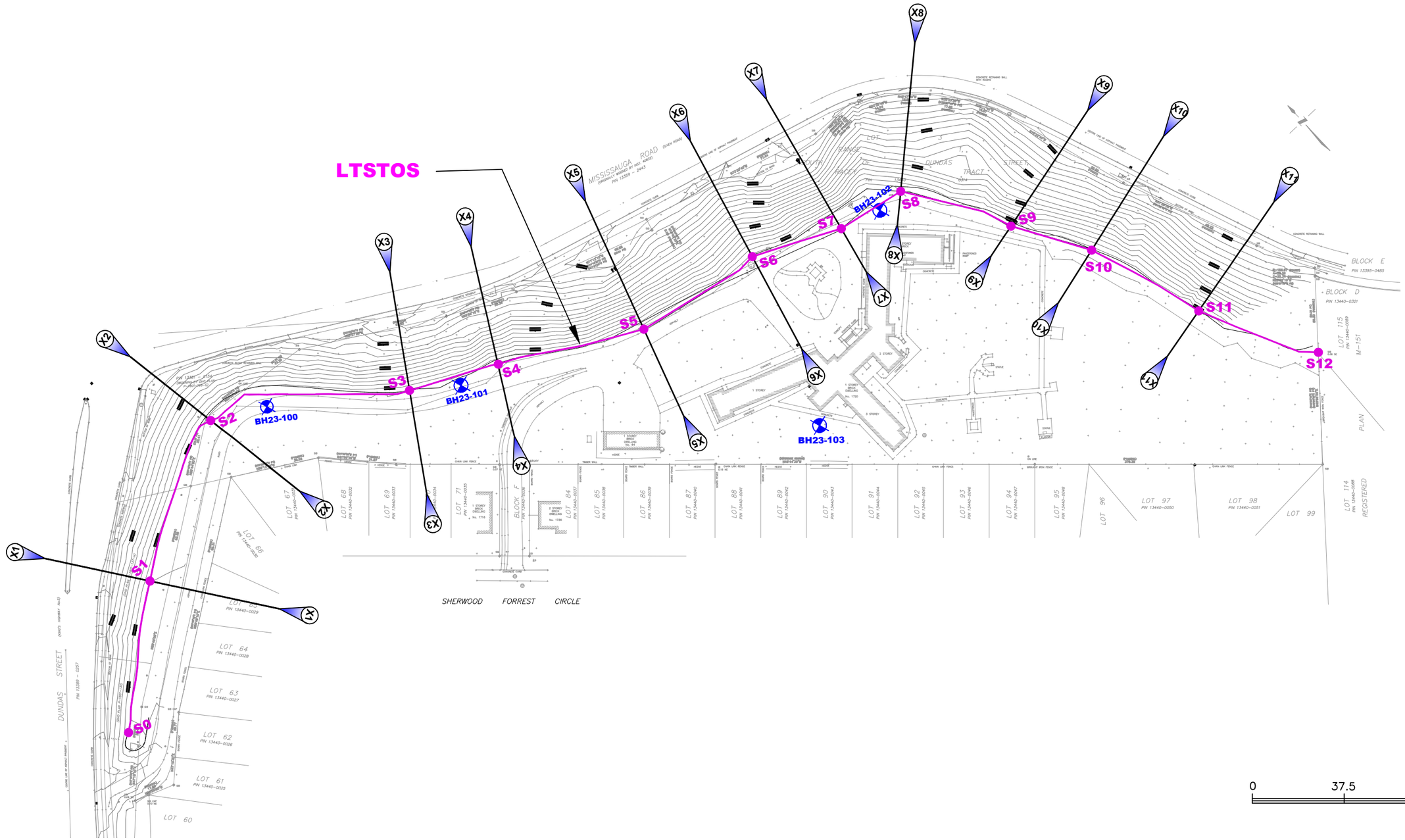
We trust that the information contained in this report is satisfactory. Should you have any questions, please do not hesitate to contact this office.

DS CONSULTANTS LTD

Alka Sangar, M.Eng., P.Eng.

Fanyu Zhu, Ph.D., P.Eng.

Drawings



S0 - S1 - S2 - S3 - S4 - S5 - S6 - S7 - S8 - S9 - S10 - S11 - S12 Long-Term Stable Top of Slope Line (LTSTOS Line)

Borehole Location

Path:----

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Project: SLOPE STABILITY ASSESSMENT
1720 Sherwood Forest Circle, Mississauga, ON

Title: **SLOPE AND BOREHOLE LOCATION PLAN**

Client: ARGO DEVELOPMENT CORP.

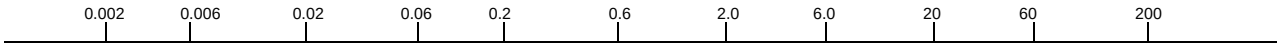
Size:	Approved By:	Drawn By:	Date:
11 X 17	A.S	S.Y	July 2023
Rev.	Scale: As Shown	Project No: 23-162-102	Drawing No. 1

Drawing 1A: Notes on Soil Sample Descriptions

1. All sample descriptions included in this report generally follow the Unified Soil Classification. Laboratory grain size analyses provided by DS also follow the same system. Different classification systems may be used by others, such as the system by the International Society for Soil Mechanics and Foundation Engineering (ISSMFE). Please note that, with the exception of those samples where a grain size analysis and/or Atterberg Limits testing have been made, all samples are classified visually. Visual classification is not sufficiently accurate to provide exact grain sizing or precise differentiation between size classification systems.

ISSMFE SOIL CLASSIFICATION

CLAY	SILT			SAND			GRAVEL			COBBLES	BOULDERS
	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE		



EQUIVALENT GRAIN DIAMETER IN MILLIMETRES

CLAY (PLASTIC) TO	FINE	MEDIUM	CRS.	FINE	COARSE
SILT (NONPLASTIC)	SAND			GRAVEL	

UNIFIED SOIL CLASSIFICATION

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

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

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LOG OF BOREHOLE BH23-100

PROJECT: Geotechnical Investigation
CLIENT: Argo Development Corporation
PROJECT LOCATION: 1720 Sherwood Forest Circle, Mississauga
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4821882.62 E 608347.11

DRILLING DATA
Method: Solid Stem Augers
Diameter: 150 mm
Date: Jun-20-2023

REF. NO.: 23-162-102
ENCL NO.: 2

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L — WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
115.6												
115.4 / 0.2	**ASPHALT:** 100mm **GRANULAR BASE:** sand and gravel, 100mm **FILL:** sandy silt, trace rootlets, trace organics, brown, moist, compact		1	SS	10		115					
114.6 / 1.0	**GRAVELLY SAND TO SAND AND GRAVEL:** some silt, trace clay, brown, moist, dense		2	SS	31		114					
			3	SS	37							41 45 11 3
			4	SS	39		113					
			6	SS	35		112					
			6	SS	31		111					
109.5 / 6.1	**SILTY CLAY TILL:** sandy, trace gravel, trace cobbles, grey, moist, hard		7	SS	46		110					7 25 43 25
108.9 / 6.7	**END OF BOREHOLE:** Notes: 1) Borehole was dry upon completion.						109					

DS SOIL LOG-2021-FINAL 23-162-102GEO.GPJ DS.GDT 23-7-11

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3$, $\times^3$: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

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LOG OF BOREHOLE BH23-101

PROJECT: Geotechnical Investigation
CLIENT: Argo Development Corporation
PROJECT LOCATION: 1720 Sherwood Forest Circle, Mississauga
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4821830.09 E 608414.17

DRILLING DATA
Method: Solid Stem Augers
Diameter: 150 mm
Date: Jun-20-2023

REF. NO.: 23-162-102
ENCL NO.: 3

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	BLOWS 0.3 m "N"	ELEVATION
116.3 / 0.0	**TOPSOIL:** 150mm				
116.1 / 0.2	**FILL:** sandy silt, trace organics, trace rootlets, some clay, reddish brown, moist, loose	1	SS	4	116
		2	SS	4	
114.8 / 1.5	**SAND AND GRAVEL:** some silt, trace clay, brown, moist, dense	3	SS	34	115
		4	SS	30	114
		5	SS	44	113
		6	SS	34	112
110.2 / 6.1	**CLAYEY SILT TO SILTY CLAY TILL:** sandy, trace gravel, trace cobbles/boulders, grey, moist, very stiff to hard	7	SS	27	111
		8	SS	50	110
		9	SS	83	109
		10	SS	50/ 25 mm	108
		11	SS	50/ 130 mm	107
		12	SS	50	106
		13	SS	89	105
100.5 / 15.8	**END OF BOREHOLE:**				104
	Notes: 1) 50mm dia. monitoring well installed upon completion. 2) Water Level Readings: Date: Water Level(mbgl): June 29, 2023 dry July 10, 2023 15.01				103
					102

W. L. 101.3 m
Jul 10, 2023

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100

SHEAR STRENGTH (kPa)
○ UNCONFINED + FIELD VANE & Sensitivity
● QUICK TRIAXIAL × LAB VANE
20 40 60 80 100

PLASTIC LIMIT w_P — NATURAL MOISTURE CONTENT w — LIQUID LIMIT w_L
WATER CONTENT (%): 10 20 30

POCKET PEN. (Cu) (kPa)

NATURAL UNIT WT (kN/m³)

REMARKS AND GRAIN SIZE DISTRIBUTION (%)

GR	SA	SI	CL
6	27	49	18

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: +3, ×3: Numbers refer to Sensitivity; ○ε=3% Strain at Failure

DS SOIL LOG-2021-FINAL 23-162-102GEO.GPJ DS.GDT 23-7-11

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LOG OF BOREHOLE BH23-102

PROJECT: Geotechnical Investigation
CLIENT: Argo Development Corporation
PROJECT LOCATION: 1720 Sherwood Forest Circle, Mississauga
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4821777.34 E 608581.35

DRILLING DATA
Method: Solid Stem Augers
Diameter: 150 mm
Date: Jun-21-2023

REF. NO.: 23-162-102
ENCL NO.: 4

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L / WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
116.0												
116.0	**TOPSOIL:** 300mm											
115.7 0.3	**FILL:** sandy silt, trace organics, trace rootlets, reddish brown, moist, loose to compact		1	SS	17							
1			2	SS	4		115					
114.5 1.5	**SAND AND GRAVEL:** some silt, trace clay, brown, moist, compact to very dense		3	SS	18							
2			4	SS	50/ 100mm		114					
3			5	SS	35		113					
4							112					
5			6	SS	45		111					
6			7	SS	50/ 50mm		110					
7							109					
108.4 7.6	**CLAYEY SILT TO SILTY CLAY TILL:** sandy, trace gravel, cobbles/boulders, grey, moist, hard		8	SS	39		108					
8												
9			9	SS	63		107					
10							106					
11			10	SS	87		105					
12			11	SS	72		104					
13							103					
14			12	SS	68		102					
15							101					
100.2	silty sand at 15.3m		13	SS	84							
15.8	**END OF BOREHOLE:** Notes: 1) 50mm dia. monitoring well installed upon completion. 2) Water Level Readings: Date: Water level(mbgl): June 29, 2023 dry July 10, 2023 dry											

GROUNDWATER ELEVATIONS
Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES: +3, ×3: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

DS SOIL LOG-2021-FINAL 23-162-102GEO.GPJ DS.GDT 23-7-11

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LOG OF BOREHOLE BH23-103

PROJECT: Geotechnical Investigation
CLIENT: Argo Development Corporation
PROJECT LOCATION: 1720 Sherwood Forest Circle, Mississauga
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4821726.2 E 608503.5

DRILLING DATA
Method: Solid Stem Augers
Diameter: 150 mm
Date: Jun-20-2023

REF. NO.: 23-162-102
ENCL NO.: 5

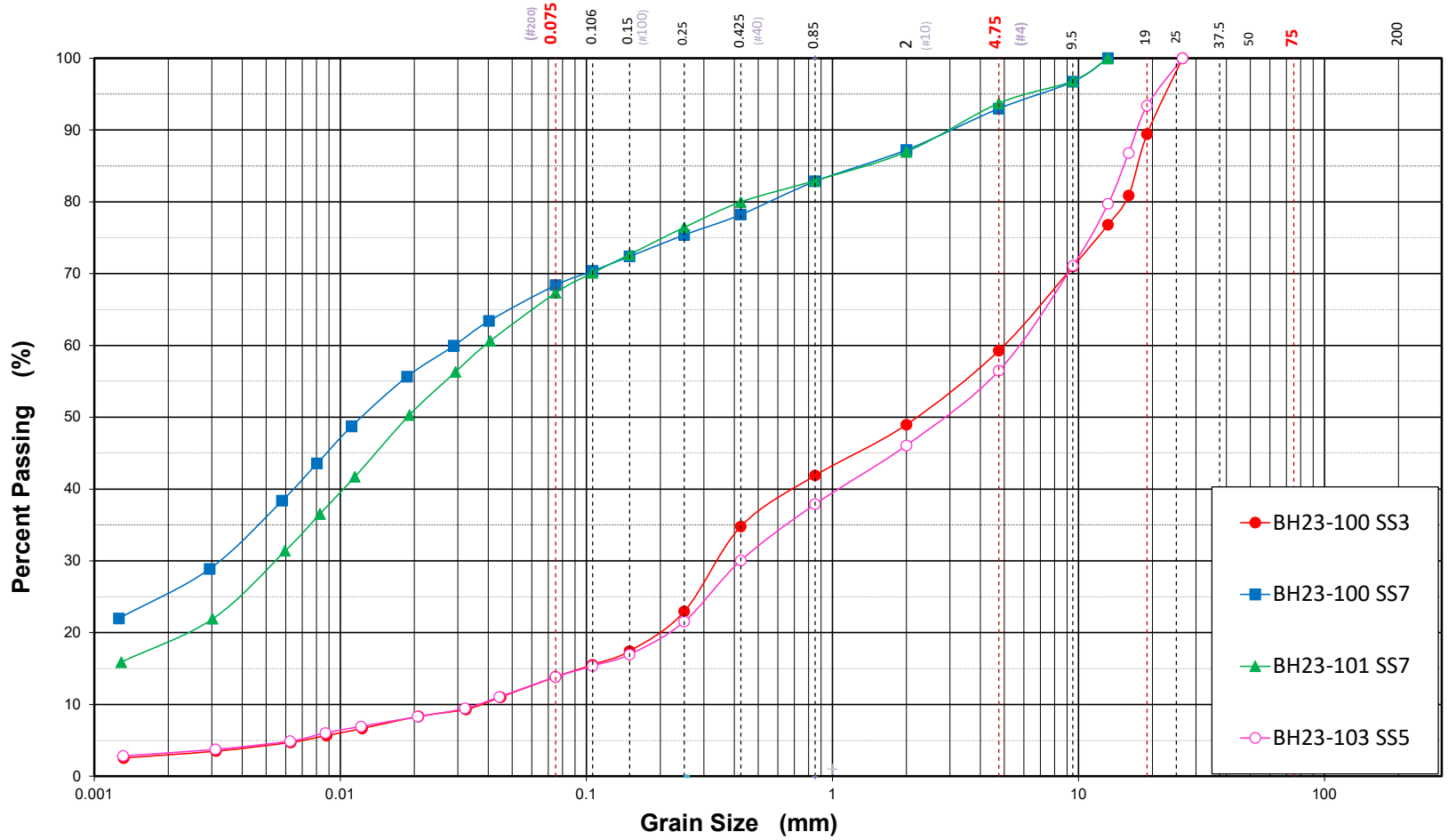
(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS "N" 0.3 m	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L — WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
116.1							116					
116.0	**TOPSOIL:** 180mm											
0.2	**FILL:** sandy silt, trace rootlets, reddish brown, moist, compact		1	SS	10							
115.3							115					
0.8	**FILL:** clayey silt with sand layers, reddish brown, moist, firm		2	SS	4							
114.6							114					
1.5	**FILL:** sand, trace clay, trace gravel, brown, moist, loose		3	SS	9							
113.8												
2.3	**SAND AND GRAVEL:** some silt, trace clay, trace cobbles, brown, moist, compact to very dense		4	SS	50/ 100 mm		113					44 42 11 3
			5	SS	50/ 130 mm							
			6	SS	24		112					
	water at 5.5m		7	SS	29		111					
108.5							110					
7.6	**SILTY CLAY TILL:** sandy, trace gravel, grey, moist, hard		8	SS	34		109					
			9	SS	65		108					
106.4							107					
9.7	**END OF BOREHOLE:** Notes: 1) Water encountered at 5.5m during drilling.											

GROUNDWATER ELEVATIONS
Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES: +3, ×3: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

DS SOIL LOG-2021-FINAL 23-162-102GEO.GPJ DS.GDT 23-7-11

Particle Size Distribution (ASTM-D421/D422)



Silt and Clay		Sand			Gravel		Cobble +
Clay	Silt	Fine	Medium	Coarse	Fine	Coarse	

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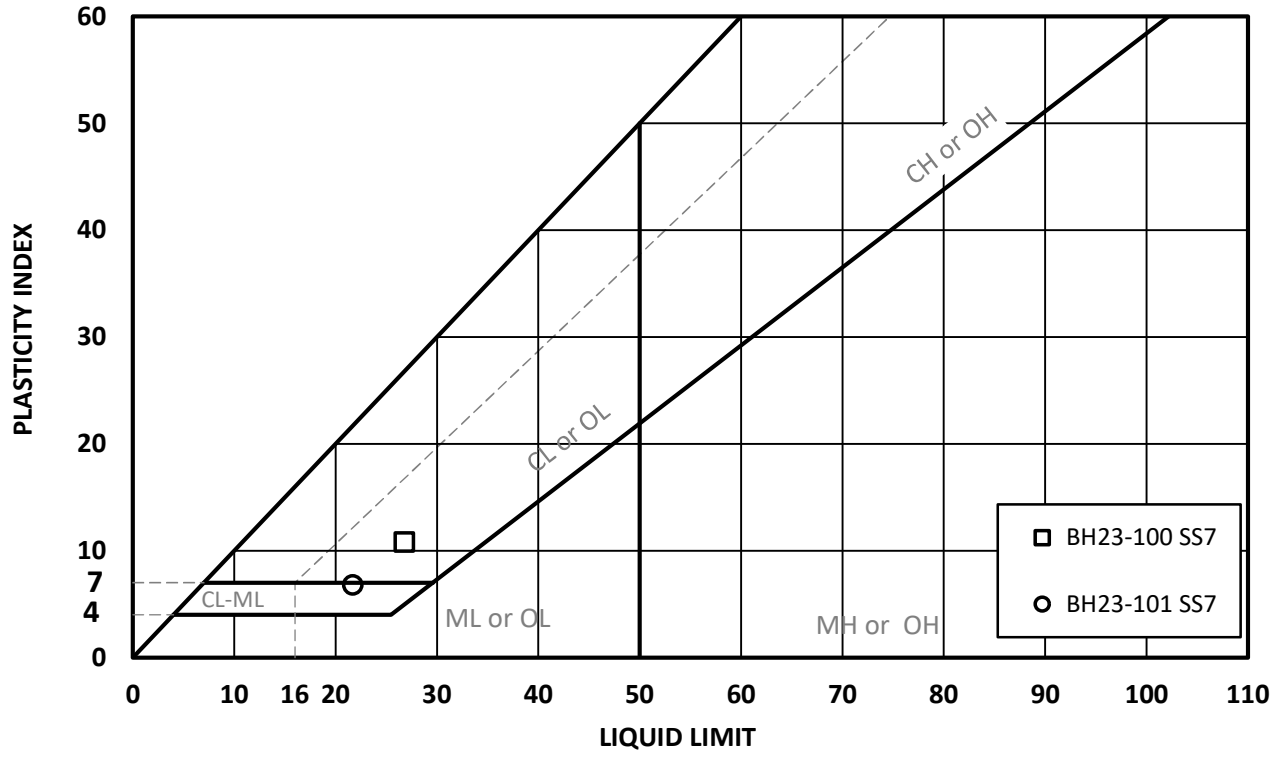
Project	**Geotechincal Investigation**	Project No	**23-162-102**
Location	**1720 Sherwood Forest Circle, Mississauga**	Date	**Jun/28/2023**
Client	**Argo Development Corporation**	Drawing No	6

Atterberg Test (ASTM D-4318)



Code	Sample ID	Sample No.		Moisture Contant (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	**USCS Symbol**
1	□	BH23-100	SS7	9	26.8	16	10.8	CL
2	○	BH23-101	SS7	9	21.7	14.9	6.8	CL-ML

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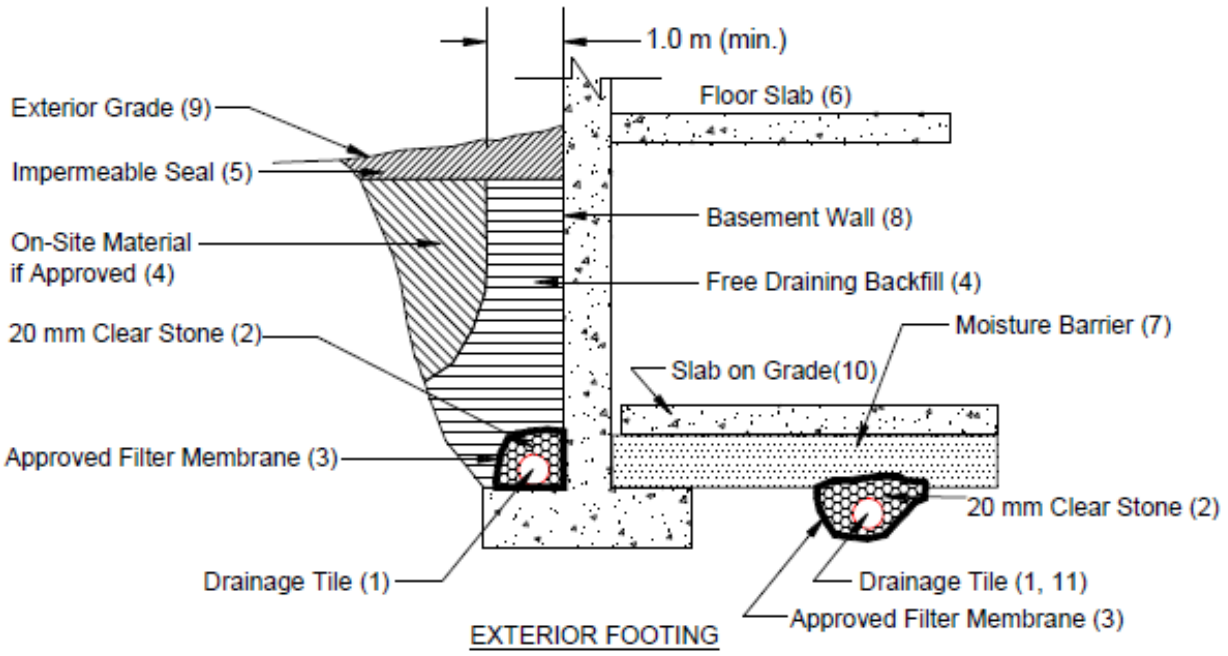
Project	**Geotechincal Investigation**	Project No	**23-162-102**
Location	**1720 Sherwood Forest Circle, Mississauga**	Date	**Jun/28/2023**
Client	**Argo Development Corporation**	Drawing No	7

Project: 23-162-102 **Drawing No. 8**



EXTERIOR FOOTING

Notes

1. Drainage tile to consist of 100 mm (4") diameter weeping tile or equivalent perforated pipe leading to a positive sump or outlet.
2. 20 mm (3/4") clear stone - 150 mm (6") top and side of drain. If drain is not on footing, place100 mm (4 inches) of stone below drain .
3. Wrap the clear stone with an approved filter membrane (Terrafix 270R or equivalent).
4. Free Draining backfill - OPSS Granular B or equivalent compacted to the specified density. Do not use heavy compaction equipment within 450 mm (18") of the wall. Use hand controlled light compaction equipment within 1.8 m (6') of wall. The minimum width of the Granular 'B' backfill must be 1.0 m.
5. Impermeable backfill seal - compacted clay, clayey silt or equivalent. If original soil is free-draining, seal may be omitted. Maximum thickness of seal to be 0.5 m.
6. Do not backfill until wall is supported by basement and floor slabs or adequate bracing.
7. Moisture barrier to be at least 200 mm (8") of compacted clear 20 mm (3/4") stone or equivalent free draining material. A vapour barrier may be required for specialty floors.
8. Basement wall to be damp proofed /water proofed.
9. Exterior grade to slope away from building.
10. Slab on grade should not be structurally connected to the wall or footing.
11. Underfloor drain invert to be at least 300 mm (12") below underside of floor slab.
12. Drainage tile placed in parallel rows 6 to 8 m (20 to 25') centers one way. Place drain on 100 mm (4") clear stone with 150 mm (6") of clear stone on top and sides. Enclose stone with filter fabric as noted in (3).
13. The entire subgrade to be sealed with approved filter fabric (Terrafix 270R or equivalent) if non-cohesive (sandy) soils below ground water table encountered.
14. Do not connect the underfloor drains to perimeter drains.
15. Review the geotechnical report for specific details.

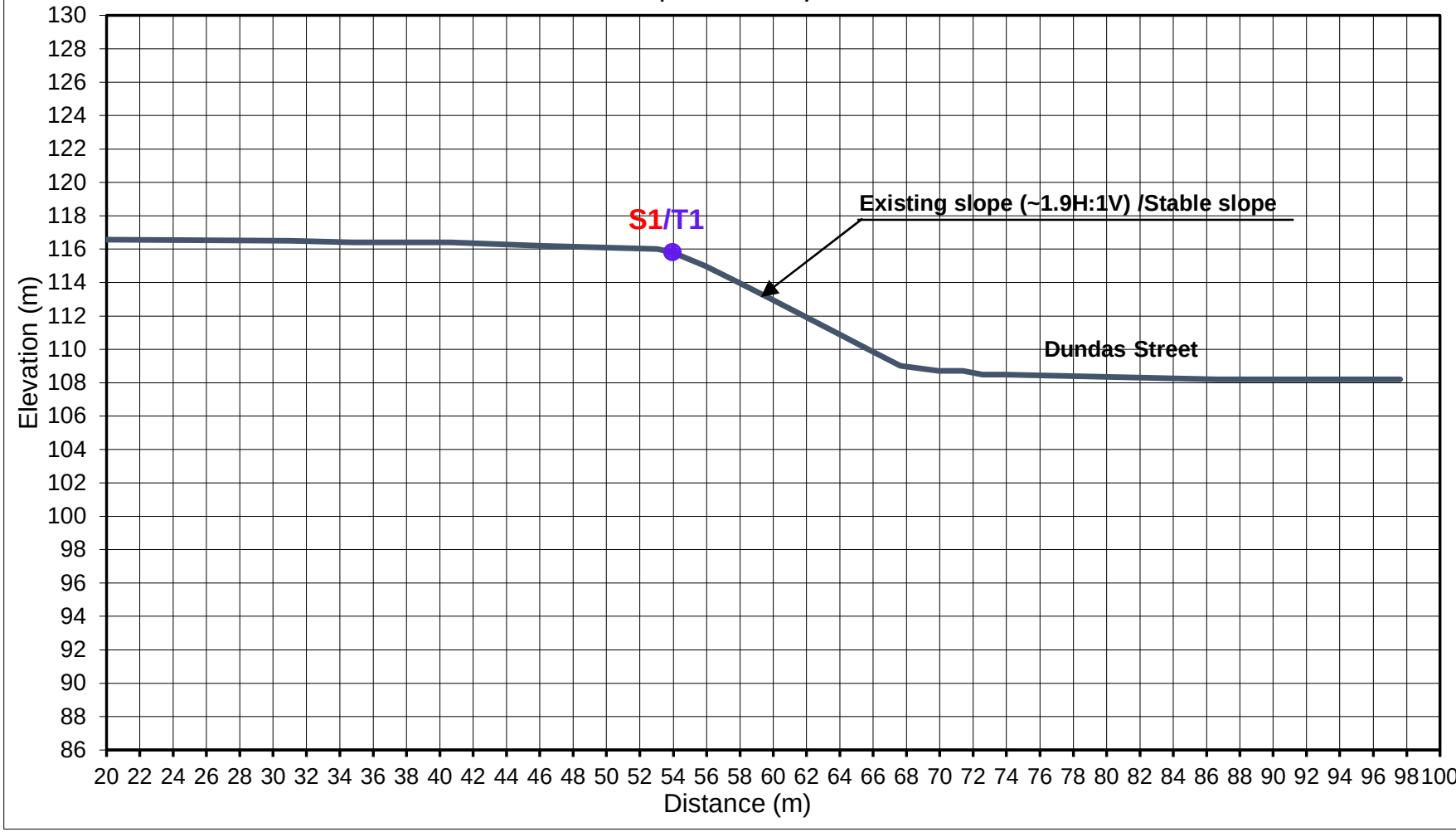
DRAINAGE AND BACKFILL RECOMMENDATIONS
Basement with Underfloor Drainage
(not to scale)

Project: 23-162-102 - Drawing 9

Slope Profile at **Section X1-X1** (See Drawing 1 for Location Plan)

Point '**S1**': Long-term stable top of slope (LTSTOS), same as **T1**

Point '**T1**': Staked Top of Bank by CVC

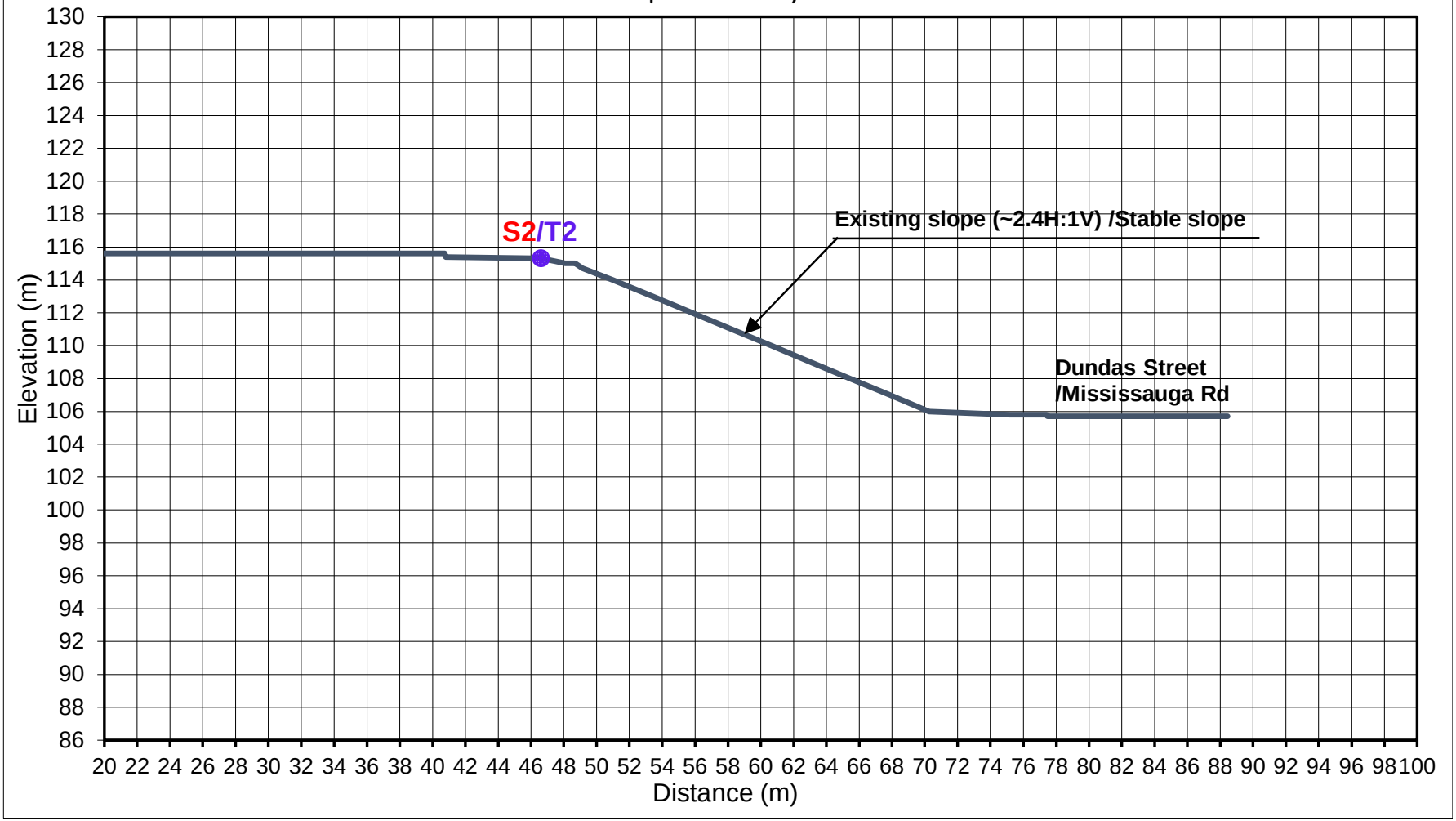


Project: 23-162-102 - Drawing 10

Slope Profile at **Section X2-X2** (See Drawing 1 for Location Plan)

Point '**S2**': Long-term stable top of slope (LTSTOS), same as **T2**

Point '**T2**': Staked Top of Bank by CVC

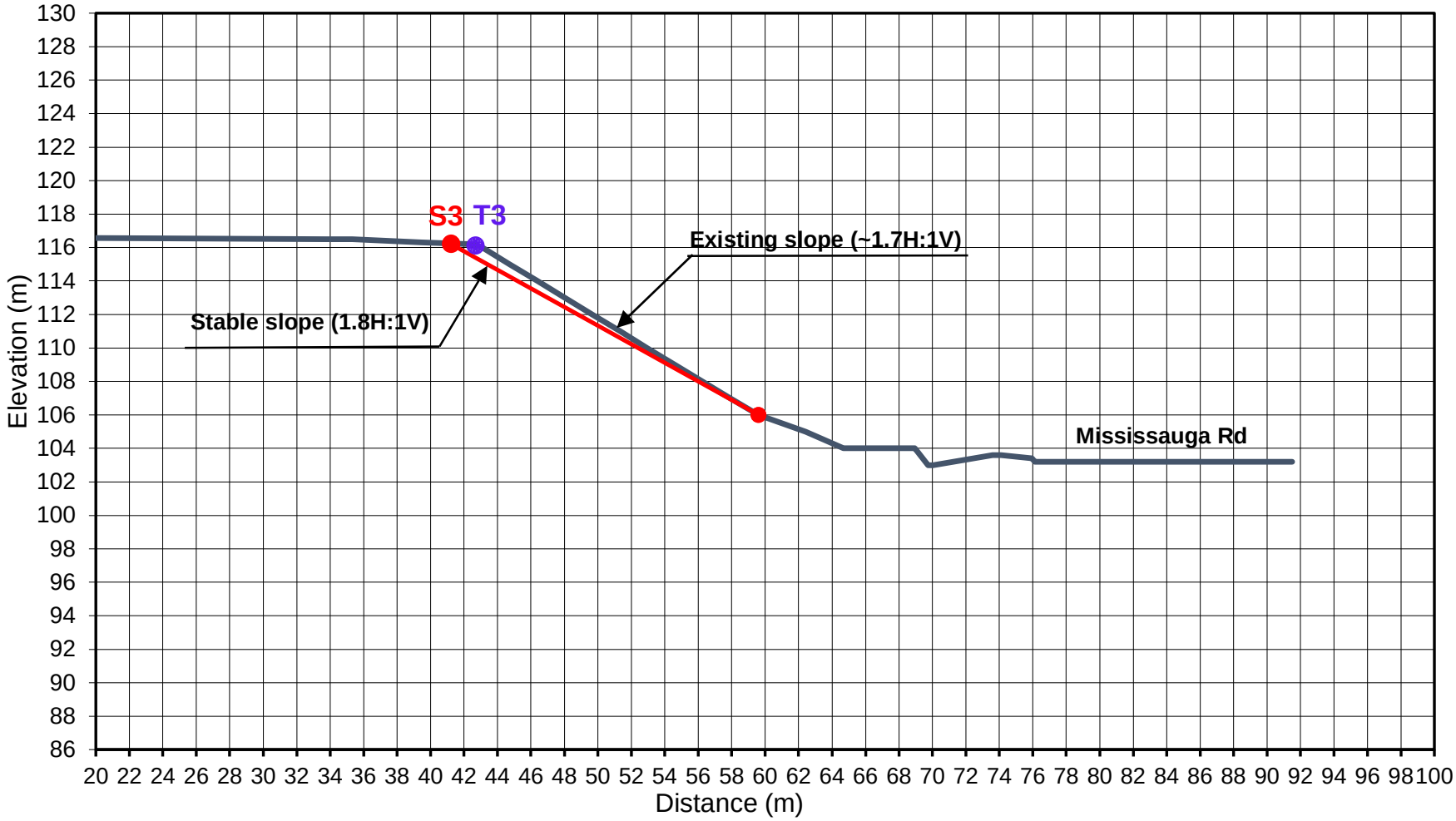


Project: 23-162-102 - Drawing 11

Slope Profile at **Section X3-X3** (See Drawing 1 for Location Plan)

Point '**S3**': Long-term stable top of slope (LTSTOS)

Point '**T3**': Staked Top of Bank by CVC

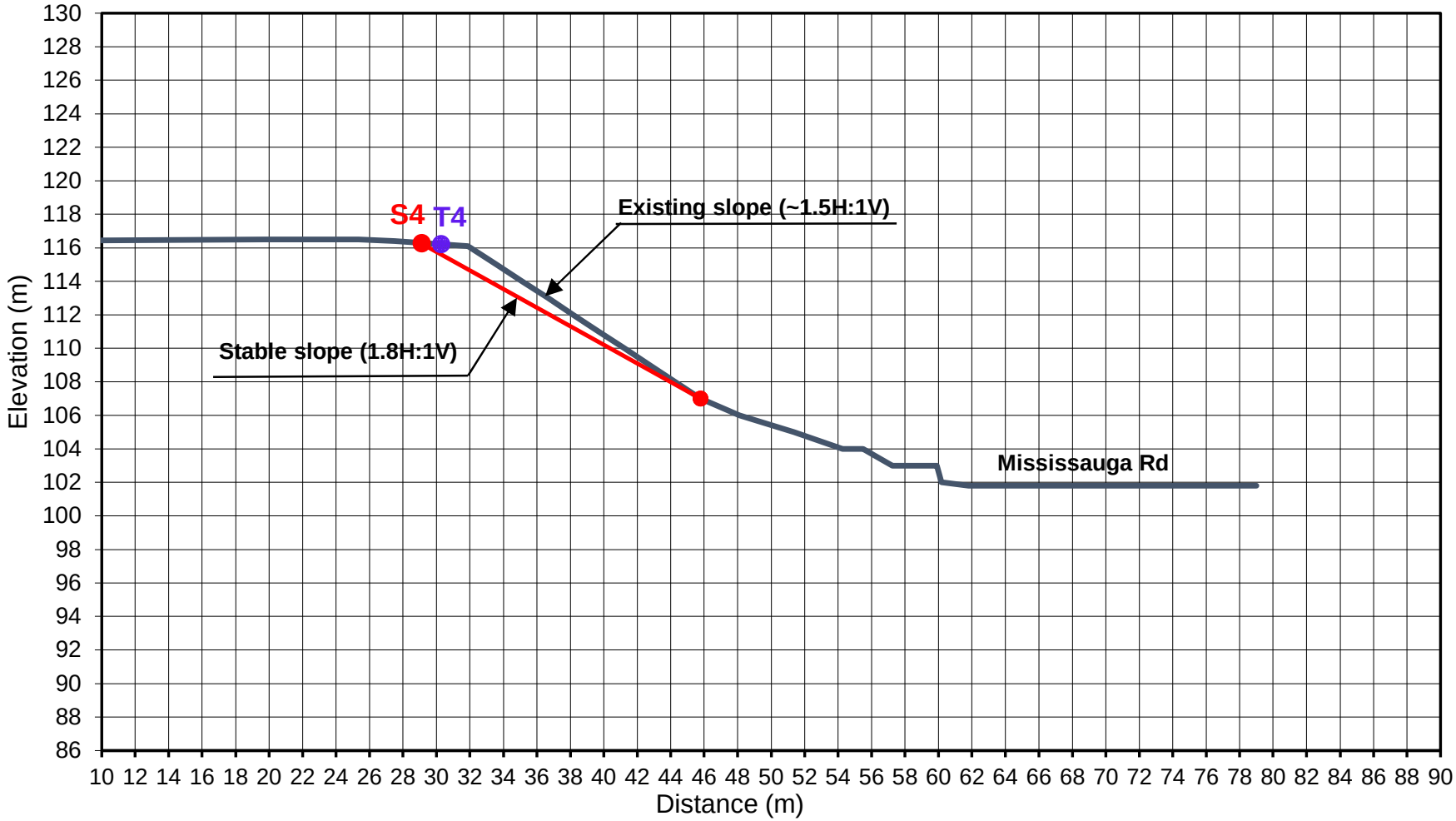


Project: 23-162-102 - Drawing 12

Slope Profile at **Section X4-X4** (See Drawing 1 for Location Plan)

Point '**S4**': Long-term stable top of slope (LTSTOS)

Point '**T4**': Staked Top of Bank by CVC

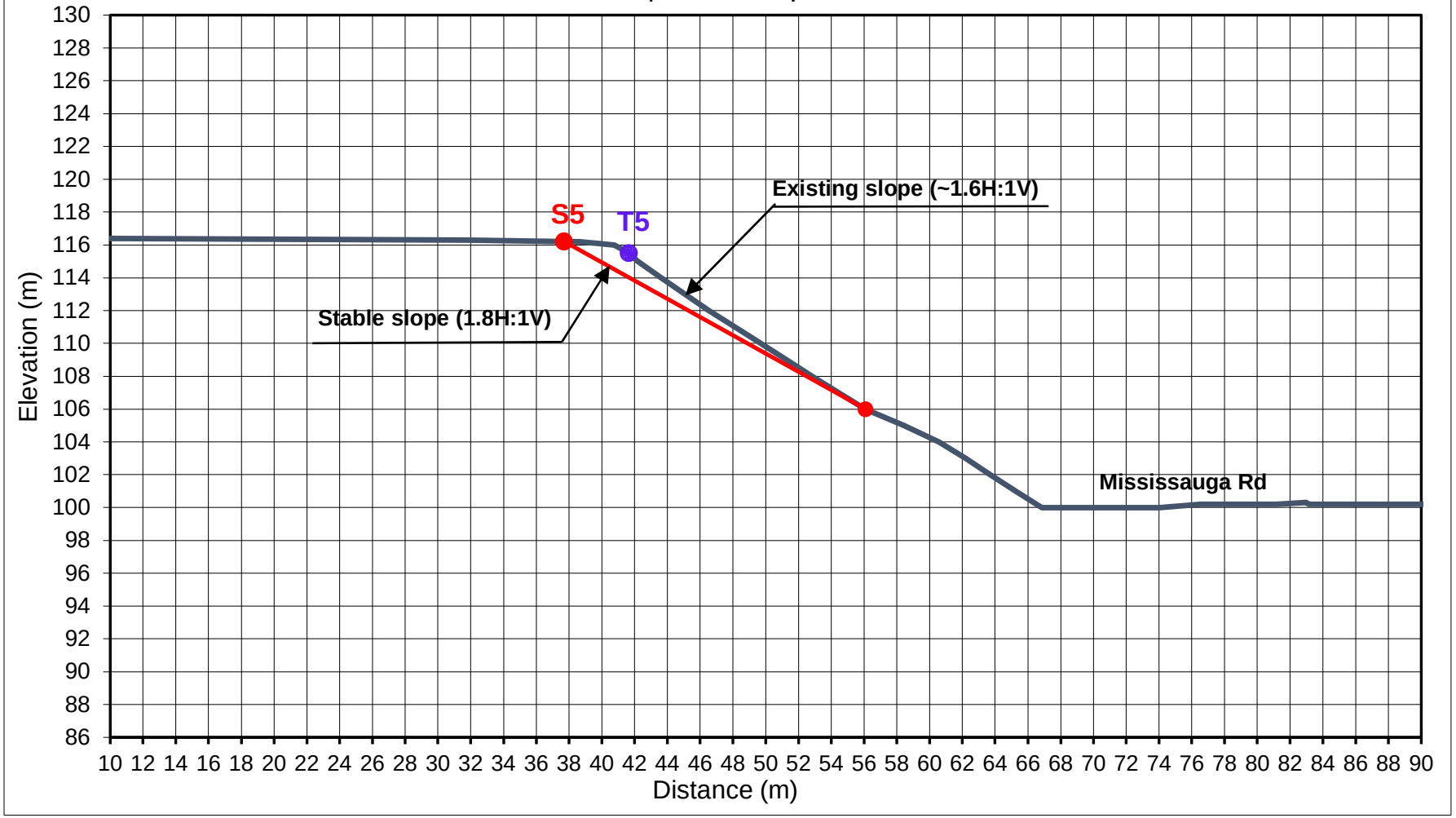


Project: 23-162-102 - Drawing 13

Slope Profile at **Section X5-X5** (See Drawing 1 for Location Plan)

Point '**S5**': Long-term stable top of slope (LTSTOS)

Point '**T5**': Staked Top of Bank by CVC

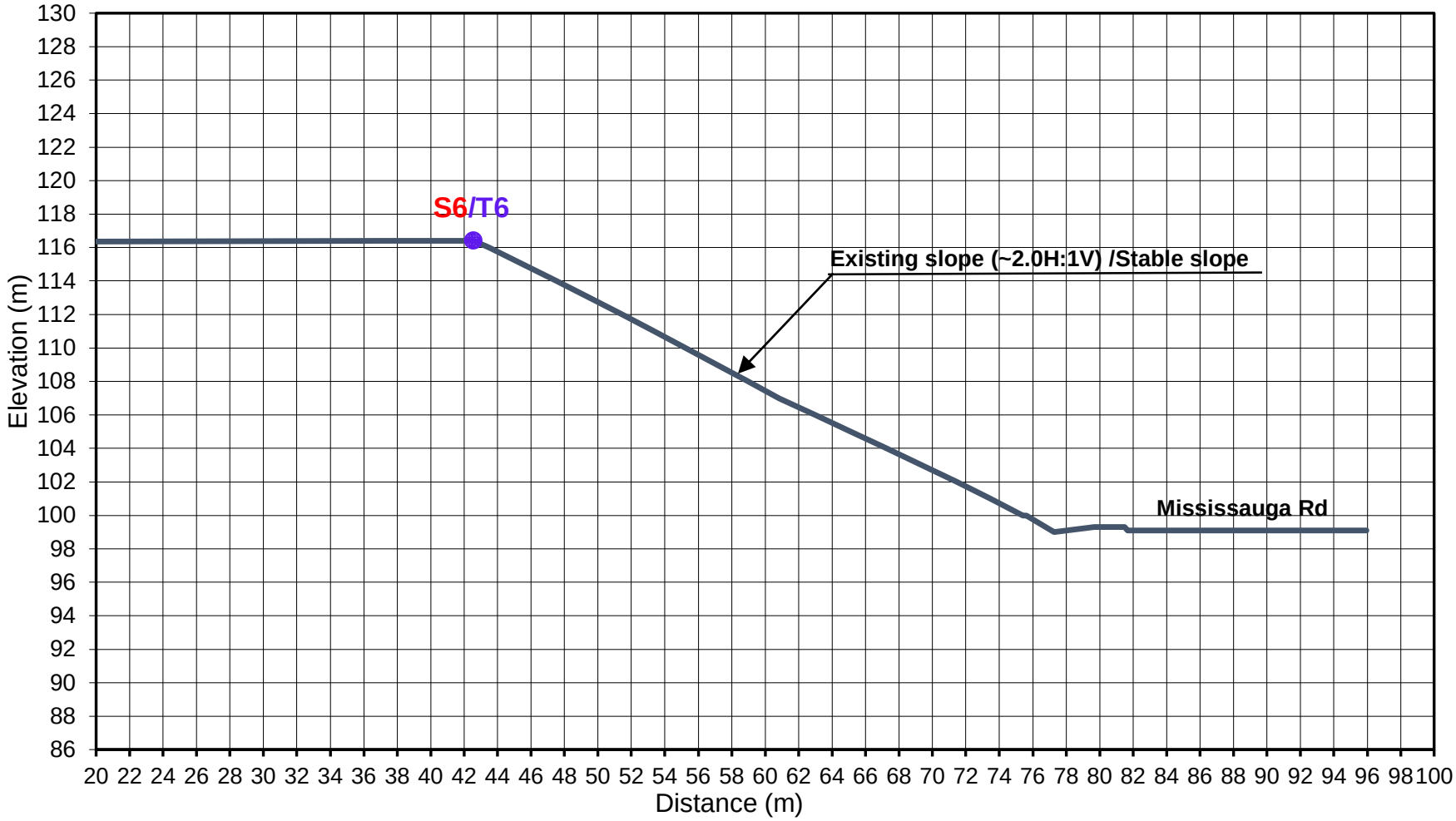


Project: 23-162-102 - Drawing 14

Slope Profile at **Section X6-X6** (See Drawing 1 for Location Plan)

Point 'S6': Long-term stable top of slope (LTSTOS), same as T6

Point 'T6': Staked Top of Bank by CVC

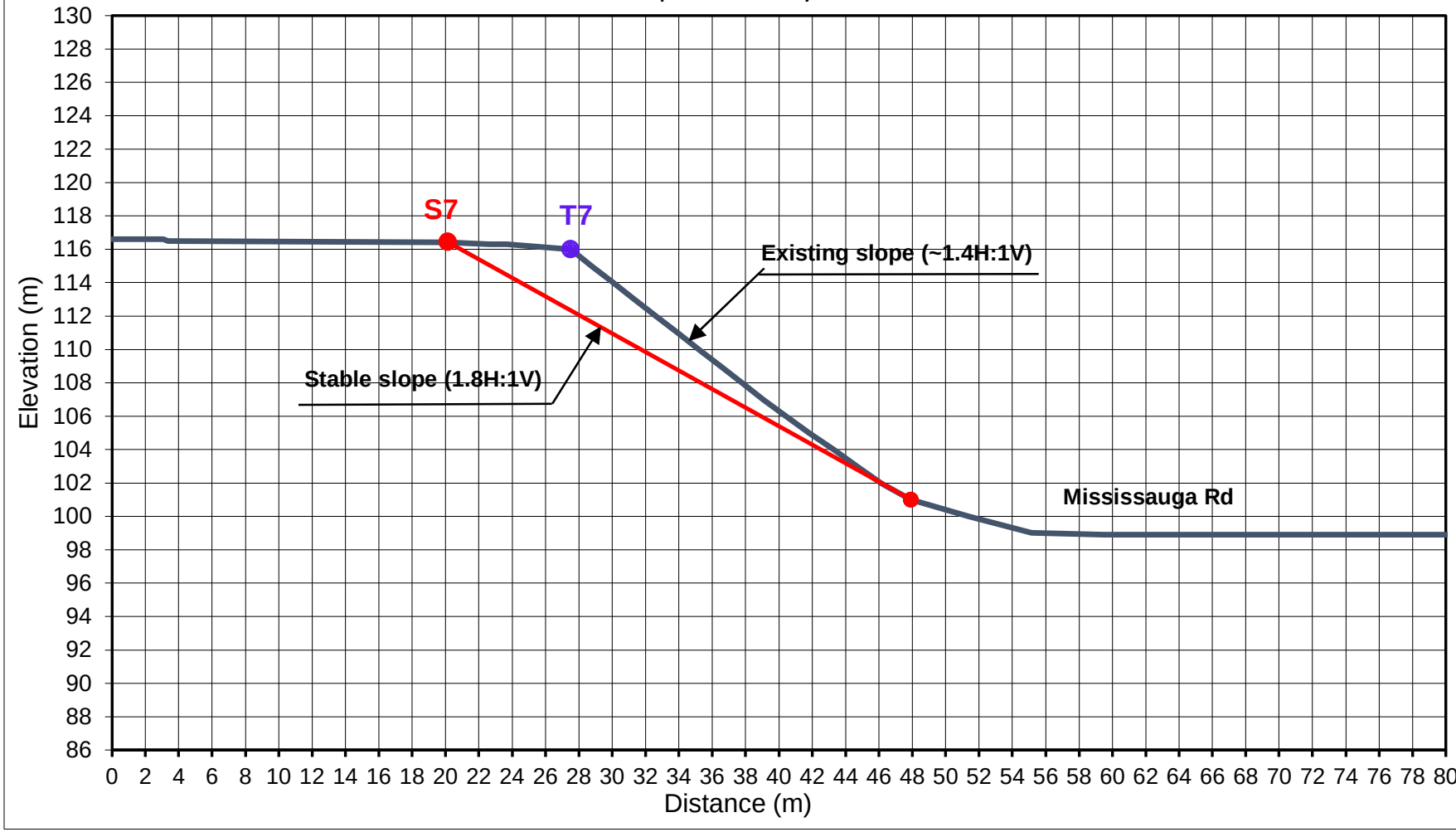


Project: 23-162-102 - Drawing 15

Slope Profile at **Section X7-X7** (See Drawing 1 for Location Plan)

Point '**S7**': Long-term stable top of slope (LTSTOS)

Point '**T7**': Staked Top of Bank by CVC

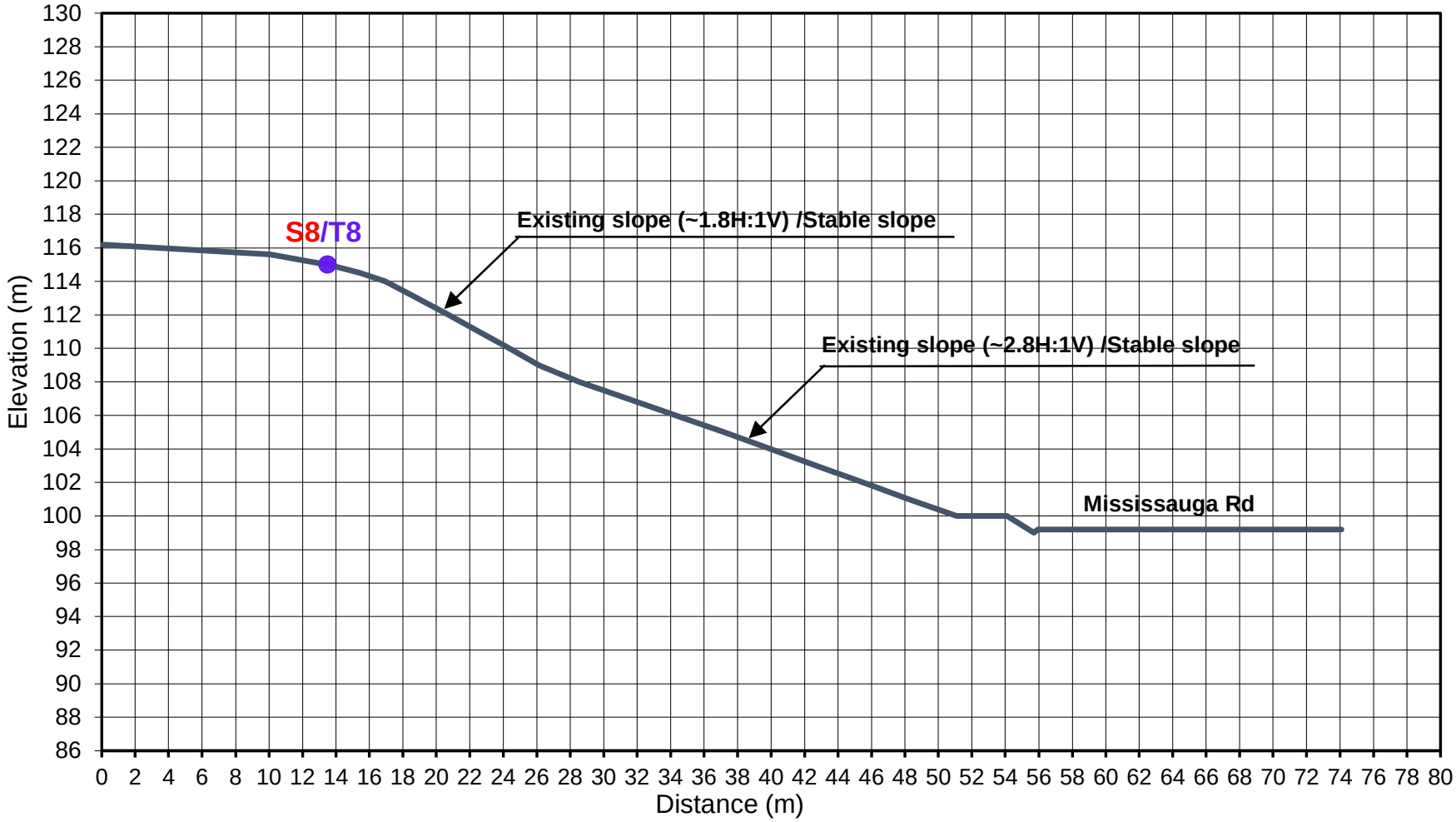


Project: 23-162-102 - Drawing 16

Slope Profile at **Section X8-X8** (See Drawing 1 for Location Plan)

Point '**S8**': Long-term stable top of slope (LTSTOS), same **as T8**

Point '**T8**': Staked Top of Bank by CVC

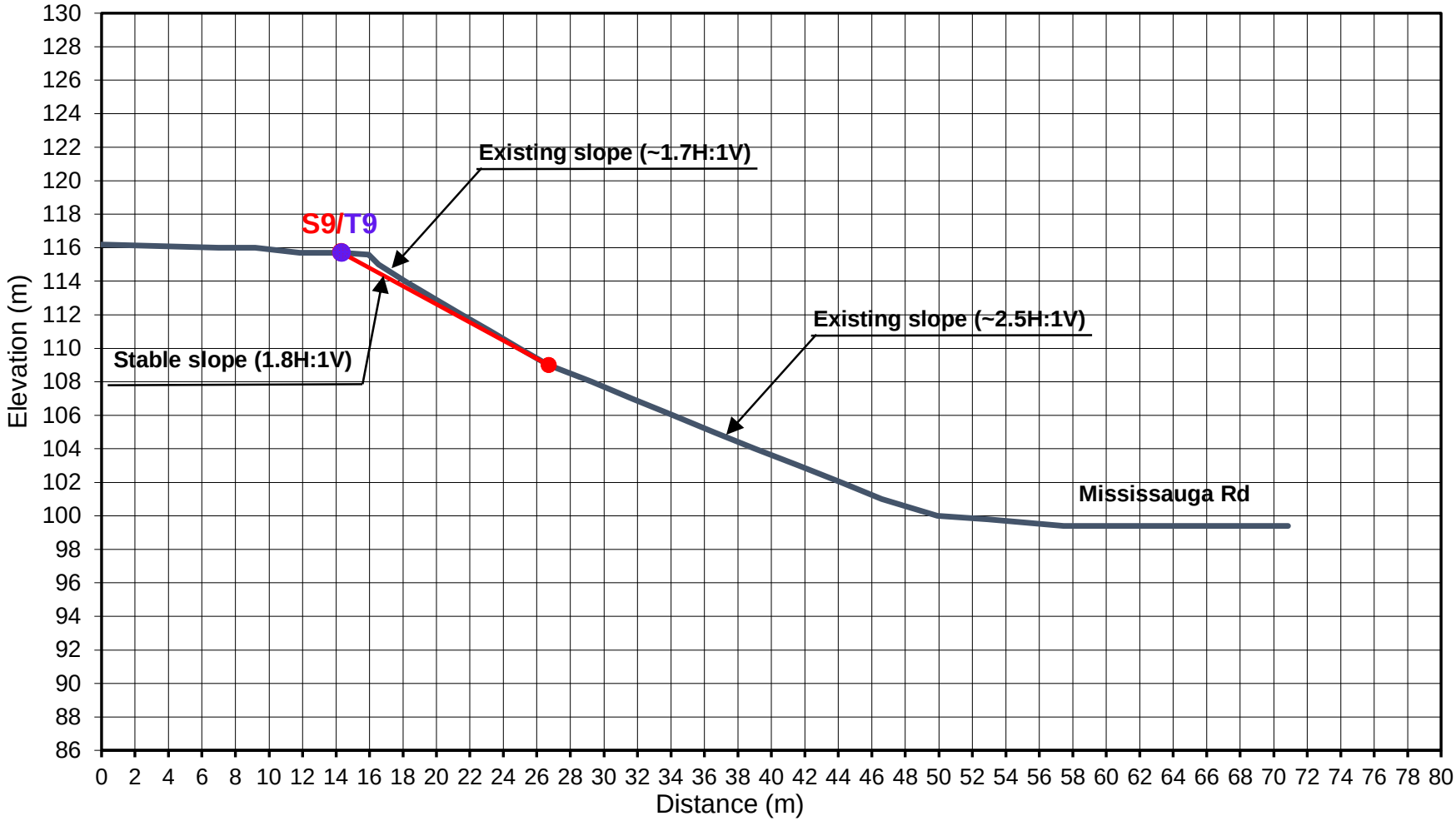


Project: 23-162-102 - Drawing 17

Slope Profile at **Section X9-X9** (See Drawing 1 for Location Plan)

Point 'S9': Long-term stable top of slope (LTSTOS), same as T9

Point 'T9': Staked Top of Bank by CVC

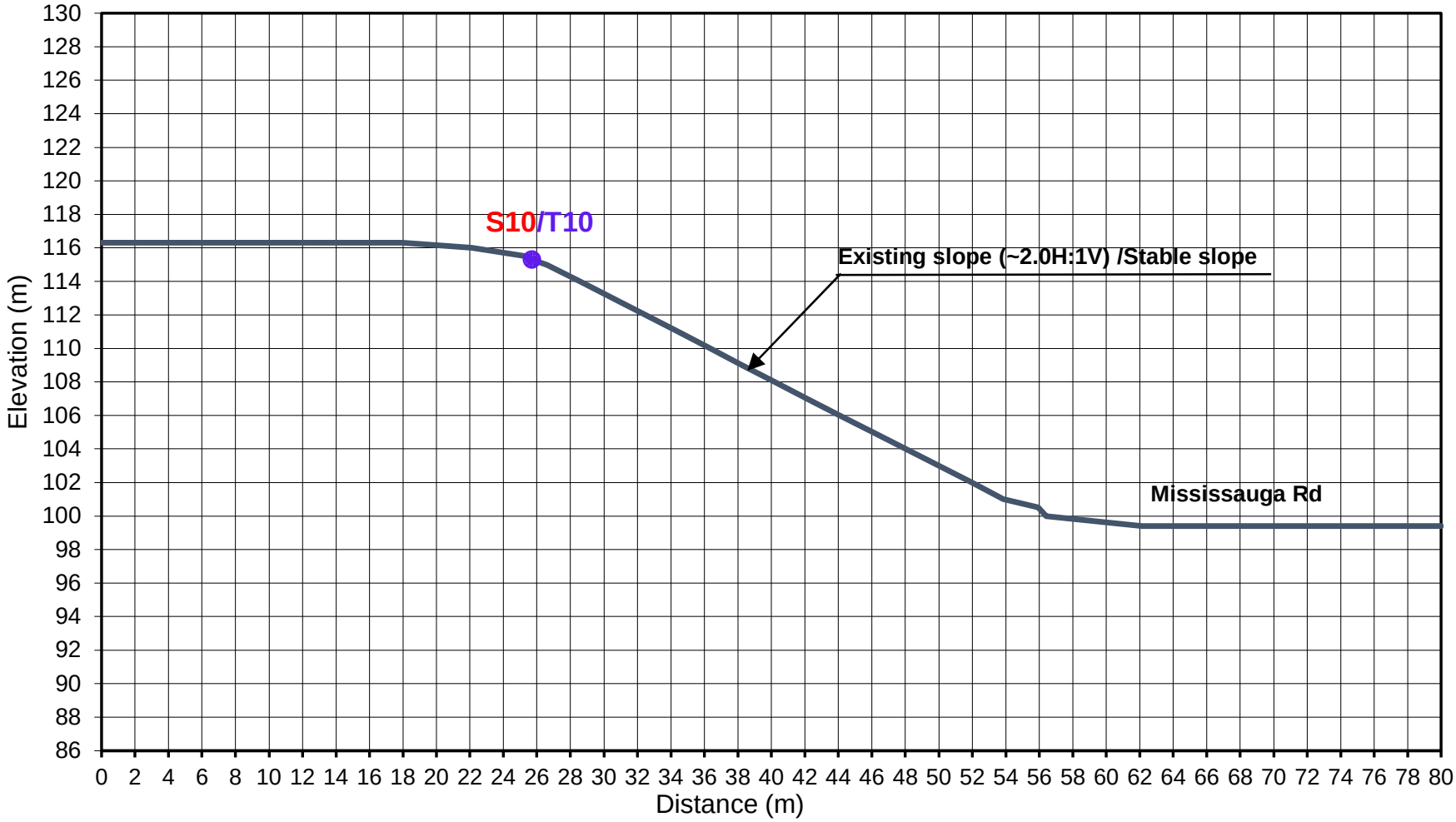


Project: 23-162-102 - Drawing 18

Slope Profile at **Section X10-X10** (See Drawing 1 for Location Plan)

Point '**S10**': Long-term stable top of slope (LTSTOS), same as **T10**

Point '**T10**': Staked Top of Bank by CVC

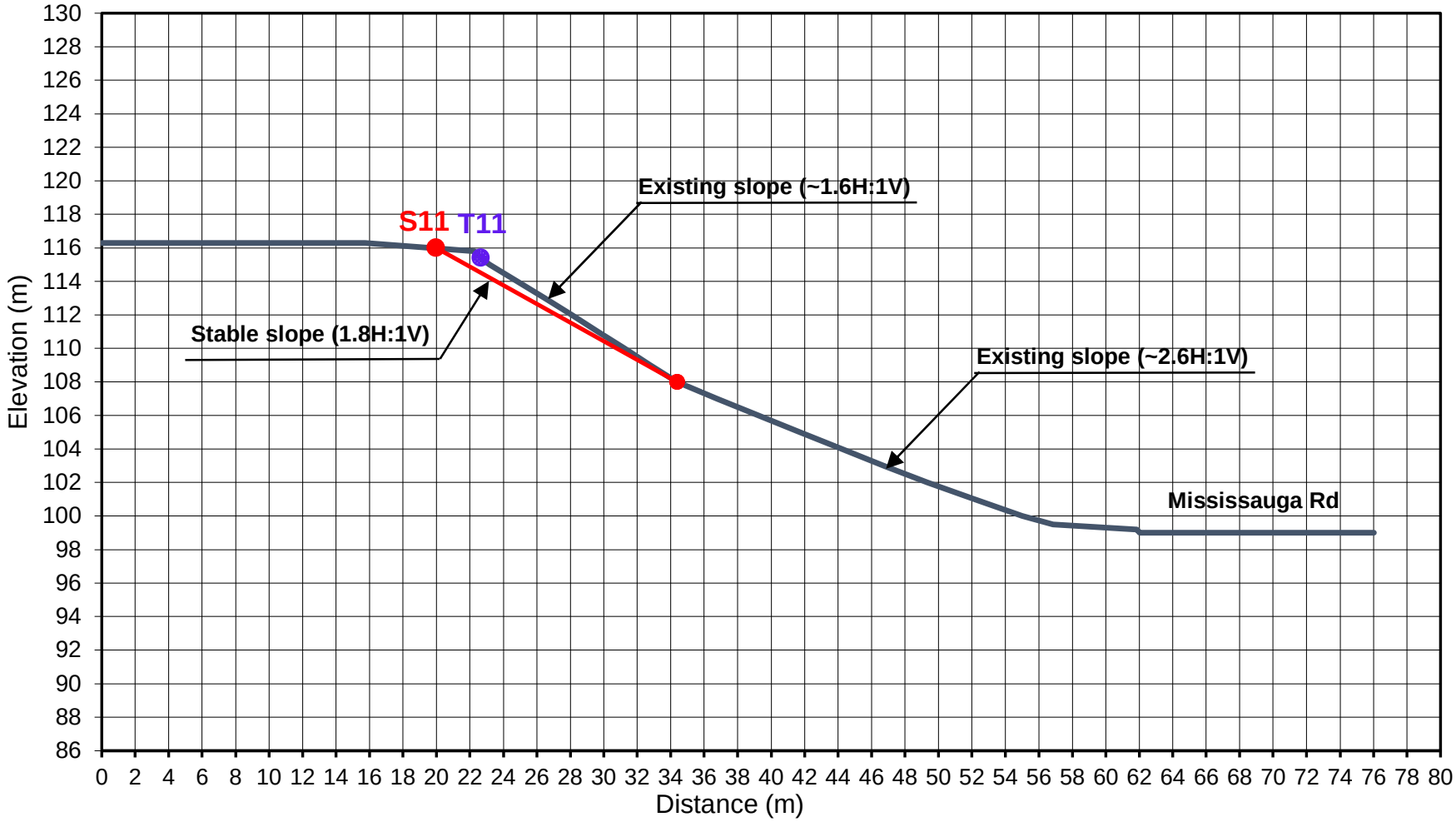


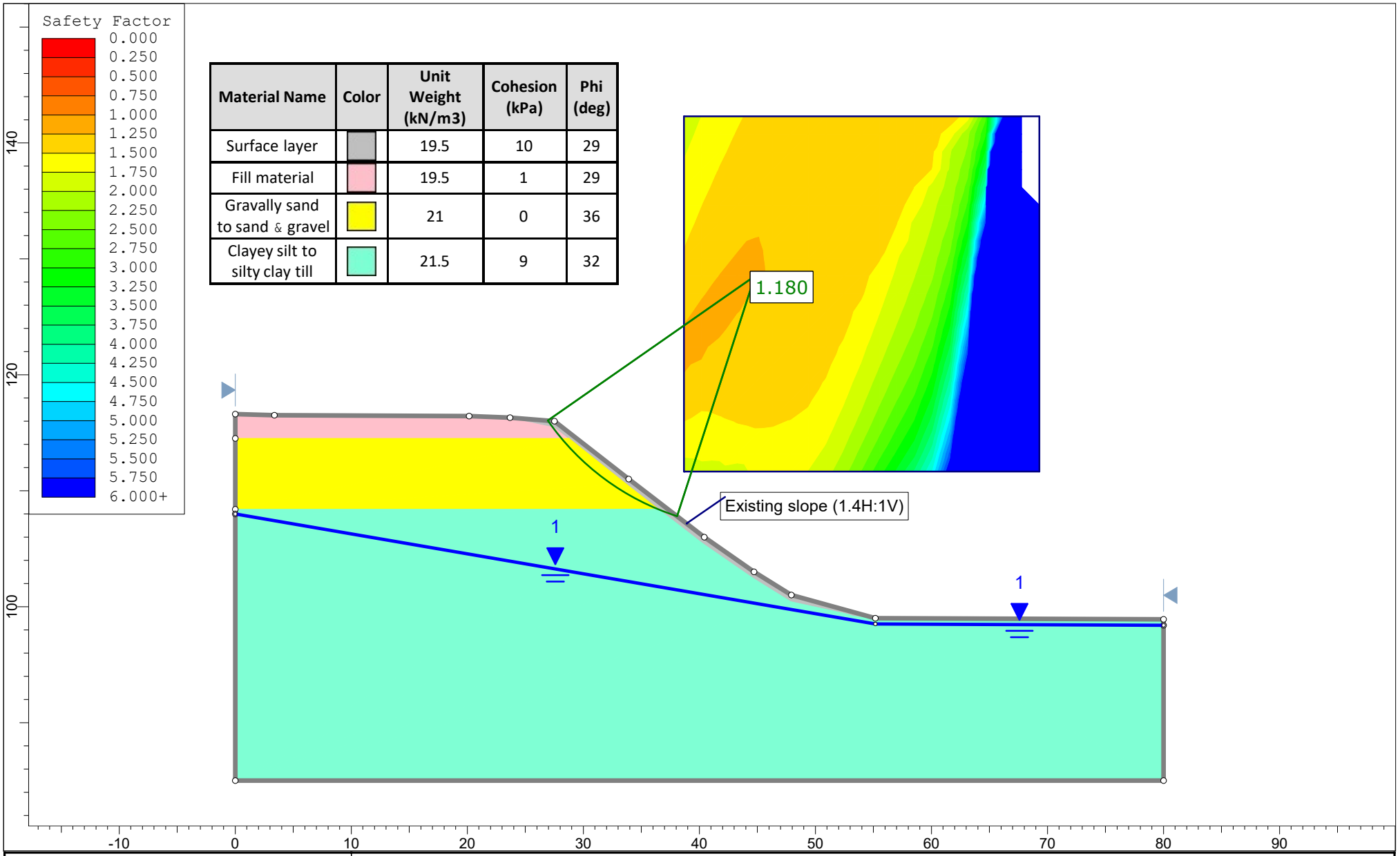
Project: 23-162-102 - Drawing 19

Slope Profile at **Section X11-X11** (See Drawing 1 for Location Plan)

Point '**S11**': Long-term stable top of slope (LTSTOS)

Point '**T11**': Staked Top of Bank by CVC



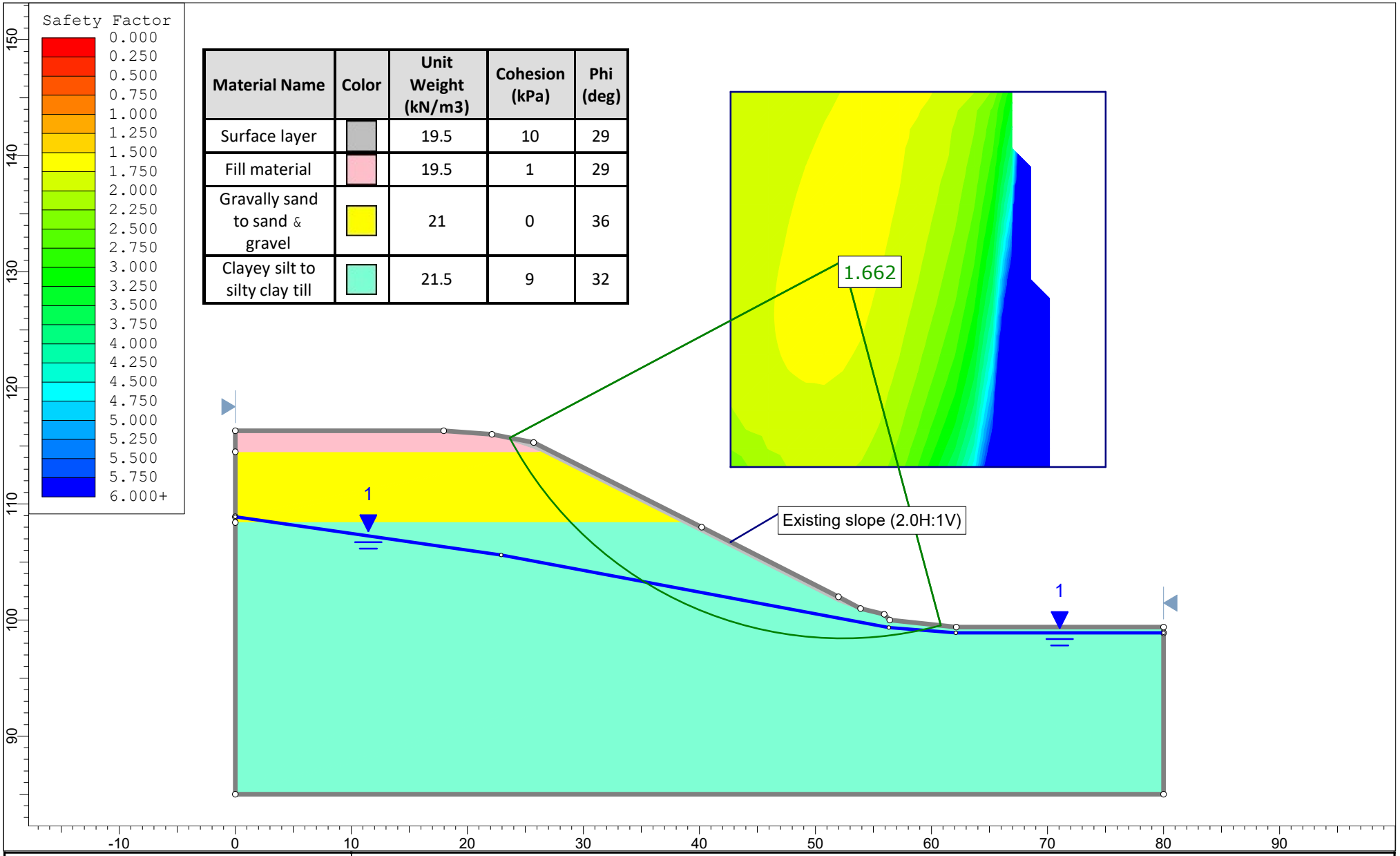


Material Name	Color	Unit Weight (kN/m3)	Cohesion (kPa)	Phi (deg)
Surface layer		19.5	10	29
Fill material		19.5	1	29
Gravally sand to sand & gravel		21	0	36
Clayey silt to silty clay till		21.5	9	32

rocscience

SLIDEINTERPRET 9.002

Project	23-162-102 - Long-term Slope Stability Analyses, 1720 Sherwood Forest Circle, Mississauga, ON		
Group	Group 1	*Scenario*	Master Scenario
Drawn By	DS	*Company*	DS Consultants Ltd.
Date	July 2023	*File Name*	Drawing 20 - Existing Slope at X7-X7.slmd

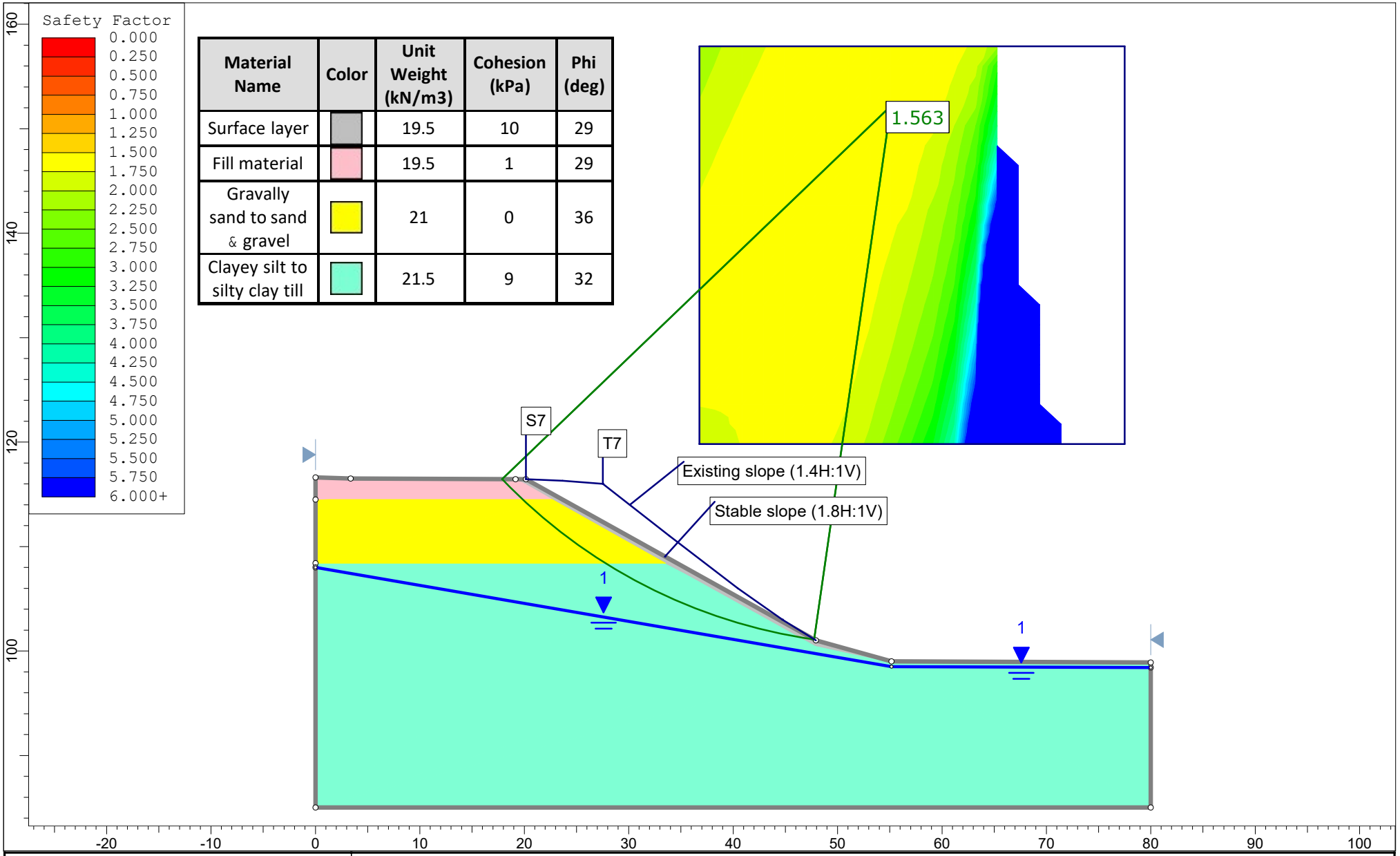


Material Name	Color	Unit Weight (kN/m3)	Cohesion (kPa)	Phi (deg)
Surface layer		19.5	10	29
Fill material		19.5	1	29
Gravally sand to sand & gravel		21	0	36
Clayey silt to silty clay till		21.5	9	32

rocscience

SLIDEINTERPRET 9.002

Project	23-162-102 - Long-term Slope Stability Analyses, 1720 Sherwood Forest Circle, Mississauga, ON		
Group	Group 1	*Scenario*	Master Scenario
Drawn By	DS	*Company*	DS Consultants Ltd.
Date	July 2023	*File Name*	Drawing 21 - Existing Slope at X10-X10.slmd



Material Name	Color	Unit Weight (kN/m3)	Cohesion (kPa)	Phi (deg)
Surface layer		19.5	10	29
Fill material		19.5	1	29
Gravally sand to sand & gravel		21	0	36
Clayey silt to silty clay till		21.5	9	32

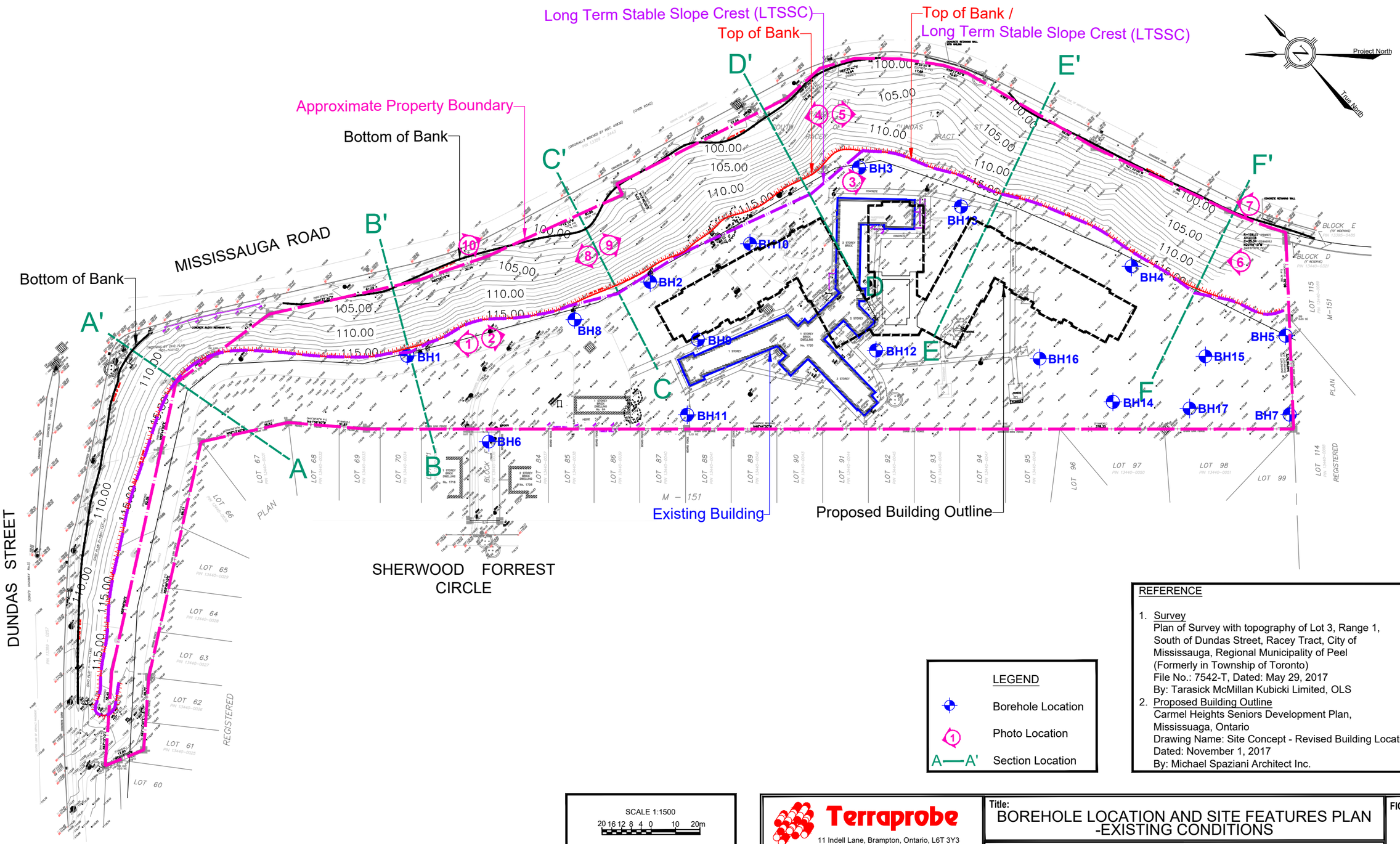
rocscience

SLIDEINTERPRET 9.002

Project	23-162-102 - Long-term Slope Stability Analyses, 1720 Sherwood Forest Circle, Mississauga, ON		
Group	Group 1	Scenario	Master Scenario
Drawn By	DS	Company	DS Consultants Ltd.
Date	July 2023	File Name	Drawing 22 - Stable Slope at X7-X7.slmd

Appendix A

Location Plan and Logs of Previous Boreholes (BH1 to BH17) Drilled By Terraprobe in 2017



REFERENCE

1. Survey
   Plan of Survey with topography of Lot 3, Range 1, South of Dundas Street, Racey Tract, City of Mississauga, Regional Municipality of Peel (Formerly in Township of Toronto)
   File No.: 7542-T, Dated: May 29, 2017
   By: Tarasick McMillan Kubicki Limited, OLS
2. Proposed Building Outline
   Carmel Heights Seniors Development Plan, Mississauga, Ontario
   Drawing Name: Site Concept - Revised Building Location
   Dated: November 1, 2017
   By: Michael Spaziani Architect Inc.

LEGEND

- Borehole Location
- Photo Location
- A—A' Section Location

SCALE 1:1500

20 16 12 8 4 0 10 20m

Terraprobe
11 Indell Lane, Brampton, Ontario, L6T 3Y3
Tel: (905) 796-2650 Fax: (905) 796-2250

Title: BOREHOLE LOCATION AND SITE FEATURES PLAN -EXISTING CONDITIONS

File No. 1-17-0362-01

FIGURE : 2

Terraprobe

LOG OF BOREHOLE 1

Project No. : 1-17-0362-01	Client : Mississauga Seniors Land Corp	Originated by : FA
Date started : July 18, 2017	Project : 1720 Sherwood Forrest Circle	Compiled by : NNA
Sheet No. : 1 of 2	Location : Mississauga, ON	Checked by : MT

Position : E: 608399, N: 4821838 (UTM 17T) Elevation Datum : Geodetic

Rig type : Truck-mounted Drilling Method : Solid stem augers

Depth Scale (m)	Elev / Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value	Elevation Scale (m)	Penetration Test Values (Blows / 0.3m) / Undrained Shear Strength (kPa)	Moisture / Plasticity	Headspace Vapour (ppm)	Instrument Details	Unstabilized Water Level	Lab Data and Comments
	116.2	**GROUND SURFACE**						Dynamic Cone 10 20 30 40; Unconfined, Pocket Penetrometer, Field Vane, Lab Vane 40 80 120 160	Plastic Limit, Natural Water Content, Liquid Limit PL MC LL 10 20 30				GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL
0	116.0 / 0.2	150mm **TOPSOIL**					116						
		FILL, sandy silt, trace to some gravel, trace to some clay, trace organics, roots, loose, brown, damp to moist		1	SS	5							
1				2	SS	8	115						
	114.7 / 1.5	**SAND AND GRAVEL**, trace to some silt, trace clay, compact to very dense, brown, damp to moist		3	SS	28							
2							114						
		...sandy gravel		4	SS	52							55 34 9 2
3				5	SS	48	113						
													...at 3.7m, Auger grinding
4							112						
	111.6 / 4.6	**CLAYEY SILT**, trace gravel, trace to some sand, hard, grey, damp to moist (GLACIAL TILL)		6	SS	34							
5							111						
													...at 5.8m, Auger grinding
6				7	SS	37	110						...at 6.1m, Spoon wet
7							109						
				8	SS	75							
8							108						
9				9	SS	85	107						
10													

(continued next page)

LOG OF BOREHOLE 1

Terraprobe

Project No. : 1-17-0362-01	Client : Mississauga Seniors Land Corp	Originated by : FA
Date started : July 18, 2017	Project : 1720 Sherwood Forrest Circle	Compiled by : NNA
Sheet No. : 2 of 2	Location : Mississauga, ON	Checked by : MT

Position : E: 608399, N: 4821838 (UTM 17T) Elevation Datum : Geodetic

Rig type : Truck-mounted Drilling Method : Solid stem augers

Depth Scale (m)	Elev / Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value	Elevation Scale (m)
		(continued)					
11		**CLAYEY SILT**, trace gravel, trace to some sand, hard, grey, damp to moist (GLACIAL TILL) *(continued)*		10	SS	95 / 225mm	106
							105
12				11	SS	50 / 125mm	104
13							103
14				12	SS	53	102
15	100.7 / 15.5	...shale fragments		13	SS	50 / 150mm	101

Penetration Test Values (Blows / 0.3m): Dynamic Cone 10 20 30 40

Undrained Shear Strength (kPa): Unconfined, Pocket Penetrometer, Field Vane, Lab Vane — 40 80 120 160

Moisture / Plasticity: Plastic Limit (PL) 10, Natural Water Content (MC) 20, Liquid Limit (LL) 30

Headspace Vapour (ppm)

Instrument Details

Unstabilized Water Level

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL

...at 10.7m, Auger grinding

END OF BOREHOLE

Borehole was dry and open upon completion of drilling.

50 mm dia. monitoring well installed.
10' screen installed.

WATER LEVEL READINGS

Date	Water Depth (m)	Elevation (m)
Aug 1, 2017	13.3	102.9

file: 1-17-0362-01 bh logs.gpj

LOG OF BOREHOLE 2

Terraprobe

Project No. : 1-17-0362-01	Client : Mississauga Seniors Land Corp	Originated by : FA
Date started : July 17, 2017	Project : 1720 Sherwood Forrest Circle	Compiled by : NNA
Sheet No. : 1 of 2	Location : Mississauga, ON	Checked by : MT

Position : E: 608492, N: 4821795 (UTM 17T) Elevation Datum : Geodetic

Rig type : Truck-mounted Drilling Method : Solid stem augers

Depth Scale (m)	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value
0	116.2	**GROUND SURFACE**				
		65mm **ASPHALTIC CONCRETE**				
		430mm **AGGREGATE**		1	SS	10
	115.7 / 0.5					
	115.4 / 0.8	**FILL**, sandy silt, trace gravel, trace clay, loose, brown, damp to moist				
1		**FILL**, sand, some silt, trace gravel, trace clay, loose, brown, moist		2	SS	8
	114.7 / 1.5					
2		**GRAVELLY SAND to SAND AND GRAVEL**, trace to some silt, trace clay, dense to very dense, brown, damp		3	SS	66
				4	SS	41
3				5	SS	83 / 275mm
4						
	111.4 / 4.8			6A	SS	21
5		**CLAYEY SILT**, some sand to sandy, trace gravel, very stiff, grey, damp to moist (GLACIAL TILL)		6B		
6				7	SS	29
7						
		...hard below		8	SS	34
8						
9				9	SS	53
10						

Elevation Scale (m): 116, 115, 114, 113, 112, 111, 110, 109, 108, 107

Penetration Test Values (Blows / 0.3m): Dynamic Cone 10 20 30 40

Undrained Shear Strength (kPa): Unconfined, Pocket Penetrometer, Field Vane, Lab Vane — 40 80 120 160

Moisture / Plasticity: Plastic Limit, Natural Water Content, Liquid Limit — PL MC LL — 10 20 30

Headspace Vapour (ppm)

Instrument Details

Unstabilized Water Level

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%) (MIT)

GR SA SI CL

9 10 28 40 22

(continued next page)

LOG OF BOREHOLE 2

Terraprobe

Project No. : 1-17-0362-01	Client : Mississauga Seniors Land Corp	Originated by : FA
Date started : July 17, 2017	Project : 1720 Sherwood Forrest Circle	Compiled by : NNA
Sheet No. : 2 of 2	Location : Mississauga, ON	Checked by : MT

Position : E: 608492, N: 4821795 (UTM 17T) Elevation Datum : Geodetic

Rig type : Truck-mounted Drilling Method : Solid stem augers

Depth Scale (m)	Elev / Depth (m)	Description (continued)	Graphic Log	Number	Type	SPT 'N' Value	Elevation Scale (m)
		CLAYEY SILT, some sand to sandy, trace gravel, very stiff, grey, damp to moist (GLACIAL TILL) *(continued)* ...shale fragments					106
11				10	SS	62	105
12				11	SS	92 / 275mm	104
13							103
14				12	SS	50 / 125mm	102
15	100.5 / 15.7			13	SS	35	101

Penetration Test Values (Blows / 0.3m) — Dynamic Cone: 10, 20, 30, 40

Undrained Shear Strength (kPa) — Unconfined, Pocket Penetrometer, Field Vane, Lab Vane: 40, 80, 120, 160

Moisture / Plasticity — Plastic Limit (PL), Natural Water Content (MC), Liquid Limit (LL): 10, 20, 30

Headspace Vapour (ppm) | Instrument Details | Unstabilized Water Level | Lab Data and Comments | GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL

END OF BOREHOLE

Borehole was dry and open upon completion of drilling.

file: 1-17-0362-01 bh logs.gpj

LOG OF BOREHOLE 3

Terraprobe

Project No. : 1-17-0362-01	Client : Mississauga Seniors Land Corp	Originated by : FA
Date started : July 18, 2017	Project : 1720 Sherwood Forrest Circle	Compiled by : NNA
Sheet No. : 1 of 2	Location : Mississauga, ON	Checked by : MT

Position : E: 608586, N: 4821772 (UTM 17T) Elevation Datum : Geodetic

Rig type : Truck-mounted Drilling Method : Solid stem augers

Depth Scale (m)	Elev / Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value	Elevation Scale (m)
0	115.8	**GROUND SURFACE**					
	115.4 / 0.4	390mm **TOPSOIL**		1	SS	12	
	115.0 / 0.8	**FILL**, clayey silt, some sand, trace gravel, stiff, brown, moist					
1	114.3 / 1.5	**FILL**, sandy silt, trace gravel, trace to some clay, loose, brown, damp		2	SS	8	115
2		**SAND AND GRAVEL**, trace to some silt, trace clay, very dense, brown, damp to moist		3	SS	81 / 250mm	114
				4	SS	50 / 115mm	
3				5	SS	81 / 275mm	113
4							112
5		...sandy gravel, dense		6	SS	49	111
6				7	SS	50 / 125mm	110
7	108.2 / 7.6						109
8		**CLAYEY SILT**, trace gravel, trace to some sand, hard, grey, damp to moist (GLACIAL TILL)		8	SS	44	108
9				9	SS	52	107
10							106

Penetration Test Values (Blows / 0.3m)
× Dynamic Cone
10 20 30 40
Undrained Shear Strength (kPa)
○ Unconfined + Field Vane
● Pocket Penetrometer ■ Lab Vane
40 80 120 160

Moisture / Plasticity
Plastic Limit | Natural Water Content | Liquid Limit
PL MC LL
10 20 30

Headspace Vapour (ppm)

Instrument Details

Unstabilized Water Level

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%) (MIT)
GR SA SI CL

...at 2.4m, Auger grinding

...at 3.4m, Auger grinding

(continued next page)

LOG OF BOREHOLE 3

Terraprobe

Project No. : 1-17-0362-01	Client : Mississauga Seniors Land Corp	Originated by : FA
Date started : July 18, 2017	Project : 1720 Sherwood Forrest Circle	Compiled by : NNA
Sheet No. : 2 of 2	Location : Mississauga, ON	Checked by : MT

Position : E: 608586, N: 4821772 (UTM 17T) Elevation Datum : Geodetic

Rig type : Truck-mounted Drilling Method : Solid stem augers

Depth Scale (m)	Elev / Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value	Elevation Scale (m)
		(continued)					
11		**CLAYEY SILT**, trace gravel, trace to some sand, hard, grey, damp to moist (GLACIAL TILL) *(continued)*		10	SS	77	105
12				11	SS	93 / 275mm	104
13							103
14		...shale fragments below		12	SS	92	102
15	100.3 / 15.5			13	SS	50 / 125mm	101

Penetration Test Values (Blows / 0.3m): Dynamic Cone 10 20 30 40

Undrained Shear Strength (kPa): Unconfined, Pocket Penetrometer, Field Vane, Lab Vane — 40 80 120 160

Moisture / Plasticity: Plastic Limit (PL) — Natural Water Content (MC) — Liquid Limit (LL) — 10 20 30

Headspace Vapour (ppm)

Instrument Details

Unstabilized Water Level

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL

END OF BOREHOLE

Borehole was dry and open upon completion of drilling.

50 mm dia. monitoring well installed.
10' screen installed.

WATER LEVEL READINGS

Date	Water Depth (m)	Elevation (m)
Aug 1, 2017	14.8	101.0

file: 1-17-0362-01 bh logs.gpj

LOG OF BOREHOLE 4

Terraprobe

Project No. : 1-17-0362-01	Client : Mississauga Seniors Land Corp	Originated by : FA
Date started : July 19, 2017	Project : 1720 Sherwood Forrest Circle	Compiled by : NNA
Sheet No. : 1 of 2	Location : Mississauga, ON	Checked by : MT

Position : E: 608640, N: 4821668 (UTM 17T) Elevation Datum : Geodetic

Rig type : Truck-mounted Drilling Method : Solid stem augers

Depth Scale (m)	Elev / Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value	Elevation Scale (m)	Penetration Test Values (Blows / 0.3m) / Undrained Shear Strength (kPa)	Moisture / Plasticity (PL, MC, LL)	Headspace Vapour (ppm)	Instrument Details	Lab Data and Comments
0	116.1	**GROUND SURFACE**					116					
		50mm **TOPSOIL**		1	SS	7						
		FILL, sandy silt, trace to some clay, trace gravel, trace organics, roots, loose, brown, damp to moist										
1				2	SS	9	115					
	114.6 / 1.5											
		SAND AND GRAVEL, trace to some silt, trace clay, very dense, brown, damp to moist		3	SS	52						
2							114					
				4	SS	87 / 275mm						
3				5	SS	50 / 75mm	113					
4							112					
				6	SS	90 / 225mm						
5							111					
6							110					
				7	SS	85						
7							109					
		...wet, dense										...at 7.6m, Spoon wet
8				8	SS	50	108					
9	107.0 / 9.1						107					
		CLAYEY SILT, trace to some gravel, some sand to sandy, hard, grey, damp to moist (GLACIAL TILL)		9	SS	79						...at 9.8m, Auger grinding
10												

(continued next page)

LOG OF BOREHOLE 4

Terraprobe

Project No. : 1-17-0362-01	Client : Mississauga Seniors Land Corp	Originated by : FA
Date started : July 19, 2017	Project : 1720 Sherwood Forrest Circle	Compiled by : NNA
Sheet No. : 2 of 2	Location : Mississauga, ON	Checked by : MT

Position : E: 608640, N: 4821668 (UTM 17T) Elevation Datum : Geodetic

Rig type : Truck-mounted Drilling Method : Solid stem augers

Depth Scale (m)	Elev / Depth (m)	Description	Graphic Log	Sample Number	Sample Type	SPT 'N' Value	Elevation Scale (m)	Penetration Test Values (Blows / 0.3m) / Undrained Shear Strength (kPa)	Moisture / Plasticity (PL, MC, LL)	Headspace Vapour (ppm)	Instrument Details	Unstabilized Water Level	Lab Data and Comments: GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL
		(continued)											
11		**CLAYEY SILT**, trace to some gravel, some sand to sandy, hard, grey, damp to moist (GLACIAL TILL) *(continued)*		10	SS	88 / 275mm	105						
12				11	SS	95 / 225mm	104						
13							103						
14				12	SS	50 / 75mm	102						
15		...at 15.0 m, sandy silt, some clay		13	SS	50 / 150mm	101						11 31 40 18
	100.6 / 15.5	**END OF BOREHOLE**											

Penetration Test Values (Blows / 0.3m): Dynamic Cone; scale 10 20 30 40

Undrained Shear Strength (kPa): Unconfined, Pocket Penetrometer, Field Vane, Lab Vane; scale 40 80 120 160

Moisture / Plasticity: Plastic Limit (PL), Natural Water Content (MC), Liquid Limit (LL); scale 10 20 30

Unstabilized water level measured at 7.6 m below ground surface; borehole caved to 9.8 m below ground surface upon completion of drilling.

file: 1-17-0362-01 bh logs.gpj

LOG OF BOREHOLE 5

Terraprobe

Project No. : 1-17-0362-01	Client : Mississauga Seniors Land Corp	Originated by : FA
Date started : July 19, 2017	Project : 1720 Sherwood Forrest Circle	Compiled by : NNA
Sheet No. : 1 of 2	Location : Mississauga, ON	Checked by : MT

Position : E: 608667, N: 4821606 (UTM 17T) Elevation Datum : Geodetic

Rig type : Truck-mounted Drilling Method : Solid stem augers

Depth Scale (m)	Elev / Depth (m)	Description	Graphic Log	Sample Number	Sample Type	SPT 'N' Value	Elevation Scale (m)	Penetration Test Values (Blows / 0.3m) / Undrained Shear Strength (kPa)	Moisture / Plasticity (PL, MC, LL)	Headspace Vapour (ppm)	Instrument Details	Unstabilized Water Level	Lab Data and Comments
0	116.1	**GROUND SURFACE**					116						
		50mm **TOPSOIL**											
		FILL, sandy silt, trace gravel, trace clay, loose, brown, damp		1	SS	9							
	115.3 / 0.8												
1		**FILL**, sand, some silt, trace gravel, trace clay, compact, brown, moist		2	SS	11	115						
	114.6 / 1.5												
2		**SAND AND GRAVEL**, trace to some silt, trace clay, compact, brown, moist		3	SS	16	114						
		...dense to very dense below		4	SS	73							
3				5	SS	50 / 125mm	113						
4							112						
				6	SS	50 / 125mm							
5							111						
6				7	SS	50 / 150mm	110						
7							109						
		...wet below											...at 7.6m, Spoon wet
8				8	SS	28	108						
9				9A	SS	39	107						
	106.4 / 9.7			9B									
10		*(continued on next page)*											

(continued next page)

LOG OF BOREHOLE 5

Terraprobe

Project No. : 1-17-0362-01	Client : Mississauga Seniors Land Corp	Originated by : FA
Date started : July 19, 2017	Project : 1720 Sherwood Forrest Circle	Compiled by : NNA
Sheet No. : 2 of 2	Location : Mississauga, ON	Checked by : MT

Position : E: 608667, N: 4821606 (UTM 17T) Elevation Datum : Geodetic

Rig type : Truck-mounted Drilling Method : Solid stem augers

Depth Scale (m)	Elev / Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value	Elevation Scale (m)
		(continued)					
11		**CLAYEY SILT**, trace to some sand, trace to some gravel, hard, grey, damp to moist (GLACIAL TILL) *(continued)*		10	SS	50 / 150mm	105
12				11	SS	50 / 150mm	104
13							103
14				12	SS	50 / 100mm	102
15	100.6 / 15.5			13	SS	50 / 75mm	101

Penetration Test Values (Blows / 0.3m): Dynamic Cone; 10 20 30 40

Undrained Shear Strength (kPa): Unconfined, Pocket Penetrometer, Field Vane, Lab Vane; 40 80 120 160

Moisture / Plasticity: Plastic Limit, Natural Water Content, Liquid Limit; PL MC LL; 10 20 30

Headspace Vapour (ppm)

Instrument Details

Unstabilized Water Level

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL

END OF BOREHOLE

Unstabilized water level measured at 11.3 m below ground surface; borehole caved to 14.0 m below ground surface upon completion of drilling.

50 mm dia. monitoring well installed.
10' screen installed.

WATER LEVEL READINGS

Date	Water Depth (m)	Elevation (m)
Aug 1, 2017	12.9	103.2

file: 1-17-0362-01 bh logs.gpj

LOG OF BOREHOLE 6

Terraprobe

Project No. : 1-17-0362-01	Client : Mississauga Seniors Land Corp	Originated by : FA
Date started : July 24, 2017	Project : 1720 Sherwood Forrest Circle	Compiled by : NNA
Sheet No. : 1 of 1	Location : Mississauga, ON	Checked by : MT

Position : E: 608401, N: 4821789 (UTM 17T) Elevation Datum : Geodetic

Rig type : Truck-mounted Drilling Method : Solid stem augers

Depth Scale (m)	Elev / Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value	Elevation Scale (m)	Penetration Test Values (Blows / 0.3m) / Undrained Shear Strength (kPa)	Moisture / Plasticity	Headspace Vapour (ppm)	Instrument Details	Unstabilized Water Level	Lab Data and Comments
	116.2	**GROUND SURFACE**											
		140mm **ASPHALTIC CONCRETE**											
	115.8	230mm **AGGREGATE**		1	SS	10							
1	0.4	**FILL**, clayey silt, trace to some sand, trace gravel, firm to stiff, brown, moist		2	SS	4							
	114.7												
2	1.5	**GRAVELLY SAND to SAND AND GRAVEL**, trace to some silt, trace clay, compact to very dense, brown, moist		3	SS	50 / 150mm							26 48 19 7
				4	SS	50 / 125mm							
3				5	SS	50 / 75mm							
4													
5				6	SS	14						▽	
6	110.1												
	6.1	**CLAYEY SILT**, trace gravel, trace to some sand, hard, grey, damp to moist (GLACIAL TILL)		7	SS	50 / 150mm							...at 6.1m, Spoon wet
7													
8	108.0			8	SS	72							
	8.2	**END OF BOREHOLE**											

Penetration Test Values (Blows / 0.3m): ✕ Dynamic Cone; 10 20 30 40

Undrained Shear Strength (kPa): ○ Unconfined ● Pocket Penetrometer + Field Vane ■ Lab Vane; 40 80 120 160

Moisture / Plasticity: Plastic Limit (PL) Natural Water Content (MC) Liquid Limit (LL); 10 20 30

Elevation Scale (m): 116 115 114 113 112 111 110 109 108

Unstabilized Water Level

Lab Data and Comments: GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL

Unstabilized water level measured at 5.0 m below ground surface; borehole caved to 5.9 m below ground surface upon completion of drilling.

file: 1-17-0362-01 bh logs.gpj

LOG OF BOREHOLE 7

Terraprobe

Project No. : 1-17-0362-01	Client : Mississauga Seniors Land Corp	Originated by : FA
Date started : July 20, 2017	Project : 1720 Sherwood Forrest Circle	Compiled by : NNA
Sheet No. : 1 of 1	Location : Mississauga, ON	Checked by : MT

Position : E: 608646, N: 4821582 (UTM 17T) Elevation Datum : Geodetic

Rig type : Truck-mounted Drilling Method : Solid stem augers

Depth Scale (m)	Elev / Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value
0	115.9	**GROUND SURFACE**				
		80mm **TOPSOIL**		1	SS	7
		FILL, clayey silt, some sand, trace gravel, soft to firm, brown, moist		2	SS	3
1	114.4 / 1.5	**FILL**, sand, some silt, loose, brown, moist		3	SS	9
2	113.6 / 2.3	**GRAVELLY SAND to SAND AND GRAVEL**, trace clay, some silt, dense to very dense, brown, damp to moist		4	SS	75 / 275mm
				5	SS	50 / 100mm
3						
4				6	SS	51
5						
6		...compact		7	SS	25
7						
		...wet		8	SS	33
8	107.7 / 8.2					

Elevation Scale (m): 115, 114, 113, 112, 111, 110, 109, 108

Penetration Test Values (Blows / 0.3m): Dynamic Cone 10 20 30 40

Undrained Shear Strength (kPa): Unconfined, Pocket Penetrometer, Field Vane, Lab Vane — 40 80 120 160

Moisture / Plasticity: Plastic Limit (PL) 10, Natural Water Content (MC) 20, Liquid Limit (LL) 30

Headspace Vapour (ppm)

Instrument Details

Unstabilized Water Level

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL

END OF BOREHOLE

Unstabilized water level measured at 7.0 m below ground surface; borehole caved to 7.5 m below ground surface upon completion of drilling.

50 mm dia. monitoring well installed. 10' screen installed.

WATER LEVEL READINGS

Date	Water Depth (m)	Elevation (m)
Aug 1, 2017	7.1	108.9

file: 1-17-0362-01 bh logs.gpj

LOG OF BOREHOLE 8

Terraprobe

Project No. : 1-17-0362-01	Client : Mississauga Seniors Land Corp	Originated by : FA
Date started : July 17, 2017	Project : 1720 Sherwood Forrest Circle	Compiled by : NNA
Sheet No. : 1 of 2	Location : Mississauga, ON	Checked by : MT
Position : E: 608459, N: 4821804 (UTM 17T)	Elevation Datum : Geodetic	
Rig type : Truck-mounted	Drilling Method : Solid stem augers	

Depth Scale (m)	Elev / Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value	Elevation Scale (m)	Penetration Test Values (Blows / 0.3m) / Undrained Shear Strength (kPa)	Moisture / Plasticity (PL, MC, LL)	Headspace Vapour (ppm)	Instrument Details	Lab Data and Comments
0	116.3	**GROUND SURFACE**					116					
		100mm **ASPHALTIC CONCRETE**										
		340mm **AGGREGATE**										
	115.9 / 0.4			1	SS	18						
	115.5 / 0.8	**FILL**, clayey silt, some sand, trace gravel, very stiff, brown, moist										
1		**FILL**, silty sand to sandy silt, trace to some clay, loose, brown, moist		2	SS	6	115					
	114.6 / 1.7			3A / 3B	SS	50						
2		**SAND AND GRAVEL**, trace to some silt, trace clay, dense to very dense, brown, damp to moist		4	SS	48	114					...at 2.3m, Auger grinding to 2.6m
3				5	SS	71	113					
4	111.7 / 4.6			6A / 6B	SS	17	112					
5		**CLAYEY SILT**, trace gravel, trace to some sand, very stiff to hard, grey, damp to moist (GLACIAL TILL)					111					
6				7	SS	18	110					
7							109					
8				8	SS	40	108					
9				9	SS	56	107					
10												

Penetration Test Values (Blows / 0.3m): Dynamic Cone (10, 20, 30, 40)

Undrained Shear Strength (kPa): Unconfined, Pocket Penetrometer, Field Vane, Lab Vane (40, 80, 120, 160)

Moisture / Plasticity: Plastic Limit (PL), Natural Water Content (MC), Liquid Limit (LL) (10, 20, 30)

Unstabilized Water Level

Lab Data and Comments: GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL

(continued next page)

LOG OF BOREHOLE 8

Terraprobe

Project No. : 1-17-0362-01	Client : Mississauga Seniors Land Corp	Originated by : FA
Date started : July 17, 2017	Project : 1720 Sherwood Forrest Circle	Compiled by : NNA
Sheet No. : 2 of 2	Location : Mississauga, ON	Checked by : MT

Position : E: 608459, N: 4821804 (UTM 17T) Elevation Datum : Geodetic

Rig type : Truck-mounted Drilling Method : Solid stem augers

Depth Scale (m)	Elev / Depth (m)	Description (continued)	Graphic Log	Number	Type	SPT 'N' Value	Elevation Scale (m)
		CLAYEY SILT, trace gravel, trace to some sand, very stiff to hard, grey, damp to moist (GLACIAL TILL) *(continued)*					106
11				10	SS	85 / 275mm	105
12				11	SS	50 / 150mm	104
13							103
14				12	SS	97	102
15							101
	100.6 / 15.7			13	SS	61	

Penetration Test Values (Blows / 0.3m): Dynamic Cone 10 20 30 40

Undrained Shear Strength (kPa): Unconfined, Pocket Penetrometer, Field Vane, Lab Vane — 40 80 120 160

Moisture / Plasticity: Plastic Limit (PL) 10, Natural Water Content (MC) 20, Liquid Limit (LL) 30

Headspace Vapour (ppm)

Instrument Details

Unstabilized Water Level

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL

END OF BOREHOLE

Borehole was dry and open upon completion of drilling.

50 mm dia. monitoring well installed.
10' screen installed.

WATER LEVEL READINGS

Date	Water Depth (m)	Elevation (m)
Aug 1, 2017	14.2	102.1

file: 1-17-0362-01 bh logs.gpj

Terraprobe

LOG OF BOREHOLE 9

Project No. : 1-17-0362-01 | Client : Mississauga Seniors Land Corp | Originated by : FA

Date started : July 24, 2017 | Project : 1720 Sherwood Forrest Circle | Compiled by : NNA

Sheet No. : 1 of 1 | Location : Mississauga, ON | Checked by : MT

Position : E: 608490, N: 4821764 (UTM 17T) | Elevation Datum : Geodetic

Rig type : Truck-mounted | Drilling Method : Solid stem augers

Depth Scale (m)	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value
0	116.2	**GROUND SURFACE**				
		80mm **TOPSOIL**				
		FILL, sandy silt, trace to some clay, trace to some gravel, very loose to loose, brown, moist		1	SS	7
1				2	SS	3
	114.7					
	1.5	**GRAVELLY SAND to SAND AND GRAVEL**, trace to some silt, trace clay, compact, brown, moist		3	SS	21
2				4	SS	28
3		...very dense		5	SS	50 / 125mm
4						
		...dense		6	SS	34
5						
6	110.1					
	6.1	**SILT**, trace sand, trace clay, trace gravel, dilatant, dense, brown, wet		7	SS	35
7						
	108.6					
	7.6	**CLAYEY SILT**, trace gravel, trace to some sand, shale fragments, hard, grey, damp to moist (GLACIAL TILL)		8	SS	36
8	108.0					
	8.2	**END OF BOREHOLE**				

Elevation Scale (m): 116, 115, 114, 113, 112, 111, 110, 109, 108

Penetration Test Values (Blows / 0.3m): Dynamic Cone 10 20 30 40

Undrained Shear Strength (kPa): Unconfined, Pocket Penetrometer, Field Vane, Lab Vane 40 80 120 160

Moisture / Plasticity: Plastic Limit (PL), Natural Water Content (MC), Liquid Limit (LL) 10 20 30

Headspace Vapour (ppm)

Instrument Details

Unstabilized Water Level

Lab Data and Comments: GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL

36 42 14 8

WATER LEVEL READINGS

Date	Water Depth (m)	Elevation (m)
Aug 1, 2017	5.8	110.4

Unstabilized water level measured at 6.4 m below ground surface; borehole caved to 7.3 m below ground surface upon completion of drilling.

50 mm dia. monitoring well installed. 10' screen installed.

file: 1-17-0362-01 bh logs.gpj

LOG OF BOREHOLE 10

Terraprobe

Project No. : 1-17-0362-01	Client : Mississauga Seniors Land Corp	Originated by : FA
Date started : July 21, 2017	Project : 1720 Sherwood Forrest Circle	Compiled by : NNA
Sheet No. : 1 of 1	Location : Mississauga, ON	Checked by : MT

Position : E: 608533, N: 4821777 (UTM 17T) Elevation Datum : Geodetic

Rig type : Truck-mounted Drilling Method : Solid stem augers

Depth Scale (m)	Elev / Depth (m)	Description	Graphic Log	Sample Number	Sample Type	SPT 'N' Value
0	116.3	**GROUND SURFACE**				
		100mm **TOPSOIL**				
		FILL, sandy silt, trace clay, trace gravel, trace organics, roots, loose, brown, moist		1	SS	8
1				2	SS	4
	114.8					
	1.5	**GRAVELLY SAND to SAND AND GRAVEL**, trace silt, very dense, brown, moist		3	SS	51
2				4	SS	50 / 100mm
3				5	SS	50 / 75mm
4	111.7					
	4.6	**CLAYEY SILT**, trace to some sand, trace to some gravel, hard, brown / grey, moist (GLACIAL TILL)		6	SS	31
5						
6				7	SS	39
7						
8	108.1			8	SS	32
	8.2	**END OF BOREHOLE**				

Elevation Scale (m): 116, 115, 114, 113, 112, 111, 110, 109

Penetration Test Values (Blows / 0.3m): Dynamic Cone 10 20 30 40

Undrained Shear Strength (kPa): Unconfined, Pocket Penetrometer, Field Vane, Lab Vane — 40 80 120 160

Moisture / Plasticity: Plastic Limit (PL) Natural Water Content (MC) Liquid Limit (LL) — 10 20 30

Headspace Vapour (ppm)

Instrument Details

Unstabilized Water Level

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL

Borehole was dry and open upon completion of drilling.

file: 1-17-0362-01 bh logs.gpj

LOG OF BOREHOLE 11

Terraprobe

Project No. : 1-17-0362-01	Client : Mississauga Seniors Land Corp	Originated by : FA
Date started : July 24, 2017	Project : 1720 Sherwood Forrest Circle	Compiled by : NNA
Sheet No. : 1 of 1	Location : Mississauga, ON	Checked by : MT

Position : E: 608467, N: 4821745 (UTM 17T) Elevation Datum : Geodetic

Rig type : Truck-mounted Drilling Method : Solid stem augers

Depth Scale (m)	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value
	116.1	**GROUND SURFACE**				
0		100mm **TOPSOIL**				
		FILL, sandy silt, trace to some clay, trace gravel, loose, brown, moist		1	SS	7
1				2	SS	4
	114.6					
	1.5	**SANDY SILT**, trace clay		3A	SS	29
	114.2					
	1.9	**GRAVELLY SAND to SAND AND GRAVEL**, trace to some silt, trace clay, compact to very dense, brown, damp to moist		3B		
2				4	SS	50 / 125mm
3				5	SS	50 / 125mm
4						
				6	SS	19
5						
6		...wet		7	SS	24
7	108.5					
	7.6	**CLAYEY SILT**, trace gravel, trace to some sand, hard, grey, moist (GLACIAL TILL)		8	SS	65
8	107.9					
	8.2	**END OF BOREHOLE**				

Elevation Scale (m): 116, 115, 114, 113, 112, 111, 110, 109, 108

Penetration Test Values (Blows / 0.3m)
Dynamic Cone: 10 20 30 40
Undrained Shear Strength (kPa)
Unconfined, Pocket Penetrometer, Field Vane, Lab Vane: 40 80 120 160

Moisture / Plasticity
Plastic Limit, Natural Water Content, Liquid Limit
PL MC LL: 10 20 30

Headspace Vapour (ppm)

Instrument Details

Unstabilized Water Level

Lab Data and Comments
GRAIN SIZE DISTRIBUTION (%) (MIT)
GR SA SI CL

Unstabilized water level measured at 6.4 m below ground surface; borehole caved to 7.3 m below ground surface upon completion of drilling.

50 mm dia. monitoring well installed.
10' screen installed.

WATER LEVEL READINGS

Date	Water Depth (m)	Elevation (m)
Aug 1, 2017	5.5	110.6

file: 1-17-0362-01 bh logs.gpj

LOG OF BOREHOLE 12

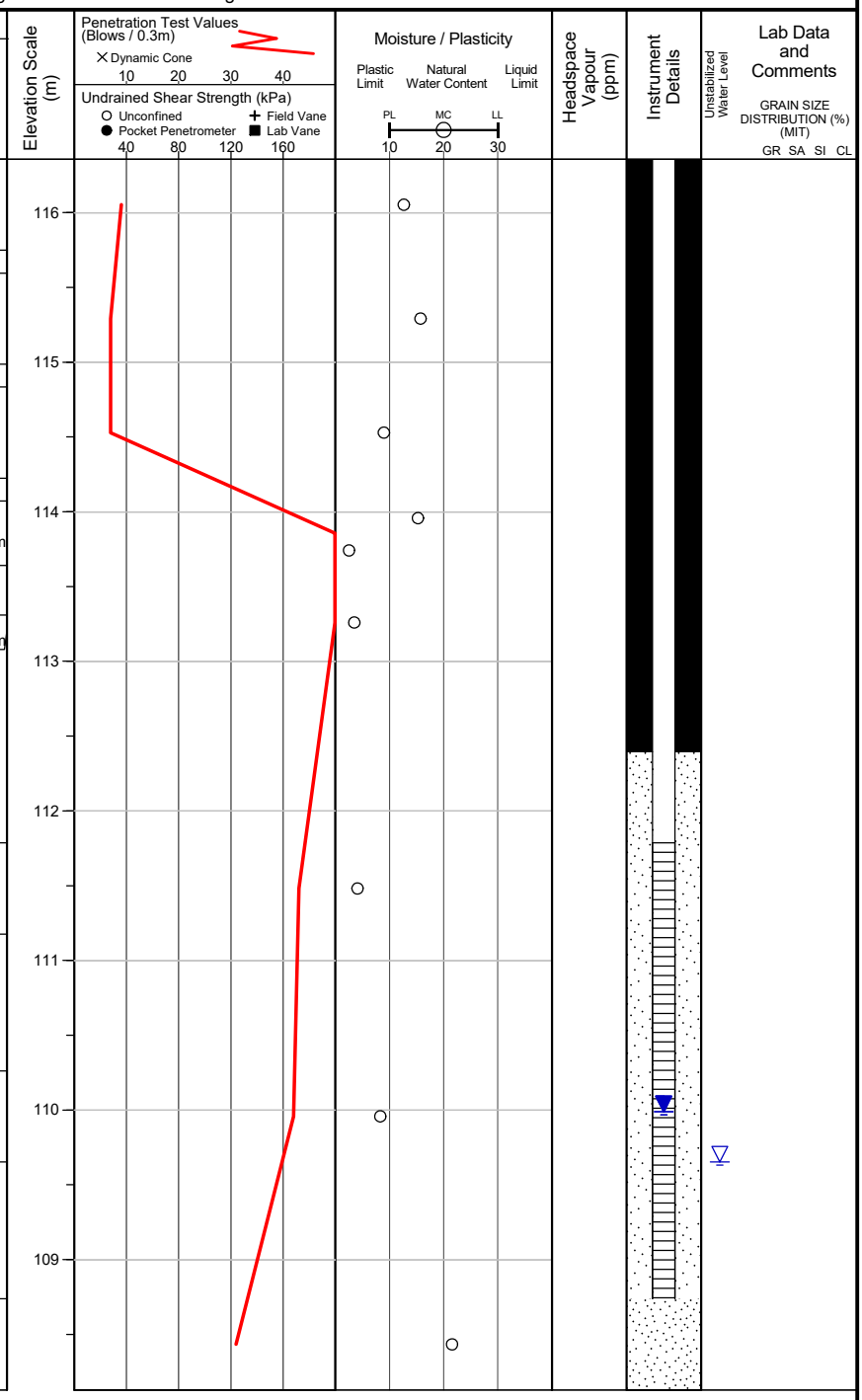
Terraprobe

Project No. : 1-17-0362-01	Client : Mississauga Seniors Land Corp	Originated by : FA
Date started : July 21, 2017	Project : 1720 Sherwood Forrest Circle	Compiled by : NNA
Sheet No. : 1 of 1	Location : Mississauga, ON	Checked by : MT

Position : E: 608540, N: 4821713 (UTM 17T) Elevation Datum : Geodetic

Rig type : Truck-mounted Drilling Method : Solid stem augers

Depth Scale (m)	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value
0	116.4	**GROUND SURFACE**				
		80mm **TOPSOIL**		1	SS	9
		FILL, clayey silt, trace to some sand, trace to some gravel, firm to stiff, brown, moist		2	SS	7
1	114.9					
	1.5	**FILL**, silty sand, trace clay, trace to some gravel, loose, brown, moist		3	SS	7
2	113.9			4A	SS	74 / 275mm
	2.5	**SAND AND GRAVEL**, trace to some silt, trace clay, dense to very dense, brown, damp to moist		4B		
3				5	SS	50 / 100mm
4						
5				6	SS	43
6				7	SS	42
7	108.8					
	7.6	**CLAYEY SILT**, some sand, trace gravel, hard, brown, moist (GLACIAL TILL)		8	SS	31
8	108.2					
	8.2	**END OF BOREHOLE**				



Unstabilized water level measured at 6.7 m below ground surface; borehole caved to 7.3 m below ground surface upon completion of drilling.

50 mm dia. monitoring well installed. 10' screen installed.

WATER LEVEL READINGS

Date	Water Depth (m)	Elevation (m)
Aug 1, 2017	6.4	110.0

file: 1-17-0362-01 bh logs.gpj

LOG OF BOREHOLE 13

Terraprobe

Project No. : 1-17-0362-01	Client : Mississauga Seniors Land Corp	Originated by : FA
Date started : July 21, 2017	Project : 1720 Sherwood Forrest Circle	Compiled by : NNA
Sheet No. : 1 of 1	Location : Mississauga, ON	Checked by : MT

Position : E: 608606, N: 4821733 (UTM 17T) Elevation Datum : Geodetic

Rig type : Truck-mounted Drilling Method : Solid stem augers

Elev / Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value
116.0	**GROUND SURFACE**				
	100mm **TOPSOIL**				
	FILL, clayey silt, trace sand, trace gravel, trace organics, roots, stiff, brown, moist		1	SS	12
115.2 / 0.8					
	FILL, sandy silt, trace gravel, some clay, loose, brown, moist		2	SS	9
114.5 / 1.5					
	SAND AND GRAVEL, trace silt, trace clay, dense, brown, moist		3	SS	35
	...at 2.5 m, gravel and sand		4	SS	41
			5	SS	38
	...very dense below		6	SS	50 / 125mm
			7	SS	50 / 25mm
108.4 / 7.6					
	CLAYEY SILT, some sand, some gravel, hard, grey, moist (GLACIAL TILL)		8	SS	40
107.8 / 8.2					

Penetration Test Values (Blows / 0.3m): Dynamic Cone (10, 20, 30, 40)

Undrained Shear Strength (kPa): Unconfined, Pocket Penetrometer, Field Vane, Lab Vane (40, 80, 120, 160)

Moisture / Plasticity: Plastic Limit (PL), Natural Water Content (MC), Liquid Limit (LL) (10, 20, 30)

Lab Data and Comments: GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL — 46 44 7 3

END OF BOREHOLE

Borehole was dry and open upon completion of drilling.

50 mm dia. monitoring well installed.
10' screen installed.

WATER LEVEL READINGS

Date	Water Depth (m)	Elevation (m)
Aug 1, 2017	7.0	108.9

file: 1-17-0362-01 bh logs.gpj

LOG OF BOREHOLE 14

Terraprobe

Project No. : 1-17-0362-01	Client : Mississauga Seniors Land Corp	Originated by : FA
Date started : July 20, 2017	Project : 1720 Sherwood Forrest Circle	Compiled by : NNA
Sheet No. : 1 of 1	Location : Mississauga, ON	Checked by : MT

Position : E: 608596, N: 4821634 (UTM 17T) Elevation Datum : Geodetic

Rig type : Truck-mounted Drilling Method : Solid stem augers

Depth Scale (m)	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value
0	115.8	**GROUND SURFACE**				
		80mm **TOPSOIL**		1	SS	4
		FILL, clayey silt, trace sand, trace gravel, trace organics, roots, soft, brown, moist				
	115.0 / 0.8	**FILL**, silty sand, some clay, trace gravel, loose, brown, moist		2	SS	4
1	114.3 / 1.5	**SAND AND GRAVEL**, trace silt, trace clay, dense to very dense, brown, moist		3	SS	25
2				4	SS	67
3				5	SS	27
4				6	SS	94 / 275mm
5						
6		...wet below		7	SS	19
7						
8	107.9 / 7.9			8	SS	43
	107.6 / 8.2	**CLAYEY SILT**, trace gravel, trace to some sand, hard, grey, moist (GLACIAL TILL)				

Elevation Scale (m): 115, 114, 113, 112, 111, 110, 109, 108

Penetration Test Values (Blows / 0.3m): Dynamic Cone 10 20 30 40

Undrained Shear Strength (kPa): Unconfined, Pocket Penetrometer, Field Vane, Lab Vane — 40 80 120 160

Moisture / Plasticity: Plastic Limit (PL) 10, Natural Water Content (MC) 20, Liquid Limit (LL) 30

Headspace Vapour (ppm)

Instrument Details

Unstabilized Water Level

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL

END OF BOREHOLE

Borehole was dry and open upon completion of drilling.

50 mm dia. monitoring well installed.
10' screen installed.

WATER LEVEL READINGS

Date	Water Depth (m)	Elevation (m)
Aug 1, 2017	dry	n/a

file: 1-17-0362-01 bh logs.gpj

LOG OF BOREHOLE 15

Terraprobe

Project No. : 1-17-0362-01	Client : Mississauga Seniors Land Corp	Originated by : FA
Date started : July 19, 2017	Project : 1720 Sherwood Forrest Circle	Compiled by : NNA
Sheet No. : 1 of 1	Location : Mississauga, ON	Checked by : MT

Position : E: 608637, N: 4821622 (UTM 17T) Elevation Datum : Geodetic

Rig type : Truck-mounted Drilling Method : Solid stem augers

Depth Scale (m)	Elev / Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value	Elevation Scale (m)	Penetration Test Values (Blows / 0.3m) / Undrained Shear Strength (kPa)	Moisture / Plasticity (PL, MC, LL)	Headspace Vapour (ppm)	Instrument Details	Unstabilized Water Level	Lab Data and Comments (GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL)
0	116.0	**GROUND SURFACE**											
		50mm **TOPSOIL**											
		FILL, clayey silt, some sand, trace to some gravel, trace organics, roots, firm to stiff, brown, moist		1	SS	9							
1				2	SS	4	115						
	114.5 / 1.5												
		GRAVELLY SAND to SAND AND GRAVEL, trace silt, trace clay, compact to very dense, brown, moist		3	SS	16							
2							114						
		...gravel and sand		4	SS	82 / 225mm							51 39 8 2
3				5	SS	50 / 125mm	113						
4							112						
				6	SS	50 / 125mm							
5							111						
6							110						
				7	SS	56							
7							109					▽	
		...wet											...at 7.6m, Spoon wet
8	107.8 / 8.2			8	SS	33	108						

END OF BOREHOLE

Unstabilized water level measured at 7.0 m below ground surface; borehole caved to 7.5 m below ground surface upon completion of drilling.

LOG OF BOREHOLE 16

Terraprobe

Project No. : 1-17-0362-01	Client : Mississauga Seniors Land Corp	Originated by : FA
Date started : July 20, 2017	Project : 1720 Sherwood Forrest Circle	Compiled by : NNA
Sheet No. : 1 of 1	Location : Mississauga, ON	Checked by : MT

Position : E: 608588, N: 4821666 (UTM 17T) Elevation Datum : Geodetic

Rig type : Truck-mounted Drilling Method : Solid stem augers

Depth Scale (m)	Elev / Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value
0	115.9 GROUND SURFACE					
		100mm **TOPSOIL**				
		FILL, sandy silt to silty sand, trace to some clay, trace to some gravel, loose, brown, moist		1	SS	9
1				2	SS	5
	114.4 / 1.5	**SAND AND GRAVEL**, trace silt, compact, brown, damp to moist		3	SS	28
2				4	SS	65 / 275mm
3				5	SS	62
4				6	SS	50 / 125mm
5						
6		...wet		7	SS	24
7	108.3 / 7.6					
	107.8 / 8.1	**CLAYEY SILT**, trace gravel, trace to some sand, hard, grey, moist (GLACIAL TILL)		8	SS	94 / 275mm
8		**END OF BOREHOLE**				

Borehole was dry and open upon completion of drilling.

Elevation Scale (m): 115, 114, 113, 112, 111, 110, 109, 108

Penetration Test Values (Blows / 0.3m): Dynamic Cone 10 20 30 40

Undrained Shear Strength (kPa): Unconfined, Pocket Penetrometer, Field Vane, Lab Vane — 40 80 120 160

Moisture / Plasticity: Plastic Limit, Natural Water Content, Liquid Limit — PL MC LL — 10 20 30

Headspace Vapour (ppm)

Instrument Details

Unstabilized Water Level

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL

file: 1-17-0362-01 bh logs.gpj

LOG OF BOREHOLE 17

Terraprobe

Project No. : 1-17-0362-01	Client : Mississauga Seniors Land Corp	Originated by : FA
Date started : July 20, 2017	Project : 1720 Sherwood Forrest Circle	Compiled by : NNA
Sheet No. : 1 of 1	Location : Mississauga, ON	Checked by : MT

Position : E: 608617, N: 4821611 (UTM 17T) Elevation Datum : Geodetic

Rig type : Truck-mounted Drilling Method : Solid stem augers

Depth Scale (m)	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value
	115.8	**GROUND SURFACE**				
		80mm **TOPSOIL**		1	SS	7
		FILL, sandy silt to silty sand, trace to some clay, trace to some gravel, loose, brown, moist		2	SS	6
	114.3 1.5	**SAND**, trace silt, trace gravel, trace clay, compact, brown, moist		3	SS	25
	113.7 2.1	**SAND AND GRAVEL**, trace to some silt, trace clay, very dense, brown, moist		4	SS	50 / 125mm
				5	SS	99 / 275mm
				6	SS	50 / 150mm
		...wet, dense		7	SS	35
	108.2 7.6	**SAND**, some gravel, trace to some silt, very dense, brown, wet		8	SS	53
	107.6 8.2	**END OF BOREHOLE**				

Elevation Scale (m): 115, 114, 113, 112, 111, 110, 109, 108

Penetration Test Values (Blows / 0.3m): Dynamic Cone; 10 20 30 40

Undrained Shear Strength (kPa): Unconfined, Pocket Penetrometer, Field Vane, Lab Vane; 40 80 120 160

Moisture / Plasticity: Plastic Limit, Natural Water Content, Liquid Limit; PL MC LL; 10 20 30

Headspace Vapour (ppm)

Instrument Details

Unstabilized Water Level

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%) (MIT)

GR SA SI CL

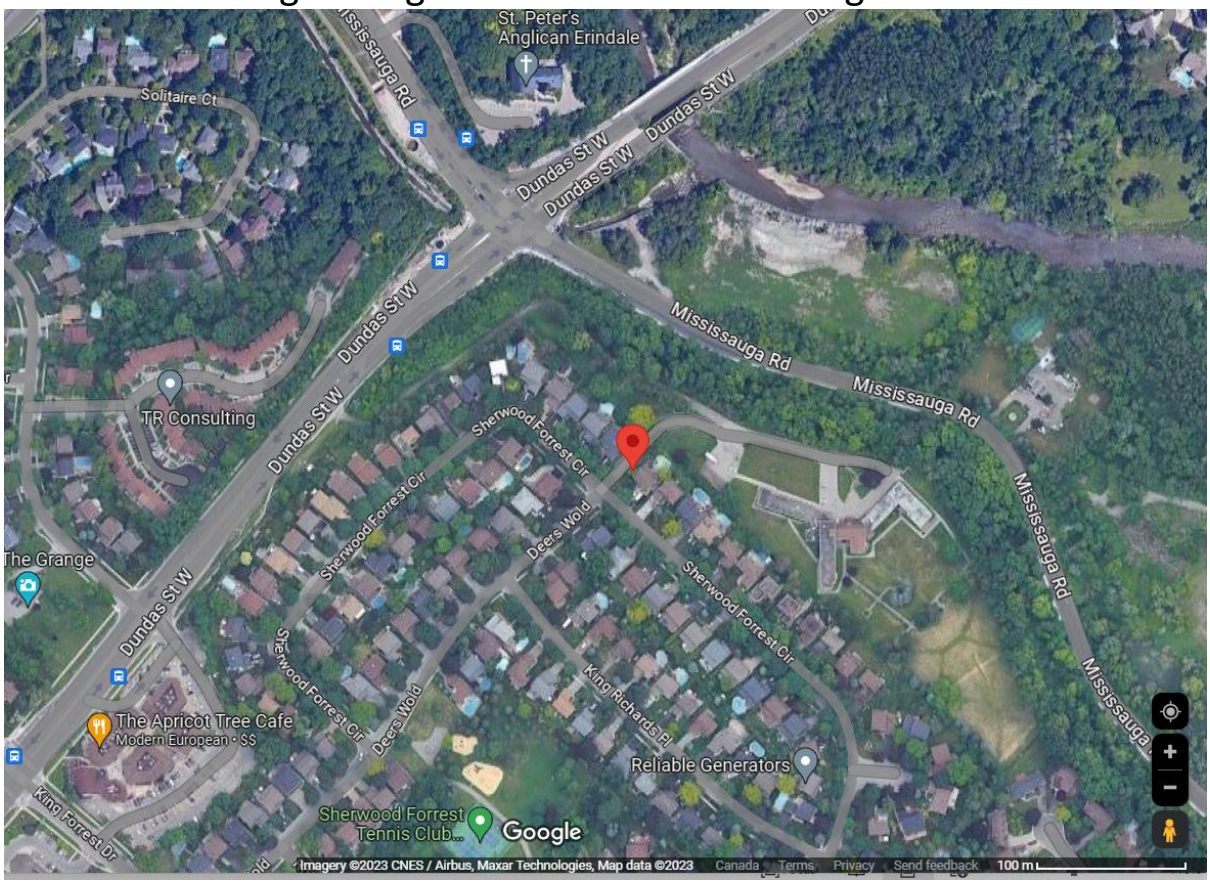
9 78 8 5

Unstabilized water level measured at 6.4 m below ground surface; borehole caved to 7.3 m below ground surface upon completion of drilling.

file: 1-17-0362-01 bh logs.gpj

Appendix B

Google Image of Site and Surrounding Areas



Slope Site Photographs
(Photos B1 to B20, taken by DS on July 11, 2023)

Photo B1: Top of slope area near Dundas St. (looking west from near Cross-Section X2-X2)

Photo B2: Toe of slope area near Dundas St. (looking west from near Cross-Section X2-X2)

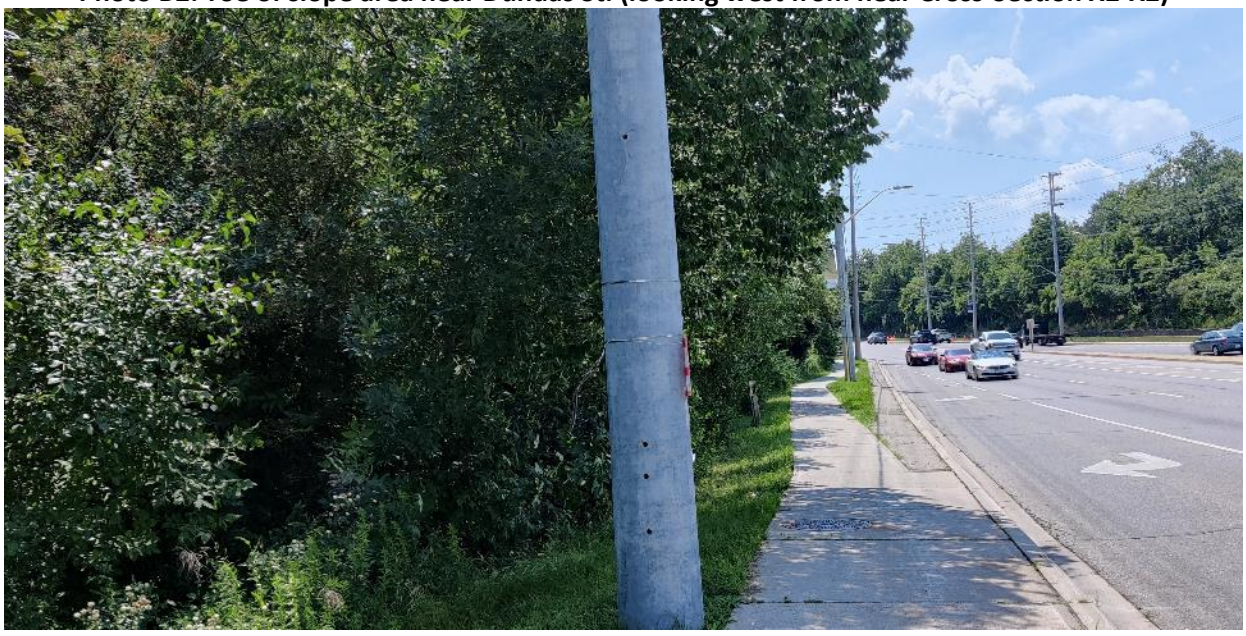


Photo B3: Top of slope area near Mississauga Rd (looking south from near Cross-Section X2-X2)

Photo B4: Toe of slope area near Mississauga Rd (looking south from near Cross-Section X2-X2)

Photo B5: Top of slope area (looking north from north of Cross-Section X5-X5)

Photo B6: Toe of slope area near Mississauga Rd
(looking north from north of Cross-Section X5-X5)

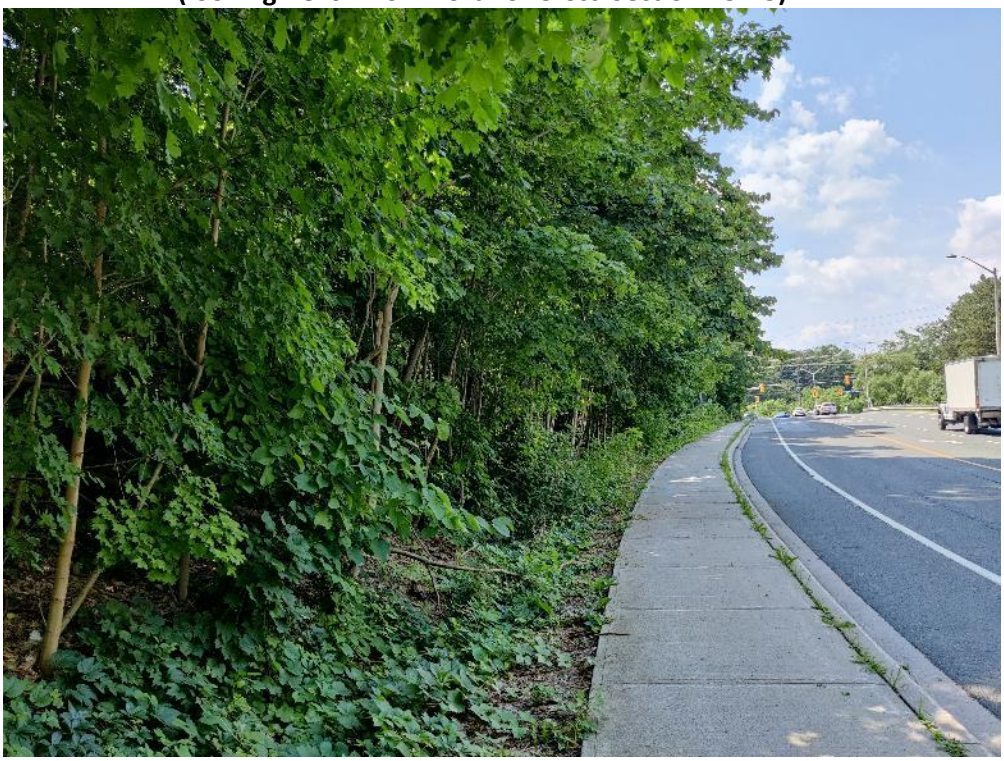


Photo B7: Top of slope area (looking south from north of Cross-Section X5-X5)

Photo B8: Toe of slope area (looking south from north of Cross-Section X5-X5)

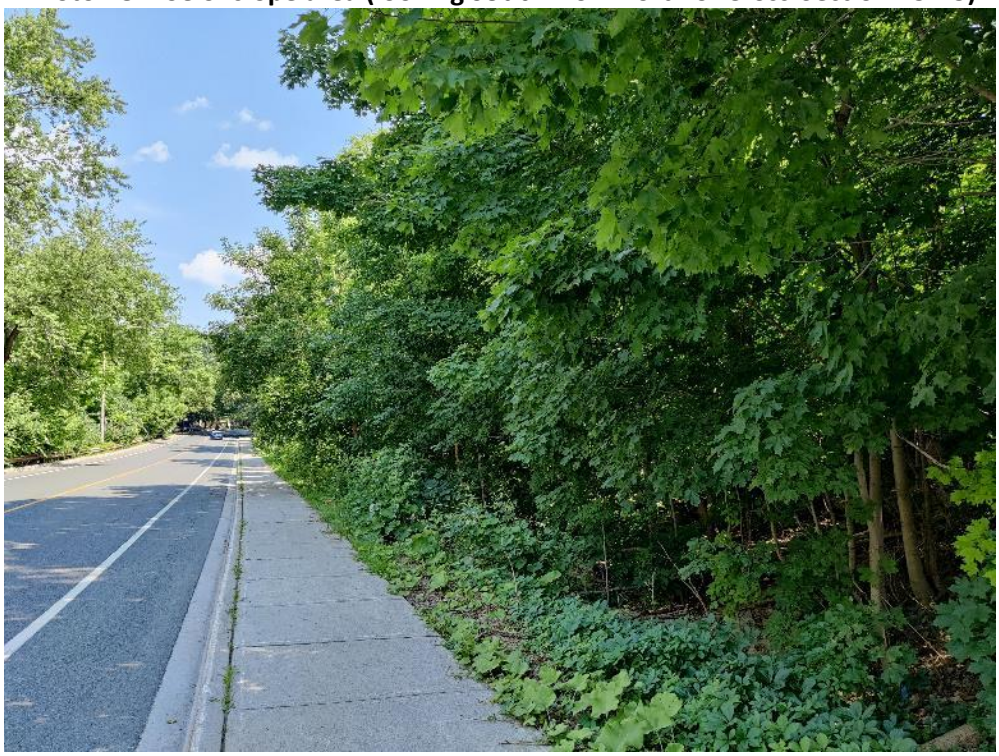


Photo B9: Slope conditions at north of Cross-Section X5-X5 (looking northwest from toe of slope)

Photo B10: Slope conditions at north of Cross-Section X5-X5 (looking southwest from toe of slope)

Photo B11: Top of slope area (looking north from near Cross-Section X7-X7)

Photo B12: Toe of slope area near Mississauga Rd
(looking north from near Cross-Section X7-X7)

Photo B13: Top of slope area (looking south from near Cross-Section X7-X7)

Photo B14: Steep slope conditions in area of Cross-Section X7-X7 (looking west – upward from toe of slope)

Photo B15: Top of slope area (looking north from near Cross-Section X11-X11)

Photo B16: Toe of slope area (looking north from near Cross-Section X11-X11)

Photo B17: Top of slope area (looking south from near Cross-Section X11-X11)

Photo B18: Toe of slope area (looking south from near Cross-Section X11-X11)

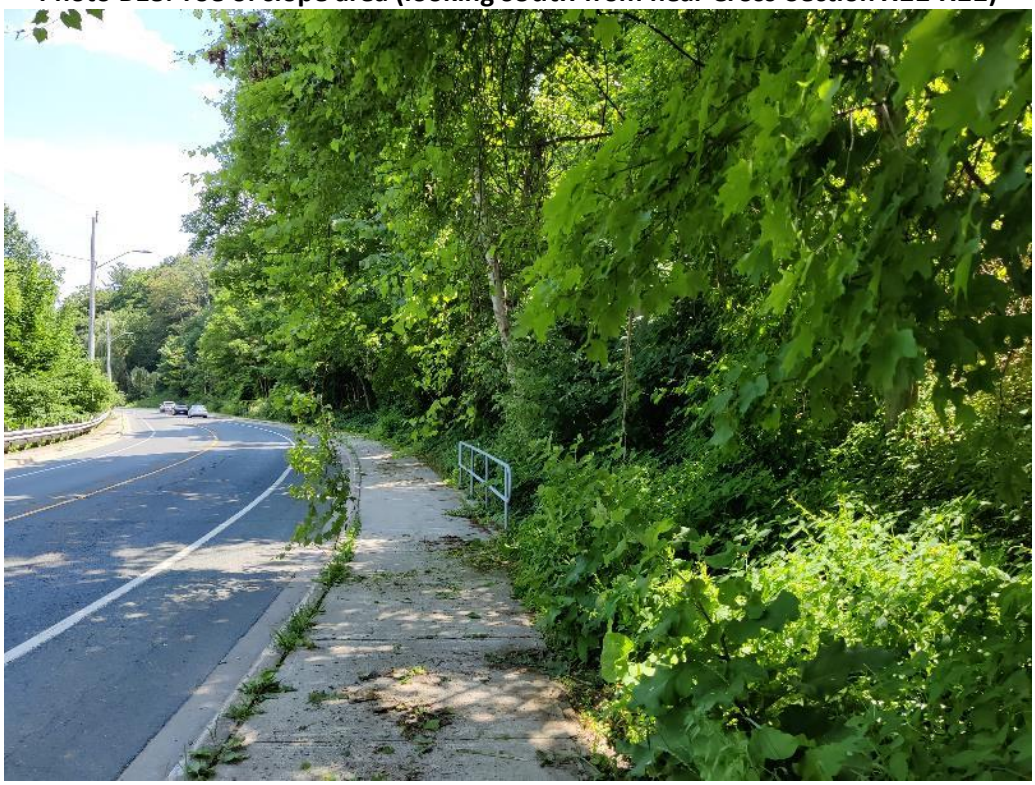


Photo B19: Slope conditions in area of Cross-Section X11-X11 (looking northwest from toe of slope)

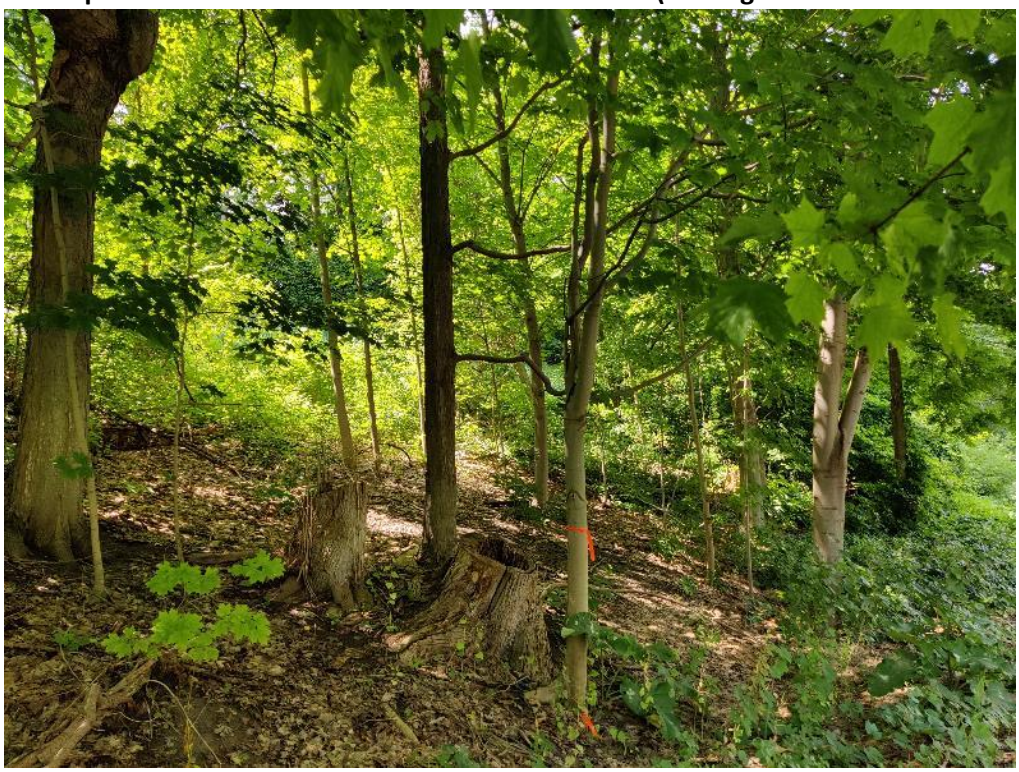


Photo B20: Slope conditions in area of Cross-Section X11-X11 (looking west - upward from toe of slope)