Terraprobe
Consulting Geotechnical & Environmental Engineering
Construction Materials Engineering, Inspection & Testing

October 4, 2013

File No. 11-12-2098
Brampton Office

IBI Group
30 International Boulevard
Toronto, Ontario
M9W 5P3

Attention: Mr. Allan Ortlieb

RE: HYDROGEOLOGICAL REVIEW
McLAUGHLIN ROAD RECONSTRUCTION
BRITANNIA ROAD WEST TO BRISTOL ROAD WEST
CITY OF MISSISSAUGA, ONTARIO

Dear Sir:

Terraprobe was retained by the IBI Group to conduct a hydrogeologic review for the reconstruction of McLaughlin Road south of Britannia Road West to North of Bristol Road West in the City of Mississauga. The hydrogeologic review was undertaken to assess the potential impacts to shallow ground water levels in areas of proposed grade changes.

A subsurface investigation was completed within the study area by Terraprobe as part of the Draft Pavement Design Report, completed under separate cover dated July 16, 2013. As part of this report a series of 30 boreholes were completed along the current alignment of McLaughlin Road to various depths from 2.0 m to 8.1 m below existing grades as shown on the attached borehole location plan (Figure 1). Borehole logs are also provided in the attached enclosures.

Soils encountered as part of the subsurface investigation consisted of asphalt and granular sub-base (McLaughlin Road) to depths between 0.6 and 1.1 m below grade. Underlying the road structure fill deposits and glacial till deposits were generally encountered. Fill deposits were encountered in BH2,

BH7, BH19 to BH24, BH28 and BH29. Fill deposits consisted of loose silty sand to clayey silt ranging from 0.4 to 3.9 m in thickness. Till deposits were encountered underlying fill deposits and consisted of compact to very dense deposits of clayey silt. Silty sand to sand glacial till was to the completed depths of boreholes at locations BH3, BH6, BH8 and BH10 to 29. Till deposits were observed to be brown in colour indicating that the shallow ground water table is likely to be at depths greater than the depth of drilling.

All boreholes were observed to be dry and open upon completion of drilling. Two monitoring wells were installed along the alignment in order to determine shallow ground water levels. Wells were installed at BH 15 and BH 26. Wells consisted of a 50 mm diameter PVC pipe with a 1.5 m slotted screen. A summary of the two monitoring well installations is provided in the table below.

Location	Northing	Easting	Station	Well Depth	Water Level	Screened Materials
BH15	4829393	606448	11+080	8.1 m	Dry	Sand and Silt to Silty Sand (Glacial Till)
BH26	4828741	607116	10+150	5.0 m	Dry	Silty Sand (Glacial Till)

Water levels measured on January 18, 2013

Based on a review of the proposed cut and fill depths for the reconstruction of McLaughlin Road, earthworks up to a maximum of 2.0 m are expected. Ground water was not encountered at this depth in any of the 30 boreholes. The reconstruction of McLaughlin Road is not anticipated to result in any significant changes to the shallow ground water in the vicinity of the project area.

We trust this information is sufficient for your present purposes. Should you have any questions concerning the above, please do not hesitate to contact the undersigned.

Yours truly,
Terraprobe Inc.

Paul L. Raepple, P.Geo.

PROFESSIONAL GEOSCIENTIST
P. L. RAEPPLE
PRACTISING MEMBER
2242
ONTARIO

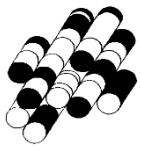
Paul W. Bowen, P.Geo., P.Eng., QP_{ESA}
Principal

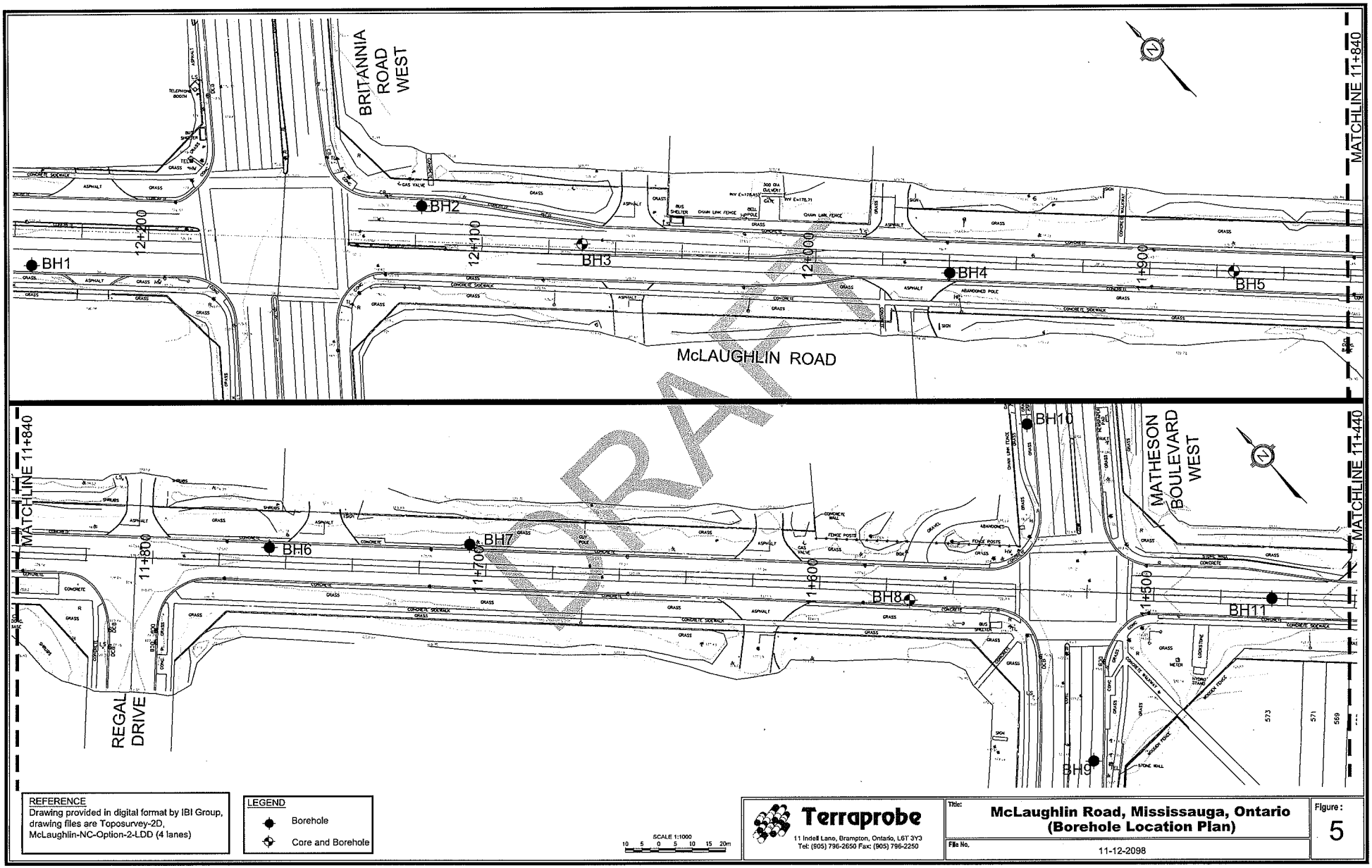
Stoney Creek Office

Enclosures:
Figure 1 – Borehole Location Plan
Appendix A – Borehole Logs

ENCLOSURES

Terraprobe Inc.





REFERENCE
Drawing provided in digital format by IBI Group, drawing files are Toposurvey-2D, McLaughlin-NC-Option-2-LDD (4 lanes)

LEGEND
- Borehole
- Core and Borehole

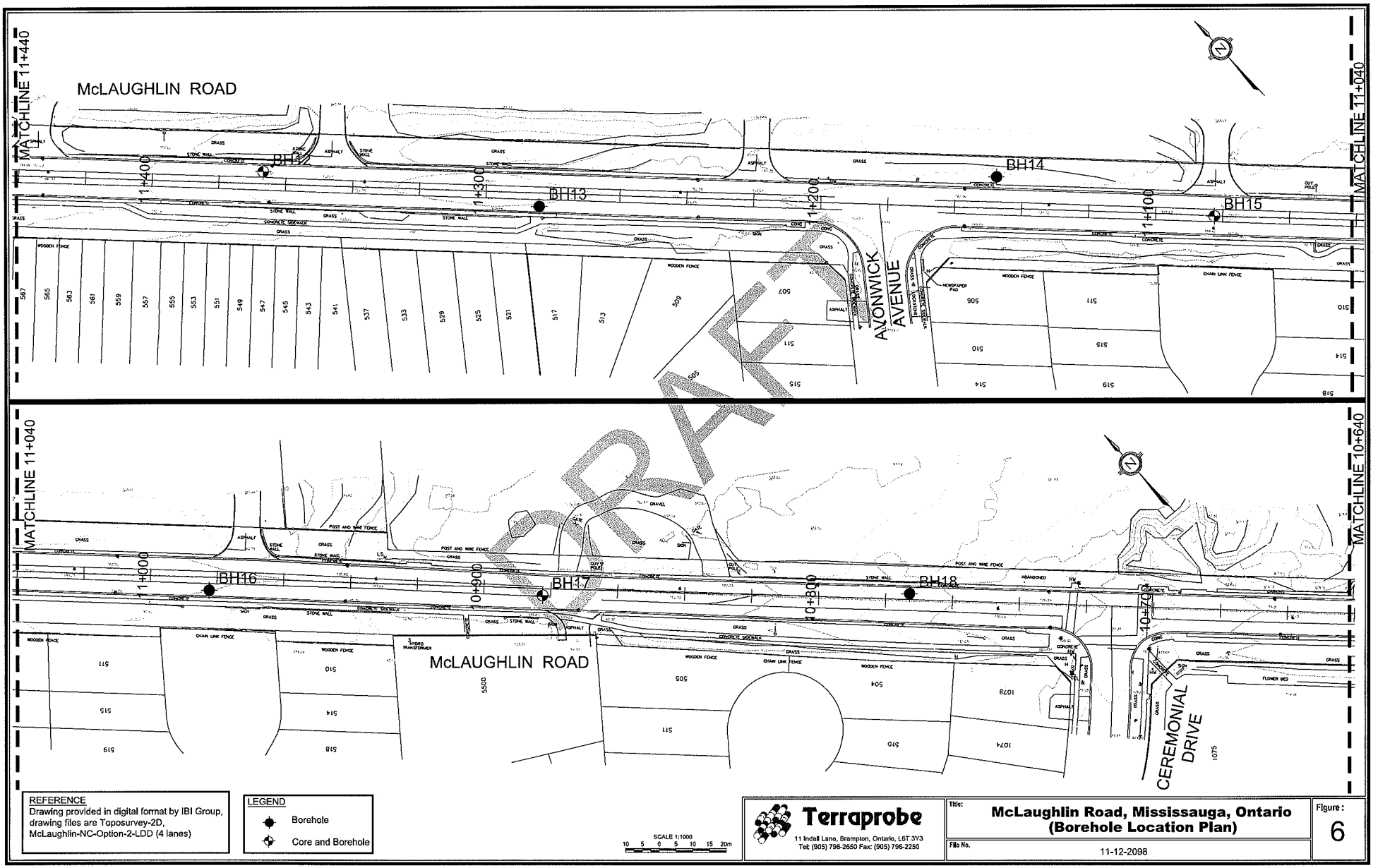
SCALE 1:1000
10 5 0 5 10 15 20m

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

Title: **McLaughlin Road, Mississauga, Ontario (Borehole Location Plan)**

File No. 11-12-2098

Figure: 5



REFERENCE
Drawing provided in digital format by IBI Group, drawing files are Toposurvey-2D, McLaughlin-NC-Option-2-LDD (4 lanes)

LEGEND
- Borehole
- Core and Borehole

SCALE 1:1000
10 5 0 5 10 15 20m

Terraprobe
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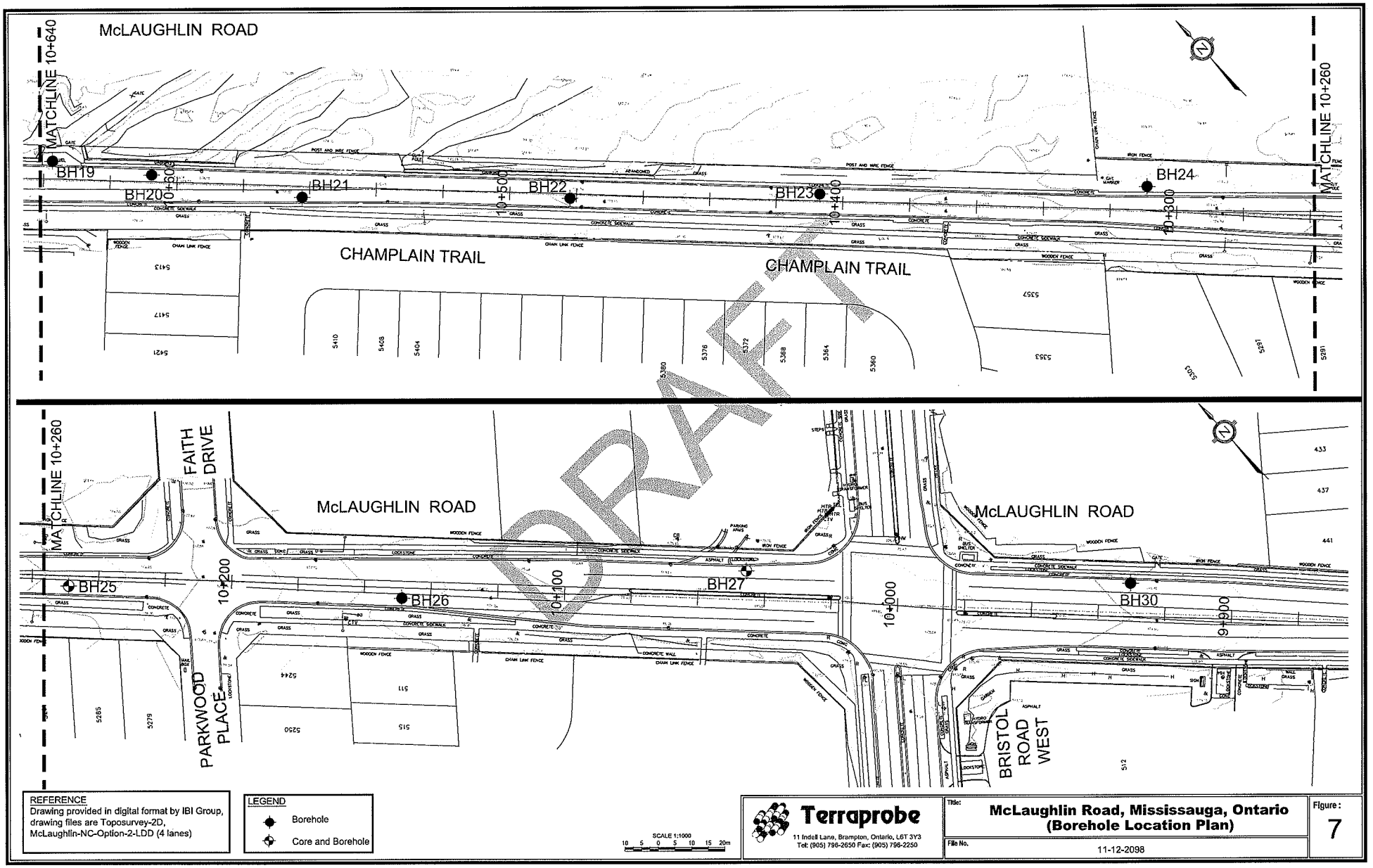
Tel: (905) 796-2650 Fax: (905) 796-2250

Title: **McLaughlin Road, Mississauga, Ontario (Borehole Location Plan)**

File No. 11-12-2098

Figure: 6

W:\DOCS-svr-01-Project Files\11-Geo\2011\11-12-2098\A_Dwgs_Dwg\AutoCAD\11-12-2098 BH Location Plan -BL.dwg, Layout


McLAUGHLIN ROAD
MATCHLINE 10+640
MATCHLINE 10+260
BH19
BH20
BH21
BH22
BH23
BH24
10+500
10+400
10+300
CHAMPLAIN TRAIL
CHAMPLAIN TRAIL
MATCHLINE 10+260
FAITH DRIVE
McLAUGHLIN ROAD
McLAUGHLIN ROAD
BH25
BH26
BH27
BH30
10+200
10+100
10+000
9+900
PARKWOOD PLACE
BRISTOL ROAD WEST
DRAFT
REFERENCE
Drawing provided in digital format by IBI Group, drawing files are Toposurvey-2D, McLaughlin-NC-Option-2-LDD (4 lanes)
LEGEND
Borehole
Core and Borehole
SCALE 1:1000
10 5 0 5 10 15 20m
Terraprobe
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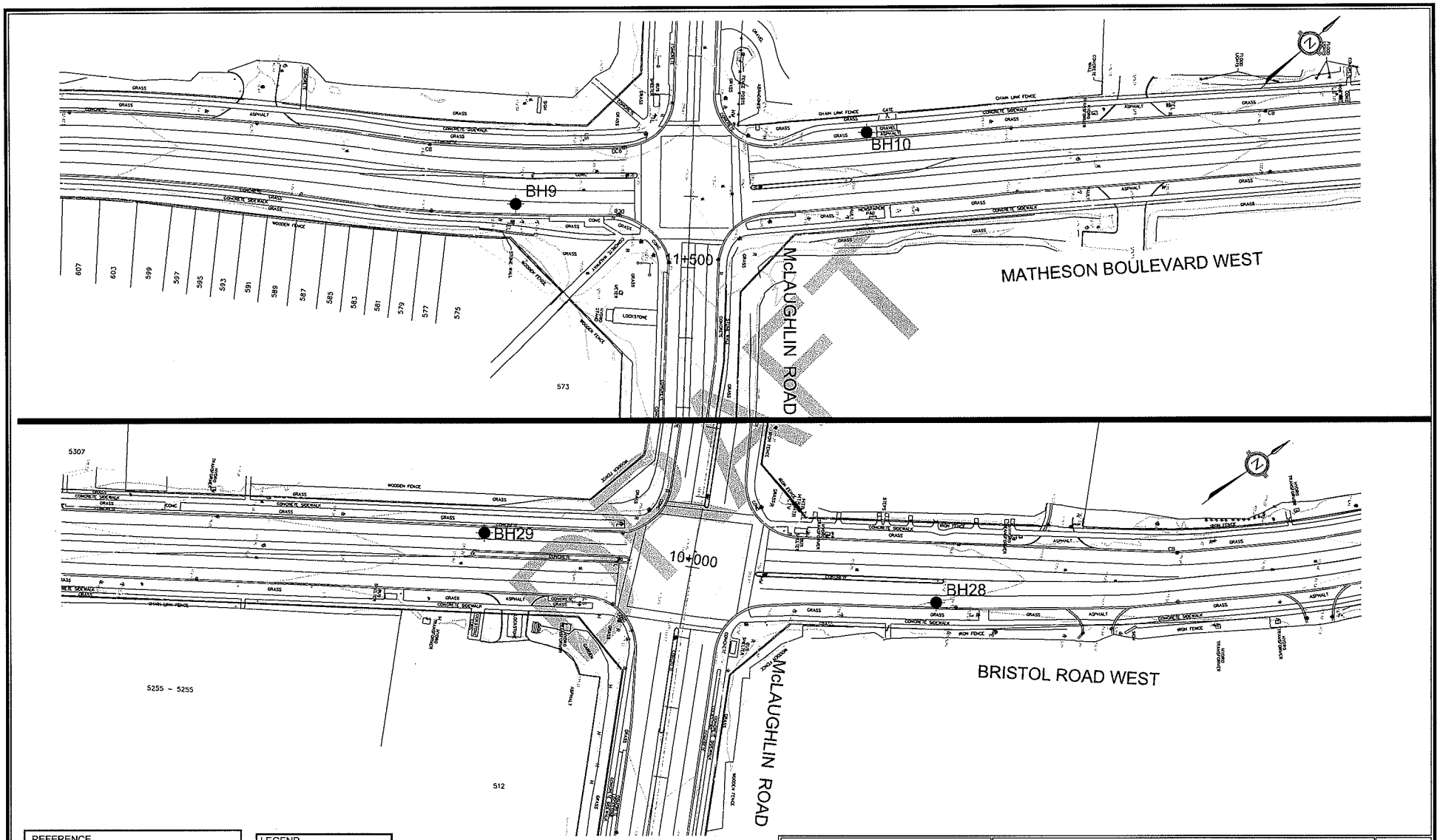
Title:
McLaughlin Road, Mississauga, Ontario
(Borehole Location Plan)
File No.
11-12-2098
Figure :
7



REFERENCE
Drawing provided in digital format by IBI Group, drawing files are Toposurvey-2D, McLaughlin-NC-Option-2-LDD (4 lanes)

LEGEND
- Borehole
- Core and Borehole

SCALE 1:1000
10 5 0 5 10 15 20m

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

Title: **McLaughlin Road, Mississauga, Ontario (Borehole Location Plan)**

File No. 11-12-2098

Figure: 8

Borehole Logs

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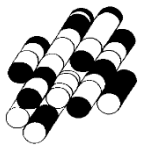

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BOREHOLE LOG BH1

Client : IBI Group
Project : McLaughlin Road
Location : Mississauga, Ontario

Project No.: 11-12-2098
Date started : December 3, 2012
Sheet No. : 1 of 1

Position : E: 605616, N: 4830182 (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
	179.8	**GROUND SURFACE**				
0	179.6	200mm **ASPHALTIC CONCRETE**				
	0.2	910mm **GRANULAR BASE / SUBBASE**, compact to dense, brown, dry		1	SS	43
1	178.7			2	SS	20
	1.1	**CLAYEY SILT**, some sand to sandy, trace gravel, hard, brown, moist (GLACIAL TILL)		3	SS	38
	177.8					
	2.0	**END OF BOREHOLE**				

Borehole was dry and open upon completion of drilling.

Elevation Scale (m): 179, 178

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

Instrument Details

Unstabilized Water Level

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

Terraprobe

BOREHOLE LOG BH2

Client : IBI Group

Project : McLaughlin Road

Location : Mississauga, Ontario

Project No.: 11-12-2098

Date started : November 30, 2012

Sheet No. : 1 of 1

Position : E: 604043, N: 4831318 (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	179.5	**GROUND SURFACE**				
	179.3	180mm **ASPHALTIC CONCRETE**				
	0.2	580mm **GRANULAR BASE / SUBBASE**, very dense, brown, dry		1	SS	55
	178.7					
1	0.8	**FILL**, clayey silt, some sand, trace gravel, trace organics, stiff, greyish brown, moist		2	SS	10
	178.1					
	1.4	**CLAYEY SILT**, some sand, trace gravel, hard, brown, moist (GLACIAL TILL)		3	SS	35
	177.5					
	2.0	**END OF BOREHOLE**				

Borehole was dry and open upon completion of drilling.

Elevation Scale (m): 179, 178

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

Instrument Details

Unstabilized Water Level

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%)

GR	SA	SI	CL
8	19	49	24

Terraprobe

BOREHOLE LOG BH3

Client : IBI Group
Project : McLaughlin Road
Location : Mississauga, Ontario

Project No.: 11-12-2098
Date started : November 30, 2012
Sheet No. : 1 of 1

Position : E: 605756, N: 4830092 (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
	179.3	**GROUND SURFACE**				
0	179.1	170mm **ASPHALTIC CONCRETE**				
	0.2	580mm **GRANULAR BASE / SUBBASE**, very dense, brown, dry		1	SS	54
	178.5					
	0.8	**CLAYEY SILT**, some sand to sandy, trace to some gravel, very stiff to hard, brown, moist (GLACIAL TILL)		2	SS	16
1						
				3	SS	22
2						
				4	SS	33
3						
				5	SS	40
	175.3					
4	4.0	**SILTY SAND**, trace gravel, trace clay, very dense, brown, moist (GLACIAL TILL)				
				6	SS	50 / 125mm
	174.4					
	4.9	**END OF BOREHOLE**				

Borehole was dry and open upon completion of drilling.

Elevation Scale (m): 179, 178, 177, 176, 175

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

Instrument Details

Unstabilized Water Level

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

6 27 47 20

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BOREHOLE LOG BH4

Client : IBI Group
Project : McLaughlin Road
Location : Mississauga, Ontario

Project No.: 11-12-2098
Date started : December 3, 2012
Sheet No. : 1 of 1

Position : E: 605831, N: 4830008 (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	178.7	**GROUND SURFACE**				
	178.5	180mm **ASPHALTIC CONCRETE**				
	0.2	635mm **GRANULAR BASE / SUBBASE**, very dense, brown, dry		1	SS	74
	177.9					
1	0.8	**SAND**, some silt, trace gravel, trace clay, compact, brown, moist (GLACIAL TILL)		2	SS	21
	177.3					
	1.4	**CLAYEY SILT**, some sand, trace gravel, stiff, brown, moist (GLACIAL TILL)		3	SS	13
	176.7					
	2.0	**END OF BOREHOLE**				

Borehole was dry and open upon completion of drilling.

Elevation Scale (m): 178, 177

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

Instrument Details

Unstabilized Water Level

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

Terraprobe

BOREHOLE LOG BH5

Client : IBI Group
Project : McLaughlin Road
Location : Mississauga, Ontario

Project No.: 11-12-2098
Date started : November 30, 2012
Sheet No. : 1 of 1

Position : E: 605890, N: 4829954 (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)
	178.3	**GROUND SURFACE**					
0	178.1	160mm **ASPHALTIC CONCRETE**					
	0.2	620mm **GRANULAR BASE / SUBBASE**, very dense, brown, dry		1	SS	62	
	177.5						
	0.8	**CLAYEY SILT**, some sand to sandy, trace to some gravel, very stiff, brown, moist (GLACIAL TILL)		2	SS	19	
1							178
				3	SS	28	
2							177
				4	SS	50 / 75mm	
							176
3				5	SS	43	
							175
4							
							174
				6	SS	73	
5	173.3						
	5.0	**END OF BOREHOLE**					

Borehole was dry and open upon completion of drilling.

Penetration Test Values (Blows / 0.3m) N
× 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

Instrument Details

Unstabilized Water Level

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

15 34 36 15
...at 2.5m, Auger grinding
...at 2.6m, Auguer grinding, very hard to 2.7m

Terraprobe

BOREHOLE LOG BH6

Client : IBI Group
Project : McLaughlin Road
Location : Mississauga, Ontario

Project No.: 11-12-2098
Date started : November 30, 2012
Sheet No. : 1 of 1

Position : E: 605971, N: 4829880 (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	177.8	**GROUND SURFACE**				
	177.6	150mm **ASPHALTIC CONCRETE**				
	0.2	560mm **GRANULAR BASE / SUBBASE**, very dense, brown, dry		1	SS	62
	177.1					
1	0.7	**SAND**, some silt, trace gravel, trace clay, compact, brown, wet (GLACIAL TILL)		2	SS	20
	176.3					
	1.5	**SANDY SILT**, trace gravel, trace clay, compact, brown, moist (GLACIAL TILL)		3	SS	12
	175.8					
	2.0	**END OF BOREHOLE**				

Borehole was dry and open upon completion of drilling.

Elevation Scale (m): 177, 176

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

Instrument Details

Unstabilized Water Level

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

Terraprobe

BOREHOLE LOG BH7

Client : IBI Group
Project : McLaughlin Road
Location : Mississauga, Ontario

Project No.: 11-12-2098
Date started : November 30, 2012
Sheet No. : 1 of 1

Position : E: 606015, N: 4829846 (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	177.7	**GROUND SURFACE**				
	177.5	180mm **TOPSOIL**				
	0.2	**FILL**, silty clay, some sand, trace gravel, trace organics, firm, greyish brown, wet		1	SS	7
1				2	SS	8
				3	SS	8
	175.7					
	2.0	**END OF BOREHOLE**				

Elevation Scale (m): 177, 176

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

Instrument Details

Unstabilized Water Level

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

Borehole was dry and open upon completion of drilling.

Terraprobe

BOREHOLE LOG BH8

Client : IBI Group

Project : McLaughlin Road

Location : Mississauga, Ontario

Project No.: 11-12-2098

Date started : December 3, 2012

Sheet No. : 1 of 1

Position : E: 606100, N: 4829144 (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
	178.0	**GROUND SURFACE**				
0	177.8	130mm **ASPHALTIC CONCRETE**				
	0.2	610mm **GRANULAR BASE / SUBBASE**, very dense, brown, dry		1	SS	72
	177.2					
1	0.8	**SILTY SAND**, some silt, trace gravel, trace clay, compact, brown, wet (GLACIAL TILL)		2	SS	26
	176.5					
	1.5	**CLAYEY SILT**, some sand, trace gravel, very stiff, brown, moist (GLACIAL TILL)		3	SS	18
2	175.7					
	2.3	**SILTY SAND**, trace gravel, trace clay, very dense, brown, moist (GLACIAL TILL)		4	SS	53
	175.3					
	2.7	**END OF BOREHOLE**				

Elevation Scale (m): 177, 176

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

Instrument Details

Unstabilized Water Level

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

5 70 21 4

...at 2.6m, Auger refusal, spoon bouncing

Borehole was dry and open upon completion of drilling.

Terraprobe

BOREHOLE LOG BH9

Client : IBI Group
Project : McLaughlin Road
Location : Mississauga, Ontario

Project No.: 11-12-2098
Date started : November 30, 2012
Sheet No. : 1 of 1

Position : E: 606109, N: 4829662 (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	Instrument Details	Unstabilized Water Level	Lab Data and Comments / GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
0	179.4	**GROUND SURFACE**					179						
		140mm **ASPHALTIC CONCRETE**											
		570mm **GRANULAR BASE / SUBBASE**, very dense, brown, dry		1	SS	70							
	178.7												
1	0.7	**CLAYEY SILT**, some sand to sandy, trace gravel, very stiff to hard, brown, moist (GLACIAL TILL)		2	SS	18							4 27 44 25
							178						
				3	SS	76							
	177.4												
	2.0	**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 | Natural Water Content | Liquid Limit; PL MC LL; 10 20 30

Borehole was dry and open upon completion of drilling.

Terraprobe

BOREHOLE LOG BH10

Client : IBI Group

Project : McLaughlin Road

Location : Mississauga, Ontario

Project No.: 11-12-2098

Date started : November 30, 2012

Sheet No. : 1 of 1

Position : E: 606165, N: 4829753 (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	178.9	**GROUND SURFACE**				
	178.7	200mm **ASPHALTIC CONCRETE**				
	0.2	710mm **GRANULAR BASE / SUBBASE**, compact to very dense, brown, dry		1	SS	57
	178.0					
1	0.9	**SANDY SILT**, trace gravel, trace clay, compact, brown, moist (GLACIAL TILL)		2	SS	15
				3	SS	30
	176.9					
	2.0	**END OF BOREHOLE**				

Elevation Scale (m): 178, 177

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

Instrument Details

Unstabilized Water Level

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

Borehole was dry and open upon completion of drilling.

Terraprobe

BOREHOLE LOG BH11

Client : IBI Group
Project : McLaughlin Road
Location : Mississauga, Ontario

Project No.: 11-12-2098
Date started : November 29, 2012
Sheet No. : 1 of 1

Position : E: 606179, N: 4829669 (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
	181.3	**GROUND SURFACE**				
0	181.1	150mm **ASPHALTIC CONCRETE**				
	0.2	685mm **GRANULAR BASE / SUBBASE**, compact to very dense, brown, dry to moist		1	SS	98
	180.5					
1	0.8	**SANDY SILT**, some clay, trace gravel, compact, brown, moist to wet (GLACIAL TILL)		2	SS	12
				3	SS	22
	179.3					
	2.0	**END OF BOREHOLE**				

Borehole was dry and open upon completion of drilling.

Elevation Scale (m): 181, 180

Penetration Test Values (Blows / 0.3m) — N
× 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

Instrument Details

Unstabilized Water Level

Lab Data and Comments
GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL
0 23 65 12

Terraprobe

BOREHOLE LOG BH12

Client : IBI Group
Project : McLaughlin Road
Location : Mississauga, Ontario

Project No.: 11-12-2098
Date started : November 29, 2012
Sheet No. : 1 of 1

Position : E: 606260, N: 4829593 (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	182.6	**GROUND SURFACE**				
	182.4	140mm **ASPHALTIC CONCRETE**				
	0.2	810mm **GRANULAR BASE / SUBBASE**, loose to dense, brown, dry		1	SS	45
1	181.6					
	1.0	**CLAYEY SILT**, some sand, trace gravel, soft to firm, brown, wet (GLACIAL TILL)		2	SS	6
				3	SS	4
2	180.3					
	2.3	**SANDY SILT**, trace to some gravel, trace clay, compact to very dense, brown, moist to wet (GLACIAL TILL)		4	SS	16
3				5	SS	50 / 75mm
4						
	177.9			6	SS	50 / 150mm
	4.7	**END OF BOREHOLE**				

Borehole was dry and open upon completion of drilling.

Elevation Scale (m): 182, 181, 180, 179, 178

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

Instrument Details

Unstabilized Water Level

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

...at 3.0m, Auger grinding

...at 4.0m, Auger grinding very hard

Terraprobe

BOREHOLE LOG BH13

Client : IBI Group
Project : McLaughlin Road
Location : Mississauga, Ontario

Project No.: 11-12-2098
Date started : December 3, 2012
Sheet No. : 1 of 1

Position : E: 606306, N: 4829536 (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
	183.0	**GROUND SURFACE**				
0	182.8	150mm **ASPHALTIC CONCRETE**				
	0.2	760mm **GRANULAR BASE / SUBBASE**, compact to very dense, brown, dry		1	SS	78
	182.1					
1	0.9	**SILTY SAND**, trace gravel, trace clay, loose to compact, brown, moist (GLACIAL TILL)		2	SS	24
				3	SS	9
	181.0					
	2.0	**END OF BOREHOLE**				

Borehole was dry and open upon completion of drilling.

Elevation Scale (m): 183, 182

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

Instrument Details

Unstabilized Water Level

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

Terraprobe

BOREHOLE LOG BH14

Client : IBI Group
Project : McLaughlin Road
Location : Mississauga, Ontario

Project No.: 11-12-2098
Date started : November 29, 2012
Sheet No. : 1 of 1

Position : E: 606413, N: 4829448 (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
	183.5	**GROUND SURFACE**				
0		125mm **TOPSOIL**				
		SANDY SILT, trace gravel, trace clay, very loose to dense, brown, moist (GLACIAL TILL)		1	SS	4
				2	SS	17
1				3	SS	49
	181.5					
	2.0	**END OF BOREHOLE**				

Borehole was dry and open upon completion of drilling.

Elevation Scale (m): 183, 182

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

Instrument Details

Unstabilized Water Level

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

Terraprobe

BOREHOLE LOG BH15

Client : IBI Group

Project : McLaughlin Road

Location : Mississauga, Ontario

Project No.: 11-12-2098

Date started : November 29, 2012

Sheet No. : 1 of 1

Position : E: 606448, N: 4829393 (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	183.5	**GROUND SURFACE**				
	183.3	150mm **ASPHALTIC CONCRETE**				
	0.2	610mm **GRANULAR BASE / SUBBASE**, very dense, brown, dry		1	SS	59
	182.7					
1	0.8	**SAND AND SILT to SILTY SAND**, trace gravel, trace clay, compact to very dense, brown, moist (GLACIAL TILL)		2	SS	15
				3	SS	44
2						
				4	SS	38
3						
				5	SS	61
4						
				6	SS	56
5						
				7	SS	50
6						
				8	SS	58
7						
8	175.4					
	8.1	**END OF BOREHOLE**				

Elevation Scale (m): 183, 182, 181, 180, 179, 178, 177, 176

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

Instrument Details

Unstabilized Water Level

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

6 41 44 9

Piezometer installation consists of 50mm diameter PVC pipe with a 1.5 slotted screen

Borehole was dry and open upon completion of drilling.

WATER LEVEL READINGS

Date	Water Depth (m)	Elevation (m)
Jan 18, 2013	dry	n/a

Terraprobe

BOREHOLE LOG BH16

Client : IBI Group

Project : McLaughlin Road

Location : Mississauga, Ontario

Project No.: 11-12-2098

Date started : December 3, 2012

Sheet No. : 1 of 1

Position : E: 606513, N: 4829338 (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	183.1	**GROUND SURFACE**				
	182.9	180mm **ASPHALTIC CONCRETE**				
	0.2	740mm **GRANULAR BASE / SUBBASE**, compact to very dense, brown, dry		1	SS	55
1	182.0			2	SS	20
	1.1	**SANDY SILT**, trace gravel, trace clay, compact, brown, moist (GLACIAL TILL)				
	181.1			3	SS	27
	2.0	**END OF BOREHOLE**				

Elevation Scale (m): 183, 182

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

Instrument Details

Unstabilized Water Level

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

Borehole was dry and open upon completion of drilling.

Terraprobe

BOREHOLE LOG BH17

Client : IBI Group
Project : McLaughlin Road
Location : Mississauga, Ontario

Project No.: 11-12-2098
Date started : November 28, 2012
Sheet No. : 1 of 1

Position : E: 606596, N: 489259 (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	182.6	**GROUND SURFACE**				
	182.4	120mm **ASPHALTIC CONCRETE**				
	0.2	610mm **GRANULAR BASE / SUBBASE**, very dense, brown, dry		1	SS	63
	181.8					
1	0.8	**SAND**, some silt to silty, trace gravel, trace clay, compact to dense, brown, moist (GLACIAL TILL)		2	SS	12
				3	SS	29
2				4	SS	37
3				5	SS	37
4				6	SS	34
5	177.6					
	5.0	**END OF BOREHOLE**				

Borehole was dry and open upon completion of drilling.

Elevation Scale (m): 182, 181, 180, 179, 178

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

Instrument Details

Unstabilized Water Level

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

Terraprobe

BOREHOLE LOG BH18

Client : IBI Group
Project : McLaughlin Road
Location : Mississauga, Ontario

Project No.: 11-12-2098
Date started : November 28, 2012
Sheet No. : 1 of 1

Position : E: 606673, N: 4829186 (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	181.7	**GROUND SURFACE**				
	181.5	150mm **ASPHALTIC CONCRETE**				
	0.2	560mm **GRANULAR BASE / SUBBASE**, very dense, brown, dry		1	SS	51
	181.0					
	0.7	**SANDY SILT**, trace gravel, trace clay, loose, brown, moist to wet (GLACIAL TILL)		2	SS	10
1						
				3	SS	5
	179.7					
	2.0	**END OF BOREHOLE**				

Elevation Scale (m): 181, 180

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

Borehole was dry and open upon completion of drilling.

Terraprobe

BOREHOLE LOG BH19

Client : IBI Group

Project : McLaughlin Road

Location : Mississauga, Ontario

Project No.: 11-12-2098

Date started : November 28, 2012

Sheet No. : 1 of 1

Position : E: 606772, N: 4829085 (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	178.0	**GROUND SURFACE**				
	177.4	**FILL**, gravelly sand, compact, brown, moist		1	SS	12
	0.6	**FILL**, sandy silt, trace gravel, loose to compact, dark brown, moist		2	SS	13
1				3	SS	6
2	175.7					
	2.3	**SAND**, some silt, trace gravel, trace clay, loose, brown, moist (GLACIAL TILL)		4	SS	9
	175.3					
	2.7	**END OF BOREHOLE**				

Elevation Scale (m): 177, 176

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

Instrument Details

Unstabilized Water Level

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

Borehole was dry and open upon completion of drilling.

Terraprobe

BOREHOLE LOG BH20

Client : IBI Group

Project : McLaughlin Road

Location : Mississauga, Ontario

Project No.: 11-12-2098

Date started : November 28, 2012

Sheet No. : 1 of 1

Position : E: 606794, N: 4829062 (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
	178.3	**GROUND SURFACE**				
0	178.1	150mm **ASPHALTIC CONCRETE**				
	0.2	560mm **GRANULAR BASE / SUBBASE**, compact, brown, dry		1	SS	27
	177.6					
1	0.7	**FILL**, sandy silt to silty sand, trace gravel, very loose to loose, grey to brown, moist		2	SS	9
				3	SS	8
2				4	SS	2
3				5	SS	3
4				6	SS	7
	173.7					
	4.6	**SAND**, some silt to silty, trace gravel, trace clay, very loose to dense, brown, moist (GLACIAL TILL)		7	SS	14
5				8	SS	22
6				9	SS	35
	171.7					
	6.6	**END OF BOREHOLE**				

Elevation Scale (m): 178, 177, 176, 175, 174, 173, 172

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

Instrument Details

Unstabilized Water Level

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

0 77 18 5

Borehole was dry and open upon completion of drilling.

Terraprobe

BOREHOLE LOG BH21

Client : IBI Group
Project : McLaughlin Road
Location : Mississauga, Ontario

Project No.: 11-12-2098
Date started : December 4, 2012
Sheet No. : 1 of 1

Position : E: 606824, N: 4829035 (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	178.3	**GROUND SURFACE**				
		125mm **ASPHALTIC CONCRETE**				
		585mm **GRANULAR BASE / SUBBASE**, brown, dry		1	AS	-
	177.6 / 0.7	**FILL**, clayey silt, some sand, trace gravel, trace organics, very stiff, brown, moist		2	SS	16
1	177.1 / 1.2	**SILTY SAND**, trace clay, compact, brown, moist (GLACIAL TILL)		3	SS	25
	176.3 / 2.0	**END OF BOREHOLE**				

Elevation Scale (m): 178, 177

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

Instrument Details

Unstabilized Water Level

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

Borehole was dry and open upon completion of drilling.

Terraprobe

BOREHOLE LOG BH22

Client : IBI Group
Project : McLaughlin Road
Location : Mississauga, Ontario

Project No.: 11-12-2098
Date started : December 4, 2012
Sheet No. : 1 of 1

Position : E: 606879, N: 4828928 (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	179.0	**GROUND SURFACE**				
	178.8	150mm **ASPHALTIC CONCRETE**				
	0.2	610mm **GRANULAR BASE / SUBBASE**, brown, dry		1	AS	-
	178.2					
1	0.8	**FILL**, silty sand, some gravel, compact, dark brown to brown, moist		2	SS	15
	177.2			3	SS	10
	1.8 / 177.0	**SAND**, some silt, trace clay, loose, brown, wet				
	2.0					

Elevation Scale (m): 178

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

END OF BOREHOLE

Borehole was dry and open upon completion of drilling.

Terraprobe

BOREHOLE LOG BH23

Client : IBI Group
Project : McLaughlin Road
Location : Mississauga, Ontario

Project No.: 11-12-2098
Date started : November 28, 2012
Sheet No. : 1 of 1

Position : E: 606935, N: 4828922 (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
	179.7	**GROUND SURFACE**				
0	179.5	150mm **ASPHALTIC CONCRETE**				
	0.2	585mm **GRANULAR BASE / SUBBASE**, dense, brown, dry		1	SS	37
	179.0					
	0.7	**FILL**, sandy silt, trace gravel, compact, brown, moist		2	SS	22
1	178.6					
	1.1	**SAND**, some silt to silty, trace gravel, trace clay, compact to very dense, brown, moist (GLACIAL TILL)		3	SS	33
2				4	SS	50 / 125mm
				5	SS	50 / 150mm
3						
				6	SS	50 / 150mm
4	174.8					
	4.9	**END OF BOREHOLE**				

Borehole was dry and open upon completion of drilling.

Elevation Scale (m): 179, 178, 177, 176, 175

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

Instrument Details

Unstabilized Water Level

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

...at 4.9m, Auger light grinding

Terraprobe

BOREHOLE LOG BH24

Client : IBI Group
Project : McLaughlin Road
Location : Mississauga, Ontario

Project No.: 11-12-2098
Date started : November 28, 2012
Sheet No. : 1 of 1

Position : E: 607001, N: 4828847 (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
	179.5	**GROUND SURFACE**				
0	179.3	150mm **TOPSOIL**				
	0.2	**FILL**, clayey silt, some sand, trace gravel, firm, dark brown, moist		1	SS	6
1	178.4			2	SS	6
	1.1	**SANDY SILT**, trace gravel, compact, brown, moist				
	177.7			3	SS	30
	1.8	**SAND**, trace to some silt, trace gravel, trace clay, dense to very dense, brown, moist (GLACIAL TILL)				
2				4	SS	56
3				5	SS	52
4						
				6	SS	49
5	174.5					
	5.0	**END OF BOREHOLE**				

Elevation Scale (m): 179, 178, 177, 176, 175

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

Undrained Shear Strength (kPa) — O 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

Instrument Details

Unstabilized Water Level

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

Borehole was dry and open upon completion of drilling.

WATER LEVEL READINGS

Date	Water Depth (m)	Elevation (m)
Jan 18, 2013	dry	n/a

Terraprobe

BOREHOLE LOG BH25

Client : IBI Group
Project : McLaughlin Road
Location : Mississauga, Ontario

Project No.: 11-12-2098
Date started : December 4, 2012
Sheet No. : 1 of 1

Position : E: 607052, N: 4828811 (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)
	178.7	**GROUND SURFACE**					
0	178.5	200mm **ASPHALTIC CONCRETE**					
	0.2	510mm **GRANULAR BASE / SUBBASE**, very dense, brown, dry		1	SS	59	
	178.0						
	0.7	**SAND**, trace to some silt, trace gravel, trace clay, compact to very dense, brown, moist (GLACIAL TILL)		2	SS	21	178
1				3	SS	19	177
2				4	SS	27	176
3				5	SS	59	175
4				6	SS	51	174
5	173.7						
	5.0	**END OF BOREHOLE**					

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

Instrument Details

Unstabilized Water Level

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

4 74 14 8

Borehole was dry and open upon completion of drilling.

Terraprobe

BOREHOLE LOG BH26

Client : IBI Group

Project : McLaughlin Road

Location : Mississauga, Ontario

Project No.: 11-12-2098

Date started : December 3, 2012

Sheet No. : 1 of 1

Position : E: 607116, N: 4828741 (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	176.6	**GROUND SURFACE**				
	176.4	150mm **ASPHALTIC CONCRETE**				
	0.2	560mm **GRANULAR BASE / SUBBASE**, dense, brown, dry		1	SS	34
	175.9					
1	0.7	**SILTY SAND**, trace gravel, trace clay, compact to dense, brown, moist (GLACIAL TILL)		2	SS	40
				3	SS	16
	174.6					
	2.0	**END OF BOREHOLE**				

Elevation Scale (m): 176, 175

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

Instrument Details

Unstabilized Water Level

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

Borehole was dry and open upon completion of drilling.

Terraprobe

BOREHOLE LOG BH27

Client : IBI Group

Project : McLaughlin Road

Location : Mississauga, Ontario

Project No.: 11-12-2098

Date started : December 3, 2012

Sheet No. : 1 of 1

Position : E: 607194, N: 4828673 (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	Instrument Details	Unstabilized Water Level	Lab Data and Comments / GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
	175.8	**GROUND SURFACE**											
0	175.6	170mm **ASPHALTIC CONCRETE**											
	0.2	380mm **GRANULAR BASE / SUBBASE**, dense, brown, dry		1	SS	34							
	175.2												
	0.6	**CLAYEY SILT**, sandy, trace to some gravel, very stiff to hard, brown, moist (GLACIAL TILL)		2	SS	22	175						
1													
				3	SS	35	174						8 28 45 19
2	173.5												
	2.3	**SAND**, trace to some silt, trace gravel, trace clay, compact, brown, moist (GLACIAL TILL)		4	SS	34	173						
3				5	SS	34							
							172						
4													
				6	SS	33	171						
5	170.8												
	5.0	**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 | Natural Water Content | Liquid Limit; PL MC LL; 10 20 30

Borehole was dry and open upon completion of drilling.

Terraprobe

BOREHOLE LOG BH28

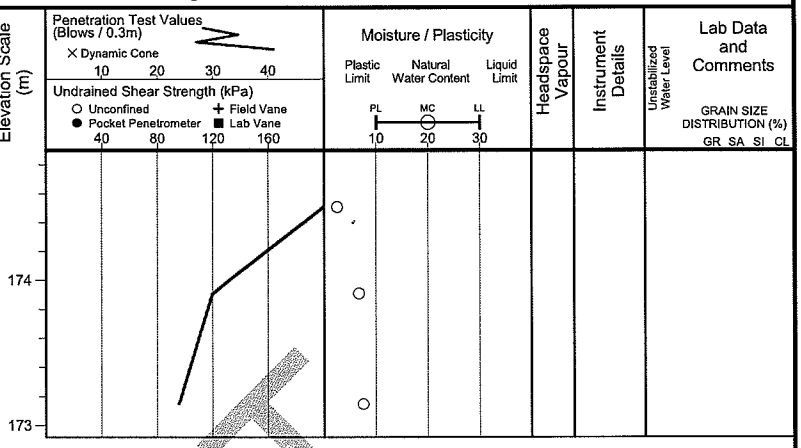
Client : IBI Group
Project : McLaughlin Road
Location : Mississauga, Ontario

Project No.: 11-12-2098
Date started : December 3, 2012
Sheet No. : 1 of 1

Position : E: 607273, N: 4828691 (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
	174.9	**GROUND SURFACE**				
0	174.7	180mm **ASPHALTIC CONCRETE**				
	0.2	530mm **GRANULAR BASE / SUBBASE**, brown, dry		1	AS	-
	174.2					
	0.7	**FILL**, silty sand, some gravel, compact, greyish brown, moist		2	SS	30
1	173.4					
	1.5	**SILTY SAND**, trace gravel, trace clay, compact, brown, moist (GLACIAL TILL)		3	SS	24
	172.9					
	2.0	**END OF BOREHOLE**				

Borehole was dry and open upon completion of drilling.



Terraprobe

BOREHOLE LOG BH29

Client : IBI Group
Project : McLaughlin Road
Location : Mississauga, Ontario

Project No.: 11-12-2098
Date started : December 4, 2012
Sheet No. : 1 of 1

Position : E: 607182, N: 4828599 (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	175.8	**GROUND SURFACE**				
	175.6	150mm **ASPHALTIC CONCRETE**				
	0.2	560mm **GRANULAR BASE / SUBBASE**, brown, dry		1	AS	-
	175.1					
1	0.7	**FILL**, clayey silt, some sand, trace gravel, firm, brown, moist		2	SS	5
	174.3					
	1.5	**SILTY SAND**, trace gravel, trace clay, dense, brown, moist (GLACIAL TILL)		3	SS	37
	173.8					
	2.0	**END OF BOREHOLE**				

Elevation Scale (m): 175, 174

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 | Instrument Details | Unstabilized Water Level

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

Borehole was dry and open upon completion of drilling.

Terraprobe

BOREHOLE LOG BH30

Client : IBI Group

Project : McLaughlin Road

Location : Mississauga, Ontario

Project No.: 11-12-2098

Date started : December 4, 2012

Sheet No. : 1 of 1

Position : E: 607277, N: 4828597 (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	174.7	**GROUND SURFACE**				
	174.5	150mm **ASPHALTIC CONCRETE**				
	0.2	560mm **GRANULAR BASE / SUBBASE**, brown, dry		1	AS	-
	174.0					
1	0.7	**CLAYEY SILT**, some sand, trace gravel, very stiff, brown, moist (GLACIAL TILL)		2	AS	-
	172.7			3	AS	-
	2.0	**END OF BOREHOLE**				

Elevation Scale (m): 174, 173

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

Instrument Details

Unstabilized Water Level

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

Borehole was dry and open upon completion of drilling.