Appendix F

Pavement Report



TECHNICAL MEMORANDUM

Date:

April 13, 2011

To:

Bruce Grundon

From:

Steve Ash, Raid Khamis

Project No.:

111-53245-00

Subject:

Pavement Condition Survey

Mayfield Road between Chinguacousy Road and Heart Lake Road, Peel Region

This memo summarizes the results of a pavement condition survey that was completed as input to a Schedule C Class Environmental Assessment of Mayfield Road, between Chinguacousy Road and Heart Lake Road in Brampton, Ontario.

The pavement condition survey was completed using Ministry of Transportation (MTO) guidelines and included a visual inspection of the pavement section to identify and classify existing distress features, driving the road at the posted speed to assess the Ride Condition Rating (RCR), and assessment of the Pavement Condition Rating (PCR).

Pavement condition survey field forms are provided in Appendix A. The study area was divided to five (5) sections as follows:

- 1- Section 1: Mayfield Road, from Heart Lake Road to Property # 3742, about 700 m west of Heart Lake Road.
- 2- Section 2: Mayfield Road, from Property # 3742 to 150 m west of Kennedy Road.
- 3- Section 3: Mayfield Road, from 150 m west of Kennedy Road to 250 m west of Hurontario Street.
- 4- Section 4: Mayfield Road, from 250 m west of Hurontario Street to 50 m east of McLaughlin Road.
- 5- Section 5: Mayfield Road, from 50 m east of McLaughlin Road to Chinguacousy Road.

Photographs are provided in Appendix C.

RCR and PCR were estimated using the procedure described in Appendix B. Results are summarized in the following table:

Section #	Length(Km)	PCR	RCR	Severity of Distress	Density of Distress
1	0.7	85	8.0	Very slight	Few
2	0.9	55	5.5	Moderate	Intermittent to Frequent
3	1.5	90	8.5	Very slight	Few
4	1.1	55	5.5	Moderate	Intermittent to Frequent
5	1.4	90	8.0	Very slight	Few

Technical Memorandum Page 2

Based on the results, the weighted averages of PCR and RCR are 77 and 7.2, respectively.

Please contact us if you have any questions.

List of Appendices:

Appendix A: Pavement Condition Rating Forms

Appendix B: Guidelines for the Estimation of Pavement Condition Rating and Ride Condition Rating

(MTO Procedure)

Appendix C: Photographs

Appendix A

Pavement Condition Rating Forms

May feld Rol-FLEXIBLE PAVEMENT CONDITION EVALUATION FORM

Figure A-1 Pavement Condition Rating Form

May Peld Rd.

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Figure A-1 Pavement Condition Rating Form

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(Items not covered above)

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Figure A-1 Pavement Condition Rating Form

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(e.g. subsections, additional contracts)

Other Comments

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(Nams not covered above)

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Figure A-1 Pavement Condition Rating Form

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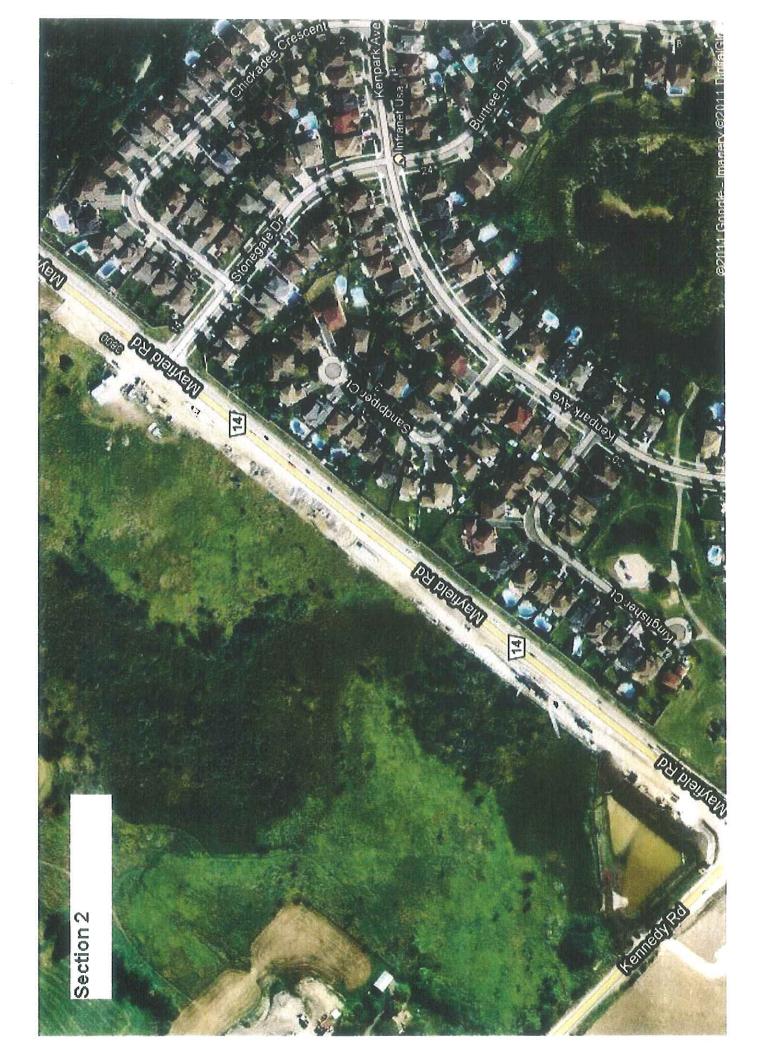
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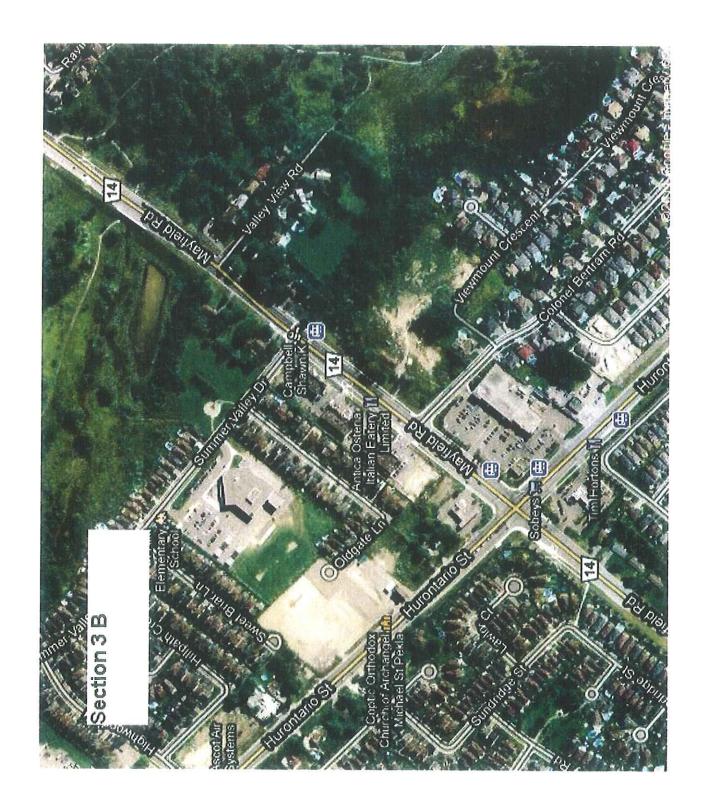
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Figure A-1 Pavement Condition Rating Form













Appendix B

Guidelines for the Estimation of Pavement Condition Rating and Ride Condition Rating (MTO Procedure)

Table B - 1

A C	Guide for the Estimation of Pavement Condition Rating and Priority for Flexible Pavements
0-20	Pavement is in poor to very poor condition with extensive severe cracking, alligatoring and dishing.
	Rideability is poor and the surface is very rough and uneven.
20-30	Pavement is in poor condition with moderate alligatoring and extensive severe cracking and dishing.
	Rideability is poor and the surface is very rough and uneven.
30-40	Pavement is in poor to fair condition with frequent moderate alligatoring and extensive moderate cracking and dishing.
	Rideability is poor to fair and surface is moderately rough and uneven.
40-50	Pavement is in poor to fair condition with frequent moderate cracking and dishing, and intermittent moderate alligatoring.
	Rideability is poor to fair and surface is moderately rough and uneven.
50-65	Pavement is in fair condition with intermittent moderate and frequent slight cracking, and with intermittent slight or moderate alligatoring and dishing.
	Rideability is fair and surface is slightly rough and uneven.
65-75	Pavement is in fairly good condition with slight cracking, slight or very slight dishing and a few areas of slight alligatoring.
	Rideability is fairly good with intermittent rough and uneven sections.
75-90	Pavement is in good condition with frequent very slight or slight cracking.
	Rideability is good with a few slightly rough and uneven sections.
90-100	Pavement is in excellent condition with few cracks.
	Rideability is excellent with few areas of slight distortion.
	Note: This table is based on Table B-1 in MTO report SP-004

Table 1/ Ride Condition Rating Guide

B-10 Excellent Speed (RCR) 8-10 Excellent Smooth ride. 8-10 Excellent Smooth ride. 8-10 Smooth ride. Smooth ride with just a few bumps or depressions. 9-2 Still comfortable ride with frequent bumps or depressions. Uncomfortable ride with frequent bumps or depressions. Uncomfortable ride with frequent bumps or depressions. Uncomfortable ride with frequent bumps or depressions resulting in rattle and shake of rating vehicle. Cannot maintain posted speed and must steer constantly to avoid bumps or depressions. Dangerous at 80 km/h.		 manager (Annual Annual			The state of the s			
	Guidelines	Very smooth ride.	Smooth ride with just a few bumps or depressions.	Still comfortable ride with intermittent bumps or depressions.	Uncomfortable ride with frequent bumps or depressions.	Uncomfortable ride with constant bumps or depressions resulting in	rattle and shake of rating venicle. Cannot maintain posted speed and must steer constantly to avoid bumps or depressions. Dangerous at 80 km/h.	
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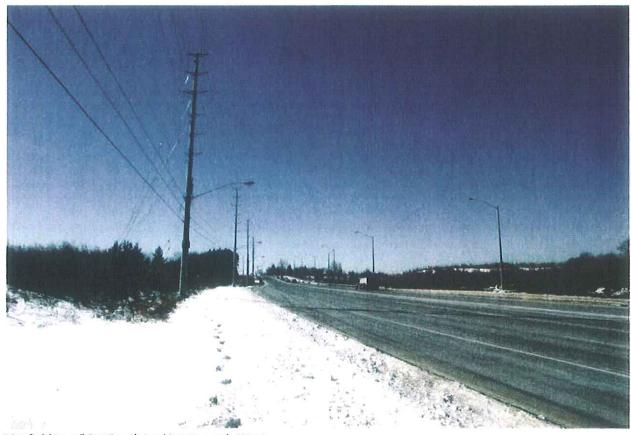
See 1

Appendix C

Photographs



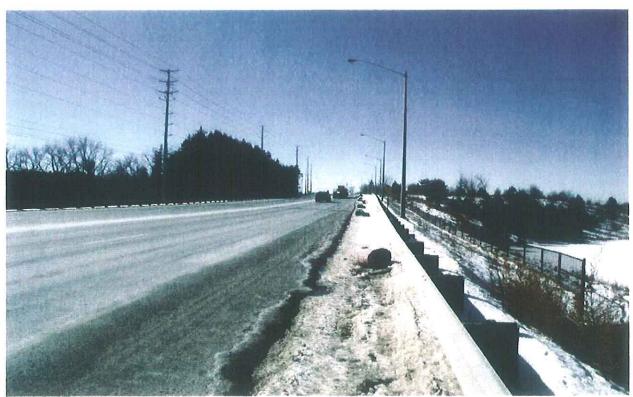
Mayfield Road\Section1\ Looking Towards West



Mayfield Road\Section1\ Looking Towards West



Mayfield Road\Section1\ Small Pond at the southwest corner of Mayfield Rd. and Heart Lake Intersection.



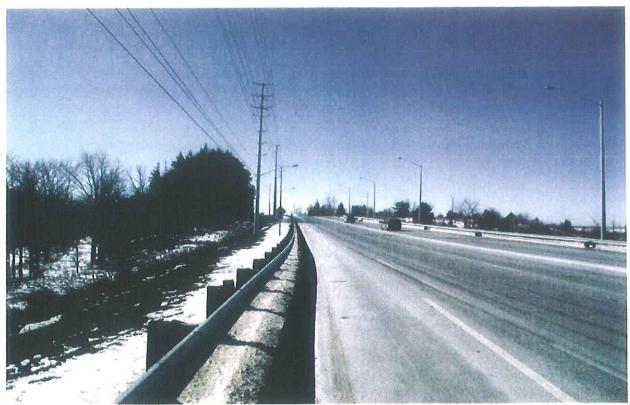
Mayfield Road\Section1\ Looking Towards West\Wetland Area at the North side of Mayfield Rd., about 400 m West of Heart Lake Rd.



Mayfield Road\Section1\ Looking Towards West\Wetland Area at the North side of Mayfield Rd. , See the Retaining Wall to support the Road Embankment



Mayfield Road\Section1\ Wetland Area at the North side of Mayfield Rd. , See the Retaining Wall to support the Road Embankment



Mayfield Road\Section1\ Looking towards West\South side of Mayfield Rd., High Fill Embankment



Mayfield Road\Section2\ Looking towards West\East Bound of Mayfield Rd.



Mayfield Road\Section2\ Looking towards West\West Bound of Mayfield Rd.



Mayfield Road\Section2\ Maintenance Treatment



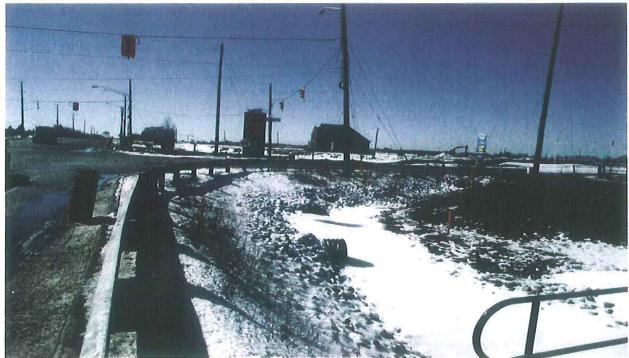
Mayfield Road\Section2\ Looking towards West\cracks and Distortion Area \See Noise Wall along the South Side of Mayfield Road



Mayfield Road\Section2\ Looking towards East\Steel Sheet Piles at the North Side of Mayfield Rd. as Retaining walls for the road Embankment (Approx. 400 m long)



Mayfield Road\Section2\ Looking towards West\Steel Sheet Piles at the North Side of Mayfield Rd and Wetland Area to the North OF Mayfield Rd and East of Kennedy Rd.



Mayfield Road\Section2\ Looking towards West\ Culverts and wetland at the Northeast Corner of Mayfield and Kennedy Rd. Intersection.



Mayfield Road\Section2\ Concrete culvert and Storm Water Management Pond at the Northeast Corner of Mayfield Rd. and Kennedy Rd. Intersection.



Mayfield Road\Section2\ Looking Towards East\Widening Construction for the Southside of Mayfield ,East of Kennedy Rd.



Mayfield Road\Section2\ Looking towards East \ Mayfield Rd. and Kennedy Rd. Intersection.



Mayfield Road\Section2\ Looking towards West \ from Kennedy Road to 150 m Westerly\see cracks and distortion area\ new Subdivision will be constructed at the North Side of Mayfield Rd. , West of Kennedy Rd.



Mayfield Road\Section2\ Looking towards North\End of Section 2 and Starting of Section 3, about 150 m West of Kennedy Rd.



Mayfield Road\Section3\Looking towards West



Mayfield Road\Section3\Looking towards West, 200 m East of Kennedy Rd.



Mayfield Road\Section3\Looking towards West\Farm land to the South and New Subdivision to the North.



Mayfield Road\Section3\Looking towards West, 500 m West of Kennedy Rd.



Mayfield Road\Section3\Looking towards West



 $\label{thm:lembankment} \begin{tabular}{l} May field Road \end{tabular} Section 3 Looking towards West \end{tabular} Embankment Fill for Structural Bridge crossing Tributary \end{tabular} Too m West of Kennedy Road$



Mayfield Road\ Looking towards West\Structural Bridge crossing Tributary\700 m West of Kennedy Road



Mayfield Road\ Section 3\Looking towards West\Structural Bridge crossing a Tributary\700 m West of Kennedy Road



Mayfield Road\ Looking towards West\Structural Bridge crossing a Tributary\700 m West of Kennedy Road



Mayfield Road\ Section 3\Looking towards West\Embankment Fill west of the Structural Bridge \ South side of Mayfield, West of the Bridge



Mayfield Road\Section 3\ Looking towards West\900m west of Kennedy Road



Mayfield Road\ Section 3\Looking towards West\1100m west of Kennedy Road



Mayfield Rd\Section 3\Looking towards West, 250 m East of Hurontario Street



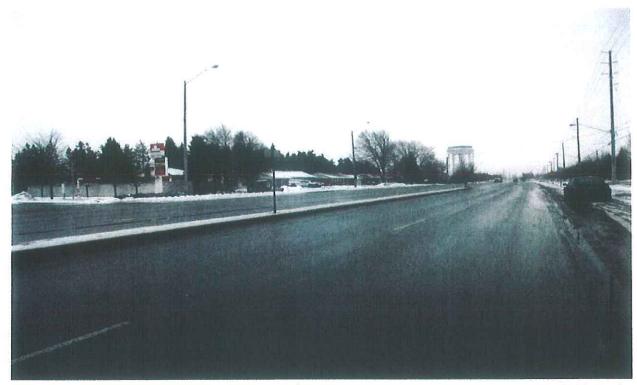
Mayfield Road\Section 3\ Looking towards West, 200 m East of Hurontario St.\ Gas Station at the Northeast corner of Mayfield and Hurontario St. Intersection



Mayfield Road\Section 3\ Looking towards West, 100 m East of Hurontario St.\ Gas Station at the Northeast corner of Mayfield and Hurontario St. Intersection



Mayfield Road\Section 3\ Mayfield Rd. and Hurontario St. Intersection



Mayfield Road\Section 3\ Looking towards West\Gas Station at the Southwest corner or Mayfield Road and Hurontario Street Intersection.



Mayfield Road\Section 3\ Looking towards West\200 m West of Hurontario Street



Mayfield Road\Section 4\Looking towards West, 400 m West of Hurontario Street



 $May field \ Road \backslash Section \ 4 \backslash Looking \ towards \ West, 500 \ m \ West \ of \ Hurontario \ Street$



Mayfield Road\Section 4\Looking towards West



Mayfield Road\Section 4\Looking towards West



Mayfield Road\Section 4\Looking towards West\Mayfield Rd. and Robertson Davies Rd. Intersection



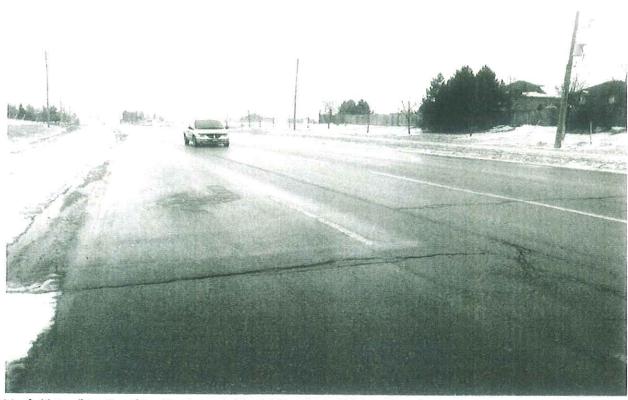
Mayfield Road\Section 4\Looking towards South



Mayfield Road\Section 4\Looking towards West\Railway Crossing



Mayfield Road\Section 4\Looking towards North\Railway Crossing



Mayfield Road\Section 4\Looking towards West\400 m East of McLaughlin Rd.



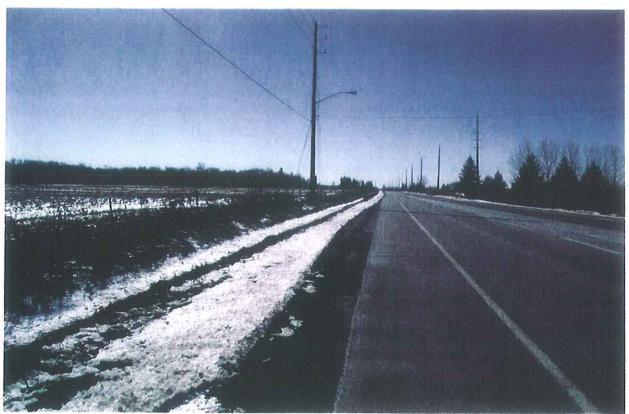
Mayfield Road\Section 4\Looking towards South



Mayfield Road\Section 5\Looking towards East\ Mayfield Road and McLaughlin Road Intersection



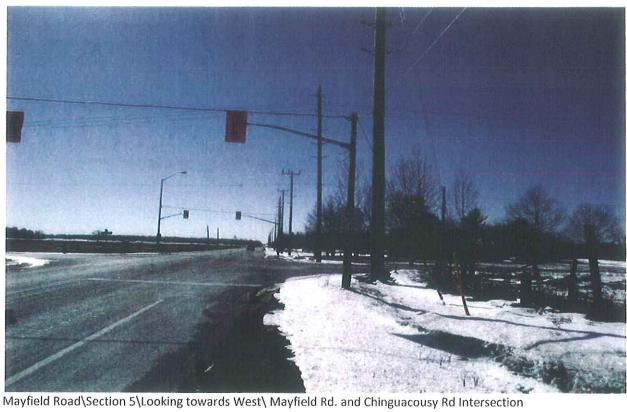
Mayfield Road\Section 5\Looking towards West



Mayfield Road\Section 5\Looking towards West



Mayfield Road\Section 5\Looking towards West





Mayfield Road\Section 5\Looking towards West\ Mayfield Rd. and Chinguacousy Rd Intersection



February 25, 2009

Mr. Robert Bowder Metric Contracting Services Corporation 34 Bramtree Crt., Brampton, Ontario L6S 5Z7

Dear Mr. Bowder:

Re: Drilling Results-Mayfield Road, Stage II, Region of Peel, Ontario

Atlas Dewatering Corporation (Atlas) is pleased to provide you with our drilling results from the recent investigation completed immediately east of Kennedy Road and along the north side of Mayfield Road in Brampton, Ontario (Figure 1).

Background

Metric Contracting Services Corporation (Metric) retained the services of the Atlas on February 19, 2009 to advance soil borings between two sheet pile walls. It is understood that when Metric initiated excavation alongside the northern sheet pile wall, the sheet pile wall moved approximately 0.3m inwards towards the excavation. The excavation was immediately backfilled.

Scope of Work

Metric retained the services of Atlas for the following scope of work:

- 1. to determine soil conditions in the immediate area of the northern sheet pile wall;
- 2. to determine thickness of peat layer; and
- 3. to determine soil conditions at the base of the northern sheet pile wall.

Methodology

Atlas retained the services of Geo Environmental Drilling who mobilized a CME-75 track mounted drill machine and advanced soil borings on February 20-21, 2009. Metric provided recent utility clearances prior to the commencement of drilling activities along with ground elevation datum.

Solid stem augers were utilized at three of the seven locations with hollow stem augers used at the remaining four locations. Boreholes remained opened at all locations with the exception of BH 6 where solid stem augers were used. Soil samples were collected using a split spoon sampler by dropping a 140 lb (64kg) hammer falling free from a height of 0.762m and pounding the split spoon for a total depth of 0.6m. N-values were collected by our Environmental Technician.

Upon completion of the boreholes, bentonite chips were used to seal the soil borings at the majority of locations with the exception of BH1, 2 and 3.

REF: 08-548



In addition to the above, as the material was soft at the base of the sheet pile wall, Atlas advanced two additional test holes to conduct cone penetration tests. These holes were then sealed using bentonite chips.

Study Results

Borehole and cone penetration test locations are provided on Figure 2. Soil conditions in the immediate area of the northern sheet pile wall consisted of peat underlain by clayey silt and in some areas clayey silt to sandy silt till. The peat extended between 5.2m (BH2) to a maximum depth of 8.2m (BH3) alongside the northern sheet pile wall, but wasn't encountered at the furthest western location BH4. The clayey silt material below the peat was very soft.

We understand that the sheet piles were 9m in length with approximately 8m (26') driven below ground surface, as such, the base of the sheet pile walls were founded in soft/loose material.

Further south (6-9m from the northern sheet pile wall), three additional boreholes were advanced. The peat layer thinned out at these locations with the greatest thickness of peat found at BH5 between 2.4-3.6m below grade. Only a thin layer of peat was encountered at BH7 at 3.0m with no peat encountered at BH6.

As the material encountered was predominantly soft/loose at the base of the boreholes advanced in the vicinity of the northern sheet pile wall, two additional test holes were advanced in the vicinity of BH1 and BH3 using a "cone". Blow counts were collected continuously to depth until firmer material was encountered at about 9.1m below grade. Borehole logs are attached.

Closing

We trust this meets with your present requirements, should you have any questions, please contact the undersigned at 647-229-0057.

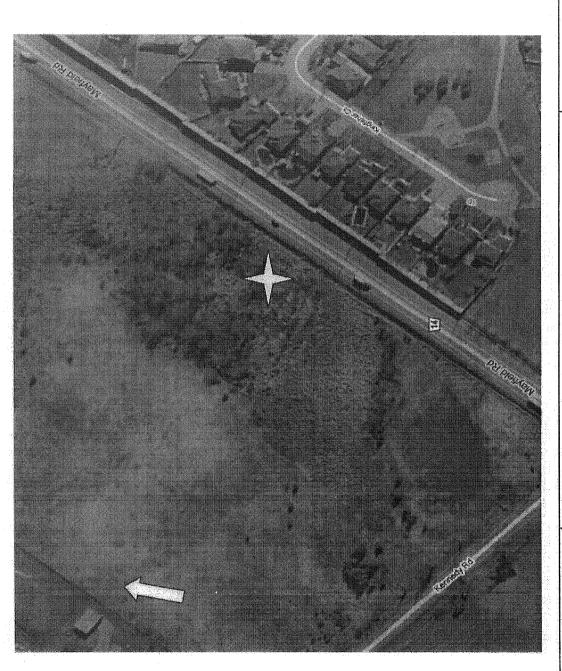
Yours very truly, Atlas Dewatering Corporation

Shawn Bonneville, C.E.T., P.Geo

Senior Geoscientist

FIGURES





Site Location Plan

Metric Contracting Services Corporation

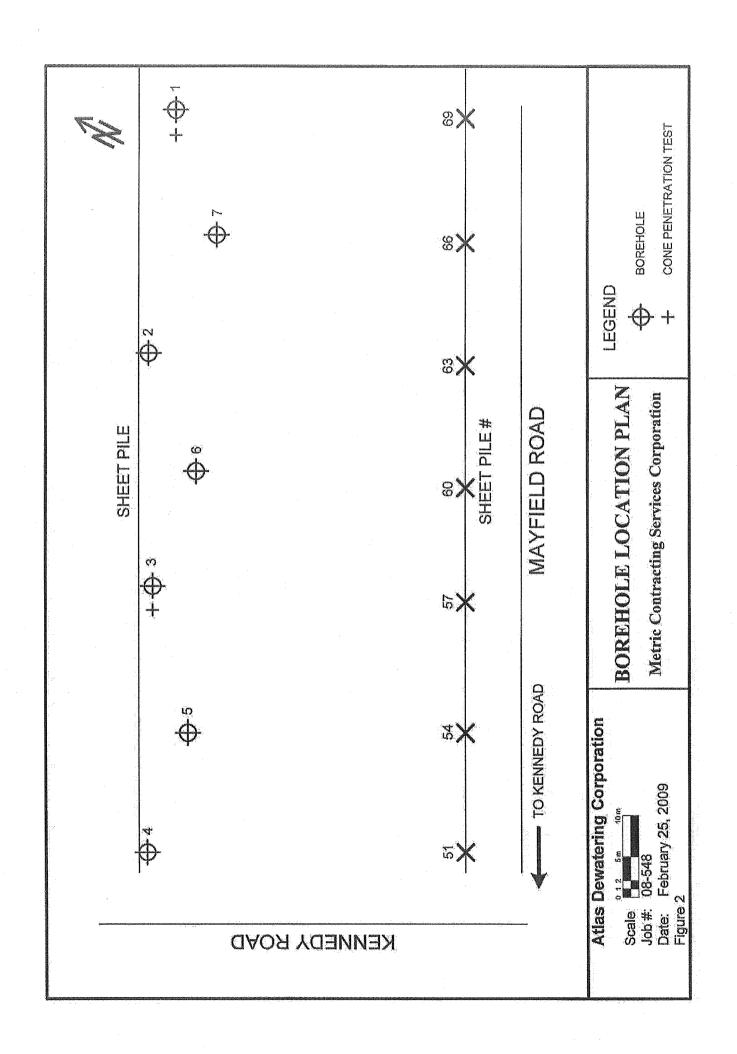
Image by Google

Figure 1

Project 08-548

Date: 02/25/09

Site Location



BOREHOLE LOGS





THE ATLAS CORPORATION 111 ORTONA COURT CONCORD ONTARIO L4K 3M3 Telephone: +1-905-669-6825

BORING NUMBER BH-1

PAGE 1 OF 1

Fax: +1-905-669-4036					
CLIENT ATLAS DEWATERING CORPORATION					
PROJECT NUMBER _08-548	PROJECT LOCATION Kennedy Rd. & N	laylield Rd., Brampton, ON			
DATE STARTED 20/2/09 COMPLETED 20/2/09 DRILLING CONTRACTOR Geo Environmental Drilling					
DRILLING METHOD Solid Stem Auger	AT TIME OF DRILLING				
LOGGED BY J. Browne CHECKED BY S. Bonneville	AT END OF DRILLING				
NOTES Borehole remained opened	AFTER DRILLING				
A	ERIAL DESCRIPTION	WELL DIAGRAM			
אַר אַ <u>Peat</u> ע אַר אַ <u>Peat</u> Medium brown peat, fibi very loose, saturated ע אַר אַ	rous with silt,				
SS 0-2-2-3	254,15				
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	ontent below 2.1m	·			
SS 1-0-0-0 44 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	4				
4 SS 1-0-0-0 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4					
- SS 1-0-0-0 24 44 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4					
SS 1-1-0-0 4 4 4 4 5.94	250.34	:			
SS 1-0-0-0 Clayev Silt Grey clayey silt trace so very soft, W.T.P.L.	249.58				
Bot	ttom of hole at 6.70 m.				



THE ATLAS CORPORATION 111 ORTONA COURT CONCORD ONTARIO 1 4K 3M3

BORING NUMBER BH-2 PAGE 1 OF 1

		5-669-4 ERING	036			PROJECT NAME METRIC Soils Investigation Borehole Log PROJECT LOCATION Kennedy Rd. & Mayfield Rd., Brampton, ON				
DATE STARTED 20/2/09 COMPLETED 20/2/09 DRILLING CONTRACTOR Geo Environmental Drilling DRILLING METHOD Hollow Stem Auger LOGGED BY J. Browne CHECKED BY S. Bonneville						GROUND WATER LEVELS: AT TIME OF DRILLING	Size Control of the C			
DEPTH (m) SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	PID (ppm)	GRAPHIC		ΓΑ <u>Μ</u>	TERIAL DESCRIPTION		WELL DIAGRAM		
	1-0-0-0		77. 77. 77. 77. 77. 77. 77. 77. 77. 77.	Mediu very k 1.62	im brown peat, fil pose, saturated,	brous with silt sand, very soft, W.T.P.L.	254.30			
ss 2	1-0-0-0	in the second se								
SS 3 SS 4 SS 5 5	1-0-0-0			Brown	ey Silt (IIII like) n clayey silt, trac oose, saturated	e sand and subangular gravel,	250.74			
SS 4 SS 5 SS 6 SS 7				8.23 incre	asing sand conte	ent below 8.2m	247.69			
	1-2-3-3 (5)			9.75	133	ottom of hole at 9.75 m.	246.17			



THE ATLAS CORPORATION 111 ORTONA COURT CONCORD ONTARIO L4K 3M3 Telephone: +1-905-669-6825

BORING NUMBER BH-3

PAGE 1 OF 1

CLIEN	.T	elephone: ax: +1-905	+1-905 -669-4	-669-6 036			PROJECT NAME METRIC So	ils Investiga	ation Bore	ehole Lög	
1		BER <u>08-5</u>		22111			PROJECT LOCATION Kenned		,		
DRILL DRILL LOGG	ORILLING CONTRACTOR Geo Environmental Drilling ORILLING METHOD Solid Stem Auger OGGED BY J. Browne CHECKED BY S. Bonneville NOTES Borehole remained opened						AT TIME OF DRILLING				
DEPTH (m)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	PID (ppm)	GRAPHIC LOG		MATE	RIAL DESCRIPTION		WE	ELL DIAGRAM	
ENVIRONMENTAL BH, GINT, STD CANADA, GDT, 25/2/09 CO CO CO CO CO CO CO CO CO C	SS 2 SS 3 SS 4 SS 4 SS 6 SS 7 SS 8 SS 7 SS 8 SS 10 SS 11	1-0-0-0 (0) 1-0-0-0 (0) 1-0-0-0 (0) 1-0-0-0 (0) 1-0-0-0 (0) 1-0-0-0 (0) 1-0-0-0 (0)		1 1 2 3	8:83	brown peat, fibrous	very soft, W.T.P.L.	247.09			
S.	1					Bott	om of hole at 9.75 m.			nigonomboni su para paga si in a sint anni debina distribit di 1800 di antino den nonce nonce nonce nonce debina	



THE ATLAS CORPORATION

BORING NUMBER BH-4

	(T	11 ORTON CONCORD elephone: fax: +1-905	ONTA +1-90	RIO L4 5-669-6					PAGE 1 OF 1
CLIEN					PORATION	PROJECT NAME METRIC So	ils Investi	gation Bor	ehole Log
PROJ	ECT NUM	BER _08-5	148			PROJECT LOCATION Kenned	ly Rd. & N	Mayfield Ro	I., Brampton, ON
DRILL	ING CON		Geo	Enviror	nmental Drilling	A THE PERSON NAME OF TAXABLE ASSESSMENT			
	SED BY				CHECKED BY S. Bonneville	AT END OF DRILLING			
王()	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	PID (ppm)	GRAPHIC	MATE	RIAL DESCRIPTION		W	ELL DIAGRAM
		444.430.430.400.430.400.400.400.400.400.			No recovery				da immonomente monamente en estado en es
2	SS 1	1-0-0-0 (0)			2.29		253.81		
*	SS 2	1-1-1-1 (2)			Clayey Silt Grey/brown, clayey silt, i very soft, W.T.P.L.	frace sand and sub angular gravel,			
-	SS 3	1-1-1-1 (2)							
4	SS 4	2-2-3-4 (5)			4.42 Clayey Silt/Sandy Silt T		251.68		
	SS 5	2-4-5-6 (9)			Grey/brown, clayey slit/s loose, saturated	sandy silt till, trace sub angular gravel,			
6_	SS 6	3-5-7-8 (12)			5.85 <u>Sand</u>	and all the compact actuated	250,25		
_	SS 7	4-5-7-8 (12)			brown medium sand, tr	ace silt, compact, saturated			
8	- X ss 8	4-7-9-9 (16)			8.38 Bot	tom of hole at 8.38 m.	247,72		
Alberta A. M.									



THE ATLAS CORPORATION 111 ORTONA COURT CONCORD ONTARIO L4K 3M3

BORING NUMBER BH-5
PAGE 1 OF 1

Fax: +1-905-6	RING CORPORATION	PROJECT NAME METRIC Soils Investignment PROJECT LOCATION Kennedy Rd. & M.			
DATE STARTED _21/2/09 DRILLING CONTRACTOR _C DRILLING METHOD _Hollow	GOMPLETED 21/2/09 Geo Environmental Drilling	GROUND ELEVATION 256.15 m HOLE SIZE 0.205m GROUND WATER LEVELS: AT TIME OF DRILLING —			
DEPTH (m) SAMPLE TYPE NUMBER BLOW COUNTS (N VALUE)	PID (ppm) GRAPHIC LOG LOG	RIAL DESCRIPTION	WELL DIAGRAM		
SS 1-1-1-2 (2) SS 1-0-0-0 (0) SS 0-0-1-2 (1) SS 1-2-6-7 (8) SS 2-4-5-10 (9) SS 2-5-6-10 (11)	5.94 Clayey Slit to Sandy Silt Grey clayey silt to sandy compact, saturated	252.54 sand and fine subangular gravel.			



THE ATLAS CORPORATION 111 ORTONA COURT CONCORD ONTARIO L4K 3M3

BORING NUMBER BH-6 PAGE 1 OF 1

Fax: +1-905-669	905-669-6825 9-4036 NG CORPORATION	PROJECT NAME METRIC Soils Investig	ation Borehole Log
PROJECT NUMBER 08-548	30.2	PROJECT LOCATION Kennedy Rd. & Ma	
DRILLING CONTRACTOR Ge	COMPLETED 20/2/09 so Environmental Drilling em Auger CHECKED BY S. Bonneville	AT TIME OF DRILLING	
DEPTH (m) SAMPLE TYPE NUMBER COUNTS (N VALUE)	MATER MATER	IAL DESCRIPTION	WELL DIAGRAM
SS 5-6-6-5 (12) SS 1-0-0-0 (0) SS 0-0-2-3 (2)	very soft, W.T.P.L.	gravel, trace silt, 252,79 ce sand and fine subangualr gravel, 250.66 n of hole at 5.18 m.	



THE ATLAS CORPORATION 111 ORTONA COURT CONCORD ONTARIO L4K 3M3

BORING NUMBER BH-7 PAGE 1 OF 2

Telephone: +1-9 Fax: +1-905-669		PROJECT NAME METRIC Soils Investig	ation Borehole Log			
PROJECT NUMBER 08-548		PROJECT LOCATION Kennedy Rd. & Ma				
DRILLING CONTRACTOR Ger DRILLING METHOD Hollow St	o Environmental Drilling	AT TIME OF DRILLING				
DEPTH (m) SAMPLE TYPE NUMBER BLOW COUNTS (N VALUE)	GRAPHIC LOG MATER	NAL DESCRIPTION	WELL DIAGRAM			
SS 10-12-13- 1 (25) SS 8-9-11-18 2 (20) SS 2-1-1-1 3 (2) SS 1-1-1-1 (2) SS 1-1-1-1 (2) SS 1-1-1-1 (2) SS 1-1-1-2 (3) SS 1-1-1-2 (1) SS 0-0-1-2 (1) SS 0-0-1-2 (1)	Clavey Silt to Sandy Silt T Grey/brown clayey silt to s very loose, saturated	253.11 aturated \$\int \frac{252.50}{252.50}\$ trace sand and fine subangular gravel				



THE ATLAS CORPORATION 111 ORTONA COURT

CONCORD ONTARIO L4K 3M3 Telephone: +1-905-669-6825 Fax: +1-905-669-4036

BORING NUMBER BH-7

PAGE 2 OF 2

CLIENT ATLAS DEWATERING CORPORATION PROJECT NAME METRIC Soils Investigation Borehole Log

PROJECT LOCATION Kennedy Rd. & Mayfield Rd., Brampton, ON PROJECT NUMBER 08-548

Ē	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	PID (ppm)	GRAPHIC LOG		MAT	ERIAL DESCRIPTI	ON			WELL DIAGRAM			
***						Sandy Silt Till Brown sandy silt till with very loose, saturated (o	ı clay, trace fine sul ontinued)	bangua	lr gravel,			**************************************		***************************************
-	SS 12	2-2-3-6 (5)	-		11.28	Rot	om of hole at 11.28	R.m.		244.88				
			***************************************				on or now at prime					-		
			***************************************							·				
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		and the state of t	-		-									
					i.									

Cone Test in Proximity of BH-1

Conducted Feb.21/09

At Sheet Pile Reference68+6m east of pile #68, Offset from North Wall 4.5m Elevation 256.28masl (as provided by Metric)

Depth (feet below surface)	Blow Count	N- Value
0-2	1, 1, 2, 1	3
2-4	1, 1, 1, 1	2
4-6	1, 1, 1, 1	2
6-8	1, 1, 1, 1	2
8-10	1, 1, 1, 1	2
10-12	2, 1, 1, 1	2
12-14	1, 1, 1, 2	2
14-16	1, 1, 2, 2	3
16-18	2, 2, 2, 2	4
18-20	1, 2, 1, 2	3
20-22	2, 3, 3, 3	6
22424	3, 3, 2, 4	5
24-26	4, 3, 5, 6	8
26-28	6, 5, 6, 7	11
28-30	8, 8, 8, 8	16
30-32	9, 10, 9, 9	19
32-34	10, 9, 10, 9	19
34-36	11, 10, 13, 11	23
36-38	11, 10, 11, 12	21
38-40	11, 13, 16, 15	29

Cone Test in Proximity of BH-3

Conducted Feb.21/09

At Sheet Pile Reference 56+5m east of Pile # 56, Offset from North Wall 2.0m

Elevation 255.9masl (as provided by Metric)

Depth (feet below surface)	Blow Count	N- Value
0-2	12, 10, 4, 3	14
2-4	1, 3, 3, 2	6
4-6	2, 2, 1, 1	3
6-8	2, 1, 1, 1	2
8-10	1, 1, 1, 1	2.
10-12	1, 1, 2, 1	3
12-14	1, 1, 1, 1	2
14-16	1, 2, 1, 1	3
16-18	2, 1, 1, 1	2
18-20	1, 1, 1, 2	2
20-22	3, 3, 2, 1	5
22-24	2, 1, 2, 2	3
24-26	1, 2, 3, 2	5.
26-28	3, 3, 2, 2	5
28-30	3, 5, 4, 6	9
30-32	12, 14, 14, 16	28
32-34	18, 18, 22, 22	40
34-35	26, 25	>50/0.3m

PROJECT

Mayfield Road and Kennedy Road, Brampton, Ontario

LOCATION

Wetland 1, U-Fill Column 102

STARTED

COMPLETED :

June 5, 2009

June 5, 2009

Project No. 17-308-472

SHEET 1 OF 2 DATUM

	٥	SOIL PROFILE		0.4	MPL	Ec.T				SHEAR	STREN	STH: Cu.	КРа	Т		
(metres)	BORING METHOD	- JOIL FROFILE	TET	13/		\dashv					nat V - 1 rem V - 1	STH: Cu,	Q - 🗶 Cpen 🛦		ADDITIONAL LAB. TESTING	PIEZOMETER
etres	3 ME		STRATA PLOT TOTAL DEBLIN ELEA.	R	u u	BLOWS/0.3m	COM	MEN"	TS	40) 80	120) 160		STI	OR
Ĕ	SING	DESCRIPTION	A DEPTH		TYPE	/S/Mc	DYNAMIC CO	NE PEI	NETRATION			NTENT, I		er	B. T.	OR STANDPIPE INSTALLATION
-	80		STR (m)	Ē		BLC	DYNAMIC CO RESISTANCE 20 40	60	80 100	11	20	30		,	₹5	
		GROUND SURFACE	256.18	3					<u> </u>	1						
Ì		Unshrinkable FILL, brown to grey Augering without sampling to 13.7m depth	0.00	9												
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HURBER2S 847

SHALLOW/SINGLE INSTALLATION
WATER LEVEL (date) May 6, 2009

▼ DEEP/DUAL INSTALLATION WATER LEVEL (date)



PROJECT LOCATION Mayfield Road and Kennedy Road, Brampton, Ontario

Wetland 1, U-Fill Column 102

STARTED : COMPLETED :

June 5, 2009 June 5, 2009

lung 5, 2000

Project No. 17-308-472

SHEET 2 OF 2 DATUM

HOD	SOIL PROFILE			SA	MPL	\dashv		SHEAR STRENGTH: Cu, H nat V - 4 rem V - 6	(Pa Q - X pen ∆	۾ ٿ	_
(metres) BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	COMMENTS DYNAMIC CONE PENETRATION RESISTANCE PLOT 20 40 60 80 100	40 80 120 WATER CONTENT, P wp I 0 30	160	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
	SILT, clayey, trace sand, trace gravel, stiff, grey, moist: (TILL)		240.94 15.24	2	SS	11	Grain Size Analysis: Gr 1%/ Sa 22%/ Si 52%/ Cl 25%	01-1			
17				3	SS	13		o	A		·
9	SILT, sandy, some clay, trace gravel, compact, grey, moist: (TILL)		237.90 18.29		SS	15	Grain Size Analysis: Gr 3%/ Sa 35%/ Sl 46%/ Cl 16%	0			
20		9		5	ss	17		o l			
11	SILT, clayey, trace to some sand, trace gravel, very stiff, grey, moist: (TILL)	*	235.31 20.88	6	ss	20					
22	SAND, trace silt, occasional gravel, dense, moist		233.78	-							
24				7	ss	37		0			
25	SAND and SILT, trace clay, dense, grey, moist		231.8	8	ss	47	Grain Size Analysis: Gr 0%/ Sa 53%/ Si 42%/ Cl 5%	0			
26	SILT, sandy, trace to some gravel, very dense, grey, moist: (TILL) END OF BOREHOLE AT 26.3m.	0	230.7 25.4 2 229.8 26.3	5 7 9	SS	80		0			
27	BOREHOLE OPEN TO 25.9m AND WATER LEVEL AT 0.7m UPON COMPLETION OF DRILLING, BOREHOLE GROUTED TO SURFACE.										
28											
29											

GROUNDWATER ELEVATIONS

SHALLOW/SINGLE INSTALLATION WATER LEVEL (date) May 6, 2009

DEEP/DUAL INSTALLATION
WATER LEVEL (date)



PROJECT

Mayfield Road and Kennedy Road, Brampton, Ontario

LOCATION

Wetland 1, U-Fill Column 70

STARTED

June 1, 2009

Project No. 17-308-472

SHEET 1 OF 3

S	ЕТНОВ	SOIL PROFILE	5		-	MPL			SHEAR STRENGTH: Cu, nat V - 🏺 rem V - 🍪 40 80 120	KPa Q - X Cpen ∆ 160	PIEZOMETER
(metres)	BORING METHOD	DESCRIPTION		ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	COMMENTS DYNAMIC CONE PENETRATION RESISTANCE PLOT 20 40 60 80 100	WATER CONTENT, F wp	PERCENT OF S	OR STANDPIPE INSTALLATION
_		GROUND SURFACE ROCK, some sand	Δ 4	256.29			\exists				
		Unshrinkable FILL, brown to grey Augering without sampling to 9.1m depth		0.00 255.98 0.30							∇
;	ngers										
,	Hollow Stem Augers				,						
}											
				247.15 9.14		ss	56		0		
10		SILT, clayey, with sand, trace gravel, very stiff, grey, moist: (TILL)		246.23 10.06	3 2	SS	23	Grain Size Analysis: Gr 2%/ Sa 40%/ Si 39%/ Cl 19%	0	>>	
11					3	SS	18	Grain Size Analysis: Gr 1%/ Sa 39%/ Si 44%/ Cl 16%	o		
12		SILT, sandy, trace clay, trace gravel, compact, grey, moist		244.10 12.19		ss	17		000		
13		SILT, clayey, trace sand, trace gravel, very stiff, grey, moist: (TILL)		242.8 13.4	H			Grain Size Analysis: Gr 2%/ Sa 40%/ Si 36%/ Cl 22%	,		
14				241.5 14.7	8	SS	21	Gr 2%/ Sa 40%/ Si 36%/ Cl 22%	ΦI	>>	
		GROUNDWATER ELE	ALLA	TION	S] <u>*</u> AW	DEEP/DUAL INSTALLATION	LOGGED	: JM	



PROJECT

Mayfield Road and Kennedy Road, Brampton, Ontario

LOCATION

Wetland 1, U-Fill Column 70

STARTED

COMPLETED :

June 1, 2009 June 1, 2009

Project No. 17-308-472

SHEET 2 OF 3 DATUM

		1, 2000							CHEV	Q QTDEN	CTU- C-	KD.		ATUM	
ALE (THOD	SOIL PROFILE	T ⊢	Γ	SA	MPL			SHEAL	R STREN nat V - rem V -	GIH:UL B S	i, KPa Q - ≱ Cpen ∆		₽ RG A	Dirizo) intra
DEPTH SCALE (metres)	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	COMMENTS DYNAMIC CONE PENETRATION RESISTANCE PLOT 20 40 60 80 100	W	ATER CO	O 12 ONTENT,	PERCE	50 L NT	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
	+	SAND, trace silt, occasional clay, occasional gravel, compact, grey, moist						Sand blew back into augers							
					6	SS	4	David Bien dack into adgers		0					
-16		SAND and SILT, trace clay	TIT	239.98 16.31											
· 17					_			Grain Size Analysis:							
17					7	SS	26	Grain Size Analysis: Gr 0%/ Sa 55%/ Si 42%/ Cl 3%		0					
-18			111	238.46 17.83											
					8	ss	37			0					
19					-	-									
-20					,9	ss	17			0					
· 21								Contractive And an							
-22					10	SS	21	Grain Size Analysis: Gr 0%/ Sa 90%/ Si 7%/ Cl 3%		0					
		SILT, sandy, trace to some clay, occasional gravel, compact to dense, grey,		233.89											
- 23		occasional gravel, compact to dense, grey, moist			-	-									
					-	SS	35								
-24															
					12	ss	32								
- 25					\vdash										
-26					13	ss	12								
- - 27															
ļ					_	-	-	Grain Size Analysis:							
-28					1	1 55	3 20	Grain Size Analysis: Gr 0%/ Sa 33%/ Si 58%/ Cl 9%		0					
		Very dense	-	227.7 28.5	9										
- 29					-	E 0.									
			_ [226.5 29.1	57	5 S	- 60			0					
		GROUNDWATER ELI	_此 F\//	31	1				Щ.	_L		<u> </u>	<u></u>		

 \overline{Y} shallow/single installation WATER LEVEL (date) January 6, 2009

▼ DEEP/DUAL INSTALLATION WATER LEVEL (date)

PROJECT

Mayfield Road and Kennedy Road, Brampton, Ontario

LOCATION

Wetland 1, U-Fill Column 70

STARTED COMPLETED June 1, 2009

Project No. 17-308-472

SHEET 3 OF 3

June 1, 2009 DATUM

ш	00	SOIL PROFILE			SA	MPL	.ES		SHEAF	R STRENGT	H: Cu, KPa Q - X Cpen ∆	T ,,1	
DEPTH SCALE (metres)	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	COMMENTS DYNAMIC CONE PENETRATION RESISTANCE PLOT 20 40 60 80 100	W.	10 80 L 1	120 160 ENT, PERCENT	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
			FTT										
· 31					16	ss	18			0			
-32		SAND, silty, trace gravel, dense, grey, moist		224.29 32.00 223.68	17	ss	45			0			
33		SILT, sandy, trace clay, trace gravel, dense, grey, moist: (TILL)	8	32.61									
-34		END OF BOREHOLE AT 34.1m.	6	222.15 34.14	<u> </u>	ss	40	Grain Size Analysis: Gr 7%/ Sa 31%/ Si 53%/ Cl 9%		0			
35		END OF BOREHOLE AT 34.1m. BOREHOLE OPEN TO BOTTOM AND WATER LEVEL AT 0.6m UPON COMPLETION OF DRILLING. BOREHOLE GROUTED TO SURFACE.											
-36													
- 37													
-38													
- 39										,			
-40													
- 41 - 41													
-42													
- 43													
-44													
		GROUNDWATER ELE											

 \overline{Y} SHALLOW/SINGLE INSTALLATION WATER LEVEL (date) January 6, 2009

▼ DEEP/DUAL INSTALLATION WATER LEVEL (date)

PROJECT

Mayfield Road and Kennedy Road, Brampton, Ontario

LOCATION

: Wetland 1, U-Fill Column 119

STARTED :

June 3, 2009

June 3, 2009

Project No. 17-308-472

SHEET 1 OF 2 DATUM

Common C	COMPLE	:TED : June 3, 2009										DA.	TUM	
DESCRIPTION Company	HOD	SOIL PROFILE		S	AMPL	ES		SHEAR :	STRENG nat V - 🍨 em V - 😂	TH: Cu, KP C Co	Pa () - X en A		ا ي	
CACINES INFACTS Literach to grey Augering without sampling to 13.4m disash Value Val	etres)		PLO]	EV.	س ا	/0.3m	COMMENTS	40 L	80 L	120	160		ESTIN	PIEZOMETER OR STANDPIPE
CACINES INFACTS Literach to grey Augering without sampling to 13.4m disash Value Val	(m)	DESCRIPTION	AADED (SE	PTH S	F	OWS	DYNAMIC CONE PENETRATION RESISTANCE PLOT	wp		-0 ^w	l wl		ABDI AB. T	INSTALLATION
1 Unabstable H. L. Sown to grey Augering will out sampling to 13 Am degth 1 1 -2 -3 -3 -4 -4 -5 -6 -6 -7 -8 -8 -9 -10 -10 -11 -11 -12 -13 -13 -14 -15 -15 -16 -15 -16 -16 -17 -17 -17 -17 -18 -18 -18 -18 -18 -18 -18 -18 -18 -18) M	GROUND SURFACE			\perp	ã	20 40 60 80 100	10	20	30	40	-		
-1			250	0.00					-+	_	+			
-2 -3 -4 -5 -6 s s s s s s s s s s s s s s s s s s		riogoning without company to 10.447 depart												∇
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SILT, clayey, trace sand, trace gravel, sliff, orey, moist; (TILL)														
SILT, clayey, trace sand, trace gravel, stiff, orey, moist; (TILL) 2 SS 14					1 8	5 61			b					
SILT, clayey, trace sand, trace gravel, stiff, 14.40 2 SS 14	-14		※ .	241.82										
		SILT, clayey, trace sand, trace gravel, stiff, grey, moist: (TILL)		14 4∩ไ	2 8	S 14			0					
GROUNDWATER ELEVATIONS			1/1	ONIS		-1							<u> </u>	

☐ SHALLOW/SINGLE INSTALLATION
WATER LEVEL (date) March 6, 2009

THURBER2

▼ DEEP/DUAL INSTALLATION WATER LEVEL (date)

LOGGED : JM CHECKED : SKP

PROJECT

Mayfield Road and Kennedy Road, Brampton, Ontario

LOCATION STARTED

Wetland 1, U-Fill Column 119

June 3, 2009

June 3, 2009

Project No. 17-308-472

SHEET 2 OF 2

	HOD.	SOIL PROFILE	, , ,		SA	MPLI	ES		SHEAR	STREN nat V -	igth: (♣ ♠	Du, KPa Q - ≱ Cpen ⊿		ا ق بــ	
(metres)	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	COMMENTS DYNAMIC CONE PENETRATION RESISTANCE PLOT 20 40 60 80 100	40) (L	T, PERCE	60	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
-	+														
					3	ss	15			0			A		
6					-										
7					4	ss	18			0			>>4		
					-										
3															
		SILT, sandy, some clay, trace gravel, compact, grey, moist: (TILL)		237.93 18.29	1	SS	24		0						
9			6		Ľ	33	24								
		·	q												
0		SAND, some silt, trace clay, dense, grey, moist		236.41 19.81	Ţ			Sand blew back into augers							
					L	SS	3								
1															
					-	-									
2					7	ss	39			(
3						-									
					8	SS	32				þ				
4															
					\vdash	-									
5					9	ss	13			(
_				230.6	5										
:6		SAND, silty, trace gravel, trace clay, dense, grey, moist: (TILL)	0	25.5	7	_									
			0		10	ss	48			þ					
27			o												
					_	_									
28			Q	228.1		ss	44			þ					
		END OF BOREHOLE AT 28,0m. BOREHOLE OPEN TO 27.4m AND WATER LEVEL AT 0.7m.		28.0											
29		BOREHOLE GROUTED TO SURFACE.													
.0															

☐ SHALLOW/SINGLE INSTALLATION WATER LEVEL (date) March 6, 2009

▼ DEEP/DUAL INSTALLATION WATER LEVEL (date)

LOGGED : JM CHECKED :

PROJECT

Mayfield Road and Kennedy Road, Brampton, Ontario

LOCATION STARTED

COMPLETED :

: Wetland 1, U-Fill Column 91

June 11, 2009 June 11, 2009 Project No. 17-308-472

SHEET 1 OF 2 DATUM

	THOD	SOIL PROFILE	Ι <u></u>		SAN	MPLE			SITEAL	R STRENC nat V - • rem V - •	(Q - X Open A	F.	PIEZOMET	FR
(metres)	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	COMMENTS DYNAMIC CONE PENETRATION RESISTANCE PLOT 20 40 60 80 100	W/	0 80 L L ATER COI p I 20 1. I	NTENT, P	PERCENT	ADDITIONAL	OR STANDPIF INSTALLATI	PE
\neg	\perp	GROUND SURFACE		256.22 0.00			1								
		Unshrinkable FILL, brown to grey Augering without sampling to 7.62m depth		0.00										$oxed{ar{ar{ar{ abelia}}}}$	
;				248.60 7.62		SS	85/ 0.125	\$ 		0					
					2	ss	83			0					
0		SILT, clayey, trace to some sand, trace gravel, stiff to very stiff, grey, moist: (TILL)		245.73 10.49		ss	19			0					
11		3	18/10		4	ss	9			0	A				
12					5	ss	12			0					
13			10/0/									-			
14			19		6	SS	16			0			>>		

SHALLOW/SINGLE INSTALLATION WATER LEVEL (date) November 6, 2009

DEEP/DUAL INSTALLATION WATER LEVEL (date)

LOGGED : JM CHECKED : SKP

PROJECT

Mayfield Road and Kennedy Road, Brampton, Ontario

LOCATION STARTED Wetland 1, U-Fill Column 91

: June 11, 2009

Project No. 17-308-472

SHEET 2 OF 2

	HO H	SOIL PROFILE	1 = 1		SAN	APLE	┥.		J Ones	R STRENGTH: C nat V - 🍨 rem V - 👂	Q - X Cpen ▲	NG AF	DIEZOMETED
(metres)	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	COMMENTS DYNAMIC CONE PENETRATION RESISTANCE PLOT 20 40 60 80 100	W/W	0 80 L L ATER CONTEN	20 160 L L PERCENT	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
1						1	1						1000000
,					7	SS	20			b		>>	
					8	ss	25			b		>> A	
3		SILT, sandy, some clay, trace to some gravel, very dense, grey, moist: (TILL)		237.93 18.29									
9		gravor, very dense, grey, most. (Till)	0		9	SS	56						
			9	236.41									
)		SAND, trace silt, occasional gravel, dense to compact, grey, moist		19.81	10	ss	34			0			
1													
					11	SS	48						
2													
3													
J					12	SS	16			d			
24													
		SILT, sandy, occasional clay, compact, grey, moist		231.84 24.38	Т	ss	18			0			
25													
26		SAND, some silt, occasional to trace gravel, compact to dense, grey, moist		230.3 25.9	Т	ss	40						
		grating companies across, gray, motor			-	33	10						
27													
28		END OF BOREHOLE AT 27.9m. BOREHOLE OPEN TO 27.4m AND WATER LEVEL AT 0.5m.		228.3 27.8	ــــــــــــــــــــــــــــــــــــــ	ss	90/ 0.22!						,
29		BOREHOLE GROUTED TO SURFACE.											

GROUNDWATER ELEVATIONS

SHALLOW/SINGLE INSTALLATION
WATER LEVEL (date) November 6, 2009

DEEP/DUAL INSTALLATION WATER LEVEL (date)



PROJECT

Mayfield Road and Kennedy Road, Brampton, Ontario

LOCATION STARTED

June 4, 2009

Wetland 1, U-Fill Column 440

SHEET 1 OF 2

Project No. 17-308-472

COMPLETED: June 4, 2009	DATUM
SOIL PROFILE SAMPL	SHEAR STRENGTH: Cu, KPa nat V - Q - X 0

ш	00	SOIL PROFILE			SAN	/PLE	s					SHEA	STRE	NGTH:	Cu, KP	a } - X	(0	
DEPTH SCALE (metres)	BORING METHOD		LOT		R		33	60	MMEN	TC		4	rem V - 0 1	80 1	120	en ≜ 160	ADDITIONAL LAB. TESTING	PIEZOMETER OR
(met	SING	DESCRIPTION		ELEV. DEPTH	NUMBER	TYPE	BLOWS/0.3m	DYNAMIC (RESISTAN	ONE PE	NETR	ATION	1	ATER C	ONTE	NT, PEF		DOTT B. 8.	OR STANDPIPE INSTALLATION
ā	Ö		STR	(m)	ž		BLO	20 40	60	80	100	, W	φ	20 I	30	l wl 40 l	∢	
	-	GROUND SURFACE Unshrinkable FILL, brown to grey		256.27 0.00			-							ļ	-			
		Unshrinkable FILL, brown to grey Augering without sampling to 5.2m depth																
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-2													İ					_
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İ					-	SS	32											
					Ŀ	33	٥٤											
-6 -																		•
ļ				249.47	,													
7		SILT, clayey, trace sand, trace gravel, firm to very stiff, brown, moist: (TILL)		6.81		SS	4						▲0					
ŀ					-									0				
-8					3	SS	4						^	0	'			
F°					-	_							T					
[19															
- 9			W	1	<u> </u>													
-				1	4	ss	8					ļ		0				
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"			191															
			9		-	-												
11				1	5	SS	8						0		•		İ	
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ļ			H	1	6	SS	17						b					
			6		L	33	┨‴						ľ			1		
- 13																		
1			\mathbb{H}															
ੂੰ 14		Becoming grey		2427	7	ss	16						0				Ī	
-14		SAND, gravelly, trace silt, compact, grey, moist		242.0 14.2	25	+-	-						0					
2,4.5																		
		GROUNDWATER EL	EVA	TION	S													

 $\underline{\nabla}$ SHALLOW/SINGLE INSTALLATION WATER LEVEL (date) April 6, 2009

▼ DEEP/DUAL INSTALLATION WATER LEVEL (date)



PROJECT

Mayfield Road and Kennedy Road, Brampton, Ontario

LOCATION STARTED

Wetland 1, U-Fill Column 440

June 4, 2009

COMPLETED : June 4, 2009 Project No. 17-308-472

SHEET 2 OF 2 DATUM

SAND, trace to some still, decree to compact, gray, most 10 10 10 10 10 10 10 1	CO	MPLE	TED : June 4, 2009												MUTA	
Second Second	щ	8	SOIL PROFILE			SA	MPL	ES.		SHEAF	R STRENC nat V -	TH: Cu,	KPa Q - 🗶		.0	
18	DEPTH SCALE (metres)	BORING METH	DESCRIPTION	STRATA PLOT	DEPTH	NUMBER	TYPE	BLOWS/0.3m	DYNAMIC CONE PENETRATION RESISTANCE PLOT	W/ W	0 80 L L ATER COI	NTENT, F) 160 PERCEN	D IT	ADDITIONAL LAB. TESTIN	OR STANDPIPE
10		-	1.00	5.50		-	-									
SAND, trace to some sit, dense to 10, 20 1						8	ss	36								
17	-16		,													-
18			SAND, trace to some silt, dense to compact, grey, moist		16.31											
19 10 SS 33 O O O O O O O O	- 17 -					9	ss	7	Sand blew back into augers		0					-
19 10 SS 33 O O O O O O O O																•
19 11 SS 42 0 11 SS 42 12 12 SS 26 0 13 SS 24 14 SS 30 14 SS 30 15 SS 34 16 SS 34 16 SS 34 16 SS 34 16 SS 34 16 SS 34 16 SS 34 34 34 34 34 34 34	-18															-
11 SS 42 21	-					10	SS	33			0					
21 11 SS 42	- 19					\vdash	-									
21 11 SS 42																
22 12 12 25 26 0 0 12 25 26 0 0 13 25 24 14 25 24 24 25 26 15 26 27 26 27 26 27 27 28 28 28 28 28 29 29 29	-20					-	-									
22 12 SS 26 C	}					"	SS	42			0					
22 12 SS 26 C	21															
23 13 SS 24 24 23 88 24 25 25 26 27 28 28 28 29 28 28 29 29	ļ [~] '					-	-	-						 		
23 13 SS 24 231.89 243.81 14 SS 30 243.81 14 SS 30 243.81 14 SS 30 243.81 14 SS 30 243.81 14 SS 30 243.81 15 SS 34 25.91 15 SS 34 22.91 25.91 26.91 27.80 27	-					12	ss	26			0			İ		
13 SS 24	-22 [•
13 SS 24	-															
231.88	- 23					13	3 88	24			c					
231.88	ŀ		,			H		1								
SILT, sandy, trace clay, dense, grey, moist 24.38 14 SS 30 25	-24															
25 SAND, silty, occasional clay, trace gravel, dense to very dense, grey, moist: (TILL) 15 SS 34 27 SAND, silty, occasional clay, trace gravel, dense to very dense, grey, moist: (TILL) 15 SS 34 28 END OF BOREHOLE AT 27.9m, BOREHOLE OPEN TO 27.4m AND WATER LEVEL AT 0.7m DEPTH, BOREHOLE GROUTED TO SURFACE. 278.66 SOREHOLE GROUTED TO SURFA	}		SILT, sandy, trace clay, dense, grey, moist		231.8	8	1 00	200								
SAND, silly, occasional clay, trace gravel, dense to very dense, grey, moist: (TiLL) 25.91	- 25					Ľ	1 33	30								
SAND, silly, occasional clay, trace gravel, dense to very dense, grey, moist: (TiLL) 25.91	F															
27 -28 END OF BOREHOLE AT 27.9m. BOREHOLE OPEN TO 27.4m AND WATER LEVEL AT 0.7m DEPTH. BOREHOLE GROUTED TO SURFACE. 28 O 228.41 16 SS 100/2 27.86 O O O O O O O O O O O O O	-26		SAND, silty, occasional clay, trace gravel,	lo			-	-								
-28 END OF BOREHOLE AT 27.9m. BOREHOLE OPEN TO 27.4m AND WATER LEVEL AT 0.7m DEPTH. BOREHOLE GROUTED TO SURFACE.	-		dense to very dense, grey, moist: (TILL.)		4	1	5 S	34			0					
-28 END OF BOREHOLE AT 27.9m. BOREHOLE OPEN TO 27.4m AND WATER LEVEL AT 0.7m DEPTH. BOREHOLE GROUTED TO SURFACE.	27			0												
END OF BOREHOLE AT 27.9m. BOREHOLE OPEN TO 27.4m AND WATER LEVEL AT 0.7m DEPTH. BOREHOLE GROUTED TO SURFACE.	} ~			О	4											
- 29 BOREHOLE GROUTED TO SURFACE.	 					n	6 S	S 10	0/ 75		0					
- 29 BOREHOLE GROUTED TO SURFACE.	F28		BOREHOLE AT 27.9m. BOREHOLE OPEN TO 27.4m AND WATER LEVEL AT 0.7m DEPTH.		27.8	30										
			BOREHOLE GROUTED TO SURFACE.													
CPOLINDWATER ELEVATIONS	- 29															
CPOLINDWATER ELEVATIONS	- 29															
THE PROPERTY OF THE VALUE OF TH	5	1	GROUNDWATER ELE	=\/∆	TION	LS.	1						<u> </u>	<u></u>	1	

 $\underline{\nabla}$ SHALLOW/SINGLE INSTALLATION WATER LEVEL (date) April 6, 2009

▼ DEEP/DUAL INSTALLATION WATER LEVEL (date)

LOGGED : JM CHECKED :

PROJECT

Mayfield Road and Kennedy Road, Brampton, Ontario

LOCATION

STARTED

June 8, 2009

Wetland 1, U-Fill Column 457

SHEET 1 OF 2

DATUM

Project No. 17-308-472

COMPLETED : June 8, 2009

					1									CHEV	CTDL.	CTU	C., 175	22	 	
(metres)	BORING METHOD		SOIL PROFILE	 -		SA	MPLE	-						SHEA	R STRE nat V - rem V -	●4AC1H:	ou, Kh (Cp	-a Q - X sen ∆	NG A	PIEZOMETER
etres	Μ			STRATA PLOT	ELEV.	핆	ш	BLOWS/0.3m		CON	MEN	ITS		4	10	80 L	120 	160 	 ADDITIONAL LAB. TESTING	OP
Ĕ.	SING		DESCRIPTION	ATA C	DEPTH	NUMBER	TYPE	/SMC	DYNA	MIC C	ONE PE	ENETR	ATION	1	ATER C	— О	T, PE	RCEN WI	FIDD.	STANDPIPE INSTALLATION
	_ _ _ _			STR	(m)	ź		BLC	20	40	60 60	80	100		φ I 10 1	20 1	30	1 WI 40	∢ 5	
	Ţ	\Box	GROUND SURFACE	IXXXX	256.13			\Box									\perp			
			Unshrinkable FILL, brown to grey Augering without sampling to 12.2m depth		0.00															
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10																				
																	1			
11																				
12					243.94	,														
			SILT, clayey, trace sand, trace to some gravel, trace organics, stiff, brown, moist	M	12.19		SS	10	Grain Si	e Anal	ysis:	KL 014	000							
	1					Ľ.	133	_ ՝՝՝	Gr 0%/	3a 33%	o) 31 40'	ror UT	370			ľ				
13				KW																
									1											
			PEAT, very soft, black to brown, moist:	邢	242.43 248,35 13.70 241.90	2	+	-									q			
14			(50mm) SILT, sandy, some clay, stiff, brown to grey, moist	-/ IIII.	241.9 14.1	2 7	SS	14							6	q				
14			grey, moist SAND, trace silt, occasional gravel, compact, grey, moist	7	'	Г		1												
		1	compact, grey, moist	1: :::	l	1			1					1	1				1	İ

 \overline{Y} SHALLOW/SINGLE INSTALLATION WATER LEVEL (date) August 6, 2009

▼ DEEP/DUAL INSTALLATION WATER LEVEL (date)



PROJECT

STARTED

Mayfield Road and Kennedy Road, Brampton, Ontario

LOCATION :

Wetland 1, U-Fill Column 457

June 8, 2009

Project No. 17-308-472

SHEET 2 OF 2

co	MPL	ETED : June 8, 2009											DAT	UM	
DEPTH SCALE (metres)	BORING METHOD	SOIL PROFILE	2LOT			MPLE	\dashv	COMMENTS		AR STREN nat V - 4 rem V - 4 40 80	120 L	160	IONAL	LAB. TESTING	PIEZOMETER OR
DEPTH (me	BORING	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	DYNAMIC CONE PENETRATION RESISTANCE PLOT	'	WATER CO Wp I 20 10 20		I wi	ADDIT	LAB. TI	STANDPIPE INSTALLATION
-16		SiLT, clayey, trace sand, trace gravel, stiff to very stiff, grey, moist: (TILL.)		240.89 15.24	3	ss	13			0		A	\		_
- 17 -					4	ss	16			0			•		-
−18 - -					5	ss	18			0					-
- 19 -				236.32											
-20		SAND, trace silt, trace to some clay, occasional gravel, compact, grey, moist		19.81 235.94 20.19	6	ss	18			0			>>		
- 21		SAND, some silt, compact, grey, moist		234.80 21.34		ss	10								
-22					- -	55	10								
- 23		Becoming dense			8	SS	49	Grain Size Analysis: Gr 0%/ Sa 51%/ Si 45%/ Cl 4%		0					
-24					_										
25		·			9	SS	35				•				
-26		SILT, clayey, trace sand, trace gravel, stiff, grey, moist SILT, sandy, some to trace clay, trace	-/	228.6	1 10	ss	42			0	A				
- 27		gravel, dense, grey to reddish brown, mois (TILL) END OF BOREHOLE AT 26.5m. BOREHOLE OPEN TO 25.9m AND WATER LEVEL AT 0.7m. BOREHOLE GROUTED TO SURFACE.		26.4	9										
-28															
29															
20.71-0		GROUNDWATER EL	EVA	TION											

SHALLOW/SINGLE INSTALLATION
WATER LEVEL (date) August 6, 2009

DEEP/DUAL INSTALLATION WATER LEVEL (date)



PROJECT

Mayfield Road and Kennedy Road, Brampton, Ontario

LOCATION : Wetland 1, U-Fill Column 471

vvettanu 1, O-Fili

Project No. 17-308-472

SHEET 1 OF 2 DATUM

STARTED : June 9, 2009 COMPLETED : June 9, 2009

щ	00	SOIL PROFILE			SA	MPL	ES		SHEAR STRENGTH: Cu, KPa nat V - ♣ Q - ★ rem V - ♣ Cpen ▲ 40 80 120 160]0	
DEPTH SCALE (metres)	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	COMMENTS DYNAMIC CONE PENETRATION RESISTANCE PLOT 20 40 60 80 100	40 80 120 160 WATER CONTENT, PERCENT Wp 1 0 30 40	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		256.10 0.00							
· 1		Unshrinkable FILL, brown to grey Augering without sampling to 9.1m depth		0.00							Δ
2											
3											
-4											
- 5											
- 6											
- 7 -		·									
8											
- 9 -			- 🕌	246.9 9.1	5 1	55	50		p		
-10 -10 -											
- 11 -		SILT, clayey, trace sand, trace gravel, slii to hard, grey, moist: (TILL)		244.6 11.4	13	+	S 64		b		
-12 -12		to hard, grey, moist: (TILL)			F	s s:					
- 13				9							
-14						5 S	S 1	3	0 4		

SHALLOW/SINGLE INSTALLATION WATER LEVEL (date) June 6, 2009

DEEP/DUAL INSTALLATION WATER LEVEL (date)



PROJECT

Mayfield Road and Kennedy Road, Brampton, Ontario

LOCATION STARTED

Wetland 1, U-Fill Column 471

June 9, 2009

Project No. 17-308-472

SHEET 2 OF 2

DATUM COMPLETED : June 9, 2009 SOIL PROFILE SAMPLES BORING METHOD DEPTH SCALE (metres) ADDITIONAL LAB. TESTING PIEZOMETER STRATA PLOT 120 160 40 80 BLOWS/0.3m OR STANDPIPE NUMBER COMMENTS TYPE ELEV. WATER CONTENT, PERCENT DYNAMIC CONE PENETRATION RESISTANCE PLOT DESCRIPTION INSTALLATION —о^w DEPTH (m) SS 27 16 17 SS 17 18 SS 32 19 20 235.91 9 SS 60 SAND, trace to some silt, occasional gravel, dense, grey, moist 0 21 SS 10 32 22 23 ss 33 -24 231.71 SILT, sandy, occasional clay, dense, grey, moist 24.38 12 SS 0 34 25 230.49 25.60 SAND, some silt, compact, grey, moist -26 13 SS 24 0 27 0 14 SS 4 Sand disturbed by augering 228.06 -28 END OF BOREHOLE AT 28.0m. BOREHOLE OPEN TO 27.4m AND WATER LEVEL AT 0.7m. BOREHOLE GROUTED TO SURFACE. THURBER2S 8472.GPJ 12/23/10 29

GROUNDWATER ELEVATIONS abla shallow/single installation WATER LEVEL (date) June 6, 2009

▼ DEEP/DUAL INSTALLATION WATER LEVEL (date)

LOGGED : JM CHECKED : SKP

PROJECT

Mayfield Road and Kennedy Road, Brampton, Ontario

LOCATION

Wetland 1, U-Fill Column B53 June 10, 2009

SHEET 1 OF 2

Project No. 17-308-472

STARTED COMPLETED :

June 10, 2009

DATUM

Ш	阜	SOIL PROFILE			SA	MPL	ES		JILA	R STRENG nat V - 4 rem V - 4))	Q - X Cpen A		ا دِ پ	
DEPTH SCALE (metres)	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	COMMENTS DYNAMIC CONE PENETRATION RESISTANCE PLOT 20 40 60 80 100	W.	0 80 ATER COM p 1 20	120 L NTENT, I	D 160 PERCEN	o IT	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		256.22											
1		Unshrinkable FILL, brown to grey Augering without sampling to 5.3m depth		0.00											Ā
2				:											
3															
·4				251.65 4.57	П	ss	22								
5		SILT, clayey, trace sand, trace gravel, firm to stiff, grey, moist: (TILL)		250.89 5.33		SS				0			A		
-6			(0)					'N' size vane pushed to 6.55m but coul not be turned	d	0	*				
7			10/8			-									
-8					3	ss	8			0		A			
9		Very sliff to hard			4	ss	14			0			A		
-10															
- 11 ·				244.4	19	S	3 19			d			A		
-12		SILT, sandy, some clay, trace gravel, dense, grey, moist: (TILL)	o	11.7	'3 -	s s	S 38			С					
- 13 -		SAND, trace sill, compact, brown to grey,		242.	51										
-14		moist grey,				7 S	S 2			0					

 $\overline{\mathcal{Y}}$ SHALLOW/SINGLE INSTALLATION WATER LEVEL (date) October 6, 2009

▼ DEEP/DUAL INSTALLATION WATER LEVEL (date)



PROJECT

Mayfield Road and Kennedy Road, Brampton, Ontario

LOCATION

: Wetland 1, U-Fill Column B53

STARTED

June 10, 2009

Project No. 17-308-472

SHEET 2 OF 2

co	MPLI	ETED : June 10, 2009												ATUM	
ш		SOIL PROFILE			SA	MPL	ES		SHEAR	nal V - rem V -	IGTH: Ci ∰e O	ı, KPa Q -) Cpen 2	•	49	
DEPTH SCALE (metres)	BORING METHOD		STRATA PLOT	e,	H.).3m	COMMENTS	1 4	0 8	0 1 I	20 1 I	60 1	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
me l	N N	DESCRIPTION	TAF	ELEV. DEPTH	NUMBER	TYPE	BLOWS/0.3m	DYNAMIC CONE PENETRATION RESISTANCE PLOT	W	TER CO	NTENT	, PERCE	NT	B. TE	STANDPIPE INSTALLATION
H	BOR		STR	(m)	z		BLO	20 40 60 80 100	w 1	0 2	0 3	30	v1 10	₹5	
	\Box		1												
					8	ss	20			0					
-16					-										
				239.92 16.31											
		Dense		16.31											
· 17					9	ss	22			0					
					Ľ	00	55								
				238.39											
-18				17.83	3										
				1	-										
					10	SS	28		-						
- 19					T										
				1											
-				236.4	1										
-20		SILT, sandy, occasional clay, compact to dense, grey, moist		19.8		ss	45								
					-	-	-								
· ,															
- 21												1.			
					-	-	1				-				
		Ì			11	2 SS	21								
-22					Γ										
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27															
ļ .				228.											
ŀ		SILT, sandy, occasional clay, trace to some gravel, very dense, grey, moist; (TIL	L)	27.	43	16 S	S 5	4							
-28		. 1	Щ	228.	18]								
ţ		END OF BOREHOLE AT 28.0m. BOREHOLE OPEN TO 27.4m AND WATER LEVEL AT 0.6m.		28.	U4										
ŀ		WATER LEVEL AT 0.6m. BOREHOLE GROUTED TO SURFACE.		1								-			
29							1								
1															
İ															
		GROUNDWATER EL	_,	A TIO:	<u>.</u> L						L				

GROUNDWATER ELEVATIONS

SHALLOW/SINGLE INSTALLATION WATER LEVEL (date) October 6, 2009

DEEP/DUAL INSTALLATION
WATER LEVEL (date)



PROJECT

Mayfield Road and Kennedy Road, Brampton, Ontario

LOCATION

Wetland 1

STARTED :

June 15, 2009 June 15, 2009 Project No. 17-308-472

SHEET 1 OF 1

\neg	В	, SOIL PROFILE			SA	MPLE	s		SHEAF	STREN	GTH: Cu,	KPa O - ₩			
(metres)	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER		BLOWS/0.3m	COMMENTS DYNAMIC CONE PENETRATION RESISTANCE PLOT 20 40 60 80 100	4 W/	TER CO	0 120 0 120 DNTENT, F	PERCEN	т	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
+	Ī	GROUND SURFACE	S	<u> </u>	<u> </u>	\vdash		20 40 60 80 100			- 1	- 			
		PEAT, fibrous, trace roots, very loose, dark brown to black, wet	XXXXXXX	0.00	1	ss		NOTE: THE DFPTHS SHOWN ARE REFERENCED TO THE AXIS OF THE BOREHOLE							
					2	SS									
			****		3	SS									
			***		4	ss		No sample recovery							
	S		3333333		5	ss									
	HOLLOW STEM AUGERS	CLAY, silty, trace to some sand, very soft, brown, moist to wet	3333	6.10		TW	PH	•							
	HOLLC	Trace organics			6	ss									
		SILT, clayey, trace to some sand, trace gravel, soft to firm, grey, moist: (TILL)		8.2	J	33									
0		SILT, clayey, trace sand, trace to some gravel, soft to firm, grey to brown, moist		9.9		-									
1		5.5-54 John Chinn, grey to Down, most			F	ss				•					
2															
3		END OF BOREHOLE AT 12.8m. BOREHOLE BACKFILLED WITH GROUT		12.1	L	TW	PH	1							
4		AND CUTTINGS TO SURFACE.													

THURBER2S

SHALLOW/SINGLE INSTALLATION WATER LEVEL (date)

DEEP/DUAL INSTALLATION
WATER LEVEL (date)

LOGGED : JM CHECKED : SKP