



Environmental

Planning

Geotechnical

Material Testing

Building Sciences

CONTACT US:

Telephone

(866) 217.7900

(705) 742.7900

Facsimile

(705) 742.7907

Website

www.cambium-env.com

PETERBOROUGH:

Head Office

P.O. Box 325

52 Hunter Street East

Peterborough, Ontario

K9H 1G5

Material Testing Laboratory

P.O. Box 325

701 The Queensway

Peterborough, Ontario

K9J 7J6

BARRIE:

Office

P.O. Box 31035

Barrie, Ontario

L4N 9H0



March 14, 2017

Triple T Holdings
P.O. Box 1079, Peterborough, ON
K9J 7A9, Canada

Attn: Bill Turner

**Re: Geotechnical Investigation
2036 7th Line, Lakefield, Ontario
Cambium Reference: 5874-001**

Dear Mr. Turner,

This letter summarizes the findings of the geotechnical investigation completed on March 8, 2017 at the above-noted site. The investigation was completed to provide information to the Triple T Holdings on the existing subsurface conditions at the Site.

TEST PIT INVESTIGATION

The land under investigation is currently undeveloped and is south of a parcel of land containing a speed skating oval with a small parking area. The investigation was completed with test pits, which were advanced by a Client provided backhoe under the supervision of a Cambium technician. Six (6) test pits, designated as TP101-17 through TP106-17 were excavated at the Site in the locations for the proposed development. The test pits were advanced to competent limestone bedrock at depths between 0.7 m and 1.7 m below ground surface (mbgs). Dynamic Probe Penetration Test (DPT) values were recorded for the sampled intervals as the number of blows required to drive a 19 mm diameter steel rod into the soil with an 8 kg hammer falling 750 mm. The DPT values are used in this report to assess consistency of cohesive soils and relative density of non-cohesive materials. Representative soil samples were collected of each stratigraphy for future reference and possible laboratory testing. The test pit locations are shown on Figure 1 appended to the end of this letter.

SUBSURFACE CONDITIONS

Subsurface conditions at the Site generally consisted of topsoil underlain by a silty sand to silt till layer, underlain by bedrock. Topsoil in this area was sandy silt with some organics and ranged from 230 mm to 380 mm with an average thickness of 328 mm. At the time of investigation the topsoil was moist and DPT tests yielded a blow count of 3 to 8, indicating a loose to compact relative density.

The layer directly beneath the topsoil can be described as a silty sand till to silt with a trace to some gravel and cobbles, and trace to no organics. This layer was moist to saturated at the time of investigation. DPT testing in this layer yielded results of 4 to 20 indicating a compact to very dense relative density. This till layer started immediately below the topsoil layer and extended to



Environmental

Planning

Geotechnical

Material Testing

Building Sciences

CONTACT US:

Telephone

(866) 217.7900

(705) 742.7900

Facsimile

(705) 742.7907

Website

www.cambium-env.com

PETERBOROUGH:

Head Office

P.O. Box 325

52 Hunter Street East

Peterborough, Ontario

K9H 1G5

Material Testing Laboratory

P.O. Box 325

701 The Queensway

Peterborough, Ontario

K9J 7J6

BARRIE:

Office

P.O. Box 31035

Barrie, Ontario

L4N 9H0



March 14, 2017

depths between 0.71 mbgs to 1.68 mbgs where all test pits terminated on practical refusal on competent bedrock.

Each test pit, with the exception of TP103-17, encountered an approximately 0.15 m to 0.46 m thick layer of significantly weathered and fractured bedrock that was easily broken up by the back hoe before encountering the competent limestone. Detailed test pit logs are attached.

SUBSURFACE CONDITIONS

As discussed above, the significant aspects of the subsurface conditions at the site are summarized below:

- Competent limestone bedrock was encountered between depths of 0.71 m and 1.68 m below existing site grades.
- Groundwater seepage was observed in all of the test pits with the exception of TP103-17, at depths ranging from 0.60 mbgs to 1.52 mbgs.
- With the exception of TP103-17, a layer of broken limestone and shale (weathered bedrock) with seams of silty sand to silt, was consistently encountered just before the competent limestone bedrock.
- The allowable bearing capacity for footings set on clean limestone bedrock at the site can be assumed to be 800 kPa (SLS & ULS), while the allowable bearing capacity for the glacial till above the bedrock is 150 kPa at SLS, 225 kPa at ULS.

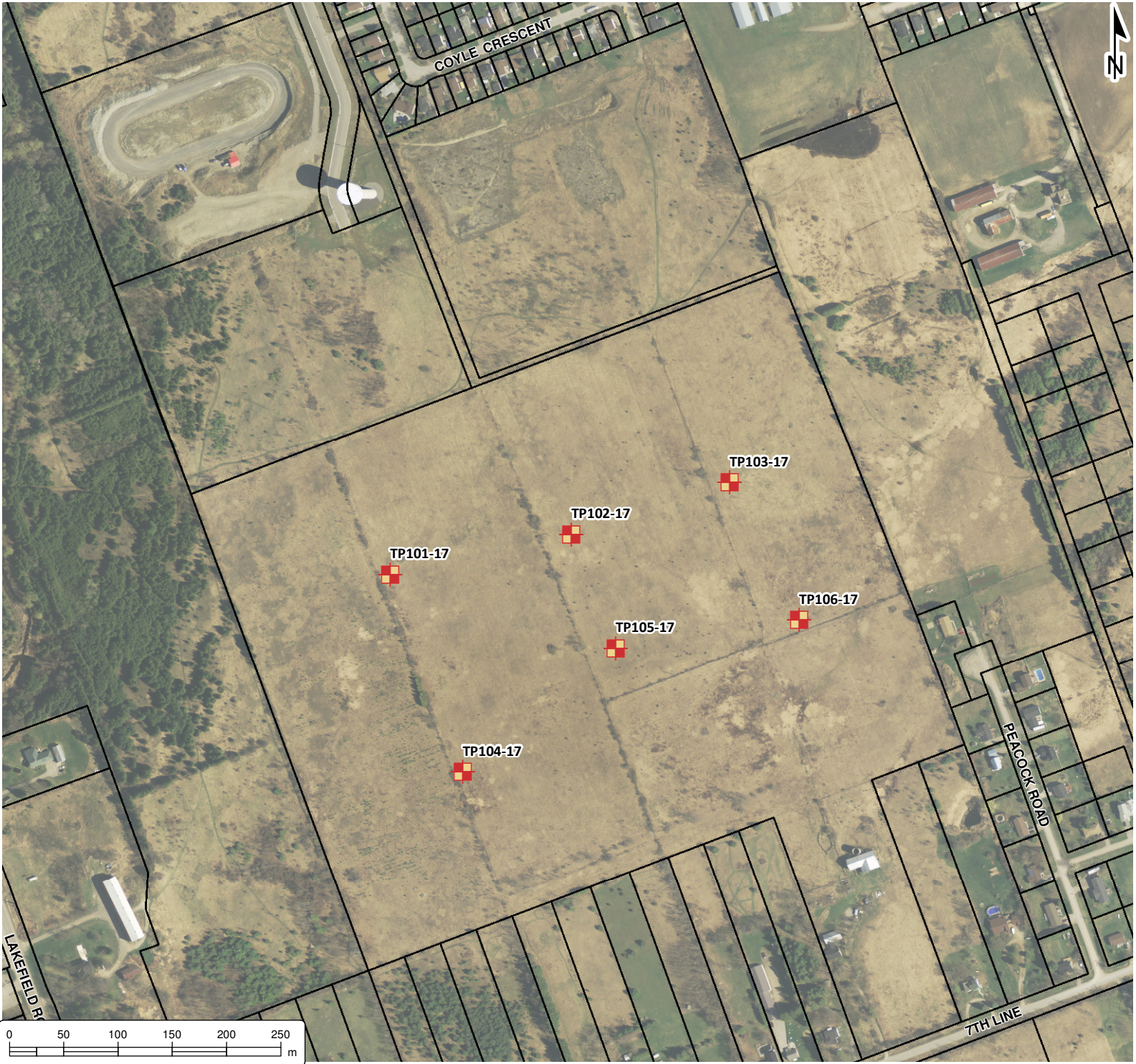
Cambium trusts that this information is sufficient for your needs. If you have any questions or require clarification of any aspect of this submission, please do not hesitate to contact the undersigned at (705) 742-7900 extension 332.

Best regards,

CAMBIUM INC.



Stuart Baird, P.Eng.
Senior Project Manager

\\mapp\projects\5800 to 5899\5874-001 Triple T Holdings - Test Pit Investigation - 3358 Lakefield Road, Lakefield\Deliverables\REPORT - Geotech\2017-03-10 LTR 2036 7th Line, Lakefield.docx



GEOTECHNICAL INVESTIGATION
TRIPLE T HOLDINGS
 2036 7th Line,
 Lakefield, Ontario

LEGEND

-  Test Pit
-  Parcel Fabric

Test Pit	Easting	Northing
TP101-17	716592	4921236
TP102-17	716759	4921273
TP103-17	716905	4921321
TP104-17	716659	4921054
TP105-17	716800	4921168
TP106-17	716969	4921194

Notes:
 - Parcel fabric and 2013 aerial imagery obtained March 2017 from the County of Peterborough online GIS.
 - Base mapping features are © Queen's Printer of Ontario, 2015 (this does not constitute an endorsement by the Ministry of Natural Resources or the Ontario Government).
 - Distances on this plan are in metres and can be converted to feet by dividing by 0.3048.
 - Cambium Inc. makes every effort to ensure this map is free from errors but cannot be held responsible for any damages due to error or omissions. This map should not be used for navigation or legal purposes. It is intended for general reference use only.



P.O. Box 325, 52 Hunter Street East
 Peterborough, Ontario, K9H 1G5
 Tel: (705) 742.7900 Fax: (705) 742.7907
 www.cambium-inc.com

TEST PIT LOCATION PLAN

Project No.: 5874-001	Date: March 2017
Scale: 1:5,000	Projection: NAD 1983 UTM Zone 17N
Created by: GJM	Checked by: SEB
Figure: 1	

O:\GIS\project_L\X\0615800-5899\5874-001 Triple T Holdings - Test Pit Investigation - 3359 Lakefield Road, Lakefield\2017\7-03-10 FIG. 1 Test Pit Location Plan.mxd

TABLE 1: TEST PIT LOGS

2036 7th Line, Lakefield

Technician: Juan Monroy

Cambium Reference No. 5874-001

Completed: March 8, 2017



Test Pit ID	Depth (mbgs ¹)	Soil Sample	Material Description	Depth (m)	DPT ² (Blows/150 mm)
TP101-17	0.0 - 0.23	GS1	Topsoil	0.00 - 0.15	3
	0.23 - 1.37	GS2	Brown silt, some gravel, some clay, trace cobbles (till), wet to saturated	0.15 - 0.30	5
	1.37 - 1.68		Weathered and fractured limestone, silt seams throughout	0.30 - 0.45	14
	1.52		Groundwater seepage	0.45 - 0.60	>20
	1.68		Limestone bedrock	1.20 - 1.35	5
				1.35 - 1.50	4
			1.50 - 1.65	>20	
TP102-17	0.0 - 0.28	GS1	Topsoil	0.00 - 0.15	8
	0.28 - 1.22		Brown silty sand, some cobbles (till), organics present to 0.61 m, wet to saturated	0.15 - 0.30	3
	1.22	GS2		0.30 - 0.45	12
	1.22 - 1.68		Weathered and fractured limestone, silty sand seams throughout	0.45 - 0.60	11
	1.20		Groundwater seepage	0.60 - 0.75	20
	1.68		Limestone bedrock	1.20 - 1.35	>20
TP103-17	0.0 - 0.38	GS1	Topsoil	0.00 - 0.15	5
	0.38 - 0.91		Grey sandy silt, some gravel, trace cobbles (till), moist to wet	0.15 - 0.30	7
	0.91		Limestone bedrock	0.30 - 0.45	12
			No groundwater seepage	0.45 - 0.60	20
TP104-17	0.0 - 0.36	GS1	Topsoil	0.00 - 0.15	3
	0.36 - 1.37		Light brown to grey sandy silt, some gravel, trace cobbles (till), wet to saturated	0.15 - 0.30	6
	1.37 - 1.52		Weathered and fractured limestone, sandy silt seams throughout	0.30 - 0.45	9
	1.37		Groundwater seepage	0.45 - 0.60	11
	1.52		Limestone bedrock	0.60 - 0.75	17
				0.75 - 0.90	>20
				1.20 - 1.35	4
				1.35 - 1.50	>20

TABLE 1: TEST PIT LOGS

2036 7th Line, Lakefield

Technician: Juan Monroy

Cambium Reference No. 5874-001

Completed: March 8, 2017



Test Pit ID	Depth (mbgs ¹)	Soil Sample	Material Description	Depth (m)	DPT ² (Blows/150 mm)
TP105-17	0.0 - 0.36	GS1	Topsoil Grey sandy silt, some gravel, trace cobbles (till), moist Weathered and fractured limestone, sandy silt seams throughout Groundwater seepage Limestone bedrock	0.00 - 0.15	6
	0.36 - 1.37			0.15 - 0.30	4
	1.37 - 1.52			0.30 - 0.45	6
	1.40			0.45 - 0.60	12
	1.52			0.60 - 0.75	19
				0.75 - 0.90	>20
				1.20 - 1.35	3
				1.35 - 1.50	10
	1.50 - 1.65	>20			
TP106-17	0.0 - 0.36	GS1	Topsoil Grey silty sand, some gravel (till), moist to wet Weathered and fractured limestone, silty sand seams throughout Groundwater seepage Limestone bedrock	0.00 - 0.15	4
	0.36 - 0.51			0.15 - 0.30	5
	0.51 - 0.71			0.30 - 0.45	7
	0.6			0.45 - 0.60	>20
	0.71			0.60 - 0.75	>20

1. mbgs = metres below ground surface

2. Dynamic probe penetration test, consisting of driving a 19 mm diameter steel rod 150 mm into the soil with an 8 kg hammer falling 750 mm.