



Limited Phase II Environmental Site Assessment

PROPOSED CHICK-FIL-A RESTAURANT #30042; ORLEANS INNES RD FSU

4270 Innes Road, Orleans, Ontario

Project No. 0208-001.02

August 14, 2023

Prepared for:

Chick-fil-A Canada ULC
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Atlanta, GA 30349
Attn: Austin Whitley

Prepared by:



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Executive Summary

Chick-fil-A Canada ULC (Chick-fil-A) retained BlueFrog Environmental Consulting Inc. (BlueFrog) to complete a Limited Phase II Environmental Site Assessment (ESA) of the subject property located at 4270 Innes Road, Orleans, Ontario (hereinafter referred to as the Site). The assessment was completed for due diligence purposes pertaining to property lease and construction of a retail commercial building.

The objective of the Limited Phase II ESA was to assess contaminants of concern (COCs) in groundwater related to potentially contaminating activities (PCAs) conducted at the adjacent property to the west (a retail fuel outlet (RFO) that has been present since 2005) identified during a Phase I ESA completed by BlueFrog in May 2023.

A Limited Phase II ESA was completed and is summarized below.

Field work dates	May 10 to 12, 2023
Total number of assessment locations advanced	1
Assessment locations completed as boreholes	None
Assessment locations completed as monitoring wells	MW7
Other	Existing monitoring well BH 4 (installed by others, 2017)
Site Condition Standard	Ministry of The Environment, Conservation and Parks (MECP) full depth generic site condition standards in a non-potable groundwater condition (Table 3) for industrial/commercial/community property use, medium and fine textured soils
Maximum assessment depth	5.2 m below ground surface (bgs)
Soil Stratigraphy	Sand fill to 0.6 mbgs overlying silty clay to the maximum depth of assessment of 5.2 m bgs. Asphalt was observed above the sand silt.
Depth to groundwater; inferred flow direction	3.27 mbgs (BH 4); site-specific groundwater flow direction was not measured due to limited data (i.e., at least three data points are needed to triangulate when contouring groundwater flow). Monitoring well MW7 was dry.
Evidence of free product	Soil: None Groundwater: none.
Subsurface vapour concentration - Combustible	Soil: 5 parts per million by volume (ppmv) to 50 ppmv Groundwater: Not detected (0 ppmv)
Subsurface vapour concentration – Organic	Soil: Not detected (0 ppmv) to 2 ppmv Groundwater: Not detected
Soil Exceedances	Not analyzed
Groundwater Exceedances	None (BH 4)

Based on the findings, the soil and groundwater conditions appear to be adequately characterized for purposes of a potential lease. No further assessment work is warranted at this time.

This Executive Summary is not intended to be a stand-alone document, but a summary of findings as described in the following Report. It is intended to be used in conjunction with the scope of services and limitations described therein.

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1.0 Introduction and Objectives

Chick-fil-A Canada ULC (Chick-fil-A) retained BlueFrog Environmental Consulting Inc. (BlueFrog) to complete a Limited Phase II Environmental Site Assessment (ESA) of the subject property located at 4270 Innes Road, Orleans, Ontario (the Site). A site map is provided as **Figure 1**.

The objective of the Limited Phase II ESA was to assess contaminants of concern (COCs) in groundwater related to potentially contaminating activities (PCAs) conducted at the adjacent property to the west (a retail fuel outlet (RFO)) identified during a Phase I ESA completed by BlueFrog in May 2023.

The subject work was performed in accordance with the *General Agreement for Professional Services* between BlueFrog Environmental Consulting Inc. and Chick-fil-A, dated November 18, 2022. This report has been prepared based on fieldwork and/or review of information conducted by BlueFrog and others, for the sole benefit and use by Chick-fil-A. In performing the work, BlueFrog has relied in good faith on information provided by others and has assumed that the information provided is both complete and accurate. The work was performed to current industry practice for similar environmental work, within the same regulatory jurisdiction. The findings presented herein should be considered in the context of the scope of work; further, the findings are considered valid only at the time the report was produced. The information presented herein shall not be construed as legal advice.

The conclusions, recommendations, and/or opinions presented in this report are based upon engineering and/or geoscience judgement and experience within the context of Chick-fil-A's objectives and the applicable guidelines, regulations, and legislation existing at the time the report was produced.

1.1 Background and Site Description

A Site plan is presented as **Figure 2**.

4270 Innes Road is a 6.44-hectare retail commercial property, developed circa 2005 from agricultural land, and occupied by Real Canadian Superstore on the southern portion and a Mobil RFO on the northwest corner. The proposed Chick-fil-A Site is approximately 4400 m², located on the northeast portion of the Site and is currently utilized as an asphalt parking surface for the adjacent retail commercial stores.

The surrounding area of the Site is commercial and residential.

1.2 Proposed Development

Chick-fil-A is considering developing the northeast portion of 4270 Innes Road. The development is proposed to include the construction of a single-storey, slab-on-grade commercial restaurant building with a total area of 452.4 m² with a drive thru, outdoor dining area, garbage storage area and associated parking.

2.0 Scope of Work

The Limited Phase II ESA involved the following main activities:

- Advance one borehole and install a monitoring well (MW7) in the area shown on **Figure 2**.
- Monitor the newly installed and existing monitoring well (BH 4) for water level, subsurface vapour concentration, and presence or absence of free product, floating, light non-aqueous phase liquids, (LNAPL) or sinking, dense non-aqueous phase liquids (DNAPL).
- Collect a groundwater sample from the new monitoring well for laboratory analysis of:
 - benzene, toluene, ethylbenzene, and total xylenes (BTEX) and petroleum hydrocarbon (PHC) fractions F1 to F4.
- Prepare a factual report documenting the field activities and results.

Note, MW7 was dry. Therefore, a water sample was collected from BH 4 instead.

3.0 Methodology

This Limited Phase II ESA was completed in general accordance with the Ontario Ministry of the Environment, Conservation and Parks (MECP) Guidance for Completing Phase Two Environmental Site Assessments under Ontario Regulation 153/04 (as amended), the MECP Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (as amended), and standard industry practice. The work was not done to facilitate filing of a MECP Record of Site Condition.

3.1 Drilling

Public and private utility locates were completed prior to the initiation of the drilling program.

BlueFrog staff supervised the drilling of the borehole. The assessment locations are presented on **Figure 2** and a summary of the drilling is provided in **Table i**.

Table i *Drilling Details*

Field work dates	Drilling and monitoring well installation (MW7): 2023/05/10 Monitoring well development (BH 4): 2023/05/11 Groundwater monitoring and sampling (BH 4): 2023/05/12
Drilling contractor; drill rig	George Downing Estate Drilling Ltd.: Truck mount drill rig (CME 75) equipped with hollow-stem augers and split spoon samplers
Maximum assessment depth	5.2 m
Assessment locations completed as boreholes	None
Assessment locations completed as monitoring wells	MW7

During borehole advancement, the borehole was logged for textural classification and visual observations. Hollow stem augers were used to drill through the overburden soil. Field methodology is further discussed in the following subsections. The assessment locations are presented on **Figure 2**. Borehole log detailing soil observations and monitoring well installation are presented on **Appendix A**. Well record is presented in **Appendix B**.

Drill cuttings were collected in steel drums for disposal at a MECP licensed waste receiver. Soil drums were removed by a waste hauler and disposed to a MECP approved waste receiving facility on June 12, 2023.

3.2 Monitoring Well Installation

BlueFrog staff supervised the installation of a monitoring well. The monitoring well assessment location is shown on **Figure 2**.

One monitoring well, consisting of a 51 mm diameter polyvinyl chloride (PVC) 10 slot screen, measuring 3.0 m in length, and an un-slotted riser, were installed in BH7. Sand pack was placed in the annulus between the slotted PVC pipe and borehole walls to a maximum of 0.40 m above the well screen. Hydrated bentonite chips were placed in the annulus between the solid PVC pipe and borehole walls on top of the sand pack to ground surface. The monitoring well was completed with a J-plug and flush mount casing set in concrete grout to protect the well from damage. Details are presented on the Record of Borehole sheets in **Appendix A** and in **Table 1**. The well record is presented in **Appendix B**.

3.3 Monitoring Well Development

Following installation of the monitoring well, it is BlueFrog's policy to develop the well by purging a minimum of three casing volumes or until the well was considered dry three times. The newly installed monitoring well could not be developed as this well was dry. However, BlueFrog developed existing monitoring well BH4 installed by others (see **Figure 2**) and removed three casing volumes of water prior to sampling.

The well was purged using dedicated tubing, and the purge water was placed in a sealed drum on-Site for temporary storage.

3.4 Soil Sampling

During the drilling investigation soil samples were collected using a 51 mm outside diameter split barrel (split spoon) sampler. Soil samples were collected by BlueFrog from material within the split spoon at regular intervals.

The samples were collected using a stainless-steel trowel and nitrile gloves. Each soil sample was placed in a clean plastic bag for vapour screening.

The sampling devices were cleaned with a solution of phosphate-free detergent and water, then rinsed with distilled water, prior to collecting each sample.

Soil screening included:

- Determining textural description;
- Visual evidence of impact (e.g., staining or free product); and
- Measurement of combustible vapours (CV) and organic vapours (OV) from the soil headspace using an RKI EAGLE 2 gas monitor.

No soil sample was submitted for analysis because the media of concern was groundwater considering that the assessment location was located approximately 30 m from the RFO.

3.5 Groundwater Monitoring

The newly installed and the existing monitoring wells were monitored for subsurface vapour concentrations, water levels, and the presence or absence of liquid product (LNAPL and DNAPL).

Immediately after removing the well caps, the maximum combustible vapour (CV) and organic vapour (OV) subsurface vapour concentrations in the monitoring wells were measured using an RKI EAGLE 2 gas monitor operated in methane elimination mode. This was done by inserting the collection tube of the RKI EAGLE 2 into the top portion of the riser pipes and recording the peak instrument readings.

The depth to the water table and presence or absence of light and dense napl in the monitoring wells were determined with a Solinst interface meter that was cleaned with a solution of phosphate-free detergent and water, then rinsed with distilled water.

3.6 Groundwater Sampling

Monitoring well MW7 was dry. Therefore, one groundwater sample was collected from existing monitoring well BH 4 using a low flow purging methodology. Low-flow purging was completed using a variable-flow peristaltic pump to remove groundwater from the mid-point of the monitoring well screened zone.

The pump was connected to a flow-through cell equipped with a multimeter (Horiba U-52) that measured pH, temperature, electrical conductivity, dissolved oxygen (DO), reduction oxidation potential (REDOX), and turbidity.

The groundwater sample was collected when the pH, temperature, electrical conductivity, DO, REDOX, and turbidity measurements generally stabilized, as noted below, over three consecutive readings, taken at a maximum rate of at least one per every flow-through cell volume.

Temperature	± 3%
pH	± 0.1 pH Units
Electrical Conductivity	± 3%
Dissolved Oxygen	± 10%
REDOX	± 10 mV
Turbidity	± 10%

The pump and flow-through cell were connected to the monitoring well with polyethylene and silicone tubing sections dedicated to each monitoring well. All groundwater samples were collected using dedicated tubing.

A groundwater sample was not collected from the newly installed monitoring well as the well was dry. However, BlueFrog collected groundwater sample from the existing monitoring well BH4.

Samples were collected into sample bottles supplied by the laboratory:

- For analysis of BTEX, and PHC fraction F1, in septum topped 40 mL clear glass vials (with zero headspace), pre-charged with sodium bisulphate preservative; and
- For analysis of PHC fractions F2 to F4, in 100 mL amber glass bottles, pre-charged with sodium bisulphate preservative.

The groundwater samples were placed in coolers on ice promptly after they were collected. Groundwater samples were submitted to the Bureau Veritas (BV) laboratory in Mississauga, Ontario. BV's Mississauga laboratory is accredited by the Standards Council of Canada. Analytical methods used by the laboratory are referenced in the certificates of analysis presented in **Appendix C**. Analytical procedures were conducted in accordance with the MECP Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (as amended).

Developed and purged groundwater was placed in a sealed drum at the Site for storage and disposed at a MECP licensed waste receiving facility on June 12, 2023.

3.7 Surveying

The existing and newly installed monitoring wells were vertically and horizontally surveyed by BlueFrog on May 11, 2023 and tied into a permanent and recoverable benchmark.

3.8 Quality Assurance and Quality Control (QA/QC)

A QA/QC program was implemented to reduce and quantify potential issues introduced during sample collection, handling, shipping and analysis. The quality assurance program included, but was not limited to, using trained field personnel, dedicated sampling equipment, employing sample-specific identification and labelling procedures, and using chain of custody records.

4.0 Selected Site Condition Standards

Based on the details provided below, the site condition standards (SCSs) selected were:

- Full depth generic site condition standards (SCSs) in non-potable groundwater condition (MECP 2011, Table 3) for industrial/commercial/community property use in medium and fine textured soils.

Groundwater condition	Non-potable: The Site is supplied by a municipal drinking water system. No drinking water wells are located within 250 m of the Site.
Environmentally sensitive areas	No part of Site is on or within 30 m of an area of natural significance. Based on previous assessments completed by BlueFrog in Ottawa, pH values for surface soil samples (< 1.5 mbgs) and subsurface soil samples (> 1.5 mbgs) were not less than 5 or greater than 9, and not less than 5 or greater than 11, respectively.
Shallow soil property	As indicated by the available borehole logs, less than one third of the Site consists of soil equal to or less than 2 metres in depth beneath the soil surface, excluding any non-soil surface treatment.
Proximity to a waterbody	A waterbody is not located on, adjacent to, or within 30 m of the property.
Current and proposed land use	The current use of the Site is commercial. There is no proposed change.
Soil texture	Fine textured soils, as determined by the borehole logs and grain size analysis completed as part of the geotechnical assessment (this was completed concurrent with the Limited Phase II ESA), which collectively indicated that more than two-thirds of the soil at the property, measured by volume, consisted of 50 percent or more of particles that are smaller than 75 µm in diameter.
Full depth or stratified	The full depth rather than the stratified generic site condition standards were selected.

5.0 Field Observations

5.1 Soil

Field observations are presented on the borehole logs in **Appendix A** and summarized below.

Stratigraphy	The stratigraphic profile encountered with increasing depth in the borehole generally consisted of sand fill to 0.6 mbgs overlying silty clay to the maximum depth of assessment of 5.2 m bgs. Asphalt was observed above the sand silt.
Soil vapour concentrations	CV: 5 ppmv to 50 ppmv OV: not detected (0 ppmv) to 2 ppmv
Visual evidence of impact (e.g., staining or free product)	None observed

5.2 Groundwater

Groundwater field observations are detailed in **Table 1** and summarized below.

Groundwater levels	3.27 mbgs in BH 4; MW7 was dry.
Inferred groundwater direction	The site-specific groundwater flow direction was not measured due to limited data (i.e., at least three data points are needed to triangulate when contouring groundwater flow). Based on the Site topography, the local groundwater flow direction is presumed to be to the north/northeast, towards Ottawa River.
Subsurface vapour concentrations measured in monitoring wells	CV: Not detected (0 ppmv) OV: not detected (0 ppmv)
Free product (LNAPL and DNAPL)	Not detected.

It should be noted that the groundwater table fluctuates seasonally, and groundwater depths are based on short term monitoring. The reported water level applies on the date of monitoring. Water levels can change with the passage of time due to various factors including precipitation, surface runoff, seasonal variability, variation in aquifer recharge or discharge, and changes made to surface or subsurface features.

6.0 Analytical Results

The groundwater analytical results are presented and compared to the applicable MECP Table 3 SCSs in **Table 2**. The laboratory certificates of analysis are present as **Appendix C**.

6.1 Groundwater

The groundwater laboratory results met the applicable MECP Table 3 SCSs.

6.2 Quality Assurance and Quality Control (QA/QC)

The results of the laboratory quality control analyses are presented in the laboratory certificates of analysis in **Appendix C**. The analyses included extraction surrogate recovery, method blanks, matrix duplicates, spiked blank, relative percentage difference (RPD), and matrix spikes and were considered acceptable with respect to conventional QA/QC standards.

No QA/QC issues were identified that would materially affect the groundwater monitoring and sampling assessment findings presented in this report.

7.0 Findings

During the limited Phase II ESA, one borehole was advanced and one monitoring well was installed in the borehole. At the time of sampling, the well was dry. Therefore, a groundwater sample was collected from an existing well and submitted for laboratory analysis of BTEX, and PHC fractions F1 to F4.

The results of the assessment are summarized as follows:

- **Stratigraphy and soil observations:** The stratigraphic profile encountered with increasing depth in the borehole generally consisted of sand fill to 0.6 mbgs overlying silty clay to the maximum depth of assessment of 5.2 mbgs.
- **Groundwater depth and flow direction:** 3.27 mbgs. The inferred groundwater flow direction was not measured due to limited data.
- **Free product (LNAPL and DNAPL):** was not detected during monitoring of the well.
- **Site Condition Standards:** The MECP full depth generic site condition standards in a non-potable groundwater condition (Table 3) for industrial/commercial/community property use, medium and fine textured soils, were selected for comparison with the groundwater analytical results.
 - **Groundwater analytical results:** met the applicable Table 3 SCSs.

8.0 Discussion

The objective of this Limited ESA was to assess groundwater in one area of the Site for PCOCs related to the adjacent RFO.

The groundwater laboratory results met the applicable MECP Table 3 SCSs. Based on the data, in our opinion, no further assessment work is warranted at this time.

9.0 Closure

We trust that the above information meets your present needs. Please do not hesitate to contact us if you have any questions or comments.

Sincerely,

BlueFrog Environmental Consulting Inc.

Report prepared by:



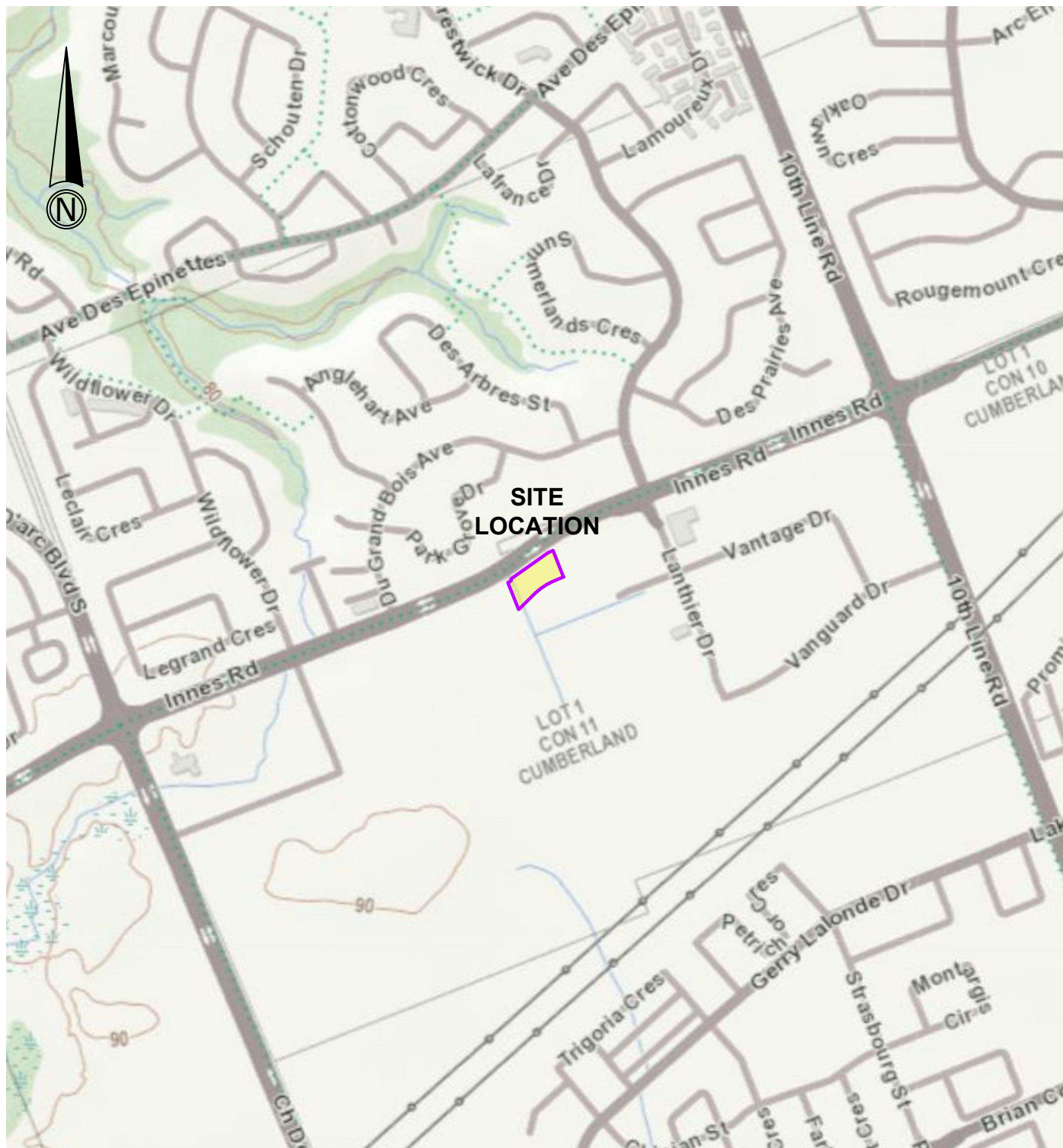
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Report Reviewed by:



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gparrott@bluefrogconsulting.ca
416.407.9769

Figures



MAP REFERENCE: Ontario Ministry of Natural Resources and Forestry

0 100 200 400m
Scale 1 : 10 000



BlueFrog
Environmental Consulting Inc.

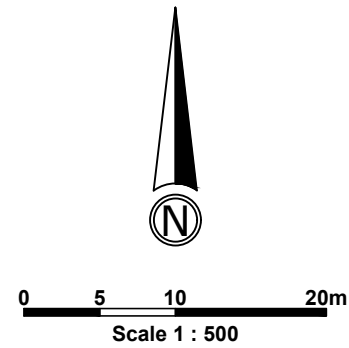
SITE LOCATION MAP

PART OF 4270 INNES ROAD,
ORLEANS, ONTARIO

0208-001.02

JUNE 2023

FIGURE 1



- LEGEND**
- SITE BOUNDARY
 - PROPERTY BOUNDARY
 - BUILDING FOOTPRINT
 - MONITORING WELL
 - MW7 INSTALLED BY BLUEFROG (2023)
 - BH 4 INSTALLED BY OTHERS (2017)
 - MONITORING WELL (DESTROYED)
 - BH 5 INSTALLED BY OTHERS (2017)
 - PROPOSED CONSTRUCTION
 - CATCH BASIN
 - LAMP POST
 - FIRE HYDRANT
 - TRANSFORMER
 - ASPHALT
 - LANDSCAPED

NOTES:
LOCATIONS ARE APPROXIMATE.

PROPERTY BOUNDARIES: Ontario Ministry of Natural Resources and Forestry

DRAWING SHOULD BE PRINTED ON 11x17
PAPER FOR ACCURATE SCALING.



SITE PLAN
PART OF 4270 INNES ROAD,
ORLEANS, ONTARIO

0208-001.02

JUNE 2023

FIGURE 2

Tables

Table 1: Groundwater Monitoring Well Details and Results

Assessment Location	Top of Pipe Elevation ¹ (m)	Ground Surface Elevation ¹ (m)	Screen Interval (mbgs)	Date (yyyy/mm/dd)	Subsurface Vapour Concentration ²		Free Product Thickness ³ (mm)	Potentiometric Depth (mbgs)	Potentiometric Elevation ¹ (m)
					(CV)	(OV)			
BH4	99.19	99.24	4.6 - 6.1	2023-05-12	ND	ND	ND	3.27	95.97 *
BH7/MW7	99.38	99.47	2.1 - 5.2	2023-05-12	ND	ND	DRY	DRY	DRY

Notes:

- 1 - Elevation relative to a local benchmark, fire hydrant on Innes Road, of 100 m
- 2 - ppmv unless otherwise indicated
- mbgs- metres below ground surface
- mm - millimetres
- ND - Not detected
- CV - Combustible vapours
- OV - Organic Vapours

Table 2: Groundwater Analytical Results

Sample Location:	MECP ¹	BH4
Sample ID:		BH4
Sampling Date (yyyy-mm-dd):	Table 3 ²	2023-05-12
BTEX		
Benzene	430	<0.20
Toluene	18000	<0.20
Ethylbenzene	2300	<0.20
Total Xylenes	4200	<0.20
Petroleum Hydrocarbons (PHCs)		
F1 (C6-C10) - BTEX	750	<25
F2 (C10-C16)	150	<100
F3 (C16-C34)	500	<200
F4 (C34-C50)	500	<200
Reached Baseline at C50	-	Yes

BOLD
BOLD

- Result exceeding the applicable standards.
Detection limit exceeds the applicable standards.
1. Standards refers to Ministry of the Environment, Conservation and Parks (MECP) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act" March 9, 2004, amended as of April 15, 2011.
 2. Ministry of the Environment, Conservation and Parks Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition for All Types of Property Use in Medium and Fine Textured Soils.
 3. All units are µg/L unless otherwise specified.

Appendix A

Borehole Logs

BOREHOLE LOG

PROJECT: Limited Phase II Environmental Site Assessment					REF. NO.:0208-001.02		BOREHOLE NO: MW7	
LOCATION:4270 Innes Road, Orleans, Ontario					TPC ELEV.:99.38m		START DATE:5/10/23	
CLIENT: Chick-fil-a					GRADE ELEV.:99.47m		COMPLETION DATE:5/10/23	
BENCHMARK:Local benchmark, top of fire hydrant on Innes Road.							PAGE 1 OF 1	

Depth (m) Water Level	DESCRIPTION		SAMPLING				ORGANIC VAPOUR CONCENTRATION (ppmv)	COMBUSTIBLE VAPOUR CONCENTRATION (ppmv)	COMBUSTIBLE VAPOUR CONCENTRATION (% LEL)	COMMENTS AND MONITORING WELL NOTES	MONITORING WELL	Depth (ft) Water Level
	STRATIGRAPHY	SYMBOL	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %						
	ASPHALT											
	SAND (Fill) - grey, some silt, trace gravel, damp		1	SS	28	37						
1	CLAY - brown, silty, moist		2	SS	12	67						
	- grey below 1.5m		3	SS	8	54						
2			4	SS	3	67						
3			5	SS	0	100						
4			6	SS	0	100						
			7	SS	0	100						
	END OF BOREHOLE AT 5.2m											

LOGGED BY: BR	EQUIPMENT: CME75	DAYLIGHTING: n/a
REVIEWED BY: NM	METHOD: Hollow Stem Augering	WELL DIAMETER: 51mm
DRAFTED BY: AD	GAS METER TYPE: RKI Eagle 2	BOREHOLE DIAMETER: 210mm

Appendix B

Well Record

Measurements recorded in: ☒ Metric ☐ Imperial

Well Owner's Information

First Name
PATRICK

Last Name/Organization
MCNAMARA / CHOICE PROPERTIES REIT

E-mail Address
Patrick.McNamara@choicereit.ca

☒ Well Constructed by Well Owner

Mailing Address (Street Number/Name)
700-22 ST CLAIR AVE. E.

Municipality
TORONTO

Province
ON

Postal Code
M4T 2J5

Telephone No. (inc. area code)
647 417 1602

Well Location

Address of Well Location (Street Number/Name)
4270 INNES ROAD

Township

Lot

Concession

County/District/Municipality

City/Town/Village
ORLEANS

Province
Ontario

Postal Code

UTM Coordinates

Zone
NAD 83

Easting
184613

Northing
545034259

Municipal Plan and Sublot Number

Other

Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form)				
General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From To
	CLAY			0 5.18

Annular Space

Depth Set at (m/ft)
From To
0.58 1.83

Type of Sealant Used (Material and Type)
BENTONITE

Volume Placed (m³/ft³)

Method of Construction

☐ Cable Tool
☐ Rotary (Conventional)
☐ Rotary (Reverse)
☐ Boring
☐ Air percussion
☒ Other, specify NSA

☐ Diamond
☐ Jetting
☐ Driving
☐ Digging

Well Use

☐ Public
☐ Domestic
☐ Livestock
☐ Irrigation
☐ Industrial
☐ Other, specify

☐ Commercial
☐ Municipal
☐ Test Hole
☐ Cooling & Air Conditioning
☒ Monitoring

☐ Not used
☐ Dewatering

Construction Record - Casing

Inside Diameter (cm/in)
5.08

Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)
PVC

Wall Thickness (cm/in)
SCHED 40

Depth (m/ft)
From To
0.1 2.13

Status of Well

☐ Water Supply
☐ Replacement Well
☐ Test Hole
☐ Recharge Well
☐ Dewatering Well
☒ Observation and/or Monitoring Hole
☐ Alteration (Construction)
☐ Abandoned, Insufficient Supply
☐ Abandoned, Poor Water Quality
☐ Abandoned, other, specify
☐ Other, specify

Construction Record - Screen

Outside Diameter (cm/in)
5.88

Material (Plastic, Galvanized, Steel)
PVC

Slot No.
10

Depth (m/ft)
From To
2.13 5.18

Water Details

Water found at Depth
DRY (m/ft)

Kind of Water: ☐ Fresh ☒ Untested

Water found at Depth
(m/ft)

Kind of Water: ☐ Fresh ☐ Untested

Water found at Depth
(m/ft)

Kind of Water: ☐ Fresh ☐ Untested

Hole Diameter

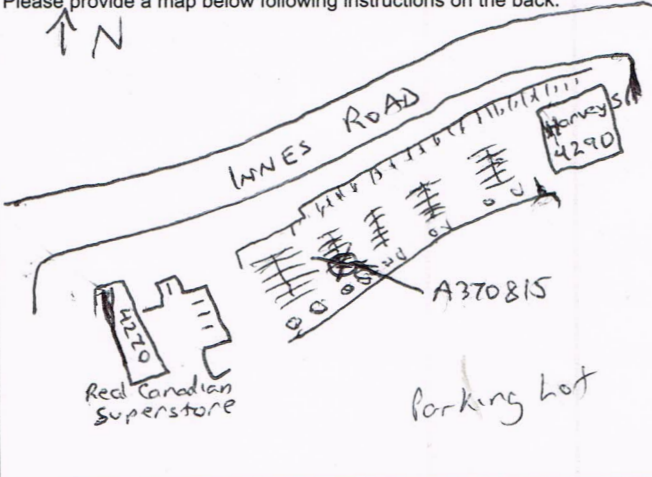
Depth (m/ft)
From To
0 5.18

Diameter (cm/in)
20.3

Results of Well Yield Testing			
After test of well yield, water was:		Draw Down	
<input type="checkbox"/> Clear and sand free <input type="checkbox"/> Other, specify		Time (min)	Water Level (m/ft)
If pumping discontinued, give reason:		Time (min)	Water Level (m/ft)
Pump intake set at (m/ft)		1	1
Pumping rate (l/min / GPM)		2	2
Duration of pumping hrs + min		3	3
Final water level end of pumping (m/ft)		4	4
If flowing give rate (l/min/GPM)		5	5
Recommended pump depth (m/ft)		10	10
Recommended pump rate (l/min/GPM)		15	15
Well production (l/min/GPM)		20	20
Disinfected?		25	25
<input type="checkbox"/> Yes <input type="checkbox"/> No		30	30
		40	40
		50	50
		60	60

Map of Well Location

Please provide a map below following instructions on the back.



Well Contractor and Well Technician Information

Business Name of Well Contractor
GEORGE DOWNING ESTATE DRILLING LTD

Well Contractor's Licence No.
1844

Business Address (Street Number/Name)
410 RVE PRINCIPALE

Municipality
GRENVILLE-SUR-LA-ROUGE

Province
QC

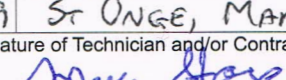
Postal Code
J0V 1B8

Business E-mail Address
info@george-downing-drilling.com

Bus. Telephone No. (inc. area code)
819 242 6469

Name of Well Technician (Last Name, First Name)
ST ONGE, MARC

Well Technician's Licence No.
2274

Signature of Technician and/or Contractor


Date Submitted
20230815

Well owner's information package delivered

☐ Yes
☒ No

Date Package Delivered
Y Y Y Y M M D D
20230511

Date Work Completed
20230511

Ministry Use Only

Audit No. 415599

Received

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Appendix C
Laboratory Certificates of Analysis



Your P.O. #: 0208-001.02
Your Project #: 0208-001.02
Site Location: 4270 INNER ROAD
Your C.O.C. #: N/A

Attention: Nawshad Mohsin

BLUEFROG ENVIRONMENTAL CONSULTING INC.
SUITE 100-208 WYECROFT ROAD
OAKVILLE, ON
CANADA L6K 3T8

Report Date: 2023/05/23

Report #: R7640313

Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3D9058

Received: 2023/05/16, 13:24

Sample Matrix: Water
Samples Received: 1

Analyses	Date		Date Analyzed	Laboratory Method	Analytical Method
	Quantity	Extracted			
Petroleum Hydro. CCME F1 & BTEX in Water	1	N/A	2023/05/22	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Water (1)	1	2023/05/18	2023/05/18	CAM SOP-00316	CCME PHC-CWS m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.



Your P.O. #: 0208-001.02
Your Project #: 0208-001.02
Site Location: 4270 INNER ROAD
Your C.O.C. #: N/A

Attention: Nawshad Mohsin

BLUEFROG ENVIRONMENTAL CONSULTING INC.
SUITE 100-208 WYECROFT ROAD
OAKVILLE, ON
CANADA L6K 3T8

Report Date: 2023/05/23
Report #: R7640313
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3D9058

Received: 2023/05/16, 13:24

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:

Deepthi Shaji, Project Manager
Email: Deepthi.Shaji@bureauveritas.com
Phone# (905)817-5700 Ext:7065843

=====

This report has been generated and distributed using a secure automated process.

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.



BUREAU
VERITAS

Bureau Veritas Job #: C3D9058
Report Date: 2023/05/23

BLUEFROG ENVIRONMENTAL CONSULTING INC.
Client Project #: 0208-001.02
Site Location: 4270 INNER ROAD
Your P.O. #: 0208-001.02
Sampler Initials: BR

O.REG 153 PHCS, BTEX/F1-F4 (WATER)

Bureau Veritas ID		VVB537			VVB537		
Sampling Date		2023/05/12 08:05			2023/05/12 08:05		
COC Number		N/A			N/A		
	UNITS	BH4	RDL	QC Batch	BH4 Lab-Dup	RDL	QC Batch
BTEX & F1 Hydrocarbons							
Benzene	ug/L	<0.20	0.20	8677916	<0.20	0.20	8677916
Toluene	ug/L	<0.20	0.20	8677916	<0.20	0.20	8677916
Ethylbenzene	ug/L	<0.20	0.20	8677916	<0.20	0.20	8677916
o-Xylene	ug/L	<0.20	0.20	8677916	<0.20	0.20	8677916
p+m-Xylene	ug/L	<0.40	0.40	8677916	<0.40	0.40	8677916
Total Xylenes	ug/L	<0.40	0.40	8677916	<0.40	0.40	8677916
F1 (C6-C10)	ug/L	<25	25	8677916	<25	25	8677916
F1 (C6-C10) - BTEX	ug/L	<25	25	8677916	<25	25	8677916
F2-F4 Hydrocarbons							
F2 (C10-C16 Hydrocarbons)	ug/L	<100	100	8672071			
F3 (C16-C34 Hydrocarbons)	ug/L	<200	200	8672071			
F4 (C34-C50 Hydrocarbons)	ug/L	<200	200	8672071			
Reached Baseline at C50	ug/L	Yes		8672071			
Surrogate Recovery (%)							
1,4-Difluorobenzene	%	105		8677916	104		8677916
4-Bromofluorobenzene	%	93		8677916	96		8677916
D10-o-Xylene	%	100		8677916	98		8677916
D4-1,2-Dichloroethane	%	107		8677916	107		8677916
o-Terphenyl	%	93		8672071			
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate							



BUREAU
VERITAS

Bureau Veritas Job #: C3D9058

Report Date: 2023/05/23

BLUEFROG ENVIRONMENTAL CONSULTING INC.

Client Project #: 0208-001.02

Site Location: 4270 INNER ROAD

Your P.O. #: 0208-001.02

Sampler Initials: BR

TEST SUMMARY

Bureau Veritas ID: VVB537

Sample ID: BH4

Matrix: Water

Collected: 2023/05/12

Shipped:

Received: 2023/05/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	8677916	N/A	2023/05/22	Lincoln Ramdahin
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	8672071	2023/05/18	2023/05/18	Ksenia Trofimova

Bureau Veritas ID: VVB537 Dup

Sample ID: BH4

Matrix: Water

Collected: 2023/05/12

Shipped:

Received: 2023/05/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	8677916	N/A	2023/05/22	Lincoln Ramdahin



BUREAU
VERITAS

Bureau Veritas Job #: C3D9058

Report Date: 2023/05/23

BLUEFROG ENVIRONMENTAL CONSULTING INC.

Client Project #: 0208-001.02

Site Location: 4270 INNER ROAD

Your P.O. #: 0208-001.02

Sampler Initials: BR

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	0.3°C
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Results relate only to the items tested.



**BUREAU
VERITAS**

Bureau Veritas Job #: C3D9058
Report Date: 2023/05/23

BLUEFROG ENVIRONMENTAL CONSULTING INC.
Client Project #: 0208-001.02
Site Location: 4270 INNER ROAD
Your P.O. #: 0208-001.02
Sampler Initials: BR

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
8672071	KTR	Matrix Spike	o-Terphenyl	2023/05/18		100	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2023/05/18		103	%	60 - 130
			F3 (C16-C34 Hydrocarbons)	2023/05/18		105	%	60 - 130
			F4 (C34-C50 Hydrocarbons)	2023/05/18		105	%	60 - 130
8672071	KTR	Spiked Blank	o-Terphenyl	2023/05/18		105	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2023/05/18		112	%	60 - 130
			F3 (C16-C34 Hydrocarbons)	2023/05/18		119	%	60 - 130
			F4 (C34-C50 Hydrocarbons)	2023/05/18		116	%	60 - 130
8672071	KTR	Method Blank	o-Terphenyl	2023/05/18		100	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2023/05/18	<100		ug/L	
			F3 (C16-C34 Hydrocarbons)	2023/05/18	<200		ug/L	
			F4 (C34-C50 Hydrocarbons)	2023/05/18	<200		ug/L	
8672071	KTR	RPD	F2 (C10-C16 Hydrocarbons)	2023/05/18	NC		%	30
			F3 (C16-C34 Hydrocarbons)	2023/05/18	3.9		%	30
			F4 (C34-C50 Hydrocarbons)	2023/05/18	NC		%	30
8677916	LRA	Matrix Spike [VVB537-02]	1,4-Difluorobenzene	2023/05/22		101	%	70 - 130
			4-Bromofluorobenzene	2023/05/22		101	%	70 - 130
			D10-o-Xylene	2023/05/22		106	%	70 - 130
			D4-1,2-Dichloroethane	2023/05/22		108	%	70 - 130
			Benzene	2023/05/22		103	%	50 - 140
			Toluene	2023/05/22		96	%	50 - 140
			Ethylbenzene	2023/05/22		108	%	50 - 140
			o-Xylene	2023/05/22		104	%	50 - 140
			p+m-Xylene	2023/05/22		101	%	50 - 140
			F1 (C6-C10)	2023/05/22		113	%	60 - 140
8677916	LRA	Spiked Blank	1,4-Difluorobenzene	2023/05/22		98	%	70 - 130
			4-Bromofluorobenzene	2023/05/22		103	%	70 - 130
			D10-o-Xylene	2023/05/22		100	%	70 - 130
			D4-1,2-Dichloroethane	2023/05/22		99	%	70 - 130
			Benzene	2023/05/22		96	%	50 - 140
			Toluene	2023/05/22		89	%	50 - 140
			Ethylbenzene	2023/05/22		104	%	50 - 140
			o-Xylene	2023/05/22		100	%	50 - 140
			p+m-Xylene	2023/05/22		97	%	50 - 140
			F1 (C6-C10)	2023/05/22		104	%	60 - 140
8677916	LRA	Method Blank	1,4-Difluorobenzene	2023/05/22		104	%	70 - 130
			4-Bromofluorobenzene	2023/05/22		94	%	70 - 130
			D10-o-Xylene	2023/05/22		99	%	70 - 130
			D4-1,2-Dichloroethane	2023/05/22		101	%	70 - 130
			Benzene	2023/05/22	<0.20		ug/L	
			Toluene	2023/05/22	<0.20		ug/L	
			Ethylbenzene	2023/05/22	<0.20		ug/L	
			o-Xylene	2023/05/22	<0.20		ug/L	
			p+m-Xylene	2023/05/22	<0.40		ug/L	
			Total Xylenes	2023/05/22	<0.40		ug/L	
			F1 (C6-C10)	2023/05/22	<25		ug/L	
			F1 (C6-C10) - BTEX	2023/05/22	<25		ug/L	
8677916	LRA	RPD [VVB537-02]	Benzene	2023/05/22	NC		%	30
			Toluene	2023/05/22	NC		%	30
			Ethylbenzene	2023/05/22	NC		%	30



QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			o-Xylene	2023/05/22	NC		%	30
			p+m-Xylene	2023/05/22	NC		%	30
			Total Xylenes	2023/05/22	NC		%	30
			F1 (C6-C10)	2023/05/22	NC		%	30
			F1 (C6-C10) - BTEX	2023/05/22	NC		%	30

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

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

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference $\leq 2 \times$ RDL).



BUREAU
VERITAS

Bureau Veritas Job #: C3D9058

Report Date: 2023/05/23

BLUEFROG ENVIRONMENTAL CONSULTING INC.

Client Project #: 0208-001.02

Site Location: 4270 INNER ROAD

Your P.O. #: 0208-001.02

Sampler Initials: BR

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

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Phone: 905-817-5700 Fax: 905-817-5779 Toll Free: 800-563-6266

CHAIN OF CUSTODY RECORD

ENV COC - 00014v3

Page 1 of 1

Invoice Information		Report Information (if differs from invoice)		Project Information	
Company: Blue Frog		Company:		Quotation #:	
Contact Name: Namshad Roblin		Contact Name:		P.O. #/ AFE#: 0208-001-02	
Street Address: 4230 Innes Road		Street Address:		Project #: 0208-001-02	
City: Cambridge	Prov: ON	City:	Prov:	Site #:	
Postal Code: N4K 1K9		Postal Code:		Site Location: 4230 Innes Road	Mont-05-242
Phone: 647-989-4297		Phone:		Site Location Province: ON	
Email: namshad@bluefrogconsulting.ca		Email:		Sampled By: Brett Roblin	
Copies:		Copies:			

Regulatory Criteria		Regular Turnaround Time (TAT)																												
REG 153	Table 1 Table 2 Table 3 Table	Res/Park Ind/Comm Agri/other	Med/Fine Course For RSC	OTHER	ECME Reg 558* *min 3 day TAT MISA PWQO	Reg 406, Table: Sanitary Sewer Bylaw Storm Sewer Bylaw Municipality	<input checked="" type="checkbox"/> 5 to 7 Day <input type="checkbox"/> 10 Day Rush Turnaround Time (TAT) Surcharges apply <input type="checkbox"/> Same Day <input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> 3 Day <input type="checkbox"/> 4 Day																							
Include Criteria on Certificate of Analysis (check if yes):							# OF CONTAINERS SUBMITTED HOLD - DO NOT ANALYZE																							

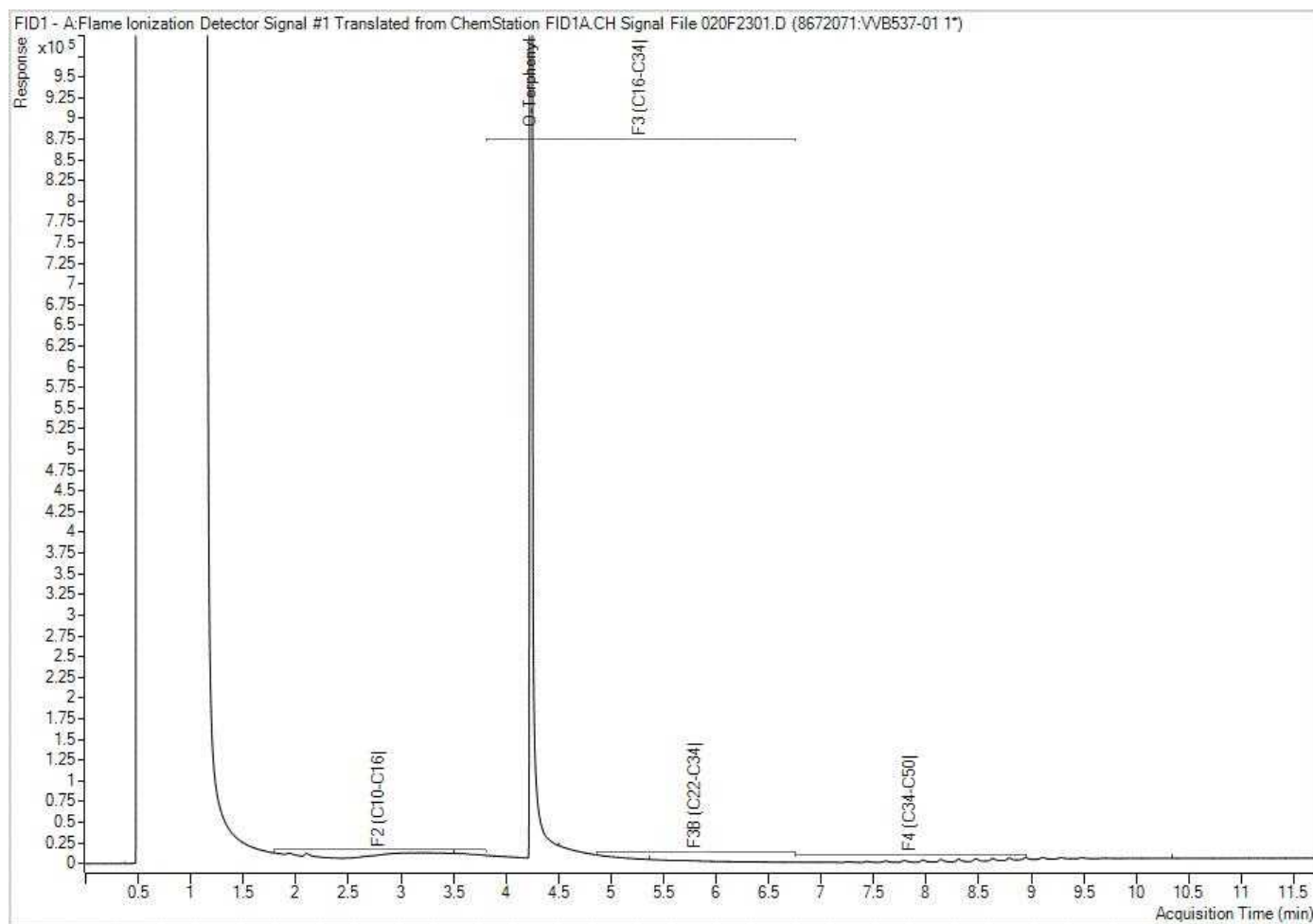
SAMPLES MUST BE KEPT COOL (<10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS	
Sample Identification	Date Sampled YY MM DD HH MM Matrix
1 BH4	23 05 12 8 05 GW
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	

LAB USE ONLY		LAB USE ONLY		LAB USE ONLY		LAB USE ONLY	
Seal present	Yes No	Seal present	Yes No	Seal present	Yes No	Seal present	Yes No
Seal intact		Seal intact		Seal intact		Seal intact	
Cooling media present		Cooling media present		Cooling media present		Cooling media present	
Relinquished by: (Signature/Print)		Received by: (Signature/Print)		Special Instructions		Temperature reading by:	
Brett Roblin		SHARITA DARR		2023 05 16 13 24			



34876

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.