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Consulting Engineers and Scientists

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Novatech
240 Michael Cowpland Drive, Suite 200
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April 24, 2020
File: 65080.01

Attention: Mr. Murray Chown, MCIP, RPP.

Re: Terrain Analysis
Site Plan Control Application – Vehicle Storage Yard (Block 6)
300 Somme Street, Ottawa, Ontario

GEMTEC Consulting Engineers and Scientists Limited (GEMTEC) was retained by Novatech Engineering Consultants Ltd. (Novatech) to carry out terrain analysis for a proposed commercial/light industrial development to be located in the Hawthorne Industrial Park at 300 Somme Street in Ottawa, Ontario.

1.0 PROJECT AND SITE DESCRIPTION

1.1 Project Description

Plans are being prepared for the construction of a vehicle storage yard at 300 Somme Street in Ottawa, Ontario. The approximate development area is 17 hectares. Outdoor storage of vehicles will take up the majority of the property. An office/receiving building is proposed in the northwest corner of the property in support of the storage yard. The building will be serviced with private services including a septic system and a well. The proposed building is about 1,200 square metres with a paved parking area to the south and the 3,800 L/day septic system located on the west side of the building.

The purpose of this study is to confirm that the terrain analysis (i.e. septic impact assessment) meets the MECP Procedure D-5-4 requirements.

1.2 Review of Available Information

Multiple geotechnical, environmental and hydrogeological investigations have been completed at the proposed industrial subdivision in which the site is located. The following reports available for review, include:

- Golder, March 1994 report submitted to Beaver Road Builders Ltd. Hydrogeological Investigation, Terrain Evaluation, Proposed Rural Industrial Subdivision, Lots 26 and 27, Concession VI, City of Gloucester, Ontario.

- CRA, September 2008 report prepared for R.W. Tomlinson Limited. Phase II Environmental Site Assessment and Hydrogeological Assessment, Part Lot 26 & 27 Concession 6, Ottawa, Ontario
- Golder, December 2008 report submitted to R.W. Tomlinson Limited. Hydrogeological Investigation, Terrain Analysis and Impact Assessment, Proposed Industrial Subdivision, Lots 26 & 27, Concession VI, Geographic City of Gloucester, City of Ottawa, Ontario.
- INSPEC-SOL INC. May 4, 2009 report titled, "Geotechnical Study Subdivision Plan, Hawthorne Industrial Park, Lots 26 & 27, Concession 6, Southeast of Hawthorne and Rideau Roads, Ottawa, Ontario";
- Golder, June 18, 2019 Letter to R.W. Tomlinson Development Corporation. Potential Impacts from Organics Composting Facility on Hawthorne Industrial Park Groundwater Quality, Lots 26 and 27, Concession VI, Geographic City of Gloucester, Ottawa, Ontario.
- Pinchin Ltd. January 23, 2020 report titled, "Geotechnical Investigation – Proposed Automotive Storage Yard, Somme Street, Ottawa, Ontario";
- Novatech. February 2020, Concept Plan, Drawing Number 119181-CO; and,
- GEMTEC, April 24, 2020. "Draft Geotechnical Report, Proposed Office/Receiving Building, 300 Somme Street, Ottawa, Ontario".

A hydrogeological investigation, terrain analysis and impact assessment report was completed for the proposed industrial subdivision in 1994 (Golder, 1994) and updated in 2008 (Golder, 2008). Based on the results of the Golder (2008) investigation, the proposed industrial lots will average more than one hectare in size and impacts from the proposed sewage disposal systems will be acceptable. Golder (2008) recommended that a site-specific investigation should be conducted on each building lot prior to construction.

2.0 SITE GEOLOGY

Surficial geology maps (Ontario Geologic Survey, 2010) indicate that the site is underlain by organic deposits, Paleozoic bedrock and coarse-textured glaciomarine deposits consisting of sand, gravel, minor silt and clay. Bedrock geology maps (Ontario Geologic Survey, 2011) indicate that the bedrock is comprised of dolostone and sandstone of the Beekmantown Group. Paleozoic bedrock mapping (Armstrong and Dodge, 2007) further indicates that the site is underlain by sandstone of the Nepean Formation, sandstone and dolostone of the March Formation as well as shale of the Queenston formation at the northeastern portion of the site. Available karst mapping (Brunton and Dodge, 2008) does not indicate the presence of any inferred or potential karstic features.

Two hydrogeological units have been identified on the property. The first is a shallow unconfined unit located within the native soils and imported fill in the upper bedrock zone. This zone is not considered suitable as a potable water supply source. A deeper confined aquifer is found in the

sandstone bedrock, generally at depths of 25 to 35 metres below ground surface. This aquifer is considered suitable as a potable water supply (Golder, 2019).

3.0 TERRAIN ANALYSIS

Based on the numerous geotechnical, environmental and hydrogeological investigations completed for the proposed industrial subdivision, the terrain analysis consists of a desktop review of the available subsurface information in the vicinity of the proposed development.

A number of boreholes and test pits were previously advanced on, and adjacent, to the subject site. The test holes advanced by Inspec-Sol include 11 boreholes (B5-1 to B5-3, B6-1 to B6-4, B7-2, B7-3 RB5-02 and RB7-03) and four test pits (TP3-01, TP5-01, TP6-01 and TP6-02). Two groundwater monitoring wells (MW7-08 and MW8-08) were installed as part of the Phase 2 ESA completed by CRA (2008). Three test pits (TP08-1, TP08-2 and TP08-03) were advanced as part of the hydrogeological investigation by Golder (2008).

A total of seven test pits (TP-2, TP-3, TP-8 to TP-10, TP-14, and TP-15) were advanced on the subject site by Golder in 1994 and referenced in the Inspec-Sol report (but not included in their assessment of Block 6, the subject site). The test pits were advanced to depths ranging between 0.8 and 3.5 metres below ground surface. It should be noted that no fill material was noted in any of the Golder test pits advanced on the subject site but there is the possibility that the fill material was placed on site between 1994 and 2009. As such, the Golder boreholes will not be referenced within this desktop study.

A Test Hole Location plan showing the approximate locations of the existing test holes on the subject site is provided on Figure 1. The test hole logs from the referenced reports are provided in Appendix B.

3.1 General

The subsurface conditions described below are based on previous test holes advanced in the vicinity of the site by others. The subsurface conditions at the site may vary from the conditions encountered in the previous test holes. In addition to soil variability, fill material of variable physical and chemical composition can be present over portions of the site. The groundwater conditions described in this report refer only to those observed at the place and time of observation noted in the report. These conditions may vary seasonally, over time, or as a consequence of construction activities in the area.

Background reports indicate that the site is covered with inert fill, primarily excavated from road construction projects. The fill material covers over 70% of the site, with less substantial fill cover in the southern and eastern portions of the site (CRA, 2008).

3.2 Summary of Subsurface Conditions

A total of 28 boreholes and test pits advanced within, or adjacent, to the subject site have been reviewed as part of this terrain analysis. The various boreholes and test pits advanced as part of the previous investigations are widely spaced across the property. A total of four (4) test holes (BH4 (Pinchin), BH6-1 (Inspec-Sol), TP5-01 (Inspec-Sol) and RB7-03 (Inspec-Sol) are located within 100 metres of the proposed office building and septic field. We have therefore separately summarized the available subsurface information for the proposed building and for the proposed outdoor storage area.

3.2.1 Proposed Building Area and Septic System

- Topsoil and fill material with a thickness ranging between 2.3 and 3.8 metres (where fully penetrated) was encountered from ground surface. In general, the fill material consists of varying amounts of clay, sand, and gravel with some debris (concrete, asphalt, wood). The fill has a very loose to compact relative density. TP5-01 was terminated within the fill material at a depth of about 3 metres below ground surface.

- Native deposits of very loose silt and silty sand/sandy silt are present below the fill material. At the location of BH6-1, the sandy silt is underlain by a 0.8m thick layer of very stiff sandy clay from a depth of about 4.6 metres below ground surface. BH4 was terminated within the very loose silt at a depth of about 3.6 metres below ground surface.

- Two (2) of the boreholes (BH6-1 and RB7-03) were terminated due to auger refusal on the inferred bedrock surface at depths of 4.7 and 5.3 metres below ground surface.

- Groundwater was noted to enter the open boreholes/test pits at depths between 2.5 and 3.0 metres below ground surface. It should be noted that the closest borehole, BH4, was noted to be dry upon completion of drilling.

3.2.2 Outdoor storage area

- Where fully penetrated, topsoil and fill material with a thickness ranging between 1.1 metres (BH1) and 4.5 metres (TP6-01) was encountered from ground surface. Where logged, the surficial topsoil layer thickness ranges from 50 millimetres to 200 millimetres. The underlying fill material generally consists of very loose to loose sand, gravel, and clay with some debris (concrete, asphalt, wood). Former topsoil layers are occasionally noted to underlay the fill material. It should be noted that no fill material was noted in BH6-4 and TP3-01 which are located at the east end of the site.

- Native deposits of very loose to compact layered deposits of silt, sand and clay are present below the fill material, and from ground surface in BH6-4 and TP3-01. The native deposits extend to depths of 0.6 to 8 metres below ground surface.

- The majority of the test holes encountered bedrock refusal at depths between 0.6 metres (TP3-01) and 8 metres (B6-3) below ground surface.

- Groundwater was noted to enter the open boreholes/test pits at depths between 0.9 metres (BH6) and 4.6 metres (TP6-01) below ground surface.

4.0 IMPACT ASSESSMENT

The impact on groundwater and surface water resources due to wastewater treatment and disposal by the onsite sewage disposal system on the subject site is assessed in the following sections.

It should be noted that the following information is provided for general guidance purposes only and that the septic system installed on the subject site should be designed using specific subsurface conditions at the location of the proposed septic system. In all cases, the septic system design must conform to the Ontario Building Code (OBC) requirements.

4.1 Background Nitrate Conditions

To evaluate the potential risk of septic effluent on the water supply aquifer, the background water quality in the shallow unconfined water table aquifer and deeper confined bedrock aquifer were assessed. The primary receiving aquifer for the proposed on-site septic system would be the shallow unconfined water table aquifer. The Phase II Environmental Site Assessment (ESA) completed by CRA (2008) collected water quality samples from 10 overburden monitoring wells. Water quality samples collected from the 10 overburden monitoring wells reported nitrate concentrations ranging from non-detectable (0.1 mg/L) to 0.3 mg/L (CRA, 2008). The nitrate concentrations in the deeper bedrock aquifer, were reported to be non-detectable (0.1 mg/L) based on five test wells sampled in 2008 (Golder, 2008). Therefore, the background nitrate concentration in the receiving unconfined shallow aquifer and the deeper confined bedrock aquifer are considered to be negligible.

4.2 Groundwater Flow Direction

The groundwater flow direction in the shallow unconfined receiving aquifer was determined to be east to northeast at a gradient of approximately 0.015 metres per metre, based on water level measurements recorded from 10 overburden monitoring wells (CRA, 2008). The regional groundwater flow in the deeper bedrock aquifer, was determined to be from the west to the east, at a gradient of approximately 0.005 metres per metre (Golder, 2008).

4.3 Hydrogeological Sensitivity

Areas of thin soils cover, highly permeable soils, fractured bedrock exposed at ground surface and karst environments contribute to hydrogeological sensitivity of the site, which may not allow for sufficient attenuative processes for on-site septic systems and negatively impact the receiving aquifer. Areas of thin soil cover, generally taken to be less than two metres, were encountered on the southern and eastern portions of the subject site (Figure 2 in Appendix B). Karst mapping (Brunton and Dodge, 2008) does not indicate the presence of any inferred or potential karstic features and no karstic features were observed on-site.

As discussed in section 3.0, the overburden material in the vicinity of the proposed septic system generally consisted of topsoil and fill material with a thickness ranging between 2.3 and 3.8 metres underlain by native deposits of very loose silt and silty sand/sandy silt with a thickness ranging between 1.4 to 4.7 metres (based on TP5-01, RB7-03 and BH4; refer to Figure 1). The overburden thickness in the vicinity of the proposed septic system is greater than 2.0 metres (Figure 2). Based on the conceptual site layout (Appendix A), the septic system is not located within a hydrogeologically sensitive area.

4.4 Groundwater Impacts

The potential risk to groundwater resources on and off the subject site was assessed in accordance with Ministry of Environment Procedure D-5-4: Technical Guideline for Individual On-Site Sewage Systems: Water Quality Impact Risk Assessment. To evaluate the groundwater impacts, nitrate dilution calculations for commercial properties outlined in MECP D-5-4 was followed.

4.4.1 Three-Step Assessment: Step 1 - Lot Size Considerations

Lot sizes of 1.0 hectares or larger are assumed to be sufficient for attenuative processes to reduce nitrate-nitrogen to acceptable concentrations in groundwater below adjacent properties. The proposed 17-hectare development meets this consideration.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

Based on a review of available subsurface information, the following conclusions are provided:

- The surficial soils encountered in the vicinity of the proposed septic system consists of topsoil, fill material and native deposits. In general, the fill material consists of varying amounts of clay, sand, and gravel with some debris (concrete, asphalt, wood). Native deposits of very loose silt and silty sand/sandy silt are present below the fill material.

- Portions of the subject site are considered to be hydrogeologically sensitive due to thin soils encountered (refer to Figure 2 Overburden Thickness Map in Appendix B). However,

the overburden thickness is greater than 2.0 metres in the area of the proposed septic system (and downgradient of the proposed septic system).

- The deeper confined bedrock aquifer has been demonstrated to be hydraulically isolated from the shallow unconfined overburden aquifer (Golder, 2008).

- The groundwater flow direction of the shallow, unconfined overburden aquifer and deep, confined bedrock aquifer is to the northeast (Golder, 2008 and CRA, 2008).

- Based on MECP Procedure D-5-4 lot size considerations, lot sizes of 1.0 hectares or larger are assumed to be sufficient for attenuative processes to reduce nitrate-nitrogen to acceptable concentrations in groundwater below adjacent properties. The proposed 17-hectare development meets this consideration.

5.2 Recommendations

Based on the results of this investigation, the following septic system and groundwater impact mitigation measures recommendations are provided:

- It is recommended that the property owners construct, maintain and check their onsite septic system in accordance with the Ontario Building Code.
- The proposed septic system should not be located within areas of hydrogeologically sensitive terrain (refer to Figure 2).
    - Based on the conceptual lot development plan (Appendix A), the proposed septic system is not located within an area of hydrogeologically sensitive terrain.

LIMITATIONS OF LETTER

This letter was prepared for, and is intended for the exclusive use of Novatech. This letter may not be relied upon by any other person or entity without written consent of GEMTEC and Novatech. The contents of this letter are not intended to provide legal opinion.

The investigation undertaken by GEMTEC, as well as the recommendations and conclusion made herein reflect the best judgements of GEMTEC based on the site conditions observed at the time the report was prepared. GEMTEC received information from outside sources that was not independently verified and was relied upon in good faith. GEMTEC does not accept responsibility for any deficiencies, misstatements or inaccuracies contained herein due to omissions, misinterpretation or fraudulent acts.

Should new information become available during future work, including excavations, borings or other studies, GEMTEC should be requested to review the information and, if necessary, re-assess the conclusions presented herein.

CLOSURE

We trust that this letter meets your current requirements. If you have questions or concerns please do not hesitate to contact the undersigned.

Andrius Paznekas, M.Sc., P.Geo.
Hydrogeologist

Shaun Pelkey, M.Sc.E., P.Eng.
Principal, Environmental Engineer

6.0 REFERENCES

Armstrong, D.K. and Dodge, J.E.P. 2007. Paleozoic geology of southern Ontario; Ontario Geological Survey, Miscellaneous Release--Data 219

Brunton, F.R. and Dodge, J.E.P. 2008. Karst of southern Ontario and Manitoulin Island; Ontario Geological Survey, Groundwater Resources Study 5.

CRA, September 2008 report prepared for R.W. Tomlinson Limited. Phase II Environmental Site Assessment and Hydrogeological Assessment, Part Lot 26 & 27 Concession 6, Ottawa, Ontario.

Ontario Geological Survey. 2010. Surficial geology of Southern Ontario. Ontario Geological Survey, Miscellaneous Release-Data 128-Revision 1.

Ontario Geological Survey. 2011. 1:250 000 scale bedrock geology of Ontario. Ontario Geological Survey, Miscellaneous Release-Data 126-Revision 1.

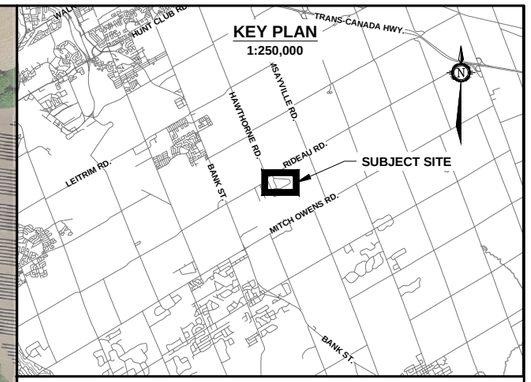
Ontario Ministry of the Environment and Climate Change. 1996. Procedure D-5-4, Technical Guideline for Individual On-Site Sewage Systems: Water Quality Impact Risk Assessment. August 1996.

Ontario Ministry of the Environment and Climate Change. 1995. MOEE Hydrogeological Technical Requirements for Land Development Applications. April 1995.

Golder, March 1994 report submitted to Beaver Road Builders Ltd. Hydrogeological Investigation, Terrain Evaluation, Proposed Rural Industrial Subdivision, Lots 26 and 27, Concession VI, City of Gloucester, Ontario.

Golder, December 2008 report submitted to R.W. Tomlinson Limited. Hydrogeological Investigation, Terrain Analysis and Impact Assessment, Proposed Industrial Subdivision, Lots 26 & 27, Concession VI, Geographic City of Gloucester, City of Ottawa, Ontario.

Golder, June 18, 2019 Letter to R.W. Tomlinson Development Corporation. Potential Impacts from Organics Composting Facility on Hawthorne Industrial Park Groundwater Quality, Lots 26 and 27, Concession VI, Geographic City of Gloucester, Ottawa, Ontario.



LEGEND

- SUBJECT SITE
- TP08-1 — **TEST PIT LOCATION IN PLAN** (previous investigation by Golder Associates, 2008 (Report # 08-1122-0215))
- TW1 — **TEST WELL LOCATION IN PLAN** (previous investigation by Golder Associates, 2008 (Report # 08-1122-0215))
- BH 7 — **BOREHOLE LOCATION IN PLAN** (previous investigation by PINCHIN, 2008 (File #249442))
- RB7-03 — **BOREHOLE LOCATION IN PLAN** (previous investigation by Inspec-Sol, 2008 (Ref # T020556-A1))
- TP10-02 — **BOREHOLE LOCATION IN PLAN** (previous investigation by Inspec-Sol, 2008 (Ref # T020556))
- MW8-08 — **MONITORING WELL LOCATION IN PLAN** (previous investigation by CRA, 2008 (Project # 45804))
- BH/TP — TEST HOLE ID
- (XX.XX) — GROUND SURFACE ELEVATION, IN METRES GEODETIC DATUM

Scale 1:3000

0 100 200m

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Drawing: SITE PLAN

Client: NOVATECH

Project: 65080.01

TERRAIN ANALYSIS
VEHICLE STORAGE YARK (BLOCK 6)
300 SOMME STREET,
OTTAWA, ONTARIO

Drwn by: P.C. | Chkd by: A.P.

Date: APRIL 2020 | Rev.: 0

FIGURE 1

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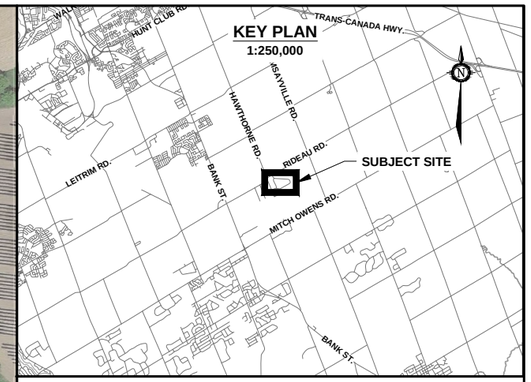

LEGEND

- SUBJECT SITE
- TP08-1 — **TEST PIT LOCATION IN PLAN** (previous investigation by Golder Associates, 2008 (Report # 08-1122-0215))
- TW1 — **TEST WELL LOCATION IN PLAN** (previous investigation by Golder Associates, 2008 (Report # 08-1122-0215))
- BH 7 — **BOREHOLE LOCATION IN PLAN** (previous investigation by PINCHIN, 2008 (File #249442))
- RB7-03 — **BOREHOLE LOCATION IN PLAN** (previous investigation by Inspec-Sol, 2008 (Ref # T020556-A1))
- TP10-02 — **BOREHOLE LOCATION IN PLAN** (previous investigation by Inspec-Sol, 2008 (Ref # T020556))
- MW8-08 — **MONITORING WELL LOCATION IN PLAN** (previous investigation by CRA, 2008 (Project # 45804))
- BH/TP (XX.XX) — TEST HOLE ID; GROUND SURFACE ELEVATION, IN METRES GEODETIC DATUM
- 4.0 — OVERBURDEN THICKNESS CONTOURS IN METRES
- AREAS OF < 2 METRES OF OVERBURDEN THICKNESS

Scale 1:3000

0 100 200m

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Drawing: OVERBURDEN THICKNESS MAP

Client: NOVATECH

Project: 65080.01

TERRAIN ANALYSIS
VEHICLE STORAGE YARK (BLOCK 6)
300 SOMME STREET,
OTTAWA, ONTARIO

Drwn by: P.C. | Chkd by: A.P.

Date: APRIL 2020 | Rev.: 0

FIGURE 2

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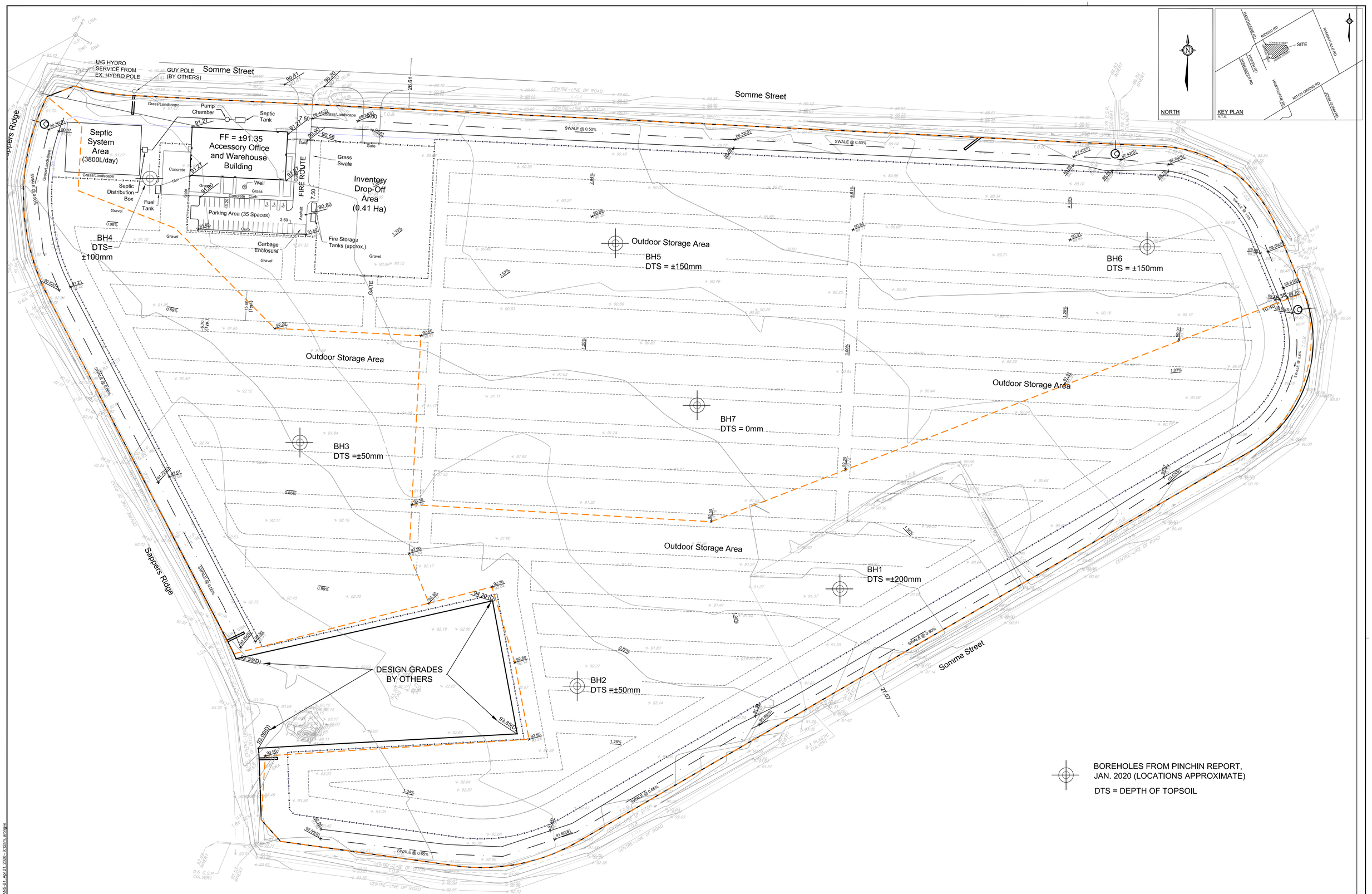
APPENDIX A

Concept Plan



BOREHOLES FROM PINCHIN REPORT, JAN. 2020 (LOCATIONS APPROXIMATE)

DTS = DEPTH OF TOPSOIL

NOTE:
THE POSITION OF ALL POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

No.	REVISION	DATE	BY
3.	ISSUED TO GEOTECH	APR. 21/20	AAR
2.	ISSUED WITH MINOR REVISIONS	FEB. 6/20	AAR
1.	ISSUED FOR DISCUSSION	FEB. 6/20	AAR

SCALE 1:750

1:750
0 10 20 30

DESIGN AAR
CHECKED ARM
DRAWN AAR
CHECKED AAR
APPROVED SMG

FOR REVIEW ONLY

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5123 HAWTHORNE ROAD
BLOCK 6

DRAWING NAME
CONCEPTUAL GRADING AND SERVICING PLAN

PROJECT No. 119181
REV REV # 3
DRAWING No. 119181-CGS

M:\2019\119181\CAD\Design\119181-CGS.dwg, PLANS-B1, Apr 21, 2020 - 8:12am, arongue
PLANS1.DWG - 1280mmx1070mm

APPENDIX B

Test Hole Logs

Log of Borehole: BH1

Project #: 249442 **Logged By:** WT

Project: Geotechnical Investigation

Client: Partner Engineering and Science, Inc.

Location: Somme Street, Ottawa, Ontario

Drill Date: December 17, 2019 **Project Manager:** WT

SUBSURFACE PROFILE					SAMPLE							
Depth (m)	Symbol	Description	Elevation (m)	Monitoring Well Details	Sample Type	Sampler #	Recovery (%)	SPT N-values	SPT N-values / Shear Strength kPa	Lab Analysis	Moisture (%)	Plasticity Index
0		Ground Surface	0.00									
		Organics ~ 200 mm	-0.20		SS	1	40	5				
		Fill Brown silt, trace sand and clay, loose, frozen	-0.76									
1		Dense	-1.07		SS	2	60	44				
		Sand Grey sand and gravel, trace silt, dense, damp	-1.52									
		Grey sand, some silt, very loose, moist	-2.29	No Monitoring Well Installed	SS	3	10	3				
2		Dark brown sand, wet			SS	4	5	2				
3												
					SS	5	70	4				
		End of Borehole	-3.66									
4		Borehole terminated at 3.66 mbgs. At drilling completion, the borehole was open to 3.66 mbgs and water was measured at 2.44 mbgs.										
5												

SPT N-values: 20, 40, 60

Shear Strength kPa: 50, 100, 150, 200

Contractor: Strata Drilling Group

Grade Elevation: NA

Drilling Method: Hollow Stem Auger / Split Spoon

Top of Casing Elevation: NA

Well Casing Size: NA

Sheet: 1 of 1

Log of Borehole: BH2

Project #: 249442 **Logged By:** WT

Project: Geotechnical Investigation

Client: Partner Engineering and Science, Inc.

Location: Somme Street, Ottawa, Ontario

Drill Date: December 17, 2019 **Project Manager:** WT

SUBSURFACE PROFILE					SAMPLE							
Depth (m)	Symbol	Description	Elevation (m)	Monitoring Well Details	Sample Type	Sampler #	Recovery (%)	SPT N-values	SPT N-values / Shear Strength kPa	Lab Analysis	Moisture (%)	Plasticity Index
0		Ground Surface	0.00									
		Organics ~ 50 mm			SS	1	80	64				
		Fill Brown silty sand and gravel, trace clay, very dense, frozen	-0.76									
1		Brown sand, some silt, trace clay, compact, moist			SS	2	70	21				
2			-2.29		SS	3	60	14				
		Sand Brown sand, very loose, wet			SS	4	0	3				
3			-3.05		SS	5	NA	4				
		Start Dynamic Cone Penetration Test (DCPT)			SS	6	NA	11				
					SS	7	NA	9				
4					SS	8	NA	6				
					SS	9	NA	6				
					SS	10	NA	8				
5					SS	11	NA	5				
					SS	12	NA	5				
					SS	13	NA	6				
			-5.94		SS	14	NA	>50				
6		End of Borehole Borehole terminated at 5.94 mbgs due to DCPT refusal on probable bedrock. At drilling completion, the borehole was open to 5.94 mbgs and water was measured at 2.13 mbgs.										
7												

No Monitoring Well Installed

SPT N-values: 20, 40, 60

Shear Strength kPa: 50, 100, 150, 200

Contractor: Strata Drilling Group

Grade Elevation: NA

Drilling Method: Hollow Stem Auger / Split Spoon

Top of Casing Elevation: NA

Well Casing Size: NA

Sheet: 1 of 1

Log of Borehole: BH3

Project #: 249442 **Logged By:** WT

Project: Geotechnical Investigation

Client: Partner Engineering and Science, Inc.

Location: Somme Street, Ottawa, Ontario

Drill Date: December 17, 2019 **Project Manager:** WT

Depth (m)	Symbol	Description	Elevation (m)	Monitoring Well Details	Sample Type	Sampler #	Recovery (%)	SPT N-values
0		Ground Surface	0.00	No Monitoring Well Installed				
		Organics ~ 50 mm			SS	1	60	14
		Fill Brown silty sand and gravel, compact, frozen	-0.76					
1		Compact	-1.30		SS	2	30	11
		Organics seam (~ 50 mm)	-1.52					
		Silty sand, trace clay, compact, moist	-1.83		SS	3	50	>50
2		End of Borehole						
		Borehole terminated at 1.83 mbgs due to auger and split spoon refusal on probable bedrock. At drilling completion, a wet cave was measured at 1.68 mbgs, and water was measured at 1.52 mbgs.						
3								

SPT N-values: 20, 40, 60

Shear Strength kPa: 50, 100, 150, 200

Lab Analysis | Moisture (%) | Plasticity Index

Contractor: Strata Drilling Group

Drilling Method: Hollow Stem Auger / Split Spoon

Well Casing Size: NA

Grade Elevation: NA

Top of Casing Elevation: NA

Sheet: 1 of 1

Log of Borehole: BH4

Project #: 249442 **Logged By:** WT

Project: Geotechnical Investigation

Client: Partner Engineering and Science, Inc.

Location: Somme Street, Ottawa, Ontario

Drill Date: December 17, 2019 **Project Manager:** WT

SUBSURFACE PROFILE					SAMPLE							
Depth (m)	Symbol	Description	Elevation (m)	Monitoring Well Details	Sample Type	Sampler #	Recovery (%)	SPT N-values	SPT N-values / Shear Strength kPa	Lab Analysis	Moisture (%)	Plasticity Index
0		Ground Surface	0.00									
		Organics ~ 100 mm			SS	1	50	8				
		Fill Brown silty sand and gravel, trace clay, loose, frozen	-0.76									
1		Compact			SS	2	80	27				
					SS	3	65	11				
2			-2.29									
		Silt Grey silt, some clay, trace gravel, soft, moist			SS	5	70	4				
3			-3.05									
		No gravel			SS	6	70	2				
			-3.66									
		End of Borehole										
4		Borehole terminated at 3.66 mbgs. At drilling completion, the borehole was open and dry.										
5												

No Monitoring Well Installed

SPT N-values: 20, 40, 60

Shear Strength kPa: 50, 100, 150, 200

Contractor: Strata Drilling Group

Grade Elevation: NA

Drilling Method: Hollow Stem Auger / Split Spoon

Top of Casing Elevation: NA

Well Casing Size: NA

Sheet: 1 of 1

Log of Borehole: BH5

Project #: 249442 **Logged By:** WT

Project: Geotechnical Investigation

Client: Partner Engineering and Science, Inc.

Location: Somme Street, Ottawa, Ontario

Drill Date: December 17, 2019 **Project Manager:** WT

Depth (m)	Description	Elevation (m)	Monitoring Well Details	Sample Type	Sampler #	Recovery (%)	SPT N-values
0	Ground Surface	0.00	No Monitoring Well Installed				
	Organics ~ 150 mm	-0.15		SS	1	40	30
	Fill Brown silty sand and gravel, dense, frozen	-0.76					
1	Trace asphalt, compact	-1.52		SS	2	50	22
	Trace to some silt, loose, wet	-2.29		SS	3	10	6
2	Compact	-3.05		SS	5	25	13
3	Loose	-3.66		SS	6	15	7
	End of Borehole						
4	Borehole terminated at 3.66 mbgs. At drilling completion, the borehole was open to 3.66 mbgs, and water was measured at 1.98 mbgs.						
5							

SPT N-values: 20, 40, 60

Shear Strength kPa: 50, 100, 150, 200

Lab Analysis | Moisture (%) | Plasticity Index

Contractor: Strata Drilling Group

Grade Elevation: NA

Drilling Method: Hollow Stem Auger / Split Spoon

Top of Casing Elevation: NA

Well Casing Size: NA

Sheet: 1 of 1

Log of Borehole: BH6

Project #: 249442 **Logged By:** WT

Project: Geotechnical Investigation

Client: Partner Engineering and Science, Inc.

Location: Somme Street, Ottawa, Ontario

Drill Date: December 17, 2019 **Project Manager:** WT

Depth (m)	Symbol	Description	Elevation (m)	Monitoring Well Details	Sample Type	Sampler #	Recovery (%)	SPT N-values
0		Ground Surface	0.00	No Monitoring Well Installed				
		Organics ~ 150 mm	-0.15		SS	1	25	8
		Fill Brown silty sand and gravel, loose, frozen	-0.76					
1		Grey silt, some sand, trace gravel and clay, loose, moist	-1.52		SS	2	20	5
		Grey sand and gravel, trace silt, very loose, wet	-2.29		SS	3	20	4
2		End of Borehole						
		Borehole terminated at 2.29 mbgs due to auger and split spoon refusal on probable bedrock. At drilling completion, the borehole was open to 2.29 mbgs, and water was measured at 0.91 mbgs.						
3								

SPT N-values: 20, 40, 60

Shear Strength kPa: 50, 100, 150, 200

Lab Analysis | Moisture (%) | Plasticity Index

Contractor: Strata Drilling Group

Grade Elevation: NA

Drilling Method: Hollow Stem Auger / Split Spoon

Top of Casing Elevation: NA

Well Casing Size: NA

Sheet: 1 of 1

Log of Borehole: BH7

Project #: 249442 **Logged By:** WT

Project: Geotechnical Investigation

Client: Partner Engineering and Science, Inc.

Location: Somme Street, Ottawa, Ontario

Drill Date: December 17, 2019 **Project Manager:** WT

Depth (m)	Symbol	Description	Elevation (m)	Monitoring Well Details	Sample Type	Sampler #	Recovery (%)	SPT N-values
		Ground Surface	0.00					
0		***Fill*** Brown silty sand, loose, frozen		No Monitoring Well Installed	SS	1	60	4
			-0.76					
1		Grey sand and gravel, very dense, wet			SS	2	10	>50
			-1.52					
2		Loose			SS	3	30	6
			-2.29					
		Grey silty sand and gravel, compact, wet			SS	4	65	19
3			-3.05					
		Brown sand and gravel, trace silt, very dense, wet	-3.35		SS	5	70	>50
4		End of Borehole Borehole terminated at 3.35 mbgs due to auger and split spoon refusal on probable bedrock. At drilling completion, the borehole was open to 3.35 mbgs, and water was measured at 2.29 mbgs.						

SUBSURFACE PROFILE

SAMPLE

SPT N-values: 20, 40, 60

Shear Strength kPa: 50, 100, 150, 200

Lab Analysis

Moisture (%)

Plasticity Index

Contractor: Strata Drilling Group

Grade Elevation: NA

Drilling Method: Hollow Stem Auger / Split Spoon

Top of Casing Elevation: NA

Well Casing Size: NA

Sheet: 1 of 1

(Golder, 2008)

Ministry of the Environment

#2

The Ontario Water Resources Act

WATER WELL RECORD

TEST WELL TW-2

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON. BLOCK, TRACT, SURVEY, ETC.	LOT
Ottawa Carleton	Gloucester	6	26

NAME OF OWNER (SURNAME FIRST)	ADDRESS	DATE COMPLETED
Beaver Road Builders	P.O. Box 4208 stn. "E" Ottawa, Ontario K1S 5B2	DAY 16 MO 8 YR 93

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	TO
Brown	Sand	Stone		0	5
Gray	Hardpan	Boulders		5	28
Gray	Sandstone		Hard	28	100

WATER RECORD

KIND OF WATER	DEPTH FOUND FEET
NOT TESTED	

CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH FEET FROM	TO
6 1/4	X STEEL, GALVANIZED, CONCRETE, OPEN HOLE, PLASTIC	.188	0	39
5 15/16	X STEEL, GALVANIZED, CONCRETE, OPEN HOLE, PLASTIC		39	100

SCREEN

SIZE OF OPENING (SLOT NO.)	DIAMETER	LENGTH
MATERIAL AND TYPE	DEPTH SET AT FEET	

PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT, CLAY, CONCRETE)
37.5	0	Cement - Grouted

WELL TEST METHOD	PUMPING RATE	DURATION OF PUMPING
X PUMP, BAILER	20 GPM	1 HOURS MINS

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING: 10 MINUTES	20 MINUTES	30 MINUTES	40 MINUTES	50 MINUTES
7'6"	14'6"	X PUMPING, RECOVERY	13'11"	14	14'4"	14'6"

IF FLOWING, GIVE RATE	PUMP INTAKE SET AT	WATER AT END OF TEST
GPM	RECOMMENDED PUMP SETTING 50 FEET	CLEAR, X CLOUDY
SHALLOW, X DEEP		RECOMMENDED PUMPING RATE 5 GPM

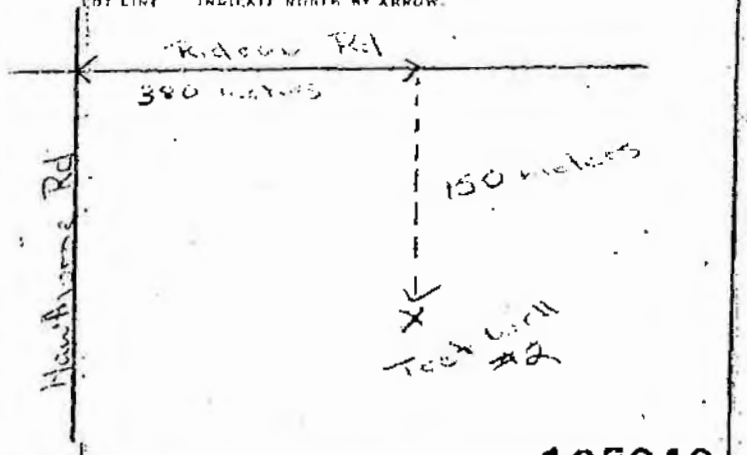
FINAL STATUS OF WELL: X WATER SUPPLY; OBSERVATION WELL; TEST HOLE; RECHARGE WELL; ABANDONED, INSUFFICIENT SUPPLY; ABANDONED, POOR QUALITY; UNFINISHED; DEWATERING

WATER USE: X DOMESTIC; STOCK; IRRIGATION; INDUSTRIAL; COMMERCIAL; MUNICIPAL; PUBLIC SUPPLY; COOLING OR AIR CONDITIONING; OTHER; NOT USED

METHOD OF CONSTRUCTION: CABLE TOOL; ROTARY (CONVENTIONAL); ROTARY (REVERSE); ROTARY (AIR); X AIR PERCUSSION; BORING; DIAMOND; JETTING; DRIVING; DIGGING; OTHER

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS

135946

NAME OF WELL CONTRACTOR	WELL CONTRACTOR'S LICENCE NUMBER
Capital Water Supply Ltd.	1558
BUSINESS ADDRESS: Box 490, Stittsville, Ontario K2S 1A6	
NAME OF WELL TECHNICIAN: J. Miller/T. Harrison	WELL TECHNICIAN'S LICENCE NUMBER T0097/T2251
SIGNATURE OF TECHNICIAN/CONTRACTOR	SUBMISSION DATE DAY 15 MO 10 YR 93

OFFICE USE ONLY

OWNER'S COPY

FORM NO 0506 (11/87) FORM 6

TEST PIT LOGS

(Golder, 2008)

Depth	Soil Type	Sample #
TP08-1		
0.0 m – 2.0 m	Silty sand, gravel, clay, boulders, asphalt, FILL	SA1 - 0.5 m SA2 - 1.6 m
TP08-2		
0.0 m – 0.5 m	Gravel FILL	
0.5 m – 2.0 m	Silty sand, silty clay, organics, asphalt, concrete, FILL	SA1 - 1.0 m - 2.0 m
TP08-3		
0.0 m – 0.3 m	Light brown silty sand FILL	
0.3 m- 0.5 m	GRAVEL	
0.5 m – 2.2 m	Silty Sand, silty clay, gravel, bricks, boulders and organics FILL	SA1 - 0.5 m - 2.0 m
TP08-4		
0.0 m – 1.0 m	Sand, trace clay, FILL	SA1 - 0 m - 1.0 m
1.0 m – 2.0 m	Gravel, silty sand, clay, asphalt, concrete, organics, FILL	SA2 - 1.0 m - 2.0 m
TP08-5		
0.0m – 1.5 m	Silty sand, gravel, trace clay, cobbles, concrete, asphalt, FILL Water seeping in at 0.6 m	SA1 - 0 m - 1.5 m
1.5 m – 2.0 m	Silty sand, some clay, asphalt, sand, organics, FILL	SA2 - 1.5 m - 2.0 m
TP08-6		
0.0m – 0.7 m	Silty clay, some gravel, boulders, wood organics, FILL	SA1 - 0.0 m - 0.7m
0.7 m – 2.0 m	Silty sand in clay, gravel, cobbles, asphalt, wood, FILL	SA2 - 0.7 m - 2.0 m
TP08-7		
0.0 m – 0.20 m	TOPSOIL	
0.20 m – 0.90 m	Brown clayey silt with sand, cobbles	SA1 - 0.2 m - 0.9 m
0.9 m – 1.1 m	Silty SAND, trace clay	
1.1 m – 2.0 m	Brown SAND, trace gravel	SA2 - 1.1 m - 2.0 m

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Orgaworld
PROJECT NUMBER: 45804
CLIENT: Orgaworld Canada Real Estate Ltd.
LOCATION: Hawthorn and Rideau Road, Ottawa, Ontario

HOLE DESIGNATION: MW7-08
DATE COMPLETED: July 14, 2008
DRILLING METHOD: HSA
FIELD PERSONNEL: T. Saunders

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. m	MONITOR INSTALLATION	SAMPLE NUMBER	INTERVAL	REC (%)	'N' VALUE	PID (ppm)
	TOP OF RISER GROUND SURFACE	94.82 93.81						
0	FILL - silty sand with some gravel, trace asphalt, trace concrete, trace clay, compact to dense, grey to brown, moist			SS1		50	38	0.0
1				SS2		35		4.6
2			Bentonite Hole Plug	SS3		50	13	0.0
3				SS4		25	15	4.3
4	- becoming wet at 3.65m BGS			SS5		100		
5			Filter Sand Well Screen	SS6		42	54	0.0
6	SM - TILL - silty sand with some gravel, brown, moist to wet	88.32		SS7		50	15	0.0
7	END OF BOREHOLE @ 6.98m BGS	86.83		SS8		100		1.5
8				SS9		100		0.0
9								
10								
11								

WELL DETAILS
Screened interval:
90.76 to 87.72m
3.05 to 6.10m BGS
Length: 3.05m
Diameter: 51mm
Slot Size: 10
Material: PVC
Seal:
93.20 to 91.37m
0.61 to 2.44m BGS
Material: Bentonite
Sand Pack:
91.37 to 87.72m
2.44 to 6.10m BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
STATIC WATER LEVEL ▼ July 17, 2008
CHEMICAL ANALYSIS (SS4)

OVERBURDEN LOG 45804-00(JULY-2008)MW-OT003.GPJ CRA_CORP.GDT 8/8/08

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Orgaworld
PROJECT NUMBER: 45804
CLIENT: Orgaworld Canada Real Estate Ltd.
LOCATION: Hawthorne and Rideau Road, Ottawa, Ontario

HOLE DESIGNATION: MW8-08
DATE COMPLETED: July 15, 2008
DRILLING METHOD: HSA
FIELD PERSONNEL: T. Saunders

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. m	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	TOP OF RISER	91.69						
	GROUND SURFACE	90.69						
0	FILL - silty sand with gravel, trace asphalt, trace concrete, compact to dense, moist		Bentonite Hole Plug	SS1		25	15	48.1
1				SS2		0		
2			Filter Sand / Well Screen	SS3		33	39	11.7
3	- trace organics, loose, black, wet at 3.05m BGS			SS4		17	4	4.5
4				SS5		25	65	0.0
		86.12						
4.5	SM - TILL - fine sand and silt with some gravel, compact, wet	85.96		SS6		33		0.0
5	END OF BOREHOLE @ 4.72m BGS							
6								
7								
8								
9								
10								
11								

WELL DETAILS
Screened interval:
89.47 to 86.42m
1.22 to 4.27m BGS
Length: 3.05m
Diameter: 51mm
Slot Size: 10
Material: PVC
Seal:
90.38 to 89.77m
0.30 to 0.91m BGS
Material: Bentonite
Sand Pack:
89.77 to 86.42m
0.91 to 4.27m BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

STATIC WATER LEVEL ▼ July 17, 2008

CHEMICAL ANALYSIS (SS1)

OVERBURDEN LOG 45804-00(JULY-2008)MW-OT003.GPJ CRA_CORP.GDT 1/30/09

REFERENCE No.: T020556-A1 ENCLOSURE No.: 36

INSPEC-SOL

TEST PIT No.: TP3-01
ELEVATION: 288.81 ft

TEST PIT REPORT

CLIENT: R.W.Tomlinson Ltd.
PROJECT: Geotechnical Investigation
LOCATION: Lot 26 and 27, concession 6, Ottawa, Ontario
DESCRIBED BY: B.Beveridge DATE: November 10, 2008
CHECKED BY: J.Bennett DATE:

LEGEND

GSE - GRAB SAMPLE (environmental)
GS - GRAB SAMPLE (geotechnical)
Cu - SHEAR TEST
CHEM - CHEMICAL ANALYSIS
OVC - ORGANIC VAPOR CONCENTRATION
INF - INFILTRATION
▼ - WATER LEVEL

Depth Feet	Depth Metres	Elevation (ft) 288.81	Symbol	STRATIGRAPHY	Sample Type & Number	OVC ppm	Tests Type	▼ INF
1	0.5	286.81		SILTY CLAY- some organics,brown, moist				
2				End of Test Pit Shovel Refusal Assumed Bedrock				
3	1.0							
4								
5	1.5							
6								
7	2.0							
8	2.5							
9								
10	3.0							
11	3.5							
12								
13	4.0							
14								
15	4.5							
16								
17	5.0							
18	5.5							
19								
	6.0							

REFERENCE No.: T020556-A1 ENCLOSURE No.: 16

INSPEC-SOL

BOREHOLE No.: B5-1

ELEVATION: 90.48 m

BOREHOLE LOG

Page: 1 of 1

CLIENT: R.W.Tomlinson Ltd.

PROJECT: Geotechnical Investigation

LOCATION: Lot 26 and 27, concession 6, Ottawa, Ontario

DESCRIBED BY: B.Beveridge CHECKED BY: J.Bennett

DATE (START): October 30, 2008 DATE (FINISH): October 30, 2008

LEGEND

- SS Split Spoon
- ST Shelby Tube
- RC Rock Core
- Water Level
- o Water content (%)
- Atterberg limits (%)
- ● N Penetration Index based on Split Spoon sample
- • N Penetration Index based on Dynamic Cone sample
- △ Cu Shear Strength based on Field Vane
- □ Cu Shear Strength based on Lab Vane
- S Sensitivity Value of Soil
- ▲ Shear Strength based on Pocket Penetrometer

SCALE		STRATIGRAPHY		MONITOR WELL	SAMPLE DATA					
Depth BGS	Elevation (m)	Stratigraphy	DESCRIPTION OF SOIL AND BEDROCK		State	Type and Number	Recovery	Organic Vapour ppm or %LEL	Penetration Index / RQD	SCALE FOR TEST RESULTS 50kPa 100kPa 150kPa 200kPa
meters	90.48		GROUND SURFACE	91.70 91.60			%	ppm	N	10 20 30 40 50 60 70 80 90
			FILL - silty clay, some sand, gravel, concrete, asphalt and organics, loose to dense, green/brown/grey, moist			SS1	46		6	
1.0						SS2	25		10	
2.0						SS3	50		4	
						SS4	50		9	
3.0						SS5	75		50+	
4.0						SS6	59		10	
5.0						SS7	67		50+	
	85.15		SANDY SILT- some sand, gravel, trace oxidation, very stiff, greenish brown, moist			SS8	25		50+	
6.0						SS9	42		50+	
	83.62		SANDY CLAY- some gravel, trace oxidation, very soft, red / green / grey, moist	6.98 7.29		SS10	0		R	
7.0	83.16		SILTY CLAY- some gravel, very stiff, grey, moist	WL 7.63		SS11	50		R	
8.0						SS12	46		R	
				8.81		SS13	17		R	
9.0										
10.0	80.45		End of Borehole Auger Refusal Assumed Bedrock	10.03						
11.0										
12.0										
13.0										

NOTES:

BOREHOLE LOG T020556-A1-BH(OCT-31-08).GPJ INSPEC_SOL.GDT 5/12/09

REFERENCE No.: T020556-A1 ENCLOSURE No.: 17

INSPEC-SOL

BOREHOLE No.: B5-2
ELEVATION: 90.78 m

BOREHOLE LOG

Page: 1 of 1

CLIENT: R.W.Tomlinson Ltd.
PROJECT: Geotechnical Investigation
LOCATION: Lot 26 and 27, concession 6, Ottawa, Ontario
DESCRIBED BY: B.Beveridge CHECKED BY: J.Bennett
DATE (START): October 23, 2008 DATE (FINISH): October 23, 2008

LEGEND

- SS Split Spoon
- ST Shelby Tube
- RC Rock Core
- Water Level
- Water content (%)
- Atterberg limits (%)
- ● N Penetration Index based on Split Spoon sample
- • N Penetration Index based on Dynamic Cone sample
- △ Cu Shear Strength based on Field Vane
- □ Cu Shear Strength based on Lab Vane
- S Sensitivity Value of Soil
- ▲ Shear Strength based on Pocket Penetrometer

SCALE		STRATIGRAPHY		SAMPLE DATA				
Depth BGS	Elevation (m)	Stratigraphy	DESCRIPTION OF SOIL AND BEDROCK	State	Type and Number	Recovery	Organic Vapour ppm or %LEL	Penetration Index / RQD
meters	90.78		GROUND SURFACE			%	ppm	N
			FILL - silty clay, some asphalt, sand and gravel, trace organics, compact to dense, brown/black, moist					
1.0					SS1	92		49
2.0					SS2	55		12
					SS3	75		50+
3.0					SS4	63		17
4.0					SS5	71		32
	86.21		SILTY CLAY - some gravel, trace oxidation, firm to stiff, brown/grey, moist to wet		SS6	38		2
5.0					SS7	100		7
6.0					SS8	84		R
	84.07		End of Borehole					
7.0								
8.0								
9.0								
10.0								
11.0								
12.0								
13.0								

SCALE FOR TEST RESULTS
50kPa 100kPa 150kPa 200kPa
10 20 30 40 50 60 70 80 90

NOTES:

BOREHOLE LOG T020556-A1-BH(OCT-31-08).GPJ INSPEC_SOL.GDT 5/12/09

REFERENCE No.: T020556-A1 ENCLOSURE No.: 18

INSPEC•SOL

BOREHOLE No.: B5-3

ELEVATION: 90.51 m

BOREHOLE LOG

Page: 1 of 1

CLIENT: R.W.Tomlinson Ltd.

PROJECT: Geotechnical Investigation

LOCATION: Lot 26 and 27, concession 6, Ottawa, Ontario

DESCRIBED BY: B.Beveridge CHECKED BY: J.Bennett

DATE (START): October 23, 2008 DATE (FINISH): October 23, 2008

LEGEND

- SS Split Spoon
- ST Shelby Tube
- RC Rock Core
- Water Level
- w Water content (%)
- Atterberg limits (%)
- ● N Penetration Index based on Split Spoon sample
- • N Penetration Index based on Dynamic Cone sample
- △ Cu Shear Strength based on Field Vane
- □ Cu Shear Strength based on Lab Vane
- S Sensitivity Value of Soil
- ▲ Shear Strength based on Pocket Penetrometer

SCALE		STRATIGRAPHY		SAMPLE DATA					
Depth BGS	Elevation (m)	Stratigraphy	DESCRIPTION OF SOIL AND BEDROCK	State	Type and Number	Recovery	Organic Vapour ppm or %LEL	Penetration Index / RQD	SCALE FOR TEST RESULTS 50kPa 100kPa 150kPa 200kPa
meters	90.51		GROUND SURFACE			%	ppm	N	10 20 30 40 50 60 70 80 90
			FILL- concrete and asphalt fragments, some sand, trace organics						
1.0	89.75		FILL- silty clay, some gravel, trace oxidation, stiff, brown, moist		SS1	42		50+	
2.0	88.99		FILL- sandy silt, some gravel, trace clay, organics, very stiff, brownish green, moist		SS2	58		15	
3.0	88.22		FILL- silty clay, some asphalt, gravel and sand, trace organics, hard, brown, moist		SS3	50		38	
					SS4	59		13	
4.0	86.70		FILL- silty clay, trace organics, oxidation, gravel, sand, hard, moist		SS5	21		17	
5.0			-becoming trace to some gravel		SS6	84		32	
6.0			-becoming more asphalt fragments, hard to very stiff		SS7	71		22	
	84.41		SILTY CLAY- some sand, trace organics, firm, grey, moist		SS8	25		7	
7.0			-becoming very stiff		SS9	59		39	
▼	82.89		End of Borehole						
8.0									
9.0									
10.0									
11.0									
12.0									
13.0									

NOTES:

BOREHOLE LOG T020556-A1-BH(OCT-31-08).GPJ INSPEC_SOL.GDT 5/12/09

REFERENCE No.: T020556-A1 ENCLOSURE No.: 40

INSPEC-SOL

TEST PIT No.: TP5-01
ELEVATION: 298.82 ft

TEST PIT REPORT

CLIENT: R.W.Tomlinson Ltd.
PROJECT: Geotechnical Investigation
LOCATION: Lot 26 and 27, concession 6, Ottawa, Ontario
DESCRIBED BY: B.Beveridge DATE: November 10, 2008
CHECKED BY: J.Bennett DATE:

LEGEND

GSE - GRAB SAMPLE (environmental)
GS - GRAB SAMPLE (geotechnical)
Cu - SHEAR TEST
CHEM - CHEMICAL ANALYSIS
OVC - ORGANIC VAPOR CONCENTRATION
INF - INFILTRATION
▼ - WATER LEVEL

Depth Feet	Depth Metres	Elevation (ft) 298.82	Symbol	STRATIGRAPHY	Sample Type & Number	OVC ppm	Tests Type	▼ INF
0	0			FILL-silty clay, some brick, asphalt, concrete, gravel, cobbles, trace organics, brownish black, moist				
1								
	0.5							
2								
3								
	1.0							
4								
5								
	1.5							
6								
	2.0							
7								
8				-Water infiltration observed at 2.5m BGS				
	2.5							
9								
9.8		288.99						
10	3.0			End of Test Pit				
11								
	3.5							
12								
13								
	4.0							
14								
15								
	4.5							
16								
	5.0							
17								
18								
	5.5							
19								
	6.0							

TEST PIT LOG T020556-A1-TP(NOV-10-08).GPJ INSPEC_SOL.GDT 5/12/09

REFERENCE No.: T020556-A1 ENCLOSURE No.: 33

INSPEC-SOL

TEST PIT No.: TP6-01
ELEVATION: 302.56 ft

TEST PIT REPORT

CLIENT: R.W.Tomlinson Ltd.
PROJECT: Geotechnical Investigation
LOCATION: Lot 26 and 27, concession 6, Ottawa, Ontario
DESCRIBED BY: B.Beveridge DATE: November 10, 2008
CHECKED BY: J.Bennett DATE:

LEGEND

GSE - GRAB SAMPLE (environmental)
GS - GRAB SAMPLE (geotechnical)
Cu - SHEAR TEST
CHEM - CHEMICAL ANALYSIS
OVC - ORGANIC VAPOR CONCENTRATION
INF - INFILTRATION
▼ - WATER LEVEL

Depth Feet	Depth Metres	Elevation (ft) 302.56	Symbol	STRATIGRAPHY	Sample Type & Number	OVC ppm	Tests Type	▼ INF
0				FILL- silty clay, some asphalt, concrete and wood fragments, brownish black, moist				
1								
	0.5							
2								
3								
	1.0							
4								
5								
	1.5							
6								
	2.0							
7								
8								
	2.5							
9								
10								
	3.0							
11								
	3.5							
12								
13								
	4.0							
14								
14.8	4.5	287.81		SILTY CLAY -trace organics, brownish green, wet				
15				-Water infiltration was observed at 4.6m BGS				
15.5		287.06		SILTY SAND- trace cobbles, trace organics, greyish black, wet				
16								
16.3	5.0	286.23		SILTY CLAY- trace cobbles, grey, wet				
16.7		285.89		End of Test Pit				
17								
18	5.5							
19								
	6.0							

TEST PIT LOG T020556-A1-TP(NOV-10-08).GPJ INSPEC_SOL.GDT 5/12/09

REFERENCE No.: T020556-A1 ENCLOSURE No.: 34

INSPEC-SOL

TEST PIT No.: TP6-02
ELEVATION: 297.11 ft

TEST PIT REPORT

CLIENT: R.W.Tomlinson Ltd.
PROJECT: Geotechnical Investigation
LOCATION: Lot 26 and 27, concession 6, Ottawa, Ontario
DESCRIBED BY: B.Beveridge DATE: November 10, 2008
CHECKED BY: J.Bennett DATE:

LEGEND

GSE - GRAB SAMPLE (environmental)
GS - GRAB SAMPLE (geotechnical)
Cu - SHEAR TEST
CHEM - CHEMICAL ANALYSIS
OVC - ORGANIC VAPOR CONCENTRATION
INF - INFILTRATION
▼ - WATER LEVEL

Depth Feet	Depth Metres	Elevation (ft) 297.11	Symbol	STRATIGRAPHY	Sample Type & Number	OVC ppm	Tests Type	▼ INF
				FILL- silty clay, some cobbles, brick, asphalt and concrete fragments, black, moist				
1								
	0.5							
2								
3								
	1.0							
4								
5	1.5							
6								
	2.0							
7								
8	2.5							
9								
9.5		287.61		TOPSOIL-some organics, black, moist				
9.8	3.0	287.28		-Water infiltration observed at 2.90m BGS				
10				SILTY SAND- some organics,blackish grey, wet				
11								
	3.5							
12								
13	4.0							
13.8		283.36		SILTY CLAY- some sand, trace organics, brownish grey, wet				
14								
13.9		283.19		End of Test Pit				
	4.5							
15								
16								
	5.0							
17								
18	5.5							
19								
	6.0							

REFERENCE No.: T020556-A1 ENCLOSURE No.: 4

INSPEC•SOL

BOREHOLE No.: B6-1

ELEVATION: 91.25 m

BOREHOLE LOG

Page: 1 of 1

CLIENT: R.W.Tomlinson Ltd.

PROJECT: Geotechnical Investigation

LOCATION: Lot 26 and 27, concession 6, Ottawa, Ontario

DESCRIBED BY: B.Beveridge CHECKED BY: J.Bennett

DATE (START): October 23, 2008 DATE (FINISH): October 23, 2008

LEGEND

- SS Split Spoon
- ST Shelby Tube
- RC Rock Core
- Water Level
- o Water content (%)
- Atterberg limits (%)
- • N Penetration Index based on Split Spoon sample
- • N Penetration Index based on Dynamic Cone sample
- △ Cu Shear Strength based on Field Vane
- □ Cu Shear Strength based on Lab Vane
- S Sensitivity Value of Soil
- ▲ Shear Strength based on Pocket Penetrometer

SCALE		STRATIGRAPHY		SAMPLE DATA				
Depth BGS	Elevation (m)	Stratigraphy	DESCRIPTION OF SOIL AND BEDROCK	State	Type and Number	Recovery	Organic Vapour ppm or %LEL	Penetration Index / RQD
meters	91.25		GROUND SURFACE			%	ppm	N
1.0			FILL- silty clay, some gravel, asphalt fragments and sand, trace oxidation, very stiff, greyish brown, moist		SS1	67		17
	89.73							
2.0			FILL- silty clay, some gravel and sand, trace organics and oxidation, hard, greyish brown, moist		SS2	67		14
					SS3	67		6
3.0			-some trace of gravel to sand, becoming hard to very stiff, less organics					
			-trace to some sand, moist to wet		SS4	63		4
	87.44							
4.0			SANDY SILT- some gravel, very loose, brownish grey, wet		SS5	75		3
	86.68							
5.0			SANDY CLAY- some gravel, trace organics, oxidation, very stiff, greenish grey, moist		SS6	75		10
	85.92				SS7	0		R
	85.89		SANDY CLAY- some gravel, trace organics, very stiff, brownish grey, wet					
6.0			End of Borehole Auger Refusal Presumed Bedrock					
7.0								
8.0								
9.0								
10.0								
11.0								
12.0								
13.0								

SCALE FOR TEST RESULTS
50kPa 100kPa 150kPa 200kPa
10 20 30 40 50 60 70 80 90

NOTES:

BOREHOLE LOG T020556-A1-BH(OCT-31-08).GPJ INSPEC_SOL.GDT 5/12/09

REFERENCE No.: T020556-A1 ENCLOSURE No.: 5

INSPEC•SOL

BOREHOLE No.: B6-2

ELEVATION: 90.50 m

BOREHOLE LOG

Page: 1 of 1

CLIENT: R.W.Tomlinson Ltd.

PROJECT: Geotechnical Investigation

LOCATION: Lot 26 and 27, concession 6, Ottawa, Ontario

DESCRIBED BY: B.Beveridge CHECKED BY: J.Bennett

DATE (START): October 27, 2008 DATE (FINISH): October 27, 2008

LEGEND

- SS Split Spoon
- ST Shelby Tube
- RC Rock Core
- Water Level
- o Water content (%)
- Atterberg limits (%)
- • N Penetration Index based on Split Spoon sample
- • N Penetration Index based on Dynamic Cone sample
- △ Cu Shear Strength based on Field Vane
- □ Cu Shear Strength based on Lab Vane
- S Sensitivity Value of Soil
- ▲ Shear Strength based on Pocket Penetrometer

SCALE		STRATIGRAPHY		SAMPLE DATA					
Depth BGS	Elevation (m)	Stratigraphy	DESCRIPTION OF SOIL AND BEDROCK	State	Type and Number	Recovery	Organic Vapour ppm or %LEL	Penetration Index / RQD	SCALE FOR TEST RESULTS 50kPa 100kPa 150kPa 200kPa
meters	90.50		GROUND SURFACE			%	ppm	N	10 20 30 40 50 60 70 80 90
			FILL- silty clay, some gravel and asphalt fragments, trace organics, hard, brown, grey, moist						
1.0					SS1	67		23	
			-becomes hard to very stiff		SS2	21		R	
2.0					SS3	13		15	
3.0	87.40		SILTY CLAY- some sand and gravel, trace organics, very stiff, grey, brown moist		SS4	50		17	
	86.69		SANDY SILT- some sand and gravel, trace oxidation, stiff, grey, brown, moist		SS5	34		11	
4.0									
	85.93		SANDY SILT- some gravel and organics, compact, grey, moist		SS6	50		12	
5.0					SS7	0		R	
			-becomes compact to dense						
6.0	84.40				SS8	25		R	
	84.22		SANDY CLAY- some gravel, very stiff, brownish grey, moist						
7.0			End of borehole Auger Refusal Presumed Bedrock						
8.0									
9.0									
10.0									
11.0									
12.0									
13.0									

NOTES:

BOREHOLE LOG T020556-A1-BH(OCT-31-08).GPJ INSPEC_SOL.GDT 5/12/09

REFERENCE No.: T020556-A1 ENCLOSURE No.: 6

INSPEC·SOL

BOREHOLE No.: B6-3

ELEVATION: 91.84 m

BOREHOLE LOG

Page: 1 of 1

CLIENT: R.W.Tomlinson Ltd.

PROJECT: Geotechnical Investigation

LOCATION: Lot 26 and 27, concession 6, Ottawa, Ontario

DESCRIBED BY: B.Beveridge CHECKED BY: J.Bennett

DATE (START): October 31, 2008 DATE (FINISH): October 31, 2008

LEGEND

- SS Split Spoon
- ST Shelby Tube
- RC Rock Core
- Water Level
- o Water content (%)
- Atterberg limits (%)
- • N Penetration Index based on Split Spoon sample
- • N Penetration Index based on Dynamic Cone sample
- △ Cu Shear Strength based on Field Vane
- □ Cu Shear Strength based on Lab Vane
- S Sensitivity Value of Soil
- ▲ Shear Strength based on Pocket Penetrometer

SCALE		STRATIGRAPHY		MONITOR WELL	SAMPLE DATA				
Depth BGS	Elevation (m)	Stratigraphy	DESCRIPTION OF SOIL AND BEDROCK		State	Type and Number	Recovery	Organic Vapour ppm or %LEL	Penetration Index / RQD
meters	91.84		GROUND SURFACE	93.06 92.96			%	ppm	N
			FILL- silty clay and sand, trace gravel, asphalt fragments and organics, very stiff, brownish grey, moist	0.00		SS1			26
1.0	90.32		FILL- silty clay, some sand and asphalt fragments, trace oxidation, green brown grey, moist			SS2			55
2.0	89.55		FILL- silty clay, some gravel, trace organics, grey brown, moist			SS3			R
3.0	88.79 88.49		FILL- silty clay, some sand trace gravel, grey, moist			SS4			7
4.0			SILTY CLAY- trace gravel and root matter, stiff, brown / green / red / black, moist	4.27 WL 4.40		SS5			5
	87.27 87.19		-becoming stiff to firm	4.88		SS6			7
5.0	87.06		SANDY SILT- loose, blackish grey, wet	5.18		SS7			7
6.0	85.74		SILTY CLAY- some sand, greenish brown, wet			SS8			10
			SILTY SAND- , trace clay, loose, blackish grey, loose, wet	6.71					
7.0	84.52		SILTY SAND- loose blackish grey, wet	7.01					
8.0	83.81		SANDY SILT- some gravel, trace clay, very dense, grey, wet	8.03		SS9			R
9.0			End of Borehole Auger Refusal Presumed Bedrock						
10.0									
11.0									
12.0									
13.0									

SCALE FOR TEST RESULTS
50kPa 100kPa 150kPa 200kPa
10 20 30 40 50 60 70 80 90

NOTES:

BOREHOLE LOG T020556-A1-BH(OCT-31-08).GPJ INSPEC_SOL.GDT 5/12/09

REFERENCE No.: T020556-A1 ENCLOSURE No.: 7

INSPEC·SOL

BOREHOLE No.: B6-4

ELEVATION: 89.06 m

BOREHOLE LOG

Page: 1 of 1

CLIENT: R.W.Tomlinson Ltd.

PROJECT: Geotechnical Investigation

LOCATION: Lot 26 and 27, concession 6, Ottawa, Ontario

DESCRIBED BY: B.Beveridge CHECKED BY: J.Bennett

DATE (START): October 27, 2008 DATE (FINISH): October 27, 2008

LEGEND

- SS Split Spoon
- ST Shelby Tube
- RC Rock Core
- Water Level
- Water content (%)
- Atterberg limits (%)
- ● N Penetration Index based on Split Spoon sample
- • N Penetration Index based on Dynamic Cone sample
- △ Cu Shear Strength based on Field Vane
- □ Cu Shear Strength based on Lab Vane
- S Sensitivity Value of Soil
- ▲ Shear Strength based on Pocket Penetrometer

SCALE		STRATIGRAPHY		SAMPLE DATA					
Depth BGS	Elevation (m)	Stratigraphy	DESCRIPTION OF SOIL AND BEDROCK	State	Type and Number	Recovery	Organic Vapour ppm or %LEL	Penetration Index / RQD	SCALE FOR TEST RESULTS 50kPa 100kPa 150kPa 200kPa 10 20 30 40 50 60 70 80 90
meters	89.06		GROUND SURFACE			%	ppm	N	
			SANDY SILT- some organics, trace gravel, very loose, greenish grey, moist		SS1	58		7	● ▲
1.0									
	87.35				SS2	17		6	● ▲
2.0	87.23		SILTY CLAY- some sand, gravel and organics, trace oxidation, very stiff, blackish grey, moist						
			End of Borehole Auger Refusal Assumed Bedrock						
3.0									
4.0									
5.0									
6.0									
7.0									
8.0									
9.0									
10.0									
11.0									
12.0									
13.0									

NOTES:

BOREHOLE LOG T020556-A1-BH(OCT-31-08).GPJ INSPEC_SOL.GDT 5/12/09

REFERENCE No.: T020556-A1 ENCLOSURE No.: 2

INSPEC•SOL

BOREHOLE No.: B7-2

ELEVATION: 92.64 m

BOREHOLE LOG

Page: 1 of 1

CLIENT: R.W.Tomlinson Ltd.

PROJECT: Geotechnical Investigation

LOCATION: Lot 26 and 27, concession 6, Ottawa, Ontario

DESCRIBED BY: B.Beveridge CHECKED BY: J.Bennett

DATE (START): October 31, 2008 DATE (FINISH): October 31, 2008

LEGEND

- SS Split Spoon
- ST Shelby Tube
- RC Rock Core
- Water Level
- Water content (%)
- Atterberg limits (%)
- N Penetration Index based on Split Spoon sample
- N Penetration Index based on Dynamic Cone sample
- Cu Shear Strength based on Field Vane
- Cu Shear Strength based on Lab Vane
- S Sensitivity Value of Soil
- Shear Strength based on Pocket Penetrometer

SCALE		STRATIGRAPHY		MONITOR WELL	SAMPLE DATA				
Depth BGS	Elevation (m)	Stratigraphy	DESCRIPTION OF SOIL AND BEDROCK		State	Type and Number	Recovery	Organic Vapour ppm or %LEL	Penetration Index / RQD
meters	92.64		GROUND SURFACE	93.86 / 93.76			%	ppm	N
1.0			FILL- silty clay, some sand, gravel, asphalt and concrete fragments, trace organics, stiff, black, grey, brown, moist, petroleum odour	0.00		SS1	71		60
2.0			-some trace gravel and asphalt			SS2	50		11
3.0			-becoming very stiff to very soft, trace oxidation			SS3	21		3
	89.44		SILTY CLAY- trace sand, oxidation stiff, greenish brown, moist	3.66		SS4	75		4
4.0	88.83		SILTY CLAY- trace organics, oxidation, stiff, green, brown, red, moist	WL 3.96 / 4.01		SS5	100		5
5.0	87.76		SILTY CLAY- some gravel, sand, trace organics, stiff, black/grey, wet			SS6	46		13
	87.10		End of Borehole Auger Refusal Assumed Bedrock	5.54		SS7	18		R
6.0									
7.0									
8.0									
9.0									
10.0									
11.0									
12.0									
13.0									

SCALE FOR TEST RESULTS
50kPa 100kPa 150kPa 200kPa
10 20 30 40 50 60 70 80 90

NOTES:

BOREHOLE LOG T020556-A1-BH(OCT-31-08).GPJ INSPEC_SOL.GDT 5/12/09

REFERENCE No.: T020556-A1 ENCLOSURE No.: 3

iNSPEC•SOL

BOREHOLE No.: B7-3

ELEVATION: 90.62 m

BOREHOLE LOG

Page: 1 of 1

CLIENT: R.W.Tomlinson Ltd.

PROJECT: Geotechnical Investigation

LOCATION: Lot 26 and 27, concession 6, Ottawa, Ontario

DESCRIBED BY: B.Beveridge CHECKED BY: J.Bennett

DATE (START): October 22, 2008 DATE (FINISH): October 22, 2008

LEGEND

- SS Split Spoon
- ST Shelby Tube
- RC Rock Core
- Water Level
- Water content (%)
- Atterberg limits (%)
- ● N Penetration Index based on Split Spoon sample
- • N Penetration Index based on Dynamic Cone sample
- △ Cu Shear Strength based on Field Vane
- □ Cu Shear Strength based on Lab Vane
- S Sensitivity Value of Soil
- ▲ Shear Strength based on Pocket Penetrometer

SCALE		STRATIGRAPHY		SAMPLE DATA					
Depth BGS	Elevation (m)	Stratigraphy	DESCRIPTION OF SOIL AND BEDROCK	State	Type and Number	Recovery	Organic Vapour ppm or %LEL	Penetration Index / RQD	SCALE FOR TEST RESULTS 50kPa 100kPa 150kPa 200kPa 10 20 30 40 50 60 70 80 90
meters	90.62		GROUND SURFACE			%	ppm	N	
			FILL- sand and gravel, some clay, compact, brown, moist						
1.0					SS1	42		26	●
			-becoming compact to very dense		SS2	46		R	
2.0	88.54								
	88.21		SILTY SAND - some gravel, very dense, brown, dry		SS3	0		R	
			End of Borehole Auger Refusal						
3.0									
4.0									
5.0									
6.0									
7.0									
8.0									
9.0									
10.0									
11.0									
12.0									
13.0									

NOTES:

BOREHOLE LOG T020556-A1-BH(OCT-31-08).GPJ INSPEC_SOL.GDT 5/12/09

REFERENCE No.: T020556-A1 ENCLOSURE No.: 21

INSPEC·SOL

BOREHOLE No.: RB7-03

ELEVATION: 91.14 m

BOREHOLE LOG

Page: 1 of 1

CLIENT: R.W.Tomlinson Ltd.

PROJECT: Geotechnical Investigation

LOCATION: Lot 26 and 27, concession 6, Ottawa, Ontario

DESCRIBED BY: B.Beveridge CHECKED BY: J.Bennett

DATE (START): October 22, 2008 DATE (FINISH): October 22, 2008

LEGEND

- SS Split Spoon
- ST Shelby Tube
- RC Rock Core
- Water Level
- Water content (%)
- Atterberg limits (%)
- N Penetration Index based on Split Spoon sample
- N Penetration Index based on Dynamic Cone sample
- Cu Shear Strength based on Field Vane
- Cu Shear Strength based on Lab Vane
- S Sensitivity Value of Soil
- Shear Strength based on Pocket Penetrometer

SCALE		STRATIGRAPHY		SAMPLE DATA					
Depth BGS	Elevation (m)	Stratigraphy	DESCRIPTION OF SOIL AND BEDROCK	State	Type and Number	Recovery	Organic Vapour ppm or %LEL	Penetration Index / RQD	SCALE FOR TEST RESULTS 50kPa 100kPa 150kPa 200kPa 10 20 30 40 50 60 70 80 90
meters	91.14		GROUND SURFACE			%	ppm	N	
1.0			FILL- asphalt and concrete fragments, some gravel and sand, dense, brown black, dry		SS1	55		39	
2.0					SS2	30		8	
			-seepage at 2.60m depth		SS3	42		15	
3.0	88.09		SILTY SAND- trace gravel, organics, clay, very loose, grey, wet		SS4	38		2	
4.0					SS5	0		50+	
	86.45				SS6	50		R	
5.0			End of Borehole Auger Refusal Assumed Bedrock						
6.0									
7.0									
8.0									
9.0									
10.0									
11.0									
12.0									
13.0									

NOTES:

BOREHOLE LOG T020556-A1-BH(OCT-31-08).GPJ INSPEC_SOL.GDT 5/12/09

REFERENCE No.: T020556-A1 ENCLOSURE No.: 27

INSPEC-SOL

BOREHOLE No.: RB5-02

ELEVATION: 91.49 m

BOREHOLE LOG

Page: 1 of 1

CLIENT: R.W.Tomlinson Ltd.

PROJECT: Geotechnical Investigation

LOCATION: Lot 26 and 27, concession 6, Ottawa, Ontario

DESCRIBED BY: B.Beveridge CHECKED BY: J.Bennett

DATE (START): October 22, 2008 DATE (FINISH): October 22, 2008

LEGEND

- SS Split Spoon
- ST Shelby Tube
- RC Rock Core
- Water Level
- o Water content (%)
- Atterberg limits (%)
- • N Penetration Index based on Split Spoon sample
- • N Penetration Index based on Dynamic Cone sample
- △ Cu Shear Strength based on Field Vane
- □ Cu Shear Strength based on Lab Vane
- S Sensitivity Value of Soil
- ▲ Shear Strength based on Pocket Penetrometer

SCALE		STRATIGRAPHY		SAMPLE DATA					
Depth BGS	Elevation (m)	Stratigraphy	DESCRIPTION OF SOIL AND BEDROCK	State	Type and Number	Recovery	Organic Vapour ppm or %LEL	Penetration Index / RQD	SCALE FOR TEST RESULTS 50kPa 100kPa 150kPa 200kPa 10 20 30 40 50 60 70 80 90
meters	91.49		GROUND SURFACE			%	ppm	N	
1.0			FILL-silty clay, some gravel, trace organics, very stiff, greensih grey, moist		SS1	25		8	
	89.97		FILL- silty clay, some organics, very soft, brownish black, dry		SS2	5		3	
2.0	89.20		FILL- silty clay, trace organics, sand, gravel, firm, brown, moist		SS3	9		8	
3.0	88.44		FILL-silty clay, some gravel, trace organics, oxidation, firm, brownish green, moist		SS4	55		7	
4.0					SS5	55		9	
	86.92		FILL- silty clay some asphalt and gravel, hard, brown, black, moist		SS6	36		4	
5.0 ▼	86.16		FILL- silty clay, some sand, trace oxidation, firm, brownish green, moist		SS7	59		3	
6.0	85.39		TOPSOIL- some organics, trace sand, very soft, black wet		SS8	75		9	
	85.24		SILTY CLAY- trace sand, oxidation and organics, very stiff, greyish green, moist						
7.0									
8.0					SS9	100		7	
9.0	82.60		SILTY CLAY AND GRAVEL- very stiff, grey, wet		SS10	63		63	
10.0	81.13		End of Borehole Auger Refusal Assumed Bedrock						
11.0									
12.0									
13.0									

NOTES: