



Soil Engineers Ltd.

CONSULTING ENGINEERS

GEOTECHNICAL • ENVIRONMENTAL • HYDROGEOLOGICAL • BUILDING SCIENCE

90 WEST BEAVER CREEK ROAD, SUITE 100, RICHMOND HILL, ONTARIO L4B 1E7 · TEL: (416) 754-8515 · FAX: (905) 881-8335

BARRIE
TEL: (705) 721-7863
FAX: (705) 721-7864

MISSISSAUGA
TEL: (905) 542-7605
FAX: (905) 542-2769

OSHAWA
TEL: (905) 440-2040
FAX: (905) 725-1315

NEWMARKET
TEL: (905) 853-0647
FAX: (905) 881-8335

GRAVENHURST
TEL: (705) 684-4242
FAX: (705) 684-8522

HAMILTON
TEL: (905) 777-7956
FAX: (905) 542-2769

September 29, 2022

Reference No. 1909-W140

Page 1 of 3

Brock Road Duffins Forest Inc.
22 Ross Shiner Lane
Whitchurch-Stouffville, Ontario
L4A 0V5

Attention: Ms. Alison Lin

**Re: Groundwater Quality Assessment
Proposed Residential Development
2055 Brock Road
City of Pickering**

Dear Miss:

Soil Engineers Ltd. (SEL) was retained to carry out a groundwater quality assessment for a proposed residential development in the City of Pickering in support of any proposed disposal of collected shallow groundwater effluent from within the excavation footprints to the Region of Durham storm and sanitary sewer system. This letter report presents the results for the assessment.

Methodology

SEL previously completed a geotechnical investigation and a hydrogeological assessment at the site, at which time five (5) groundwater monitoring wells were installed in selected boreholes (Soil Engineers Ltd. Report Reference Nos. 1909-S140 and 1909-W140) The Borehole and Monitoring Well Location Plan from the hydrogeological assessment is enclosed for your reference.



On June 8 2022, one set of groundwater samples was collected from BH/MW 4. The monitoring well was purged to remove three (3) well casing volumes of groundwater, prior to sample collection. The samples were submitted to SGS Canada Inc., which is accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for analysis and comparison evaluation against the Region of Durham Storm and Sanitary Sewer Use by-law standards. The Certificate of Analysis for the water quality sampling is provided in the attached enclosure. The chain of custody number for the submitted samples is 032538.

The submitted samples consisted of unfiltered and filtered groundwater samples. As per the protocols for the Region of Durham sewer use analysis, unfiltered groundwater samples (Total sample) were analyzed for all the applicable sewer use parameters. A second set of selected groundwater samples also underwent field filtration for metals and Total Phosphorous analysis, to determine sources for any elevated metals from the unfiltered (Total) sample.

Groundwater Quality Results – Storm and Sanitary Sewer Use Bylaw Standards

The results of analysis for the unfiltered (Total) groundwater indicate only one (1) exceedance when compared against the Region of Durham Storm Sewer Use by-law limits, as shown in Table 1, below.

Table 1 - Groundwater Quality Results Against Sewer Use Standards (Unfiltered - Groundwater)

Parameter	BH/MW 1 – Groundwater Quality Results (<u>Unfiltered (Total) Groundwater</u>) (mg/L)	Region of Durham Sanitary Sewer Use Limits (mg/L)	Region of Durham Storm Sewer Use Limits (mg/L)
Total Suspended Solids (TSS)	65	350	15

As shown above, the concentration for Total Suspended Solids exceed the Storm Sewer Use by-law standards, but are within and meet the Sanitary Sewer Use bylaw standards. This result suggests that any short-term construction dewatering would not be acceptable for disposal to the City of Pickering and/or Region of Durham storm sewer but would be acceptable for disposal discharge to the sanitary sewer. However, it should be noted that the Region of Durham currently does not permit discharge of effluent from construction activities into their



sanitary sewers. As such, implementing specific pre-treatment to lower the amount of total suspended solids to meet the Region of Durham's Storm Sewer Use standards should permit disposal of any short-term dewatering effluent to the City of Pickering or Region of Durham's storm sewer.

Review of the results for the filtered parameters indicate no exceedances when compared against the Region of Durham Storm and Sanitary Sewer use bylaw standards.

The final design for any temporary dewatering effluent pre-treatment system is the responsibility of contractors responsible for construction.

We trust that this correspondence addresses your requirements and ask that you contact us should you have any questions or require additional information.

Yours truly,
SOIL ENGINEERS LTD.

Vivian Yu, B.Sc.

Gavin O'Brien, M.Sc. P.Ge.
VY/GO



ENCLOSURES

Monitoring Well Location Plan Drawing No. 1
Water Quality Certificate of Analysis



- Approximate Boundary of Subject Site
- Borehole
- Borehole with Monitoring Well
- Watercourse
- Major Road
- Local Road

Soil Engineers Ltd.

Title: Borehole and Monitoring Well Location Plan

Project:
 Hydrogeological Assessment
 Proposed Residential Development
 2055 Brock Road
 City of Pickering

Reference No. 1909-W140

Date: November 20, 2019

Scale:
 0 5 10 20 30 40 50

 Metres

Drawing No. 1

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Source: Ministry of Natural Resources and Forestry
 ©Queen's Printer for Ontario, 2019

C:\GIS2019\1909-W140\



FINAL REPORT

CA40116-JUN22 R1

1909-W140, 2055 Brock Road, City of Pickering

Prepared for

Soil Engineers Ltd.

First Page

CLIENT DETAILS		LABORATORY DETAILS	
Client	Soil Engineers Ltd.	Project Specialist	Jill Campbell, B.Sc.,GISAS
Address	90 West Beaver Creek Rd Richmond, ON M1S 3A7. Canada	Laboratory Address	SGS Canada Inc. 185 Concession St., Lakefield ON, K0L 2H0
Contact	Rigve	Telephone	2165
Telephone	438-837-4443	Facsimile	705-652-6365
Facsimile	416-754-8516	Email	jill.campbell@sgs.com
Email	rigve@soilengineersltd.com	SGS Reference	CA40116-JUN22
Project	1909-W140, 2055 Brock Road, City of Pickering	Received	06/08/2022
Order Number		Approved	06/24/2022
Samples	Ground Water (2)	Report Number	CA40116-JUN22 R1
		Date Reported	06/24/2022

COMMENTS

RL - SGS Reporting Limit

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

Total PAH is the sum of anthracene, benzo(a)pyrene, benzo(a)anthracene, benzo(e)pyrene, benzo(b,j)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, dibenzo(a,i)pyrene, dibenzo(a,j)acridine, 7H-dibenzo(c,g)carbazole, fluoranthene, indeno(1,2,3-c,d)pyrene, perylene, phenanthrene and pyrene..

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

Chain of Custody Number: 032538

SIGNATORIES

Jill Campbell, B.Sc.,GISAS

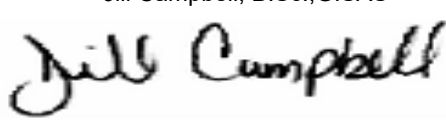


TABLE OF CONTENTS

First Page.....	1-2
Index.....	3
Results.....	4-7
Exceedance Summary.....	8
QC Summary.....	9-17
Legend.....	18
Annexes.....	19



FINAL REPORT

CA40116-JUN22 R1

Client: Soil Engineers Ltd.

Project: 1909-W140, 2055 Brock Road, City of Pickering

Project Manager: Rigve

Samplers: Rigve

MATRIX: WATER

Sample Number	8	9
Sample Name	BHMW4	BHMW4 Dissolved
Sample Matrix	Ground Water	Ground Water
Sample Date	08/06/2022	08/06/2022

L1 = SANSEW / WATER / - - Durham Table 1 - Sanitary Sewer Discharge - BL_55_2013

L2 = SANSEW / WATER / - - Durham Table 2 - Storm Sewer Discharge - BL_55_2013

Parameter	Units	RL	L1	L2	Result	Result
General Chemistry						
Biochemical Oxygen Demand (BOD5)	mg/L	2	300	15	< 4 †	---
Total Suspended Solids	mg/L	2	350	15	65	---
Total Kjeldahl Nitrogen	as N mg/L	0.5	100	1	< 0.5	---

Metals and Inorganics

Sulphate	mg/L	2	1500		29	---
Cyanide (total)	mg/L	0.01	2	0.02	< 0.01	---
Fluoride	mg/L	0.06	10		0.12	---
Aluminum (total)	mg/L	0.001	50		1.07	< 0.001
Antimony (total)	mg/L	0.0009	5		< 0.0009	< 0.0009
Arsenic (total)	mg/L	0.0002	1	0.02	0.0005	0.0003
Cadmium (total)	mg/L	0.000003	0.7	0.008	0.000005	< 0.000003
Chromium (total)	mg/L	0.00008	2	0.08	0.00141	< 0.00008
Cobalt (total)	mg/L	0.000004	5		0.000520	0.000052
Copper (total)	mg/L	0.0002	3	0.05	0.0010	0.0009
Lead (total)	mg/L	0.00009	1	0.12	0.00085	< 0.00009
Manganese (total)	mg/L	0.00001	5	0.15	0.0811	0.0459
Molybdenum (total)	mg/L	0.00004	5		0.00090	0.00138
Nickel (total)	mg/L	0.0001	2	0.08	0.0019	0.0004
Phosphorus (total)	mg/L	0.003	10	0.4	0.051	< 0.003
Selenium (total)	mg/L	0.00004	1	0.02	< 0.00004	< 0.00004
Silver (total)	mg/L	0.00005	5	0.12	< 0.00005	< 0.00005



FINAL REPORT

CA40116-JUN22 R1

Client: Soil Engineers Ltd.

Project: 1909-W140, 2055 Brock Road, City of Pickering

Project Manager: Rigve

Samplers: Rigve

MATRIX: WATER

Sample Number	8	9
Sample Name	BHMMW4	BHMMW4 Dissolved
Sample Matrix	Ground Water	Ground Water
Sample Date	08/06/2022	08/06/2022

L1 = SANSEW / WATER / - - Durham Table 1 - Sanitary Sewer Discharge - BL_55_2013

L2 = SANSEW / WATER / - - Durham Table 2 - Storm Sewer Discharge - BL_55_2013

Parameter	Units	RL	L1	L2	Result	Result
Metals and Inorganics (continued)						
Tin (total)	mg/L	0.00006	5		0.00096	0.00010
Titanium (total)	mg/L	0.00005	5		0.0489	0.00010
Zinc (total)	mg/L	0.002	2	0.04	0.005	< 0.002

Microbiology

E. Coli	cfu/100mL	0		200	< 2 †	---
---------	-----------	---	--	-----	-------	-----

Nonylphenol and Ethoxylates

Nonylphenol	mg/L	0.001	0.02		< 0.001	---
Nonylphenol Ethoxylates	mg/L	0.01	0.2		< 0.01	---
Nonylphenol diethoxylate	mg/L	0.01			< 0.01	---
Nonylphenol monoethoxylate	mg/L	0.01			< 0.01	---

Oil and Grease

Oil & Grease (total)	mg/L	2			< 2	---
Oil & Grease (animal/vegetable)	mg/L	4	150		< 4	---
Oil & Grease (mineral/synthetic)	mg/L	4	15		< 4	---



FINAL REPORT

CA40116-JUN22 R1

Client: Soil Engineers Ltd.

Project: 1909-W140, 2055 Brock Road, City of Pickering

Project Manager: Rigve

Samplers: Rigve

MATRIX: WATER

Sample Number	8	9
Sample Name	BHMW4	BHMW4 Dissolved
Sample Matrix	Ground Water	Ground Water
Sample Date	08/06/2022	08/06/2022

L1 = SANSEW / WATER / - - Durham Table 1 - Sanitary Sewer Discharge - BL_55_2013

L2 = SANSEW / WATER / - - Durham Table 2 - Storm Sewer Discharge - BL_55_2013

Parameter	Units	RL	L1	L2	Result	Result
Other (ORP)						
pH	No unit	0.05	10.5	9	7.54	---
Mercury (total)	mg/L	0.00001	0.01	0.004	< 0.00001	---
PCBs						
Polychlorinated Biphenyls (PCBs) - Total	mg/L	0.0001	0.001	0.0004	< 0.0001	---
Phenols						
4AAP-Phenolics	mg/L	0.002	1	0.008	< 0.002	---
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	---
VOCs						
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	---
Tetrachloroethylene (perchloroethylene)	mg/L	0.0005	1	0.0044	< 0.0005	---
Trichloroethylene	mg/L	0.0005	0.4	0.008	< 0.0005	---
Methyl ethyl ketone	mg/L	0.02	8		< 0.02	---
Styrene	mg/L	0.0005	0.2		< 0.0005	---



FINAL REPORT

CA40116-JUN22 R1

Client: Soil Engineers Ltd.

Project: 1909-W140, 2055 Brock Road, City of Pickering

Project Manager: Rigve

Samplers: Rigve

MATRIX: WATER

Sample Number	8	9
Sample Name	BHMW4	BHMW4 Dissolved
Sample Matrix	Ground Water	Ground Water
Sample Date	08/06/2022	08/06/2022

L1 = SANSEW / WATER / - - Durham Table 1 - Sanitary Sewer Discharge - BL_55_2013

L2 = SANSEW / WATER / - - Durham Table 2 - Storm Sewer Discharge - BL_55_2013

Parameter	Units	RL	L1	L2	Result	Result
VOCs (continued)						
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	0.27	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	---
o-xylene	mg/L	0.0005			< 0.0005	---

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	SANSEW / WATER	SANSEW / WATER
				1 - Sanitary Sewer Discharge - BL_55_2013	2 - Storm Sewer Discharge - BL_55_2013
				L1	L2

BHMW4

Total Suspended Solids	SM 2540D	mg/L	65	15
------------------------	----------	------	----	----



FINAL REPORT

CA40116-JUN22 R1

QC SUMMARY

Anions by discrete analyzer

Method: US EPA 375.4 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-026

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Sulphate	DIO5068-JUN22	mg/L	2	<2	0	20	115	80	120	94	75	125

Biochemical Oxygen Demand

Method: SM 5210 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Biochemical Oxygen Demand (BOD5)	BOD0015-JUN22	mg/L	2	< 2	5	30	101	70	130	NV	70	130

Cyanide by SFA

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Cyanide (total)	SKA0107-JUN22	mg/L	0.01	<0.01	ND	10	93	90	110	96	75	125



FINAL REPORT

CA40116-JUN22 R1

QC SUMMARY

Fluoride by Specific Ion Electrode

Method: SM 4500 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-014

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Fluoride	EWL0215-JUN22	mg/L	0.06	<0.06	ND	10	95	90	110	94	75	125

Mercury by CVAAS

Method: EPA 7471A/SM 3112B | Internal ref.: ME-CA-IENVISPE-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (total)	EHG0023-JUN22	mg/L	0.00001	< 0.00001	ND	20	NV	80	120	116	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver (total)	EMS0087-JUN22	mg/L	0.00005	<0.00005	ND	20	104	90	110	89	70	130
Aluminum (total)	EMS0087-JUN22	mg/L	0.001	<0.001	16	20	101	90	110	108	70	130
Arsenic (total)	EMS0087-JUN22	mg/L	0.0002	<0.0002	4	20	103	90	110	97	70	130
Cadmium (total)	EMS0087-JUN22	mg/L	0.000003	<0.000003	ND	20	104	90	110	89	70	130
Cobalt (total)	EMS0087-JUN22	mg/L	0.000004	<0.000004	4	20	101	90	110	107	70	130
Chromium (total)	EMS0087-JUN22	mg/L	0.00008	<0.00008	15	20	103	90	110	102	70	130
Copper (total)	EMS0087-JUN22	mg/L	0.0002	<0.0002	3	20	98	90	110	90	70	130
Manganese (total)	EMS0087-JUN22	mg/L	0.00001	<0.00001	7	20	102	90	110	127	70	130
Molybdenum (total)	EMS0087-JUN22	mg/L	0.00004	<0.00004	3	20	101	90	110	99	70	130
Nickel (total)	EMS0087-JUN22	mg/L	0.0001	<0.0001	2	20	101	90	110	76	70	130
Lead (total)	EMS0087-JUN22	mg/L	0.00009	<0.00001	15	20	104	90	110	93	70	130
Phosphorus (total)	EMS0087-JUN22	mg/L	0.003	<0.003	12	20	100	90	110	NV	70	130
Antimony (total)	EMS0087-JUN22	mg/L	0.0009	<0.0009	1	20	105	90	110	107	70	130
Selenium (total)	EMS0087-JUN22	mg/L	0.00004	<0.00004	4	20	107	90	110	112	70	130
Tin (total)	EMS0087-JUN22	mg/L	0.00006	<0.00006	0	20	99	90	110	NV	70	130
Titanium (total)	EMS0087-JUN22	mg/L	0.00005	<0.00005	4	20	103	90	110	NV	70	130
Zinc (total)	EMS0087-JUN22	mg/L	0.002	<0.002	12	20	101	90	110	87	70	130



FINAL REPORT

CA40116-JUN22 R1

QC SUMMARY

Microbiology

Method: SM 9222D | Internal ref.: ME-CA-IENVIMIC-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
E. Coli	BAC9172-JUN22	cfu/100mL	-	ACCEPTED	ACCEPTED							

Nonylphenol and Ethoxylates

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Nonylphenol diethoxylate	GCM0169-JUN22	mg/L	0.01	<0.01			84	55	120			
Nonylphenol Ethoxylates	GCM0169-JUN22	mg/L	0.01	0								
Nonylphenol monoethoxylate	GCM0169-JUN22	mg/L	0.01	<0.01			88	55	120			
Nonylphenol	GCM0169-JUN22	mg/L	0.001	<0.001			89	55	120			

QC SUMMARY

Oil & Grease

Method: MOE E3401 | Internal ref.: ME-CA-IENVIGC-LAK-AN-019

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Oil & Grease (total)	GCM0185-JUN22	mg/L	2	<2	NSS	20	103	75	125			

Oil & Grease-AV/MS

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Oil & Grease (animal/vegetable)	GCM0185-JUN22	mg/L	4	< 4	NSS	20	NA	70	130			
Oil & Grease (mineral/synthetic)	GCM0185-JUN22	mg/L	4	< 4	NSS	20	NA	70	130			

pH

Method: SM 4500 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	EWL0200-JUN22	No unit	0.05	NA	0		100			NA		

QC SUMMARY

Phenols by SFA

Method: SM 5530B-D | Internal ref.: ME-CA-IENVISFA-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
4AAP-Phenolics	SKA0143-JUN22	mg/L	0.002	<0.002	ND	10	119	80	120	NV	75	125

Polychlorinated Biphenyls

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Polychlorinated Biphenyls (PCBs) - Total	GCM0181-JUN22	mg/L	0.0001	<0.0001	NSS	30	103	60	140	NSS	60	140

QC SUMMARY

Semi-Volatile Organics

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Bis(2-ethylhexyl)phthalate	GCM0164-JUN22	mg/L	0.002	< 0.002	NSS	30	123	50	140	NSS	50	140
di-n-Butyl Phthalate	GCM0164-JUN22	mg/L	0.002	< 0.002	NSS	30	112	50	140	NSS	50	140

Suspended Solids

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Suspended Solids	EWL0285-JUN22	mg/L	2	< 2	4	10	94	90	110	NA		

Total Nitrogen

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Kjeldahl Nitrogen	SKA0120-JUN22	as N mg/L	0.5	<0.5	3	10	104	90	110	106	75	125

QC SUMMARY

Volatile Organics

Method: EPA 5030B/8260C | Internal ref.: ME-CA-ENVIGC-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1,1,2,2-Tetrachloroethane	GCM0178-JUN22	mg/L	0.0005	<0.0005	ND	30	95	60	130	100	50	140
1,2-Dichlorobenzene	GCM0178-JUN22	mg/L	0.0005	<0.0005	ND	30	97	60	130	103	50	140
1,4-Dichlorobenzene	GCM0178-JUN22	mg/L	0.0005	<0.0005	ND	30	95	60	130	102	50	140
Benzene	GCM0178-JUN22	mg/L	0.0005	<0.0005	ND	30	101	60	130	106	50	140
Chloroform	GCM0178-JUN22	mg/L	0.0005	<0.0005	ND	30	98	60	130	103	50	140
cis-1,2-Dichloroethene	GCM0178-JUN22	mg/L	0.0005	<0.0005	ND	30	99	60	130	106	50	140
Ethylbenzene	GCM0178-JUN22	mg/L	0.0005	<0.0005	ND	30	102	60	130	108	50	140
m-p-xylene	GCM0178-JUN22	mg/L	0.0005	<0.0005	ND	30	101	60	130	108	50	140
Methyl ethyl ketone	GCM0178-JUN22	mg/L	0.02	<0.02	ND	30	97	50	140	105	50	140
Methylene Chloride	GCM0178-JUN22	mg/L	0.0005	<0.0005	ND	30	98	60	130	100	50	140
o-xylene	GCM0178-JUN22	mg/L	0.0005	<0.0005	ND	30	99	60	130	107	50	140
Styrene	GCM0178-JUN22	mg/L	0.0005	<0.0005	ND	30	102	60	130	109	50	140
Tetrachloroethylene (perchloroethylene)	GCM0178-JUN22	mg/L	0.0005	<0.0005	ND	30	98	60	130	103	50	140
Toluene	GCM0178-JUN22	mg/L	0.0005	<0.0005	ND	30	100	60	130	106	50	140
trans-1,3-Dichloropropene	GCM0178-JUN22	mg/L	0.0005	<0.0005	ND	30	94	60	130	100	50	140
Trichloroethylene	GCM0178-JUN22	mg/L	0.0005	<0.0005	ND	30	98	60	130	103	50	140

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.

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

Data reported represent the sample as submitted to SGS. 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 and Excess Soil Quality" 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.

SGS Canada Inc. statement of conformity decision rule does not consider uncertainty when analytical results are compared to a specified standard or regulation.

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. Reproduction of this analytical report in full or in part is prohibited.

This report supersedes all previous versions.

-- End of Analytical Report --



Request for Laboratory Services and CHAIN OF CUSTODY

Industries & Environment - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Fax: 705-652-6365 Web: www.sgs.com/environment

- London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361

No: 032538

Page 1 of 1

Laboratory Information Section - Lab use only

Received By: ED
Received Date: 6/8/22 (mm/dd/yy)
Received Time: 10:50 (hr : min)

Received By (signature): [Signature]
Custody Seal Present: Yes No Cooling Agent Present: Yes No Type: Package
Custody Seal Intact: Yes No Temperature Upon Receipt (°C) 9.3

CA4016 JW-22
LAB LIMS #: _____

REPORT INFORMATION	INVOICE INFORMATION
Company: <u>Soil Engineers Ltd.</u>	<input checked="" type="checkbox"/> (same as Report Information)
Contact: <u>Rigve</u>	Company: _____
Address: <u>90 West Beaver Creek Road, Richmond Hill</u>	Contact: _____
Phone: <u>438-837-4443</u>	Address: _____
Fax: _____	Phone: _____
Email: <u>Rigve@soilengineers Ltd. com</u>	Email: _____

Quotation #: _____ P.O. #: _____
 Project #: 1909 - W140 Site Location/ID: 2055 Brock Road, City of Pickering

TURNAROUND TIME (TAT) REQUIRED City of Pickering
 Regular TAT (5-7days) TAT's are quoted in business days (exclude statutory holidays & weekends).
 Samples received after 6pm or on weekends: TAT begins next business day

RUSH TAT (Additional Charges May Apply): 1 Day 2 Days 3 Days 4 Days
PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

Specify Due Date: _____ *NOTE: DRINKING (POTABLE) WATER SAMPLES FOR HUMAN CONSUMPTION MUST BE SUBMITTED WITH SGS DRINKING WATER CHAIN OF CUSTODY

REGULATIONS

O.Reg 153/04 O.Reg 406/19

Other Regulations:
 Table 1 Res/Park Soil Texture:
 Table 2 Ind/Com Coarse
 Table 3 Agri/Other Medium/Fine
 Table _____ Appx. _____
 Soil Volume <350m3 >350m3

Sewer By-Law:
 Sanitary
 Storm
 Municipality: Durham Region

Reg 347/558 (3 Day min TAT)
 PWQO MMER
 CCME Other:
 MISA
 ODWS Not Reportable *See note

ANALYSIS REQUESTED

M & I	SVOC	PCB	PHC	VOC	Pest	Other (please specify)	SPLP	TCLP
Field Filtered (Y/N)	Metals & Inorganics <small>(incl. CrVI, CN, Hg, pH, (B)(HWS), EC, SAR, -soil) (Cl, No-water)</small>	PCBs Total <input type="checkbox"/> Aroclor <input type="checkbox"/>	PHC	VOC <small>all incl BTEX</small>	Pesticides <small>Organochlorine or specify other</small>	Metals dissolved	Specify tests	Specify tests
	Full Metals Suite <small>(ICP metals plus B)(HWS-soil only) Hg, CrVI</small>						<input type="checkbox"/> Metals	<input type="checkbox"/> M&I
	ICP Metals only <small>Cr, Co, Cu, Pb, Mo, Ni, Se, Ag, Tl, U, V, Zn</small>						<input type="checkbox"/> VOC	<input type="checkbox"/> VOC
	PAHs only						<input type="checkbox"/> 1,4-Dioxane	<input type="checkbox"/> PCB
	SVOCs <small>all incl PAHs, ABNs, CPs</small>						<input type="checkbox"/> OCP	<input type="checkbox"/> B(a)P
							<input type="checkbox"/> ABN	<input type="checkbox"/> ABN
							<input type="checkbox"/> Ignit.	

RECORD OF SITE CONDITION (RSC) YES NO

SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX
1 <u>B1 MW 4</u>	<u>08-June-2022</u>	<u>09:00</u>	<u>17</u>	<u>G.W</u>
2 <u>B1 MW 4</u>	<u>08-June-2022</u>	<u>09:00</u>	<u>1</u>	<u>G.W</u>
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				

COMMENTS:

Durham Region - Sanitary & Storm By Law

Sewer Use: Durham Region Sanitary & Storm Water Characterization Pkg
 General Extended

Observations/Comments/Special Instructions

Sampled By (NAME): <u>Rigve</u>	Signature: <u>[Signature]</u>	Date: <u>June 08, 2022</u> (mm/dd/yy)	Pink Copy - Client
Relinquished by (NAME): <u>Rigve</u>	Signature: <u>[Signature]</u>	Date: <u>June 08, 2022</u> (mm/dd/yy)	Yellow & White Copy - SGS

Revision #: 1.6
 Date of Issue: 02 May 2022
 Note: Submission of samples to SGS is acknowledgement that you have been provided direction on sample collection, handling and transportation of samples. (2) Submission of samples to SGS is considered authorization for completion of work. Signatures may appear on this form or be retained on file in the contract, or in an alternative format (e.g. shipping documents). (3) Results may be sent by email to an unlimited number of addresses for no additional cost. Fax is available upon request. This document is issued by the Company under its General Conditions of Service accessible at http://www.sgs.com/terms_and_conditions.htm. (Printed copies are available upon request.) Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.