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Geotechnical Engineering
Environmental Engineering
Hydrogeology
Geological Engineering
Materials Testing
Building Science
Archaeological Services

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October 7, 2019
PG5084-LET.01

Vittorio Santaguida
1767 Fisher Avenue
Ottawa, ON
K2C 1Y1

Attention: **Mr. Vittorio Santaguida**

Subject: **Geotechnical Investigation**
Proposed Storage Warehouse
240 Westbrook Road - Ottawa, ON

Dear Sir,

Paterson Group (Paterson) was commissioned by Vittorio Santaguida to conduct a geotechnical investigation for the proposed storage warehouse building to be located at 240 Westbrook Road in the City of Ottawa, Ontario.

It is understood that the proposed development will consist of a single storey structure of slab on grade construction with an approximate footprint of 465 m^2. Associates asphalt-paved access lanes and parking areas are also included around the proposed building.

1.0 Field Investigation

The field program for the geotechnical investigation was conducted on September 20, 2019. At that time, a total of three (3) test pits were completed to a maximum depth of 1.8 m below existing ground surface. The test pits were placed in a manner to provide general coverage of the site taking into consideration existing site features and underground services. The location of the test holes are shown on Drawing PG5084-1 - Test Hole Location Plan attached to the present report.

The test pits were excavated using a rubber tired backhoe operated by a local contractor. All fieldwork was conducted under the full-time supervision of Paterson personnel under the direction of a senior engineer from the geotechnical division. The testing procedure consisted of excavating to the required depths at the selected locations and regularly sampling the overburden.

The test holes were located in the field by Paterson and were referenced to a temporary benchmark (TBM), which consisted of the top of grate of a manhole cover located on the north end of the site. An elevation of 131.20 m was assigned to the TBM by Farley, Smith & Denis Surveying Ltd. The locations of the test holes, ground surface elevations at the test hole locations and the TBM location are presented on Drawing PG5084-1 Test Hole Location Plan in Appendix 2.

2.0 Field Observations

Surface Conditions

The subject site is currently vacant and consists mostly of a grassed area with an asphalt-paved access lane which runs the length of the site in an approximate north-south direction. A chain-link fence surrounds the perimeter of the subject site on all sides except the north edge. The site is boredered by industrial properties to north, east and west and Westbrook road to the south.

The ground surface across the subject site is generally flat and at grade with the surrounding roadways and properties. However, it should be noted that, at the north end of the site, the ground surface surrounding the existing manhole within the grassed area is built up approximately 0.5 to 1.0 m higher than the remainder of the site.

Subsurface Profile

The subsurface profile encountered at the test pit locations generally consisted of an approximate 0.4 to 0.6 m thick layer of topsoil. The topsoil was generally observed to consist of a brown silty sand with varying amounts of gravel and organics.

Underlying the topsoil, a glacial till deposit was encountered. The glacial till was observed to consist of a compact to dense, grey silty sand with gravel with gravel, cobbles, and boulders.

Practical refusal to excavation on the bedrock surface was encountered at all three test pits ranging from 0.76 to 1.83 m.

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

Based on available geological mapping, the bedrock in the area consists of limestone of the Bobcaygeon formation with an overburden drift thickness of 0 to 2 m.

Groundwater

Based on our observations of water infiltration through the open hole walls, recovered soil samples' moisture levels, consistency and colouring, the long-term groundwater level is anticipated at approximately 1 to 2 m below existing ground surface. It should be noted that groundwater levels are subject to seasonal fluctuations. Therefore, the groundwater level could be higher at the time of construction. Specific details of the groundwater observations during our field program are presented on the Soil Profile and Test Data sheets in Appendix 1.

3.0 Geotechnical Assessment

From a geotechnical perspective, the subject site is adequate for the proposed building. It is expected that the proposed building will be founded on conventional shallow footings placed on an undisturbed, dense to compact glacial till or a clean, surface sounded bedrock bearing surface.

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

Site Grading and Preparation

Topsoil, asphalt or fill, containing organic or deleterious materials, should be stripped from under any buildings and other settlement sensitive structures.

Fill Placement

Engineered fill placed for grading beneath the proposed building footprint, unless otherwise specified, should consist of clean imported granular fill, such as Ontario Provincial Standard Specifications (OPSS) Granular A or Granular B Type II. The fill should be tested and approved prior to delivery to the site. The fill should be placed in maximum lift thickness of 300 mm and compacted with suitable compaction equipment. Fill placed beneath the structures should be compacted to a minimum of 98% of the Standard Proctor Maximum Dry Density (SPMDD). Non-specified existing fill and site-excavated soils are not suitable for placement as backfill against foundation walls, unless tested and approved for placement or placed in conjunction with a geocomposite drainage membrane, such as Miradrain G100N or Delta Drain 6000.

Non-specified fill along with site-excavated soil could be placed as general landscaping fill where surface settlement is of minor concern. The existing materials should be spread in thin lifts and at least compacted by the tracks of the spreading equipment to minimize voids. If the existing materials are to be placed to increase the subgrade level for areas to be paved, the non-specified existing fill should be compacted in 300 mm lifts and compacted to a minimum density of 95% of the respective SPMDD.

Foundation Design

Footings placed over an undisturbed, compact to dense 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 **225 kPa**. Footings designed using the bearing resistance value at SLS will be subjected to potential post-construction total and differential settlements of 25 and 20 mm, respectively.

An undisturbed soil bearing surface consists of a surface 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 clean, surface sounded bedrock can be designed using a factored bearing resistance value at ultimate limit states (ULS) of **1,000 kPa**. A geotechnical resistance factor of 0.5 was applied to the bearing resistance at ULS. Footings bearing on an acceptable bedrock bearing surface and designed for the bearing resistance values provided herein will be subjected to negligible potential post-construction total and differential settlements.

A clean, surface-sounded bedrock bearing surface should be free of loose materials, and have no near surface seams, voids, fissures or open joints which can be detected from surface sounding with a rock hammer.

Design for Earthquakes

The site class for seismic site response can be taken as **Class C**. If a higher seismic site class is required (Class A or B), a site specific shear wave velocity test may be completed to accurately determine the applicable seismic site classification for foundation design of the proposed building, as presented in Table 4.1.8.4.A of the Ontario Building Code (OBC) 2012.

Soils underlying the subject site are not susceptible to liquefaction. Reference should be made to the latest revision of the Ontario Building Code 2012 for a full discussion of the earthquake design requirements.

Slab-on-Grade Construction

With the removal of all topsoil and fill containing significant amounts of deleterious or organic materials, the existing subgrade approved by the geotechnical consultant at the time of excavation will be considered an acceptable subgrade surface on which to commence backfilling for slab-on-grade construction. Any soft areas should be removed and backfilled with appropriate backfill material. OPSS Granular A or Granular B Type II, with a maximum particle size of 50 mm, are recommended for backfilling below the floor slab.

It is recommended that the upper 200 mm of sub-floor fill consist of OPSS Granular A crushed stone. All backfill materials required to raise grade within the footprint of the proposed building should be placed in maximum 300 mm thick loose layers and compacted to at least 98% of its SPMDD.

Pavement Structure

Car only parking areas, heavy truck parking areas and access lanes are anticipated at this site. The proposed pavement structures are presented in Tables 1 and 2.

Table 1 - Recommended Pavement Structure - Car Only Parking Areas

Thickness (mm)	Material Description
50	Wear Course - HL-3 or Superpave 12.5 Asphaltic Concrete
150	BASE - OPSS Granular A Crushed Stone
300	SUBBASE - OPSS Granular B Type II
SUBGRADE - Either fill, in situ soil, or OPSS Granular B Type I or II material placed over in situ soil or fill	

Table 2 - Recommended Pavement Structure
Access Lanes and Heavy Truck Parking Areas

Thickness (mm)	Material Description
40	Wear Course - HL-3 or Superpave 12.5 Asphaltic Concrete
50	Binder Course - HL-8 or Superpave 19.0 Asphaltic Concrete
150	BASE - OPSS Granular A Crushed Stone
450	SUBBASE - OPSS Granular B Type II
SUBGRADE - Either fill, in situ soil, or OPSS Granular B Type I or II material placed over in situ soil or fill	

Minimum Performance Graded (PG) 58-34 asphalt cement should be used for this project. If soft spots develop in the subgrade during compaction or due to construction traffic, the affected areas should be excavated and replaced with OPSS Granular B Type II material.

The pavement granular base and subbase should be placed in maximum 300 mm thick lifts and compacted to a minimum of 98% of the material's SPMDD using suitable vibratory equipment.

4.0 Design and Construction Precautions

Protection of Footings Against Frost Action

Perimeter footings of heated structures are required to be insulated against the deleterious effect of frost action. A minimum of 1.5 m thick soil cover (or an equivalent combination of soil cover and insulation) should be provided for footings supported on an undisturbed, glacial till bearing surface.

Exterior unheated footings, such as isolated exterior piers, are more prone to deleterious movement associated with frost action than the exterior walls of the structure proper and require additional protection, such as soil cover of 2.1 m or a combination of soil cover and foundation insulation.

Foundations which are founded directly on clean, surface-sounded bedrock with no cracks or fissures, and which is approved by Paterson at the time of construction, is not considered frost susceptible and does not require soil cover.

Where the bedrock is considered frost susceptible, foundation insulation will need to be provided or the frost susceptible bedrock will need to be removed and replaced with lean concrete (minimum 17 MPa 28-day strength).

Excavation Side Slopes

The side slopes of excavations in the overburden soils should be sloped back at acceptable slopes from the start of the excavation until the structure is backfilled. The excavation side slopes above the groundwater level extending to a maximum depth of 3 m should be cut back at 1H:1V or flatter. The flatter slope is required for excavation below groundwater level. The subsoil at this site is considered to be mainly Type 2 and 3 soil according to the Occupational Health and Safety Act and Regulations for Construction Projects.

Excavated soil should not be stockpiled directly at the top of excavations and heavy equipment should be kept away from the excavation sides. Slopes in excess of 3 m in height should be periodically inspected by Paterson in order to detect if the slopes are exhibiting signs of distress.

It is recommended that a trench box be used at all times to protect personnel working in trenches with steep or vertical sides. It is expected that services will be installed by “cut and cover” methods and excavations will not be left open for extended periods of time.

Groundwater Control

It is anticipated that groundwater infiltration into the excavations should be controllable using open sumps. Pumping from open sumps should be sufficient to control the groundwater influx through the sides of shallow excavations. 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.

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 of 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.

Winter Construction

If winter construction is considered for this project, precautions should be provided for frost protection. The subsurface soil conditions mainly consist of frost susceptible materials. In presence of water and freezing conditions, ice could form within the soil mass. Heaving and settlement upon thawing could occur.

In the event of construction during below zero temperatures, the founding stratum should be protected from freezing temperatures by the installation of straw, propane heaters and tarpaulins or other suitable means. The excavation base should be insulated from sub-zero temperatures immediately upon exposure and until such time as heat is adequately supplied to the building and the footings are protected with sufficient soil cover to prevent freezing at founding level.

Trench excavations and pavement construction are also difficult activities to complete during freezing conditions without introducing frost in the subgrade or in the excavation walls and bottoms. Precautions should be taken if such activities are to be carried out during freezing conditions.

5.0 Recommendations

A materials testing and observation services program is a requirement for the provided foundation design recommendations to be applicable. The following aspects of the program should be performed by Paterson:

- ❏ Observation of all bearing surfaces prior to the placement of concrete.
- ❏ Sampling and testing of the concrete and fill materials used.
- ❏ Periodic observation of the condition of unsupported excavation side slopes in excess of 3 m in height, if applicable.
- ❏ Observation of all subgrades prior to backfilling.
- ❏ Field density tests to determine the level of compaction achieved.

A report confirming that the construction has been conducted in general accordance with Paterson's recommendations could be issued upon the completion of a satisfactory inspection program by the geotechnical consultant.

6.0 Statement of Limitations

The recommendations provided in the report are in accordance with Paterson's present understanding of the project. Paterson requests permission to review the recommendations when the drawings and specifications are completed.

The client should be aware that any information pertaining to soils and all test hole logs are furnished as a matter of general information only and test hole descriptions or logs are not to be interpreted as descriptive of conditions at locations other than those of the test holes.

A soils investigation is a limited sampling of a site. Should any conditions at the site be encountered which differ from the test locations, Paterson requests immediate notification to permit reassessment of the recommendations.

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 Vittorio Santaguida, or their agents, is not authorized without review by Paterson Group for the applicability of our recommendations to the altered use of the report.

Best Regards,

Paterson Group Inc.



Nicholas F. Giamberardino, EIT

Scott S. Dennis, P.Eng.

Attachments

- ❑ Soil Profile and Test Data sheets
- ❑ Symbols and Terms
- ❑ Drawing PG5084-1 - Test Hole Location Plan

Report Distribution

- ❑ Vittorio Santaguida (3 copies)
- ❑ Paterson Group (1 copy)

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
240 Westbrook Road
Ottawa, Ontario

DATUM Geodetic

FILE NO. PG5084

REMARKS

HOLE NO. TP 1

BORINGS BY Backhoe **DATE** 2019 September 20

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	130.32	20 40 60 80	
TOPSOIL: Brown silty sand, trace rootlets, gravel									
0.41									
GLACIAL TILL: Grey silty sand, trace to some gravel									
0.76									
End of Test Pit Practical refusal to excavation on bedrock surface at 0.76m depth. (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
240 Westbrook Road
Ottawa, Ontario

DATUM Geodetic

FILE NO. PG5084

REMARKS

HOLE NO. TP 2

BORINGS BY Backhoe **DATE** 2019 September 20

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	130.26	20 40 60 80	
TOPSOIL: Brown silty sand, trace to some rootlets, gravel									
0.56									
GLACIAL TILL: Grey silty sand, trace to some gravel						1	129.26		▽
1.22									
End of Test Pit Practical refusal to excavation on bedrock surface at 1.22m depth. (GWL @ 1.1m depth based on field observations)								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
240 Westbrook Road
Ottawa, Ontario

DATUM Geodetic

FILE NO. PG5084

REMARKS

HOLE NO. TP 3

BORINGS BY Backhoe **DATE** 2019 September 20

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	130.30	20 40 60 80	
TOPSOIL: Brown silty sand, trace to some roots									
0.60									
GLACIAL TILL: Grey silty sand, trace to some gravel, cobbles, boulders						1	129.30		▽
1.83									
End of Test Pit Practical refusal to excavation on bedrock surface at 1.83m depth. (GWL @ 1.2m depth based on field observations)								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 relative strength of cohesionless soils is the compactness condition, 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.

Compactness Condition	'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 shear vane tests, unconfined compression tests, or occasionally by the Standard Penetration Test (SPT). Note that the typical correlations of undrained shear strength to SPT N value (tabulated below) tend to underestimate the consistency for sensitive silty clays, so Paterson reviews the applicable split spoon samples in the laboratory to provide a more representative consistency value based on tactile examination.

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, S_t, is the ratio between the undisturbed undrained shear strength and the remoulded undrained shear strength of the soil. The classes of sensitivity may be defined as follows:

Low Sensitivity:	$S_t < 2$
Medium Sensitivity:	$2 < S_t < 4$
Sensitive:	$4 < S_t < 8$
Extra Sensitive:	$8 < S_t < 16$
Quick Clay:	$S_t > 16$

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 NQ or larger size core. However, it can be used on smaller core sizes, such as BQ, 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, generally recovered using a piston sampler
G	-	"Grab" sample from test pit or surface materials
AU	-	Auger sample or bulk sample
WS	-	Wash sample
RC	-	Rock core sample (Core bit size BQ, NQ, HQ, etc.). Rock core samples are obtained with the use of standard diamond drilling bits.

SYMBOLS AND TERMS (continued)

PLASTICITY LIMITS AND GRAIN SIZE DISTRIBUTION

WC%	-	Natural water 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 at 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

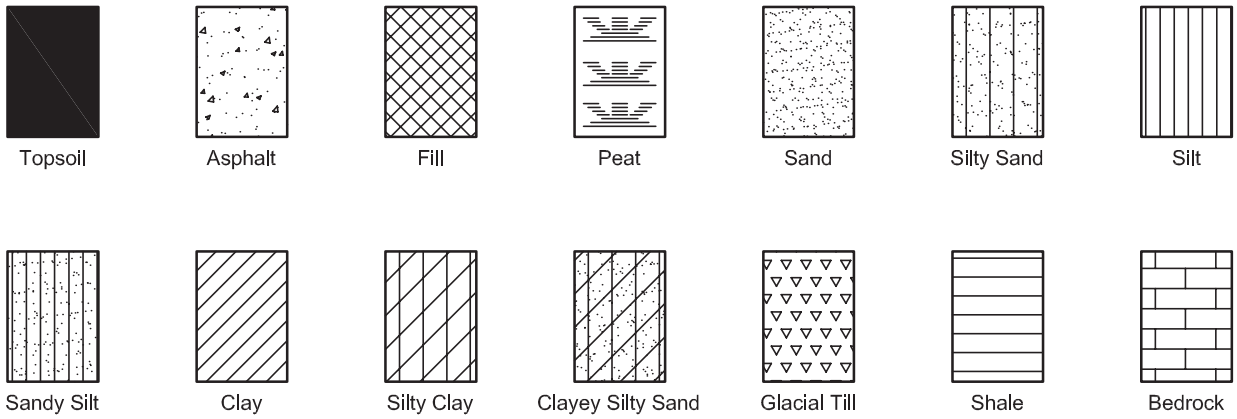
p'_o	-	Present effective overburden pressure at sample depth
p'_c	-	Preconsolidation pressure of (maximum past pressure on) sample
Ccr	-	Recompression index (in effect at pressures below p'_c)
Cc	-	Compression index (in effect at pressures above p'_c)
OC Ratio		Overconsolidaton ratio = p'_c / p'_o
Void 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.

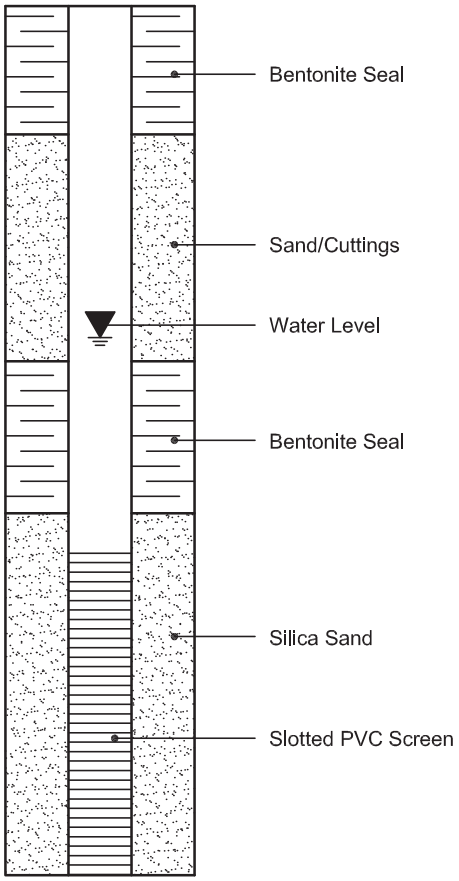
SYMBOLS AND TERMS (continued)

STRATA PLOT

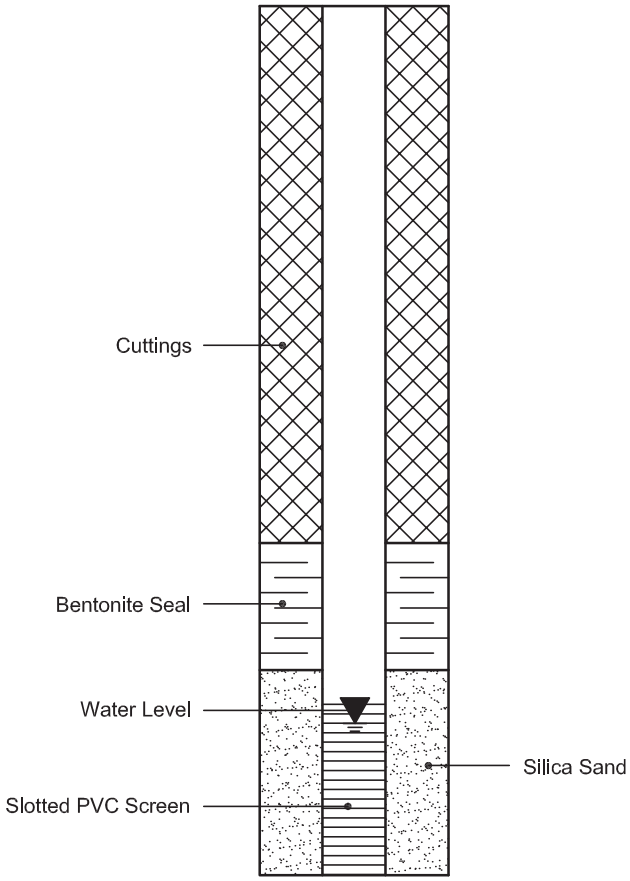


MONITORING WELL AND PIEZOMETER CONSTRUCTION

MONITORING WELL CONSTRUCTION



PIEZOMETER CONSTRUCTION



Certificate of Analysis

Client: Paterson Group Consulting Engineers

Client PO: 28271

Report Date: 27-Sep-2019

Order Date: 23-Sep-2019

Project Description: PG5084

	Client ID:	TP2-G2	-	-	-
	Sample Date:	20-Sep-19 11:00	-	-	-
	Sample ID:	1939100-01	-	-	-
	MDL/Units	Soil	-	-	-
Physical Characteristics					
% Solids	0.1 % by Wt.	85.0	-	-	-
General Inorganics					
pH	0.05 pH Units	7.17	-	-	-
Resistivity	0.10 Ohm.m	24.1	-	-	-
Anions					
Chloride	5 ug/g dry	127	-	-	-
Sulphate	5 ug/g dry	75	-	-	-

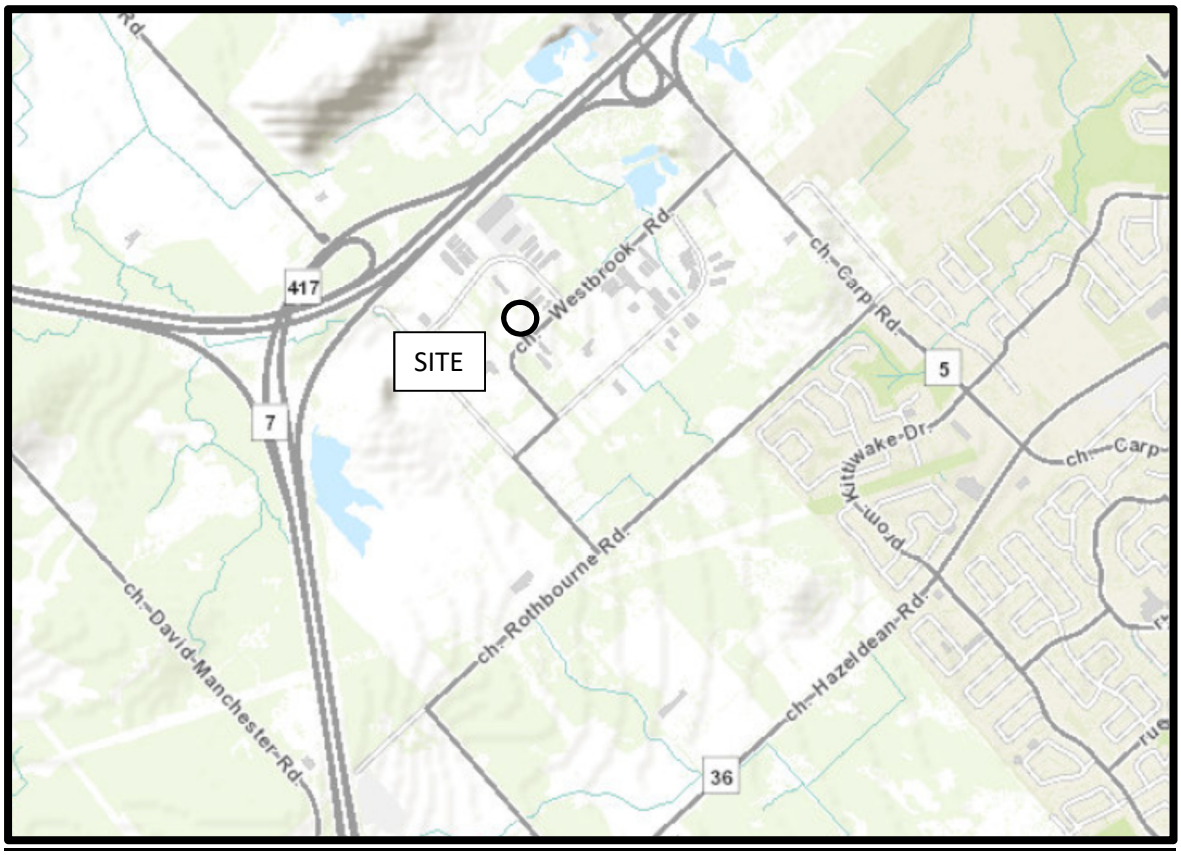
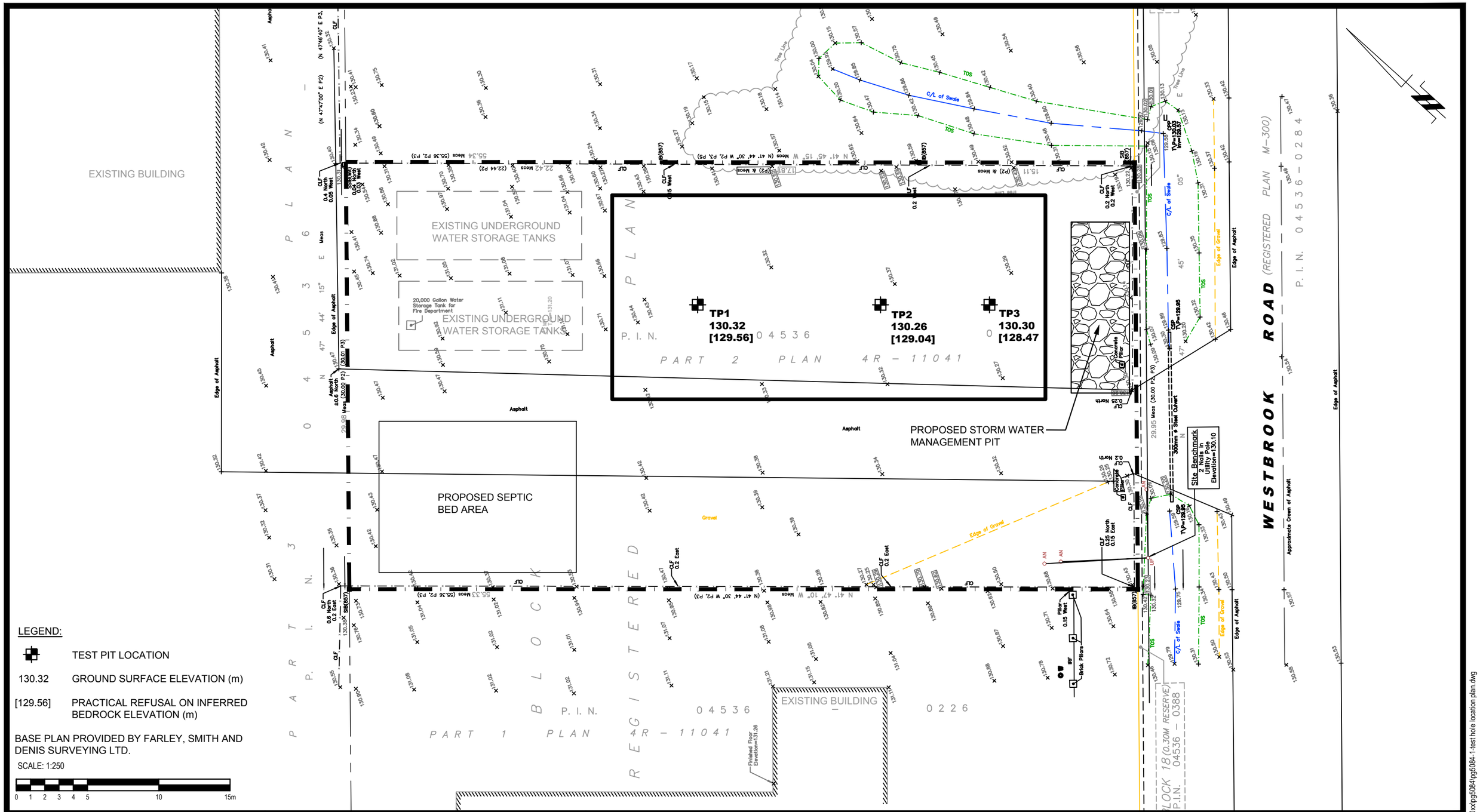


FIGURE 1

KEY PLAN



LEGEND:

- TEST PIT LOCATION
- 130.32 GROUND SURFACE ELEVATION (m)
- [129.56] PRACTICAL REFUSAL ON INFERRED BEDROCK ELEVATION (m)

BASE PLAN PROVIDED BY FARLEY, SMITH AND DENIS SURVEYING LTD.

SCALE: 1:250

0 1 2 3 4 5 10 15m

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consulting engineers

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NO.	REVISIONS	DATE	INITIAL

MR. VITTORIO SANTAGUIDA

GEOTECHNICAL INVESTIGATION
240 WESTBROOK ROAD

OTTAWA, ONTARIO

Title:

TEST HOLE LOCATION PLAN

Scale: 1:250	Date: 10/2019
Drawn by: YA	Report No.: PG5084-1
Checked by: NG	Dwg. No.: PG5084-1
Approved by: SD	Revision No.:

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