REPORT

Geotechnical Investigation
Hanlon Creek Business Park, Guelph, ON

Hanlon Creek Park

REPORT NO. 1032721.

REPORT NO. 1032319.

REPORT TO	**City of Guelph** **Guelph, ON**
FOR	**Hanlon Creek Business Park**
ON	**Preliminary Geotechnical Investigation, Guelph, ON**

January 29, 2008

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Table of Contents

REPORT **1**

1.0 INTRODUCTION **1**
1.1 General 1
1.2 Site Description 1
1.3 Scope of Work 1

2.0 METHOD OF INVESTIGATION **3**
2.1 General 3
2.2 Boreholes and Test Pits 3
2.3 Laboratory Evaluation of Samples 3
2.4 Survey 3

3.0 EXISTING CONDITION OF ROADWAYS **4**
3.1 Downey Road 4
3.2 Laird Road 4
3.3 McWilliams Road 4

4.0 SITE SUBSURFACE CONDITIONS **5**
4.1 Topsoil 5
4.2 Sandy Silt 5
4.3 Sand and Gravel 5
4.4 Silty Sand 5
4.2 Groundwater 5

5.0 RECOMMENDATIONS FOR PAVEMENTS **6**
5.1 Downey Road 6
5.2 Laird Road 6
5.3 McWilliams Road 6

6.0 RECOMMENDATIONS FOR SITE DEVELOPMENT **7**
6.1 Buildings 7
6.2 New Pavement Construction 7
6.2.1 Site Access Roadways and Heavy Duty Parking Areas 7
6.2.2 Parking Areas – Light Duty 8

7.0 OTHER ITEMS **9**
7.1 Soil Permeability 9
7.2 Radon and Methane 9

8.0 REPORT LIMITATIONS **10**

List of Appendices

APPENDIX A Symbols and Terms Used on Borehole and Borehole Records
APPENDIX B Borehole Locations and Elevations

REPORT

1.0 INTRODUCTION

1.1 General

Jacques Whitford Limited (JWL) has performed a geotechnical investigation for the proposed Hanlon Creek Business Park project located in Guelph, Ontario. The geotechnical investigation was conducted under the direction of Jerry Vernhout in general accordance with Jacques Whitford agreement with the City of Guelph for Geotechnical Services, 2008.

The purpose of the geotechnical investigation was to determine the subsurface conditions at the proposed site and to provide discussion and preliminary recommendations for suitability of the site for constructing the proposed project.

The following sections of this report will provide our understanding of the project, a description of the field investigation, the results of field and laboratory tests, logs of the boreholes and test pits, interpretation of the subsoil and groundwater conditions and recommendations related to the geotechnical aspects of the proposed construction.

This report has been prepared specifically for the project described herein.

1.2 Site Description

The proposed site is located in the City of Guelph, Ontario. The site is bounded to the east by the Hanlon Parkway, to the south by laird Road, to the west by Downey Road and to the north by a residential development.

The proposed Hanlon Creek Business Park project will include the construction of roadways, commercial/industrial buildings and associated parking and driving lanes. The investigation also considered the existing pavement structures on the portions of Laird Road and Downey Road that bounded the development. A short section of the gravel surfaced McWilliams Road was also investigated.

The proposed site is generally covered with grass, trees and shrubs.

Laird Road and Downey Road are paved with asphalt concrete. McWilliams Road is surfaced with both asphalt concrete and cold-placed recycled asphalt. The roads consist of one lane in each direction drain into ditches on both sides of the roads.

Underground utilities, were located by the private and public locators in the presence of JWL representative. Storm sewers and manholes were located along the roadways.

1.3 Scope of Work

The scope of our services included the following:

- The purpose of this study was to determine the subsurface conditions to evaluate the suitability of the site for the proposed development of the project. A total of sixty five (65) test locations were identified and located by others. Drilling fifteen (15) boreholes along the existing roads

- Drilling and/or excavating fifty (50) boreholes and test pits within the proposed site
- Classify the soils encountered in the boreholes
- Record the groundwater conditions
- Visually evaluate existing pavement recommendations
- Prepare a preliminary geotechnical report that includes a site plan showing the locations of the boreholes, borehole and test pit records and comments regarding the suitability of the site for constructing buildings and roadways.

The scope of services did not include an environmental assessment for determining the presence or absence of hazardous or toxic materials in the soil and the groundwater, or air on or below or around this site. Any statements in this report or on the boring logs regarding odors, colors and unusual or suspicious items or conditions are strictly for informational purposes.

Sixteen addition test locations were identified on the site. This work was carried out for others and the results are not incorporated in this report.

2.0 METHOD OF INVESTIGATION

2.1 General

The geotechnical investigation of the proposed site development consisted of drilling and/or excavating sixty five (65) boreholes and test pits. Fifteen (15) boreholes were drilled along the roadways and fifty (50) boreholes and test pits were put down within the site.

The soil conditions encountered on the site, particularly the quantity of boulders encountered, made drilling boreholes very difficult and part way through the work test pits were used. The field work was carried out between November 26 and December 7, 2007.

The field test locations were determined and located by others. Appendix A provides a copy of the Site Plan that was provided to JWL for this project. The borehole and test pit logs of the soils encountered are given on the Borehole Record Sheets in Appendix B.

2.2 Boreholes and Test Pits

Prior to commencing the field investigation, the underground services and utilities were identified and marked by private and public utility locators in the presence of JWL representative.

The boreholes were drilled using a truck-mounted drill rig equipped for geotechnical testing. Each borehole was advanced through the soil strata using 100 mm hollow-stem augers (HSA). Standard penetration tests (SPT) were conducted at various depths during drilling operation.

The tests pits were excavated on the site using tracked excavator.

All boreholes and test pits were drilled or excavated to a depth of at least 3.0 meters below the existing ground surface. Upon completion of drilling and sampling, the borings were backfilled with auger cuttings and/or with excavated materials. For boreholes drilled along the paved roads the surface was patched with cold mix asphalt.

Samples recovered from the boreholes were classified by JWL personnel. Representative soil samples recovered from the strata encountered were forwarded to our laboratory for testing and detailed classification.

2.3 Laboratory Evaluation of Samples

All soil samples were taken to our laboratory for final visual assessment and classification.

All samples were tested and classified in general accordance with the Unified Soil Classification (USC) system, ASTM D 2487, Standard Practice for Classification of Soils for Engineering Purposes.

Soil descriptions and test results are given in the Borehole Records and Test Pit Records provided in **Appendix B**.

2.4 Survey

The borehole locations and elevations were surveyed by the Client. The elevations are noted on each of the Borehole Records and Test Pit Records provided in **Appendix B**. For several of the road boreholes, the elevation marking was not visible and a surface elevation of 100.0 m was assumed at these locations.

3.0 EXISTING CONDITION OF ROADWAYS

3.1 Downey Road

Six boreholes were put down within the existing pavement on Downey Road. The Borehole Numbers are BH 1 thru BH 6 with BH 6 being located in the intersection with Laird Road. The boreholes are summarized as follows:

Layer	Thickness, Average	Thickness, Range
Asphalt Concrete	110 mm	90 – 150 mm
Base/Subbase Gravels	490 mm	450 – 510 mm

The underlying subgrade consists of silty sand and gravel native soil or fill. The surface of Downey Road is undergoing transverse and edge cracking but there is little indication of structural failure.

3.2 Laird Road

Eight boreholes were put down within the existing pavement on Laird Road, including BH 6 which is within the intersection with Downey Road. The Borehole Numbers are BH 6 thru BH 13. The boreholes are summarized as follows:

Layer	Thickness, Average	Thickness, Range
Asphalt Concrete	101 mm	100 – 110 mm
Base/Subbase Gravels	498 mm	490 – 500 mm

The underlying subgrade consists of sand and gravel native soil. The surface of Downey Road is undergoing numerous cracks including many that are indicators of structural failure.

3.3 McWilliams Road

Only a short section of McWilliams Road was investigated and the section was surfaced with either asphalt concrete or cold-placed recycled asphalt. Two boreholes were put down on the northern portion of McWilliams Road and the Borehole Numbers are BH 48 and BH 49. The boreholes are summarized as follows:

Layer	BH 48	BH 49
Asphalt Concrete	---	80 mm
Cold-Placed Recycled Asphalt	30 mm	---
Base/Subbase Gravels	430 mm	538 mm

The underlying subgrade consists of silty sand and gravel in the areas with cold-placed recycled asphalt and silty clay in the portion with asphalt concrete.

4.0 SITE SUBSURFACE CONDITIONS

This section provides the findings of all the fifty (50) test locations within the site except for the existing pavements.

4.1 Topsoil

The entire site, except for TP 66 which was in a gravel berm area, is covered with a layer of organic clayey sandy silt (Topsoil) Thickness of the topsoil layer varies from 300 mm to 600 mm and averages 380 mm over the site.

4.2 Sandy Silt

Underlying the topsoil at all locations is a layer of sandy silt to silty sand. The layer is intermixed with varying amounts of clay and gravel and in some locations rootlets were present.

The thickness of the sandy silt layer ranged from 300 mm to 750 mm and averages 440 mm across the site.

4.3 Sand and Gravel

The predominant material underlying the sandy silt layer (encountered in 48 of the 50 test locations) consists of natural coarse sand and gravel with some cobbles and boulders and trace of silt and clay. The apparent density of the sand and gravel layer was loose to compact.

At thirty seven (37) of the boreholes/test pits locations terminated in this layer.

4.4 Silty Sand

At eleven (11) of the test locations, a layer of fine to medium silty sand and/or sandy silt trace to some clay was encountered below the sand and gravel stratum. At these locations the borehole/test pit was terminated in the silty sand layer. The apparent density of the silty sand was loose to compact.

4.2 Groundwater

Water seepage into the test hole was observed in thirty nine (39) of the fifty (50) test locations at depths ranging from 1.8 to 3.0 metres below the ground surface. All test locations were backfilled immediately. Variations and fluctuations in the groundwater elevation from those observed should be expected.

5.0 RECOMMENDATIONS FOR PAVEMENTS

The following recommendations are provided for upgrading the existing pavements on Downey, Laird and McWilliams Roads.

5.1 Downey Road

The existing pavement structure on Downey Road is undergoing numerous distresses but there is little evidence of structural related failure. The pavement structure was observed to be very uniform with respect to thickness. To restore the riding surface it is recommended that a 70mm asphalt overlay be applied to Downey Road. It is also recommended that a provision be included for minor patching/repairs prior to placing the overlay.

5.2 Laird Road

The existing pavement structure on Laird Road is undergoing more distress than Downey Road and much of the distress, longitudinal and alligator cracking, are the result of structural failure. Again the pavement structure was observed to be very uniform in thickness. It is recommended that this portion of Laird Road be rehabilitated by either total reconstruction of rehabilitating by strengthening and replacing the existing asphalt surface. Rehabilitation is appropriate if the existing surface grades can be increased to allow for the strengthening. Recommendations are summarized as follows:

Option 1 – Pavement Rehabilitation

- Remove the existing asphalt surface;
- Grade, compact and proofroll the gravel surface, replace any visible soft areas;
- Place an additional 150 mm Granular A and compact;
- Pave with 65 mm base asphalt (HL8) and 45 mm surface asphalt (HL3).

Option 2 - Reconstruction

- Remove the existing asphalt concrete and underlying base/subbase granulars to the required grade;
- Compact and proofroll the new subgrade surface, replace any visible soft areas;
- Place and compact 350mm Granular B and 150mm Granular A;
- Pave with 65 mm base asphalt (HL8) and 45 mm surface asphalt (HL3).

5.3 McWilliams Road

It is estimated that McWilliams Road, which will exit the Hanlon Creek Business Park through residential streets, will receive less traffic than Laird Road. Based in this assumption, the following rehabilitation recommendations are provided.

- Remove the existing cold-placed recycled asphalt surface;
- Grade, compact and proofroll the gravel surface, replace any visible soft areas;
- Place an additional 150 mm Granular A and compact;
- Pave with 50 mm base asphalt (HL8) and 40 mm surface asphalt (HL3);
- Overlay the portion surfaced with asphalt concrete with a 50 mm asphalt overlay (HL3).

6.0 RECOMMENDATIONS FOR SITE DEVELOPMENT

Site conditions are detailed in Section 4.0 of this report. At this time, details of the proposed development are not available so this report is intended to provide general comments and recommendations. Detailed geotechnical investigations should be carried out for each of the lots once plans for buildings, pavements, sites services, etc. are finalized.

6.1 Buildings

Topsoil and/or organics materials were encountered at the ground surface in all test locations except BH 66. A 0.3 to 0.75 m layer of sandy silt was encountered under the topsoil and the predominant site material was native sand and gravels. For typical commercial building construction, the following general statements can be applied to site development:

1. The topsoil layer should be removed from under building and pavement areas. Consideration can be given to leaving the topsoil layer under pavement in areas where the fill height will be more that 1.5 m.
2. The underlying sandy silt stratum is not suitable for under footings but may be suitable under floor slabs and pavements. Suitability will be influenced by moisture content at the time of construction and the amount of organics present in specific areas.
3. The sand and gravel encountered in most test locations should be suitable for a bearing stratum. This should be investigated further as development details become available.
4. The silty sand encountered under the sand and gravel in some test locations is also suitable as a bearing stratum but this material may have restrictions to its use in wet conditions.
5. The sand and gravel is suitable for cut and fill operations, the sandy silt stratum is also suitable for cut and fill but may be subject to softening in wet conditions.
6. The silty sand encountered under the sand and gravel in some test locations is also suitable as a bearing stratum but this material will have restrictions for its use in wet conditions.

6.2 New Pavement Construction

6.2.1 Site Access Roadways and Heavy Duty Parking Areas

The sand and gravel till encountered in most test locations is very suitable for road subgrade construction of new roadways and heavy duty pavements (defined as pavements designed to carry heavy trucks). It is recommended that this material be used to construct the roadway or that at least the top 0.6 m of the subgrade be constructed from this material. If the surface of the subgrade is construction from other materials (such as the silty sand or sandy silt) the thickness of the pavement structures will need to be reviewed.

The proposed pavement structure is as follows:

Asphalt concrete surface course, HL3	45 mm
Asphalt concrete base course, HL8	65 mm
Granular A	150 mm
Granular B	350 mm

6.2.2 Parking Areas – Light Duty

For lot access roads and parking lots that will only be subjected to light duty traffic (no heavy trucks), the following pavement structure is recommended. The subgrade material can be any of the site soils encountered as long as it is free of organic materials and properly placed and compacted.

Asphalt concrete surface course, HL3	35 mm
Asphalt concrete base course, HL8	45 mm
Granular A	150 mm
Granular B	200 mm

7.0 OTHER ITEMS

7.1 Soil Permeability

Using soil classification and permeability correlations provided in the Ontario Building Code SG-6.

Soils Type	**Coefficient of Permeability K (cm/sec)**	**Percolation Time T (mins/cm)**
Sandy Silt	10^{-3}	8 - 20
Sand and Gravel	10^{-1}	<1
Silty Sand	10^{-3}	8 - 20

7.2 Radon and Methane

From geological mapping, the bedrock underlying the site is Middle and Lower Silurian Era, Guelph Formation, comprised of sandstone, shale, dolostone and siltstone. It was noted that bedrock was not encountered during the investigation.

Radon is a radioactive gas associated with uranium rich black shale and/or granite bedrock. Radon emits alpha particles and produces several solid radioactive products called radon daughters. Harmful levels of radon and radon daughters can accumulate in confined air spaces, such as basements and crawl spaces.

Based on the geology of the area, radon gas accumulation is not expected to be a significant environmental concern at the site.

No landfill were encountered during the site investigation and, according to the Ontario Waste Disposal Site Inventory, dated June 1991, there are no landfills within at least one kilometer of the site. Therefore methane should not be an environmental concern at the site:

8.0 REPORT LIMITATIONS

The recommendations submitted in this report are based on the available project information and subsurface information obtained by JWL. The subsurface conditions across the site can be expected to vary both vertically and horizontally.

If there are any revisions to the plans for this project, or if deviations from the subsurface conditions noted in this report are encountered during construction, JWL should be notified immediately to determine if changes in the foundation recommendations are required. If JWL is not notified of such changes, JWL will not be responsible for the impact of these changes on the project.

The geotechnical engineer warrants that the findings, recommendations, specifications, or professional advice contained herein have been made in accordance with generally accepted professional geotechnical engineering practice in the local area. No other warranties are implied or expressed.

After the plans and specifications are more complete, the geotechnical engineer should be retained and provided the opportunity to review the final design plans and speculations to check that our engineering recommendations have been properly incorporated into the design documents. At that time, it may be necessary to submit supplementary recommendations. If JWL is not retained to perform these functions, JWL will not be responsible for the impact of those conditions on the project.

This report has been prepared for the exclusive use of the City of Guelph and its agents.

Yours very truly,

JACQUES, WHITFORD LIMITED

Eric Theriault, P.Eng.	Janan Sulaiman, Ph.D
Principal Engineer	Geotechnical Specialist

APPENDIX A

Site Plan


TEAL DRIVE
HANLON EXPRESSWAY
SOUTHGATE DRIVE
DOWNEY ROAD
LAIRD ROAD
ROAD 'A'
ROAD 'B'
ROAD 'G'
ROAD 'J'
ROAD 'K'
BLOCK 1
0.57ha
BLOCK 2
2.40ha
BLOCK 3
3.31ha
BLOCK 4
1.60ha
BLOCK 5
5.90ha
BLOCK 6
2.17ha
BLOCK 7
1.50ha
BLOCK 8
1.73ha
BLOCK 9
3.53ha
BLOCK 10
3.07ha
BLOCK 11
5.15ha
BLOCK 12
9.40ha
BLOCK 13
1.51ha
BLOCK 14
3.46ha
BLOCK 15
4.03ha
BLOCK 16
0.11ha
BLOCK 17
4.87ha
BLOCK 18
BLOCK 22
0.54ha
BLOCK 23
0.27ha
BLOCK 24
0.68ha
BLOCK 47
OPEN SPACE
BLOCK 48
OPEN SPACE
BLOCK 49
OPEN SPACE
BLOCK 50
OPEN SPACE
BLOCK 51
OPEN SPACE
BLOCK 52
OPEN SPACE
BLOCK 41
OPEN SPACE
BLOCK 55
SWM
BLOCK 56
SWM
BLOCK 57
SWM
BLOCK 59
SWM
BLOCK 61
SWM
BLOCK 66
BLOCK 88
0.3m RESERVE
BLOCK 87
0.3m RESERVE
EXISTING RESIDENTIAL
SERVICE-EASEMENT
PART 1
PART 3
PART 4
PART 5
LEGEND
TP PREVIOUS TEST PIT BY NAYLOR ENGINEERING, DATED 2001
BH PROPOSED BOREHOLE, DATED 2007

APPENDIX B

Borehole Records and Test Pit Records

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH 1

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING December 06, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	320.7	
	320.6	Asphaltic concrete approximately 150mm thick: ASPHALTIC CONCRETE
	320.1	SAND and GRAVEL: GRANULAR FILL
1		Loose to compact silty SAND and GRAVEL - trace clay, moist
2		
3	317.2	
4		
5		
6		
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL

DEPTH (ft): 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32

SAMPLES

TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
SS	1	250/460	20
SS	2	280/460	7
SS	3	200/460	21
SS	4	410/460	24

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

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BOREHOLE RECORD

BH 2

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING December 06, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	321.4	
		Asphaltic concrete approximately 110mm thick: ASPHALTIC CONCRETE
	320.8	
		SAND and GRAVEL: GRANULAR FILL
		Very dense silty SAND and GRAVEL: FILL - trace clay, rootlets - loose below 1.5m depth
	319.6	
		Loose to compact silty SAND and GRAVEL
	317.9	

STRATA PLOT

WATER LEVEL

SAMPLES

DEPTH (ft)	TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
3	SS	1	300/460	68
6	SS	2	360/460	7
8	SS	3	250/460	7
11	SS	4	410/460	19

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

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BOREHOLE RECORD

BH 3

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

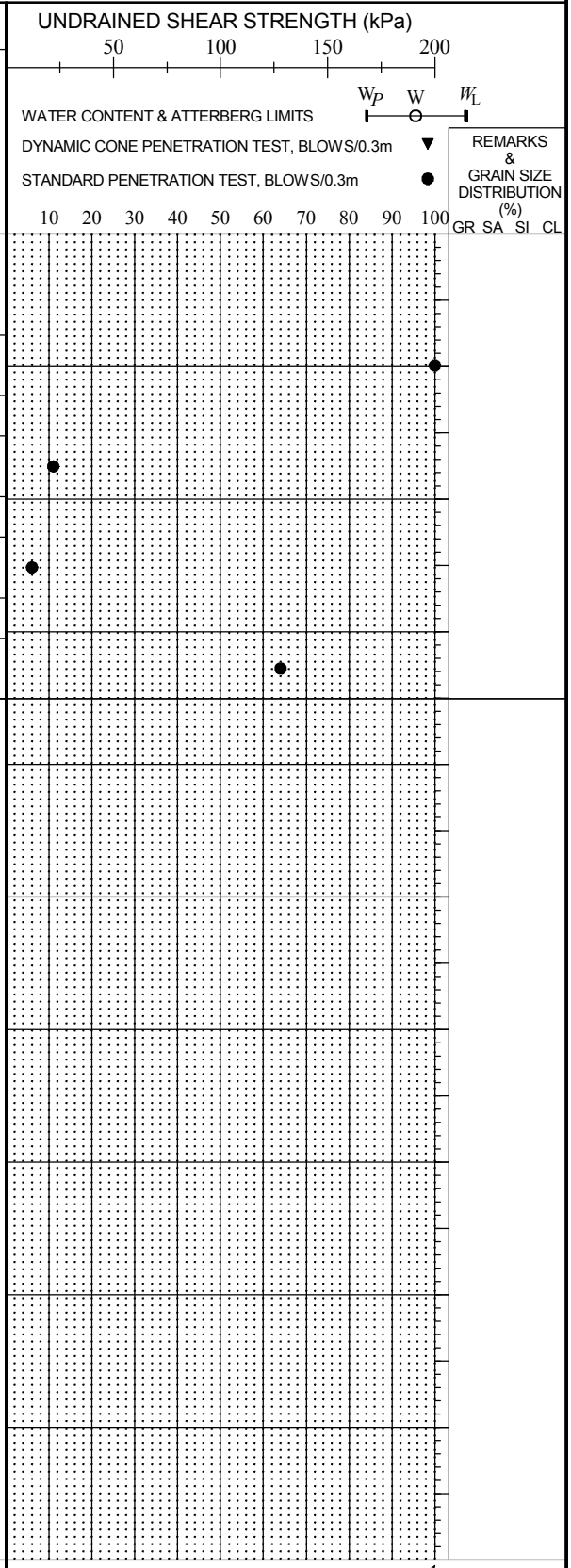
DATUM Local

DATES: BORING December 06, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	322.1				0				
	321.5	Asphaltic concrete approximately 90mm thick: ASPHALTIC CONCRETE			1				
		SAND and GRAVEL: GRANULAR FILL			2				
1		Compact silty SAND with gravel - trace cobbles - trace clay at top layer			3	SS	1	150/460	100
					4				
					5				
					6	SS	2	410/460	11
2		- becoming loose between 2.1m to 2.75m depth			7				
					8	SS	3	330/460	6
					9				
3		- very dense below 2.75m depth			10				
	318.6				11	SS	4	460/460	64
					12				
4					13				
					14				
					15				
					16				
5					17				
					18				
					19				
6					20				
					21				
					22				
7					23				
					24				
					25				
8					26				
					27				
					28				
					29				
9					30				
					31				
					32				
10									



□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

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BOREHOLE RECORD

BH 4

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING December 06, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	100.0	
	99.4	Asphaltic concrete approximately 100mm thick: ASPHALTIC CONCRETE
		SAND and GRAVEL: GRANULAR FILL
1		Very dense silty SAND and GRAVEL - trace cobbles - Loose to compact below 1.5m depth
2		
3	96.5	
4		
5		
6		
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL

DEPTH (ft)	TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
3	SS	1	100/460	100
6	SS	2	380/460	7
8	SS	3	360/460	20
11	SS	4	250/460	26

SAMPLES

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

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BOREHOLE RECORD

BH 5

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING December 06, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	323.6	
	323.0	Asphaltic concrete approximately 100mm thick: ASPHALTIC CONCRETE
1		SAND and GRAVEL: GRANULAR FILL
		Dense silty SAND and GRAVEL
2		- loose to compact below 1.5m depth
3	320.1	
4		
5		
6		
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL

SAMPLES

DEPTH (ft)	TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
3	SS	1	380/460	35
6	SS	2	360/460	9
8	SS	3	360/460	20
11	SS	4	280/460	15

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH 6

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING December 06, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	100.0	
		Asphaltic concrete approximately 110mm thick: ASPHALTIC CONCRETE
	99.4	
		SAND and GRAVEL: GRANULAR FILL
1		
		Dense SAND and GRAVEL - trace cobbles - sand layer about 150mm thick at 1.5m depth
2		
	97.6	
		Very dense silty SAND - trace gravel
3	97.0	
4		
5		
6		
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL

DEPTH (ft): 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32

SAMPLES

TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
SS	1	430/460	22
SS	2	430/460	29
SS	3	330/460	32
AS	4		

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH 7

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING December 06, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	325.0	
	324.4	Asphaltic concrete approximately 100mm thick: ASPHALTIC CONCRETE
		SAND and GRAVEL: GRANULAR FILL
1		Loose to compact silty SAND and GRAVEL - trace cobbles - silty clay seam about 50mm thick at 1.5m depth
2		
3	321.5	
4		
5		
6		
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL

DEPTH (ft): 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32

SAMPLES

TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
SS	1	360/460	8
SS	2	360/460	17
SS	3	460/460	25
SS	4	410/460	17

UNDRAINED SHEAR STRENGTH (kPa) 50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH 8

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING December 06, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	324.8	
	324.2	Asphaltic concrete approximately 100mm thick: ASPHALTIC CONCRETE
		SAND and GRAVEL: GRANULAR FILL
		Compact to dense silty SAND and GRAVEL - trace cobbles
	321.3	

STRATA PLOT

WATER LEVEL

DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
3	SS	1	330/460	12
6	SS	2	380/460	11
8	SS	3	460/460	41
11	SS	4	460/460	38

UNDRAINED SHEAR STRENGTH (kPa) 50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH 9

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING December 06, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	325.0				0				
		SAND and GRAVEL: GRANULAR FILL			1				
	324.4				2				
1		Compact SAND and GRAVEL - trace silt and cobbles			3	SS	1	360/460	22
					4				
					5				
2				▽	6	SS	2	250/460	11
					7				
					8	SS	3	410/460	22
					9				
3					10				
	321.5				11	SS	4	150/460	23
4					12				
					13				
					14				
					15				
5					16				
					17				
					18				
					19				
6					20				
					21				
					22				
7					23				
					24				
					25				
8					26				
					27				
					28				
					29				
9					30				
					31				
					32				
10									

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH 10

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING December 07, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	325.5	
	324.9	Asphaltic concrete approximately 100mm thick: ASPHALTIC CONCRETE
1		SAND and GRAVEL: GRANULAR FILL
		Compact to dense SAND and GRAVEL
2		- compact below 2.1m depth
		- sand layer, about 100mm thick at 2.4m depth
3	322.0	- sandy silt layer, about 150mm thick at 3.15m depth
4		
5		
6		
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL

DEPTH (ft): 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32

SAMPLES

TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
SS	1	280/460	30
SS	2	360/460	41
SS	3	410/460	24
SS	4	410/460	15

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH 11

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING December 07, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	326.7	
	326.0	Asphaltic concrete approximately 100mm thick: ASPHALTIC CONCRETE
1		SAND and GRAVEL: GRANULAR FILL
		Compact to very dense SAND and GRAVEL - trace silt and clay
2		- trace cobbles below 2.4m
3		- dense below 3.0m depth
	323.1	
4		
5		
6		
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL

DEPTH (ft): 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32

SAMPLES

TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
SS	1	380/460	26
SS	2	410/460	33
SS	3	410/460	54
SS	4	380/460	39

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH 12

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING December 07, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	327.2	
	326.6	Asphaltic concrete approximately 100mm thick: ASPHALTIC CONCRETE
1		SAND and GRAVEL: GRANULAR FILL
		Dense SAND and GRAVEL - compact to dense below 1.5m depth - sandy silt layer, trace clay and gravel about 150mm thick at 1.8m depth - sand layer about 100mm thick at 2.25m depth
2		
3	323.7	
4		
5		
6		
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL

DEPTH (ft): 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32

SAMPLES

TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
SS	1	460/460	38
SS	2	410/460	10
SS	3	430/460	26
SS	4	300/460	35

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH 13

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING December 07, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	328.1				0				
	327.5	Asphaltic concrete approximately 100mm thick: ASPHALTIC CONCRETE			1				
		SAND and GRAVEL: GRANULAR FILL			2				
1		Very dense SAND and GRAVEL - with cobbles, trace boulders			3	SS	1	200/460	100
					4				
					5				
					6	SS	2	330/460	100
2				▽	7				
					8	SS	3	300/460	40
					9				
3	325.1				10	AS	4		
4					11				
					12				
					13				
					14				
					15				
5					16				
					17				
					18				
					19				
6					20				
					21				
					22				
7					23				
					24				
					25				
8					26				
					27				
					28				
					29				
9					30				
					31				
					32				
10									

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH 14

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING Novmber 27, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	327.2	
	326.9	Dark brown/ black clayey sandy silt with organic matter and rootlets: TOPSOIL
	326.6	Brown clayey sandy silt with roots - trace gravel
1		Very dense GRAVEL and SAND - with cobbles, trace boulders
2		
	324.3	
3		Dense sandy SILT - wet
	323.7	
4		
5		
6		
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL

DEPTH (ft): 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32

SAMPLES

TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
SS	1	200/460	100
SS	2	130/460	100
SS	3	230/460	55
SS	4	250/460	39

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 15

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING December 03, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	325.3	
	325.0	Dark brown clayey sandy silt with organic matter and rootlets trace gravel: TOPSOIL
	324.7	Brown clayey sandy silt with gravel
1		Compact to dense gravelly COBBLES - with sand, trace boulders
2		
3	322.3	
4		
5		
6		
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL

DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
2	GS	1		
5	GS	2		

UNDRAINED SHEAR STRENGTH (kPa) 50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 16

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING December 03, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	325.7	
	325.4	Dark brown clayey sandy silt with organic matter and rootlets trace gravel: TOPSOIL
	325.1	Brown clayey sandy silt with gravel
1		Compact to dense SAND and GRAVEL - with cobbles, trace boulders
2		
3	322.6	
4		
5		
6		
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL

DEPTH (ft): 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32

SAMPLES

TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
GS	1		
GS	2		

UNDRAINED SHEAR STRENGTH (kPa): 50, 100, 150, 200

WATER CONTENT & ATTERBERG LIMITS: W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 17

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING Novmber 29, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	SAMPLES TYPE	SAMPLES NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	324.5					
	324.1	Dark brown clayey sandy silt with organic matter and rootlets trace gravel: TOPSOIL				
	323.6	Brown sandy silt / silty sand with gravel, trace cobbles				
		Compact silty SAND and GRAVEL - with cobbles, trace boulders	GS	1		
			GS	2		
			GS	3		
3	321.5					

DEPTH (ft): 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32

UNDRAINED SHEAR STRENGTH (kPa): 50, 100, 150, 200

WATER CONTENT & ATTERBERG LIMITS: W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 18

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING Novmber 29, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	321.5	
	321.2	Dark brown clayey sandy silt with organic matter and rootlets trace gravel: TOPSOIL
	320.7	Brown clayey sandy silt with gravel
1		Compact to dense sandy GRAVEL - with cobbles, trace boulders
2		
3	318.4	
4		
5		
6		
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL

DEPTH (ft): 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32

SAMPLES

TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
GS	1		
GS	2		

UNDRAINED SHEAR STRENGTH (kPa): 50, 100, 150, 200

WATER CONTENT & ATTERBERG LIMITS: W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 19

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING Novmber 29, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	**320.6**	
	320.3	Dark brown clayey sandy silt with organic matter and rootlets trace gravel: TOPSOIL
	319.7	Brown SAND and GRAVEL
1		Loose to compact sandy GRAVEL - with cobbles, trace boulders
2	317.8	
	317.5	Clayey SILT, grey
3		
4		
5		
6		
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL

DEPTH (ft)

SAMPLES

TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
GS	1		
GS	2		
GS	3		

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 20

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING Novmber 29, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	321.4	
	321.1	Dark brown clayey sandy silt with organic matter and rootlets trace gravel: TOPSOIL
	320.6	Brown clayey sandy silt trace gravel - weathered, some roots
1		Compact to dense GRAVEL and SAND with cobbles - trace boulders
2		
	318.5	
3		Clayey SILT, grey
	318.1	
4		
5		
6		
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL

DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0				
1				
2	GS	1		
3				
4				
5				
6				
7	GS	2		
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 21

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING Novmber 28, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	321.5	
	321.2	Dark brown clayey sandy silt with organic matter and rootlets: TOPSOIL
	320.6	Brown sandy silt, trace clay and gravel, rootlets, wood fragments
1		Compact SAND and GRAVEL - trace cobbles
2	318.8	
		SILT, trace clay
3	318.2	
4		
5		
6		
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL

DEPTH (ft): 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32

SAMPLES

TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
GS	1		
GS	2		
GS	3		

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 22

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING Novmber 28, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	320.9	
	320.6	Dark brown clayey sandy silt with organic matter and rootlets:
	320.3	TOPSOIL
1		Brown clayey sandy silt, trace gravel and rootlets
		Compact SAND and GRAVEL with cobbles
2		
3	317.8	
4		
5		
6		
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL

SAMPLES

DEPTH (ft)	TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
3	GS	1		
7	GS	2		

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 23

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING Novmber 28, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	321.1	
	320.6	Dark brown clayey sandy silt with organic matter and rootlets: TOPSOIL
1	320.0	Brown sandy silt / silt sand, trace gravel
	319.7	Sandy SILT with clay
2		Compact sandy GRAVEL trace cobbles
3	318.1	
4		
5		
6		
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL

DEPTH (ft): 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32

SAMPLES

TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
GS	1		
GS	2		
GS	3		

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 24

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING Novmber 29, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	321.7	
	321.4	Dark brown clayey sandy silt with organic matter and rootlets: TOPSOIL
	321.1	Brown clayey sandy silt, trace gravel and rootlets, weathered
1		Compact to dense SAND and GRAVEL with cobbles
2	318.9	
		Clayey SILT, grey wet
3	318.3	
4		
5		
6		
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL

DEPTH (ft): 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32

SAMPLES

TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
GS	1		
GS	2		
GS	3		

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 25

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING Novmber 28, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES TYPE	SAMPLES NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	321.5				0				
	321.2	Dark brown clayey sandy silt with organic matter and rootlets: TOPSOIL			1				
	320.7	Brown sandy silt, trace clay and rootlets			2	GS	1		
1		Compact SAND and GRAVEL with cobbles			3				
					4				
					5				
					6				
2					7	GS	2		
					8				
					9				
3	318.4				10				
					11				
					12				
4					13				
					14				
					15				
					16				
5					17				
					18				
					19				
6					20				
					21				
					22				
7					23				
					24				
					25				
8					26				
					27				
					28				
					29				
9					30				
					31				
					32				
10									

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 26

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING Novmber 28, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	321.6	
	321.2	Dark brown clayey sandy silt with organic matter and rootlets: TOPSOIL
	320.8	Brown silty sandy with gravel and rootlets
1		Compact sandy GRAVEL with cobbles
2		
3	318.5	
4		
5		
6		
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL

DEPTH (ft): 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32

SAMPLES

TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
GS	1		
GS	2		

UNDRAINED SHEAR STRENGTH (kPa): 50, 100, 150, 200

WATER CONTENT & ATTERBERG LIMITS: W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 27

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING Novmber 29, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	322.1	
	321.7	Dark brown clayey sandy silt with organic matter and rootlets: TOPSOIL
	321.3	Brown clayey sandy silt, trace gravel and rootlets, weathered
1		Compact SAND and GRAVEL with cobbles
2		
3	319.0	
4		
5		
6		
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL

DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0				
1				
2	GS	1		
3				
4				
5				
6	GS	2		
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 28

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING Novmber 28, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	321.0	
	320.6	Dark brown clayey sandy silt with organic matter and rootlets: TOPSOIL
	320.2	Brown sandy silt / silty sand, trace gravel, rootlets, weathered
1	319.6	Compact silty SAND and GRAVEL - rootlets in upper layer - weathered
2		Compact SAND and GRAVEL - trace cobbles
3	318.0	
4		
5		
6		
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL

DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0				
1				
2	GS	1		
3				
4	GS	2		
5				
6				
7	GS	3		
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 29

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING Novmber 28, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	321.6	
	321.3	Dark brown clayey sandy silt with organic matter and rootlets: TOPSOIL
	320.7	Brown sandy silt / silty sand, with gravel, trace cobbles, weathered
1		Compact sandy GRAVEL trace cobbles
2		
3	318.6	
4		
5		
6		
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL

DEPTH (ft): 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32

SAMPLES

TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
GS	1		
GS	2		

UNDRAINED SHEAR STRENGTH (kPa): 50, 100, 150, 200

WATER CONTENT & ATTERBERG LIMITS: W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 30

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING Novmber 28, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	323.2	
	322.9	Dark brown clayey sandy silt with organic matter and rootlets:
	322.6	TOPSOIL
		Brown silty sand and gravel
1		Compact SAND and GRAVEL with cobbles
2		
3	320.2	
4		
5		
6		
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL

DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0				
1				
2	GS	1		
3				
4				
5				
6	GS	2		
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 31

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING December 05, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	323.6	
	323.3	Dark brown clayey sandy silt with organic matter and rootlets:
	323.0	TOPSOIL
1		Brown clayey sandy silt, with gravel and rootlets
		Compact SAND and GRAVEL with cobbles - sand layer about 500mm to 600mm thick at depth about 1.5m
2		
3	320.6	
4		
5		
6		
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL

DEPTH (ft): 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32

SAMPLES

TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
GS	1		
GS	2		

UNDRAINED SHEAR STRENGTH (kPa): 50, 100, 150, 200

WATER CONTENT & ATTERBERG LIMITS: W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH 32

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING Novmber 27, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	323.9	
	323.6	Dark brown clayey sandy silt with organic matter and rootlets trace gravel: TOPSOIL
	323.3	Brown clayey sandy silt with gravel
1		Dense GRAVEL and SAND - with cobbles, trace boulders - sand layers about 120mm thick at depth about 2.2m and 3.0m
2		
3	320.7	
	320.4	Compact sandy SILT - grey, wet
4		
5		
6		
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL

DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
3	SS	1	51/460	33
6	SS	2	380/460	50
8	SS	3	410/460	36
11	SS	4	430/460	23

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 33

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING December 05, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	324.4	
	324.1	Dark brown clayey sandy silt with organic matter and rootlets: TOPSOIL
	323.8	Brown clayey sandy silt, trace gravel and rootlets, weathered
1		Compact brown sandy GRAVEL with cobbles
2		
3	321.4	
4		
5		
6		
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL

DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0				
1	GS	1		
2	GS	2		
3				
4				
5				
6				
7	GS	3		
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 38

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING December 03, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	324.7	
	324.4	Dark brown clayey sandy silt with organic matter and rootlets: TOPSOIL
	323.9	Brown clayey sandy silt, trace gravel and rootlets, weathered
1		Loose to compact gravelly COBBLES and SAND - trace boulders - weathered at top 600mm
2		
3	321.7	
4		
5		
6		
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL

DEPTH (ft): 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32

SAMPLES

TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
GS	1		
GS	2		

UNDRAINED SHEAR STRENGTH (kPa): 50, 100, 150, 200

WATER CONTENT & ATTERBERG LIMITS: W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH 43

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING Novmber 27, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	326.2	
	325.9	Dark brown clayey sandy silt with organic matter and rootlets trace gravel: TOPSOIL
	325.6	Brown clayey sandy silt with gravel
1		Dense GRAVEL and SAND - with cobbles, trace boulders
2		
3	322.7	
4		
5		
6		
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL

SAMPLES

DEPTH (ft)	TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
3	SS	1	200/460	70
6	SS	2	250/460	50/75mm
8	SS	3	76/460	50/100mm
11	SS	4	180/460	32

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 45

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING Novmber 29, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	323.6	
	323.3	Dark brown clayey sandy silt with organic matter and rootlets: TOPSOIL
	323.0	
	322.7	Brown clayey sandy silt, trace gravel and rootlets, weathered
1		Loose to compact silty SAND and GRAVEL
2		Compact sandy GRAVEL with cobbles
3	320.6	

STRATA PLOT

WATER LEVEL

DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
2	GS	1		
3	GS	2		
7	GS	3		

UNDRAINED SHEAR STRENGTH (kPa) 50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 46

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING November 29, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES TYPE	SAMPLES NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	323.2				0				
	322.7	Dark brown clayey sandy silt with organic matter and rootlets: TOPSOIL			1				
	322.3	Brown silty sand with gravel and rootlets			2	GS	1		
1		Compact to dense sandy GRAVEL with cobbles			3				
					4				
					5				
					6	GS	2		
2					7				
					8				
					9				
3	320.1				10				
					11				
					12				
4					13				
					14				
					15				
					16				
5					17				
					18				
					19				
6					20				
					21				
					22				
7					23				
					24				
					25				
8					26				
					27				
					28				
					29				
9					30				
					31				
					32				
10									

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 47

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING December 03, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	323.0	
	322.7	Dark brown clayey sandy silt with organic matter and rootlets: TOPSOIL
	322.1	Brown clayey sandy silt, trace gravel
1		Compact sandy COBBLES and GRAVEL
2		
3	319.9	
	319.6	Compact sandy SILT with gravel
4		
5		
6		
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL

DEPTH (ft): 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32

SAMPLES

TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
GS	1		
GS	2		

UNDRAINED SHEAR STRENGTH (kPa): 50, 100, 150, 200

WATER CONTENT & ATTERBERG LIMITS: W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH 48

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING December 07, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES TYPE	SAMPLES NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
0	100.0				0					
	99.5	Thin layer of recycled asphalt about 30mm thick: FILL			1					
		SAND and GRAVEL: GRANULAR FILL			2					
1					3	AS	1			
		Compact silty SAND and GRAVEL			4					
		- trace clay below 1.35m depth			5	AS	2			
	98.2				6	AS	3			
2					7					
					8					
					9					
3					10					
					11					
					12					
4					13					
					14					
					15					
					16					
5					17					
					18					
					19					
6					20					
					21					
					22					
7					23					
					24					
					25					
8					26					
					27					
					28					
					29					
9					30					
					31					
					32					
10										

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH 49

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING December 07, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	100.0	
	99.4	Asphaltic concrete approximately 80mm thick: ASPHALTIC CONCRETE
1	98.6	SAND and GRAVEL: GRANULAR FILL
2	97.0	Hard silty CLAY with sand and gravel: FILL - weathered
3		Very dense silty SAND and GRAVEL - trace cobbles
4		
5		
6		
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL

DEPTH (ft): 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32

SAMPLES

TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
SS	1	410/460	36
SS	2	380/460	58
SS	3	330/460	63
AS	4		

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 50

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING December 03, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES TYPE	SAMPLES NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	322.5				0				
	322.2	Dark brown clayey sandy silt with organic matter and rootlets: TOPSOIL			1				
	321.6	Brown clayey sandy silt, trace gravel			2	GS	1		
1					3				
		Compact gravelly SAND and COBBLES - trace boulders			4				
					5				
					6	GS	2		
2					7				
					8				
					9				
3	319.3				10				
					11				
					12				
4					13				
					14				
					15				
					16				
5					17				
					18				
					19				
6					20				
					21				
					22				
7					23				
					24				
					25				
8					26				
					27				
					28				
					29				
9					30				
					31				
					32				
10									

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 51

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING December 03, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	323.7	
	323.4	Dark brown clayey sandy silt with organic matter and rootlets:
	323.1	TOPSOIL
1		Brown clayey sandy silt, trace gravel
		Compact gravelly SAND and COBBLES - roots at top layer
2		
3	320.7	
4		
5		
6		
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL

DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0				
1				
2	GS	1		
3				
4				
5				
6				
7	GS	2		
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 52

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING November 29, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	322.4	
	322.0	Dark brown clayey sandy silt with organic matter and rootlets: TOPSOIL
	321.5	Brown clayey sandy silt, trace gravel
	321.1	Compact silty SAND and GRAVEL - with cobbles, trace boulders
		Compact sandy GRAVEL with cobbles - trace boulders
	319.4	

STRATA PLOT

WATER LEVEL

DEPTH (ft)

SAMPLES

TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
GS	1		
GS	2		
GS	3		

UNDRAINED SHEAR STRENGTH (kPa) 50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 53

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING November 29, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	322.8	
	322.5	Dark brown clayey sandy silt with organic matter and rootlets: TOPSOIL
	321.9	Brown clayey sandy silt, trace gravel and rootlets
1		Compact sandy GRAVEL with cobbles
2		
3	319.8	
4		
5		
6		
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL

DEPTH (ft): 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32

SAMPLES

TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
GS	1		
GS	2		

UNDRAINED SHEAR STRENGTH (kPa): 50, 100, 150, 200

WATER CONTENT & ATTERBERG LIMITS: W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 54

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING November 29, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	324.5	
	324.1	Dark brown clayey sandy silt with organic matter and rootlets: TOPSOIL
	323.6	Brown sandy silt / silty sand - trace gravel and clay
1		Compact sandy GRAVEL with cobbles - sand layer about 150mm, at about 1.65m depth - orange/black sandy gravel layer, about 200m thick, at about 2.1m depth
2	321.5	- black/red sandy gravel layer, about 250mm thick, at about 2.8m depth
3		
4		
5		
6		
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL

DEPTH (ft): 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32

SAMPLES

TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
GS	1		
GS	2		
GS	3		
GS	4		

UNDRAINED SHEAR STRENGTH (kPa) 50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 55

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING December 03, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	SAMPLES TYPE	SAMPLES NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	323.5					
	323.2	Dark brown clayey sandy silt with organic matter and rootlets: TOPSOIL				
	322.4	Brown clayey sandy silt, trace gravel and cobbles, rootlets, and weathered	GS	1		
		Compact SAND and GRAVEL - with cobbles, trace boulders	GS	2		
	320.4					

UNDRAINED SHEAR STRENGTH (kPa): 50, 100, 150, 200

WATER CONTENT & ATTERBERG LIMITS: W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 56

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING December 03, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	325.5	
	325.2	Dark brown clayey sandy silt with organic matter and rootlets: TOPSOIL
	324.9	Brown clayey sandy silt, trace gravel and cobbles, and rootlets
1		Compact gravelly COBBLES and SAND - trace boulders
2		- sand layer about 150mm thick, at about 2.25m depth
3	322.5	

STRATA PLOT

WATER LEVEL

DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
2	GS	1		
7	GS	2		

UNDRAINED SHEAR STRENGTH (kPa) 50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 57

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING November 29, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	321.2	
	320.9	Dark brown clayey sandy silt with organic matter and rootlets:
	320.6	TOPSOIL
1		Brown clayey sandy silt, trace gravel and rootlets
2		Compact silty SAND and GRAVEL - with cobbles, trace boulders - roots at top layer
	318.3	
3		Compact sandy SILT
	317.8	
4		
5		
6		
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL

DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0				
1				
2				
3	GS	1		
4				
5				
6				
7	GS	2		
8				
9				
10				
11	GS	3		
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 58

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING November 29, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	321.2	
	320.9	Dark brown clayey sandy silt with organic matter and rootlets: TOPSOIL
	320.3	Brown clayey sandy silt, trace gravel and rootlets
1		Compact sandy GRAVEL - with cobbles
2		
3	318.2	
	317.9	Compact sandy SILT
4		
5		
6		
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL

DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0				
1				
2				
3	GS	1		
4				
5				
6				
7	GS	2		
8				
9				
10				
11	GS	3		
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 59

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING November 29, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	320.3	
	319.8	Dark brown clayey sandy silt with organic matter and rootlets: TOPSOIL
	319.3	Brown clayey sandy silt, trace gravel and cobbles, and rootlets
1		Compact sandy GRAVEL and COBBLES
2		
3	317.2	
	316.9	Compact sandy SILT - trace clay
4		
5		
6		
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL

DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0				
1				
2				
3	GS	1		
4				
5				
6				
7	GS	2		
8				
9				
10				
11	GS	3		
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 60

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING November 29, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES TYPE	SAMPLES NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	320.1				0				
	319.6	Dark brown clayey sandy silt with organic matter and rootlets: TOPSOIL			1				
	319.1	Brown clayey sandy silt, with gravel, trace cobbles and rootlets			2	GS	1		
1		Compact sandy COBBLES with gravel			3				
					4				
					5				
					6	GS	2		
2					7				
					8				
					9				
3	317.0			∇	10				
					11				
					12				
4					13				
					14				
					15				
					16				
5					17				
					18				
					19				
6					20				
					21				
					22				
7					23				
					24				
					25				
8					26				
					27				
					28				
					29				
9					30				
					31				
					32				
10									

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 61

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING November 29, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	320.7	
	320.4	Dark brown clayey sandy silt with organic matter and rootlets:
	320.1	TOPSOIL
1		Brown clayey sandy silt, trace gravel and rootlets
		Compact gravelly SAND with cobbles
2		
3	317.6	
	317.3	Compact clayey sandy SILT
4		
5		
6		
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL

DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0				
1				
2	GS	1		
3				
4				
5				
6				
7	GS	2		
8				
9				
10				
11	GS	3		
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 62

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING December 03, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES TYPE	SAMPLES NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	318.5				0				
	318.1	Dark brown clayey sandy silt with organic matter and rootlets: TOPSOIL			1				
	317.8	Brown clayey sandy silt, trace gravel			2	GS	1		
1					3				
		Compact SAND and GRAVEL - with cobbles			4				
					5				
					6				
2					7	GS	2		
					8				
					9				
3	315.5				10				
					11				
					12				
4					13				
					14				
					15				
					16				
5					17				
					18				
					19				
6					20				
					21				
					22				
7					23				
					24				
					25				
8					26				
					27				
					28				
					29				
9					30				
					31				
					32				
10									

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 63

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING December 03, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	319.0	
	318.6	Dark brown/black clayey sandy silt with organic matter and rootlets: TOPSOIL
	318.3	Brown clayey sandy silt, trace gravel, weathered
1		Compact SAND and GRAVEL - with cobbles
2		
3	316.0	
4		
5		
6		
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL

DEPTH (ft): 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32

SAMPLES

TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
GS	1		
GS	2		

UNDRAINED SHEAR STRENGTH (kPa): 50, 100, 150, 200

WATER CONTENT & ATTERBERG LIMITS: W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 64

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING December 03, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	319.0	
	318.7	Dark brown clayey sandy silt with organic matter and rootlets:
	318.4	TOPSOIL
1		Brown clayey sandy silt, trace gravel and rootlets
		Compact SAND and GRAVEL - trace cobbles - sand layer about 150mm thick at 1.2m depth
2	316.4	
		Clayey sandy SILT
3	315.9	
	315.6	SAND
4		
5		
6		
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL

DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0				
1				
2	GS	1		
3				
4				
5				
6				
7	GS	2		
8				
9				
10	GS	3		
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 65

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING December 03, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	318.0					
	317.4	Dark brown clayey sandy silt with organic matter and rootlets: TOPSOIL				
1	316.8	Brown clayey sandy silt/silty sand, trace gravel	GS	1		
		Loose to compact SAND and GRAVEL - with cobbles				
2	315.9		GS	2		
		Clayey silty SAND				
3	315.0		GS	3		
4						
5						
6						
7						
8						
9						
10						

STRATA PLOT

WATER LEVEL

DEPTH (ft): 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32

SAMPLES

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 66

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING November 28, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES TYPE	SAMPLES NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	318.4				0				
		Brown SAND and GRAVEL with cobbles - roots and weathered at top 300mm			1 2 3 4				
1					5	GS	1		
					6 7				
2	316.3								
		Compact SILT - trace sand and clay			8				
					9	GS	2		
3	315.4				10 11 12 13				
4					14 15 16				
5					17 18 19				
6					20 21 22				
7					23 24 25				
8					26 27 28				
9					29 30 31				
10					32				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

□ Field Vane Test (kPa)

◘ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 67

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING November 28, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	319.4	
	319.1	Dark brown clayey silty sand with gravel and rootlets: TOPSOIL
	318.6	Brown silty sand and gravel and some rootlets
1		Compact SAND
	318.0	Compact sandy SILT
2		
3	316.3	
4		
5		
6		
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL

DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
2	GS	1		
3	GS	2		
7	GS	3		

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 68

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING November 28, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES TYPE	SAMPLES NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	319.2				0				
	318.7	Dark brown clayey sandy silt with organic matter and rootlets: TOPSOIL			1				
	318.3	Brown clayey sandy silt, trace gravel and rootlets			2	GS	1		
1		Compact sandy SILT - trace clay, weathered			3				
					4				
					5				
					6	GS	2		
2					7				
					8				
					9				
3	316.2				10				
					11				
					12				
4					13				
					14				
					15				
					16				
5					17				
					18				
					19				
6					20				
					21				
					22				
7					23				
					24				
					25				
8					26				
					27				
					28				
					29				
9					30				
					31				
					32				
10									

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

□ Field Vane Test (kPa)

◘ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 69

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING November 28, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES TYPE	SAMPLES NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	320.0				0				
	319.7	Dark brown clayey sandy silt with organic matter and rootlets:			1				
	319.4	TOPSOIL			2	GS	1		
1		Brown clayey sandy silt, trace gravel and rootlets			3				
					4				
		Compact SAND and GRAVEL - with cobbles			5	GS	2		
					6				
2					7				
	317.5			▽	8				
		Clayey SILT			9				
3	316.9				10	GS	3		
					11				
					12				
4					13				
					14				
					15				
5					16				
					17				
					18				
					19				
6					20				
					21				
					22				
7					23				
					24				
					25				
8					26				
					27				
					28				
					29				
9					30				
					31				
					32				
10									

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 70

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING November 28, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	319.1	
	318.8	Dark brown clayey sandy silt with organic matter and rootlets: TOPSOIL
	318.4	Brown clayey sandy silt, trace gravel
1		Compact SAND and GRAVEL - with cobbles
2		
3	316.1	
4		
5		
6		
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL

DEPTH (ft): 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32

SAMPLES

TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
GS	1		
GS	2		

UNDRAINED SHEAR STRENGTH (kPa): 50, 100, 150, 200

WATER CONTENT & ATTERBERG LIMITS: W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 71

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING November 28, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	320.6	
	320.3	Dark brown clayey sandy silt with organic matter and rootlets: TOPSOIL
	319.7	Brown silty sand, with gravel and rootlets
1		Compact SAND and GRAVEL - with cobbles
2		
3	317.5	
4		
5		
6		
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL

DEPTH (ft): 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32

SAMPLES

TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
GS	1		
GS	2		

UNDRAINED SHEAR STRENGTH (kPa): 50, 100, 150, 200

WATER CONTENT & ATTERBERG LIMITS: W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 72

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING November 28, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	320.2	
	319.9	Dark brown clayey sandy silt with organic matter and rootlets:
	319.6	TOPSOIL
1		Brown silty sand and gravel and rootlets
		Compact SAND and GRAVEL - with cobbles
2		
	317.5	
3	317.2	Compact sandy SILT - trace clay
4		
5		
6		
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL

DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0				
1				
2	GS	1		
3				
4				
5	GS	2		
6				
7				
8				
9	GS	3		
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 73

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING November 28, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	321.4	
	321.1	Dark brown clayey sandy silt with organic matter and rootlets: TOPSOIL
	320.5	Brown clayey sandy silt, rootlets, and weathered
1		Compact SAND and GRAVEL - with cobbles
2		
	318.7	
	318.4	Compact sandy SILT - with caly
3		
4		
5		
6		
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL

DEPTH (ft)	SAMPLES TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0				
1				
2				
3	GS	1		
4				
5				
6				
7	GS	2		
8				
9				
10	GS	3		
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

TP 76

CLIENT Hanlon Creek

PROJECT No. 1032721.

LOCATION Hanlon Creek, City of Guelph

DATUM Local

DATES: BORING December 03, 2007

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES TYPE	SAMPLES NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)
0	325.2				0				
	324.9	Dark brown clayey sandy silt with organic matter and rootlets: TOPSOIL			1				
	324.3	Brown clayey silty sand and gravel, and rootlets			2	GS	1		
1		Compact SAND and GRAVEL - with cobbles		▽	3				
					4				
					5				
					6	GS	2		
2					7				
					8				
					9				
3	322.2				10				
					11				
					12				
4					13				
					14				
					15				
					16				
5					17				
					18				
					19				
6					20				
					21				
					22				
7					23				
					24				
					25				
8					26				
					27				
					28				
					29				
9					30				
					31				
					32				
10									

UNDRAINED SHEAR STRENGTH (kPa)

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▼

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90 100

REMARKS & GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford