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APGO

July 22, 2024

2744529 Ontario Inc.
196 Colborne Rd
L'amable, ON, K0L2L0

Attn: Fraser Young
President

Re: Slope Stability / Erosion Hazard Limit Assessment – Woodcox Road Subdivision
Cambium Reference: 11849-003

Dear Mr. Young,

Cambium Inc. (Cambium) was retained by 2744529 Ontario Inc. (Client) to complete a slope stability assessment for the proposed subdivision development located on Woodcox Road, on Part of Lots 7&8, Concession 2 (Herschel), in the Municipality of Hasting Highlands (Site). A site location plan is appended as Figure 1 of this report.

BACKGROUND

Cambium was retained by Ecostructure Canada c/o EcoVue Consulting Services to complete a test pit investigation for this site on December 17, 2020, and a borehole investigation on March 2, 2021, culminating with a geotechnical report dated January 11, 2022. The report was submitted as part of a site plan application to County of Hastings for review. A peer review letter was issued by Greer Galloway Consulting Engineers (Greer Galloway) dated February 10, 2023. Cambium provided responses to the peer reviewer in October 2023. A slope stability study was required based on feedback to Cambium's Response to the Peer Review dated January 04, 2024.

The report outlines our opinions regarding the overall stability of the slope at its existing condition and provide geotechnical engineering recommendations for the long-term stable top of slope line to help facilitate the establishment of development limits adjacent to the slope. We completed this work in general accordance with accepted geotechnical engineering practices, *Technical Guide*

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for River & Stream Systems: Erosion Hazard Limit (2002)" prepared by the Ontario Ministry of Natural Resources (*MNR Technical Guide).*

PROPOSED DEVELOPMENT

The subject property is bounded by Woodcox Road to the west, Glory Road to the south, and York River to the east. The total area of the property is approximately 16.38 ha (40.48 acres).

The proposed development includes 20 lots for residential housing, block designated as open space and residential amenities, and the new road from Woodcox Road that terminates in a cul-de-sac at the southern end of the Site. The 20 lots that will be privately serviced will be developed with detached residential units. The eastern limit for the lots is controlled by the 30 m wetland buffer around the existing wetland located on the west side of York River.

INVESTIGATION PROCEDURES

Subsurface Conditions

The test pit and borehole information from the previous geotechnical investigations were referenced for this assessment. Locations of the referenced boreholes are shown on Figure 2 of this report.

In the previous investigation, nine (9) test pits, designated as TP101-20 through TP109-20, were excavated throughout the Site to a depth of 2.0 m below ground surface (mbgs). And to supplement the test pit investigation and assess subsurface conditions at deeper elevations at the Site. Four (4) boreholes, designated BH101-21 through BH104-21, were completed at the Site. The boreholes were advanced to 6.0 mbgs.

Based on the investigation results, subsurface conditions at the Site consist of a surficial layer of 150 mm to 455 mm thick layer of silt topsoil, overlying a thin brown to orange layer of sandy silt soil, extended from beneath the topsoil to between 0.6 mbgs and 1.4 mbgs, which is underlain by a brown with some orangey brown sand. The sand contains varying amounts of silt and trace amounts of gravel and clay, and has generally compact relative density,

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becoming consistently dense to very dense below 3.0 m depth, extended to the test hole termination depths varying from 1.4 mbgs to 6.6 mbgs. Bedrock was not encountered within the investigation depths. Based on these observations it appears that the groundwater table throughout most of the Site is below 2.0 mbgs and quite likely below 6.6 mbgs.

Slope Inspection and Mapping

This section provides comments related to the slope geometry based on the topographic survey and our review of the observations made during a visual inspection of the slope carried out by a Cambium geotechnical engineer on May 22, 2024. The following observations were made:

- The entire property exhibits gentle slope topography with inclination generally varied from 1 Vertical: 5.0 Horizontal (1V:5H) to 1 Vertical: 11.6 Horizontal (1V:11.6H). It is noted that the lower portion of the valley slope is fairly flat with inclination not steeper than 1V:9H.
- The slope stability rating value for current conditions was assessed to be 17, classed as Low Potential.
- The valley land is generally densely covered with grass, weed and bushes, as well as young to mature trees (refer to appended photographs). There was no evidence of significant tree root or trunk creep.
- No evident water seepage was noted at the slope face within the study area.
- Tension cracks and/or other indicators of deep-seated movement of the slope were not observed at or beyond the crest of the slope.

Pertinent details of the slope configuration and related factors to be considered during the stability assessment are documented on Appendix B: Inspection Photos & Slope Rating Chart.

EROSION HAZARD ASSESSMENT

Based on the inclination and site observation this section of the valley land can be defined as “not apparent (unconfined)” in which a river or stream is present

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but there is no discernible valley slope according to MNR guidelines. For the erosion hazard limit in unconfined system, consideration is typically given to the flooding hazard limit or meander belt allowance (20 times the bankfull channel width centred over the meander belt axis) + erosion access allowance (6 metres). Determination of flooding hazard limit or meander belt allowance is not included in our scope, however, a “flooding control limit” has been given as elev. 330 m. We understand that MNR technical guideline typically recommends that a 6 m erosion access allowance be applied for access by equipment to perform necessary maintenance. Figure 2 illustrates the erosion hazard limit (6 m erosion access allowance measured from “flooding control limit”).

Slope Stability Analysis

Although the slope stability rating value was classed as Low Potential, which only require Site inspection, confirmation, report letter as per MNR, for due diligence purpose, a preliminary engineering analysis of slope stability was carried out for one interpreted cross-section (Section B-B), which was considered as most critical section due to steepest lower slope. The analysis was complete by utilizing Slope/W (Version 23.1.0), an industry standard two-dimensional limit equilibrium slope modelling program.

Inputs required for the Slope/W program include soil stratigraphy, geotechnical design parameters and groundwater conditions. Based on the findings from geotechnical investigation, the geotechnical parameters used to evaluate the stability of the slope are presented in Table 1. In general, where subsurface information was limited, engineering judgement was used to infer subsurface conditions and conservative values were used.

Table 1 Soil Parameters for Slope Stability Analyses

Soil Type	Unit Weight (kN/m^3)	Shear Strength	
		Cohesion C’ (kPa)	Friction Angle ϕ’ (º)
Compact Sand to Sandy Silt	19.0	0	30
Dense to Very Dense Silty Sand	20.0	0	33

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July 22, 2024

A piezometric line defining the pore-water pressure condition was illustrated on the model. The stability assessment was based on a limit equilibrium analysis for long term slope stability using Morgenstern–Price method.

The analysis results are summarized in Table 2. Details of the analysis are presented in Appendix C.

Table 2 Stability Analysis Results

Cross Section	Working Condition	Calculated Minimum Factor of Safety (FOS)
Section B-B	Existing – Normal Groundwater – Upper Slope	3.17
Section B-B	Existing – High Groundwater – Upper Slope	3.17
Section B-B	Existing – Normal Groundwater – Lower Slope	4.33
Section B-B	Existing – High Groundwater – Lower Slope	3.60

For lower slope, the analysis results indicate a factor of safety (FOS) of 4.33 for normal groundwater condition and 3.60 for high groundwater condition. The change of groundwater would not affect the upper slope. For the analytical method employed, a FOS of 1.5 is typically appropriate or long-term stability with respect to the industry standards as well as *MNR technical guidelines*. FOSs of the existing slope are much higher than required FOS of 1.5.

Construction Considerations

Site development and construction activities should be conducted in a manner without resulting in surface erosion of the slope. Additional comments related to any future construction at this property, and in terms of slope stability at the site are as follows:

- To reduce the risks of soil erosion on the slope surface, care must be taken to minimize damage to the existing vegetation in and adjacent to the slope (trees, tree roots, grass cover).
- Site grading and drainage should be designed to prevent downspouts or channelized surface runoff from flowing directly over the slope.

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- A sediment control fence must be erected and maintained during construction to isolate work area from the adjoining slope and creek.
- For the landscaping work on the slope, the configuration of the slope should not be altered without prior consultation with a geotechnical engineer.
- The slope must not be steepened.

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July 22, 2024

CLOSING

Cambium trusts that this report meets with your expectations. If you have any questions or require clarification of any aspect of this submission, please do not hesitate to contact the undersigned.

Best regards,

Cambium Inc.

DocuSigned by:

7FDF31DDD18E4AA...

Joshua Riseling, EIT
Coordinator

Signed by:

LICENSED PROFESSIONAL ENGINEER
Z.LUO
100230770
PROVINCE OF ONTARIO

DocuSigned by:

34555F00ED064E9...

Zhaochang Luo, M.Eng., P.Eng.
Senior Project Manager - Team Lead

2024-07-22

JR/zl

Encl. *Cambium Qualifications and Limitations*
Figure 1 – Site Location Plan
Figure 2 – Site Plan
Figure 3 – Cross Sections A-A' B-B' and C-C'
Appendix A – Borehole Logs
Appendix B – Inspection Photos & Slope Rating Chart
Appendix C – Slope Stability Analysis

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July 22, 2024

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

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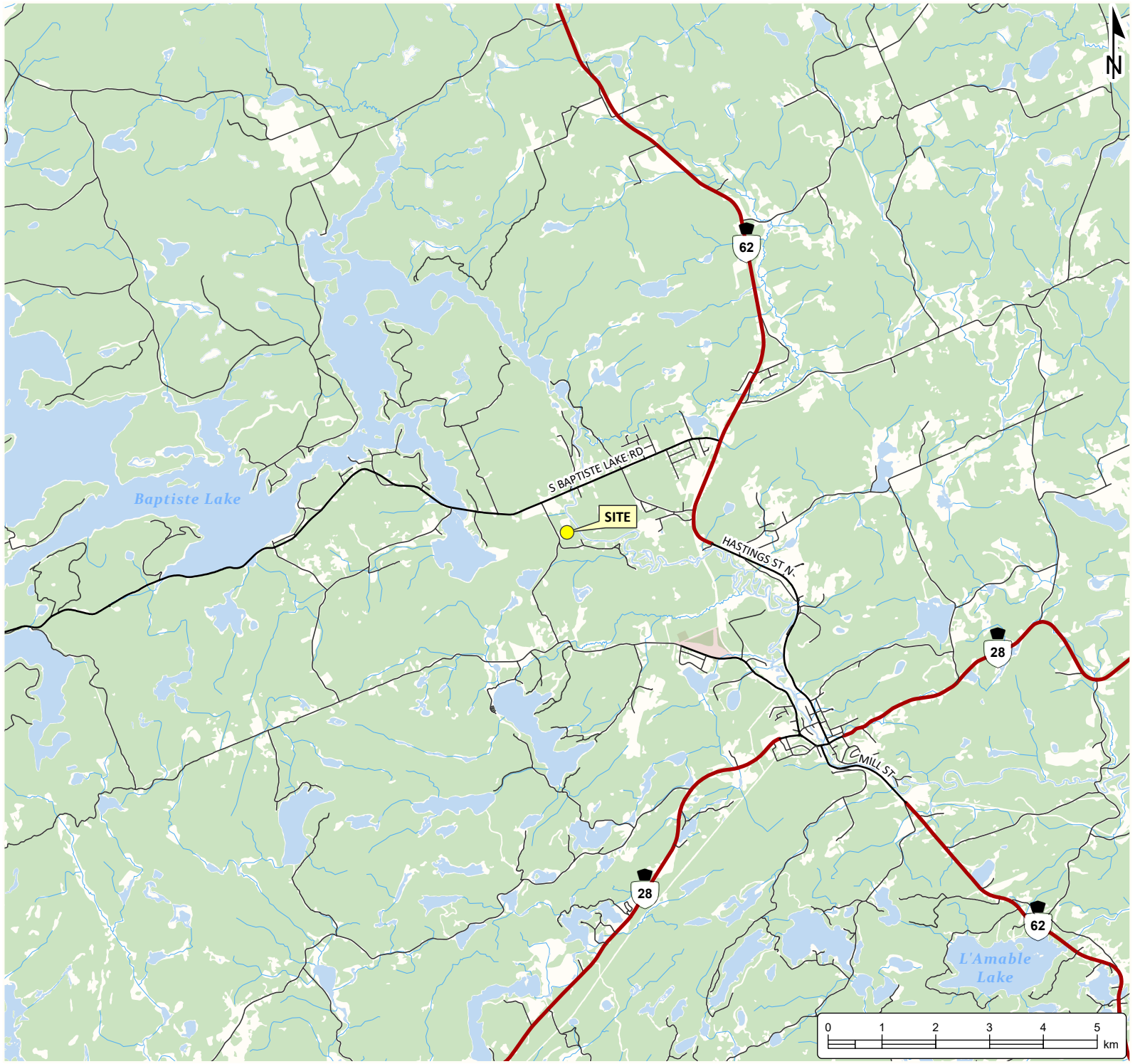

SLOPE STABILITY
WOODCOX ROAD SUBDIVISION

2744529 ONTARIO INC.
Woodcox Road
Bancroft, Ontario

LEGEND

- Highway
- Major Road
- Minor Road
- Watercourse
- Wooded Area
- Water Area

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SITE LOCATION PLAN

Project No.: 11849-003		Date: July 2024	
		Rev.:	
Scale: 1:100,000		Projection: NAD 1983 UTM Zone 17N	
Created by: TLC	Checked by: ZL	Figure:	1

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SLOPE STABILITY
WOODCOX ROAD SUBDIVISION

2744529 ONTARIO INC.
Woodcox Road
Bancroft, Ontario

LEGEND

- Borehole
- Test Pit
- Water's Edge
- Wetland
- 30 m Wetland Setback
- Flooding Control Limit (Elev. 330 m)
- 6 m Access Allowance from Flooding Control Limit
- Site (approximate)
- A—A' Cross Section Location

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BOREHOLE AND TEST PIT PLAN

Project No.: 11849-003		Date: July 2024	Rev.:
Scale: 1:4,000		Projection: NAD 1983 UTM Zone 17N	
Created by: TLC	Checked by: ZL	Figure: 2	

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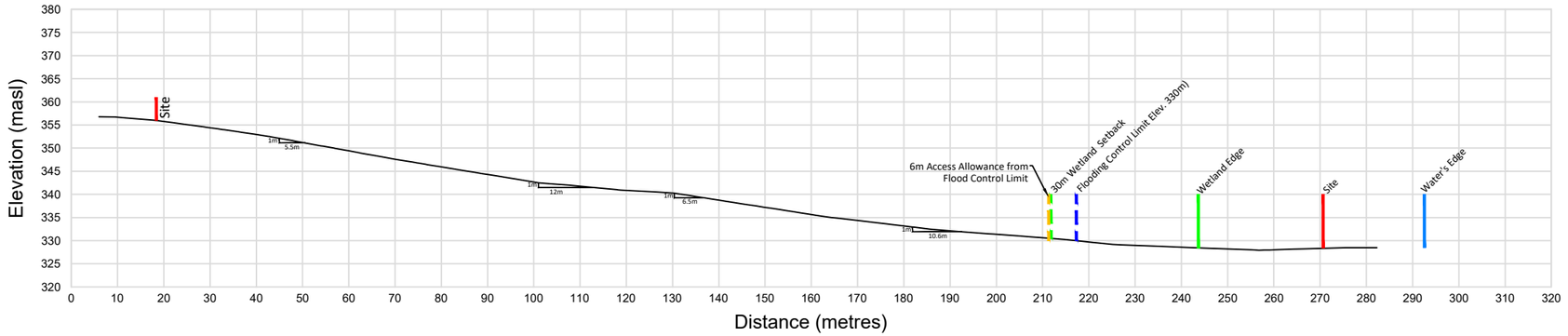
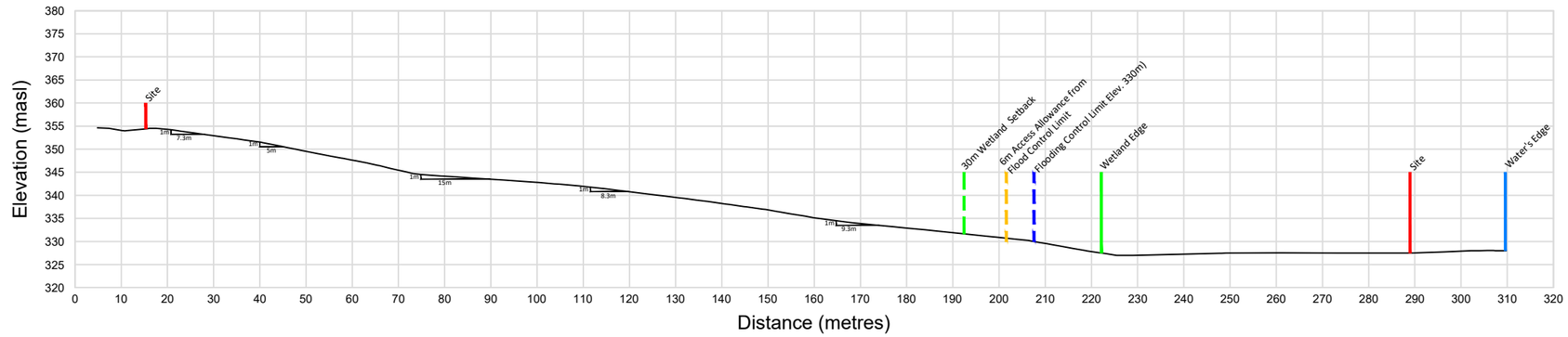
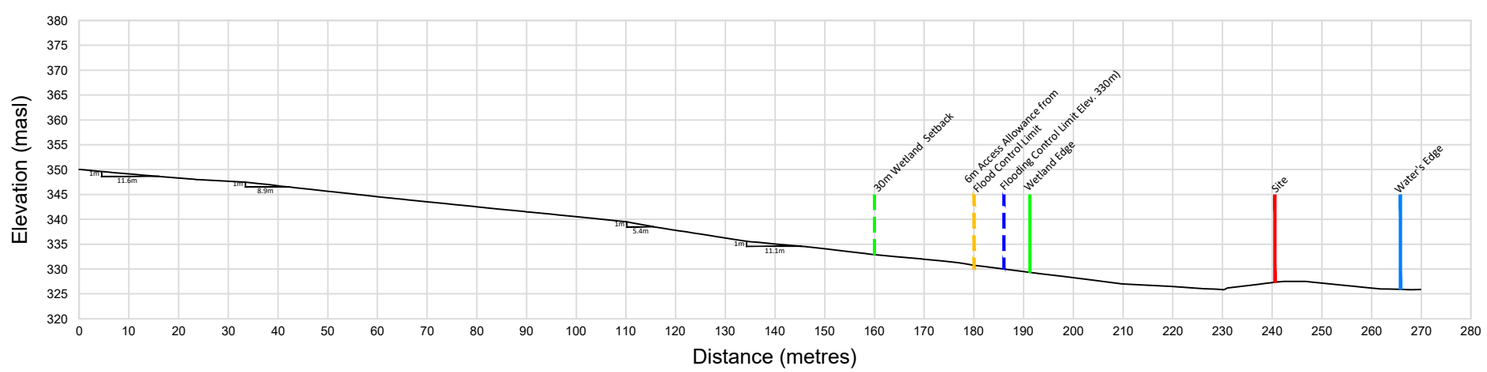
Cross Section A-A'



Cross Section B-B'



Cross Section C-C'



SLOPE STABILITY
WOODCOX ROAD
SUBDIVISION
2744529 Ontario Inc.
Woodcox Road
Bancroft, Ontario

LEGEND

- Site (approximate)
- Water's Edge
- Wetland Edge
- 30m Wetland Setback
- Flooding Control LImit (Elev. 330 m.)
- 6m Access Allowance from Flooding Control Limit

Notes:
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CROSS SECTIONS

Project No.: 11849-001	Date: July 2024	
	Rev.:	
Horizontal Scale: 1:1,200	Vertical Scale: 1:1	
Drawn By: TLC	Checked By: ZL	Figure: 3

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Log of Borehole: BH101-21

Client:	Ecostructure Canada	**Project Name:**	Geotechnical Investigation	**Project No.:**	11849-001
Contractor:	Drilltech Drilling Ltd.	**Method:**	Solid Stem Auger	**Date Completed:**	March 2, 2021
Location:	512 Woodcox Road, Harcourt, ON	**UTM:**	18T 270832 m E 4997332 m N	**Elevation:**	343.75 masl

SUBSURFACE PROFILE			SAMPLE							
Elevation (m) / Depth	Lithology	Description	Number	Type	% Recovery	SPT (N) / DCPT	% Moisture (25 50 75)	SPT (N) / DCPT (10 20 30 40)	Well Installation	Remarks
0		TOPSOIL: Dark brown, silt, organics, frozen	1	SS	83	2				
343		SILT: Brown, silt, some sand, frozen								
1		SAND: Brown, sand, some silt, moist, very dense	2	SS	67	72				Groundwater seepage first encountered at 1.5 m depth
342		SAND AND SILT: Brown, sand and silt, trace gravel and clay, moist to wet, compact	3	SS	100	20				SS3 GSA 5% gravel 54% sand 36% silt 5% clay
2										
341		-becomes wet	4	SS	100	20				Borehole open and groundwater encountered at 1.5 mbgs upon completion
3		-becomes dense	5	SS	100	33				
340										
4										
339		-becomes very dense	6	SS	100	78				Caving of borehole occurred at 4.6 mbgs
5										
338										
6		-becomes saturated	7	SS	100	50/ 125				
337		Borehole terminated at 6.6 mbgs in sand and silt								
7										

Logged By: J. Riseling **Input By:** J. Riseling

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Log of Borehole: BH102-21

Client:	Ecostructure Canada	**Project Name:**	Geotechnical Investigation	**Project No.:**	11849-001
Contractor:	Drilltech Drilling Ltd.	**Method:**	Solid Stem Auger	**Date Completed:**	March 2, 2021
Location:	512 Woodcox Road, Harcourt, ON	**UTM:**	18T 270799 m E 4997400 m N	**Elevation:**	342.50 masl

SUBSURFACE PROFILE			SAMPLE							
Elevation (m) / Depth	Lithology	Description	Number	Type	% Recovery	SPT (N) / DCPT	% Moisture (25 50 75)	SPT (N) / DCPT (10 20 30 40)	Well Installation	Remarks
0 / 342		TOPSOIL: Dark brown, silt, organics, frozen	1	SS	75	24				
		SILT AND SAND: Brown, silt and sand, frozen								
1 / 341		SAND: Brown, sand, some silt, moist, dense	2	SS	100	44				
2 / 340		-some gravel	3	SS	100	33				
		SILTY SAND: Brown, silty sand, some gravel, moist, dense	4	SS	100	35				
3 / 339			5	SS	100	32				
4 / 338										
5 / 337		-becomes grey/brown, no gravel, wet, very dense	6	SS	100	50/125				
6 / 336		-becomes saturated	7	SS	100	50/25				Borehole open and dry upon completion
7 / 335		Borehole terminated at 6.6 mbgs in silty sand								

Logged By: J. Riseling **Input By:** J. Riseling

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Log of Borehole: BH103-21

Client:	Ecostructure Canada	**Project Name:**	Geotechnical Investigation	**Project No.:**	11849-001
Contractor:	Drilltech Drilling Ltd.	**Method:**	Solid Stem Auger	**Date Completed:**	March 2, 2021
Location:	512 Woodcox Road, Harcourt, ON	**UTM:**	18T 270763 m E 4997477 m N	**Elevation:**	342.25 masl

SUBSURFACE PROFILE			SAMPLE							
Elevation (m) / Depth	Lithology	Description	Number	Type	% Recovery	SPT (N) / DCPT	% Moisture (25 50 75)	SPT (N) / DCPT (10 20 30 40)	Well Installation	Remarks
342 / 0		TOPSOIL: Dark brown, silt, organics, frozen	1	SS	75	14				SS4 GSA 3% gravel 54% sand 36% silt 7% clay
		SANDY SILT: Orange/brown, sandy silt, frozen								
341 / 1		SAND: Brown, sand, trace silt, moist, compact	2	SS	100	25				
		-trace gravel, dense	3	SS	100	37				
340 / 2										
		SAND AND SILT: Brown, sand and silt, moist, compact	4	SS	100	19				
339 / 3		SILTY SAND: Brown, silty sand, moist, dense	5	SS	100	32				
338 / 4										
		-becomes moist to wet	6	AS	100	41				
337 / 5										
336 / 6		-trace gravel, dense	7	SS	100	85				Borehole open and dry upon completion
		Borehole terminated at 6.6 mbgs in silty sand								
335 / 7										

Logged By: J. Riseling **Input By:** J. Riseling

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Log of Borehole: BH104-21

Client:	Ecostructure Canada	**Project Name:**	Geotechnical Investigation	**Project No.:**	11849-001
Contractor:	Drilltech Drilling Ltd.	**Method:**	Solid Stem Auger	**Date Completed:**	March 2, 2021
Location:	512 Woodcox Road, Harcourt, ON	**UTM:**	18T 270714 m E 4997600 m N	**Elevation:**	342.50 masl

SUBSURFACE PROFILE			SAMPLE							
Elevation (m) / Depth	Lithology	Description	Number	Type	% Recovery	SPT (N) / DCPT	% Moisture (25 50 75)	SPT (N) / DCPT (10 20 30 40)	Well Installation	Remarks
342 / 0		TOPSOIL: Dark brown, silt, organics, frozen								
		SANDY SILT: Brown, sandy silt, frozen	1	SS	75	14				
341 / 1		SAND: Brown, sand, trace silt, moist, loose	2	SS	56	6				
		SILTY SAND: Brown, silty sand, trace gravel, moist, compact to dense	3	SS	89	29				SS3 GSA 9% gravel 60% sand 28% silt 3% clay
340 / 2			4	SS	100	47				
339 / 3		SAND: Brown, sand, some silt, some gravel, moist, dense	5	SS	100	42				
338 / 4		SILTY SAND: Brown, silty sand, trace gravel, moist, very dense	6	SS	100	73				
337 / 5										
336 / 6			7	SS	100	50/100				Borehole open and dry upon completion
335 / 7		Borehole terminated at 6.6 mbgs in silty sand								

Logged By: J. Riseling **Input By:** J. Riseling

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Log of Test Pit: TP101-20

Client:	Ecostructure Canada	**Project Name:**	Woodcox Road Subdivision	**Project No.:**	11849-001
Contractor:	Yantha Excavating	**Method:**	Excavator	**Date Completed:**	Dec 17, 2020
Location:	Woodcox Road, Bancroft	**UTM:**	18T 270814.04 E 4997617.17 N	**Elevation:**	331.3 masl

SUBSURFACE PROFILE			SAMPLE							
Elevation (m) / Depth	Lithology	Description	Number	Type		DPT	% Moisture (25 50 75)	DPT (5 10 15 20)		Remarks
0 / 331		TOPSOIL: 150 mm thick	1	GS		4				
		SAND: Brown sand, trace silt, trace organics, moist, compact to dense				6				
						10				
						11				
			2	GS		15				
						17				
1 / 330						20				
						30				
		SAND: Brown coarse sand, trace gravel, moist, very dense				17				
						30				
			3	GS		32				
						30				
2 / 329						35				
						40				
		Test pit terminated at 2.0 m depth at maximum reach of excavator arm				>50				
3 / 328										
4 / 327										

Logged By: S. Kennaley **Input By:** J. Wales

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Log of Test Pit: TP102-20

Client:	Ecostructure Canada	**Project Name:**	Woodcox Road Subdivision	**Project No.:**	11849-001
Contractor:	Yantha Excavating	**Method:**	Excavator	**Date Completed:**	Dec 17, 2020
Location:	Woodcox Road, Bancroft	**UTM:**	18T 270856.25 E 4997542.24 N	**Elevation:**	330.0 masl

SUBSURFACE PROFILE			SAMPLE							
Elevation (m) / Depth	Lithology	Description	Number	Type		DPT	% Moisture (25 50 75)	DPT (5 10 15 20)		Remarks
0		TOPSOIL: 305 mm thick	1	GS		3				
						2				
		SAND: Brown sand, some cobbles, trace gravel, trace silt, trace organics, moist, loose to compact	2	GS		3				
						3				
						8				
329						10				
1		SAND: Brown coarse sand, some cobbles, trace gravel, moist, compact to very dense	3	GS		25				
						>50				
						25				
		Test pit terminated at 1.4 m depth due to refusal								
328										
2										
327										
3										
326										
4										

Logged By: S. Kennaley **Input By:** J. Wales

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Log of Test Pit: TP103-20

Client:	Ecostructure Canada	**Project Name:**	Woodcox Road Subdivision	**Project No.:**	11849-001
Contractor:	Yantha Excavating	**Method:**	Excavator	**Date Completed:**	Dec 17, 2020
Location:	Woodcox Road, Bancroft	**UTM:**	18T 270860.98 E 4997433.06 N	**Elevation:**	334.0 masl

Elevation (m) / Depth	Lithology	Description	Number	Type	DPT	% Moisture (25 50 75)	DPT (5 10 15 20)	Remarks
0		TOPSOIL: 455 mm thick	1	GS	2 2 3			
333 — 1		SANDY SILT: Light brown to orange sandy silt, mottled, trace organics, moist, loose to compact - saturated, groundwater seepage at 0.75 m depth	2	GS	4 17 23 35			
		SAND: Brown coarse sand, trace cobbles, trace gravel, moist, dense to very dense	3	GS	40 6 25 26 33 32			
332 — 2		Test pit terminated at 2.0 m depth at maximum reach of excavator arm			42 >50			
331 — 3								
330 — 4								

Logged By: S. Kennaley **Input By:** J. Wales

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Log of Test Pit: TP104-20

Client:	Ecostructure Canada	**Project Name:**	Woodcox Road Subdivision	**Project No.:**	11849-001
Contractor:	Yantha Excavating	**Method:**	Excavator	**Date Completed:**	Dec 17, 2020
Location:	Woodcox Road, Bancroft	**UTM:**	18T 270706.52 E 4997628.84 N	**Elevation:**	342.5 masl

SUBSURFACE PROFILE			SAMPLE							
Elevation (m) / Depth	Lithology	Description	Number	Type		DPT	% Moisture (25 50 75)	DPT (5 10 15 20)		Remarks
0 / 342		SAND: Brown sand, trace silt, moist, loose to compact	1	GS		2				
						4				
						3				
						4				
1 / 341						5				
						5				
						6				
						15				
		SAND: Brown coarse sand, moist, compact	2	GS		5				
						6				
						5				
						5				
						5				
2 / 340		Test pit terminated at 2.0 m depth at maximum reach of excavator arm				13				
						15				
						21				
3 / 339										
4 / 338										

Logged By: S. Kennaley **Input By:** J. Wales

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Log of Test Pit: TP105-20

Client:	Ecostructure Canada	**Project Name:**	Woodcox Road Subdivision	**Project No.:**	11849-001
Contractor:	Yantha Excavating	**Method:**	Excavator	**Date Completed:**	Dec 17, 2020
Location:	Woodcox Road, Bancroft	**UTM:**	18T 270746.23 E 4997528.41 N	**Elevation:**	341.0 masl

SUBSURFACE PROFILE			SAMPLE							
Elevation (m) / Depth	Lithology	Description	Number	Type		DPT	% Moisture (25 50 75)	DPT (5 10 15 20)		Remarks
0		TOPSOIL: 305 mm thick	1	GS		1				
						2				
		SANDY SILT: Light brown to orange sandy silt, mottled, some cobbles, trace gravel, trace organics, moist, loose to dense	2	GS		4				
						6				
						15				
340 — 1						38				
						>50				
		SAND: Light brown to orange coarse sand, some cobbles, trace gravel, moist, very dense	3	GS		25				
						>50				
		Test pit terminated at 1.5 m depth due to refusal								
339 — 2										
338 — 3										
337 — 4										

Logged By: S. Kennaley **Input By:** J. Wales

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Log of Test Pit: TP106-20

Client:	Ecostructure Canada	**Project Name:**	Woodcox Road Subdivision	**Project No.:**	11849-001
Contractor:	Yantha Excavating	**Method:**	Excavator	**Date Completed:**	Dec 17, 2020
Location:	Woodcox Road, Bancroft	**UTM:**	18T 270796.19 E 4997384.23 N	**Elevation:**	342.8 masl

SUBSURFACE PROFILE			SAMPLE							
Elevation (m) / Depth	Lithology	Description	Number	Type		DPT	% Moisture (25 50 75)	DPT (5 10 15 20)		Remarks
0 / 342		TOPSOIL: 305 mm thick	1	GS		1 2				
		SANDY SILT: Light brown to orange sandy silt, mottled, trace cobbles, trace organics, moist, loose	2	GS		2 3				
1 / 341		SAND: Light brown sand, trace cobbles, trace silt, moist, compact to dense	3	GS		6 13 25 26				
		SAND: Brown coarse sand, trace cobbles, trace gravel, moist, very dense	4	GS		26 >50				
2 / 340		Test pit terminated at 2.0 m depth at maximum reach of excavator arm								
3 / 339										
4										

Logged By: S. Kennaley **Input By:** J. Wales

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Log of Test Pit: TP107-20

Client:	Ecostructure Canada	**Project Name:**	Woodcox Road Subdivision	**Project No.:**	11849-001
Contractor:	Yantha Excavating	**Method:**	Excavator	**Date Completed:**	Dec 17, 2020
Location:	Woodcox Road, Bancroft	**UTM:**	18T 270849.80 E 4997297.76 N	**Elevation:**	344.0 masl

SUBSURFACE PROFILE			SAMPLE							
Elevation (m) / Depth	Lithology	Description	Number	Type		DPT	% Moisture (25 50 75)	DPT (5 10 15 20)		Remarks
0		TOPSOIL: 305 mm thick	1	GS		2 4				
343 / 1		SANDY SILT: Light brown to orange sandy silt, mottled, trace cobbles, trace organics, moist, compact	2	GS		4 5 9 19 24				
		SAND: Brown coarse sand, trace cobbles, trace gravely, saturated, dense to very dense	3	GS		24 10 25 36 >50				
342 / 2		Test pit terminated at 2.0 m depth at maximum reach of excavator arm								
341 / 3										
340 / 4										

Logged By: S. Kennaley **Input By:** J. Wales

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Log of Test Pit: TP108-20

Client:	Ecostructure Canada	**Project Name:**	Woodcox Road Subdivision	**Project No.:**	11849-001
Contractor:	Yantha Excavating	**Method:**	Excavator	**Date Completed:**	Dec 17, 2020
Location:	Woodcox Road, Bancroft	**UTM:**	18T 270883.33 E 4997244.27 N	**Elevation:**	347.5 masl

SUBSURFACE PROFILE			SAMPLE							
Elevation (m) / Depth	Lithology	Description	Number	Type		DPT	% Moisture (25 50 75)	DPT (5 10 15 20)		Remarks
0 / 347		TOPSOIL: 150 mm thick	1	GS		1				
		SANDY SILT: Light brown to orange sandy silt, mottled, trace cobbles, trace organics, moist, loose to dense	2	GS		2 3 5 16 27 32 35				
1 / 346		SAND: Brown coarse sand, trace cobbles, trace gravel, moist, very dense	3	GS		27 46				
2 / 345		Test pit terminated at 1.5 m depth due to refusal				>50				
3 / 344										
4 / 343										

Logged By: S. Kennaley **Input By:** J. Wales

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Log of Test Pit: TP109-20

Client:	Ecostructure Canada	**Project Name:**	Woodcox Road Subdivision	**Project No.:**	11849-001
Contractor:	Yantha Excavating	**Method:**	Excavator	**Date Completed:**	Dec 17, 2020
Location:	Woodcox Road, Bancroft	**UTM:**	18T 270624.45 E 4997625.12 N	**Elevation:**	350.8 masl

SUBSURFACE PROFILE			SAMPLE							
Elevation (m) / Depth	Lithology	Description	Number	Type		DPT	% Moisture (25 50 75)	DPT (5 10 15 20)		Remarks
0		TOPSOIL: 150 mm thick	1	GS		1				
350		SANDY SILT: Brown sandy silt, trace cobbles, trace organics, moist, loose to compact				1				
						3				
						3				
			2	GS		3				
1						9				
						15				
						>50				
						>50				
349		Test pit terminated at 1.4 m depth due to refusal								
2										
348										
3										
347										
4										

Logged By: S. Kennaley **Input By:** J. Wales

Photo 1: View of the bottom of slope, looking south, showing mixed mature coniferous and deciduous trees along the face and York River at base.

Photo 2: View of the bottom of slope, looking north, showing grasses and mixed mature coniferous and deciduous trees along the face and York River at base.

Photo 3: View of slope, looking west, showing from bottom to top. Light brown sand (medium-grained), some silt, trace gravel. Mixed mature coniferous and deciduous trees along the face.

Photo 4: View of slope, looking east, showing from top to bottom. Light brown sand (medium-grained), some silt, trace gravel. Mixed mature coniferous and deciduous trees along the face, and York River at base.

Photo 5: View of top of slope, looking south, showing grasses and mixed coniferous and deciduous trees.

Photo 6: View of top of slope, looking north, showing grasses and mixed coniferous and deciduous trees.

Photo 7: View of slope, looking south, showing the profile view of the slope. Mixed saplings and mature trees along the face of the slope and York River at the east of the slope.

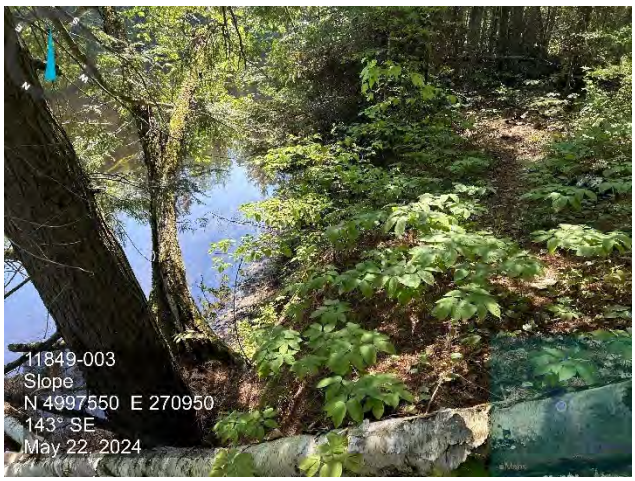


Photo 8: View of slope, looking further south, showing the profile view of the slope. Mixed saplings and mature trees along the face of the slope and York River at the east of the slope.

Photo 9: View of the bottom of slope, looking north from further south, showing mixed mature coniferous and deciduous trees along the face and York River at base.

SLOPE STABILITY RATING CHART

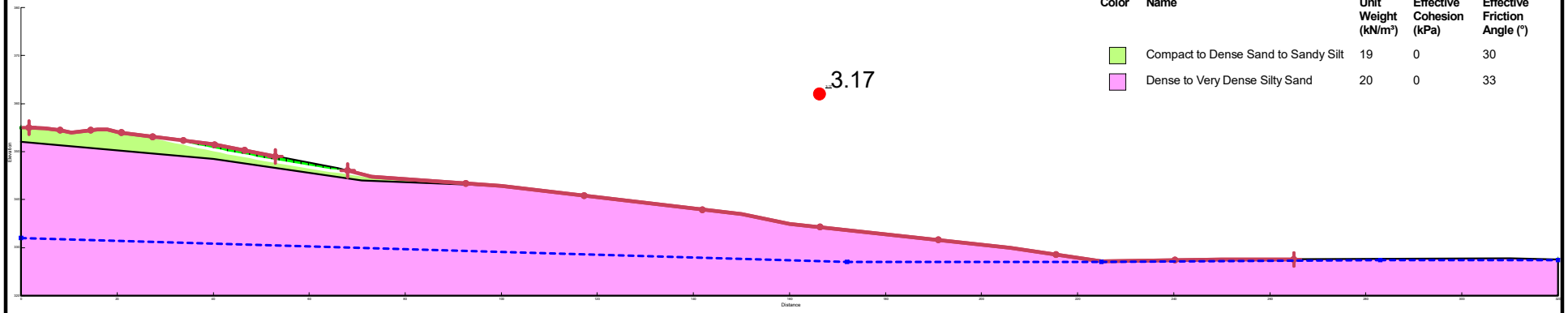
Site Location:	Woodcox Road, Bancroft	File No.	11849-003
Property Owner:	2744529 Ontario Inc	Inspection Date:	2024-05-22
Inspected By:	Josh Riseling	Weather:	Sunny

Inspection Task		Rating Value
1. SLOPE INCLINATION		
Degrees	**Horizontal:Vertical**	
a) 18 or less	3:1 or flatter	0
b) 18 to 26	2:1 to more than 3:1	6
c) more than 26	Steeper than 2:1	16
2. SOIL STRATIGRAPHY		
a) Shale, Limestone, Granite (Bedrock)		0
b) Sand, Gravel		6
c) Glacial Till		9
d) Clay, Silt		12
e) Fill		16
f) Leda Clay		24
3. SEEPAGE FROM SLOPE FACE		
a) None or near bottom only		0
b) Near mid-slope only		6
c) Near crest only or from several levels		12
4. SLOPE HEIGHT		
a) 2 m or less		0
b) 2.1 to 5 m		2
c) 5.1 to 10 m		4
d) more than 10 m		8
5. VEGETATION COVER ON SLOPE FACE		
a) Well vegetated, heavy shrubs or forested with mature trees		0
b) Light Vegetation; Mostly grass, weeds, occasional trees, shrubs		4
c) No vegetation, bare		8
6. TABLE LAND DRAINAGE		
a) Table land flat, no apparent drainage over slope		0
b) Minor drainage over slope, no active erosion		2
c) Drainage over slope, active erosion, gullies		4
7. PROXIMITY OF WATERCOURSE TO SLOPE TOE		
a) 15 m or more from slope toe		0
b) Less than 15 m from slope toe		6
8. PREVIOUS LANDSLIDE ACTIVITY		
a) No		0
b) Yes		6
	RATING VALUES TOTAL	**17**

SLOPE INSTABILITY RATING		INVESTIGATION REQUIREMENTS
1. Low Potential	<24	Site inspection only, confirmation, report letter
2. Slight Potential	25 - 35	Site inspection and surveying, preliminary study, detailed report
3. Moderate Potential	>35	Boreholes, piezometers, lab tests, surveying detailed report

Source: Table 8.1 Geotechnical Principles for Stable Slopes (June 1998), Ontario Ministry of Natural Resources

Section B-B Existing Conditions Upper Slope



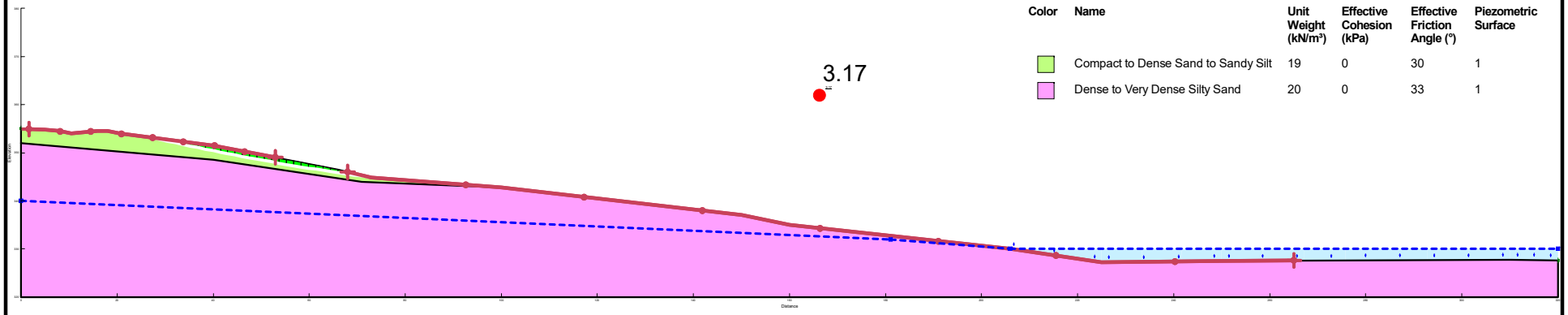
Color	Name	Unit Weight (kN/m³)	Effective Cohesion (kPa)	Effective Friction Angle (°)
	Compact to Dense Sand to Sandy Silt	19	0	30
	Dense to Very Dense Silty Sand	20	0	33

SLOPE/W Analysis

Section B-B Existing Conditions.gsz

07/19/2024 1:1,276

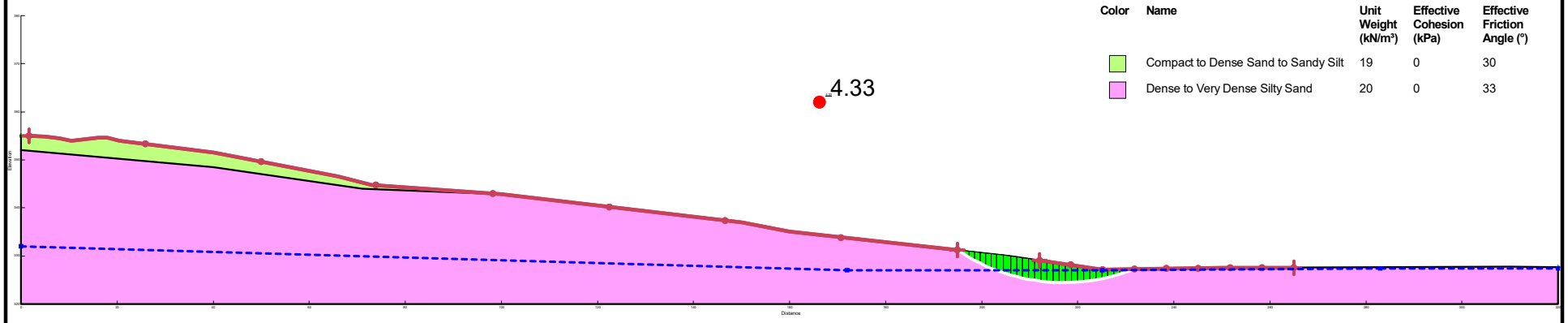
Section B-B Hypothetical Flooding Conditions, Upper Slope



Color	Name	Unit Weight (kN/m³)	Effective Cohesion (kPa)	Effective Friction Angle (°)	Piezometric Surface
	Compact to Dense Sand to Sandy Silt	19	0	30	1
	Dense to Very Dense Silty Sand	20	0	33	1

SLOPE/W Analysis	
Section B-B Hypothetical Flooding Conditions.gsz	
07/19/2024	1:1,276

Section B-B Existing Conditions Lower Slope



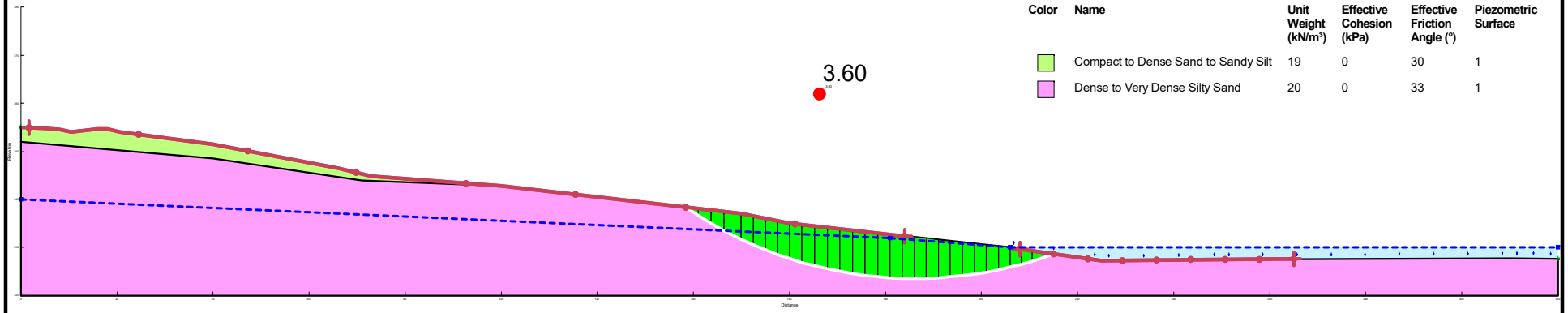
Color	Name	Unit Weight (kN/m³)	Effective Cohesion (kPa)	Effective Friction Angle (°)
	Compact to Dense Sand to Sandy Silt	19	0	30
	Dense to Very Dense Silty Sand	20	0	33

SLOPE/W Analysis

Section B-B Existing Conditions Lower Slope.gsz

07/19/2024 1:1,276

Section B-B Hypothetical Flooding Conditions, Lower Slope



Color	Name	Unit Weight (kN/m³)	Effective Cohesion (kPa)	Effective Friction Angle (°)	Piezometric Surface
	Compact to Dense Sand to Sandy Silt	19	0	30	1
	Dense to Very Dense Silty Sand	20	0	33	1

SLOPE/W Analysis	
Section B-B Hypothetical Flooding Conditions Lower Slope.gsz	
07/19/2024	1:1,276