

DVP Hotel Development LP 552 Wellington Street West, Suite 1500 Toronto, ON M5V 2V5 File No. 20-153-206 August 28, 2020

Attention: Jimmy Sun

Subject: 175 Wynford Drive, Toronto, Ontario

HYDROGEOLOGICAL REVIEW REPORT

Grounded Engineering Inc. ("Grounded") is pleased to provide you with this Hydrogeological Review for the site known as 175 Wynford Drive, in Toronto, Ontario.

The following documents are provided as part of this package:

- City of Toronto Hydrogeological Review Summary Form
- Hydrogeological Review Report

As part of the development applications process, the City of Toronto requires that both documents are submitted together for review.

We trust that the information contained with this report is adequate for your present requirements. If we can be of further assistance, please do not hesitate to contact us.

GROUNDED ENGINEERING

Matthew Bielaski, P.Eng., QPESA-RA

Principal

Jeremy Bobro, M_{ENVM} Senior Consultant



HYDROLOGICAL REVIEW SUMMARY

The form is to be completed by the Professional that prepared the Hydrogeologic Review. Use of the form by the City of Toronto is not construed as verification of engineering/hydrological content. Refer to the Terms of Reference, hydrological Review

For City Staff Use Only:		
Name of ECS Case Manager (Please print)		
Date Review Summary provided to TW, EM&P		

IF ANY OF THE REQUIREMENTS LISTED BELOW HAVE NOT BEEN INLCUDED IN THE HYDROLOGICAL REVIEW, THE REVIEW WILL BE CONSIDERED INCOMPLETE.

THE GREY SHADED BOXES WILL REQUIRE A CONSISTANCY CHECK BY THE ECS CASE MANAGER

Summary of Key Information: Table 1 Site Information

SITE INFORMATION		Page # & Section # of Review	Review Includes this Information City Staff (Check)
Property Address	175 Wynford Drive, Toronto, Ontario	Title, i (Exec Sum), 1 (Sec 1)	
Postal Code	M1N 1T5	Title	
Property Owner (on request for comments memo)	DVP Hotel Development LP	Title, i (Exec Sum), 1 (Sec 1)	
Proposed description of the project (if applicable) (point towers, number of podiums)	4 Towers over 2 development phases, each with 8 storey podium and six [6] levels combined underground parking. Phase 1-Tower 1 – 54 storey and Tower 2 – 45 storey Phase 2-Tower 3 – 47 storey and Tower4 – 49 storey	i (Exec Sum), 1 (Sec 1)	
Land Use (ex. commercial, residential, mixed, institutional, industrial)	Current: Commercial Hotel Proposed: Residential and commercial	i (Exec Sum), 1 (Sec 1)	
Number of below grade levels for the proposed structure	P6 underground	i (Exec Sum), 1 (Sec 1)	
HYDROLOGICAL REVIEW INFORMATION			
Date Hydrological Review was prepared:	August 28, 2020	Title	
Who Performed the Hydrological Review (Consulting Firm)	Grounded Engineering Inc.	Title, i (Exec Sum), 2 (Sec 1)	
Name of Author of Hydrological Review	Matt Bielaski, P.Eng., QP _{ESA-RA} Jeremy Bobro, M _{ENVM}	2 (Sec 1), 11 (Sec 14)	



HYDROLOGICAL REVIEW SUMMARY

Check the directories on the website for Professional Geoscientists and/or Professional Engineers of Ontario been checked to ensure that the Hydrological Report has been prepared by a qualified person who is a licensed Professional Geoscientist as set out in the Professional Geoscientist Act of Ontario or a Professional Engineer? PEO:	✓ Yes	N/A	
http://peo.on.ca/index.php?ci_id=1798&la_id=1			
APGO:			
https://www.apgo.net/search/registered-			
Has the Hydrological Review been prepared in accordance with all the following:	✓ Yes	2 (Sec 1)	
Ontario Water Resources Act			
Ontario Regulation 387/04			
Toronto Municipal Code Chapter 681- Sewers			
		Page # & Section # of Review	Review Includes this Information City Staff (Check)
Total Volume (L/day) Short Term Discharge of	Groundwater Seepage: 246,900 L/day	ii (Exec Sum),	
groundwater (construction dewatering) with safety factor included	Rainfall: 360,500 L/day	6 (Sec 10)	
	Total: 607,400 L/day		
	What safety factor was used?		
	3.0 X		
Total Volume (L/day) Short Term Discharge of groundwater (construction dewatering) without safety factor included	82,300 L/day	N/A	
Total Volume (L/day) Long Term drainage of	83,330 L/day	ii (Exec Sum),	
groundwater (from foundation drainage,	What safety factor was used?	6 (Sec 10)	
weeping tiles, sub slab drainage) with safety factor included	3.0 X	,	
If the development is part of a multiple tower complex, include total volume for each separate tower			
List the nearest surface water (river, creek, lake)	Unnamed creek/tributary, 40 m north	3 (Sec 3)	
Lowest basement elevation	104 masl – Finished floor elevation 103.5 masl – Base of excavation	i (Exec Sum)	
Foundation elevation	102.5 masl – base of footings	i (Exec Sum)	
Ground elevation	132.0 masl	2 (Sec 1)	
L	ı		1



HYDROLOGICAL REVIEW SUMMARY

Measured ground water elevation	Groundwater levels range between 112.27 to 12897 masl	4 (Sec 5)	
Design ground water elevation (to account for seasonal fluctuations)	128.97 masl	4 (Sec 5)	

Table 2 Study Area Map

STUDY AREA MAP		Page # & Section # of Review	Review Includes this Information City Staff (Check)
Study area map(s) been prepared according to the Hydrological Review Terms of Reference.	✓ Yes	2-3 (Sec 2), Figures 1-2	N/A
The onsite well(s) referenced in the report have been installed at locations that represent the entire proximity of the Site (it is required that the well(s) be installed at a minimum of 38mm diameter and 2 meters below the lowest elevation in the proposed building structure(s) if the Site is larger than 30m X 30m.	✓ Yes	Figure 2 Appendix A	N/A

Table 3 Water Levels and Wells Information

WATER LEVEL AND WELLS		Page # & Section # of Review	Review Includes this Information City Staff (Check)
The groundwater level has been monitored using all wells located on Site (within property boundary).	✓ Yes	4 (Sec 5)	
The static water level measurements have been monitored at all monitoring wells for a minimum of 3 months with samples taken every 2 weeks for a minimum of 6 samples. The intent is for the qualified professional to use professional judgement to estimate the seasonally high groundwater level.	X No The required 3-months ground water level monitoring is currently ongoing for the Property. As such, additional water levels will continue to be collected.	4 (Sec 5)	
All water levels in the wells have been measured with respect to masl.	✓ Yes	4 (Sec 5)	
A table of geology/soil stratigraphy for the property has been included.	✓ Yes	i (Exec Sum), 3 (Sec 3)	

Table 4 Geology and Physical Hydrology Information

GEOLOGY	AND PHYSICAL HYDROLOGY	Page # & Section # of Review	Review Includes this Information City Staff (Check)
The review has made reference to the soil materials including thickness, composition and texture, and bedrock environments.	✓ Yes	3 (Sec 3)	
Key aquifers and the Site's proximity to nearby surface water has been identified.	✓ Yes	3 (Sec 3)	N/A



HYDROLOGICAL REVIEW SUMMARY

Table 5 Information on Pump test and analysis

PUMP TEST/S	LUG TEST/DRAWDOWN ANALYSIS	Page # & Section # of Review	Review Includes this Information City Staff (Check)
A summary of the pumping test data and analysis is included in the review.	X No	4-5 (Sec 6.1) Appendix E	
The pump test been carried out for at least 24 hours if possible? If not, has a slug test been conducted?	X No – 24 hr pumping test not conducted X No – Slug tests were not conducted	4-5 (Sec 6)	
Have the monitoring well(s) have been monitored using digital devices? If yes how frequently?	✓ Yes Yes, water level measurements have been taken using a digital water level meter. The frequency of the measurements will be every two weeks over the course of a 3 month period.	4 (Sec 5)	
If a slug or pump test has been conducted has the static groundwater level been monitored at all monitoring well(s) multiple times to measure recovery?	X No	N/A	N/A
-prior to the slug or pumping test(s)?	X No		
-post slug or pumping test(s)?	X No		
The above noted slug or pump tests have been included in the report.	X No	N/A	

Table 6 Water Quality information

WATER QUALITY		Page # & Section # of Review	Review Includes this Information City Staff (Check)
The report includes baseline water quality samples from a laboratory. The water quality must be analyzed for all parameters listed in Tables 1 and 2 of Chapter 681 Sewers of the Toronto Municipal Code (found in Appendix A) and the samples must have to be taken unfiltered within 9 months of the date of submission.	✓ Yes	5-6 (Sec 7), Appendix B	
The water quality data templates in Appendix A have been completed for each sample taken for both sanitary/combined and storm sewer limits.	For sanitary discharge- See the sanitary/combined sewer parameter limit template For storm discharge- See the storm sewer parameter limit template	8-11 of Hydrological Review Summary	
Qualified professional to list all sample parameters that have violated the Bylaw limits for each sample taken for the sanitary/combined Bylaw limits If there are any sample parameter	Sanitary Combined Sewer: None	5-6 (Sec 7)	
Exceedances the groundwater can't be discharged to sanitary/combined sewer as is.			



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Qualified professional to list all sample parameters that have violated the Bylaw limits for each sample taken for the storm Bylaw limits. If there are any sample parameter exceedances the groundwater can't be discharged to storm sewer as is.	Storm Sewer: Total Suspended Solids (Limit 15 mg/L, Result 226 mg/L) Manganese (Limit 0.005 mg/L, Result 0.398 mg/L)	5-6 (Sec 7)	
The water quality samples have been analyzed by a Canadian laboratory accredited and licensed by Standards Council of Canada and/or Canadian Association for Laboratory Accreditation. List of Canadian accredited laboratories: https://www.scc.ca/en/search/palcan	✓ Yes	Appendix B	N/A
A chain of custody record for the samples is included with the report.	✓ Yes	Appendix B	
Has the chain of custody reference any filtered sample? If yes, the report has to be amended and resubmitted to include only non-filtered samples.	X No	Appendix B	
List any of the sample parameters that exceed the Bylaw limits with the reporting detection limit (RDL) included.	Sanitary Combined Sewer: None Storm Sewer: Total Suspended Solids (Limit 15 mg/L, Result 226 mg/L) Manganese (Limit 0.005 mg/L, Result 0.398 mg/L)	5-6 (Sec 7), Appendix B	
A true copy of the Certificate of Analysis report, is included with the report.	✓ Yes	Appendix B	

Table 7 Evaluation of Impact

EV	ALUATION OF IMPACT	Page # & Section # of Review	Review Includes this Information City Staff (Check)
Does the report recommend a back-up system or relief safety valve(s)?	✓ Yes	5 (Sec 9)	
Does the associated Geotechnical report recommend a back-up system or relief safety valve(s)?	✓ Yes	N/A	
The taking and discharging of groundwater on Site has been analyzed to ensure that no negative impacts will occur to: the City sewage works in terms of quality and quantity (including existing infrastructure), the natural environment, and settlement issues.	✓ Yes	8-10 (Sec 11)	N/A



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Has it been determined that there will be a negative impact to the natural environment, City sewage works, or surrounding properties has the study identified the following: the extent of the negative impact, the detail of the precondition state of all the infrastructure, City sewage works, and natural environment within the effected zone and the proposed remediation and	X No	8-10 (Sec 11)	N/A
and the proposed remediation and monitoring plan?			

Summary of Additional Information and Key Items (if applicable):



HYDROLOGICAL REVIEW SUMMARY

Appendix A:

Chapter 168 – Table 1 Sanitary Combined Sewer Limits

Chapter 168 – Table 2 Storm Sewer Limits

Sample Location: MW3-15

Parameter	Table 1	Table 2	Units	Sample Result	Sample Result with	upper RDL* included
	Limit	Limit				
Inorganics	6.0 - 11.5	6.0 - 9.5	SU	7.09	7.09	0.05
pH		15	mg/L	< 4	< 4	2
BOD	300				<u> </u>	_
Phenolics (4AAP)	1	0.008	mg/L	< 0.002	< 0.002	0.002
TSS	350	15	mg/L	226	226	2
Total Cyanide	2	0.02	mg/L	< 0.01	< 0.01	0.01
Fluoride	10	n/a	mg/L	0.11	0.11	0.06
TKN	100	n/a	mg/L	0.6	0.6	0.5
Metals	_	0.04	/1	. 0 0000		0.000
Chromium Hexavalent	2	0.04	mg/L	< 0.0002	< 0.0002	0.0002
Total Mercury	0.01	0.0004	mg/L	< 0.00001	< 0.00001	0.00001
Total Aluminum	50	n/a	mg/L	0.825	0.825	0.001
Total Antimony	5	n/a	mg/L	< 0.0009	< 0.0009	0.0009
Total Arsenic	1	0.02	mg/L	0.0038	0.0038	0.0002
Total Cadmium	0.7	0.008	mg/L	0.000012	0.000012	0.000003
Total Chromium	4	0.08	mg/L	0.00137	0.00137	0.00008
Total Cobalt	5	n/a	mg/L	0.000461	0.000461	0.000004
Total Copper	2	0.4	mg/L	0.0021	0.0021	0.0002
Total Lead	1	0.12	mg/L	0.00081	0.00081	0.00001
Total Manganese	5	0.05	mg/L	0.398	0.398	0.00001
Total Molybdenum	5	n/a	mg/L	0.00221	0.00221	0.00004
Total Nickel	2	0.08	mg/L	0.0011	0.0011	0.0001
Total Phosphorus	10	0.4	mg/L	0.091	0.091	0.003
Total Selenium	1	0.02	mg/L	< 0.00004	< 0.00004	0.00004
Total Silver	5	0.12	mg/L	< 0.00005	< 0.00005	0.00005
Total Tin	5	n/a	mg/L	0.00060	0.00060	0.00006
Total Titanium	5	n/a	mg/L	0.0383	0.0383	0.00005
Total Zinc	2	0.04	mg/L	0.008	0.008	0.002
Microbiology						
E.coli	n/a	200	CFU	< 2	< 2	2
Petroleum Hydrocarbons						
Animal/Vegetable Oil & Grease	150	n/a	mg/L	< 4	< 4	4
Mineral/Synthetic Oil & Grease	15	n/a	mg/L	< 4	< 4	4
Volatile Organics						
Benzene	0.01	0.002	mg/L	< 0.0005	< 0.0005	0.0005
Chloroform	0.04	0.002	mg/L	< 0.0005	< 0.0005	0.0005
1,2-Dichlorobenzene	0.05	0.0056	mg/L	< 0.0005	< 0.0005	0.0005
1,4-Dichlorobenzene	0.08	0.0068	mg/L	< 0.0005	< 0.0005	0.0005
Cis-1,2-Dichloroethylene	4	0.0056	mg/L	< 0.0005	< 0.0005	0.0005
Trans-1,3-Dichloropropylene	0.14	0.0056	mg/L	< 0.0005	< 0.0005	0.0005
Ethyl Benzene	0.16	0.002	mg/L	< 0.0005	< 0.0005	0.0005
Methylene Chloride	2	0.0052	mg/L	< 0.0005	< 0.0005	0.0005



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Parameter	Table 1 Limit	Table 2 Limit	Units	Sample Result	Sample Result with	upper RDL* included
1,1,2,2-Tetrachloroethane	1.4	0.017	mg/L	< 0.0005	< 0.0005	0.0005
Tetrachloroethylene	1	0.0044	mg/L	< 0.0005	< 0.0005	0.0005
Toluene	0.016	0.002	mg/L	< 0.0005	< 0.0005	0.0005
Trichloroethylene	0.4	0.0076	mg/L	< 0.0005	< 0.0005	0.0005
Total Xylenes	1.4	0.0044	mg/L	< 0.0005	< 0.0005	0.0005
Semi-Volatile Organics						
Di-n-butyl Phthalate	0.08	0.015	mg/L	< 0.002	< 0.002	0.002
Bis (2-ethylhexyl) Phthalate	0.012	0.0088	mg/L	0.006	0.006	0.002
3,3'-Dichlorobenzidine	0.002	0.0008	mg/L	< 0.0005	< 0.0005	0.0005
Pentachlorophenol	0.005	0.002	mg/L	< 0.0005	< 0.0005	0.0005
Total PAHs	0.005	0.002	mg/L	< 0.001	< 0.001	
Hexachlorocyclohexane	n/a	0.1	mg/L	Par	ameter Not In By-Law	May 2016
Misc Parameters						
Nonylphenols	0.02	0.001	mg/L	< 0.001	< 0.001	0.001
Nonylphenol Ethoxylates	0.2	0.01	mg/L	< 0.01	< 0.01	0.01
Temperature	< 60	< 40	°C	9	9	
РСВ	0.001	0.0004	mg/L	< 0.0001	< 0.0001	0.0001

^{*} RDL corresponds to SGS Reporting Detection Limits

Sample Collected: July 28, 2020

Temperature: 9°C

Consulting Firm that prepared Hydrological Report: Grounded Engineering Inc.

Qualified Professional who completed the report summary: <u>Matthew Bielaski, P.Eng., QP_{ESA-RA}</u>
Print Name

Qualified Professional who completed the report summary:



Signature

Date & Stamp



HYDROLOGICAL REVIEW SUMMARY



HYDROGEOLOGICAL **REVIEW REPORT**

PREPARED FOR:

DVP Hotel Development LP 552 Wellington Street West, Suite 1500 Toronto, ON M5V 2V5

ATTENTION: Jimmy Sun

175 Wynford Drive | Toronto, Ontario

Grounded Engineering Inc. File No.

20-153-206

Issued

Aug. 28, 2020



Executive Summary

Grounded Engineering Inc. (Grounded) was retained by DVP Hotel Development LP to conduct a Hydrogeological Review for the proposed redevelopment of 175 Wynford Drive in Toronto, Ontario (site). The conclusions of the investigation are summarized as follows:

Development Information

Current Development						
		Below Grade Levels				
Development Phase	Above Grade		Lowest Finished Floor		Approximate	
Levels	Level #	Depth (m)	Elevation (masl)	Base of Footings (masl)		
1	6	1	Unknown	Unknown	Unknown	
2	2	1	Unknown	Unknown	Unknown	

Proposed Development					
			Belov	V Grade Levels	
Development Phase	Above Grade		Lowest F	Approximate	
Development i nase	Levels	Level #	Depth (m)	Elevation (masl)	Base of Footings (masl)
1-T1	54	6	28	104	102.5
1-T2	45	6	28	104	102.5
2-T3	47	6	28	104	102.5
2-T4	49	6	28	104	102.5

Site Conditions

Site Stratigraphy				
Stratum/Formation	Aquifer or Aquitard	Depth Range (mbgs)	Elevation Range (masl)	Hydraulic Conductivity (m/s)
Earth Fill	Aquifer	0 to 3	132.5 to 129.2	1.0 x 10 ^{-6***}
Glacial till	Aquifer	0 to 45	130.4 to 86.9	1.0 x 10 ^{-7***}
Sand and silt	Aquifer	0 to 42	131.1 to 89.8	1.0 x 10 ^{-6***}

^{*}Indicates conductivity was calculated by Slug Test

^{***}Indicates conductivity was estimated using typical published values from Freeze and Cherry (1979)

Maximum Groundwater Elevation	on	
Monitoring Well ID	Depth Below Grade (m)	Elevation (masl)
BH1	2.76	128.97
BH2	2.05	127.55
BH101	7.87	124.46
BH102	10.10	121.93

^{**}Indicates conductivity was estimated using grain size analysis



BH201	10.70	121.60
BH202	9.32	120.78
MW1S-15	10.94	116.56
MW1D-15	14.61	112.89
MW2-15	3.52	128.18
MW3-15	2.83	127.07

Groundwater Qu	ıality			
Sample ID	Sample Date	Sample Expiry Date	City of Toronto Storm Sewer Limits	City of Toronto Sanitary and Combined Sewer Limits
MW3-15	July 28, 2020	April 28, 2020	Exceeds	Meets

Groundwater Control

Stored Groundwater (pre-excavation/dewatering)				
Volume of Excavation (m ³)	Volume of Excavation Below Water Table (m³)	Volume of Storage Groundwater (m³)	Volume of Storage Groundwater (L)	
323.400	308,385	96.120	96,120,000	

Short Term (Construction) Groundwater Quantity – Safety Factor of 3.0 Used					
Ground Wate	r Seepage	Design Rainfa	ll Event (25mm)	Total Daily Wa	ter Takings
L/day	L/min	L/day	L/min	L/day	L/min
246,900	171.5	360,500	208.3	607,400	421.8

Long Term (Per	manent) Groun	dwater Quantity - S	Safety Factor of 1.5 Us	ed	
Ground Wate	er Seepage	Infiltration Design Rainfall Event (25mm)		Total Daily Wa	nter Takings
L/day	L/min	L/day	L/min	L/day	L/min
249,990	173.6	3,450	2.4	253,440	176.0

Zone of Influence	
Zone of Influence	Potential Settlement
44 m	24 mm

Regulatory Requirements		
Environmental Activity and Sector Registry (EASR) Posting	N/A	
Short Term Permit to Take Water (PTTW)	Required	
Long Term Permit to Take Water (PTTW)	Required	
Short Term Discharge Agreement City of Toronto	Required	
Long Term Discharge Agreement City of Toronto	Required	



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FIGURES

Figure 1 – Study Area Map

Figure 2 - Hydrological cross-section

APPENDICES

Appendix A – Borehole Plan and Logs by Others

Appendix B – Laboratory Certificate of Analysis

Appendix C - Finite Element Model



1 Introduction

DVP Hotel Development LP has retained Grounded Engineering Inc. ("Grounded") to provide hydrogeological engineering design advice for their proposed development at 175 Wynford Drive, in Toronto, Ontario.

Property Information	
Location of Property	175 Wynford Drive
Ownership of Property	DVP Hotel Development LP
Property Dimensions (m)	170 X 130
Property Area (m2)	21,920

Existing Development	
Number of Building Structures	2
Number of Above Grade Levels	Two [2] and six [6] storey
Number of Underground Levels	1 basement level
Sub-Grade Depth of Development (m)	Unknown
Sub-Grade Area (m2)	Unknown
Land Use Classification	Commercial

Proposed Development	
Number of Building Structures	4 Towers over 2 development phases, each with 8 storey podium
Number of Above Grade Levels	Phase 1-Tower 1 – 54 storey
	Phase 1-Tower 2 – 45 storey
	Phase 2-Tower 3 – 47 storey
	Phase 2-Tower4 – 49 storey
Number of Underground Levels	Six [6] level underground garage
Sub-Grade Depth of Development (m)	28
Sub-Grade Area (m²)	11,550



Land Use Classification Resi	dential and commercial use
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Qualified Person and Hydrogeological Review Information			
Qualified Person	Matt Bielaski, P.Eng.		
Consulting Firm	Grounded Engineering Inc.		
Date of Hydrogeological Review	Aug. 28, 2020		
Scope of Work	 Review of MECP Water Well Records for the area Review of geological information for the area Review of topographic information for the area Ground water sampling and analysis to the City of Toronto Sewer Use Limits Assessment of ground water controls and potential impacts Report preparation in accordance with Ontario Water Resources Act, Ontario Regulation 387/04 and Toronto Municipal Code Chapter 681 		

General Hydrogeological Characterization			
Property Topography	The site has an approximate ground surface elevation of 132 masl.		
Local Physiographic Features	The site is composed of sandy silt till and clayey silt till deposits with and sand layers.		
Regional Physiographic Features	The West St Lawrence Lowland consists of a limestone plain (elevation 200–250 masl) that is separated by a broad, shale lowland from a broader dolomite and limestone plateau west of Lake Ontario. This plateau is bounded by the Niagara Escarpment. From the escarpment the plateau slopes gently southwest to lakes Huron and Erie (elevation 173 masl). Glaciation has mantled this region with several layers of glacial till (i.e., an unsorted mixture of clay, sand, etc.), the youngest forming extensive, undulating till plains, often enclosing rolling drumlin fields.		
Surface Drainage	Surface water is expected to flow to the municipal roads located on adjacent East and South of the site.		

2 Study Area Map

A map has been enclosed which shows the following information:

- All monitoring wells identified on-site
- All monitoring wells identified off-site within the study area
- All boreholes identified on-site



- All buildings identified on Site and within the study area
- The property boundaries of the Site
- Any watercourses and drainage features within the study area.

3 Geology and Physical Hydrogeology

The site stratigraphy, including soil materials, composition and texture are presented in detail on the borehole logs in Appendix A. A summary of stratigraphic units that were encountered at the site are as follows:

Site Stratigraphy				
Stratum/Formation	Aquifer or Aquitard	Depth Range (mbgs)	Elevation Range (masl)	Hydraulic Conductivity (m/s)
Earth Fill	Aquifer	0 to 3	132.5 to 129.2	1.0 x 10 ⁻⁶
Glacial till	Aquifer	0 to 45	130.4 to 86.9	1.0 x 10 ⁻⁷
Sand and silt	Aquifer	0 to 42	131.1 to 89.8	1.0 x 10 ⁻⁶

Bedrock			
Stratum	Depth Range (mbgs)	Elevation Range (masl)	Hydraulic Conductivity (m/s)
Weathered	40 to 45	86 to 89	1 X 10 ⁻⁹

Surface Water		
Surface Water Body	Distance from site (m)	Hydraulically Connected to Property (yes/no)
Unnamed creek/tributary	40 m North	Yes

4 Monitoring Well Information

Well ID	Well Dia (mm)	Ground Surface (masl)	Top of Screen (masl)	Bottom of Screen (masl)	Screened Geological Unit
BH1	50	131.73	122.60	119.50	Silty clay
BH2	50	129.60	126.60	123.50	Sandy silt till
BH101	50	132.33	123.20	120.10	Silty clay
BH102	50	132.03	123.50	120.40	Sandy silt till



Well ID	Well Dia (mm)	Ground Surface (masl)	Top of Screen (masl)	Bottom of Screen (masl)	Screened Geological Unit
BH201	50	132.30	123.20	120.10	Sandy silt till
BH202	50	130.10	121.00	117.90	Sandy silt till
MW1S-15	50	127.50	115.46	113.96	Sandy silt
MW1D-15	50	127.50	112.85	111.35	Sandy silt
MW2-15	50	131.70	121.08	117.98	Sand and silt
MW3-15	50	129.90	120.81	117.71	Sandy silt

5 Ground Water Elevations

Well ID			Groun	dwater Elevation	on (masl)		
Well ID	2-Nov-15	16-Feb-18	23-Jul-18	2-Oct-18	10-Oct-18	9-Apr-20	28-Jul-20
BH1	-	124.79	127.46	-	128.97	128.31	-
BH2	-	126.48	127.55	-	126.43	126.53	-
BH101	-	-	120.41	-	124.46	124.55	-
BH102	-	-	121.37	-	121.93	121.88	-
BH201	-	-	-	121.33	121.60	121.62	-
BH202	-	-	-	119.49	120.78	120.57	-
MW1S-15	116.56	-	-	-	-	-	116.27
MW1D-15	112.89	-	-	-	-	-	112.27
MW2-15	123.20	-	-	-	-	-	128.18
MW3-15	120.88	-	-	-	-		127.07

6 Aquifer Testing

6.1 Pump Test

A pumping test was attempted at the site by Atlas Dewatering on March 27, 2018. Atlas advanced four 17 m deep wells onsite. The goal of a pumping test is to estimate hydraulic properties of an aquifer system which include transmissivity, hydraulic conductivity (horizontal and vertical) and storativity (storage coefficient). Pumping tests can identify and locate recharge and no-flow boundaries that may limit the lateral extent of aquifers as well.



The pumping test was attempted at a constant rate of 1.5 L/min for approximately one hour. The pumping well was not able to maintain this flow rate and went dry after one hour. No flow rate was observed after 3 hours of pumping at a constant rate.

6.2 Single Well Response Test (Slug Test)

No slug tests were conducted at the site.

6.3 Soil Grain Size Distribution

Soil grain size analyses were conducted during the RJ Burnside investigation in 2015. One sample was analyzed from MW1, MW2 and MW3 at 9, 7, and 6 m depths respectively.

6.4 Literature

According to Freeze and Cherry (1979), the typical hydraulic conductivity of the strata investigated at the site are:

Stratum/Formation	Hydraulic Conductivity (m/s)
Earth Fill	1.0 x 10 ⁻⁶
Sand and silt	1.0 x 10 ⁻⁶
Glacial Till	1.0 X 10 ⁻⁷

7 Water Quality

One (1) unfiltered ground water sample was collected and analyzed by a Canadian laboratory accredited and licensed by Standards Council of Canada and or Canadian Association for Laboratory Accreditation.

The sample was collected directly from monitoring well MW3-15 on July 28, 2020. The sample was analyzed for the following parameters:

- City of Toronto Municipal Code Chapter 681 Table 1 Limits for Sanitary and Combined Sewers Discharge
- City of Toronto Municipal Code Chapter 681 Table 2 Limits for Storm Sewer Discharge

The ground water sample exceeded the Limits for Storm Sewer Discharge for the following parameters:

- Total Suspended Solids (Limit 15 mg/L, Result 226 mg/L)
- Manganese (Limit 0.005 mg/L, Result 0.398 mg/L)



The ground water sample met the Limits for Sanitary and Combined Sewer Discharge for all parameters analyzed.

A true copy of the analysis report, Certificate of Analysis and a chain of custody record for the sample are enclosed.

8 Proposed Construction Method

The proposed shoring at the site will likely consist of conventional soldier piling and lagging; however, ultimate design considerations have not been finalized. Pending confirmation of foundation and column loads, the proposed structure will likely be founded on a combination of spread/strip footings and/or deep foundations.

9 Private Water Drainage System (PWDS)

If the proposed development is not a leak tight structure, then a private water drainage system will be required. The total sub floor drain area will be approximately 11,550 m² based on the preliminary drawings which have been provided.

If the development is designed with a private water drainage system, the drainage system is a critical structural element, since it keeps water pressure from acting on the basement walls and floor slab. As such, the sump that ensures the performance of this system must have a duplexed pump arrangement for 100% pumping redundancy and these pumps must be on emergency power. The size of the sump should be adequate to accommodate the estimated groundwater seepage. It is anticipated that the groundwater seepage can be controlled with typical, widely available, commercial/residential sump pumps.

10 Groundwater Extraction and Discharge

Numerical analyses were conducted for both short-term and long-term dewatering scenarios. The modeling was conducted using computer software, which deploys the finite element modelling method. The Finite Element Model (FEM) for groundwater seepage indicates the short-term (construction) and long-term (permanent) dewatering requirements as provided below. The finite element model results are presented in Appendix C.

The groundwater seepage estimates, which have been provided, represent the steady state ground water seepage. There will be an initial drawdown of the groundwater before a steady state condition is reached. The rate of the initial drawdown, and therefore discharge, is dependent on the dewatering contractor and how the groundwater is being dealt with at the site. An estimate initial volume of stored groundwater which will require removal before steady state is reached has been provided below.



Please note that if excavation is exposed to the elements, storm water will have to be managed. The short-term control of groundwater should consider stormwater management from rainfall events. A dewatering system should be designed to consider the removal of rainfall from excavation. A design storm of 25 mm has been used in the quantity estimates.

As required by Ontario Regulation 63/16, a plan for discharge must consider the conveyance of storm water from a 100-year storm. The additional volume that will be generated in the occurrence of a 100-year storm event is approximately 1,128,000 L.

Stored Groundwater (pre-exc	cavation/dewatering)		
Volume of Excavation (m³)	Volume of Excavation Below Water Table (m³)	Volume of Storage Groundwater (m³)	Volume of Storage Groundwater (L)
323,400	308,385	96,120	96,120,000

Short Term (Cor	nstruction) Grou	undwater Quantity -	- Safety Factor of 3.0	Used	
Ground Wate	er Seepage	Design Rainfa	ll Event (25mm)	Total Daily Wa	ter Takings
L/day	L/min	L/day	L/min	L/day	L/min
246,900	171.5	360,500	208.3	607,400	421.8

Long Term (Per	manent) Groun	dwater Quantity – S	Safety Factor of 1.5 Use	ed	
Ground Wate	er Seepage		ign Rainfall Event 5mm)	Total Daily Wa	nter Takings
L/day	L/min	L/day	L/min	L/day	L/min
249,990	173.6	3,450	2.4	253,440	176.0

Regulatory Requirements	
Environmental Activity and Sector Registry (EASR) Posting	N/A
Short Term Permit to Take Water (PTTW)	Required
Long Term Permit to Take Water (PTTW)	Required
Short Term Discharge Agreement City of Toronto	Required
Long Term Discharge Agreement City of Toronto	Required



Please note:

- The native soils must be dewatered a minimum of 1.2 m below the footing elevation prior to excavation to preserve the in-situ integrity of the native soils during construction dewatering activities. It is anticipated that the groundwater elevation will rise to the elevation of the subfloor drainage in the event of a drained structure or the waterproofing in the event of a leak tight structure.
- The proposed pump schedule for short-term construction dewatering has not been completed. As such the actual peak short-term discharge rate is not available at the time of writing this report. The pump schedule must be specified by either the dewatering contractor retained or the mechanical consultant.
- The proposed pump schedule for long-term permanent drainage has not been completed. As such the actual peak long-term discharge rate is not available at the time writing of this report. The pump schedule must be specified by the mechanical consultant.
- Leak tight structure (structure that has not included a private water drainage system) has not been considered as part of the proposed development at this time.
- On-site containment (infiltration gallery/dry well etc.) has not been considered as part of the proposed development at this time. If this option is considered additional work will have to be conducted (i.e. infiltration testing).

11 Evaluation of Impact

11.1 Zone of Influence (ZOI)

The Zone of Influence (ZOI) with respect to ground water was calculated based on the estimated ground water taking rate and the hydraulic conductivity of the unit which water will be taken at the Property.

The ZOI was calculated using the Sichardt equation below.

Equation: $R_0 = 3000*dH*K^{0.5}$

Where:

dH is the dewatering thickness (m)

K is the hydraulic conductivity (m/s)

Calculation:

The ZOI with respect to groundwater seepage at the site is:



 $R_0 = 3000*26.7 \text{m}*(3.0 \text{ x } 10^{-7})^{0.5} \text{ m/s}$

 $R_0 = \pm 44 \text{ m}$

11.2 Land Stability

The impacts to land stability of the proposed short- and long-term dewatering at the site and adjacent properties can be found in Grounded's geotechnical report under a separate cover (File No. 20-153).

11.3 City's Sewage Works

Negative impacts to City's sewage works may occur in terms of the quantity or quality of the groundwater discharged. This report provided the estimated quantity of the water discharge. However, this report does not speak to the sewer capacities. The sewer capacity analysis is provided under a separate cover by the civil consultant.

The quality of the proposed groundwater discharge is provided in previous Sections. As noted in that section the ground water sample exceeded the Limits for Storm Sewer Discharge and met the Limits for Sanitary and Combined Sewer Discharge.

As such additional treatment will be required before the water can be discharge to the Storm Sewer and additional treatment will not be required before the water can be discharged to the Sanitary and Combined Sewer, to avoid impacts to the City's sewage works cause by ground water quality.

11.4 Natural Environment

There are is an unnamed creek/tributary waterbody within the ZOI that could potentially be caused by the proposed construction dewatering or permanent drainage. Any groundwater which will be taken from the site will be discharged into the City's sewer systems and not into any natural water body.

11.5 Local Drinking Water Wells

The site is located within the municipal boundaries of the City of Toronto. The site and surrounding area are provided with municipal piped water and sewer supply. There is no use of the ground water for water supply in this area of Toronto. As such, there will be no impact to drinking water wells.

11.6 Contamination Source

The site and immediately surrounding area currently consist mostly of residential and commercial areas. These land uses are not anticipated to be a source of potential contamination and are not



expected to provide an Area of Potential Environmental Concern for the site. As such, the pumping of groundwater at the site is not anticipated to facilitate the movement of potential contaminants onto the site. Evaluation of the environmental condition of the site has been completed under a separate cover by others.

12 Proposed Mitigation Measures and Monitoring Plan

The extent of the negative impact identified in pervious sections and will be limited to the ZOI caused by the groundwater taking at the site.

As a result of dewatering and draining the soil, changes in ground water level have the potential to cause settlement based on the change in the effective stresses within the ZOI.

If adjacent buildings or municipal infrastructure are within the ZOI and will undergo settlement that may be considered unacceptable as identified the Land Stability Section, consideration should be given to implement a monitoring and mitigation program during dewatering activities.

Both the temporary construction dewatering system and the permanent building drainage system must be properly installed and screened to ensure sediments and fines will not be removed, which is typically a primary cause of dewatering related settlement.

13 Limitations

Natural occurrences, the passage of time, local construction, and other human activity all have the potential to directly or indirectly alter the subsurface conditions at or near the project site. Contractual obligations related to groundwater or stormwater control must be considered with attention and care as they relate this potential site alteration.

The hydrogeological engineering advice provided in this report is based on the factual observations made from the site investigations as reported. It is intended for use by the owner and their retained design team. If there are changes to the features of the development or to the scope, the interpreted subsurface information, geotechnical engineering design parameters, advice, and discussion on construction considerations may not be relevant or complete for the project. Grounded should be retained to review the implications of such changes with respect to the contents of this report.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Grounded accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report, including consequential financial effects on transactions or property values, or requirements for follow-up actions and costs.



13.1 Report Use

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14 Closure

If there are any questions regarding the discussion and advice provided, please do not hesitate to contact our office. We trust that this report meets your requirements at present.

For and on behalf of our team,



Toll !

Jeremy Bobro, M_{ENVM} Senior Consultant M. J. BIELASKI TO 100131738

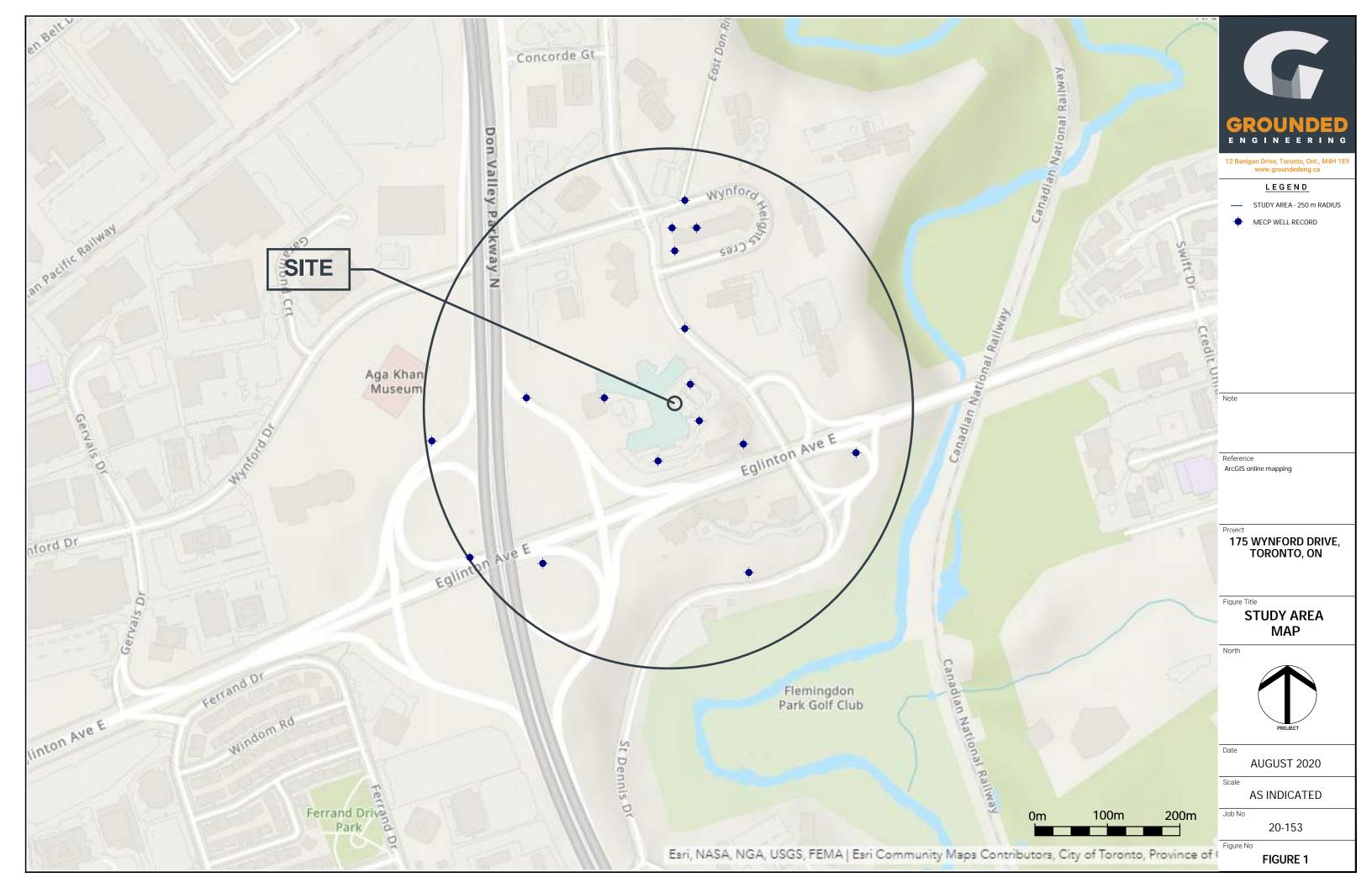
2020-08-28

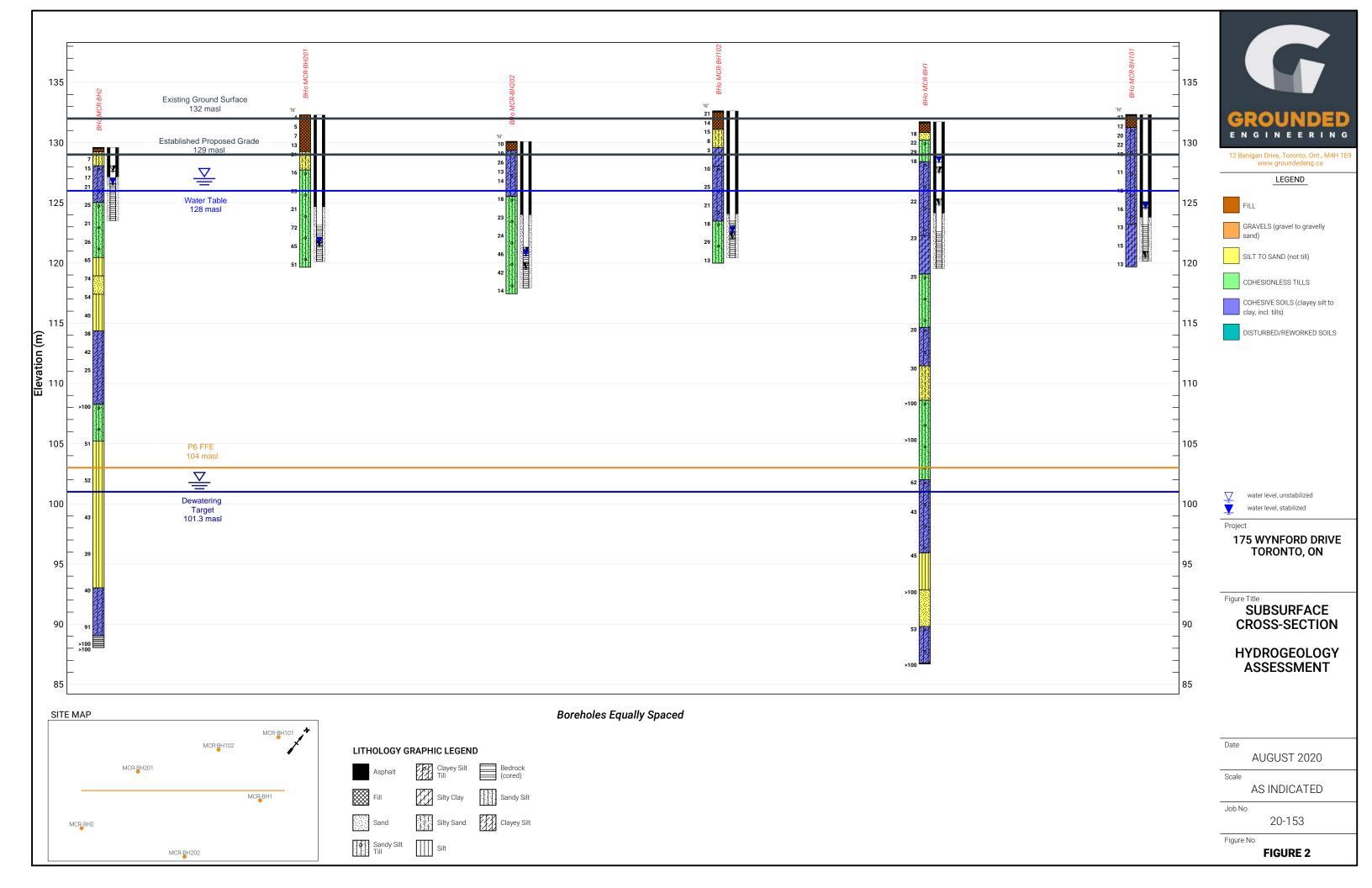
POVINCE OF ONTARIO

Matthew Bielaski, P.Eng., QP_{ESA-RA} Principal

FIGURES

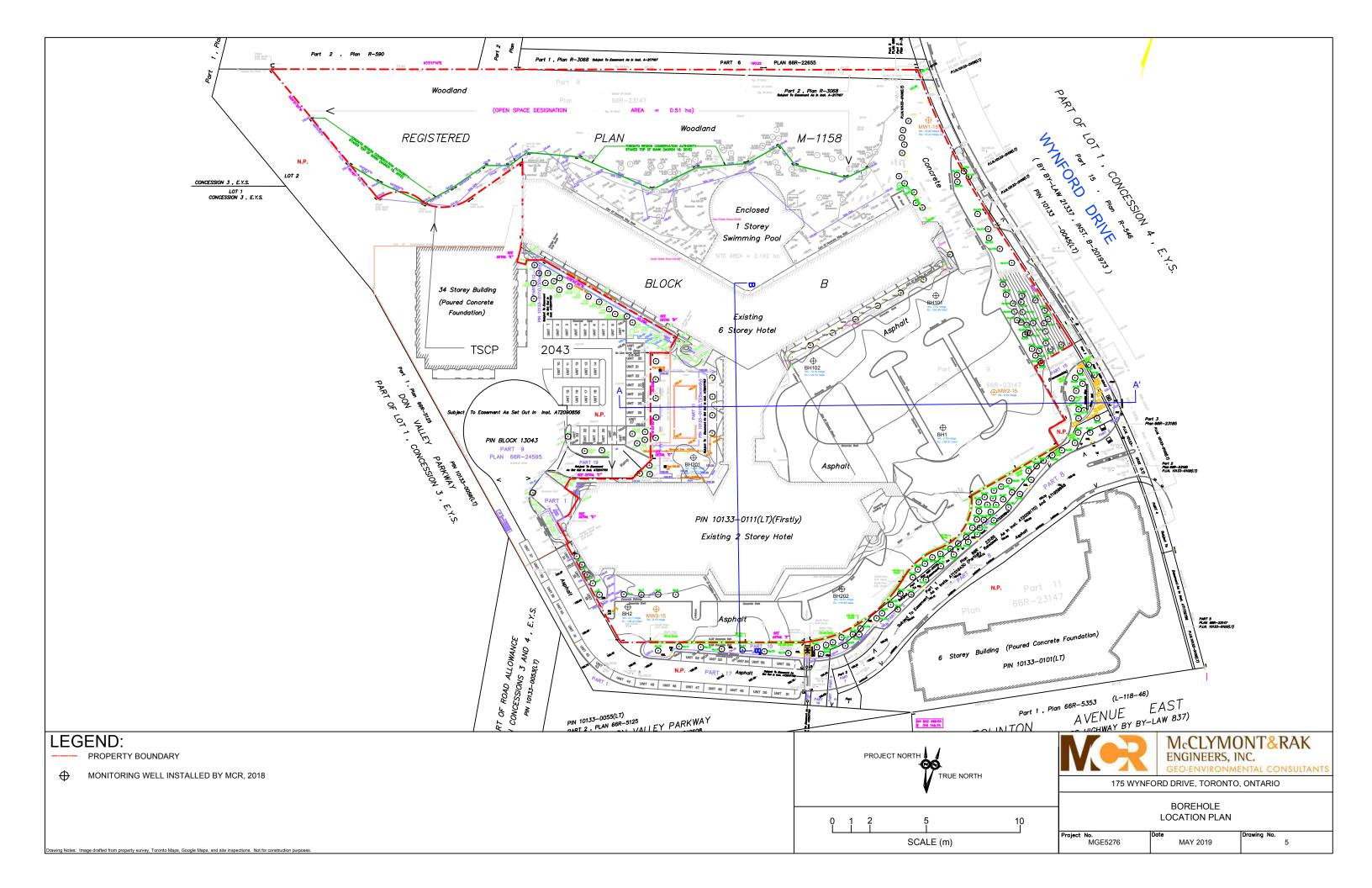






APPENDIX A





PROJECT : MGE5276

LOCATION : 175 Wynford Drive, Toronto, Ontario

STARTED : January 3, 2018
COMPLETED : January 11, 2018

MC CLYMONT & RAK ENGINEERS, INC.

SHEET 1 OF 2

ш	С	SOIL PROFILE			SA	MPL	ES	ORGANIC (ppm)	VAPOUR	REA	DINGS ⊗	SHEA	R STRI nat V	ENGTH:	Cu, K	Pa Q - X U - ∆	. (1)	
metres)	ORING METHOD		ОТ				Ē		200 30	0 4	400	2			60	Ū - ▲ 80	ADDITIONAL LAB. TESTING	PIEZOMETER
netre	Ø Ø	DESCRIPTION	STRATA PLOT	ELEV.	NUMBER	TYPE	BLOWS/0.3m	% LEL -		-		\vdash		NTENT	. PER		TES	OR STANDPIPE
metrine)	ΣÑ	DESCRIPTION	₹Y	DEPTH] M	Ē	OWS	,0 LLL -]	wp	<u> </u>			H wl	ADC AB.	INSTALLATION
	BO		STF	(m)	Ľ		BL	20	40 60	0	80	1		20 3	30 I	40 I		
	\Box	GROUND SURFACE		131.73														
		100 mm ASPHALT / 350 mm GRANULAR FILL FILL:	• •	13 0.60 - 131.28	1	AS	0 (0										Flush Mount Cover
		sandy silt, trace of clay, gravel and organics, brown, moist, compact. SAND:	***	130.83 0.90 130.21 1.52	2	SS	180	0										
2		medium to fine, trace of gravel, brown, moist, compact.		1.52	3	SS	220	0										
		trace of clay and gravel, brown, moist, compactwet sand seam at 1,8 m depthsome clay at 2.3 m depthwet coarse sand seam at 2.6 m depth.		128.38 3.35	5		180	0										Bentonite $\underline{\underline{\nabla}}$
4		CLAYEY SILT TILL:		3.00														
†		trace of sand and gravel, grey, moist, very stiff.	W															
		grey, moist, very suit.	W	1														
				1														9.14 m Long
6		PMT1 at elevation 125.96 m asl.	쌦	1														50 mm ID PVC Riser
•		Fini i at elevation 125.90 III asi.			6	SS	221	g										
				1	Ľ	55												
]														124.13
8				1														0:: 0
				1														Silica Sand
		PMT2 at elevation 122.93 m asl.		122 28				,										122.59
4.0		SILTY CLAY: trace of sand,		122.28 9.45	7	ss	230	š										
10		grey, moist to wet, very stiff																
				1														3.05 m Long 50 mm ID
	ال	SANDY SILT TILL: some clay, trace of gravel, grey, moist to wet, compact.		1														Well Screen
12	NIN S																	119.54
-	8			119.08 12.65	L			,										Well installed
	POWER BORING	SANDY SILT TILL: some clay, trace of gravel.	M	12.65	8	SS	250	š										in separate borehole
	8	some clay, trace of gravel, grey, moist to wet, compact.	W															drilled next to BH!
14	2	<u> </u>	W	1														
				1														
			\mathbb{M}	1														
.				1														
16			M	1														
		PMT3 at elevation 115.34 m asl.	\mathbb{N}	114.66				,										
		CLAYEY SILT TILL: trace of sand and gravel,	M	114.66 17.07	9	SS	200	š										
18		grey, moist to wet, very stiff.																
				1														
				1														
20		PMT4 at elevation 112.11 m asl.		111.46 20.27	_			0										
		SILTY SAND: trace of gravel, brown, moist, dense.		20.27	10	SS	300											
22																		
		PMT5 at elevation 109.17 m asl.		108 57				0										
		SANDY SILT TILL: trace of clay, gravel and shale fragments	W.	108.57 23.16	11	SS	>100	°										
24		trace of clay, gravel and shale fragments, brown, moist, very dense.	W															
			W															
			W)															
		GROUNDWATER ELEVATIO	VI &	<u> </u>	Ь													
										.								
		SHALLOW/SINGLE INSTALLATION	N					IAL INST	ALLATIO	NC			LOGGE	ED :	PL			
		WATER LEVEL: 3.42 m bgs		V	VAT	ER L	EVE	L:					CHEC	KED :	LM			

PROJECT : MGE5276

LOCATION : 175 Wynford Drive, Toronto, Ontario

STARTED : January 3, 2018 COMPLETED : January 11, 2018 MC CLYMONT & RAK ENGINEERS, INC.

SHEET 2 OF 2
DATUM Geodetic

CC	OMF	PLE.	TED : January 11, 2018															ATUM	Geodetic
,	0	30	SOIL PROFILE			SA	MPL	.ES	ORGANIC (ppm)	VAPOL	JR REA	DINGS ⊗	SHEA	R STR nat \	ENGTH / - • / - •	l: Cu, K	(Pa Q - X U - ∆	, o	
(metres)	BODING METHOD			ТО.				.3m		200 :	300 4	100				60	U - ▲ 80	ADDITIONAL LAB. TESTING	PIEZOMETER
netre	2	ַ פ	DESCRIPTION	STRATA PLOT	ELEV.	NUMBER	TYPE	8/0.3	% LEL - (h				WA		ONTEN	T PFR	CENT	[일일]	OR STANDPIPE
٥		<u> </u>	DESCRIPTION	₹AT,	DEPTH	Į	≱	BLOWS/0.	,, (. 	,		_	wp			/	⊢ wl	AB.	INSTALLATION
	٦			STF	(m)	_		В	20	40	60	80 		10	20	30	40		
		Ш	GROUND SURFACE	11.17	131.73														
3			PMT6 at elevation 106.12 m asl.	\mathbb{M}					10										
			-seams with some clay at 26.2 m depth.			12	SS	100	8										
					į.														
				K	4														
3				\mathbb{H}	4														
				\mathbb{H}	1														
				H															
			PMT7 at elevation 102.61 m asl.	\mathbb{I}	102.01 29.72				þ										
)			CLAYEY SILT TILL: trace of sand and gravel, brown, moist, hard.		29.72	13	SS	62 0	٥										
			brown, moist, hard.		1														
					ł														
2			PMT8 at elevation 99.90 m asl.		t				h										
					H	14	SS	43 0	ة ا										
		<u> </u>																	
ļ		ROTARY MUD DRILLING			Į.														
٠	RING	R			A														
	BOF	Q Qr			1														
	POWER BORING	M	PMT9 at elevation 96.57 m asl.		H														
3	POV	ΓAR	SILT:		95.92. 35.81	15	SS	45 (p 8										
		RO.	some clay, trace of fine sand, grey, moist, hard.				-												
3																			
			PMT10 at elevation 93.52 m asl.		92.87				<u> </u>										
		l	SAND:		92.87 38.86	16	SS	-10 0	9										
			medium to fine, brown, moist to wet, very dense																
)																			
			PMT11 at elevation 90.47 m asl.		89.82				b										
2			CLAYEY SILT TILL: trace of sand and gravel,		41.91	17	SS	53 0	هٔ ا										
			grey, moist, hard.		1														
					ł														
					A														
			DNT40 at algustics 07.40 as as																
			PMT12 at elevation 87.42 m asl. SHALE:	KK	86.77 86.96 45.00	18	88	> 100											
			grey, moist.		45.00														
;			End of Borehole																
			Note: 1) Water level was not measured on completion of																
			drilling due to use of mud. 2) Combustible vapour reading was 10 ppm at 1.8 m depth in open borehole.																
			depth in open borehole. 3) Soil samples were screened using a RKI Eagle																
3			3) Soil samples were screened using a RKI Eagle gas meter with methane response mode off. 4) Water level was measured at 6.94 m bgs on February 16, 2018.																
			February 16, 2018. 5) Water level was measured at 0.04 m bgs on																
			October 10, 2018. 6) Water level was measured at 2.76111 bgs on April																
			9, 2020.																
3																			
	L	$\lfloor \rfloor$		\perp	<u>L</u> _	L		L					L		\perp	\perp			
			GROUNDWATER ELEVATION	NS	3														
			$\overline{oldsymbol{arphi}}$ SHALLOW/SINGLE INSTALLATIO	N	Ţ	- DI	ΞEΡ	/DL	JAL INSTA	LLAT	ION			LOGG	ED :	PL			
				-						• •						1. [

MCR LOG ENVIRONMENTAL 5276.GPJ 4/28/20

 ▼ DEEP/DUAL INSTALLATION WATER LEVEL:

LOGGED : PL CHECKED : LM

PROJECT : MGE5276

LOCATION : 175 Wynford Drive, Toronto, Ontario

STARTED : February 6, 2018
COMPLETED : February 9, 2018

MC CLYMONT & RAK ENGINEERS, INC.

SHEET 1 OF 2

	_	Т	OO!! PROF!! F			١.,			ORGANIC VAPOUR	READI	NGS	SHEA	R STR	ENGTH	Cu. K	Pa		
ļ	BORING METHOD	ļ	SOIL PROFILE	1.		SA	MPL		(ppm)		8		nat V rem V	ENGTH - 🛊 - 🍑	, 11	Q - X U - A	무의	DI==0:
(metres)	MET			STRATA PLOT		Ľ.		3m	100 200 300) 400	0				60 I	80	ADDITIONAL LAB. TESTING	PIEZOMETER OR
met (met	Ŋ		DESCRIPTION	ΙŁ	ELEV.	NUMBER	TYPE	BLOWS/0.3m	% LEL - (hexane)	- [WAT	ER CC	NTENT	, PER	CENT]E==	STANDPIPE INSTALLATION
<u>.</u>	S			\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	DEPTH (m)	Ž	É	Š				wp		OW OW	20	H wl	P.B.	INSTALLATION
	Δ	-		ST	(,	_		В	20 40 60	80)	1	0 2	20 :	30	40		
_	_		GROUND SURFACE 75 mm ASPHALT / 300 mm GRANULAR FILL	ļ	129.60	<u> </u>	_		_									Flush Mount
			SANDY SILT:	1.11	12 9.58 129.38	1	SS	0 0										Cover
			trace of clay and gravel, sand seams, brown, moist, loose.			2	ss	7 1	5									Bentonite 3.05 m Long
		ŀ	CLAYEY SILT TILL:		128.08 1.52	3	SS	150										PVC Riser
2			some sand, trace of gravel, brown, moist, very stiff.			4	SS	170										127.15 Silica Sand
			-grey below 2.45 m depth.			5		210										126.55
						٦	33	21	′									3.05 m Long
4		L			125.03 4.57													Well Screen
		- 1	SANDY SILT TILL: trace of clay and gravel, grey, moist, compact.		4.57	6	SS	250										
ء ا			-fine sand seam, wet in the upper 300 mm.															123.50
5						7	ss	210										Well installed in separate
					1													borehole drilled next to BH2
3						8	SS	260										
		-	SILT:		120.46 9.14	_	000											
	9	- 1	some sand, grey, moist to wet, very dense.			9	SS	650										
10	RING	ROTARY MUD DRILLING			118 02													
	R BO		SAND: medium to fine, grey, moist to wet, very dense.		118.93 10.67	10	ss	740										
	POWER BORING	ARY I	•															
12	- 5		SILT:		117.41 12.19	11	SS	54 0										
			some sand, trace of clay, grey, moist to wet, very dense to dense															
					:		-											
14]	12	SS	400										
					11/1 20													
		t	CLAYEY SILT: trace of sand,		114.36 15.24	13	SS	38 0	3									
16			grey, moist, hard to very stiff.	\mathbb{H}	1													
					1													
			-occasional clayey seams below 16.75 m depth.	$\parallel \parallel \parallel \parallel$	1	14	SS	420										
					1													
18					1				,									
]	15	ss	250										
					,													
20					1													
				W	1													
				\mathbb{H}	108.26				,									
		İ	SANDY SILT TILL: some clay, trace of gravel, grey, moist, very dense.		108.26 21.34	16	SS	100	5									
22			Gorne day, trace or graver, grey, filost, very defise.		;													
1			GROUNDWATER ELEVATION	ONS	1													
			\overline{Y} SHALLOW/SINGLE INSTALLATION			, - D	EEF	P/DI	AL INSTALLATIO	N			LOGG	-D ·	PL			
			55 11/5 15LL 1110 1/ LL/\(\)	•	_								_000	ַ .	FL			

MGE5276 PROJECT

175 Wynford Drive, Toronto, Ontario LOCATION

February 6, 2018 STARTED February 9, 2018 COMPLETED :

MC CLYMONT & RAK ENGINEERS, INC.

SHEET 2 OF 2 DATUM Geodetic

CC	MI	PLE	TED : February 9, 2018											JM Geodetic
щ	0	OD	SOIL PROFILE			SA	MPL	ES	ORGANIC VAPOUR REA	ADINGS ⊗	SHEAR STRENG nat V - I rem V - I	GTH: Cu, KPa	- ×	o
DEPTH SCALE (metres)	Ė	BORING METHOD		TO.		~		3m		400	rem V - (20 40	60 8i	TANDITIONAL	PIEZOMETER OR
netre		IG M	DESCRIPTION	STRATA PLOT	ELEV.	NUMBER	TYPE	BLOWS/0.3m	% LEL - (hexane)		WATER CONT	ENT, PERCE	ENT E	STANDPIPE
, ,	2	ORIN	BEOORII HOIV	₽¥	DEPTH (m)	Ş	}	ĕ	, ,		wp I	⊖ ^w	wl Ā	mi INSTALLATION
	ì	B		ST	(111)			面	20 40 60	80	10 20	30 4)	
			GROUND SURFACE	Пи	129.60	-								
				\mathbb{Z}	1									
24				K	1									
			SILT:	-14	105.22 24.38	 _		ļ	o					
			some clay, trace of sand, grey, moist. hard.			17	SS	510	°					
			grey, moist. nard.											
26														
						18	ss	520	§					
28														
						1								
30														
		<u>9</u>				19	SS	430	0					
	වි	ROTARY MUD DRILLING						1						
	POWER BORING	DRI												
32	R B	MUD												
	3MC	RYI												
	ď	ОТА												
		E				20	SS	390						
34						20	33	390						
36														
			OLANEN OUT	$\parallel \parallel \downarrow$	93.02 36.58	<u> </u>								
			CLAYEY SILT: grey, moist, hard.		30.56	21	SS	400						
					1									
38				K	1									
				\mathbb{H}	1									
				\mathbb{R}^{1}	1									
					1									
40			-some sand below 39.6 m depth200 mm wet sand seam, coarse to medium at 39.9		1	22	SS	91						
			m depth.	- []	99.06 40.54									
			SHALE: grey, moist.		40.54			ا						
			5.175	E	88.07 41.53	23 24	- 33 - 33	>100 >100						
42			End of Borehole		41.53									
			Note: 1) Water level was not measured on completion of											
			Note: 1) Water level was not measured on completion of dilling due to use of mud. 2) Combustible vapour reading was 10 ppm at 1.8 m depth in open borehole. 3) Soil samples were screened using a RKI Eagle gas meter with methane response mode off. 4) Water level was measured at 3.12 m bgs on February 16, 2018. 5) Water level was measured at 3.17 m bgs on July 23, 2018.			1								
			depth in open borehole. 3) Soil samples were screened using a RKI Eagle			1								
44			gas meter with methane response mode off. 4) Water level was measured at 3.12 m bgs on											
			February 16, 2018. 5) Water level was measured at 3.17 m has on July			1								
			23, 2018. 6) Water level was measured at 3.07 m bgs on April			1								
			9, 2020.			1								
				\perp		L								
		-	GROUNDWATER ELEVATION	ONS	;	•			•					-
			$\overline{egin{array}{c} egin{array}{c} \egin{array}{c} \egin{array}{c} \egin{array}{c} \egin{array}{c} \egin{array}{c} arra$, - Di	FFF	ורו/ס	JAL INSTALLATION		100055	. 51		
			WATER LEVEL: 3.07 m bgs	J1 1		NAT					LOGGED			
					,	., 11	、 L	v L			CHECKE	D: LM		

PROJECT : MGE5276

LOCATION : 175 Wynford Drive, Toronto, Ontario

STARTED : July 9, 2018
COMPLETED : July 9, 2018

WATER LEVEL:

7.78 m bgs

MC CLYMONT & RAK ENGINEERS, INC.

SHEET 1 OF 1

<u>.</u>	QQ	SOIL PROFILE			SA	MPL	ES		GANIC om)	VAP	OUR	READ	DINGS ⊗	SHEA	R STF nat \	RENGTH / - • / - •	H: Cu,	KPa Q - X U - ∆	.L IG	
(metres)	BORING METHOD		STRATA PLOT	E. E	监	[]).3m		100	200	300) 4	00				60	80	ADDITIONAL LAB. TESTING	PIEZOMETER OR
(me	SING	DESCRIPTION	ATA F	ELEV. DEPTH	NUMBER	TYPE	BLOWS/0.3m	%	LEL - (hexar	ne)					ONTEN	IT, PEF v	RCENT —I wi	DDIT	STANDPIPE INSTALLATIO
	BOF		STR	(m)	ž		BLC		20	40	60	8	30 I	wp	10	20	30	40	4 1	
_		GROUND SURFACE 100 mm ASPHALT / 180 mm GRANULAR FILL		132.33				10												Flush Mount
		FILL:	***	138.28 - 138.25	1	ss	27	8												Cover
		sand, trace of gravel, brown, moist, compact.						15												
		CLAYEY SILT TILL:		131.26 1.07	2	ss	12	⊗ [']												
		trace of sand and gravel, brown, moist, stiff to very stiff. -oxidized fissures below 1.5 m depth.						15												
					3	SS	20	⊗												
						-	22	30 ⊗												
					4	SS	22	~												Bentonite
		and help 10.05 in death		1	5	ss	18	25 ⊗												
		-grey below 3.35 m depth.				П														
						Щ		15												
				1	6	SS	11	⊗ <u> </u>												
	0			1																9 14 m Long
9	POWER BORING HOLLOW STEM BORING			1																9.14 m Long 50 mm ID PVC Riser
	POWER BORING LOW STEM BOR				7	SS	18	10 8)												
į	WER W ST			1	Ľ		10													
	OLC B																			
	=			1																_
					8	ss	16	5 ⊗												$\overline{\Delta}$
																				123.80
																				Silica Sand
		SILTY CLAY:		123.19 9.14				5												123.19
		trace of sand, grey, moist, stiff to very stiff.			9	ss	13	♥												
																				: · · · · · · · · · · · · · · · · · · ·
					10	SS	15	5 Ø												3.05 m Long 50 mm ID Well Screen
																				Voli Gardell
2						Ш		_												3.05 m Long 50 mm ID Well Screen
		-moist to wet below 12.2 m depth.		119.68 12.65	11	ss	13	8												
		End of Borehole		12.65																
		Note: 1) Borehole remained dry on completion of drilling. 2) Soil samples were screened using a RKI Eagle																		
		gas meter with methane response mode off. 3) Water level was measured at 11.92 m bgs on July																		
4		23, 2018. 4) Water level was measured at 7.87 m bgs on October 10, 2018.																		
		5) Water level was measured at 7.78 m bgs on April 9, 2020.																		
\perp				<u> </u>																
		GROUNDWATER ELEVATIO			, DE	EEP	/DU	JAL I	NST	ALLA	ATIC)N			LOGG	GED :	FR	<u> </u>		

WATER LEVEL:

CHECKED : LM

RECORD OF BOREHOLE 102

PROJECT MGE5276

175 Wynford Drive, Toronto, Ontario LOCATION

STARTED July 9, 2018

SHEET 1 OF 1 DATUM Geodetic

MC CLYMONT & RAK ENGINEERS, INC.

COMPLETED : July 9, 2018

<u> </u>	HOD	SOIL PROFILE	i .	·	SAM		\dashv	(pp	GANIC m)	vAP(OUK R		NGS ⊗	SHEA	nat rem	V - 4 V - 4	i III.	ou, Kl (l	a Q - X J - ▲	무	B.====
DEPTH SCALE (metres)	BORING METHOD		STRATA PLOT		بير).3m	1	00 2	200	300	40	00		20	40	6		80	ADDITIONAL LAB. TESTING	PIEZOMETE OR
(met	NG	DESCRIPTION	TAF	ELEV. DEPTH	NUMBER	TYPE	BLOWS/0.3m	%	LEL - (hexan	ne)			1		ONT	ENT,	PERC		DOIT B. TE	STANDPIPE INSTALLATIO
H.	BOR		TRA	(m)	N N	-	BLO	:	20	40	60	8	80	wp	10	20	⊖ <u>w</u> 3	0	l wl 40	₹₹	
	-	GROUND SURFACE	S	120.00	\vdash	+	\exists		Ť	Ť	Ť		Ĥ	1	Ť	+	Ť		+		
		100 mm ASPHALT / 300 mm GRANULAR FILL		132.63 138.58		_		5							t				1		Flush Mount
		FILL:		132.23 0.40	1	SS 2	21 (9											1		Cover
		silty sand, trace of gravel and organics, brown, moist, compact.		1				5													
		, , ,			2	ss ·	14	9													
				131.11 1.52		=															
_		SILTY SAND: trace of coarse sand,		: 1.52	3	ss .	15	10 §													
2		trace of coarse sand, brown, moist, compact to loose. -trace of gravel in the upper 400 mm.		:		_															
		-wet below 2.3 m depth.			4	ss	8 6	5 ð													
				400.50																	Bentonite
		SILTY CLAY: trace of sand,		129.58 3.05	5	ss	3	20 ⊗													
		brown to grey, wet, soft.		1	H	\dashv													1		
4																			1		
т				1																	
		CLAYEY SILT TILL:		128.06 4.57	\vdash	\dashv		10													
		trace of sand and gravel, grey, moist to wet, stiff to very stiff.		1	6	SS	10	3													
	(0	3 - 5, - 12-12-12-13-13-13-13-13-13-13-13-13-13-13-13-13-		1																	
	RING			1																	9.14 m Long 50 mm ID
6	POWER BORING HOLLOW STEM BORING			1				_													PVC Riser
	R BC	-moist below 6.1 m depth.		1	7	ss 2	25	5)													
	WEI SWEI				\vdash	\dashv															
	Ĭ			1																	
				1			إ	5													
8					8 :	SS 2	<u>۱</u> (۷	y													
				1																	124.10
																					Silica Sand
		SANDY SILT TILL:		123.49 9.14	\vdash	\dashv	ļ	5													123.49
		SANDY SILT TILL: trace of clay and gravel, grey, moist, compact.		1	9	ss	18	Ò													
,,		grof, moist, compact.]	$ \top$	7															
10				1															1		$ \nabla$
		-moist to wet below 10. 65 m depth.			10	ss 2	29 ¢	5)													3.05 m Long 50 mm ID
			W		\vdash	\dashv															Well Screen
				1																	
12				1																	100.44
_		-moist below 12.2 m depth.		1	11 :	<u> </u>	13	5													120.44
	+	End of Borehole	KI}	119.98 12.65	 	-	٦	,													
		Note:																			
		1) Borehole remained dry on completion of drilling. 2) Soil samples were screened using a RKI Fanle																			
		1) Borehole remained dry on completion of drilling. 2) Soil samples were screened using a RKI Eagle gas meter with methane response mode off. 3) Water level was measured at 10.66 m bgs on Ju	ıly																		
14		23, 2018. 4) Water level was measured at 10.10 m bgs on																			
		23, 2018. 4) Water level was measured at 10.10 m bgs on October 10, 2018. 5) Water level was measured at 10.15 m bgs on April 9, 2020.																			
		April 9, 2020.																			
					Ш																
		GROUNDWATER ELEVAT																			
		abla shallow/single installat	ION	Ţ	DE	EP/	DU	AL II	NSTA	ALLA	OITA	N			LOG	GED	:	FR			
		WATER LEVEL: 10.15 m bgs			VATE																

RECORD OF BOREHOLE 201

PROJECT : MGE5276

LOCATION : 175 Wynford Drive, Toronto, Ontario

STARTED: September 28, 2018
COMPLETED: September 28, 2018

WATER LEVEL:

10.68 m bgs

MC CLYMONT & RAK ENGINEERS, INC.

SHEET 1 OF 1
DATUM Geodetic

		TED : September 28, 2018													DAT		
	QQ	SOIL PROFILE			SAI	MPLI	ES	ORGANIC VAPO (ppm)	OUR RE	EADINGS ⊗	SHEA	R STR nat \ rem \	ENGTH	Cu, KF	°a) - X] - ∆	<u>G</u>	· · · · · · ·
(metres)	BORING METHOD		LOT		~		.3m	100 200	300	400	2				30 NO	LAB. TESTING	PIEZOMETER OR
(met	NG	DESCRIPTION	TA P	ELEV.	NUMBER	TYPE	VS/0	% LEL - (hexane	e)		WA	TER C	ONTENT	, PERC	ENT	<u>۳</u>	STANDPIPE INSTALLATIO
	30RI		STRATA PLOT	DEPTH (m)	Į Š	-	BLOWS/0.3m	20 40	60	80	wp		20 W	30 4	wl 2	! ₹	IINOTALLATIO
+		GROUND SURFACE	S.				Ш	20 40		- 00	<u> </u>		1	1			
\top		FILL:		132.30				150									Flush Mount
		silty sand, medium to fine, trace of clay and gravel,			1	SS	4	8									Cover
		slight petroleum odour, brown, moist, loose to compact.						120									
					2	SS	5	8									
								120									
		-wet seam at 1.8 m depth.	\otimes		3	ss	7	8 20									
		-grey, some clay, trace of asphalt pieces and moist to wet below 2.3 m depth.						400									
		to wet below 2.3 m depthwet seam at 2.45 m depth.			4	ss	13	100 ⊗									Bentonite
		CILTY CAND.		129.25 3.05													
		SILTY SAND: silty sand, medium to fine,		3.03	5	ss	21	100 8									
		trace of clay and gravel, clayey silt seams, brown, moist, compact.			\vdash												
-																	
-				127.73 4.57													
-		SANDY SILT TILL: trace of clay and gravel,	\mathbb{Z}	4.57	6	ss	16	30 ⊗									
		grey, moist, compact to very dense,															9.14 m Long 50 mm ID
	NG ING																PVC Riser
	POWER BORING HOLLOW STEM BORING																
9	4 BO				7	ss	23	80 ⊗									
ļ	WE WE		\mathbb{Z}		\vdash												
1	티		\mathbb{Z}														
	Ť																404.00
١		-moist to wet below 7.6 m depth.			8	ss	21	40 ⊗									124.68
١]	\vdash		-										Silica Sand
			\mathbb{W}														
١		-wet below 9.1 m depth.						40									123.16
١					9	SS	/2	×									
				1													3.05 m Long
																	50 mm ID Well Screen
			И		\vdash			35 ⊗									<u> </u>
			\mathcal{U}		10	SS	65	⊗									
				1													50 mm ID Well Screen
2]				35									120.11
		-moist below 12.2 m depth.		119.65 12.65	11	SS	51	8									
		End of Borehole		12.65													
		Note: 1) Borehole remained dry on completion of drilling. 2) Soil samples were screened using a RKI Eagle															
-		Soil samples were screened using a RKI Eagle gas meter with methane response mode off. Water level was measured at 10.97 m bgs on															
4		3) Water level was measured at 10.97 m bgs on October 2, 2018. 4) Water level was measured at 10.70 m bgs on															
		October 10, 2018. 5) Water level was measured at 10.68 m bgs on															
		April 9, 2020.															
				<u> </u>													
		GROUNDWATER ELEVATION															

WATER LEVEL:

CHECKED : LM

RECORD OF BOREHOLE 202

PROJECT : MGE5276

LOCATION : 175 Wynford Drive, Toronto, Ontario

STARTED: September 28, 2018
COMPLETED: September 28, 2018

WATER LEVEL:

9.53 m bgs

MC CLYMONT & RAK ENGINEERS, INC.

SHEET 1 OF 1

	¥	L	SOIL PROFILE			SA	MPL	.ES	(ppn		AFOO	IK KEA	ADINGS	SHE	AR STF nat ' rem '	/ - •	п. Сu,	Q - X U - A	1 5 5	
(metres)	BORING METHOD		DESCRIPTION	STRATA PLOT	ELEV.	NUMBER	TYPE	BLOWS/0.3m	10 % L	0 20 EL - (he		1	400	WA	20 	40 I	60 JT PFF	80 RCENT	ADDITIONAL LAB. TESTING	PIEZOMETEI OR STANDPIPE INSTALLATIO
_	8	_	GROUND SURFACE	STR	(m)	z		BL(2) 4	10	60	80		10	20	30	40	`	
1	1	1	75 mm ASPHALT / 225 mm GRANULAR FILL	• •	130.10 13 6 . 68 - 129.80 0.30	1	ss	10	50 ⊗											Flush Mount Cover
			FILL: clayey silt, some sand, trace of gravel, brown, moist, compact.		_ 129.34 _ 0.76	l														
			CLAYEY SILT TILL: some sand, trace of gravel, brown, moist, very stiff to stiff,		00	2	ss	19	50 ⊗											
						3	ss	26	40 ⊗											
			-75 mm sandy silt seam at 2.4 m depth. -trace of sand and grey below 2.5 m depth			4	ss	13	40 ⊗											Bentonite
						5	SS	14	30 ⊗											
		ł	SANDY SILT TILL: trace of clay and gravel, grey, moist, compact to dense,		125.53 4.57	6	SS	18	35 ⊗											
	9	- 1	grey, moist, compact to dense,																	9.14 m Long
	SORING	EM BORI				_			20											50 mm ID PVC Riser 124.00
	POWER BORING	HOLLOW STEM BORING				7	SS	23	⊗											
	-	HOL																		
			-silty sand seams at 7.6 m depth.			8	ss	24	20 ⊗											
																				Silica Sand
			-wet below 9.1 m depth.			9	SS	46	46 ⊗											120.96 ·
)																				
						10	ss	42	42 ⊗											2.05 m l ana
						10	33	42	•											3.05 m Long 50 mm ID Well Screen
2									14											117.91
		1	-moist below 12.2 m depth.	M	117.45. 12.65	11	ss	14	14 ⊗											
4			End of Borehole Note: 1) Water level was measured at 12.11 m bgs on completion of drilling, 2) Soil samples were screened using a RKI Eagle gas meter with methane response mode off. 3) Water level was measured at 10.61 m bgs on October 2, 2018. 4) Water level was measured at 9.32 m bgs on October 10, 2018. 5) Water level was measured at 9.53 m bgs on April 9, 2020.		12.05															

WATER LEVEL:

CHECKED : LM

MW1d-15

Wash Cuttings

wc 🗠

Rock Core



∑ Static Water Level - 10/22/2015 Screen:

R.J. Burnside & Associates Limited 292 Speedvale Avenue West, Guelph, Ontario N1H 1C4 telephone (519) 823-4995 fax (519) 836-5477

•	Bernelle	telephone (519) 823-4995	fax (519) 83	36-5477					F	age_	1_	of _	1_
Client:	Allied Don Valley Hotel Inc.	Project Name:	Don Va	alley Ho	tel Hyd	roG Study	Logged by	/ :	D. Dı	urhan	n		
Project I	No.: 300037774	Location: 175	Wynfo	rd Drive	9		Ground (m	1 ams	sI):				
Drilling (Co.: Lantech Drilling Services Inc.	Date Started:	10/14/2	015			Static Wat	ter Le	evel [Depth	(m):	14.4	43
Drilling N	Method: Hollow Stem Auger	Date Completed	: 10/1	14/2015	j		Sand Pack	k Dep	oth (n	n) :			
					6	7			SAM	IPLE		_	
Depth Scale	Stratigraphic Description	on	Strat. Plot	Depth				Num.	Type	<u>n</u>	N.Val.	De _l Sca	ale
(ft) (m)	∖Dark Brown TOPSOIL.		سببب	(m)								<u>(ft)</u>	(m)
-	SILTY SAND, light to med brown,	trace to	×	0.13					SS		28		F
5.0	some gravel, trace clay, stiff, dry, plasticity.		× · · · · · · · · · · · · · · · · · · ·				_		ss	X	31	5.0	1.0
- 2.0	SILT AND CLAY, med grey with s	some mottling	X	1.83		bentonit	e seal		SS	X	29		2.0
-	near 1.83m, varying sand and gra	avel content,		1					SS	\boxtimes	13		F
10.0 - 3.0	some to trace gravel, sandy to so	me sand, soft										10.0	3.0
-	to firm, moist, some plasticity.			1					SS		6		F
- 4.0				4.11		grout			SS		13	7	4.0
15.0	SILTY SAND, med grey, trace gra		×	4.11								15.0	F
- 5.0	near 5.18m, soft, moist, generally except for clayey zone near 5.18r		×						SS	\bowtie	20		5.0
-	CLAYEY SILT, med grey, trace fit		× × ×	5.18								-	F
20.0 - 6.0	to firm, moist, some plasticity.	io gravor, con	× ×	†								20.0	6.0
_			x x						SS	\sim	21		F
7.0			***									-	7.0
25.0			x _x									25.0	F
- 8.0	SANDY SILT, med grey, some cla		× × ×	7.62					SS	\geq	25	20.0	8.0
	gravel, firm, moist, some plasticity fine to very fine grained.	y. Sand is	^ .x ^.	}		grout						-	F
30.0 - 9.0	line to very line grained.		××××									30.0	9.0
30.0	Minor sand zones at: 11.0 - 11.3	m, 13.7 - 14.0	×××	,					ss	X	22	30.0	L
10.0	m, and 15.2 - 15.5 m.		× · × ·	}								4	10.0
			X . X	}									L
35.0 — — 11.0			× × ×						SS	M	16	35.0	11.0
			× ×									4	L
- 12.0			×××	}									12.0
40.0			× . × .	}					SS		29	40.0	L
13.0			×××	}								4	13.0
			× · ×	\									L
45.0 — — 14.0			×××			bentonit	0 000		SS	\bowtie	100+	45.0	14.0
			× × ×	1	\perp	Denionit	c seal					4	L
- 15.0			×××	}		3 1							15.0
50.0 —			× × ×	}		screen			SS		61	50.0	L
16.0			^ .x ^ .	*		3 :1					\neg		16.0
				16.15	16.	15		•				'	
Prepar	ed By: D. Durham	Checked By:		_			Date P				0/23/2		5
	rehole log was prepared for hydrogeolog for a geotechnical assessment of the s											วท	
	ites Limited personnel before use by oth		UI15. D	orenoie	uala fe	equires inte	i pi etation t	Jy I⊼.	J. D	umsi	u e &		
LEGEND			C A	MPLE T	VDE AC	^ ^.	uger Cutting	SS	<u>. 1</u>	<u> </u>	Split 9	Snoo	
			SA	IVIFLE I			-		s		-	-	
▼ wate	51 TOUTING WELLTHE OF ALTHING Pipe: 51 mm	n dia. PVC			CS	c	ontinuous	Al	1 23	42	Air Ro	nary	

51 mm dia. PVC #10 slot

MW1s-15



BHLOG ORANGEVILLE P:\GINT\PROJECTS\300 JOBS\03774 DON VALLEY HOTEL.GPJ TEMPLATE.GDT 10/29/15

LEGEND

▼ Water found @ time of drilling | Pipe:

 \subseteq Static Water Level - 10/22/2015 Screen:

R.J. Burnside & Associates Limited 292 Speedvale Avenue West, Guelph, Ontario N1H 1C4 telephone (519) 823-4995, for (519) 836-5477

A	DUKNSIDE	292 Speedvale Avenue Wes telephone (519) 823-4995			54				Р	age_ 1 _	of 1
Client:	Allied Don Valley Hotel Inc.	Project Name:	Don Va	alley Ho	tel Hyd	roG Study	Logged by	/ :	D. Du	ırham	
Project N	No.: 300037774	Location: 175	Wynfoi	d Drive	 -		Ground (n	n ams	sI):		
Drilling C	Co.: Lantech Drilling Services Inc.		 10/13/2				Static Wa	ter Le	evel C	epth (m):	10.82
	Method: Hollow Stem Auger	Date Completed:		3/2015	;		Sand Pac			. , ,	
		= ==================================				`			SAM	<i>'</i>	
Depth Scale	Stratigraphic Descriptio	n	Strat. Plot	Depth				Num.	Type	Int.	Depth Scale
(ft) (m)	∖Dark Brown TOPSOIL,		سبب	(m)							(ft) (m)
5.0	SILTY SAND, light to med brown, some gravel, trace clay, stiff, dry, plasticity.	minor	× × × × × × × × × × × × × × × × × × ×	1.83		bentonite	e seal				5.0
10.0 - 3.0	SILT AND CLAY, med grey with s near 1.83m, varying sand and gra some to trace gravel, sandy to so to firm, moist, some plasticity.	vel content,				grout					10.0 - 3.0
15.0	SILTY SAND, med grey, trace granear 5.18m, soft, moist, generally except for clayey zone near 5.18n CLAYEY SILT, med grey, trace fir	not plastic า.	× × × × × × × × × × × × × × × × × × ×	4.11 - 5.18							15.0
20.0 - 6.0	to firm, moist, some plasticity.	io gravor, con	× × × × × × × × × × × × × × × × × × ×			grout					20.0 - 6.0
25.0 - 8.0 - 9.0	SANDY SILT, med grey, some cla gravel, firm, moist, some plasticity fine to very fine grained.	ny, trace v. Sand is	× × × × × × × × × × × ×	7.62							25.0 - 8.0 - 9.0
30.0 - 10.0	Minor sand zone at: 11.0 - 11.3 m		× × × × × × × × × × × × × × × × × × ×			bentonite	e seal				35.0
11.0			× × × × × × × × × × × × × × × × × × ×	12.04	12.	screen					11.0
Prepare	ed By: D. Durham	Checked By:					Date P	repa	red:	10/23	
This bor suitable	ehole log was prepared for hydrogeolog for a geotechnical assessment of the si tes Limited personnel before use by oth	ical and/or environts ubsurface conditi	onment	al purpo prehole	oses ar data re	nd does not equires inte	necessaril	y cor	ntain	informati urnside 8	on ,

SAMPLE TYPE AC

cs 🗀

RC (A)

MONITORING WELL DATA

51 mm dia. PVC

51 mm dia. PVC #10 slot

SS

wc L

AR

Split Spoon

Air Rotary

Wash Cuttings

Auger Cutting

Continuous

Rock Core

MW2-15



R.J. Burnside & Associates Limited 292 Speedvale Avenue West, Guelph, Ontario N1H 1C4

Project No													1
	Allied Don Valley Hotel Inc.				tel HydroG	Study	Logged b	•		ırhan	n		_
	o.: 300037774			rd Drive)		Ground (_
	b.: Lantech Drilling Services Inc.		10/14/2				Static Wa				<u>(m):</u>	9.0	6
Drilling Me	ethod: Hollow Stem Auger	Date Completed	: 10/1	5/2015			Sand Pad	_					_
Depth			± ±							IPLE	_	De	:pt
Scale	Stratigraphic Descrip	tion	Strat. Plot	Depth				Num.	Туре	<u>=</u>	N.Val.	Sc	al
ft) (m)				(m)		7		Z	Ė.		Z	(ft)	(
	FILL. Brown/grey gravel and sa	ınd, compact,				- 92			SS	\boxtimes	27		
1.0	moist.		\bowtie	0.91		silica sa bentonit	•		SS		23	-	Ł
5.0	GRAVELLY SAND, speckled br loose to compact, moist to wet,			0.51								5.0 -	L
2.0	SAND, brown, medium, compact			1.68					SS	\geq	26	3.0	L:
-L"	\non-plastic, uniform.	st, wet,	××	2.44					SS		38	-	Ŧ.
3.0	SILT and FINE SAND, brown w	ith rust coloured	× × ×	2								10.0 -	Į,
	mottling, trace small stones, mo	ist, stiff,	× × ×						SS	\geq	15	10.0	L
4.0	competent. Till like.	n agend trace	* — ×	3.81					SS		17	-	ļ,
5.0	SANDY SILT, medium grey, fine clay and gravel, firm, moist, son		× <u>×</u> ×	1					-			15.0 -	Ļ
- 5.0	CLAYEY SANDY SILT, medium		$\mathbb{X}^{-\times}$	ļ					SS	\bowtie	13		L.
+	clay to clayey, trace gravel, stiff		* * *			grout						-	Ļ
0.0 - 6.0	plasticity.		× ×									20.0 -	ļ
_			× ×						SS	\bowtie	11	2010	L
7.0			× ×	, ,								-	Ł
5.0			× × ×	}								25.0 -	F
- 8.0			××						SS	\bowtie	17		F
+			× _ ×									-	╁
9.0			X X	>	\mathbb{Z}							30.0 -	F
-							_		SS	\boxtimes	18		F
10.0			<u>× × </u>			bentonit	e seal					-	╁
5.0			×××			silica sa	nd pack					35.0 -	F
11.0	SAND, medium grey, fine, some	e silt, some to	x — x	10.97					SS	\bowtie	21		F
+ 1	trace clay, trace gravel, firm, we			11,28								-	t
0.0 - 12.0	plasticity.					screen						40.0 -	ŀ
-	SILT and FINE SAND, medium trace clay, trace gravel, firm, we					0010011			SS	\bowtie	22		F
13.0	plasticity.	it, some										_	t
5.0					13.72							45.0 -	ł
14.0									SS	\sim	21		r

MW3-15



R.J. Burnside & Associates Limited 292 Speedvale Avenue West, Guelph, Ontario N1H 1C4

•	DOMNSIDE	telephone (519) 823-4995							F	age_	1_	of _
Client:	Allied Don Valley Hotel Inc.	Project Name:	Don Va	alley Ho	tel Hydro0	Study	Logged b	y: I	D. Dı	urhan	n	
Project N	No.: 300037774	Location: 175	Wynfoı	d Drive)		Ground (r	n ams	sI):			
Drilling C	Co.: Lantech Drilling Services Inc.	Date Started:	10/15/2	015			Static Wa	iter Le	evel [Depth	(m):	9.15
Drilling M	Method: Hollow Stem Auger	Date Completed	10/1	5/2015			Sand Pac	k Dep	oth (n	n) :		
_									SAM	1PLE		
Depth	Stratigraphia Decerio	tion	Strat. Plot					j .	Ф	_	 	Dep
Scale	Stratigraphic Descrip	lion	₽ G	Depth				Num.	Туре	<u>ד</u>	N.Val.	Sca
(ft) (m)				(m)							_	(ft)
	FILL, grey.		XXXX	0.18		cilica ca	nd pack		SS	$ \times $	13	
- - 1.0	SAND, fine, brown with mottles,		×	0.61		bentonit	•		SS	><	18	-
	to firm, moist to wet, non-plastic		× × ×	}								5 0
5.0	CLAYEY SILT, grey with some regravel and fine sand, firm, mois		× × ×	1					ss	\times	14	5.0
- 2.0	plasticity.	r, some	×××	2.13								-
	SANDY CLAYEY SILT, medium	grev. trace	×××						SS		19	
10.0 — 3.0	gravel, firm, moist, some plastic		× × ×	\					SS		16	10.0
_	-		×××	2.01								
- 4.0	SANDY SILT, medium grey, trac		× × ×	3.81					SS		50	f
5.0	clay, stiff to very stiff, dry to moi		×	4.57		grout			SS		26	15.0
- 5.0	SAND, fine to medium, grey, tra compact, saturated, non-plastic		×××	4.88					33		20	-
-	SANDY CLAYEY SILT, medium		× × ×									7
0.0 - 6.0	gravel, firm, moist, some plastic		× × ×									20.0
-	graver, mm, molec, come plactic	ity.	^ × ^ :						SS	\bowtie	22	-
7.0			×××									+
5.0			×××									25.0
- 8.0			× ^ ×	1					SS	\geq	30	20.0
			×××			bentonit	e seal					+
9.0			××	}		silica sa	nd pack					
0.0	SILT, medium grey, trace fine sa	and, stiff, moist,	× ×	9.14					SS	\geq	88+	30.0
- 10.0	non-plastic.		× × ×	}								4
			× × ×	}								
35.0 — — 11.0	SAND, grey speckled, medium,	some silt,	· . ×	10.67		screen			SS	\boxtimes	86+	35.0
	dense, saturated, non-plastic.		× × ×	10.97								
40.0	SANDY SILT, medium grey, stif	f, moist,										
10.0	non-plastic.		× .× .		12.19				SS		70+	40.0
			×××	12.80								İ
				.2.00								
)rc =	ad Dyy D. Dyyddiana	Charlet I					Dat- 5)rc = -	re el	4	1/22/4	204
~repare This bor	ed By: D. Durham ehole log was prepared for hydrogeol	Checked By: ogical and/or environment	onment	al purno	ses and o	does not	Date F				0/23/2 matic	
suitable	for a geotechnical assessment of the	subsurface conditi										
	tes Limited personnel before use by c				·							
EGEND	MONITORING	WELL DATA	SA	MPLE T	YPE AC [Aı	uger Cutting	SS	s 🔼		Split S	Spool
		nm dia. PVC		1	cs [ontinuous	AF	60	000	Air Ro	
						A A				_		-
<u> </u>	5 vvaler Lever - 10/22/20 ipScreen: 51 m	nm dia. PVC #10 slot	1		RC L	المتما	ock Core	W	\cup		Wash	Cutt

APPENDIX B









CA15677-JUL20 R1

20-153, 175 Wynford Dr, Toronto, ON

Prepared for

Grounded Engineering Inc.



First Page

CLIENT DETAIL	S	LABORATORY DETAIL	LS
Client	Grounded Engineering Inc.	Project Specialist	Brad Moore Hon. B.Sc
		Laboratory	SGS Canada Inc.
Address	12 Banigan Drive	Address	185 Concession St., Lakefield ON, K0L 2H0
	Toronto, Ontario		
	M4H1E9. Canada		
Contact	Jory Hunter	Telephone	705-652-2143
Telephone	613-539-0347	Facsimile	705-652-6365
Facsimile		Email	brad.moore@sgs.com
Email	jhunter@groundedeng.ca	SGS Reference	CA15677-JUL20
Project	20-153, 175 Wynford Dr, Toronto, ON	Received	07/28/2020
Order Number		Approved	08/06/2020
Samples	Ground Water (1)	Report Number	CA15677-JUL20 R1
		Date Reported	08/06/2020

COMMENTS

RL - SGS Reporting Limit

Nonylphenol Ethoxylates is the sum of nonylphenol monoethoxylate and nonylphenol diethoxylate.

Temperature of Sample upon Receipt: 9 degrees C Cooling Agent Present:Yes

Custody Seal Present:Yes

Chain of Custody Number:010952

SIGNATORIES

Brad Moore Hon. B.Sc Brad Mo

SGS Canada Inc. 185 Concession St., Lakefield ON, K0L 2H0 t 705-652-2143 f 705-652-6365

> Member of the SGS Group (SGS SA) 1/23

www.sgs.com

CA15677-JUL20 R1

FINAL REPORT



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Results	3-10
Exceedance Summary	11
QC Summary	12-21
Legend	22
Annexes	23



CA15677-JUL20 R1

Client: Grounded Engineering Inc.

Project: 20-153, 175 Wynford Dr, Toronto, ON

Project Manager: Jory Hunter

Samplers: Katrina Morgenroth

PACKAGE: SANSEW - General Chemistry (WATER)

L2 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 2 - Storm Sewer Discharge -

Sample Number

Sample Name SW-UF-MW-3-15

8

L1 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 1 - Sanitary and Combined Sewer

Sample Matrix Ground Water

Discharge - BL_100_2016

Sample Date 28/07/2020

Parameter	Units	RL	L1	L2	Result
General Chemistry					
Biochemical Oxygen Demand (BOD5)	mg/L	2	300	15	< 4↑
Total Kjeldahl Nitrogen	as N mg/L	0.5	100		0.6
Total Suspended Solids	ma/l	2	350	15	226

PACKAGE: SANSEW - Metals and Inorganics

Sample Number

(WATER)

Sample Name SW-UF-MW-3-15

Sample Matrix Ground Water

8

L1 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 1 - Sanitary and Combined Sewer Discharge - BL_100_2016

L2 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 2 - Storm Sewer Discharge -

Sample Date 28/07/2020

BL_100_2016

Parameter	Units	RL	L1	L2	Result
letals and Inorganics					
Fluoride	mg/L	0.06	10		0.11
Cyanide (total)	mg/L	0.01	2	0.02	< 0.01
Aluminum (total)	mg/L	0.001	50		0.825
Antimony (total)	mg/L	0.0009	5		< 0.0009
Arsenic (total)	mg/L	0.0002	1	0.02	0.0038
Cadmium (total)	mg/L	0.00000	0.7	0.008	0.000012
		3			
Chromium (total)	mg/L	0.00008	4	0.08	0.00137
Cobalt (total)	mg/L	0.00000	5		0.000461
		4			



CA15677-JUL20 R1

Client: Grounded Engineering Inc.

Project: 20-153, 175 Wynford Dr, Toronto, ON

Project Manager: Jory Hunter

Samplers: Katrina Morgenroth

PACKAGE: SANSEW - Metals and Inorganics

L2 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 2 - Storm Sewer Discharge -

Sample Number

(WATER)

Sample Name SW-UF-MW-3-15

8

L1 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 1 - Sanitary and Combined Sewer

Sample Matrix Ground Water

Sample Date 28/07/2020

BL_100_2016					
Parameter	Units	RL	L1	L2	Result
Metals and Inorganics (continued)					
Copper (total)	mg/L	0.0002	2	0.04	0.0021
Lead (total)	mg/L	0.00001	1	0.12	0.00081
Manganese (total)	mg/L	0.00001	5	0.05	0.398
Molybdenum (total)	mg/L	0.00004	5		0.00221
Nickel (total)	mg/L	0.0001	2	0.08	0.0011
Phosphorus (total)	mg/L	0.003	10	0.4	0.091
Selenium (total)	mg/L	0.00004	1	0.02	< 0.00004
Silver (total)	mg/L	0.00005	5	0.12	< 0.00005
Tin (total)	mg/L	0.00006	5		0.00060
Titanium (total)	mg/L	0.00005	5		0.0383
Zinc (total)	mg/L	0.002	2	0.04	0.008



Parameter

FINAL REPORT

CA15677-JUL20 R1

Client: Grounded Engineering Inc.

Project: 20-153, 175 Wynford Dr, Toronto, ON

Project Manager: Jory Hunter

Samplers: Katrina Morgenroth

PACKAGE: SANSEW - Microbiology (W	VATER)		Sa	mple Number	8
	· - · · ,		;	Sample Name	SW-UF-MW-3-15
L1 = SANSEW / WATER / Toronto Sewer Use By Law Table Discharge - BL_100_2016	le 1 - Sanitary and Combi	ined Sewer	5	Sample Matrix	Ground Water
L2 = SANSEW / WATER / Toronto Sewer Use By Law Table BL_100_2016	le 2 - Storm Sewer Disch	narge -		Sample Date	28/07/2020
Parameter	Units	RL	L1	L2	Result
Microbiology					
E. Coli	cfu/100mL	-		200	<2↑
PACKAGE: SANSEW - Nonylphenol and WATER)	d Ethoxylates			mple Number	
			;	Sample Name	SW-UF-MW-3-15
L1 = SANSEW / WATER / Toronto Sewer Use By Law Table	le 1 - Sanitary and Combi	ined Sewer		Sample Matrix	Ground Water
Discharge - BL_100_2016				Sample Date	28/07/2020
L2 = SANSEW / WATER / Toronto Sewer Use By Law Table BL_100_2016	le 2 - Storm Sewer Disch	iarge -		Sample Date	20/07/2020
Parameter	Units	RL	L1	L2	Result
Nonylphenol and Ethoxylates					
	//	0.004	0.02	0.001	< 0.001
Nonylphenol	mg/L	0.001	0.02	0.001	- 0.001
Nonylphenol Ethoxylates	mg/L	0.001	0.02	0.01	< 0.01
Nonylphenol Ethoxylates	mg/L	0.01			< 0.01
Nonylphenol Ethoxylates Nonylphenol diethoxylate Nonylphenol monoethoxylate	mg/L mg/L mg/L	0.01	0.2	0.01	< 0.01 < 0.01 < 0.01
Nonylphenol Ethoxylates Nonylphenol diethoxylate Nonylphenol monoethoxylate	mg/L mg/L mg/L	0.01	0.2	0.01	< 0.01 < 0.01 < 0.01 8
Nonylphenol Ethoxylates Nonylphenol diethoxylate Nonylphenol monoethoxylate	mg/L mg/L mg/L	0.01	0.2 Sa	0.01 mple Number Sample Name	< 0.01 < 0.01 < 0.01 8 SW-UF-MW-3-15
Nonylphenol Ethoxylates Nonylphenol diethoxylate	mg/L mg/L mg/L (WATER)	0.01 0.01 0.01	0.2 Sa	0.01 mple Number Sample Name	< 0.01 < 0.01 < 0.01 8

L1

Units

L2

Result



L1 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 1 - Sanitary and Combined Sewer

Units

L2 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 2 - Storm Sewer Discharge -

Discharge - BL_100_2016

Parameter

BL_100_2016

FINAL REPORT

CA15677-JUL20 R1

Client: Grounded Engineering Inc.

Project: 20-153, 175 Wynford Dr, Toronto, ON

Project Manager: Jory Hunter

Samplers: Katrina Morgenroth

PACKAGE: SANSEW - Oil and Greas e	€ (WATER)		Sa	mple Number	8
			s	Sample Name	SW-UF-MW-3-15
_1 = SANSEW / WATER / Toronto Sewer Use By Law Ta Discharge - BL_100_2016	able 1 - Sanitary and Comb	oined Sewer	s	Sample Matrix	Ground Water
L2 = SANSEW / WATER / Toronto Sewer Use By Law Ta BL_100_2016	able 2 - Storm Sewer Disc	harge -		Sample Date	28/07/2020
Parameter	Units	RL	L1	L2	Result
Oil and Grease					
Oil & Grease (total)	mg/L	2			< 2
Oil & Grease (animal/vegetable)	mg/L	4	150		< 4
Oil & Grease (mineral/synthetic)					< 4
PACKAGE: SANSEW - Other (ORP) (\	mg/L WATER)	4		mple Number	8
	WATER)		Sa	•	8 SW-UF-MW-3-15
PACKAGE: SANSEW - Other (ORP) (\lambda L1 = SANSEW / WATER / Toronto Sewer Use By Law Ta	WATER) subject 1 - Sanitary and Comb	oined Sewer	Sal S	Sample Name	8 SW-UF-MW-3-15 Ground Water
PACKAGE: SANSEW - Other (ORP) (\(\) L1 = SANSEW / WATER / Toronto Sewer Use By Law Ta Discharge - BL_100_2016 L2 = SANSEW / WATER / Toronto Sewer Use By Law Ta	WATER) subject 1 - Sanitary and Comb	oined Sewer	Sal S	Sample Name	8 SW-UF-MW-3-15 Ground Water
PACKAGE: SANSEW - Other (ORP) (\(\) L1 = SANSEW / WATER / Toronto Sewer Use By Law Ta Discharge - BL_100_2016 L2 = SANSEW / WATER / Toronto Sewer Use By Law Ta BL_100_2016	WATER) sible 1 - Sanitary and Combible 2 - Storm Sewer Disc	pined Sewer harge -	Sal S	Sample Name Sample Matrix Sample Date	8 SW-UF-MW-3-15 Ground Water 28/07/2020
PACKAGE: SANSEW - Other (ORP) (\(\) L1 = SANSEW / WATER / Toronto Sewer Use By Law Ta Discharge - BL_100_2016 L2 = SANSEW / WATER / Toronto Sewer Use By Law Ta BL_100_2016 Parameter	WATER) sible 1 - Sanitary and Combible 2 - Storm Sewer Disc	pined Sewer harge -	Sal S	Sample Name Sample Matrix Sample Date	8 SW-UF-MW-3-15 Ground Water 28/07/2020
PACKAGE: SANSEW - Other (ORP) (\(\) L1 = SANSEW / WATER / Toronto Sewer Use By Law Ta Discharge - BL_100_2016 L2 = SANSEW / WATER / Toronto Sewer Use By Law Ta BL_100_2016 Parameter Other (ORP)	WATER) sible 1 - Sanitary and Combible 2 - Storm Sewer Disc	pined Sewer harge -	Sal S S	Sample Name Sample Matrix Sample Date	8 SW-UF-MW-3-15 Ground Water 28/07/2020 Result
PACKAGE: SANSEW - Other (ORP) (\(\) L1 = SANSEW / WATER / Toronto Sewer Use By Law Ta Discharge - BL_100_2016 L2 = SANSEW / WATER / Toronto Sewer Use By Law Ta BL_100_2016 Parameter Other (ORP) pH	WATER) sible 1 - Sanitary and Comb sible 2 - Storm Sewer Disc Units No unit	pined Sewer sharge - RL 0.05	Sal	Sample Name Sample Matrix Sample Date L2 9.5	8 SW-UF-MW-3-15 Ground Water 28/07/2020 Result 7.09
PACKAGE: SANSEW - Other (ORP) (National Parameter Other (ORP) Parameter Other (ORP) pH Chromium VI	WATER) sible 1 - Sanitary and Comb sible 2 - Storm Sewer Disc Units No unit mg/L mg/L	oined Sewer charge - RL 0.05 0.0002	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	Sample Name Sample Matrix Sample Date L2 9.5 0.04	8 SW-UF-MW-3-15 Ground Water 28/07/2020 Result 7.09 < 0.0002 < 0.00001

Sample Matrix Ground Water

28/07/2020

Result

Sample Date

L2

L1

RL



PACKAGE: SANSEW - SVOCs (WATER)

FINAL REPORT

CA15677-JUL20 R1

Client: Grounded Engineering Inc.

Project: 20-153, 175 Wynford Dr, Toronto, ON

Project Manager: Jory Hunter

Samplers: Katrina Morgenroth

PACKAGE: SANSEW - PAHs (WATER))		s	Sample Number	8
				Sample Name	SW-UF-MW-3-15
L1 = SANSEW / WATER / Toronto Sewer Use By Law Tabl Discharge - BL_100_2016	le 1 - Sanitary and Coml	bined Sewer		Sample Matrix	Ground Water
L2 = SANSEW / WATER / Toronto Sewer Use By Law Tabl BL_100_2016	le 2 - Storm Sewer Disc	charge -		Sample Date	28/07/2020
Parameter	Units	RL	L1	L2	Result
PAHs					
Benzo(b+j)fluoranthene	mg/L	0.0001			< 0.0001
DANKAGE CANOEM BOD WALTED				sample Number	8
PACKAGE: SANSEW - PCBs (WATER))			•	
				•	SW-UF-MW-3-15
L1 = SANSEW / WATER / Toronto Sewer Use By Law Tabl Discharge - BL_100_2016	le 1 - Sanitary and Coml	bined Sewer		Sample Matrix	Ground Water
L2 = SANSEW / WATER / Toronto Sewer Use By Law Tabl BL_100_2016	le 2 - Storm Sewer Disc	charge -		Sample Date	28/07/2020
Parameter	Units	RL	L1	L2	Result
PCBs					
Polychlorinated Biphenyls (PCBs) - Total	mg/L	0.0001	0.001	0.0004	< 0.0001
PACKAGE: SANSEW - Phenols (WATE	-R)		s	ample Number	8
, is a second of the second of	/			Sample Name	SW-UF-MW-3-15
L1 = SANSEW / WATER / Toronto Sewer Use By Law Tabl	le 1 - Sanitary and Coml	bined Sewer			Ground Water
Discharge - BL_100_2016	-				
L2 = SANSEW / WATER / Toronto Sewer Use By Law Tabl BL_100_2016	le 2 - Storm Sewer Disc	charge -		Sample Date	28/07/2020
Parameter	Units	RL	L1	L2	Result
Phenois					

Sample Number

Sample Name SW-UF-MW-3-15



CA15677-JUL20 R1

Client: Grounded Engineering Inc.

Project: 20-153, 175 Wynford Dr, Toronto, ON

Project Manager: Jory Hunter

Samplers: Katrina Morgenroth

PACKAGE: SANSEW - SVOCs (WATER)

Sample Number

Sample Name SW-UF-MW-3-15

Sample Matrix Ground Water

8

L1 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 1 - Sanitary and Combined Sewer

L2 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 2 - Storm Sewer Discharge -

Discharge - BL_100_2016

Sample Date 28/07/2020

Parameter	Units	RL	L1	L2	Result
SVOCs			_		
di-n-Butyl Phthalate	mg/L	0.002	0.08	0.015	< 0.002
Bis(2-ethylhexyl)phthalate	mg/L	0.002	0.012	0.0088	< 0.002
3,3-Dichlorobenzidine	mg/L	0.0005	0.002	0.0008	< 0.0005
Pentachlorophenol	mg/L	0.0005	0.005	0.002	< 0.0005
PAHs (Total)	mg/L	-	0.005	0.002	< 0.001
Perylene	mg/L	0.0005			< 0.0005

PACKAGE: SANSEW - SVOCs - PAHs (WATER)

Sample Number

Sample Name SW-UF-MW-3-15

L1 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 1 - Sanitary and Combined Sewer Discharge - BL_100_2016

Sample Matrix Ground Water

28/07/2020

L2 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 2 - Storm Sewer Discharge -

Sample Date

BL_100_2016

Parameter	Units	RL	L1	L2	Result
SVOCs - PAHs					
7Hdibenzo(c,g)carbazole	mg/L	0.0001			< 0.0001
Anthracene	mg/L	0.0001			< 0.0001
Benzo(a)anthracene	mg/L	0.0001			< 0.0001
Benzo(a)pyrene	mg/L	0.0001			< 0.0001
Benzo[e]pyrene	mg/L	0.0001			< 0.0001
Benzo(ghi)perylene	mg/L	0.0002			< 0.0002
Benzo(k)fluoranthene	mg/L	0.0001			< 0.0001
Chrysene	mg/L	0.0001			< 0.0001



CA15677-JUL20 R1

Client: Grounded Engineering Inc.

Project: 20-153, 175 Wynford Dr, Toronto, ON

Project Manager: Jory Hunter

Samplers: Katrina Morgenroth

PACKAGE: SANSEW - SVOCs - PAHs (WATER)

Sample Number

Sample Name SW-UF-MW-3-15

Sample Matrix Ground Water

8

L1 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 1 - Sanitary and Combined Sewer Discharge - BL_100_2016 L2 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 2 - Storm Sewer Discharge -

Sample Date 28/07/2020

Units	RL	L1	L2	Result
mg/L	0.0001			< 0.0001
mg/L	0.0001			< 0.0001
mg/L	0.0001			< 0.0001
mg/L	0.0001			< 0.0001
mg/L	0.0002			< 0.0002
mg/L	0.0001			< 0.0001
mg/L	0.0001			< 0.0001
	mg/L mg/L mg/L mg/L mg/L	mg/L 0.0001 mg/L 0.0001 mg/L 0.0001 mg/L 0.0001 mg/L 0.0002 mg/L 0.0002	mg/L 0.0001 mg/L 0.0001 mg/L 0.0001 mg/L 0.0001 mg/L 0.0002 mg/L 0.0001	mg/L 0.0001 mg/L 0.0001 mg/L 0.0001 mg/L 0.0001 mg/L 0.0002 mg/L 0.0001

PACKAGE: SANSEW - VOCs (WATER)

Sample Number 8

Sample Name SW-UF-MW-3-15

Sample Matrix Ground Water

L1 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 1 - Sanitary and Combined Sewer

Discharge - BL_100_2016

Sample Date 28/07/2020

L2 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 2 - Storm Sewer Discharge -BL_100_2016

Parameter	Units	RL	L1	L2	Result
/OCs					
Chloroform	mg/L	0.0005	0.04	0.002	< 0.0005
1,2-Dichlorobenzene	mg/L	0.0005	0.05	0.0056	< 0.0005
1,4-Dichlorobenzene	mg/L	0.0005	0.08	0.0068	< 0.0005
cis-1,2-Dichloroethene	mg/L	0.0005	4	0.0056	< 0.0005
trans-1,3-Dichloropropene	mg/L	0.0005	0.14	0.0056	< 0.0005
Methylene Chloride	mg/L	0.0005	2	0.0052	< 0.0005
1,1,2,2-Tetrachloroethane	mg/L	0.0005	1.4	0.017	< 0.0005



CA15677-JUL20 R1

Client: Grounded Engineering Inc.

Project: 20-153, 175 Wynford Dr, Toronto, ON

Project Manager: Jory Hunter

Samplers: Katrina Morgenroth

PACKAGE: SANSEW - VOCs	(WATER)
THE TOTAL COLUMN TO CO.	(* * / * / ! / /

Sample Number

Sample Name SW-UF-MW-3-15

8

Sample Matrix Ground Water

L1 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 1 - Sanitary and Combined Sewer

L2 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 2 - Storm Sewer Discharge -

Discharge - BL_100_2016

Sample Date 28/07/2020

BL 100 2016

===:					
Parameter	Units	RL	L1	L2	Result
VOCs (continued)					
Tetrachloroethylene (perchloroethylene)	mg/L	0.0005	1	0.0044	< 0.0005
Trichloroethylene	mg/L	0.0005	0.4	0.0076	< 0.0005

PACKAGE: SANSEW - VOCs - BTEX (WATER)

8 Sample Number

Sample Name SW-UF-MW-3-15

Sample Matrix Ground Water

L1 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 1 - Sanitary and Combined Sewer Discharge - BL_100_2016

Units

mg/L

RL

0.0005

L1

L2 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 2 - Storm Sewer Discharge -

Sample Date 28/07/2020

Result

< 0.0005

L2

BL_100_2016

Parameter

o-xylene

VOCs - BTEX						
Benzene	mg/L	0.0005	0.01	0.002	< 0.0005	
Ethylbenzene	mg/L	0.0005	0.16	0.002	< 0.0005	
Toluene	mg/L	0.0005	0.016	0.002	< 0.0005	
Xylene (total)	mg/L	0.0005	1.4	0.0044	< 0.0005	
m-p-xylene	mg/L	0.0005			< 0.0005	



EXCEEDANCE SUMMARY

SANSEW / WATER SANSEW / WATER / - - Toronto Sewer / - - Toronto Sewer Use By Law Table Use By Law Table 1 - Sanitary and 2 - Storm Sewer Combined Sewer Discharge -BL_100_2016 Discharge -

BL_100_2016

L1

SW-UF-MW-3-15

Parameter

Total Suspended Solids	SM 2540D	mg/L	226
Manganese	SM 3030/EPA 200.8	mg/L	0.398

Units

Result

Method

15 0.05

L2

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QC SUMMARY

Biochemical Oxygen Demand

Method: SM 5210 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-007

Parameter	QC batch	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
	Reference				RPD	AC	Spike	Recovery Limits (%)		Spike Recovery	Recove	-
						(%)	Recovery (%)	Low	High	(%)	Low	High
Biochemical Oxygen Demand (BOD5)	BOD0059-JUL20	mg/L	2	< 2	10	30	105	70	130	nv	70	130

Cyanide by SFA

Method: SM 4500 | Internal ref.: ME-CA-IENVISFA-LAK-AN-005

Parameter	QC batch	Units	RL	Method	Dup	olicate	LC	S/Spike Blank		M	atrix Spike / Ref	1.
	Reference			Blank	RPD	AC	Spike	Recover	•	Spike Recovery		ry Limits %)
						(%)	Recovery (%)	Low	High	(%)	Low	High
Cyanide (total)	SKA0281-JUL20	mg/L	0.01	<0.01	ND	10	90	90	110	NV	75	125
Cyanide (total)	SKA0288-JUL20	mg/L	0.01	<0.01	ND	10	92	90	110	100	75	125

Fluoride by Specific Ion Electrode

Method: SM 4500 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-014

Parameter	QC batch	Units	RL	Method	Duj	olicate	LC	S/Spike Blank		M	latrix Spike / Ref	f.
	Reference			Blank	RPD	AC	Spike		ery Limits %)	Spike Recovery		ry Limits %)
						(%)	Recovery (%)	Low	High	(%)	Low	High
Fluoride	EWL0416-JUL20	mg/L	0.06	<0.06	0	10	102	90	110	104	75	125

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QC SUMMARY

Hexavalent Chromium by SFA

Method: EPA218.6/EPA3060A | Internal ref.: ME-CA-[ENV]SKA-LAK-AN-012

Parameter	QC batch	Units	RL	Method	Dup	olicate	LC	S/Spike Blank		M	latrix Spike / Ref	
	Reference	Blank F	RPD	AC	Spike		ery Limits %)	Spike Recovery	Recover	ry Limits %)		
						(%)	Recovery (%)	Low	High	(%)	Low	High
Chromium VI	SKA0274-JUL20	mg/L	0.0002	<0.0002	0	20	97	80	120	96	75	125

Mercury by CVAAS

Method: EPA 7471A/SM 3112B | Internal ref.: ME-CA-[ENV]SPE-LAK-AN-004

Parameter	QC batch	Units	RL	Method	Dup	licate	LC	S/Spike Blank		м	atrix Spike / Re	ıf.
	Reference			Blank	RPD	AC	Spike		ry Limits %)	Spike Recovery		ery Limits %)
						(%)	Recovery (%)	Low	High	(%)	Low	High
Mercury (total)	EHG0021-JUL20	mg/L	0.00001	< 0.00001	ND	20	101	80	120	109	70	130

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QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-[ENVISPE-LAK-AN-006

Parameter	QC batch	Units	RL	Method	Dup	licate	LC	S/Spike Blank		Ma	atrix Spike / Re	f.
	Reference			Blank	RPD	AC (%)	Spike Recovery		ry Limits %)	Spike Recovery		ery Limits %)
						(70)	(%)	Low	High	(%)	Low	High
Selenium (total)	EMS0013-AUG20	mg/L	0.00004	<0.00004	ND	20	99	90	110	90	70	130
Silver (total)	EMS0158-JUL20	mg/L	0.00005	<0.00005	ND	20	99	90	110	94	70	130
Aluminum (total)	EMS0158-JUL20	mg/L	0.001	<0.001	4	20	96	90	110	93	70	130
Arsenic (total)	EMS0158-JUL20	mg/L	0.0002	<0.0002	10	20	103	90	110	98	70	130
Cadmium (total)	EMS0158-JUL20	mg/L	0.000003	<0.000003	11	20	100	90	110	110	70	130
Cobalt (total)	EMS0158-JUL20	mg/L	0.000004	<0.000004	3	20	100	90	110	97	70	130
Chromium (total)	EMS0158-JUL20	mg/L	0.00008	<0.00008	ND	20	102	90	110	91	70	130
Copper (total)	EMS0158-JUL20	mg/L	0.0002	<0.0002	8	20	98	90	110	95	70	130
Manganese (total)	EMS0158-JUL20	mg/L	0.00001	<0.00001	1	20	97	90	110	98	70	130
Molybdenum (total)	EMS0158-JUL20	mg/L	0.00004	<0.00004	9	20	96	90	110	94	70	130
Nickel (total)	EMS0158-JUL20	mg/L	0.0001	<0.0001	2	20	100	90	110	99	70	130
Lead (total)	EMS0158-JUL20	mg/L	0.00001	<0.00001	2	20	102	90	110	98	70	130
Phosphorus (total)	EMS0158-JUL20	mg/L	0.003	<0.003	ND	20	102	90	110	NV	70	130
Antimony (total)	EMS0158-JUL20	mg/L	0.0009	<0.0009	ND	20	100	90	110	106	70	130
Selenium (total)	EMS0158-JUL20	mg/L	0.00004	<0.00004	16	20	96	90	110	87	70	130
Tin (total)	EMS0158-JUL20	mg/L	0.00006	<0.00006	9	20	95	90	110	NV	70	130
Titanium (total)	EMS0158-JUL20	mg/L	0.00005	<0.00005	ND	20	94	90	110	NV	70	130
Zinc (total)	EMS0158-JUL20	mg/L	0.002	<0.002	3	20	99	90	110	114	70	130

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QC SUMMARY

Microbiology

Method: SM 9222D | Internal ref.: ME-CA-[ENV]MIC-LAK-AN-006

Parameter	QC batch	Units	RL	Method	Dup	licate	LC	S/Spike Blank		м	atrix Spike / Re	f.
	Reference			Blank	RPD	AC	Spike	Recover	•	Spike Recovery		ry Limits %)
						(%)	Recovery (%)	Low	High	(%)	Low	High
E. Coli	BAC9536-JUL20	cfu/100mL	-	ACCEPTED	ACCEPTE							
					D							

Nonylphenol and Ethoxylates

Method: ASTM D7065-06 | Internal ref.: ME-CA-IENVIGC-LAK-AN-015

Parameter	QC batch	Units	RL	Method	Dup	licate	LC	S/Spike Blank		Ма	atrix Spike / Ref.	
	Reference			Blank	RPD	AC	Spike	Recover	-	Spike Recovery	Recover	ry Limits 6)
						(%)	Recovery (%)	Low	High	(%)	Low	High
Nonylphenol diethoxylate	GCM0495-JUL20	mg/L	0.01	< 0.01			76	55	120			
Nonylphenol Ethoxylates	GCM0495-JUL20	mg/L	0.01	< 0.01								
Nonylphenol monoethoxylate	GCM0495-JUL20	mg/L	0.01	< 0.01			82	55	120			
Nonylphenol	GCM0495-JUL20	mg/L	0.001	< 0.001			80	55	120			

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QC SUMMARY

Oil & Grease

Method: MOE E3401 | Internal ref.: ME-CA-[ENV]GC-LAK-AN-019

Parameter	QC batch	Units	RL	Method	Duj	olicate	LC	S/Spike Blank		М	atrix Spike / Ref	
	Reference			Blank	RPD	AC	Spike		ry Limits %)	Spike Recovery	Recover	-
						(%)	Recovery (%)	Low	High	(%)	Low	High
Oil & Grease (total)	GCM0483-JUL20	mg/L	2	<2	NSS	20	99	75	125			

Oil & Grease-AV/MS

Method: MOE E3401/SM 5520F | Internal ref.: ME-CA-IENVIGC-LAK-AN-019

Parameter	QC batch	Units	RL	Method	Dup	licate	LC	S/Spike Blank		м	atrix Spike / Re	f.
	Reference			Blank	RPD	AC	Spike	Recove	•	Spike Recovery		ery Limits %)
						(%)	Recovery (%)	Low	High	(%)	Low	High
Oil & Grease (animal/vegetable)	GCM0483-JUL20	mg/L	4	< 4	NSS	20	NA	70	130			
Oil & Grease (mineral/synthetic)	GCM0483-JUL20	mg/L	4	< 4	NSS	20	NA	70	130			

pН

Method: SM 4500 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch	Units	RL	Method	Dup	licate	LC	S/Spike Blank		М	atrix Spike / Ref	
	Reference	Reference		Blank	RPD	AC (%)	Spike Recovery	Recove	%)	Spike Recovery (%)	Recover	6)
							(%)	Low	High	(1.5)	Low	High
рН	EWL0422-JUL20	No unit	0.05	NA	1		98			NA		

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QC SUMMARY

Phenols by SFA

Method: SM 5530B-D | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-006

Parameter	QC batch	Units	RL	Method	Duj	plicate	LC	S/Spike Blank		M	atrix Spike / Ref	
	Reference			Blank	RPD	AC	Spike		ry Limits %)	Spike Recovery	Recover	ry Limits %)
						(%)	Recovery (%)	Low	High	(%)	Low	High
4AAP-Phenolics	SKA0273-JUL20	mg/L	0.002	<0.002	ND	10	93	80	120	94	75	125

Polychlorinated Biphenyls

Method: MOE E3400/EPA 8082A | Internal ref.: ME-CA-IENVIGC-LAK-AN-001

Parameter	QC batch	Units			Du	plicate	LC	S/Spike Blank		M	atrix Spike / Re	f.
	Reference			Blank	RPD	AC	Spike	Recove	•	Spike Recovery		ery Limits %)
						(%)	Recovery (%)	Low	High	(%)	Low	High
Polychlorinated Biphenyls (PCBs) -	GCM0497-JUL20	mg/L	0.0001	<0.0001	ND	30	102	60	140	NSS	60	140
Total												

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QC SUMMARY

Semi-Volatile Organics

Method: EPA 3510C/8270D | Internal ref.: ME-CA-IENVIGC-LAK-AN-005

Parameter	QC batch	Units	RL	Method	Dup	licate	LC	S/Spike Blank		Matrix Spike / Ref.				
	Reference			Blank	RPD	AC (%)	Spike Recovery	Recover	•	Spike Recovery	Recover	ry Limits %)		
						. ,	(%)	Low	High	(%)	Low	High		
3,3-Dichlorobenzidine	GCM0469-JUL20	mg/L	0.0005	< 0.0005	NSS	30	93	30	130	NSS	30	130		
7Hdibenzo(c,g)carbazole	GCM0488-JUL20	mg/L	0.0001	< 0.0001	NSS	30	118	50	140	NSS	50	140		
Anthracene	GCM0488-JUL20	mg/L	0.0001	< 0.0001	NSS	30	103	50	140	NSS	50	140		
Benzo(a)anthracene	GCM0488-JUL20	mg/L	0.0001	< 0.0001	NSS	30	105	50	140	NSS	50	140		
Benzo(a)pyrene	GCM0488-JUL20	mg/L	0.0001	< 0.0001	NSS	30	108	50	140	NSS	50	140		
Benzo(b+j)fluoranthene	GCM0488-JUL20	mg/L	0.0001	< 0.0001	NSS	30	123	50	140	NSS	50	140		
Benzo[e]pyrene	GCM0488-JUL20	mg/L	0.0001	< 0.0001	NSS	30	93	50	140	NSS	50	140		
Benzo(ghi)perylene	GCM0488-JUL20	mg/L	0.0002	< 0.0002	NSS	30	108	50	140	NSS	50	140		
Benzo(k)fluoranthene	GCM0488-JUL20	mg/L	0.0001	< 0.0001	NSS	30	95	50	140	NSS	50	140		
Bis(2-ethylhexyl)phthalate	GCM0488-JUL20	mg/L	0.002	< 0.002	NSS	30	120	50	140	NSS	50	140		
Chrysene	GCM0488-JUL20	mg/L	0.0001	< 0.0001	NSS	30	109	50	140	NSS	50	140		
di-n-Butyl Phthalate	GCM0488-JUL20	mg/L	0.002	< 0.002	NSS	30	112	50	140	NSS	50	140		
Dibenzo(a,h)anthracene	GCM0488-JUL20	mg/L	0.0001	< 0.0001	NSS	30	108	50	140	NSS	50	140		
Dibenzo(a,i)pyrene	GCM0488-JUL20	mg/L	0.0001	< 0.0001	NSS	30	109	50	140	NSS	50	140		
Dibenzo(a,j)acridine	GCM0488-JUL20	mg/L	0.0001	< 0.0001	NSS	30	116	50	140	NSS	50	140		
Fluoranthene	GCM0488-JUL20	mg/L	0.0001	< 0.0001	NSS	30	107	50	140	NSS	50	140		
Indeno(1,2,3-cd)pyrene	GCM0488-JUL20	mg/L	0.0002	< 0.0002	NSS	30	109	50	140	NSS	50	140		
Pentachlorophenol	GCM0488-JUL20	mg/L	0.0005	< 0.0005	NSS	30	125	50	140	NSS	50	140		
Perylene	GCM0488-JUL20	mg/L	0.0005	< 0.0005	NSS	30	95	50	140	NSS	50	140		
Phenanthrene	GCM0488-JUL20	mg/L	0.0001	< 0.0001	NSS	30	103	50	140	NSS	50	140		

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QC SUMMARY

Semi-Volatile Organics (continued)

Method: EPA 3510C/8270D | Internal ref.: ME-CA-[ENV]GC-LAK-AN-005

Parameter	QC batch	Units	RL	Method	Duj	plicate	LC	S/Spike Blank		M	latrix Spike / Ref	
	Reference			Blank	RPD	AC	Spike		ry Limits %)	Spike Recovery	Recover	ry Limits %)
						(%)	Recovery (%)	Low	High	(%)	Low	High
Pyrene	GCM0488-JUL20	mg/L	0.0001	< 0.0001	NSS	30	108	50	140	NSS	50	140

Suspended Solids

Method: SM 2540D | Internal ref.: ME-CA-IENVIEWL-LAK-AN-004

Parameter	QC batch	Units	RL	Method	Duj	plicate	LC	S/Spike Blank		м	atrix Spike / Ref	f.
	Reference			Blank	RPD	AC	Spike		ry Limits %)	Spike Recovery	Recove	ry Limits %)
						(%)	Recovery (%)	Low	High	(%)	Low	High
Total Suspended Solids	EWL0415-JUL20	mg/L	2	< 2	0	10	101	90	110	NA		

Total Nitrogen

Method: SM 4500-N C/4500-NO3- F | Internal ref.: ME-CA-IENVISFA-LAK-AN-002

	Parameter	QC batch	Units	RL	Method	Dup	olicate	LC	S/Spike Blank		M	atrix Spike / Ref	:
		Reference			Blank	RPD	AC	Spike		ry Limits %)	Spike Recovery	Recover	ry Limits 6)
							(%)	Recovery (%)	Low	High	(%)	Low	High
Т	otal Kjeldahl Nitrogen	SKA0277-JUL20	as N mg/L	0.5	<0.5	2	10	105	90	110	100	75	125

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QC SUMMARY

Volatile Organics

Method: EPA 5030B/8260C | Internal ref.: ME-CA-[ENV]GC-LAK-AN-004

Parameter	QC batch	Units	RL	Method	Dup	licate	LC	S/Spike Blank		Matrix Spike / Ref.			
	Reference			Blank	RPD	AC (%)	Spike Recovery	Recover	•	Spike Recovery		ory Limits %)	
							(%)	Low	High	(%)	Low	High	
1,1,2,2-Tetrachloroethane	GCM0478-JUL20	mg/L	0.0005	<0.0005	ND	30	102	60	130	98	50	140	
1,2-Dichlorobenzene	GCM0478-JUL20	mg/L	0.0005	<0.0005	ND	30	101	60	130	100	50	140	
1,4-Dichlorobenzene	GCM0478-JUL20	mg/L	0.0005	<0.0005	ND	30	102	60	130	100	50	140	
Benzene	GCM0478-JUL20	mg/L	0.0005	<0.0005	ND	30	102	60	130	101	50	140	
Chloroform	GCM0478-JUL20	mg/L	0.0005	<0.0005	ND	30	100	60	130	98	50	140	
cis-1,2-Dichloroethene	GCM0478-JUL20	mg/L	0.0005	<0.0005	ND	30	100	60	130	100	50	140	
Ethylbenzene	GCM0478-JUL20	mg/L	0.0005	<0.0005	ND	30	102	60	130	101	50	140	
m-p-xylene	GCM0478-JUL20	mg/L	0.0005	<0.0005	ND	30	103	60	130	103	50	140	
Methylene Chloride	GCM0478-JUL20	mg/L	0.0005	<0.0005	ND	30	97	60	130	96	50	140	
o-xylene	GCM0478-JUL20	mg/L	0.0005	<0.0005	ND	30	102	60	130	101	50	140	
Tetrachloroethylene	GCM0478-JUL20	mg/L	0.0005	<0.0005	ND	30	102	60	130	101	50	140	
(perchloroethylene)													
Toluene	GCM0478-JUL20	mg/L	0.0005	<0.0005	ND	30	102	60	130	100	50	140	
trans-1,3-Dichloropropene	GCM0478-JUL20	mg/L	0.0005	<0.0005	ND	30	101	60	130	100	50	140	
Trichloroethylene	GCM0478-JUL20	mg/L	0.0005	<0.0005	ND	30	99	60	130	99	50	140	

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QC SUMMARY

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.

Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.

LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate laboratory accuracy with sample matrix effects.

Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.

Duplicate Qualifier: for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL. **Matrix Spike Qualifier**: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

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LEGEND

FOOTNOTES

NSS Insufficient sample for analysis.

RL Reporting Limit.

- † Reporting limit raised.
- ↓ Reporting limit lowered.
- NA The sample was not analysed for this analyte
- ND Non Detect

Samples analysed as received. Solid samples expressed on a dry weight basis. "Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.

Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated. This document is issued, on the Client's behalf, by the Company under its General Conditions of Service available on request and accessible at http://www.sgs.com/terms_and_conditions.htm. The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any other holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents.

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-- End of Analytical Report --

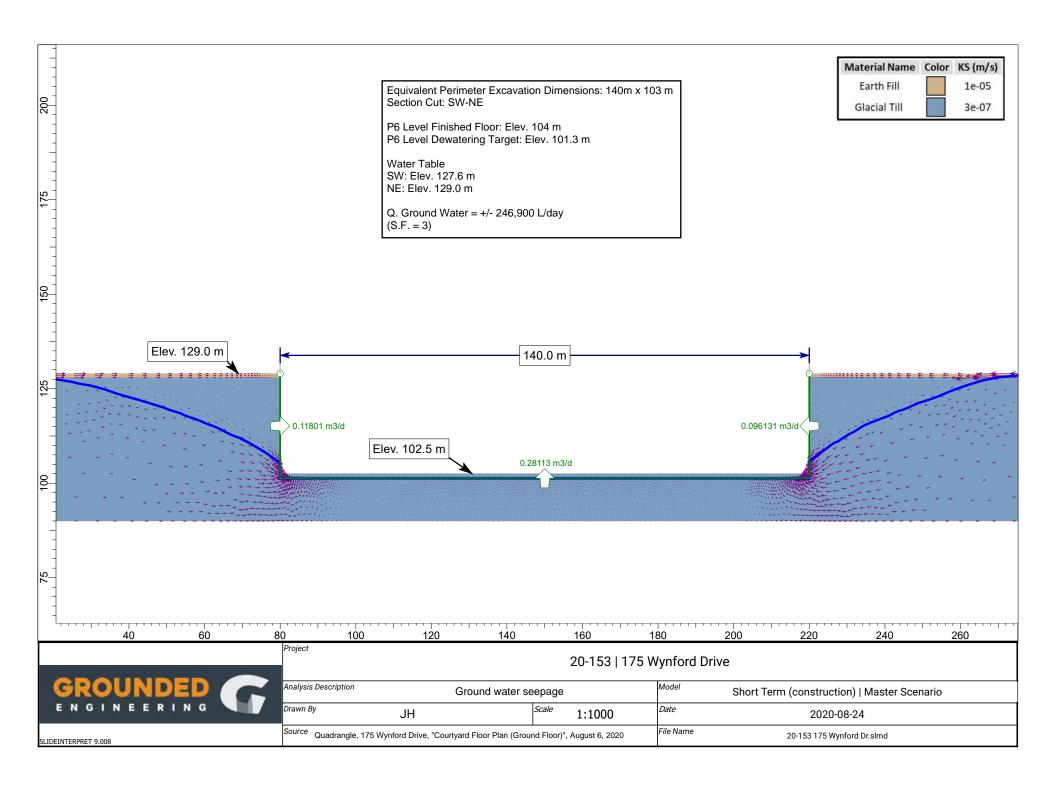
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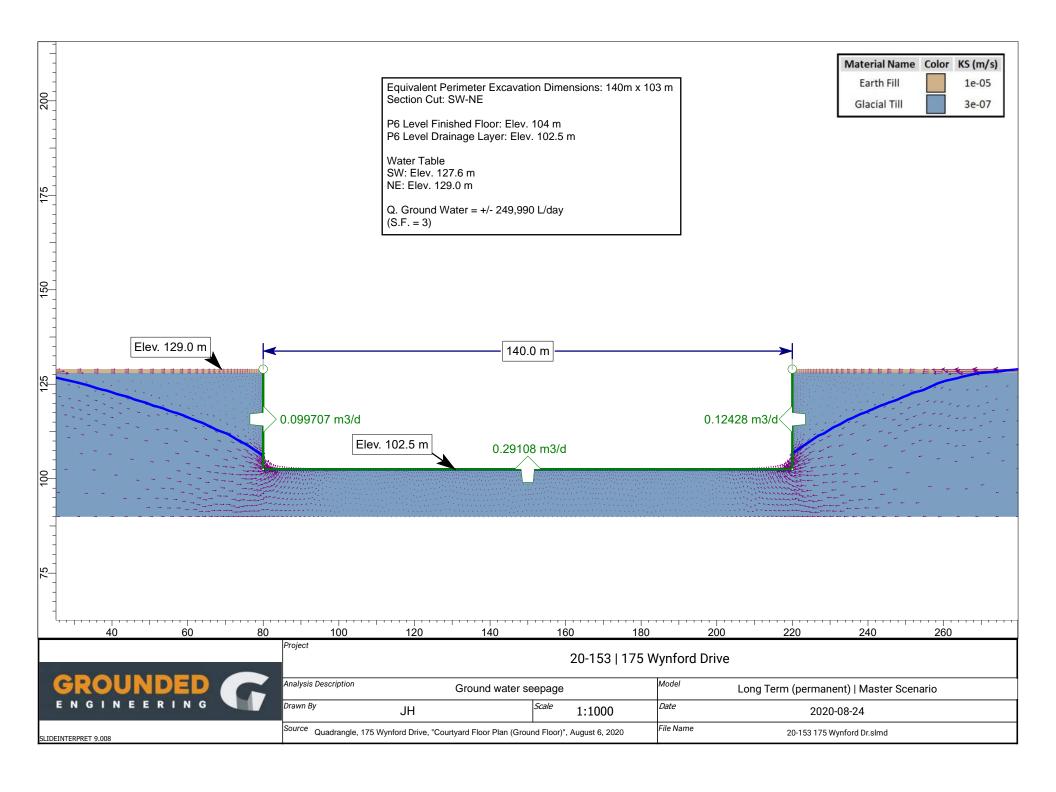
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APPENDIX C

