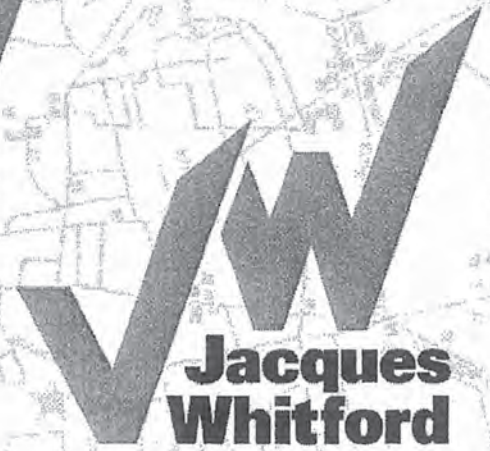




REPORT

Update Geotechnical Investigation
Proposed Park Place Development
(Formerly Molson Park)

Highway 400 and Maplevue Drive East
(Formerly Molson Park Drive East)
Barrie, Ontario

NORTH AMERICAN

PROJECT NO. 1033078.01

CONFIDENTIAL



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**Jacques
Whitford**

An Environment
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VIA EMAIL

Project No.: 1033078.

November 27, 2008

Mr. Derrick Blay
Environmental Standards Inc.
55, 54th Avenue
Lachine, Quebec
H8T 3A1

Dear Mr. Blay:

**Re: Engineered Fill Placement and Compaction
Park Place Commercial Development
Mapleview Drive/Bayview Drive
City of Barrie, ON**

This report presents a summary of inspection and materials testing carried out during construction from July 4, 2008 to October 2, 2008 at the site captioned above. Jacques Whitford Limited (Jacques Whitford) personnel carried out proof rolling inspections and field density tests during the placement of the engineered fill for the planned scope of development. Associated laboratory testing was conducted on selected representative samples of the fill material placed.

ENGINEERED FILL

The areas inspected and tested included the following:

- Building and parking lot areas in the designated engineered fill zone in the north and east portion of the site.

Building and parking lot areas in the designated engineered fill zone in the southeast portion of the site.

Inspections of the exposed sub-grade, by probing and test pits, were completed at all locations intended for placement of engineered fill over the course of this inspection period. Deleterious materials, where encountered, were removed from the subgrade within the proposed building envelopes and the areas proofrolled prior to fill placement. Based on these inspections, the subgrade surface was considered satisfactory for the placement of the engineered fill.

Compaction tests were conducted on the sand, silt and sand, fine silty sand with gravel, and fine silty sand fill materials at randomly selected locations during placement and compaction of the fill materials. The fill materials were compacted using a sheep's foot compactor and a vibratory smooth drum roller compactor. The specified requirement for the engineered fill was 100 % of the materials Standard Proctor Maximum Dry Density (SPMDD). The results of the field density tests met or exceeded the specified requirements.

Representative samples of the sand, silt and sand, silty fine sand with gravel, and silty fine sand fill materials were obtained from the site on a regular basis during fill placement and returned to our laboratory for testing. The laboratory testing included Moisture Density Relations Tests. The results of the Moisture Density Relations Tests were used in the Field Density Testing program.

Based on the results of the field inspections and density testing, the engineered fill as placed will provide a satisfactory base for construction of foundations for the proposed buildings. In accordance with the recommendations provided in the geotechnical report (Project No. 1033078, dated July 18, 2008) conventional spread and/or strip footings placed on the approved surface of the compacted engineered fill can be designed using an allowable bearing capacity of 170 kPa. As stated in the geotechnical report, this recommendation presumes a typical strip footing width of 450 mm. In addition, and in accordance with the recommendations in the geotechnical report, all exterior footings will require a minimum of 1.6 m of soil cover for adequate frost protection.

The finished engineered fill grades were provided by CDN Land Surveyors. The finished Engineered Fill Grades Drawing and E-File were submitted to our office on November 6, 2008. A digital copy of the Finished Engineered Fill Grades Drawing will be provided, via mail, with the hard copy of this report.

CLOSURE

For all foundations placed on the compacted engineered fill, the exposed founding surface must be inspected by a representative of Jacques Whitford Limited prior to placement of concrete.

Furthermore, due to the non-cohesive nature of the engineered fill material, the footings and upper section of the foundation walls must be continuously reinforced with a minimum of two 15 M reinforcing steel bars.

We trust that this information is satisfactory for your present purposes. If you have any questions with regard to this report, please do not hesitate to contact the undersigned.

Yours very truly,

JACQUES WHITFORD



Peter Beeney, C.E.T.
Team Leader



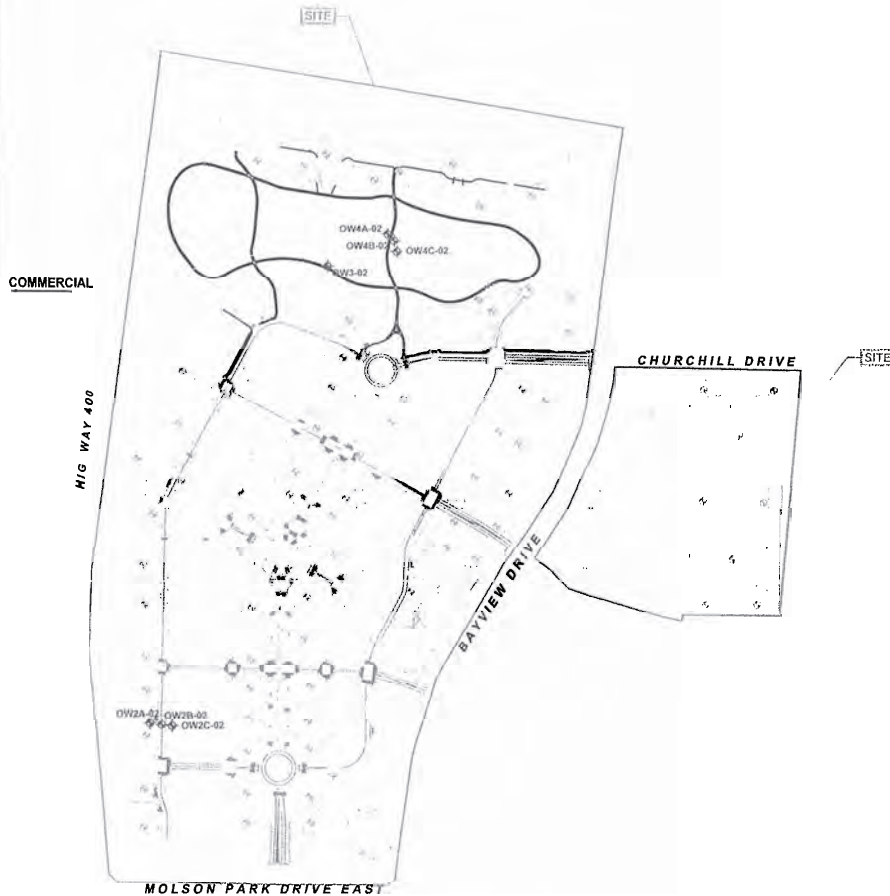
Peter Healy, C.E.T.
Group Leader

PB/PH/eu

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MOLSON PLANT



EXISTING BUILDING
(MOLSON CENTRE)

LEGEND

- BOREHOLE
- BOREHOLE WITH STANDPIPE
- BOREHOLE WITH MONITORING WELL
- (JW, 2002 PROJECT No. ONT35424)
- GEODETIC ELEVATION RELATIVE TO BENCHMARK No. 001713846
- LOCATED ON NORTH SIDE OF MAPLEVIEW DRIVE EAST AND EAST OF CN RAILWAY, EAST OF BAYVIEW DRIVE (ELEVATION 287.50m)
- PROPOSED BUILDING

EXISTING BUILDING

APPROXIMATE LIMITS OF SUBJECT PROPERTY

0 100 200 300m
SCALE 1:5000

REF. THIS DRAWING BASED ON DRAWING WITH FILE NAME "999 EW Cak Jan2008", PROVIDED BY SABOURN KIMBLE & ASSOCIATES LTD TO JACQUES WHITFORD ON JULY 10, 2008.
NOTE: 1. THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A JACQUES WHITFORD LIMITED PROJECT AND MUST NOT BE USED FOR OTHER PURPOSES.
2. LANDS ADDED TO THE NORTH AND EAST SIDES OF THE ORIGINAL SUBJECT PROPERTY (THESE LOCATIONS WERE NOT INVESTIGATED AS A COMPONENT OF THE ORIGINAL GEOTECHNICAL INVESTIGATION COMPLETED BY JACQUES WHITFORD IN MAY 2003) ARE SHOWN IN GREY.

SITE PLAN SHOWING EXISTING FEATURES,
BOREHOLE LOCATIONS, AND PROPOSED SCOPE OF DEVELOPMENT
GEOTECHNICAL INVESTIGATION UPDATE
PROPOSED PARK PLACE DEVELOPMENT
HIGHWAY 400 AND MOLSON PARK DRIVE EAST, BARRIE, ONTARIO

Client: NORTH AMERICAN

Job No.: 1033078.01

Scale: 1 : 5000

Date: 2008/07/15

Dwn. By: CD HM JW2008070143

App'd By: JL

Dwg. No.:

2

Jacques Whitford

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Jacques Whitford © 2008

PROJECT NO. 1033078.01

REPORT TO North American
2851 John Street, Suite 1
Markham, ON L3R 5R7

FOR Update Geotechnical Investigation
Proposed Park Place Development
(Formerly Molson Park)

ON Highway 400 and Maplevue Drive East
(Formerly Molson Park Drive East)
Barrie, Ontario

July 18, 2008

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APPENDIX D	Geotechnical Laboratory Test Results (May 2003)



1.0 INTRODUCTION

We are providing herewith, our update to the geotechnical investigation report previously provided to North American for the project captioned above.

This update was completed in accordance with the email proposal submitted to North American dated July 10, 2008.

Approval to proceed was provided by Mr. Bill Bouwman of North American in an email dated July 10, 2008.

Limitations associated with this report and its contents are provided in the statement included in **Appendix A**.

2.0 SITE DESCRIPTION

The subject property is located to the northeast of the intersection of Highway 400 and Mapleview Drive East (Formerly Molson Park Drive East) in Barrie, Ontario. The location of the subject property is shown on Drawing No. 1 in **Appendix B**.

The subject property contained two land parcels separated by Bayview Drive. The larger parcel was located on the west side of Bayview Drive and the smaller parcel was located on the east side of Bayview Drive. The larger parcel was bounded by Highway No. 400 to the west, Molson Plant to the north, Bayview Drive to the east, and Mapleview Drive East to the south. The smaller parcel was bounded by Bayview Drive to the west, an existing parking area to the south, undeveloped land to the east, and Churchill Drive to the north. The limits of the subject property are shown on Drawing No. 2 in **Appendix B**.

At the time of the original geotechnical investigation conducted by Jacques Whitford in 2003 (as further discussed below), the overall property was used as a recreational park and outdoor concert arena. A number of existing buildings were present in the western and eastern portions of the larger parcel. An open air concert arena consisting of raised benches for audience seating was located east of the centre of the larger parcel. An existing woodlot was located in the northern portion of the larger parcel. There was a 2.5 m to 3 m wide, asphalt road, oriented north-south, crossing the larger parcel. The smaller parcel was undeveloped and vacant.

The subject property was predominantly covered by snow and ice at the end of March 2003 when the bulk of the drilling for the investigation was conducted. Grass was exposed in early April 2003 when monitoring and surveying activities were completed. Scattered trees were present across the site.

The general grade of the larger parcel sloped down from west to east with a maximum grade difference in the order of approximately 11 m as determined via the ground surface elevations recorded at the borehole locations. At the proposed building locations in the smaller parcel, the general grade was relatively flat with a maximum grade difference of approximately 0.9 m as determined via the ground surface elevations recorded at the borehole locations.



The drawings provided to Jacques Whitford for the current update of the original geotechnical investigation, indicate that additional lands are included in the current scope of planned development. The additional lands extend to the north of the larger parcel as originally defined, and to the east of the smaller parcel as originally defined. The additional lands have been added to Drawing No. 2 in **Appendix B**. As of the time of preparation of this update, all previously existing infrastructure on the larger parcel of land had been removed. In addition, general site preparation activities are underway on the site. In this respect, a cut and fill earthworks program is being conducted to prepare the site for the intended scope of development.

3.0 CURRENT PROPOSED DEVELOPMENT

A drawing was forwarded to Jacques Whitford by Sabourin Kimble & Associates (civil engineers on the project) on July 11, 2008. The drawing included the File Name "999 EW Calc Jan2008". The drawing illustrated the proposed scope of development and the extent of the cut and fill earthwork program. It is understood that the proposed scope of development is subject to change.

Based on the drawing provided at the time of preparation of this update, the scope of development is to consist of the following:

- Twenty-eight buildings of various sizes to be located in the larger parcel of the property;
- Six buildings of various sizes to be located in the smaller parcel (east of Bayview Drive) of the property;
- Six buildings of various sizes to be located on the lands added to the north and east sides of the original subject property (these locations were not investigated as a component of the original geotechnical investigation completed by Jacques Whitford as referenced herein); and,
- Associated parking areas and driveways.

As stated above, it is understood that the proposed scope of development is subject to change. Details associated with the proposed buildings were not available at the time of preparation of this update. For the purposes of the original geotechnical investigation report, and for this update, it has been assumed that the buildings will include a mix of commercial/retail, multi-storey residential/condominium, and/or hotel buildings. It is assumed that the commercial/retail buildings will be single-storey structures without basements. It is assumed that the residential/condominium and/or hotel buildings will be multi-storey structures with possible basement levels, although this is not confirmed. It should be noted that additional site investigation and/or geotechnical assessment and engineering analysis may be required at the time of confirmation of the proposed scope of development and the details of the planned buildings become available.

For reference, the drawing provided also illustrated the proposed scope of development to be located to the north and east of the subject property. The proposed scope of development on these neighboring properties consists of five buildings of various sizes, and associated parking areas and driveways.

Construction Drawing Nos. SG-1 to SG-5, with Revision Notes dated May 16, 2008 indicating Issued for Engineering Submission, prepared and provided by Sabourin Kimble & Associates Ltd. were forwarded to Jacques Whitford for the material testing and inspection services currently being providing for the ongoing cut and fill earthwork program on the site. The drawings illustrated the proposed Finished Floor Elevations (FFE) for the planned buildings. However, it is understood that these FFEs are subject to change.



4.0 BACKGROUND

4.1 Jacques Whitford Geotechnical Investigation – May 2003

4.1.1 Investigation Overview

Jacques Whitford completed an original geotechnical investigation for the subject property during the period of March to May, 2003. The report was referenced as follows:

North American Acquisition Corporation
Geotechnical Investigation
Proposed Park Place Development
Molson Park
Barrie, Ontario
Jacques Whitford Project Number: ONT10801
Dated: May 27, 2003

The purpose of the investigation was to determine the subsurface conditions on the property in consideration of the proposed development of the property.

The following sections provide additional information and details associated with the original geotechnical investigation, and have been extracted from the original geotechnical investigation report.

4.1.2 Scope of Work

The scope of work for the original geotechnical investigation was as follows:

To investigate the soil conditions at the site by completing a subsurface investigation consisting of 75 boreholes for the proposed buildings (in accordance with the conceptual master plan available in early March 2003);

To conduct a limited laboratory testing program on representative samples of the soil obtained from the investigation; and,

To prepare a report with geotechnical comments and recommendations for the following:

- Site grading and preparation;
- Appropriate foundation type and respective allowable bearing capacity for the proposed structures;
- * Floor slab design and construction;
- * General excavation and backfill;
- Parking area and access road pavement structure; and,
- * Cement type used in concrete for foundations and the potential for corrosion of steel used in foundations and buried infrastructure.

4.1.3 Method of Investigation

4.1.3.1 Field Investigation

Prior to commencing the field investigation, the borehole locations were established in the field by JWAL personnel. The borehole locations were cleared of underground utilities by the various utility companies and Multiview, a private utility locator, in the presence of a representative of JWAL.



The field work for the investigation was carried out during the period from March 27, 2003 to April 15, 2003. The boreholes, BH1 to BH75, were advanced at the locations shown on Drawing No. 2 in **Appendix B**. Borehole BH67 was abandoned after a 150 mm diameter, PVC water pipe was encountered at a depth of 1.5 m below ground surface.

The boreholes were advanced using a balloon-tire mounted auger rig equipped with 125 mm outside-diameter (O.D.), hollow-stem augers. JWAL field personnel recorded the conditions encountered in the boreholes at the time of the investigation. Soil samples from the boreholes were recovered at regular intervals using a 50 mm O.D. split-tube sampler by conducting Standard Penetration Tests (SPT) in accordance with the procedures outlined in the ASTM Specification D1586-99.

The boreholes were typically terminated at an approximate depth of 6.5 m in native soil. Ten boreholes (i.e., BH12, BH17, BH25, BH30, BH45, BH49, BH57, BH58, BH66 and BH73) were advanced to a maximum depth of 11 m in order to provide geotechnical information for the design of foundations for multi-storey buildings or buildings with levels below grade.

Standpipes were installed in BH5, BH17, BH30, and BH44 to provide access for monitoring the level of the groundwater table subsequent to the completion of the investigation. The boreholes with standpipes were backfilled with sand and sealed at the ground surface to prevent infiltration of ground surface runoff. Boreholes without standpipes were backfilled with auger cuttings tamped in place at the ground surface.

The groundwater levels in the standpipes were recorded on April 18, 2003 and May 6, 2003.

All soil samples recovered from the boreholes were placed in moisture-proof bags and returned to our laboratory for detailed classification and testing as required.

4.1.3.2 Survey

The locations of the boreholes were determined by measuring from the existing infrastructure located within or adjacent to the site.

The elevations of the ground surface at the borehole locations and the respective top of casing for the standpipes were determined relative to a Geodetic Benchmark. The Geodetic Benchmark was Benchmark No. 001713846 located on the north side of Mapleview Drive East, east of the Canadian National Railway (east of Bayview Drive). The geodetic elevation of the Benchmark was 267.50 m.

The ground surface elevations at the borehole locations are provided on the Borehole Records included in **Appendix C** and shown on Drawing No. 2 in **Appendix B**.

4.1.3.3 Laboratory Testing

All samples returned to the laboratory were subjected to detailed visual examination and classification. A series of samples were submitted for moisture content determination. Five representative soil samples were tested for grain size distribution. Atterberg Limits tests were attempted on two soil samples. The results of the grain size distribution tests are shown on Figure Nos. 1 and 2 in **Appendix D**.

Three representative soil samples were submitted to Philip Analytical Services Corp. (Philip), in Mississauga, Ontario for analysis of pH, concentration of soluble sulphate, and conductivity. This testing was conducted to assess the conditions associated with the potential for degradation of concrete, and the potential for corrosion of exposed, buried steel.



Unless requested in advance, all samples will be stored in the laboratory for a period of one month, after issuance of this report.

4.1.4 Results of the Investigation

4.1.4.1 Subsurface Information Overview

The subsurface conditions encountered in the boreholes for the investigations referenced above are shown on the Borehole Records provided in **Appendix C**.

An explanation of the symbols and terms used on the Borehole Records is also provided in **Appendix C**.

In general, the ground surface cover at the borehole locations consisted grass with topsoil. The stratigraphy encountered in the boreholes typically consisted of various types of fill materials overlying native sand.

Groundwater was encountered in 8 of the 75 boreholes on completion of drilling, at depths ranging from 1.5 m to 5.5 m below the existing grade. All other boreholes were dry on the completion of drilling. Static groundwater was encountered in two of the four standpipes at depths of 4.8 m and 9.6 m below the existing grade. The other two standpipes were dry.

4.1.4.2 Ground Surface Cover

During the period of investigation from March 27, 2003 to March 31, 2003, the existing ground surface was covered by snow and ice overlying grass. Subsequently, from April 1, 2003 onwards, the grass was exposed.

The thickness of the topsoil (consisting of various soil types with a high percentage of rootlets and organics) underlying the grass, typically varied from 150 mm to 800 mm. The areas with 500 mm to 800 mm thick topsoil were predominantly located in the proximity of the existing woodlot, the western perimeter of the site adjacent to Highway 400, and the central portion of the site. The average thickness of the topsoil was approximately in the order of 300 mm.

4.1.4.3 Fill

A layer of fill consisting of various soil types was encountered underlying the snow/ice and grass ground surface in all boreholes. The predominant soil types of the fill comprised silty clay, silty sand, sand, and sand and gravel. Some portions of the fill soils could possibly be disturbed, native sand underlying the fill layer. The fill was typically brown/black in colour and contained organics/rootlets (in the upper zone) and trace to some gravel.

The fill materials typically extended to depths ranging from 0.8 m to 1.5 m. In some localized areas, the fill extended to a minimum depth of 0.5 m (BH44) to a maximum depth of 3.9 m (BH43) below the existing ground surface.

Based on the N-values obtained from the Standard Penetration Tests (SPTs), the cohesionless fill materials (i.e., silty sand, sand, sand and gravel) were typically in a loose to compact state. The cohesive silty clay fill was typically in a soft to firm state.

Laboratory tests carried out on samples of the cohesionless fill materials (i.e., silty sand in BH5, sand and gravel in BH30, and sand in BH73) yielded moisture contents ranging from 7 % to 15 %.



4.1.4.4 Native Sand

A stratum of native sand was encountered underlying the fill materials in all boreholes. The native sand was typically brown in the upper zone and grey at increasing depth. The native sand typically contained trace gravel, silt and clay. In some boreholes, seams of various soil types (i.e., silty clay, sandy silt, clayey silt, sand or silt) were present in the sand stratum. The thickness of the soil seams typically varied from 25 mm to 400 mm.

The sand stratum extended to the maximum investigation depth of 11 m below the existing grade in boreholes BH12, BH17, BH25, BH30, BH45, BH49, BH57, BH58, BH66 and BH73.

Based on the N-values obtained from the SPTs, the compactness of the native sand was assessed to be compact to very dense.

Laboratory test results indicated that the moisture content of the native sand ranged from 2% to 22%. The higher values were generally associated with the increase in the silt and clay size particles.

Five grain size analysis tests were conducted on samples of the sand as listed in Table 1 below. The gradation curves are shown on Figure Nos. 1 and 2 in **Appendix D**.

Table 4.1: Results of Grain Size Analysis

Borehole No.	Sample No.	Depth (m)	Gravel (%)	Grave (%)	Gravel (%)	Gravel (%)	Remarks
3	4	2.7	2	91	7		Sand
16	4	2.7	0	92	8		Sand
30	8	9.4	13	84	3		Sand
61	3	1.8	9	47	30	14	Sand Non-Plastic
73	6	6.4	0	19	73	8	Silt (seam) Non-Plastic

Atterberg Limits Tests were attempted on a portion of Sample No. 3 obtained from BH61 and Sample No. 6 from BH73. The tests indicated that the soils were non-plastic.

4.1.4.5 Groundwater

Groundwater was encountered in 8 of the 75 boreholes on completion of drilling, at depths ranging from 1.5 m to 5.5 m below the existing grade. All other boreholes were dry on the completion of drilling. Static groundwater was encountered in two of the four standpipes at depths of 4.8 m and 9.6 m below the existing grade. The other two standpipes were dry.

4.2 Terraprobe Geotechnical Investigation - August 2007

In addition to the original geotechnical investigation completed by Jacques Whitford on the subject property as discussed in detail above, Terraprobe Limited (Terraprobe) completed a Geotechnical Investigation on the subject property in August 2007. The report reference No. was 3-06-2126, date of issue August 2007. The lands investigated included the additional properties to the north and east of

the subject lands originally investigated by Jacques Whitford in 2003. This report was provided by North American to Jacques Whitford for information only without benefit of formal reliance.

The geotechnical investigation report was referenced as follows:

Geotechnical Investigation (Draft)
Proposed Park Place Development
Mapleview Drive and Bayview Drive
Barrie, Ontario
Prepared For: North American (Park Place Corporation)
c/o Sabourin Kimble & Associates Ltd.
Prepared by: Terraprobe Limited
Report Date: August 9, 2007
File Number: 3-06-2126

The purpose of the investigation was to determine the prevailing soil and shallow groundwater conditions, and to provide geotechnical engineering recommendations for design of foundations and pavements for multi story commercial, office, and retail buildings. Comments were included on pertinent construction aspects including excavation, backfill, engineering fill, pipe bedding, earth pressure design parameters, and stormwater infiltration.

A total of fifty-two boreholes were advanced for the investigation. The boreholes were advanced to a depth of 6.6 m. Groundwater monitoring standpipes were installed in seventeen boreholes to provide access for monitoring the level of the groundwater table.

In general, the subsurface soil conditions encountered in the boreholes consisted of topsoil over interlayered sand, silt, silty sand, silt and clayey silt deposits to 2 m to 5 m in depth, and underlain by primarily extensive sand.

The majority of the boreholes were dry and remained open during the drilling process. Groundwater was encountered in five of the seventeen standpipes at depths of 1.9 m and 5.9 m. The report stated that the water levels measured can be reflected by the perched conditions on or within the overlying silt, silty clay, and sandy silt deposits.

The report recommended a net allowable bearing pressure of 150 kPa (SLS) to as much as 400 kPa (SLS) for the design of the conventional spread footings supported on the underlying native silty sand soils encountered below the topsoil and fill. A corresponding ULS design bearing pressure was estimated at approximately 350 kPa to 600 kPa for footings up to about 2 m in width. The report also stated that all spread footings should be designed to bear at least 0.3 m into the undisturbed native soil stratum below all topsoil, deleterious and/or loose soils.

The report recommended a conventional slab-on-grade floor slab to be used on the subject property.

5.0 CURRENT SCOPE OF WORK

The purpose of this report is to provide an update with respect to the original geotechnical investigation completed by Jacques Whitford in 2003. It was intended that this update address the requirements of the current Building Code, including recommendations for Serviceability Limits States and Ultimate Limits States as applied to bearing resistances for foundations, and site classification for Seismic Site Response.



In addition to the requirements noted above, we have also updated the report to include reference to the more recent investigation completed by Terraprobe, and the current site preparation activities, including engineered cut and fill, presently being undertaken on the site.

It should be noted that the geotechnical comments and recommendations for building foundations provided herein are based on the proposed buildings shown on the current drawings available. It is possible that some of the proposed buildings may be relocated or that the FFEs may be revised. In addition, the building footprints, the number of stories and the requirement for basements may be revised. A generic approach for foundation design is therefore provided in this report, and can be applied for the various scenarios likely to be encountered on the site, subsequent to the completion of the engineered cut and fill program, as described herein. As stated above, additional investigation and/or geotechnical assessment may be required, should the proposed scope of development be revised and/or the specific details of the buildings become available.

6.0 DISCUSSION AND RECOMMENDATIONS

6.1 Overview

Based on the information obtained from the boreholes advanced by Jacques Whitford, the soil condition encountered in the boreholes consisted predominantly of grass and topsoil overlying a 0.8 m to 1.5 m thick layer of various types of fill materials. In some localized areas, the fill extended to a minimum depth of 0.5 m (BH44) to a maximum depth of 3.9 m (BH43) below the existing grade. The fill materials were underlain by a stratum of compact to very dense, native, sand that extended to the maximum investigation depth of 11 m below the existing ground surface.

Groundwater was encountered in 8 of the 75 boreholes, upon completion of drilling, at depths ranging from 1.5 m to 5.5 m. All other boreholes were dry at the completion of drilling. Static groundwater was encountered in two of the four standpipes at depths of 4.8 m and 9.6 m below the existing ground surface. The other two standpipes were dry.

Similar conditions to that described above, were reported by Terraprobe for the more recent investigation completed in 2007, although the soil descriptions, as provided by Terraprobe, varied from that reported herein.

Based on the information obtained from the geotechnical investigation completed by Jacques Whitford, our understanding of the project, and consideration of the ongoing cut and fill earthwork program, the following comments and recommendations are provided with respect to the proposed development shown on the current drawings as referenced above:

- A cut and fill earthworks program is currently being conducted on the subject property;
- Conventional spread and strip footings can be adopted for the planned buildings; the conventional foundations can be founded in either the native soils, or in compacted, engineered fill in consideration of the ongoing cut and fill earthworks program;
- Groundwater is not anticipated to be a problem for at-grade construction, although should buildings have multiple levels of underground infrastructure, groundwater may become an issue;

A slab-on-grade may be used for the proposed buildings;



Conventional pavements can be adopted for access roads and parking lots; and,

- Provided that the site is stripped and proof-rolled as recommended in the subsequent sections.

6.2 Site Preparation

6.2.1 Demolition

The structures present on the subject property at the time of investigation in 2003, were demolished prior to commencing the ongoing cut and fill earthworks program. At the time of preparation of this report, some debris from the demolition remains on site; it is presumed that this will be removed as a component of the ongoing site preparation works.

It is presumed that the demolition included complete removal of all underground infrastructure (including former services) identified at the time of demolition of the structures on the property.

6.2.2 Clearing

Clearing of trees was conducted in localized areas of the property as part of the site preparation activities.

6.2.3 Stripping

The organic ground surface cover consisting of topsoil is currently being stripped as a component of the ongoing site preparation activities.

Based on the conditions recorded at the borehole locations, the depth of stripping was anticipated to be in the range of 150 mm to 800 mm, subject to location on the subject property.

6.3 Grading and Earthworks

A cut and fill earthwork program is currently being conducted on the subject property to facilitate the planned scope of development.

Based on the cut and fill drawing provided, the west, central, and south portions of the subject property are in areas of required cut. The east portion of the property is in an area of required fill. It is anticipated that the cut and fill earthworks program will result in the excavation of the bulk of the existing fill materials.

As a component of the construction inspection and testing services provided on the project, Jacques Whitford has monitored the excavation of test pits on the property on several occasions since the start of the cut and fill earthworks on or about July 4, 2008. The test pits were excavated in various areas of the site, as the ongoing operations dictated, on July 4, July 10, and July 16, 2008 (and continue). The purpose of the test pits was to confirm the condition of the fill materials, and to confirm if any topsoil was present in the fill materials or at the contact surface between the fill materials and the underlying native soils. The conditions encountered in the test pits were similar to that recorded in the boreholes advanced previously by Jacques Whitford. Buried topsoil was encountered in several test pits in one area of the site. The Contractor intended to strip the overlying fill materials, remove the topsoil, and continue with the engineered fill program.



Jacques Whitford attended the Preconstruction Meeting on July 10, 2008. During the meeting it was confirmed that all fill placed on the property would be placed and compacted as engineered fill. The contractor initially commenced the work in the area of the parking lot on the east side of the site, to the north of the southeast corner of the site (west of the Temporary Storm Water Management Pond). The results of field compaction tests indicated that the Contractor was achieving a minimum of 98% of the Materials Standard Proctor Dry Density.

At the time of the Preconstruction Meeting, it was also indicated that in future, when each of the locations for the planned buildings was confirmed, any 'original' fill remaining within the limits of the building pads would be further assessed, and cut down as required to a thickness of only 300 mm; the exposed surface be proof rolled, and the fill reinstated across the area of the building pad as engineered fill to facilitate construction of the planned buildings on a uniform sub-grade. In this respect, and more recently, the Contractor has been working in the northeast portion of the site in the designated 'open area' (as shown on the drawings provided). The results of field compaction tests indicated that the Contractor was achieving compaction in the range of 98% to 100% of the Materials Standard Proctor Dry Density. Consistent with the previous geotechnical investigation report issued by Jacques Whitford, it is presumed that the engineered fill placed in the building pad envelopes will be compacted to achieve a minimum of 100% of the Materials Standard Proctor Maximum Dry Density.

Specific to the northeast corner of the subject property (smaller parcel on the east side of Bayview Drive) a very loose to compact, sand stratum was encountered at depths ranging from 1.5 m to 6.0 m below existing grade in BH7. In conjunction with the ongoing cut and fill earthwork program, it is recommended to test pits to be excavated in the area of borehole BH7 to confirm the condition of the sand soils.

The existing fill materials and native sand soils, available from excavations on the site during decommissioning of existing infrastructure, from other sub-excavations on the property, or cut earthworks, can be reused as engineered fill, subject to confirmation (at the time of reuse) that there are no deleterious materials present in the fill, and that the moisture content is suitable for achieving the required compaction.

Additional imported fill materials required to backfill any sub-excavations, or for raising the grade to the design elevation, should consist of OPSS Granular B – Type 1, pit-run sand and gravel, or OPSS Select Subgrade Material (SSM).

All fill materials imported to the site must meet all applicable municipal, provincial, and federal guidelines and requirements associated with environmental characterization of the materials.

6.4 Site Materials Reuse

The topsoil and any existing fill materials that contain rootlets/organics should only be used for landscaping applications.

The existing fill materials that do not contain any deleterious materials or rootlets/organics, and the native sand soils, may be reused as engineered fill. Based on the conditions encountered in the boreholes and the results of laboratory testing, it is anticipated that reuse of these materials should be practical for general engineered fill to develop design grades and elevations, for use in backfilling service trenches or any localized sub-excavations as described herein.



Portions of the fill materials consisted of silty sand and silty clay be considered to have a moderate to high frost susceptibility and should therefore not be used as perimeter foundations backfill, as granular base and sub-base materials, or for similar applications where development of frost could jeopardize the serviceability of the planned infrastructure.

Based on the results of the Grain Size Tests, the bulk of the native sand soil should be considered to have a low frost susceptibility. Portions of the native sand may consisted of high percentage of silt and clay size particles, hence, can be considered to have a moderate frost susceptibility and similar constraint should considered as stated above.

6.5 Foundations

6.5.1 Overview

In consideration of the subsurface conditions encountered in the boreholes, the frost penetration depth for the area (as obtained from OPSD 3090.101), and the scope of the ongoing cut and fill earthwork program, we anticipate that two scenarios would exist for the use of conventional foundations. The first scenario is for foundations placed in the engineered fill, and the second scenario is for foundations placed in the underlying native soils. For additional consideration, we have provided two cases for the placement of foundations on the native soils.

In accordance with the requirements of the current version of the Ontario Building Code (2006), we have calculated the geotechnical resistances at Ultimate Limit States (ULS) and the geotechnical reactions at Serviceability Limit States (SLS) for the case of conventional spread and strip footing foundations of various sizes placed on compacted, engineered fill, compact to dense, native sand (upper zone as encountered in the boreholes), and very dense, native sand (lower zone as encountered in the boreholes).

It is understood that multi-storey buildings may be considered as part of the development, should higher geotechnical resistances and reactions required, drilled piers (caissons) may be installed in the very dense, native sand stratum. The geotechnical resistances and reactions for the caisson will depend on the depth of caisson penetration into the native sand stratum and the diameter of the caisson. Temporary liners for the caissons will be required prior to placing concrete in order to prevent sloughing and cave-in. Groundwater may be encountered during the installation of the caissons.

6.5.2 Conventional Foundations on Compacted, Engineered Fill

We have calculated the geotechnical resistance at ULS and the geotechnical reaction at SLS for conventional strip and spread footings foundations placed on compacted, engineered fill. The values provided are based on a minimum of 1.6 m of soil cover, consistent with the minimum depth of soil cover required for adequate frost protection for the perimeter strip footing as shown on Drawing OPSD – 3090.101. The calculated values for the interior spread footing foundations in heated areas have been based on 0.6 m of soil cover, consistent with providing a more economic approach to construction.

Table 6.1: Geotechnical Resistances and Reactions – Compacted, Engineered Fill

Footing Type	Footing Width (m)	Geotechnical Resistance at ULS (kPa)	Geotechnical Reaction at SLS (kPa)
Strip Footings	0.45	240	170
	0.5	245	155
	0.6	250	135
Spread Footings (Interior Square Pad)	0.9	155	130
	1.2	165	100
	1.5	175	80

6.5.3 Conventional Foundations on Compact to Dense, Native Sand

We have calculated the geotechnical resistance at ULS and the geotechnical reaction at SLS for conventional strip and spread footings foundations placed on compact to dense, native sand. The calculated values are based on a minimum of 1.6 m of soil cover, consistent with the minimum depth of soil cover required for adequate frost protection for the perimeter strip footings as discussed above. The calculated values for the interior spread footing foundations in heated areas have been based on 0.6 m of soil cover, consistent with providing a more economic approach to construction.

Table 6.2: Geotechnical Resistances and Reactions – Compact to Dense, Native Sand

Footing Type	Footing Width (m)	Geotechnical Resistance at ULS (kPa)	Geotechnical Reaction at SLS (kPa)
Strip Footings	0.45	410	250
	0.5	415	235
	0.6	425	210
Spread Footings (Interior Square Pad)	0.9	275	250
	1.2	295	215
	1.5	315	180

6.5.4 Conventional Foundations on Very Dense, Native Sand

We have calculated the geotechnical resistance at ULS and the geotechnical reaction at SLS for conventional strip and spread footings foundations placed on very dense, native sand. The calculated values are based on a minimum of 1.6 m of soil cover, consistent with the minimum depth of soil cover required for adequate frost protection for the perimeter strip footings as discussed above. The calculated values for the interior spread footing foundations in heated areas have been based on 0.6 m of soil cover, consistent with providing a more economic approach to construction.

Table 6.3: Geotechnical Resistances and Reactions – Very Dense, Native Sand

Footing Type	Footing Width (m)	Geotechnical Resistance at ULS (kPa)	Geotechnical Reaction at SLS (kPa)
Strip Footings	0.45	600	500
	0.5	610	450
	0.6	625	400
Spread Footings (Interior Square Pad)	0.9	425	400
	1.2	450	375
	1.5	475	350

6.5.5 General Comments for use of Conventional Foundations

Vertical excavations in the existing cohesionless fill materials and/or native soils may encounter sloughing and cave-in. Based on observation made from the test pits excavated during the ongoing cut and fill earthwork program, the period of exposing the existing cohesionless fill materials and native sand should be limited to be less than 24 hours.

The exposed surface of the engineered fill or undisturbed native soils, should be inspected immediately prior to placing the concrete for the footings to confirm that all loose/soft, wet, and disturbed material has been removed and the surface is suitable for the intended construction.

A resistance factor of 0.5 was applied to the geotechnical resistances at ULS provided above. The geotechnical reactions at SLS are based on total settlements of 25 mm. Differential settlements are expected to be in the order of 19 mm.

Typical footing dimensions for these applications include a strip footing width of 450 mm and an isolated column footing dimension of 1500 mm.

As stated above, all exterior perimeter footing foundations, and/or isolated column footing foundations that are located outside of heated areas, will require a minimum of 1.6 m of soil cover, or equivalent insulation for adequate frost protection.

It is recommended that the foundations for the proposed development be structurally designed to provide adequate resistance to horizontal, overturning and uplift forces.

Where construction is undertaken during winter conditions, the footing subgrade should be protected from freezing.

A perimeter drain system will not be required for the proposed buildings without basement or underground levels, provided that the proposed finished floor elevation is a minimum 150 mm higher than the exterior grade and the surrounding area is sloped away from the building wall.

6.6 Floor Slab

The recommendations provided herein are based on the assumption that the maximum concentrated floor slab load will not exceed 12 kPa.

STATEMENT OF GENERAL CONDITIONS

USE OF THIS REPORT: This report has been prepared for the sole benefit of the Client or its agent and may not be used by any third party without the express written consent of Jacques Whitford Limited and the Client. Any use which a third party makes of this report is the responsibility of such third party.

BASIS OF THE REPORT: The information, opinions, and/or recommendations made in this report are in accordance with Jacques Whitford's present understanding of the site specific project as described by the Client. The applicability of these is restricted to the site conditions encountered at the time of the investigation or study. If the proposed site specific project differs or is modified from what is described in this report or if the site conditions are altered, this report is no longer valid unless Jacques Whitford is requested by the Client to review and revise the report to reflect the differing or modified project specifics and/or the altered site conditions.

STANDARD OF CARE: Preparation of this report, and all associated work, was carried out in accordance with the normally accepted standard of care in the state or province of execution for the specific professional service provided to the Client. No other warranty is made.

INTERPRETATION OF SITE CONDITIONS: Soil, rock, or other material descriptions, and statements regarding their condition, made in this report are based on site conditions encountered by Jacques Whitford at the time of the work and at the specific testing and/or sampling locations. Classifications and statements of condition have been made in accordance with normally accepted practices which are judgmental in nature; no specific description should be considered exact, but rather reflective of the anticipated material behavior. Extrapolation of in situ conditions can only be made to some limited extent beyond the sampling or test points. The extent depends on variability of the soil, rock and groundwater conditions as influenced by geological processes, construction activity, and site use.

VARYING OR UNEXPECTED CONDITIONS: Should any site or subsurface conditions be encountered that are different from those described in this report or encountered at the test locations, Jacques Whitford must be notified immediately to assess if the varying or unexpected conditions are substantial and if reassessments of the report conclusions or recommendations are required. Jacques Whitford will not be responsible to any party for damages incurred as a result of failing to notify Jacques Whitford that differing site or sub-surface conditions are present upon becoming aware of such conditions.

PLANNING, DESIGN, OR CONSTRUCTION: Development or design plans and specifications should be reviewed by Jacques Whitford, sufficiently ahead of initiating the next project stage (property acquisition, tender, construction, etc), to confirm that this report completely addresses the elaborated project specifics and that the contents of this report have been properly interpreted. Specialty quality assurance services (field observations and testing) during construction are a necessary part of the evaluation of sub-subsurface conditions and site preparation works. Site work relating to the recommendations included in this report should only be carried out in the presence of a qualified geotechnical engineer; Jacques Whitford cannot be responsible for site work carried out without being present.



A slab-on-grade may be used, provided that the slab-on-grade is constructed in accordance with the following recommendations.

Subsequent to proof rolling the exposed subgrade surface and placing the engineered fill to the final grade, where required, in accordance with the recommendations provided in Section 6.2 (Site Preparation), it is recommended that a moisture break be installed on the prepared surface. The moisture break should consist of a 150 mm thick layer of OPSS Granular A compacted to a minimum of 98 % of the material's SPMDD.

A modulus of subgrade reaction, k_s , of 20 MN/m³ may be used for the design of the floor slabs constructed in accordance with the recommendations provided herein.

6.7 Earthquake Considerations

The Ontario Building Code (O. Reg. 350/06) specifies that structures should be designed to withstand forces due to earthquake.

For the purpose of earthquake design the relevant geotechnical information required based on the conditions at this site is the "Site Class". Given the soil conditions encountered and in accordance with Table 4.1.8.4.A of the Ontario Building Code (2006), Site Class 'D' soil profile should be applied to this site.

6.8 Excavations

Temporary excavations must be carried out in accordance with the latest edition of the Occupational Health and Safety Act (OHSA).

The fill materials should be classified as Type 3 soils. The maximum excavation side slope for a Type 3 soil is 1:1 (Horizontal: Vertical) in accordance with the OHSA regulation.

The native sand can be classified as Type 2 soils. The maximum excavation side slope for a Type 2 material is 1:1 (Horizontal: Vertical) with a maximum vertical cut of 1.2 m at the base of the excavation, in accordance with the OHSA regulation. Due to the cohesionless nature of the native sand, the maximum depth of the excavation should be limited to 3 m and the period of exposing the native sand should be limited to be less than 24 hours.

The side slopes of any excavations should be protected from exposure to precipitation and associated ground surface runoff, to prevent further softening and loss of strength of these fill materials and soils that could lead to additional sloughing and caving.

If localized instability is noted during excavation or if wet conditions are encountered, the side slopes should be flattened to a stable configuration.

If space is restricted such that the side slopes cannot be safely cut back in accordance with the OHSA Regulation, or sloughing and cave-in are encountered in the excavation, the slopes should be flattened to achieve a stable configuration or temporary shoring provided.

Groundwater was encountered in four (4) of the seventy-five (75) boreholes; the depth ranged from 1.5 m to 3.1 m in the open boreholes on completion of drilling. The static groundwater table was recorded in two (2) of the four (4) standpipes at depths of 4.8 m and 9.6 m below the existing ground surface. The other two (2) standpipes were dry. Based on the groundwater levels encountered, it is anticipated



that shallow excavations for foundations or site servicing will likely not encounter the static groundwater table. It is anticipated that any groundwater seepage into the excavations should be readily handled by pumping from sumps using submersible pumps.

Given the information obtained from the investigation, extensive dewatering is not anticipated in the context of the discussion provided herein. It is noted that under the current Ministry of the Environment regulations, a Permit to Take Water is required for dewatering applications that require in excess of 50,000 L/day.

6.9 Backfilling

Pipe bedding materials specifications for underground utilities should be in accordance with the manufacturer's and/or the designer's recommendations. At this site, granular bedding is considered to be adequate for most applications. It is suggested that the bedding material be placed around the service pipes with a minimum of 300 mm cover on all sides.

Water and sewer lines installed outside of heated areas should be provided with a minimum of 1.6 m soil cover or equivalent insulation for frost protection. Specific to shallow service installations beneath the floor slabs in the interior of the buildings, it is recommended that the bedding and backfill materials consist of OPSS Granular A, consistent with the material placed as a moisture break beneath the floor slab.

All granular bedding placed for service installations should be compacted to a minimum of 95% SPMDD.

Backfill for service trenches may consist of approved portions of the excavated fill materials or the native sand. Subject to the time of year of construction, portions of the existing fill materials or the native sand may have moisture contents above the optimum for handling, placement and compaction. In this respect, some additional handling and drying may be required to facilitate reuse.

In settlement sensitive areas (outside of the areas of building foundations), the backfill should be placed in 200 mm thick loose lifts and compacted to a minimum of 95% SPMDD up to 0.5 m below the sub-grade level and 98% above this level. In non-settlement sensitive, landscape areas, the backfill may consist of the approved portions of the excavated soils placed in 300 mm thick lifts and compacted to a minimum of 90% SPMDD to the finished grade.

6.10 Loading Dock and Retaining Walls

Loading docks are typically included as a component in commercial/retail buildings.

The typical configuration for this type of application is a truck ramp that extends down below grade to the loading dock, to permit unloading and loading. The following comments are provided with respect to the design and construction of the loading dock and associated infrastructure.

It is recommended that the ramp be constructed using a concrete pavement to provide the desired serviceability under the heavy loading associated with tractor trailers. Consideration should also be given to placing concrete aprons to support trailer jack legs in truck parking areas. The ramp and aprons should be constructed with reinforced, jointed concrete pavement with a minimum thickness of 200 mm and a maximum joint spacing of 3.5 m.



Where the concrete ramp or concrete aprons are constructed adjacent to asphalt pavement, some deterioration of the asphalt abutting the concrete should be anticipated as a result of the different behavior of each material in response to frost heave, temperature change, and loading conditions.

It is recommended that the concrete ramp and apron be constructed on a 300 mm thick compacted layer of OPSS Granular A material to provide a suitable, uniform base and support, and to provide satisfactory drainage.

The granular material should be provided with a frost-free outlet with positive discharge. Consideration may be given to combining the required drainage with that installed for the loading dock retaining walls as discussed below.

The grade change between the base of the ramp and the surrounding ground surface will require the construction of a retaining wall. It is understood that the design preference is for a reinforced, concrete retaining wall. The foundation for a retaining wall could be designed in accordance with the foundation recommendations provided in the previous sections of this report.

To prevent hydrostatic pressure build-up, backfill in the zone immediately behind the retaining structures should consist of free draining granular materials such as OPSS Granular A or Granular B, Type 1. The granular zone at the back of the wall should be at least 900 mm wide and be connected to a drainage system at the base of the wall. The drainage system should be provided with a frost free, outlet with positive drainage. Structural fill should be used as backfill behind the retaining wall, beyond the zone of granular fill.

Lateral earth pressure coefficients for use in the design of the retaining wall are provided in Table 6.4. The parameters provided do not consider surcharge loading and presume that the retaining wall will have a permanent horizontal back slope. The parameters provided in the table are applicable for the case of granular backfill placed within a wedge defined by the back of the wall, and a line extending back from the base of the wall at 45 degrees (or smaller) to the horizontal.

For retaining walls that are designed to allow rotation, the active earth pressure coefficients may be used for design. For rigidly tied structures, the at-rest pressure should be used for design. The lateral earth pressures used in the design of the retaining walls may be calculated using the parameters shown in Table 6.4.

Table 6.4: Retaining Wall Design Parameters

Parameters	Granular Backfill
Unit Weight (kN/m^3)	21 – 23
Angle of Internal Friction	30 – 35
Coefficient of Active Earth Pressure, K_a	0.28 – 0.32
Coefficient of Passive Earth Pressure, K_p	3.1 – 3.5
Coefficient of Earth Pressure at Rest, K_o	0.44 – 0.48
Un-factored Coefficient of Friction (Between Concrete and Native Sand)	0.35
Un-factored Coefficient of Friction (Between Concrete and compacted, engineered fill consisting of Granular B Type II)	0.50

The factor of safety against sliding of the concrete retaining wall can be evaluated using the unfactored Coefficients of Friction shown in Table 6.4. Estimates of the coefficients have been provided for the interface between mass concrete and compacted, engineered fill (presuming OPSS Granular B) and the native sand soils. It is recommended that a minimum Factor of Safety of 1.5 be used to assess the stability of permanent retaining walls with respect to sliding. Where the Limit State design approach is used for retaining walls, a geotechnical resistance factor of 0.8 is recommended for sliding.

The recommendations for minimum soil cover or equivalent insulation for frost protection apply to the construction of retaining walls in similar manner as for those provided for the building foundations.

6.11 Pavement Areas

Provided that the exposed sub-grade surface is prepared in accordance with the recommendations provided in the previous sections of this report, the following asphalt pavement structure can be considered for use at this site:

Table 6.5: Recommended Asphalt Pavement Structure Design

Material	Sub-grade*	Standard Duty Parking Areas	Heavy Duty Fire and Truck Routes	Compaction Requirements
HL3 (top course asphaltic concrete)		40 mm	40 mm	97 % BRD
HL8 (base course asphaltic concrete)		50 mm	65 mm	97 % BRD
OPSS Granular 'A' Base	Sand, Silty Sand, Sand and Gravel	200 mm	300 mm	100 % SPMDD
	Silty Clay	150 mm	150 mm	100 % SPMDD
OPSS Granular 'B' Sub-base	Sand, Silty Sand, Sand and Gravel	0 mm	0 mm	
	Silty Clay	300 mm	300 mm	100 % SPMDD

* **Note:** The sub-grade soil types shown are consistent with the descriptions of the existing fill materials and the native soils encountered in the boreholes as described herein.

The base and sub-base materials should be compacted to a minimum of 100% SPMDD. The asphaltic concrete should be compacted to a minimum of 97% Bulk Relative Density (BRD).

The finished sub-grade surface and the pavement surface should be crowned and graded to direct runoff water away from the building, sidewalks, roadways, and associated infrastructure. The design and construction should be completed in accordance with the requirements of the Storm Water Management Plan prepared for the site.

Where new pavements are constructed, the sub-grade should be sloped towards catch basin structures at a minimum cross-fall of 1.5%. Sub-drain stubs with a minimum length of 3.0 m extending from catch basin and manholes along all low points in the sub-grade and should be incorporated into the design to allow for drainage of the granular materials. Drainage infrastructure should be provided at locations of changes in cross section of the pavement structure or where different pavement structures abut.

6.12 Cement Type and Corrosion Potential

Three samples of the native sand till were submitted to the laboratory for analysis of the pH, water soluble sulphates, and conductivity. This testing was conducted to assess the potential for degradation of the concrete in the presence of soluble sulphates and the potential for corrosion of exposed steel used in buried applications on the site. The test results are summarized below:

Table 6.6: Analytical Laboratory Test Results

Borehole No. and Sample No.	Depth (m)	pH	Soluble Sulphate (ppm)	Resistivity (Ohm-cm)
BH6 – Sample 4	2.6	8.6	Not Detected	14,286
BH28 – Sample 4	2.6	8.5	7	11,111
BH56 – Sample 4	2.6	8.1	7	7,299

Based on the results of the testing, the following conclusions are provided:

There is negligible potential for sulphate attack on concrete. Therefore, in accordance with the Canadian Standard Association (CSA) A23.1, normal Portland cement may be used.

The resistivity test results indicate that there is a mild to very mild potential for corrosion of exposed reinforcing steel. This is based on a comparison of the test result to literature references (J.D. Palmer, Soil Resistivity Measurement and Analysis, Materials Performance, Volume 13, 1974).

7.0 CLOSURE

Use of this report is subject to the Statement of General Conditions provided in **Appendix A**. It is the responsibility of Petro-Canada, who is identified as “the Client” within the Statement of General Conditions, and its agents to review the conditions and to notify Jacques Whitford Limited should any these not be satisfied. The Statement of General Conditions addresses the following:

- Use of the report;
- Basis of the report;
- Standard of care;
- Interpretation of site conditions;
- Varying or unexpected site conditions; and,
Planning, design or construction.

This report has been prepared by Jordan T.W. Lee, B.A.Sc. and reviewed by John J. Brisbois, M.Sc.Eng, P.Eng.

Yours very truly,

JACQUES WHITFORD

Original Signed By:

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JTWL/JJB/eu

Enclosures

Original Signed By:

John J. Brisbois, M.Sc.Eng, P.Eng.
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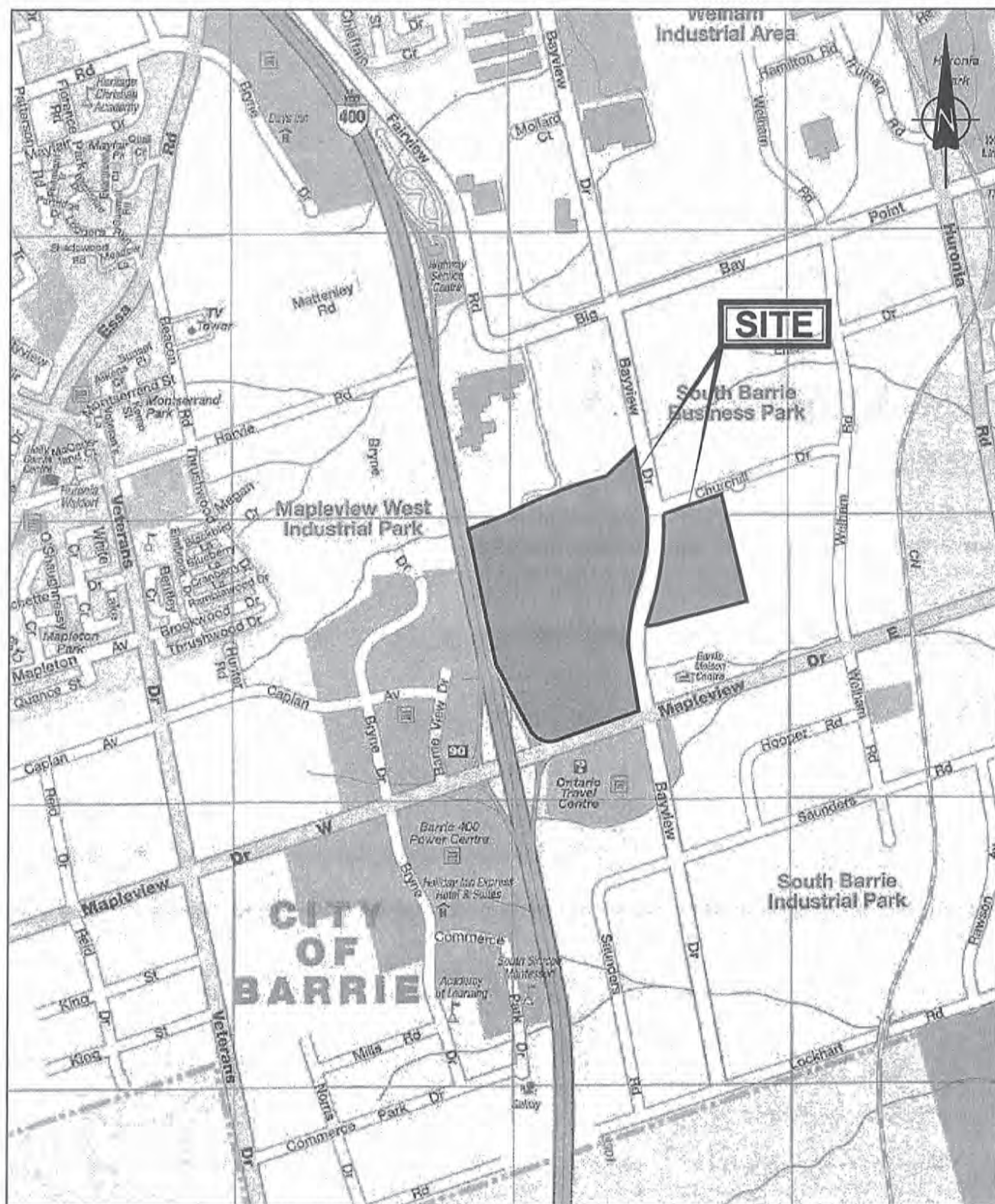
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APPENDIX A

Statement of General Conditions





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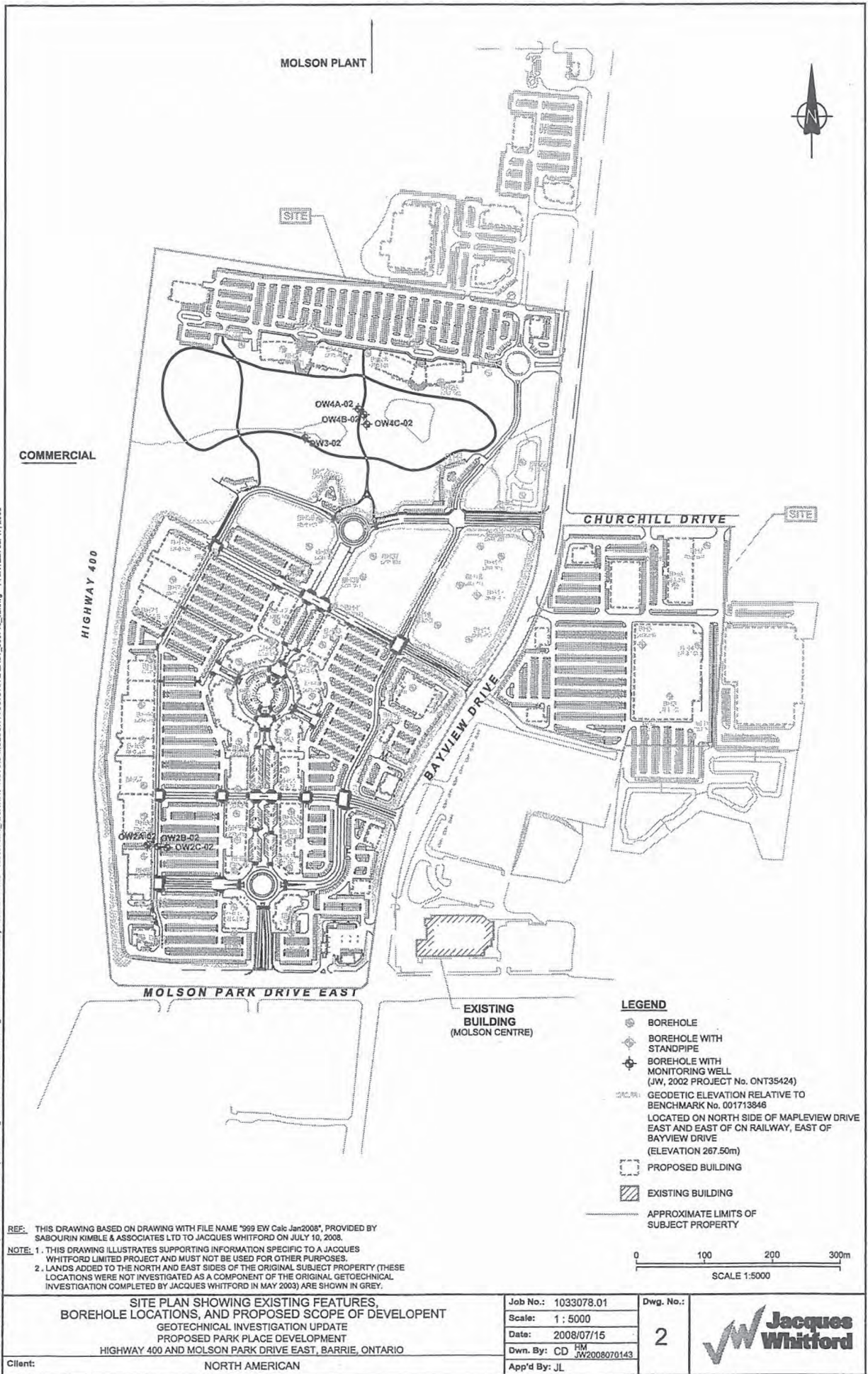
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SITE LOCATION AND REGIONAL ROAD MAP
GEOTECHNICAL INVESTIGATION UPDATE
PROPOSED PARK PLACE DEVELOPMENT
HIGHWAY 400 AND MOLSON PARK DRIVE EAST, BARRIE, ONTARIO

Client: **NORTH AMERICAN**

Scale: 1 : 20000	Job No.: 1033078.01	Dwg. No.: 1
Date: 08/07/12	Dwn. By: CD SP JW2008070130	Appd. By: JL





REF: THIS DRAWING BASED ON DRAWING WITH FILE NAME "999 EW Calc Jan2008", PROVIDED BY SABOURIN KIMBLE & ASSOCIATES LTD TO JACQUES WHITFORD ON JULY 10, 2008.

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SITE PLAN SHOWING EXISTING FEATURES,
BOREHOLE LOCATIONS, AND PROPOSED SCOPE OF DEVELOPMENT
GEOTECHNICAL INVESTIGATION UPDATE
PROPOSED PARK PLACE DEVELOPMENT
HIGHWAY 400 AND MOLSON PARK DRIVE EAST, BARRIE, ONTARIO

Client: NORTH AMERICAN

Job No.: 1033078.01
Scale: 1:5000
Date: 2008/07/15
Dwn. By: CD HM JW2008070143
App'd By: JL

Dwg. No.:

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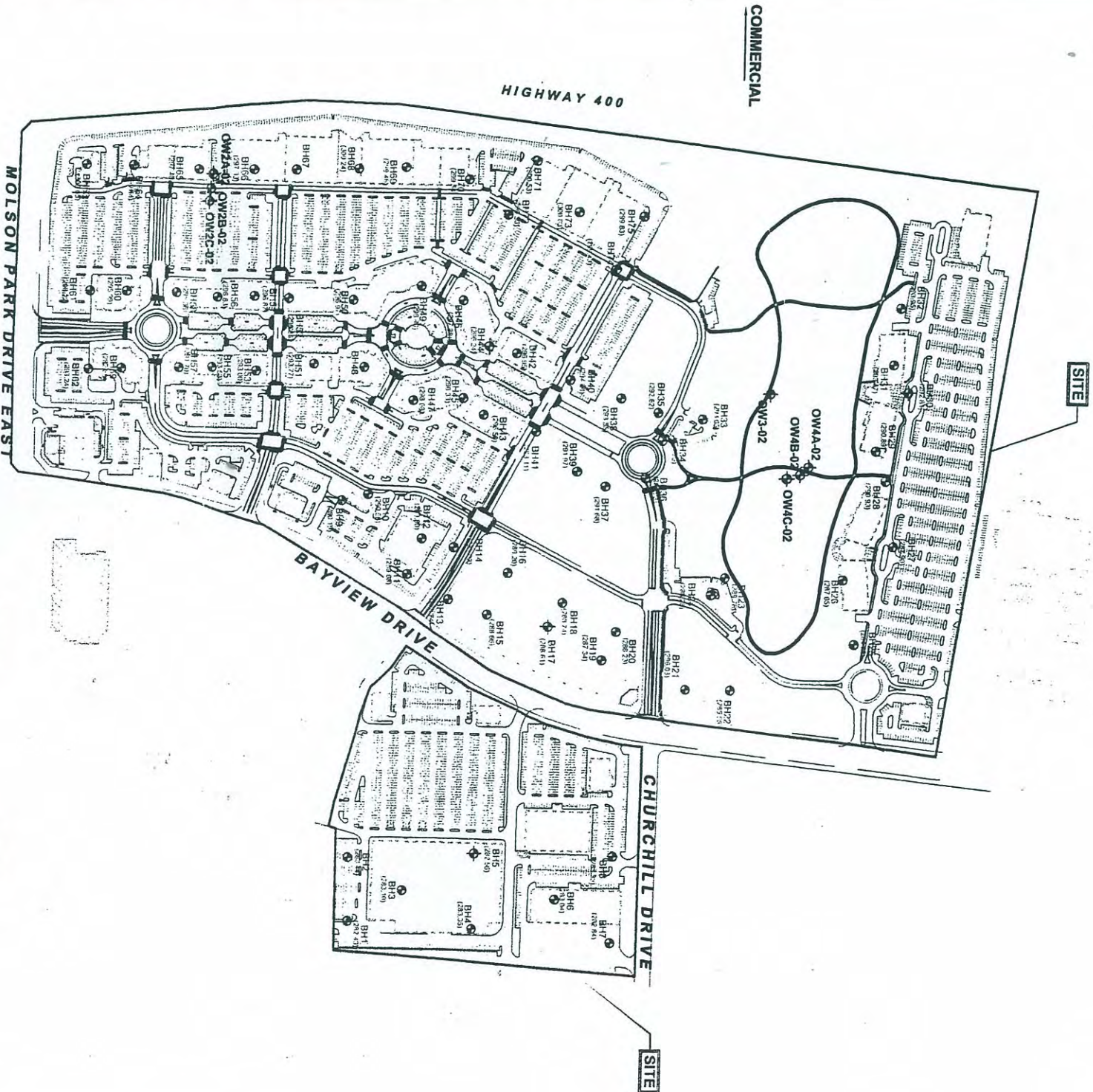




APPENDIX B

Drawings

MOLSON PLANT



EXISTING
BUILDING
(MOLSON CENTRE)

LEGEND

- BOREHOLE
- BOREHOLE WITH STANDPIPE
- BOREHOLE WITH MONITORING WELL

(JW, 2002 PROJECT No. ONT35424)
GEODETIC ELEVATION RELATIVE TO
BENCHMARK No. 001713846

LOCATED ON NORTH SIDE OF MAPLEVIEW DRIVE
EAST AND EAST OF CN RAILWAY, EAST OF
BAYVIEW DRIVE
(ELEVATION 267.50m)

PROPOSED BUILDING

EXISTING BUILDING

APPROXIMATE LIMITS OF
SUBJECT PROPERTY



REF: THIS DRAWING BASED ON DRAWING WITH FILE NAME "999 EW Cdc Jan2008" PROVIDED BY

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LOCATIONS WERE NOT INVESTIGATED AS A COMPONENT OF THE ORIGINAL GEOTECHNICAL

INVESTIGATION COMPLETED BY JACQUES WHITFORD IN MAY 2003) ARE SHOWN IN GREY.

SITE PLAN SHOWING EXISTING FEATURES
BOREHOLE LOCATIONS, AND PROPOSED SCOPE OF DEVELOPMENT

GEOTECHNICAL INVESTIGATION UPDATE
PROPOSED PARK PLACE DEVELOPMENT

HIGHWAY 400 AND MOLSON PARK DRIVE EAST, BARRIE, ONTARIO

NORTH AMERICAN

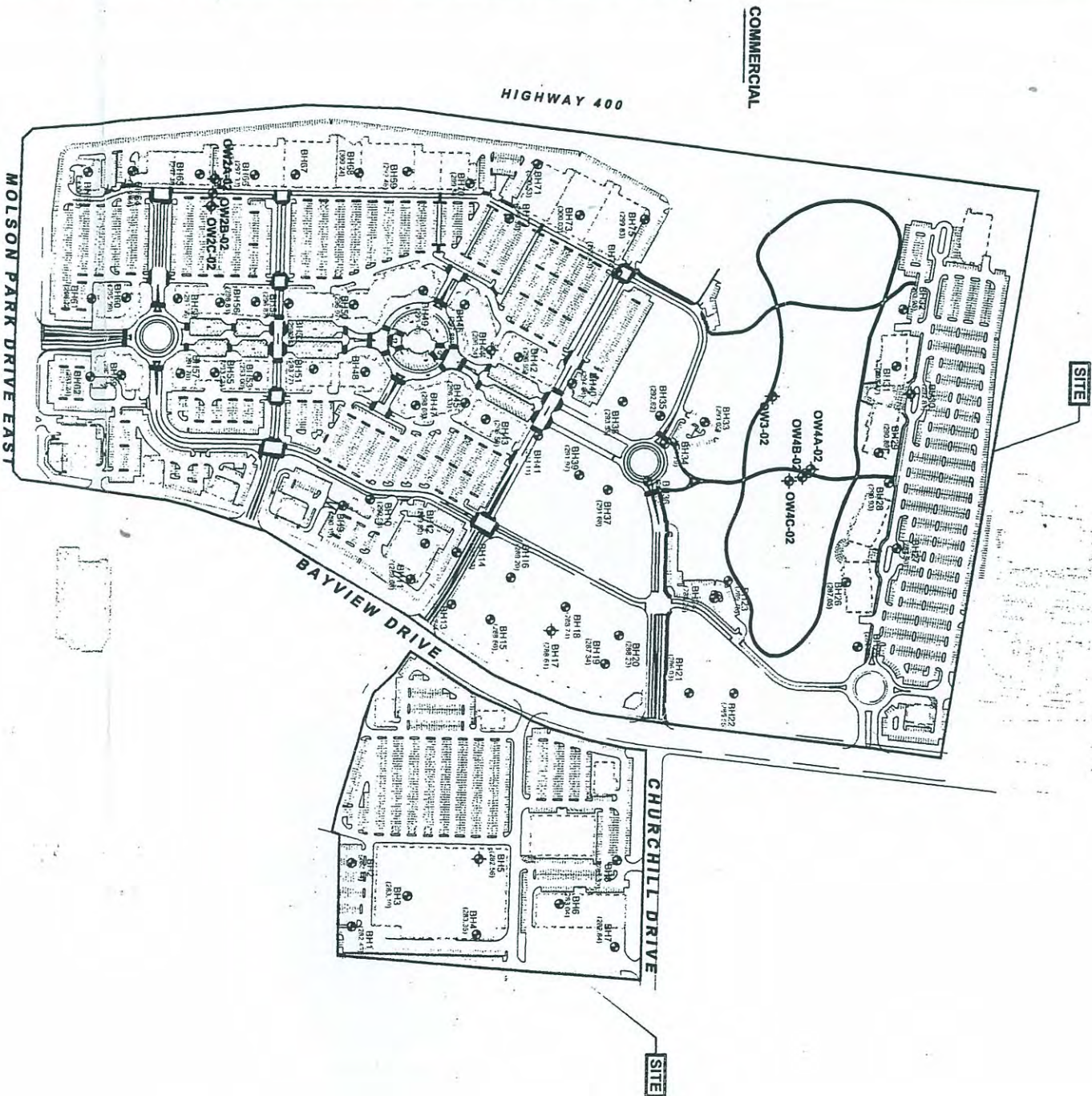
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Job No.:	1033078.01
Scale:	1 : 5000
Date:	2008/07/15
Dwn. By:	CD HM
App'd By:	JL

2

Jacques
Whitford



EXISTING
BUILDING
(MOLSON CENTRE)

- LEGEND**
- BOREHOLE
 - ◆ BOREHOLE WITH STANDPIPE
 - ◆ BOREHOLE WITH MONITORING WELL
 - ◆ GEODETIC ELEVATION RELATIVE TO BENCHMARK No. 001713846
 - LOCATED ON NORTH SIDE OF MAPLEVIEW DRIVE EAST AND EAST OF CN RAILWAY, EAST OF BAYVIEW DRIVE (ELEVATION 267.50m)
 - PROPOSED BUILDING
 - EXISTING BUILDING
 - APPROXIMATE LIMITS OF SUBJECT PROPERTY



REF: THIS DRAWING BASED ON DRAWING WITH FILE NAME 999 EW Cal. Jan2005, PROVIDED BY SAGOURN KIMBLE & ASSOCIATES LTD TO JACQUES WHITFORD ON JULY 10, 2008.

NOTE: 1. THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A JACQUES WHITFORD LIMITED PROJECT AND MUST NOT BE USED FOR OTHER PURPOSES.

2. LANDS ADDED TO THE NORTH AND EAST SIDES OF THE ORIGINAL SUBJECT PROPERTY (THESE LOCATIONS WERE NOT INVESTIGATED AS A COMPONENT OF THE ORIGINAL GEOTECHNICAL INVESTIGATION COMPLETED BY JACQUES WHITFORD IN MAY 2003) ARE SHOWN IN GREY.

**SITE PLAN SHOWING EXISTING FEATURES,
BOREHOLE LOCATIONS, AND PROPOSED SCOPE OF DEVELOPMENT**

GEOTECHNICAL INVESTIGATION UPDATE
PROPOSED PARK PLACE DEVELOPMENT
HIGHWAY 400 AND MOLSON PARK DRIVE EAST, BARRIE, ONTARIO

Client: NORTH AMERICAN

Job No.: 1033078.01	Dwg. No.: 2
Scale: 1 : 5000	
Date: 2008/07/15	
Dwn. By: CD HM	
App'd By: JL	
	Jacques Whitford

APPENDIX C

Symbols and Terms Used on the Borehole Records
Borehole Records

(May 2003)

SYMBOLS AND TERMS USED ON BOREHOLE AND TEST PIT RECORDS

SOIL DESCRIPTION

Terminology describing common soil genesis:

<i>Topsoil</i>	mixture of soil and humus capable of supporting good vegetative growth
<i>Peat</i>	fibrous fragments of visible and invisible decayed organic matter
<i>Till</i>	unstratified and unsorted glacial deposit which may include particle sizes from clay to boulders
<i>Fill</i>	materials not identified as deposited by natural geological processes

Terminology describing soil structure:

<i>Desiccated</i>	having visible signs of weathering by oxidization of clay minerals, shrinkage cracks, etc.
<i>Fissured</i>	material breaks along plane of fracture
<i>Varved</i>	composed of regular alternating layers of silt and clay
<i>Stratified</i>	alternating layers or beds greater than 6mm (1/4") thick
<i>Laminated</i>	alternating layers or beds less than 6mm (1/4") thick
<i>Blocky</i>	material can be broken into small and hard angular lumps
<i>Lensed</i>	irregular shaped pockets of soil with differing textures
<i>Seam</i>	a thin, confined layer of soil having different particle size, texture, or color from materials above and below
<i>Well Graded</i>	having wide range in grain sizes and substantial amounts of all intermediate particles sizes
<i>Uniformly Graded -</i>	predominantly one grain size

Soil descriptions and classification are based on the Unified Soil Classification System (USCS) (ASTM D-2488), which classifies soils on the basis of engineering properties. The system divides soils into three major categories: (1) coarse grained, (2) fine-grained, and (3) highly organic. The soil is then subdivided based on either gradation or plasticity characteristics. This system provides a group symbol (e.g. SM) and group name (e.g. silty sand) for identification. The classification excludes particles larger than 76 mm.

Terminology describing materials outside the USCS, (e.g. particles larger than 76 mm, visible organic matter, construction debris) is based upon the proportion of these materials present and as described below in accordance with the standard of the Ministry of Transportation of Ontario:

<i>Trace or occasional</i>	Less than 10%
<i>Some</i>	10-20%
<i>With</i>	20-30%

The standard terminology to describe cohesionless soils includes the compactness as determined by the Standard Penetration Test 'N'-value*.

Compactness	'N'-value
Very loose	<4
Loose	4-10
Compact	10-30
Dense	30-50
Very dense	>50

SYMBOLS AND TERMS USED ON BOREHOLE AND TEST PIT RECORDS

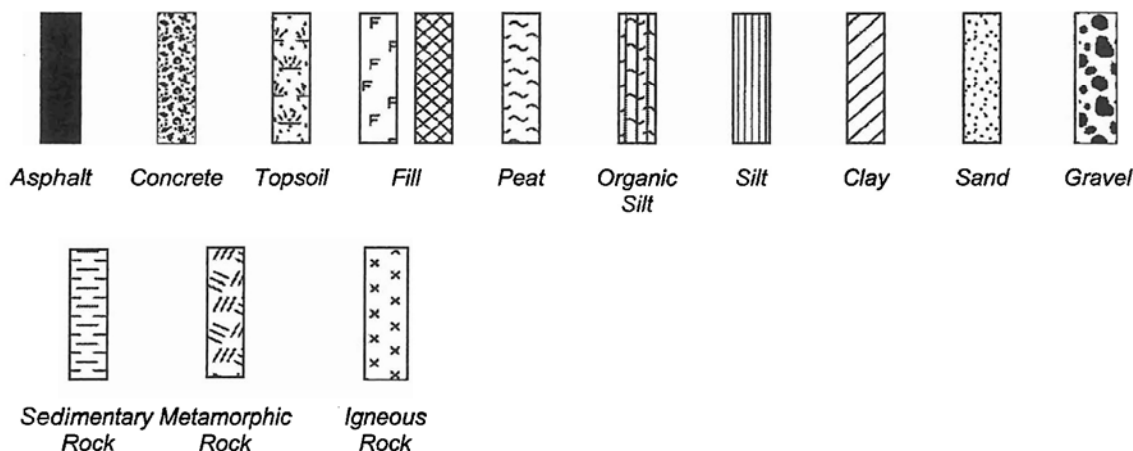
The standard terminology to describe cohesive soils includes consistency, which is based on undrained shear strength as measured by insitu vane tests, penetrometer tests, unconfined compression tests or similar field and laboratory analysis. Standard Penetration Test 'N'-values* can also be used to provide an approximate indication of the consistency and shear strength of fine grained, cohesive soils.

Consistency	Undrained Shear Strength (kPa)	'N'-Value
Very Soft	<12.5	<2
Soft	12.5-25	2-4
Firm	25-50	4-8
Stiff	50-100	8-15
Very Stiff	100-200	15-30
Hard	>200	>30

Note: **N'-VALUE- The Standard Penetration Test records the number of blows of a 140 pound (64kg) hammer falling 30 inches (760mm), required to drive a 2 inch (50.8mm) O.D. split spoon sampler 1 foot (305mm). For split spoon samples where full penetration is not achieved, the number of blows is reported over the sampler penetration in millimeters (e.g. 50/75).

STRATA PLOT

Strata plots symbolize the soil or bedrock description. They are combinations of the following basic symbols:



WATER LEVEL MEASUREMENT



Open Borehole or Test Pit



Monitoring Well, Piezometer or Standpipe

SAMPLE TYPE

SS	Split spoon sample (obtained from the Standard Penetration Test)	BS	Bulk sample
TW	Thin Wall Sample or Shelby Tube	WS	Wash sample
PS	Piston sample	HQ, NQ, BQ, etc.	Rock core samples obtained with the use of standard size diamond drilling bits.
GS	Grab sample		
AS	Auger sample		
VT	Vane Test		

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH1

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING March 27, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	282.4	Snow/Grass			0							
	282.2	200 mm black, Silty CLAY with organics (TOPSOIL), moist	F		1	SS	1	230 610	8			
	281.6	Black/brown, firm, Silty CLAY (FILL), some sand and gravel, rootlets, moist	F		2							
1					3	SS	2	530 610	22			
		Brown, compact to very dense, SAND, some cobbles, trace silt and gravel, trace rootlets in upper 300 mm, moist			4							
	280.7	- grey			5							
2					6	SS	3	530 610	56			
					7							
					8	SS	4	460 610	64			
3					9							
					10							
					11							
					12							
					13							
					14							
					15							
					16	SS	5	460 610	57			
5					17							
					18							
					19							
					20							
6					21	SS	6	300 610	63			
	275.7				22							
7		END OF BOREHOLE at 6.71 m			23							
		Borehole dry on completion of drilling.			24							
					25							
8					26							
					27							
					28							
					29							
9					30							
					31							
					32							
10												

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)



JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH2

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING March 27, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	283.4	Snow/Grass			0							
	283.2	270 mm black, Silty CLAY with organics (TOPSOIL)			1	SS	1	460/610	13			
		Black/brown, stiff, Silty CLAY (FILL), with organics and rootlets in upper 300 mm, some sand and gravel, moist			2							
1					3	SS	2	150/610	14			
					4							
	281.6				5							
2		Grey, very dense, SAND, trace silt and gravel, moist			6	SS	3	230/430	50/130			
					7							
					8	SS	4	230/610	72			
3					9							
					10							
					11							
					12							
					13							
					14							
					15							
5					16	SS	5	460/610	67			
					17							
					18							
					19							
6					20							
					21	SS	6	530/610	68			
	276.7				22							
7		END OF BOREHOLE at 6.71 m			23							
		Borehole dry on completion of drilling.			24							
					25							
8					26							
					27							
					28							
					29							
9					30							
					31							
					32							
10												

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)



JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH3

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING March 27, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	283.1	Snow/Grass			0							
	282.9	220 mm black, Silty CLAY iwth organics (TOPSOIL)	F		1	SS	1	610 610	8			
	282.3	Black/brown, firm, Silty CLAY (FILL), with rootlets, some sand and gravel, moist	F		2							
1		Grey, dense to very dense, SAND (TILL), trace silt and gravel, moist			3	SS	2	530 610	41			
					4							
					5							
2					6	SS	3	610 610	38			
					7							
					8							
					9	SS	4	610 610	40			
					10							
					11							
					12							
					13							
					14							
					15							
5					16	SS	5	580 390	73			
					17							
					18							
					19							
6					20							
					21	SS	6	460 610	65			
	276.4	END OF BOREHOLE at 6.71 m			22							
7		Borehole dry on completion of drilling.			23							
					24							
					25							
					26							
					27							
					28							
					29							
					30							
					31							
10					32							

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)


Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH4

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING March 27, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	283.4	Snow/Grass			0							
0	283.2	150 mm black, Silty SAND with organics (TOPSOIL), moist			1	SS	1	460 610	15			
1		Black/brown, compact to loose, Silty SAND (FILL), some clay and gravel, trace rootlets in upper 300 mm (frozen)			2							
1	282.1				3	SS	2	230 610	3			
2		Brown/grey, compact to very dense, SAND, trace gravel and silt, moist			4							
2					5							
2					6	SS	3	460 610	15			
3					7							
3					8							
3					9	SS	4	530 610	35			
4					10							
4					11							
4					12							
4					13							
4					14							
4					15							
5					16	SS	5	610 610	49			
5					17							
5					18							
5					19							
5					20							
5					21	SS	6	610 610	56			
5	276.6				22							
7		END OF BOREHOLE at 6.71 m			23							
7		Borehole dry on completion of drilling.			24							
8					25							
8					26							
8					27							
8					28							
8					29							
8					30							
8					31							
8					32							
10												

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)



JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH5

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING March 27, 2003

WATER LEVEL _____

TPC ELEV. 282.82

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%)
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	282.6	Snow/Grass			0							
	282.4	150 mm black, Silty SAND with organics (TOPSOIL), moist			1	SS	1	460 610	11			
		Brown, compact to loose, Silty SAND (FILL), trace clay and gravel, trace organics and rootlets in upper 300 mm, moist			2							
1	281.3				3	SS	2	610 610	2			
					4							
					5							
					6	SS	3	610 610	18			
					7							
					8							
					9	SS	4	610 610	35			
					10							
					11							
					12							
					13							
					14							
					15							
					16	SS	5	610 610	41			
					17							
					18							
					19							
					20							
					21	SS	6	460 610	70			
	275.9				22							
7		END OF BOREHOLE at 6.71 m			23							
		Borehole dry on completion of drilling.			24							
					25							
					26							
					27							
					28							
					29							
					30							
					31							
					32							
10												

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)



JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH6

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING March 27, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	283.0	Snow/Grass			0							
	282.8	210 mm black, Silty SAND with organics (TOPSOIL), moist			1	SS	1	610 610	8			
		Brown, loose, Silty SAND (FILL), trace clay and gravel, trace rootlets, moist			2							
1					3	SS	2	150 610	5			
	281.7				4							
		Brown, compact to very dense, SAND, trace silt and gravel, trace rootlets in upper 300 mm, moist			5							
2	281.1	- grey			6	SS	3	460 610	12			
					7							
					8							
					9	SS	4	460 610	23			
3					10							
					11							
					12							
4					13							
					14							
					15							
5					16	SS	5	610 610	46			
					17							
					18							
6					19							
					20							
					21	SS	6	610 610	59			
7	276.3	END OF BOREHOLE at 6.71 m			22							
		Borehole dry on completion of drilling.			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)



JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH7

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING March 27, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) / TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	282.8	Snow/Grass			0							
	282.7	150 mm black, Silty CLAY with organics (TOPSOIL), moist			1	SS	1	300 / 610	9			
		Brown, stiff, Silty CLAY (FILL), some sand and gravel, trace organics and rootlets, moist			2							
1		- boulder			3	SS	2	300 / 510	14			
	281.3	Brown, very loose to very dense, SAND, trace silt and gravel, moist			4							
2					5							
					6	SS	3	460 / 610	11			
					7							
					8							
					9	SS	4	300 / 610	15			
3					10							
					11							
					12							
					13							
					14							
					15							
5		- 600 mm very loose seam			16	SS	5	460 / 610	2			
					17							
					18							
					19							
6					20							
	276.4	- grey			21	SS	6	530 / 610	59			
	276.1				22							
7		END OF BOREHOLE at 6.71 m			23							
		Borehole dry on completion of drilling.			24							
					25							
					26							
					27							
					28							
					29							
					30							
					31							
					32							
10												

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)

BH8

PROJECT No. ONT10801

DATUM Geodetic

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)				REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	150	200	
0	283.3	Snow/Grass			0									
0	283.2	150 mm black, Silty CLAY with organics (TOPSOIL)	F		1	SS	1	530 610	8					
1		Dark brown, firm to hard, Silty CLAY (FILL), some sand and gravel (frozen in upper 300 mm) - sand and gravel lense	F		2									
1			F		3									
1			F		4	SS	2	530 610	37					
2	281.8	Grey, dense to very dense, SAND, trace silt and gravel, moist	F		5									
2					6	SS	3	530 610	52					
3					7									
3					8									
3					9	SS	4	610 610	41					
4					10									
4					11									
4					12									
4					13									
4					14									
4					15									
5					16	SS	5	610 610	56					
5					17									
5					18									
5					19									
5					20									
5					21	SS	6	610 610	61					
6	276.6	END OF BOREHOLE at 6.71 m			22									
7		Borehole dry on completion of drilling.			23									
7					24									
7					25									
7					26									
7					27									
7					28									
7					29									
7					30									
7					31									
7					32									

□ Field Vane Test (kPa)

■ Remoulded Vane Test (kPa)

△ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH9

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 15, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%)
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	290.2	Grass			0							
		Dark brown/black, soft to stiff, Silty CLAY (FILL), trace sand, rootlets in upper 300 mm, moist			1	SS	1	430/610	3			
					2							
1					3	SS	2	410/610	10			
					4							
	288.5				5							
2		Brown, compact to very dense, SAND, trace gravel and silt, damp (with clay in upper 300 mm)			6	SS	3	410/610	29			
					7							
					8							
					9	SS	4	360/610	60			
3					10							
					11							
					12							
					13							
					14							
					15							
		- moist			16	SS	5	300/610	70			
5					17							
					18							
					19							
6					20							
	283.6				21	SS	6	300/460	50/150			
7		END OF BOREHOLE at 6.55 m			22							
		Borehole dry on completion of drilling.			23							
					24							
					25							
					26							
					27							
					28							
					29							
					30							
					31							
10					32							

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)



BH10

PROJECT No. ONT10801

DATUM Geodetic

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)				REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL					
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	150	200						
										WATER CONTENT & ATTERBERG LIMITS DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m STANDARD PENETRATION TEST, BLOWS/0.3m									
										W_p	W	W_L							
										10	20	30	40	50	60	70	80	90	100
0	290.6	Grass			0														
		Dark brown, very loose to compact, Silty SAND (FILL), trace clay and gravel, rootlets in upper 300 mm, moist	F		1	SS	1	460 610	3										
			F		2														
			F		3														
1			F		4	SS	2	460 610	5										
		- some clay	F		5														
			F		6	SS	3	460 610	12										
2	288.3		F		7														
		Dark brown, compact to very dense, SAND, some clay and silt, trace gravel, moist (with clay in upper 300 mm)			8	SS	4	410 610	35										
					9														
					10														
					11														
					12														
					13														
					14														
		- trace silt and clay			15														
					16	SS	5	460 610	59										
					17														
					18														
					19														
					20														
6	284.0				21	SS	6	410 460	50/ 150										
7		END OF BOREHOLE at 6.55 m			22														
		Borehole dry on completion of drilling.			23														
					24														
					25														
					26														
					27														
					28														
					29														
					30														
					31														
					32														

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)

 Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH11

CLIENT NORTH AMERICA , ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Bar OntarioDATUM GeodeticDATES: BORING April 15, 20

WATER LEVEL

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLE				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) / TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	9.1	Grass			0							
	288.3	Dark brown, very loose, Silty SAND (FILL), trace rootlets, damp to moist			1	SS	1		3			
					2							
1		Brown, compact to very dense, SAND, trace gravel and silt, damp to moist			3	SS	2		11			
					4							
2					5							
					6	SS	3	460 / 610	40			
					7							
					8	SS	4		59			
					9							
3					10							
					11							
					12							
4					13							
					14							
	284.5	- brown/grey			15							
5					16	SS	5	460 / 460	50 / 150			
					17							
					18							
6					19							
					20							
	282.7				21	SS	6	300 / 300	50 / 150			
7		END OF BOREHOLE at 6.40 m			22							
		Borehole dry on completion of drilling.			23							
					24							
					25							
8					26							
					27							
					28							
9					29							
					30							
					31							
10					32							

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)



SHEET 1 of 2

PROJECT No. ONT10801

DATUM _____ Geodetic

WATER LEVEL

TPC ELEV.

[illegible]

CLIENT NORTH AMERICAN ACQUISITION CORPORATION

PROJECT No. ONT10801

LOCATION Molson Park, Barrie, Ontario

DATUM Geodetic

DATES: BORING April 15, 2003

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)										REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) / TCR(%) / SCR(%)	N-VALUE OR RQD(%)											
10	279.8				33					50 100 150 200 W _p W W _L WATER CONTENT & ATTERBERG LIMITS DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m ▽ STANDARD PENETRATION TEST, BLOWS/0.3m ●										
		Brown, compact to very dense, SAND, trace gravel and silt, damp	[Pattern]		34															
					35															
11	278.8		[Pattern]		36	SS	9	300 / 300	50 / 150											
		END OF BOREHOLE at 10.97 m			37															
		Borehole dry on completion of drilling.			38															
					39															
					40															
					41															
					42															
					43															
					44															
					45															
					46															
					47															
					48															
					49															
					50															
					51															
					52															
					53															
					54															
					55															
					56															
					57															
					58															
					59															
					60															
					61															
					62															
					63															
					64															
					65															

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
 Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH13

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 15, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	288.7	Grass			0							
		Dark brown, Silty SAND (FILL), trace rootlets in upper 300 mm, moist			1	SS	1	200 610	4			
					2							
1					3							
	287.2				4	SS	2	200 610	6			
					5							
2		Brown, compact to very dense, SAND, trace gravel and silt, damp			6	SS	3	300 610	21			
					7							
					8							
					9	SS	4	360 610	52			
3					10							
					11							
					12							
4					13							
					14							
		- moist			15							
5					16	SS	5	510 610	64			
					17							
					18							
6					19							
					20							
	282.2				21	SS	6	250 430	50/ 130			
7		END OF BOREHOLE at 6.53 m			22							
		Borehole dry on completion of drilling.			23							
					24							
					25							
8					26							
					27							
					28							
9					29							
					30							
					31							
10					32							

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH14

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 15, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) / TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	289.6	Grass			0							
		Brown, very loose, SAND (FILL), some silt, trace rootlets in upper 300 mm, moist			1	SS	1	250 / 610	1			
					2							
					3							
1					4	SS	2	300 / 610	1			
	288.1	Brown, dense to very dense, SAND, trace gravel and silt, damp to moist			5							
2					6	SS	3	300 / 610	31			
					7							
					8							
					9	SS	4	360 / 610	44			
3					10							
					11							
					12							
4					13							
					14							
					15							
5					16	SS	5	380 / 460	50 / 150			
				17								
6				18								
				19								
				20								
	283.1			21	SS	6	300 / 450	50 / 140				
7		END OF BOREHOLE at 6.54 m			22							
		Borehole dry on completion of drilling.			23							
					24							
					25							
8					26							
					27							
					28							
					29							
9					30							
					31							
					32							

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)



JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH15

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 14, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	288.7	Grass			0							
		Brown, loose, Silty SAND (FILL), trace rootlets, moist	F F F F		1	SS	1	460 610	4			
					2							
1	287.7	Brown, dense to very dense, SAND, trace gravel and silt, damp			3	SS	2	410 610	37			
					4							
					5							
2					6	SS	3	300 610	61			
					7							
					8	SS	4	460 460	50/ 150			
					9							
					10							
					11							
					12							
					13							
					14							
					15							
5					16	SS	5	430 460	50/ 150			
					17							
					18							
					19							
6		- moist			20							
					21	SS	6	460 460	50/ 150			
	282.1	END OF BOREHOLE at 6.55 m			22							
7		Borehole dry on completion of drilling.			23							
					24							
					25							
					26							
					27							
					28							
					29							
					30							
					31							
10					32							

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH16

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 14, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	289.2	Grass			0							
		Black/brown, loose, Silty SAND (FILL), trace gravel, with rootlets, moist			1	SS	1	460 610	4			
	288.4				2							
1		Brown, compact to very dense, SAND, trace gravel and silt, damp			3	SS	2	360 610	17			
					4							
					5							
2					6	SS	3	360 610	19			
					7							
					8							
					9	SS	4	460 610	57			
3					10							
					11							
					12							
4					13							
					14							
					15							
5					16	SS	5	430 450	50/140			
					17							
					18							
6					19							
	282.8				20							
		END OF BOREHOLE at 6.40 m			21	SS	6	300 300	50/150			
7		Borehole dry on completion of drilling.			22							
					23							
					24							
					25							
8					26							
					27							
					28							
9					29							
					30							
					31							
10					32							

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)



JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH17

SHEET 1 of 2

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 14, 2003WATER LEVEL May 6, 2003TPC ELEV. 288.75

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	288.6	Grass			0							
		Black, loose, Silty SAND with rootlets (TOPSOIL), trace gravel			1	SS	1	510 610	4			
	287.8				2							
1		Brown, compact to very dense, SAND, trace gravel and silt, damp to moist			3	SS	2	360 610	17			
					4							
					5							
2					6	SS	3	410 450	50/ 140			
					7							
					8	SS	4	250 290	50/ 140			
					9							
					10							
					11							
					12							
					13							
					14							
					15							
5					16	SS	5	300 430	50/ 130			
					17							
					18							
					19							
6					20							
					21	SS	6	100 300	50/ 150			
					22							
					23							
					24							
					25							
8					26	SS	7	410 460	50/ 150			
					27							
					28							
					29							
					30							
					31	SS	8	460 460	50/ 150			
					32							

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)

SHEET 2 of 2

TPC ELEV. 288.75[illegible]

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH18

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 14, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	288.7	Grass			0							
		Black, loose, Silty SAND with rootlets (TOPSOIL), moist			1	SS	1	460/610	4			
	288.0				2							
1		Brown, very dense, SAND, trace gravel and silt, damp			3	SS	2	410/610	64			
					4							
					5							
					6	SS	3	300/300	50/150			
2					7							
					8	SS	4	200/290	50/140			
3					9							
					10							
					11							
					12							
					13							
					14							
					15							
					16	SS	5	250/460	50/150			
5					17							
					18							
					19							
					20							
					21	SS	6	460/460	50/150			
	282.2				22							
7		END OF BOREHOLE at 6.55 m			23							
		Borehole dry on completion of drilling.			24							
					25							
					26							
					27							
					28							
					29							
					30							
					31							
					32							
10												

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH19

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 14, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	287.3	Grass			0							
		Brown, loose, SAND (FILL), some silt, trace gravel, trace rootlets in upper 300 mm, damp			1	SS	1					
					2							
					3							
					4	SS	2	300 610	5			
	285.8	Brown, very dense, SAND, trace gravel and silt, damp			5							
					6	SS	3	250 300	50/ 150			
					7							
					8	SS	4	300 430	50/ 130			
					9							
					10							
					11							
					12							
					13							
					14							
					15							
					16	SS	5	360 450	50/ 140			
				17								
				18								
				19								
				20								
	280.8			21	SS	6	250 410	50/ 100				
		END OF BOREHOLE at 6.50 m			22							
		Borehole dry on completion of drilling.			23							
					24							
					25							
					26							
					27							
					28							
					29							
					30							
					31							
					32							

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)



JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH20

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 14, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	288.2	Grass			0							
		Black, loose, Silty SAND (FILL), trace gravel, rootlets in upper 300 mm, damp			1	SS	1	510 610	4			
					2							
1	287.3	Brown, very dense, SAND, trace to with gravel, trace to some silt, damp			3	SS	2	380 610	57			
					4							
					5							
2					6	SS	3	360 460	50/ 150			
					7							
					8							
					9	SS	4	360 610	67			
3					10							
					11							
					12							
4					13							
					14							
					15							
5					16	SS	5	380 460	50/ 150			
					17							
					18							
6					19							
					20							
7	281.7	END OF BOREHOLE at 6.55 m			21	SS	6	410 460	50/ 150			
		Borehole dry on completion of drilling.			22							
					23							
					24							
					25							
8					26							
					27							
					28							
9					29							
					30							
					31							
10					32							

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)



JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH21

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 7, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	286.0	Grass			0							
		Black, SAND with rootlets (TOPSOIL)			1	AS	1					
	285.3				2							
1		Brown, loose, SAND (FILL), trace silt and gravel, moist			3	SS	2	300 610	8			
					4							
					5							
2	284.0				6	SS	3	460 610	9			
		Brown/grey, very dense, SAND, trace to some gravel, trace silt, moist			7							
					8	SS	4	460 610	80			
					9							
3					10							
					11							
					12							
4					13							
					14							
					15							
5					16	SS	5	610 610	76			
					17							
					18							
6					19							
					20							
	279.5				21	SS	6	380 430	50/ 130			
		END OF BOREHOLE at 6.53 m			22							
7		Borehole dry on completion of drilling.			23							
					24							
					25							
8					26							
					27							
					28							
9					29							
					30							
					31							
10					32							

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)



JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH22

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 8, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	285.6	Grass			0							
	284.9	Brown, SAND with rootlets (TOPSOIL) (frozen)			1	AS	1					
1		Brown, loose, SAND (FILL), moist			2							
	284.0				3	SS	2	380 610	9			
					4							
2		Brown, dense to very dense, SAND, trace to some silt and gravel, moist			5							
					6	SS	3	460 610	34			
					7							
					8							
					9	SS	4	530 610	47			
3	282.6	- grey			10							
					11							
					12							
4					13							
					14							
					15							
5					16	SS	5	580 590	68			
					17							
					18							
6					19							
					20							
					21	SS	6	410 610	72			
7	278.8	END OF BOREHOLE at 6.71 m			22							
		Borehole dry on completion of drilling.			23							
					24							
8					25							
					26							
					27							
					28							
9					29							
					30							
					31							
10					32							

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH23

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 7, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	289.8	Grass			0							
		Black, Silty CLAY with rootlets (TOPSOIL) (frozen)			1	AS	1					
	289.0				2							
1		Brown, stiff, Silty CLAY (FILL), with sand, trace gravel, moist			3							
	288.2				4	SS	2	380 610	12			
					5							
2		Brown, compact to very dense, SAND, some gravel, trace silt, moist			6	SS	3	300 610	19			
		- 150 mm silty clay seam			7							
					8	SS	4	230 410	50/100			
					9							
3					10							
		- cobbles			11							
					12							
4					13							
					14							
					15	SS	5	150 280	50/130			
5					16							
					17							
					18							
6					19							
	283.2				20							
					21	SS	6	380 410	50/100			
7		END OF BOREHOLE at 6.50 m			22							
		Borehole dry on completion of drilling.			23							
					24							
8					25							
					26							
					27							
9					28							
					29							
					30							
10					31							
					32							

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)



JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH24

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 7, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	288.3	Grass			0							
		Black, Silty CLAY with rootlets (TOPSOIL) (frozen)			1	AS	1					
	287.7				2							
1		Dark brown, very stiff, Silty CLAY (FILL), some sand, trace gravel, moist			3	SS	2	230 610	24			
	287.1				4							
		Dark brown, loose to dense, SAND, trace gravel and silt, moist - cobbles			5							
2					6	SS	3	150 610	6			
					7							
					8							
		- some gravel			9	SS	4	380 610	23			
3					10							
					11							
					12							
4					13							
					14							
	283.7	- grey			15							
5					16	SS	5	460 610	24			
					17							
					18							
6					19							
					20							
	281.6				21	SS	6	530 610	35			
7		END OF BOREHOLE at 6.71 m			22							
		Borehole dry on completion of drilling.			23							
					24							
8					25							
					26							
					27							
					28							
9					29							
					30							
					31							
10					32							

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 15, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) / TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	284.9	Grass			0							
		Black, loose to compact, Silty SAND (FILL), some clay, rootlets in upper 300 mm, damp			1	SS	1	360 / 610	3			
		- trace clay and gravel			2							
1					3	SS	2	380 / 610	19			
					4							
	283.3	Brown, very dense, SAND, trace gravel and silt, damp			5							
2					6	SS	3	430 / 460	50 / 150			
					7							
					8	SS	4	410 / 460	50 / 150			
3					9							
					10							
					11							
					12							
					13							
					14							
					15							
5					16	SS	5	380 / 610	58			
					17							
					18							
					19							
6					20							
					21	SS	6	410 / 610	61			
					22							
					23							
					24							
					25							
					26	SS	7	300 / 460	50 / 150			
					27							
					28							
					29							
9	275.7	- grey/brown, moist			30	SS	8	300 / 300	50 / 150			
					31							
					32							
10												

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH25

SHEET 2 of 2

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 15, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL			
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR ROD(%)	50	100		150	200	
10	274.8	Grey/brown, very dense, SAND, trace gravel and silt, moist			33										
11	273.7				35	SS	9	360 450	50/ 140						
		END OF BOREHOLE at 11.11 m			36										
		Borehole dry on completion of drilling.			37										
12					38										
					39										
					40										
					41										
					42										
13					43										
					44										
					45										
					46										
					47										
					48										
14					49										
					50										
					51										
					52										
					53										
					54										
					55										
15					56										
					57										
					58										
					59										
					60										
					61										
					62										
					63										
					64										
					65										
20															

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)

BH26

CLIENT NORTH AMERICAN ACQUISITION CORPORATION

PROJECT No. ONT10801

LOCATION Molson Park, Barrie, Ontario

DATUM Geodetic

DATES: BORING April 8, 2003

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)											REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	WATER CONTENT & ATTERBERG LIMITS DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m STANDARD PENETRATION TEST, BLOWS/0.3m											
0	287.1	Grass			0					50100150200 W_p W W_L											
		Black, Silty SAND with rootlets (TOPSOIL)			1	AS	1														
	286.3				2																
1		Brown, compact, Silty SAND (FILL), some clay and gravel, moist			3	SS	2	530 610	16												
	285.5				4																
		Grey, very dense, SAND, trace to some gravel, trace silt, moist			5																
2					6	SS	3	300 430	50/ 130												
					7																
					8	SS	4	230 280	50/ 130												
					9																
3					10																
					11																
					12																
4					13																
					14																
					15																
5					16	SS	5	430 430	50/ 130												
					17																
					18																
6					19																
					20																
	280.5				21	SS	6	380 430	50/ 130												
7		END OF BOREHOLE at 6.53 m			22																
		Borehole dry on completion of drilling.			23																
					24																
8					25																
					26																
					27																
					28																
9					29																
					30																
					31																
10					32																

Field Vane Test (kPa)

Remoulded Vane Test (kPa)

Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH27

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 8, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)										REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)											
0	287.9	Grass			0															
		Black, Silty SAND with rootlets (TOPSOIL)			1	AS	1													
	287.1				2															
1		Brown, very dense, SAND, with gravel, trace silt, moist			3	SS	2	460/610	79											
	286.2				4															
		- grey			5	SS	3	300/410	50/100											
2					6															
					7															
					8	SS	4	430/430	50/130											
					9															
3					10															
					11															
					12															
4					13															
					14															
					15															
5					16	SS	5	530/610	68											
					17															
					18															
6					19															
					20															
	281.2				21	SS	6	300/590	88											
7		END OF BOREHOLE at 6.68 m			22															
		Borehole dry on completion of drilling.			23															
					24															
8					25															
					26															
					27															
					28															
9					29															
					30															
					31															
10					32															

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)



JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH28

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 8, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	290.9	Grass			0							
		Black, Silty SAND with rootlets (TOPSOIL) (frozen)			1	AS	1					
	290.1				2							
1		Brown, loose, Silty SAND (FILL), some clay and gravel, moist	F		3	SS	2	380 610	4			
	289.4		F		4							
		Brown, compact to very dense, SAND, trace silt and gravel, moist			5							
2					6	SS	3	300 610	18			
					7							
					8	SS	4	460 610	56			
					9							
3					10							
					11							
					12							
4					13							
					14							
					15							
5					16	SS	5	380 610	69			
					17							
					18							
6					19							
					20							
	284.4				21	SS	6	300 430	50/ 130			
7		END OF BOREHOLE at 6.53 m			22							
		Borehole dry on completion of drilling.			23							
					24							
					25							
8					26							
					27							
					28							
9					29							
					30							
					31							
10					32							

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)



BH29

PROJECT No. ONT10801

DATUM Geodetic

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)										REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50 100 150 200										
						WATER CONTENT & ATTERBERG LIMITS DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m STANDARD PENETRATION TEST, BLOWS/0.3m										W _p W W _L				
0	290.9	Grass			0															
		Black, Silty CLAY with rootlets (TOPSOIL) (frozen)			1	AS	1													
	290.1				2															
1		Brown, stiff, Silty CLAY (FILL), some sand and gravel in upper 200 mm, trace rootlets in upper 300 mm, moist			3															
					4	SS	2	300 610	10											
					5															
2	288.8				6	SS	3	300 610	11											
					7															
		Brown, very dense, SAND, trace to some gravel, trace silt, moist			8															
	288.0				9	SS	4	460 610	53											
3		- grey			10															
					11															
					12															
					13															
					14															
					15															
5		- trace gravel			16	SS	5	300 590	84											
					17															
					18															
					19															
					20															
	284.2				21	SS	6	530 610	74											
7		END OF BOREHOLE at 6.71 m			22															
		Borehole dry on completion of drilling.			23															
					24															
					25															
					26															
					27															
					28															
					29															
					30															
					31															
					32															

☐ Field Vane Test (kPa)

☒ Remoulded Vane Test (kPa)

☐ Pocket Penetrometer Test (kPa)

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH30

SHEET 1 of 2

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 8, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) / TCR(%)	N-VALUE OR ROD(%)	50	100	
0	292.8	Grass			0							
	292.4	Black, Silty SAND with rootlets (TOPSOIL) (frozen)			1	AS	1					
		Brown, SAND and GRAVEL (FILL), trace silt, moist			2							
1					3	SS	2	380 / 610	14			
	291.4				4							
		Brown, very dense, SAND, trace to some gravel, trace silt, moist			5							
2					6	SS	3	230 / 610	52			
					7							
					8							
					9	SS	4	530 / 610	63			
3					10							
					11							
					12							
4					13							
					14							
					15							
5	287.9	- grey			16	SS	5	380 / 410	50 / 100			
					17							
					18							
6					19							
					20							
					21	SS	6	380 / 430	50 / 130			
7					22							
					23							
					24							
					25							
8					26	SS	7	380 / 410	50 / 100			
					27							
					28							
9					29							
					30							
					31	SS	8	430 / 430	50 / 130			
10					32							

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)



JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH30

SHEET 2 of 2

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 8, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL		
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100		150	200
10	282.8	Grey, very dense, SAND, trace to some gravel, trace silt, moist			33									
11	281.9	END OF BOREHOLE at 10.95 m			35	SS	9	280 280	50/ 130	0				
12		Borehole dry on completion of drilling.			36									
					37									
					38									
13		Standpipe installed to a depth of 10.67 m.			39									
					40									
					41									
		Standpipe dry on May 6, 2003.			42									
					43									
					44									
					45									
					46									
					47									
					48									
					49									
					50									
					51									
					52									
					53									
					54									
					55									
					56									
					57									
					58									
					59									
					60									
					61									
					62									
					63									
					64									
					65									

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH31

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 9, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	293.5	Grass			0							
		Black, Silty CLAY with rootlets (TOPSOIL)			1	AS	1					
	292.7				2							
1		Brown, stiff, Silty CLAY (FILL), some sand, trace gravel, moist			3	SS	2	300 610	11			
	291.9				4							
2		Brown, very dense, SAND, trace silt and gravel, moist			5							
					6	SS	3	230 560	66			
					7							
					8							
					9	SS	4	530 610	77			
					10							
					11							
					12							
					13							
					14							
					15							
		- some gravel			16	SS	5	280 280	50/ 130			
					17							
					18							
					19							
					20							
					21	SS	6	530 590	90			
	286.8				22							
7		END OF BOREHOLE at 6.68 m			23							
		Borehole dry on completion of drilling.			24							
					25							
					26							
					27							
					28							
					29							
					30							
					31							
					32							

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)



JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH32

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 9, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	294.0	Grass			0							
		Black, Silty SAND with rootles (TOPSOIL)			1	AS	1					
	293.2				2							
1		Brown, compact to very dense, SAND, some silt, trace gravel, wet			3	SS	2	530 610	16			
					4							
					5							
2					6	SS	3	530 610	19			
					7							
					8							
					9	SS	4	300 610	32			
3					10							
					11							
					12							
4		- cobbles			13							
					14							
					15	SS	5	150 230	50/ 76			
5					16							
					17							
					18							
6					19							
	287.7				20	SS	6	130 130	50/ 130			
		END OF BOREHOLE at 6.22 m			21							
7		Borehole dry on completion of drilling.			22							
					23							
					24							
8					25							
					26							
					27							
					28							
9					29							
					30							
					31							
10					32							

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH34

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 3, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) / TCR(%)	N-VALUE OR RQD(%)	50	100	
0	291.8	Grass			0							
	291.3	Brown, Silty SAND with rootlets (TOPSOIL)			1	AS	1					
1		Brown, compact, Silty SAND (FILL), wet to moist			2							
			3	SS	2	460 / 610	13					
			4									
			5									
			6	SS	3	510 / 610	11					
2	289.5	Brown, compact, SAND, trace to some gravel and silt, dry			7							
			8	SS	4	300 / 610	24					
			9									
			10									
			11									
			12									
			13									
			14									
			15	SS	5	250 / 290	50 / 140					
			16									
5					17							
					18							
					19							
6					20							
	285.2				21	SS	6	410 / 450	50 / 140			
7		END OF BOREHOLE at 6.54 m			22							
		Borehole dry on completion of drilling.			23							
			24									
			25									
			26									
			27									
			28									
			29									
			30									
			31									
			32									
10												

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)



JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH35

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 3, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	292.6	Grass			0							
		125 mm brown, Silty SAND with rootlets (TOPSOIL)			1	SS	1	250 610	15			
	291.9	Brown, compact, Silty SAND (FILL), trace rootlets, moist			2							
1		Brown/grey, compact to very dense, SAND, some gravel and silt, wet			3	SS	2	460 610	20			
		- 75 mm sandy silt seam, wet			4							
2					5							
					6	SS	3	150 610	15			
					7							
					8							
					9	SS	4	410 610	25			
3					10							
					11							
					12							
4					13							
					14							
		- with silt, moist			15							
5					16	SS	5	250 250	50/ 100			
					17							
					18							
6					19							
					20							
	286.2	END OF BOREHOLE at 6.38 m			21	SS	6	250 280	50/ 130			
7					22							
					23							
					24							
					25							
8					26							
					27							
					28							
					29							
9					30							
					31							
10					32							

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH36

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 3, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	291.0	Grass			0							
	290.9	150 mm brown, Silty SAND with rootlets (TOPSOIL)			1	SS	1	300/610	6			
		Brown, loose, Silty SAND (FILL), trace rootlets in upper 300 mm, damp			2							
1					3	SS	2	330/610	7			
					4							
		- silt seam			5							
2					6	SS	3	410/610	11			
					7							
	288.6	Brown, dense to very dense, SAND, trace gravel and silt, damp			8	SS	4	510/610	41			
3					9							
					10							
					11							
4					12							
					13							
					14							
		- some gravel			15	SS	5	200/280	50/130			
5					16							
					17							
					18							
6					19							
	284.8	END OF BOREHOLE at 6.22 m			20	SS	6	130/130	50/130			
7		Borehole dry on completion of drilling.			21							
					22							
					23							
					24							
8					25							
					26							
					27							
					28							
9					29							
					30							
					31							
10					32							

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)



JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH37

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 3, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	291.7	Grass			0							
		50 mm TOPSOIL			1	SS	1	300/610	8			
		Brown, loose to compact, Silty SAND (FILL), some gravel, trace rootlets in upper 300 mm, moist			2							
1					3	SS	2	380/610	13			
					4							
					5							
2					6	SS	3	300/610	5			
	289.4				7							
		Brown, compact to very dense, SAND, trace to with silt, damp			8	SS	4	300/610	25			
3					9							
					10							
					11							
					12							
4					13							
					14							
		- some gravel			15	SS	5	200/280	50/130			
5					16							
					17							
					18							
					19							
6					20							
	285.3				21	SS	6	150/280	50/130			
		END OF BOREHOLE at 6.38 m			22							
7		Borehole dry on completion of drilling.			23							
					24							
					25							
8					26							
					27							
					28							
					29							
9					30							
					31							
10					32							

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH38

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 3, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	293.6	Grass			0							
	293.1	Brown, Silty SAND with rootlets (TOPSOIL)			1	SS	1	360 610	5			
1		Brown, loose to very dense, Silty SAND (FILL), wet - 100 mm topsoil lense			2							
	292.0				3	SS	2	410 610	5			
					4							
2		Brown, compact to very dense, SAND, some silt and gravel, damp			5							
					6	SS	3	300 610	56			
					7							
					8							
					9	SS	4	300 610	19			
3					10							
					11							
					12							
4					13							
					14							
		- moist			15	SS	5	250 280	50/ 130			
5					16							
					17							
					18							
6					19							
	287.2	END OF BOREHOLE at 6.38 m			20	SS	6	250 280	50/ 130			
7		Borehole dry on completion of drilling.			21							
					22							
					23							
					24							
					25							
8					26							
					27							
					28							
9					29							
					30							
					31							
10					32							

☐ Field Vane Test (kPa)
☐ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH39

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 3, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR ROD(%)	50	100	
0	292.0	Grass			0							
	291.8	150 mm brown, Silty SAND with rootlets (TOPSOIL)			1	SS	1	380 610	12			
1		Brown, Silty SAND (FILL), trace rootlets and organics, moist			2							
					3	SS	2	250 610	14			
					4							
2	289.8				5							
		Brown, dense to very dense, SAND, some silt, moist			6	SS	3	610 610	12			
					7							
					8							
					9	SS	4	460 610	33			
3					10							
					11							
4					12							
					13							
					14							
					15	SS	5	250 250	50/ 100			
5					16							
					17							
					18							
6					19							
		- some gravel			20	SS	6	150 250	50/ 100			
	285.6	END OF BOREHOLE at 6.35 m			21							
7					22							
					23							
					24							
					25							
8					26							
					27							
					28							
9					29							
					30							
					31							
10					32							

☐ Field Vane Test (kPa)

☒ Remoulded Vane Test (kPa)

☐ Pocket Penetrometer Test (kPa)

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH40

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 7, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	294.6	Grass			0							
		Black, Silty SAND with rootlets (TOPSOIL) (upper 300 mm frozen)			1	AS	1					
	293.9				2							
1		Brown, compact, SAND (FILL), some gravel, trace silt and clay, wet			3	SS	2	300/610	10			
					4							
	292.8				5							
2		Grey, compact to very dense, SAND, some silt, trace gravel, wet			6	SS	3	530/610	19			
					7							
					8							
					9	SS	4	150/610	18			
3					10							
					11							
					12							
4					13							
					14							
					15							
5		- some clay, moist			16	SS	5	610/610	35			
					17							
					18							
6					19							
					20							
	288.1	- some clay			21	SS	6	410/410	50/100			
		END OF BOREHOLE at 6.50 m			22							
7					23							
					24							
					25							
8					26							
					27							
					28							
9					29							
					30							
					31							
10					32							

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)



JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH41

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 2, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	293.1	Grass			0							
	292.8	300 mm black, SAND with rootlets (TOPSOIL)			1	SS	1	460 610	11			
		Dark brown, compact, SAND (FILL), some gravel, trace silt, trace organics, moist			2							
1					3	SS	2	300 610	10			
	291.7				4							
		Brown, compact to very dense, SAND, trace silt and gravel, wet			5							
2					6	SS	3	380 610	19			
	290.8				7							
		- grey			8							
					9	SS	4	610 610	30			
3					10							
					11							
					12							
4					13							
					14							
					15	SS	5	150 230	50/76			
5		- moist			16							
					17							
					18							
6					19							
	286.8				20	SS	6	150 230	50/76			
		END OF BOREHOLE at 6.32 m			21							
7					22							
					23							
					24							
					25							
8					26							
					27							
					28							
9					29							
					30							
					31							
10					32							

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)



JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH42

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 2, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	297.0	Grass			0							
	296.6	300 mm black, SAND with rootlets (TOPSOIL)			1	SS	1	150 610	8			
1		Dark brown, compact to very dense, SAND (FILL), trace silt and gravel, trace organics, moist			2							
					3	SS	2	300 610	9			
					4							
2		- wet			5							
	294.7				6	SS	3	230 610	7			
					7							
3		Grey, SAND, trace silt and gravel, moist			8	SS	4	530 610	25			
		- some clay			9							
					10							
					11							
					12							
					13							
					14							
	292.1				15							
5		- brown, some gravel			16	SS	5	380 410	50/100			
					17							
					18							
6					19							
	290.6				20	SS	6	150 250	50/100			
		END OF BOREHOLE at 6.35 m			21							
7		Borehole dry on completion of drilling.			22							
					23							
					24							
					25							
8					26							
					27							
					28							
					29							
					30							
					31							
10					32							

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)



BH43

PROJECT No. ONT10801

DATUM _____ Geodetic

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)											REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50 100 150 200											
						WATER CONTENT & ATTERBERG LIMITS DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m STANDARD PENETRATION TEST, BLOWS/0.3m															
0	296.5	Grass			0																
	296.2	300 mm black, SAND with rootlets (TOPSOIL)			1	SS	1	460/610	19												
		Grey, compact to very dense, SAND (FILL), trace silt and gravel, moist			2																
		- with silt			3	SS	2	300/610	54												
					4																
					5																
					6	SS	3	300/610	48												
					7																
					8																
					9	SS	4	300/610	12												
		- trace rootlets			10																
		- cobbles			11																
					12																
	292.5	Grey, very dense, SAND, some gravel, trace silt, moist			13																
					14																
					15																
					16	SS	5	300/410	50/100												
		- cobbles			17																
					18																
					19																
					20																
	290.0				21	SS	6	100/430	50/130												
		END OF BOREHOLE at 6.53 m			22																
		Borehole dry on completion of drilling.			23																
					24																
					25																
					26																
					27																
					28																
					29																
					30																
					31																
					32																

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH44

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 2, 2003WATER LEVEL May 6, 2003TPC ELEV. 297.65

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR ROD(%)	50	100	
0	296.2	Grass			0							
	296.0	200 mm black, Silty SAND with rootlet (TOPSOIL)			1	SS	1	460/610	7			
	295.7	Dark brown, loose, SAND (FILL), trace silt and gravel, moist			2							
1		Grey, compact to very dense, SAND, trace to some silt, trace gravel, moist			3	SS	2	300/610	13			
		- wet			4							
2					5							
					6	SS	3	380/610	15			
					7							
					8							
					9	SS	4	380/610	34			
3					10							
					11							
					12							
					13							
		- 175 mm silty clay seam, moist			14							
					15	SS	5	150/280	50/130			
5					16							
					17							
					18							
					19							
		- moist			20							
					21	SS	6	430/430	50/130			
	289.5				22							
7		END OF BOREHOLE at 6.71 m			23							
		Borehole dry on completion of drilling.			24							
					25							
					26							
8		Standpipe installed to a depth of 6.71 m.			27							
					28							
					29							
					30							
					31							
					32							
10												

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)



JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH45

SHEET 1 of 2

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 9, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	296.3	Grass			0							
		Black, Silty SAND with rootlets (TOPSOIL) (frozen)			1	AS	1					
	295.7				2							
1		Brown, compact, Silty SAND (FILL), some clay and gravel, moist	F F		3							
	295.1				4	SS	2	230 610	10			
		Brown, very dense, SAND, with gravel, trace silt, moist			5							
2					6	SS	3	610 610	77			
					7							
					8	SS	4	300 430	50/ 130			
					9							
3					10							
					11							
					12							
4					13							
					14							
					15							
5		- trace gravel			16	SS	5	430 430	50/ 130			
					17							
					18							
6	290.2	- grey			19							
					20							
					21	SS	6	380 380	50/ 76			
7					22							
					23							
					24							
					25							
8					26	SS	7	580 590	76			
					27							
					28							
9					29							
					30							
					31	SS	8	380 430	50/ 100			
10					32							

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)



SHEET 2 of 2

PROJECT No. ONT10801

DATUM Geodetic

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)										REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)											
10	286.3				33					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 ●										
		Grey, very dense, SAND, with gravel, trace silt, moist			34															
					35	X SS	9	280 280	50/ 130											
11	285.4	END OF BOREHOLE at 10.95 m			36															
		Borehole dry on completion of drilling.			37															
					38															
					39															
					40															
					41															
					42															
					43															
					44															
					45															
					46															
					47															
					48															
					49															
					50															
					51															
					52															
					53															
					54															
					55															
					56															
					57															
					58															
					59															
					60															
					61															
					62															
					63															
					64															
					65															

□ Field Vane Test (kPa)
 ■ Remoulded Vane Test (kPa)
 △ Pocket Penetrometer Test (kPa)

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH46

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 2, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	297.9	Grass			0							
		Black, Silty SAND with rootlets (TOPSOIL)			1	SS	1	300 610	14			
	297.1				2							
1		Grey, compact, SAND (FILL), some silt, trace gravel, trace rootlets, moist			3	SS	2	380 610	14			
					4							
					5							
2					6	SS	3	380 610	13			
					7							
	295.4				8							
		Grey, compact to very dense, SAND, trace gravel and silt, moist			9	SS	4	460 610	29			
3					10							
					11							
					12							
4					13							
		- some clay			14							
					15							
5					16	SS	5	460 610	34			
					17							
					18							
6					19							
		- some gravel			20							
	291.3				21	SS	6	380 510	53			
7		END OF BOREHOLE at 6.60 m			22							
		Borehole dry on completion of drilling.			23							
					24							
					25							
8					26							
					27							
					28							
9					29							
					30							
					31							
10					32							

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH47

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 2, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	298.1	Grass			0							
		Black, Silty SAND with rootlets (TOPSOIL)			1	SS	1	380 610	16			
	297.3				2							
1		Grey, compact to very dense, SAND, trace silt and gravel, moist			3	SS	2	610 610	25			
					4							
					5							
2					6	SS	3	530 610	26			
					7							
					8							
					9	SS	4	300 610	64			
3					10							
					11							
					12							
4					13							
					14							
					15							
5		- some gravel			16	SS	5	300 590	64			
					17							
					18							
6					19							
					20							
	291.4				21	SS	6	610 610	80			
7		END OF BOREHOLE at 6.71 m			22							
		Borehole dry on completion of drilling.			23							
					24							
8					25							
					26							
					27							
					28							
9					29							
					30							
					31							
10					32							

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)



JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH48

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING March 31, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	294.8	Grass			0							
		Black, Silty SAND with rootlets (TOPSOIL)			1	SS	1	460 610	15			
	294.0				2							
1		Brown, SAND, with gravel, trace silt, moist			3	SS	2	300 610	27			
					4							
					5							
2					6	SS	3	300 430	50/ 130			
					7							
		- trace gravel			8	SS	4	530 610	68			
					9							
					10							
					11							
					12							
					13							
					14							
					15	SS	5	280 280	50/ 130			
					16							
					17							
					18							
					19							
					20							
	288.3				21	SS	6	300 430	50/ 130			
		END OF BOREHOLE at 6.53 m			22							
7		Borehole dry on completion of drilling.			23							
					24							
					25							
					26							
					27							
					28							
					29							
					30							
					31							
					32							

☐ Field Vane Test (kPa)
☐ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH49

SHEET 1 of 2

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 9, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	298.4	Grass			0							
		Black/brown, Silty SAND with rootlets (TOPSOIL) (frozen)			1	AS	1					
	297.6				2							
1		Brown, loose, SAND (FILL), trace silt and gravel, wet			3	SS	2	300 610	7			
	296.9				4							
2		Brown/grey, compact to very dense, SAND, trace gravel and silt, moist to wet			5							
					6	SS	3	530 610	36			
					7							
					8							
					9	SS	4	610 610	52			
3					10							
					11							
					12							
4					13							
					14							
		- some clay			15							
5					16	SS	5	610 610	39			
					17							
					18							
6					19							
		- some clay			20							
					21	SS	6	460 610	29			
7					22							
					23							
					24							
		- with gravel			25							
8					26	SS	7	610 610	91			
					27							
					28							
9					29							
					30	SS	8	150 230	50/ 76			
					31							
10					32							

☐ Field Vane Test (kPa)
☐ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)



CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 9, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL		
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100		150	200
10	288.4	Brown/grey, compact to very dense, SAND, trace gravel and silt, moist to wet			33									
11	287.5	END OF BOREHOLE at 10.92 m			35	SS	9	230 250	50 100					
		Borehole dry on completion of drilling.			36									
					37									
					38									
					39									
					40									
					41									
					42									
					43									
					44									
					45									
					46									
					47									
					48									
					49									
					50									
					51									
					52									
					53									
					54									
					55									
					56									
					57									
					58									
					59									
					60									
					61									
					62									
					63									
					64									
					65									

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH50

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 2, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	297.0	Grass			0							
	296.7	300 mm black, SAND with rootlets (TOPSOIL)			1	SS	1	460/610	5			
1		Brown, loose to compact, SAND (FILL), some silt, trace gravel, trace rootlets in upper 300 mm, moist			2							
					3	SS	2	300/610	13			
					4							
2	295.0	- some clay			5							
		Grey, compact to very dense, SAND, some silt, trace gravel, moist			6	SS	3	300/610	4			
		- some clay			7							
3		- cobbles			8	SS	4	380/610	10			
					9							
4					10							
					11							
					12							
					13							
		- with gravel, trace silt, moist			14							
5		- cobbles			15	SS	5	230/280	50/130			
					16							
					17							
					18							
					19							
6					20							
	290.6				21	SS	6	230/280	50/130			
		END OF BOREHOLE at 6.38 m			22							
7		Borehole dry on completion of drilling.			23							
					24							
					25							
					26							
					27							
					28							
					29							
					30							
					31							
10					32							

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)



JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH51

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING March 31, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	293.8	Grass			0							
		Black, Silty CLAY with rootlets (TOPSOIL)			1	SS	1	150 610	6			
	293.0				2							
1		Brown, soft, Silty CLAY (FILL), some sand, trace gravel, moist			3	SS	2	300 610	3			
					4							
	292.1				5							
2		Brown, compact to very dense, SAND, some clay and silt, trace gravel, moist			6	SS	3	460 610	22			
					7							
					8							
					9	SS	4	150 390	56			
3					10							
					11							
					12							
4					13							
					14							
		- trace silt			15	SS	5	150 280	50/ 130			
5					16							
					17							
					18							
6					19							
	287.4				20	SS	6	150 230	50/ 76			
		END OF BOREHOLE at 6.32 m			21							
7		Borehole dry on completion of drilling.			22							
					23							
					24							
					25							
8					26							
					27							
					28							
					29							
9					30							
					31							
10					32							

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)



JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH52

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 2, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	296.7	Grass			0							
	296.1	Black, Silty SAND with rootlets (TOPSOIL)			1	SS	1	230 610	10			
1		Brown, dense to very dense, SAND, some gravel, trace silt, trace rootlets in upper 200 mm, moist			2							
			3	SS	2	610 610	49					
			4									
			5	SS	3	150 280	50/ 130					
			6									
			7									
			8	SS	4	580 590	80					
			9									
			10									
			11									
		12										
		13										
		14										
		15	SS	5	250 280	50/ 130						
		16										
		17										
		18										
		19										
		20										
	290.0	END OF BOREHOLE at 6.68 m			21	SS	6	430 590	84			
7		Borehole dry on completion of drilling.			22							
			23									
			24									
			25									
			26									
			27									
			28									
			29									
			30									
			31									
			32									
10												

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH53

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING March 31, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) / TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	293.0	Grass			0							
	292.7	Black, Silty SAND with rootlets (TOPSOIL)			1	SS	1	460 / 610	7			
		Dark brown, Silty SAND (FILL), some clay, trace gravel, trace rootlets, wood chips, moist			2							
1					3							
	291.7				4	SS	2	380 / 610	6			
					5							
2		Brown, compact to very dense, SAND, with gravel, trace silt, moist (with clay in upper 300 mm)			6	SS	3	380 / 610	23			
					7							
					8							
					9	SS	4	300 / 610	62			
3					10							
					11							
					12							
4					13							
					14							
					15							
5					16	SS	5	300 / 430	50 / 130			
					17							
					18							
6					19							
					20							
	286.5	- trace gravel			21	SS	6	300 / 430	50 / 130			
		END OF BOREHOLE at 6.53 m			22							
7					23							
		Borehole dry on completion of drilling.			24							
					25							
8					26							
					27							
					28							
9					29							
					30							
					31							
10					32							

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)

BH54

CLIENT NORTH AMERICAN ACQUISITION CORPORATION

PROJECT No. ONT10801

LOCATION Molson Park, Barrie, Ontario

DATUM Geodetic

DATES: BORING March 31, 2003

WATER LEVEL

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)											REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50 100 150 200											
0	296.9	Snow/Grass			0					WATER CONTENT & ATTERBERG LIMITS DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m STANDARD PENETRATION TEST, BLOWS/0.3m											
		Black, Silty CLAY with rootlets (TOPSOIL)			1	SS	1	150 610	8												
	296.1				2																
1		Dark brown, firm, Silty CLAY (FILL), some sand and gravel, trace rootlets, moist			3	SS	2	230 610	7												
	295.3				4																
		Brown, very dense, SAND, with gravel, trace silt, moist			5																
2					6	SS	3	300 610	66												
					7																
					8	SS	4	380 410	50/100												
					9																
3					10																
					11																
					12																
4					13																
					14																
					15																
5		- trace gravel			16	SS	5	460 560	64												
					17																
					18																
6					19																
					20																
	290.4				21	SS	6	300 410	50/100												
7		END OF BOREHOLE at 6.50 m			22																
		Borehole dry on completion of drilling.			23																
					24																
8					25																
					26																
					27																
					28																
9					29																
					30																
					31																
10					32																

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)

BH55

PROJECT No. ONT10801

DATUM Geodetic

TPC ELEV.

[illegible]

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH56

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING March 31, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	296.8	Snow/Grass			0							
	296.7	Black, Silty SAND with rootlets (TOPSOIL)			1	SS	1	460 610	5			
		Brown, Silty SAND (FILL), trace gravel and clay, trace rootlets in upper 300 mm, moist			2							
1					3	SS	2	300 610	9			
	295.5	Grey, dense to very dense, SAND, some clay and silt, trace gravel, moist			4							
					5							
2					6	SS	3	460 610	32			
		- 150 mm grey sand seam			7							
					8							
					9	SS	4	380 610	33			
					10							
					11							
					12							
					13							
	292.3	- grey, with gravel, trace silt			14							
					15	SS	5	150 250	50/100			
5					16							
					17							
					18							
					19							
6					20							
	290.5				21	SS	6	150 280	50/130			
		END OF BOREHOLE at 6.38 m			22							
7		Borehole dry on completion of drilling.			23							
					24							
					25							
					26							
					27							
					28							
					29							
					30							
					31							
					32							
10												

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)


Jacques Whitford

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 9, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	291.7	Grass			0							
	291.4	Black, SAND with rootlets (TOPSOIL) (frozen)			1	AS	1					
		Brown, loose, SAND (FILL), trace silt and gravel, moist			2							
1					3	SS	2	230 610	4			
	290.2				4							
					5							
2		Grey, compact to very dense, SAND, trace silt and clay, trace gravel, wet - some clay, moist			6	SS	3	380 610	13			
					7							
					8	SS	4	460 610	15			
					9							
3					10							
					11							
					12							
4					13							
					14							
	287.1	- brown			15							
5					16	SS	5	460 610	75			
					17							
					18							
6					19							
					20							
					21	SS	6	300 410	50/ 100			
					22							
7					23							
					24							
					25	SS	7	230 280	50/ 130			
8					26							
					27							
					28							
9					29							
					30	SS	8	230 280	50/ 130			
					31							
10					32							

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)



CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 9, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
10	281.7				33							
		Brown, compact to very dense, SAND, trace silt and clay, trace gravel, wet			34							
					35							
11	280.8				36	SS	9	230/280	50/130			
		END OF BOREHOLE at 10.95 m			37							
		Borehole dry on completion of drilling.			38							
12					39							
					40							
					41							
					42							
13					43							
					44							
					45							
14					46							
					47							
					48							
15					49							
					50							
					51							
16					52							
					53							
					54							
17					55							
					56							
					57							
18					58							
					59							
					60							
19					61							
					62							
					63							
					64							
20					65							

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)



JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH63

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING March 28, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	300.1	Snow/Grass			0							
	299.6	450 mm black, SAND with rootlets (TOPSOIL)			1	SS	1	460 610	4			
1		Brown, loose to compact, SAND (FILL), trace silt and gravel, moist			2							
					3							
					4	SS	2	300 610	6			
					5							
					6							
2	298.2	Grey, compact to very dense, SAND, some silt, moist			6	SS	3	460 610	19			
					7							
					8							
					9	SS	4	300 610	50			
					10							
					11							
					12							
					13							
					14							
					15							
5		- wet			16	SS	5	610 610	48			
					17							
					18							
					19							
6		- with silt			20							
					21	SS	6	610 610	43			
	293.3				22							
7		END OF BOREHOLE at 6.71 m			23							
		Borehole dry on completion of drilling.			24							
					25							
					26							
					27							
					28							
					29							
					30							
					31							
10					32							

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH64

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING March 28, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	299.4	Snow/Grass			0							
	299.3	150 mm brown, SAND with rootlets (TOPSOIL)			1	SS	1	300 610	22			
		Brown, very dense to loose, SAND (FILL), with gravel in upper 300 mm, trace rootlets in upper 300 mm, moist			2							
1					3	SS	2	300 610	57			
					4							
					5							
2		- trace gravel			6	SS	3	300 610	9			
					7							
		- trace gravel			8							
	296.5				9	SS	4	300 610	6			
3		Grey, very dense, SAND, trace silt and gravel, moist			10							
					11							
					12							
4					13							
					14							
					15							
5		- some clay			16	SS	5	460 610	46			
					17							
					18							
6					19							
		- some silt, moist			20							
	292.9				21	SS	6	380 430	50/ 130			
7		END OF BOREHOLE at 6.53 m			22							
		Borehole dry on completion of drilling.			23							
					24							
					25							
					26							
					27							
					28							
					29							
					30							
					31							
10					32							

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)



JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH65

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING March 28, 2003

WATER LEVEL _____

TPC ELEV: _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	297.4	Snow/Grass			0							
	297.2	Black, Silty SAND with rootlets (TOPSOIL)			1	SS	1	150 610	3			
		Brown, loose, Silty SAND (FILL), some gravel, trace rootlets, moist to wet			2							
1					3	SS	2	300 610	7			
	295.9				4							
		Grey, compact to dense, SAND, trace silt and gravel, wet			5							
2					6	SS	3	530 610	22			
					7							
					8							
					9	SS	4	610 610	37			
3					10							
					11							
					12							
4					13							
					14							
					15							
5		- some clay			16	SS	5	610 610	24			
					17							
					18							
6					19							
					20							
	290.9				21	SS	6	360 360	50/51			
7		END OF BOREHOLE at 6.45 m			22							
		Borehole dry on completion of drilling.			23							
					24							
8					25							
					26							
					27							
					28							
9					29							
					30							
					31							
10					32							

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)



SHEET 2 of 2

PROJECT No. ONT10801

DATUM Geodetic

TPC ELEV.

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)										REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)											
10	287.3				33					WATER CONTENT & ATTERBERG LIMITS DYNAMIC CONE PENETRATION TEST, BLOWS/0.3m STANDARD PENETRATION TEST, BLOWS/0.3m										
11	286.4	Grey, compact to very dense, SAND, trace silt and gravel, moist			34															
					35	XSS	9	150/230	50/76											
11		END OF BOREHOLE at 10.90 m			36															
		Borehole dry on completion of drilling.			37															
					38															
12					39															
					40															
					41															
					42															
13					43															
					44															
					45															
14					46															
					47															
					48															
15					49															
					50															
					51															
16					52															
					53															
					54															
17					55															
					56															
					57															
18					58															
					59															
					60															
19					61															
					62															
					63															
20					64															
					65															

Jacques Whitford

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH67

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM Geodetic

DATES: BORING _____

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0		Grass			0							
		Black, Silty SAND with rootlets (TOPSOIL) (frozen)			1							
					2							
1		Brown, compact to very dense, SAND (FILL), trace silt and gravel, moist			3							
					4							
		ABANDONED BOREHOLE			5							
2		Encountered 150 mm diameter PVC water pipe at 1.5 m depth.			6							
					7							
					8							
					9							
3					10							
					11							
					12							
4					13							
					14							
					15							
5					16							
					17							
					18							
6					19							
					20							
					21							
7					22							
					23							
					24							
					25							
8					26							
					27							
					28							
9					29							
					30							
					31							
10					32							

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)



JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH68

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 10, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)										REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)											
0	300.2	Grass			0															
		Black, Silty SAND with rootlets (TOPSOIL) (frozen)			1	AS	1													
	299.5				2															
1		Brown, loose, SAND (FILL), trace silt and gravel, moist			3	SS	2	150 610	8											
					4															
					5															
2					6	SS	3	300 610	3											
					7															
					8															
					9															
3	297.2				10															
		Grey, very dense, SAND, some silt, trace gravel, moist			11	SS	4	460 590	81											
					12															
4					13															
					14															
					15															
5					16	SS	5	460 610	38											
					17															
					18															
					19															
6					20															
					21	SS	6	460 610	38											
	293.5				22															
7		END OF BOREHOLE at 6.71 m			23															
		Borehole dry on completion of drilling.			24															
					25															
8					26															
					27															
					28															
					29															
9					30															
					31															
					32															
10																				

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)



JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH69

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 11, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	299.5	Grass			0							
		Black, Silty SAND with rootlets (TOPSOIL) (frozen)			1	AS	1					
	298.7				2							
1		Grey, compact to very dense, SAND, trace silt and gravel, moist			3	SS	2	300 610	14			
		- some silt			4							
					5							
2					6	SS	3	300 610	56			
					7							
					8							
					9	SS	4	460 610	54			
3					10							
					11							
					12							
4					13							
					14							
					15							
5					16	SS	5	530 610	44			
					17							
					18							
6					19							
					20							
					21	SS	6	610 610	60			
	292.8	- some silt, trace clay, wet			22							
7		END OF BOREHOLE at 6.71 m			23							
		Borehole dry on completion of drilling.			24							
					25							
8					26							
					27							
					28							
9					29							
					30							
					31							
10					32							

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)



JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH70

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 11, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	299.5	Grass			0							
		Black, Silty SAND with rootlets (TOPSOIL) (frozen)			1	AS	1					
	298.8				2							
1		Brown, loose, SAND (FILL), trace silt and gravel, moist			3	SS	2	460 610	4			
	298.0				4							
2		Brown, SAND, trace silt and gravel, moist			5	SS	3	460 610	33			
					6							
					7							
					8	SS	4	300 610	46			
					9							
3					10							
					11							
					12							
4					13							
					14							
		- some clay			15							
5					16	SS	5	610 610	29			
					17							
					18							
6					19							
		- some clay			20							
	292.8				21	SS	6	460 610	58			
					22							
7		END OF BOREHOLE at 6.71 m			23							
		Borehole dry on completion of drilling.			24							
8					25							
					26							
					27							
					28							
9					29							
					30							
					31							
10					32							

☐ Field Vane Test (kPa)
☐ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)



JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH71

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 11, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	300.5	Grass			0							
		Black, Silty SAND with rootlets (TOPSOIL) (frozen), grass			1	AS	1					
	299.8				2							
1		Brown, compact, SAND (FILL), trace silt and gravel, moist			3	SS	2	610 610	13			
	299.0				4							
					5							
2		Grey, compact to very dense, SAND, trace silt and gravel, moist			6	SS	3	610 610	19			
		- wet			7							
					8							
					9	SS	4	460 610	13			
3					10							
					11							
					12							
4					13							
		- some silt and clay			14							
					15							
5					16	SS	5	610 610	52			
					17							
					18							
					19							
6		- some clay			20							
					21	SS	6	610 610	38			
	293.8				22							
7		END OF BOREHOLE at 6.71 m			23							
		Borehole dry on completion of drilling.			24							
					25							
8					26							
					27							
					28							
9					29							
					30							
					31							
10					32							

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)



JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH72

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 14, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	299.3	Grass			0							
		Brown, very loose to loose, SAND (FILL), trace silt, trace rootlets in upper 330 mm, damp	F F F F F F F F F F		1	SS	1	410 610	2			
					2							
					3							
1					4	SS	2	410 610	6			
	297.8				5							
		Brown, compact to dense, SAND, trace silt, moist to damp	F F F F F F F F F F		6	SS	3	300 610	33			
2	297.0				7							
		- grey			8							
					9	SS	4	360 610	30			
3					10							
					11							
					12							
4					13							
					14							
					15							
5					16	SS	5	300 300	50/ 150			
					17							
					18							
6					19							
					20							
	292.6				21	SS	6	460 610	63			
7		END OF BOREHOLE at 6.71 m			22							
		Borehole dry on completion of drilling.			23							
					24							
8					25							
					26							
					27							
					28							
9					29							
					30							
					31							
10					32							

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)



CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 10, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	300.0	Grass			0							
		Black, Silty SAND with rootlets (TOPSOIL) (frozen)			1	AS	1					
	299.3				2							
1		Brown, loose, SAND (FILL), trace silt and gravel, moist			3	SS	2	300 610	8			
	298.5				4							
					5							
2		Grey, compact to very dense, SAND, trace to some silt, trace clay, moist - wet			6	SS	3	460 610	44			
					7							
					8	SS	4	380 610	23			
					9							
3					10							
					11							
					12							
4					13							
					14							
		- with silt			15							
5					16	SS	5	610 610	45			
					17							
					18							
6					19							
		- 400 mm silt seam, some sand, trace clay, moist			20							
					21	SS	6	610 610	48			
					22							
7					23							
					24							
					25							
8		- some clay			26	SS	7	380 610	46			
					27							
					28							
9					29							
		- some gravel			30	SS	8	150 230	50/76			
					31							
10					32							

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 10, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
10	290.0				33							
		Grey, compact to very dense, SAND, trace to some silt, trace clay, moist			34							
	289.1				35	SS	9	150/230	50/76			
11		END OF BOREHOLE at 10.90 m			36							
		Borehole dry on completion of drilling.			37							
					38							
12					39							
					40							
					41							
					42							
13					43							
					44							
					45							
14					46							
					47							
					48							
15					49							
					50							
					51							
16					52							
					53							
					54							
17					55							
					56							
					57							
18					58							
					59							
					60							
19					61							
					62							
					63							
					64							
20					65							

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)



JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH74

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 10, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	299.4	Grass			0							
		Black, Silty SAND with rootlets (TOPSOIL) (frozen)			1	AS	1					
	298.8				2							
1		Brown, loose, SAND (FILL), trace silt and gravel, moist			3	SS	2	300 610	9			
	297.9				4							
2		Brown, compact to dense, SAND, trace silt and gravel, moist			5							
	297.1				6	SS	3	25 610	12			
		- grey, wet			7							
					8	SS	4	460 610	31			
3					9							
					10							
					11							
					12							
					13							
					14							
					15							
5		- some silt			16	SS	5	460 610	36			
					17							
					18							
					19							
					20							
					21	SS	6	530 610	28			
	292.7				22							
7		END OF BOREHOLE at 6.71 m			23							
					24							
					25							
					26							
					27							
					28							
					29							
					30							
					31							
					32							
10												

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH75

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 10, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	299.8	Grass			0							
	299.5	Black, SAND with rootlets (TOPSOIL) (frozen)			1	AS	1					
		Brown, compact, SAND (FILL), trace silt and gravel, moist			2							
1					3							
	298.3				4	SS	2	300 610	17			
					5							
2		Grey, compact to very dense, SAND, trace silt and gravel, moist			6	SS	3	460 610	16			
					7							
					8							
					9	SS	4	460 610	50			
3					10							
					11							
					12							
4					13							
					14							
	295.3	- wet			15							
5					16	SS	5	610 610	27			
					17							
					18							
6		- some silt			19							
					20							
	293.1				21	SS	6	610 610	64			
7		END OF BOREHOLE at 6.71 m			22							
					23							
					24							
					25							
8					26							
					27							
					28							
9					29							
					30							
					31							
10					32							

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)



JACQUES WHITFORD LIMITED

BOREHOLE RECORD

BH33

CLIENT NORTH AMERICAN ACQUISITION CORPORATIONPROJECT No. ONT10801LOCATION Molson Park, Barrie, OntarioDATUM GeodeticDATES: BORING April 7, 2003

WATER LEVEL _____

TPC ELEV. _____

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	SAMPLES				UNDRAINED SHEAR STRENGTH (kPa)		REMARKS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
						TYPE	NUMBER	RECOVERY (mm) TCR(%) / SCR(%)	N-VALUE OR RQD(%)	50	100	
0	293.1	Grass			0							
		Black, Silty SAND with rootlets (TOPSOIL) (frozen)			1	AS	1					
	292.3				2							
1		Brown, loose, Silty SAND (FILL), some clay, trace gravel, moist			3	SS	2	230 610	5			
					4							
					5							
2					6	SS	3	300 610	8			
	290.8				7							
		Brown, compact to very dense, SAND, trace to some silt and clay, trace gravel, moist			8	SS	4	300 610	18			
3					9							
		- cobbles			10							
4					11							
					12							
					13							
					14							
					15	SS	5	230 280	50/ 130			
5					16							
					17							
					18							
6					19							
					20							
	286.5				21	SS	6	430 430	50/ 130			
		END OF BOREHOLE at 6.53 m			22							
7		Borehole dry on completion of drilling.			23							
					24							
					25							
8					26							
					27							
					28							
9					29							
					30							
					31							
10					32							

☐ Field Vane Test (kPa)
☒ Remoulded Vane Test (kPa)
☐ Pocket Penetrometer Test (kPa)



APPENDIX D

Geotechnical Laboratory Test Results
(May 2003)

