Geotechnical Engineering

Environmental Engineering

Hydrogeology

Geological Engineering

Materials Testing

Building Science

Archaeological Services

Paterson Group Inc.
Consulting Engineers
154 Colonnade Road South
Ottawa (Nepean), Ontario
Canada K2E 7J5

Tel: (613) 226-7381
Fax: (613) 226-6344
www.patersongroup.ca

patersongroup

Geotechnical Investigation

Proposed Barrhaven South
Urban Expansion Area
Community Design Plan
Barnsdale Road
Ottawa, Ontario

Prepared For

Minto Communities Inc.

February 7, 2017

Report: PG3607-1 Revision 3

TABLE OF CONTENTS

PAGE

1.0 Introduction 1

2.0 Method of Investigation
- 2.1 Field Investigation 2
- 2.2 Field Survey 3
- 2.3 Laboratory Testing 4

3.0 Existing Conditions
- 3.1 Surface Conditions 5
- 3.2 Subsurface Profile 6
- 3.3 Groundwater 11

4.0 Discussion
- 4.1 Geotechnical Assessment 14
- 4.2 Future Closure of Aggregate Extraction Pits 14
- 4.3 Foundation Design 16
- 4.4 Design for Earthquakes 17
- 4.5 Groundwater Control 17
- 4.6 Stormwater Management Facility 18
- 4.7 Slope Stability Review 18

5.0 Constraints and Opportunities 20

6.0 Statement of Limitations 21

APPENDICES

Appendix 1
Soil Profile and Test Data Sheets
Symbols and Terms
Grain Size Distribution Sheets

Appendix 2
Figure 1 - Key Plan
Figures 2 to 7 - Slope Stability Sections
Photographs from Field Investigation
Drawing PG3607-1 - Test Hole Location Plan
Drawing PG3607-2 - Surficial Geology
Drawing PG3607-3 - Regional Bedrock Mapping
Drawing PG3607-4 - Drift Thickness
Drawing PG3607-5 - Aggregate Resources Inventory of the City of Ottawa
Drawing PG3607-6 - Seismic Site Class

1.0 Introduction

Paterson Group Inc. (Paterson) was commissioned by Minto Communities Inc. (Minto) to conduct a geotechnical investigation for the proposed Barrhaven South Urban Expansion Area - Community Design Plan located over portions of several existing properties at 3713 and 3872 Greenbank Road, 3713 and 3809 Borrisokane Road (Formally Cedarview Road) and 3882 Barnsdale Road, in the City of Ottawa (refer to Figure 1 - Key Plan presented in Appendix 2). The findings of our hydrogeological investigation, which was completed in conjunction with our geotechnical investigation, are presented under a separate cover (Paterson Report PG3757-1).

The objectives of the current investigation were to:

- ❑ Determine the subsoil and groundwater conditions at this site by means of a subsurface investigation consisting of boreholes and test pits.

- ❑ Provide geotechnical recommendations for the design of the proposed development including construction considerations which may affect the design.

The following report has been prepared specifically and solely for the aforementioned project which is described herein. Investigating the presence or potential presence of contamination on the proposed development was not part of the scope of work. Therefore, the present report does not address environmental issues.

2.0 Method of Investigation

2.1 Field Investigation

Field Program

The field program for the current investigation was carried out between November 17 and December 10, 2016. At that time, a total of 30 boreholes and 125 test pits, were advanced to depths ranging from 2.6 to 9.8 m below existing ground surface. The test hole locations for the current investigation were distributed in a manner to provide general coverage of the proposed urban expansion area and adjacent properties along Barnsdale Road between Borrisokane Road (Formally Cedarview Road) and Greenbank Road. Previous investigations were carried out in October 2003 and December 2011 where 27 test pits were advanced to depths ranging from 2.7 to 7 m between the two previous investigations. The locations of all the test holes are illustrated on Drawing PG3607-1 - Test Hole Location Plan, included in Appendix 2.

The boreholes were advanced using a track-mounted auger drill rig operated by a two-person crew. The drilling procedure consisted of augering to the required depths at the selected locations, while sampling and testing the overburden. The test pits were advanced using a rubber tire backhoe.

A supplemental field investigation was carried on July 14 and 15, 2016 and July 19 to July 21, 2016 for the supplemental hydrogeological study completed as per city review comments. A 83 mm diameter auger hole was excavated using a Riverside/Bucket auger to a depth of 0.3 m and a second auger hole was excavated to a depth of 0.6 m at 18 locations for the recommended permeameter testing and five (5) monitoring wells were installed to a maximum depth of 16.7 m. During the permeameter testing, all soil from the auger flights were visually inspected and initially classified on site. A composite soil sample was collected from the two separate auger hole locations and submitted for a sieve analysis. The fieldwork was conducted under the full-time supervision of Paterson personnel under the direction of a senior engineer. Results of the sieve analysis are presented in Table 1.

Sampling and In Situ Testing

Soil samples were recovered from the test pit sidewalls and within the boreholes from the auger flights or using a 50 mm diameter split-spoon sampler. The depths at which the grab, auger and split spoon samples were recovered from the test holes are shown as G, AU and SS, respectively, on the Soil Profile and Test Data sheets presented in Appendix 1.

The Standard Penetration Test (SPT) was conducted in conjunction with the recovery of the split-spoon samples. The SPT results are recorded as "N" values on the Soil Profile and Test Data sheets. The "N" value is the number of blows required to drive the split-spoon sampler 300 mm into the soil after a 150 mm initial penetration using a 63.5 kg hammer falling from a height of 760 mm.

All soil samples were classified on site, placed in sealed plastic bags and were transported to our laboratory for further review and testing.

Subsurface conditions observed in the test holes were recorded in detail in the field. Reference should be made to the Soil Profile and Test Data sheets presented in Appendix 1 for specific details of the soil profile encountered at the test hole locations.

Groundwater

Flexible polyethylene standpipes were installed in selected boreholes to permit the monitoring of groundwater levels subsequent to the completion of the field program. Monitoring wells, using 50 mm diameter PVC screen and risers were installed at BH 1-15, 5-15, 8-15, 9-15, 10-15, 11-15, 14-15, 17-15, 18-15, 19-15, 21-15, 23-15, 26-15, 29-15 and BH 31-16 to 36-16 across the site to provide the means to conduct in situ permeability testing for our hydrogeological investigation and long term groundwater level monitoring. The in-situ permeability testing results will be reported under separate cover.

Sample Storage

All samples will be stored in the laboratory for a period of one month after issuance of this report. They will then be discarded unless we are otherwise directed.

2.2 Field Survey

The test hole locations were selected by Paterson personnel in a manner to provide general coverage of the proposed urban expansion area and adjacent areas with future development potential while taking into consideration underground utilities and site features. The borehole locations and ground surface elevations at the borehole locations were provided by Stantec Geomatics and are referenced to geodetic datum. The test pit locations were located through the use of a handheld GPS device and elevation data inferred from City of Ottawa basemap ground surface contours (+/- 0.5 m). The locations and ground surface elevations of the test holes are presented on Drawing PG3607-1 - Test Hole Location Plan, in Appendix 2.

2.3 Laboratory Testing

The soil samples recovered from the subject site were visually examined in our laboratory to review the results of the field logging. Fifteen (15) split spoon and five (5) test pit grab samples were submitted for grain size analyses. The testing was performed in general accordance with ASTM C117 Test Method for Materials Finer Than 75-m (No. 200) Sieve in Mineral Aggregates by Washing and ASTM C136 - Test Method for Sieve Analysis of Fine and Coarse Aggregates. The results of the grain size analysis testing are presented in Subsection 3.2 and in the Grain Size Distribution sheets in Appendix 1.

Soil samples from selected borehole locations were subjected to water content testing, in general accordance with ASTM D2216-05 Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass. The results of the moisture content testing are presented in the Soil Profile Test Data sheets in Appendix 1.

3.0 Existing Conditions

3.1 Surface Conditions

The subject site is a mix of undeveloped, former agricultural land, forested areas and the location of an on-going aggregate extraction operation. The south portion of the CDP consists of former agricultural fields that are separated by mature trees. Fill piles of varying material have been placed at several locations across the subject site. Two aggregate extraction operations are underway within the north portion of the CDP area (Brazeau - Todd Pit and Drummond - Costello Pit). The boundary of the area licensed under the Aggregate Resources Act is presented in Drawing PG3607-1 - Test Hole Location Plan. The timeline estimation for the future closure of the aggregate extraction operations is presented in Subsection 4.1. Residential developments currently under construction followed by Greenbank Road are located to the east of the CDP area. Barnsdale Road is located to the south and Borrisokane Road (Formally Cedarview Road) is located to the west of the subject site. Photographs of the surface conditions taken during our field investigation are presented in Appendix 2.

The subject parcels have significant topographical relief. The ground surface elevation within the central portion of the CDP lands is approximately ±110 m at its highest, along the west side is at 107 to ±109 m, and drops to 101 to ±104 m in the southeast portion of the parcel. Multiple fill piles and large areas currently excavated to several meters below original grade were observed within the east portion of the CDP lands. The aggregate extraction operations are anticipated to be several meters below the grade of the surrounding parcels based on our cursory observations.

The areas investigated that lie outside of the CDP lands consists of former agricultural fields that are divided by mature trees within the land parcel to the west of the CDP lands. A forested area and shallow pond were observed within the southwest corner of the west parcel. Topographical relief extends in a south and west direction with elevations reaching 99.7 to ±102 m, respectively. The land parcel to the east consists of former agricultural fields with the majority of the mature trees removed. Several existing residences were observed within the east parcel along Barnsdale Road.

3.2 Subsurface Profile

Inside CDP Area

Generally, the sub-surface profile encountered at the test hole locations was noted to consist of a sandy topsoil, or fine grained soil with significant root matting at ground surface followed by a predominantly coarse-grained deposit of till, glacial fluvial and silty fine sand and/or sandy silt. A silty sand overlying a silty clay was encountered within a small portion of the eastern CDP area. Silty sand deposits were encountered intermittently across the CDP lands.

Reference should be made to the Soil Profile and Test Data sheets in Appendix 1 for the details of the soil profile encountered at each test hole.

Silty Fine Sand

The predominantly coarse grained soils within the subject development parcel consist of silty fine sand, sandy silt. The coarse grained soils were noted to be mixed with gravel, cobbles and boulders at several locations.

A total of Eighteen (18) grab samples were collected from test pits completed as part of the supplemental hydrogeological study and submitted for grain size analysis. During 2015, a total of ten (10) split spoon samples and three (3) test pit grab samples were submitted for grain size analyses. Previous investigations included twelve (12) grab samples from test pit locations. The results are presented in Table 1 and on the Grain Size Distribution sheets in Appendix 1. The textural descriptions of the samples are indicated under the Classification heading, along with the Unified Soil Classification. Tested samples varied from SP to SM to ML.

The results of the SPTs indicate that the state of compaction of these coarse-grained soils is predominantly within the compact to very dense ranges.

Table 1 - Grain Size Distribution - Inside CDP Area

Sample	Gravel (%)	Sand (%)	Silt and Clay (%)	Classification
BH 5-15 SS10	13.6	47.3	39.1	SM - Silty sand with gravel
BH9-15 SS8	0	89.9	10.1	SP-SM - Poorly graded sand with silt
BH11 SS8 & 9	11.2	49.4	39.4	SM - Silty sand, some gravel
BH17-15 SS9	23.9	68.3	7.8	SW-SM - Well graded sand with silt and gravel
BH1-15 SS9	0	93	7	SP-SM - Poorly graded sand with silt
BH21-15 SS10 & 11	11.8	56.3	31.9	SM - silty sand, some gravel
BH27-15 SS7	0	48	52	ML - Sandy silt
TP7-15 G2	16.3	79.5	4.2	SP - Poorly graded sand with gravel
TP20-15 G3	26.3	43	30.7	SM - Silty sand with gravel
TP31A-15 G2	47.8	50.1	2.1	SW - Well graded sand with gravel
TP6-11 G14	0	89.9	10.1	Fine sand, some silt
TP7-11 G18	0	43.9	56.1	Sandy silt/silty sand
TP8-11 G20	0	98.2	1.8	Fine sand
TP9-11 G21	19.2	65	15.8	Sand-gravel, some silt
TP10-11 G26	5.2	60.3	34.5	Silty sand
TP5-03 G1	49.8	45.4	4.8	Granular B Type I
TP5-03 G2	0	97.7	2.3	Sand
TP10-03 G1	44.3	48.1	7.6	Granular B Type I
TP10-03 G2	0	97.2	2.8	Sand
TP13-03 G2	2.3	96.3	1.4	Granular B Type I
TP14-03 G1	54.2	42.4	3.4	Granular B Type I
BH24-15 SS5	14.4	47.1	38.5	SM - Silty sand, some gravel

Table 1 (Continued) - Grain Size Distribution - Inside CDP Area

Sample	Gravel (%)	Sand (%)	Silt and Clay (%)	Classification
BH29-15 SS12	23.7	45.6	30.7	SM - Silty sand with gravel
TP11-11 G28	68.3	30	1.7	Sand-gravel
SA 1	0.4	93.5	6.1	SP-SM - Poorly Graded Sand with Silt
SA 2	13.2	75	11.8	SP-SM - Poorly Graded Sand with Silt
SA 3	0.4	90.3	9.3	SW-SM - Well Graded Sand with Silt
SA 4	39.4	56	4.6	SP - Poorly Graded Sand with Gravel
SA 5	2	90	8	SP-SM - Poorly Graded Sand with Silt
SA 6	0.2	93.6	6.2	SP-SM - Poorly Graded Sand with Silt
SA 7	21.4	69.8	8.8	SW-SM - Well Graded Sand with Silt and Gravel
SA 8	5.6	75.7	18.7	SM - Silty Sand
SA 9	20	74.9	5.1	SP-SM - Poorly Graded Sand with Silt and Gravel
SA 10	18.8	70.7	10.5	SW-SM - Well Graded Sand with Silt and Gravel
SA 11	4.2	73.1	22.7	SM - Silty Sand
SA 12	3.2	78.4	18.4	SM - Silty Sand
SA 13	8	58.7	33.3	SM - Silty Sand
SA 14	18.1	75.9	6	SP-SM - Poorly Graded Sand with Silt and Gravel
SA 15	26.4	65.3	8.3	SW-SM - Well Graded Sand with Silt and Gravel
SA16	1.7	91.3	7	SP-SM - Poorly Graded Sand with Silt
SA17	0.9	68.8	7.3	SM - Silty Sand
SA18	11.2	66.9	21.9	SM - Silty Sand

Fill

An area of loose fill was encountered at BH5-15 that extends the depth of the borehole and consists of silty sand with clay and gravel. Very dense brown silty sand with cobbles and boulder fill was encountered within the area around BH36-16, extending to a depth of 2.9 m below existing ground surface.

Bedrock

Based on digital geological mapping produced by Natural Resources Canada, sourced from the Geological Survey of Canada, the bedrock in this area consists of dolomite of the Oxford formation with an overburden drift thickness of 15 to 25 m depth. Relevant mapping for surficial soils and bedrock geology and drift thickness within the subject site are presented in Appendix 2.

Outside CDP Area

The areas investigated outside of the CDP area was considered to provide a better characterization of the area subsurface conditions and groundwater elevation and direction within the CDP lands. Therefore, the test hole findings from our study completed outside of the CDP area are detailed below and in Appendix 1. The ground surface outside the CDP zone is covered by a sandy topsoil and/or agricultural soils. Below the abovenoted soils, the soil profile encountered at the test hole locations consists predominantly of coarse-grained deposits of till, silty fine sand and/or sandy silt with occurrences of silty clay to the west of the CDP within the upper 3 m of the test pits and within boreholes encountering glacial till with a silty clay matrix. A glacial till with silty sand to sandy silt matrix was encountered within the northern portion of the west parcel and transitions to a silty sand to sandy silt heading south.

Within the east parcel, a glacial till with silty sand matrix was encountered with some areas overlying a silty sand deposit

Reference should be made to the Soil Profile and Test Data sheets in Appendix 1 for the details of the soil profile encountered at each test hole.

Silty Clay

Within the south area of the west parcel, localized silty clay layers were noted in the areas of TP79-15 to TP82-15. The silty clay is typically overlain by a silty sand layer. The thickness of the silty clay at the borehole locations within this part of the site ranged from 1.5 to 3.0 m from ground surface.

Silty Fine Sand

The predominantly coarse grained soils within the subject development parcel consist of silty fine sand, sandy silt. The silty sand, sandy silt deposits were noted to contain gravel, cobbles and boulders at several locations.

Six (6) split spoon samples and two (2) test pit grab samples were submitted for grain size analyses. Previous investigations included five (5) test pit grab sample. The results are presented in Table 1 and on the Grain Size Distribution sheets in Appendix 1. The textural descriptions of the samples are indicated under the Classification heading, along with the Unified Classification. Tested samples varied from SP to SM to ML.

The results of the SPTs indicate that the state of compaction of these coarse-grained soils is predominantly within the compact to very dense ranges.

Table 2 - Grain Size Distribution - Outside CDP Area

Sample	Gravel (%)	Sand (%)	Silt and Clay (%)	Classification
BH2-15 SS7	0	86.1	13.9	SM - Silty sand
BH14-15 SS11	0	90.7	9.3	SP-SM - Poorly graded sand with silt
BH18-15 SS11 &SS13	0	24.9	75.1	ML - Silt with sand
BH19-15 SS12	0	19.6	80.4	ML - Silt with sand
BH25-15 SS6	0	46	54	ML - Sandy silt
BH26-15 SS7&SS8	0	25.6	74.4	ML - Silt with sand
TP35-15 G2	0	90.5	9.5	SP-SM - Poorly graded sand with silt
TP55-15 G2	0	88.4	11.6	SP-SM - Poorly graded sand with silt
TP5-11 G11	0	98.3	1.7	Fine sand
TP3-11 G6	0	41	59	Sandy silt
TP3-11 G6	0	41	59	Sandy silt
TP1-11 G2	0	47.7	52.3	Silty sand
TP7 G1	50.8	48.6	0.6	Granular B Type I

There were a few localized zones within the deposits that appeared, based on their SPT "N" values to be within the loose range. These loose zones were generally confined within compact to dense deposits, but were located below the groundwater level. These zones were often associated with "running sands", where a "quick" condition is created at the base of the auger casing due to the auger casing diameter associated with typical soil drilling operations, and the actual state of compaction of the soil can be underestimated by the SPT. The adjacent parcel to the east of the CDP zone previously underwent a modified field program to investigate similar localized zones with low SPT "N" values and assess whether or not the low values were due to the drilling methods. In several instances "sister" boreholes were put down to further investigate the "running sand" conditions and/or the low SPT "N" values, which can occur due to the relatively large auger casing size of hollow stem augers. The modified drilling procedure in these instances generally consisted of advancing the sister borehole using wash boring methods, so the casing was full of water to prevent the occurrence of "quick" conditions. In each case, this method yielded significantly higher N values and indicated that the low N values were due to the sampling conditions, rather than indicative of loose soil.

The regional aggregate mapping has been provided within Drawing PG3607-5 - Aggregate Resources Inventory of the City of Ottawa from the Ontario Geological Survey ARIP 191.

Bedrock

Based on digital geological mapping produced by Natural Resources Canada, sourced from the Geological Survey of Canada, the bedrock in this area consists of dolomite of the Oxford formation with an overburden drift thickness of 15 to 25 m depth.

3.3 Groundwater

The measured groundwater levels in the boreholes from the current and previous investigations are presented in Table 3 on the following page.

Table 3: Summary of Groundwater Level Readings

Borehole Number	Ground Elevation, m	Groundwater Levels, m		Recording Date
		Depth	Elevation	
BH 1-15	105.75	Dry to 9.14	-	May 3, 2016
BH 2-15	104.86	6.58	98.28	May 3, 2016
BH 3-15	109.77	Dry to 5.27	-	May 3, 2016
BH 4-15	111.09	Dry to 9.75	-	May 3, 2016
BH 5-15	108.75	Dry to 9.14	-	May 3, 2016
BH 6-15	102.59	Dry to 4.40	-	May 3, 2016
BH 7-15	102.30	Damaged	-	May 3, 2016
BH 8-15	106.93	7.49	99.44	May 3, 2016
BH 9-15	106.70	Dry to 2.30	-	May 3, 2016
BH 10-15	110.71	Dry to 9.38	-	May 3, 2016
BH 11-15	105.82	1.83	103.99	May 3, 2016
BH 12-15	105.26	Dry to 7.79	-	May 3, 2016
BH 13-15	102.74	3.64	99.10	May 3, 2016
BH 14-15	103.47	3.62	99.85	May 3, 2016
BH 15-15	103.56	7.11	96.45	May 3, 2016
BH 16-15	107.24	Dry to 7.34	-	May 3, 2016
BH 17-15	107.97	Dry to 9.05	-	May 3, 2016
BH 18-15	101.08	0.99	100.09	May 3, 2016
BH 19-15	103.99	6.25	97.74	May 3, 2016
BH 20-15	107.88	Dry to 7.60	-	May 3, 2016
BH 21-15	102.47	6.03	96.44	May 3, 2016
BH 22-15	101.71	5.40	96.31	May 3, 2016
BH 23-15	98.90	3.28	95.62	May 3, 2016
BH 24-15	98.36	3.60	94.76	May 3, 2016
BH 25-15	99.56	1.80	97.76	May 3, 2016
BH 26-15	100.07	1.84	98.23	May 3, 2016
BH 27-15	101.30	4.20	97.10	May 3, 2016
BH 28-15	104.64	Damaged	-	May 3, 2016
BH 28A-15	104.65	Damaged	-	May 3, 2016
BH 29-15	102.14	5.59	96.55	May 3, 2016
BH 30-15	99.45	3.74	95.71	May 3, 2016

Table 3: Summary of Groundwater Level Readings (Continued)

Borehole Number	Ground Elevation, m	Groundwater Levels, m		Recording Date
		Depth	Elevation	
BH 31-16	108.99	13.02	95.97	42578
BH 32-16	103.48	7.37	96.11	42578
BH 33-16	110.04	9.46	100.58	42578
BH 34-16	107.46	11.4	96.06	42578
BH 35-16	105.41	9.36	96.05	42578
BH 36-16	109.08	12.95	96.13	42578

4.0 Discussion

4.1 Geotechnical Assessment

Based on the results of the geotechnical investigation, the subject site is suitable, from a geotechnical perspective, for the proposed development. It is anticipated that conventional shallow foundations would be suitable for low rise, wood framed housing and commercial buildings constructed within the CDP area. No permissible grade raise restriction is required from a geotechnical perspective due to the absence of a silty clay deposit within the current CDP area based on the existing test hole coverage. It is further understood that park areas, school and a park and ride area are also anticipated within the CDP area, which are all suitable to be constructed within the subject CDP area.

Municipal services are anticipated within the subject site and will be completed mostly through OHSA Type 2 and 3 soils. Where excavations extend below the groundwater level, high groundwater infiltration rates should be anticipated. To further address the groundwater issues on site, Paterson is completing a series of groundwater level readings at the monitoring wells installed at the borehole locations and has completed hydraulic conductivity testing at selected well locations. The results of our groundwater review along with historical area groundwater information will be issued under separate cover (Paterson Report PG3757-1).

As part of our current study, a slope stability analysis was completed for the slopes observed along the existing aggregate extraction operations. The results of our analysis are presented in Subsection 4.6.

The above and other considerations are further discussed in the following sections.

4.2 Future Closure of Aggregate Extraction Pits

The aggregate extraction areas known as the Drummond Costello Pit and Brazeau Todd Pit are utilized for the excavation and supply of sand and gravel. Both aggregate extraction areas have been in operation well before 1990 and continue to operate to supply pit sand and gravel for the Ottawa area. Based on what is currently known of the existing aggregate extraction pits and the remaining operations, the following closure summary is provided:

- ❏ Since the current aggregate extraction pits are in close proximity to existing residential and commercial developed lands, the aggregate extraction operations are expected to continue for at least another 10 years based on the

availability of the resource materials remaining in the pits.

- Once the aggregate extraction operation is completed, consideration will be given to the closure of the pits. In doing so, it is expected that the sites will accept clean fill to backfill most of the area. The source of fill material will be generated based on construction activities in the immediate area and throughout the western portion of the Ottawa area due to the proximity of Highway 416. The time required to fill these pits will be at least 10 to 15 years due to the massive areas.

- The disposal of clean fill material to backfill the pits is another source of revenue for the pit operators over the long term. Furthermore, the land value also increases when the pits are closed and level with the surrounding grades.

- Once the pits are in-filled, it is expected that a moratorium on development will be applied to these areas to permit the soil placed as backfill in these areas to consolidate. Furthermore, the moratorium will most likely be a condition applied by MNR for the closure of an aggregate extraction license. In the best case scenario, a 5 year moratorium would be applied to these site.

Therefore, for the closure plan to be completed and the land becoming available for re-development, it is expected that 25 to 30 years will be required.

Future Redevelopment of the Pit Areas

Following the closure of the existing pits, consideration for the redevelopment of the pit areas will have to consider the following issues:

- It is expected that the backfill of the pits will be using secondary quality materials from excess soil being transported to the subject site from off-site developments. The material will most likely be end dumped and spread using a bulldozer. The backfilled areas are expected to have loose to slightly compact material. Therefore, the material would not be considered suitable as an engineered fill capable of supporting conventional residential or commercial development.

- Due to the depth of the backfill within the pits (8 to 10 m below the existing surrounding grades), ground improvement techniques will be required to enable development. Techniques such as dynamic compaction, surcharging and/or rapid impact compaction will be required to prepare the subsoil to support light development. Ground improvement techniques are expensive.

- The re-development of the subject site would be more suitable as parkland, stormwater management facilities and/or commercial development when fronting close to Highway 416. Ground improvement techniques would be required for building structures while more conventional compaction methods would be possible for parks and SWMF.

Although the closure of the pits will provide land that can be developed, the aforementioned constraints will result in expensive re-development land for residential land use. Therefore, commercial development would most likely be considered if structures were contemplated. The use of the site as parkland or a storm water management facility would be a more logical use.

4.3 Foundation Design

Bearing Resistance for Shallow Foundations

Conventional shallow footings should be founded on undisturbed, soil bearing surface or engineered granular fill materials placed over undisturbed soil subgrade surface.

An undisturbed soil bearing surface consists of one from which all topsoil and deleterious materials, such as loose, frozen or disturbed soil, whether in situ or not, have been removed, in the dry, prior to the placement of concrete for footings.

Footings placed on undisturbed, compact silty sand or glacial till bearing surface can be designed using a bearing resistance value at serviceability limit states (SLS) of **150 kPa** and a factored bearing resistance value at ultimate limit states (ULS) of **250 kPa**. A geotechnical resistance factor of 0.5 has been applied to the above noted bearing resistance at ULS value. These values should be confirmed by field review by geotechnical personnel at the time of construction.

Note that the allowable soil pressure for working stress design can be taken to be equal to the bearing resistance at SLS value, as noted above, for the appropriate bearing medium.

Where the placing of engineered granular fill is required, to establish the bearing medium, the bearing resistance values can be taken to be equivalent to the bearing resistance values of the parent subgrade soil, as detailed above, provided OPSS Granular B Type II or Granular A materials, compacted to a minimum of 98% of their SPMDD values are used and approved by the geotechnical consultant at the time of construction.

Settlement

Footings designed using the above-noted bearing resistance value at SLS will be subjected to potential post-construction total and differential settlements of 25 and 20 mm, respectively. These are the generally accepted tolerable settlement values for wood-frame residential construction.

4.4 Design for Earthquakes

The site class for seismic site response can be taken as Class D for the foundations considered at this site. Reference should be made to the latest revision of the Ontario Building Code for a full discussion of the earthquake design requirements. The seismic site classification mapping from the Geological Survey of Canada (Open File 6273) has been included within Drawing PG3607-6 - Seismic Site Classification mapping.

Based on the current information, including the level of the existing groundwater table, grain size distribution and compactness of the underlying sand layer, the soil underlying the subject site is not susceptible to liquefaction.

4.5 Groundwater Control

The contractor should be prepared to direct water away from all bearing surfaces and subgrades, regardless of the source, to prevent disturbance to the founding medium. It is anticipated that pumping from open sumps will be sufficient to control the groundwater influx through the sides of shallow excavations.

A temporary Ministry of the Environment and Climate Change (MOECC) permit to take water (PTTW) may be required for this project if more than 400,000 L/day of ground and/or surface water is to be pumped during the construction phase. A minimum 4 to 5 months should be allowed for completion of the PTTW application package and issuance of the permit by the MOECC.

For typical ground or surface water volumes, being pumped during the construction phase, between 50,000 to 400,000 L/day, it is required to register on the Environmental Activity and Sector Registry (EASR). A minimum of two to four weeks should be allotted for completion of the EASR registration and the Water Taking and Discharge Plan to be prepared by a Qualified Person as stipulated under O.Reg. 63/16. If a project qualifies for a PTTW based upon anticipated conditions, an EASR will not be allowed as a temporary dewatering measure while awaiting the MOECC review of the PTTW application.

4.6 Stormwater Management Facility

The stormwater management facility (SWMF) may consist of a wet pond with inlet and outlet control structures. Dependent upon the hydraulic conductivity of the underlying material, consideration may be given to providing a clay liner, HDPL geomembrane liner or other impermeable membrane for construction of a wet cell facility.

It is recommended for the preliminary pond design that side slopes be graded at 2.5H:1V, or shallower, above the permanent pond water level and at 3H:1V, or shallower, below the permanent pond water level.

4.7 Slope Stability Review

The slope conditions were reviewed by Paterson personnel during our field investigation. Based on our review, the subject slopes within the east end of the existing aggregate extraction operation were noted vary between 8 to 10 m. The slopes were grass and lightly brush covered, minor surficial erosion was noted, however, no signs of slope instability were observed. Three (3) slope cross-sections were studied as the worst case scenario for the subject slopes. The section locations are presented in Drawing PG3607-1 - Test Hole Location Plan, in Appendix 2.

Slope Stability Analysis

The analysis of the stability of the slopes was carried out using SLIDE, a computer program which permits a two-dimensional slope stability analysis using several methods including the Bishop's method, which is a widely used and accepted analysis method. The program calculates a factor of safety, which represents the ratio of the forces resisting failure to those favoring failure. Theoretically, a factor of safety of 1.0 represents a condition where the slope is stable. However, due to intrinsic limitations of the calculation methods and the variability of the subsoil and groundwater conditions, a factor of safety greater than one is usually required to ascertain than the risks of failure are acceptable. A minimum factor of safety of 1.5 is generally recommended for conditions where the failure of the slope would endanger permanent structures. A horizontal acceleration of 0.16G was considered for the sections for the seismic loading condition. A factor of safety of 1.1 is considered to be satisfactory for stability analyses including seismic loading.

Subsoil conditions at the cross-sections were inferred based on the nearby test holes and general knowledge of the area's geology. The strength parameters used for the analysis are provided in Figures 2 to 7 presented in Appendix 2.

Static Analysis

The static analysis results for Sections A, B and C are presented in Figures 2, 4 and 6 in Appendix 2. The factor of safety for the slopes was greater than 1.5 for all three (3) sections analysed for global stability. Shallow slip circles with slope stability factors of safety of less than 1.5 were noted along the surface of Section C. However, it should be noted that the overall global stability of Section C has a factor of safety of greater than 1.5.

Seismic Loading Analysis

The results of the analyses including seismic loading are shown in Figures 3, 5 and 7 for the slope sections. The results indicate that the overall factor of safety for the sections are greater than 1.1 with the exception of the minor surficial slip failures observed at Section C.

Based on the results of the slope stability analysis, the existing slopes are considered stable from a geotechnical perspective. No development setbacks are required from top of existing slope from a slope stability perspective for the proposed residential, commercial and parkland blocks.

5.0 Constraints and Opportunities

Overall, the subject site provides significant opportunities for development across the subject site from a geotechnical perspective. The soils profile encountered at the test hole locations allows for conventional building construction, road and service construction without soil improvement requirements or grade raise restrictions. Also, the soils provide potential for significant groundwater recharge, as discussed in our Hydrogeological - Existing Conditions Report PG3757-1 - Revision 1 dated September 12, 2016.

No constraints are present from a geotechnical perspective for the majority of the subject site. However, the development of the existing aggregate extraction operations will be postponed until the extraction operations are no longer feasible and significant in-filling of the area has been completed and approved from a geotechnical perspective for development as detailed in Subsection 4.1.

6.0 Statement of Limitations

The recommendations made in this report are in accordance with our present understanding of the project.

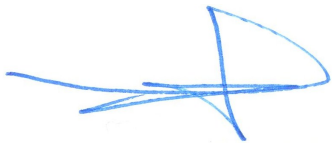
A geotechnical investigation of this nature is a limited sampling of a site. The recommendations are based on information gathered at the specific test locations and can only be extrapolated to an undefined limited area around the test locations. The extent of the limited area depends on the soil, bedrock and groundwater conditions, as well the history of the site reflecting natural, construction, and other activities.

The present report applies only to the project described in this document. Use of this report for purposes other than those described herein or by person(s) other than Minto Communities Inc. or their agent(s) is not authorized without review by Paterson Group for the applicability of our recommendations to the altered use of the report.

Paterson Group Inc.



David J. Gilbert, P.Eng.



Carlos P. Da Silva, P.Eng.



Report Distribution:

- ❑ Minto Communities Inc. (3 copies)
- ❑ Paterson Group Inc. (1 copy)

APPENDIX 1

SOIL PROFILE AND TEST DATA SHEETS

SYMBOLS AND TERMS

GRAIN SIZE DISTRIBUTION SHEETS

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. BH 1-15

BORINGS BY CME 75 Power Auger **DATE** December 10, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Monitoring Well Construction
GROUND SURFACE						0	108.50		
Very dense to dense, brown **SILTY SAND** with gravel, cobbles and boulders		SS	1	83	50	1	107.50		
		SS	2	55	50+	2	106.50		
		SS	3	17	50+	3	105.50		
		SS	4	83	87	4	104.50		
		SS	5	75	48	5	103.50		
		SS	6	58	27	6	102.50		
		SS	7	83	42	7	101.50		
6.10									
Compact to dense, brown **SILTY SAND**		SS	8	83	31	8	100.50		
		SS	9	50	23	9	99.50		
		SS	10	67	38				
		SS	11	83	42				
9.14									
End of Borehole (BH dry to 9.14m depth - July 28, 2016)									

Pen. Resist. Blows/0.3m: 20 40 60 80

Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. BH 2-15

BORINGS BY CME 75 Power Auger **DATE** November 30, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	104.86
Compact, brown **SILTY SAND** with gravel and cobbles		AU	1				
- rootlets in upper 100mm		SS	2	79	10	1	103.86
		SS	3	63	16	2	102.86
2.29							
Soft to firm, grey **SILTY CLAY** with sand and gravel		SS	4	100	3	3	101.86
		SS	5	100	2	4	100.86
4.88						5	99.86
Very dense, grey **SILTY SAND** with gravel, cobbles, boulders and clay		SS	6	50	56	6	98.86
6.30		SS	7	67	50		
Dense, grey **SILTY SAND**		SS	8	67	48	7	97.86
		SS	9	58	39	8	96.86
		SS	10	83	36	9	95.86
		SS	11		35		
9.75							
End of Borehole							
(GWL @ 7.03m-July 28, 2016)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %
20 40 60 80

Piezometer Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. BH 3-15

BORINGS BY CME 75 Power Auger **DATE** November 30, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	109.77
FILL: Brown silty sand with gravel, cobbles and boulders, trace clay		AU	1				
- rootlets in upper 200mm		SS	2	75	25	1	108.77
		SS	3	67	45	2	107.77
2.39							
		SS	4	100	11	3	106.77
		SS	5	100	7		
		SS	6	100	38	4	105.77
Loose to very dense, brown **SILTY SAND** with gravel and cobbles		SS	7	100	33	5	104.77
		SS	8	75	53		
		SS	9	79	42	6	103.77
		SS	10	100	57	7	102.77
7.60							
		SS	11	100	57	8	101.77
Very dense, grey **SILTY SAND**		SS	12	92	51		
		SS	13	96	57	9	100.77
9.75							
End of Borehole							
(BH dry to 5.27m depth - July 28, 2016)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %
20 40 60 80

Piezometer Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. BH 4-15

BORINGS BY CME 75 Power Auger **DATE** December 2, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	111.09
		AU	1				
		SS	2	63	59	1	110.09
		SS	3	4	28	2	109.09
Very dense to compact, brown **SILTY SAND** with gravel, cobbles and boulders		SS	4	4	32		
		SS	5	54	17	3	108.09
- rootlets in upper 100mm							
		SS	6	63	24	4	107.09
- grey by 4.5m depth							
		SS	7	58	21	5	106.09
		SS	8	79	27	6	105.09
		SS	9	79	18		
		SS	10	75	21	7	104.09
		SS	11	100	24	8	103.09
		SS	12	63	23		
		SS	13	58	19	9	102.09
9.75							
End of Borehole							
(BH dry to 9.75m depth - July 28, 2016)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone

○ Water Content %

20 40 60 80

Piezometer Construction

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. BH 5-15

BORINGS BY CME 75 Power Auger **DATE** December 10, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	108.75
		SS	1	42	13	1	107.75
		SS	2	25	21	2	106.75
		SS	3	33	5	3	105.75
		SS	4	42	4	4	104.75
FILL: Grey silty sand with clay, gravel and wood		SS	5	42	3	5	103.75
		SS	6	42	3	6	102.75
		SS	7	17	5	7	101.75
		SS	8	25	37	8	100.75
		SS	9	0	50+	9	99.75
		SS	10	58	9		
		SS	11	0	1		
9.14							
End of Borehole (BH dry to 9.14m depth - July 28, 2016)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %

20 40 60 80

Monitoring Well Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. BH 6-15

BORINGS BY CME 75 Power Auger **DATE** December 3, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	102.59
		AU	1				
Dense to very dense, grey-brown **SILTY SAND** with gravel, cobbles and boulders		SS	2	75	31	1	101.59
		SS	3	100	50+	2	100.59
2.29							
		SS	4	83	27	3	99.59
		SS	5	58	27		
		SS	6	67	26	4	98.59
Compact to dense, grey-brown **SILTY SAND**		SS	7	71	31	5	97.59
		SS	8	67	30		
		SS	9	63	30	6	96.59
		SS	10	75	25	7	95.59
		SS	11	100	19	8	94.59
		SS	12	100	15	9	93.59
		SS	13	100	15		
9.75							
End of Borehole							
(BH dry to4.40m depth - July 28, 2016)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone

○ Water Content %

20 40 60 80

Piezometer Construction

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. BH 7-15

BORINGS BY CME 75 Power Auger **DATE** December 10, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.12						0	102.30		
Compact to very dense, brown **SILTY SAND** with gravel, cobbles and boulders		SS	1	58	29	1	101.30		
		SS	2	25	53	2	100.30		
2.44		SS	3	0	50+				
End of Borehole Practical auger refusal at 2.44m depth (Piezometer damaged - July 28, 2016)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %
20 40 60 80

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. BH 8-15

BORINGS BY CME 75 Power Auger **DATE** December 7, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	106.93
Compact to loose, brown **SILTY SAND** with gravel and cobbles		AU	1				
		SS	2	58	12	1	105.93
- rootlets in upp-er 100mm		SS	3	46	16		
- with boulders by 1.5m depth						2	104.93
		SS	4	58	8		
3.28						3	103.93
		SS	5	92	7		
Grey **SILTY CLAY** with sand, gravel and cobbles		SS	6	100	2	4	102.93
		SS	7	100	6		
		SS	8	100	5	5	101.93
6.35						6	100.93
		SS	9	92	18		
Compact to dense, grey **SILTY SAND** with gravel, cobbles and boulders		SS	10	75	46	7	99.93
		SS	11	75	41	8	98.93
		SS	12	83	49		
9.14						9	97.93
End of Borehole							
(GWL @ 7.95m-July 28, 2016)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %
20 40 60 80

Monitoring Well Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. BH 9-15

BORINGS BY CME 75 Power Auger **DATE** December 7, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	106.70
		AU	1				
		SS	2	58	9	1	105.70
		SS	3	46	5	2	104.70
		SS	4	58	5		
Loose to compact, brown **SILTY SAND**		SS	5	54	23	3	103.70
- rootlets in upper 100mm		SS	6	71	24	4	102.70
		SS	7	63	29	5	101.70
		SS	8	71	31		
		SS	9	71	27	6	100.70
- running sand encountered at 6.7m depth		SS	10	92	27	7	99.70
		SS	11	75	13	8	98.70
		SS	12	100	11	9	97.70
9.75		SS	13	100	7		
End of Borehole							
(BH dry to 2.30m depth - July 28, 2016)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %
20 40 60 80

Monitoring Well Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. BH10-15

BORINGS BY CME 75 Power Auger **DATE** December 4, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	110.71
		AU	1				
FILL: Brown silty sand with gravel, cobbles and boulders		SS	2	79	11	1	109.71
- rootlets in upper 200mm							
- some clay by 1.5m depth		SS	3	42	4	2	108.71
		SS	4	50	7		
3.05						3	107.71
		SS	5	75	8		
Loose to dense, grey-brown **SILTY SAND,** some gravel, cobbles and boulders		SS	6	79	72	4	106.71
		SS	7	67	41	5	105.71
5.64		SS	8	71	28		
		SS	9	75	26	6	104.71
Compact, grey **SILTY SAND**		SS	10	75	17	7	103.71
		SS	11	79	26	8	102.71
		SS	12	71	25		
9.14						9	101.71
Very dense, grey **SILTY SAND** with gravel, cobbles and boulders		SS	13	67	50		
9.75							
End of Borehole							
(BH dry to 9.38m depth - July 28, 2016)							

Pen. Resist. Blows/0.3m
● **50 mm Dia. Cone**
○ **Water Content %**
20 40 60 80

Monitoring Well Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. BH11-15

BORINGS BY CME 75 Power Auger **DATE** December 3, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	105.82
		AU	1				
		SS	2	76	50+	1	104.82
		SS	3	57	50+		
Very dense, brown **SILTY SAND** with gravel, cobbles and boulders, trace clay						2	103.82
		SS	4	58	50+		
- rootlets in upper 200mm						3	102.82
		SS	5	100	50+		
- grey by 3.8m depth						4	101.82
		SS	6	71	63		
		SS	7	33	50+		
						5	100.82
		SS	8	11	50+		
						6	99.82
		SS	9	75	34		
		SS	10	100	42	7	98.82
		SS	11	75	29		
		SS	12	50	50+	8	97.82
						9	96.82
		SS	13	50	102		
9.75							
End of Borehole							
(GWL @ 4.00m-July 28, 2016)							

Pen. Resist. Blows/0.3m
● **50 mm Dia. Cone**
○ **Water Content %**

20 40 60 80

Monitoring Well Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. BH12-15

BORINGS BY CME 75 Power Auger **DATE** December 2, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	105.26
		AU	1				
Dense to very dense, brown **SILTY SAND** with gravel, cobbles and boulders		SS	2	88	42	1	104.26
		SS	3	33	50+		
- rootlets in upper 100mm						2	103.26
		SS	4	67	50+		
						3	102.26
3.35		SS	5	83	58		
		SS	6	100	31	4	101.26
		SS	7	75	47		
						5	100.26
Dense, brown **SILTY SAND**		SS	8	92	30		
		SS	9	79	31	6	99.26
		SS	10	75	35		
						7	98.26
- grey by 7.6m depth		SS	11	92	34		
		SS	12	100	32	8	97.26
						9	96.26
9.75		SS	13	88	37		
End of Borehole							
(BH dry to 7.79m depth - July 28, 2016)							

Pen. Resist. Blows/0.3m
● **50 mm Dia. Cone**
○ **Water Content %**
20 40 60 80

Piezometer Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

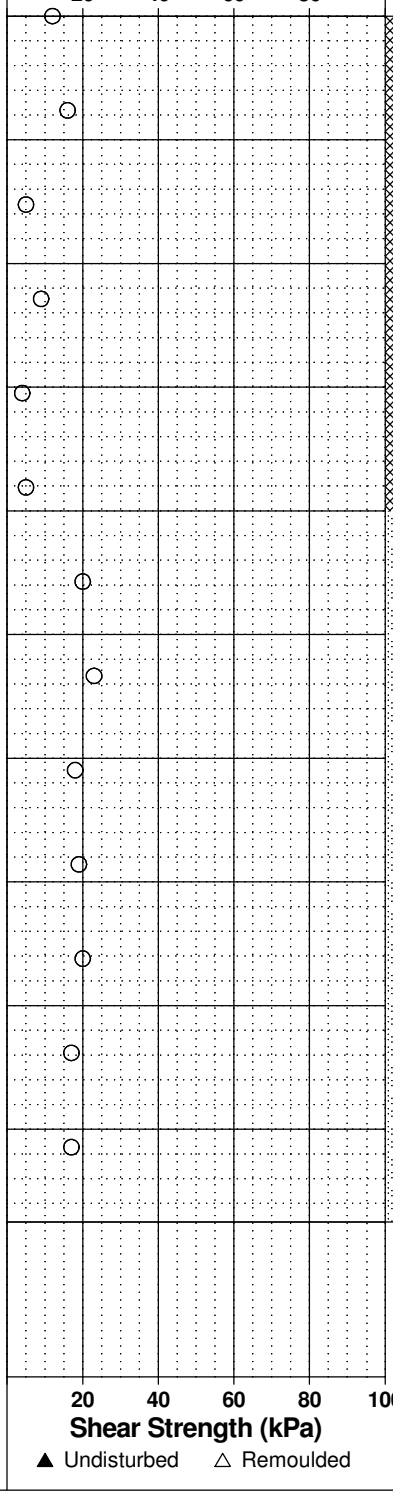
REMARKS

HOLE NO. BH13-15

BORINGS BY CME 75 Power Auger **DATE** November 30, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	102.74
Compact, brown **SILTY SAND** with gravel, cobbles and boulders		AU	1				
- rootlets in upper 100mm		SS	2	38	15	1	101.74
1.52							
		SS	3	100	9	2	100.74
		SS	4	67	1		
Loose to compact, brown **SILTY SAND** with gravel						3	99.74
- grey by 3.3m depth		SS	5	58	23		
		SS	6	71	20	4	98.74
		SS	7	71	18	5	97.74
		SS	8	83	15		
		SS	9	100	12	6	96.74
		SS	10	100	16	7	95.74
		SS	11	100	7		
		SS	12	100	21	8	94.74
		SS	13	100	25	9	93.74
9.75							
End of Borehole							
(GWL @ 4.10m-July 28, 2016)							

Pen. Resist. Blows/0.3m
● **50 mm Dia. Cone**
○ **Water Content %**



Piezometer Construction

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. BH14-15

BORINGS BY CME 75 Power Auger **DATE** December 7, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	103.47
		AU	1				
		SS	2	75	10	1	102.47
Compact, brown **SILTY SAND** with gravel and cobbles in upper 0.8m depth		SS	3	75	11	2	101.47
- rootlets in upper 100mm		SS	4	71	21		
- grey by 3m depth		SS	5	71	16	3	100.47
		SS	6	67	22	4	99.47
		SS	7	75	21	5	98.47
		SS	8	100	12	6	97.47
		SS	9	100	12		
		SS	10	100	6	7	96.47
		SS	11	100	16	8	95.47
		SS	12	71	10	9	94.47
		SS	13	63	11		
9.75							
End of Borehole							
(GWL @ 4.20m-July 28, 2016)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %
20 40 60 80

Monitoring Well Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. BH15-15

BORINGS BY CME 75 Power Auger **DATE** December 2, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	103.56
		AU	1				
		SS	2	100	5	1	102.56
		SS	3	92	10	2	101.56
Loose to compact, brown **SILTY SAND**							
		SS	4	100	8		
- rootlets in upper 100mm						3	100.56
		SS	5	75	11		
		SS	6	79	21	4	99.56
		SS	7	67	14		
- grey by 5.3m depth						5	98.56
		SS	8	100	18		
		SS	9	100	19	6	97.56
- running sand encountered at 6.8m depth							
		SS	10	100	18	7	96.56
		SS	11	100	16		
						8	95.56
- loose by 8.4m depth							
		SS	12	100	8		
						9	94.56
		SS	13	100	6		
9.75							
End of Borehole							
(GWL @ 4.99m-July 28, 2016)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone

○ Water Content %

20 40 60 80

Piezometer Construction

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. BH16-15

BORINGS BY CME 75 Power Auger **DATE** December 2, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	107.24
		AU	1				
		SS	2	50	5	1	106.24
Loose to dense, brown **SILTY SAND** with gravel, cobbles and boulders		SS	3	79	17	2	105.24
- rootlets in upper 100mm		SS	4	67	18		
		SS	5	79	28	3	104.24
		SS	6	67	32	4	103.24
4.58							
		SS	7	63	30	5	102.24
		SS	8	96	36		
Compact, brown **SILTY SAND**		SS	9	100	34	6	101.24
- trace gravel and cobbles from 6.9 to 8.8m depth		SS	10	79	17	7	100.24
- grey by 7.6m depth		SS	11	100	13	8	99.24
		SS	12	88	19	9	98.24
		SS	13	79	31		
9.75							
End of Borehole							
(BH dry to 7.34m depth - July 28, 2016)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone

○ Water Content %

20 40 60 80

Piezometer Construction

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. BH17-15

BORINGS BY CME 75 Power Auger **DATE** December 4, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	107.97
		AU	1				
Loose to dense, dark brown **SILTY SAND** with gravel, cobbles and boulders		SS	2	42	9	1	106.97
- rootlets in upper 200mm		SS	3	2	6	2	105.97
		SS	4	67	36	3	104.97
3.35		SS	5	79	23		
Compact, brown **SILTY SAND**		SS	6	71	27	4	103.97
- trace gravel from 3.35 to 4.9m depth		SS	7	63	37	5	102.97
- with gravel and cobbles from 4.9 to 6.1m depth		SS	8	79	37		
6.10		SS	9	71	50+	6	101.97
		SS	10	75	50+	7	100.97
Very dense to dense, brown **SAND** with gravel, silt and cobbles		SS	11	79	50+	8	99.97
		SS	12	88	43	9	98.97
9.75		SS	13	79	28		
End of Borehole							
(BH dry to 9.05m depth - July 28, 2016)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %

20 40 60 80

Monitoring Well Construction

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

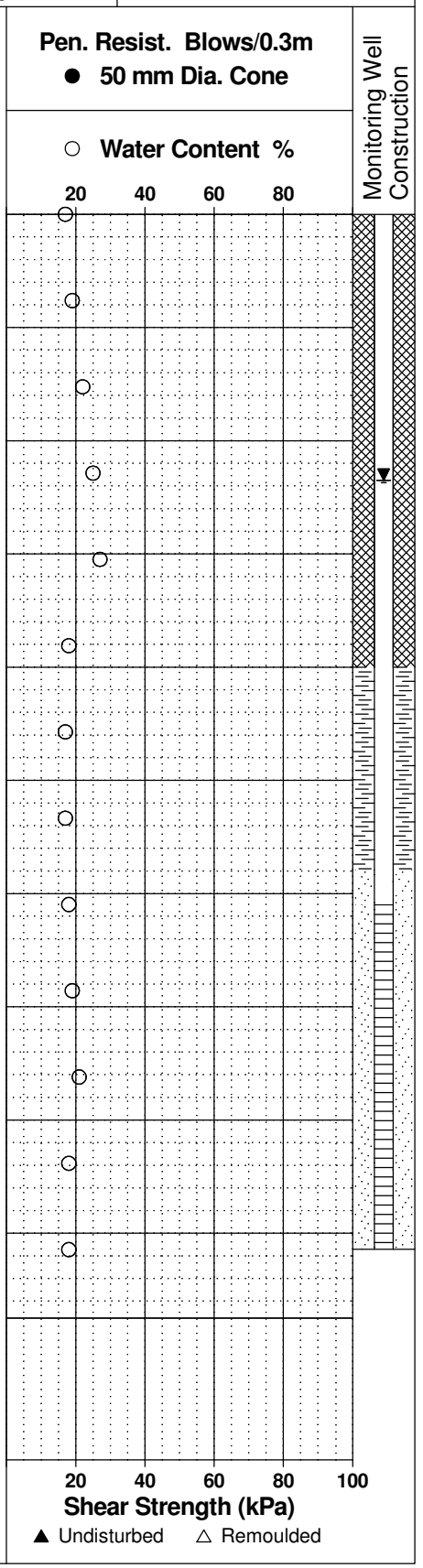
FILE NO. PG3607

REMARKS

HOLE NO. BH18-15

BORINGS BY CME 75 Power Auger **DATE** December 8, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	101.08
Agricultural tilled **TOPSOIL**		AU	1				
0.50							
Brown **SILTY SAND** with gravel and cobbles		SS	2	79	10	1	100.08
0.76		SS	3	92	8	2	99.08
		SS	4	83	3		
Loose to compact, brown **SILTY SAND to SANDY SILT**		SS	5	67	11	3	98.08
		SS	6	71	18	4	97.08
- grey by 4.5m depth		SS	7	96	28		
- dense to very dense by 5.2m depth		SS	8	83	35	5	96.08
		SS	9	79	30	6	95.08
		SS	10	100	53	7	94.08
- compact to loose by 7.6m depth		SS	11	100	15	8	93.08
		SS	12	100	9	9	92.08
		SS	13	100	9		
9.75							
End of Borehole							
(GWL @ 2.35m-July 28, 2016)							



patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. BH19-15

BORINGS BY CME 75 Power Auger **DATE** December 18, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	103.99
Agricultural tilled **TOPSOIL**		AU	1				
0.50							
Dense, brown **SILTY SAND** with gravel, cobbles and boulders		SS	2	67	38	1	102.99
		SS	3	4	42	2	101.99
2.29							
Compact to dense, grey-brown **SILTY SAND to SANDY SILT**		SS	4	75	18	3	100.99
		SS	5	71	30		
		SS	6	67	23	4	99.99
		SS	7	75	23	5	98.99
		SS	8	71	26		
		SS	9	83	34	6	97.99
		SS	10	100	20	7	96.99
- grey by 7.6m depth		SS	11	100	21	8	95.99
		SS	12	100	42	9	94.99
		SS	13	100	11		
9.75							
End of Borehole							
(GWL @ 6.72m-July 28, 2016)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %

20 40 60 80

Monitoring Well Construction

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. BH20-15

BORINGS BY CME 75 Power Auger **DATE** December 1, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	107.88
TOPSOIL 0.10							
Compact, brown **SILTY SAND** with gravel, cobbles and boulders, trace clay		AU	1				
1.02		SS	2	88	12	1	106.88
		SS	3	71	14	2	105.88
		SS	4	83	15		
		SS	5	75	19	3	104.88
Compact to dense, brown **SILTY SAND** with gravel and cobbles		SS	6	67	19	4	103.88
		SS	7	71	28		
- with boulders by 5.3m depth		SS	8	75	49	5	102.88
		SS	9	71	39	6	101.88
		SS	10	71	34		
		SS	11	75	37	7	100.88
		SS	12	75	34	8	99.88
		SS	13	88	46	9	98.88
9.75							
End of Borehole							
(BH dry to 7.60m depth - July 28, 2016)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %

20 40 60 80

Piezometer Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. BH21-15

BORINGS BY CME 75 Power Auger **DATE** December 9, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	102.47
		AU	1				
Very loose, brown **SILTY SAND** with gravel, cobbles and boulders		SS	2	54	3	1	101.47
- compact to dense by 2.3m depth		SS	3	50	3	2	100.47
		SS	4	67	14		
		SS	5	13	28	3	99.47
- grey-brown by 3.8m depth		SS	6	79	12	4	98.47
		SS	7	79	25	5	97.47
		SS	8	92	21		
		SS	9	63	19	6	96.47
		SS	10	29	33	7	95.47
		SS	11	58	12	8	94.47
		SS	12	79	31		
		SS	13	75	13	9	93.47
9.75							
End of Borehole							
(GWL @ 6.73m-July 28, 2016)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %
20 40 60 80

Monitoring Well Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. BH22-15

BORINGS BY CME 75 Power Auger **DATE** November 27, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	101.71
FILL: Brown clayey silt with sand and gravel		AU	1				
0.70							
- rootlets in upper 200mm		SS	2	100	25	1	100.71
Compact to loose, brown **SILTY SAND** with gravel and cobbles		SS	3	100	7	2	99.71
2.44		SS	4	100	15		
		SS	5	88	28	3	98.71
		SS	6	100	29	4	97.71
		SS	7	100	39	5	96.71
Compact to dense, brown **SILTY SAND**		SS	8	79	40	6	95.71
		SS	9	96	40		
		SS	10	100	38	7	94.71
		SS	11	100	18	8	93.71
		SS	12	100	26	9	92.71
		SS	13	100	10		
9.75							
End of Borehole							
(BH dry to 6.15m depth - July 28, 2016)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %
20 40 60 80

Piezometer Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. BH23-15

BORINGS BY CME 75 Power Auger **DATE** December 9, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	98.90
FILL: Brown clayey sand with silt		AU	1				
0.60							
		SS	2	100	15	1	97.90
		SS	3	75	20	2	96.90
		SS	4	75	21		
Compact, brown **SILTY SAND**		SS	5	75	25	3	95.90
		SS	6	75	20	4	94.90
		SS	7	75	12	5	93.90
		SS	8	75	30	6	92.90
6.70		SS	9	100	25		
		SS	10	50	30	7	91.90
Compact, grey **SILTY SAND** with gravel, cobbles and boulders		SS	11	75	23	8	90.90
		SS	12	50	30	9	89.90
		SS	13	75	23		
9.75							
End of Borehole							
(GWL @ 3.56m-July 28, 2016)							

Pen. Resist. Blows/0.3m
● **50 mm Dia. Cone**
○ **Water Content %**
20 40 60 80

Monitoring Well Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

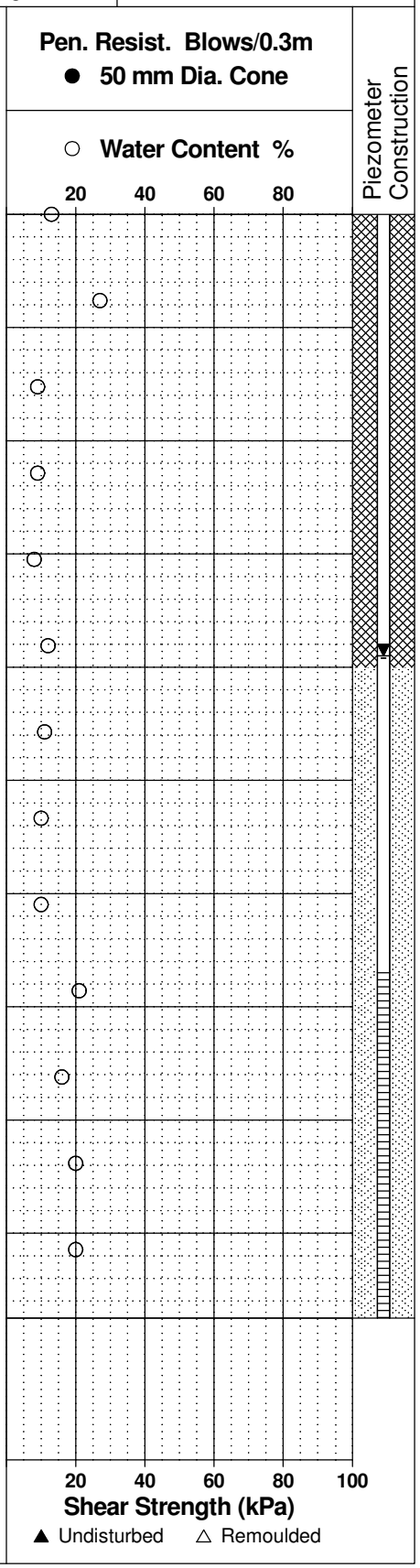
FILE NO. PG3607

REMARKS

HOLE NO. BH24-15

BORINGS BY CME 75 Power Auger **DATE** November 27, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	98.36
FILL: Brown silty sand with gravel, cobbles, boulders and clay		AU	1				
		SS	2	92	3	1	97.36
1.52							
Dense to compact, brown **SILTY SAND** with gravel, cobbles and boulders		SS	3	100	41	2	96.36
		SS	4	75	20		
3.05						3	95.36
Loose to compact, grey **SILTY SAND** with gravel		SS	5	63	7		
		SS	6	58	15	4	94.36
4.50							
Loose, grey **SILTY SAND** with gravel, cobbles and boulders		SS	7	50	8	5	93.36
		SS	8	75	10		
		SS	9	83	9	6	92.36
6.86							
Compact to very loose, grey **SILTY SAND**		SS	10	92	15	7	91.36
		SS	11	100	15		
		SS	12	100	1	8	90.36
		SS	13	100	1	9	89.36
9.75							
End of Borehole							
(GWL @ 3.90m-July 28, 2016)							



patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. BH25-15

BORINGS BY CME 75 Power Auger **DATE** December 1, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	99.56
TOPSOIL 0.30		AU	1				
Brown **SILTY SAND** with gravel 0.76						1	98.56
		SS	2	75	5		
Loose to compact, brown **SILTY SAND to SANDY SILT**		SS	3	71	16	2	97.56
- grey by 1.5m depth		SS	4	67	26		
		SS	5	88	27	3	96.56
		SS	6	79	15	4	95.56
		SS	7	67	15		
		SS	8	75	24	5	94.56
		SS	9	71	30	6	93.56
		SS	10	75	18	7	92.56
		SS	11	63	19		
		SS	12	79	51	8	91.56
		SS	13	88	52	9	90.56
9.75 End of Borehole							
(Piezometer damaged - July 28, 2016)							

Pen. Resist. Blows/0.3m
● **50 mm Dia. Cone**
○ **Water Content %**

20 40 60 80

Piezometer Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

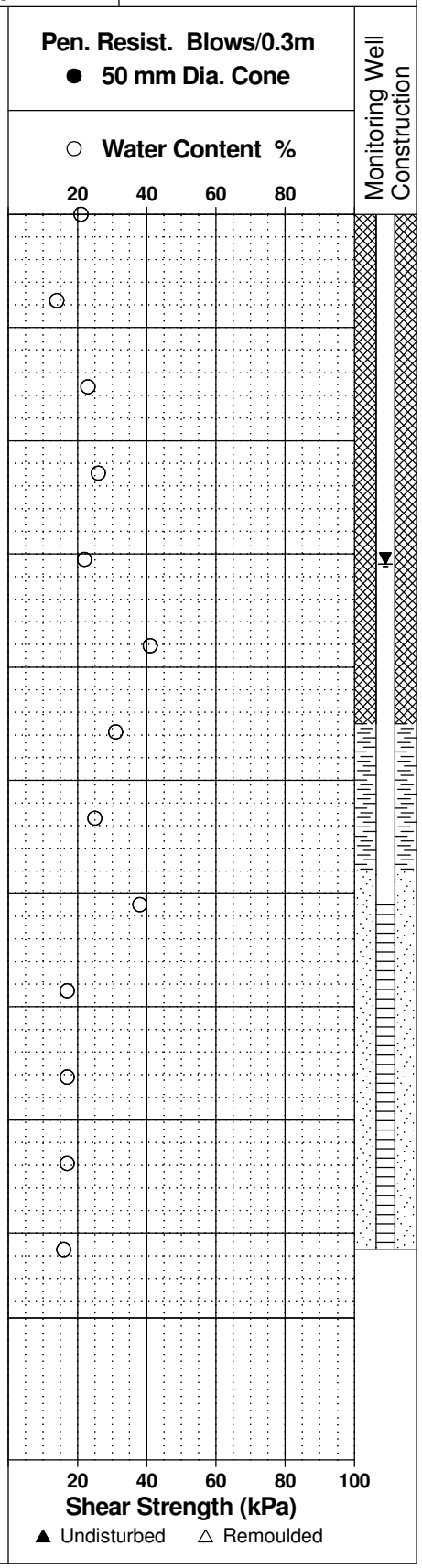
FILE NO. PG3607

REMARKS

HOLE NO. BH26-15

BORINGS BY CME 75 Power Auger **DATE** December 8, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	100.07
TOPSOIL 0.30		AU	1				
Dark brown **SILTY SAND** with gravel, cobbles, topsoil and roots 0.76		SS	2	88	11	1	99.07
		SS	3	88	7	2	98.07
		SS	4	83	3		
		SS	5	71	7	3	97.07
		SS	6	79	9	4	96.07
Loose to compact, brown **SANDY SILT to SILTY SAND**		SS	7	83	15	5	95.07
		SS	8	100	6		
		SS	9	100	6	6	94.07
		SS	10	79	9	7	93.07
		SS	11	79	14	8	92.07
- grey by 8.4m depth		SS	12	83	20	9	91.07
		SS	13	71	24		
9.75 End of Borehole							
(GWL @ 3.09m-July 28, 2016)							



patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

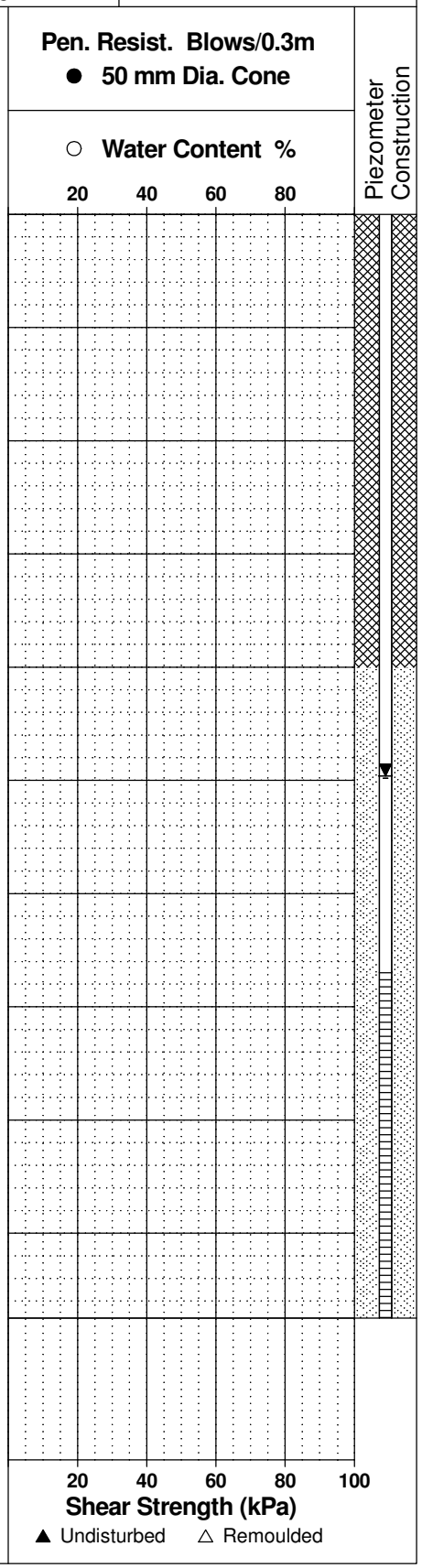
FILE NO. PG3607

REMARKS

HOLE NO. BH27-15

BORINGS BY CME 75 Power Auger **DATE** December 1, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	101.30
TOPSOIL 0.30		AU	1				
Loose, brown **SILTY SAND** with gravel, cobbles and boulders		SS	2	100	4	1	100.30
1.50		SS	3	100	5	2	99.30
Loose to compact, brown **SILTY SAND to SANDY SILT**		SS	4	83	9	3	98.30
		SS	5	71	16	4	97.30
		SS	6	67	20		
		SS	7	71	19	5	96.30
- dense to very dense and grey by 5.2m depth		SS	8	75	55	6	95.30
		SS	9	100	40		
		SS	10	88	32	7	94.30
		SS	11	100	50	8	93.30
		SS	12	83	53	9	92.30
9.75		SS	13	100	51		
End of Borehole							
(GWL @ 4.96m-Juy 28, 2016)							



patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. BH28-15

BORINGS BY CME 75 Power Auger **DATE** December 1, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.30		AU	1			0	104.64		
		SS	2	92	11	1	103.64		
		SS	3	100	24	2	102.64		
Compact, brown **SILTY SAND** with gravel, cobbles and boulders		SS	4	58	33	3	101.64		
		SS	5	71	25	4	100.64		
		SS	6	58	27				
		SS	7	63	23	5	99.64		
5.49		SS	8	25	50+				
End of Borehole Practical refusal to augering at 5.49m depth (Based on field observations, the long term GWL was not encountered)									

Pen. Resist. Blows/0.3m: 20 40 60 80

Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

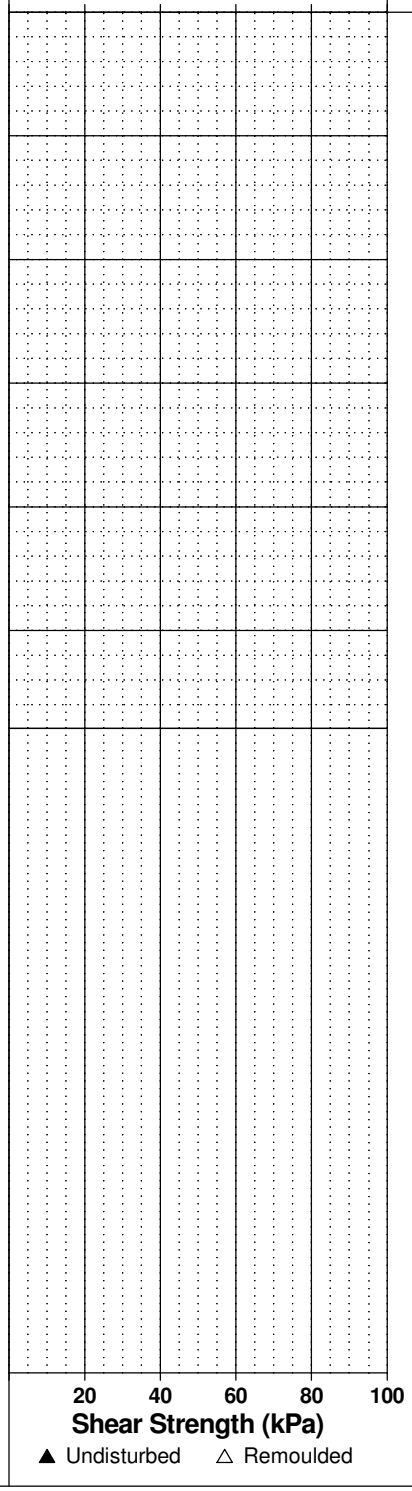
FILE NO. PG3607

REMARKS Moved 4m west of BH 28-15

HOLE NO. BH28A-15

BORINGS BY CME 75 Power Auger **DATE** December 1, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	104.65		
OVERBURDEN						1	103.65		
						2	102.65		
						3	101.65		
						4	100.65		
						5	99.65		
5.79									
End of Borehole									
Practical refusal to augering at 5.79m depth									



patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. BH29-15

BORINGS BY CME 75 Power Auger **DATE** December 9, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	102.14
TOPSOIL 0.30		AU	1				
		SS	2	92	9	1	101.14
		SS	3	75	17	2	100.14
		SS	4	71	35		
		SS	5	79	38	3	99.14
Loose to dense, brown **SILTY SAND** with gravel, cobbles and boulders		SS	6	75	33	4	98.14
		SS	7	83	36		
		SS	8	91	50+	5	97.14
		SS	9	58	26	6	96.14
		SS	10	67	64	7	95.14
		SS	11	63	30		
- compact to loose by 8.3m depth		SS	12	54	19	8	94.14
		SS	13	83	2	9	93.14
9.75							
End of Borehole							
(GWL @ 6.37m-July 28, 2016)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %
20 40 60 80

Monitoring Well Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. BH30-15

BORINGS BY CME 75 Power Auger **DATE** November 27, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	99.45
Brown **SILTY SAND**, trace gravel and organics		AU	1				
0.76							
		SS	2	58	81	1	98.45
		SS	3	63	55	2	97.45
Very dense to compact, brown **SILTY SAND** with gravel, cobbles and boulders		SS	4	79	27		
		SS	5	67	25	3	96.45
		SS	6	67	29	4	95.45
		SS	7	71	25	5	94.45
5.33							
		SS	8	75	28	6	93.45
		SS	9	63	10		
Compact, grey **SILTY SAND to SANDY SILT**		SS	10	75	21	7	92.45
		SS	11	71	16	8	91.45
- trace gravel to 8.4m depth		SS	12	100	28		
		SS	13	100	21	9	90.45
9.75							
End of Borehole							
(GWL @ 4.41m-July 28, 2016)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %

20 40 60 80

Piezometer Construction

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

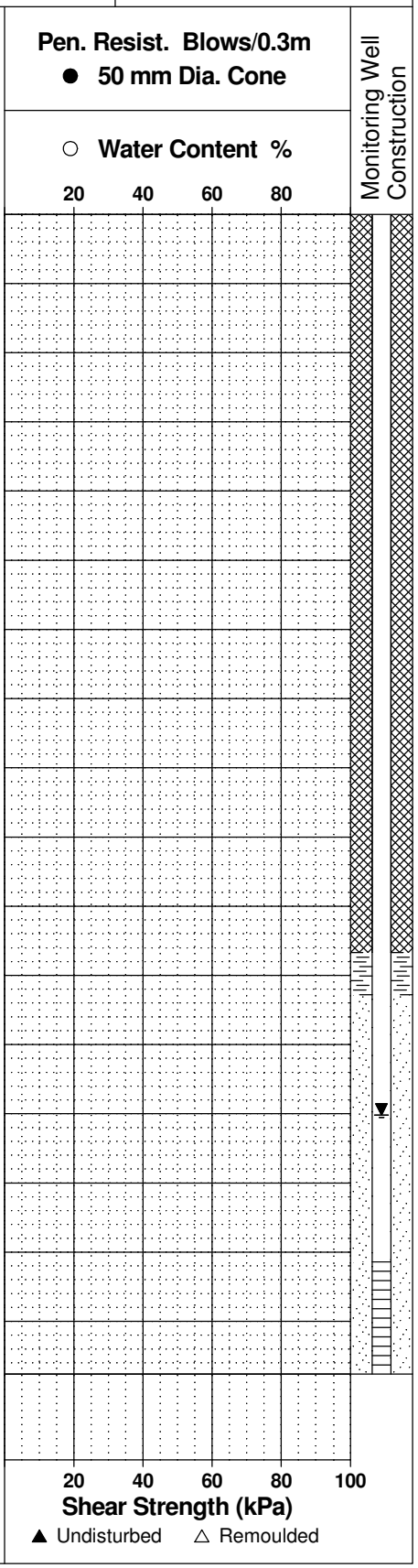
FILE NO. PG3607

REMARKS

HOLE NO. BH31-16

BORINGS BY CME 55 Power Auger **DATE** July 20, 2016

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	108.99
Compact, brown **SANDY SILT,** some gravel, trace cobbles, rootlets		SS	1	79	17	1	107.99
1.12		SS	2	75	11		
Compact, brown **SILTY SAND,** some gravel		SS	3	79	13	2	106.99
		SS	4	71	11	3	105.99
3.80		SS	5	92	21	4	104.99
Compact to dense, brown **SAND** with gravel, some silt and cobbles		SS	6	58	34	5	103.99
- some boulders by 6.4m depth		SS	7	47	50+	6	102.99
		SS	8	83	82	7	101.99
		SS	9	50	41	8	100.99
		SS	10	62	57	9	99.99
		SS	11	83	46	10	98.99
		SS	12	50	22	11	97.99
						12	96.99
						13	95.99
						14	94.99
						15	93.99
						16	92.99
16.76							
End of Borehole							
(GWL @ 13.02m-July 28, 2016)							



patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

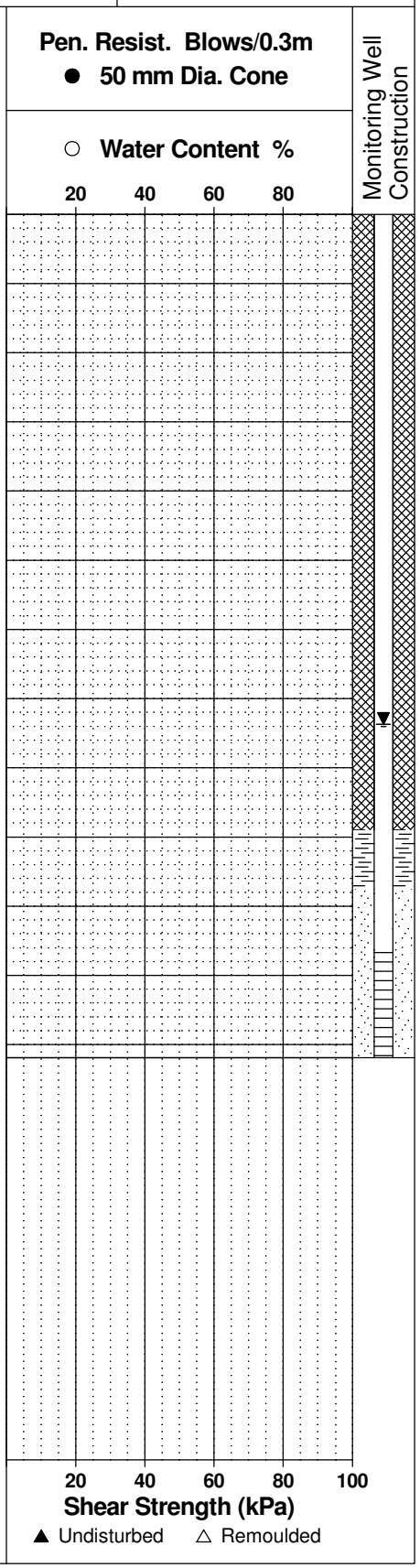
FILE NO. PG3607

REMARKS

HOLE NO. BH32-16

BORINGS BY CME 55 Power Auger **DATE** July 20, 2016

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	103.48
Compact, brown **SILTY SAND,** trace gravel, rootlets		SS	1	25	11		
1.22		SS	2	67	15	1	102.48
Compact to dense, brown **SILTY SAND,** some gravel, cobbles and boulders		SS	3	50	50+		
2.44		SS	4	50	31	2	101.48
Dense to very dense, grey **SILTY SAND,** some gravel		SS	5	71	17	3	100.48
- some boulders by 4.1m depth		SS	6	79	51	4	99.48
		SS	7	92	50+	5	98.48
		SS	8	75	35	6	97.48
		SS	9	79	70	7	96.48
		SS	10	100	50+	8	95.48
12.19						9	94.48
End of Borehole						10	93.48
(GWL @ 7.37m-July 28, 2016)						11	92.48
						12	91.48



patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. BH33-16

BORINGS BY CME 55 Power Auger **DATE** July 19, 2016

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	110.04
Compact to very dense, brown **SILTY SAND** with gravel, cobbles and boulders		SS	1	46	27	1	109.04
		SS	2	58	18	2	108.04
- grey by 0.8m depth		SS	3	67	60	3	107.04
		SS	4	75	41		
3.35		SS	5	79	35		
Dense, brown **SANDY SILT**						4	106.04
4.11		SS	6	71	29	5	105.04
Dense, brown **SAND,** trace to some silt		SS	7	71	34	6	104.04
						7	103.04
		SS	8	62	32	8	102.04
		SS	9	71	30	9	101.04
10.21						10	100.04
Compact, brown to grey **SILT** with sand		SS	10	83	15	11	99.04
12.19						12	98.04
End of Borehole							
(GWL @ 9.46m-July 28, 2016)							

Pen. Resist. Blows/0.3m
● **50 mm Dia. Cone**
○ **Water Content %**

20 40 60 80

Monitoring Well Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

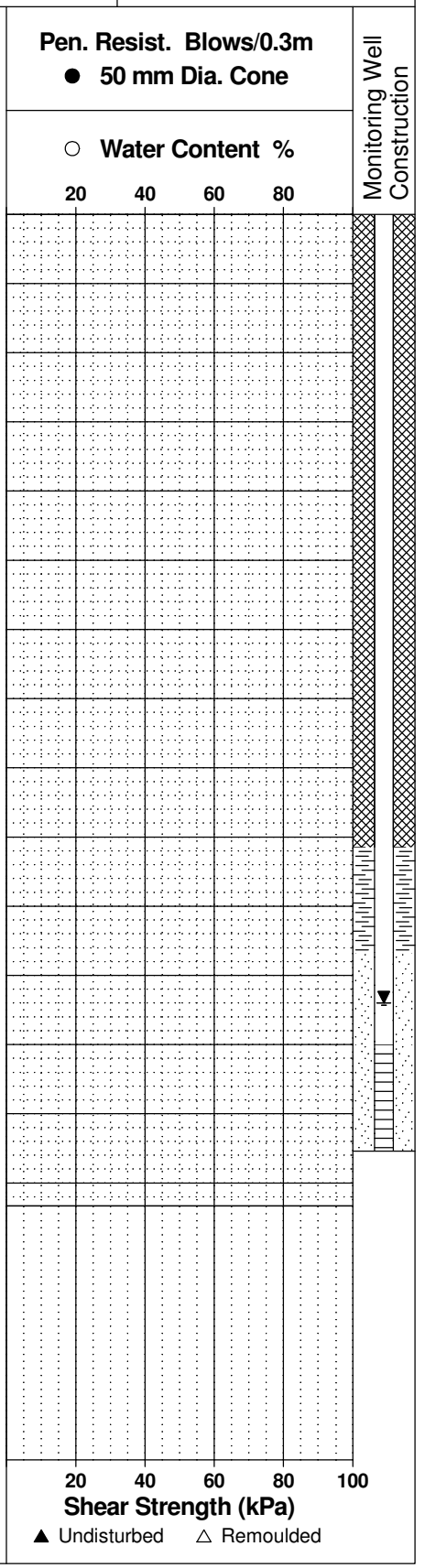
FILE NO. PG3607

REMARKS

HOLE NO. BH34-16

BORINGS BY CME 55 Power Auger **DATE** July 19, 2016

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	107.46
Compact, brown **SANDY SILT** with gravel, some cobbles, rootlets 0.71		SS	1	50	27		
Dense, brown **SILTY SAND,** some gravel and cobbles 1.52		SS	2	71	31	1	106.46
		SS	3	58	36	2	105.46
		SS	4	58	30		
		SS	5	67	70	3	104.46
Dense to very dense, brown **SAND,** trace silt and gravel		SS	6	58	56	4	103.46
- trace cobbles by 4.9m depth		SS	7	67	67	5	102.46
		SS	8	62	36	6	101.46
		SS	9	58	41	7	100.46
		SS	10	67	33	8	99.46
11.73 - compact by 11.7m depth		SS	11	83	23	9	98.46
		SS	12	100	23	10	97.46
End of Borehole						11	96.46
(GWL @ 11.40m-July 28, 2016)						12	95.46
						13	94.46
						14	93.46



patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. BH35-16

BORINGS BY CME 55 Power Auger **DATE** July 21, 2016

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	105.41
Brown **SILTY SAND**, trace gravel, organics and rootlets 0.76						1	104.41
Very dense to compact, brown **SILTY SAND** with gravel, cobbles and boulders						2	103.41
						3	102.41
						4	101.41
5.33						5	100.41
Compact, grey **SILTY SAND to SANDY SILT**						6	99.41
- trace gravel to 8.4m depth						7	98.41
						8	97.41
9.14						9	96.41
		SS	1	71	46	10	95.41
Dense to compact, brown **SILT,** some sand		SS	2	62	35	11	94.41
		SS	3	46	26	12	93.41
12.80							
End of Borehole							
(GWL @ 9.36m-July 28, 2016)							

Pen. Resist. Blows/0.3m
● **50 mm Dia. Cone**
○ **Water Content %**

20 40 60 80

Monitoring Well Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. BH36-16

BORINGS BY CME 55 Power Auger **DATE** July 21, 2016

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	109.08
FILL: Brown silty sand with gravel, some cobbles and boulders		SS	1	40	50+		
0.30						1	108.08
		SS	2	50	63		
FILL: Brown silt with sand and gravel, some cobbles and boulders		SS	3	64	50+	2	107.08
		SS	4	79	50+		
2.90						3	106.08
		SS	5	79	37		
						4	105.08
		SS	6	83	34	5	104.08
		SS	7	67	61	6	103.08
Dense to very dense, brown **SILT** with sand, trace gravel						7	102.08
		SS	8	50	64	8	101.08
		SS	9	62	44	9	100.08
						10	99.08
		SS	10	75	50	11	98.08
		SS	11	58	52	12	97.08
						13	96.08
13.70							
		SS	12	50	10	14	95.08
Compact, brown fine to medium **SAND**						15	94.08
						16	93.08
16.76							
End of Borehole							
(GWL @ 12.95m-July 28, 2016)							

Pen. Resist. Blows/0.3m
● **50 mm Dia. Cone**
○ **Water Content %**
20 40 60 80

Monitoring Well Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 1-15

BORINGS BY Backhoe **DATE** December 2, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.10		G	1			0	105.10		
Compact, brown **SILTY SAND**, trace boulders and cobbles		G	2			1	104.10		
						2	103.10		
3.00 End of Test Pit						3	102.10		
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %
20 40 60 80

Shear Strength (kPa)
20 40 60 80 100
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 2-15

BORINGS BY Backhoe **DATE** December 2, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.10						0	106.80		
Compact, brown **SILTY SAND**		G	1			1	105.80		
		G	2			2	104.80		
3.00 End of Test Pit (TP dry upon completion)						3	103.80		

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %
20 40 60 80

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 3-15

BORINGS BY Backhoe **DATE** November 30, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	105.40		
TOPSOIL 0.20									
Loose, brown to grey **SILTY SAND** with gravel, cobbles and boulders		G	1			1	104.40		
		G	2			2	103.40		▽
3.10						3	102.40		
End of Test Pit									
(Open hole GWL @ 2.9m depth)									

Pen. Resist. Blows/0.3m: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 4-15

BORINGS BY Backhoe **DATE** November 30, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	107.00		
Loose, brown to grey **SILTY SAND** with gravel, cobbles and boulders - rootlets in upper 150mm		G	1			1	106.00		
						2	105.00		
3.00		G	2			3	104.00		
End of Test Pit (TP dry upon completion)									

Pen. Resist. Blows/0.3m: 20 40 60 80

Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 5-15

BORINGS BY Backhoe **DATE** November 30, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	107.70		
Loose to compact, brown to grey **SILTY SAND** with gravel, cobbles and boulders - rootlets in upper 200mm		G	1			1	106.70		
		G	2			2	105.70		
3.00						3	104.70		
End of Test Pit (TP dry upon completion)									

Pen. Resist. Blows/0.3m: ○ Water Content % — 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 6-15

BORINGS BY Backhoe **DATE** November 30, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	111.30		
FILL: Grey silty clay with sand, gravel, cobbles and boulders - rootlets in upper 100mm		G	1						
0.80						1	110.30		
Compact, grey **SILTY SAND**		G	2						
3.00						2	109.30		
End of Test Pit (TP dry upon completion)						3	108.30		

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %; 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 7-15

BORINGS BY Backhoe **DATE** December 1, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	111.90		
FILL: Grey-brown silty sand with gravel, cobbles and boulders - rootlets in upper 100mm		G	1			1	110.90		
						2	109.90		
2.20									
Very dense, brown **SILTY SAND**, trace gravel		G	2						
3.00						3	108.90		
End of Test Pit (TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %
Scale: 20 40 60 80

Shear Strength (kPa)
Scale: 20 40 60 80 100
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

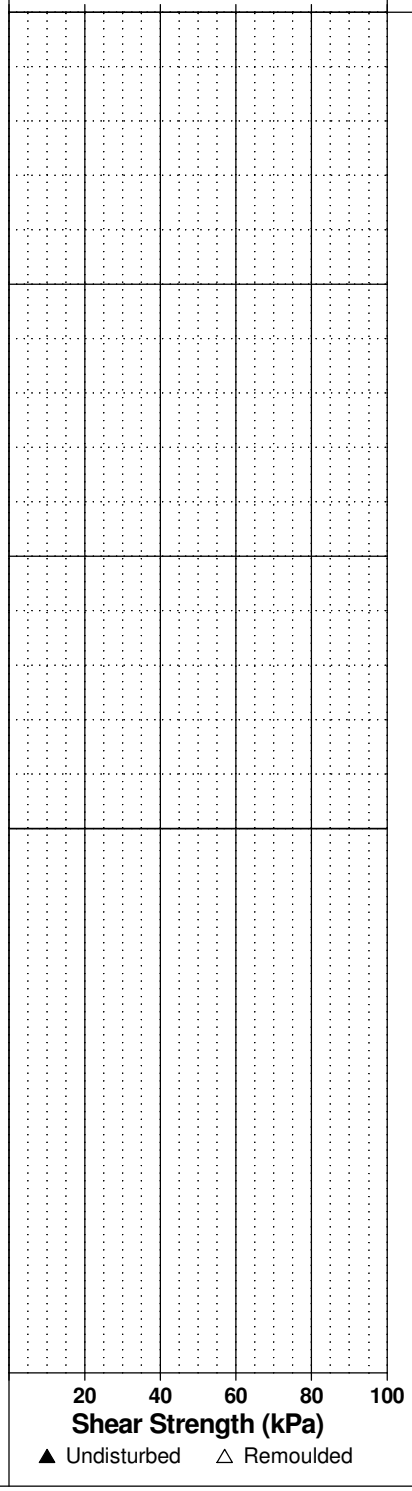
FILE NO. PG3607

REMARKS

HOLE NO. TP 8-15

BORINGS BY Backhoe **DATE** December 1, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	109.30		
Dense, brown **SILTY SAND**		G	1			1	108.30		
						2	107.30		
3.00 End of Test Pit (TP dry upon completion)		G	2			3	106.30		



patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 9-15

BORINGS BY Backhoe **DATE** December 2, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	108.40		
TOPSOIL 0.20									
Brown **SILTY SAND**, trace cobbles		G	1			1	107.40		
						2	106.40		
3.00		G	2			3	105.40		
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: ○ Water Content % — 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 10-15

BORINGS BY Backhoe **DATE** December 2, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	106.00	20 40 60 80	
TOPSOIL with roots									
0.30									
Very dense, brown **SILTY SAND** with gravel, cobbles and oversized boulders		G	1			1	105.00		
1.70									
End of Test Pit									
Test pit terminated on oversized boulders									
(TP dry upon completion)									

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 11-15

BORINGS BY Backhoe **DATE** December 2, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	103.00		
Dark brown **SANDY SILT** with roots									
0.30									
		G	1			1	102.00		
Compact to very dense, brown **SILTY SAND**, some gravel and cobbles									
		G	2			2	101.00		
3.00									
End of Test Pit						3	100.00		
(TP dry upon completion)									

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 12-15

BORINGS BY Backhoe **DATE** November 23, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	105.40		
Loose, brown **SILTY SAND** with gravel, cobbles and boulders		G	1			1	104.40		
1.20									
Compact, grey **SILTY SAND**		G	2			2	103.40		
3.00						3	102.40		
End of Test Pit (TP dry upon completion)									

Pen. Resist. Blows/0.3m: 20 40 60 80

Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 13-15

BORINGS BY Backhoe **DATE** November 30, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	106.60		
Compact, brown **SILTY SAND** with gravel, cobbles and boulders									
- grey by 0.4m depth		G	1			1	105.60		
		G	2			2	104.60		
3.00						3	103.60		
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %
20 40 60 80

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

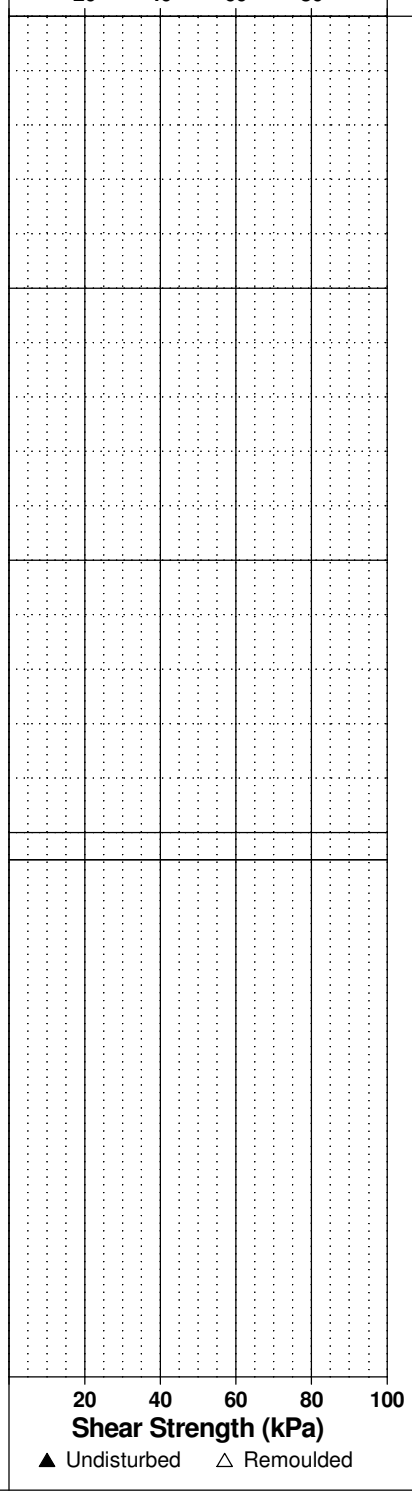
FILE NO. PG3607

REMARKS

HOLE NO. TP 14-15

BORINGS BY Backhoe **DATE** November 30, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	107.00		
Loose, brown **SILTY SAND** with gravel, cobbles and boulders									
- grey by 0.5m depth		G	1			1	106.00		
		G	2			2	105.00		
3.10						3	104.00		
End of Test Pit									
(TP dry upon completion)									



patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 15-15

BORINGS BY Backhoe **DATE** November 30, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	109.40		
FILL: Grey-brown silty clay with sand, gravel, cobbles, boulders and debris - rootlets in upper 200mm		G	1			1	108.40		
		G	2			2	107.40		
3.00						3	106.40		
End of Test Pit (TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %; 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 16-15

BORINGS BY Backhoe **DATE** November 30, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	108.50		
TOPSOIL									
0.40									
Compact, brown **SILTY SAND,** trace organics		G	1						
- grey by 0.9m depth						1	107.50		
		G	2			2	106.50		
3.00									
End of Test Pit						3	105.50		
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %; scale 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 17-15

BORINGS BY Backhoe **DATE** December 1, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	110.50		
FILL: Brown silty sand with gravel and cobbles, some boulders - rootlets in upper 150mm		G	1			1	109.50		
		G	2			2	108.50		
3.00						3	107.50		
End of Test Pit (TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %; 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100; ▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 18-15

BORINGS BY Backhoe **DATE** December 1, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	107.40		
Dense to very dense, brown **SILTY SAND,** some gravel and cobbles, trace to some boulders		G	1			1	106.40		
- rootlets in upper 100mm						2	105.40		
		G	2						
3.00						3	104.40		
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: 20 40 60 80

Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 19-15

BORINGS BY Backhoe **DATE** December 1, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	104.40		
Compact to very dense, brown **SILTY SAND** with gravel, some cobbles and boulders		G	1			1	103.40		
		G	2			2	102.40		
End of Test Pit (TP dry upon completion)						3	101.40		

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %; 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100; ▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 20-15

BORINGS BY Backhoe **DATE** December 2, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	101.90		
TOPSOIL 0.20									
Loose, dark brown **SILTY SAND**, some gravel 0.70		G	1						
Stiff, light grey **SILTY CLAY**, some cobbles and boulders 1.50		G	2			1	100.90		
Very dense, light grey **SILTY SAND** with gravel, cobbles and boulders 3.00		G	3			2	99.90		
End of Test Pit						3	98.90		
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %; scale 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 21-15

BORINGS BY Backhoe **DATE** November 23, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.15						0	104.50		
Very stiff, brown **CLAYEY SILT**		G	1			1	103.50		
1.80									
Dense to compact, brown **SILTY SAND** with clay		G	2			2	102.50		
3.10						3	101.50		
End of Test Pit (TP dry upon completion)									

Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 22-15

BORINGS BY Backhoe **DATE** November 23, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	104.40		
Loose, brown **SILTY SAND** with roots		G	1						
						1	103.40		▽
1.30									
Very stiff, grey **CLAYEY SILT**		G	2			2	102.40		
3.00						3	101.40		
End of Test Pit									
(Open hole GWL @ 1.6m depth)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %; scale 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 23-15

BORINGS BY Backhoe **DATE** November 30, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	107.00		
Compact, brown **SILTY SAND**		G	1						
- grey by 0.8m depth						1	106.00		
		G	2			2	105.00		
3.00						3	104.00		
End of Test Pit									
(TP dry upon completion)									

20 40 60 80

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 24-15

BORINGS BY Backhoe **DATE** November 30, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	107.40		
FILL: Grey silty clay with sand, gravel, cobbles and boulders		G	1						
0.80						1	106.40		
Compact, brown **SILTY SAND**		G	2						
- grey by 2.0m depth						2	105.40		
		G	3						
3.00						3	104.40		
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %

20 40 60 80

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 25-15

BORINGS BY Backhoe **DATE** November 30, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	106.80		
Compact, brown **SILTY SAND**		G	1						
- grey by 0.8m depth						1	105.80		
						2	104.80		
		G	2						
3.00						3	103.80		
End of Test Pit									
(TP dry upon completion)									

Water Content % scale: 20 40 60 80

Shear Strength (kPa) scale: 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 26-15

BORINGS BY Backhoe **DATE** November 30, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	107.70		
Compact, brown **SILTY SAND**		G	1						
- grey by 1.1m depth						1	106.70		
						2	105.70		
		G	2						
3.00						3	104.70		
End of Test Pit									
(TP dry upon completion)									

Water Content % scale: 20 40 60 80

Shear Strength (kPa) scale: 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 27-15

BORINGS BY Backhoe **DATE** November 30, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	109.90		
Compact, brown **SILTY SAND** with gravel, cobbles and boulders		G	1						
- grey by 0.8m depth						1	108.90		
		G	2			2	107.90		
3.00						3	106.90		
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %; 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100; ▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

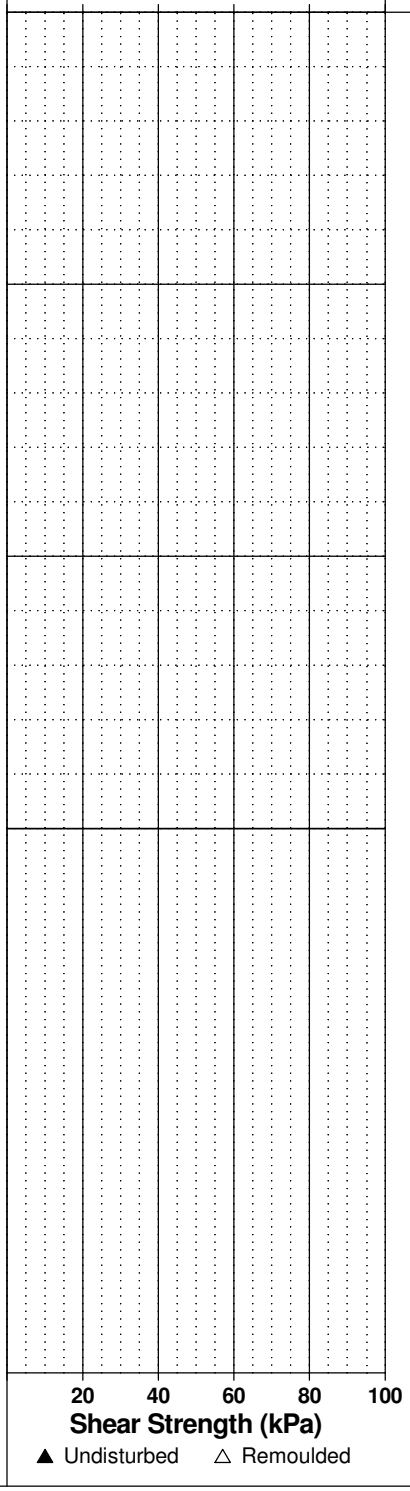
FILE NO. PG3607

REMARKS

HOLE NO. TP 28-15

BORINGS BY Backhoe **DATE** December 1, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	110.70		
FILL: Brown silty sand with gravel, some cobbles and boulders - rootlets in upper 150mm		G	1						
1.05						1	109.70		
Compact, brown **SILTY SAND**, some gravel		G	2			2	108.70		
3.00						3	107.70		
End of Test Pit (TP dry upon completion)									



patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 29-15

BORINGS BY Backhoe **DATE** December 1, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	106.20		
FILL: Dark brown silty sand with gravel and cobbles, trace boulders - rootlets in upper 100mm		G	1						
0.70						1	105.20		
Dense, brown **SILTY SAND**, some gravel		G	2						
2.00						2	104.20		
Dense, brown **SILTY SAND** with gravel, cobbles and boulders									
3.00						3	103.20		
End of Test Pit (TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %; 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 30-15

BORINGS BY Backhoe **DATE** December 1, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	106.50		
Very dense, brown **SILTY SAND** with gravel, cobbles and boulders		G	1			1	105.50		
		G	2			2	104.50		
3.00						3	103.50		
End of Test Pit (TP dry upon completion)									

20 40 60 80

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 31-15

BORINGS BY Backhoe **DATE** December 1, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	105.50		
Very dense, brown **SILTY SAND** with gravel, cobbles and oversized boulders - rootlets in upper 100mm		G	1			1	104.50		
		G	2			2	103.50		
3.00						3	102.50		
End of Test Pit (TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %; scale 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100; ▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 32-15

BORINGS BY Backhoe **DATE** December 1, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	103.50		
Dense to very dense, brown **SILTY SAND** with gravel, cobbles and boulders		G	1			1	102.50		
		G	2			2	101.50		
End of Test Pit (Open hole GWL @ 0.8m depth)						3	100.50		

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %
20 40 60 80

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 33-15

BORINGS BY Backhoe **DATE** December 2, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	103.00		
Very dense, light brown **SILTY SAND**, some gravel, cobbles and boulders - rootlets in upper 200mm		G	1			1	102.00		
						2	101.00		
2.80 Compact, brown **SILTY SAND**, trace gravel 3.00		G	2			3	100.00		
End of Test Pit (TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %
20 40 60 80

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 34-15

BORINGS BY Backhoe **DATE** November 23, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	103.70		
Loose, brown **SILTY SAND** with roots		G	1						
- grey by 0.5m depth						1	102.70		
		G	2			2	101.70		
3.10						3	100.70		
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %

20 40 60 80

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

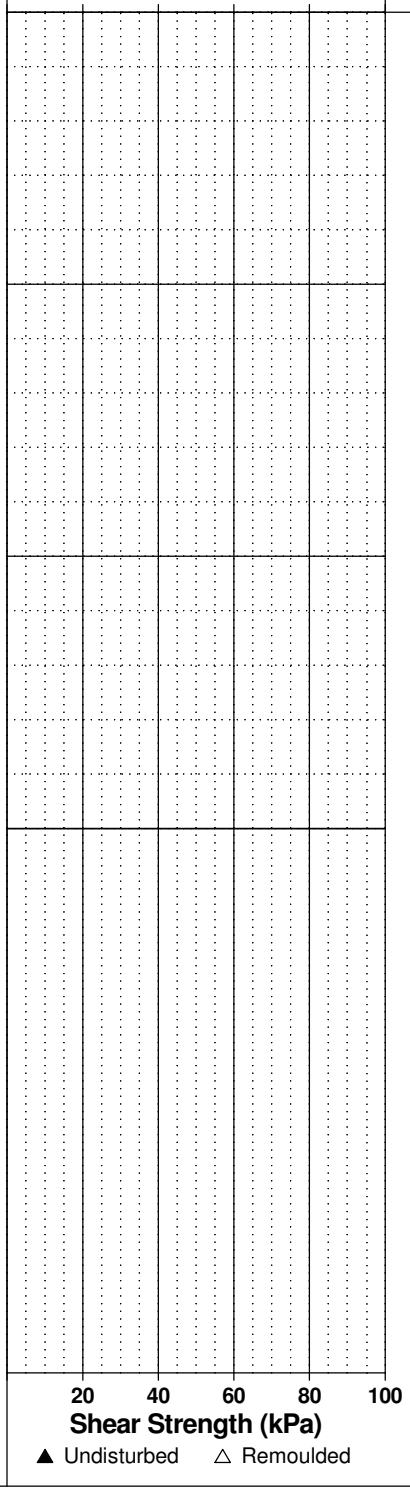
FILE NO. PG3607

REMARKS

HOLE NO. TP 35-15

BORINGS BY Backhoe **DATE** November 23, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	103.90		
Loose to compact, brown **SILTY SAND,** trace gravel and rootlets		G	1						
- grey by 0.8m depth						1	102.90		
		G	2			2	101.90		
3.00						3	100.90		
End of Test Pit									
(TP dry upon completion)									



patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 36-15

BORINGS BY Backhoe **DATE** November 23, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	104.00		
Loose to compact, brown **SILTY SAND,** trace gravel and roots		G	1			1	103.00		
- grey by 0.7m depth		G	2			2	102.00		
3.00						3	101.00		
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: 20 40 60 80

Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 37-15

BORINGS BY Backhoe **DATE** November 23, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	104.10		
Loose to compact, brown **SILTY SAND** with trace to some gravel, cobbles and roots		G	1						
- dense and grey by 1.5m depth						1	103.10		
		G	2			2	102.10		
2.30									
Grey **SILTY SAND**		G	3						
3.00						3	101.10		
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %
20 40 60 80

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

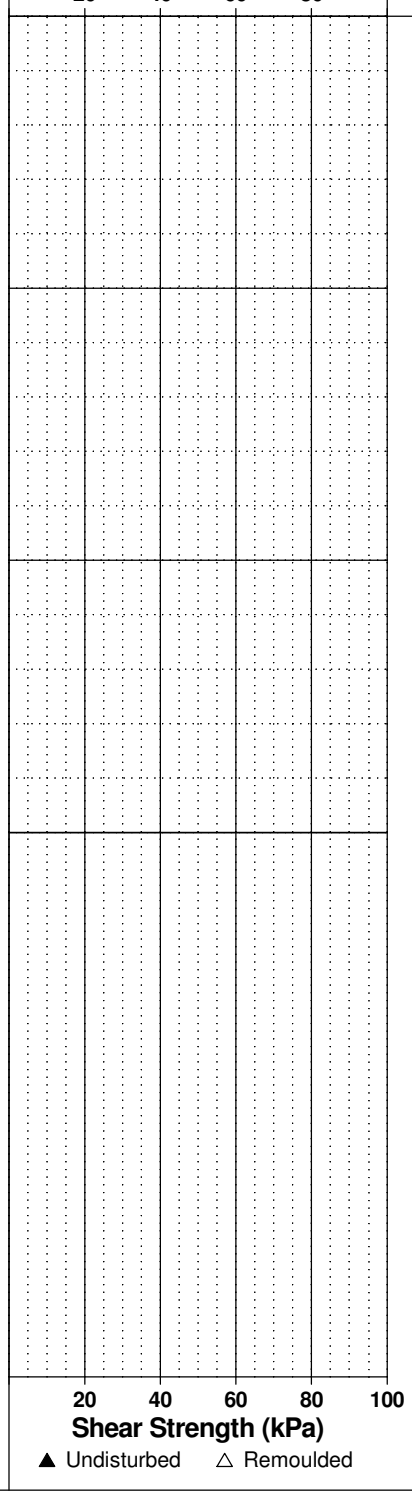
FILE NO. PG3607

REMARKS

HOLE NO. TP 38-15

BORINGS BY Backhoe **DATE** November 23, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	104.40		
Loose to compact, brown **SILTY SAND**, trace to some gravel, cobbles and roots		G	1						
- grey by 0.9m depth						1	103.40		
		G	2			2	102.40		
3.00						3	101.40		
End of Test Pit									
(TP dry upon completion)									



patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

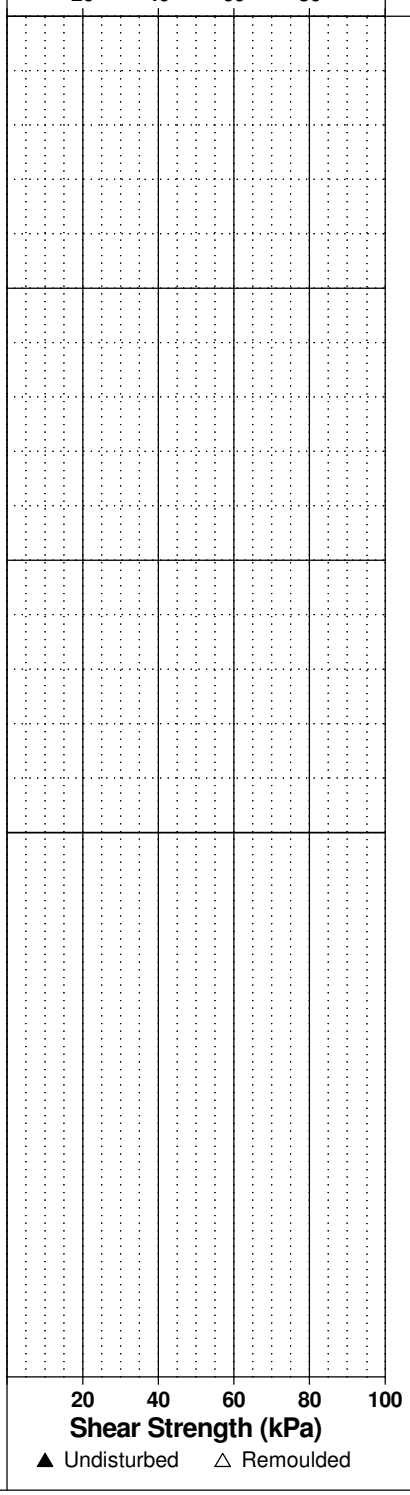
FILE NO. PG3607

REMARKS

HOLE NO. TP 39-15

BORINGS BY Backhoe **DATE** November 23, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	105.20		
Loose to compact, brown **SILTY SAND**		G	1						
- grey by 0.8m depth						1	104.20		
		G	2			2	103.20		
3.00						3	102.20		
End of Test Pit									
(TP dry upon completion)									



patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 40-15

BORINGS BY Backhoe **DATE** November 23, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	106.30		
Loose to compact, brown **SILTY SAND**		G	1						
- grey by 0.9m depth						1	105.30		
						2	104.30		
		G	2						
						3	103.30		
3.20									
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %
20 40 60 80

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 41-15

BORINGS BY Backhoe **DATE** November 30, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	107.20		
Compact, brown **SILTY SAND**									
- grey by 0.4m depth		G	1			1	106.20		
		G	2			2	105.20		
3.00						3	104.20		
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: 20 40 60 80

Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

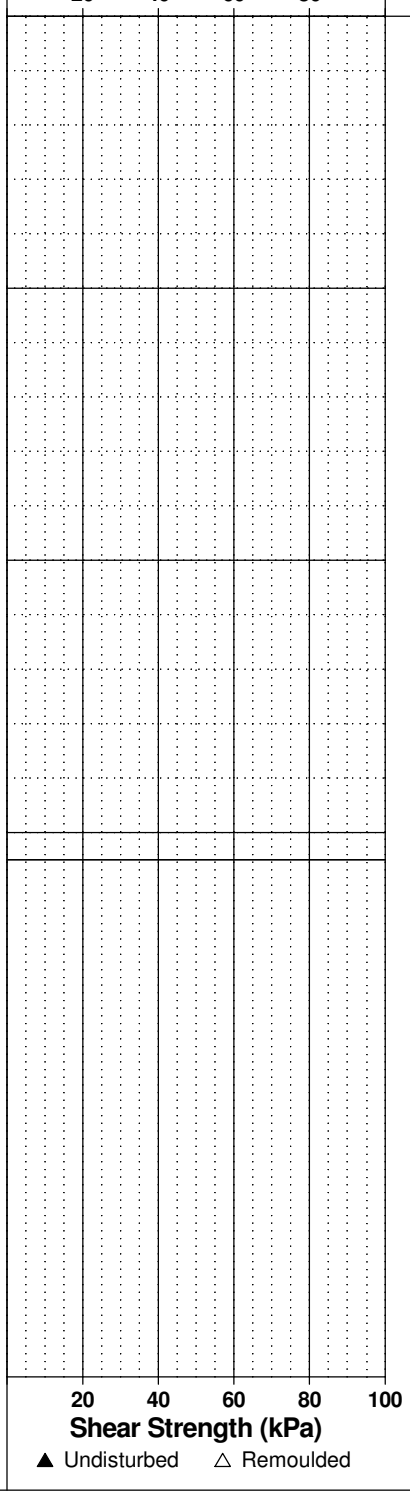
FILE NO. PG3607

REMARKS

HOLE NO. TP 42-15

BORINGS BY Backhoe **DATE** November 30, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	107.90		
Compact, brown **SILTY SAND** with gravel, cobbles and boulders		G	1						
- grey by 0.7m depth						1	106.90		
		G	2			2	105.90		
3.10						3	104.90		
End of Test Pit									
(TP dry upon completion)									



patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 43-15

BORINGS BY Backhoe **DATE** December 1, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	110.20		
FILL: Compact, brown silty sand with gravel, cobbles and boulders - rootlets in upper 150mm		G	1						
						0.80			
Compact, brown **SILTY SAND**		G	2			1	109.20		
						2	108.20		
						3	107.20		
						3.00			
End of Test Pit (TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %; 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 44-15

BORINGS BY Backhoe **DATE** December 1, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	107.80		
FILL: Dark brown, silty sand with gravel, cobbles and boulders - rootlets in upper 100mm		G	1						
0.60						1	106.80		
Very dense, brown **SILTY SAND** with gravel, cobbles and boulders		G	2			2	105.80		
3.00						3	104.80		
End of Test Pit (TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %; 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 45-15

BORINGS BY Backhoe **DATE** December 1, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	104.60		
FILL: Brown silty sand with gravel, cobbles and boulders		G	1						
- rootlets in upper 100mm									
0.70						1	103.60		
Dense to very dense, brown **SILTY SAND** with gravel, cobbles and boulders									
		G	2			2	102.60		
3.00						3	101.60		
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %; 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 46-15

BORINGS BY Backhoe **DATE** December 1, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	105.40		
Very dense, brown **SILTY SAND** with gravel, cobbles and boulders		G	1			1	104.40		
		G	2			2	103.40		
3.00						3	102.40		
End of Test Pit (TP dry upon completion)									

20 40 60 80

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

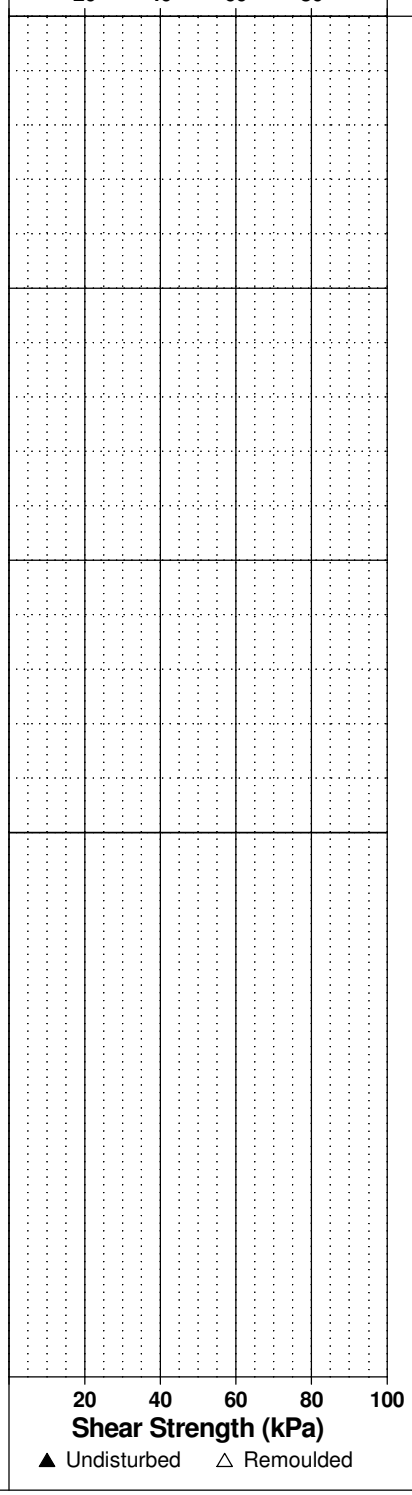
FILE NO. PG3607

REMARKS

HOLE NO. TP 47-15

BORINGS BY Backhoe **DATE** December 1, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	106.00		
Dense to very dense, brown **SILTY SAND** with gravel, cobbles and occasional large boulders		G	1			1	105.00		
- rootlets in upper 100mm		G	2			2	104.00		
3.00						3	103.00		
End of Test Pit									
(TP dry upon completion)									



patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 48-15

BORINGS BY Backhoe **DATE** December 2, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	104.80		
Very dense, light brown **SILTY SAND** with gravel, cobbles and boulders - rootlets in upper 150mm		G	1			1	103.80		
		G	2			2	102.80		
Compact, brown **SILTY SAND**, trace gravel						3	101.80		
End of Test Pit (TP dry upon completion)									

2.00

3.00

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %; 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

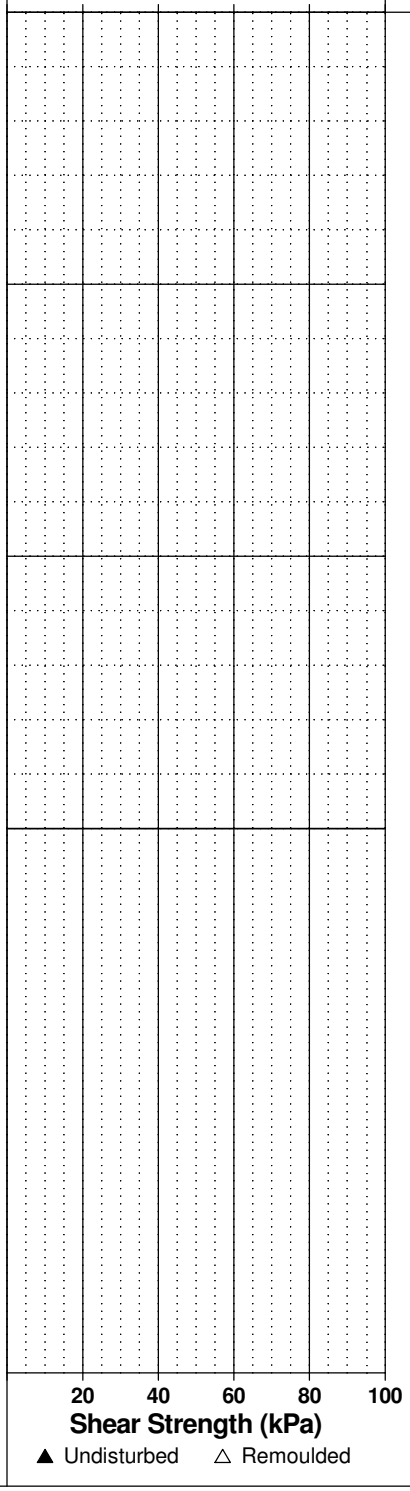
FILE NO. PG3607

REMARKS

HOLE NO. TP 49-15

BORINGS BY Backhoe **DATE** November 23, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	103.00		
Loose compact, brown **SILTY SAND** with roots in upper 300mm		G	1			1	102.00		
- grey by 1.3m depth		G	2			2	101.00		
3.00						3	100.00		
End of Test Pit									
(TP dry upon completion)									



patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 50-15

BORINGS BY Backhoe **DATE** November 23, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.15						0	102.40		
Loose to compact, brown **SILTY SAND**		G	1			1	101.40		
- grey by 1.1m depth		G	2			2	100.40		
3.00 End of Test Pit		G	3			3	99.40		▽
(Open hole GWL @ 2.9m depth)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %
20 40 60 80

Shear Strength (kPa)
20 40 60 80 100
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 51-15

BORINGS BY Backhoe **DATE** November 23, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL						0	103.00		
0.20									
Loose to compact, brown **SILTY SAND,** trace gravel and cobbles - grey by 0.5m depth		G	1			1	102.00		
1.30									
Compact, grey **SILTY SAND**		G	2			2	101.00		
3.00						3	100.00		
End of Test Pit (TP dry upon completion)									

Pen. Resist. Blows/0.3m: 20 40 60 80

Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 52-15

BORINGS BY Backhoe **DATE** November 23, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	103.10		
Loose to compact, brown **SILTY SAND,** some roots in upper 100mm		G	1						
- grey by 0.5m depth						1	102.10		
		G	2			2	101.10		
3.00						3	100.10		
End of Test Pit									
(TP dry upon completion)									

20 40 60 80

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 53-15

BORINGS BY Backhoe **DATE** November 23, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	103.20		
		G	1						
						1	102.20		
Loose, brown **SILTY SAND**, trace gravel and cobbles. Roots in upper 400mm		G	2						
						2	101.20		
3.00						3	100.20		
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: 20 40 60 80

Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 54-15

BORINGS BY Backhoe **DATE** November 23, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	105.00		
Loose to compact, brown **SILTY SAND** with trace to some gravel, cobbles and roots		G	1			1	104.00		
- grey by 0.9m depth		G	2			2	103.00		
3.10						3	102.00		
End of Test Pit (TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %; 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100; ▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 55-15

BORINGS BY Backhoe **DATE** November 30, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	105.30		
Compact, brown **SILTY SAND**		G	1						
- rootlets in upper 100mm									
- grey by 0.9m depth						1	104.30		
						2	103.30		
		G	2						
3.00						3	102.30		
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %; scale 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 56-15

BORINGS BY Backhoe **DATE** November 30, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	106.50		
Compact, brown **SILTY SAND**		G	1						
- rootlets in upper 200mm						1	105.50		
- grey by 1.1m depth									
						2	104.50		
		G	2						
3.00						3	103.50		
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %; 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 57-15

BORINGS BY Backhoe **DATE** November 24, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.15		G	1			0	109.00		
Brown **SILTY SAND**									
- with gravel, cobbles and boulders from 1.0 to 1.3m depth		G	2			1	108.00		
- grey by 1.3m depth		G	3						
						2	107.00		
3.00						3	106.00		
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %; scale 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 58-15

BORINGS BY Backhoe **DATE** November 24, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.15		G	1			0	107.60		
Red-brown to grey **SILTY SAND** with gravel, cobbles and boulders		G	2						
		G	3						
		G	4			1	106.60		
1.20									
		G	5						
Grey **SILTY SAND**						2	105.60		
3.00									
Grey **SILTY SAND** with gravel, cobbles and boulders 3.20						3	104.60		
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: 20 40 60 80

Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 59-15

BORINGS BY Backhoe **DATE** November 24, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	106.20		
TOPSOIL 0.05		G	1						
		G	2			1	105.20		
Brown **SILTY SAND** with gravel, cobbles and boulders - grey by 0.5m depth						2	104.20		
		G	3						
3.00						3	103.20		
End of Test Pit (TP dry upon completion)									

Pen. Resist. Blows/0.3m: 20 40 60 80

Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 60-15

BORINGS BY Backhoe **DATE** November 24, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	104.10		
Red-brown **SILTY SAND** with gravel, cobbles and boulders, trace organics		G	1						
0.56									
		G	2			1	103.10		
Loose, grey-brown **SILTY SAND**									
2.10		G	3			2	102.10		
Grey **SILTY SAND** with gravel, cobbles and boulders									
3.00						3	101.10		
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: 20 40 60 80

Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 61-15

BORINGS BY Backhoe **DATE** November 24, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	104.90		
Very dense, grey-brown **SILTY SAND** with gravel, cobbles and boulders		G	1			1	103.90		
						2	102.90		
2.20									
End of Test Pit (TP dry upon completion)									

20 40 60 80

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 62-15

BORINGS BY Backhoe **DATE** November 20, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	101.40		
TOPSOIL 0.30		G	1						
Brown **SILTY SAND**						1	100.40		
- grey by 0.9m depth		G	2						
		G	3			2	99.40		▽
3.00 End of Test Pit						3	98.40		
(Open hole GWL @ 2.5m depth)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %; 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 63-15

BORINGS BY Backhoe **DATE** November 20, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.15		G	1			0	101.60		
		G	2			1	100.60		
Brown **SILTY SAND**, some clay						2	99.60		
3.00 End of Test Pit						3	98.60		
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %
20 40 60 80

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 64-15

BORINGS BY Backhoe **DATE** November 20, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	103.00		
TOPSOIL 0.30									
Brown **SILTY SAND**		G	1			1	102.00		
		G	2						
		G	3			2	101.00		
3.00 End of Test Pit (TP dry upon completion)						3	100.00		

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %; 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 65-15

BORINGS BY Backhoe **DATE** November 20, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL						0	104.00		
0.20									
Brown **SILTY SAND**		G	1						
- grey by 0.6m depth		G	2			1	103.00		
						2	102.00		
3.00						3	101.00		
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %

20 40 60 80

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 66-15

BORINGS BY Backhoe **DATE** December 2, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL						0	105.00		
0.25		G	1						
Compact, brown **SILTY SAND**						1	104.00		
						2	103.00		
		G	2						
3.00						3	102.00		
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: 20 40 60 80

Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 67-15

BORINGS BY Backhoe **DATE** November 20, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	110.60		
		G	1						
						1	109.60		
Compact, brown **SILTY SAND** with gravel									
						2	108.60		
- grey by 2.3m depth		G	2						
3.00						3	107.60		
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: 20 40 60 80

Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 68-15

BORINGS BY Backhoe **DATE** November 20, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	107.30		
TOPSOIL 0.10									
Loose **SANDY SILT** 0.30		G	1						
		G	2			1	106.30		
Compact, brown **SILTY SAND**						2	105.30		
		G	3						
3.00 End of Test Pit						3	104.30		
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %; scale 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 69-15

BORINGS BY Backhoe **DATE** November 24, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	105.00		
		G	1						
		G	2						
Brown **SILTY SAND** with gravel, cobbles and boulders.						1	104.00		
- grey by 1.1m depth									
						2	103.00		
						3	102.00		
3.30									
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %: 20, 40, 60, 80

Shear Strength (kPa): 20, 40, 60, 80, 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 70-15

BORINGS BY Backhoe **DATE** November 24, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	103.60		
		G	1						
		G	2			1	102.60		
Dense, grey-brown **SILTY SAND** with gravel, cobbles and boulders									
		G	3			2	101.60		
2.50									
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %; scale 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 71-15

BORINGS BY Backhoe **DATE** November 24, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	103.10		
Dense, grey-brown **SILTY SAND** with gravel, cobbles and boulders		G	1						
		G	2			1	102.10		
1.70									
End of Test Pit (TP dry upon completion)									

Pen. Resist. Blows/0.3m: 20 40 60 80

Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 72-15

BORINGS BY Backhoe **DATE** November 24, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	101.70		
Brown **SILTY SAND** with gravel, cobbles and boulders, trace clay		G	1			1	100.70		
		G	2			2	99.70		
2.10									
		G	3			3	98.70		
Brown **SILTY SAND**									
3.30									
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: 20 40 60 80

Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 73-15

BORINGS BY Backhoe **DATE** November 24, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	102.10		
		G	1						
		G	2			1	101.10		
Dark brown to grey-brown **SILTY SAND** with gravel, cobbles and boulders, trace clay									
		G	3			2	100.10		
3.00						3	99.10		
End of Test Pit (TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %
20 40 60 80

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 74-15

BORINGS BY Backhoe **DATE** November 24, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	101.00		
Compact, dark brown **SILTY SAND** with gravel, cobbles and boulders		G	1						
		G	2			1	100.00		
- grey by 1.2m depth		G	3						
		G	4			2	99.00		
3.10						3	98.00		
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 75-15

BORINGS BY Backhoe **DATE** November 24, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	98.00		
Dark brown **SILTY SAND** with gravel and cobbles, trace clay		G	1						
- grey by 1.1m depth		G	2			1	97.00		
						2	96.00		
2.90		G	3						
End of Test Pit									
(TP dry upon completion)									

20 40 60 80

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

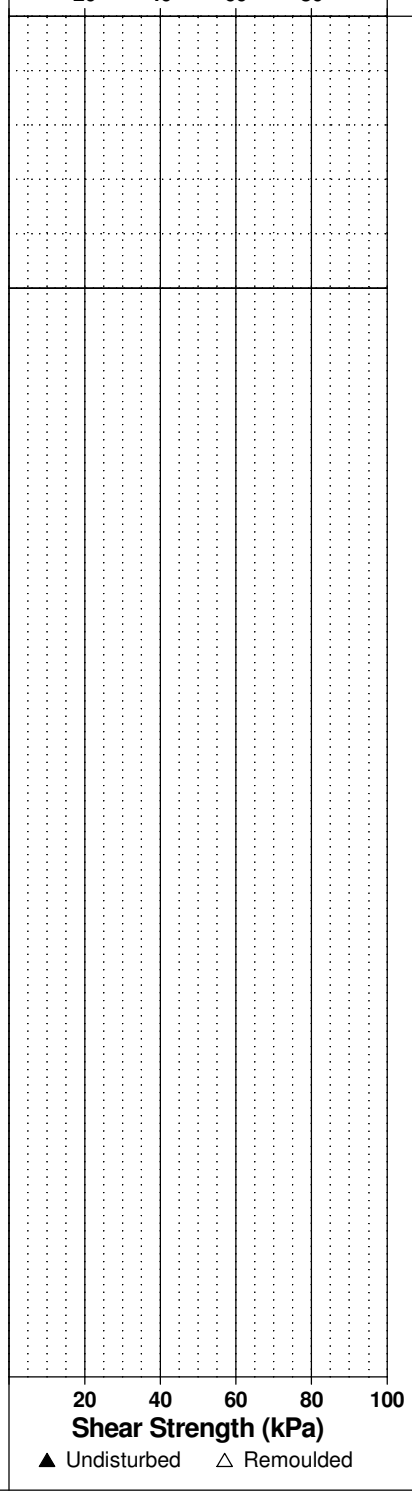
FILE NO. PG3607

REMARKS

HOLE NO. TP 76-15

BORINGS BY Backhoe **DATE** November 24, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	97.90		
Dense, brown **SILTY SAND** with gravel, cobbles and boulders									
1.00						1	96.90		
End of Test Pit									
(TP dry upon completion)									



patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 77-15

BORINGS BY Backhoe **DATE** November 24, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	98.40		
		G	1						
		G	2			1	97.40		
Grey **SILTY SAND** with gravel, cobbles and boulders						2	96.40		
		G	3						
3.00						3	95.40		
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %; 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 78-15

BORINGS BY Backhoe **DATE** November 20, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.15						0	100.80		
Brown **SILTY SAND**		G	1						
- grey by 0.8m depth		G	2			1	99.80		
1.60									
CLAYEY SILT		G	3			2	98.80		
		G	4						
3.00						3	97.80		
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %

20 40 60 80

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 79-15

BORINGS BY Backhoe **DATE** November 20, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	100.80		
TOPSOIL									
0.35									
Very stiff, brown **SILTY CLAY**		G	1			1	99.80		
		G	2			2	98.80		
3.00						3	97.80		
End of Borehole									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: 20 40 60 80

Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 80-15

BORINGS BY Backhoe **DATE** November 20, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL						0	101.10		
0.20									
Loose to compact, orange-brown **SILTY SAND**		G	1						
- grey by 0.8m depth		G	2			1	100.10		
2.50						2	99.10		
SILTY CLAY		G	3						
3.00						3	98.10		
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %; scale 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 81-15

BORINGS BY Backhoe **DATE** November 20, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	101.80		
TOPSOIL 0.30									
Brown **SILTY SAND** 1.05		G	1			1	100.80		
Very stiff, brown **SILTY CLAY** 3.00						2	99.80		
End of Test Pit						3	98.80		
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %

20 40 60 80

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 82-15

BORINGS BY Backhoe **DATE** November 20, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	102.50		
Brown **SILTY SAND**		G	1						
- rootlets in upper 100mm									
- grey by 0.5m depth		G	2			1	101.50		
1.55									
Stiff to very stiff, brown **SILTY CLAY**		G	3			2	100.50		
3.00						3	99.50		
End of Test Pit									
(TP dry upon completion)									

20 40 60 80

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 83-15

BORINGS BY Backhoe **DATE** November 20, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	104.90		
Orange **SILTY SAND**		G	1						
- grey by 0.7m depth						1	103.90		
		G	2						
						2	102.90		
3.00						3	101.90		
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %; scale 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

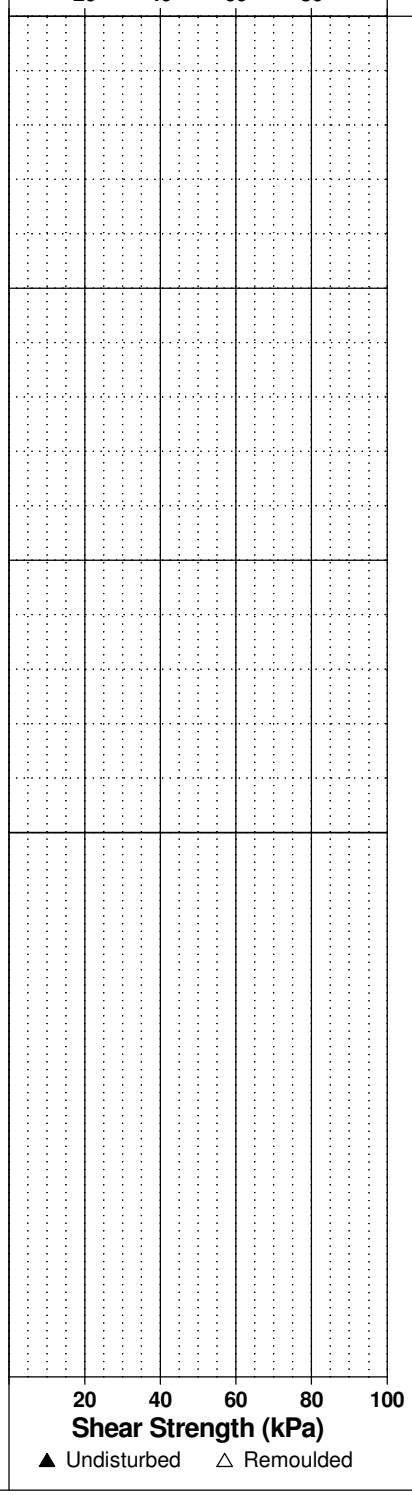
FILE NO. PG3607

REMARKS

HOLE NO. TP 84-15

BORINGS BY Backhoe **DATE** November 20, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	108.00		
TOPSOIL 0.30									
SILTY SAND with gravel 0.60		G	1						
		G	2			1	107.00		
SILTY SAND - trace clay by 1.2m depth		G	3						
		G	4			2	106.00		
3.00 End of Test Pit (TP dry upon completion)						3	105.00		



patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 85-15

BORINGS BY Backhoe **DATE** November 19, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.15		G	1			0	106.20		
		G	2			1	105.20		
Grey-brown **SILTY SAND** with gravel, cobbles and boulders		G	3			2	104.20		
2.90 End of Test Pit (TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %
20 40 60 80

Shear Strength (kPa)
20 40 60 80 100
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 86-15

BORINGS BY Backhoe **DATE** November 19, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.15						0	103.00		
Brown **SILTY SAND**, some gravel and cobbles 0.90		G	1						
		G	2			1	102.00		
Grey **SILTY SAND**						2	101.00		
		G	3						
3.10 End of Test Pit						3	100.00		
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %; 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100; ▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 87-15

BORINGS BY Backhoe **DATE** November 19, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.20						0	102.50		
Brown **SILTY SAND** with gravel, cobbles and boulders, trace clay 0.50		G	1						
		G	2						
						1	101.50		
Grey **SILTY SAND**									
						2	100.50		
		G	3						
3.00						3	99.50		
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: 20 40 60 80

Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 88-15

BORINGS BY Backhoe **DATE** November 19, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.12		G	1			0	102.10		
Grey-brown to grey **SILTY SAND** with gravel, cobbles and boulders		G	2			1	101.10		
1.30									
		G	3			2	100.10		
Grey **SILTY SAND**		G	4						
3.00						3	99.10		
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: 20 40 60 80

Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 89-15

BORINGS BY Backhoe **DATE** November 19, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.15						0	103.10		
Red-brown **SILTY SAND** with gravel, cobbles and boulders		G	1						
- grey by 0.7m depth		G	2			1	102.10		
						2	101.10		
2.80 End of Test Pit (TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %; scale 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 90-15

BORINGS BY Backhoe **DATE** November 19, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	104.50		
		G	1						
		G	2						
Red-brown to grey **SILTY SAND** with gravel, cobbles and boulders, trace clay						1	103.50		
		G	3			2	102.50		
2.70									
Grey **SILTY SAND**						3	101.50		
3.10									
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: 20 40 60 80

Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 91-15

BORINGS BY Backhoe **DATE** November 19, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	100.60		
Brown to grey **SILTY SAND** with gravel, cobbles and boulders						1	99.60		
						2	98.60		
3.00						3	97.60		
End of Test Pit (TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %
20 40 60 80

Shear Strength (kPa)
20 40 60 80 100
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 92-15

BORINGS BY Backhoe **DATE** November 19, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	98.20		
		G	1						
		G	2						
Brown **SILTY SAND** with gravel, cobbles and boulders						1	97.20		
- grey by 1.0m depth									
		G	3			2	96.20		
3.00						3	95.20		
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: 20 40 60 80

Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 93-15

BORINGS BY Backhoe **DATE** November 19, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	98.60		
FILL: Brown silty sand with gravel, cobbles and boulders, trace clay									
0.25									
TOPSOIL		G	1			1	97.60		
1.20									
Grey **SILTY SAND**, trace clay		G	2						
1.90						2	96.60		
Grey **SILTY SAND** with gravel, cobbles and boulders, trace clay		G	3						
2.60									
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %
20 40 60 80

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 94-15

BORINGS BY Backhoe **DATE** November 17, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.15						0	99.90		
Loose, brown **SILTY SAND**		G	1			1	98.90		▽
- grey by 1.1m depth		G	2						
		G	3			2	97.90		
2.70 End of Test Pit									
(Open hole GWL @ 1.55m depth)									

Pen. Resist. Blows/0.3m: 20 40 60 80

Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 95-15

BORINGS BY Backhoe **DATE** November 17, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL						0	99.90		
0.25									
Loose, brown **SILTY SAND**		G	1						
- grey by 0.8m depth		G	2			1	98.90		▽
		G	3			2	97.90		
		G	4						
2.70									
End of Test Pit									
(Open hole GWL @ 1.6m depth)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %; scale 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 96-15

BORINGS BY Backhoe **DATE** November 17, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.12						0	100.00		
Loose, brown **SILTY SAND**		G	1						
-grey by 0.8m depth		G	2			1	99.00		
		G	3			2	98.00		
2.95 End of Test Pit (TP dry upon completion)									

Pen. Resist. Blows/0.3m: 20 40 60 80

Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 97-15

BORINGS BY Backhoe **DATE** November 17, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	100.20		
TOPSOIL 0.23									
Loose to compact, brown **SILTY SAND**, trace clay and gravel		G	1			1	99.20		
- grey by 1.1m depth		G	2			2	98.20		
		G	3			3	97.20		
3.00 End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: 20 40 60 80

Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 98-15

BORINGS BY Backhoe **DATE** November 17, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	100.60		
TOPSOIL 0.25									
Compact, brown to grey-brown **SILTY SAND**, trace clay and gravel		G	1			1	99.60		
		G	2						
		G	3			2	98.60		
2.90									
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: 20 40 60 80

Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP 99-15

BORINGS BY Backhoe **DATE** November 17, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	101.50		
TOPSOIL 0.20									
Loose to compact, brown **SILTY SAND**, trace clay and gravel		G	1						
- grey by 0.8m depth		G	2			1	100.50		
		G	3			2	99.50		
3.00						3	98.50		
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %; 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100; ▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP100-15

BORINGS BY Backhoe **DATE** November 17, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	102.00		
TOPSOIL 0.23									
Loose, brown **SILTY SAND**, trace gravel and cobbles 0.70						1	101.00		
Loose, grey **SILTY SAND**		G	1						
2.80		G	2			2	100.00		
End of Test Pit (TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %; 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP101-15

BORINGS BY Backhoe **DATE** November 17, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.18						0	102.10		
Brow **SILTY SAND**, trace gravel and cobbles 0.50		G	1						
						1	101.10		
Loose to compact, grey **SILTY SAND**		G	2						
						2	100.10		
		G	3						
2.90									
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: 20 40 60 80

Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP102-15

BORINGS BY Backhoe **DATE** November 17, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.15						0	103.00		
Brown **SILTY SAND**, trace gravel and cobbles		G	1						
0.65		G	2			1	102.00		
Loose to compact, grey **SILTY SAND**, trace clay						2	101.00		
		G	3			3	100.00		
3.20									
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: 20 40 60 80

Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP103-15

BORINGS BY Backhoe **DATE** November 17, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL						0	105.50		
0.20									
Compact, dark brown to grey **SILTY SAND** with gravel, cobbles and boulders		G	1			1	104.50		
		G	2						
1.50									
Loose, grey **SILTY SAND**		G	3			2	103.50		
3.00						3	102.50		
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: 20 40 60 80

Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP104-15

BORINGS BY Backhoe **DATE** November 18, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL						0	102.60		
0.20									
Brown **SILTY SAND**, trace gravel, cobbles and boulders		G	1						
0.65									
		G	2			1	101.60		
Grey **SILTY SAND**						2	100.60		
3.00		G	3			3	99.60		
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: 20 40 60 80

Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP105-15

BORINGS BY Backhoe **DATE** November 19, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.23						0	103.60		
Loose, brown **SILTY SAND**, some gravel, cobbles and boulders		G	1			1	102.60		
1.20									
Grey **SILTY SAND**						2	101.60		
2.20		G	2						
Loose grey **SILTY SAND**, some gravel, cobbles and boulders									
2.70									
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: 20 40 60 80

Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP106-15

BORINGS BY Backhoe **DATE** November 19, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	104.50	20 40 60 80	
TOPSOIL 0.20									
Dark brown to grey **SILTY SAND** with gravel, cobbles and boulders		G	1			1	103.50		
		G	2						
		G	3			2	102.50		
2.50									
Grey **SILTY SAND**						3	101.50		
3.10									
End of Test Pit									
(TP dry upon completion)									

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP107-15

BORINGS BY Backhoe **DATE** November 19, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	103.20		
		G	1						
		G	2						
		G	3			1	102.20		
Brown to grey **SILTY SAND** with gravel, cobbles and boulders						2	101.20		
3.00						3	100.20		
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %; 20 40 60 80

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP108-15

BORINGS BY Backhoe **DATE** November 19, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	99.80		
		G	1						
		G	2			1	98.80		
Dark brown to grey **SILTY SAND** with gravel, cobbles and boulders									
		G	3			2	97.80		
						2.80			
End of Test Pit (TP dry upon completion)									

Pen. Resist. Blows/0.3m: 20 40 60 80

Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP109-15

BORINGS BY Backhoe **DATE** November 19, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.10						0	99.00		
Brown to grey **SILTY SAND** with gravel, cobbles and boulders, trace clay		G	1			1	98.00		
		G	2						
2.00 End of Test Pit						2	97.00		
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %

20 40 60 80

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP110-15

BORINGS BY Backhoe **DATE** November 19, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.05						0	98.50		
		G	1						
		G	2			1	97.50		
Red-brown to grey **SILTY SAND** with gravel, cobbles and boulders, trace clay									
		G	3			2	96.50		
3.00						3	95.50		
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: 20 40 60 80

Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP111-15

BORINGS BY Backhoe **DATE** November 17, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.20						0	99.50		
Compact, brown **SILTY SAND**		G	1						
- grey by 1.2m depth		G	2			1	98.50		▽
		G	3			2	97.50		
2.60 End of Test Pit									
(Open hole GWL @ 1.5m depth)									

Pen. Resist. Blows/0.3m: 20 40 60 80

Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP112-15

BORINGS BY Backhoe **DATE** November 18, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.23						0	99.60		
Loose to compact, brown **SILTY SAND**		G	1			1	98.60		▽
- grey by 1.4m depth		G	2			2	97.60		
2.90		G	3						
End of Test Pit									
(Open hole GWL @ 1.5m depth)									

Pen. Resist. Blows/0.3m: 20 40 60 80

Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP113-15

BORINGS BY Backhoe **DATE** November 18, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	100.00	20 40 60 80	
TOPSOIL 0.20									
Compact, brown **SILTY SAND** with clay		G	1			1	99.00		▽
- grey by 1.4m depth									
		G	2			2	98.00		
		G	3						
3.10						3	97.00		
End of Test Pit									
(Open hole GWL @ 1.5m depth)									

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP114-15

BORINGS BY Backhoe **DATE** November 18, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL						0	100.00		
0.25									
		G	1						
Loose to compact, grey-brown **SILTY SAND**						1	99.00		▽
- grey by 1.2m depth		G	2						
						2	98.00		
3.00		G	3						
End of Test Pit						3	97.00		
(Open hole GWL @ 1.5m depth)									

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP115-15

BORINGS BY Backhoe **DATE** November 18, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	100.20		
TOPSOIL 0.28		G	1						
		G	2			1	99.20		
Compact, grey-brown **SILTY SAND** - grey by 1.0m depth		G	3						
						2	98.20		
2.95 End of Test Pit (TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %; 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100; ▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP116-15

BORINGS BY Backhoe **DATE** November 18, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	100.80	20 40 60 80	
TOPSOIL 0.23		G	1						
		G	2						
		G	3						
Loose to compact, red-brown **SILTY SAND**						1	99.80		
- grey by 1.1m depth									
						2	98.80		
						3	97.80		
3.10 End of Test Pit									
(TP dry upon completion)									

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP117-15

BORINGS BY Backhoe **DATE** November 17, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.17						0	101.30		
		G	1						
		G	2			1	100.30		
Brown **SILTY SAND,** trace clay									
- grey by 1.4m depth		G	3						
						2	99.30		
		G	4						
3.00 End of Test Pit						3	98.30		
(TP dry upon completion)									

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP118-15

BORINGS BY Backhoe **DATE** November 17, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.15						0	101.70		
Brown **SILTY SAND**		G	1			1	100.70		
- with trace clay and grey by 1.3m depth		G	2			2	99.70		
		G	3			3	98.70		
3.00 End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: 20 40 60 80

Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

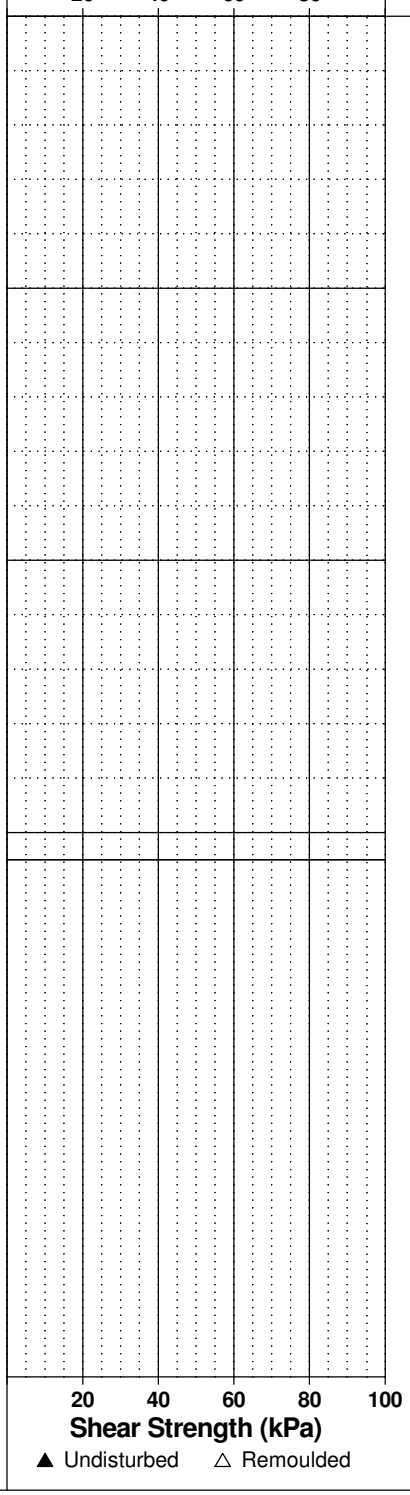
FILE NO. PG3607

REMARKS

HOLE NO. TP119-15

BORINGS BY Backhoe **DATE** November 17, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.20		G	1			0	102.80		
		G	2						
Brown **SILTY SAND**, trace gravel						1	101.80		
- grey by 1.0m depth		G	3						
						2	100.80		
- boulder noted at 2.5m depth		G	4						
3.10						3	99.80		
End of Test Pit									
(BH dry upon completion)									



patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP120-15

BORINGS BY Backhoe **DATE** November 18, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.20						0	104.60		
Loose to compact, brown **SILTY SAND**, some gravel, cobbles and boulders		G	1						
		G	2			1	103.60		
						2	102.60		
3.00		G	3			3	101.60		
End of Test Pit (TP dry upon completion)									

Pen. Resist. Blows/0.3m: 20 40 60 80

Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP121-15

BORINGS BY Backhoe **DATE** November 18, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.23						0	102.40		
Loose to compact, brown **SILTY SAND** with gravel, cobbles and boulders		G	1						
- grey by 0.7m depth		G	2			1	101.40		
						2	100.40		
3.00		G	3			3	99.40		
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: 20 40 60 80

Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP122-15

BORINGS BY Backhoe **DATE** November 18, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.16						0	102.10		
Loose red-brown **SILTY SAND**, trace cobbles and gravel 1.20		G	1			1	101.10		
Loose, grey **SILTY SAND**		G	2			2	100.10		
3.00 End of Test Pit		G	3			3	99.10		
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %
20 40 60 80

Shear Strength (kPa)
20 40 60 80 100
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP123-15

BORINGS BY Backhoe **DATE** November 18, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	100.50		
Loose, red to grey-brown **SILTY SAND**, some gravel, cobbles and boulders		G	1						
- grye by 1.0m depth		G	2			1	99.50		
1.80									
Loose, grey **SILTY SAND**						2	98.50		
2.70		G	3						
End of Test Pit									
(Open hole GWL @ 1.8m depth)									

Pen. Resist. Blows/0.3m: 20 40 60 80

Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP124-15

BORINGS BY Backhoe **DATE** November 18, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	99.50		
Compact, brown **SILTY SAND** with gravel, cobbles and boulders		G	1			1	98.50		▽
-grey by 2.2m depth		G	2			2	97.50		
2.60		G	3						
End of Test Pit									
(Open hole GWL @ 1.4m depth)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %; 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100; ▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Barrhaven South Urban Expansion
Ottawa, Ontario

DATUM Geodetic elevations interpolated from City of Ottawa basemap.

FILE NO. PG3607

REMARKS

HOLE NO. TP125-15

BORINGS BY Backhoe **DATE** November 18, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.10		G	1			0	98.10		
Compact, brown **SILTY SAND**, trace clay and gravel 0.30		G	2			1	97.10		
Compact, grey **SILTY SAND** with gravel, cobbles, boulders and clay		G	3			2	96.10		▽
3.00 End of Test Pit						3	95.10		
(Open hole GWL @ 2.6m depth)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %; 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup

Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Hydrogeological Investigation
Residential Development - Half Moon Bay South
Ottawa, Ontario

DATUM Ground surface elevations provided by J.D. Barnes Limited.

FILE NO. PG3450

REMARKS

HOLE NO. BH 1-15

BORINGS BY CME 55 Power Auger **DATE** March 6, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone / ○ Water Content %	Monitoring Well Construction
GROUND SURFACE						0	97.13		
GLACIAL TILL: Dense to compact, brown silty fine sand with gravel, trace clay		SS	1	100	35	1	96.13		
- grey by 1.7m depth		SS	2	100	27	2	95.13		
		SS	3	58	17	3	94.13		
		SS	4	58	11	4	93.13		
- 25mm thick coarse sand seam at 5.0m depth		SS	5	21	8	5	92.13		
5.18		SS	6	58	15				
End of Borehole									
(GWL @ 2.7m-March 23, 2015)									
(GWL @ 2.37m-April 21, 2015)									
(GWL @ 3.43m-May 12, 2015)									
Moderate groundwater infiltration rate									

Water Content % scale: 20, 40, 60, 80

Shear Strength (kPa): 20, 40, 60, 80, 100

▲ Undisturbed △ Remoulded

patersongroup

Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Hydrogeological Investigation
Residential Development - Half Moon Bay South
Ottawa, Ontario

DATUM Ground surface elevations provided by J.D. Barnes Limited.

FILE NO. PG3450

REMARKS

HOLE NO. BH 2-15

BORINGS BY CME 55 Power Auger **DATE** March 6, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	98.62
Dense, brown **SILTY** fine to medium **SAND**							
- brown by 0.8m depth		SS	1	100	31	1	97.62
1.20							
		SS	2	92	23	2	96.62
Compact, brown **SILTY FINE SAND**		SS	3	75	19		
		SS	4	100	24	3	95.62
3.66							
- running sand by 3.7m depth							
Compact, brown **SILTY** fine to medium **SAND**		SS	5	100	10	4	94.62
4.57							
End of Borehole							
(GWL @ 2.64m-March 23, 2015)							
(GWL @ 2.36m-April 21, 2015)							
(GWL @ 2.30m-May 12, 2015)							
High groundwater infiltration rate							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %

20 40 60 80

Monitoring Well Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

patersongroup

Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Hydrogeological Investigation
Residential Development - Half Moon Bay South
Ottawa, Ontario

DATUM Ground surface elevations provided by J.D. Barnes Limited.

FILE NO. PG3450

REMARKS

HOLE NO. BH 3-15

BORINGS BY CME 55 Power Auger **DATE** March 6, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	95.64
FILL: Brown silty sand with clay							
0.90							
		SS	1	100	10	1	94.64
Very stiff to stiff, brown **SILTY CLAY**		SS	2	100	4	2	93.64
- grey by 2.1m depth		SS	3	100	3		
		SS	4	100	1	3	92.64
		SS	5	100	1	4	91.64
- trace sand and gravel by 4.7m depth		SS	6	100	4		
5.18						5	90.64
End of Borehole							
(GWL @ 0.8m-March 23, 2015)							
(GWL @ 0.3m-April 21, 2015)							
(GWL @ 1.70m-May 12, 2015)							
Moderate groundwater infiltration rate							

Pen. Resist. Blows/0.3m
● **50 mm Dia. Cone**
○ **Water Content %**

20 40 60 80

Monitoring Well Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

patersongroup

Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Hydrogeological Investigation
Residential Development - Half Moon Bay South
Ottawa, Ontario

DATUM Ground surface elevations provided by J.D. Barnes Limited.

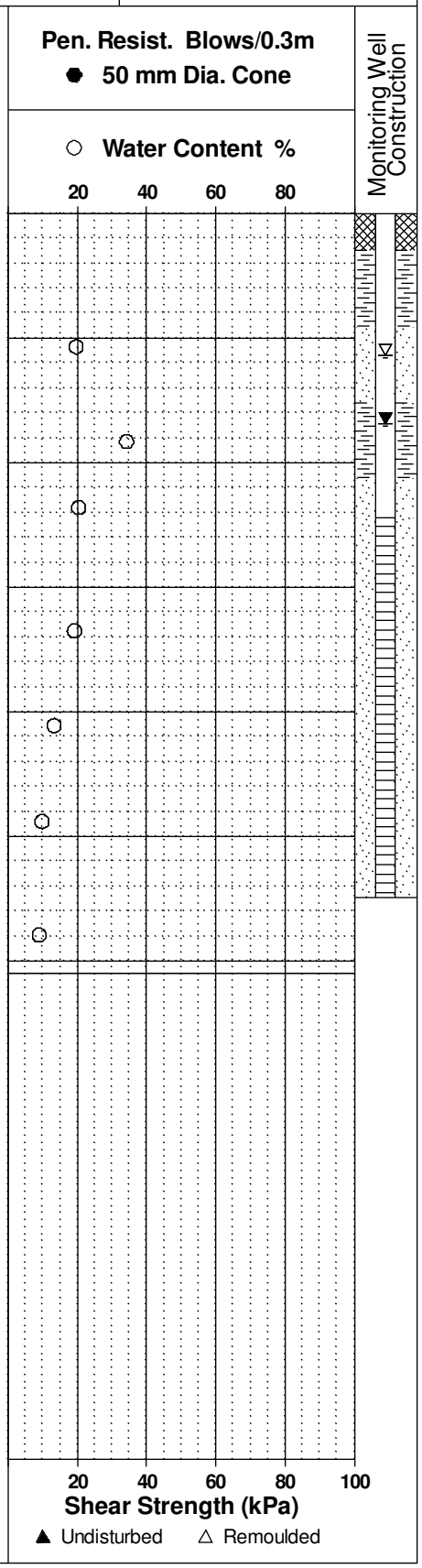
FILE NO. PG3450

REMARKS

HOLE NO. BH 4-15

BORINGS BY CME 55 Power Auger **DATE** March 6, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	98.05
FILL: Brown silty clay with sand and gravel, trace topsoil		SS	1	50	5	1	97.05
1.22							
Very stiff, brown **SILTY CLAY**		SS	2	67	6	2	96.05
2.49		SS	3	100	50+		
GLACIAL TILL: Brown silty clay with sand and gravel, trace cobbles		SS	4	100	8	3	95.05
- grey by 3.0m depth						4	94.05
4.00		SS	5	50	26		
GLACIAL TILL: Compact, grey silty fine sand with clay and gravel		SS	6	17	16	5	93.05
		SS	7	17	21	6	92.05
6.10							
End of Borehole							
(GWL @ 2.24m-March 23, 2015)							
(GWL @ 1.14m-April 21, 2015)							
(GWL @ 1.69m-May 12, 2015)							
Moderate groundwater infiltration rate							



patersongroup

Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Hydrogeological Investigation
Residential Development - Half Moon Bay South
Ottawa, Ontario

DATUM Ground surface elevations provided by J.D. Barnes Limited.

FILE NO. PG3450

REMARKS

HOLE NO. BH 5-15

BORINGS BY CME 55 Power Auger **DATE** March 6, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	103.02
FILL: Dark brown silty fine sand with topsoil and gravel		SS	1	100	61	1	102.02
		SS	2	42	5	2	101.02
		SS	3	67	3	3	100.02
3.50		SS	4	67	6		
Dense, brown **SILTY FINE SAND,** with gravel, trace clay		SS	5	100	49	4	99.02
4.42		SS	6	92	46	5	98.02
Dense to compact, light brown **SILTY FINE SAND**		SS	7	83	38		
- trace to some medium sand by 6.1m depth		SS	8	67	40	6	97.02
- running sand by 7.0m depth		SS	9	83	26	7	96.02
7.62							
End of Borehole							
(GWL @ 7.15m-March 23, 2015)							
(GWL @ 6.80m-April 21, 2015)							
(GWL @ 6.76m-May 12, 2015)							
High groundwater infiltration rate							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %

20 40 60 80

Monitoring Well Construction

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

patersongroup

Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Hydrogeological Investigation
Residential Development - Half Moon Bay South
Ottawa, Ontario

DATUM Ground surface elevations provided by J.D. Barnes Limited.

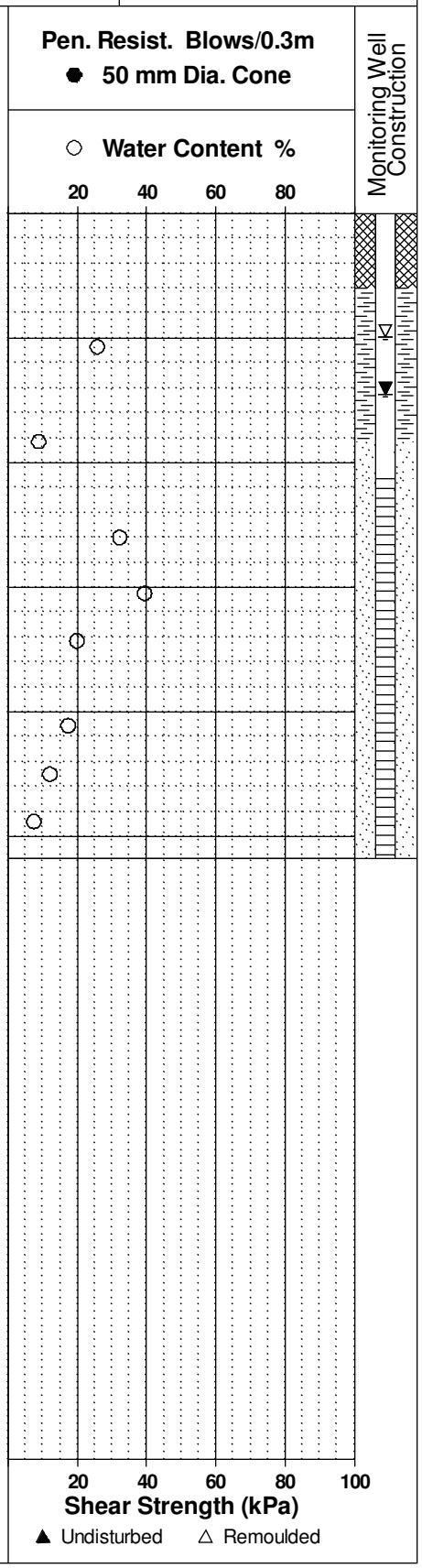
FILE NO. PG3450

REMARKS

HOLE NO. BH 6-15

BORINGS BY CME 55 Power Auger **DATE** March 5, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	101.42
FILL: Brown silty clay with sand, trace gravel and topsoil							
0.60							
Very stiff, brown **SILTY CLAY**		SS	1	42	14	1	100.42
		SS	2	67	12	2	99.42
- 75mm thick sand seams at 2.1 and 2.7m depths		SS	3	67	7		
3.20						3	98.42
Compact to dense, brown **SILTY FINE SAND,** trace gravel		SS	4	92	17		
- running sand at 3.2 to 4.1m depth							
4.11		SS	5	92	50	4	97.42
GLACIAL TILL: Very dense, brown to grey silty sand with clay, gravel, trace cobbles		SS	6	92	52		
5.18						5	96.42
End of Borehole							
(GWL @ 2.93m-March 23, 2015)							
(GWL @ 0.99m-April 21, 2015)							
(GWL @ 1.45m-May 12, 2015)							
High groundwater infiltration rate							



patersongroup

Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Hydrogeological Investigation
Residential Development - Half Moon Bay South
Ottawa, Ontario

DATUM Ground surface elevations provided by J.D. Barnes Limited.

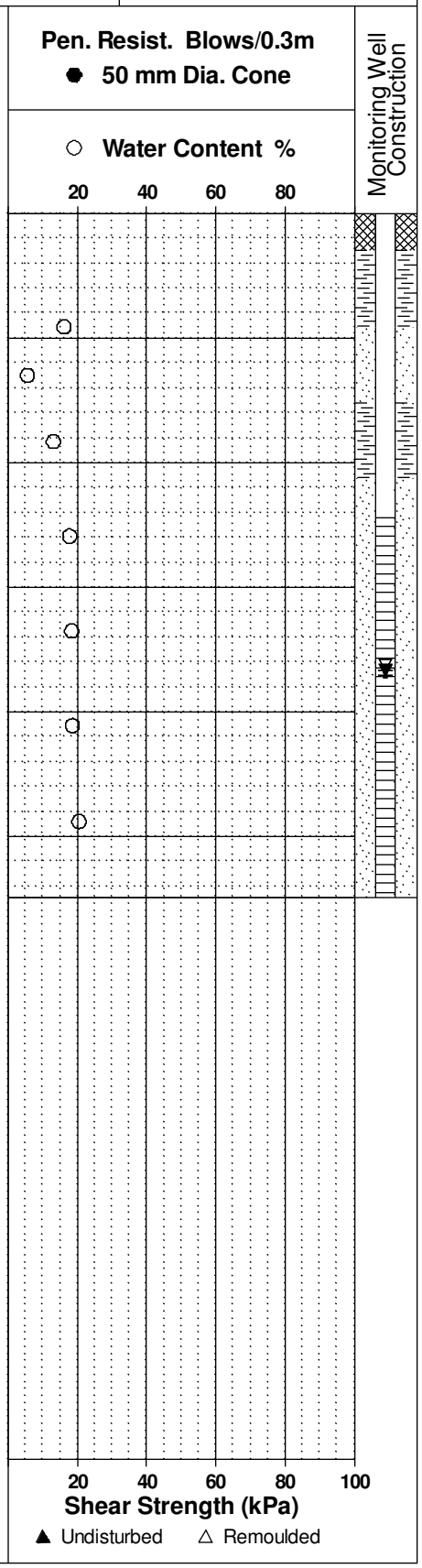
FILE NO. PG3450

REMARKS

HOLE NO. BH 7-15

BORINGS BY CME 55 Power Auger **DATE** March 5, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	100.16
FILL: Brown silty sand with gravel, trace clay and topsoil							
0.60							
		SS	1	50	14	1	99.16
		SS	2	96	25	2	98.16
Compact to dense, light brown **SILTY FINE SAND**		SS	3	92	37		
- brown by 2.9m depth		SS	4	100	33	3	97.16
		SS	5	92	20	4	96.16
		SS	6	88	38	5	95.16
5.49							
End of Borehole							
(GWL @ 4.43m-March 23, 2015)							
(GWL @ 3.67m-April 21, 2015)							
(GWL @ 3.71m-May 12, 2015)							
High groundwater infiltration rate							



patersongroup

Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Hydrogeological Investigation
Residential Development - Half Moon Bay South
Ottawa, Ontario

DATUM Ground surface elevations provided by J.D. Barnes Limited.

FILE NO. PG3450

REMARKS

HOLE NO. BH 8-15

BORINGS BY CME 75 Power Auger **DATE** May 7, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone / ○ Water Content %	Monitoring Well Construction
GROUND SURFACE									
FILL: Dark brown sandy clay, some silt and gravel, trace cobbles		AU	1			0	96.46		
FILL: Grey silty clay, trace sand and gravel		SS	2	58	7	1	95.46		
1.00									
		SS	3	42	11	2	94.46		
2.08									
		SS	4	46	21				
GLACIAL TILL: Compact to dense, grey silty sand with gravel, cobbles and boulders		SS	5	64	50+	3	93.46		
		SS	6	67	32	4	92.46		
4.57									
End of Borehole									
(GWL 2.28m-May 12, 2015)									
Moderate groundwater infiltration rate									

Pen. Resist. Blows/0.3m: 20 40 60 80

Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup

Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Hydrogeological Investigation
Residential Development - Half Moon Bay South
Ottawa, Ontario

DATUM Ground surface elevations provided by J.D. Barnes Limited.

FILE NO. PG3450

REMARKS

HOLE NO. BH 9-15

BORINGS BY CME 75 Power Auger **DATE** May 7, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	96.87
FILL: Brown clayey silt, some sand and gravel		AU	1				
		SS	2	75	60	1	95.87
1.22							
GLACIAL TILL: Dense to compact, grey silty sand, some gravel gravel, cobbles and boulders		SS	3	67	39	2	94.87
		SS	4	79	13	3	93.87
		SS	5	25	6		
		SS	6	62	15	4	92.87
4.57							
End of Borehole							
(GWL 2.87m-May 12, 2015)							
Moderate groundwater infiltration rate							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %
20 40 60 80

Monitoring Well Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

patersongroup

Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Hydrogeological Investigation
Residential Development - Half Moon Bay South
Ottawa, Ontario

DATUM Ground surface elevations provided by J.D. Barnes Limited.

FILE NO. PG3450

REMARKS

HOLE NO. BH10-15

BORINGS BY CME 75 Power Auger **DATE** May 7, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	96.91
Compact, brown **SILTY SAND,** trace gravel and cobbles		AU	1				
		SS	2	75	16	1	95.91
1.52							
		SS	3	67	14	2	94.91
Compact to loose, brown **SAND,** trace silt		SS	4	92	8		
						3	93.91
3.45		SS	5	83	34		
GLACIAL TILL: Dense, grey silty sand, some gravel and cobbles 3.81							
End of Borehole							
(GWL 0.99m-May 12, 2015)							
High groundwater infiltration rate							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %
20 40 60 80

Monitoring Well Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

patersongroup

Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Hydrogeological Investigation
Residential Development - Half Moon Bay South
Ottawa, Ontario

DATUM Ground surface elevations provided by J.D. Barnes Limited.

FILE NO. PG3450

REMARKS

HOLE NO. BH11-15

BORINGS BY CME 75 Power Auger **DATE** May 8, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	98.24
FILL: Brown silty sand, some gravel, cobbles and boulders		AU	1				
		SS	2	62	13	1	97.24
1.42							
		SS	3	75	20	2	96.24
Compact, brown **SAND,** trace silt		SS	4	79	22		
3.05						3	95.24
		SS	5	92	22		
Compact to loose, brown **SILTY SAND**		SS	6	100	6	4	94.24
4.57							
End of Borehole							
(GWL 2.19m-May 12, 2015)							
High groundwater infiltration rate							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %

20 40 60 80

Monitoring Well Construction

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

patersongroup

Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Hydrogeological Investigation
Residential Development - Half Moon Bay South
Ottawa, Ontario

DATUM Ground surface elevations provided by J.D. Barnes Limited.

FILE NO. PG3450

REMARKS

HOLE NO. BH12-15

BORINGS BY CME 75 Power Auger **DATE** May 8, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Monitoring Well Construction
GROUND SURFACE									
FILL: Brown silty clay, some sand		AU	1			0	98.76		
0.46									
		SS	2	75	15	1	97.76		
		SS	3	79	37	2	96.76		
GLACIAL TILL: Compact to dense, brown silty sand, some gravel, cobbles and boulders		SS	4	75	60	3	95.76		
		SS	5	42	32				
3.96									
End of Borehole									
(GWL 2.51m-May 12, 2015)									
Moderate groundwater infiltration rate									

Pen. Resist. Blows/0.3m: 20 40 60 80

Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup

Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Hydrogeological Investigation
Residential Development - Half Moon Bay South
Ottawa, Ontario

DATUM Ground surface elevations provided by J.D. Barnes Limited.

FILE NO. PG3450

REMARKS

HOLE NO. BH13-15

BORINGS BY CME 75 Power Auger **DATE** May 8, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	98.05
FILL: Brown silty sand, trace gravel, cobbles, boulders and concrete		AU	1				
1.00						1	97.05
TOPSOIL		SS	2	62	13		
1.32							
		SS	3	100	9	2	96.05
Very stiff, grey-brown **SILTY CLAY,** some sand seams							
3.30						3	95.05
GLACIAL TILL: Grey silty sand with gravel, trace clay and cobbles		SS	4	58	11		
3.81							
End of Borehole							
(GWL 1.20m-May 12, 2015)							
High groundwater infiltration rate							

Pen. Resist. Blows/0.3m
50 mm Dia. Cone

Water Content %

20 40 60 80

169

Monitoring Well Construction

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

patersongroup

Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Hydrogeological Investigation
Residential Development - Half Moon Bay South
Ottawa, Ontario

DATUM Ground surface elevations provided by J.D. Barnes Limited.

FILE NO. PG3450

REMARKS

HOLE NO. BH14-15

BORINGS BY CME 75 Power Auger **DATE** May 8, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content % (20 40 60 80)	Monitoring Well Construction
GROUND SURFACE									
TOPSOIL 0.20		AU	1			0	99.62		
		SS	2	100	11	1	98.62		
Very stiff to stiff, brown **SILTY CLAY,** some sand		SS	3	100	10	2	97.62		
- grey-brown by 1.5m depth		SS	4	100	9				
		SS	5	100	7	3	96.62		
3.96 End of Borehole									
(GWL 0.93m-May 12, 2015)									
High groundwater infiltration rate									

Shear Strength (kPa) (20 40 60 80 100)

▲ Undisturbed △ Remoulded

patersongroup

Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Hydrogeological Investigation
Residential Development - Half Moon Bay South
Ottawa, Ontario

DATUM Ground surface elevations provided by J.D. Barnes Limited.

FILE NO. PG3450

REMARKS

HOLE NO. BH15-15

BORINGS BY CME 75 Power Auger **DATE** May 8, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	97.99
FILL: Brown sandy clay, some silt and gravel		AU	1				
0.91							
		SS	2	100	52	1	96.99
Very dense, brown **SAND,** some silt, trace cobbles		SS	3	58	44		
1.98							
Dense, grey **SILTY SAND** 2.13						2	95.99
End of Borehole							
(GWL 1.87m-May 12, 2015)							
Moderate groundwater infiltration rate							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone

○ Water Content %

20 40 60 80

Monitoring Well Construction

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

patersongroup

Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Hydrogeological Investigation
Residential Development - Half Moon Bay South
Ottawa, Ontario

DATUM Ground surface elevations provided by J.D. Barnes Limited.

FILE NO. PG3450

REMARKS

HOLE NO. BH16-15

BORINGS BY CME 75 Power Auger **DATE** May 8, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone / ○ Water Content %	Monitoring Well Construction
GROUND SURFACE									
Brown **SANDY CLAY,** some silt, trace gravel and cobbles		AU	1			0	96.84		
0.60									
GLACIAL TILL: Compact, brown silty sand, some gravel, cobbles and boulders		SS	2	100	24	1	95.84		
		SS	3	67	25	2	94.84		
- grey by 1.7m depth		SS	4	33	4	3	93.84		
		SS	5	67	10				
		SS	6	58	20	4	92.84		
4.57									
End of Borehole									
(GWL 2.70m-May 12, 2015)									
High groundwater infiltration rate									

20 40 60 80

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

patersongroup

Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Hydrogeological Investigation
Residential Development - Half Moon Bay South
Ottawa, Ontario

DATUM Ground surface elevations provided by J.D. Barnes Limited.

FILE NO. PG3450

REMARKS

HOLE NO. BH17-15

BORINGS BY CME 75 Power Auger **DATE** May 8, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Monitoring Well Construction
GROUND SURFACE						0	96.92		
Brown **SILTY SAND,** some gravel and cobbles		AU	1						
0.76									
Brown **SILTY CLAY,** some sand		SS	2	100	9	1	95.92		
1.07									
		SS	3	83	30	2	94.92		
GLACIAL TILL: Dense to compact, grey silty sand, some gravel and cobbles		SS	4	42	13				
						3	93.92		
		SS	5	33	26				
3.96									
End of Borehole									
(GWL 2.89m-May 12, 2015)									
Moderate groundwater infiltration rate									

20 40 60 80

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

patersongroup

Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Hydrogeological Investigation
Residential Development - Half Moon Bay South
Ottawa, Ontario

DATUM Ground surface elevations provided by J.D. Barnes Limited.

FILE NO. PG3450

REMARKS

HOLE NO. BH18-15

BORINGS BY CME 75 Power Auger **DATE** May 8, 2015

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone / ○ Water Content %	Monitoring Well Construction
GROUND SURFACE						0	98.02		
		AU	1						
Very dense, brown **SILTY SAND,** trace gravel and cobbles		SS	2	72	50+	1	97.02		
		SS	3	80	50+	2	96.02		
2.18									
		SS	4	75	25	3	95.02		
Dense to compact, grey **SILTY SAND,** some gravel		SS	5	62	47				
		SS	6	75	20	4	94.02		
4.57									
End of Borehole									
(GWL 3.23m-May 12, 2015)									
High groundwater infiltration rate									

Pen. Resist. Blows/0.3m: 20 40 60 80

Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Mineral Resource Aggregate Assessment
3882 Barnsdale Road
Ottawa, Ontario

DATUM

REMARKS

BORINGS BY Hydraulic Shovel **DATE** December 16, 2011

FILE NO. PH1893

HOLE NO. TP 1-11

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.30						0			
Loose, grey-brown **CLAYEY SANDY SILT**		G	1			1			
1.40						2			
Dense, grey-brown **SANDY SILT/SILTY SAND**		G	2			3			
						4			
						5			
6.30						6			
End of Test Pit (TP dry upon completion)									

Pen. Resist. Blows/0.3m: 20 40 60 80

Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Mineral Resource Aggregate Assessment
3882 Barnsdale Road
Ottawa, Ontario

DATUM

REMARKS

FILE NO. PH1893

HOLE NO. TP 2-11

BORINGS BY Hydraulic Shovel **DATE** December 16, 2011

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.30						0			
Loose, red-brown **SAND,** trace silt 0.70		G	3						
		G	4			1			
Compact to dense, brown to grey **SANDY SILT/SILTY SAND**						2			
						3			
		G	5			4			
						5			
						6			
6.20 End of Test Pit (TP dry upon completion)									

Water Content % scale: 20 40 60 80

Shear Strength (kPa) scale: 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Mineral Resource Aggregate Assessment
3882 Barnsdale Road
Ottawa, Ontario

DATUM

REMARKS

FILE NO. PH1893

HOLE NO. TP 3-11

BORINGS BY Hydraulic Shovel **DATE** December 16, 2011

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.25						0			
		G	6			1			
						2			
Loose to compact, brown to grey **SANDY SILT**						3			
		G	7			4			
						5			
6.00 End of Test Pit						6			
(TP dry upon completion)									

20 40 60 80

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Mineral Resource Aggregate Assessment
3882 Barnsdale Road
Ottawa, Ontario

DATUM

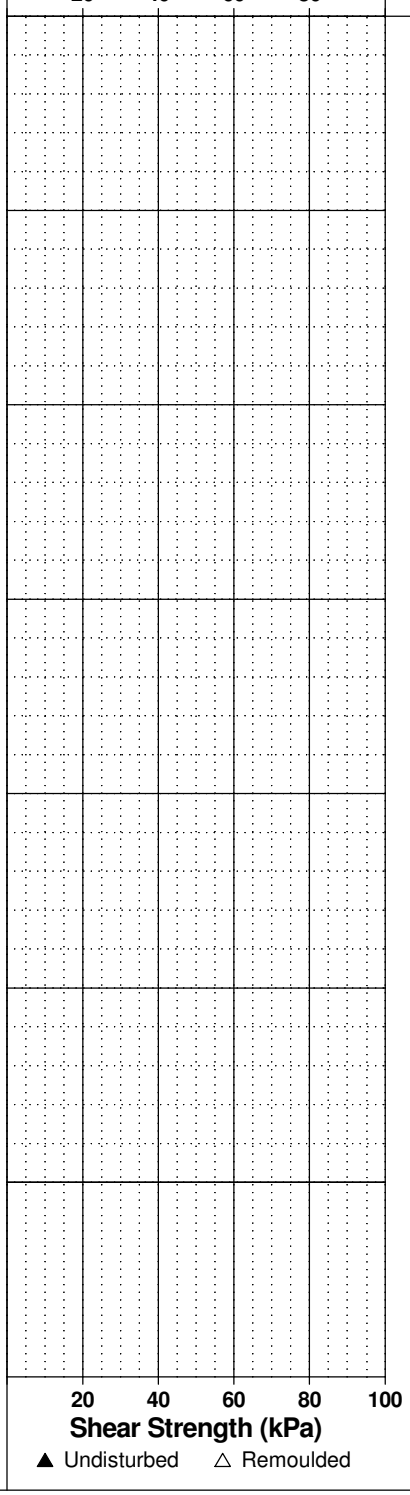
REMARKS

FILE NO. PH1893

HOLE NO. TP 4-11

BORINGS BY Hydraulic Shovel **DATE** December 16, 2011

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.30						0			
		G	8			1			
Loose to dense, red-brown to grey **SANDY SILT/SILTY SAND**						2			
		G	9			3			
						4			
						5			
6.00						6			
End of Test Pit									
(TP dry upon completion)									



patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Mineral Resource Aggregate Assessment
3882 Barnsdale Road
Ottawa, Ontario

DATUM

REMARKS

FILE NO. PH1893

HOLE NO. TP 5-11

BORINGS BY Hydraulic Shovel **DATE** December 16, 2011

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.20						0			
Compact, red-brown **SILTY SAND-GRAVEL** with cobbles 0.90		G	10			1			
Loose to compact, light brown **FINE SAND**		G	11			2			
						3			
						4			
						5			
6.00						6			
End of Test Pit (TP dry upon completion)									

Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Mineral Resource Aggregate Assessment
3882 Barnsdale Road
Ottawa, Ontario

DATUM

REMARKS

FILE NO. PH1893

HOLE NO. TP 6-11

BORINGS BY Hydraulic Shovel **DATE** December 16, 2011

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	
TOPSOIL 0.30							
Loose, red-brown **SILTY SAND-GRAVEL** with cobbles 0.90		G	12			1	
Loose, grey-brown **SAND** with gravel and shells 1.20		G	13				
Loose, grey-brown **FINE SAND,** some silt 3.90		G	14			2	
Compact to dense, grey-brown **SANDY SILT/SILTY SAND** 6.00		G	15			3	
End of Test Pit						4	
(TP dry upon completion)						5	
						6	

Pen. Resist. Blows/0.3m
● **50 mm Dia. Cone**
○ **Water Content %**
20 40 60 80

Piezometer Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Mineral Resource Aggregate Assessment
3882 Barnsdale Road
Ottawa, Ontario

DATUM

REMARKS

FILE NO. PH1893

HOLE NO. TP 7-11

BORINGS BY Hydraulic Shovel **DATE** December 16, 2011

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0			
TOPSOIL 0.31									
Compact, red-brown **FINE SAND**		G	16			1			
1.10									
Very stiff, grey-brown **CLAYEY SILT**		G	17			2			
2.50									
Compact to dense, grey-brown **SANDY SILT/SILTY SAND**		G	18			3			
						4			
						5			
6.00						6			
End of Test Pit									
(TP dry upon completion)									

Water Content % scale: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Mineral Resource Aggregate Assessment
3882 Barnsdale Road
Ottawa, Ontario

DATUM

REMARKS

FILE NO. PH1893

HOLE NO. TP 8-11

BORINGS BY Hydraulic Shovel **DATE** December 16, 2011

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.40						0			
Loose, dark brown **SILTY SAND** with gravel and cobbles 0.80		G	19			1			
Loose, grey-brown **FINE SAND**		G	20			2			
						3			
						4			
						5			
5.80 End of Test Pit (TP dry upon completion)									

Water Content % scale: 20 40 60 80

Shear Strength (kPa) scale: 20 40 60 80 100

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Mineral Resource Aggregate Assessment
3882 Barnsdale Road
Ottawa, Ontario

DATUM

REMARKS

FILE NO. PH1893

HOLE NO. TP 9-11

BORINGS BY Hydraulic Shovel **DATE** December 16, 2011

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.30						0			
Dense, dark brown to brown **SAND-GRAVEL,** some silt, cobbles and boulders		G	21			1			
						2			
						3			
3.70 End of Test Pit (TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %; 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100; ▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Mineral Resource Aggregate Assessment
3882 Barnsdale Road
Ottawa, Ontario

DATUM

REMARKS

FILE NO. PH1893

HOLE NO. TP10-11

BORINGS BY Hydraulic Shovel **DATE** December 16, 2011

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0		20 40 60 80	
TOPSOIL 0.40									
Loose, red-brown **SILTY SAND-GRAVEL** with cobbles 1.00		G	22			1			
Compact, light brown **SILTY SAND** 1.30		G	23						
Dense, grey-brown **SANDY SILT** 1.60		G	24						
Compact, light brown **FINE SAND** 2.20		G	25			2			
Dense, grey-brown **SILTY SAND,** some gravel, cobbles and boulders 3.80		G	26			3			
End of Test Pit									
(TP dry upon completion)									

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Mineral Resource Aggregate Assessment
3882 Barnsdale Road
Ottawa, Ontario

DATUM

REMARKS

FILE NO. PH1893

HOLE NO. TP11-11

BORINGS BY Hydraulic Shovel **DATE** December 16, 2011

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0		20 40 60 80	
TOPSOIL 0.30									
Compact, red-brown **SILTY SAND-GRAVEL** with cobbles 0.90		G	27			1			
Dense, brown **SAND-GRAVEL** with cobbles		G	28			2			
						3			
						4			
						5			
5.50 End of Test Pit (TP dry upon completion)								20 40 60 80 100 Shear Strength (kPa) ▲ Undisturbed △ Remoulded	

patersongroup Consulting Engineers

154 Colonnade Road, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Aggregate Resource Investigation
Greenbank Road/Cedarview Road
Ottawa (Nepean), Ontario

DATUM

REMARKS

FILE NO. G9114

HOLE NO. TP 1

BORINGS BY Backhoe **DATE** Oct 23, 03

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0			
TOPSOIL 0.20									
Stiff, grey **SILTY CLAY**		G	1			1			
2.29						2			
GLACIAL TILL: Grey silty sand with gravel						3			
4.57		G	2			4			
End of Test Pit (Open hole GWL @ 2.1m depth)									

Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %

20 40 60 80

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Aggregate Resource Investigation
Greenbank Road/Cedarview Road
Ottawa (Nepean), Ontario

DATUM

REMARKS

FILE NO. G9114

HOLE NO. TP 2

BORINGS BY Backhoe **DATE** Oct 23, 03

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.18						0			
GLACIAL TILL: Dense, grey silty sand and gravel with cobbles		G	1			1			
2.90						2			
End of Test Pit (TP dry upon completion)									

20 40 60 80

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Aggregate Resource Investigation
Greenbank Road/Cedarview Road
Ottawa (Nepean), Ontario

DATUM

REMARKS

BORINGS BY Backhoe **DATE** Oct 23, 03

FILE NO. G9114

HOLE NO. TP 3

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.15						0			
Brown **SILTY SAND**, some gravel 0.46									
		G	1			1			
Light brown fine **SAND**						2			
						3			
						4			
		G	2			5			
5.94									
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %

20 40 60 80

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Aggregate Resource Investigation
Greenbank Road/Cedarview Road
Ottawa (Nepean), Ontario

DATUM

REMARKS

BORINGS BY Backhoe **DATE** Oct 23, 03

FILE NO. G9114

HOLE NO. TP 4

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone / ○ Water Content %	Piezometer Construction
GROUND SURFACE						0			
TOPSOIL 0.15									
Brown **SILTY SAND**, some gravel 0.60		G	1			1			
Light brown fine **SAND**		G	2			2			
						3			
						4			
						5			
5.94 End of Test Pit (TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %

20 40 60 80

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Aggregate Resource Investigation
Greenbank Road/Cedarview Road
Ottawa (Nepean), Ontario

DATUM

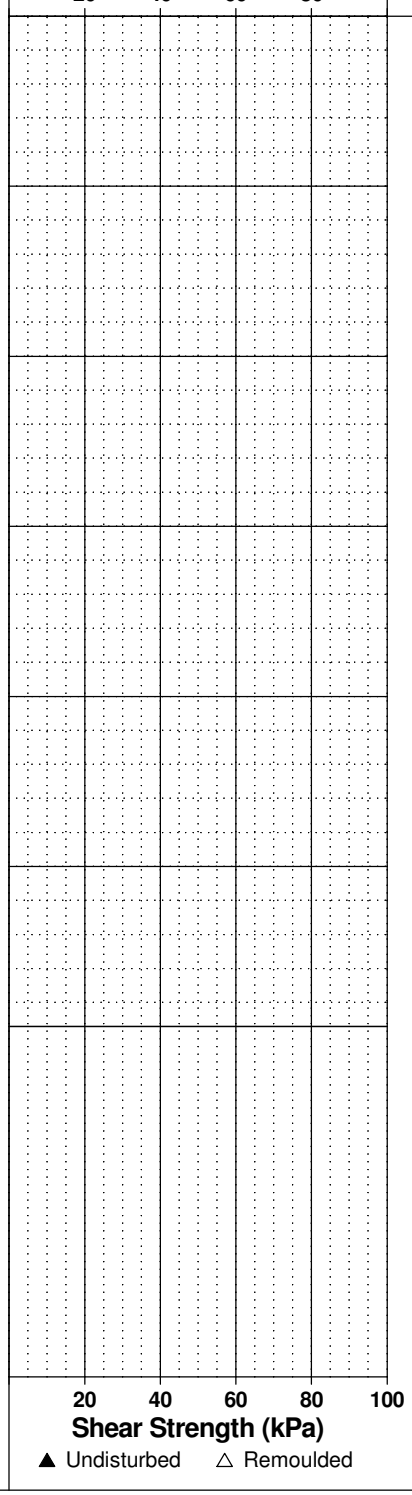
REMARKS

BORINGS BY Backhoe **DATE** Oct 23, 03

FILE NO. G9114

HOLE NO. TP 5

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0			
TOPSOIL 0.15									
SAND-GRAVEL		G	1			1			
2.13						2			
Brown fine to medium **SAND**		G	2			3			
						4			
						5			
5.94									
End of Test Pit									
(TP dry upon completion)									



patersongroup Consulting Engineers

154 Colonnade Road, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Aggregate Resource Investigation
Greenbank Road/Cedarview Road
Ottawa (Nepean), Ontario

DATUM

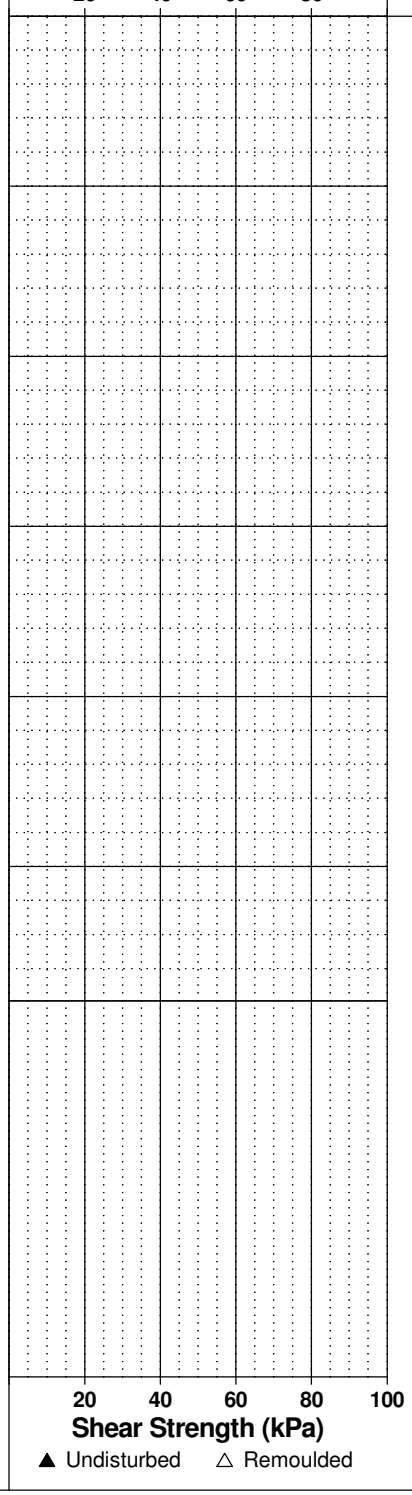
REMARKS

BORINGS BY Backhoe **DATE** Oct 23, 03

FILE NO. G9114

HOLE NO. TP 6

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.15						0			
Red **SAND**, occasional gravel 0.76		G	1			1			
Brown fine **SAND**						2			
		G	2			3			
						4			
						5			
5.79									
End of Test Pit									
(TP dry upon completion)									



patersongroup Consulting Engineers

154 Colonnade Road, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Aggregate Resource Investigation
Greenbank Road/Cedarview Road
Ottawa (Nepean), Ontario

DATUM

REMARKS

BORINGS BY Backhoe **DATE** Oct 29, 03

FILE NO. G9114

HOLE NO. TP 7

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	
TOPSOIL 0.15							
Red **SAND**, some gravel 1.22						1	
SAND-GRAVEL						2	
		G	1			3	
3.35							
Fine **SAND**						4	
		G	2			5	
5.18							
Grey **SILTY CLAY** 5.49							
End of Test Pit							
(TP dry upon completion)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %

20 40 60 80

Piezometer Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Aggregate Resource Investigation
Greenbank Road/Cedarview Road
Ottawa (Nepean), Ontario

DATUM

REMARKS

BORINGS BY Backhoe **DATE** Oct 29, 03

FILE NO. G9114

HOLE NO. TP 8

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	
TOPSOIL 0.20							
Red **SAND** with gravel		G	1			1	
1.83						2	
Light brown fine **SAND**						3	
						4	
						5	
						6	
7.01		G	2			7	
End of Test Pit							
(TP dry upon completion)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %

20 40 60 80

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

Piezometer Construction

patersongroup Consulting Engineers

154 Colonnade Road, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Aggregate Resource Investigation
Greenbank Road/Cedarview Road
Ottawa (Nepean), Ontario

DATUM

REMARKS

BORINGS BY Backhoe **DATE** Oct 29, 03

FILE NO. G9114

HOLE NO. TP 9

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	
TOPSOIL 0.15							
Reddish brown **SAND-GRAVEL**		G	1			1	
1.22							
Light brown fine **SAND**						2	
						3	
						4	
		G	2			5	
5.49							
Grey **SILT**		G	3			6	
6.10							
End of Test Pit							
(TP dry upon completion)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone

○ Water Content %

20 40 60 80

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

Piezometer Construction

patersongroup Consulting Engineers

154 Colonnade Road, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Aggregate Resource Investigation
Greenbank Road/Cedarview Road
Ottawa (Nepean), Ontario

DATUM

REMARKS

FILE NO. G9114

HOLE NO. TP10

BORINGS BY Backhoe **DATE** Oct 29, 03

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0			
TOPSOIL 0.20									
Reddish brown **SAND-GRAVEL**		G	1			1			
2.13						2			
Fine to medium **SAND**		G	2			3			
3.96									
End of Test Pit									
(Open hole GWL @ 2.1m depth)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %
20 40 60 80

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Aggregate Resource Investigation
Greenbank Road/Cedarview Road
Ottawa (Nepean), Ontario

DATUM

REMARKS

BORINGS BY Backhoe **DATE** Oct 29, 03

FILE NO. G9114

HOLE NO. TP11

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.15						0			
Red **SILTY SAND-GRAVEL**						1			
1.22									
GLACIAL TILL: Silty sand and gravel, some clay		G	1			2			
						3			
3.96									
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %

20 40 60 80

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Aggregate Resource Investigation
Greenbank Road/Cedarview Road
Ottawa (Nepean), Ontario

DATUM

REMARKS

FILE NO. G9114

HOLE NO. TP12

BORINGS BY Backhoe **DATE** Oct 29, 03

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0			
TOPSOIL 0.15									
SILTY SAND-GRAVEL						1			
1.22									
GLACIAL TILL: Dense, grey silty sand-gravel, some clay, cobbles and boulders						2			
						3			
						4			
		G	1						
4.88									
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %

20 40 60 80

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Aggregate Resource Investigation
Greenbank Road/Cedarview Road
Ottawa (Nepean), Ontario

DATUM

REMARKS

BORINGS BY Backhoe **DATE** Oct 29, 03

FILE NO. G9114

HOLE NO. TP13

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0			
TOPSOIL 0.15									
Red **SILTY SAND-GRAVEL**		G	1			1			
1.22						2			
Light brown fine to medium **SAND**		G	2			3			
						4			
						5			
						6			
6.70									
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %

20 40 60 80

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Aggregate Resource Investigation
Greenbank Road/Cedarview Road
Ottawa (Nepean), Ontario

DATUM

REMARKS

BORINGS BY Backhoe **DATE** Oct 29, 03

FILE NO. G9114

HOLE NO. TP14

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	
TOPSOIL 0.15							
SAND-GRAVEL		G	1			1	
						2	
3.35						3	
End of Test Pit Refusal to excavation @ 3.35m depth (TP dry upon completion)							

Pen. Resist. Blows/0.3m
● **50 mm Dia. Cone**
○ **Water Content %**

20 40 60 80

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

Piezometer Construction

patersongroup Consulting Engineers

154 Colonnade Road, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Aggregate Resource Investigation
Greenbank Road/Cedarview Road
Ottawa (Nepean), Ontario

DATUM

REMARKS

BORINGS BY Backhoe **DATE** Oct 29, 03

FILE NO. G9114

HOLE NO. TP15

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.15						0			
GLACIAL TILL: Very dense silty sand-gravel, some clay		G	1			1			
2.74						2			
End of Test Pit Refusal to excavation @ 2.74m depth (TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %
20 40 60 80

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

154 Colonnade Road, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Aggregate Resource Investigation
Greenbank Road/Cedarview Road
Ottawa (Nepean), Ontario

DATUM

REMARKS

BORINGS BY Backhoe **DATE** Oct 29, 03

FILE NO. G9114

HOLE NO. TP16

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE							
TOPSOIL 0.15						0	
SILTY CLAY 0.60							
GLACIAL TILL: Very dense silty sand-gravel with clay		G	1			1	
2.74						2	
End of Test Pit							
(TP dry upon completion)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %

20 40 60 80

Piezometer Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

SYMBOLS AND TERMS

SOIL DESCRIPTION

Behavioural properties, such as structure and strength, take precedence over particle gradation in describing soils. Terminology describing soil structure are as follows:

Desiccated	-	having visible signs of weathering by oxidation of clay minerals, shrinkage cracks, etc.
Fissured	-	having cracks, and hence a blocky structure.
Varved	-	composed of regular alternating layers of silt and clay.
Stratified	-	composed of alternating layers of different soil types, e.g. silt and sand or silt and clay.
Well-Graded	-	Having wide range in grain sizes and substantial amounts of all intermediate particle sizes (see Grain Size Distribution).
Uniformly-Graded	-	Predominantly of one grain size (see Grain Size Distribution).

The standard terminology to describe the strength of cohesionless soils is the relative density, usually inferred from the results of the Standard Penetration Test (SPT) 'N' value. The SPT N value is the number of blows of a 63.5 kg hammer, falling 760 mm, required to drive a 51 mm O.D. split spoon sampler 300 mm into the soil after an initial penetration of 150 mm.

Relative Density	'N' Value	Relative Density %
Very Loose	<4	<15
Loose	4-10	15-35
Compact	10-30	35-65
Dense	30-50	65-85
Very Dense	>50	>85

The standard terminology to describe the strength of cohesive soils is the consistency, which is based on the undisturbed undrained shear strength as measured by the in situ or laboratory vane tests, penetrometer tests, unconfined compression tests, or occasionally by Standard Penetration Tests.

Consistency	Undrained Shear Strength (kPa)	'N' Value
Very Soft	<12	<2
Soft	12-25	2-4
Firm	25-50	4-8
Stiff	50-100	8-15
Very Stiff	100-200	15-30
Hard	>200	>30

SYMBOLS AND TERMS (continued)

SOIL DESCRIPTION (continued)

Cohesive soils can also be classified according to their “sensitivity”. The sensitivity is the ratio between the undisturbed undrained shear strength and the remoulded undrained shear strength of the soil.

Terminology used for describing soil strata based upon texture, or the proportion of individual particle sizes present is provided on the Textural Soil Classification Chart at the end of this information package.

ROCK DESCRIPTION

The structural description of the bedrock mass is based on the Rock Quality Designation (RQD).

The RQD classification is based on a modified core recovery percentage in which all pieces of sound core over 100 mm long are counted as recovery. The smaller pieces are considered to be a result of closely-spaced discontinuities (resulting from shearing, jointing, faulting, or weathering) in the rock mass and are not counted. RQD is ideally determined from NXL size core. However, it can be used on smaller core sizes, such as BX, if the bulk of the fractures caused by drilling stresses (called “mechanical breaks”) are easily distinguishable from the normal in situ fractures.

RQD %	ROCK QUALITY
90-100	Excellent, intact, very sound
75-90	Good, massive, moderately jointed or sound
50-75	Fair, blocky and seamy, fractured
25-50	Poor, shattered and very seamy or blocky, severely fractured
0-25	Very poor, crushed, very severely fractured

SAMPLE TYPES

SS	-	Split spoon sample (obtained in conjunction with the performing of the Standard Penetration Test (SPT))
TW	-	Thin wall tube or Shelby tube
PS	-	Piston sample
AU	-	Auger sample or bulk sample
WS	-	Wash sample
RC	-	Rock core sample (Core bit size AXT, BXL, etc.). Rock core samples are obtained with the use of standard diamond drilling bits.

SYMBOLS AND TERMS (continued)

GRAIN SIZE DISTRIBUTION

MC%	-	Natural moisture content or water content of sample, %
LL	-	Liquid Limit, % (water content above which soil behaves as a liquid)
PL	-	Plastic limit, % (water content above which soil behaves plastically)
PI	-	Plasticity index, % (difference between LL and PL)
Dxx	-	Grain size which xx% of the soil, by weight, is of finer grain sizes These grain size descriptions are not used below 0.075 mm grain size
D10	-	Grain size at which 10% of the soil is finer (effective grain size)
D60	-	Grain size at which 60% of the soil is finer
Cc	-	Concavity coefficient = $(D30)^2$ / (D10 x D60)
Cu	-	Uniformity coefficient = D60 / D10

Cc and Cu are used to assess the grading of sands and gravels:
Well-graded gravels have: $1 < Cc < 3$ and $Cu > 4$
Well-graded sands have: $1 < Cc < 3$ and $Cu > 6$
Sands and gravels not meeting the above requirements are poorly-graded or uniformly-graded.
Cc and Cu are not applicable for the description of soils with more than 10% silt and clay
(more than 10% finer than 0.075 mm or the #200 sieve)

CONSOLIDATION TEST

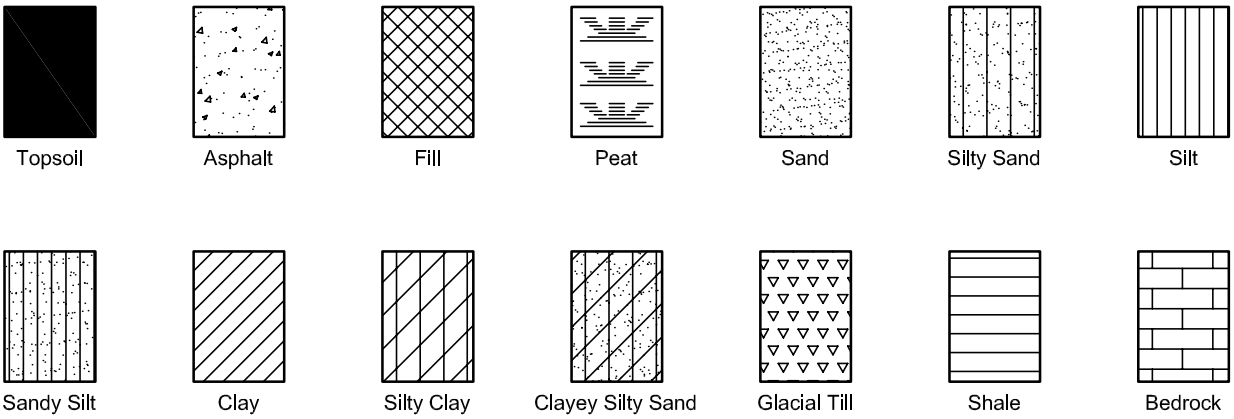
p'_o	-	Present effective overburden pressure at sample depth
p'_c	-	Preconsolidation pressure of (maximum past pressure on) sample
Ccr	-	Recompression index (in effect at pressures below p'_c)
Cc	-	Compression index (in effect at pressures above p'_c)
OC Ratio		Overconsolidaton ratio = p'_c / p'_o
Void Ratio		Initial sample void ratio = volume of voids / volume of solids
Wo	-	Initial water content (at start of consolidation test)

PERMEABILITY TEST

k	-	Coefficient of permeability or hydraulic conductivity is a measure of the ability of water to flow through the sample. The value of k is measured at a specified unit weight for (remoulded) cohesionless soil samples, because its value will vary with the unit weight or density of the sample during the test.

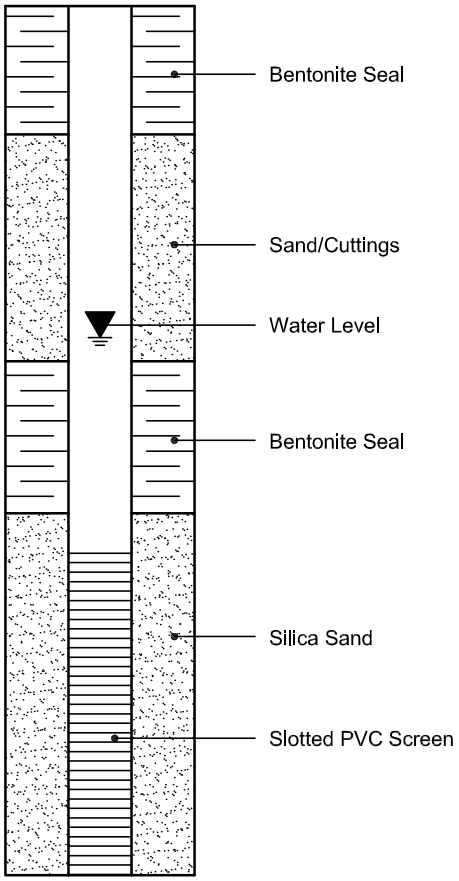
SYMBOLS AND TERMS (continued)

STRATA PLOT

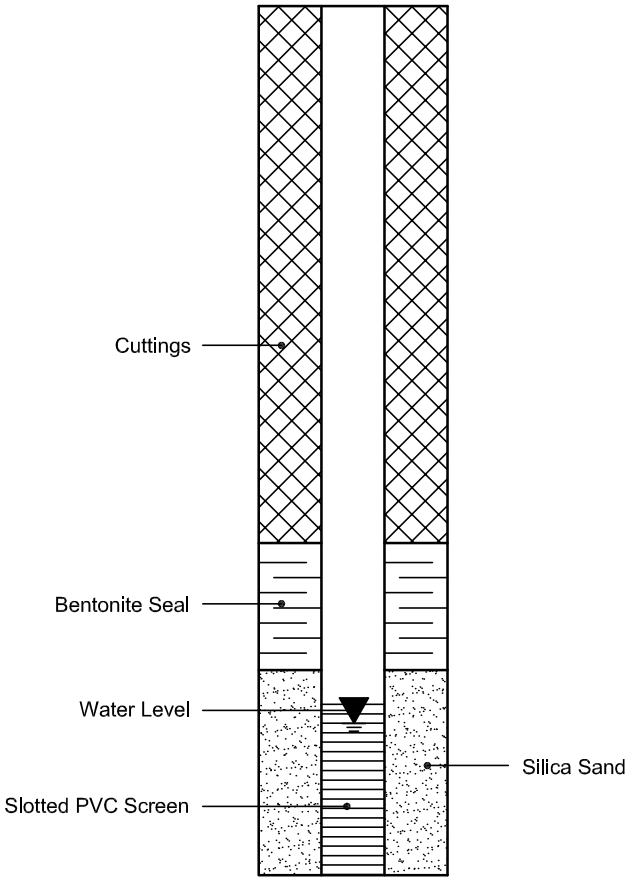


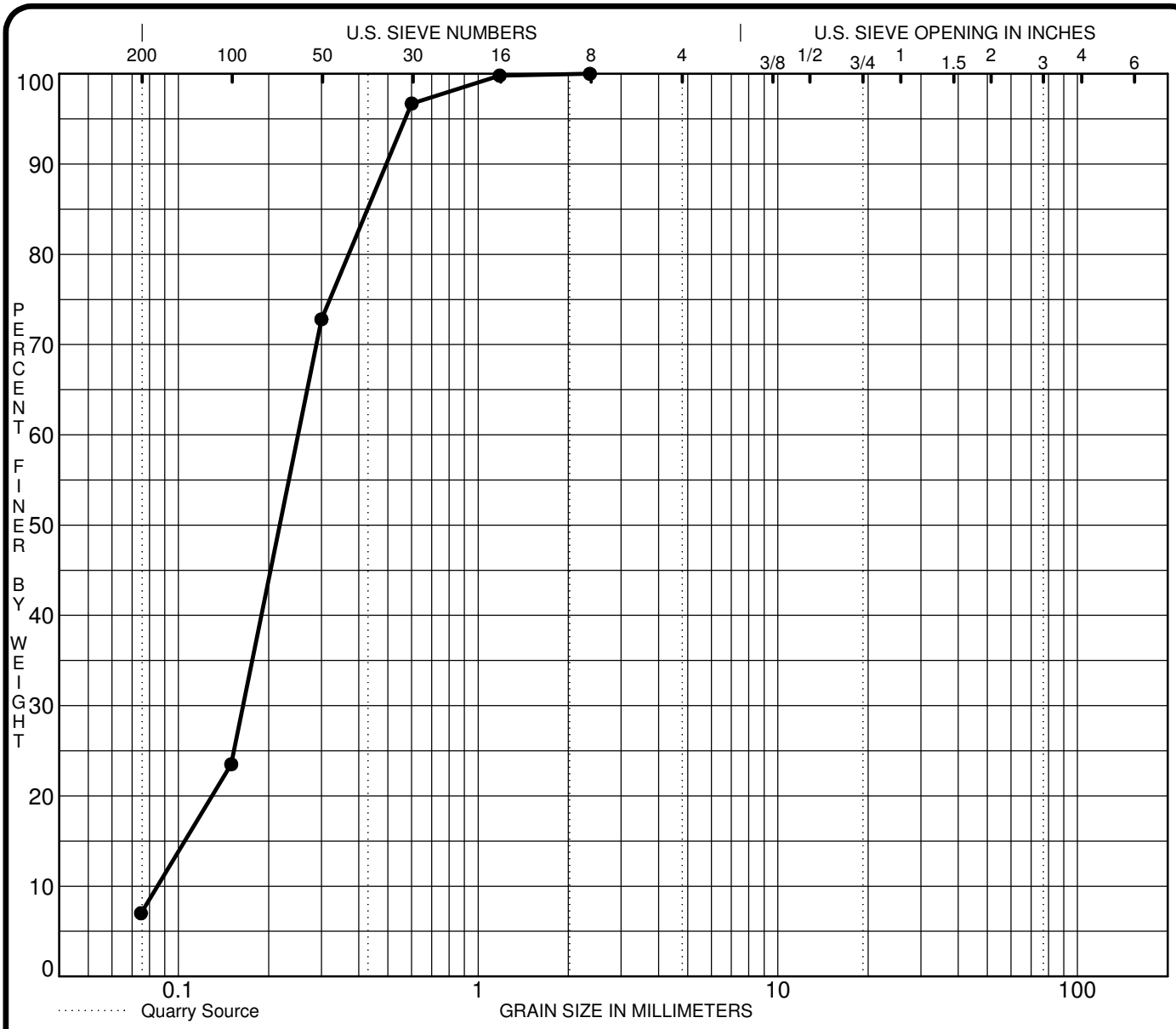
MONITORING WELL AND PIEZOMETER CONSTRUCTION

MONITORING WELL CONSTRUCTION



PIEZOMETER CONSTRUCTION





SILT	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
● **BH 1-15 SS 9**	**(SP-SM) Poorly-graded SAND with silt**					**1.27**	**2.9**
⊠							
▲							
★							

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● **BH 1-15 SS 9**	**2.36**	**0.25**	**0.164**	**0.0851**	**0.0**	**93.0**	**7.0**	
⊠								
▲								
★								

CLIENT **Regional Group of Companies** FILE NO. **PG3607**

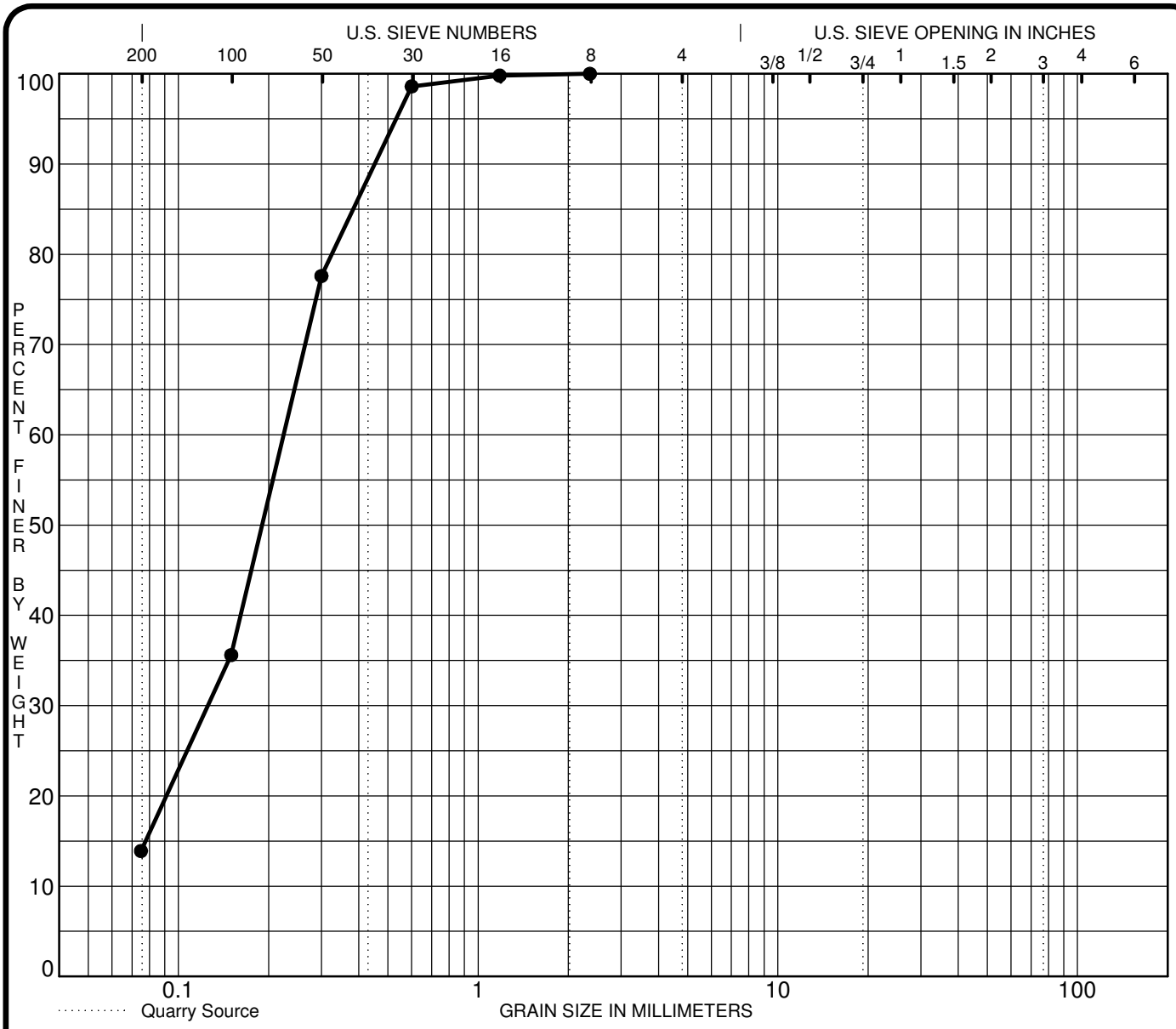
PROJECT **Geotechnical Investigation - Barrhaven South** DATE **10 Dec 15**

Urban Expansion

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

GRAIN SIZE DISTRIBUTION



SILT	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
● **BH 2-15 SS 7**	**(SM) SILTY SAND**						
⊠							
▲							
★							

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● **BH 2-15 SS 7**	**2.36**	**0.22**	**0.125**		**0.0**	**86.1**	**13.9**	
⊠								
▲								
★								

CLIENT **Regional Group of Companies** FILE NO. **PG3607**

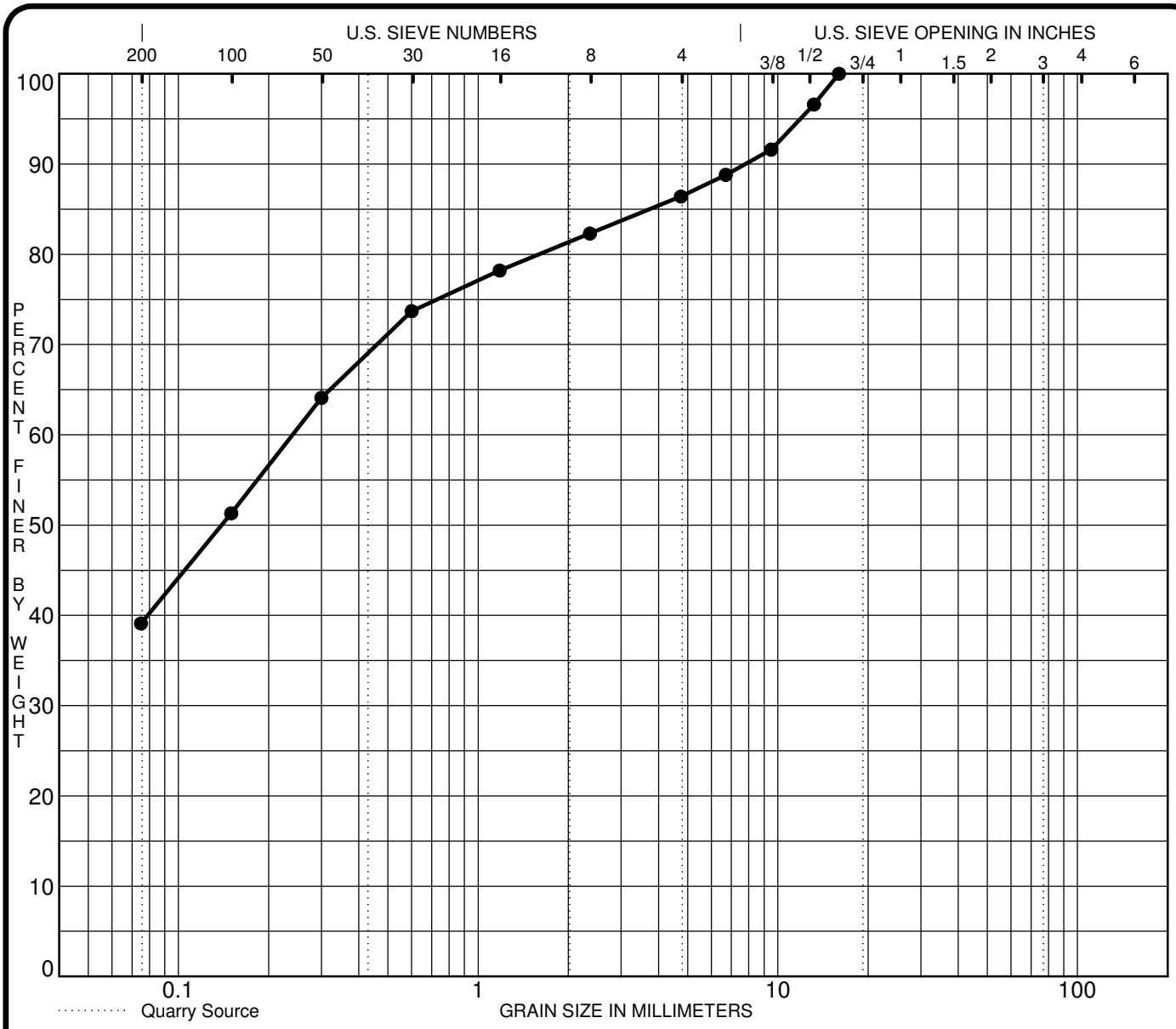
PROJECT **Geotechnical Investigation - Barrhaven South** DATE **30 Nov 15**

Urban Expansion

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

GRAIN SIZE DISTRIBUTION



SILT	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

	Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
●	**BH 5-15 SS 10**	**(SM) SILTY SAND with gravel**						
⊠								
▲								
★								

	Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**BH 5-15 SS 10**	**16.00**	**0.24**			**13.6**	**47.3**	**39.1**	
⊠									
▲									
★									

CLIENT **Regional Group of Companies** FILE NO. **PG3607**

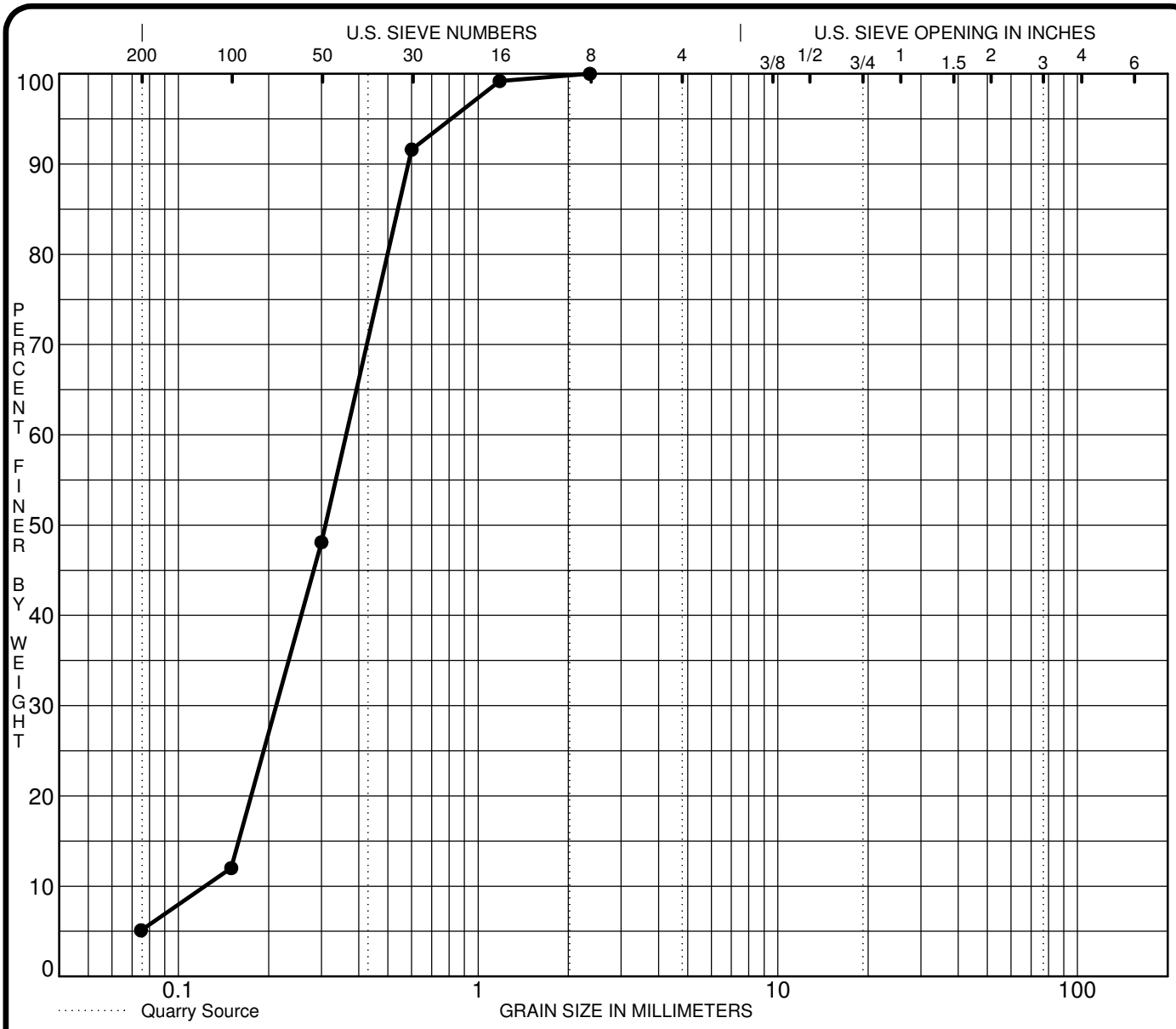
PROJECT **Geotechnical Investigation - Barrhaven South** DATE **10 Dec 15**

Urban Expansion

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

GRAIN SIZE DISTRIBUTION



SILT	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
● **BH 7-15 SS 6**	**(SP-SM) Poorly-graded SAND with silt**					**1.01**	**3.0**
⊠							
▲							
★							

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● **BH 7-15 SS 6**	**2.36**	**0.36**	**0.212**	**0.1227**	**0.0**	**94.9**	**5.1**	
⊠								
▲								
★								

CLIENT **Regional Group of Companies** FILE NO. **PG3607**

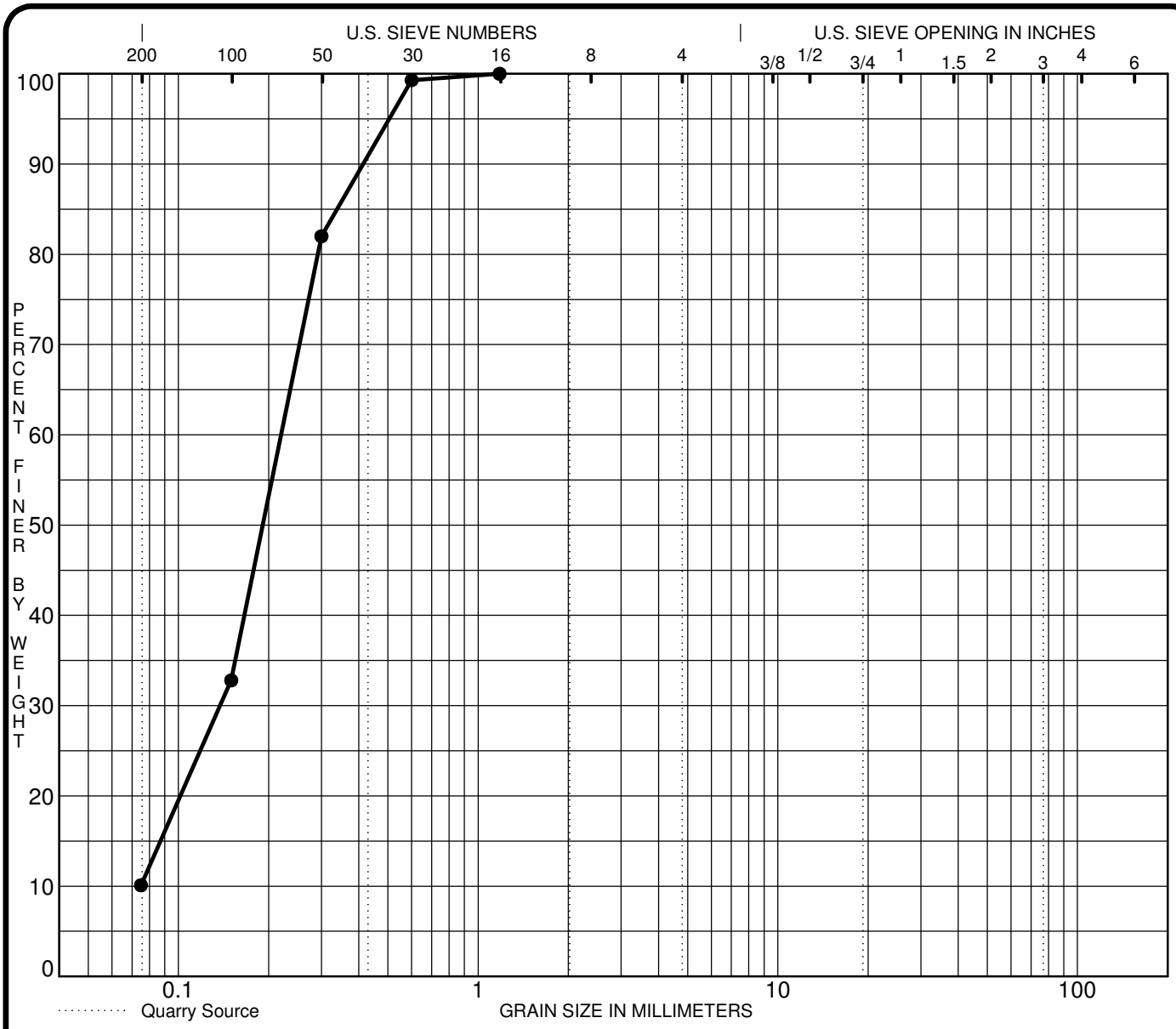
PROJECT **Geotechnical Investigation - Barrhaven South** DATE **10 Dec 15**

Urban Expansion

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

GRAIN SIZE DISTRIBUTION



SILT	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
● **BH 9-15 SS 8**	**(SP-SM) Poorly-graded SAND with silt**					**1.15**	**2.9**
⊠							
▲							
★							

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● **BH 9-15 SS 8**	**1.18**	**0.22**	**0.138**		**0.0**	**89.9**	**10.1**	
⊠								
▲								
★								

CLIENT **Regional Group of Companies** FILE NO. **PG3607**

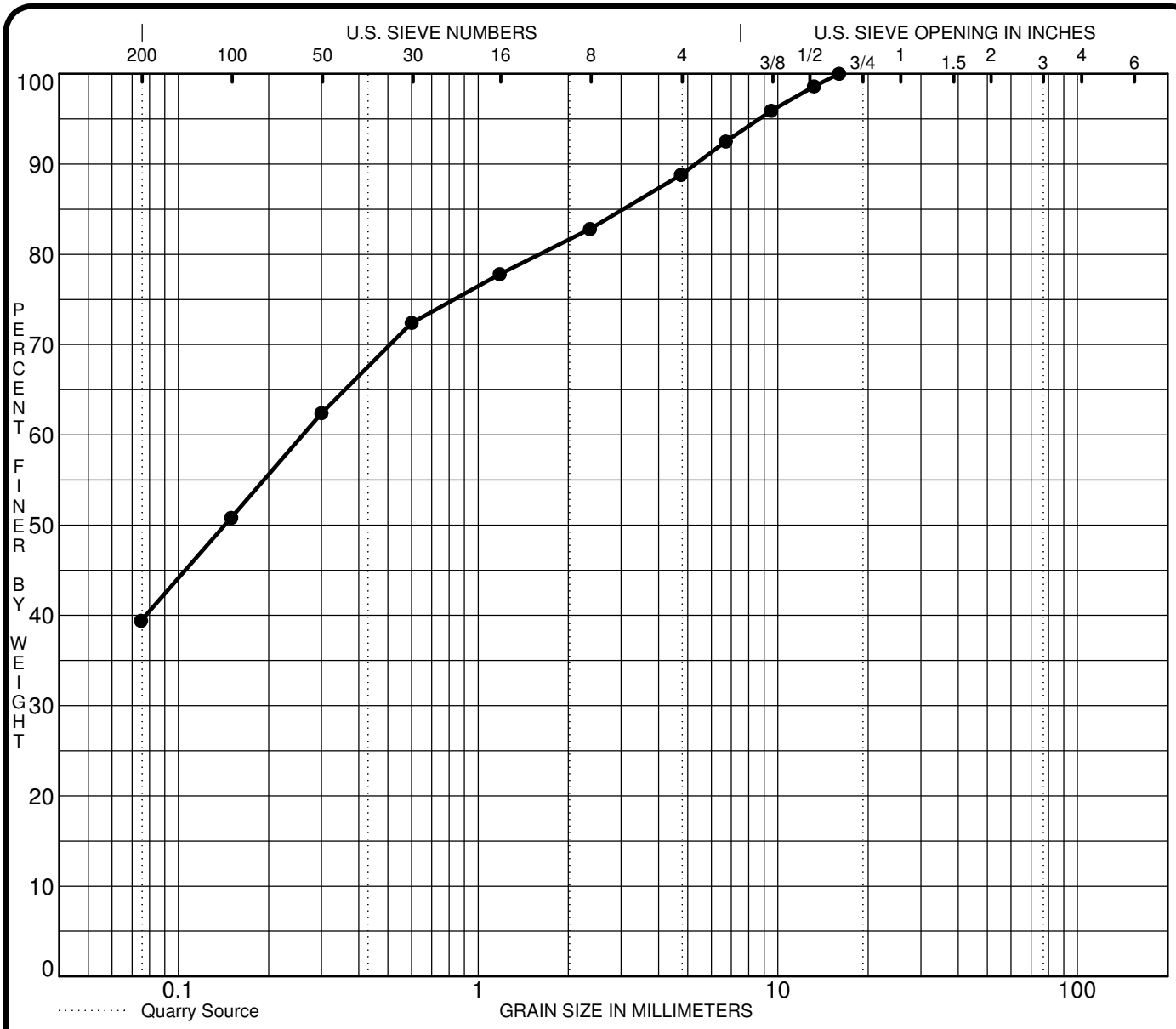
PROJECT **Geotechnical Investigation - Barrhaven South** DATE **7 Dec 15**

Urban Expansion

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

GRAIN SIZE DISTRIBUTION



SILT	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

	Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
●	**BH11-15 SS 8&9**	**(SM) SILTY SAND, some gravel**						
⊠								
▲								
★								

	Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**BH11-15 SS 8&9**	**16.00**	**0.26**			**11.2**	**49.4**	**39.4**	
⊠									
▲									
★									

CLIENT **Regional Group of Companies** FILE NO. **PG3607**

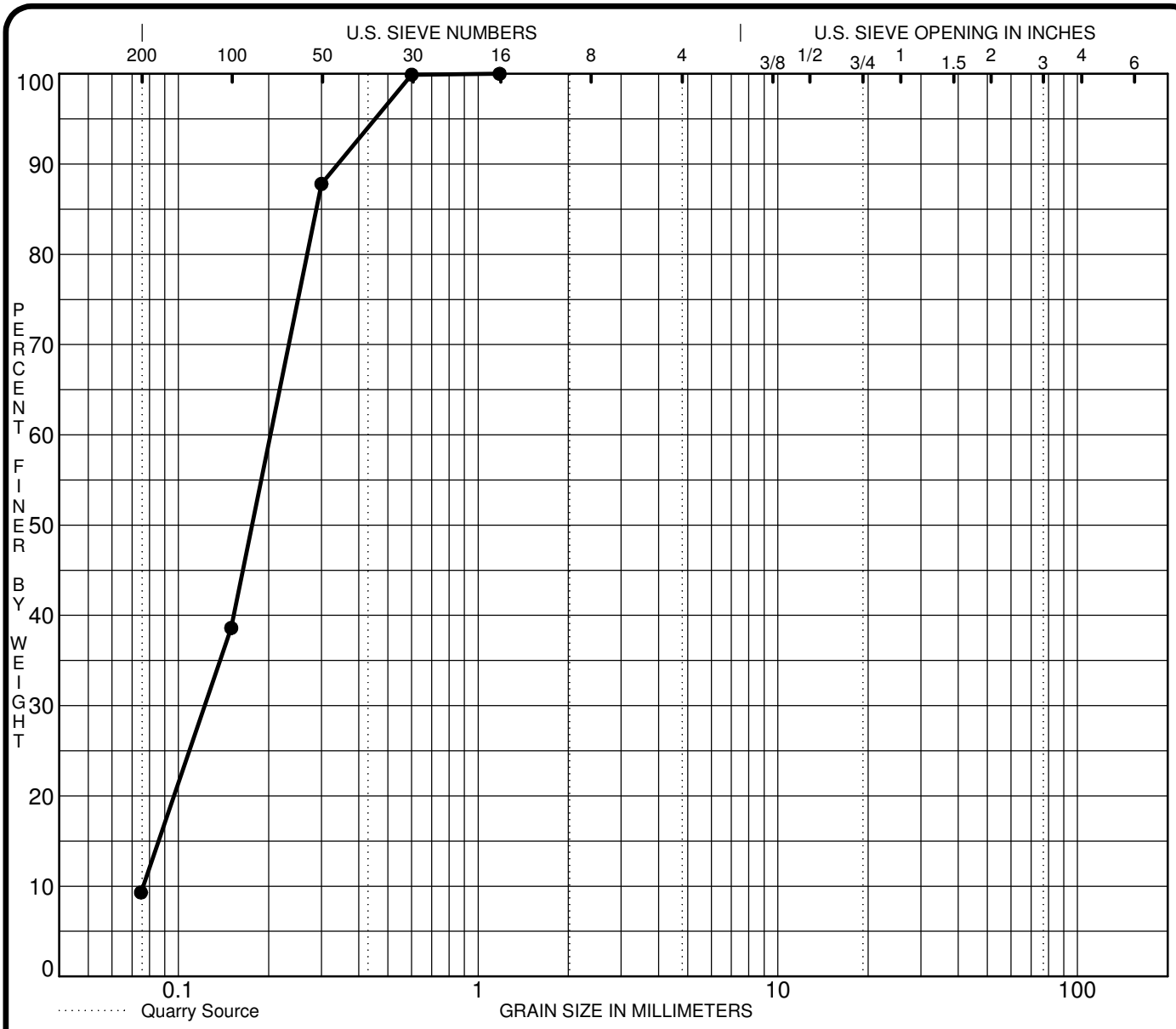
PROJECT **Geotechnical Investigation - Barrhaven South** DATE **3 Dec 15**

Urban Expansion

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

GRAIN SIZE DISTRIBUTION



SILT	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

	Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
●	**BH14-15 SS 11**	**(SP-SM) Poorly-graded SAND with silt**					**0.97**	**2.7**
⊠								
▲								
★								

	Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**BH14-15 SS 11**	**1.18**	**0.20**	**0.122**	**0.0763**	**0.0**	**90.7**	**9.3**	
⊠									
▲									
★									

CLIENT **Regional Group of Companies** FILE NO. **PG3607**

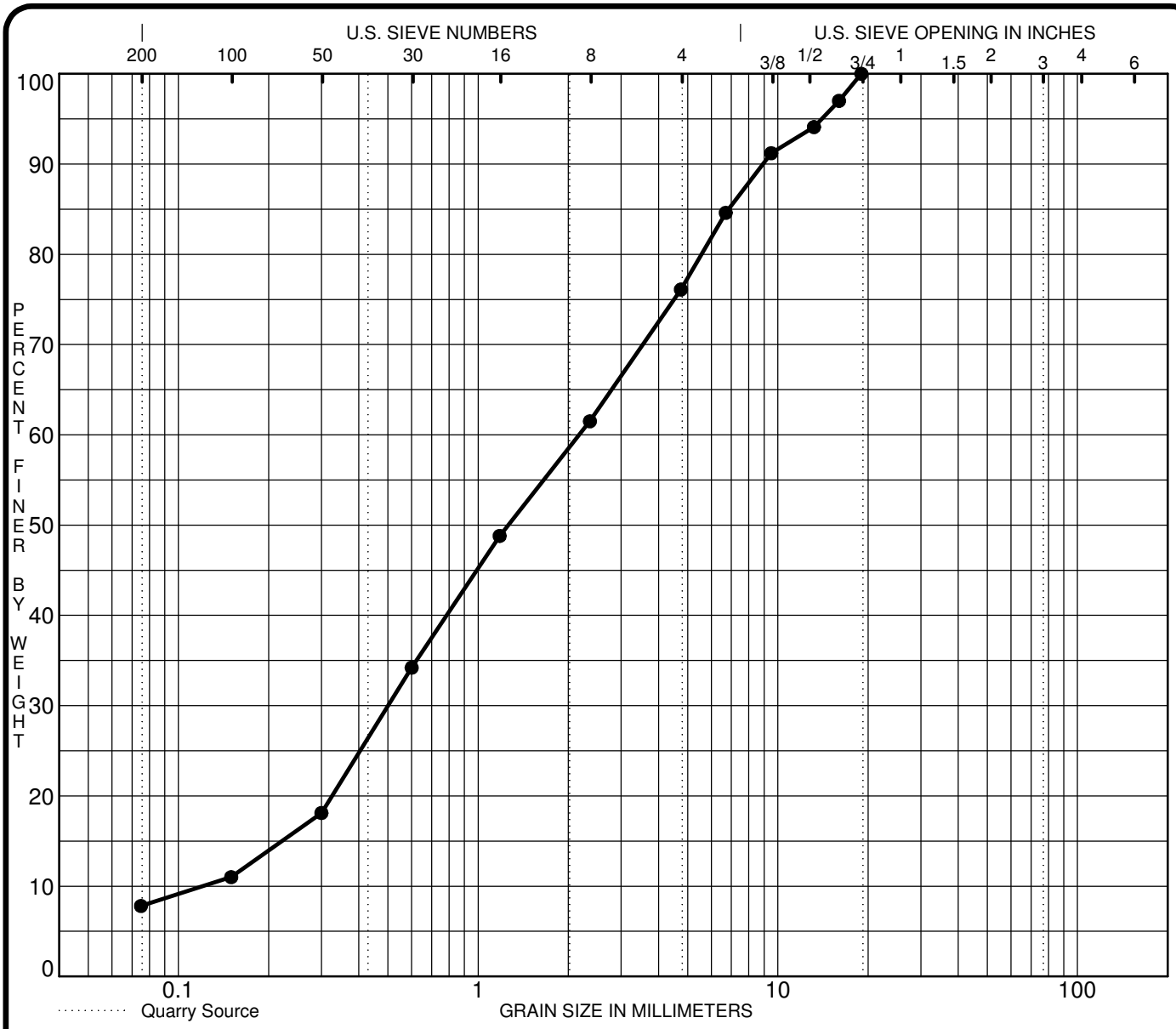
PROJECT **Geotechnical Investigation - Barrhaven South** DATE **7 Dec 15**

Urban Expansion

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

GRAIN SIZE DISTRIBUTION



SILT	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

	Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
●	**BH17-15 SS 9**	**(SW-SM) Well-graded SAND with silt and gravel**					**0.95**	**18.0**
⊠								
▲								
★								

	Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**BH17-15 SS 9**	**19.00**	**2.17**	**0.501**	**0.1208**	**23.9**	**68.3**	**7.8**	
⊠									
▲									
★									

CLIENT **Regional Group of Companies** FILE NO. **PG3607**

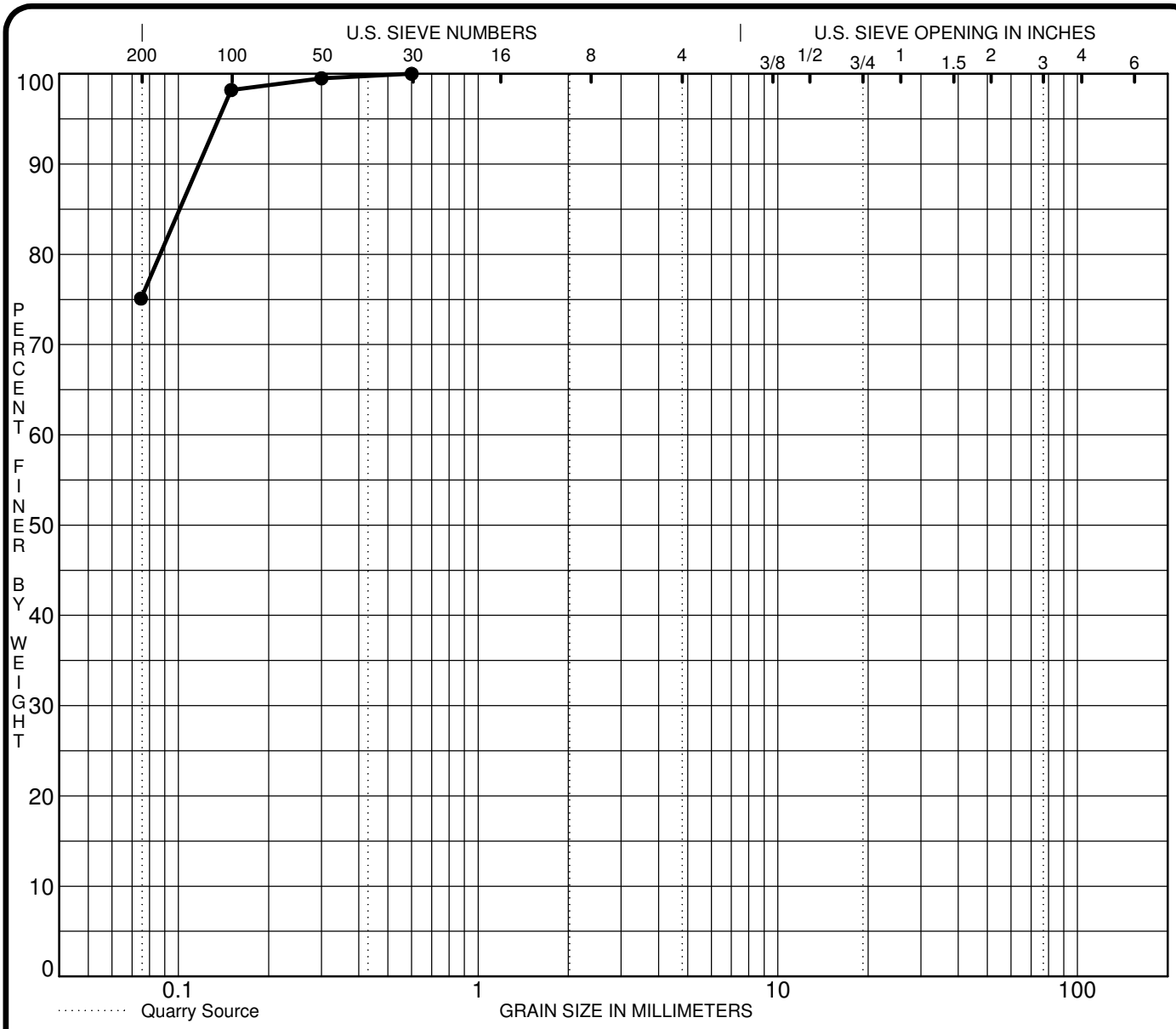
PROJECT **Geotechnical Investigation - Barrhaven South** DATE **4 Dec 15**

Urban Expansion

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

GRAIN SIZE DISTRIBUTION



SILT	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
● **BH18-15SS 11&13**	**(ML) SILT with sand**						
⊠							
▲							
★							

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● **BH18-15SS 11&13**	**0.60**				**0.0**	**24.9**	**75.1**	
⊠								
▲								
★								

CLIENT **Regional Group of Companies** FILE NO. **PG3607**

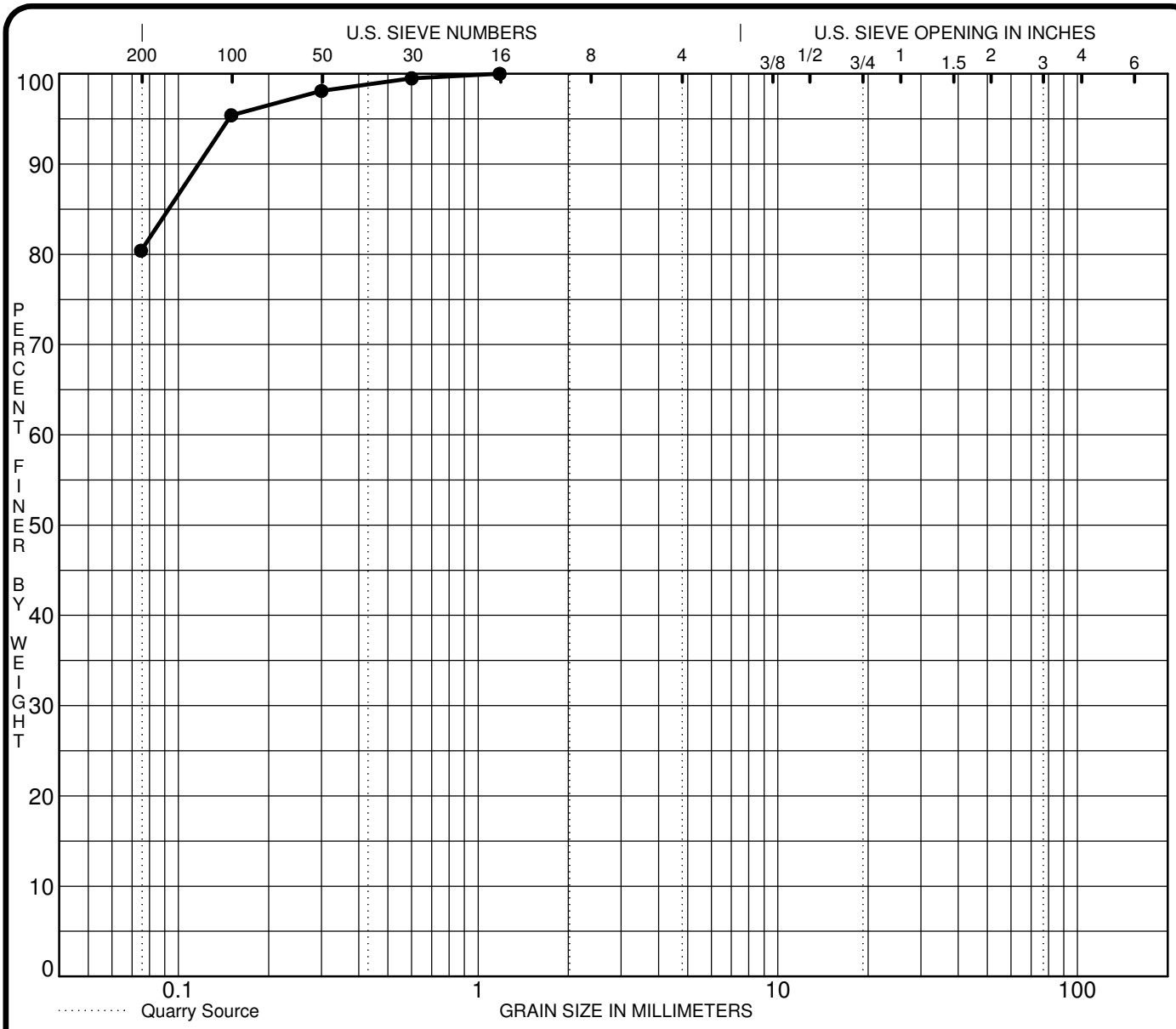
PROJECT **Geotechnical Investigation - Barrhaven South** DATE **8 Dec 15**

Urban Expansion

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

GRAIN SIZE DISTRIBUTION



SILT	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
● **BH19-15 SS 12**	**(ML) SILT with sand**						
⊠							
▲							
★							

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● **BH19-15 SS 12**	**1.18**				**0.0**	**19.6**	**80.4**	
⊠								
▲								
★								

CLIENT **Regional Group of Companies** FILE NO. **PG3607**

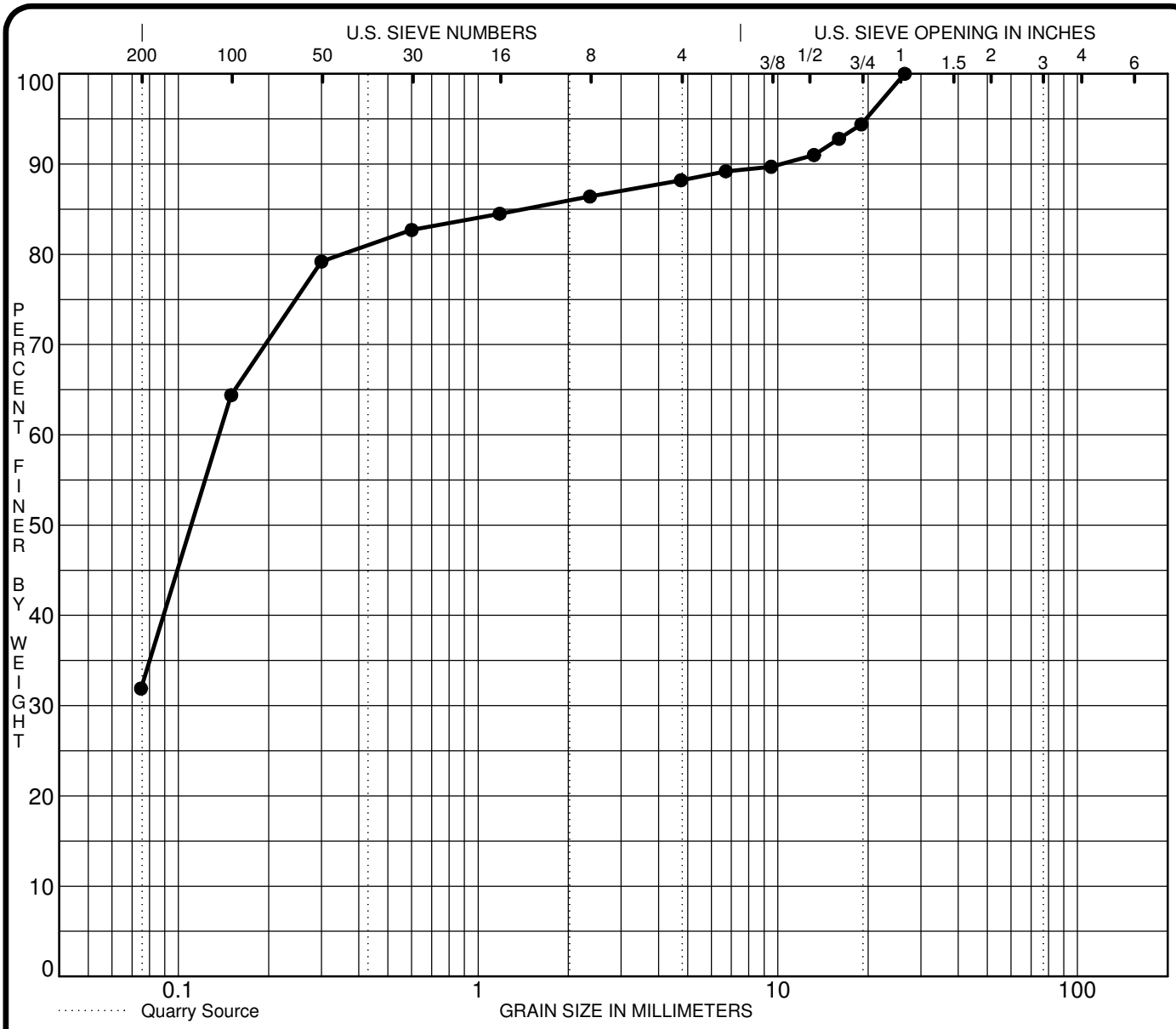
PROJECT **Geotechnical Investigation - Barrhaven South** DATE **18 Dec 15**

Urban Expansion

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

GRAIN SIZE DISTRIBUTION



SILT	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
● **BH21-15 SS 10&11**	**(SM) SILTY SAND, some gravel**						
⊠							
▲							
★							

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● **BH21-15 SS 10&11**	**26.50**	**0.14**			**11.8**	**56.3**	**31.9**	
⊠								
▲								
★								

CLIENT **Regional Group of Companies** FILE NO. **PG3607**

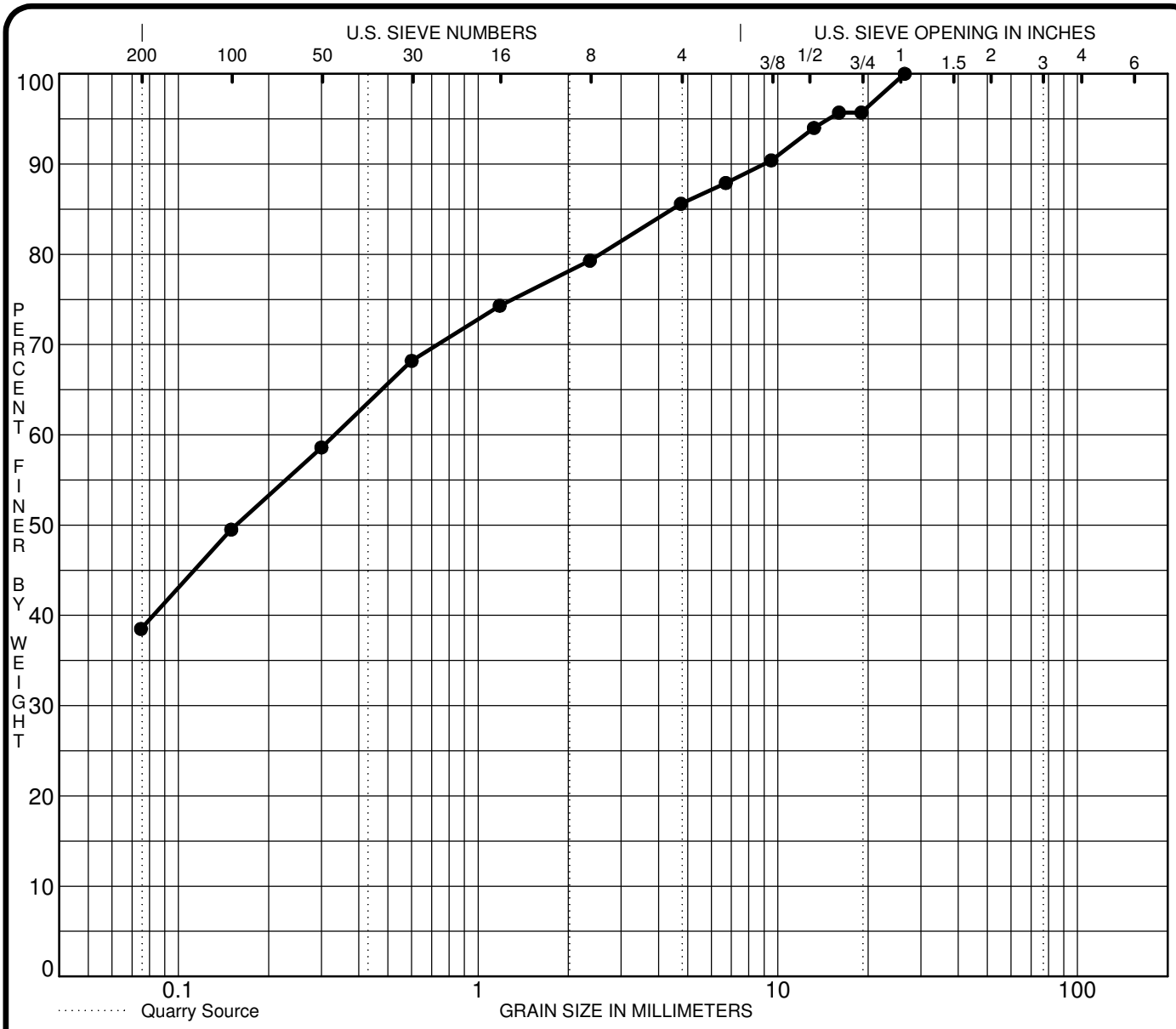
PROJECT **Geotechnical Investigation - Barrhaven South** DATE **9 Dec 15**

Urban Expansion

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

GRAIN SIZE DISTRIBUTION



SILT	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

	Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
●	**BH24-15 SS 5**	**(SM) SILTY SAND, some gravel**						
⊠								
▲								
★								

	Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**BH24-15 SS 5**	**26.50**	**0.33**			**14.4**	**47.1**	**38.5**	
⊠									
▲									
★									

CLIENT **Regional Group of Companies** FILE NO. **PG3607**

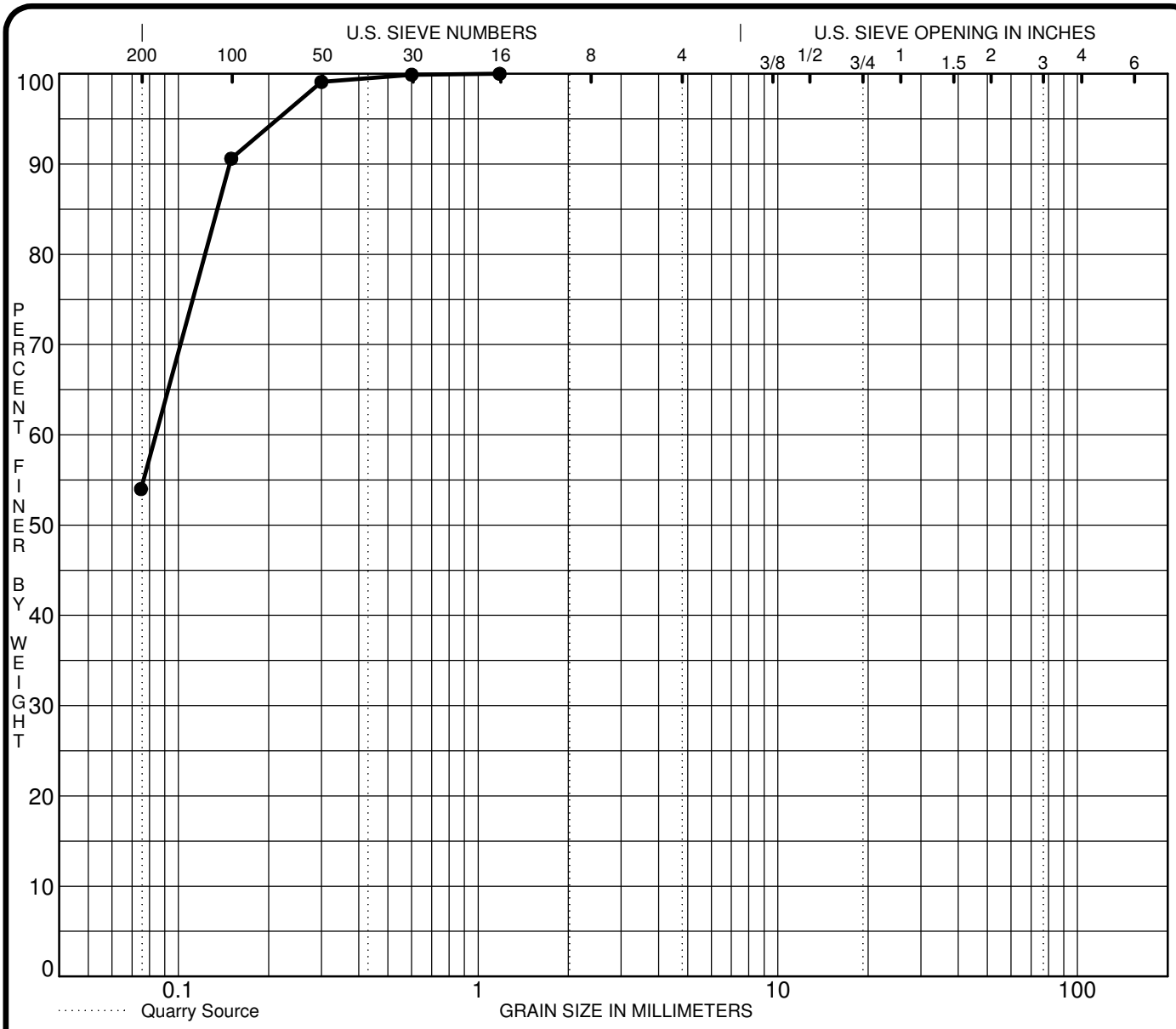
PROJECT **Geotechnical Investigation - Barrhaven South** DATE **27 Nov 15**

Urban Expansion

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

GRAIN SIZE DISTRIBUTION



SILT	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

	Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
●	**BH25-15 SS 6**	**(ML) SANDY SILT**						
⊠								
▲								
★								

	Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**BH25-15 SS 6**	**1.18**	**0.08**			**0.0**	**46.0**	**54.0**	
⊠									
▲									
★									

CLIENT **Regional Group of Companies** FILE NO. **PG3607**

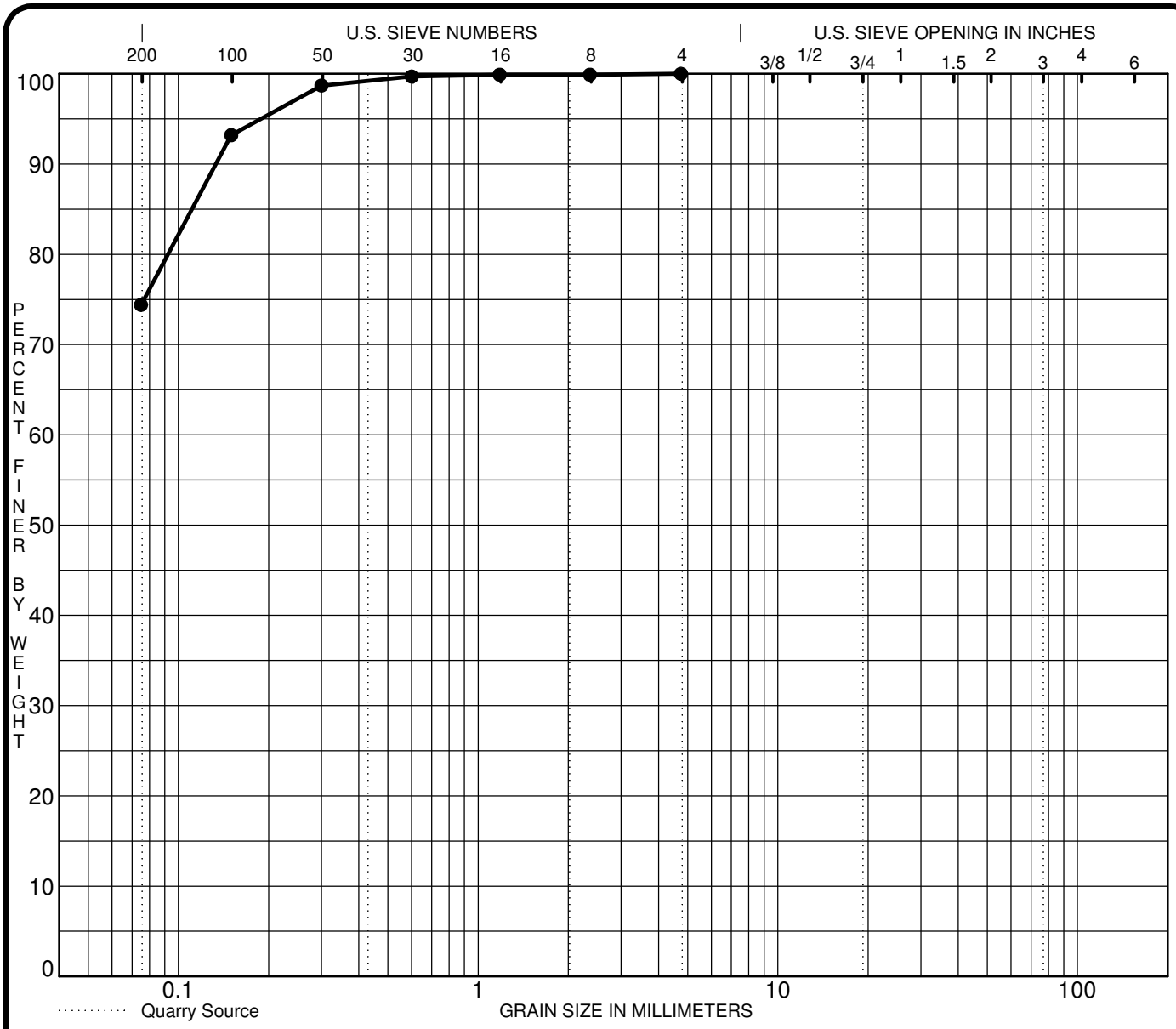
PROJECT **Geotechnical Investigation - Barrhaven South** DATE **1 Dec 15**

Urban Expansion

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

GRAIN SIZE DISTRIBUTION



SILT	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

	Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
●	**BH26-15 SS 7&8**	**(ML) SILT with sand**						
⊠								
▲								
★								

	Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**BH26-15 SS 7&8**	**4.75**				**0.0**	**25.6**	**74.4**	
⊠									
▲									
★									

CLIENT **Regional Group of Companies** FILE NO. **PG3607**

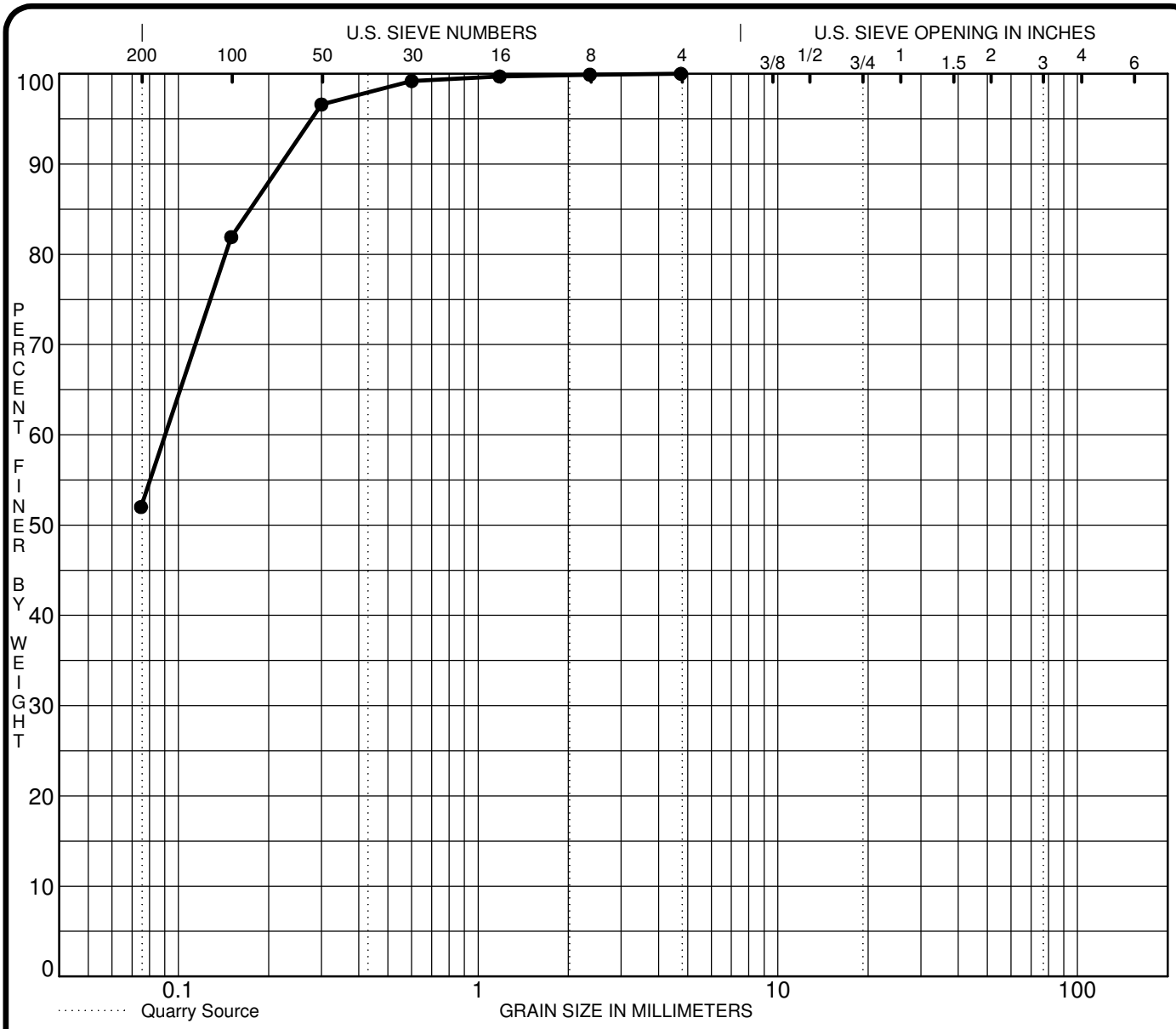
PROJECT **Geotechnical Investigation - Barrhaven South** DATE **8 Dec 15**

Urban Expansion

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

GRAIN SIZE DISTRIBUTION



SILT	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

	Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
●	**BH27-15 SS 7**	**(ML) SANDY SILT**						
⊠								
▲								
★								

	Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**BH27-15 SS 7**	**4.75**	**0.09**			**0.0**	**48.0**	**52.0**	
⊠									
▲									
★									

CLIENT **Regional Group of Companies** FILE NO. **PG3607**

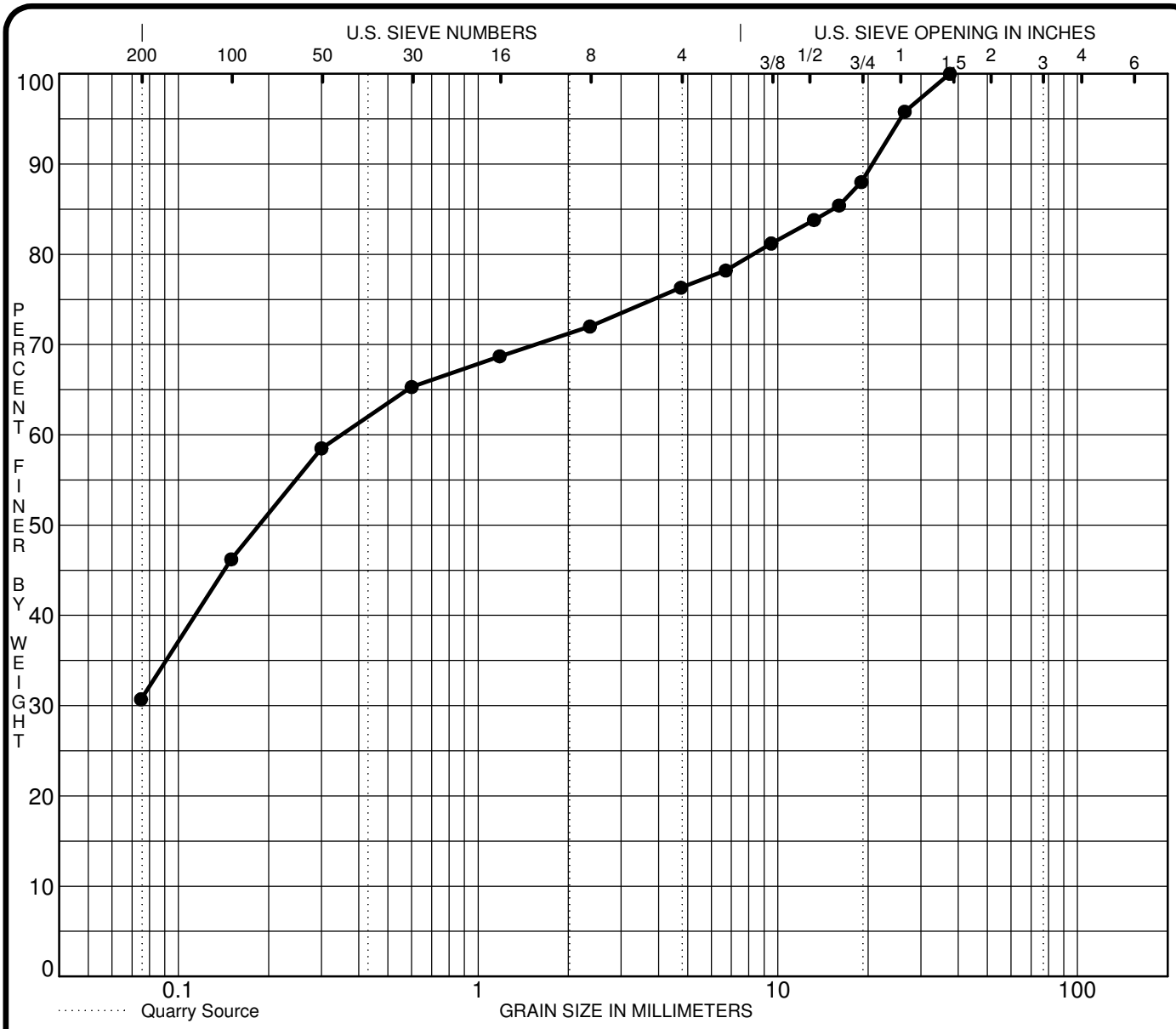
PROJECT **Geotechnical Investigation - Barrhaven South** DATE **1 Dec 15**

Urban Expansion

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

GRAIN SIZE DISTRIBUTION



SILT	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
● **BH29-15 SS 12**	**(SM) SILTY SAND with gravel**						
⊠							
▲							
★							

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● **BH29-15 SS 12**	**37.50**	**0.35**			**23.7**	**45.6**	**30.7**	
⊠								
▲								
★								

CLIENT **Regional Group of Companies** FILE NO. **PG3607**

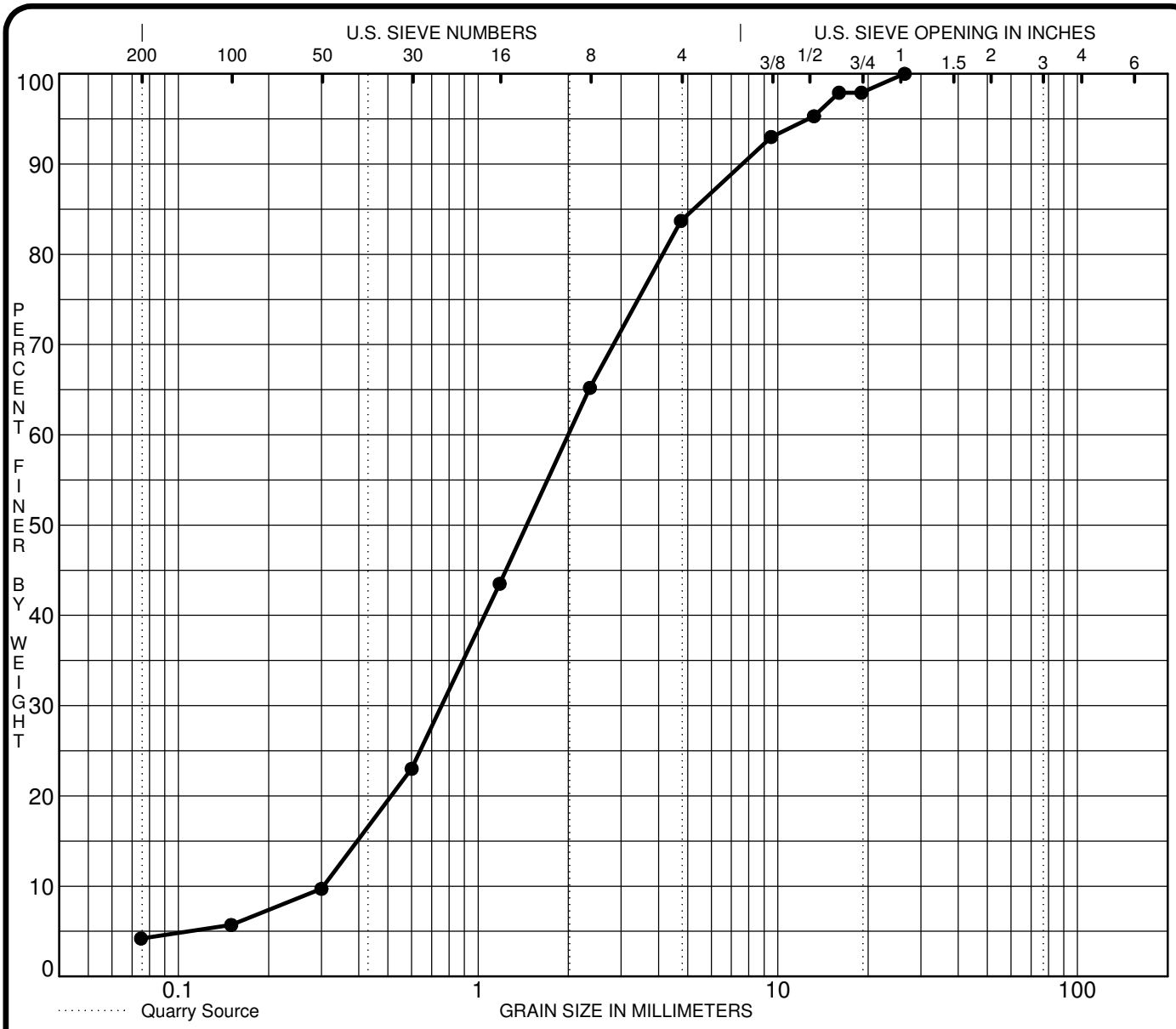
PROJECT **Geotechnical Investigation - Barrhaven South** DATE **9 Dec 15**

Urban Expansion

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

GRAIN SIZE DISTRIBUTION



SILT	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
● TP 7-15 G 2	**(SP) Poorly-graded SAND with gravel**					**0.94**	**6.6**
⊠							
▲							
★							

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● **TP 7-15 G 2**	**26.50**	**2.00**	**0.756**	**0.3047**	**16.3**	**79.5**	**4.2**	
⊠								
▲								
★								

CLIENT **Regional Group of Companies** FILE NO. **PG3607**

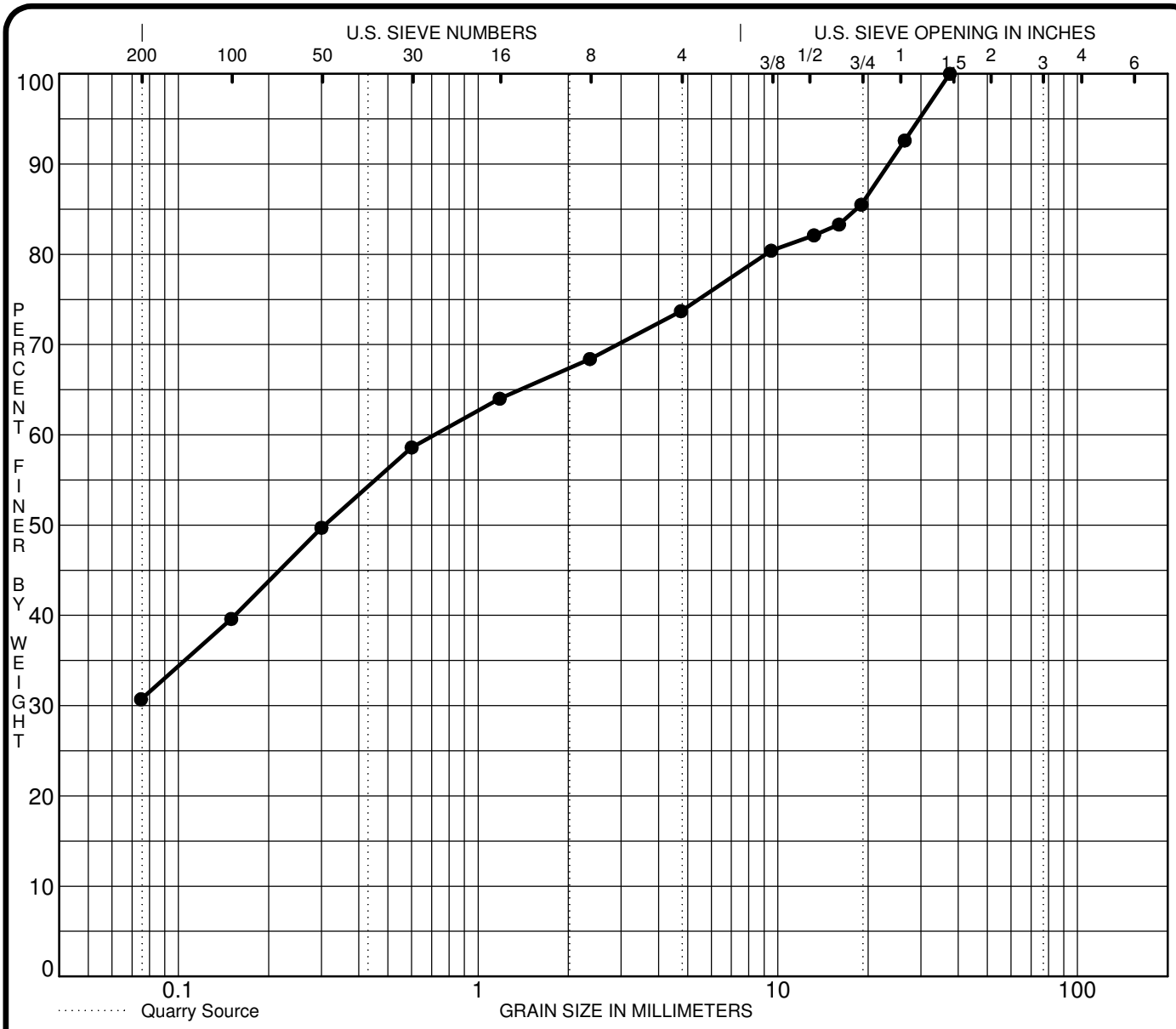
PROJECT **Geotechnical Investigation - Barrhaven South** DATE **1 Dec 15**

Urban Expansion

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

GRAIN SIZE DISTRIBUTION



SILT	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
● **TP 20-15 G 3**	**(SM) SILTY SAND with gravel**						
⊠							
▲							
★							

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● **TP 20-15 G 3**	**37.50**	**0.71**			**26.3**	**43.0**	**30.7**	
⊠								
▲								
★								

CLIENT **Regional Group of Companies** FILE NO. **PG3607**

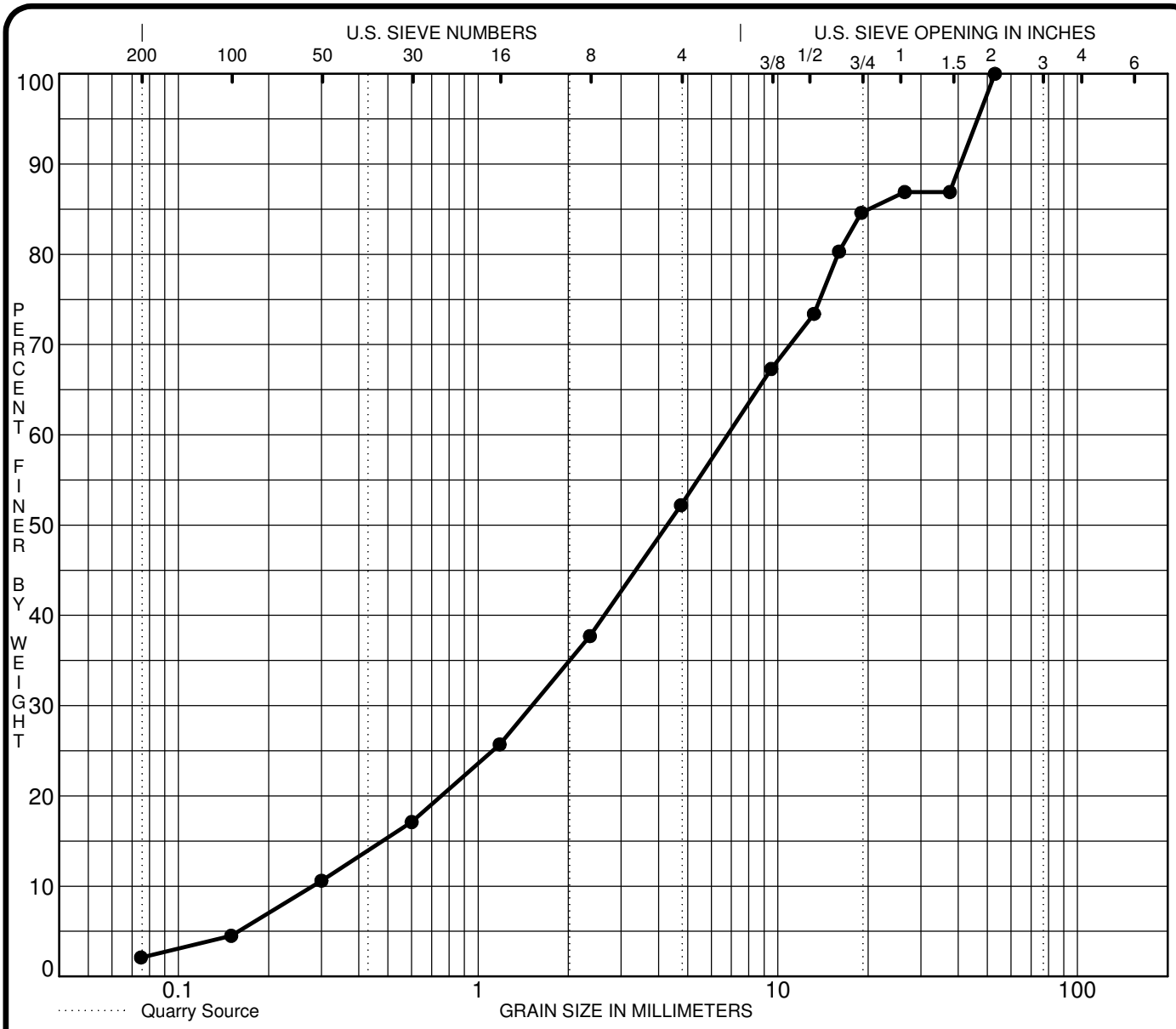
PROJECT **Geotechnical Investigation - Barrhaven South** DATE **2 Dec 15**

Urban Expansion

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

GRAIN SIZE DISTRIBUTION



SILT	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

	Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
●	**TP 31A-15 G 2**	**(SW) Well-graded SAND with gravel**					**1.20**	**24.2**
⊠								
▲								
★								

	Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**TP 31A-15 G 2**	**53.00**	**6.80**	**1.513**	**0.2802**	**47.8**	**50.1**	**2.1**	
⊠									
▲									
★									

CLIENT **Regional Group of Companies** FILE NO. **PG3607**

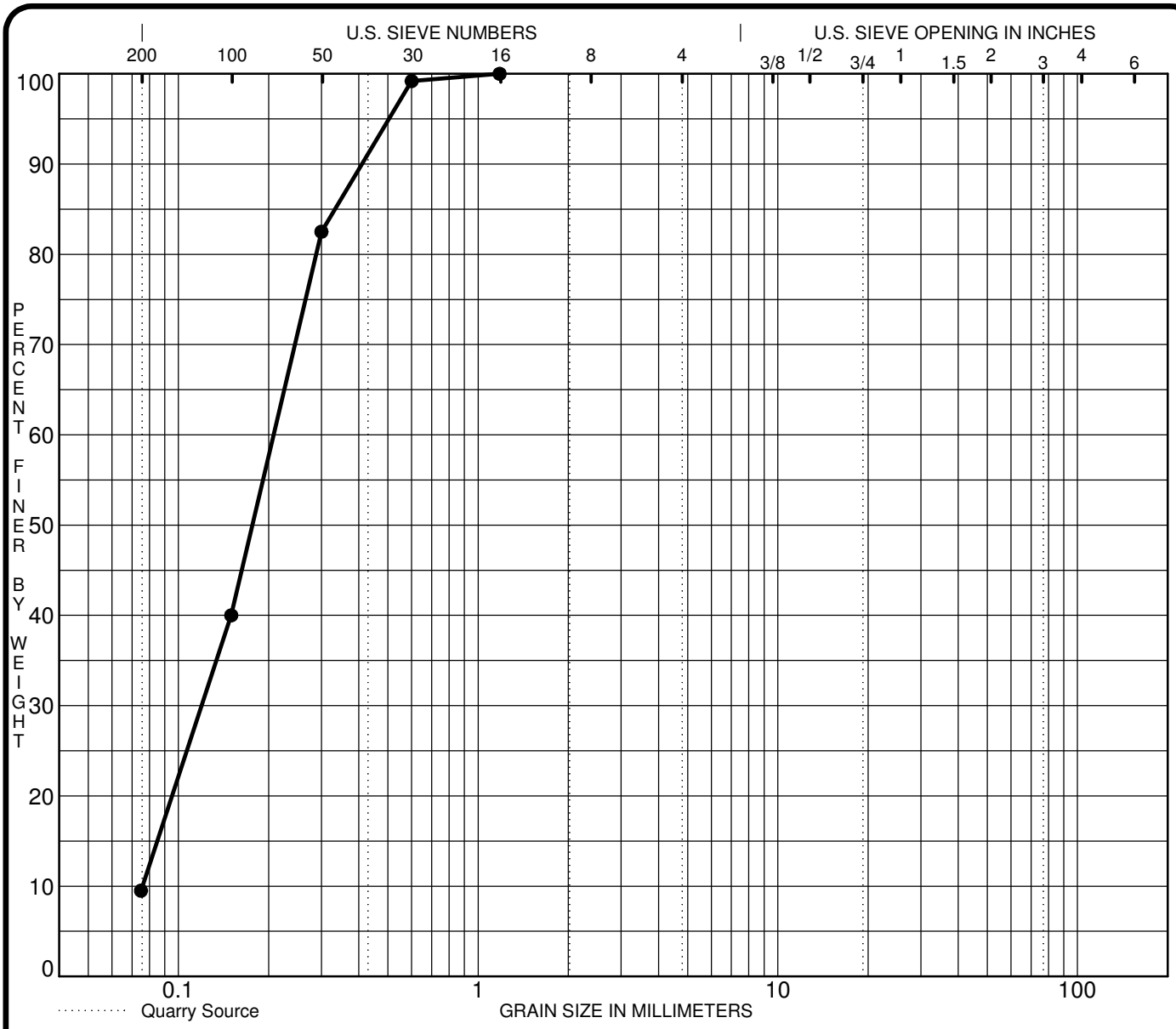
PROJECT **Geotechnical Investigation - Barrhaven South** DATE **1 Dec 15**

Urban Expansion

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

GRAIN SIZE DISTRIBUTION



SILT	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
● TP 35-15 G 2	**(SP-SM) Poorly-graded SAND with silt**					**0.91**	**2.7**
⊠							
▲							
★							

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● **TP 35-15 G 2**	**1.18**	**0.21**	**0.120**	**0.0759**	**0.0**	**90.5**	**9.5**	
⊠								
▲								
★								

CLIENT **Regional Group of Companies** FILE NO. **PG3607**

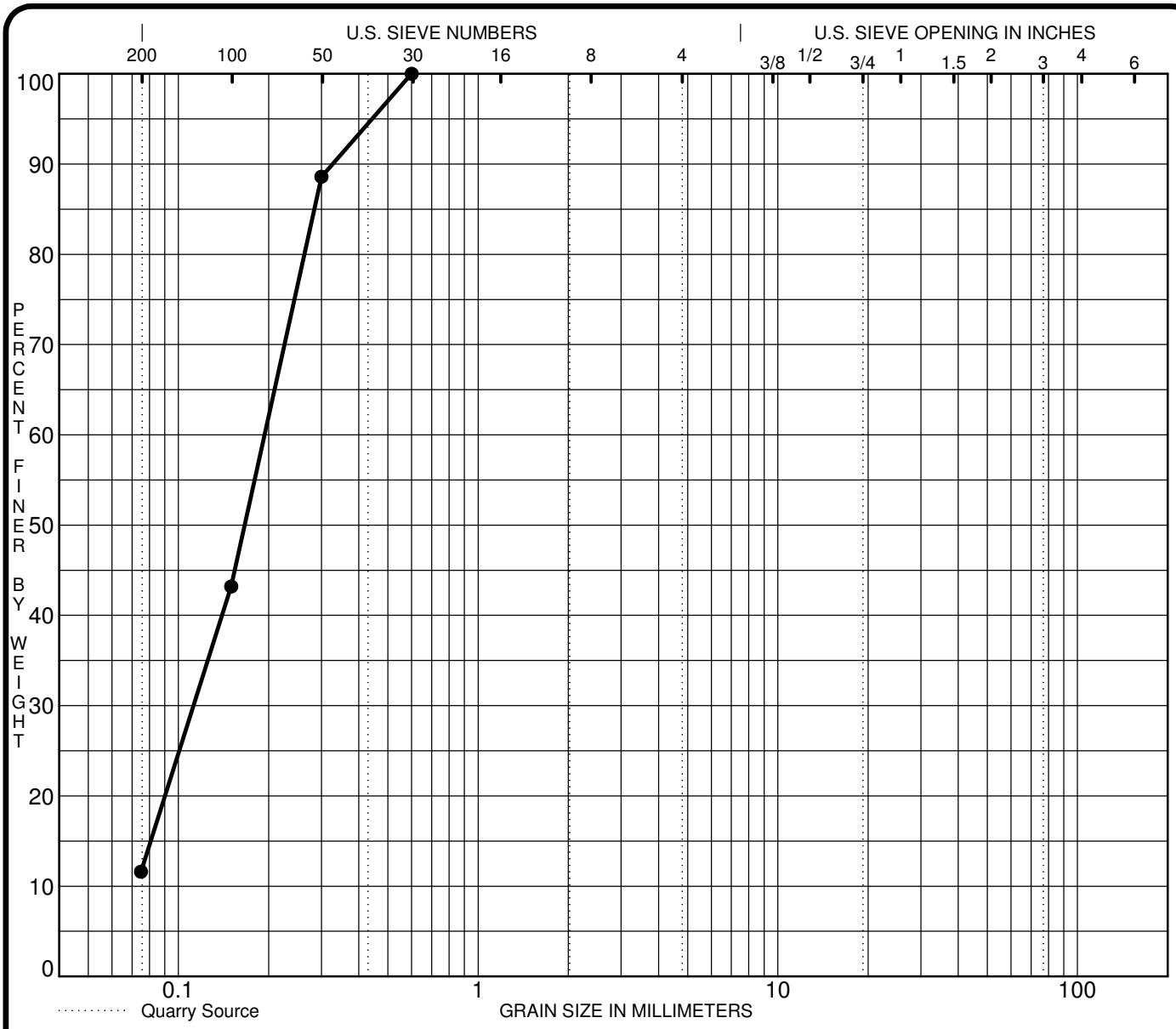
PROJECT **Geotechnical Investigation - Barrhaven South** DATE **23 Nov 15**

Urban Expansion

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

GRAIN SIZE DISTRIBUTION



SILT	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
● TP 55-15 G 2	**(SP-SM) Poorly-graded SAND with silt**					**0.90**	**2.7**
⊠							
▲							
★							

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● **TP 55-15 G 2**	**0.60**	**0.19**	**0.112**		**0.0**	**88.4**	**11.6**	
⊠								
▲								
★								

CLIENT **Regional Group of Companies** FILE NO. **PG3607**

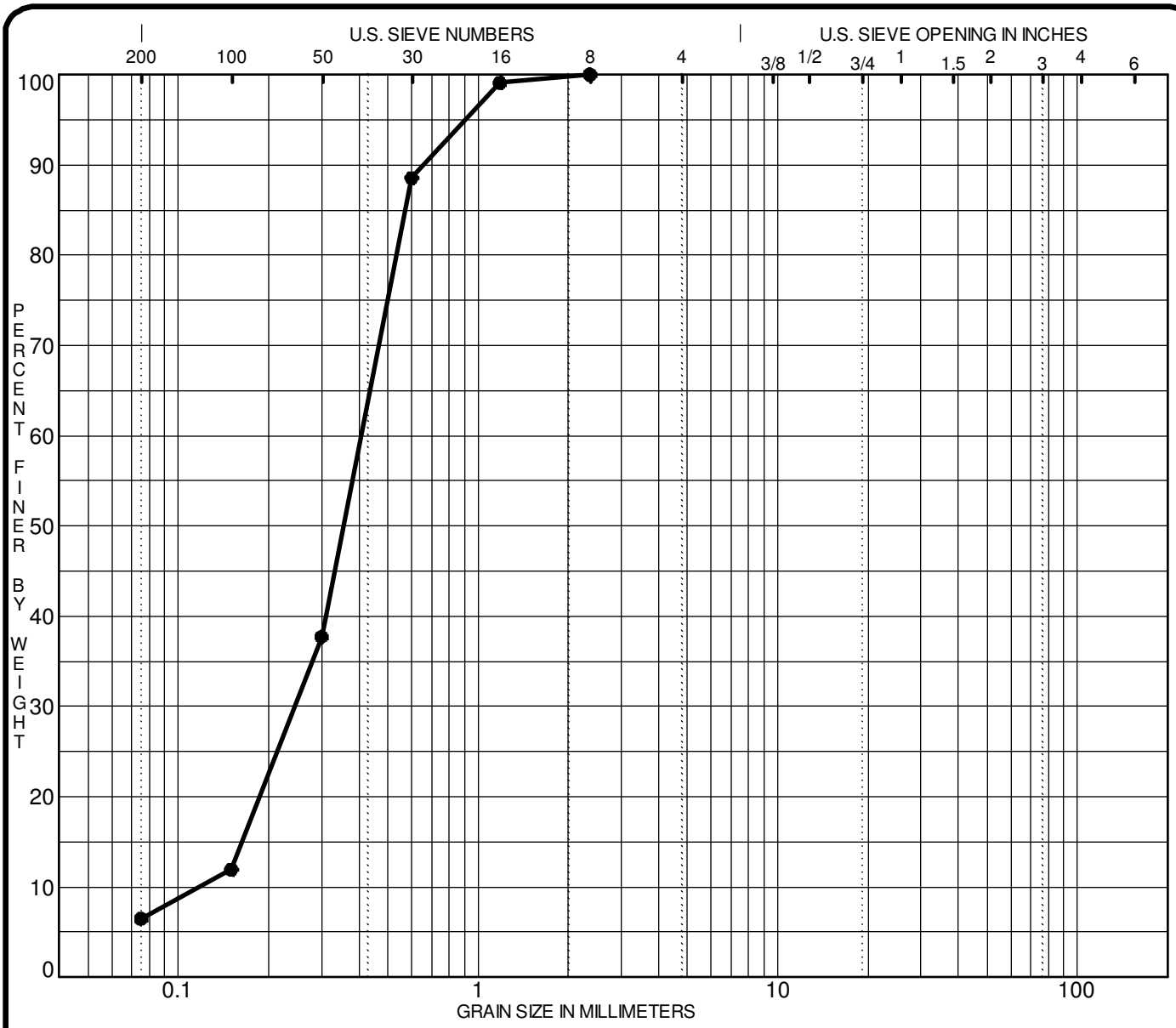
PROJECT **Geotechnical Investigation - Barrhaven South** DATE **30 Nov 15**

Urban Expansion

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

GRAIN SIZE DISTRIBUTION



SILT	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

	Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
●	**BH 5-15 SS 9**	**Poorly graded fine to medium SAND (SP)**	**18**				**1.24**	**3.5**
⊠								
▲								
★		Based on ASTM D 2487						

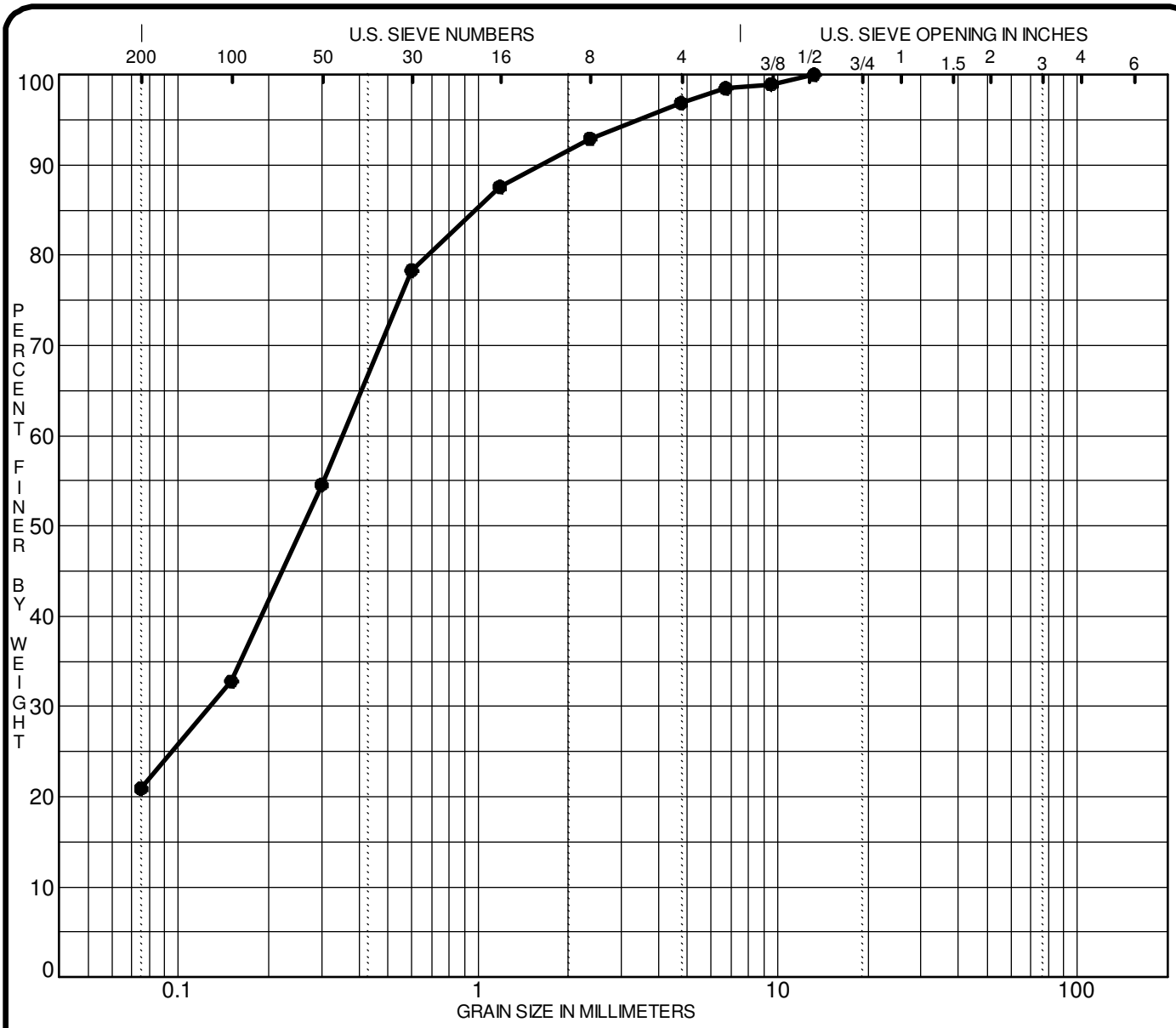
	Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**BH 5-15 SS 9**	**2.36**	**0.41**	**0.244**	**0.1178**	**0.0**	**93.5**	**6.5**	
⊠									
▲									
★									

CLIENT **Mattamy Homes** FILE NO. **PG3450**

PROJECT **Hydrogeological Investigation - Residential Development - Half Moon Bay South** DATE **6 Mar 15**

patersongroup Consulting Engineers
154 Colonnade Road South, Ottawa, Ontario K2E 7J5

GRAIN SIZE DISTRIBUTION



SILT	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

	Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
●	**BH 6-15 SS4-SS5**	**SILTY CLAYEY SAND, trace gravel (SC-SM)**	**20**					
⊠								
▲								
★		Based on ASTM D 2487						

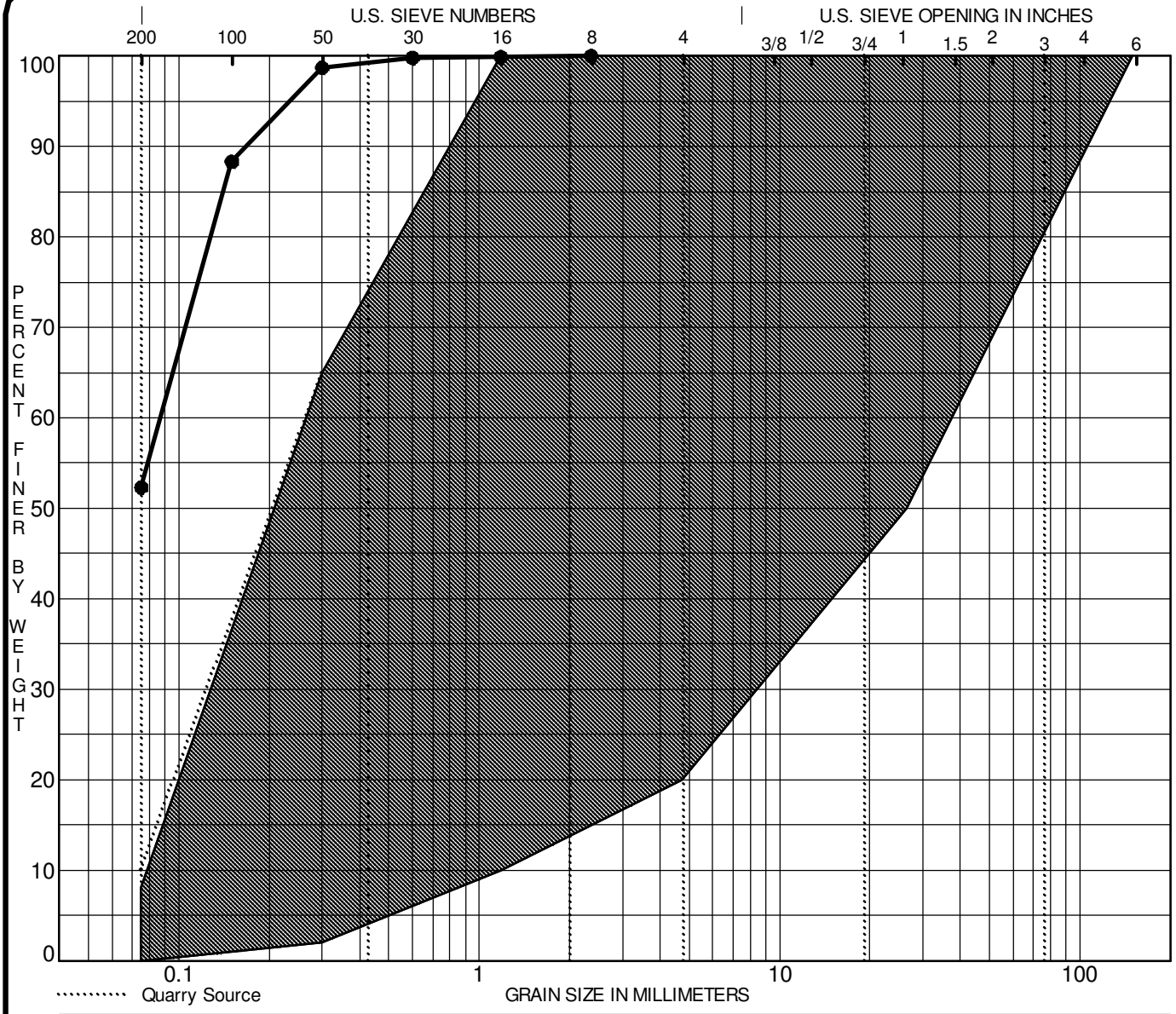
	Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**BH 6-15 SS4-SS5**	**13.20**	**0.35**	**0.128**		**3.1**	**76.0**	**20.9**	
⊠									
▲									
★									

CLIENT **Mattamy Homes** FILE NO. **PG3450**

PROJECT **Hydrogeological Investigation - Residential Development - Half Moon Bay South** DATE **5 Mar 15**

patersongroup Consulting Engineers
154 Colonnade Road South, Ottawa, Ontario K2E 7J5

GRAIN SIZE DISTRIBUTION



SILT	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

	Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
●	**TP 1-11**	**G2**	**SILTY SAND**						
⊠									
▲									
★									

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**TP 1-11**	**G2**	**2.36**	**0.09**			**0.0**	**47.7**	**52.3**	
⊠										
▲										
★										

CLIENT **Minto Communities Inc.** FILE NO. **PH1893**

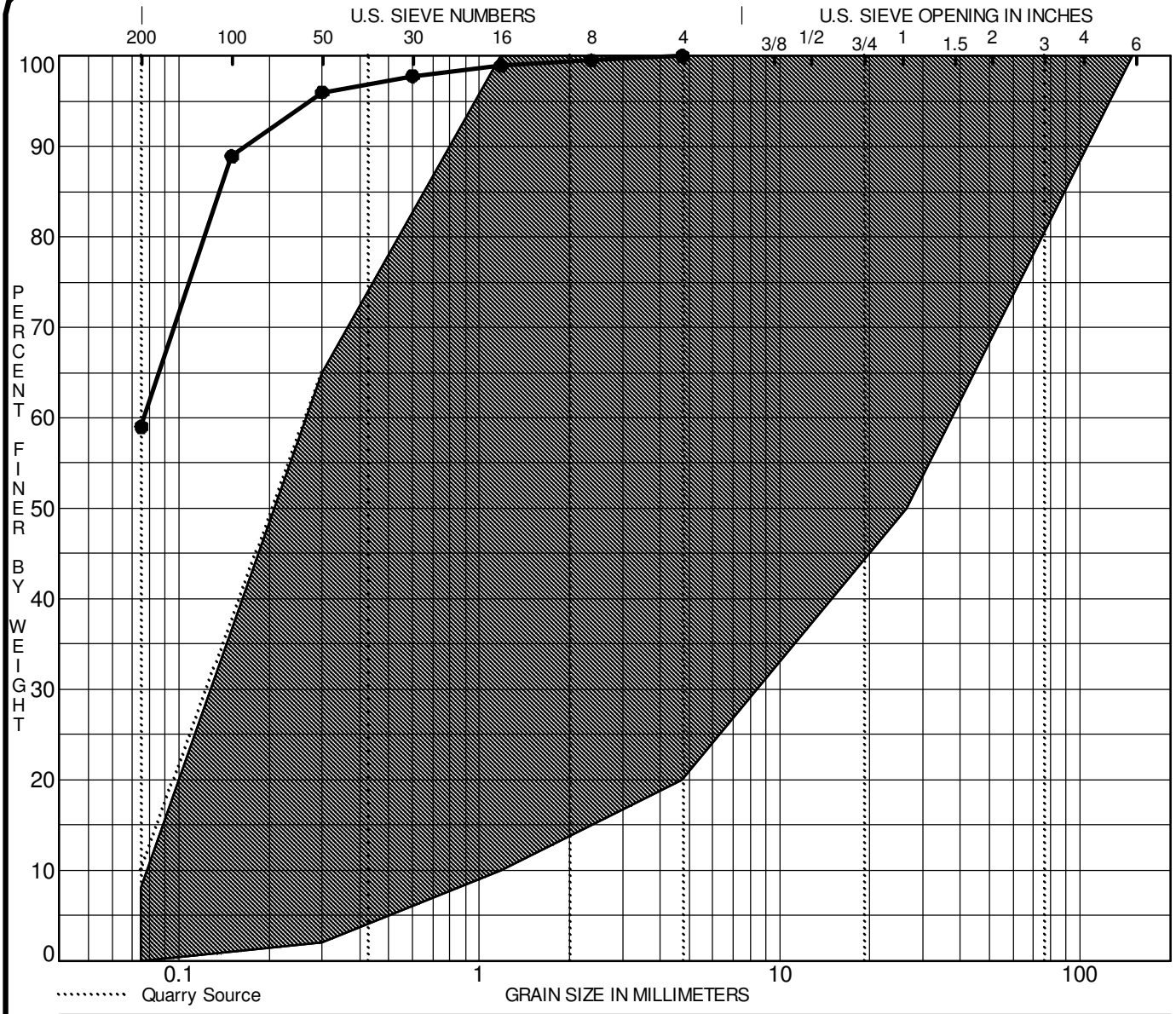
PROJECT **Mineral Resource Aggregate Assessment - 3882** DATE **16 Dec 11**

Barnsdale Road

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

GRAIN SIZE DISTRIBUTION



SILT	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

	Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
●	**TP 3-11**	**G6**	**SANDY SILT**						
⊠									
▲									
★									

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**TP 3-11**	**G6**	**4.75**	**0.08**			**0.0**	**41.0**	**59.0**	
⊠										
▲										
★										

CLIENT **Minto Communities Inc.** FILE NO. **PH1893**

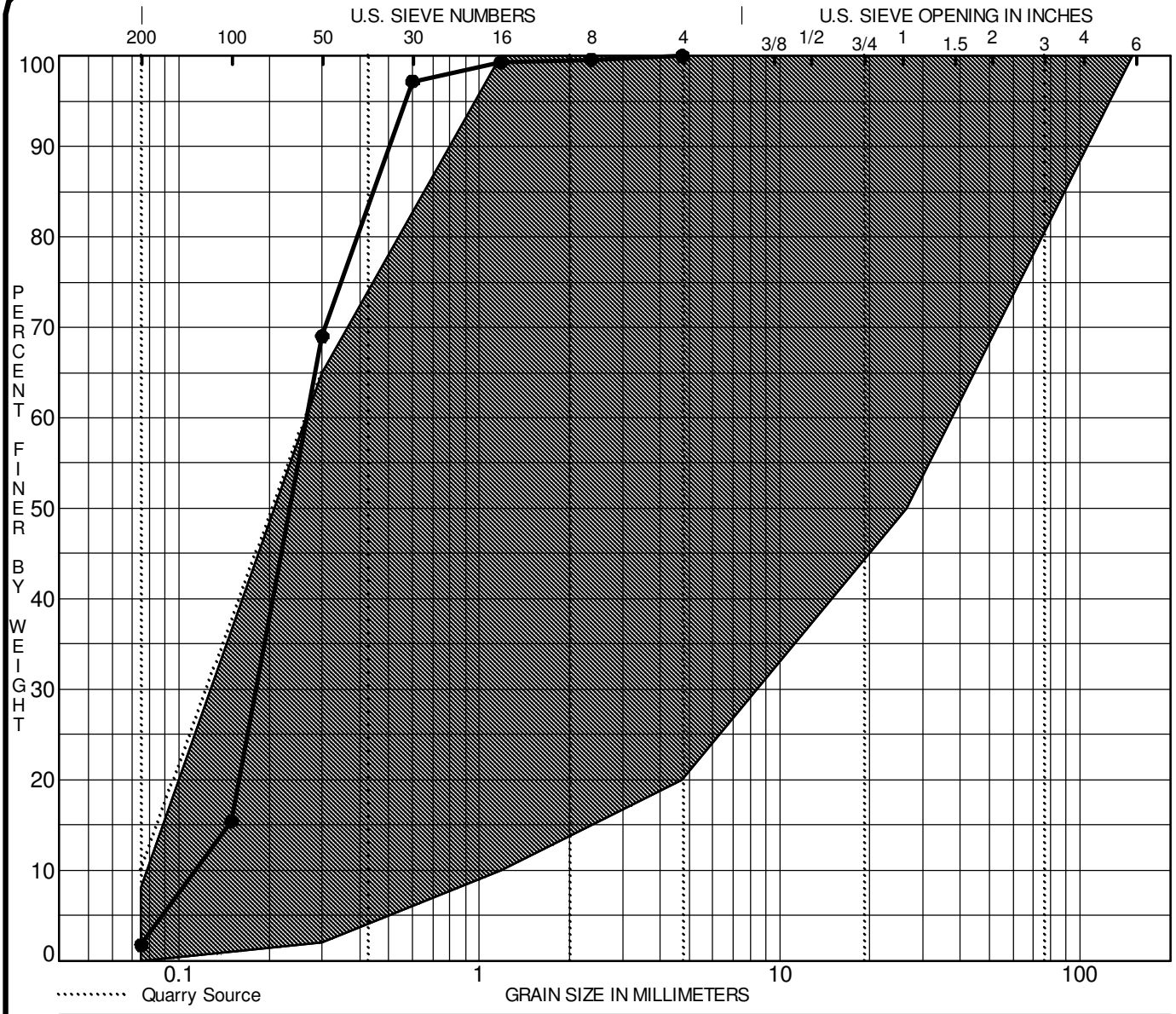
PROJECT **Mineral Resource Aggregate Assessment - 3882** DATE **16 Dec 11**

Barnsdale Road

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

GRAIN SIZE DISTRIBUTION



SILT	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

	Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
●	**TP 5-11**	**G11**	**FINE SAND**					**1.08**	**2.3**
⊠									
▲									
★									

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**TP 5-11**	**G11**	**4.75**	**0.27**	**0.181**	**0.1141**	**0.0**	**98.3**	**1.7**	
⊠										
▲										
★										

CLIENT **Minto Communities Inc.** FILE NO. **PH1893**

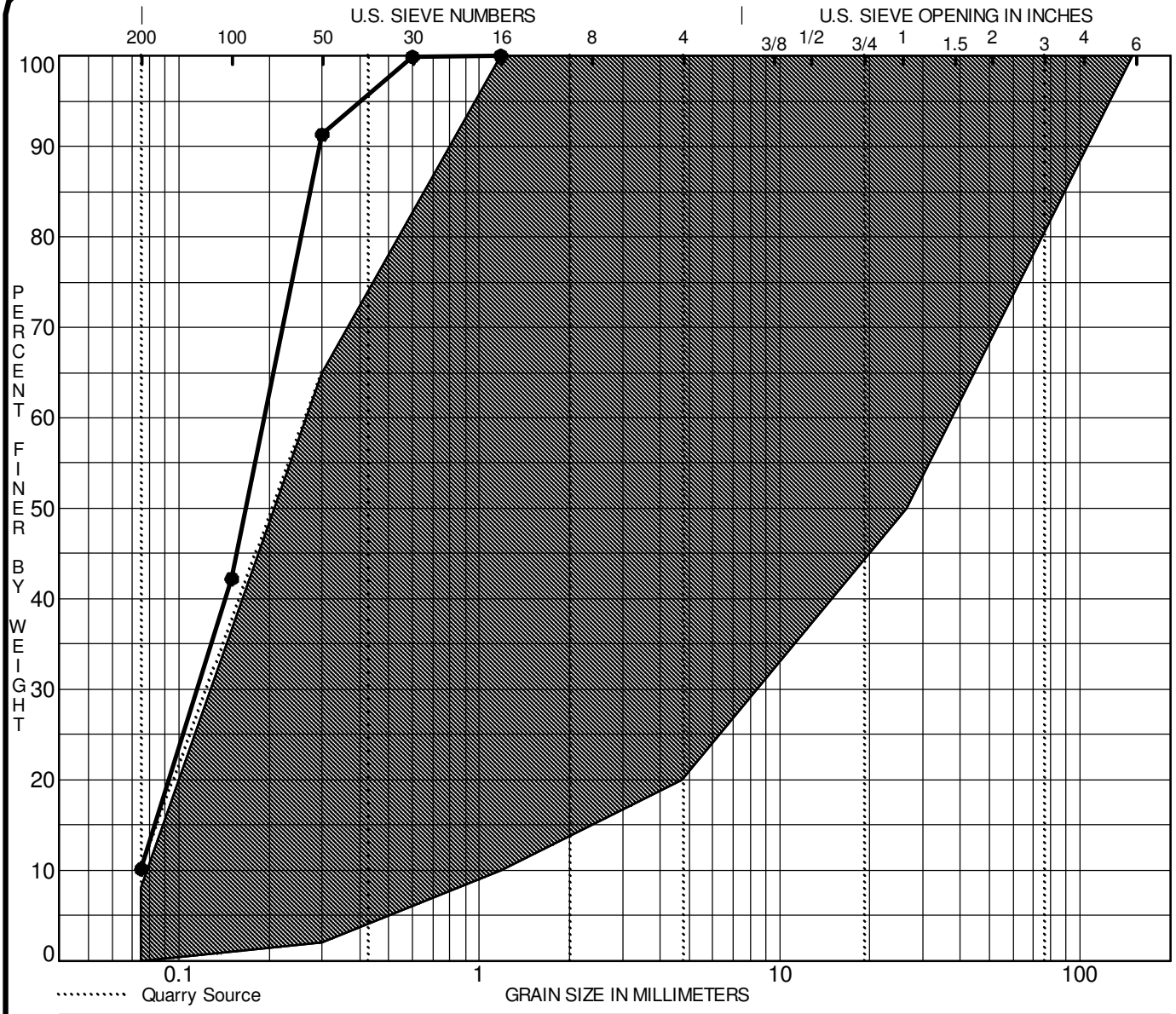
PROJECT **Mineral Resource Aggregate Assessment - 3882** DATE **16 Dec 11**

Barnsdale Road

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

GRAIN SIZE DISTRIBUTION



SILT	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

	Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
●	**TP 6-11**	**G14**	**FINE SAND, some silt**					**0.92**	**2.6**
⊠									
▲									
★									

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**TP 6-11**	**G14**	**1.18**	**0.19**	**0.115**		**0.0**	**89.9**	**10.1**	
⊠										
▲										
★										

CLIENT **Minto Communities Inc.** FILE NO. **PH1893**

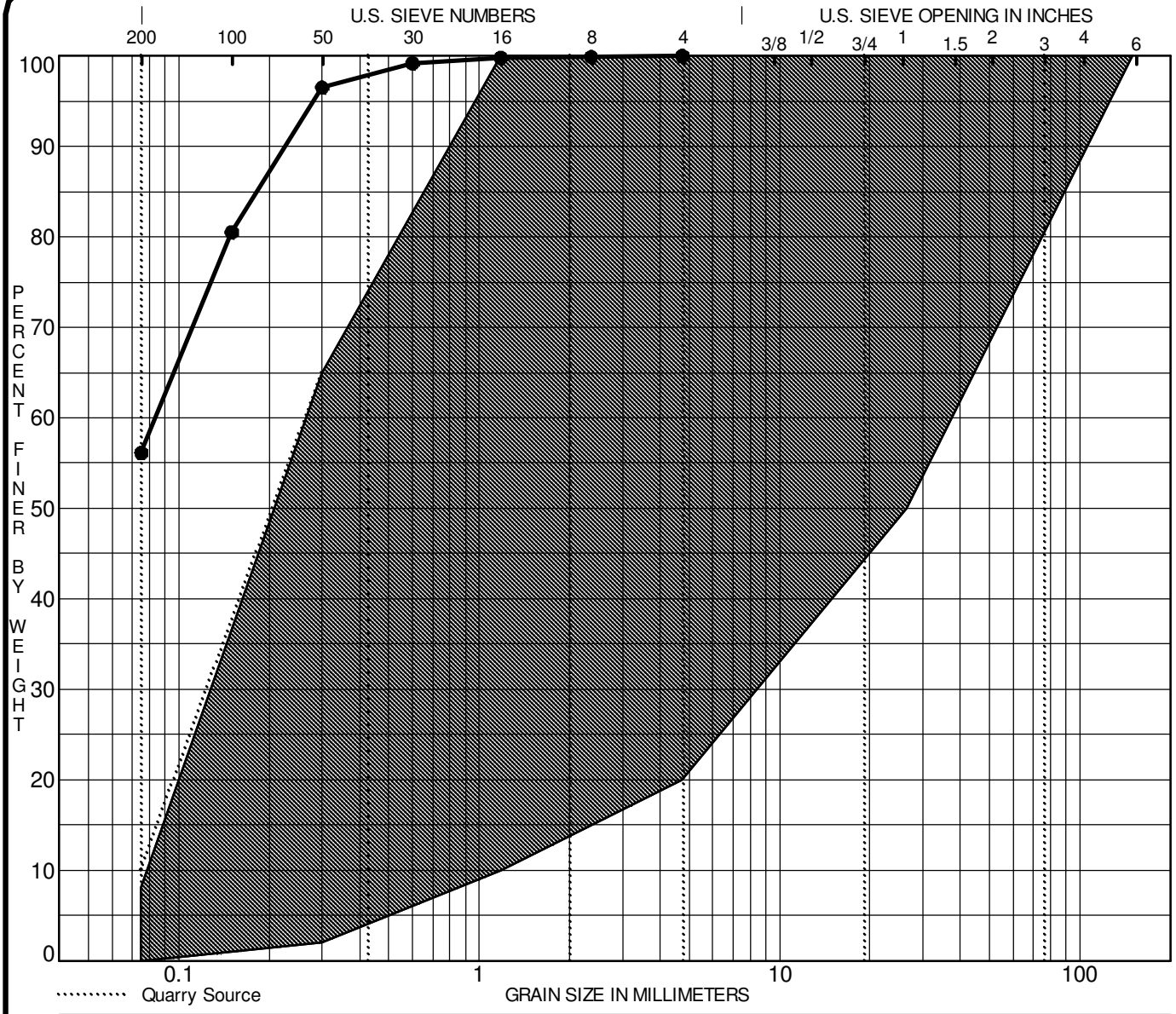
PROJECT **Mineral Resource Aggregate Assessment - 3882** DATE **16 Dec 11**

Barnsdale Road

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

GRAIN SIZE DISTRIBUTION



SILT	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

	Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
●	**TP 7-11**	**G18**	**SANDY SILT/SILTY SAND**						
⊠									
▲									
★									

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**TP 7-11**	**G18**	**4.75**	**0.08**			**0.0**	**43.9**	**56.1**	
⊠										
▲										
★										

CLIENT **Minto Communities Inc.** FILE NO. **PH1893**

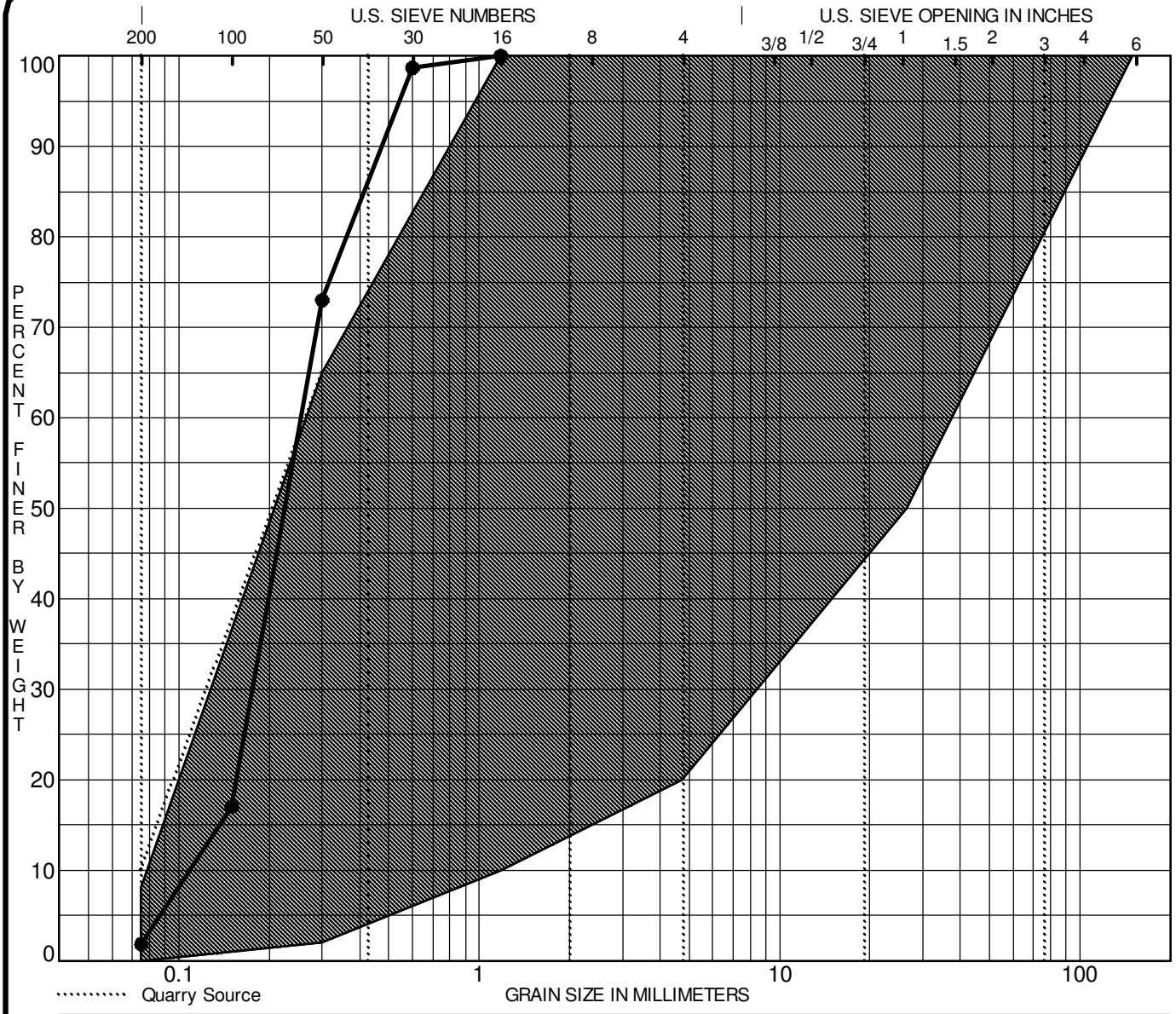
PROJECT **Mineral Resource Aggregate Assessment - 3882** DATE **16 Dec 11**

Barnsdale Road

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

GRAIN SIZE DISTRIBUTION



SILT	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

	Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
●	**TP 8-11**	**G20**	**FINE SAND**					**1.11**	**2.3**
⊠									
▲									
★									

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**TP 8-11**	**G20**	**1.18**	**0.26**	**0.176**	**0.1090**	**0.0**	**98.2**	**1.8**	
⊠										
▲										
★										

CLIENT **Minto Communities Inc.** FILE NO. **PH1893**

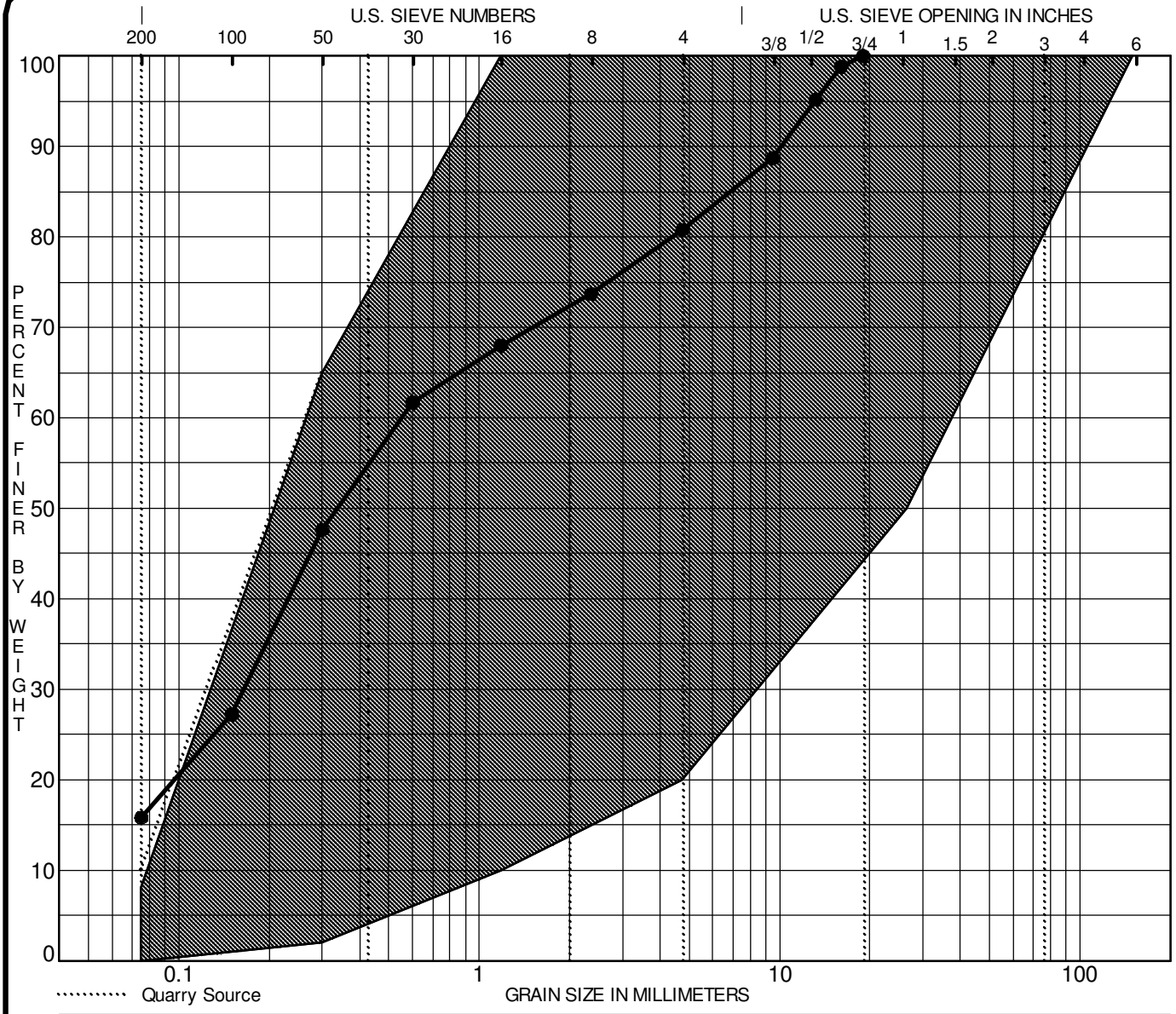
PROJECT **Mineral Resource Aggregate Assessment - 3882** DATE **16 Dec 11**

Barnsdale Road

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

GRAIN SIZE DISTRIBUTION



SILT	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

	Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
●	**TP 9-11**	**G21**	**SAND-GRAVEL, some silt**						
⊠									
▲									
★									

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**TP 9-11**	**G21**	**19.00**	**0.55**	**0.165**		**19.2**	**65.0**	**15.8**	
⊠										
▲										
★										

CLIENT **Minto Communities Inc.** FILE NO. **PH1893**

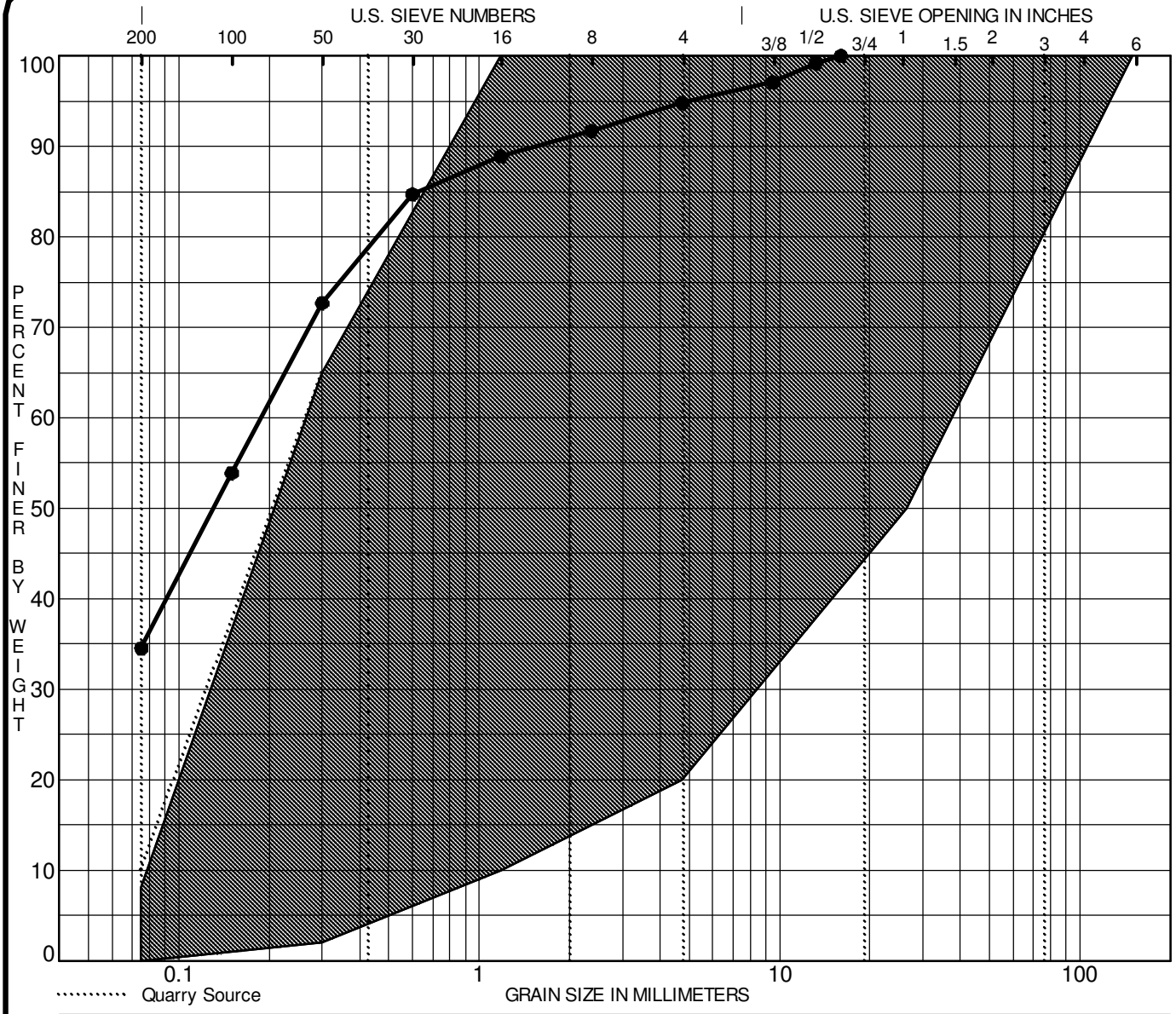
PROJECT **Mineral Resource Aggregate Assessment - 3882** DATE **16 Dec 11**

Barnsdale Road

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

GRAIN SIZE DISTRIBUTION



SILT	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

	Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
●	**TP10-11**	**G26**	**SILTY SAND**						
⊠									
▲									
★									

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**TP10-11**	**G26**	**16.00**	**0.19**			**5.2**	**60.3**	**34.5**	
⊠										
▲										
★										

CLIENT **Minto Communities Inc.** FILE NO. **PH1893**

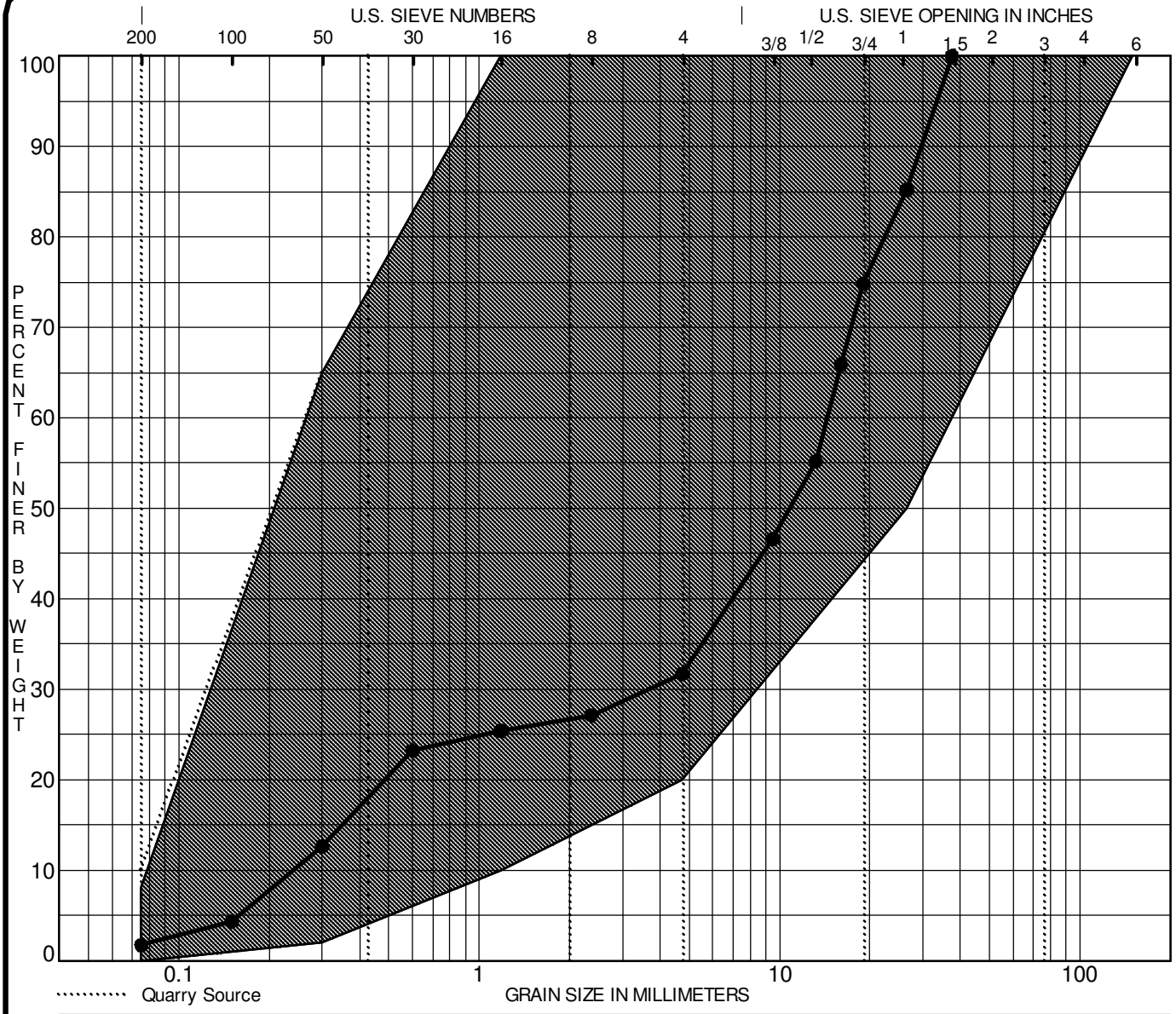
PROJECT **Mineral Resource Aggregate Assessment - 3882** DATE **16 Dec 11**

Barnsdale Road

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

GRAIN SIZE DISTRIBUTION



SILT	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

	Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
●	**TP11-11**	**G28**	**SAND-GRAVEL**					**3.87**	**59.6**
⊠									
▲									
★									

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**TP11-11**	**G28**	**37.50**	**14.39**	**3.668**	**0.2414**	**68.3**	**30.0**	**1.7**	
⊠										
▲										
★										

CLIENT **Minto Communities Inc.** FILE NO. **PH1893**

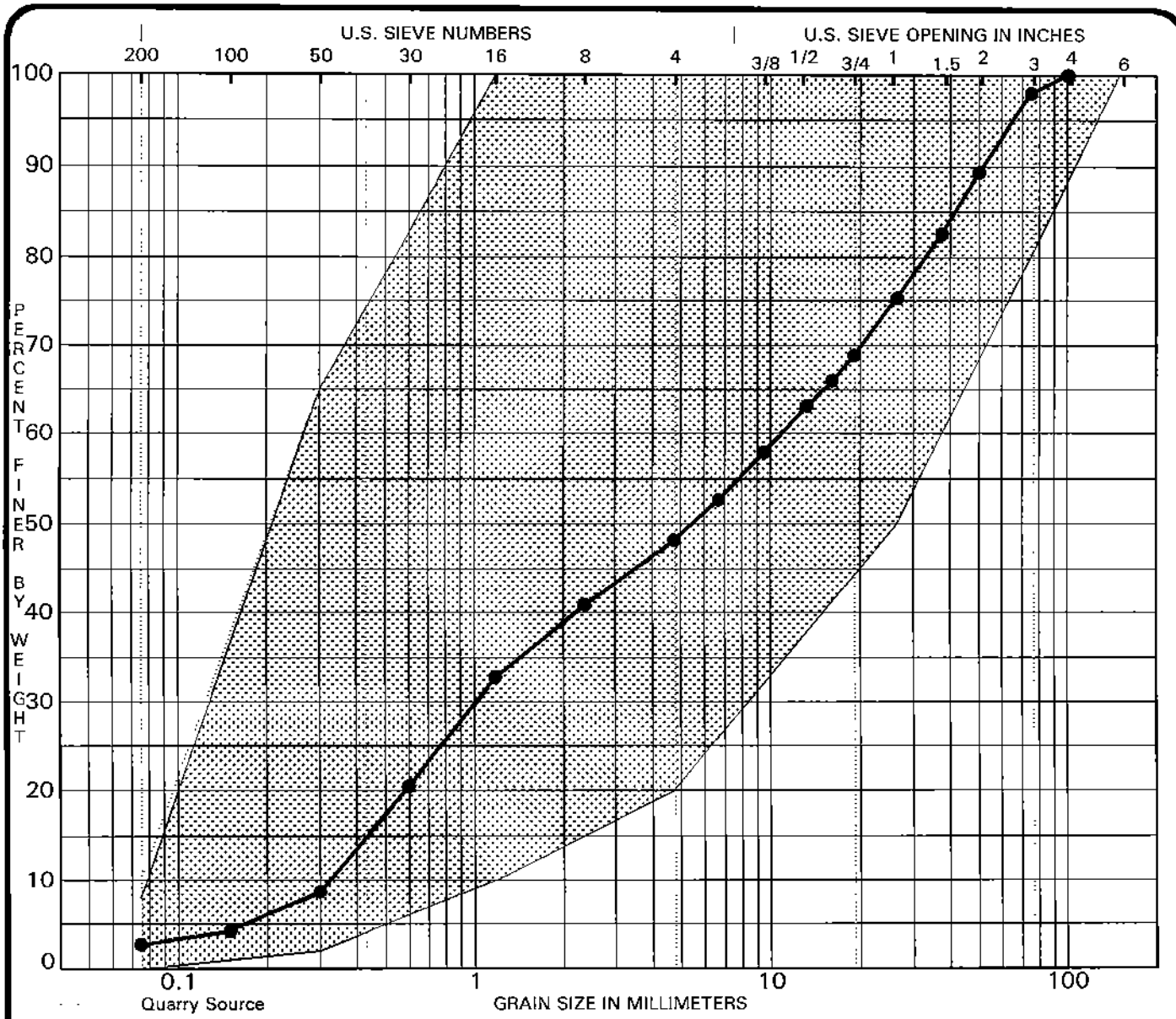
PROJECT **Mineral Resource Aggregate Assessment - 3882** DATE **16 Dec 11**

Barnsdale Road

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

GRAIN SIZE DISTRIBUTION



SILT	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

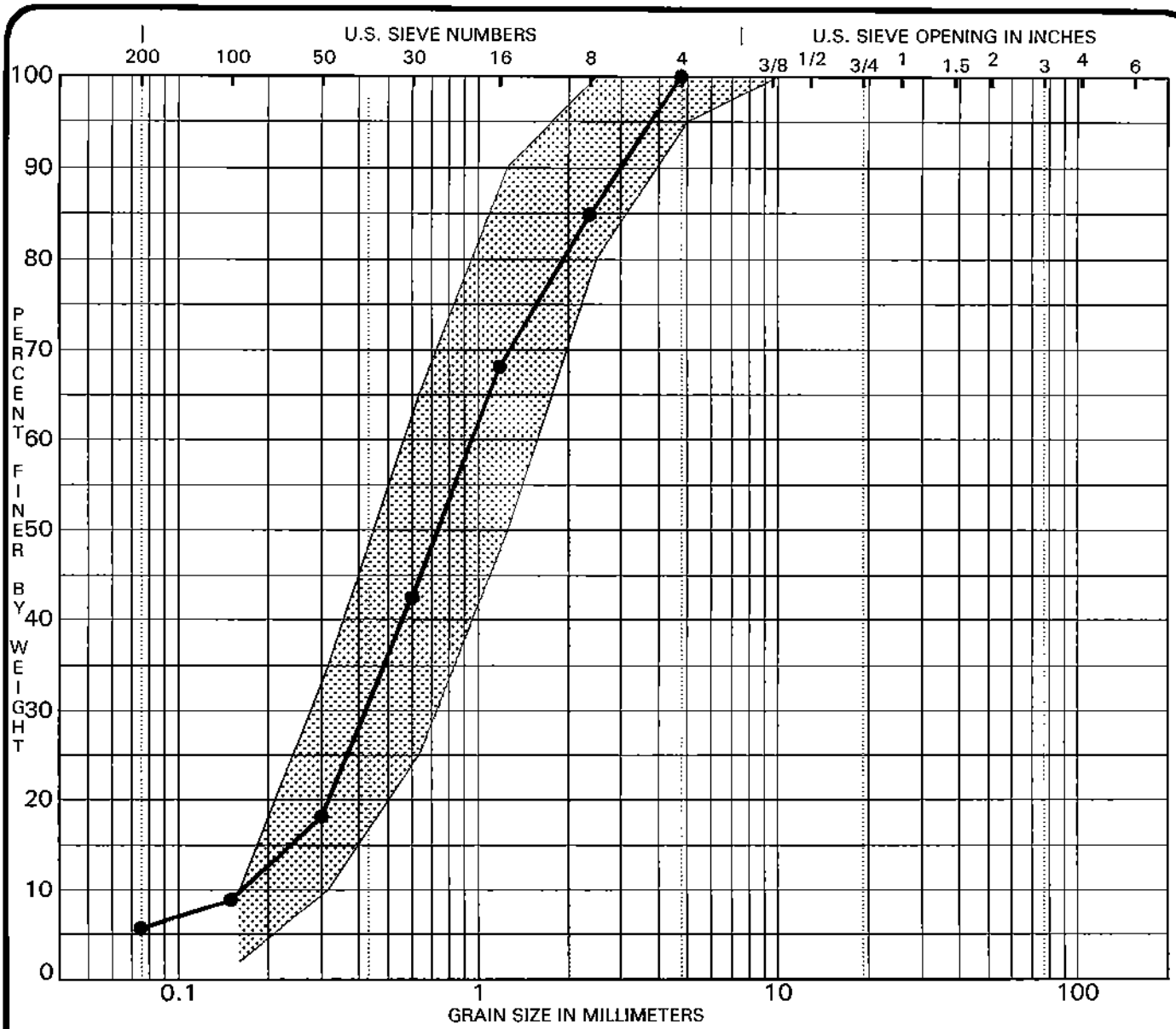
Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● TP 5	G 1	**GRANULAR B TYPE I**						

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● TP 5	G 1	**100.00**	**10.82**	**1.012**	**0.3238**	**49.8**	**45.4**		

CLIENT **Mr. Dan Paquette**
PROJECT **Aggregate Resource Investigation - Greenbank Road/Cedarview Road**
FILE NO. **G9114**
DATE **23 OCT 03**

GRAIN SIZE DISTRIBUTION - OPSS GRANULAR B TYPE I

JOHN D. PATERSON & ASSOCIATES LTD.
Unit 1, 28 Concourse Gate, Nepean, Ontario K2E 7T7



SILT	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● TP 5	G 1	SAND (after screening on 4.75mm)					1.14	5.8

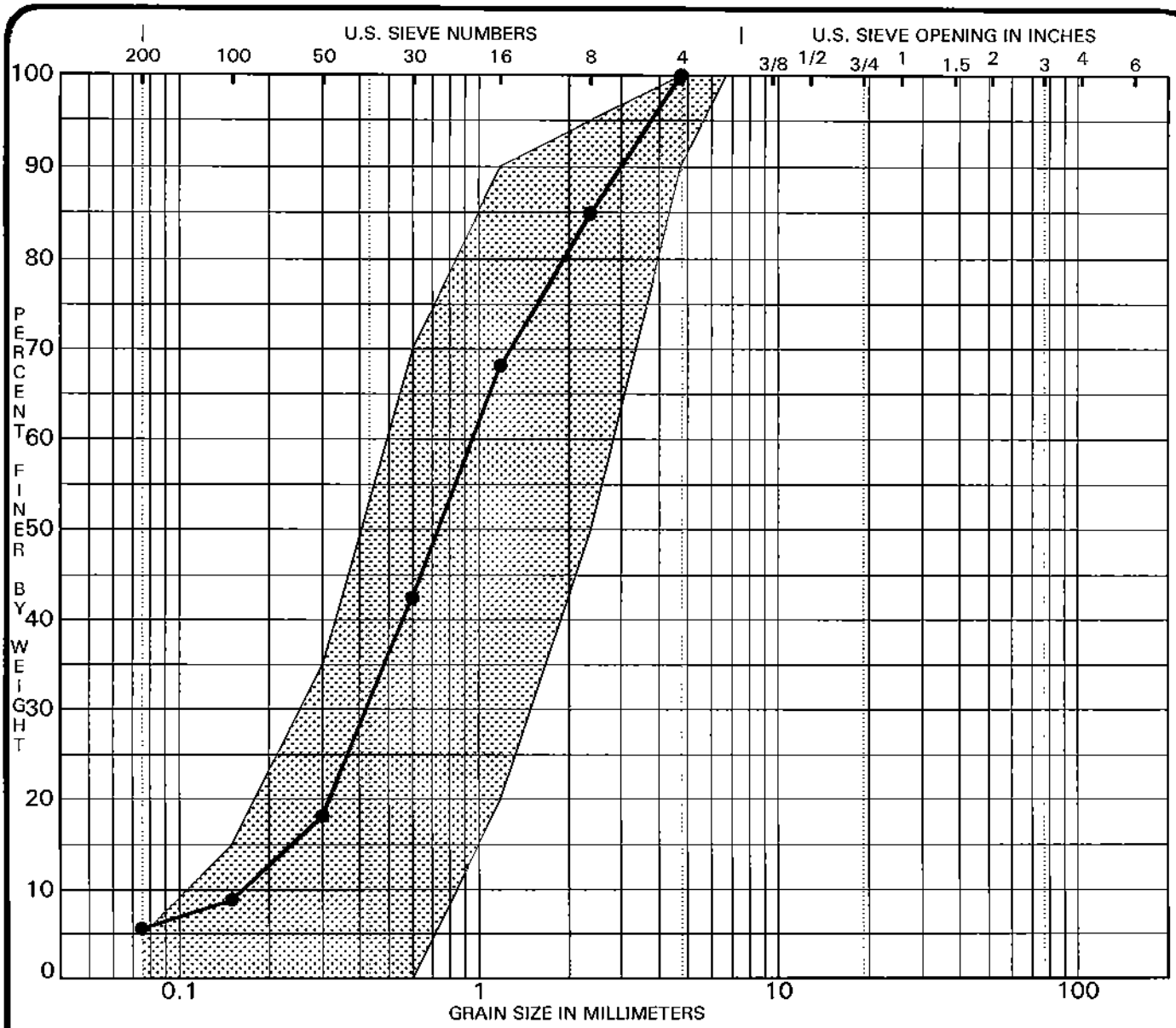
Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● TP 5	G 1	4.75	0.95	0.421	0.1630	0.0	94.3	5.7	

CLIENT **Mr. Dan Paquette** FILE NO. **G9114**

PROJECT **Aggregate Resource Investigation - Greenbank Road/Cedarview Road** DATE **23 OCT 03**

CSA-A23.1-M90-CONCRETE FINE AGGREGATE

JOHN D. PATERSON & ASSOCIATES LTD.
Unit 1, 28 Concourse Gate, Nepean, Ontario K2E 7T7



SILT	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

	Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
●	TP 5	G 1	SAND (after screening on 4.75mm)					1.14	5.8

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	TP 5	G 1	4.75	0.95	0.421	0.1630	0.0	94.3	5.7	

CLIENT **Mr. Dan Paquette**

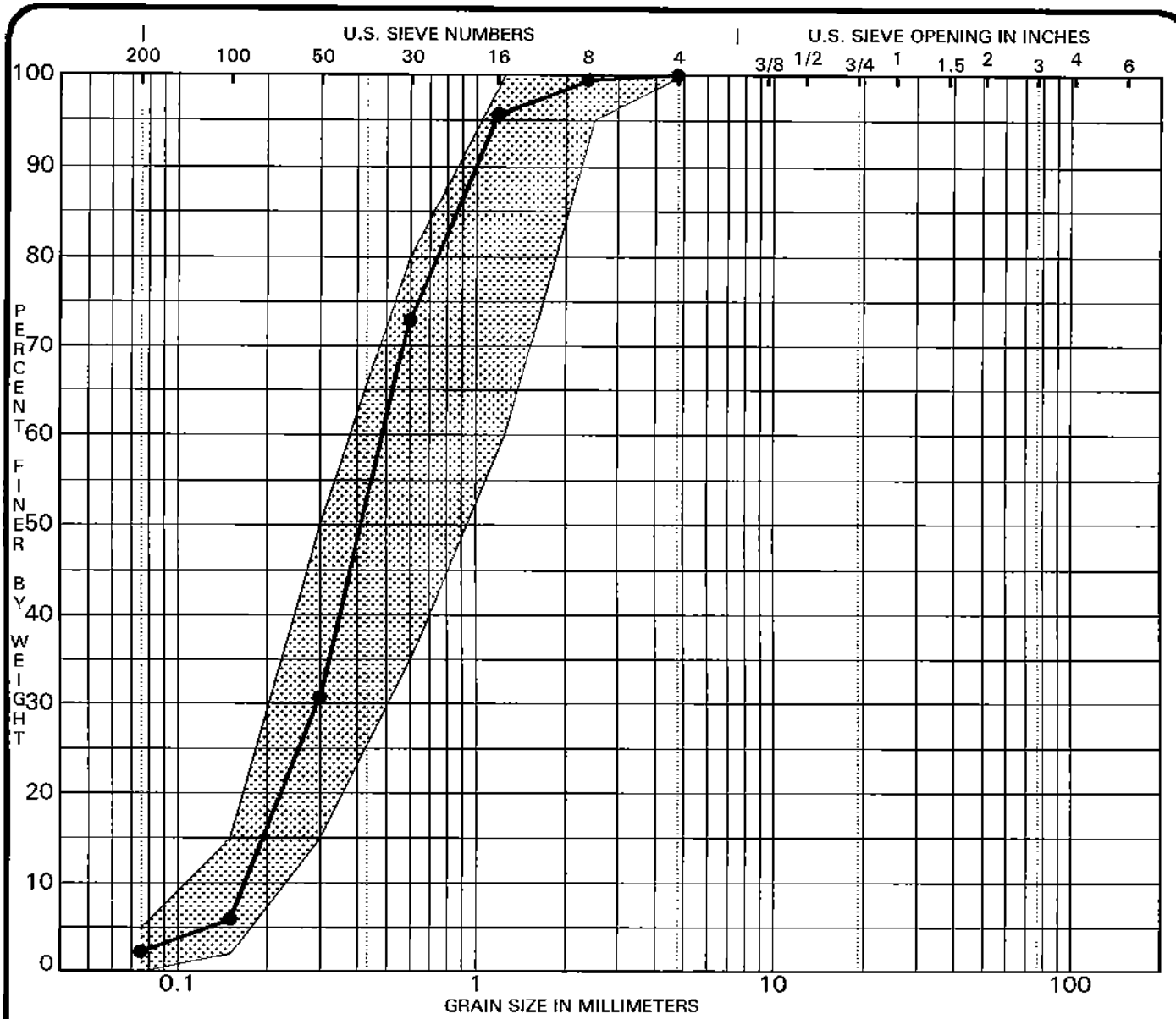
PROJECT **Aggregate Resource Investigation - Greenbank Road/Cedarview Road**

FILE NO. **G9114**

DATE **23 OCT 03**

GRAIN SIZE DISTRIBUTION - WINTER SAND

JOHN D. PATERSON & ASSOCIATES LTD.
Unit 1, 28 Concourse Gate, Nepean, Ontario K2E 7T7



SILT	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● TP 5	G 2	SAND					1.06	2.9

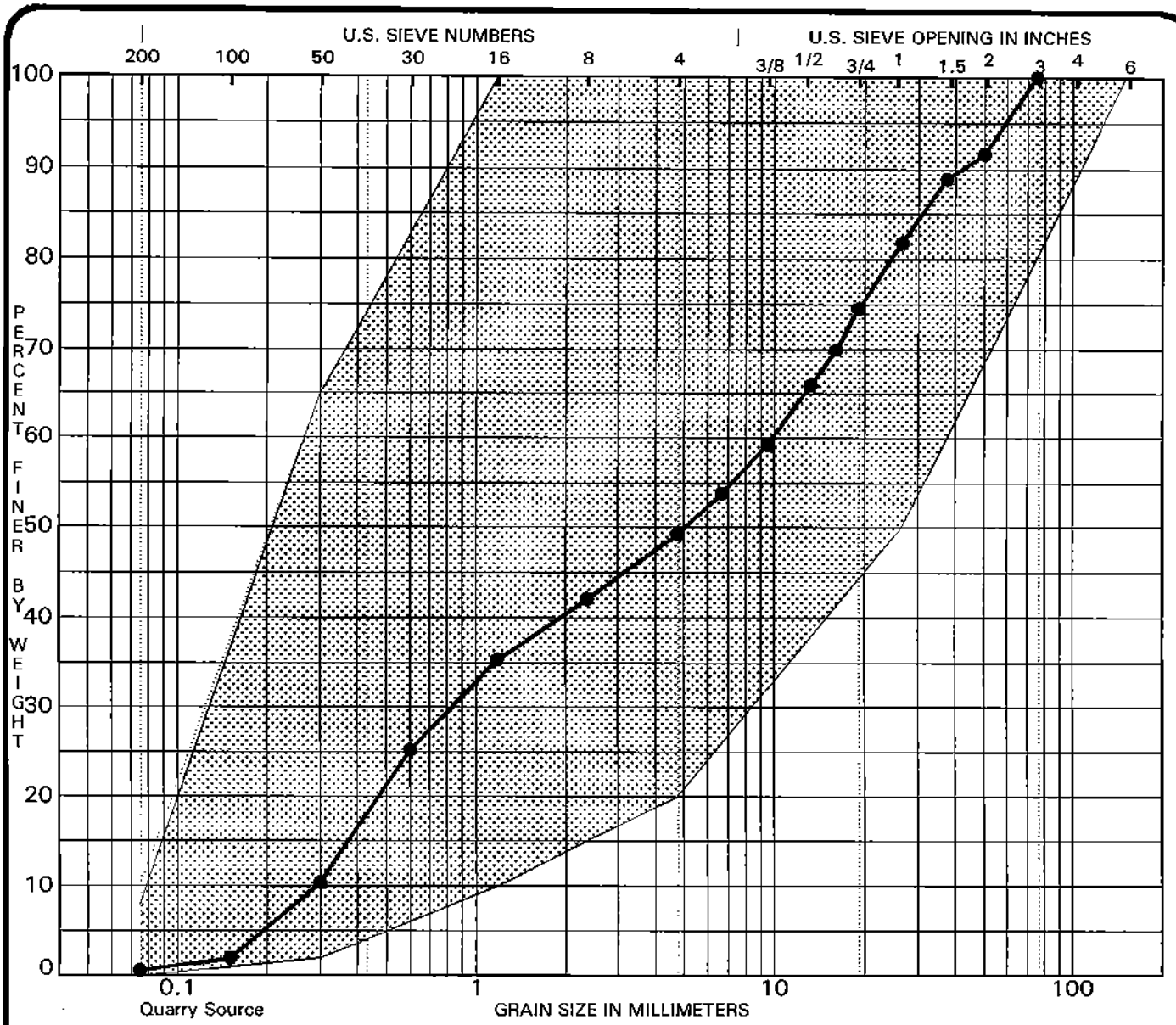
Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● TP 5	G 2	4.75	0.49	0.294	0.1678	0.0	97.7	2.3	

CLIENT **Mr. Dan Paquette** FILE NO. **G9114**

PROJECT **Aggregate Resource Investigation - Greenbank Road/Cedarview Road** DATE **23 OCT 03**

CSA-A82.56M-1976 AGGREGATE FOR MASONRY MORTAR

JOHN D. PATERSON & ASSOCIATES LTD.
Unit 1, 28 Concourse Gate, Nepean, Ontario K2E 7T7



SILT	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● TP 7	G 1	GRANULAR B TYPE I					0.24	33.9

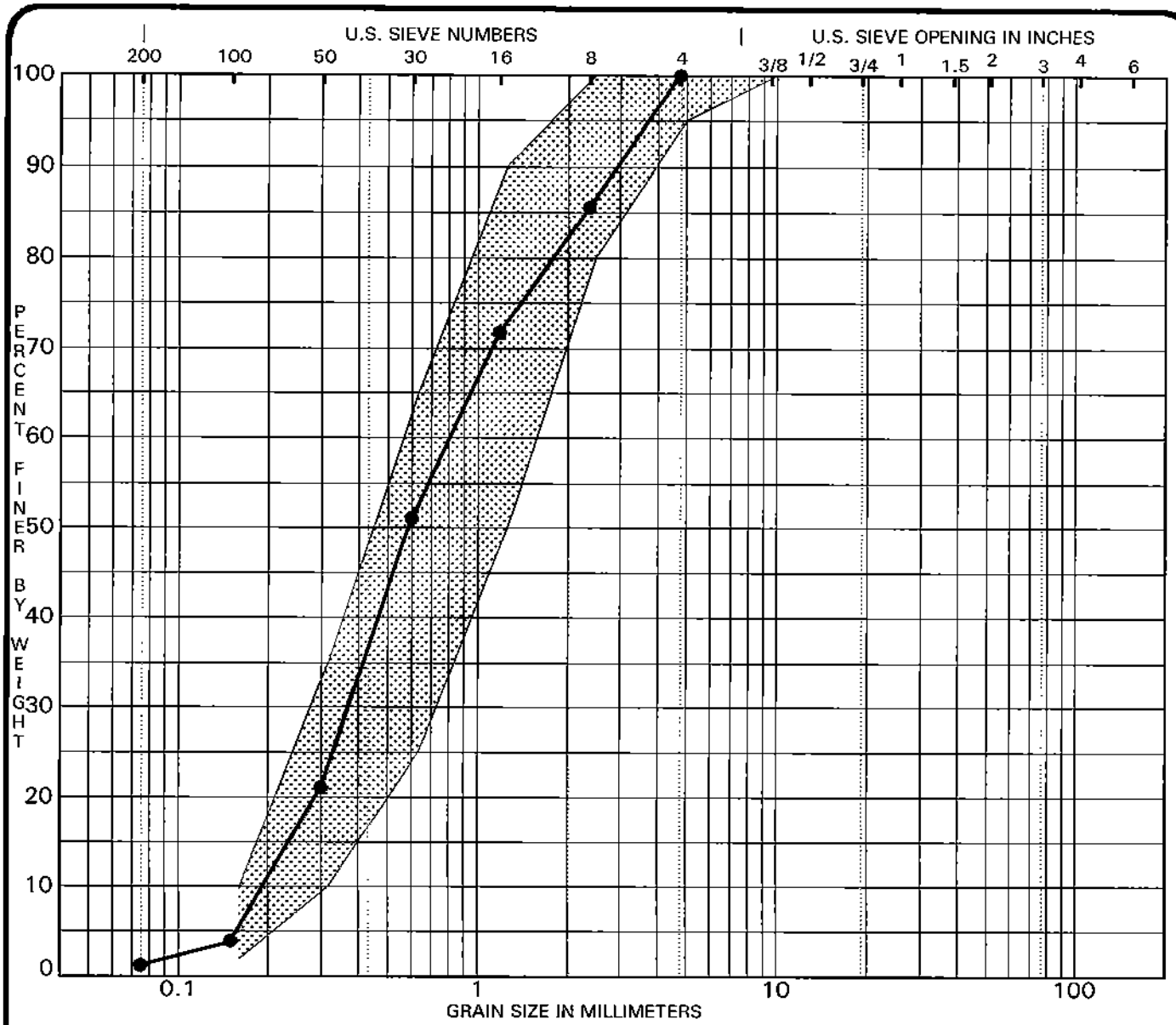
Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● TP 7	G 1	75.00	9.84	0.828	0.2903	50.8	48.6		

CLIENT **Mr. Dan Paquette** FILE NO. **G9114**

PROJECT **Aggregate Resource Investigation - Greenbank Road/Cedarview Road** DATE **29 OCT 03**

GRAIN SIZE DISTRIBUTION - OPSS GRANULAR B TYPE I

JOHN D. PATERSON & ASSOCIATES LTD.
Unit 1, 28 Concourse Gate, Nepean, Ontario K2E 7T7



SILT	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

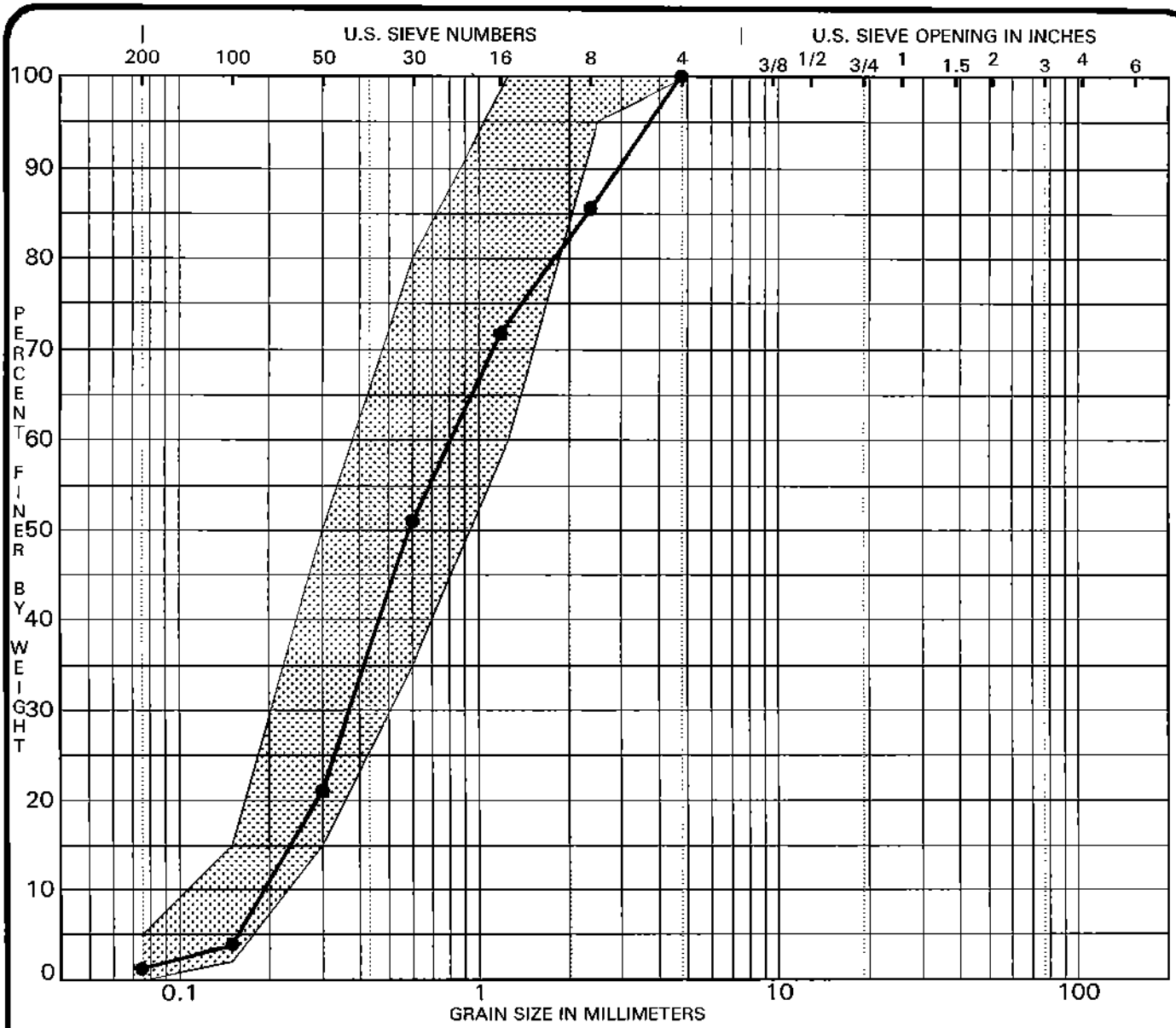
Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
● TP 7 G 1	SAND (after screening on 4.75mm)					0.88	4.2

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● TP 7 G 1	4.75	0.80	0.369	0.1913	0.0	98.7	1.3	

CLIENT Mr. Dan Paquette
PROJECT Aggregate Resource Investigation - Greenbank Road/Cedarview Road
FILE NO. G9114
DATE 29 OCT 03

CSA-A23.1-M90-CONCRETE FINE AGGREGATE

JOHN D. PATERSON & ASSOCIATES LTD.
Unit 1, 28 Concourse Gate, Nepean, Ontario K2E 7T7



SILT	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

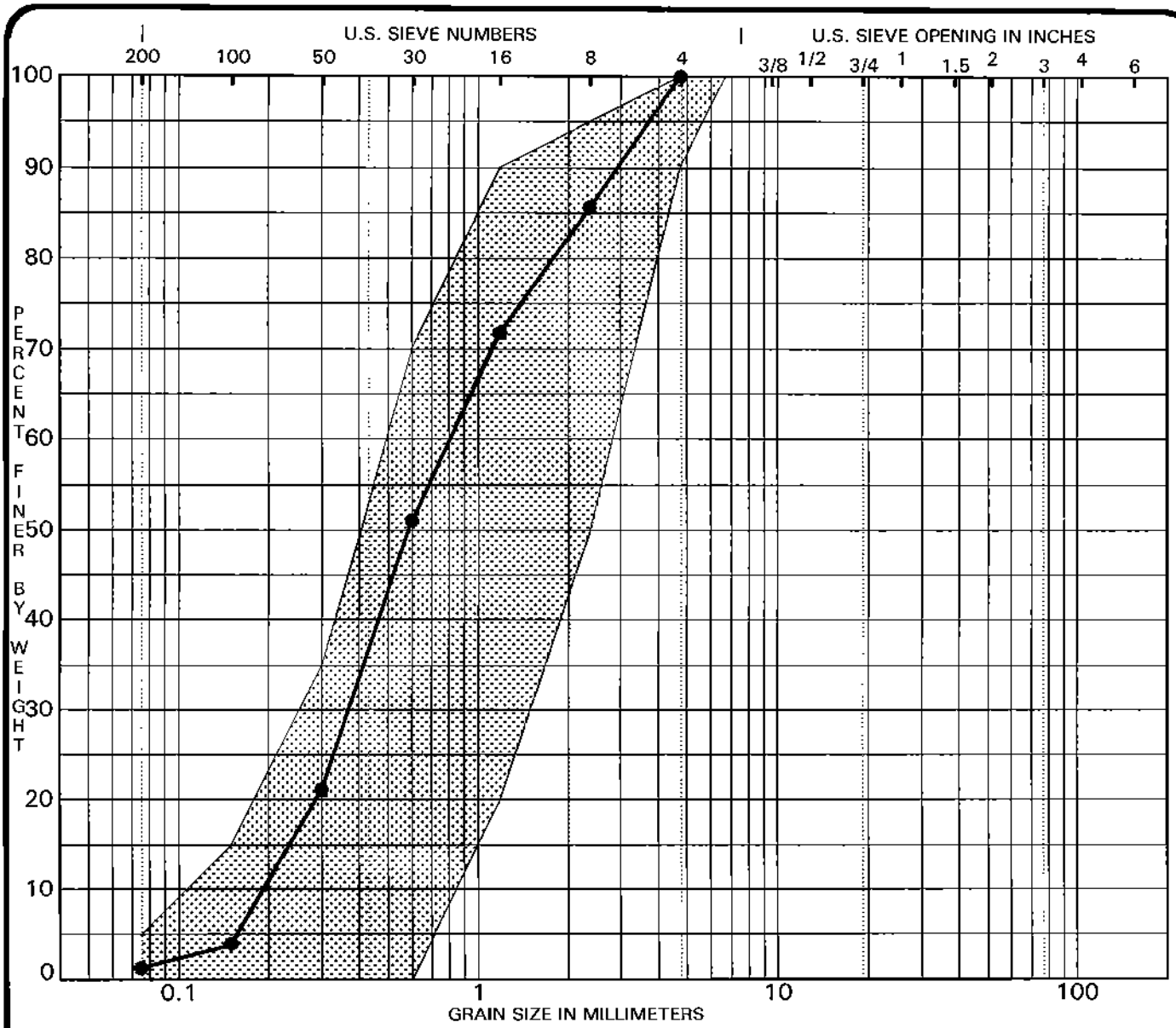
	Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
●	TP 7	G 1	SAND (after screening on 4.75mm)					0.88	4.2

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	TP 7	G 1	4.75	0.80	0.369	0.1913	0.0	98.7	1.3	

CLIENT Mr. Dan Paquette
PROJECT Aggregate Resource Investigation - Greenbank Road/Cedarview Road
FILE NO. G9114
DATE 29 OCT 03

CSA-A82.56M-1976 AGGREGATE FOR MASONRY MORTAR

JOHN D. PATERSON & ASSOCIATES LTD.
Unit 1, 28 Concourse Gate, Nepean, Ontario K2E 7T7



SILT	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● TP 7	G 1	SAND (after screening on 4.75mm)					0.88	4.2

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● TP 7	G 1	4.75	0.80	0.369	0.1913	0.0	98.7	1.3	

CLIENT Mr. Dan Paquette

PROJECT Aggregate Resource Investigation - Greenbank Road/Cedarview Road

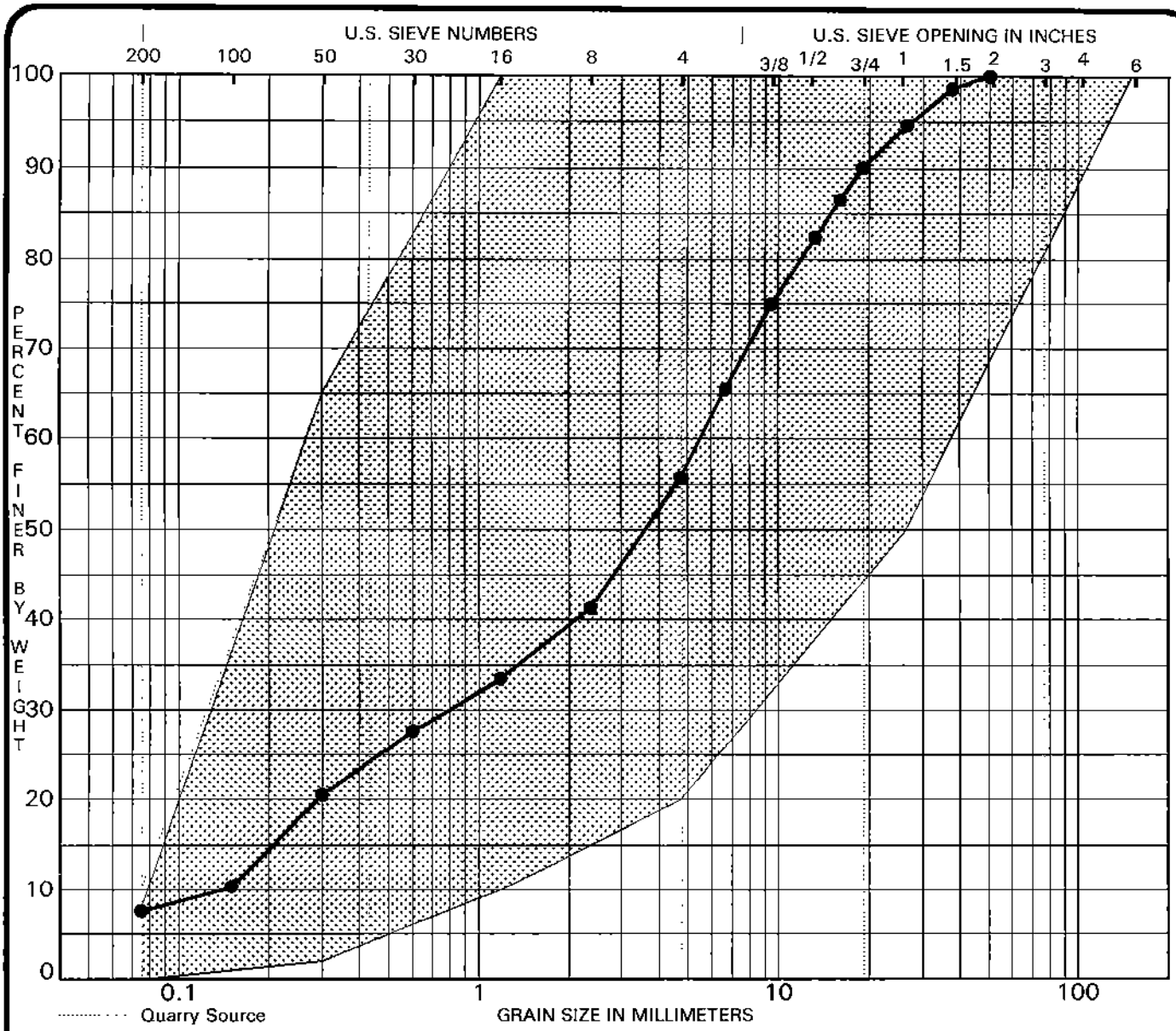
FILE NO. G9114

DATE 29 OCT 03

GRAIN SIZE DISTRIBUTION - WINTER SAND

JOHN D. PATERSON & ASSOCIATES LTD.

Unit 1, 28 Concourse Gate, Nepean, Ontario K2E 7T7



SILT	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

	Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
●	TP10	G 1	GRANULAR B TYPE I					0.83	40.7

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	TP10	G 1	50.00	5.52	0.790	0.1359	44.3	48.1		

CLIENT Mr. Dan Paquette

PROJECT Aggregate Resource Investigation - Greenbank Road/Cedarview Road

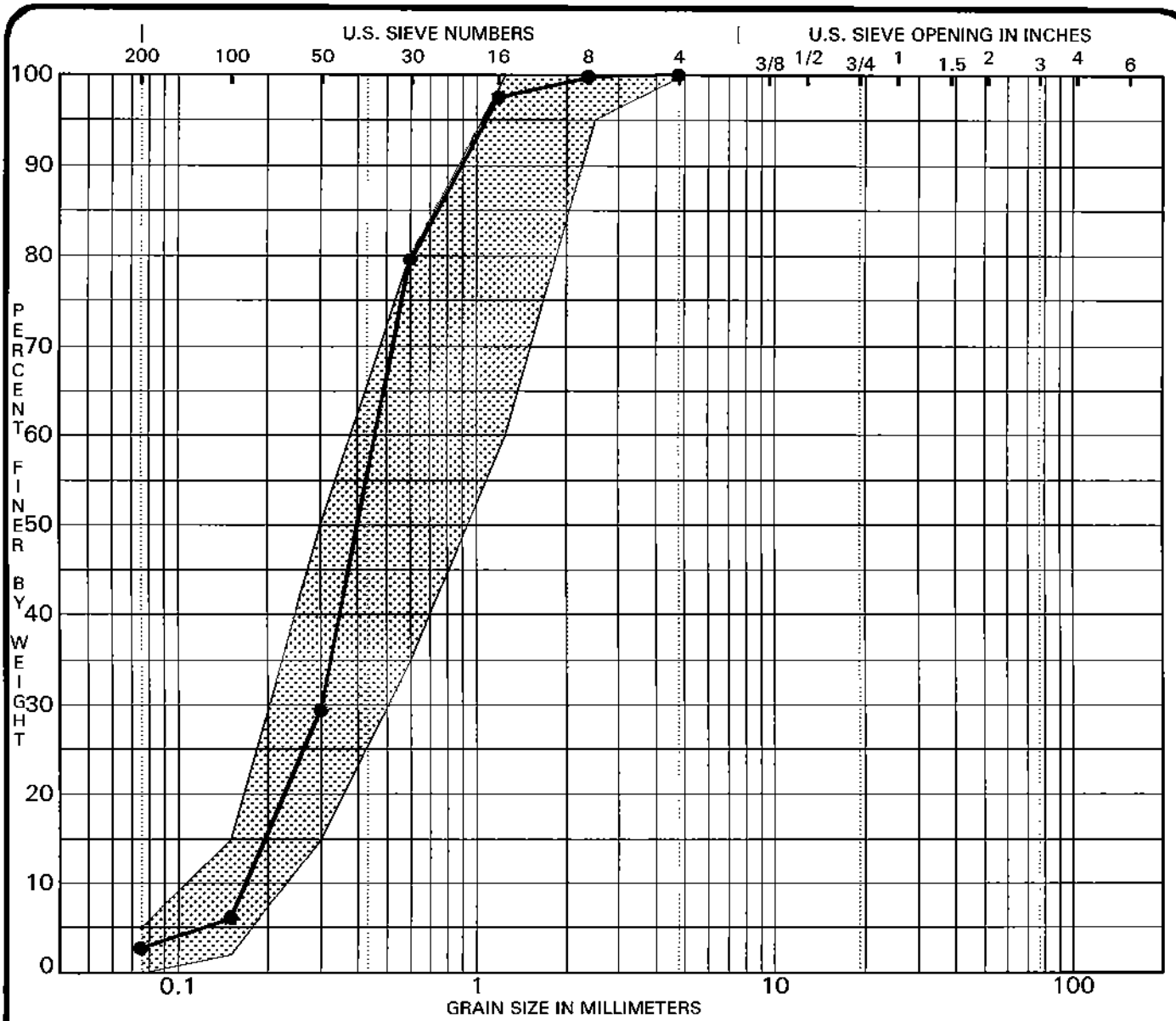
FILE NO. G9114

DATE 29 OCT 03

GRAIN SIZE DISTRIBUTION - OPSS GRANULAR B TYPE I

JOHN D. PATERSON & ASSOCIATES LTD.

Unit 1, 28 Concourse Gate, Nepean, Ontario K2E 7T7



SILT	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● TP10	G 2	SAND					1.19	2.7

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● TP10	G 2	4.75	0.46	0.303	0.1680	0.0	97.2	2.8	

CLIENT **Mr. Dan Paquette**

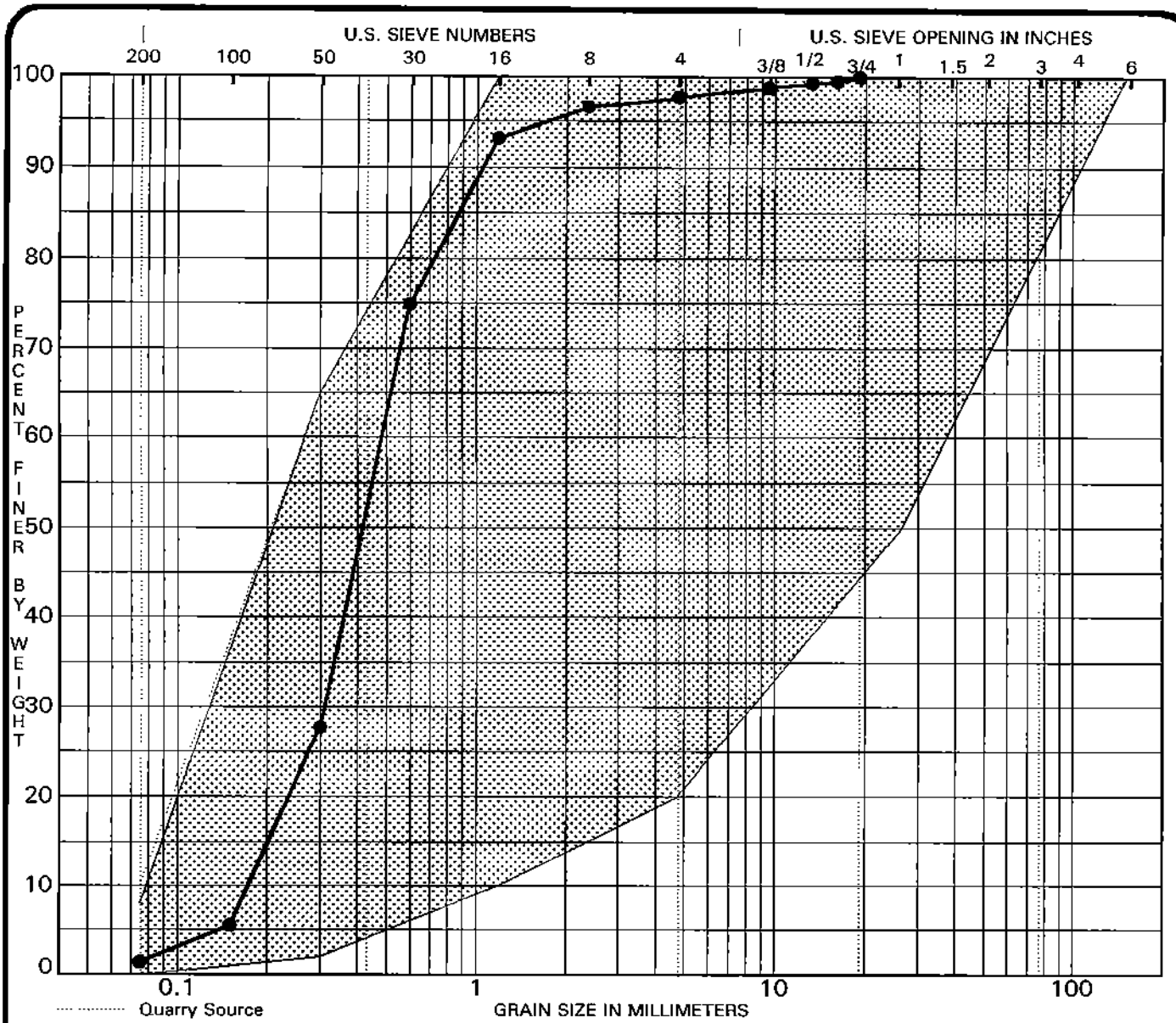
PROJECT **Aggregate Resource Investigation - Greenbank Road/Cedarview Road**

FILE NO. **G9114**

DATE **29 OCT 03**

CSA-A82.56M-1976 AGGREGATE FOR MASONRY MORTAR

JOHN D. PATERSON & ASSOCIATES LTD.
Unit 1, 28 Concourse Gate, Nepean, Ontario K2E 7T7



SILT	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

	Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
●	TP13	G 2	GRANULAR B TYPE I					1.16	2.8

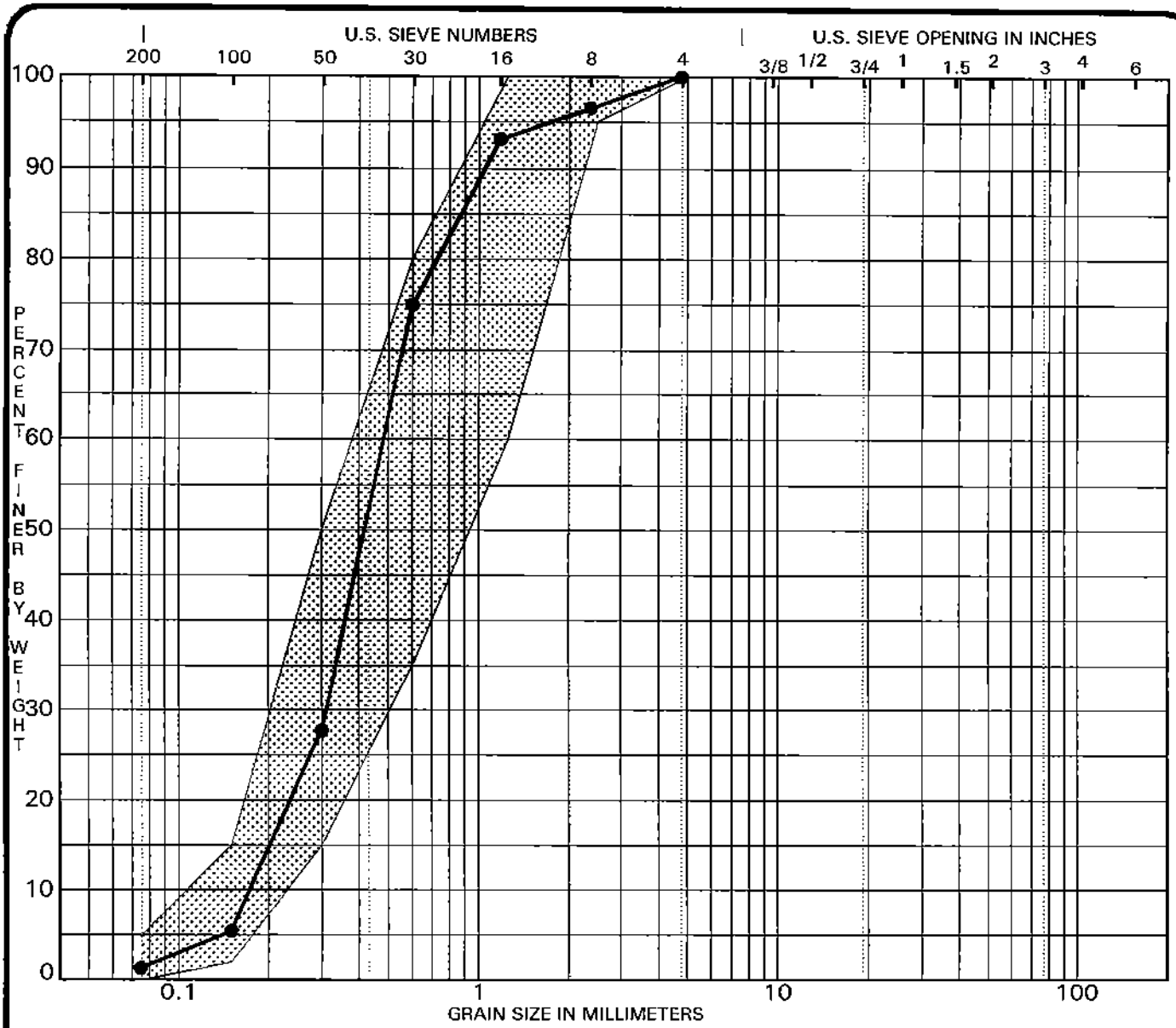
	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	TP13	G 2	19.00	0.48	0.310	0.1726	2.3	96.3		

CLIENT **Mr. Dan Paquette** FILE NO. **G9114**

PROJECT **Aggregate Resource Investigation - Greenbank Road/Cedarview Road** DATE **29 OCT 03**

GRAIN SIZE DISTRIBUTION - OPSS GRANULAR B TYPE I

JOHN D. PATERSON & ASSOCIATES LTD.
Unit 1, 28 Concourse Gate, Nepean, Ontario K2E 7T7



SILT	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

	Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
●	TP13	G 2	SAND (after screening on 4.75mm)					1.16	2.8

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	TP13	G 2	4.75	0.48	0.310	0.1726	0.0	98.6	1.4	

CLIENT Mr. Dan Paquette

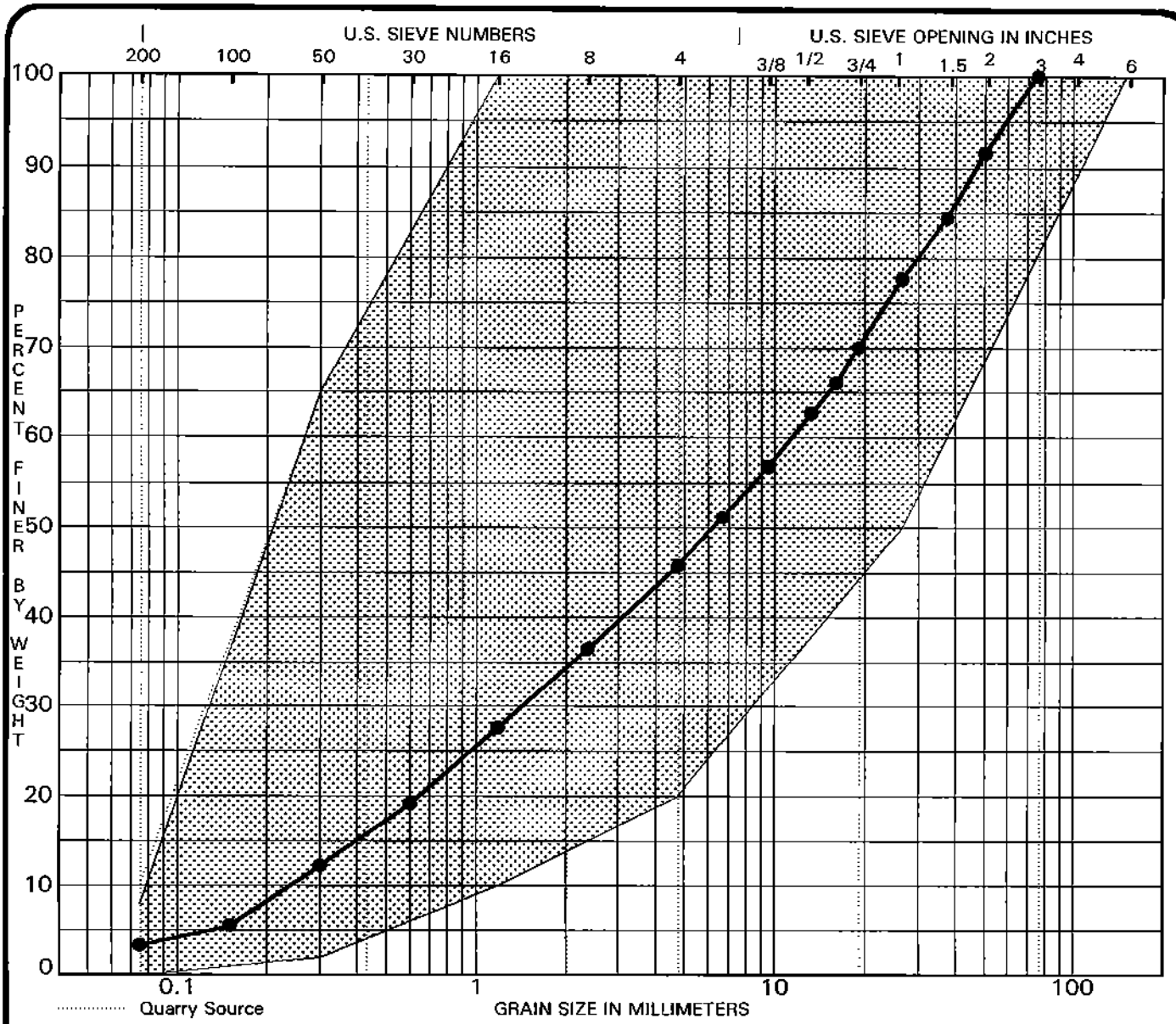
PROJECT Aggregate Resource Investigation - Greenbank Road/Cedarview Road

FILE NO. G9114

DATE 29 OCT 03

CSA-A82.56M-1976 AGGREGATE FOR MASONRY MORTAR

JOHN D. PATERSON & ASSOCIATES LTD.
Unit 1, 28 Concourse Gate, Nepean, Ontario K2E 7T7



SILT	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

	Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
●	TP14	G 1	GRANULAR B TYPE I					0.75	47.7

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	TP14	G 1	75.00	11.36	1.423	0.2381	54.2	42.4		

CLIENT Mr. Dan Paquette

PROJECT Aggregate Resource Investigation - Greenbank Road/Cedarview Road

FILE NO. G9114

DATE 29 OCT 03

GRAIN SIZE DISTRIBUTION - OPSS GRANULAR B TYPE I

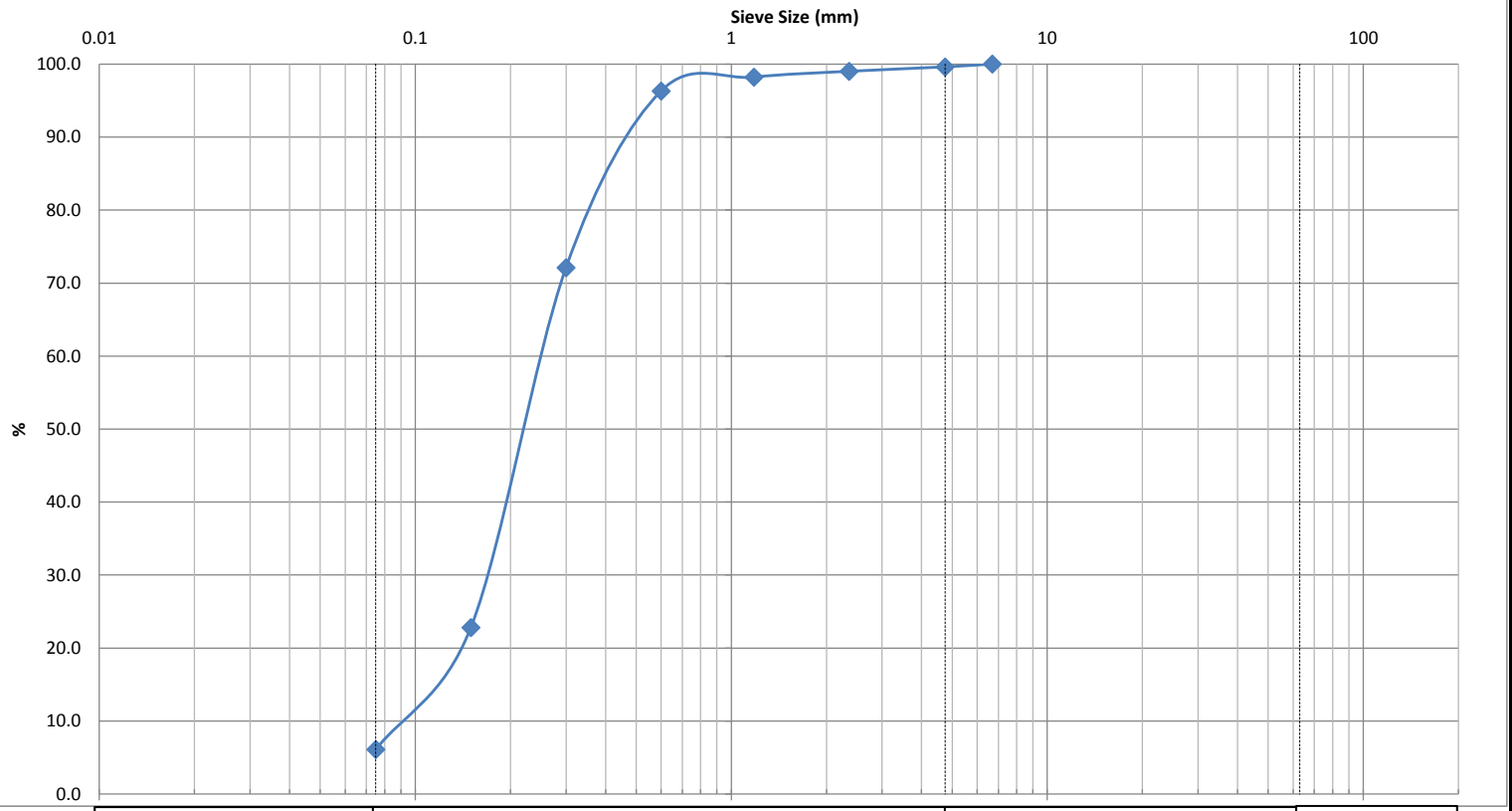
JOHN D. PATERSON & ASSOCIATES LTD.

Unit 1, 28 Concourse Gate, Nepean, Ontario K2E 7T7

patersongroup
consulting engineers

SIEVE ANALYSIS
ASTM C136

CLIENT:	Minto Barrhaven	DESCRIPTION:	Granular	FILE NO:	PG3757
CONTRACT NO.:	-	SPECIFICATION:	SAND	LAB NO:	85581
PROJECT:	CDP	INTENDED USE:	-	DATE RECEIVED:	14-Jul-16
		PIT OR QUARRY:	-	DATE TESTED:	20-Jul-16
DATE SAMPLED:	15-Jul-16	SOURCE LOCATION:	-	DATE REPORTED:	23-Jul-16
SAMPLED BY:	NZ	SAMPLE LOCATION:	SA1	TESTED BY:	-



Silt and Clay	Sand			Gravel		Cobble
	Fine	Medium	Coarse	Fine	Coarse	

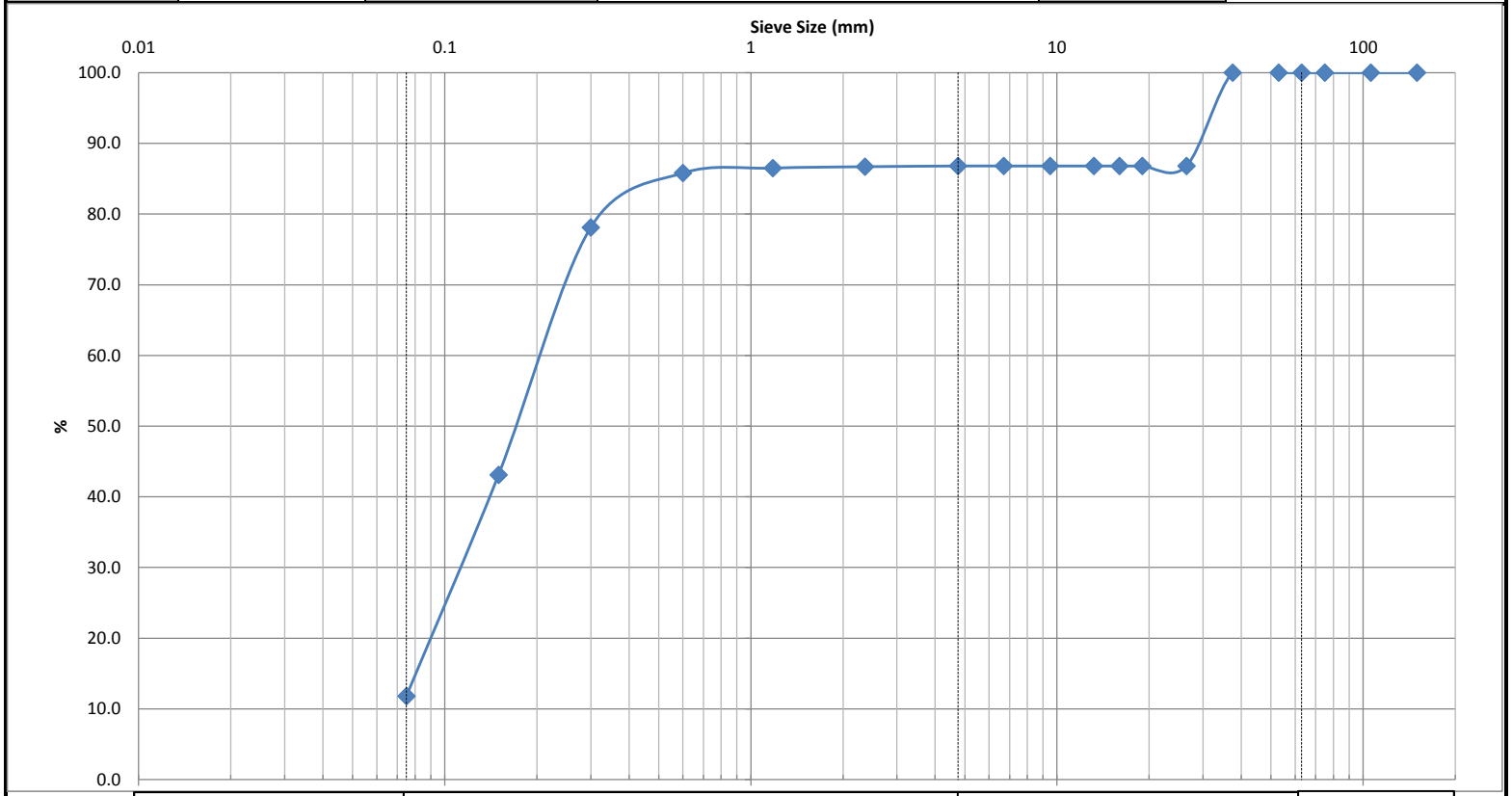
Identification	Soil Classification					MC(%)	LL	PL	PI	Cc	Cu
										1.54	3.3
	D100	D60	D30	D10	Gravel (%)	Sand (%)		Silt (%)		Clay (%)	
	7.9	0.25	0.17	0.075	0.4	93.5		6.1			

Comments	

patersongroup
consulting engineers

SIEVE ANALYSIS
ASTM C136

CLIENT:	Minto Development	DESCRIPTION:	Native	FILE NO:	PG3757
CONTRACT NO.:	-	SPECIFICATION:	-	LAB NO:	85583
PROJECT:	Barrhaven South CDP	INTENDED USE:	-	DATE RECEIVED:	18-Jul-16
		PIT OR QUARRY:	-	DATE TESTED:	20-Jul-16
DATE SAMPLED:	15-Jul-16	SOURCE LOCATION:	Borehole	DATE REPORTED:	23-Jul-16
SAMPLED BY:	NZ	SAMPLE LOCATION:	SA2	TESTED BY:	CB/AK



Silt and Clay	Sand			Gravel		Cobble
	Fine	Medium	Coarse	Fine	Coarse	

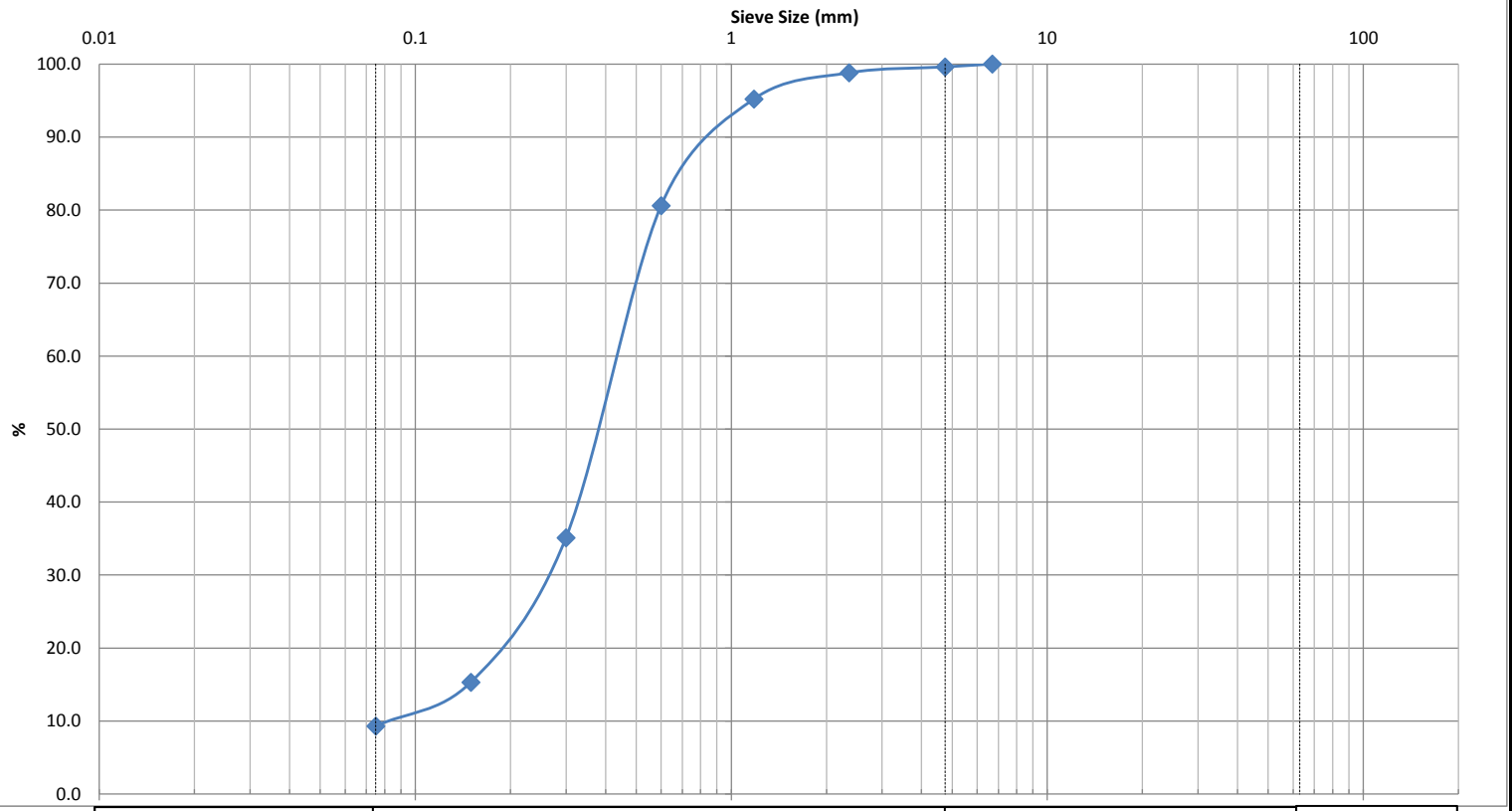
Identification	Soil Classification					MC(%)	LL	PL	PI	Cc	Cu
										1.15	3.0
	D100	D60	D30	D10	Gravel (%)	Sand (%)		Silt (%)		Clay (%)	
	38	0.21	0.13	0.07	13.2	75.0		11.8			

Comments	

patersongroup
consulting engineers

SIEVE ANALYSIS
ASTM C136

CLIENT:	Minto Barrhaven	DESCRIPTION:	Granular	FILE NO:	PG3757
CONTRACT NO.:	-	SPECIFICATION:	SAND	LAB NO:	85582
PROJECT:	CDP	INTENDED USE:	-	DATE RECEIVED:	14-Jul-16
		PIT OR QUARRY:	-	DATE TESTED:	20-Jul-16
DATE SAMPLED:	15-Jul-16	SOURCE LOCATION:	-	DATE REPORTED:	23-Jul-16
SAMPLED BY:	NZ	SAMPLE LOCATION:	SA3	TESTED BY:	0



Silt and Clay	Sand			Gravel		Cobble
	Fine	Medium	Coarse	Fine	Coarse	

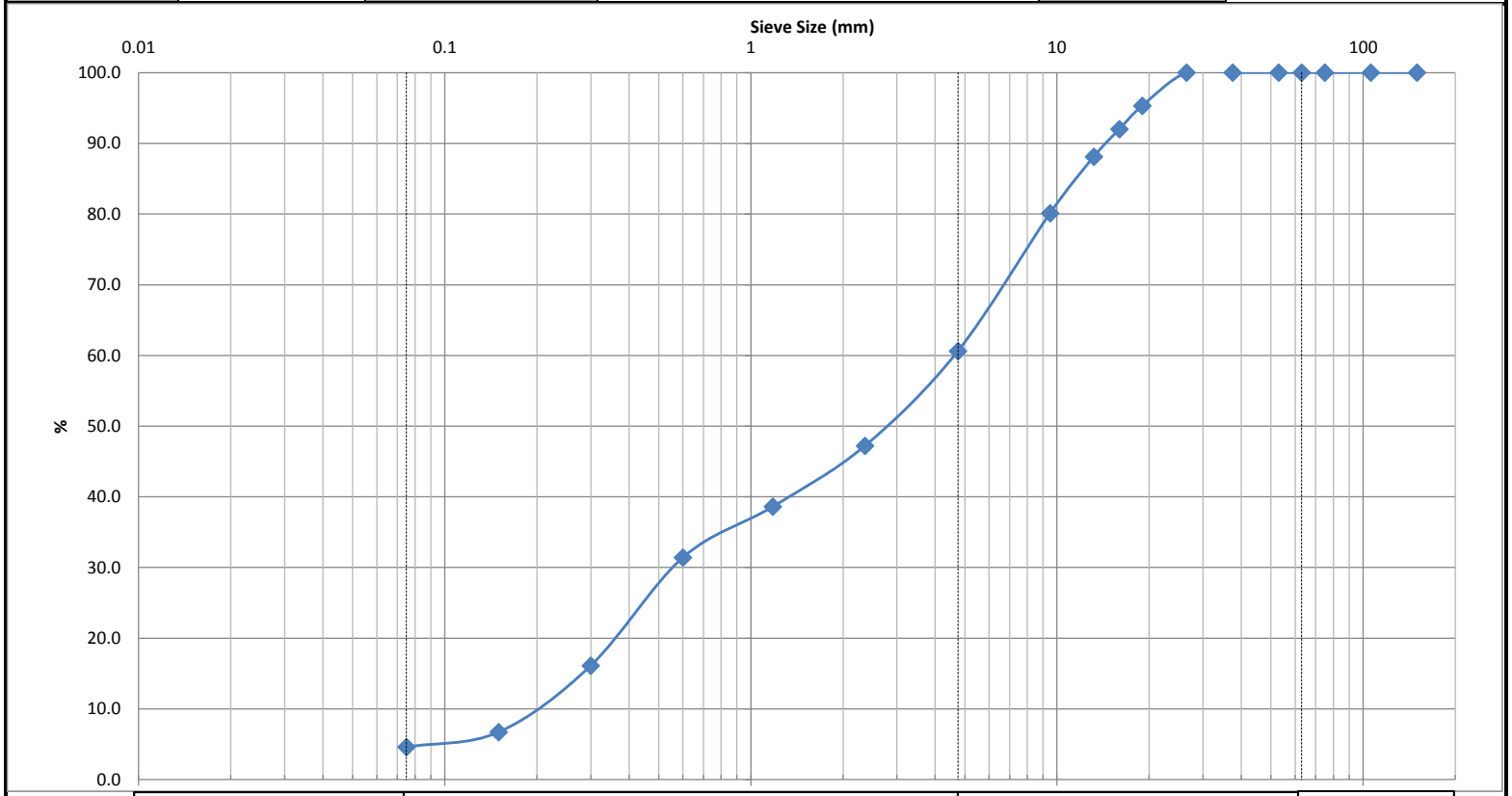
Identification	Soil Classification							MC(%)	LL	PL	PI	Cc	Cu
												2.16	6.0
	D100		D60	D30	D10	Gravel (%)		Sand (%)		Silt (%)		Clay (%)	
	7.9		0.45	0.27	0.075	0.4		90.3		9.3			

Comments	

patersongroup
consulting engineers

SIEVE ANALYSIS
ASTM C136

CLIENT:	Minto Development	DESCRIPTION:	Native	FILE NO:	PG3757
CONTRACT NO.:	-	SPECIFICATION:	-	LAB NO:	85585
PROJECT:	Barrhaven South CDP	INTENDED USE:	-	DATE RECEIVED:	14-Jul-16
		PIT OR QUARRY:	-	DATE TESTED:	15-Jul-16
DATE SAMPLED:	14-Jul-16	SOURCE LOCATION:	Borehole	DATE REPORTED:	18-Jul-16
SAMPLED BY:	NZ	SAMPLE LOCATION:	SA4	TESTED BY:	CB/AK



Silt and Clay	Sand			Gravel		Cobble
	Fine	Medium	Coarse	Fine	Coarse	

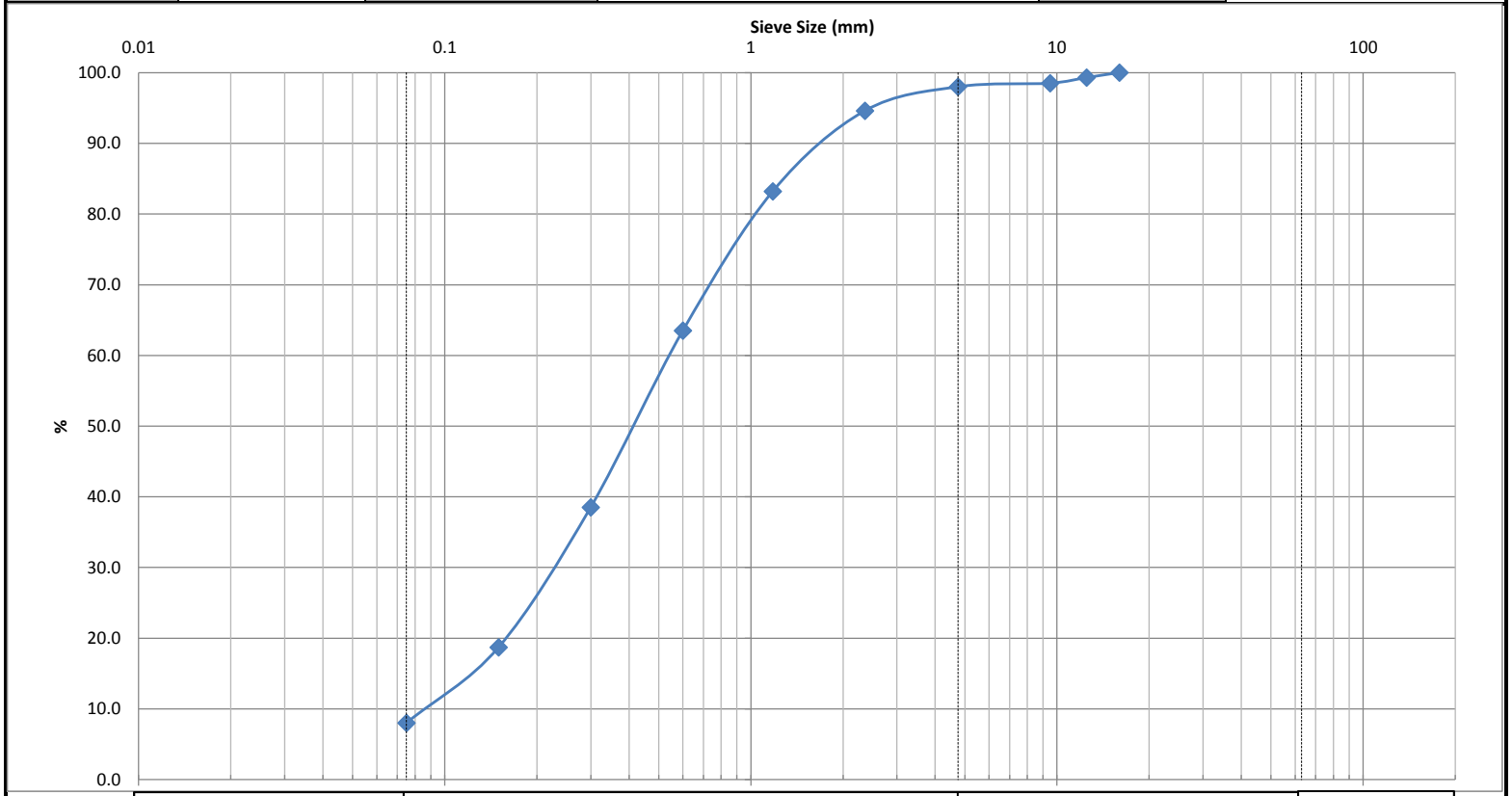
Identification	Soil Classification					MC(%)	LL	PL	PI	Cc	Cu
										0.86	62.7
	D100	D60	D30	D10	Gravel (%)	Sand (%)		Silt (%)		Clay (%)	
	27	4.7	0.55	0.075	39.4	56.0		4.6			

Comments

patersongroup
consulting engineers

SIEVE ANALYSIS
ASTM C136

CLIENT:	Minto Barrhaven	DESCRIPTION:	Granular	FILE NO:	PG3757
CONTRACT NO.:	-	SPECIFICATION:	SAND	LAB NO:	85584
PROJECT:	CDP	INTENDED USE:	-	DATE RECEIVED:	14-Jul-16
		PIT OR QUARRY:	-	DATE TESTED:	20-Jul-16
DATE SAMPLED:	15-Jul-16	SOURCE LOCATION:	-	DATE REPORTED:	23-Jul-16
SAMPLED BY:	NZ	SAMPLE LOCATION:	SA5	TESTED BY:	0



Silt and Clay	Sand			Gravel		Cobble
	Fine	Medium	Coarse	Fine	Coarse	

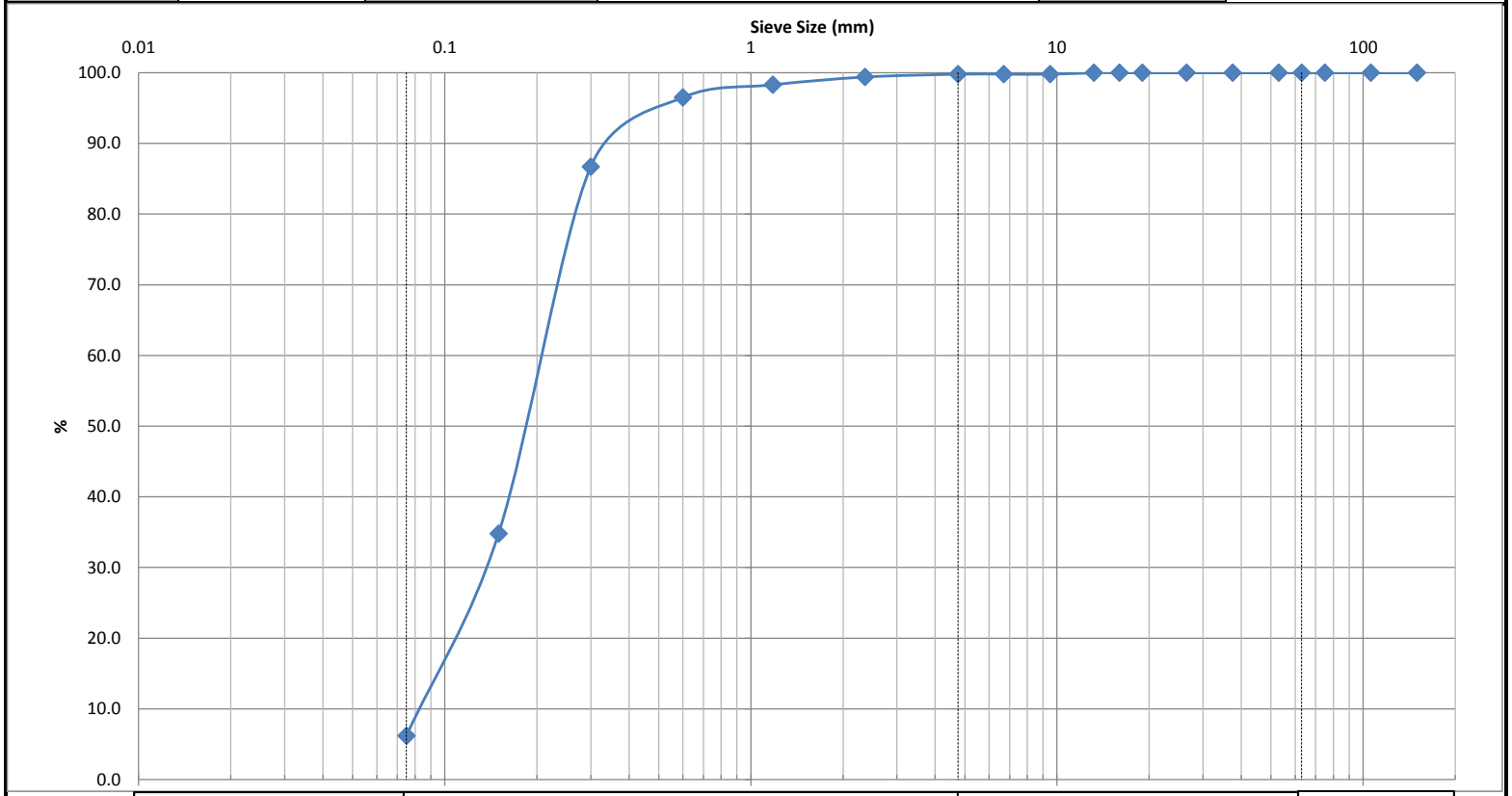
Identification	Soil Classification					MC(%)	LL	PL	PI	Cc	Cu
										1.28	7.3
	D100	D60	D30	D10	Gravel (%)	Sand (%)		Silt (%)		Clay (%)	
	16.5	0.55	0.23	0.075	2.0	90.0		8.0			

Comments	

patersongroup
consulting engineers

SIEVE ANALYSIS
ASTM C136

CLIENT:	Minto Development	DESCRIPTION:	Native	FILE NO:	PG3757
CONTRACT NO.:	-	SPECIFICATION:	-	LAB NO:	85587
PROJECT:	Barrhaven South CDP	INTENDED USE:	-	DATE RECEIVED:	14-Jul-16
		PIT OR QUARRY:	-	DATE TESTED:	15-Jul-16
DATE SAMPLED:	14-Jul-16	SOURCE LOCATION:	Borehole	DATE REPORTED:	18-Jul-16
SAMPLED BY:	NZ	SAMPLE LOCATION:	SA6	TESTED BY:	CB/AK



Silt and Clay	Sand			Gravel		Cobble
	Fine	Medium	Coarse	Fine	Coarse	

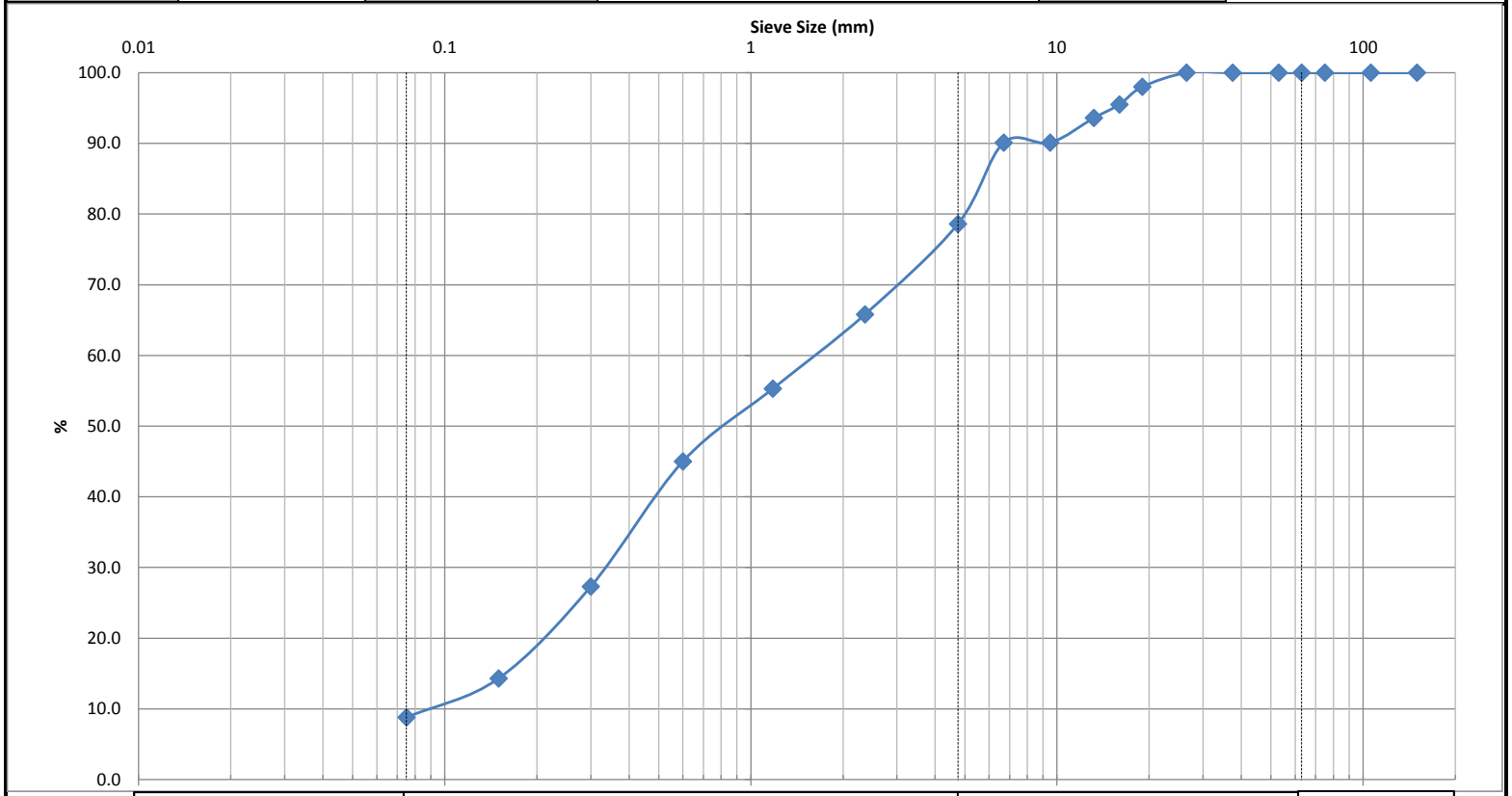
Identification	Soil Classification					MC(%)	LL	PL	PI	Cc	Cu
										1.25	2.7
	D100	D60	D30	D10	Gravel (%)	Sand (%)		Silt (%)		Clay (%)	
	4.9	0.22	0.15	0.082	0.2	93.6		6.2			

Comments	

patersongroup
consulting engineers

SIEVE ANALYSIS
ASTM C136

CLIENT:	Minto Development	DESCRIPTION:	Native	FILE NO:	PG3757
CONTRACT NO.:	-	SPECIFICATION:	-	LAB NO:	85586
PROJECT:	Barrhaven South CDP	INTENDED USE:	-	DATE RECEIVED:	14-Jul-16
		PIT OR QUARRY:	-	DATE TESTED:	15-Jul-16
DATE SAMPLED:	14-Jul-16	SOURCE LOCATION:	Borehole	DATE REPORTED:	18-Jul-16
SAMPLED BY:	NZ	SAMPLE LOCATION:	SA7	TESTED BY:	CB/AK



Silt and Clay	Sand			Gravel		Cobble
	Fine	Medium	Coarse	Fine	Coarse	

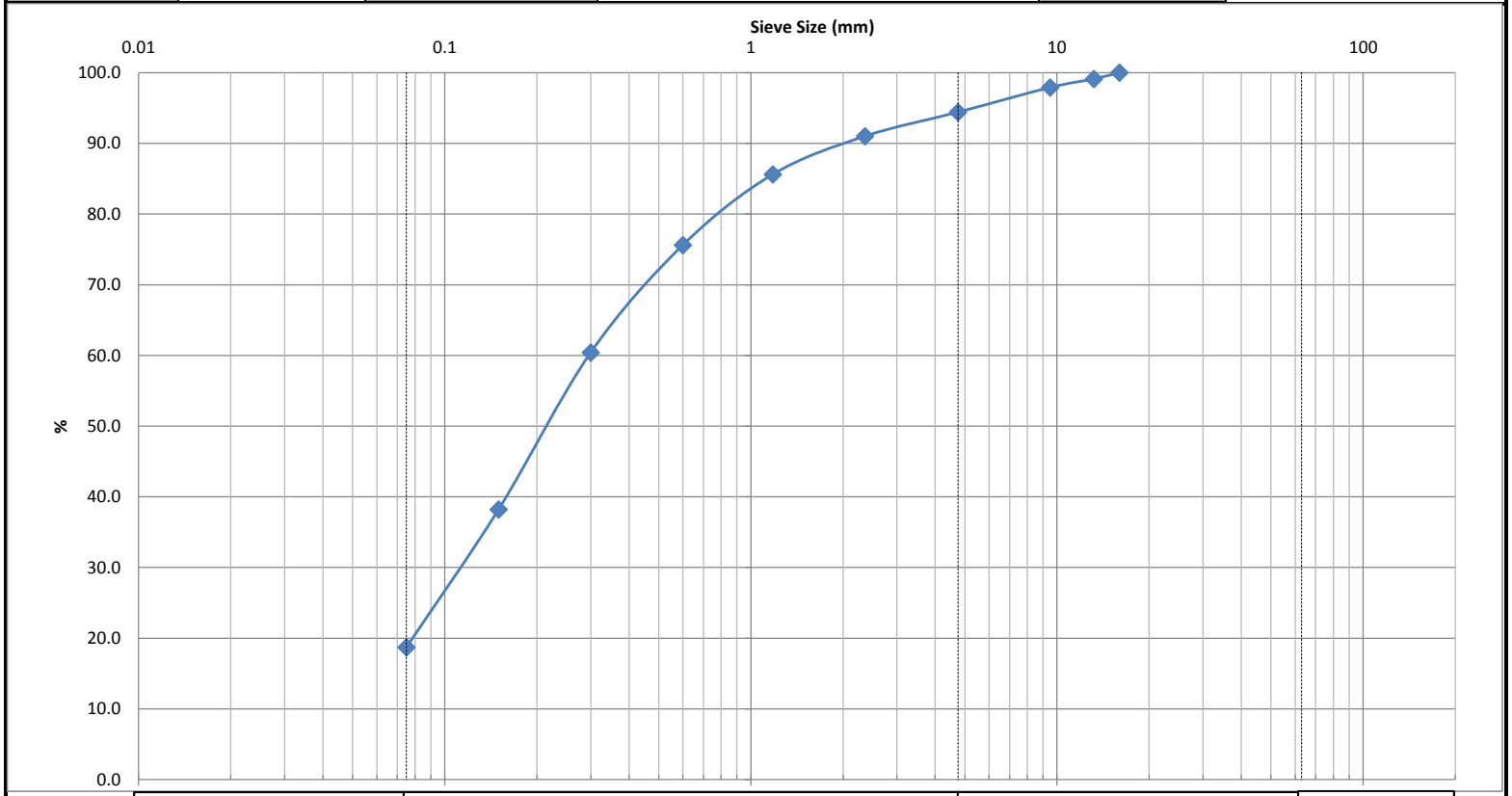
Identification	Soil Classification					MC(%)	LL	PL	PI	Cc	Cu
										0.91	21.3
	D100	D60	D30	D10	Gravel (%)	Sand (%)		Silt (%)		Clay (%)	
	28	1.6	0.33	0.075	21.4	69.8		8.8			

Comments	

patersongroup
consulting engineers

SIEVE ANALYSIS
ASTM C136

CLIENT:	Minto Development	DESCRIPTION:	Native	FILE NO:	PG3757
CONTRACT NO.:	-	SPECIFICATION:	-	LAB NO:	85588
PROJECT:	Barrhaven South CDP	INTENDED USE:	-	DATE RECEIVED:	14-Jul-16
		PIT OR QUARRY:	-	DATE TESTED:	15-Jul-16
DATE SAMPLED:	14-Jul-16	SOURCE LOCATION:	Borehole	DATE REPORTED:	18-Jul-16
SAMPLED BY:	NZ	SAMPLE LOCATION:	SA8	TESTED BY:	CB/AK



Silt and Clay	Sand			Gravel		Cobble
	Fine	Medium	Coarse	Fine	Coarse	

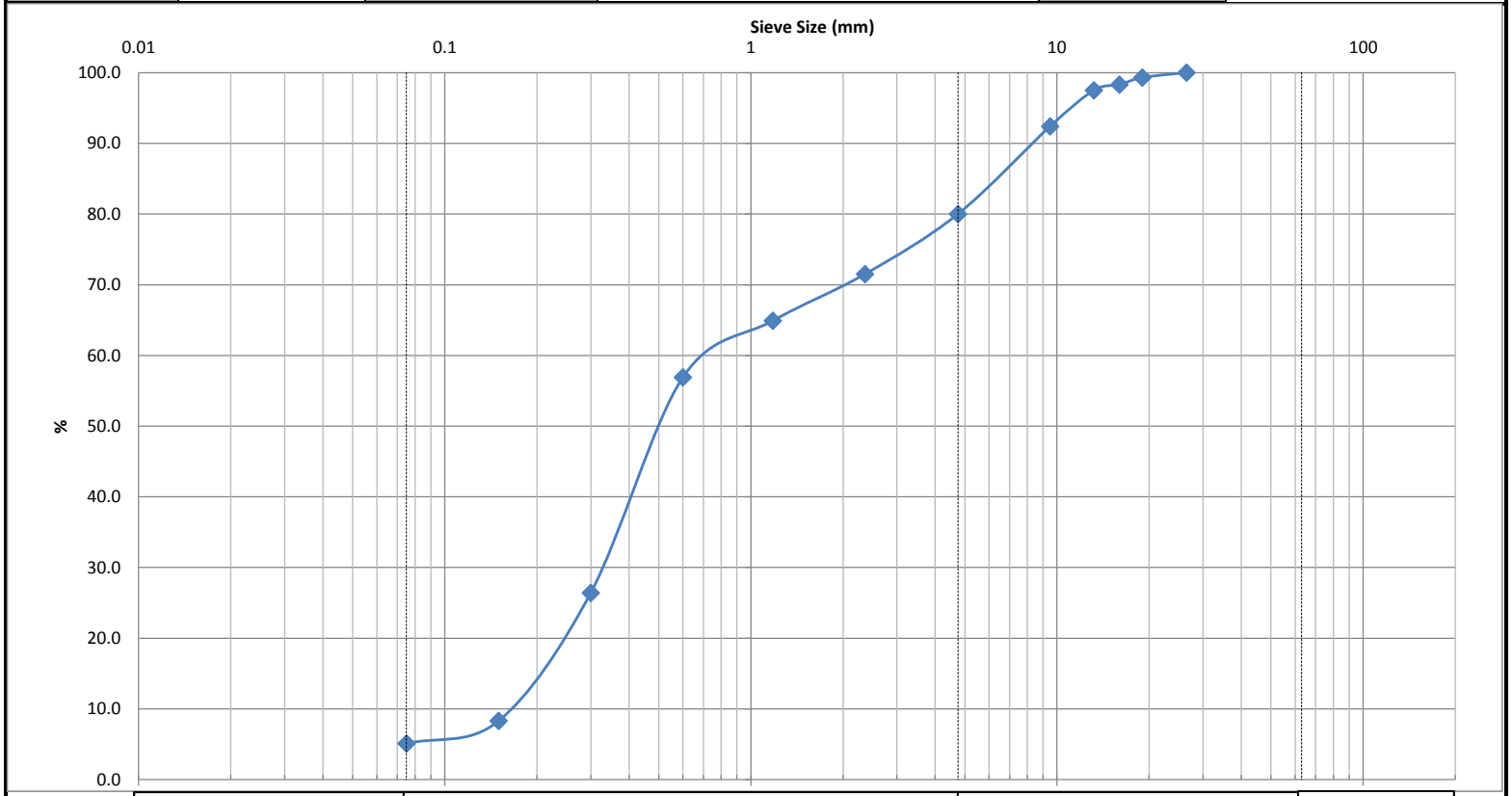
Identification	Soil Classification							MC(%)	LL	PL	PI	Cc	Cu
												1.20	7.5
	D100	D60	D30	D10	Gravel (%)		Sand (%)			Silt (%)		Clay (%)	
	17.5	0.3	0.12	0.04	5.6		75.7			18.7			

Comments	

paterson**group**
consulting engineers

SIEVE ANALYSIS
ASTM C136

CLIENT:	Minto Development	DESCRIPTION:	Native	FILE NO:	PG3757
CONTRACT NO.:	-	SPECIFICATION:	-	LAB NO:	85593
PROJECT:	Barrhaven South CDP	INTENDED USE:	-	DATE RECEIVED:	14-Jul-16
		PIT OR QUARRY:	-	DATE TESTED:	15-Jul-16
DATE SAMPLED:	14-Jul-16	SOURCE LOCATION:	Borehole	DATE REPORTED:	18-Jul-16
SAMPLED BY:	NZ	SAMPLE LOCATION:	SA9	TESTED BY:	CB/AK



Silt and Clay	Sand			Gravel		Cobble
	Fine	Medium	Coarse	Fine	Coarse	

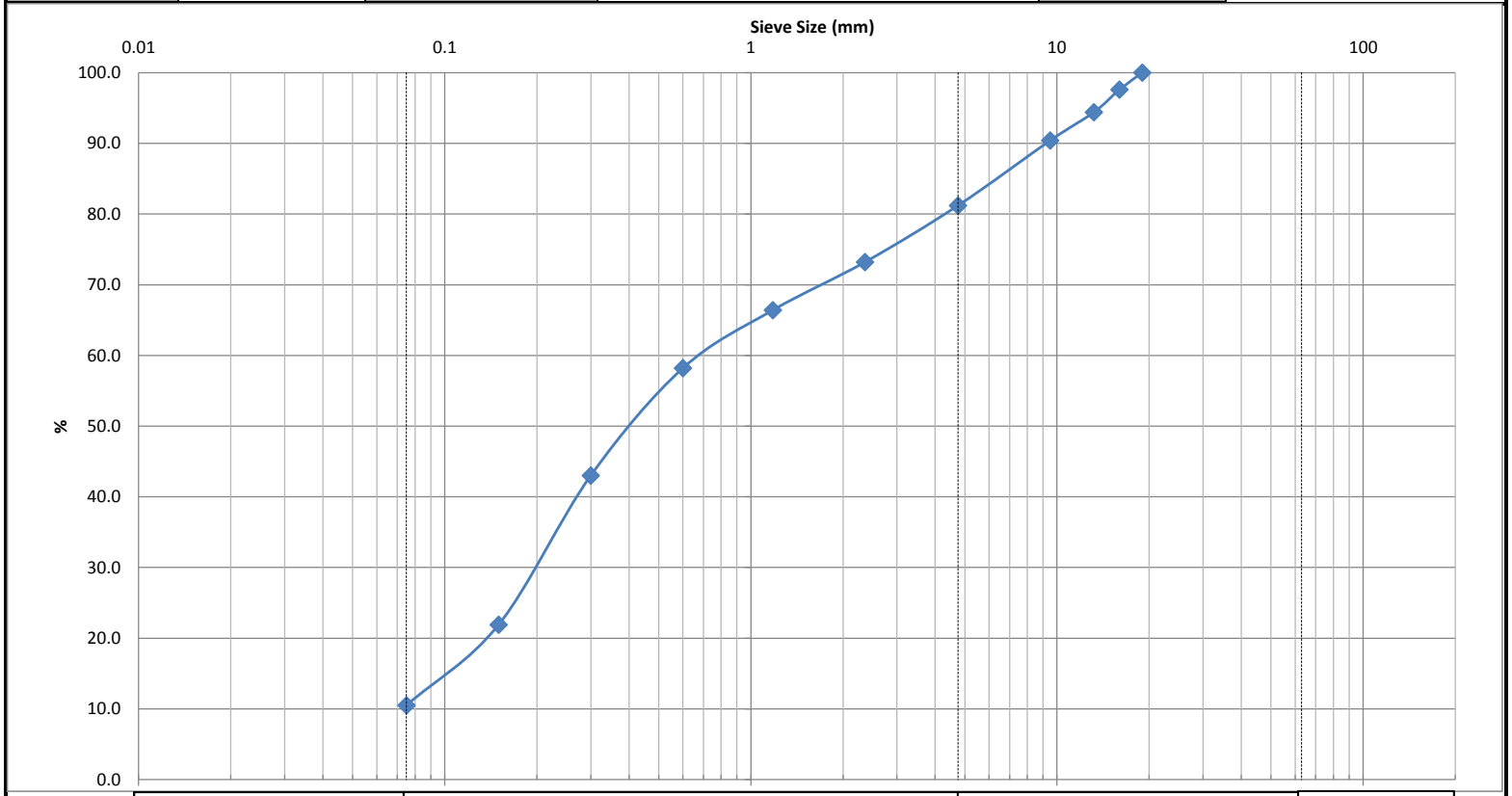
Identification	Soil Classification					MC(%)	LL	PL	PI	Cc	Cu
										0.97	4.4
	D100	D60	D30	D10	Gravel (%)	Sand (%)		Silt (%)		Clay (%)	
	28	0.7	0.33	0.16	20.0	74.9		5.1			

Comments	

patersongroup
consulting engineers

SIEVE ANALYSIS
ASTM C136

CLIENT:	Minto Development	DESCRIPTION:	Native	FILE NO:	PG3757
CONTRACT NO.:	-	SPECIFICATION:	-	LAB NO:	85592
PROJECT:	Barrhaven South CDP	INTENDED USE:	-	DATE RECEIVED:	14-Jul-16
		PIT OR QUARRY:	-	DATE TESTED:	15-Jul-16
DATE SAMPLED:	14-Jul-16	SOURCE LOCATION:	Borehole	DATE REPORTED:	18-Jul-16
SAMPLED BY:	NZ	SAMPLE LOCATION:	SA10	TESTED BY:	CB/AK



Silt and Clay	Sand			Gravel		Cobble
	Fine	Medium	Coarse	Fine	Coarse	

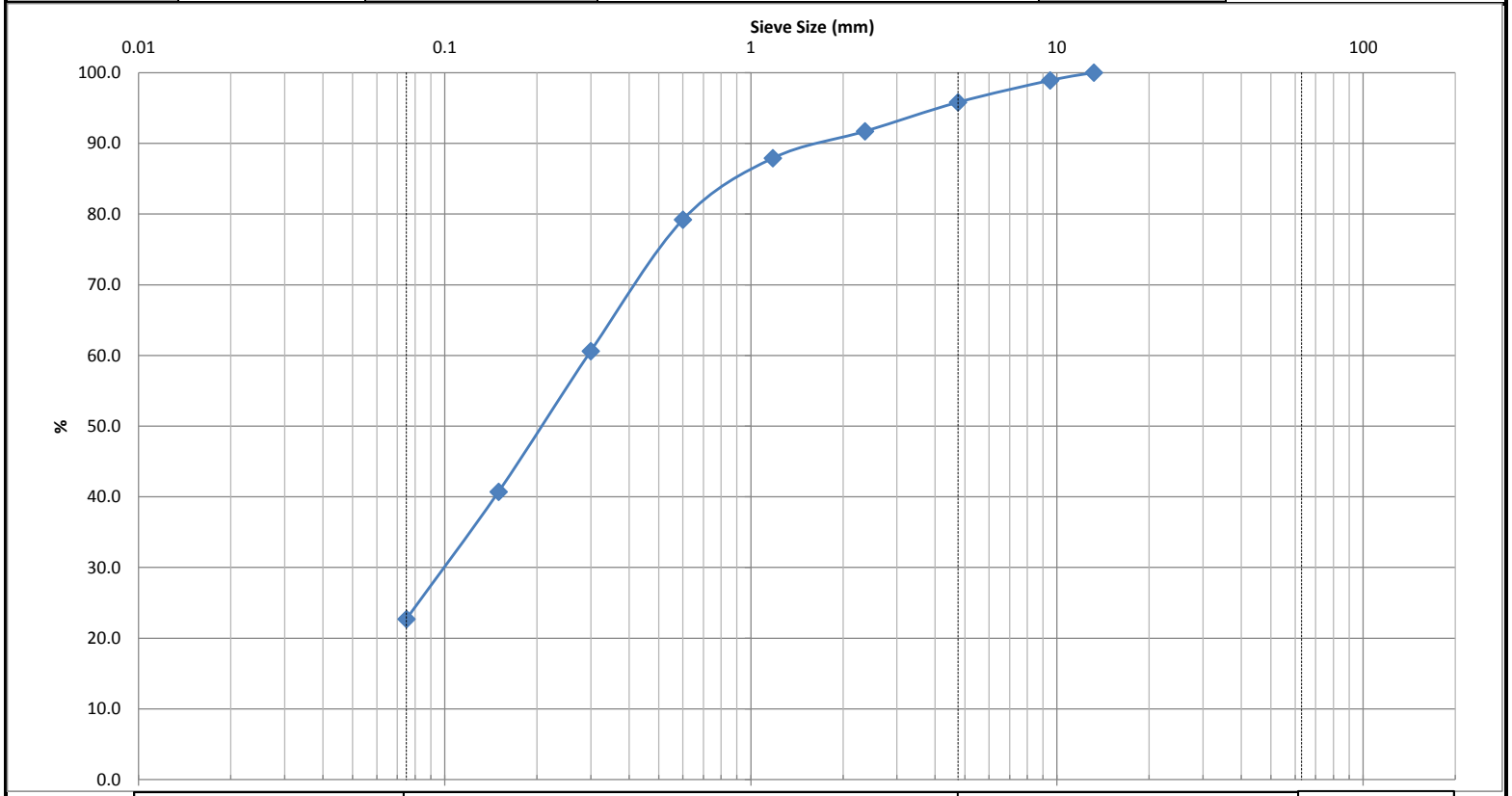
Identification	Soil Classification					MC(%)	LL	PL	PI	Cc	Cu
										0.82	8.7
	D100	D60	D30	D10	Gravel (%)	Sand (%)		Silt (%)		Clay (%)	
	19	0.65	0.2	0.075	18.8	70.7		10.5			

Comments	

patersongroup
consulting engineers

SIEVE ANALYSIS
ASTM C136

CLIENT:	Minto Barrhaven	DESCRIPTION:	Granular	FILE NO:	PG3757
CONTRACT NO.:	-	SPECIFICATION:	SAND	LAB NO:	85591
PROJECT:	CDP	INTENDED USE:	-	DATE RECEIVED:	14-Jul-16
		PIT OR QUARRY:	-	DATE TESTED:	20-Jul-16
DATE SAMPLED:	15-Jul-16	SOURCE LOCATION:	-	DATE REPORTED:	23-Jul-16
SAMPLED BY:	NZ	SAMPLE LOCATION:	SA11	TESTED BY:	0



Silt and Clay	Sand			Gravel		Cobble
	Fine	Medium	Coarse	Fine	Coarse	

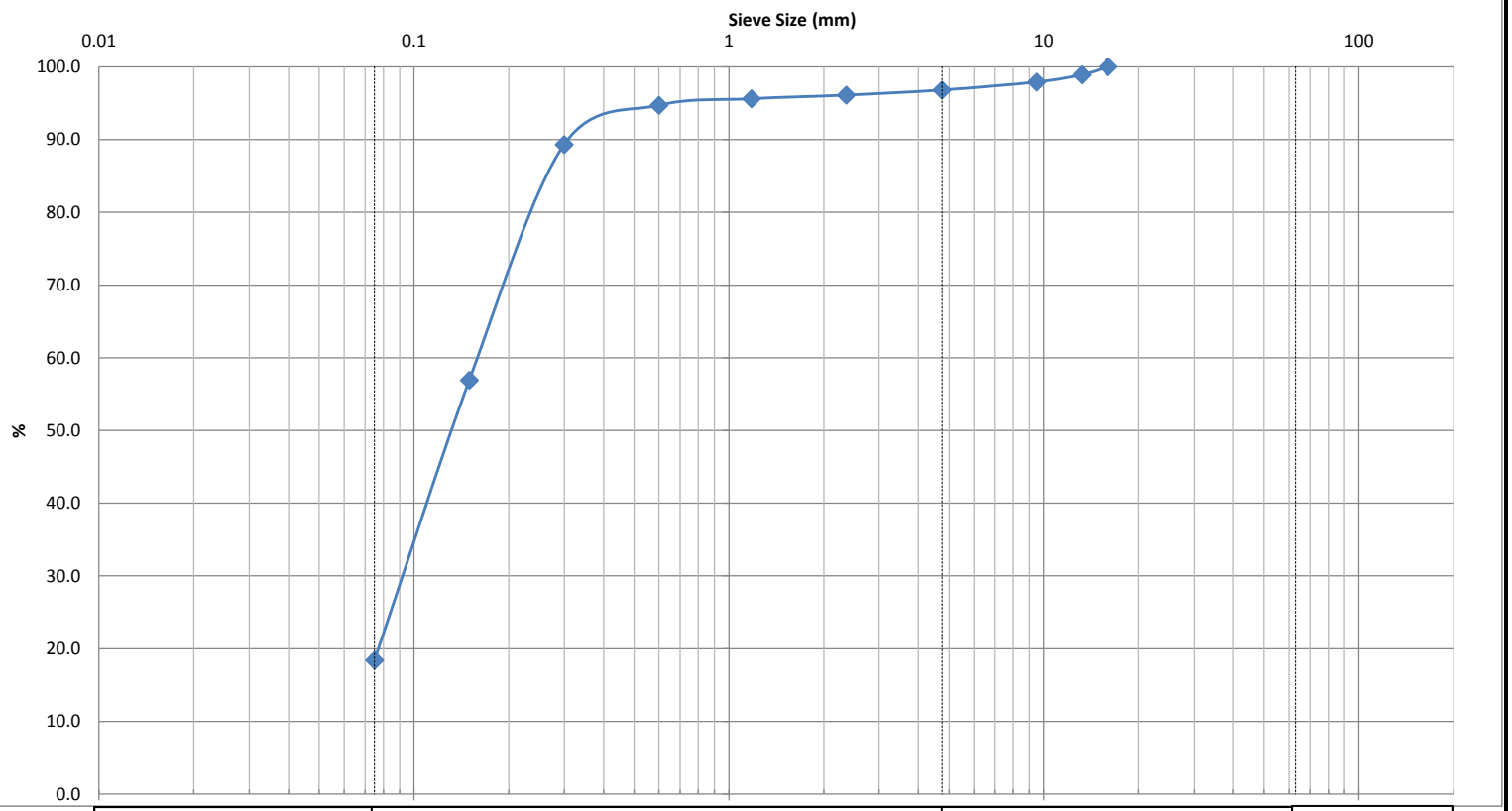
Identification	Soil Classification					MC(%)	LL	PL	PI	Cc	Cu
										0.83	7.5
	D100	D60	D30	D10	Gravel (%)	Sand (%)		Silt (%)		Clay (%)	
	14	0.3	0.1	0.04	4.2	73.1		22.7			

Comments	

patersongroup
consulting engineers

SIEVE ANALYSIS
ASTM C136

CLIENT:	Minto Development	DESCRIPTION:	Native	FILE NO:	PG3757
CONTRACT NO.:	-	SPECIFICATION:	-	LAB NO:	85590
PROJECT:	Barrhaven South CDP	INTENDED USE:	-	DATE RECEIVED:	14-Jul-16
		PIT OR QUARRY:	-	DATE TESTED:	15-Jul-16
DATE SAMPLED:	14-Jul-16	SOURCE LOCATION:	Borehole	DATE REPORTED:	18-Jul-16
SAMPLED BY:	NZ	SAMPLE LOCATION:	SA12	TESTED BY:	CB/AK



Silt and Clay	Sand			Gravel		Cobble
	Fine	Medium	Coarse	Fine	Coarse	

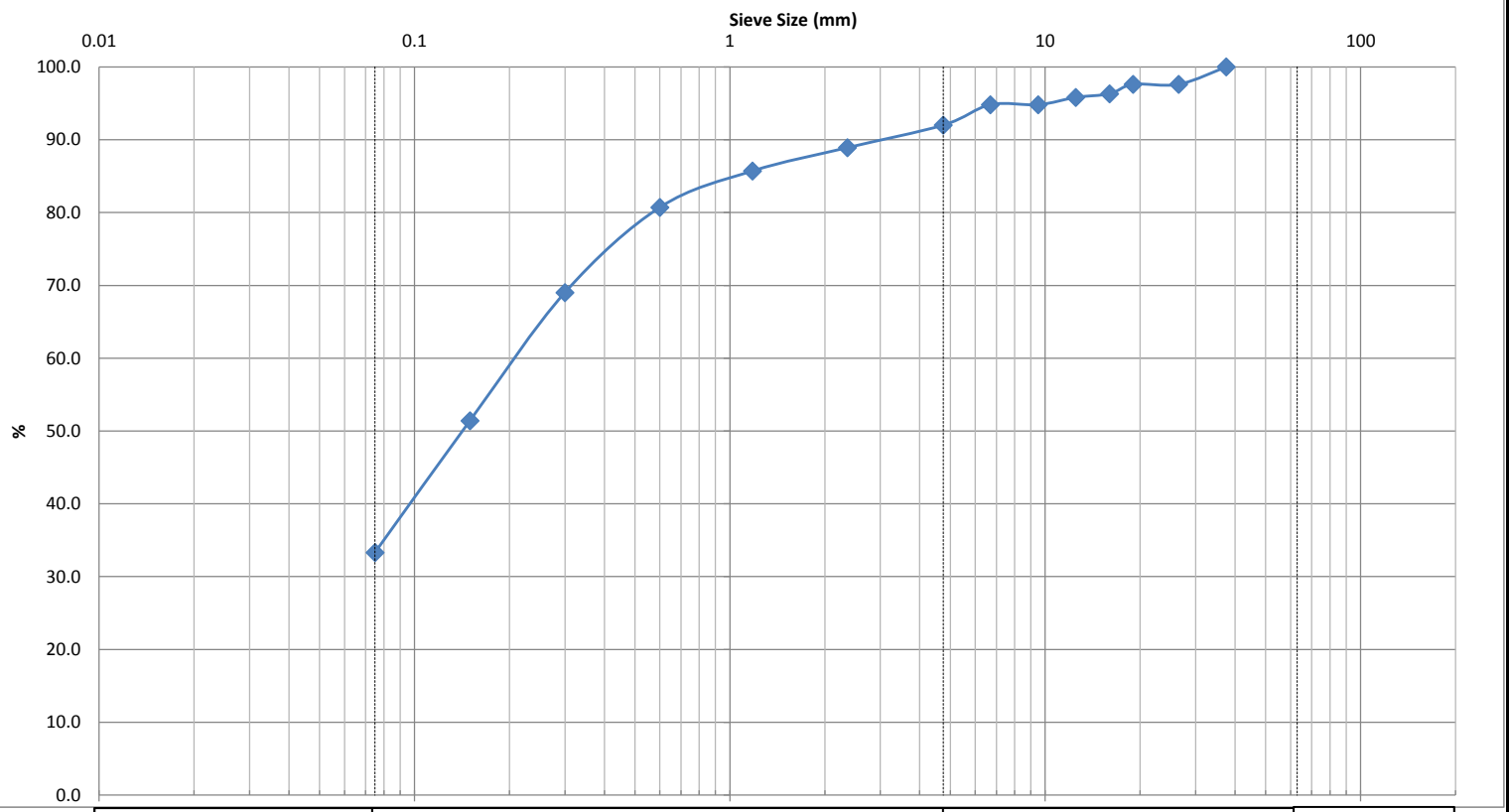
Identification	Soil Classification					MC(%)	LL	PL	PI	Cc	Cu
										0.68	2.4
	D100	D60	D30	D10	Gravel (%)	Sand (%)		Silt (%)		Clay (%)	
	17	0.17	0.09	0.07	3.2	78.4		18.4			

Comments	

patersongroup
consulting engineers

SIEVE ANALYSIS
ASTM C136

CLIENT:	Minto Barrhaven	DESCRIPTION:	Granular	FILE NO:	PG3757
CONTRACT NO.:	-	SPECIFICATION:	SAND	LAB NO:	85589
PROJECT:	CDP	INTENDED USE:	-	DATE RECEIVED:	14-Jul-16
		PIT OR QUARRY:	-	DATE TESTED:	20-Jul-16
DATE SAMPLED:	15-Jul-16	SOURCE LOCATION:	-	DATE REPORTED:	23-Jul-16
SAMPLED BY:	NZ	SAMPLE LOCATION:	SA13	TESTED BY:	0



Silt and Clay	Sand			Gravel		Cobble
	Fine	Medium	Coarse	Fine	Coarse	

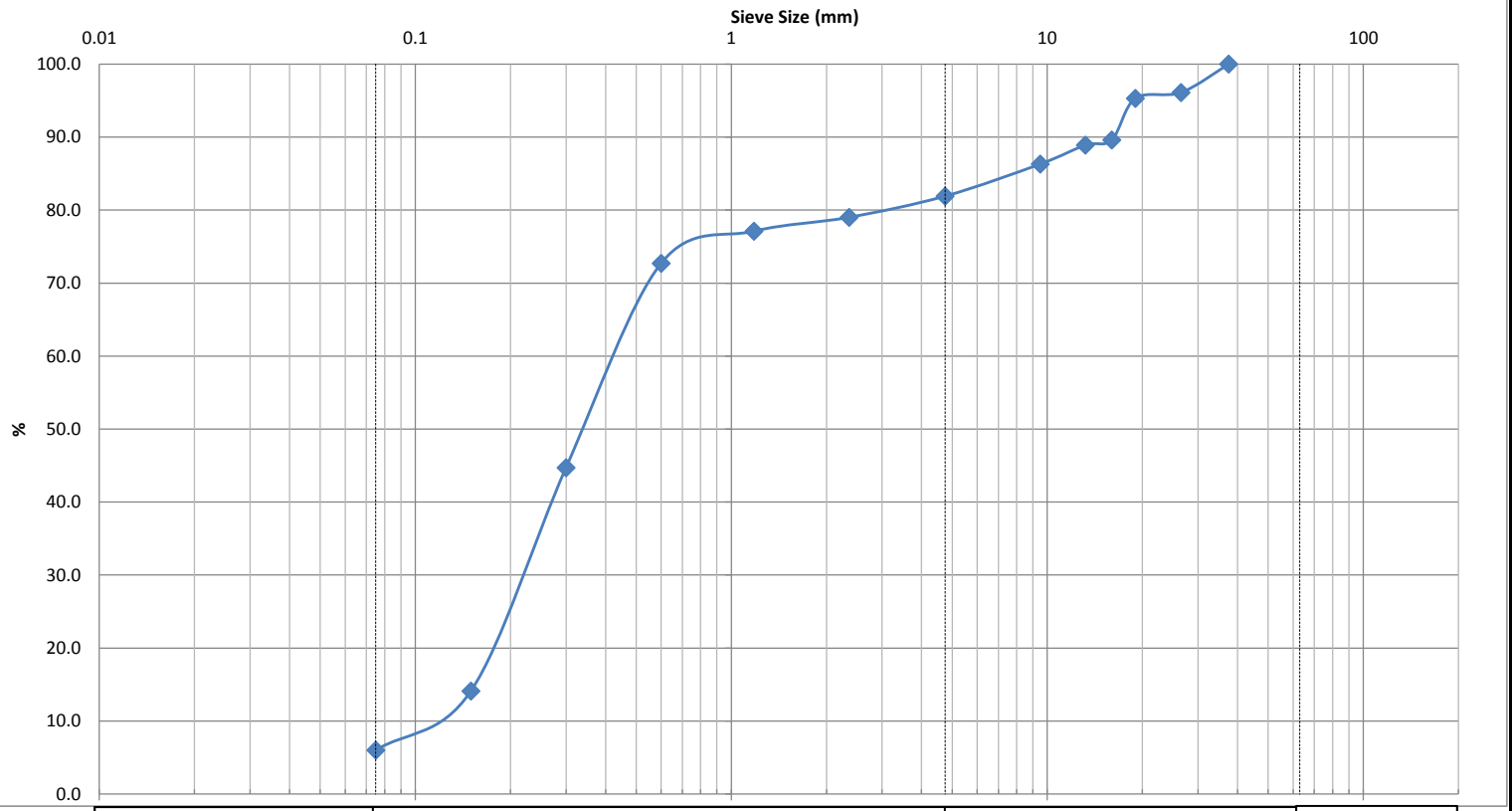
Identification	Soil Classification					MC(%)	LL	PL	PI	Cc	Cu
										0.67	7.0
	D100	D60	D30	D10	Gravel (%)	Sand (%)		Silt (%)		Clay (%)	
	38	0.21	0.065	0.03	8.0	58.7		33.3			

Comments	

patersongroup
consulting engineers

SIEVE ANALYSIS
ASTM C136

CLIENT:	Minto Barrhaven	DESCRIPTION:	Granular	FILE NO:	PG3757
CONTRACT NO.:	-	SPECIFICATION:	SAND	LAB NO:	85594
PROJECT:	CDP	INTENDED USE:	-	DATE RECEIVED:	14-Jul-16
		PIT OR QUARRY:	-	DATE TESTED:	20-Jul-16
DATE SAMPLED:	15-Jul-16	SOURCE LOCATION:	-	DATE REPORTED:	23-Jul-16
SAMPLED BY:	NZ	SAMPLE LOCATION:	SA14	TESTED BY:	0



Silt and Clay	Sand			Gravel		Cobble
	Fine	Medium	Coarse	Fine	Coarse	

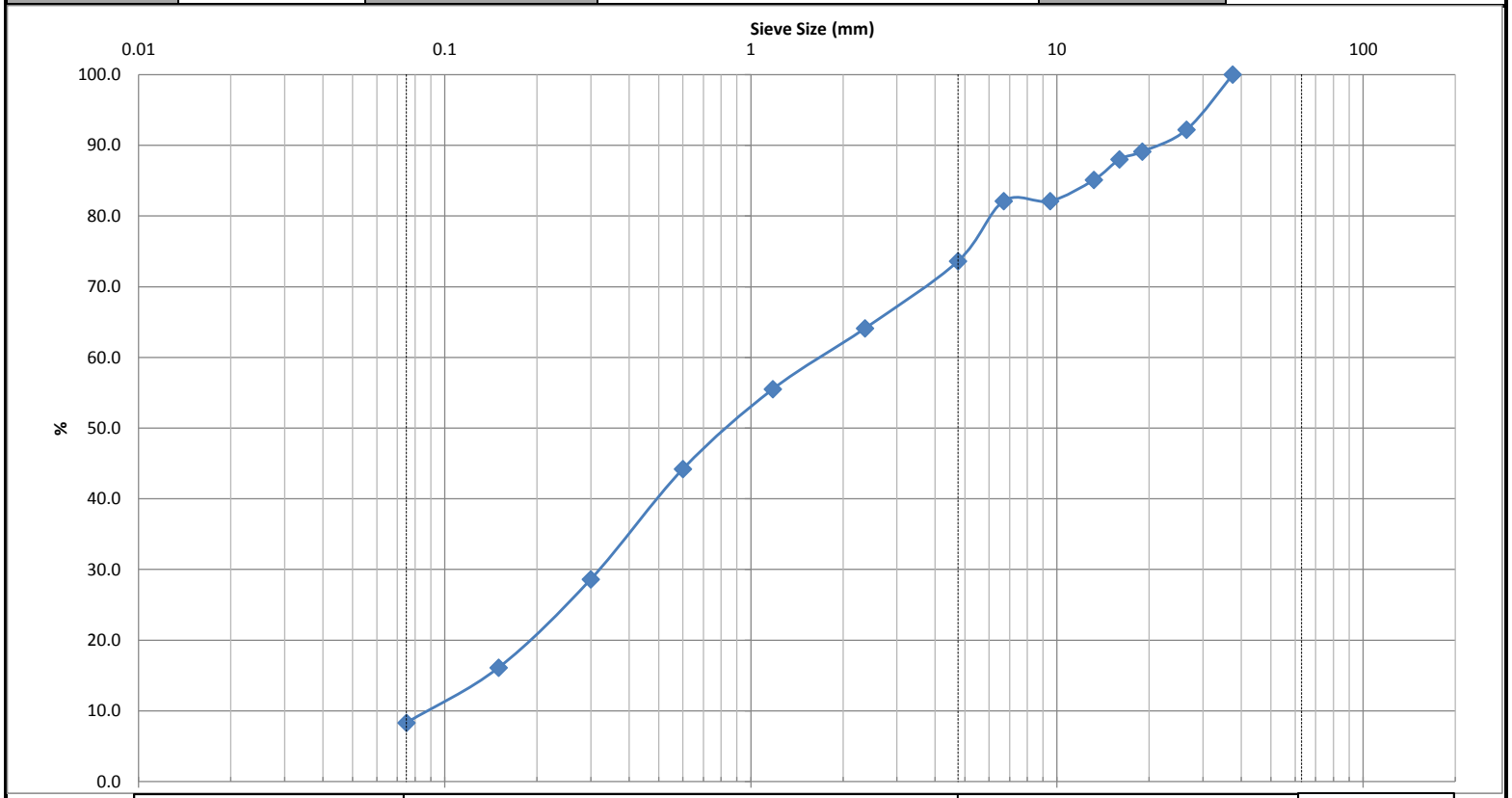
Identification	Soil Classification					MC(%)	LL	PL	PI	Cc	Cu
										1.43	5.5
	D100	D60	D30	D10	Gravel (%)	Sand (%)		Silt (%)		Clay (%)	
	38	0.41	0.21	0.075	18.1	75.9		6.0			

Comments	

patersongroup
consulting engineers

SIEVE ANALYSIS
ASTM C136

CLIENT:	Minto Barrhaven	DESCRIPTION:	Granular	FILE NO:	PG3757
CONTRACT NO.:	-	SPECIFICATION:	SAND	LAB NO:	85595
PROJECT:	CDP	INTENDED USE:	-	DATE RECEIVED:	14-Jul-16
		PIT OR QUARRY:	-	DATE TESTED:	20-Jul-16
DATE SAMPLED:	15-Jul-16	SOURCE LOCATION:	-	DATE REPORTED:	23-Jul-16
SAMPLED BY:	NZ	SAMPLE LOCATION:	SA15	TESTED BY:	0



Silt and Clay	Sand			Gravel		Cobble
	Fine	Medium	Coarse	Fine	Coarse	

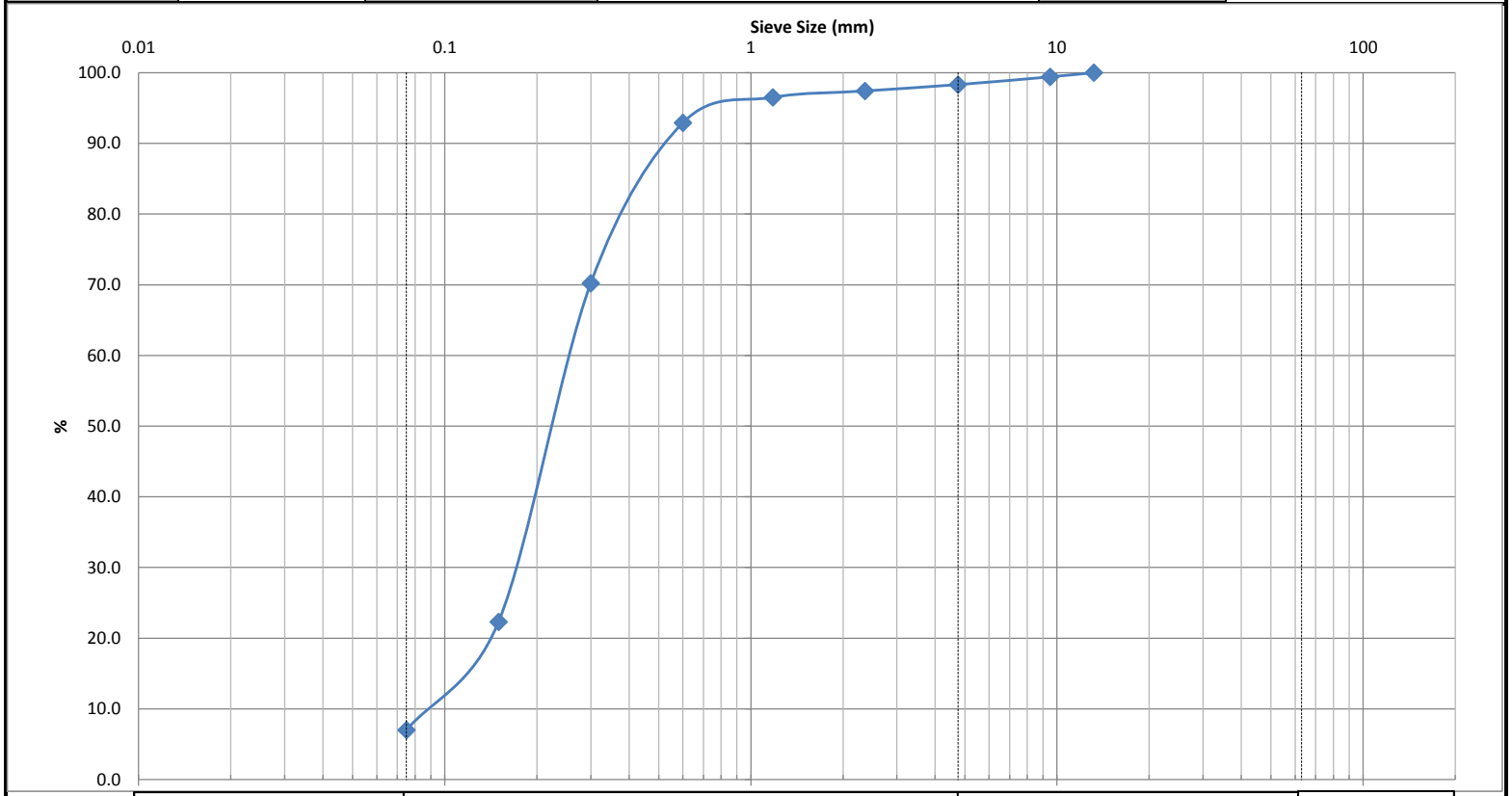
Identification	Soil Classification					MC(%)	LL	PL	PI	Cc	Cu
										1.00	13.2
	D100	D60	D30	D10	Gravel (%)	Sand (%)		Silt (%)		Clay (%)	
	38	1.16	0.32	0.088	26.4	65.3		8.3			

Comments	

patersongroup
consulting engineers

SIEVE ANALYSIS
ASTM C136

CLIENT:	Minto Development	DESCRIPTION:	Native	FILE NO:	PG3757
CONTRACT NO.:	-	SPECIFICATION:	-	LAB NO:	85596
PROJECT:	Barrhaven South CDP	INTENDED USE:	-	DATE RECEIVED:	14-Jul-16
		PIT OR QUARRY:	-	DATE TESTED:	15-Jul-16
DATE SAMPLED:	14-Jul-16	SOURCE LOCATION:	Borehole	DATE REPORTED:	18-Jul-16
SAMPLED BY:	NZ	SAMPLE LOCATION:	SA16	TESTED BY:	CB/AK



Silt and Clay	Sand			Gravel		Cobble
	Fine	Medium	Coarse	Fine	Coarse	

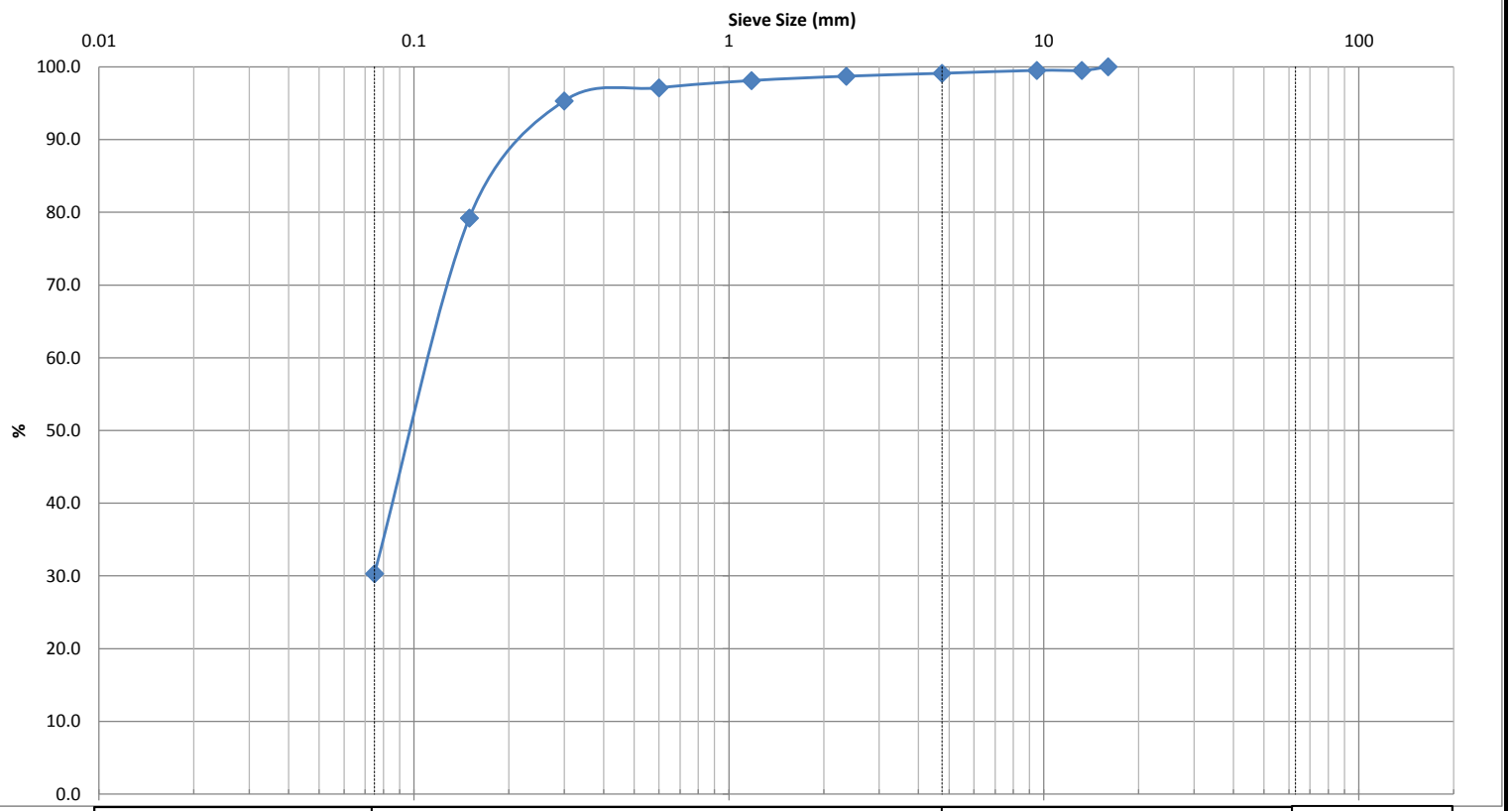
Identification	Soil Classification					MC(%)	LL	PL	PI	Cc	Cu
										1.38	2.9
	D100	D60	D30	D10	Gravel (%)	Sand (%)		Silt (%)		Clay (%)	
	13.5	0.26	0.18	0.09	1.7	91.3		7.0			

Comments	

patersongroup
consulting engineers

SIEVE ANALYSIS
ASTM C136

CLIENT:	Minto Development	DESCRIPTION:	Native	FILE NO:	PG3757
CONTRACT NO.:	-	SPECIFICATION:	-	LAB NO:	85597
PROJECT:	Barrhaven South CDP	INTENDED USE:	-	DATE RECEIVED:	14-Jul-16
		PIT OR QUARRY:	-	DATE TESTED:	15-Jul-16
DATE SAMPLED:	14-Jul-16	SOURCE LOCATION:	Borehole	DATE REPORTED:	18-Jul-16
SAMPLED BY:	NZ	SAMPLE LOCATION:	SA17	TESTED BY:	CB/AK



Silt and Clay	Sand			Gravel		Cobble
	Fine	Medium	Coarse	Fine	Coarse	

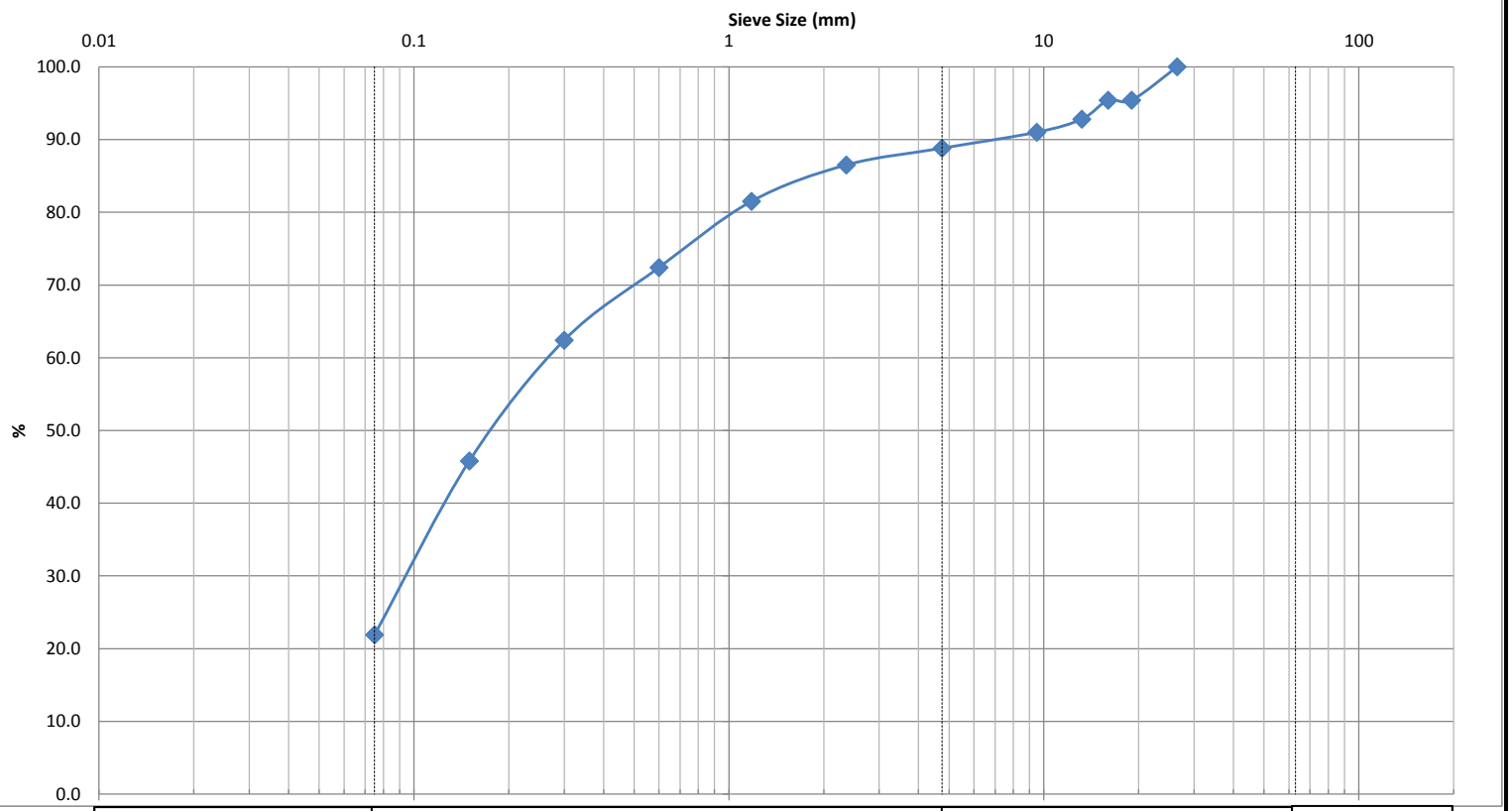
Identification	Soil Classification					MC(%)	LL	PL	PI	Cc	Cu
										0.78	2.0
	D100	D60	D30	D10	Gravel (%)	Sand (%)		Silt (%)		Clay (%)	
	16	0.12	0.075	0.06	0.9	68.8		30.3			

Comments	

patersongroup
consulting engineers

SIEVE ANALYSIS
ASTM C136

CLIENT:	Minto Development	DESCRIPTION:	Native	FILE NO:	PG3757
CONTRACT NO.:	-	SPECIFICATION:	-	LAB NO:	85598
PROJECT:	Barrhaven South CDP	INTENDED USE:	-	DATE RECEIVED:	14-Jul-16
		PIT OR QUARRY:	-	DATE TESTED:	15-Jul-16
DATE SAMPLED:	13-Jul-16	SOURCE LOCATION:	Borehole	DATE REPORTED:	18-Jul-16
SAMPLED BY:	NZ	SAMPLE LOCATION:	SA18	TESTED BY:	CB/AK



Silt and Clay	Sand			Gravel		Cobble
	Fine	Medium	Coarse	Fine	Coarse	

Identification	Soil Classification					MC(%)	LL	PL	PI	Cc	Cu
										0.67	5.4
	D100	D60	D30	D10	Gravel (%)	Sand (%)		Silt (%)		Clay (%)	
	28	0.27	0.095	0.05	11.2	66.9		21.9			

Comments	

APPENDIX 2

FIGURE 1 - KEY PLAN

FIGURES 2 TO 7 - SLOPE STABILITY SECTIONS

PHOTOGRAPHS FROM FIELD INVESTIGATION

DRAWING PG3607-1 - TEST HOLE LOCATION PLAN

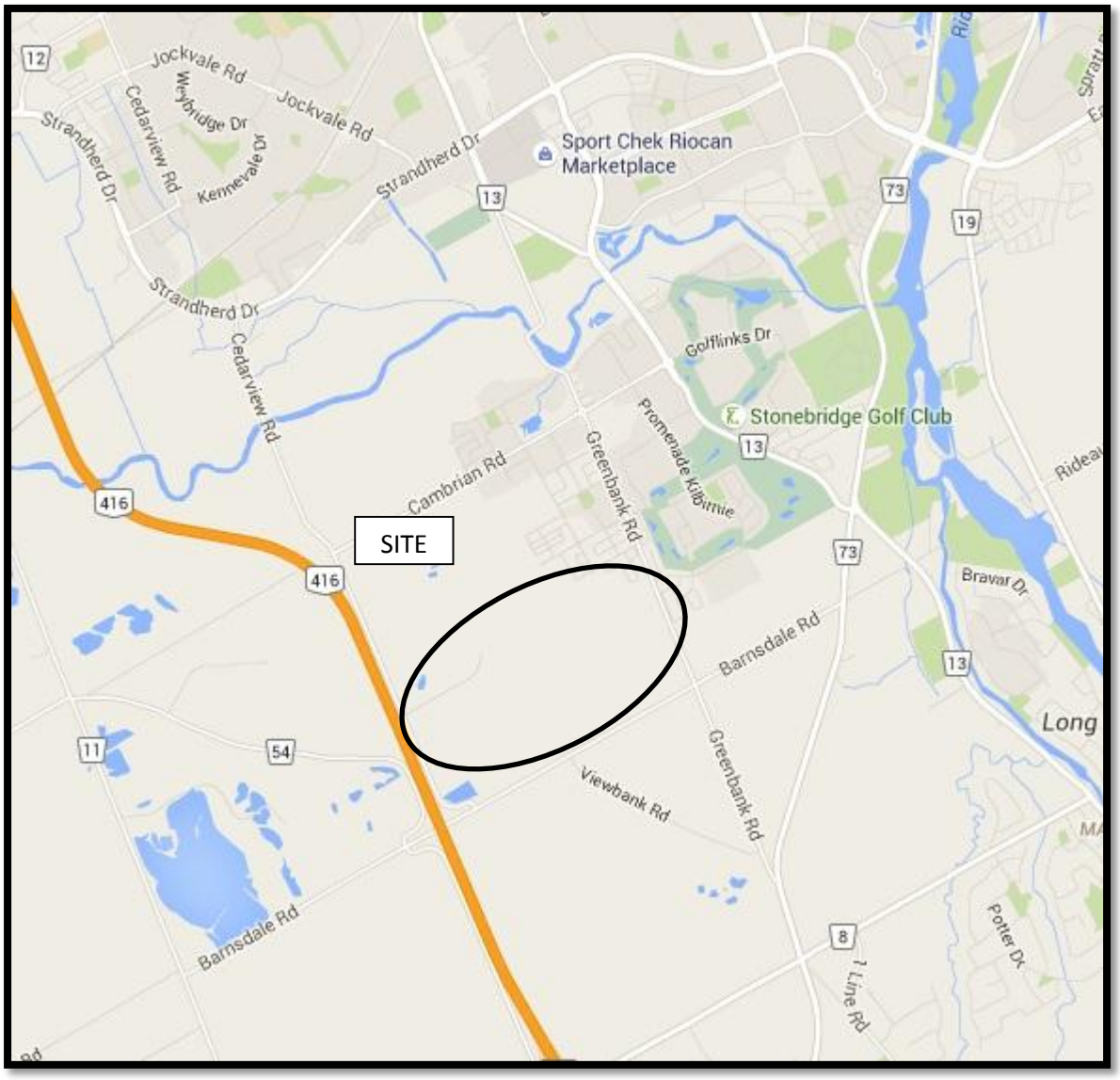
DRAWING PG3607-2 - SURFICIAL GEOLOGY

DRAWING PG3607-3 - REGIONAL BEDROCK MAPPING

DRAWING PG3607-4 - DRIFT THICKNESS

DRAWING PG3607-5 - AGGREGATE RESOURCES INVENTORY OF THE CITY OF OTTAWA

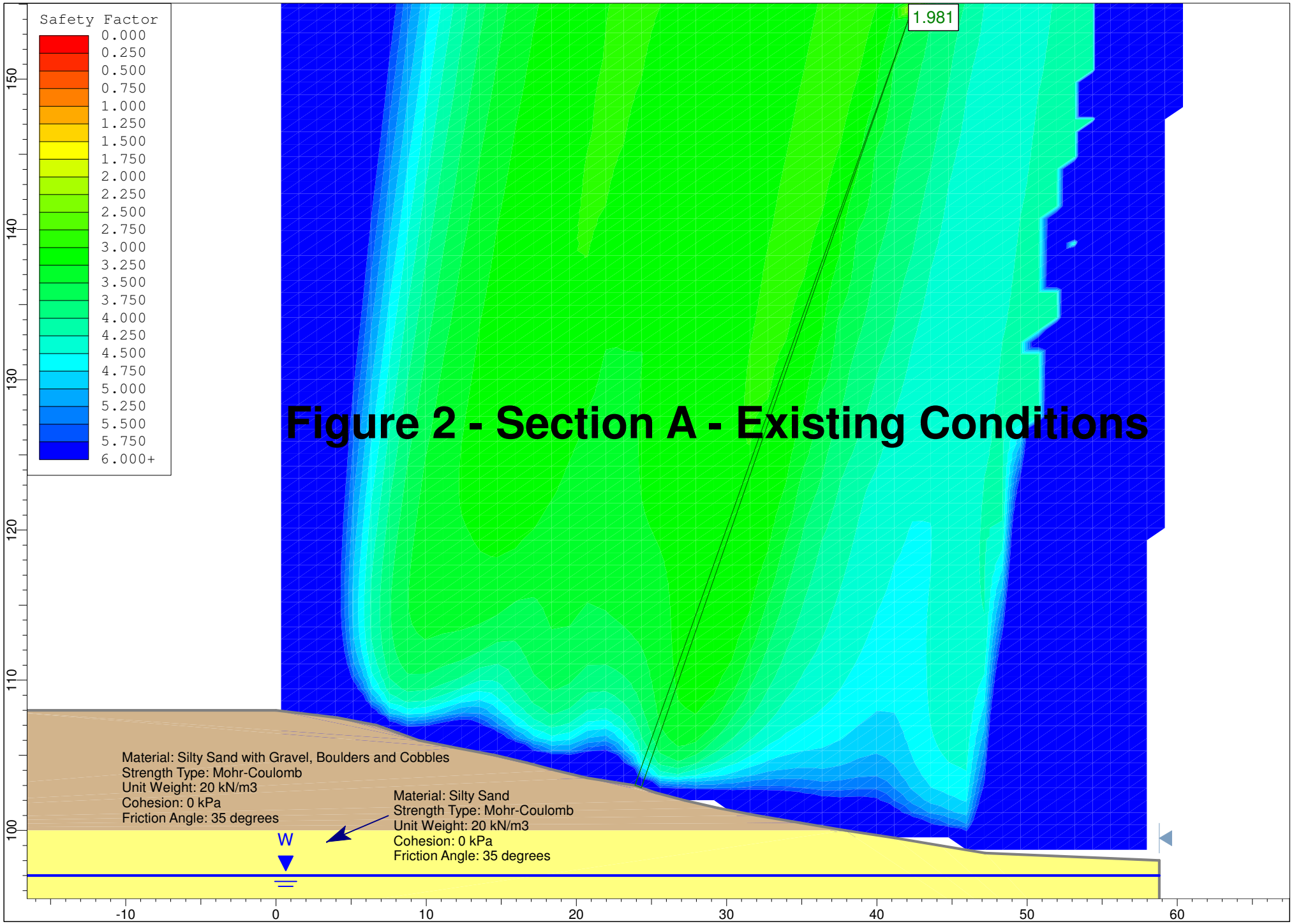
DRAWING PG3607-6 - SEISMIC SITE CLASS

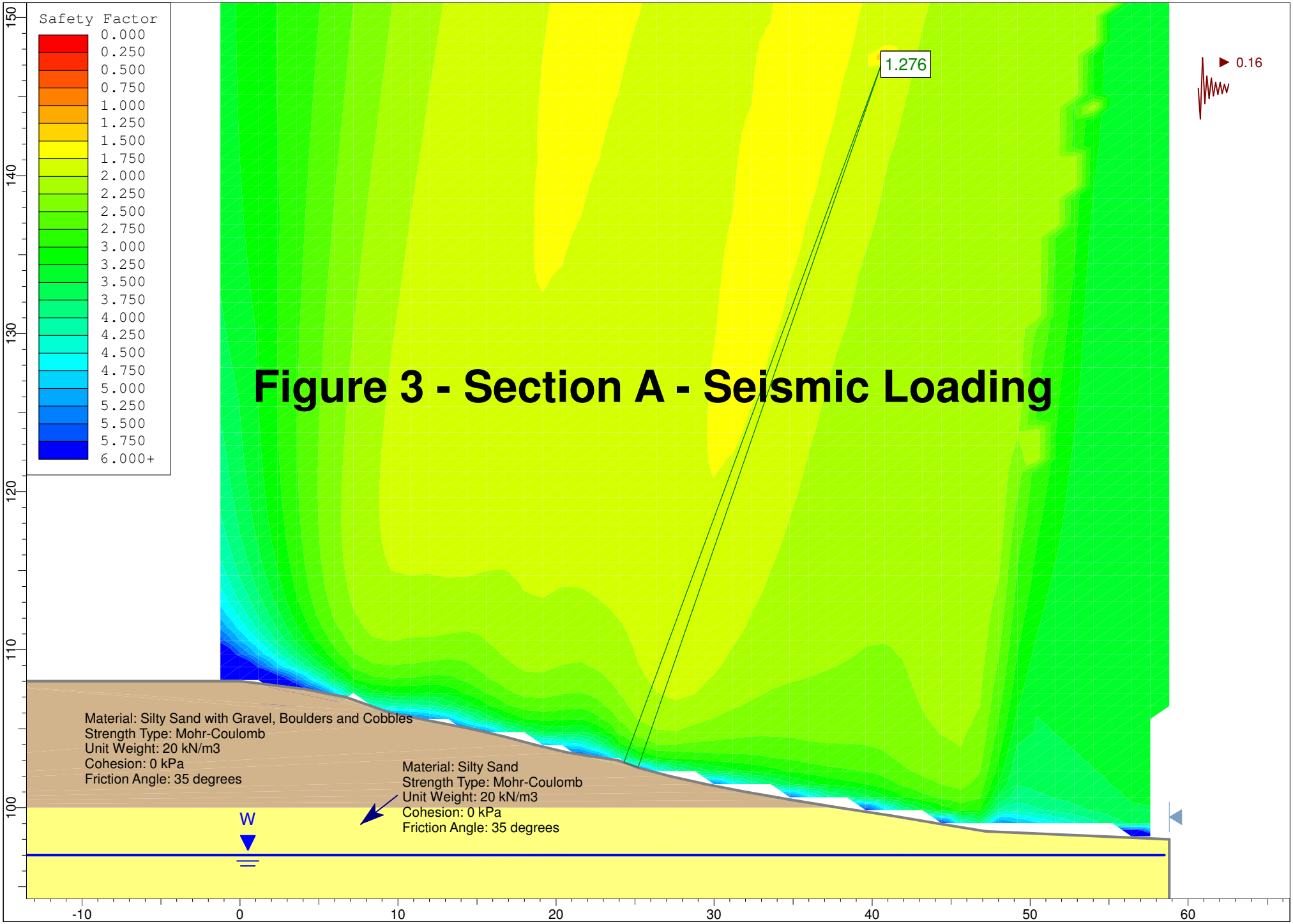


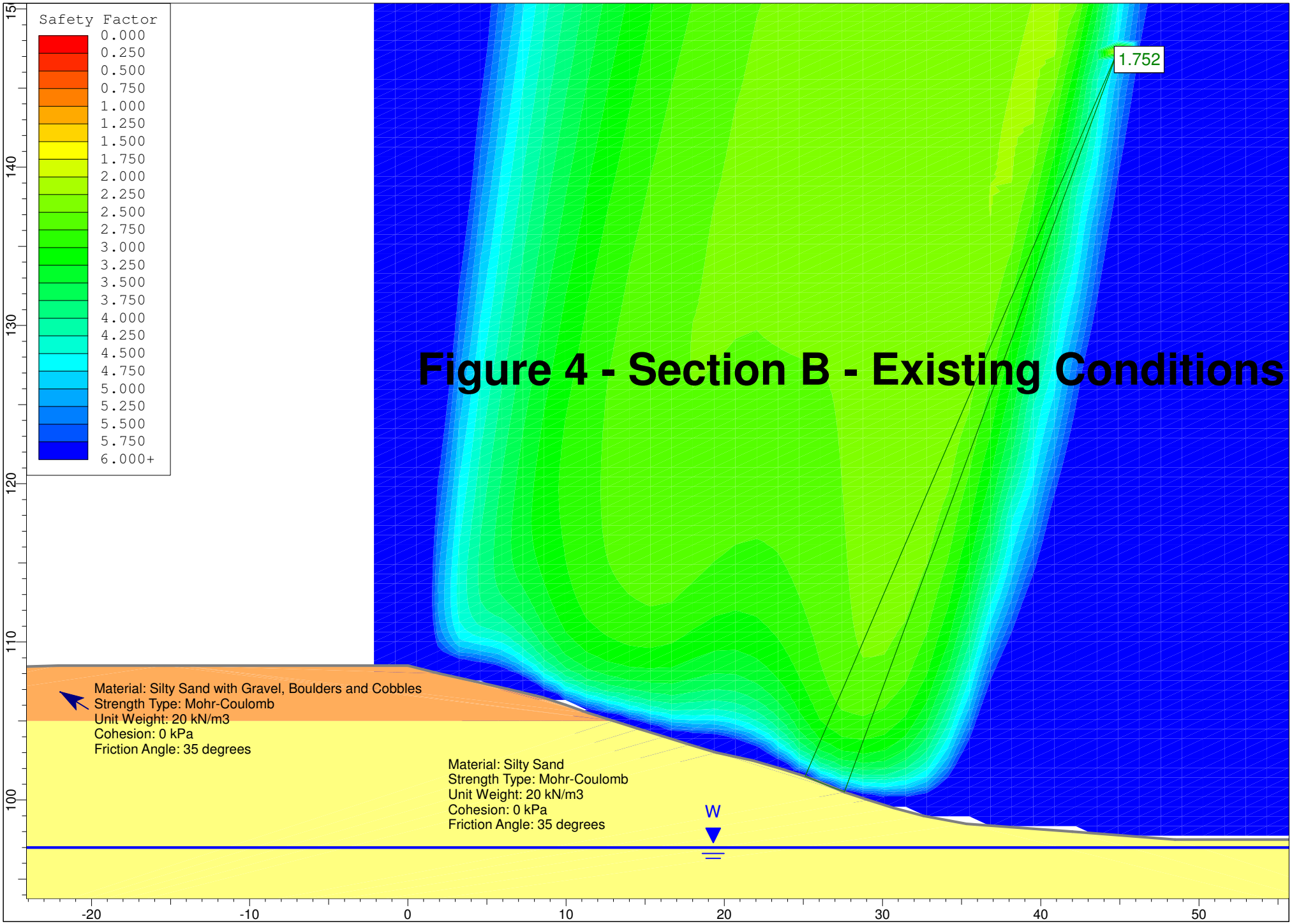
Source: Google Maps

FIGURE 1

KEY PLAN


Safety Factor
0.000
0.250
0.500
0.750
1.000
1.250
1.500
1.750
2.000
2.250
2.500
2.750
3.000
3.250
3.500
3.750
4.000
4.250
4.500
4.750
5.000
5.250
5.500
5.750
6.000+
1.981
Figure 2 - Section A - Existing Conditions
Material: Silty Sand with Gravel, Boulders and Cobbles
Strength Type: Mohr-Coulomb
Unit Weight: 20 kN/m3
Cohesion: 0 kPa
Friction Angle: 35 degrees
Material: Silty Sand
Strength Type: Mohr-Coulomb
Unit Weight: 20 kN/m3
Cohesion: 0 kPa
Friction Angle: 35 degrees
W
150
140
130
120
110
100
-10
0
10
20
30
40
50
60


Safety Factor
0.000
0.250
0.500
0.750
1.000
1.250
1.500
1.750
2.000
2.250
2.500
2.750
3.000
3.250
3.500
3.750
4.000
4.250
4.500
4.750
5.000
5.250
5.500
5.750
6.000+
1.276
0.16
Figure 3 - Section A - Seismic Loading
Material: Silty Sand with Gravel, Boulders and Cobbles
Strength Type: Mohr-Coulomb
Unit Weight: 20 kN/m3
Cohesion: 0 kPa
Friction Angle: 35 degrees
Material: Silty Sand
Strength Type: Mohr-Coulomb
Unit Weight: 20 kN/m3
Cohesion: 0 kPa
Friction Angle: 35 degrees
W
150
140
130
120
110
100
-10
0
10
20
30
40
50
60


Safety Factor
0.000
0.250
0.500
0.750
1.000
1.250
1.500
1.750
2.000
2.250
2.500
2.750
3.000
3.250
3.500
3.750
4.000
4.250
4.500
4.750
5.000
5.250
5.500
5.750
6.000+
1.752
Figure 4 - Section B - Existing Conditions
Material: Silty Sand with Gravel, Boulders and Cobbles
Strength Type: Mohr-Coulomb
Unit Weight: 20 kN/m3
Cohesion: 0 kPa
Friction Angle: 35 degrees
Material: Silty Sand
Strength Type: Mohr-Coulomb
Unit Weight: 20 kN/m3
Cohesion: 0 kPa
Friction Angle: 35 degrees
W
150
140
130
120
110
100
-20
-10
0
10
20
30
40
50

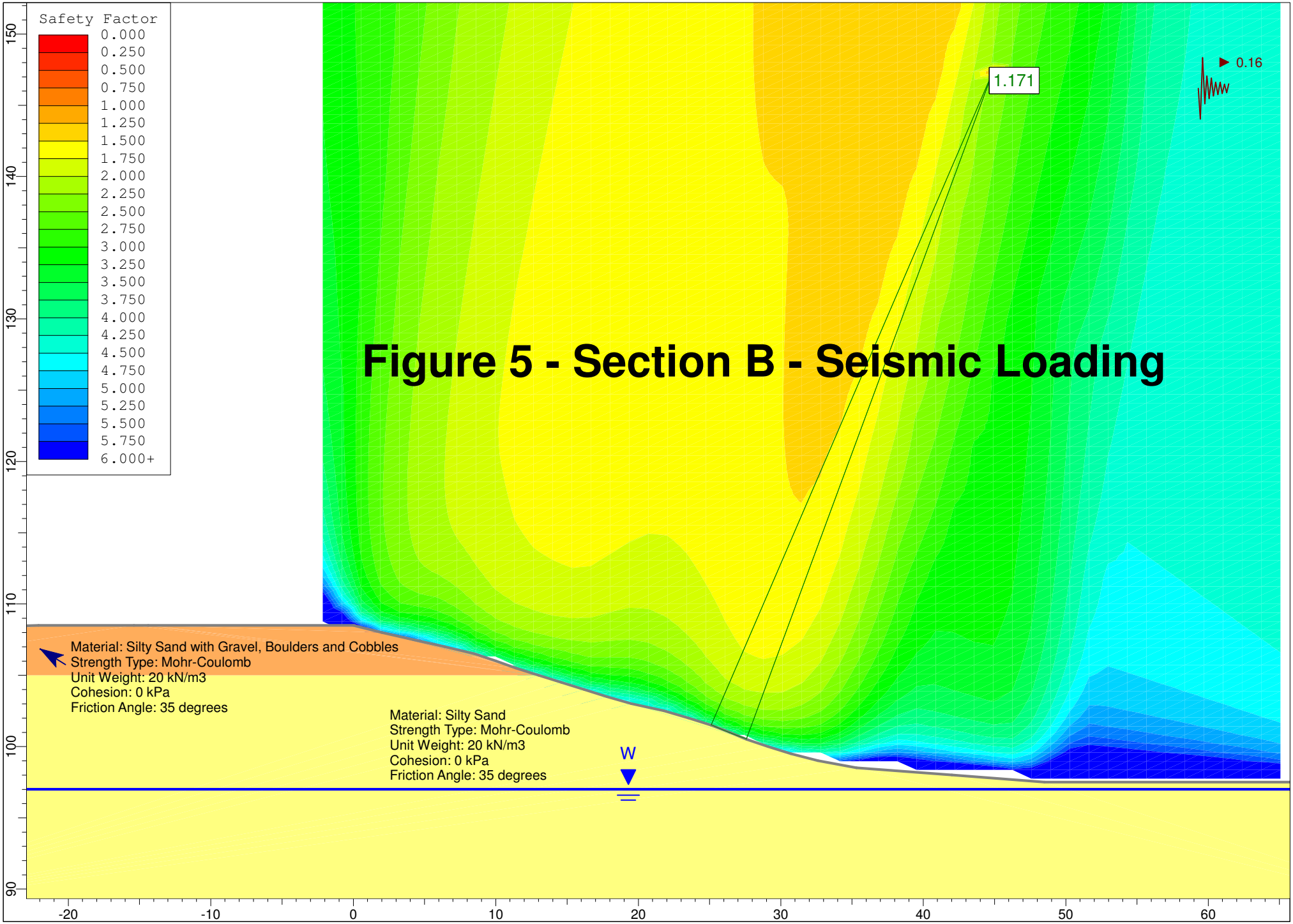
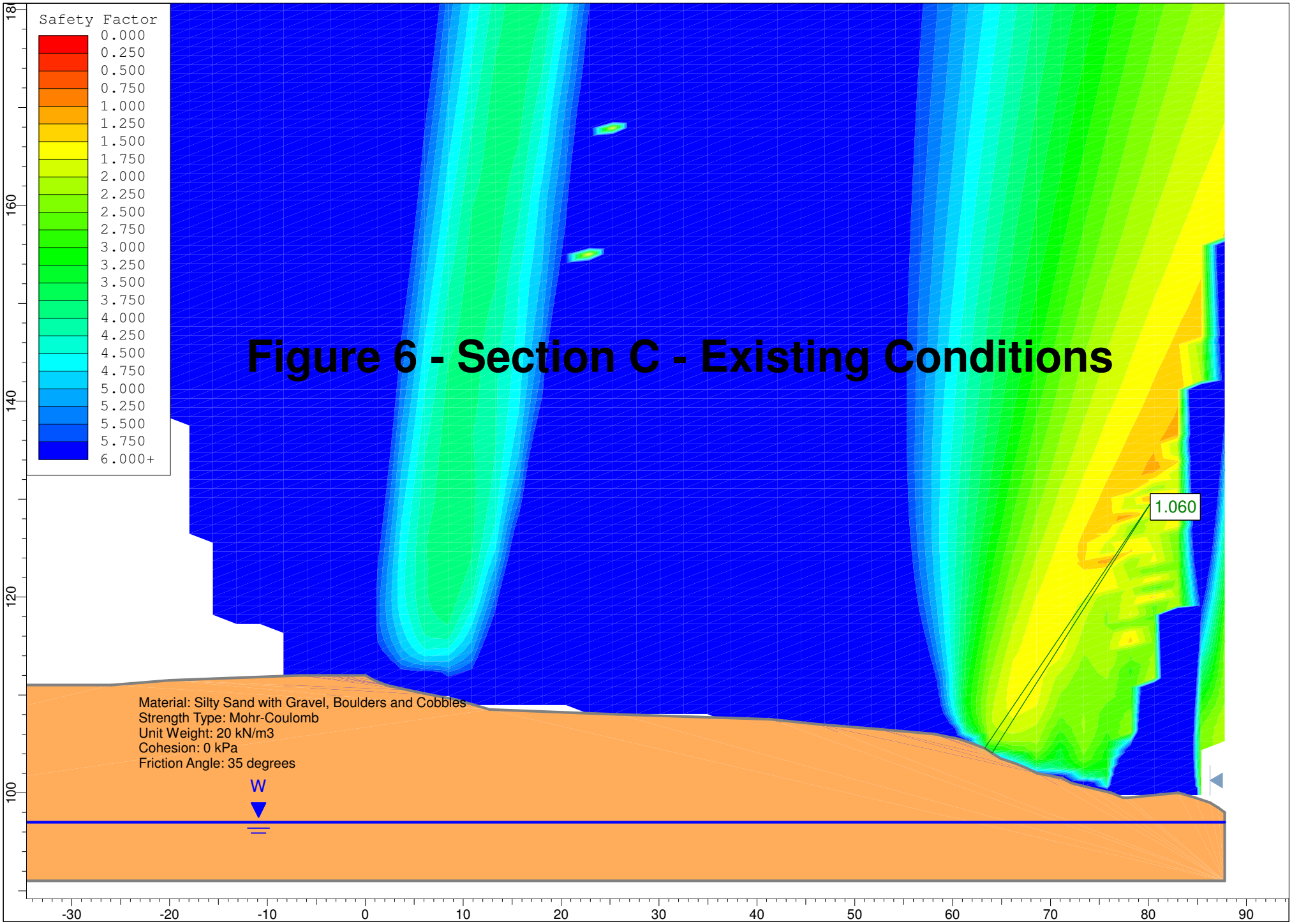


Figure 5 - Section B - Seismic Loading


Safety Factor
0.000
0.250
0.500
0.750
1.000
1.250
1.500
1.750
2.000
2.250
2.500
2.750
3.000
3.250
3.500
3.750
4.000
4.250
4.500
4.750
5.000
5.250
5.500
5.750
6.000+
Figure 6 - Section C - Existing Conditions
1.060
Material: Silty Sand with Gravel, Boulders and Cobbles
Strength Type: Mohr-Coulomb
Unit Weight: 20 kN/m3
Cohesion: 0 kPa
Friction Angle: 35 degrees
W
180
160
140
120
100
-30
-20
-10
0
10
20
30
40
50
60
70
80
90

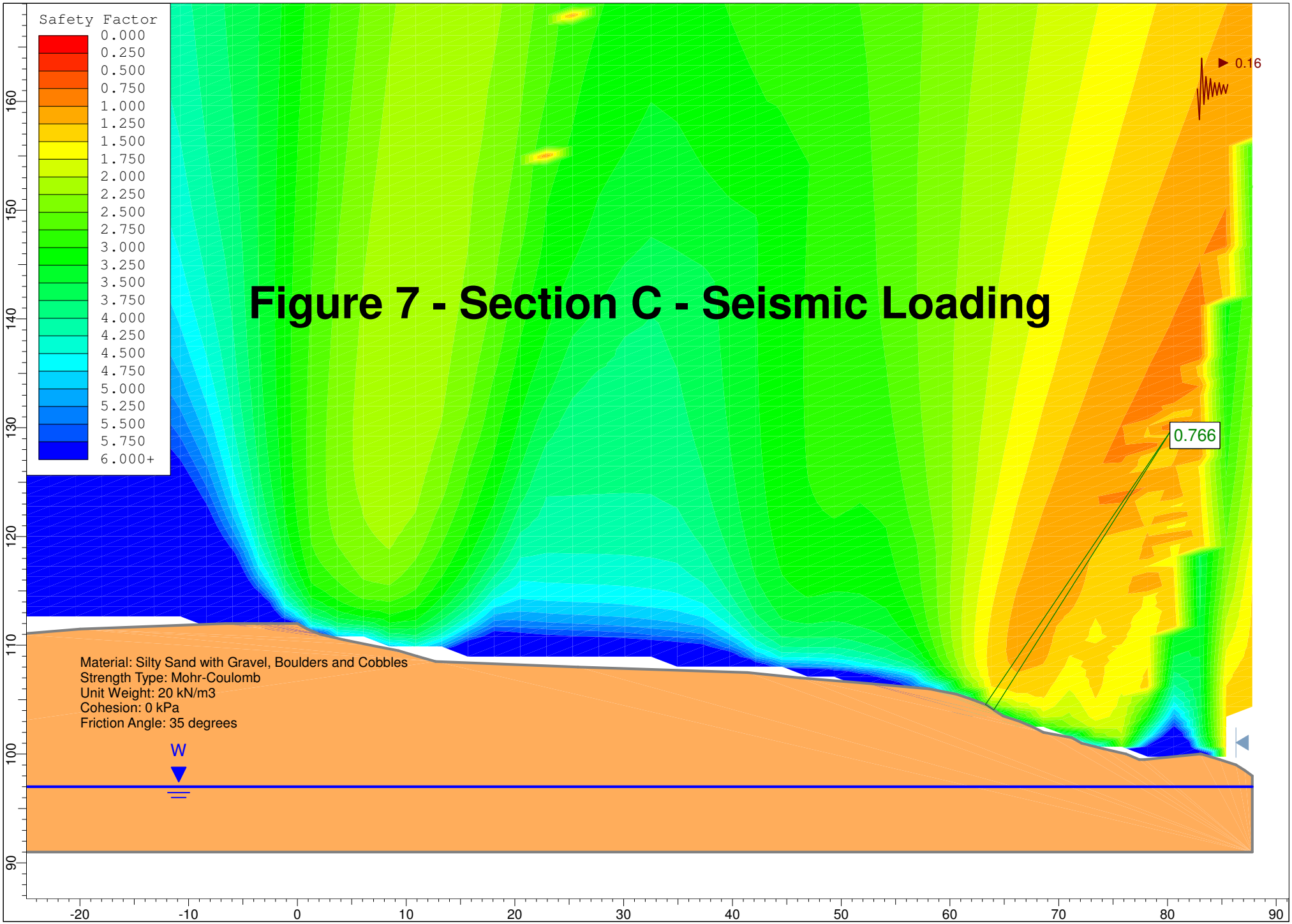


Figure 7 - Section C - Seismic Loading

Photographs from Field Investigation

Photo 1: Looking south at BH 3-15 (November 30, 2015).



Photo 2: Looking east at TP 20-15 (December 2, 2015).



Photo 3: Looking southeast from TP 4-15 (December 2, 2015).



Photo 4: Subsoil profile at TP 38-15 (December 1, 2015).



Photo 5: Looking south from TP 57-15 (November 24, 2015).



Photo 6: Looking northwest from TP 61-15 (November 24, 2015).



Photo 7: Looking south at TP 69-15 (November 24, 2015).



Photo 8: Ground surface at TP 82-15 (September 20, 2015).



Photo 9: Looking north from TP 93-15 (November 19, 2015).



Photo 10: Looking east from TP 94-15 (November 17, 2015).

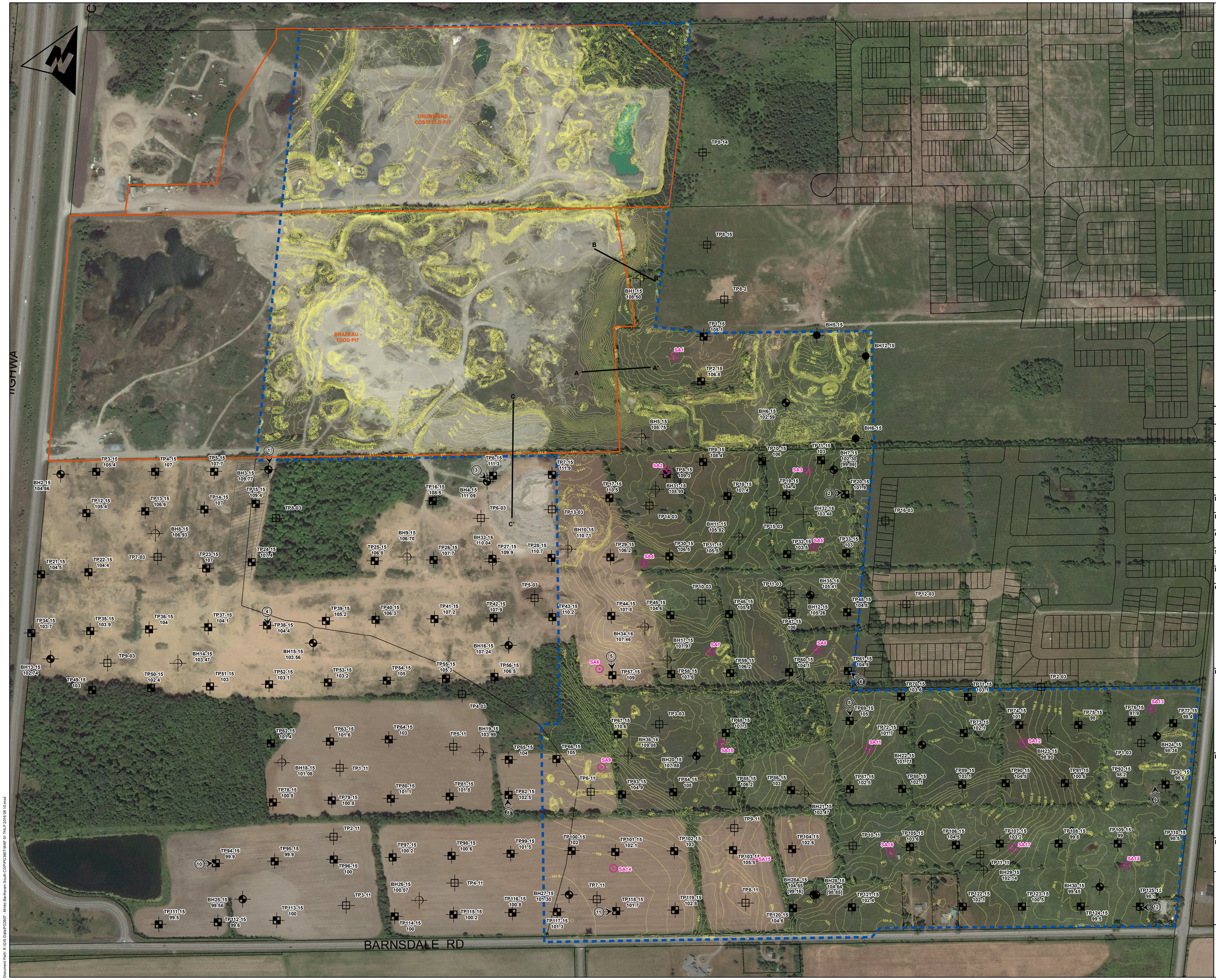


Photo 11: Looking east from TP 118-15 (November 17, 2015).



Photo 12: Looking west from TP 125-15 (November 18, 2015).





LEGEND

- BOREHOLE LOCATION, CURRENT INVESTIGATION
- BOREHOLE LOCATION WITH MONITORING WELL, CURRENT INVESTIGATION
- TEST PIT LOCAITON, CURRENT INVESTIGATION
- TEST PIT LOCATION, PREVIOUS INVESTIGATION
- BORE HOLE LOCATION, PREVIOUS
- SHALLOW SIEVE ANALYSIS LOCATIONS
- 99.51 GROUND SURFACE ELEVATION (M)
- (101.35) PRACTICAL REFUSAL TO AUGERING ELEVATION (M)
- COMMUNITY DESIGN PLAN BOUNDARY
- APPROXIMATE FILL PILE LOCATION
- PHOTOGRAPH LOCATION AND DIRECTION
- A - A' SLOPE STABILITY SECTION
- BOUNDARY OF AREA LICENSED UNDER THE AGGREGATE RESOURCES ACT

SERVICE LAYER CREDITS: SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEX, GETMAPPING, AEROGRID, IGN, IGP, SWISSTOPO, AND THE GIS USER COMMUNITY

TEST PIT SURFACE ELEVATIONS INTERPOLATED FROM CITY OF OTTAWA 0.5 M CONTOUR MAPPING.

BOREHOLE LOCATIONS AND GROUND SURFACE ELEVATIONS AT BOREHOLE LOCATIONS PROVIDED BY STANTEC. GROUND SURFACE ELEVATIONS ARE REFERENCED TO A GEODEDIC DATUM

DD/MM/YY	DESCRIPTION	REV.
11/08/16	ADDITIONAL BOREHOLES AND SIEVE ANALYSIS	1

DESIGNED BY:	MK
DRAWN BY:	BM
CHECKED BY:	DG
SCALE:	1:3,000
DATE:	11/08/2016

STAMP

CLIENT:

MINTO COMMUNITIES

PROJECT LOCATION:

BARRHAVEN SOUTH URBAN EXPANSION AREA CDP
OTTAWA, ON

DRAWING:

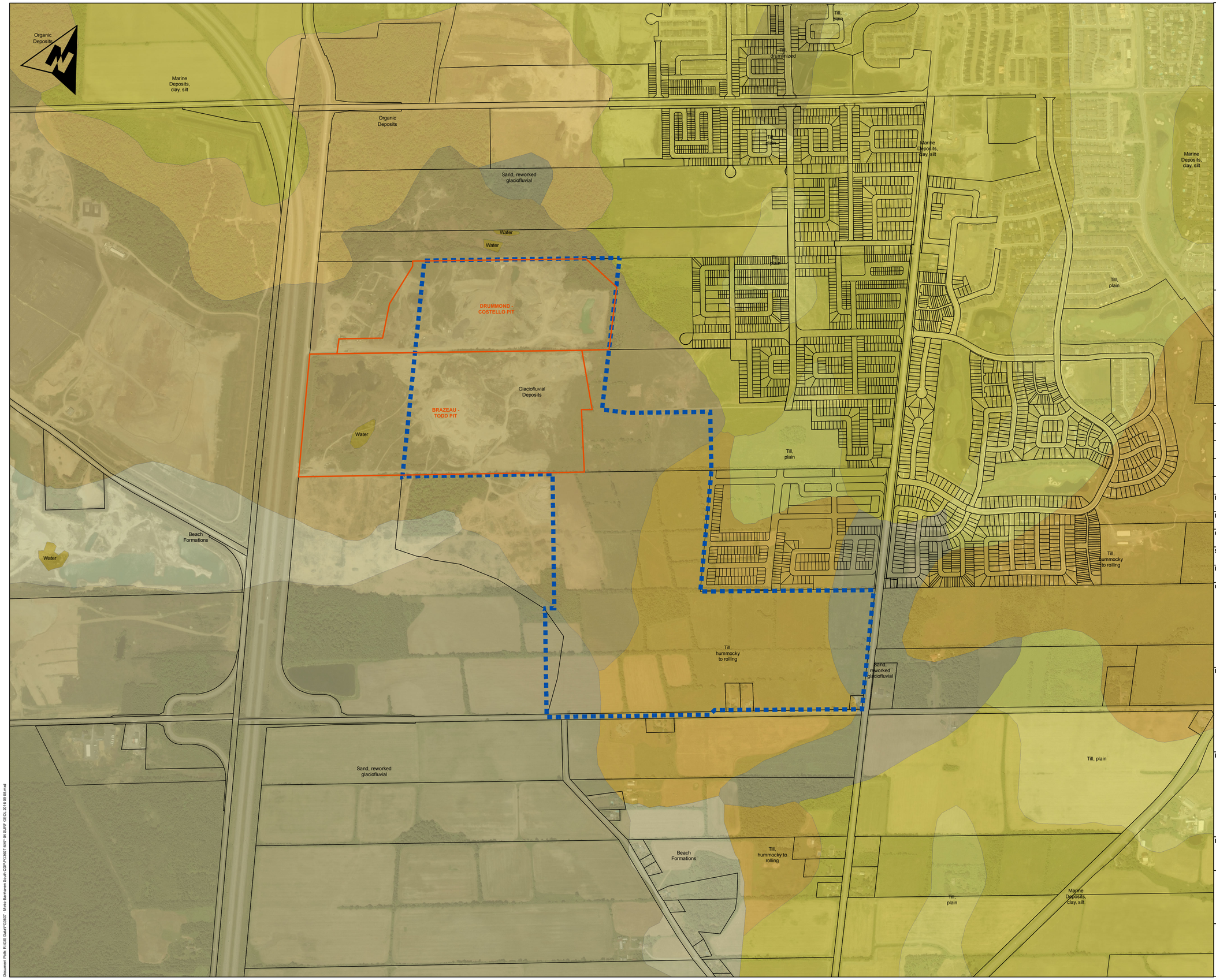
TEST HOLE
LOCATION PLAN

DRAWING NUMBER:	REVISION NUMBER:
PG3607-1	1

0 40 80 160 240 320 m

paterson group
consulting engineers
154 Colonnade Road South, Ottawa, Ontario K2E 7J5

Document Path: R:\GIS Data\PG3607 - Minto Barrhaven South CDP\PG3607-MAP_01 THLP 2016.08.10.mxd



LEGEND

COMMUNITY DESIGN PLAN BOUNDARY

BOUNDARY OF AREA LICENSED UNDER THE AGGREGATE RESOURCES ACT

SURFICIAL GEOLOGY

- Beach Formations
- Deltaic and Estuarian Deposits
- Erosional Terraces
- Floodplains, sand, silt, clay
- Fluvial Terraces, sand, silt
- Glaciofluvial Deposits
- Marine Deposits, clay, silt
- Organic Deposits
- Paleozoic Bedrock
- Precambrian Bedrock
- Reworked Marine Sediments
- Sand Dunes
- Sand, reworked glaciofluvial
- Till, drumlinized
- Till, hummocky to rolling
- Till, plain
- Water

SERVICE LAYER CREDITS: SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEX, GETMAPPING, AEROGRID, IGN, IGP, SWISSTOPO, AND THE GIS USER COMMUNITY

SURFICIAL GEOLOGY FROM NATURAL RESOURCES CANADA - URBAN GEOLOGY OF THE NATIONAL CAPITAL REGION

08/09/16	UPDATED CDP BOUNDARY	1
DD/MM/YY	**DESCRIPTION**	**REV.**

DESIGNED BY:	MK
DRAWN BY:	BM
CHECKED BY:	DG
SCALE:	1:6,000
DATE:	08/09/2016

STAMP

CLIENT:

MINTO COMMUNITIES

PROJECT LOCATION:

BARRHAVEN SOUTH URBAN EXPANSION AREA CDP
OTTAWA, ON

DRAWING:

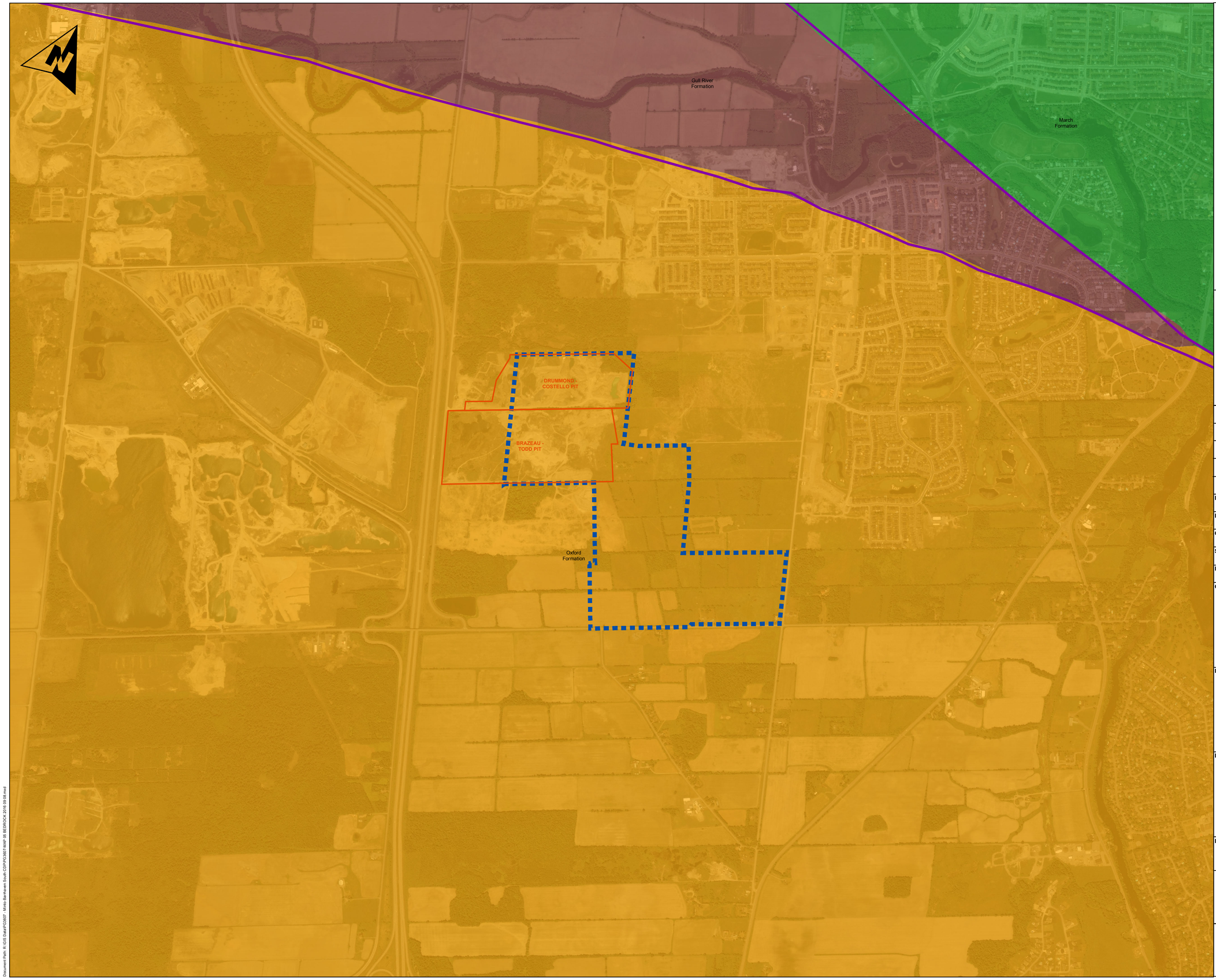
SURFICIAL GEOLOGY

DRAWING NUMBER:	**REVISION NUMBER:**
PG3607-2	1

0 80 160 320 480 640 m

paterson group
consulting engineers
154 Colonnade Road South, Ottawa, Ontario K2E 7J5

Document Path: R:\GIS Data\PG3607 - Minto Barrhaven South CDP\PG3607-MAP 04 SURF GEOL 2016 09 08.mxd



LEGEND

- COMMUNITY DESIGN PLAN BOUNDARY
- BOUNDARY OF AREA LICENSED UNDER THE AGGREGATE RESOURCES ACT
- FAULT

BEDROCK

- GULL RIVER FORMATION
- MARCH FORMATION
- OXFORD FORMATION

SERVICE LAYER CREDITS: SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEX, GETMAPPING, AEROGRID, IGN, IGP, SWISSTOPO, AND THE GIS USER COMMUNITY

SURFICIAL GEOLOGY FROM NATURAL RESOURCES CANADA - URBAN GEOLOGY OF THE NATIONAL CAPITAL REGION

DD/MM/YY	DESCRIPTION	REV.
08/09/16	UPDATED CDP BOUNDARY	1

DESIGNED BY:	MK
DRAWN BY:	BM
CHECKED BY:	DG
SCALE:	1:10,000
DATE:	08/09/2016

STAMP

CLIENT:

MINTO COMMUNITIES

PROJECT LOCATION:

BARRHAVEN SOUTH URBAN EXPANSION AREA CDP
OTTAWA, ON

DRAWING:

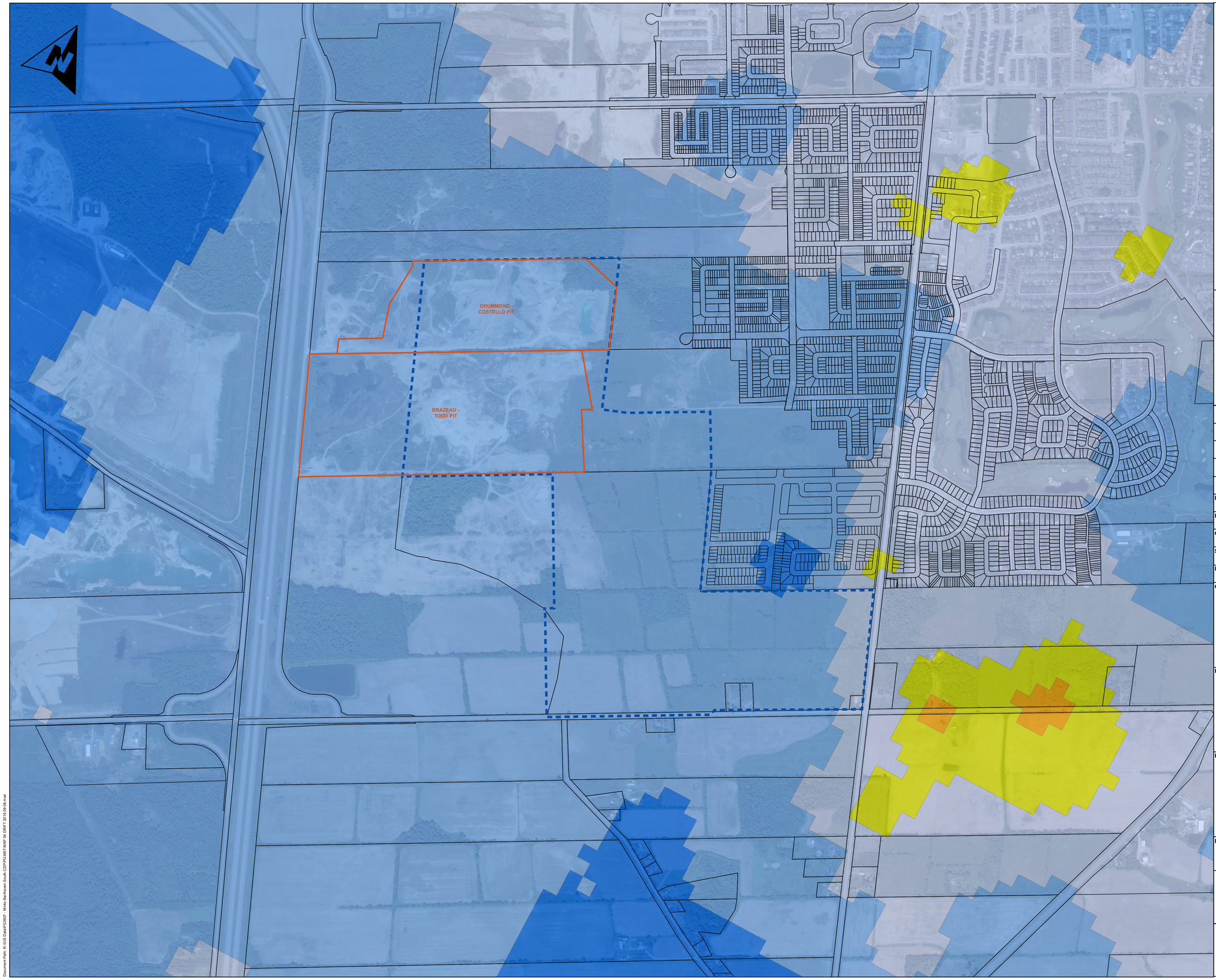
REGIONAL BEDROCK MAPPING

DRAWING NUMBER:	REVISION NUMBER:
PG3607-3	1

0 135 270 540 810 1,080 m

paterson group
consulting engineers
154 Colonnade Road South, Ottawa, Ontario K2E 7J5

Document Path: R:\GIS Data\PG3607 - Minto-Barrhaven South CDP\PG3607-MAP 06 BEDROCK 2016 09 08.mxd



LEGEND

- COMMUNITY DESIGN PLAN BOUNDARY
- BOUNDARY OF AREA LICENSED UNDER THE AGGREGATE RESOURCES ACT

DRIFT THICKNESS (m)

- 0 to 1
- 1 to 2
- 2 to 3
- 3 to 5
- 5 to 10
- 10 to 15
- 15 to 25
- 25 to 50
- 50 to 100
- 100 to 200

SERVICE LAYER CREDITS: SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEX, GETMAPPING, AEROGRID, IGN, IGP, SWISSTOPO, AND THE GIS USER COMMUNITY

DRIFT THICKNESS FROM NATURAL RESOURCES CANADA - URBAN GEOLOGY OF THE NATIONAL CAPITAL REGION

DD/MM/YY	DESCRIPTION	REV.
08/09/16	UPDATED CDP BOUNDARY	1

DESIGNED BY:	MK
DRAWN BY:	BM
CHECKED BY:	DG
SCALE:	1:6,000
DATE:	09/09/2016

STAMP

CLIENT:

MINTO COMMUNITIES

PROJECT LOCATION:

BARRHAVEN SOUTH URBAN EXPANSION AREA CDP
OTTAWA, ON

DRAWING:

DRIFT THICKNESS

DRAWING NUMBER:	REVISION NUMBER:
PG3607-4	1

0 80 160 320 480 640 m

paterson group
consulting engineers
154 Colonnade Road South, Ottawa, Ontario K2E 7J5

Document Path: R:\GIS Data\PG3607 - Minto Barrhaven South CDP\PG3607-MAP 04 DRIFT 2016 09 09.mxd

Bells Corners
Macdonald-Cartier International Airport
Hazeldean
Eaglesons Corners
Fallowfield
Stittsville
Manotick Station
Stanley Corners
Twin Elm
Jock River
Manotick
Kars
Osgoode
Jock River

LEGEND

- CDP BOUNDARY
- LICENCED PROPERTY BOUNDARY; PROPERTY NUMBER SHOWN

SAND AND GRAVEL RESOURCES

- SELECTED SAND AND GRAVEL RESOURCE AREA, PRIMARY SIGNIFICANCE
- SAND AND GRAVEL DEPOSITS THAT HAVE BEEN SUBSTANTIALLY EXTRACTED IN THE PAST, BUT WHERE LIMITED RESOURCES MAY STILL BE AVAILABLE
- SELECTED SAND AND GRAVEL RESOURCE AREA, SECONDARY SIGNIFICANCE
- SAND AND GRAVEL DEPOSIT, TERTIARY SIGNIFICANCE

SERVICE LAYER CREDITS:

LEE, V.L. 2013. AGGREGATE RESOURCES INVENTORY OF THE CITY OF OTTAWA, SOUTHERN ONTARIO; ONTARIO GEOLOGICAL SURVEY, AGGREGATE RESOURCES INVENTORY PAPER 191, 80P.

DD/MM/YY	DESCRIPTION	REV.

DESIGNED BY:	MK
DRAWN BY:	BM
CHECKED BY:	DG
SCALE:	1:40,000
DATE:	11/08/2016

STAMP

CLIENT:

MINTO COMMUNITIES

PROJECT LOCATION:

BARRHAVEN SOUTH URBAN EXPANSION AREA CDP
OTTAWA, ON

DRAWING:

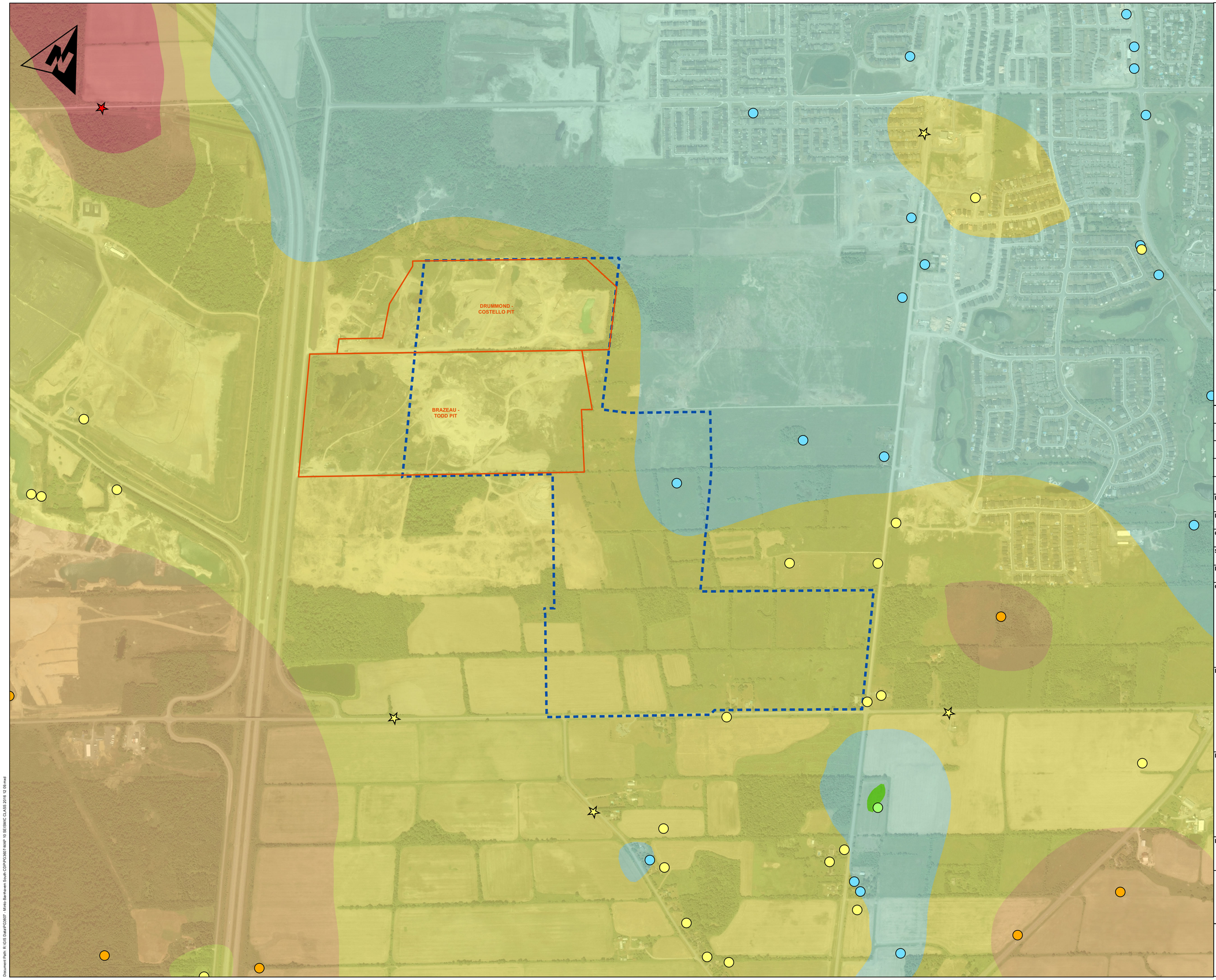
AGGREGATE RESOURCES INVENTORY OF THE CITY OF OTTAWA

DRAWING NUMBER:	REVISION NUMBER:
PG3607-5	

0 500 1,000 2,000 3,000 4,000 m

paterson group
consulting engineers
154 Colonnade Road South, Ottawa, Ontario K2E 7J5

Document Path: R:\GIS Data\PG3607 - Minto-Barrhaven South CDP\PG3607-MAP 08 ARIP 2016.08.10.mxd



LEGEND

COMMUNITY DESIGN PLAN BOUNDARY

BOUNDARY OF AREA LICENSED UNDER THE AGGREGATE RESOURCES ACT

SEISMIC SITE CLASS

A B C D E

REFLECTION-REFRACTION GEOPHYSICAL SURVEY SITE

SEISMIC SITE CLASS

A B C D E

WATER WELL BOREHOLE LOCATION

SEISMIC SITE CLASS

A B C D E

SERVICE LAYER CREDITS: SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

SEISMIC SITE CLASS FROM
CITY OF OTTAWA SEISMIC SITE CLASSIFICATION MAP FROM COMBINED GEOLOGICAL GEOPHYSICAL DATA

DD/MM/YY	DESCRIPTION	REV.

DESIGNED BY:	MK
DRAWN BY:	BM
CHECKED BY:	DG
SCALE:	1:6,000
DATE:	09/12/2016

STAMP

CLIENT:

MINTO COMMUNITIES

PROJECT LOCATION:

BARRHAVEN SOUTH URBAN EXPANSION AREA CDP
OTTAWA, ON

DRAWING:

SEISMIC SITE
CLASS

DRAWING NUMBER:	REVISION NUMBER:
PG3607-6	

0 80 160 320 480 640 m

paterson group
consulting engineers
154 Colonnade Road South, Ottawa, Ontario K2E 7J5

Document Path: R:\GIS Data\PG3607 - Minto-Barrhaven South CDP\PG3607.MAP 16 SEISMIC CLASS 2016 12 09.mxd