PHASE TWO
ENVIRONMENTAL SITE ASSESSMENT

of

436 Ridge Road North, Ridgeway, ON

For:
ePrime Construction Management

September 30, 2021
Project: E-21-55-2

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436 Ridge Road North, Ridgeway, ON

Prepared by **Hallex Environmental Ltd**. on behalf of:

ePrime Construction Management

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EXECUTIVE SUMMARY

INTRODUCTION

Hallex Environmental Ltd. was retained by ePrime Construction Management (the client) to conduct a Phase Two Environmental Site Assessment (ESA) at 436 Ridge Road North, Ridgeway, ON following the Phase One ESA completed by Hallex on July 8th, 2021 that identified the following Potentially Contaminating Activities (PCA)/Areas of Potential Environmental Concern (APEC):

- ***PCA-1/APEC-1: Gasoline and Associated Products Storage in Fixed Tanks (#28 as per O. Reg.) –*** As identified through the interior photographs at 462 Ridge Road North there were two (2) disconnected pipes identified in the basement. The pipes appear to be associated with a former above ground storage tank utilized for heating oil, highlighted in Photo #34 of the photo log. This AST is a PCA that results in an on-site APEC to the study site's soil. Target contaminants of concern include Petroleum Hydrocarbons (PHCs), Polycyclic Aromatic Hydrocarbons (PAHs), and Benzene, Toluene, Ethylbenzene, Xylene (BTEX).
- ***PCA-2/APEC-2: Commercial Autobody Shop (#10 as per O. Reg.) –*** As identified through 2009 google street view the south adjacent property was once operational as "Jimmy's Auto Body". This land use is considered a PCA that results in an on-site APEC to the study site's soil with target contaminants of concern including PHCs, PAHs, BTEX and Metals.
- ***PCA-3/APEC-3: Importation of Fill Material of Unknown Quality (#30 as per O. Reg.)*** – As identified through aerial photographs a dwelling was situated east of the autobody shop. This dwelling was demolished sometime between 2015-2018 and backfilled. Fill material of unknown origin or quality are considered to be a PCA resulting in an APEC at the study site with Metals (by ICP), PHCs, BTEX, and PAHs as contaminants of concern.
- ***PCA-4/APEC-4: Fire Training (#24 as per O. Reg.) –*** As illustrated in the 1935-2000 aerial photographs and documented by the historic owner of the study site, the south adjacent property was once utilized for Fire Training purposes. Target contaminants of concern include PAHs, & PHCs.

The objectives of the Phase Two ESA were to determine the presence/absence of potential contaminants of concern within the soil and/or groundwater. The presence of contaminants in the soil and/or groundwater, if detected, would determine the need for further sampling and analyses of soil to delineate the extent of impact, and to satisfy the requirements of Ontario Regulation (O. Reg.) 153/04, amended by O. Reg. 511/09.

PHASE 2 ESA METHODS

Soil

Six (6) boreholes, C-BH-1 to C-BH-6 were advanced on August 5th and 20th, 2021 and six (6) test pits, B-TP-1 to B-TP-6 were advanced August 9th, 2021. Soil samples were collected at depth of 0 – 0.9 m to a maximum depth of 1.52 mbgs. Sixteen (16) samples were submitted to Paracel Laboratories Ltd. for analyses of Metals (by ICP), PHCs (F1-F4), BTEX, PAHs, pH and Grain Size Analysis.

Groundwater

Three (3) monitoring wells, MW-1 to MW-3 were advanced on August 5th, August 11th, and August 13th, 2021. Groundwater samples were collected at water level depths from 6.7 m to 7.09 m. Five (5) samples were submitted to Paracel Laboratories Ltd. for analyses of PHCs (F1-F4), VOCs, PAHs, and Metals (by ICP).

FINDINGS & CONCLUSIONS

The Phase Two Environmental Site Assessment revealed soil ***exceedances*** to MECP 2011 Table 6 for Residential Land Use in shallow soils, in a Potable Ground Water Situation, fine texture soil for target contaminant group Metals and PAHs at borehole C-BH-4 and test pit B-TP-1. All groundwater sample ***met*** applicable MECP Table 6 groundwater site condition standards. The impacted soil appears to be present along the southern boundary of the site. Based on preliminary calculations the estimated volume of contaminated soil material in the southern area of the site is 70.1 m^3 or 140 MT.

Hallex recommends excavation and off-site disposal of the contaminated material to an MECP licensed landfill. Following excavation, verification sampling and analysis of the excavated floors and walls must be completed to ensure all contaminated material has been properly removed. Upon confirmation that verification sampling results meet applicable criteria, backfilling and compaction can occur.

LIST OF ACRONYMS

APEC	Area of Potential Environmental Concern
AST	Aboveground Storage Tank
BH	Borehole
BTEX	Benzene, Toluene, Ethylbenzene, Xylene
CO	Carbon Monoxide
CO_2	Carbon Dioxide
COC	Contaminant of Concern
CSM	Conceptual Site Model
CSVC	Combustible Soil Vapour Concentration
EC	Electrical Conductivity
EPA	Environmental Protection Act
ESA	Environmental Site Assessment
GPR	Ground Penetrating Radar
i	Hydraulic Gradient
k_h	Hydraulic Conductivity
LEL	Lower Explosive Limit
masl	Metres above sea level
mbgs	Metres below ground surface
MECP	Ministry of the Environment, Conservation and Parks
MW	Monitoring Well
OC/OCP	Organochlorine Pesticides
PAH	Polycyclic Aromatic Hydrocarbons
PCA	Potentially Contaminating Activity
PCB	Polychlorinated Biphenyl
PCE	Perchloroethylene (tetrachloroethylene)
pH	Power of Hydrogen
PHC	Petroleum Hydrocarbons
ppm	Parts per million
QA/QC	Quality Assurance/Quality Control
QP	Qualified Person
RA	Risk Assessment
RSC	Record of Site Condition
SAR	Specific Absorption Rate
SCS	Site Condition Standard
SGWSS	Soil Groundwater and Sediment Standards
SVOC	Semi-Volatile Organic Compounds
TCLP	Toxicity Classification Leachate Procedure
UST	Underground Storage Tank
VOC	Volatile Organic Compounds

Potentially Contaminating Activities (PCAs)
Schedule D Table 2 of O. Reg 511/09

PCA#	Description
1	Acid and Alkali Manufacturing, Processing and Bulk Storage
2	Adhesives and Resins Manufacturing, Processing and Bulk Storage
3	Airstrips and Hangars Operation
4	Antifreeze and De-icing Manufacturing and Bulk Storage
5	Asphalt and Bitumen Manufacturing
6	Battery Manufacturing, Recycling and Bulk Storage
7	Boat Manufacturing
8	Chemical Manufacturing, Processing and Bulk Storage
9	Coal Gasification
10	Commercial Autobody Shops
11	Commercial Trucking and Container Terminals
12	Concrete, Cement and Lime Manufacturing
13	Cosmetics Manufacturing, Processing and Bulk Storage
14	Crude Oil Refining, Processing and Bulk Storage
15	Discharge of Brine related to oil and gas production
16	Drum and Barrel and Tank Reconditioning and Recycling
17	Dye Manufacturing, Processing and Bulk Storage
18	Electricity Generation, Transformation and Power Stations
19	Electronic and Computer Equipment Manufacturing
20	Explosives and Ammunition Manufacturing, Production and Bulk Storage
21	Explosives and Firing Range
22	Fertilizer Manufacturing, Processing and Bulk Storage
23	Fire Retardant Manufacturing, Processing and Bulk Storage
24	Fire Training
25	Flocculants Manufacturing, Processing and Bulk Storage
26	Foam and Expanded Foam Manufacturing and Processing
27	Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles
28	Gasoline and Associated Products Storage in Fixed Tanks
29	Glass Manufacturing
30	Importation of Fill Material of Unknown Quality

PCA#	Description
31	Ink Manufacturing, Processing and Bulk Storage
32	Iron and Steel Manufacturing and Processing
33	Metal Treatment, Coating, Plating and Finishing
34	Metal Fabrication
35	Mining, Smelting and Refining; Ore Processing; Tailings Storage
36	Oil Production
37	Operation of Dry-Cleaning Equipment (where chemicals are used)
38	Ordnance Use
39	Paints Manufacturing, Processing and Bulk Storage
40	Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications
41	Petroleum-derived Gas Refining, Manufacturing, Processing and Bulk Storage
42	Pharmaceutical Manufacturing and Processing
43	Plastics (including Fibreglass) Manufacturing and Processing
44	Port Activities, including Operation and Maintenance of Wharves and Docks
45	Pulp, Paper and Paperboard Manufacturing and Processing
46	Rail Yards, Tracks and Spurs
47	Rubber Manufacturing and Processing
48	Salt Manufacturing, Processing and Bulk Storage
49	Salvage Yard, including automobile wrecking
50	Soap and Detergent Manufacturing, Processing and Bulk Storage
51	Solvent Manufacturing, Processing and Bulk Storage
52	Storage, maintenance, fueling and repair of equipment, vehicles, and material used to maintain transportation systems
53	Tannery
54	Textile Manufacturing and Processing
55	Transformer Manufacturing, Processing and Use
56	Treatment of Sewage equal to or greater than 10,000 litres per day
57	Vehicles and Associated Parts Manufacturing
58	Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners
59	Wood Treating and Preservative Facility and Bulk Storage of Treated and Preserved Wood Products

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1.0 INTRODUCTION

1.1 Project Objectives

Hallex Environmental Ltd. was retained by ePrime Construction Management (hereinafter referred to as the "client") to conduct a Phase Two Environmental Site Assessment (ESA) at 436 Ridge Road North, Ridgeway, ON (hereinafter referred to as the "study site"). The objectives of the Phase Two ESA were to determine the presence/absence of potential contaminants of concern within the soil and/or groundwater associated with historic commercial autobody shop, a Potentially Contaminating Activity (PCA) listed in Schedule D, Table 2, of O. Reg. 511/09, thus results in an Areas of Potential Environmental Concern (APEC) triggering the Phase Two ESA.

The presence of contaminants in the soil, if detected, would determine the need for further sampling and analyses to delineate the extent of the impact, and to satisfy the requirements of Ontario Regulation (O. Reg.) 153/04, as amended. The site location is shown on Figure 1 and the PCA/APEC, identified in the Phase One ESA (Hallex, 2019) are shown on Figure 2.

1.2 Limitations and Exceptions of Assessment

This report was prepared by Hallex Environmental Ltd. (hereinafter referred to as "Hallex") for the client. The material in it reflects Hallex's best judgment based on the information discovered at the time of preparation and within the scope of work. The investigative procedures, and format of this report, generally follow the guidelines established in: O. Reg. 511/09 per Part XV.1 of the Environmental Protection Act. Any information presented concerning materials at the site is based on information gathered at the borehole and monitoring well locations only. There may be materials and/or subsurface soil and/or groundwater conditions on-site which are not represented by these investigations. 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. Hallex Environmental Ltd. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

1.3 Site Description

Municipal address:	436 Ridge Road North, Ridgeway, ON
Client(s):	ePrime Construction Management
UTM coordinates:	17T 4,750,114 m N 659,192 m E
Elevation:	191.8 masl
Approx. site area:	1,025 m^2

1.4 Current and Proposed Future Uses

As of August 4th, 2021, the study site was historically commercial land use. The commercial component of the site was operating as an auto service shop. A residential bungalow was located to the north, east, west and south of the site. Future plans include site redevelopment with complete removal of the existing commercial autobody shop footprint and associated materials.

1.5 Applicable Site Condition Standard

The Soil, Ground Water and Sediment Standards (SGWSS) that would be applicable to the subject site as per O. Reg. 153/04, as amended, are based on site sensitivity analyses. Site sensitivity is determined based on conformance or non-conformance with shallow soil conditions (<2 m to bedrock), soil pH, proximity to an "Area of Natural Significance", the presence of a water body on-site or within 30 meters of the subject property, and the site and adjacent lands groundwater conditions being either potable or non-potable. The 'Full Depth Generic' standards would apply to a 'non-sensitive site', with further distinctions made based on potable or non-potable groundwater conditions, and coarse or fine soil texture. A 'Sensitive Site' would require application of generic standards, other than 'Full Depth', based on the specific sensitivity.

436 Ridge Road North, Ridgeway, ON – Site Sensitivity Analysis

The rationale for the selection of SGWSS criteria for the subject property included:

- Intended Property Use: **Residential**
- Soil Texture: **Medium/Fine (grain size texture by Paracel laboratories Ltd.)**
- Adjacent to a designated area of natural significance: **No**
- Within 30 m of a water body: **No**
- Groundwater condition: **Potable**
- Depth to bedrock: **Encountered at maximum borehole depth of 1.1 metres.**
- Soil pH: **7.19 average**, ranged from 6.3-7.48

Applicable Regulatory Criteria

O. Reg. 153/04 Ministry of the Environment, Conservation and Parks (MECP) Site Condition Standards Table 6 for Residential Land Use in a Potable Ground Water Condition, fine textured soil, was applied to the subject site, based on conditions observed at the time of the site assessment.

2.0 INVESTIGATION METHODS

2.1 Borehole Drilling

Davis Drilling utilized a CME – 550 Split Spoon drilling system for borehole sampling and monitoring well installations. Jay's Mini Excavating utilized a mini excavator for augured borehole and test pit sampling under the guidance of Hallex personnel. Preparation for borehole sampling was initiated via requests for demarcation of underground utilities by Ontario One Call: for Bell, cable, hydro, natural gas, water, sewer and private locates. All services were cleared within the designated work areas.

2.2 Soil Investigation

Six (6) boreholes, C-BH-1 to C-BH-6 were advanced across the property (APEC areas) on August 5th and 20th, 2021. Six (6) test pits, B-TP1 to B-TP6, were advanced across the eastern portion of 436 Ridge Road North for environmental and geotechnical purposes on August 9th, 2021. Borehole locations are shown in Figure 3 and borehole logs are contained in Appendix A. Soil samples were collected at depths of 0 m - 0.9 m to a maximum depth of 1.1 meters below ground surface (m bgs).

2.2.1 Soil: Sampling

Each sample was placed in a 250 ml glass jar with a Teflon lined lid, filled to zero head-space, sealed, and placed in a cooler for transportation. Concurrently, a 12 ml soil sample was collected with a disposable syringe and placed inside a 40 ml vial containing methanol for field preservation of Petroleum Hydrocarbons F1, Benzene, Toluene, Ethylbenzene, Xylene (BTEX) and Volatile Organic Compounds (VOCs). A portion of each sample was placed in a plastic bag and allowed to warm to approximately 20° C for headspace combustible vapour measurement using an E-34102 Portable Multi-Gas Detection Eagle Series (Eagle). Each sample was logged for colour, texture, structure, moisture, and visual and olfactory evidence of contamination. Additionally, textural identification of soil, through hand soil textural techniques, including the 'squeeze test' and 'ribbon test' was conducted on soil from each stratum identified.

2.3 Field Screening Combustible Soil Vapour Survey

On-site field screening measurements were conducted utilizing the Eagle, capable of measuring hydrocarbon Combustible Soil Vapour Concentrations (CSVC's) from 1 part per million (ppm) to 100% Lower Explosive Limit (LEL). The readings from the Eagle were utilized to indicate the presence or absence of VOCs within the field samples. The samples with the highest combustible vapour concentration readings were chosen, in addition to other select samples, as determined by the QP, for laboratory analyses. The combustible soil vapour readings are indicated on the borehole logs in Appendix A and tabulated in Section 3.2.

2.4 Monitoring Wells Installation

Three (3) monitoring wells C-MW-1, C-MW-2, and C-MW-3 were installed into designated boreholes on August 5th, 2019 to a depth of 7.72 m bgs, 7.75 m bgs, and 7.49 m bgs for C-MW-1, C-MW-2, and C-MW-3, respectively. The monitoring well locations are shown on Figure 3 and the field logs are in Appendix A. The wells were constructed to MECP recognized industry standards and as required by O. Reg. 903, consisted of a 2-inch diameter slotted PVC screen surrounded by silica sand, attached beneath a solid 2-inch diameter PVC riser, surrounded by bentonite grout to ensure a seal between ground surface and the well screen. Each well was fitted with a metal protective flush-mount casing. A waterra manual lift pump was installed into each well to allow for purging and development, rising head hydraulic conductivity tests, and subsequent groundwater sample collection.

2.5 Groundwater Sampling

Groundwater samples were collected with a low-flow peristaltic pump with new low-flow tubing, silicone, and metal filters for each monitoring well. Groundwater samples were collected in standard sized amber glass jars, vials and plastic jars as per analytical protocol (O. Reg. 153/04), filled to zero head-space, sealed, and placed in a cooler for transportation.

Sample ID	Dates	Laboratory Analyses
MW-1	Sampled and submitted on August 24th, 31st, September 14th, 2021 chain of custodies #2135258, #2136245, & #2138120	PHCs (F1-F4), VOCs, & PAHs
MW-2		PHCs (F1-F4), VOCs, PAHs, & Metals
MW-3		PHCs (F1-F4), VOCs, PAHs & Metals

2.6 Free Product Investigation

Free product was not monitored in any of the wells during the Phase Two investigation.

2.7 Residue Management Procedures

Soil cuttings and purge water, as well as all fluids used for equipment cleaning were temporarily stored on-site in sealed 55-gallon steel drums. One sample was submitted for laboratory analysis for TCLP to facilitate future landfill disposal.

2.8 Quality Assurance and Quality Control Measures

Hallex conducted Quality Assurance/Quality Control (QA/QC) measures throughout all stages of the assessment to verify sampling procedures and results. Davis Drilling and Jays Mini Excavating pre-cleaned the set of augers and hollow stem spoons prior to arriving on-site. The split spoon sampler was decontaminated prior to and in between taking samples by scrubbing with a wire brush and washing in a water solution.

Decontamination of equipment and sampling tools was carried out during field work, as well as appropriate precautions, including new nitrile gloves, to minimize potential cross-contamination between samples and boreholes.

Soil sampling was implemented according to *Protocol for Analytical Methods Used in the Assessment of Properties Under Part XV.1 of the Environmental Protection Act* (March 9, 2004 as amended as of July 1, 2011). Chain of Custody reports were completed for all samples submitted for analyses to keep track of samples collected and to ensure that all parties involved were properly informed as to the nature of the samples.

Instruments and all their associated components are checked daily prior to field use, and annual equipment servicing and maintenance is conducted by Enviro Measure Inc. to ensure the equipment remains properly calibrated and functioning.

3.0 REVIEW AND EVALUATION

3.1 Soil Conditions

Soil conditions were determined through field investigative measures including the use of analytical equipment, determination of stratigraphy including analysis of moisture, odours, colour, texture, etc. and combustible soil vapor concentration results.

3.1.1 Overburden Stratigraphy

The general overburden stratigraphy observed in boreholes C-BH-1 to C-BH-6 and test pits B-TP-1 to B-TP-6 consisted of:

Depth (avg.)	Description
0 - 0.1 mbgs	Sandy Silt TOPSOIL
0.1 – 0.7 mbgs	Sandy Silt FILL with trace Gravel and Clay
0.7 – 1.0 mbgs	SANDY SILT with trace Gravel
1.0 – 1.1 mbgs	SILTY CLAY
1.1 – 7.72 mbgs	Bedrock LIMESTONE

Notes:

- Bedrock was encountered at maximum depth of 1.52 mbgs and the shallowest depth of 0.5 mbgs.
- Moisture increased at 0.7 to 1.1 m bgs increasing with depth.
- Colour changed remained reddish brown throughout borehole depth 0 – 1.1 m bgs
- Petroleum odour was not observed in core samples from boreholes C-BH-1 to C-BH-6

3.2 Combustible Soil Vapour Concentrations

The field combustibility soil vapour concentrations are tabulated below, exhibiting a concentration range of 0 to 25 ppm (parts per million). Thirteen (13) worst case samples were chosen for laboratory submission to Paracel Laboratories Ltd. under chain of custodies #21324573 & #2135002 on August 5th & 20th, 2021 and #58372 on August 9th, 2021 for analyses of PHCs (F1-F4), VOCs, PAHs, pH, Grain Size Texture, and Metals (by ICP). All other samples were stored at the laboratory for later analyses, if required, for delineation of contaminants.

Borehole #/ ID		Date Sampled	Depth (m bgs)	CSVC (PPM)	APEC-#	Parameters Analyzed
B-TP-1	-1	Aug. 9	0 - 0.36	10	APEC- 3	PAHs, BTEX, PAHs, & Metals
	-2	Aug. 9	0.36 - 1.52	0	APEC-3	Hold
B-TP-2	-1	Aug. 9	0 - 1.5	0	APEC-3	PAHs, BTEX, PAHs, pH & Metals
B-TP-3	-1	Aug. 9	0 - 0.5	0	N/A	Geotechnical
B-TP-4	-1	Aug. 9	0 - 0.31	0	APEC-4	PAHs, BTEX, PAHs, & Metals

Borehole #/ ID		Date Sampled	Depth (m bgs)	CSVC (PPM)	APEC-#	Parameters Analyzed
B-TP-5	-1	Aug. 9	0 - 0.46	0	APEC-4	PAHs, BTEX, PAHs, & Metals
B-TP-6	-1	Aug. 9	0 - 0.97	0	APEC-4	PAHs, BTEX, PAHs, & Metals
BH-1	-1	August 5th	0 -0.7	25	1	PHCs (F1 -F4), BTEX, PAHs, pH & Metals (ICP)
	-2		0.7 – 1.1	15	1	On hold
BH-2	-1		0 – 0.7	20	1	PHCs (F1 -F4), BTEX, PAHs, Metals (ICP) & Grain Size Texture
	-2		0.7 – 1.1	15	1	pH
BH-3	-1		0 – 0.7	25	1	PHCs (F1 -F4), BTEX, PAHs, pH & Metals (ICP)
	-2		0.7 – 1.1	20	1	pH
BH-4	-3	August 20th	0 – 0.9	N/A	1	PHCs (F1 -F4), BTEX, PAHs, & Metals (ICP)
BH-5	-4		0 – 0.9	N/A	1	PHCs (F1 -F4), BTEX, PAHs, & Metals (ICP)
BH-6	-1		0 – 0.9	N/A	1	PHCs (F1 -F4), BTEX, PAHs, & Metals (ICP)

Highlighted sample ID's above depict the samples chosen for submission to the lab.

3.3 Soil Laboratory Results

The tables below highlight the soil exceedances with complete laboratory analytical reports provided in Appendix C. Figure 4a illustrates the soil exceedances and Figure 5a – 5c depict the cross sections of the contaminated area.

Metals

Soil laboratory analytical data was compared with MECP Site Condition Standards (2011) Table 6: Residential land use in a Potable Groundwater Situation, fine textured soil. Exceedances were noted in samples from one (1) borehole (C-BH-4) and one (1) test Pit (B-TP1-1) within the fill material from depth ranges 0 – 0.9 mbgs and 0-0.32 mbgs, for target contaminant group Metals.

Parameter	O. Reg. 153/04 (2011) Table 6 Potable, fine	C-BH4	B-TP1-1
Metals			
Cadmium	1.2 ug/g dry	**1.7**	0.6
Lead	120 ug/g dry	**240**	**180**
Zinc	340 ug/g dry	**648**	**351**

Highlights indicate exceedance to applicable regulation

Polycyclic Aromatic Hydrocarbons (PAHs)

Soil laboratory analytical data was compared with MECP Site Condition Standards (2011) Table 6: Residential land use in a Potable Groundwater Situation, fine textured soil. Exceedances were noted in samples from one (1) test pit (B-TP1-1) in the fill material from depth ranges 0 – 0.36 mbgs, for target contaminant group PAHs.

Parameter	O. Reg. 153/04 (2011) Table 6 Potable, fine	B-TP1-1
Semi-Volatiles		
Acenaphthylene	0.17 ug/g dry	**0.37**
Benzo[a]pyrene	0.3 ug/g dry	**0.41**
Dibenzo[a,h]anthracene	0.1 ug/g dry	**0.12**
Fluoranthene	0.69 ug/g dry	**0.77**

Highlights indicate exceedance to applicable regulation

3.4 Groundwater Conditions

Groundwater physical conditions were determined through field data collection, and subsequent calculations, including: hydraulic gradient, hydraulic conductivity/groundwater velocity, and groundwater elevations.

3.4.1 Hydraulic Gradient (i)

The hydraulic gradient was calculated between C-MW-1, C-MW-2, and C-MW-3 with the average across the site being i = 0.019, southwest.

Monitoring Well	*i* (m/m)
MW-2 to MW-1	0.003
MW-2 to MW-3	0.039
MW-1 to MW-3	0.016

3.4.2 Hydraulic Conductivity (k)

A rising-head hydraulic conductivity test was conducted in monitoring well MW-1 after purging, for calculations of hydraulic conductivity using the Bouwer-Rice method with results indicating k = 1.91 E-06 cm/s.

3.4.3 Groundwater Elevation

The groundwater levels in monitoring wells C-MW-1 to C-MW-3 were measured and recorded with a Solinst water-level meter before initial purging and monitoring after a recovery period to allow the wells to return to static level.

Monitoring Well	m bgs
C-MW-1	6.70
C-MW-2	6.78
C-MW-3	7.09

mbgs= metres below ground surface

3.5 Groundwater Laboratory Results

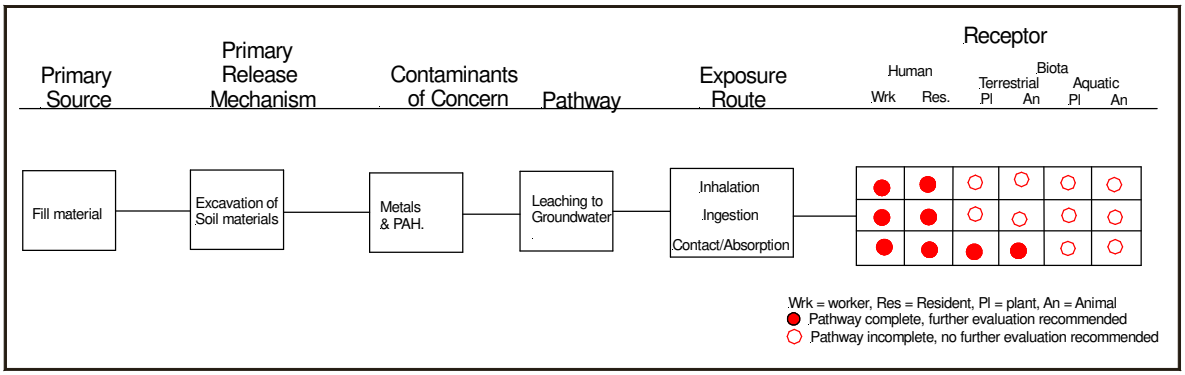
Groundwater laboratory analytical data was compared with groundwater criteria in the MECP Site Condition Standards (2011) Table 6: Potable Groundwater condition. The results indicated that all samples **met** the criteria for the target contaminants analyzed. The groundwater laboratory analytical report is provided in Appendix B.

3.6 Laboratory Quality Assurance and Quality Control

Laboratory QA/QC measures adhering to the Ministry of the Environment's "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act, March 2010" are standard procedure for Paracel Laboratories (accredited to the ISO/IEC 17025 Standard by CALA) in order to ensure that the standards of quality were met within the expected level of confidence.

4.0 PHASE TWO CONCEPTUAL SITE MODEL

The Conceptual Site Model (CSM) qualitatively considers the interaction of identified contaminants of concern, and the pathway(s) and exposure route(s) to receptors. Target contaminants PAHs and metals were identified within the soil medium with potential migration pathways to human and/or biota receptors as follows.



5.0 CONTAMINATED SOIL QUANTITY ESTIMATE

The area of soil impacted by contamination appears to be present in two (2) areas of the site. Area 1 is located south of the vacant autobody shop and Area 2 is located in the backfill area of the historic dwelling. Area 1 surrounds C-BH4 and extends to the western and eastern corner of the vacant autobody shop and Area 2 surrounds B-TP1 in the backfill of the historic dwelling. All of the contamination was noted to be within the fill material. Based on the sampling results the potential contaminated soil volume and mass is as follows:

	Area 1	Area 2
Site Area	60 m^2	46 m^2
Depth	0.9 m	0.35 m
Volume	**54 m^3**	**16.1 m^3**
Total Volume	**70.1 m^3**	
Metric Tonne	**140.2 MT**	

*Note all values are estimates only, additional sampling and analysis would be required to further refine volumes.

6.0 CONCLUSIONS

The Phase Two Environmental Site Assessment at 436 Ridge Road North, Ridgeway, ON revealed soil exceedances to Ministry of the Environment, Conservation & Parks (MECP) Site Condition Standards 2011 Table 6 for Residential Land Use in a Potable groundwater condition, for fine textured soil for contaminant group Metals (Cadmium, Lead, and Zinc) at borehole C-BH4, in the Fill material south of the historic commercial autobody shop. All groundwater samples met the applicable MECP Table 6 site condition standards. The contaminants identified in the soil, located within the southern boundary of the site, were associated with:

1) Fill material, and
2) Historic Commercial Autobody Shop.

Hallex therefore recommends excavation and off-site disposal of the contaminated material to an MECP licensed landfill. Following excavation, verification sampling and analysis of the excavated floors and walls must be completed to ensure all contaminated material has been properly removed. Upon confirmation that verification sampling results meet applicable criteria, backfilling and compaction can occur.

7.0 AUTHOR

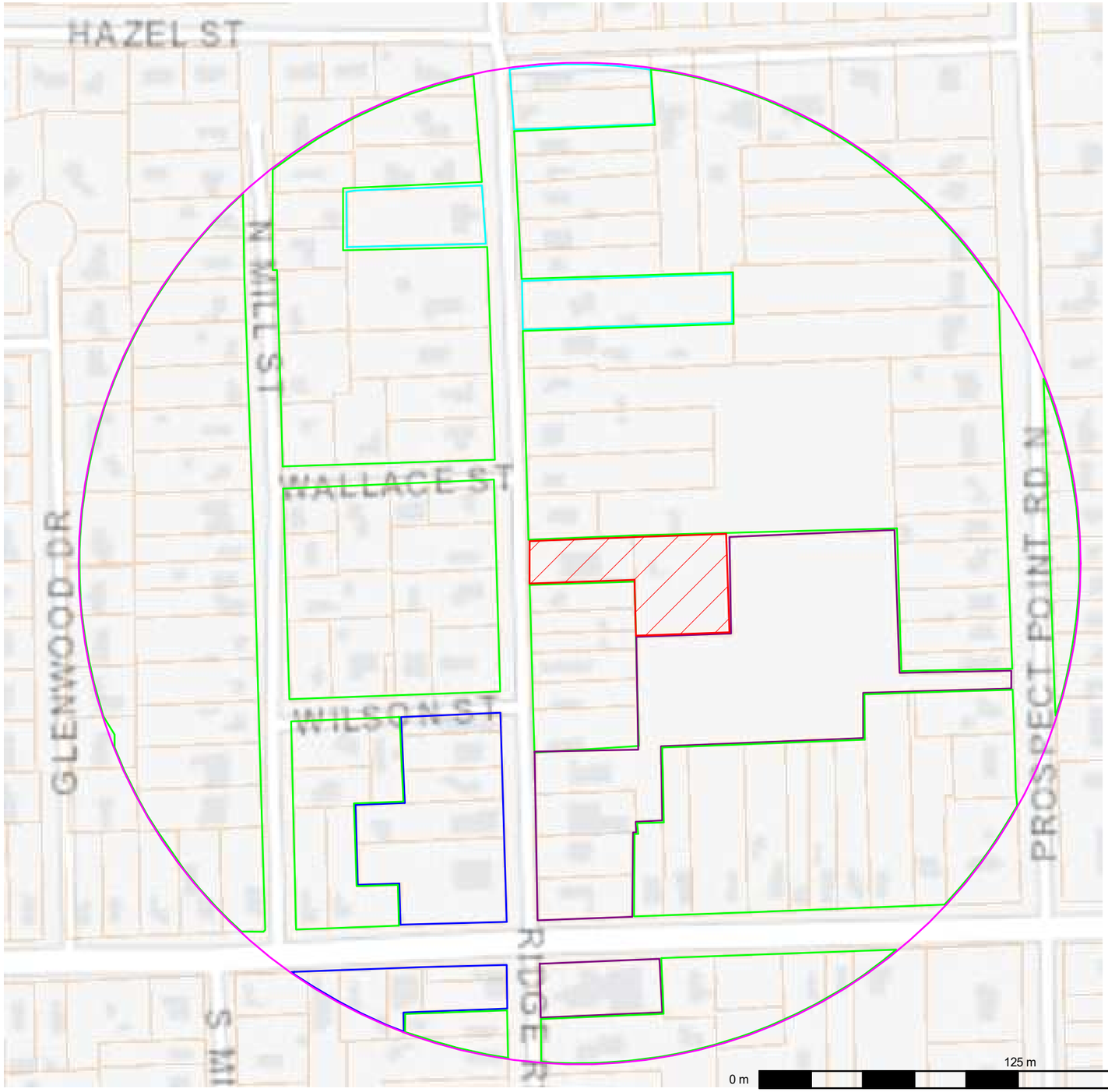
Hallex Environmental Ltd. has conducted this Phase Two Environmental Site Assessment as permitted by Hallex Certificate of Authorization (#90252). The following employees authored the report:

Damen Nyland - Mr. Damen Nyland, B.Sc. (Hons), GIT, was the Project Scientist for the project with one year of experience in the environmental geoscience consulting field. Related project work includes Phase One & Phase Two Environmental Site Assessments, Geotechnical Drilling, Hydrogeological Fieldwork, Site Delineation and Remediation work.

Nicole Metz - Ms. Nicole Metz, ETPD, ERPC, was the Environmental Technician for the project with over six years of experience in the environmental consulting field. Some projects Mrs. Metz have worked on included: Phase One & Two Environmental Site Assessments, Site Remediation, groundwater and surface water sampling, underground or aboveground storage tank decommissioning, Designated Substance Surveys, Records of Site Condition Filing, Environmental Compliance Approvals, National Pollutant Release Inventory, and Hazardous Waste Information Network training.

Kevin Christian - Mr. Kevin Christian, M.Sc., P.Geo., a Professional Geoscientist (#0387) registered with the Association of Professional Geoscientists of Ontario, and a Qualified Person (Environmental Site Assessment & Risk Assessment) as per Ontario Regulations 153/04 and 511/09, has thirty years of experience in the environmental geoscience consulting industry conducting Phase One and Two ESA's, remedial planning, and site remediation supervision.

FIGURES



HALLEX ENVIRONMENTAL LTD.

Legend

- Study Area
- Phase Two Property
- Residential Land Use
- Community Land Use
- Commercial Land Use

Client

ePrime Construction Management

Project

Phase Two ESA
436 Ridge Road North,
Ridgeway, ON

Figure Name

Site Layout & Adjacent Lots

Project E-21-55-2	Figure 1
Date September 2021	
Drafted: DN Reviewed: KC	

Inferred Groundwater Flow Direction

PCA-#/APEC-#:
PCA-1/APEC-1: #28 - Gasoline and Associated Products Storage in Fixed Tanks (Historic)
PCA-2/APEC-2: #10 - Commercial Autobody (Historic, 2009)
PCA-3/APEC-3: #30 - Importation of FIll Material of Unknown Quality
PCA-4/APEC-4: #24 - Fire Training (Historic, 2000)

0 m — 20 m — 40 m

Legend
- Phase Two Property
- PCA - #
- APEC-#

Interpreted Local Groundwater Flow

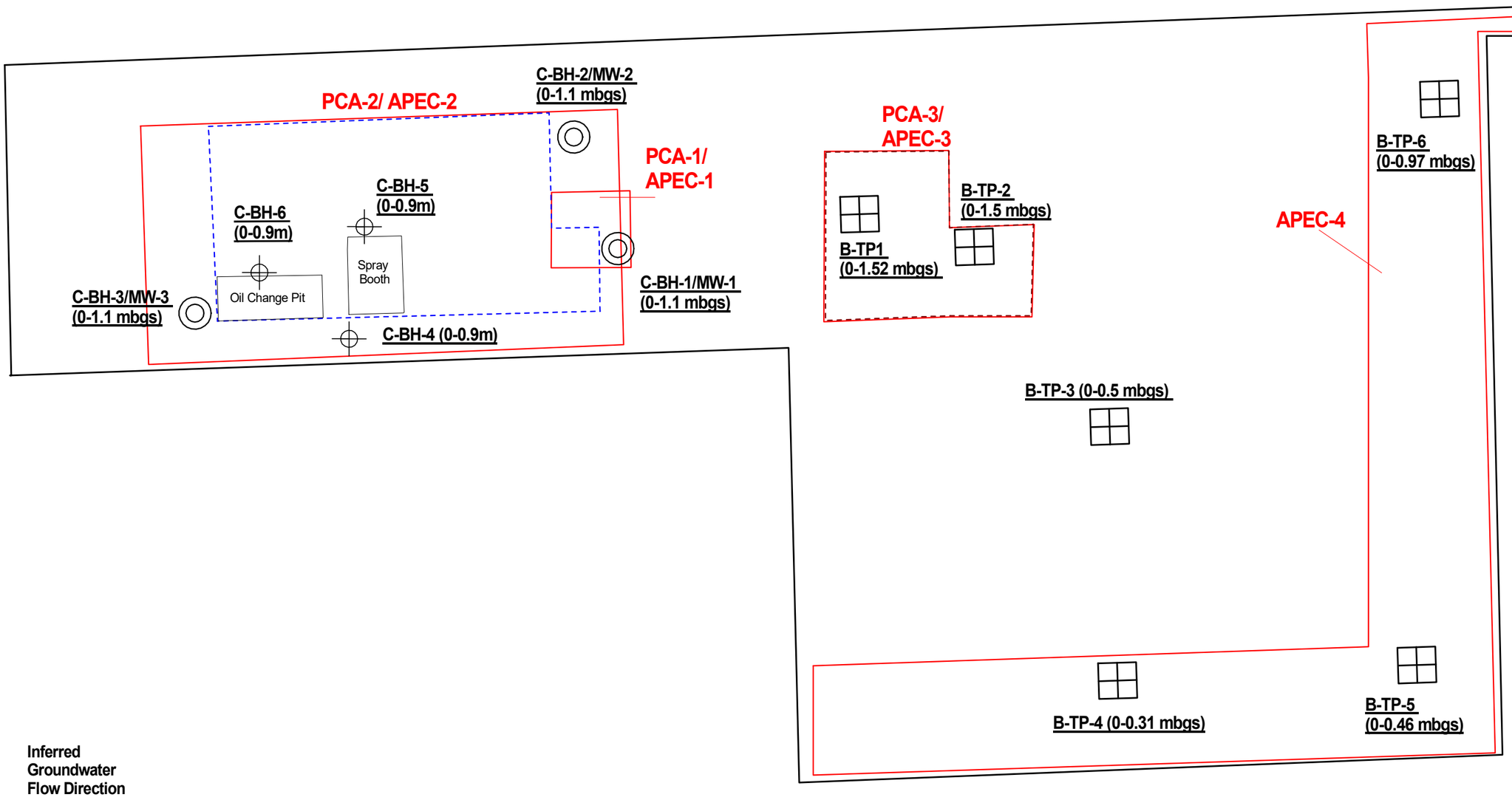
Client
ePrime Construction Management

Project
Phase Two ESA
436 Ridge Road North,
Ridgeway, ON

Figure Name
Potentially Contaminating Activities and Areas of Potential Environmental Concern

Project E-21-55-2	Figure 2
Date September 2021	
Drafted: DN Reviewed: JG	

PCA-#/APEC-#:
PCA-1/APEC-1: #28 - Gasoline and Associated Products Storage in Fixed Tanks (Historic)
PCA-2/APEC-2: #10 - Commercial Autobody (Historic, 2009)
PCA-3/APEC-3: #30 - Importation of Fill Material of Unknown Quality
PCA-4/APEC-4: #24 - Fire Training (Historic, 2000)



Inferred Groundwater Flow Direction

0 m — 20 m — 40 m

Legend
- Phase Two Property
- Building Outline
- Historic Building Outline
- Borehole Locations
- Test Pit
- Monitoring Well Locations

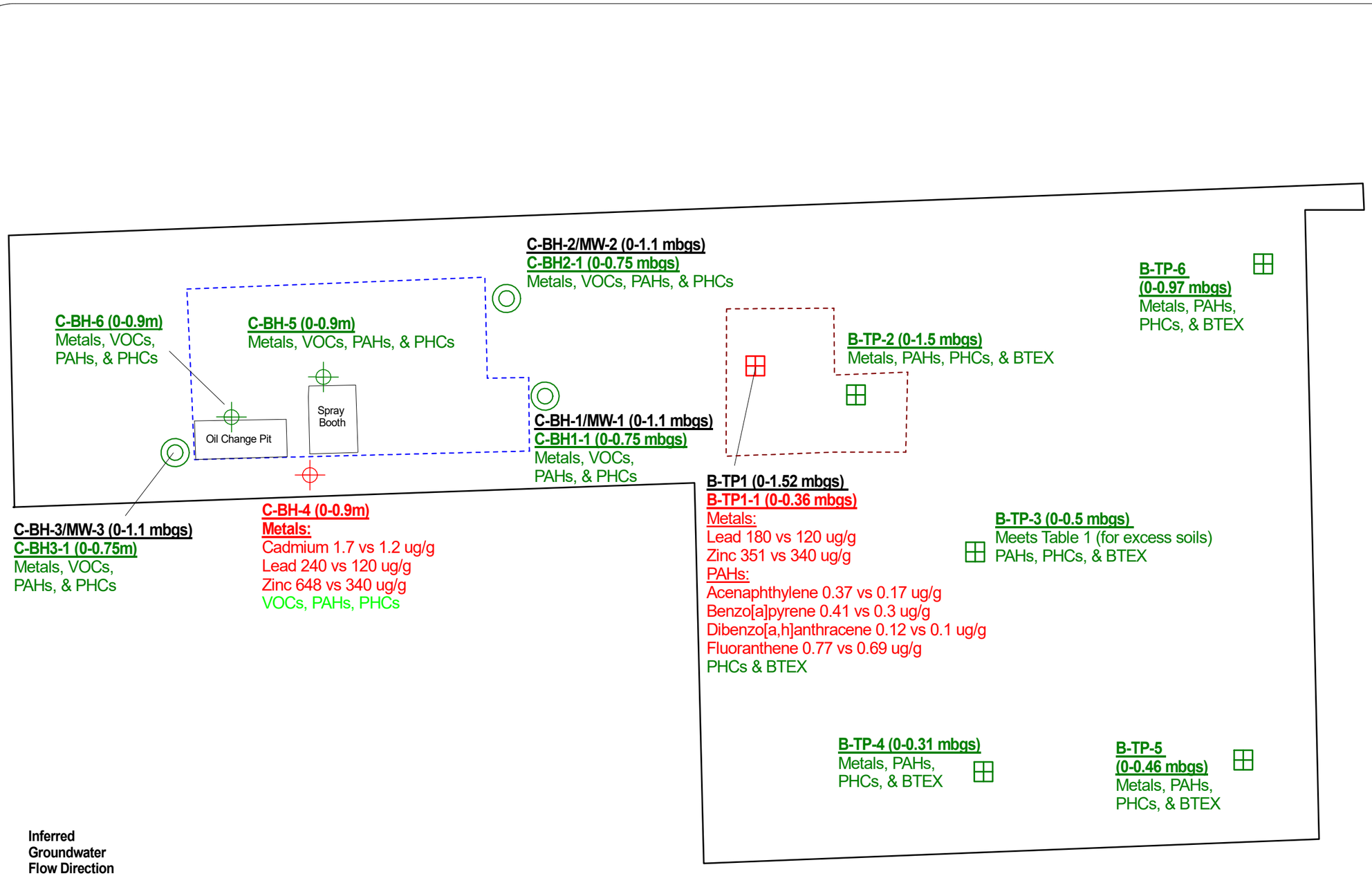
Client: ePrime Construction Management

Project: Phase Two ESA, 436 Ridge Road North, Ridgeway, ON

Figure Name: Borehole and Monitoring Well Locations

Project: E-21-55-2
Date: August 2021
Drafted: N. Metz
Reviewed:

Figure 3



Red exceeds Table 6 residential fine criteria
Green meets Table 6 residential fine criteria

Client

ePrime Construction Management

Project

Phase Two ESA
436 Ridge Road North
Ridgeway, ON

Figure Name

Soil Results

Project E-21-36-2	Figure 4a
Date August 2021	
Drafted: N. Metz Reviewed: KC	

HALLEX ENVIRONMENTAL LTD.

Legend

- Study Site
- Borehole
- Monitoring Well

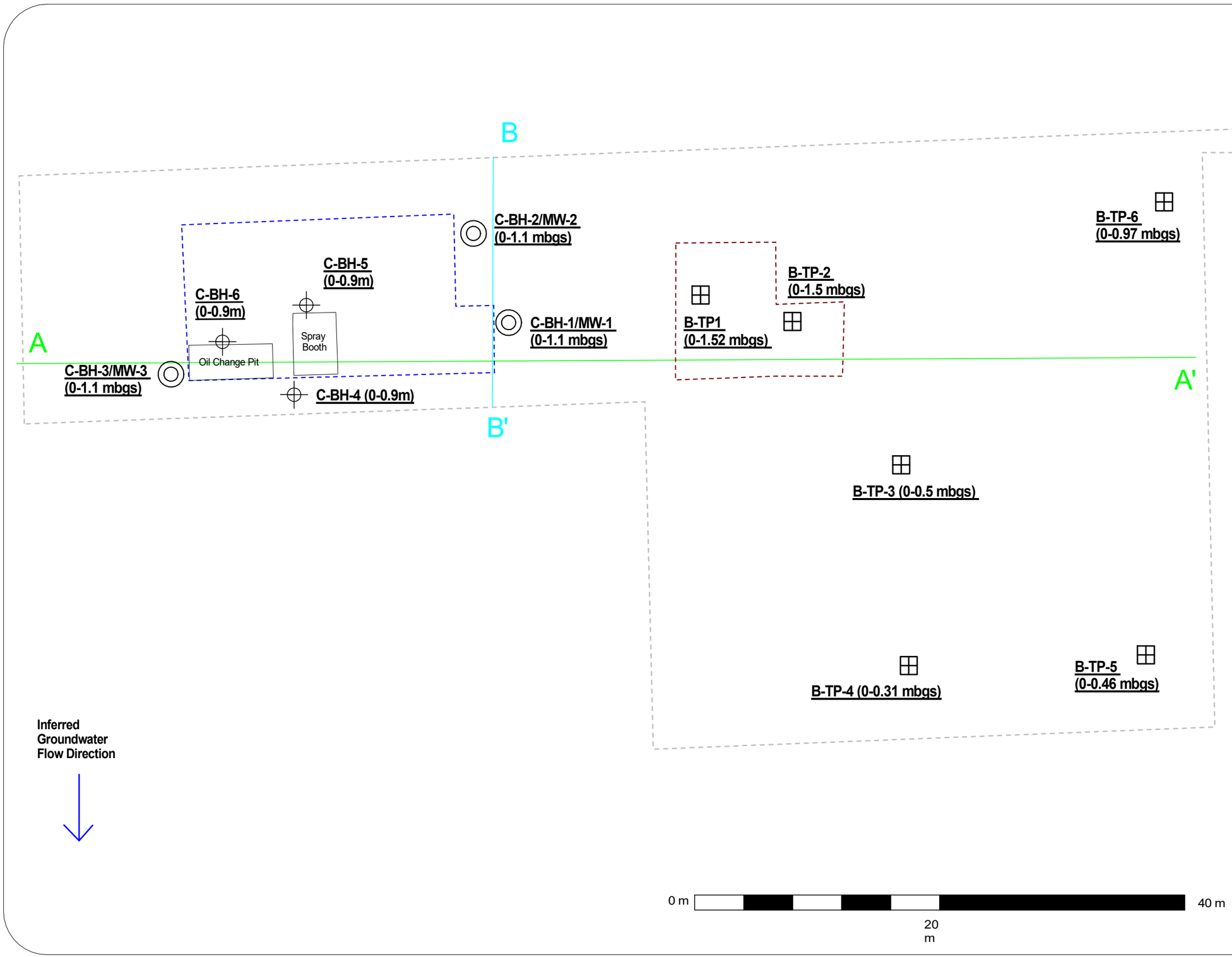
Red exceeds Table 6 Potable Groundwater Criteria
Green meets Table 6 Potable Groundwater Criteria

Client
ePrime Construction Management

Project
Phase Two ESA
436 Ridge Road North,
Ridgeway, ON

Figure Name
Groundwater Results

Project E-21-55-2	Figure 4b
Date September 2021	
Drafted: DN Reviewed: KC	



HALLEX ENVIRONMENTAL LTD.

Legend

- Study Site
- Current Building Footprint
- Historic Building Footprint
- Borehole
- Monitoring Well
- A - A'
- B - B'

Client

ePrime Construction Management

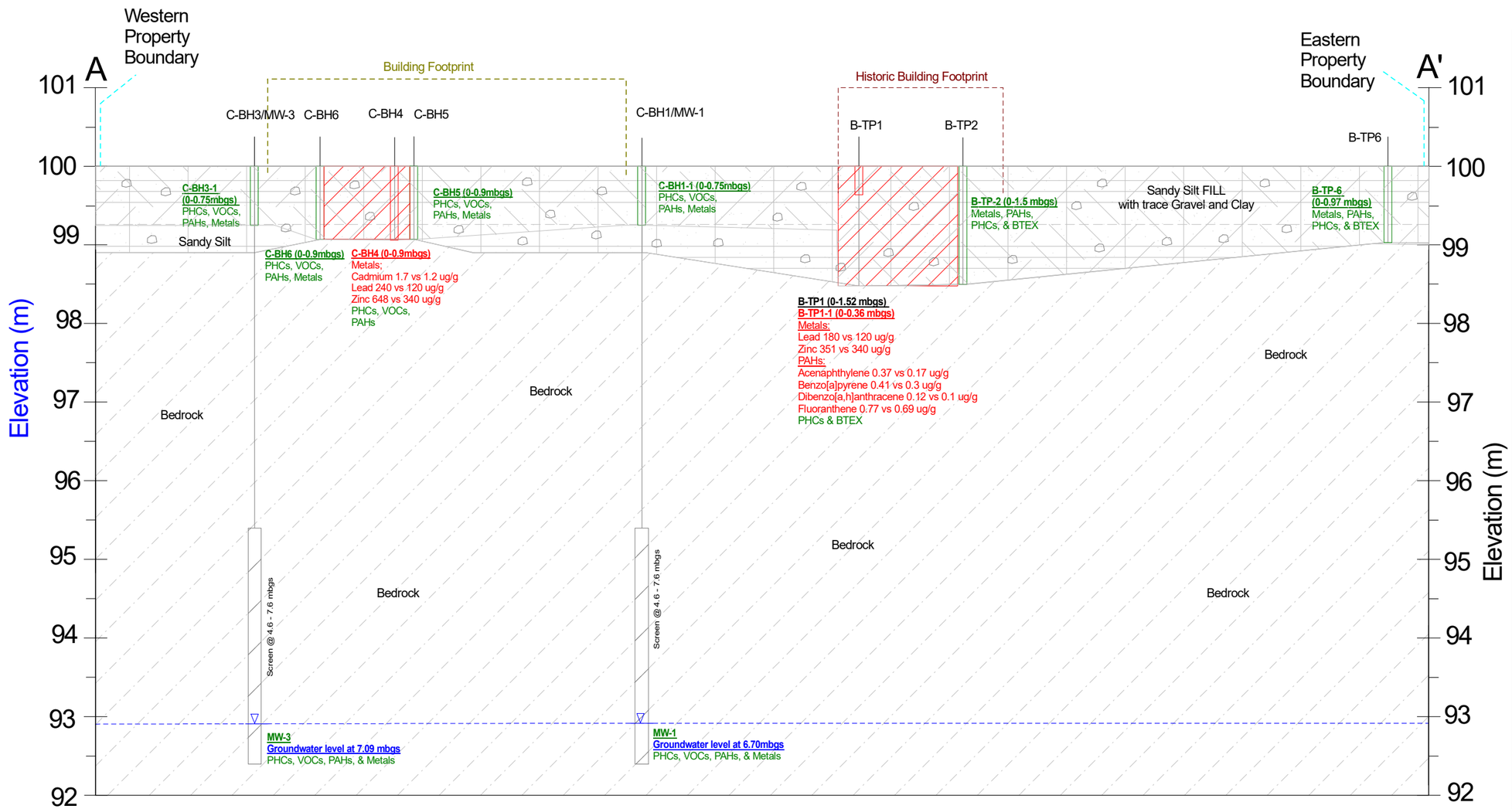
Project

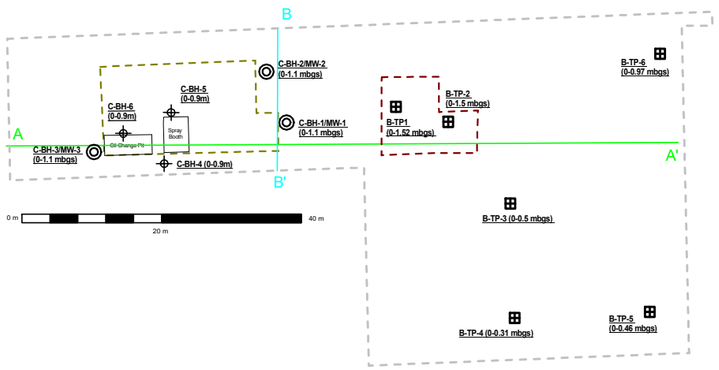
Phase Two ESA
436 Ridge Road North,
Ridgeway, ON

Figure Name

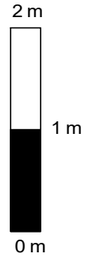
Study Site Cross Section Locations (A-A', B-B')

Project E-21-55-2	Figure 5a
Date September 2021	
Drafted: DN Reviewed: KC	





Vertical Exaggeration 0.429 x



LEGEND

- Interpreted Groundwater Level
- Asphalt
- Sand
- Silt
- Clay
- Fill
- Limestone
- Soil Sample Location
- Building Footprint

* Green indicates sample meets Table 6, Res criteria

* Red indicates sample exceeds Table 6, Res criteria

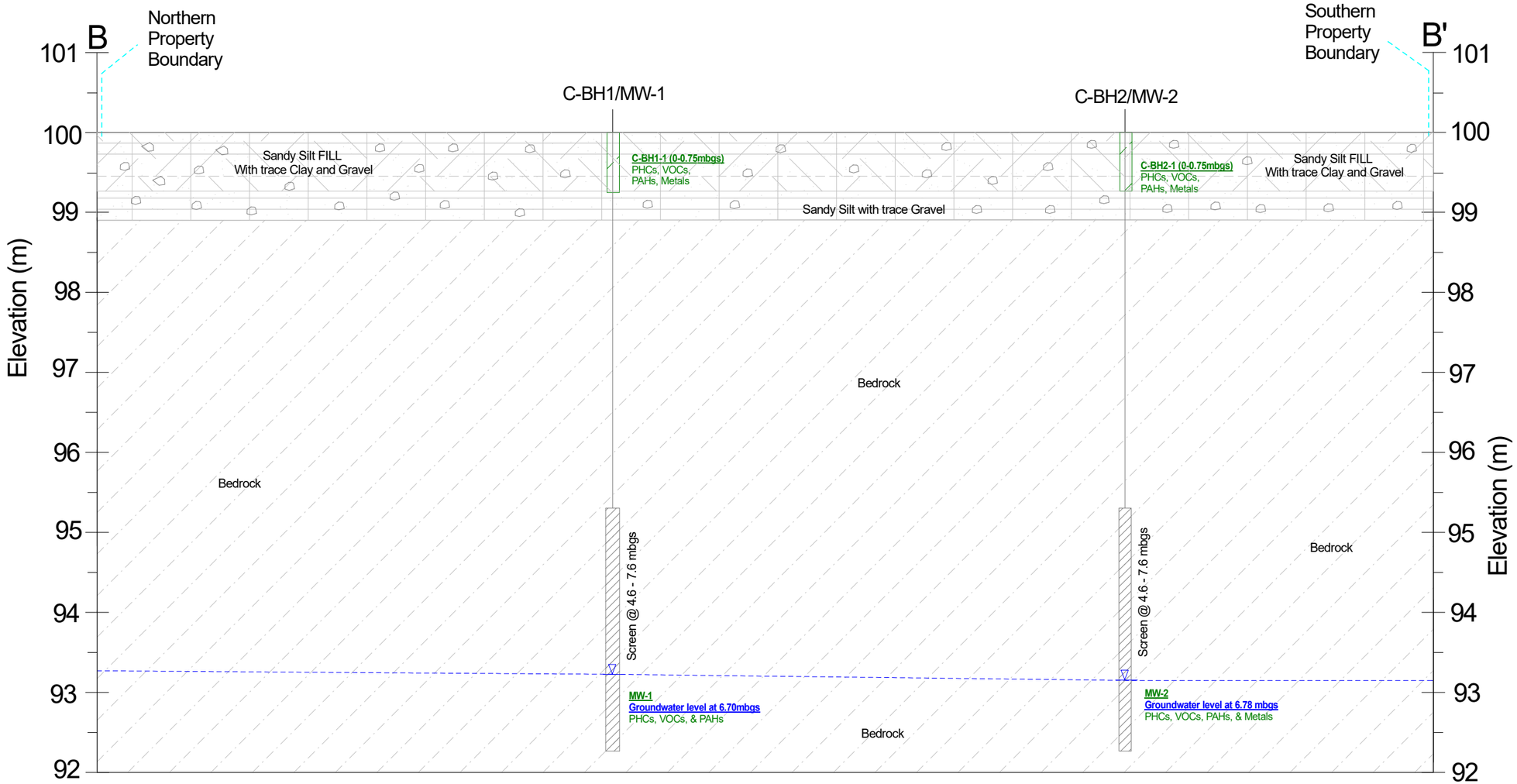
CLIENT:
ePrime Construction Management

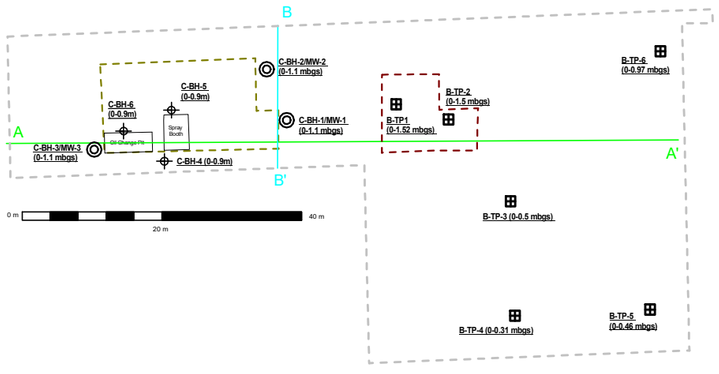
PROJECT:
Phase Two ESA
436 Ridge Road North, Ridgeway, ON

FIGURE NAME:
Cross Section; A - A'

PROJECT: E-21-55-2
DATE: September 2021
Drafted: DN
Reviewed: KC

FIGURE 5b





LEGEND

- Interpreted Groundwater Level
- Asphalt
- Sand
- Silt
- Clay
- Fill
- Limestone
- Soil Sample Location

* Green indicates sample meets Table 6, Res criteria

* Red indicates sample exceeds Table 6, Res criteria

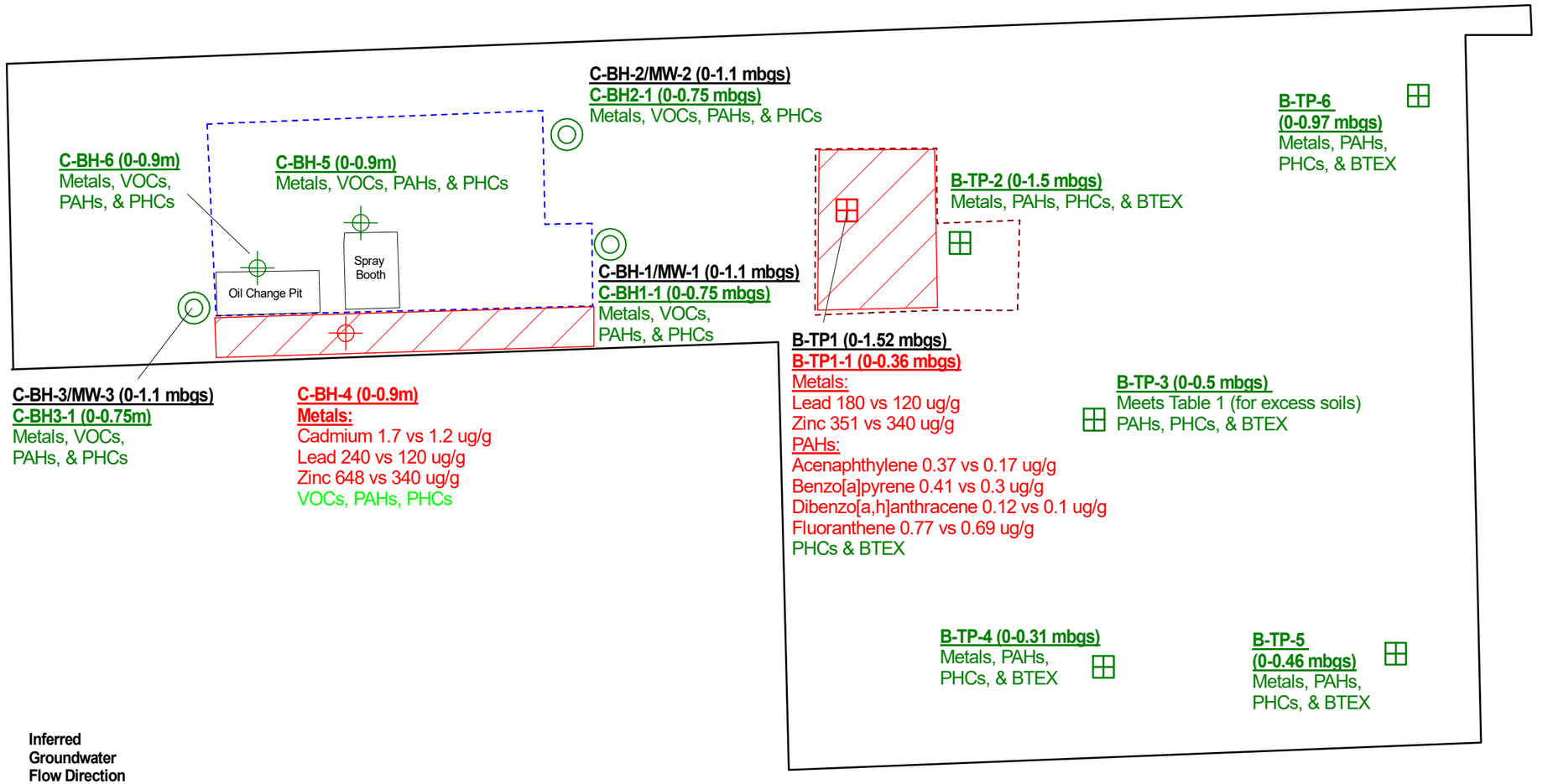
CLIENT:
ePrime Construction Management

PROJECT:
Phase Two ESA
436 Ridge Road North,
Ridgeway, ON

FIGURE NAME:
Cross Section; B - B'

PROJECT: E-21-55-2
DATE: September 2021
Drafted: DN
Reviewed: KC

FIGURE 5c



Legend

- Study Site
- Borehole Locations
- Monitoring Well Locations
- Test Pit Locations
- Building Footprint
- Historic Building Footprint
- Inferred Groundwater Flow Direction
- Metal Soil Contamination

Client

ePrime Construction Management

Project

Phase Two ESA
436 Ridge Road North,
Ridgeway, ON

Figure Name

Area of Impact

Project	E-21-55-2
Date	September 2021
Drafted:	DN
Reviewed:	KC

Figure 6

Appendix A:

Field Logs

HALLEX ENVIRONMENTAL LTD.

Project No: E-22-55-2

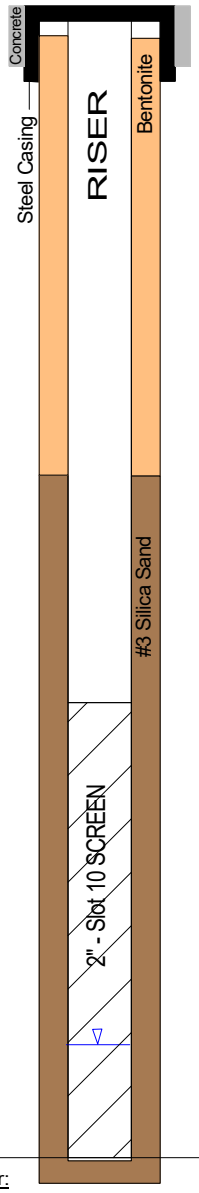
Project: Phase Two ESA of
436 Ridge Road North,
Ridgeway, ON

Logged by: NM
Reviewed by: KC

Borehole #: C-BH-1
Monitoring Well #: C-MW-1

Drill Date: August 5, 2021

SUBSURFACE PROFILE					SAMPLE			VOC Concentration	Well Completion Details
Depth - ft	Depth - m	Symbol	Description	Elev. masl	Number	Type	N Values & Laboratory Analysis	ppm: 125, 250, 375 / %LEL: 10, 30, 50, 70, 90	
			Ground Surface						
			Sandy Silt TOPSOIL						
			Gravel & SAND		SA - 1		4, 3, 2, 1	25 ppm	
			SANDY SILT **FILL** Reddish brown with trace clay and gravel, dry, no odour				**PHCs (F1-F4)** **BTEX, & PAHs**		
	1		**SANDY SILT** Reddish brown, slightly moist, no odour		- 2		4, 4, 4, 50 for 0	20 ppm	
			SILTY CLAY with trace sand & gravel Reddish brown, moist, no odour						
5			**End of borehole - refusal due to bedrock**			**Split Spoons**			
	2								
10	3								
	4								
15									
	5								
20	6								
	7								
25									



Groundwater Analyzed for:
PHCs (F1-F4)
PAHs
VOCs

GW level: 6.70 mbgs

Driller: Davis Drilling, CCME

Borehole Diameter: 6.0"

PVC Well Diameter: 2.0"

Sheet: 1 of 1

Lithology: Asphalt, Fracture, Fill, Gravel, Silt, Sand, Clay, Bedrock, Organic

HALLEX ENVIRONMENTAL LTD.

Project No: E-22-55-2

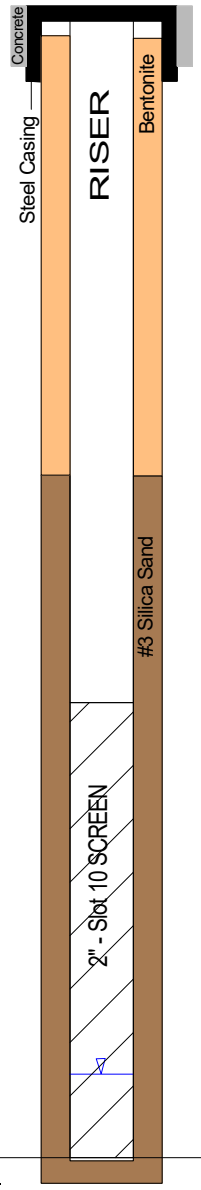
Project: Phase Two ESA of
436 Ridge Road North,
Ridgeway, ON

Logged by: NM
Reviewed by: KC

Borehole #: C-BH-2
Monitoring Well #: C-MW-2

Drill Date: August 5, 2021

SUBSURFACE PROFILE					SAMPLE			VOC Concentration	Well Completion Details
Depth - ft	Depth - m	Symbol	Description	Elev. masl	Number	Type	N Values & Laboratory Analysis	ppm: 125, 250, 375 / %LEL: 10, 30, 50, 70, 90	
			Ground Surface						
			Sandy Silt TOPSOIL		SA - 1		11, 5, 2, 1	20 ppm	
			Gravel & SAND				**PHCs (F1-F4) BTEX, & PAHs**		
			SANDY SILT **FILL** Black with some clay, moist, no odour						
	1		**SANDY SILT** Dark brown with trace gravel moist, no odour		- 2		2, 2, 50 for 3	15 ppm	
5			**End of borehole - refusal due to bedrock**			**Split Spoons**			
	2								
10	3								
	4								
15									
	5								
20	6								
	7								
25									



Groundwater Analyzed for:
PHCs (F1-F4)
PAHs
VOCs
& Metals (by ICP)

GW level: 6.78 mbgs

Driller: Davis Drilling, CCME

Borehole Diameter: 6.0"

PVC Well Diameter: 2.0"

Sheet: 1 of 1

Lithology: Asphalt, Fracture, Fill, Gravel, Silt, Sand, Clay, Bedrock, Organic

HALLEX ENVIRONMENTAL LTD.

Project No: E-22-55-2

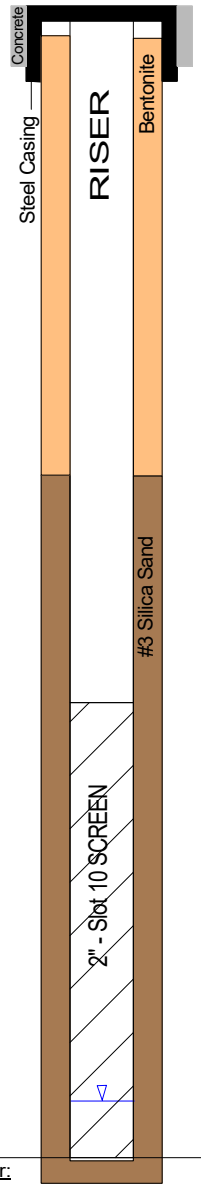
Project: Phase Two ESA of
436 Ridge Road North,
Ridgeway, ON

Logged by: NM
Reviewed by: KC

Borehole #: C-BH-3
Monitoring Well #: C-MW-3

Drill Date: August 5, 2021

SUBSURFACE PROFILE					SAMPLE			VOC Concentration	Well Completion Details
Depth - ft	Depth - m	Symbol	Description	Elev. masl	Number	Type	N Values & Laboratory Analysis	ppm: 125, 250, 375 / %LEL: 10, 30, 50, 70, 90	
			Ground Surface						
			Sandy Silt TOPSOIL		SA - 1		4, 3, 2, 1	25 ppm	
			Gravel & SAND				**PHCs (F1-F4) BTEX, & PAHs**		
			SANDY SILT **FILL** Reddish brown with trace clay and gravel, dry, no odour						
	1		**SANDY SILT** Reddish brown, slightly moist, no odour		- 2		4, 4, 4, 50 for 0	20 ppm	
			SILTY CLAY with trace sand & gravel Reddish brown, moist, no odour			Split Spoons			
5			**End of borehole - refusal due to bedrock**						
	2								
10	3								
	4								
15									
	5								
20	6								
	7								
25									



Groundwater Analyzed for:
PHCs (F1-F4)
PAHs
VOCs
Metals (ICP)

GW level: 7.09 mbgs

Driller: Davis Drilling, CCME

Borehole Diameter: 6.0"

PVC Well Diameter: 2.0"

Sheet: 1 of 1

Lithology: Asphalt, Fracture, Fill, Gravel, Silt, Sand, Clay, Bedrock, Organic

HALLEX ENVIRONMENTAL LTD.

Project No: E-21-55-2

Project: Phase Two ESA of
436 Ridge Road North,
Ridgeway, ON

Logged by: NM
Reviewed by: KC

Borehole #: C-BH-4

Drill Date: August 20, 2021

SUBSURFACE PROFILE					SAMPLE			VOC Concentration	
Depth - ft	Depth - m	Symbol	Description	Elev. masl	Number	Type	N Values & Laboratory Analysis	ppm 125 250 375 / %LEL 10 30 50 70 90	Well Completion Details
			Ground Surface						*A monitoring well was not installed in this borehole.*
			SILT **FILL** Dark brown with some sand and clay and debris Moist, soft, no odour		SA - 1	**Augured**	**PHCs (F1-F4) VOCs, Metals & PAHs**		
	1								
5			**End of borehole - refusal due to bedrock**						
	2								
10	3								
	4								
15									
	5								
20	6								
	7								
25									

Driller: Jay's Mini-Excavating

Borehole Diameter: 9.0"

Sheet: 1 of 1

Lithology: Asphalt, Fracture, Fill, Gravel, Silt, Sand, Clay, Bedrock, Organic

HALLEX ENVIRONMENTAL LTD.

Project No: E-21-55-2

Project: Phase Two ESA of
436 Ridge Road North,
Ridgeway, ON

Logged by: NM
Reviewed by: KC

Borehole #: C-BH-5

Drill Date: August 20, 2021

SUBSURFACE PROFILE					SAMPLE			VOC Concentration	
Depth - ft	Depth - m	Symbol	Description	Elev. masl	Number	Type	N Values & Laboratory Analysis	ppm 125 250 375 / %LEL 10 30 50 70 90	Well Completion Details
			Ground Surface						*A monitoring well was not installed in this borehole.*
			Concrete		SA - 1	**Augured**	**PHCs (F1-F4) VOCs, Metals & PAHs**		
			Gravel & SAND						
			SILT **FILL** Reddish brown with some clay and sand Moist, soft, no odour						
	1		**End of borehole - refusal due to bedrock**						
5	2								
10	3								
	4								
15	5								
20	6								
	7								
25									

Driller: Jay's Mini-Excavating

Borehole Diameter: 9.0"

Sheet: 1 of 1

Lithology: Concete, Fracture, Fill, Gravel, Silt, Sand, Clay, Bedrock, Organic

HALLEX ENVIRONMENTAL LTD.

Project No: E-21-55-2

Project: Phase Two ESA of
436 Ridge Road North,
Ridgeway, ON

Logged by: NM
Reviewed by: KC

Borehole #: C-BH-6

Drill Date: August 20, 2021

SUBSURFACE PROFILE					SAMPLE			VOC Concentration	
Depth - ft	Depth - m	Symbol	Description	Elev. masl	Number	Type	N Values & Laboratory Analysis	ppm 125 250 375 / %LEL 10 30 50 70 90	Well Completion Details
			Ground Surface						*A monitoring well was not installed in this borehole.*
			Concrete **Gravel & SAND** SANDY SILT **FILL** Brown with trace gravel Moist, soft, no odour		SA - 1	**Augured**	**PHCs (F1-F4) VOCs, Metals & PAHs**		
	1		**End of borehole - refusal due to bedrock**						
5	2								
10	3								
	4								
15	5								
20	6								
	7								
25									

Driller: Jay's Mini-Excavating

Borehole Diameter: 9.0"

Sheet: 1 of 1

Lithology: Concete, Fracture, Fill, Gravel, Silt, Sand, Clay, Bedrock, Organic

Project #: E-21-36-2		Client: Stephen Fischer	Location: 436 Ridge Road North, Ridgeway, ON	Date: August 9, 2021	
Test Pit #	**Depth (m)**	**Description**		**Sample #**	**Lab**
B-TP#: 1	0 - 0.36	Black Sandy Silt TOPSOIL FILL, with some gravel and		1	PAHs, BTEX, PAHs, & Metals
	0.36 - 1.52	Reddish brown SANDY SILT with some gravel, slightly m		2	
	1.52	Bedrock			
B-TP#: 2	0 - 0.36	Black Sandy Silt TOPSOIL FILL. Slightly moist, no		1	PAHs, BTEX, PAHs, pH & Metals
	0.36 - 1.1	Black Sandy Silt FILL, with some clay, gravel and debris.			
	1.1 - 1.5	Brown SANDY SILT, slightly moist, no odour, soft.			
	1.5	Bedrock			
B-TP#: 3	0 - 0.35	Dark brown SAND TOPSOIL with some silt, organics		1	Excess Soil
	0.35 - 0.5	Brown SAND with some Silt and Rocks. Dry, no odours,			
	0.5	Bedrock			
B-TP#: 4	0 - 0.19	Dark brown SAND TOPSOIL with some silt, organics		1	PAHs, BTEX, PAHs, & Metals
	0.19 - 0.31	Brown SAND with some Silt and Rocks. Dry, no odours,			
	0.31	Bedrock			
B-TP#: 5	0 - 0.26	Brown Sandy Silt TOPSOIL with some organics & rocks.		1	PAHs, BTEX, PAHs, & Metals
	0.26 - 0.46	Brown SANDY SILT with some Rocks. Dry, no odours, dr			
	0.46	Bedrock			
B-TP#: 6	0 - 0.37	Brown Sandy Silt TOPSOIL with some organics & rocks.		1	PAHs, BTEX, PAHs, & Metals
	0.37 - 0.96	Brown SANDY SILT with some Rocks. Dry, no odours, dr			
	0.96 - 0.97	Reddish Brown CLAYEY SILT			
	0.97	Bedrock			

Appendix B:

Groundwater Calculations

Hydraulic Conductivity (K) Calculation

MW-1

Project: E-21-55-2

Well radius	r =	0.025	m
Borehole radius	R =	0.0762	
Length of screen	L =	3	
Initial depth to gw	H =	6.946	
Pumped depth, t=0	Ho =	7.422	
Final depth to gw	h =	7.05	
Time (min)	dt=	320	

Time (min)	Water Level (m)
0	7.422
20	7.401
78	7.305
251	7.122
320	7.05

r, radius of well =	2.500E-02	
dh =	3.720E-01	
dt =	3.200E+02	
q(t), rate of inflow =	2.283E-06	
V, volume removed	4.577E-04	0.000
To, time lag =	2.005E+02	
L, length of screen	3.000E+00	
r2 =	6.250E-04	
L/R =	3.937E+01	
ln l/r =	3.673E+00	
r2 x ln l/r =	2.296E-03	
**K = **	**1.908E-06**	**cm/s**
K =	1.648E-01	cm/day
K =	1.648E-03	m/day
K =	6.017E-01	m/yr

Hvorslev method	To=(pi)r^2/FK			
	K=(r^2ln(L/R))/2LTo			
v=ki/n				
v=	5.72377E-08	cm/s	4.94533E-05	m/d
k=	1.90792E-06		1.64844E-03	
n=	2.00000E-01			
I=	6.00000E-03			
		v=	**1.80505E-02**	**m/yr**

Appendix C:

Laboratory Analytical Reports

PARACEL LABORATORIES LTD.

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RESPONSIVE.
RELIABLE.

351 Nash Road North, unit 9B
Hamilton, ON L8H 7P4
1-800-749-1947
www.paracellabs.com

Certificate of Analysis

Hallex Environmental Ltd.

4999 Victoria Ave
Niagara Falls, ON L2E 4C9
Attn: Kevin Christian

Client PO:
Project: E-21-55-2
Custody: 118969

Report Date: 14-Sep-2021
Order Date: 13-Sep-2021

Order #: 2138120

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
2138120-01	SS-MW-1

Approved By:

Milan Ralitsch, PhD
Senior Technical Manager

Certificate of Analysis

Client: Hallex Environmental Ltd.

Client PO:

Report Date: 14-Sep-2021

Order Date: 13-Sep-2021

Project Description: E-21-55-2

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
REG 153: PAHs by GC-MS	EPA 625 - GC-MS, extraction	14-Sep-21	14-Sep-21

Certificate of Analysis
Client: Hallex Environmental Ltd.
Client PO:

Report Date: 14-Sep-2021
Order Date: 13-Sep-2021
Project Description: E-21-55-2

Summary of Exceedances

(If this page is blank then there are no exceedances)

Only those criteria that a sample exceeds will be highlighted in red

Regulatory Comparison:

Paracel Laboratories has provided regulatory guidelines on this report for informational purposes only and makes no representations or warranties that the data is accurate or reflects the current regulatory values. The user is advised to consult with the appropriate official regulations to evaluate compliance. Sample results that are highlighted have exceeded the selected regulatory limit. Calculated uncertainty estimations have not been applied for determining regulatory exceedances. Regulatory limts displayed in brackets, (), applies to medium and fine textured soils.

Criteria:

Client ID	Analyte	MDL / Units	Result	Reg 153/04 (2011)-Table 2 Potable Groundwater

Certificate of Analysis

Client: Hallex Environmental Ltd.

Client PO:

Report Date: 14-Sep-2021

Order Date: 13-Sep-2021

Project Description: E-21-55-2

	Client ID:	SS-MW-1	-	-	-		
	Sample Date:	13-Sep-2021	-	-	-	**Criteria:**	
	Sample ID:	2138120-01	-	-	-	**Reg 153/04 (2011)-Table 2 Potable Groundwater**	
	Matrix:	Ground Water	-	-	-		
	MDL/Units						
Semi-Volatiles							
Acenaphthene	0.05 ug/L	<0.05	-	-	-	(4.1) 4.1	ug/L
Acenaphthylene	0.05 ug/L	<0.05	-	-	-	(1) 1	ug/L
Anthracene	0.01 ug/L	<0.01	-	-	-	(2.4) 2.4	ug/L
Benzo [a] anthracene	0.01 ug/L	<0.01	-	-	-	(1) 1	ug/L
Benzo [a] pyrene	0.01 ug/L	<0.01	-	-	-	(0.01) 0.01	ug/L
Benzo [b] fluoranthene	0.05 ug/L	<0.05	-	-	-	(0.1) 0.1	ug/L
Benzo [g,h,i] perylene	0.05 ug/L	<0.05	-	-	-	(0.2) 0.2	ug/L
Benzo [k] fluoranthene	0.05 ug/L	<0.05	-	-	-	(0.1) 0.1	ug/L
Chrysene	0.05 ug/L	<0.05	-	-	-	(0.1) 0.1	ug/L
Dibenzo [a,h] anthracene	0.05 ug/L	<0.05	-	-	-	(0.2) 0.2	ug/L
Fluoranthene	0.01 ug/L	<0.01	-	-	-	(0.41) 0.41	ug/L
Fluorene	0.05 ug/L	<0.05	-	-	-	(120) 120	ug/L
Indeno [1,2,3-cd] pyrene	0.05 ug/L	<0.05	-	-	-	(0.2) 0.2	ug/L
1-Methylnaphthalene	0.05 ug/L	<0.05	-	-	-	(3.2) 3.2	ug/L
2-Methylnaphthalene	0.05 ug/L	<0.05	-	-	-	(3.2) 3.2	ug/L
Methylnaphthalene (1&2)	0.10 ug/L	<0.10	-	-	-	(3.2) 3.2	ug/L
Naphthalene	0.05 ug/L	<0.05	-	-	-	(11) 11	ug/L
Phenanthrene	0.05 ug/L	<0.05	-	-	-	(1) 1	ug/L
Pyrene	0.01 ug/L	<0.01	-	-	-	(4.1) 4.1	ug/L
2-Fluorobiphenyl	Surrogate	109%	-	-	-		
Terphenyl-d14	Surrogate	136%	-	-	-		

Certificate of Analysis

Client: Hallex Environmental Ltd.

Client PO:

Report Date: 14-Sep-2021

Order Date: 13-Sep-2021

Project Description: E-21-55-2

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Semi-Volatiles									
Acenaphthene	ND	0.05	ug/L						
Acenaphthylene	ND	0.05	ug/L						
Anthracene	ND	0.01	ug/L						
Benzo [a] anthracene	ND	0.01	ug/L						
Benzo [a] pyrene	ND	0.01	ug/L						
Benzo [b] fluoranthene	ND	0.05	ug/L						
Benzo [g,h,i] perylene	ND	0.05	ug/L						
Benzo [k] fluoranthene	ND	0.05	ug/L						
Chrysene	ND	0.05	ug/L						
Dibenzo [a,h] anthracene	ND	0.05	ug/L						
Fluoranthene	ND	0.01	ug/L						
Fluorene	ND	0.05	ug/L						
Indeno [1,2,3-cd] pyrene	ND	0.05	ug/L						
1-Methylnaphthalene	ND	0.05	ug/L						
2-Methylnaphthalene	ND	0.05	ug/L						
Methylnaphthalene (1&2)	ND	0.10	ug/L						
Naphthalene	ND	0.05	ug/L						
Phenanthrene	ND	0.05	ug/L						
Pyrene	ND	0.01	ug/L						
Surrogate: 2-Fluorobiphenyl	*2.65*		*ug/L*		*66.6*	*50-140*			
Surrogate: Terphenyl-d14	*5.09*		*ug/L*		*127*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Semi-Volatiles									
Acenaphthene	1.94	0.05	ug/L	ND	97.2	50-140			
Acenaphthylene	1.82	0.05	ug/L	ND	90.8	50-140			
Anthracene	2.01	0.01	ug/L	ND	100	50-140			
Benzo [a] anthracene	1.93	0.01	ug/L	ND	96.4	50-140			
Benzo [a] pyrene	2.20	0.01	ug/L	ND	110	50-140			
Benzo [b] fluoranthene	2.41	0.05	ug/L	ND	120	50-140			
Benzo [g,h,i] perylene	2.45	0.05	ug/L	ND	122	50-140			
Benzo [k] fluoranthene	2.21	0.05	ug/L	ND	111	50-140			
Chrysene	2.06	0.05	ug/L	ND	103	50-140			
Dibenzo [a,h] anthracene	2.33	0.05	ug/L	ND	117	50-140			
Fluoranthene	2.28	0.01	ug/L	ND	114	50-140			
Fluorene	2.20	0.05	ug/L	ND	110	50-140			
Indeno [1,2,3-cd] pyrene	2.23	0.05	ug/L	ND	112	50-140			
1-Methylnaphthalene	2.26	0.05	ug/L	ND	113	50-140			
2-Methylnaphthalene	2.31	0.05	ug/L	ND	116	50-140			
Naphthalene	2.32	0.05	ug/L	ND	116	50-140			
Phenanthrene	2.18	0.05	ug/L	ND	109	50-140			
Pyrene	1.93	0.01	ug/L	ND	96.7	50-140			
Surrogate: 2-Fluorobiphenyl	*4.73*		*ug/L*		*119*	*50-140*			
Surrogate: Terphenyl-d14	*4.49*		*ug/L*		*112*	*50-140*			

PARACEL LABORATORIES LTD.

Order #: 2138120

Certificate of Analysis

Client: Hallex Environmental Ltd.

Client PO:

Report Date: 14-Sep-2021

Order Date: 13-Sep-2021

Project Description: E-21-55-2

Qualifier Notes:

None

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable
ND: Not Detected
MDL: Method Detection Limit
Source Result: Data used as source for matrix and duplicate samples
%REC: Percent recovery.
RPD: Relative percent difference.
NC: Not Calculated

PARACEL LABORATORIES LTD.

Paracel ID: 2138120

Head Office
300-2319 St. Laurent Blvd.
Ottawa, Ontario K1G 4J8
1-800-749-1947
paracel@paracellabs.com

Chain of Custody
(Lab Use Only)
№ 118969

Page 1 of 1

Client Name: Hallex Env.	Project Reference: E-21-55-2
Contact Name: Kevin Christian	Quote #
Address: 4949 Victoria Ave. Niagara Falls, ON	PO #
Telephone:	Email Address: Jglaser@hallex.ca kchristian@hallex.ca

Turnaround Time:
☐ 1 Day ☐ 3 Day
☐ 2 Day ☒ Regular
Date Required:

Criteria: ☒ O. Reg. 153/04 (As Amended) Table 2 ☒ RSC Filing ☐ O. Reg. 558/00 ☐ PWQO ☐ CCME ☐ SUB (Storm) ☐ SUB (Sanitary) Municipality: ☐ Other:
Residential/Park, Medium/fine

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

Required Analyses

	Paracel Order Number: / Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)							
1	SS-MW-1	GW		1	2021-09-13	7 AM			X											
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				

Comments:

Method of Delivery: walkin

Relinquished By (Sign):	Received by Driver/Depot: Niagara	Received at Lab: AM	Verified By: AM
Relinquished By (Print): Damen Nyland	Date/Time: 13 Sept 21	Date/Time: 14/9/21 8:25	Date/Time: 14/9/21 8:25
Date/Time: Sept 13th 2021	Temperature: 2.1 °C	Temperature: 10.9 °C	pH Verified [ ] By: NA

PARACEL LABORATORIES LTD.

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Certificate of Analysis

Hallex Environmental Ltd.

4999 Victoria Ave
Niagara Falls, ON L2E 4C9
Attn: Kevin Christian

Client PO:
Project: E-21-36-2
Custody: 58373

Report Date: 16-Aug-2021
Order Date: 10-Aug-2021

Order #: 2133120

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
2133120-01	B-TP1-1
2133120-02	B-TP2
2133120-03	B-TP13
2133120-04	B-TP4
2133120-05	B-TP5
2133120-06	B-TP6
2133120-07	B-TP12
2133120-08	B-TP14
2133120-09	B-DUP

Approved By:

Milan Ralitsch, PhD
Senior Technical Manager

Certificate of Analysis

Report Date: 16-Aug-2021

Client: Hallex Environmental Ltd.

Order Date: 10-Aug-2021

Client PO:

Project Description: E-21-36-2

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX by P&T GC-MS	EPA 8260 - P&T GC-MS	11-Aug-21	12-Aug-21
pH, soil	EPA 150.1 - pH probe @ 25 °C, CaCl buffered ext.	16-Aug-21	16-Aug-21
PHC F1	CWS Tier 1 - P&T GC-FID	11-Aug-21	12-Aug-21
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	11-Aug-21	12-Aug-21
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	15-Aug-21	15-Aug-21
REG 153: PAHs by GC-MS	EPA 8270 - GC-MS, extraction	11-Aug-21	14-Aug-21
REG 153: PHC F4(g)	CWS Tier 1 - Extraction Gravimetric	13-Aug-21	13-Aug-21
Solids, %	Gravimetric, calculation	11-Aug-21	12-Aug-21
Texture - Coarse Med/Fine	Based on ASTM D2487	12-Aug-21	13-Aug-21

Certificate of Analysis

Client: **Hallex Environmental Ltd.**

Client PO:

Report Date: 16-Aug-2021

Order Date: 10-Aug-2021

Project Description: E-21-36-2

	Client ID:	B-TP1-1	B-TP2	B-TP13	B-TP4
	Sample Date:	09-Aug-21 09:00	09-Aug-21 09:00	09-Aug-21 09:00	09-Aug-21 09:00
	Sample ID:	2133120-01	2133120-02	2133120-03	2133120-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	89.4	85.1	91.4	87.9
General Inorganics					
pH	0.05 pH Units	-	7.44	7.48	-
Metals					
Antimony	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Arsenic	1.0 ug/g dry	2.9	3.4	3.0	3.9
Barium	1.0 ug/g dry	78.7	35.2	49.7	69.8
Beryllium	0.5 ug/g dry	<0.5	<0.5	<0.5	0.6
Boron	5.0 ug/g dry	8.6	15.3	11.6	12.6
Cadmium	0.5 ug/g dry	0.6	<0.5	<0.5	<0.5
Chromium	5.0 ug/g dry	10.4	9.8	8.4	14.4
Cobalt	1.0 ug/g dry	3.7	5.1	4.2	6.7
Copper	5.0 ug/g dry	30.2	16.2	14.2	13.0
Lead	1.0 ug/g dry	180	10.2	36.3	15.3
Molybdenum	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Nickel	5.0 ug/g dry	14.6	8.8	11.3	15.5
Selenium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Silver	0.3 ug/g dry	<0.3	<0.3	<0.3	<0.3
Thallium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Uranium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Vanadium	10.0 ug/g dry	16.5	25.6	17.7	27.3
Zinc	20.0 ug/g dry	351	76.9	90.6	58.2
Volatiles					
Benzene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Ethylbenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Toluene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
m,p-Xylenes	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
o-Xylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Toluene-d8	Surrogate	108%	108%	108%	108%
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	<4	<4	<4	<4
F3 PHCs (C16-C34)	8 ug/g dry	144	11	<8	<8
F4 PHCs (C34-C50)	6 ug/g dry	363	<6	<6	<6

Certificate of Analysis

Report Date: 16-Aug-2021

Client: **Hallex Environmental Ltd.**

Order Date: 10-Aug-2021

Client PO:

Project Description: E-21-36-2

	Client ID:	B-TP1-1	B-TP2	B-TP13	B-TP4
	Sample Date:	09-Aug-21 09:00	09-Aug-21 09:00	09-Aug-21 09:00	09-Aug-21 09:00
	Sample ID:	2133120-01	2133120-02	2133120-03	2133120-04
	MDL/Units	Soil	Soil	Soil	Soil
F4G-sg PHCs (gravimetric)	50 ug/g dry	1900	-	-	-
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Acenaphthylene	0.02 ug/g dry	0.37	<0.02	<0.02	<0.02
Anthracene	0.02 ug/g dry	0.32	<0.02	<0.02	<0.02
Benzo [a] anthracene	0.02 ug/g dry	0.38	<0.02	<0.02	<0.02
Benzo [a] pyrene	0.02 ug/g dry	0.41	<0.02	<0.02	<0.02
Benzo [b] fluoranthene	0.02 ug/g dry	0.37	<0.02	<0.02	<0.02
Benzo [g,h,i] perylene	0.02 ug/g dry	0.36	<0.02	<0.02	<0.02
Benzo [k] fluoranthene	0.02 ug/g dry	0.20	<0.02	<0.02	<0.02
Chrysene	0.02 ug/g dry	0.32	<0.02	<0.02	<0.02
Dibenzo [a,h] anthracene	0.02 ug/g dry	0.12	<0.02	<0.02	<0.02
Fluoranthene	0.02 ug/g dry	0.77	<0.02	<0.02	<0.02
Fluorene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	0.40	<0.02	<0.02	<0.02
1-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
2-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Methylnaphthalene (1&2)	0.03 ug/g dry	<0.03	<0.03	<0.03	<0.03
Naphthalene	0.01 ug/g dry	0.01	<0.01	<0.01	<0.01
Phenanthrene	0.02 ug/g dry	0.13	<0.02	<0.02	<0.02
Pyrene	0.02 ug/g dry	0.55	<0.02	<0.02	<0.02
2-Fluorobiphenyl	Surrogate	76.3%	74.6%	81.9%	86.6%
Terphenyl-d14	Surrogate	73.1%	73.2%	79.3%	75.2%

Certificate of Analysis

Report Date: 16-Aug-2021

Client: **Hallex Environmental Ltd.**

Order Date: 10-Aug-2021

Client PO:

Project Description: E-21-36-2

	Client ID:	B-TP5	B-TP6	B-TP12	B-TP14
	Sample Date:	09-Aug-21 09:00	09-Aug-21 09:00	09-Aug-21 09:00	09-Aug-21 09:00
	Sample ID:	2133120-05	2133120-06	2133120-07	2133120-08
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	92.8	89.9	87.5	86.6
>75 um	0.1 %	-	48.3	26.4	-
<75 um	0.1 %	-	51.7	73.6	-
Texture	0.1 %	-	Med/Fine	Med/Fine	-
General Inorganics					
pH	0.05 pH Units	-	-	-	7.36
Metals					
Antimony	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Arsenic	1.0 ug/g dry	3.8	2.4	11.7	13.5
Barium	1.0 ug/g dry	39.9	37.4	50.8	51.7
Beryllium	0.5 ug/g dry	<0.5	<0.5	1.1	0.6
Boron	5.0 ug/g dry	9.8	<5.0	26.0	19.6
Cadmium	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Chromium	5.0 ug/g dry	12.2	7.6	31.2	20.4
Cobalt	1.0 ug/g dry	5.4	3.8	28.3	19.8
Copper	5.0 ug/g dry	10.1	5.5	20.4	19.0
Lead	1.0 ug/g dry	18.1	15.4	21.7	27.3
Molybdenum	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Nickel	5.0 ug/g dry	12.0	9.0	64.7	48.8
Selenium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Silver	0.3 ug/g dry	<0.3	<0.3	<0.3	<0.3
Thallium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Uranium	1.0 ug/g dry	<1.0	<1.0	1.4	<1.0
Vanadium	10.0 ug/g dry	25.3	20.5	65.9	43.7
Zinc	20.0 ug/g dry	60.0	43.9	135	75.6
Volatiles					
Benzene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Ethylbenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Toluene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
m,p-Xylenes	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
o-Xylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Toluene-d8	Surrogate	107%	108%	108%	104%
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	<7

Certificate of Analysis

Client: **Hallex Environmental Ltd.**

Client PO:

Report Date: 16-Aug-2021

Order Date: 10-Aug-2021

Project Description: E-21-36-2

	Client ID:	B-TP5	B-TP6	B-TP12	B-TP14
	Sample Date:	09-Aug-21 09:00	09-Aug-21 09:00	09-Aug-21 09:00	09-Aug-21 09:00
	Sample ID:	2133120-05	2133120-06	2133120-07	2133120-08
	MDL/Units	Soil	Soil	Soil	Soil
F2 PHCs (C10-C16)	4 ug/g dry	<4	<4	<4	<4
F3 PHCs (C16-C34)	8 ug/g dry	27	12	<8	40
F4 PHCs (C34-C50)	6 ug/g dry	<6	<6	<6	<6
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Acenaphthylene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [a] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [a] pyrene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [b] fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [g,h,i] perylene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [k] fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Chrysene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Fluoranthene	0.02 ug/g dry	0.02	0.03	<0.02	0.03
Fluorene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
1-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
2-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Methylnaphthalene (1&2)	0.03 ug/g dry	<0.03	<0.03	<0.03	<0.03
Naphthalene	0.01 ug/g dry	<0.01	<0.01	<0.01	<0.01
Phenanthrene	0.02 ug/g dry	<0.02	<0.02	<0.02	0.02
Pyrene	0.02 ug/g dry	<0.02	<0.02	<0.02	0.02
2-Fluorobiphenyl	Surrogate	81.7%	109%	86.2%	73.6%
Terphenyl-d14	Surrogate	74.5%	71.2%	72.2%	72.0%

Certificate of Analysis

Client: **Hallex Environmental Ltd.**

Client PO:

Report Date: 16-Aug-2021

Order Date: 10-Aug-2021

Project Description: E-21-36-2

	Client ID:	B-DUP	-	-	-
	Sample Date:	09-Aug-21 09:00	-	-	-
	Sample ID:	2133120-09	-	-	-
	MDL/Units	Soil	-	-	-
Physical Characteristics					
% Solids	0.1 % by Wt.	87.9	-	-	-
Metals					
Antimony	1.0 ug/g dry	<1.0	-	-	-
Arsenic	1.0 ug/g dry	3.5	-	-	-
Barium	1.0 ug/g dry	61.1	-	-	-
Beryllium	0.5 ug/g dry	<0.5	-	-	-
Boron	5.0 ug/g dry	10.3	-	-	-
Cadmium	0.5 ug/g dry	<0.5	-	-	-
Chromium	5.0 ug/g dry	12.4	-	-	-
Cobalt	1.0 ug/g dry	5.8	-	-	-
Copper	5.0 ug/g dry	12.5	-	-	-
Lead	1.0 ug/g dry	17.1	-	-	-
Molybdenum	1.0 ug/g dry	<1.0	-	-	-
Nickel	5.0 ug/g dry	15.1	-	-	-
Selenium	1.0 ug/g dry	<1.0	-	-	-
Silver	0.3 ug/g dry	<0.3	-	-	-
Thallium	1.0 ug/g dry	<1.0	-	-	-
Uranium	1.0 ug/g dry	<1.0	-	-	-
Vanadium	10.0 ug/g dry	24.1	-	-	-
Zinc	20.0 ug/g dry	53.7	-	-	-
Volatiles					
Benzene	0.02 ug/g dry	<0.02	-	-	-
Ethylbenzene	0.05 ug/g dry	<0.05	-	-	-
Toluene	0.05 ug/g dry	<0.05	-	-	-
m,p-Xylenes	0.05 ug/g dry	<0.05	-	-	-
o-Xylene	0.05 ug/g dry	<0.05	-	-	-
Xylenes, total	0.05 ug/g dry	<0.05	-	-	-
Toluene-d8	Surrogate	108%	-	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	-	-	-
F2 PHCs (C10-C16)	4 ug/g dry	<4	-	-	-
F3 PHCs (C16-C34)	8 ug/g dry	<8	-	-	-
F4 PHCs (C34-C50)	6 ug/g dry	<6	-	-	-
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	-	-	-

Certificate of Analysis

Client: **Hallex Environmental Ltd.**

Client PO:

Report Date: 16-Aug-2021

Order Date: 10-Aug-2021

Project Description: E-21-36-2

	Client ID:	B-DUP	-	-	-
	Sample Date:	09-Aug-21 09:00	-	-	-
	Sample ID:	2133120-09	-	-	-
	MDL/Units	Soil	-	-	-
Acenaphthylene	0.02 ug/g dry	<0.02	-	-	-
Anthracene	0.02 ug/g dry	<0.02	-	-	-
Benzo [a] anthracene	0.02 ug/g dry	<0.02	-	-	-
Benzo [a] pyrene	0.02 ug/g dry	<0.02	-	-	-
Benzo [b] fluoranthene	0.02 ug/g dry	<0.02	-	-	-
Benzo [g,h,i] perylene	0.02 ug/g dry	<0.02	-	-	-
Benzo [k] fluoranthene	0.02 ug/g dry	<0.02	-	-	-
Chrysene	0.02 ug/g dry	<0.02	-	-	-
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	-	-	-
Fluoranthene	0.02 ug/g dry	<0.02	-	-	-
Fluorene	0.02 ug/g dry	<0.02	-	-	-
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	<0.02	-	-	-
1-Methylnaphthalene	0.02 ug/g dry	<0.02	-	-	-
2-Methylnaphthalene	0.02 ug/g dry	<0.02	-	-	-
Methylnaphthalene (1&2)	0.03 ug/g dry	<0.03	-	-	-
Naphthalene	0.01 ug/g dry	<0.01	-	-	-
Phenanthrene	0.02 ug/g dry	<0.02	-	-	-
Pyrene	0.02 ug/g dry	<0.02	-	-	-
2-Fluorobiphenyl	Surrogate	78.5%	-	-	-
Terphenyl-d14	Surrogate	79.8%	-	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g						
F2 PHCs (C10-C16)	ND	4	ug/g						
F3 PHCs (C16-C34)	ND	8	ug/g						
F4 PHCs (C34-C50)	ND	6	ug/g						
F4G-sg PHCs (gravimetric)	ND	50	ug/g						
Metals									
Antimony	ND	1.0	ug/g						
Arsenic	ND	1.0	ug/g						
Barium	ND	1.0	ug/g						
Beryllium	ND	0.5	ug/g						
Boron	ND	5.0	ug/g						
Cadmium	ND	0.5	ug/g						
Chromium	ND	5.0	ug/g						
Cobalt	ND	1.0	ug/g						
Copper	ND	5.0	ug/g						
Lead	ND	1.0	ug/g						
Molybdenum	ND	1.0	ug/g						
Nickel	ND	5.0	ug/g						
Selenium	ND	1.0	ug/g						
Silver	ND	0.3	ug/g						
Thallium	ND	1.0	ug/g						
Uranium	ND	1.0	ug/g						
Vanadium	ND	10.0	ug/g						
Zinc	ND	20.0	ug/g						
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g						
Acenaphthylene	ND	0.02	ug/g						
Anthracene	ND	0.02	ug/g						
Benzo [a] anthracene	ND	0.02	ug/g						
Benzo [a] pyrene	ND	0.02	ug/g						
Benzo [b] fluoranthene	ND	0.02	ug/g						
Benzo [g,h,i] perylene	ND	0.02	ug/g						
Benzo [k] fluoranthene	ND	0.02	ug/g						
Chrysene	ND	0.02	ug/g						
Dibenzo [a,h] anthracene	ND	0.02	ug/g						
Fluoranthene	ND	0.02	ug/g						
Fluorene	ND	0.02	ug/g						
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g						
1-Methylnaphthalene	ND	0.02	ug/g						
2-Methylnaphthalene	ND	0.02	ug/g						
Methylnaphthalene (1&2)	ND	0.03	ug/g						
Naphthalene	ND	0.01	ug/g						
Phenanthrene	ND	0.02	ug/g						
Pyrene	ND	0.02	ug/g						
Surrogate: 2-Fluorobiphenyl	*0.122*		*ug/g*		*58.7*	*50-140*			
Surrogate: Terphenyl-d14	*0.152*		*ug/g*		*76.2*	*50-140*			
Volatiles									
Benzene	ND	0.02	ug/g						
Ethylbenzene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
m,p-Xylenes	ND	0.05	ug/g						
o-Xylene	ND	0.05	ug/g						
Xylenes, total	ND	0.05	ug/g						
Surrogate: Toluene-d8	*8.94*		*ug/g*		*111*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
pH	7.51	0.05	pH Units	7.44			0.9	10	
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g dry	ND			NC	40	
F2 PHCs (C10-C16)	ND	4	ug/g dry	ND			NC	30	
F3 PHCs (C16-C34)	ND	8	ug/g dry	ND			NC	30	
F4 PHCs (C34-C50)	ND	6	ug/g dry	ND			NC	30	
F4G-sg PHCs (gravimetric)	736	50	ug/g dry	760			3.2	30	
Metals									
Antimony	ND	1.0	ug/g dry	ND			NC	30	
Arsenic	1.7	1.0	ug/g dry	1.5			14.5	30	
Barium	9.6	1.0	ug/g dry	10.8			11.7	30	
Beryllium	ND	0.5	ug/g dry	ND			NC	30	
Boron	6.9	5.0	ug/g dry	5.7			19.4	30	
Cadmium	ND	0.5	ug/g dry	ND			NC	30	
Chromium	ND	5.0	ug/g dry	ND			NC	30	
Cobalt	1.8	1.0	ug/g dry	1.9			4.3	30	
Copper	6.1	5.0	ug/g dry	6.0			2.1	30	
Lead	3.7	1.0	ug/g dry	3.9			3.0	30	
Molybdenum	ND	1.0	ug/g dry	ND			NC	30	
Nickel	ND	5.0	ug/g dry	ND			NC	30	
Selenium	ND	1.0	ug/g dry	ND			NC	30	
Silver	ND	0.3	ug/g dry	ND			NC	30	
Thallium	ND	1.0	ug/g dry	ND			NC	30	
Uranium	ND	1.0	ug/g dry	ND			NC	30	
Vanadium	10.6	10.0	ug/g dry	10.8			1.0	30	
Zinc	ND	20.0	ug/g dry	ND			NC	30	
Physical Characteristics									
% Solids	88.0	0.1	% by Wt.	89.4			1.6	25	
Semi-Volatiles									
Acenaphthene	0.025	0.02	ug/g dry	ND			NC	40	
Acenaphthylene	ND	0.02	ug/g dry	ND			NC	40	
Anthracene	0.056	0.02	ug/g dry	ND			NC	40	
Benzo [a] anthracene	0.090	0.02	ug/g dry	ND			NC	40	
Benzo [a] pyrene	0.072	0.02	ug/g dry	ND			NC	40	
Benzo [b] fluoranthene	0.051	0.02	ug/g dry	ND			NC	40	
Benzo [g,h,i] perylene	0.046	0.02	ug/g dry	ND			NC	40	
Benzo [k] fluoranthene	0.028	0.02	ug/g dry	ND			NC	40	
Chrysene	0.072	0.02	ug/g dry	ND			NC	40	
Dibenzo [a,h] anthracene	ND	0.02	ug/g dry	ND			NC	40	
Fluoranthene	0.246	0.02	ug/g dry	ND			NC	40	
Fluorene	0.023	0.02	ug/g dry	ND			NC	40	
Indeno [1,2,3-cd] pyrene	0.041	0.02	ug/g dry	ND			NC	40	
1-Methylnaphthalene	ND	0.02	ug/g dry	ND			NC	40	
2-Methylnaphthalene	ND	0.02	ug/g dry	ND			NC	40	
Naphthalene	ND	0.01	ug/g dry	ND			NC	40	
Phenanthrene	0.235	0.02	ug/g dry	ND			NC	40	
Pyrene	0.162	0.02	ug/g dry	ND			NC	40	
Surrogate: 2-Fluorobiphenyl	*0.161*		*ug/g dry*		*70.1*	*50-140*			
Surrogate: Terphenyl-d14	*0.164*		*ug/g dry*		*74.3*	*50-140*			
Volatiles									
Benzene	ND	0.02	ug/g dry	ND			NC	50	
Ethylbenzene	ND	0.05	ug/g dry	ND			NC	50	
Toluene	ND	0.05	ug/g dry	ND			NC	50	
m,p-Xylenes	ND	0.05	ug/g dry	ND			NC	50	
o-Xylene	ND	0.05	ug/g dry	ND			NC	50	

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Surrogate: Toluene-d8	*15.0*		*ug/g dry*		*108*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	62	7	ug/g	ND	88.2	80-120			
F2 PHCs (C10-C16)	69	4	ug/g	ND	78.5	60-140			
F3 PHCs (C16-C34)	163	8	ug/g	ND	82.4	60-140			
F4 PHCs (C34-C50)	104	6	ug/g	ND	72.8	60-140			
F4G-sg PHCs (gravimetric)	1040	50	ug/g	ND	104	80-120			
Metals									
Antimony	127	1.0	ug/g	ND	102	70-130			
Arsenic	125	1.0	ug/g	1.5	99.1	70-130			
Barium	128	1.0	ug/g	10.8	93.7	70-130			
Beryllium	117	0.5	ug/g	ND	93.9	70-130			
Boron	123	5.0	ug/g	5.7	93.8	70-130			
Cadmium	119	0.5	ug/g	ND	94.8	70-130			
Chromium	122	5.0	ug/g	ND	97.7	70-130			
Cobalt	117	1.0	ug/g	1.9	92.4	70-130			
Copper	123	5.0	ug/g	6.0	93.6	70-130			
Lead	116	1.0	ug/g	3.9	89.7	70-130			
Molybdenum	122	1.0	ug/g	ND	97.3	70-130			
Nickel	119	5.0	ug/g	ND	95.1	70-130			
Selenium	119	1.0	ug/g	ND	95.2	70-130			
Silver	111	0.3	ug/g	ND	88.8	70-130			
Thallium	113	1.0	ug/g	ND	90.4	70-130			
Uranium	117	1.0	ug/g	ND	93.6	70-130			
Vanadium	130	10.0	ug/g	10.8	95.5	70-130			
Zinc	137	20.0	ug/g	ND	110	70-130			
Semi-Volatiles									
Acenaphthene	0.096	0.02	ug/g	ND	78.9	50-140			
Acenaphthylene	0.104	0.02	ug/g	ND	85.9	50-140			
Anthracene	0.108	0.02	ug/g	ND	88.4	50-140			
Benzo [a] anthracene	0.106	0.02	ug/g	ND	87.1	50-140			
Benzo [a] pyrene	0.107	0.02	ug/g	ND	87.7	50-140			
Benzo [b] fluoranthene	0.083	0.02	ug/g	ND	68.1	50-140			
Benzo [g,h,i] perylene	0.085	0.02	ug/g	ND	70.2	50-140			
Benzo [k] fluoranthene	0.075	0.02	ug/g	ND	61.9	50-140			
Chrysene	0.092	0.02	ug/g	ND	75.4	50-140			
Dibenzo [a,h] anthracene	0.101	0.02	ug/g	ND	83.3	50-140			
Fluoranthene	0.115	0.02	ug/g	ND	94.6	50-140			
Fluorene	0.108	0.02	ug/g	ND	88.7	50-140			
Indeno [1,2,3-cd] pyrene	0.091	0.02	ug/g	ND	74.8	50-140			
1-Methylnaphthalene	0.098	0.02	ug/g	ND	80.7	50-140			
2-Methylnaphthalene	0.091	0.02	ug/g	ND	74.9	50-140			
Naphthalene	0.085	0.01	ug/g	ND	69.9	50-140			
Phenanthrene	0.100	0.02	ug/g	ND	82.1	50-140			
Pyrene	0.090	0.02	ug/g	ND	73.7	50-140			
Surrogate: 2-Fluorobiphenyl	*0.142*		*ug/g*		*68.3*	*50-140*			
Surrogate: Terphenyl-d14	*0.155*		*ug/g*		*77.6*	*50-140*			
Volatiles									
Benzene	4.11	0.02	ug/g	ND	102	60-130			
Ethylbenzene	3.91	0.05	ug/g	ND	97.3	60-130			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Toluene	4.05	0.05	ug/g	ND	101	60-130			
m,p-Xylenes	7.62	0.05	ug/g	ND	95.1	60-130			
o-Xylene	3.82	0.05	ug/g	ND	95.0	60-130			
Surrogate: Toluene-d8	*8.06*		*ug/g*		*100*	*50-140*			

Qualifier Notes:

Sample Qualifiers :

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable
ND: Not Detected
MDL: Method Detection Limit
Source Result: Data used as source for matrix and duplicate samples
%REC: Percent recovery.
RPD: Relative percent difference.
NC: Not Calculated

Soil results are reported on a dry weight basis when the units are denoted with 'dry'.
Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory. All prescribed quality criteria identified in the method has been met.
- F1 range corrected for BTEX.
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.
- In the case where F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC criteria.
- When reported, data for F4G has been processed using a silica gel cleanup.

PARACE LABORATORIES LT

Paracel ID: 2133120

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2133120	№ 58373

Client Name: Hallex Environmental Ltd.	Project Ref: E-21-36-2
Contact Name: Contact: Kevin Christian	Quote #: 20-876
Address: 4999 Victoria Ave. Niagara Falls, ON L2E 4C9	PO #:
Telephone: Ph: 905-988-8030	E-mail: kchristian@hallex.ca iglasier@hallex.ca

Page 1 of 1

Turnaround Time

☐ 1 day ☐ 3 day ☐ 2 day ☒ Regular

Date Required:

Regulation 153/04	Other Regulation
☐ Table 1 ☐ Res/Park ☐ Med/Fine	☐ REG 558 ☐ PWQO
☐ Table 2 ☐ Ind/Comm ☐ Coarse	☐ CCME ☐ MISA
☐ Table 3 ☐ Agri/Other	☐ SU - Sani ☐ SU - Storm
☐ Table	Mun:
For RSC: ☐ Yes ☐ No	☐ Other:

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHC (F1-F4) BTEX	PAH	metals (DW ICP)	pH	Grain Size texture							
1	B-TP1-1	S		3	Aug 9	9am	X	X	X									
2	B-TP 2			3			X	X	X	X								
3	B-TP 3			3			X	X	X	X								
4	B-TP 4			3			X	X	X									
5	B-TP 5			3			X	X	X									
6	B-TP 6			4			X	X	X		X							
7	B-TP 12			4			X	X	X		X							
8	B-TP 14			3			X	X	X	X								
9	B-DUP			2			X	X	X									
10																		

Comments:

Method of Delivery: D/O

Relinquished By (Sign):	Received By Driver/Depot: B. Barton (Niagara)	Received at Lab: AM	Verified By: DM
Relinquished By (Print):	Date/Time: Aug 10/21 8:55 am	Date/Time: 11/8/21 8:31	Date/Time: 11/8/21 9:20
Date/Time:	Temperature: 14° °C	Temperature: 9.6 °C	pH Verified: ☐ By:

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Certificate of Analysis

Hallex Environmental Ltd.

4999 Victoria Ave
Niagara Falls, ON L2E 4C9
Attn: Kevin Christian

Client PO:
Project: E-21-55-2
Custody:

Report Date: 21-Sep-2021
Order Date: 14-Sep-2021

Order #: 2138143

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
2138143-01	C-BH-4

Approved By:

Mark Foto, M.Sc.
Lab Supervisor

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
PCBs, total	SW846 8082A - GC-ECD	16-Sep-21	20-Sep-21
REG 558 - Cyanide	TCLP MOE E3015- Auto Colour	17-Sep-21	17-Sep-21
REG 558 - Fluoride	TCLP EPA 340.2 - ISE	17-Sep-21	17-Sep-21
REG 558 - Mercury by CVAA	TCLP EPA 7470A, CVAA	17-Sep-21	17-Sep-21
REG 558 - Metals, ICP-MS	TCLP EPA 6020 - Digestion - ICP-MS	17-Sep-21	17-Sep-21
REG 558 - NO3/NO2	TCLP EPA 300.1 - IC	17-Sep-21	17-Sep-21
REG 558 - VOCs	TCLP ZHE EPA 624 - P&T GC-MS	17-Sep-21	17-Sep-21
Solids, %	Gravimetric, calculation	16-Sep-21	16-Sep-21

Certificate of Analysis
Client: Hallex Environmental Ltd.
Client PO:

Report Date: 21-Sep-2021
Order Date: 14-Sep-2021
Project Description: E-21-55-2

Summary of Exceedances

(If this page is blank then there are no exceedances)

Only those criteria that a sample exceeds will be highlighted in red

Regulatory Comparison:

Paracel Laboratories has provided regulatory guidelines on this report for informational purposes only and makes no representations or warranties that the data is accurate or reflects the current regulatory values. The user is advised to consult with the appropriate official regulations to evaluate compliance. Sample results that are highlighted have exceeded the selected regulatory limit. Calculated uncertainty estimations have not been applied for determining regulatory exceedances. Regulatory limts displayed in brackets, (), applies to medium and fine textured soils.

Criteria:

Client ID	Analyte	MDL / Units	Result	Reg 558 Schedule 4

Certificate of Analysis

Client: **Hallex Environmental Ltd.**

Client PO:

Report Date: 21-Sep-2021

Order Date: 14-Sep-2021

Project Description: E-21-55-2

	Client ID:	C-BH-4	-	-	-	**Criteria:**		
	Sample Date:	20-Aug-2021	-	-	-			
	Sample ID:	2138143-01	-	-	-	**Reg 558 Schedule 4**		
	Matrix:	Soil	-	-	-			
	MDL/Units							
Physical Characteristics								
% Solids	0.1 % by Wt.	76.9	-	-	-			
EPA 1311 - TCLP Leachate Inorganics								
Fluoride	0.05 mg/L	0.18	-	-	-	150	mg/L	
Nitrate as N	1 mg/L	<1	-	-	-	1,000	mg/L	
Nitrite as N	1 mg/L	<1	-	-	-	1,000	mg/L	
Cyanide, free	0.02 mg/L	<0.02	-	-	-	20	mg/L	
EPA 1311 - TCLP Leachate Metals								
Arsenic	0.05 mg/L	<0.05	-	-	-	2.5	mg/L	
Barium	0.05 mg/L	1.12	-	-	-	100	mg/L	
Boron	0.05 mg/L	0.09	-	-	-	500	mg/L	
Cadmium	0.01 mg/L	0.02	-	-	-	0.5	mg/L	
Chromium	0.05 mg/L	<0.05	-	-	-	5	mg/L	
Lead	0.05 mg/L	0.52	-	-	-	5	mg/L	
Mercury	0.005 mg/L	<0.005	-	-	-	0.1	mg/L	
Selenium	0.05 mg/L	<0.05	-	-	-	1	mg/L	
Silver	0.05 mg/L	<0.05	-	-	-	5	mg/L	
Uranium	0.05 mg/L	<0.05	-	-	-	10	mg/L	
EPA 1311 - TCLP Leachate Volatiles								
Benzene	0.005 mg/L	<0.005	-	-	-	0.5	mg/L	
Carbon Tetrachloride	0.005 mg/L	<0.005	-	-	-	0.5	mg/L	
Chlorobenzene	0.004 mg/L	<0.004	-	-	-	8	mg/L	
Chloroform	0.006 mg/L	<0.006	-	-	-	10	mg/L	
1,2-Dichlorobenzene	0.004 mg/L	<0.004	-	-	-	20	mg/L	

Certificate of Analysis

Client: **Hallex Environmental Ltd.**

Client PO:

Report Date: 21-Sep-2021

Order Date: 14-Sep-2021

Project Description: E-21-55-2

		Client ID:	C-BH-4	-	-	-	**Criteria:**	
		Sample Date:	20-Aug-2021	-	-	-		
		Sample ID:	2138143-01	-	-	-	**Reg 558 Schedule 4**	
		Matrix:	Soil	-	-	-		
	MDL/Units							
1,4-Dichlorobenzene	0.004 mg/L		<0.004	-	-	-	0.5	mg/L
1,2-Dichloroethane	0.005 mg/L		<0.005	-	-	-	0.5	mg/L
1,1-Dichloroethylene	0.006 mg/L		<0.006	-	-	-	1.4	mg/L
Methyl Ethyl Ketone (2-Butanone)	0.30 mg/L		<0.30	-	-	-	200	mg/L
Methylene Chloride	0.04 mg/L		<0.04	-	-	-	5	mg/L
Tetrachloroethylene	0.005 mg/L		<0.005	-	-	-	3	mg/L
Trichloroethylene	0.004 mg/L		<0.004	-	-	-	5	mg/L
Vinyl chloride	0.005 mg/L		<0.005	-	-	-	0.2	mg/L
4-Bromofluorobenzene	Surrogate		97.8%	-	-	-		
Dibromofluoromethane	Surrogate		90.3%	-	-	-		
Toluene-d8	Surrogate		79.5%	-	-	-		
PCBs								
PCBs, total	0.05 ug/g		<0.05	-	-	-		
Decachlorobiphenyl	Surrogate		114%	-	-	-		

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
EPA 1311 - TCLP Leachate Inorganics									
Fluoride	ND	0.05	mg/L						
Nitrate as N	ND	1	mg/L						
Nitrite as N	ND	1	mg/L						
Cyanide, free	ND	0.02	mg/L						
EPA 1311 - TCLP Leachate Metals									
Arsenic	ND	0.05	mg/L						
Barium	ND	0.05	mg/L						
Boron	ND	0.05	mg/L						
Cadmium	ND	0.01	mg/L						
Chromium	ND	0.05	mg/L						
Lead	ND	0.05	mg/L						
Mercury	ND	0.005	mg/L						
Selenium	ND	0.05	mg/L						
Silver	ND	0.05	mg/L						
Uranium	ND	0.05	mg/L						
EPA 1311 - TCLP Leachate Volatiles									
Benzene	ND	0.005	mg/L						
Carbon Tetrachloride	ND	0.005	mg/L						
Chlorobenzene	ND	0.004	mg/L						
Chloroform	ND	0.006	mg/L						
1,2-Dichlorobenzene	ND	0.004	mg/L						
1,4-Dichlorobenzene	ND	0.004	mg/L						
1,2-Dichloroethane	ND	0.005	mg/L						
1,1-Dichloroethylene	ND	0.006	mg/L						
Methyl Ethyl Ketone (2-Butanone)	ND	0.30	mg/L						
Methylene Chloride	ND	0.04	mg/L						
Tetrachloroethylene	ND	0.005	mg/L						
Trichloroethylene	ND	0.004	mg/L						
Vinyl chloride	ND	0.005	mg/L						
Surrogate: 4-Bromofluorobenzene	*0.760*		*mg/L*		*110*	*83-134*			
Surrogate: Dibromofluoromethane	*0.683*		*mg/L*		*99.2*	*78-124*			
Surrogate: Toluene-d8	*0.762*		*mg/L*		*111*	*76-118*			
PCBs									
PCBs, total	ND	0.05	ug/g						
Surrogate: Decachlorobiphenyl	*0.113*		*ug/g*		*113*	*60-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
EPA 1311 - TCLP Leachate Inorganics									
Fluoride	0.18	0.05	mg/L	0.18			0.3	20	
Nitrate as N	ND	1	mg/L	ND			NC	20	
Nitrite as N	ND	1	mg/L	ND			NC	20	
Cyanide, free	ND	0.02	mg/L	ND			NC	20	
EPA 1311 - TCLP Leachate Metals									
Arsenic	ND	0.05	mg/L	ND			NC	29	
Barium	1.05	0.05	mg/L	1.12			6.2	34	
Boron	0.084	0.05	mg/L	0.092			8.5	33	
Cadmium	0.020	0.01	mg/L	0.021			6.7	33	
Chromium	ND	0.05	mg/L	ND			NC	32	
Lead	0.468	0.05	mg/L	0.517			10.0	32	
Mercury	ND	0.005	mg/L	ND			NC	30	
Selenium	ND	0.05	mg/L	ND			NC	28	
Silver	ND	0.05	mg/L	ND			NC	28	
Uranium	ND	0.05	mg/L	ND			NC	27	
EPA 1311 - TCLP Leachate Volatiles									
Benzene	ND	0.005	mg/L	ND			NC	25	
Carbon Tetrachloride	ND	0.005	mg/L	ND			NC	25	
Chlorobenzene	ND	0.004	mg/L	ND			NC	25	
Chloroform	ND	0.006	mg/L	ND			NC	25	
1,2-Dichlorobenzene	ND	0.004	mg/L	ND			NC	25	
1,4-Dichlorobenzene	ND	0.004	mg/L	ND			NC	25	
1,2-Dichloroethane	ND	0.005	mg/L	ND			NC	25	
1,1-Dichloroethylene	ND	0.006	mg/L	ND			NC	25	
Methyl Ethyl Ketone (2-Butanone)	ND	0.30	mg/L	ND			NC	25	
Methylene Chloride	ND	0.04	mg/L	ND			NC	25	
Tetrachloroethylene	ND	0.005	mg/L	ND			NC	25	
Trichloroethylene	ND	0.004	mg/L	ND			NC	25	
Vinyl chloride	ND	0.005	mg/L	ND			NC	25	
Surrogate: 4-Bromofluorobenzene	*0.784*		mg/L		*114*	*83-134*			
Surrogate: Dibromofluoromethane	*0.704*		mg/L		*102*	*78-124*			
Surrogate: Toluene-d8	*0.673*		mg/L		*97.8*	*76-118*			
PCBs									
PCBs, total	ND	0.05	ug/g	ND			NC	40	
Surrogate: Decachlorobiphenyl	*0.165*		ug/g		*127*	*60-140*			
Physical Characteristics									
% Solids	90.4	0.1	% by Wt.	92.4			2.2	25	

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
EPA 1311 - TCLP Leachate Inorganics									
Fluoride	0.74	0.05	mg/L	0.18	112	70-130			
Nitrate as N	10	1	mg/L	ND	101	81-112			
Nitrite as N	10	1	mg/L	ND	101	76-107			
Cyanide, free	0.053	0.02	mg/L	ND	106	60-136			
EPA 1311 - TCLP Leachate Metals									
Arsenic	57.3	0.05	mg/L	0.450	114	83-119			
Barium	167	0.05	mg/L	112	111	80-120			
Boron	57.5	0.05	mg/L	9.20	96.6	71-128			
Cadmium	51.7	0.01	mg/L	2.12	99.2	78-119			
Chromium	56.8	0.05	mg/L	0.199	113	80-124			
Lead	101	0.05	mg/L	51.7	99.0	77-126			
Mercury	0.0341	0.005	mg/L	ND	114	70-130			
Selenium	47.9	0.05	mg/L	0.194	95.4	75-125			
Silver	50.9	0.05	mg/L	ND	102	70-128			
Uranium	54.4	0.05	mg/L	0.116	109	70-131			
EPA 1311 - TCLP Leachate Volatiles									
Benzene	0.358	0.005	mg/L	ND	104	55-141			
Carbon Tetrachloride	0.302	0.005	mg/L	ND	87.8	49-149			
Chlorobenzene	0.324	0.004	mg/L	ND	94.2	64-137			
Chloroform	0.341	0.006	mg/L	ND	99.2	58-138			
1,2-Dichlorobenzene	0.331	0.004	mg/L	ND	96.1	60-150			
1,4-Dichlorobenzene	0.333	0.004	mg/L	ND	96.8	63-132			
1,2-Dichloroethane	0.342	0.005	mg/L	ND	99.4	50-140			
1,1-Dichloroethylene	0.364	0.006	mg/L	ND	106	43-153			
Methyl Ethyl Ketone (2-Butanone)	0.938	0.30	mg/L	ND	109	26-153			
Methylene Chloride	0.301	0.04	mg/L	ND	87.5	58-149			
Tetrachloroethylene	0.390	0.005	mg/L	ND	114	51-145			
Trichloroethylene	0.389	0.004	mg/L	ND	113	52-135			
Vinyl chloride	0.321	0.005	mg/L	ND	93.3	31-159			
Surrogate: 4-Bromofluorobenzene	*0.646*		*mg/L*		*94.0*	*83-134*			
Surrogate: Dibromofluoromethane	*0.650*		*mg/L*		*94.5*	*78-124*			
Surrogate: Toluene-d8	*0.686*		*mg/L*		*99.6*	*76-118*			
PCBs									

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
PCBs, total	0.580	0.05	ug/g	ND	112	60-140			
Surrogate: Decachlorobiphenyl	*0.155*		*ug/g*		*119*	*60-140*			

PARACEL LABORATORIES LTD.

Order #: 2138143

Certificate of Analysis

Client: Hallex Environmental Ltd.

Client PO:

Report Date: 21-Sep-2021

Order Date: 14-Sep-2021

Project Description: E-21-55-2

Qualifier Notes:

Login Qualifiers :

Sample - One or more parameter received past hold time - Cyanide, VOCs.

Applies to samples: C-BH-4

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable
ND: Not Detected
MDL: Method Detection Limit
Source Result: Data used as source for matrix and duplicate samples
%REC: Percent recovery.
RPD: Relative percent difference.
NC: Not Calculated

Soil/Solid results are reported on a dry weight basis unless otherwise indicated
Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

PARACEL LABORATORIES LTD.

Paracel ID: 2138143

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2138143	

Client Name: Hallex Environmental	Project Ref: E-21-55-2	Page 1 of 1	
Contact Name: Kevin Christian	Quote #:	Turnaround Time	
Address: 4999 Victoria Avenue, Niagara Falls, ON	PO #:	☐ 1 day	☐ 3 day
	E-mail: nmetz@hallex.ca	☐ 2 day	☒ Regular
Telephone: 905-988-8030	kchristian@hallex.ca	Date Required:	

Regulation 153/04	Other Regulation
☐ Table 1 ☐ Res/Park ☐ Med/Fine	☐ REG 558 ☐ PWQO
☐ Table 2 ☐ Ind/Comm ☐ Coarse	☐ CCME ☐ MISA
☐ Table 3 ☐ Agri/Other	☐ SU - Sani ☐ SU - Storm
☐ Table ___	Mun:
For RSC: ☐ Yes ☐ No	☐ Other:

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	Walkers TCLP					
							Required Analysis												
1	C-BH-4				20/8/21		☐	☐	☐	☐	☐	☐	☐	✓	☐	☐	☐	☐	☐
2							☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
3							☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
4							☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5							☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
6							☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
7							☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
8							☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
9							☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
10							☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Comments: If there is not enough sample from C-BH-4 then please use BH-5 or BH-6 as a composite sample

Method of Delivery: via email

Relinquished By (Sign):	Received By Driver/Depot: AM	Received at Lab:
Relinquished By (Print): Nicole Metz	Date/Time: 14/9/21 9:40	Date/Time: 10:50 Sept 15 2021
Date/Time: Sept. 14, 2021	Temperature: 8.8 °C	Temperature: 7.5 °C
		Verified By:
		Date/Time: 10:50 Sept 15 2021
		pH Verified: ☐ By:

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Certificate of Analysis

Hallex Environmental Ltd.

4999 Victoria Ave
Niagara Falls, ON L2E 4C9
Attn: Kevin Christian

Client PO:
Project: E-21-55-2
Custody: 58046

Report Date: 24-Sep-2021
Order Date: 6-Aug-2021

Order #: 2139114

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
2139114-02	C-BH-2-2
2139114-04	C-BH-3-2

Approved By:

Alex Enfield, MSc
Lab Manager

Certificate of Analysis

Client: Hallex Environmental Ltd.

Client PO:

Report Date: 24-Sep-2021

Order Date: 6-Aug-2021

Project Description: E-21-55-2

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
pH, soil	EPA 150.1 - pH probe @ 25 °C, CaCl buffered ext.	22-Sep-21	22-Sep-21
Solids, %	Gravimetric, calculation	23-Sep-21	24-Sep-21

Certificate of Analysis

Client: **Hallex Environmental Ltd.**

Client PO:

Report Date: 24-Sep-2021

Order Date: 6-Aug-2021

Project Description: E-21-55-2

	Client ID:	C-BH-2-2	C-BH-3-2	-	-
	Sample Date:	05-Aug-21 13:00	05-Aug-21 13:00	-	-
	Sample ID:	2139114-02	2139114-04	-	-
	MDL/Units	Soil	Soil	-	-
Physical Characteristics					
% Solids	0.1 % by Wt.	83.9	86.9	-	-
General Inorganics					
pH	0.05 pH Units	7.54 [1]	7.51 [1]	-	-

Certificate of Analysis

Client: Hallex Environmental Ltd.

Client PO:

Report Date: 24-Sep-2021

Order Date: 6-Aug-2021

Project Description: E-21-55-2

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
pH	7.64	0.05	pH Units	7.61			0.4	10	
Physical Characteristics									
% Solids	94.1	0.1	% by Wt.	94.6			0.5	25	

Qualifier Notes:

Sample Qualifiers :

1 : This analysis was conducted after the accepted holding time had been exceeded.

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable
ND: Not Detected
MDL: Method Detection Limit
Source Result: Data used as source for matrix and duplicate samples
%REC: Percent recovery.
RPD: Relative percent difference.
NC: Not Calculated

Soil results are reported on a dry weight basis when the units are denoted with 'dry'.
Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

PARACEL LABORATORIES LTD.

Paracel ID: 2139114

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2139114	

Client Name: Hallex Environmental	Project Ref: E-21-55-2	Page 1 of 1
Contact Name: Kevin Christian	Quote #:	
Address: 4999 Victoria Avenue, Niagara Falls, ON	PO #:	Turnaround Time: ☐ 1 day ☐ 3 day ☐ 2 day ☒ Regular
Telephone: 905-988-8030	E-mail: nmetz@hallex.ca, kchristian@hallex.ca	Date Required:

Regulation 153/04: ☐ Table 1 ☐ Res/Park ☐ Med/Fine ☐ Table 2 ☐ Ind/Comm ☐ Coarse ☐ Table 3 ☐ Agri/Other ☐ Table — For RSC: ☐ Yes ☐ No

Other Regulation: ☐ REG 558 ☐ PWQO ☐ CCME ☐ MISA ☐ SU - Sani ☐ SU - Storm ☐ Mun: ☐ Other:

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken: Date	Sample Taken: Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	pH
1	~~C-BH-1-1~~	S		1	August 5, 2021	1pm								✓
2	C-BH-2-2	S		1	August 5, 2021	1pm								✓
3	~~C-BH-3-1~~	S		1	August 5, 2021	1PM								✓
4	C-BH-3-2	S		1	August 5, 2021	1PM								✓
5														
6														
7														
8														
9														
10														

Comments: ~~If there is not enough sample from C-BH-1 then please use BH-3 or BH-6 as a composite sample~~ Original Submission 2132457

Method of Delivery: Email additional

Relinquished By (Sign):	Received By Driver/Depot:	Received at Lab:	Verified By:
Relinquished By (Print): Nicole Metz	Date/Time:	Date/Time:	Date/Time:
Date/Time: September 18, 2021	Temperature: °C	Temperature: °C	pH Verified: ☐ By:

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Certificate of Analysis

Hallex Environmental Ltd.

4999 Victoria Ave
Niagara Falls, ON L2E 4C9
Attn: Kevin Christian

Client PO:
Project: E-21-55-2
Custody: 58046

Report Date: 12-Aug-2021
Order Date: 6-Aug-2021

Order #: 2132457

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID	Paracel ID	Client ID
2132457-01	C-BH1-1		
2132457-02	C-BH2-1		
2132457-03	C-BH3-1		

Approved By:

Alex Enfield, MSc
Lab Manager

Certificate of Analysis

Client: Hallex Environmental Ltd.

Client PO:

Report Date: 12-Aug-2021

Order Date: 6-Aug-2021

Project Description: E-21-55-2

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
PHC F1	CWS Tier 1 - P&T GC-FID	6-Aug-21	9-Aug-21
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	6-Aug-21	11-Aug-21
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	9-Aug-21	9-Aug-21
REG 153: PAHs by GC-MS	EPA 8270 - GC-MS, extraction	9-Aug-21	11-Aug-21
REG 153: VOCs by P&T GC-MS	EPA 8260 - P&T GC-MS	6-Aug-21	9-Aug-21
Solids, %	Gravimetric, calculation	10-Aug-21	11-Aug-21
Texture - Coarse Med/Fine	Based on ASTM D2487	9-Aug-21	10-Aug-21

Certificate of Analysis
Client: Hallex Environmental Ltd.
Client PO:

Report Date: 12-Aug-2021
Order Date: 6-Aug-2021
Project Description: E-21-55-2

Summary of Exceedances

(If this page is blank then there are no exceedances)

Only those criteria that a sample exceeds will be highlighted in red

Regulatory Comparison:

Paracel Laboratories has provided regulatory guidelines on this report for informational purposes only and makes no representations or warranties that the data is accurate or reflects the current regulatory values. The user is advised to consult with the appropriate official regulations to evaluate compliance. Sample results that are highlighted have exceeded the selected regulatory limit. Calculated uncertainty estimations have not been applied for determining regulatory exceedances. Regulatory limts displayed in brackets, (), applies to medium and fine textured soils.

Criteria:

Client ID	Analyte	MDL / Units	Result	Reg 153/04 (2011)-Table 2 Residential

Certificate of Analysis

Client: **Hallex Environmental Ltd.**

Client PO:

Report Date: 12-Aug-2021

Order Date: 6-Aug-2021

Project Description: E-21-55-2

	Client ID:	C-BH1-1	C-BH2-1	C-BH3-1	-	Criteria:	
	Sample Date:	05-Aug-2021	05-Aug-2021	05-Aug-2021	-		
	Sample ID:	2132457-01	2132457-02	2132457-03	-	Reg 153/04 (2011)-Table 2 Residential	
	Matrix:	Soil	Soil	Soil	-		
	MDL/Units						
Physical Characteristics							
% Solids	0.1 % by Wt.	84.2	84.0	86.4	-		
>75 um	0.1 %	-	35.8	-	-		
<75 um	0.1 %	-	64.2	-	-		
Texture	0.1 %	-	Med/Fine	-	-		
Metals							
Antimony	1.0 ug/g	<1.0	<1.0	<1.0	-	(7.5) 7.5	ug/g
Arsenic	1.0 ug/g	2.6	3.8	4.1	-	(18) 18	ug/g
Barium	1.0 ug/g	40.6	70.2	66.9	-	(390) 390	ug/g
Beryllium	0.5 ug/g	<0.5	<0.5	<0.5	-	(5) 4	ug/g
Boron	5.0 ug/g	<5.0	8.1	6.5	-	(120) 120	ug/g
Cadmium	0.5 ug/g	<0.5	<0.5	0.6	-	(1.2) 1.2	ug/g
Chromium	5.0 ug/g	8.3	11.5	13.5	-	(160) 160	ug/g
Cobalt	1.0 ug/g	6.5	5.4	6.0	-	(22) 22	ug/g
Copper	5.0 ug/g	10.1	19.0	22.1	-	(180) 140	ug/g
Lead	1.0 ug/g	12.5	29.3	69.5	-	(120) 120	ug/g
Molybdenum	1.0 ug/g	<1.0	<1.0	<1.0	-	(6.9) 6.9	ug/g
Nickel	5.0 ug/g	7.0	8.5	13.5	-	(130) 100	ug/g
Selenium	1.0 ug/g	<1.0	<1.0	<1.0	-	(2.4) 2.4	ug/g
Silver	0.3 ug/g	<0.3	<0.3	<0.3	-	(25) 20	ug/g
Thallium	1.0 ug/g	<1.0	<1.0	<1.0	-	(1) 1	ug/g
Uranium	1.0 ug/g	<1.0	<1.0	<1.0	-	(23) 23	ug/g
Vanadium	10.0 ug/g	20.4	25.6	25.8	-	(86) 86	ug/g
Zinc	20.0 ug/g	125	79.3	125	-	(340) 340	ug/g

Certificate of Analysis

Client: **Hallex Environmental Ltd.**

Client PO:

Report Date: 12-Aug-2021

Order Date: 6-Aug-2021

Project Description: E-21-55-2

	Client ID:	C-BH1-1	C-BH2-1	C-BH3-1	-	Criteria:	
	Sample Date:	05-Aug-2021	05-Aug-2021	05-Aug-2021	-		
	Sample ID:	2132457-01	2132457-02	2132457-03	-	Reg 153/04 (2011)-Table 2 Residential	
	Matrix:	Soil	Soil	Soil	-		
	MDL/Units						
Volatiles							
Acetone	0.50 ug/g	<0.50	<0.50	<0.50	-	(28) 16	ug/g
Benzene	0.02 ug/g	<0.02	<0.02	<0.02	-	(0.17) 0.21	ug/g
Bromodichloromethane	0.05 ug/g	<0.05	<0.05	<0.05	-	(1.9) 1.5	ug/g
Bromoform	0.05 ug/g	<0.05	<0.05	<0.05	-	(0.26) 0.27	ug/g
Bromomethane	0.05 ug/g	<0.05	<0.05	<0.05	-	(0.05) 0.05	ug/g
Carbon Tetrachloride	0.05 ug/g	<0.05	<0.05	<0.05	-	(0.12) 0.05	ug/g
Chlorobenzene	0.05 ug/g	<0.05	<0.05	<0.05	-	(2.7) 2.4	ug/g
Chloroform	0.05 ug/g	<0.05	<0.05	<0.05	-	(0.18) 0.05	ug/g
Dibromochloromethane	0.05 ug/g	<0.05	<0.05	<0.05	-	(2.9) 2.3	ug/g
Dichlorodifluoromethane	0.05 ug/g	<0.05	<0.05	<0.05	-	(25) 16	ug/g
1,2-Dichlorobenzene	0.05 ug/g	<0.05	<0.05	<0.05	-	(1.7) 1.2	ug/g
1,3-Dichlorobenzene	0.05 ug/g	<0.05	<0.05	<0.05	-	(6) 4.8	ug/g
1,4-Dichlorobenzene	0.05 ug/g	<0.05	<0.05	<0.05	-	(0.097) 0.083	ug/g
1,1-Dichloroethane	0.05 ug/g	<0.05	<0.05	<0.05	-	(0.6) 0.47	ug/g
1,2-Dichloroethane	0.05 ug/g	<0.05	<0.05	<0.05	-	(0.05) 0.05	ug/g
1,1-Dichloroethylene	0.05 ug/g	<0.05	<0.05	<0.05	-	(0.05) 0.05	ug/g
cis-1,2-Dichloroethylene	0.05 ug/g	<0.05	<0.05	<0.05	-	(2.5) 1.9	ug/g
trans-1,2-Dichloroethylene	0.05 ug/g	<0.05	<0.05	<0.05	-	(0.75) 0.084	ug/g
1,2-Dichloropropane	0.05 ug/g	<0.05	<0.05	<0.05	-	(0.085) 0.05	ug/g
cis-1,3-Dichloropropylene	0.05 ug/g	<0.05	<0.05	<0.05	-		
trans-1,3-Dichloropropylene	0.05 ug/g	<0.05	<0.05	<0.05	-		
1,3-Dichloropropene, total	0.05 ug/g	<0.05	<0.05	<0.05	-	(0.081) 0.05	ug/g
Ethylbenzene	0.05 ug/g	<0.05	<0.05	<0.05	-	(1.6) 1.1	ug/g

Certificate of Analysis

Client: **Hallex Environmental Ltd.**

Client PO:

Report Date: 12-Aug-2021

Order Date: 6-Aug-2021

Project Description: E-21-55-2

	Client ID:	C-BH1-1	C-BH2-1	C-BH3-1	-	Criteria:	
	Sample Date:	05-Aug-2021	05-Aug-2021	05-Aug-2021	-		
	Sample ID:	2132457-01	2132457-02	2132457-03	-	Reg 153/04 (2011)-Table 2 Residential	
	Matrix:	Soil	Soil	Soil	-		
	MDL/Units						
Ethylene dibromide (dibromoethane	0.05 ug/g	<0.05	<0.05	<0.05	-	(0.05) 0.05	ug/g
Hexane	0.05 ug/g	<0.05	<0.05	<0.05	-	(34) 2.8	ug/g
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g	<0.50	<0.50	<0.50	-	(44) 16	ug/g
Methyl Isobutyl Ketone	0.50 ug/g	<0.50	<0.50	<0.50	-	(4.3) 1.7	ug/g
Methyl tert-butyl ether	0.05 ug/g	<0.05	<0.05	<0.05	-	(1.4) 0.75	ug/g
Methylene Chloride	0.05 ug/g	<0.05	<0.05	<0.05	-	(0.96) 0.1	ug/g
Styrene	0.05 ug/g	<0.05	<0.05	<0.05	-	(2.2) 0.7	ug/g
1,1,1,2-Tetrachloroethane	0.05 ug/g	<0.05	<0.05	<0.05	-	(0.05) 0.058	ug/g
1,1,2,2-Tetrachloroethane	0.05 ug/g	<0.05	<0.05	<0.05	-	(0.05) 0.05	ug/g
Tetrachloroethylene	0.05 ug/g	<0.05	<0.05	<0.05	-	(2.3) 0.28	ug/g
Toluene	0.05 ug/g	<0.05	<0.05	<0.05	-	(6) 2.3	ug/g
1,1,1-Trichloroethane	0.05 ug/g	<0.05	<0.05	<0.05	-	(3.4) 0.38	ug/g
1,1,2-Trichloroethane	0.05 ug/g	<0.05	<0.05	<0.05	-	(0.05) 0.05	ug/g
Trichloroethylene	0.05 ug/g	<0.05	<0.05	<0.05	-	(0.52) 0.061	ug/g
Trichlorofluoromethane	0.05 ug/g	<0.05	<0.05	<0.05	-	(5.8) 4	ug/g
Vinyl chloride	0.02 ug/g	<0.02	<0.02	<0.02	-	(0.022) 0.02	ug/g
m,p-Xylenes	0.05 ug/g	<0.05	<0.05	<0.05	-		
o-Xylene	0.05 ug/g	<0.05	<0.05	<0.05	-		
Xylenes, total	0.05 ug/g	<0.05	<0.05	<0.05	-	(25) 3.1	ug/g
4-Bromofluorobenzene	Surrogate	105%	104%	106%	-		
Dibromofluoromethane	Surrogate	87.7%	87.0%	85.4%	-		
Toluene-d8	Surrogate	108%	108%	108%	-		
Hydrocarbons							
F1 PHCs (C6-C10)	7 ug/g	<7	<7	<7	-	(65) 55	ug/g

Certificate of Analysis

Client: **Hallex Environmental Ltd.**

Client PO:

Report Date: 12-Aug-2021

Order Date: 6-Aug-2021

Project Description: E-21-55-2

		Client ID:	C-BH1-1	C-BH2-1	C-BH3-1	-	**Criteria:**	
		Sample Date:	05-Aug-2021	05-Aug-2021	05-Aug-2021	-		
		Sample ID:	2132457-01	2132457-02	2132457-03	-	**Reg 153/04 (2011)-Table 2 Residential**	
		Matrix:	Soil	Soil	Soil	-		
	MDL/Units							
F2 PHCs (C10-C16)	4 ug/g		<4	8	8	-	(150) 98	ug/g
F3 PHCs (C16-C34)	8 ug/g		10	27	21	-	(1,300) 300	ug/g
F4 PHCs (C34-C50)	6 ug/g		<6	<6	<6	-	(5,600) 2,800	ug/g
Semi-Volatiles								
Acenaphthene	0.02 ug/g		<0.02	<0.02	<0.02	-	(29) 7.9	ug/g
Acenaphthylene	0.02 ug/g		<0.02	<0.02	<0.02	-	(0.17) 0.15	ug/g
Anthracene	0.02 ug/g		<0.02	<0.02	<0.02	-	(0.74) 0.67	ug/g
Benzo [a] anthracene	0.02 ug/g		<0.02	<0.02	<0.02	-	(0.63) 0.5	ug/g
Benzo [a] pyrene	0.02 ug/g		<0.02	<0.02	0.02	-	(0.3) 0.3	ug/g
Benzo [b] fluoranthene	0.02 ug/g		<0.02	<0.02	<0.02	-	(0.78) 0.78	ug/g
Benzo [g,h,i] perylene	0.02 ug/g		<0.02	<0.02	0.03	-	(7.8) 6.6	ug/g
Benzo [k] fluoranthene	0.02 ug/g		<0.02	<0.02	<0.02	-	(0.78) 0.78	ug/g
Chrysene	0.02 ug/g		<0.02	<0.02	<0.02	-	(7.8) 7	ug/g
Dibenzo [a,h] anthracene	0.02 ug/g		<0.02	<0.02	<0.02	-	(0.1) 0.1	ug/g
Fluoranthene	0.02 ug/g		<0.02	<0.02	0.04	-	(0.69) 0.69	ug/g
Fluorene	0.02 ug/g		<0.02	<0.02	<0.02	-	(69) 62	ug/g
Indeno [1,2,3-cd] pyrene	0.02 ug/g		<0.02	<0.02	0.03	-	(0.48) 0.38	ug/g
1-Methylnaphthalene	0.02 ug/g		<0.02	<0.02	<0.02	-	(3.4) 0.99	ug/g
2-Methylnaphthalene	0.02 ug/g		<0.02	0.02	<0.02	-	(3.4) 0.99	ug/g
Methylnaphthalene (1&2)	0.03 ug/g		<0.03	<0.03	<0.03	-	(3.4) 0.99	ug/g
Naphthalene	0.01 ug/g		<0.01	<0.01	<0.01	-	(0.75) 0.6	ug/g
Phenanthrene	0.02 ug/g		<0.02	<0.02	0.03	-	(7.8) 6.2	ug/g
Pyrene	0.02 ug/g		<0.02	<0.02	0.03	-	(78) 78	ug/g
2-Fluorobiphenyl	Surrogate		76.1%	83.2%	84.7%	-		

Certificate of Analysis

Client: **Hallex Environmental Ltd.**

Client PO:

Report Date: 12-Aug-2021

Order Date: 6-Aug-2021

Project Description: E-21-55-2

	Client ID:	C-BH1-1	C-BH2-1	C-BH3-1	-	
	Sample Date:	05-Aug-2021	05-Aug-2021	05-Aug-2021	-	**Criteria:**
	Sample ID:	2132457-01	2132457-02	2132457-03	-	**Reg 153/04 (2011)-Table 2 Residential**
	Matrix:	Soil	Soil	Soil	-	
	MDL/Units					
Terphenyl-d14	Surrogate	80.4%	81.7%	77.5%	-	

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g						
F2 PHCs (C10-C16)	ND	4	ug/g						
F3 PHCs (C16-C34)	ND	8	ug/g						
F4 PHCs (C34-C50)	ND	6	ug/g						
Metals									
Antimony	ND	1.0	ug/g						
Arsenic	ND	1.0	ug/g						
Barium	ND	1.0	ug/g						
Beryllium	ND	0.5	ug/g						
Boron	ND	5.0	ug/g						
Cadmium	ND	0.5	ug/g						
Chromium	ND	5.0	ug/g						
Cobalt	ND	1.0	ug/g						
Copper	ND	5.0	ug/g						
Lead	ND	1.0	ug/g						
Molybdenum	ND	1.0	ug/g						
Nickel	ND	5.0	ug/g						
Selenium	ND	1.0	ug/g						
Silver	ND	0.3	ug/g						
Thallium	ND	1.0	ug/g						
Uranium	ND	1.0	ug/g						
Vanadium	ND	10.0	ug/g						
Zinc	ND	20.0	ug/g						
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g						
Acenaphthylene	ND	0.02	ug/g						
Anthracene	ND	0.02	ug/g						
Benzo [a] anthracene	ND	0.02	ug/g						
Benzo [a] pyrene	ND	0.02	ug/g						
Benzo [b] fluoranthene	ND	0.02	ug/g						
Benzo [g,h,i] perylene	ND	0.02	ug/g						
Benzo [k] fluoranthene	ND	0.02	ug/g						
Chrysene	ND	0.02	ug/g						
Dibenzo [a,h] anthracene	ND	0.02	ug/g						
Fluoranthene	ND	0.02	ug/g						
Fluorene	ND	0.02	ug/g						
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g						
1-Methylnaphthalene	ND	0.02	ug/g						
2-Methylnaphthalene	ND	0.02	ug/g						
Methylnaphthalene (1&2)	ND	0.03	ug/g						

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Naphthalene	ND	0.01	ug/g						
Phenanthrene	ND	0.02	ug/g						
Pyrene	ND	0.02	ug/g						
Surrogate: 2-Fluorobiphenyl	*0.158*		*ug/g*		*75.8*	*50-140*			
Surrogate: Terphenyl-d14	*0.171*		*ug/g*		*85.6*	*50-140*			
Volatiles									
Acetone	ND	0.50	ug/g						
Benzene	ND	0.02	ug/g						
Bromodichloromethane	ND	0.05	ug/g						
Bromoform	ND	0.05	ug/g						
Bromomethane	ND	0.05	ug/g						
Carbon Tetrachloride	ND	0.05	ug/g						
Chlorobenzene	ND	0.05	ug/g						
Chloroform	ND	0.05	ug/g						
Dibromochloromethane	ND	0.05	ug/g						
Dichlorodifluoromethane	ND	0.05	ug/g						
1,2-Dichlorobenzene	ND	0.05	ug/g						
1,3-Dichlorobenzene	ND	0.05	ug/g						
1,4-Dichlorobenzene	ND	0.05	ug/g						
1,1-Dichloroethane	ND	0.05	ug/g						
1,2-Dichloroethane	ND	0.05	ug/g						
1,1-Dichloroethylene	ND	0.05	ug/g						
cis-1,2-Dichloroethylene	ND	0.05	ug/g						
trans-1,2-Dichloroethylene	ND	0.05	ug/g						
1,2-Dichloropropane	ND	0.05	ug/g						
cis-1,3-Dichloropropylene	ND	0.05	ug/g						
trans-1,3-Dichloropropylene	ND	0.05	ug/g						
1,3-Dichloropropene, total	ND	0.05	ug/g						
Ethylbenzene	ND	0.05	ug/g						
Ethylene dibromide (dibromoethane, 1,2·	ND	0.05	ug/g						
Hexane	ND	0.05	ug/g						
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g						
Methyl Isobutyl Ketone	ND	0.50	ug/g						
Methyl tert-butyl ether	ND	0.05	ug/g						
Methylene Chloride	ND	0.05	ug/g						
Styrene	ND	0.05	ug/g						
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g						
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g						
Tetrachloroethylene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
1,1,1-Trichloroethane	ND	0.05	ug/g						
1,1,2-Trichloroethane	ND	0.05	ug/g						

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Trichloroethylene	ND	0.05	ug/g						
Trichlorofluoromethane	ND	0.05	ug/g						
Vinyl chloride	ND	0.02	ug/g						
m,p-Xylenes	ND	0.05	ug/g						
o-Xylene	ND	0.05	ug/g						
Xylenes, total	ND	0.05	ug/g						
Surrogate: 4-Bromofluorobenzene	*8.75*		*ug/g*		*109*	*50-140*			
Surrogate: Dibromofluoromethane	*6.65*		*ug/g*		*82.5*	*50-140*			
Surrogate: Toluene-d8	*8.75*		*ug/g*		*109*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g	ND			NC	40	
F2 PHCs (C10-C16)	ND	4	ug/g	4			NC	30	
F3 PHCs (C16-C34)	273	8	ug/g	331			19.2	30	
F4 PHCs (C34-C50)	187	6	ug/g	176			5.9	30	
Metals									
Antimony	ND	1.0	ug/g	ND			NC	30	
Arsenic	3.4	1.0	ug/g	3.0			11.4	30	
Barium	58.4	1.0	ug/g	57.9			0.9	30	
Beryllium	ND	0.5	ug/g	ND			NC	30	
Boron	10.6	5.0	ug/g	7.3			NC	30	
Cadmium	ND	0.5	ug/g	ND			NC	30	
Chromium	14.7	5.0	ug/g	11.6			23.2	30	
Cobalt	3.1	1.0	ug/g	3.0			3.8	30	
Copper	18.8	5.0	ug/g	16.3			14.2	30	
Lead	9.3	1.0	ug/g	9.1			1.4	30	
Molybdenum	3.1	1.0	ug/g	ND			NC	30	
Nickel	10.5	5.0	ug/g	5.9			NC	30	
Selenium	ND	1.0	ug/g	ND			NC	30	
Silver	ND	0.3	ug/g	ND			NC	30	
Thallium	ND	1.0	ug/g	ND			NC	30	
Uranium	ND	1.0	ug/g	ND			NC	30	
Vanadium	16.6	10.0	ug/g	16.1			3.0	30	
Zinc	93.6	20.0	ug/g	86.3			8.1	30	
Physical Characteristics									
% Solids	89.3	0.1	% by Wt.	89.5			0.3	25	
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g	ND			NC	40	
Acenaphthylene	ND	0.02	ug/g	ND			NC	40	
Anthracene	ND	0.02	ug/g	ND			NC	40	
Benzo [a] anthracene	ND	0.02	ug/g	ND			NC	40	
Benzo [a] pyrene	ND	0.02	ug/g	ND			NC	40	
Benzo [b] fluoranthene	ND	0.02	ug/g	ND			NC	40	
Benzo [g,h,i] perylene	ND	0.02	ug/g	ND			NC	40	
Benzo [k] fluoranthene	ND	0.02	ug/g	ND			NC	40	
Chrysene	ND	0.02	ug/g	ND			NC	40	
Dibenzo [a,h] anthracene	ND	0.02	ug/g	ND			NC	40	
Fluoranthene	ND	0.02	ug/g	ND			NC	40	
Fluorene	ND	0.02	ug/g	ND			NC	40	
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g	ND			NC	40	

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
1-Methylnaphthalene	ND	0.02	ug/g	ND			NC	40	
2-Methylnaphthalene	ND	0.02	ug/g	ND			NC	40	
Naphthalene	ND	0.01	ug/g	ND			NC	40	
Phenanthrene	ND	0.02	ug/g	ND			NC	40	
Pyrene	ND	0.02	ug/g	ND			NC	40	
Surrogate: 2-Fluorobiphenyl	*0.227*		ug/g		*86.0*	*50-140*			
Surrogate: Terphenyl-d14	*0.208*		ug/g		*82.1*	*50-140*			
Volatiles									
Acetone	ND	0.50	ug/g	ND			NC	50	
Benzene	ND	0.02	ug/g	ND			NC	50	
Bromodichloromethane	ND	0.05	ug/g	ND			NC	50	
Bromoform	ND	0.05	ug/g	ND			NC	50	
Bromomethane	ND	0.05	ug/g	ND			NC	50	
Carbon Tetrachloride	ND	0.05	ug/g	ND			NC	50	
Chlorobenzene	ND	0.05	ug/g	ND			NC	50	
Chloroform	ND	0.05	ug/g	ND			NC	50	
Dibromochloromethane	ND	0.05	ug/g	ND			NC	50	
Dichlorodifluoromethane	ND	0.05	ug/g	ND			NC	50	
1,2-Dichlorobenzene	ND	0.05	ug/g	ND			NC	50	
1,3-Dichlorobenzene	ND	0.05	ug/g	ND			NC	50	
1,4-Dichlorobenzene	ND	0.05	ug/g	ND			NC	50	
1,1-Dichloroethane	ND	0.05	ug/g	ND			NC	50	
1,2-Dichloroethane	ND	0.05	ug/g	ND			NC	50	
1,1-Dichloroethylene	ND	0.05	ug/g	ND			NC	50	
cis-1,2-Dichloroethylene	ND	0.05	ug/g	ND			NC	50	
trans-1,2-Dichloroethylene	ND	0.05	ug/g	ND			NC	50	
1,2-Dichloropropane	ND	0.05	ug/g	ND			NC	50	
cis-1,3-Dichloropropylene	ND	0.05	ug/g	ND			NC	50	
trans-1,3-Dichloropropylene	ND	0.05	ug/g	ND			NC	50	
Ethylbenzene	ND	0.05	ug/g	ND			NC	50	
Ethylene dibromide (dibromoethane, 1,2·	ND	0.05	ug/g	ND			NC	50	
Hexane	ND	0.05	ug/g	ND			NC	50	
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g	ND			NC	50	
Methyl Isobutyl Ketone	ND	0.50	ug/g	ND			NC	50	
Methyl tert-butyl ether	ND	0.05	ug/g	ND			NC	50	
Methylene Chloride	ND	0.05	ug/g	ND			NC	50	
Styrene	ND	0.05	ug/g	ND			NC	50	
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g	ND			NC	50	
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g	ND			NC	50	
Tetrachloroethylene	ND	0.05	ug/g	ND			NC	50	
Toluene	ND	0.05	ug/g	ND			NC	50	

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
1,1,1-Trichloroethane	ND	0.05	ug/g	ND			NC	50	
1,1,2-Trichloroethane	ND	0.05	ug/g	ND			NC	50	
Trichloroethylene	ND	0.05	ug/g	ND			NC	50	
Trichlorofluoromethane	ND	0.05	ug/g	ND			NC	50	
Vinyl chloride	ND	0.02	ug/g	ND			NC	50	
m,p-Xylenes	ND	0.05	ug/g	ND			NC	50	
o-Xylene	ND	0.05	ug/g	ND			NC	50	
Surrogate: 4-Bromofluorobenzene	*6.64*		ug/g		*106*	*50-140*			
Surrogate: Dibromofluoromethane	*5.58*		ug/g		*88.5*	*50-140*			
Surrogate: Toluene-d8	*6.81*		ug/g		*108*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	61	7	ug/g	ND	86.0	80-120			
F2 PHCs (C10-C16)	84	4	ug/g	6	87.0	60-140			
F3 PHCs (C16-C34)	329	8	ug/g	140	93.5	60-140			
F4 PHCs (C34-C50)	117	6	ug/g	ND	80.7	60-140			
Metals									
Antimony	140	1.0	ug/g	ND	112	70-130			
Arsenic	134	1.0	ug/g	3.0	105	70-130			
Barium	189	1.0	ug/g	57.9	105	70-130			
Beryllium	123	0.5	ug/g	ND	98.3	70-130			
Boron	130	5.0	ug/g	7.3	97.9	70-130			
Cadmium	125	0.5	ug/g	ND	100	70-130			
Chromium	136	5.0	ug/g	11.6	99.7	70-130			
Cobalt	127	1.0	ug/g	3.0	99.3	70-130			
Copper	142	5.0	ug/g	16.3	100	70-130			
Lead	136	1.0	ug/g	9.1	101	70-130			
Molybdenum	128	1.0	ug/g	ND	102	70-130			
Nickel	131	5.0	ug/g	5.9	99.8	70-130			
Selenium	129	1.0	ug/g	ND	103	70-130			
Silver	124	0.3	ug/g	ND	99.4	70-130			
Thallium	130	1.0	ug/g	ND	104	70-130			
Uranium	129	1.0	ug/g	ND	103	70-130			
Vanadium	142	10.0	ug/g	16.1	101	70-130			
Zinc	214	20.0	ug/g	86.3	103	70-130			
Semi-Volatiles									
Acenaphthene	0.102	0.02	ug/g	ND	80.5	50-140			
Acenaphthylene	0.111	0.02	ug/g	ND	87.2	50-140			
Anthracene	0.104	0.02	ug/g	ND	82.0	50-140			
Benzo [a] anthracene	0.119	0.02	ug/g	ND	93.6	50-140			
Benzo [a] pyrene	0.113	0.02	ug/g	ND	89.1	50-140			
Benzo [b] fluoranthene	0.094	0.02	ug/g	ND	74.4	50-140			
Benzo [g,h,i] perylene	0.115	0.02	ug/g	ND	91.0	50-140			
Benzo [k] fluoranthene	0.082	0.02	ug/g	ND	64.9	50-140			
Chrysene	0.098	0.02	ug/g	ND	77.0	50-140			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Dibenzo [a,h] anthracene	0.136	0.02	ug/g	ND	108	50-140			
Fluoranthene	0.132	0.02	ug/g	ND	104	50-140			
Fluorene	0.111	0.02	ug/g	ND	87.8	50-140			
Indeno [1,2,3-cd] pyrene	0.137	0.02	ug/g	ND	108	50-140			
1-Methylnaphthalene	0.116	0.02	ug/g	ND	91.4	50-140			
2-Methylnaphthalene	0.109	0.02	ug/g	ND	86.0	50-140			
Naphthalene	0.102	0.01	ug/g	ND	80.1	50-140			
Phenanthrene	0.111	0.02	ug/g	ND	87.2	50-140			
Pyrene	0.105	0.02	ug/g	ND	82.6	50-140			
Surrogate: 2-Fluorobiphenyl	*0.223*		*ug/g*		*84.6*	*50-140*			
Surrogate: Terphenyl-d14	*0.216*		*ug/g*		*85.3*	*50-140*			
Volatiles									
Acetone	8.30	0.50	ug/g	ND	85.1	50-140			
Benzene	3.40	0.02	ug/g	ND	84.6	60-130			
Bromodichloromethane	3.24	0.05	ug/g	ND	80.5	60-130			
Bromoform	3.28	0.05	ug/g	ND	81.7	60-130			
Bromomethane	3.08	0.05	ug/g	ND	76.9	50-140			
Carbon Tetrachloride	3.07	0.05	ug/g	ND	76.7	60-130			
Chlorobenzene	3.40	0.05	ug/g	ND	84.6	60-130			
Chloroform	3.02	0.05	ug/g	ND	75.1	60-130			
Dibromochloromethane	3.18	0.05	ug/g	ND	79.5	60-130			
Dichlorodifluoromethane	2.72	0.05	ug/g	ND	68.0	50-140			
1,2-Dichlorobenzene	3.26	0.05	ug/g	ND	81.4	60-130			
1,3-Dichlorobenzene	3.29	0.05	ug/g	ND	82.2	60-130			
1,4-Dichlorobenzene	3.23	0.05	ug/g	ND	80.4	60-130			
1,1-Dichloroethane	3.37	0.05	ug/g	ND	84.4	60-130			
1,2-Dichloroethane	3.46	0.05	ug/g	ND	86.0	60-130			
1,1-Dichloroethylene	2.97	0.05	ug/g	ND	74.2	60-130			
cis-1,2-Dichloroethylene	3.27	0.05	ug/g	ND	81.4	60-130			
trans-1,2-Dichloroethylene	3.13	0.05	ug/g	ND	77.8	60-130			
1,2-Dichloropropane	3.35	0.05	ug/g	ND	83.8	60-130			
cis-1,3-Dichloropropylene	3.19	0.05	ug/g	ND	79.8	60-130			
trans-1,3-Dichloropropylene	3.23	0.05	ug/g	ND	80.4	60-130			
Ethylbenzene	3.45	0.05	ug/g	ND	85.9	60-130			
Ethylene dibromide (dibromoethane, 1,2-	3.26	0.05	ug/g	ND	81.0	60-130			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hexane	2.77	0.05	ug/g	ND	69.3	60-130			
Methyl Ethyl Ketone (2-Butanone)	8.24	0.50	ug/g	ND	80.5	50-140			
Methyl Isobutyl Ketone	8.43	0.50	ug/g	ND	86.4	50-140			
Methyl tert-butyl ether	8.25	0.05	ug/g	ND	82.5	50-140			
Methylene Chloride	3.15	0.05	ug/g	ND	78.4	60-130			
Styrene	3.42	0.05	ug/g	ND	84.8	60-130			
1,1,1,2-Tetrachloroethane	3.30	0.05	ug/g	ND	82.5	60-130			
1,1,2,2-Tetrachloroethane	3.35	0.05	ug/g	ND	83.3	60-130			
Tetrachloroethylene	3.18	0.05	ug/g	ND	79.1	60-130			
Toluene	3.55	0.05	ug/g	ND	88.8	60-130			
1,1,1-Trichloroethane	3.16	0.05	ug/g	ND	79.1	60-130			
1,1,2-Trichloroethane	3.37	0.05	ug/g	ND	83.8	60-130			
Trichloroethylene	3.30	0.05	ug/g	ND	82.1	60-130			
Trichlorofluoromethane	3.21	0.05	ug/g	ND	80.2	50-140			
Vinyl chloride	2.97	0.02	ug/g	ND	74.3	50-140			
m,p-Xylenes	6.80	0.05	ug/g	ND	84.8	60-130			
o-Xylene	3.39	0.05	ug/g	ND	84.3	60-130			
Surrogate: 4-Bromofluorobenzene	*7.88*		*ug/g*		*98.2*	*50-140*			
Surrogate: Dibromofluoromethane	*7.78*		*ug/g*		*96.5*	*50-140*			
Surrogate: Toluene-d8	*7.80*		*ug/g*		*96.8*	*50-140*			

PARACEL LABORATORIES LTD.

Order #: 2132457

Certificate of Analysis

Client: Hallex Environmental Ltd.

Client PO:

Report Date: 12-Aug-2021

Order Date: 6-Aug-2021

Project Description: E-21-55-2

Qualifier Notes:

Sample Qualifiers :

QC Qualifiers :

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable
ND: Not Detected
MDL: Method Detection Limit
Source Result: Data used as source for matrix and duplicate samples
%REC: Percent recovery.
RPD: Relative percent difference.
NC: Not Calculated

Soil/Solid results are reported on a dry weight basis unless otherwise indicated
Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory. All prescribed quality criteria identified in the method has been met.
- F1 range corrected for BTEX.
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.
- In the case where F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC criteria.
- When reported, data for F4G has been processed using a silica gel cleanup.

PARACEL LABORATORIES LTD.

Paracel ID: 2132457

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2132457	№ 58046

Client Name:

Contact Name: Hallex Environmental Ltd.

Address: Contact: Kevin Christian
4999 Victoria Ave.
Niagara Falls, ON L2E 4C9

Telephone: Ph: 905-988-8030

Project Ref: E-21-55-2

Quote #:

PO #:

E-mail: kchristian@hallex.ca
jglasier@hallex.ca

Page 1 of 1

Turnaround Time

☐ 1 day ☐ 3 day
☐ 2 day ☒ Regular

Date Required:

Regulation 153/04	Other Regulation
☐ Table 1 ☑ Res/Park ☐ Med/Fine	☐ REG 558 ☐ PWQO
☒ Table 2 ☑ Ind/Comm ☐ Coarse	☐ CCME ☐ MISA
☐ Table 3 ☐ Agri/Other	☐ SU - Sani ☐ SU - Storm
☐ Table	Mun:
For RSC: ☒ Yes ☐ No	☐ Other:

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken: Date	Sample Taken: Time	Required Analysis: PHC(F1-F4)	VOC	PAH	Grain Size texture Soil course	Metals by ICP							HOLD
1	C-BH1-1	S		3	Aug 5	1pm	X	X	X		X							
2	C-BH2-1			3			X	X	X	X	X							
3	C-BH3-1			3			X	X	X		X							
4	C-BH1-2			1														X
5	C-BH2-2			2														X
6	CBH3-2			2														X
7																		
8																		
9																		
10																		

Comments:

Method of Delivery: Drop box

Relinquished By (Sign): Nicole Metz	Received By Driver/Depot:	Received at Lab: AM	Verified By: AM
Relinquished By (Print): Nicole Metz	Date/Time:	Date/Time: 6/8/21 8:25	Date/Time: 6/8/21 08:25
Date/Time: Aug 5 @ 4:55	Temperature: °C	Temperature: 8.9 °C	pH Verified: ☐ By:

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Certificate of Analysis

Hallex Environmental Ltd.

4999 Victoria Ave
Niagara Falls, ON L2E 4C9
Attn: Kevin Christian

Client PO:
Project: E-21-55-2
Custody: 58115

Report Date: 26-Aug-2021
Order Date: 20-Aug-2021

Order #: 2135002

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
2135002-01	C-BH4
2135002-02	C-BH5
2135002-03	C-BH6
2135002-04	C-Dup

Approved By:

Alex Enfield, MSc
Lab Manager

Certificate of Analysis

Client: Hallex Environmental Ltd.

Client PO:

Report Date: 26-Aug-2021

Order Date: 20-Aug-2021

Project Description: E-21-55-2

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
PHC F1	CWS Tier 1 - P&T GC-FID	24-Aug-21	25-Aug-21
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	25-Aug-21	25-Aug-21
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	26-Aug-21	26-Aug-21
REG 153: PAHs by GC-MS	EPA 8270 - GC-MS, extraction	25-Aug-21	25-Aug-21
REG 153: VOCs by P&T GC-MS	EPA 8260 - P&T GC-MS	24-Aug-21	25-Aug-21
Solids, %	Gravimetric, calculation	25-Aug-21	26-Aug-21

Certificate of Analysis

Client: **Hallex Environmental Ltd.**

Client PO:

Report Date: 26-Aug-2021

Order Date: 20-Aug-2021

Project Description: E-21-55-2

	Client ID:	C-BH4	C-BH5	C-BH6	C-Dup
	Sample Date:	20-Aug-21	20-Aug-21	20-Aug-21	20-Aug-21
	Sample ID:	2135002-01	2135002-02	2135002-03	2135002-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	80.8	85.3	83.0	80.6
Metals					
Antimony	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Arsenic	1.0 ug/g dry	4.2	5.5	3.6	4.0
Barium	1.0 ug/g dry	118	71.1	66.8	113
Beryllium	0.5 ug/g dry	0.5	<0.5	<0.5	<0.5
Boron	5.0 ug/g dry	7.2	7.7	6.9	7.4
Cadmium	0.5 ug/g dry	1.7	<0.5	<0.5	1.6
Chromium	5.0 ug/g dry	17.9	16.2	14.9	16.6
Cobalt	1.0 ug/g dry	6.7	6.2	5.3	6.3
Copper	5.0 ug/g dry	54.6	21.8	19.9	47.9
Lead	1.0 ug/g dry	240	32.3	38.8	226
Molybdenum	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Nickel	5.0 ug/g dry	23.6	13.2	10.7	23.4
Selenium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Silver	0.3 ug/g dry	<0.3	<0.3	<0.3	<0.3
Thallium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Uranium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Vanadium	10.0 ug/g dry	25.1	27.6	24.3	24.3
Zinc	20.0 ug/g dry	648	101	108	639
Volatiles					
Acetone	0.50 ug/g dry	<0.50	<0.50	<0.50	<0.50
Benzene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Bromodichloromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Bromoform	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Bromomethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Chlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Chloroform	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Dibromochloromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Dichlorodifluoromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,2-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,3-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,4-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05

Certificate of Analysis

Client: **Hallex Environmental Ltd.**

Client PO:

Report Date: 26-Aug-2021

Order Date: 20-Aug-2021

Project Description: E-21-55-2

	Client ID:	C-BH4	C-BH5	C-BH6	C-Dup
	Sample Date:	20-Aug-21	20-Aug-21	20-Aug-21	20-Aug-21
	Sample ID:	2135002-01	2135002-02	2135002-03	2135002-04
	MDL/Units	Soil	Soil	Soil	Soil
1,2-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
cis-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
trans-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,2-Dichloropropane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
cis-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
trans-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,3-Dichloropropene, total	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Ethylene dibromide (dibromoethane, 1,2-)	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Hexane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g dry	<0.50	<0.50	<0.50	<0.50
Methyl Isobutyl Ketone	0.50 ug/g dry	<0.50	<0.50	<0.50	<0.50
Methyl tert-butyl ether	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Methylene Chloride	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Styrene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1,2,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Tetrachloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Toluene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1,1-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1,2-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Trichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Trichlorofluoromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Vinyl chloride	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
m,p-Xylenes	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
o-Xylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
4-Bromofluorobenzene	Surrogate	98.9%	96.0%	99.3%	97.5%
Dibromofluoromethane	Surrogate	91.6%	89.6%	90.1%	91.1%
Toluene-d8	Surrogate	105%	104%	104%	106%
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	10	<7
F2 PHCs (C10-C16)	4 ug/g dry	<4	<4	<4	<4
F3 PHCs (C16-C34)	8 ug/g dry	198	<8	<8	243
F4 PHCs (C34-C50)	6 ug/g dry	97	<6	<6	126

Certificate of Analysis

Client: **Hallex Environmental Ltd.**

Client PO:

Report Date: 26-Aug-2021

Order Date: 20-Aug-2021

Project Description: E-21-55-2

	Client ID:	C-BH4	C-BH5	C-BH6	C-Dup
	Sample Date:	20-Aug-21	20-Aug-21	20-Aug-21	20-Aug-21
	Sample ID:	2135002-01	2135002-02	2135002-03	2135002-04
	MDL/Units	Soil	Soil	Soil	Soil
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	0.02	<0.02	<0.02	<0.02
Acenaphthylene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Anthracene	0.02 ug/g dry	0.09	<0.02	<0.02	<0.02
Benzo [a] anthracene	0.02 ug/g dry	0.13	<0.02	<0.02	0.02
Benzo [a] pyrene	0.02 ug/g dry	0.11	<0.02	<0.02	0.03
Benzo [b] fluoranthene	0.02 ug/g dry	0.10	<0.02	<0.02	0.03
Benzo [g,h,i] perylene	0.02 ug/g dry	0.06	<0.02	<0.02	0.02
Benzo [k] fluoranthene	0.02 ug/g dry	0.04	<0.02	<0.02	<0.02
Chrysene	0.02 ug/g dry	0.12	<0.02	<0.02	0.03
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Fluoranthene	0.02 ug/g dry	0.36	0.02	<0.02	0.05
Fluorene	0.02 ug/g dry	0.03	<0.02	<0.02	<0.02
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	0.09	<0.02	<0.02	0.03
1-Methylnaphthalene	0.02 ug/g dry	0.04	<0.02	<0.02	0.03
2-Methylnaphthalene	0.02 ug/g dry	0.03	<0.02	<0.02	<0.02
Methylnaphthalene (1&2)	0.03 ug/g dry	0.07	<0.03	<0.03	0.05
Naphthalene	0.01 ug/g dry	0.02	<0.01	<0.01	0.01
Phenanthrene	0.02 ug/g dry	0.26	<0.02	<0.02	0.03
Pyrene	0.02 ug/g dry	0.20	<0.02	<0.02	0.03
2-Fluorobiphenyl	Surrogate	72.9%	78.8%	96.8%	72.4%
Terphenyl-d14	Surrogate	127%	128%	116%	124%

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g						
F2 PHCs (C10-C16)	ND	4	ug/g						
F3 PHCs (C16-C34)	ND	8	ug/g						
F4 PHCs (C34-C50)	ND	6	ug/g						
Metals									
Antimony	ND	1.0	ug/g						
Arsenic	ND	1.0	ug/g						
Barium	ND	1.0	ug/g						
Beryllium	ND	0.5	ug/g						
Boron	ND	5.0	ug/g						
Cadmium	ND	0.5	ug/g						
Chromium	ND	5.0	ug/g						
Cobalt	ND	1.0	ug/g						
Copper	ND	5.0	ug/g						
Lead	ND	1.0	ug/g						
Molybdenum	ND	1.0	ug/g						
Nickel	ND	5.0	ug/g						
Selenium	ND	1.0	ug/g						
Silver	ND	0.3	ug/g						
Thallium	ND	1.0	ug/g						
Uranium	ND	1.0	ug/g						
Vanadium	ND	10.0	ug/g						
Zinc	ND	20.0	ug/g						
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g						
Acenaphthylene	ND	0.02	ug/g						
Anthracene	ND	0.02	ug/g						
Benzo [a] anthracene	ND	0.02	ug/g						
Benzo [a] pyrene	ND	0.02	ug/g						
Benzo [b] fluoranthene	ND	0.02	ug/g						
Benzo [g,h,i] perylene	ND	0.02	ug/g						
Benzo [k] fluoranthene	ND	0.02	ug/g						
Chrysene	ND	0.02	ug/g						
Dibenzo [a,h] anthracene	ND	0.02	ug/g						
Fluoranthene	ND	0.02	ug/g						
Fluorene	ND	0.02	ug/g						
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g						
1-Methylnaphthalene	ND	0.02	ug/g						
2-Methylnaphthalene	ND	0.02	ug/g						
Methylnaphthalene (1&2)	ND	0.03	ug/g						
Naphthalene	ND	0.01	ug/g						
Phenanthrene	ND	0.02	ug/g						
Pyrene	ND	0.02	ug/g						
Surrogate: 2-Fluorobiphenyl	*0.205*		*ug/g*		*98.6*	*50-140*			
Surrogate: Terphenyl-d14	*0.256*		*ug/g*		*128*	*50-140*			
Volatiles									
Acetone	ND	0.50	ug/g						
Benzene	ND	0.02	ug/g						
Bromodichloromethane	ND	0.05	ug/g						
Bromoform	ND	0.05	ug/g						
Bromomethane	ND	0.05	ug/g						
Carbon Tetrachloride	ND	0.05	ug/g						
Chlorobenzene	ND	0.05	ug/g						
Chloroform	ND	0.05	ug/g						
Dibromochloromethane	ND	0.05	ug/g						
Dichlorodifluoromethane	ND	0.05	ug/g						
1,2-Dichlorobenzene	ND	0.05	ug/g						
1,3-Dichlorobenzene	ND	0.05	ug/g						

Certificate of Analysis

Client: Hallex Environmental Ltd.

Client PO:

Report Date: 26-Aug-2021

Order Date: 20-Aug-2021

Project Description: E-21-55-2

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
1,4-Dichlorobenzene	ND	0.05	ug/g						
1,1-Dichloroethane	ND	0.05	ug/g						
1,2-Dichloroethane	ND	0.05	ug/g						
1,1-Dichloroethylene	ND	0.05	ug/g						
cis-1,2-Dichloroethylene	ND	0.05	ug/g						
trans-1,2-Dichloroethylene	ND	0.05	ug/g						
1,2-Dichloropropane	ND	0.05	ug/g						
cis-1,3-Dichloropropylene	ND	0.05	ug/g						
trans-1,3-Dichloropropylene	ND	0.05	ug/g						
1,3-Dichloropropene, total	ND	0.05	ug/g						
Ethylbenzene	ND	0.05	ug/g						
Ethylene dibromide (dibromoethane, 1,2	ND	0.05	ug/g						
Hexane	ND	0.05	ug/g						
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g						
Methyl Isobutyl Ketone	ND	0.50	ug/g						
Methyl tert-butyl ether	ND	0.05	ug/g						
Methylene Chloride	ND	0.05	ug/g						
Styrene	ND	0.05	ug/g						
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g						
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g						
Tetrachloroethylene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
1,1,1-Trichloroethane	ND	0.05	ug/g						
1,1,2-Trichloroethane	ND	0.05	ug/g						
Trichloroethylene	ND	0.05	ug/g						
Trichlorofluoromethane	ND	0.05	ug/g						
Vinyl chloride	ND	0.02	ug/g						
m,p-Xylenes	ND	0.05	ug/g						
o-Xylene	ND	0.05	ug/g						
Xylenes, total	ND	0.05	ug/g						
Surrogate: 4-Bromofluorobenzene	*7.52*		*ug/g*		*93.6*	*50-140*			
Surrogate: Dibromofluoromethane	*7.09*		*ug/g*		*87.9*	*50-140*			
Surrogate: Toluene-d8	*8.30*		*ug/g*		*103*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g dry	31			NC	40	
F2 PHCs (C10-C16)	67	4	ug/g dry	81			18.2	30	
F3 PHCs (C16-C34)	1630	8	ug/g dry	2070			23.9	30	
F4 PHCs (C34-C50)	174	6	ug/g dry	141			20.4	30	
Metals									
Antimony	ND	1.0	ug/g dry	ND			NC	30	
Arsenic	5.8	1.0	ug/g dry	5.0			14.9	30	
Barium	117	1.0	ug/g dry	106			10.1	30	
Beryllium	0.7	0.5	ug/g dry	0.6			23.4	30	
Boron	17.0	5.0	ug/g dry	13.8			20.9	30	
Cadmium	ND	0.5	ug/g dry	ND			NC	30	
Chromium	22.5	5.0	ug/g dry	20.0			11.5	30	
Cobalt	8.7	1.0	ug/g dry	7.9			9.9	30	
Copper	39.4	5.0	ug/g dry	35.1			11.4	30	
Lead	67.9	1.0	ug/g dry	62.7			8.0	30	
Molybdenum	ND	1.0	ug/g dry	ND			NC	30	
Nickel	19.5	5.0	ug/g dry	17.6			10.1	30	
Selenium	1.2	1.0	ug/g dry	ND			NC	30	
Silver	0.3	0.3	ug/g dry	ND			NC	30	
Thallium	ND	1.0	ug/g dry	ND			NC	30	
Uranium	ND	1.0	ug/g dry	ND			NC	30	
Vanadium	31.7	10.0	ug/g dry	27.7			13.2	30	
Zinc	86.2	20.0	ug/g dry	78.6			9.2	30	
Physical Characteristics									
% Solids	82.6	0.1	% by Wt.	82.4			0.3	25	
Semi-Volatiles									
Acenaphthene	1.68	0.02	ug/g dry	2.03			18.9	40	
Acenaphthylene	0.729	0.02	ug/g dry	0.871			17.7	40	
Anthracene	3.08	0.02	ug/g dry	4.80			43.6	40	QR-03
Benzo [a] anthracene	5.38	0.02	ug/g dry	9.47			55.1	40	QR-03
Benzo [a] pyrene	4.34	0.02	ug/g dry	8.20			61.5	40	QR-03
Benzo [b] fluoranthene	9.62	0.02	ug/g dry	7.68			22.4	40	
Benzo [g,h,i] perylene	3.77	0.02	ug/g dry	3.52			6.8	40	
Benzo [k] fluoranthene	3.67	0.02	ug/g dry	3.38			8.2	40	
Chrysene	8.46	0.02	ug/g dry	8.91			5.2	40	
Dibenzo [a,h] anthracene	1.06	0.02	ug/g dry	1.27			18.2	40	
Fluoranthene	12.2	0.02	ug/g dry	23.1			62.0	40	QR-03
Fluorene	2.44	0.02	ug/g dry	2.66			8.7	40	
Indeno [1,2,3-cd] pyrene	3.41	0.02	ug/g dry	5.57			48.0	40	QR-03
1-Methylnaphthalene	0.452	0.02	ug/g dry	0.622			31.5	40	
2-Methylnaphthalene	0.544	0.02	ug/g dry	0.854			44.4	40	QR-03
Naphthalene	1.42	0.01	ug/g dry	2.35			49.3	40	QR-03
Phenanthrene	11.5	0.02	ug/g dry	20.6			57.1	40	QR-03
Pyrene	15.8	0.02	ug/g dry	16.5			4.6	40	
Surrogate: 2-Fluorobiphenyl	*0.267*		*ug/g dry*		*112*	*50-140*			
Surrogate: Terphenyl-d14	*0.273*		*ug/g dry*		*119*	*50-140*			
Volatiles									
Acetone	ND	0.50	ug/g dry	ND			NC	50	
Benzene	ND	0.02	ug/g dry	ND			NC	50	
Bromodichloromethane	ND	0.05	ug/g dry	ND			NC	50	
Bromoform	ND	0.05	ug/g dry	ND			NC	50	
Bromomethane	ND	0.05	ug/g dry	ND			NC	50	
Carbon Tetrachloride	ND	0.05	ug/g dry	ND			NC	50	
Chlorobenzene	ND	0.05	ug/g dry	ND			NC	50	
Chloroform	ND	0.05	ug/g dry	ND			NC	50	
Dibromochloromethane	ND	0.05	ug/g dry	ND			NC	50	

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Dichlorodifluoromethane	ND	0.05	ug/g dry	ND			NC	50	
1,2-Dichlorobenzene	ND	0.05	ug/g dry	ND			NC	50	
1,3-Dichlorobenzene	ND	0.05	ug/g dry	ND			NC	50	
1,4-Dichlorobenzene	ND	0.05	ug/g dry	ND			NC	50	
1,1-Dichloroethane	ND	0.05	ug/g dry	ND			NC	50	
1,2-Dichloroethane	ND	0.05	ug/g dry	ND			NC	50	
1,1-Dichloroethylene	ND	0.05	ug/g dry	ND			NC	50	
cis-1,2-Dichloroethylene	ND	0.05	ug/g dry	ND			NC	50	
trans-1,2-Dichloroethylene	ND	0.05	ug/g dry	ND			NC	50	
1,2-Dichloropropane	ND	0.05	ug/g dry	ND			NC	50	
cis-1,3-Dichloropropylene	ND	0.05	ug/g dry	ND			NC	50	
trans-1,3-Dichloropropylene	ND	0.05	ug/g dry	ND			NC	50	
Ethylbenzene	ND	0.05	ug/g dry	ND			NC	50	
Ethylene dibromide (dibromoethane, 1,2-	ND	0.05	ug/g dry	ND			NC	50	
Hexane	ND	0.05	ug/g dry	ND			NC	50	
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g dry	ND			NC	50	
Methyl Isobutyl Ketone	ND	0.50	ug/g dry	ND			NC	50	
Methyl tert-butyl ether	ND	0.05	ug/g dry	ND			NC	50	
Methylene Chloride	ND	0.05	ug/g dry	ND			NC	50	
Styrene	ND	0.05	ug/g dry	ND			NC	50	
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g dry	ND			NC	50	
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g dry	ND			NC	50	
Tetrachloroethylene	ND	0.05	ug/g dry	ND			NC	50	
Toluene	ND	0.05	ug/g dry	ND			NC	50	
1,1,1-Trichloroethane	ND	0.05	ug/g dry	ND			NC	50	
1,1,2-Trichloroethane	ND	0.05	ug/g dry	ND			NC	50	
Trichloroethylene	ND	0.05	ug/g dry	ND			NC	50	
Trichlorofluoromethane	ND	0.05	ug/g dry	ND			NC	50	
Vinyl chloride	ND	0.02	ug/g dry	ND			NC	50	
m,p-Xylenes	0.189	0.05	ug/g dry	0.184			2.7	50	
o-Xylene	0.133	0.05	ug/g dry	0.136			2.2	50	
Surrogate: 4-Bromofluorobenzene	*5.75*		*ug/g dry*		*98.2*	*50-140*			
Surrogate: Dibromofluoromethane	*5.22*		*ug/g dry*		*88.9*	*50-140*			
Surrogate: Toluene-d8	*6.06*		*ug/g dry*		*103*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	74	7	ug/g	ND	104	80-120			
F2 PHCs (C10-C16)	78	4	ug/g	ND	93.9	80-120			
F3 PHCs (C16-C34)	162	8	ug/g	ND	87.4	80-120			
F4 PHCs (C34-C50)	147	6	ug/g	ND	110	80-120			
Metals									
Antimony	124	1.0	ug/g	ND	98.9	70-130			
Arsenic	135	1.0	ug/g	5.0	104	70-130			
Barium	241	1.0	ug/g	106	108	70-130			
Beryllium	118	0.5	ug/g	0.6	93.8	70-130			
Boron	131	5.0	ug/g	13.8	93.5	70-130			
Cadmium	124	0.5	ug/g	ND	98.9	70-130			
Chromium	144	5.0	ug/g	20.0	98.9	70-130			
Cobalt	128	1.0	ug/g	7.9	95.9	70-130			
Copper	160	5.0	ug/g	35.1	99.6	70-130			
Lead	184	1.0	ug/g	62.7	97.0	70-130			
Molybdenum	126	1.0	ug/g	ND	101	70-130			
Nickel	141	5.0	ug/g	17.6	98.6	70-130			
Selenium	125	1.0	ug/g	ND	99.7	70-130			
Silver	111	0.3	ug/g	ND	88.7	70-130			
Thallium	119	1.0	ug/g	ND	95.4	70-130			
Uranium	122	1.0	ug/g	ND	97.8	70-130			
Vanadium	154	10.0	ug/g	27.7	101	70-130			
Zinc	205	20.0	ug/g	78.6	101	70-130			
Semi-Volatiles									
Acenaphthene	0.187	0.02	ug/g	0.071	102	50-140			
Acenaphthylene	0.154	0.02	ug/g	0.049	91.8	50-140			
Anthracene	0.240	0.02	ug/g	0.130	95.9	50-140			
Benzo [a] anthracene	0.305	0.02	ug/g	0.192	98.9	50-140			
Benzo [a] pyrene	0.283	0.02	ug/g	0.148	117	50-140			
Benzo [b] fluoranthene	0.211	0.02	ug/g	0.105	91.9	50-140			
Benzo [g,h,i] perylene	0.158	0.02	ug/g	0.055	89.8	50-140			
Benzo [k] fluoranthene	0.154	0.02	ug/g	0.038	101	50-140			
Chrysene	0.304	0.02	ug/g	0.172	115	50-140			
Dibenzo [a,h] anthracene	0.132	0.02	ug/g	ND	115	50-140			
Fluoranthene	0.520	0.02	ug/g	0.437	72.1	50-140			
Fluorene	0.300	0.02	ug/g	0.159	123	50-140			
Indeno [1,2,3-cd] pyrene	0.237	0.02	ug/g	0.092	125	50-140			
1-Methylnaphthalene	0.570	0.02	ug/g	0.482	76.3	50-140			
2-Methylnaphthalene	0.149	0.02	ug/g	0.028	105	50-140			
Naphthalene	0.182	0.01	ug/g	0.069	97.9	50-140			
Phenanthrene	0.635	0.02	ug/g	0.536	85.7	50-140			
Pyrene	0.393	0.02	ug/g	0.290	89.8	50-140			
Surrogate: 2-Fluorobiphenyl	*0.301*		*ug/g*		*126*	*50-140*			
Surrogate: Terphenyl-d14	*0.305*		*ug/g*		*133*	*50-140*			
Volatiles									
Acetone	12.2	0.50	ug/g	ND	125	50-140			
Benzene	4.37	0.02	ug/g	ND	109	60-130			
Bromodichloromethane	4.40	0.05	ug/g	ND	110	60-130			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Bromoform	3.96	0.05	ug/g	ND	98.4	60-130			
Bromomethane	3.75	0.05	ug/g	ND	93.7	50-140			
Carbon Tetrachloride	4.28	0.05	ug/g	ND	107	60-130			
Chlorobenzene	4.20	0.05	ug/g	ND	105	60-130			
Chloroform	4.60	0.05	ug/g	ND	114	60-130			
Dibromochloromethane	4.00	0.05	ug/g	ND	100	60-130			
Dichlorodifluoromethane	3.85	0.05	ug/g	ND	96.2	50-140			
1,2-Dichlorobenzene	3.78	0.05	ug/g	ND	94.6	60-130			
1,3-Dichlorobenzene	3.86	0.05	ug/g	ND	96.4	60-130			
1,4-Dichlorobenzene	4.01	0.05	ug/g	ND	99.8	60-130			
1,1-Dichloroethane	4.62	0.05	ug/g	ND	116	60-130			
1,2-Dichloroethane	4.77	0.05	ug/g	ND	119	60-130			
1,1-Dichloroethylene	4.54	0.05	ug/g	ND	113	60-130			
cis-1,2-Dichloroethylene	4.27	0.05	ug/g	ND	106	60-130			
trans-1,2-Dichloroethylene	4.29	0.05	ug/g	ND	107	60-130			
1,2-Dichloropropane	4.80	0.05	ug/g	ND	120	60-130			
cis-1,3-Dichloropropylene	4.44	0.05	ug/g	ND	111	60-130			
trans-1,3-Dichloropropylene	4.50	0.05	ug/g	ND	112	60-130			
Ethylbenzene	4.29	0.05	ug/g	ND	107	60-130			
Ethylene dibromide (dibromoethane, 1,2-	4.16	0.05	ug/g	ND	104	60-130			
Hexane	4.74	0.05	ug/g	ND	119	60-130			
Methyl Ethyl Ketone (2-Butanone)	11.4	0.50	ug/g	ND	112	50-140			
Methyl Isobutyl Ketone	10.4	0.50	ug/g	ND	107	50-140			
Methyl tert-butyl ether	10.9	0.05	ug/g	ND	109	50-140			
Methylene Chloride	4.65	0.05	ug/g	ND	116	60-130			
Styrene	4.04	0.05	ug/g	ND	99.9	60-130			
1,1,1,2-Tetrachloroethane	4.20	0.05	ug/g	ND	105	60-130			
1,1,2,2-Tetrachloroethane	4.52	0.05	ug/g	ND	113	60-130			
Tetrachloroethylene	4.02	0.05	ug/g	ND	99.9	60-130			
Toluene	4.37	0.05	ug/g	ND	109	60-130			
1,1,1-Trichloroethane	4.31	0.05	ug/g	ND	108	60-130			
1,1,2-Trichloroethane	4.34	0.05	ug/g	ND	108	60-130			
Trichloroethylene	4.00	0.05	ug/g	ND	99.6	60-130			
Trichlorofluoromethane	4.45	0.05	ug/g	ND	111	50-140			
Vinyl chloride	3.97	0.02	ug/g	ND	99.2	50-140			
m,p-Xylenes	8.91	0.05	ug/g	ND	111	60-130			
o-Xylene	4.35	0.05	ug/g	ND	108	60-130			
Surrogate: 4-Bromofluorobenzene	*7.41*		*ug/g*		*92.3*	*50-140*			
Surrogate: Dibromofluoromethane	*8.62*		*ug/g*		*107*	*50-140*			
Surrogate: Toluene-d8	*7.58*		*ug/g*		*94.1*	*50-140*			

Qualifier Notes:

QC Qualifiers :

QR-03 : The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable
ND: Not Detected
MDL: Method Detection Limit
Source Result: Data used as source for matrix and duplicate samples
%REC: Percent recovery.
RPD: Relative percent difference.
NC: Not Calculated

Soil results are reported on a dry weight basis when the units are denoted with 'dry'.
Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory. All prescribed quality criteria identified in the method has been met.
- F1 range corrected for BTEX.
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.
- In the case where F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC criteria.
- When reported, data for F4G has been processed using a silica gel cleanup.

PARACEL LABORATORIES LTD.

Paracel ID: 2135002

Paracel Order Number (Lab Use Only)

Chain Of Custody (Lab Use Only)

№ 58115

Page 1 of 1

Client Name:	Hallex Environmental Ltd.
Contact Name:	Contact: Kevin Christian
Address:	4999 Victoria Ave. Niagara Falls, ON L2E 4C9
Telephone:	Ph: 905-988-8030
Project Ref:	E-21-55 Rev-2
Quote #:	20-876
PO #:	
E-mail:	kchristian@hallex.ca jglasier@hallex.ca

Turnaround Time

☐ 1 day ☐ 3 day ☐ 2 day ☒ Regular

Date Required:

Regulation 153/04

☐ Table 1 ☐ Res/Park ☐ Med/Fine
☒ Table 2 ☐ Ind/Comm ☐ Coarse
☐ Table 3 ☐ Agri/Other
☐ Table

For RSC: ☒ Yes ☐ No

Other Regulation

☐ REG 558 ☐ PWQO
☐ CCME ☐ MISA
☐ SU - Sani ☐ SU - Storm
Mun:
☐ Other:

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHC (F1-F4)	VOC	PAH	Metals (Low CP)
1	C-BH4	S		3	Aug 20	10am	X	X	X	X
2	C-BH5	S		3	↓	↓	X	X	X	X
3	C-BH6	S		3			X	X	X	X
4	C-DUP	S		2			X	X	X	X
5										
6										
7										
8										
9										
10										

Comments:

Method of Delivery: Walk in

Relinquished By (Sign):	Received By Driver/Depot: Niagara	Received at Lab: Dm	Verified By: Dm
Relinquished By (Print): Nicole Metz	Date/Time: 20 Aug 21	Date/Time: 23/8/21 8:30	Date/Time: 23/8/21 9:00
Date/Time: Aug 20 @ 155	Temperature: 21 °C	Temperature: 8° °C	pH Verified: ☐ By: NA

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Certificate of Analysis

Hallex Environmental Ltd.

4999 Victoria Ave
Niagara Falls, ON L2E 4C9
Attn: Kevin Christian

Client PO:
Project: E-21-55-2
Custody: 58389

Report Date: 30-Aug-2021
Order Date: 24-Aug-2021

Order #: 2135258

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
2135258-01	MW2

Approved By:

Milan Ralitsch, PhD
Senior Technical Manager

Certificate of Analysis

Client: Hallex Environmental Ltd.

Client PO:

Report Date: 30-Aug-2021

Order Date: 24-Aug-2021

Project Description: E-21-55-2

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
PHC F1	CWS Tier 1 - P&T GC-FID	25-Aug-21	27-Aug-21
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	26-Aug-21	30-Aug-21
REG 153: PAHs by GC-MS	EPA 625 - GC-MS, extraction	25-Aug-21	25-Aug-21
REG 153: VOCs by P&T GC-MS	EPA 624 - P&T GC-MS	27-Aug-21	27-Aug-21

Certificate of Analysis
Client: Hallex Environmental Ltd.
Client PO:

Report Date: 30-Aug-2021
Order Date: 24-Aug-2021
Project Description: E-21-55-2

Summary of Exceedances

(If this page is blank then there are no exceedances)

Only those criteria that a sample exceeds will be highlighted in red

Regulatory Comparison:

Paracel Laboratories has provided regulatory guidelines on this report for informational purposes only and makes no representations or warranties that the data is accurate or reflects the current regulatory values. The user is advised to consult with the appropriate official regulations to evaluate compliance. Sample results that are highlighted have exceeded the selected regulatory limit. Calculated uncertainty estimations have not been applied for determining regulatory exceedances. Regulatory limts displayed in brackets, (), applies to medium and fine textured soils.

Criteria:

Client ID	Analyte	MDL / Units	Result	Reg 153/04 (2011)-Table 2 Residential

Certificate of Analysis

Client: **Hallex Environmental Ltd.**

Client PO:

Report Date: 30-Aug-2021

Order Date: 24-Aug-2021

Project Description: E-21-55-2

	Client ID:	MW2	-	-	-	
	Sample Date:	24-Aug-2021	-	-	-	**Criteria:**
	Sample ID:	2135258-01	-	-	-	**Reg 153/04 (2011)-Table 2 Residential**
	Matrix:	Water	-	-	-	
	MDL/Units					
Volatiles						
Acetone	5.0 ug/L	<5.0	-	-	-	(28)
Benzene	0.5 ug/L	<0.5	-	-	-	(0.17)
Bromodichloromethane	0.5 ug/L	<0.5	-	-	-	(1.9)
Bromoform	0.5 ug/L	<0.5	-	-	-	(0.26)
Bromomethane	0.5 ug/L	<0.5	-	-	-	(0.05)
Carbon Tetrachloride	0.2 ug/L	<0.2	-	-	-	(0.12)
Chlorobenzene	0.5 ug/L	<0.5	-	-	-	(2.7)
Chloroform	0.5 ug/L	<0.5	-	-	-	(0.18)
Dibromochloromethane	0.5 ug/L	<0.5	-	-	-	(2.9)
Dichlorodifluoromethane	1.0 ug/L	<1.0	-	-	-	(25)
1,2-Dichlorobenzene	0.5 ug/L	<0.5	-	-	-	(1.7)
1,3-Dichlorobenzene	0.5 ug/L	<0.5	-	-	-	(6)
1,4-Dichlorobenzene	0.5 ug/L	<0.5	-	-	-	(0.097)
1,1-Dichloroethane	0.5 ug/L	<0.5	-	-	-	(0.6)
1,2-Dichloroethane	0.5 ug/L	<0.5	-	-	-	(0.05)
1,1-Dichloroethylene	0.5 ug/L	<0.5	-	-	-	(0.05)
cis-1,2-Dichloroethylene	0.5 ug/L	<0.5	-	-	-	(2.5)
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	-	-	-	(0.75)
1,2-Dichloropropane	0.5 ug/L	<0.5	-	-	-	(0.085)
cis-1,3-Dichloropropylene	0.5 ug/L	<0.5	-	-	-	
trans-1,3-Dichloropropylene	0.5 ug/L	<0.5	-	-	-	
1,3-Dichloropropene, total	0.5 ug/L	<0.5	-	-	-	(0.081)
Ethylbenzene	0.5 ug/L	<0.5	-	-	-	(1.6)

Certificate of Analysis

Client: Hallex Environmental Ltd.

Client PO:

Report Date: 30-Aug-2021

Order Date: 24-Aug-2021

Project Description: E-21-55-2

	Client ID:	MW2	-	-	-	
	Sample Date:	24-Aug-2021	-	-	-	**Criteria:**
	Sample ID:	2135258-01	-	-	-	**Reg 153/04 (2011)-Table 2 Residential**
	Matrix:	Water	-	-	-	
	MDL/Units					
Ethylene dibromide (dibromoethane	0.2 ug/L	<0.2	-	-	-	(0.05)
Hexane	1.0 ug/L	<1.0	-	-	-	(34)
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	<5.0	-	-	-	(44)
Methyl Isobutyl Ketone	5.0 ug/L	<5.0	-	-	-	(4.3)
Methyl tert-butyl ether	2.0 ug/L	<2.0	-	-	-	(1.4)
Methylene Chloride	5.0 ug/L	<5.0	-	-	-	(0.96)
Styrene	0.5 ug/L	<0.5	-	-	-	(2.2)
1,1,1,2-Tetrachloroethane	0.5 ug/L	<0.5	-	-	-	(0.05)
1,1,2,2-Tetrachloroethane	0.5 ug/L	<0.5	-	-	-	(0.05)
Tetrachloroethylene	0.5 ug/L	<0.5	-	-	-	(2.3)
Toluene	0.5 ug/L	<0.5	-	-	-	(6)
1,1,1-Trichloroethane	0.5 ug/L	<0.5	-	-	-	(3.4)
1,1,2-Trichloroethane	0.5 ug/L	<0.5	-	-	-	(0.05)
Trichloroethylene	0.5 ug/L	<0.5	-	-	-	(0.52)
Trichlorofluoromethane	1.0 ug/L	<1.0	-	-	-	(5.8)
Vinyl chloride	0.5 ug/L	<0.5	-	-	-	(0.022)
m,p-Xylenes	0.5 ug/L	<0.5	-	-	-	
o-Xylene	0.5 ug/L	<0.5	-	-	-	
Xylenes, total	0.5 ug/L	<0.5	-	-	-	(25)
4-Bromofluorobenzene	Surrogate	94.2%	-	-	-	
Dibromofluoromethane	Surrogate	60.7%	-	-	-	
Toluene-d8	Surrogate	103%	-	-	-	
Hydrocarbons						
F1 PHCs (C6-C10)	25 ug/L	<25	-	-	-	(65)

Certificate of Analysis

Client: Hallex Environmental Ltd.

Client PO:

Report Date: 30-Aug-2021

Order Date: 24-Aug-2021

Project Description: E-21-55-2

	Client ID:	MW2	-	-	-	
	Sample Date:	24-Aug-2021	-	-	-	**Criteria:**
	Sample ID:	2135258-01	-	-	-	**Reg 153/04 (2011)-Table 2 Residential**
	Matrix:	Water	-	-	-	
	MDL/Units					
F2 PHCs (C10-C16)	100 ug/L	<100	-	-	-	(150)
F3 PHCs (C16-C34)	100 ug/L	<100	-	-	-	(1,300)
F4 PHCs (C34-C50)	100 ug/L	<100	-	-	-	(5,600)
Semi-Volatiles						
Acenaphthene	0.05 ug/L	<0.05	-	-	-	(29)
Acenaphthylene	0.05 ug/L	<0.05	-	-	-	(0.17)
Anthracene	0.01 ug/L	<0.01	-	-	-	(0.74)
Benzo [a] anthracene	0.01 ug/L	<0.01	-	-	-	(0.63)
Benzo [a] pyrene	0.01 ug/L	<0.01	-	-	-	(0.3)
Benzo [b] fluoranthene	0.05 ug/L	<0.05	-	-	-	(0.78)
Benzo [g,h,i] perylene	0.05 ug/L	<0.05	-	-	-	(7.8)
Benzo [k] fluoranthene	0.05 ug/L	<0.05	-	-	-	(0.78)
Chrysene	0.05 ug/L	<0.05	-	-	-	(7.8)
Dibenzo [a,h] anthracene	0.05 ug/L	<0.05	-	-	-	(0.1)
Fluoranthene	0.01 ug/L	<0.01	-	-	-	(0.69)
Fluorene	0.05 ug/L	<0.05	-	-	-	(69)
Indeno [1,2,3-cd] pyrene	0.05 ug/L	<0.05	-	-	-	(0.48)
1-Methylnaphthalene	0.05 ug/L	<0.05	-	-	-	(3.4)
2-Methylnaphthalene	0.05 ug/L	<0.05	-	-	-	(3.4)
Methylnaphthalene (1&2)	0.10 ug/L	<0.10	-	-	-	(3.4)
Naphthalene	0.05 ug/L	<0.05	-	-	-	(0.75)
Phenanthrene	0.05 ug/L	<0.05	-	-	-	(7.8)
Pyrene	0.01 ug/L	<0.01	-	-	-	(78)
2-Fluorobiphenyl	Surrogate	129%	-	-	-	

Certificate of Analysis

Client: Hallex Environmental Ltd.

Client PO:

Report Date: 30-Aug-2021

Order Date: 24-Aug-2021

Project Description: E-21-55-2

	Client ID:	MW2	-	-	-	
	Sample Date:	24-Aug-2021	-	-	-	**Criteria:**
	Sample ID:	2135258-01	-	-	-	**Reg 153/04 (2011)-Table 2 Residential**
	Matrix:	Water	-	-	-	
	MDL/Units					
Terphenyl-d14	Surrogate	156% [2]	-	-	-	

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	25	ug/L						
F2 PHCs (C10-C16)	ND	100	ug/L						
F3 PHCs (C16-C34)	ND	100	ug/L						
F4 PHCs (C34-C50)	ND	100	ug/L						
Semi-Volatiles									
Acenaphthene	ND	0.05	ug/L						
Acenaphthylene	ND	0.05	ug/L						
Anthracene	ND	0.01	ug/L						
Benzo [a] anthracene	ND	0.01	ug/L						
Benzo [a] pyrene	ND	0.01	ug/L						
Benzo [b] fluoranthene	ND	0.05	ug/L						
Benzo [g,h,i] perylene	ND	0.05	ug/L						
Benzo [k] fluoranthene	ND	0.05	ug/L						
Chrysene	ND	0.05	ug/L						
Dibenzo [a,h] anthracene	ND	0.05	ug/L						
Fluoranthene	ND	0.01	ug/L						
Fluorene	ND	0.05	ug/L						
Indeno [1,2,3-cd] pyrene	ND	0.05	ug/L						
1-Methylnaphthalene	ND	0.05	ug/L						
2-Methylnaphthalene	ND	0.05	ug/L						
Methylnaphthalene (1&2)	ND	0.10	ug/L						
Naphthalene	ND	0.05	ug/L						
Phenanthrene	ND	0.05	ug/L						
Pyrene	ND	0.01	ug/L						
Surrogate: 2-Fluorobiphenyl	*3.62*		*ug/L*		*87.1*	*50-140*			
Surrogate: Terphenyl-d14	*6.48*		*ug/L*		*162*	*50-140*			*S-GC*
Volatiles									
Acetone	ND	5.0	ug/L						
Benzene	ND	0.5	ug/L						
Bromodichloromethane	ND	0.5	ug/L						
Bromoform	ND	0.5	ug/L						
Bromomethane	ND	0.5	ug/L						
Carbon Tetrachloride	ND	0.2	ug/L						
Chlorobenzene	ND	0.5	ug/L						
Chloroform	ND	0.5	ug/L						
Dibromochloromethane	ND	0.5	ug/L						
Dichlorodifluoromethane	ND	1.0	ug/L						
1,2-Dichlorobenzene	ND	0.5	ug/L						
1,3-Dichlorobenzene	ND	0.5	ug/L						
1,4-Dichlorobenzene	ND	0.5	ug/L						

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
1,1-Dichloroethane	ND	0.5	ug/L						
1,2-Dichloroethane	ND	0.5	ug/L						
1,1-Dichloroethylene	ND	0.5	ug/L						
cis-1,2-Dichloroethylene	ND	0.5	ug/L						
trans-1,2-Dichloroethylene	ND	0.5	ug/L						
1,2-Dichloropropane	ND	0.5	ug/L						
cis-1,3-Dichloropropylene	ND	0.5	ug/L						
trans-1,3-Dichloropropylene	ND	0.5	ug/L						
1,3-Dichloropropene, total	ND	0.5	ug/L						
Ethylbenzene	ND	0.5	ug/L						
Ethylene dibromide (dibromoethane, 1,2-	ND	0.2	ug/L						
Hexane	ND	1.0	ug/L						
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L						
Methyl Isobutyl Ketone	ND	5.0	ug/L						
Methyl tert-butyl ether	ND	2.0	ug/L						
Methylene Chloride	ND	5.0	ug/L						
Styrene	ND	0.5	ug/L						
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L						
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L						
Tetrachloroethylene	ND	0.5	ug/L						
Toluene	ND	0.5	ug/L						
1,1,1-Trichloroethane	ND	0.5	ug/L						
1,1,2-Trichloroethane	ND	0.5	ug/L						
Trichloroethylene	ND	0.5	ug/L						
Trichlorofluoromethane	ND	1.0	ug/L						
Vinyl chloride	ND	0.5	ug/L						
m,p-Xylenes	ND	0.5	ug/L						
o-Xylene	ND	0.5	ug/L						
Xylenes, total	ND	0.5	ug/L						
Surrogate: 4-Bromofluorobenzene	*74.9*		*ug/L*		*93.6*	*50-140*			
Surrogate: Dibromofluoromethane	*48.9*		*ug/L*		*61.1*	*50-140*			
Surrogate: Toluene-d8	*82.6*		*ug/L*		*103*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Volatiles									
Acetone	ND	5.0	ug/L	ND			NC	30	
Benzene	ND	0.5	ug/L	ND			NC	30	
Bromodichloromethane	ND	0.5	ug/L	ND			NC	30	
Bromoform	ND	0.5	ug/L	ND			NC	30	
Bromomethane	ND	0.5	ug/L	ND			NC	30	
Carbon Tetrachloride	ND	0.2	ug/L	ND			NC	30	
Chlorobenzene	ND	0.5	ug/L	ND			NC	30	
Chloroform	ND	0.5	ug/L	ND			NC	30	
Dibromochloromethane	ND	0.5	ug/L	ND			NC	30	
Dichlorodifluoromethane	ND	1.0	ug/L	ND			NC	30	
1,2-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,3-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,4-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,1-Dichloroethane	ND	0.5	ug/L	ND			NC	30	
1,2-Dichloroethane	ND	0.5	ug/L	ND			NC	30	
1,1-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
cis-1,2-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
trans-1,2-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
1,2-Dichloropropane	ND	0.5	ug/L	ND			NC	30	
cis-1,3-Dichloropropylene	ND	0.5	ug/L	ND			NC	30	
trans-1,3-Dichloropropylene	ND	0.5	ug/L	ND			NC	30	
Ethylbenzene	ND	0.5	ug/L	ND			NC	30	
Ethylene dibromide (dibromoethane, 1,2·	ND	0.2	ug/L	ND			NC	30	
Hexane	ND	1.0	ug/L	ND			NC	30	
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L	ND			NC	30	
Methyl Isobutyl Ketone	ND	5.0	ug/L	ND			NC	30	
Methyl tert-butyl ether	ND	2.0	ug/L	ND			NC	30	
Methylene Chloride	ND	5.0	ug/L	ND			NC	30	
Styrene	ND	0.5	ug/L	ND			NC	30	
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L	ND			NC	30	
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L	ND			NC	30	
Tetrachloroethylene	ND	0.5	ug/L	ND			NC	30	
Toluene	ND	0.5	ug/L	ND			NC	30	
1,1,1-Trichloroethane	ND	0.5	ug/L	ND			NC	30	
1,1,2-Trichloroethane	ND	0.5	ug/L	ND			NC	30	
Trichloroethylene	ND	0.5	ug/L	ND			NC	30	
Trichlorofluoromethane	ND	1.0	ug/L	ND			NC	30	
Vinyl chloride	ND	0.5	ug/L	ND			NC	30	
m,p-Xylenes	ND	0.5	ug/L	ND			NC	30	
o-Xylene	ND	0.5	ug/L	ND			NC	30	

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Surrogate: 4-Bromofluorobenzene	*76.8*		ug/L		*96.0*	*50-140*			
Surrogate: Dibromofluoromethane	*46.9*		ug/L		*58.6*	*50-140*			
Surrogate: Toluene-d8	*82.6*		ug/L		*103*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	565	25	ug/L	ND	79.9	68-117			
F2 PHCs (C10-C16)	1370	100	ug/L	ND	82.9	60-140			
F3 PHCs (C16-C34)	3890	100	ug/L	ND	105	60-140			
F4 PHCs (C34-C50)	2820	100	ug/L	ND	105	60-140			
Semi-Volatiles									
Acenaphthene	2.00	0.05	ug/L	ND	99.8	50-140			
Acenaphthylene	1.87	0.05	ug/L	ND	93.3	50-140			
Anthracene	2.15	0.01	ug/L	ND	107	50-140			
Benzo [a] anthracene	2.21	0.01	ug/L	ND	111	50-140			
Benzo [a] pyrene	2.55	0.01	ug/L	ND	128	50-140			
Benzo [b] fluoranthene	2.58	0.05	ug/L	ND	129	50-140			
Benzo [g,h,i] perylene	2.13	0.05	ug/L	ND	107	50-140			
Benzo [k] fluoranthene	2.34	0.05	ug/L	ND	117	50-140			
Chrysene	2.40	0.05	ug/L	ND	120	50-140			
Dibenzo [a,h] anthracene	2.22	0.05	ug/L	ND	111	50-140			
Fluoranthene	2.55	0.01	ug/L	ND	127	50-140			
Fluorene	2.15	0.05	ug/L	ND	107	50-140			
Indeno [1,2,3-cd] pyrene	2.14	0.05	ug/L	ND	107	50-140			
1-Methylnaphthalene	1.98	0.05	ug/L	ND	99.2	50-140			
2-Methylnaphthalene	1.84	0.05	ug/L	ND	92.0	50-140			
Naphthalene	1.87	0.05	ug/L	ND	93.5	50-140			
Phenanthrene	2.24	0.05	ug/L	ND	112	50-140			
Pyrene	2.17	0.01	ug/L	ND	108	50-140			
Surrogate: 2-Fluorobiphenyl	*4.35*		*ug/L*		*105*	*50-140*			
Surrogate: Terphenyl-d14	*6.10*		*ug/L*		*152*	*50-140*			*S-GC*
Volatiles									
Acetone	104	5.0	ug/L	ND	107	50-140			
Benzene	42.3	0.5	ug/L	ND	105	50-140			
Bromodichloromethane	41.6	0.5	ug/L	ND	103	50-140			
Bromoform	40.4	0.5	ug/L	ND	101	50-140			
Bromomethane	39.0	0.5	ug/L	ND	97.6	50-140			
Carbon Tetrachloride	39.4	0.2	ug/L	ND	98.6	50-140			
Chlorobenzene	42.5	0.5	ug/L	ND	106	50-140			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Chloroform	45.1	0.5	ug/L	ND	112	50-140			
Dibromochloromethane	40.4	0.5	ug/L	ND	101	50-140			
Dichlorodifluoromethane	24.6	1.0	ug/L	ND	61.6	50-140			
1,2-Dichlorobenzene	42.0	0.5	ug/L	ND	105	50-140			
1,3-Dichlorobenzene	42.5	0.5	ug/L	ND	106	50-140			
1,4-Dichlorobenzene	42.0	0.5	ug/L	ND	104	50-140			
1,1-Dichloroethane	40.6	0.5	ug/L	ND	101	50-140			
1,2-Dichloroethane	42.9	0.5	ug/L	ND	107	50-140			
1,1-Dichloroethylene	36.4	0.5	ug/L	ND	91.0	50-140			
cis-1,2-Dichloroethylene	40.1	0.5	ug/L	ND	99.8	50-140			
trans-1,2-Dichloroethylene	41.0	0.5	ug/L	ND	102	50-140			
1,2-Dichloropropane	42.8	0.5	ug/L	ND	107	50-140			
cis-1,3-Dichloropropylene	41.3	0.5	ug/L	ND	103	50-140			
trans-1,3-Dichloropropylene	41.7	0.5	ug/L	ND	104	50-140			
Ethylbenzene	42.6	0.5	ug/L	ND	106	50-140			
Ethylene dibromide (dibromoethane, 1,2-	41.8	0.2	ug/L	ND	104	50-140			
Hexane	52.7	1.0	ug/L	ND	132	50-140			
Methyl Ethyl Ketone (2-Butanone)	108	5.0	ug/L	ND	105	50-140			
Methyl Isobutyl Ketone	112	5.0	ug/L	ND	114	50-140			
Methyl tert-butyl ether	102	2.0	ug/L	ND	102	50-140			
Methylene Chloride	40.4	5.0	ug/L	ND	101	50-140			
Styrene	43.6	0.5	ug/L	ND	108	50-140			
1,1,1,2-Tetrachloroethane	41.9	0.5	ug/L	ND	105	50-140			
1,1,2,2-Tetrachloroethane	43.3	0.5	ug/L	ND	108	50-140			
Tetrachloroethylene	41.3	0.5	ug/L	ND	103	50-140			
Toluene	43.0	0.5	ug/L	ND	108	50-140			
1,1,1-Trichloroethane	40.3	0.5	ug/L	ND	101	50-140			
1,1,2-Trichloroethane	43.8	0.5	ug/L	ND	109	50-140			
Trichloroethylene	42.7	0.5	ug/L	ND	106	50-140			
Trichlorofluoromethane	36.4	1.0	ug/L	ND	91.1	50-140			
Vinyl chloride	33.1	0.5	ug/L	ND	82.8	50-140			
m,p-Xylenes	84.5	0.5	ug/L	ND	105	50-140			
o-Xylene	41.8	0.5	ug/L	ND	104	50-140			
Surrogate: 4-Bromofluorobenzene	*82.9*		*ug/L*		*104*	*50-140*			
Surrogate: Dibromofluoromethane	*88.2*		*ug/L*		*110*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Surrogate: Toluene-d8	*80.1*		*ug/L*		*100*	*50-140*			

PARACEL LABORATORIES LTD.

Order #: 2135258

Certificate of Analysis

Client: Hallex Environmental Ltd.

Client PO:

Report Date: 30-Aug-2021

Order Date: 24-Aug-2021

Project Description: E-21-55-2

Qualifier Notes:

Sample Qualifiers :

2 : Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.

QC Qualifiers :

QS-02 : Spike level outside of control limits. Analysis batch accepted based on other QC included in the batch.

S-GC : Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable
ND: Not Detected
MDL: Method Detection Limit
Source Result: Data used as source for matrix and duplicate samples
%REC: Percent recovery.
RPD: Relative percent difference.
NC: Not Calculated

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory. All prescribed quality criteria identified in the method has been met.
- F1 range corrected for BTEX.
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.
- In the case where F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC criteria.
- When reported, data for F4G has been processed using a silica gel cleanup.

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Paracel ID: 2135258

Chain Of Custody
(Lab Use Only)
№ 58389

Page 1 of 1

Client Name:	
Contact Name:	Hallex Environmental Ltd.
Address:	Contact: Kevin Christian 4999 Victoria Ave. Niagara Falls, ON L2E 4C9
Telephone:	Ph: 905-988-8030
Project Ref:	E-21-355-2
Quote #:	
PO #:	
E-mail:	kchristian@hallex.ca jglasier@hallex.ca

Turnaround Time
- ☐ 1 day
- ☐ 3 day
- ☐ 2 day
- ☑ Regular

Date Required: _____

Regulation 153/04
- ☐ Table 1 ☑ Res/Park ☑ Med/Fine
- ☑ Table 2 ☐ Ind/Comm ☐ Coarse
- ☐ Table 3 ☐ Agri/Other
- ☐ Table ____
- For RSC: ☑ Yes ☐ No

Other Regulation
- ☐ REG 558 ☐ PWQO
- ☐ CCME ☐ MISA
- ☐ SU - Sani ☐ SU - Storm
- Mun: _____
- ☐ Other:

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken: Date	Sample Taken: Time	Required Analysis: PHCs	VOCs	PAH
1	MW2	GW		4	2021-08-24	9	X	X	X
2									
3									
4									
5									
6									
7									
8									
9									
10									

Comments:

Method of Delivery: Walkin

Relinquished By (Sign):	Received By Driver/Depot: Niagara	Received at Lab: AM	Verified By: B Homenick
Relinquished By (Print):	Date/Time: 24Aug21 1145	Date/Time: 24/8/21 8:30	Date/Time: 24Aug 21
Date/Time: 2021-08-24	Temperature: 16.3 °C	Temperature: 15.0 °C	pH Verified: ☐ By: NA

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Certificate of Analysis

Hallex Environmental Ltd.

4999 Victoria Ave
Niagara Falls, ON L2E 4C9
Attn: Kevin Christian

Client PO:
Project: E-21-55-2
Custody:

Report Date: 7-Sep-2021
Order Date: 31-Aug-2021

Order #: 2136245

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID	Paracel ID	Client ID
2136245-01	55-MW-1		
2136245-02	55-MW-2		
2136245-03	55-MW-3		

Approved By:

Milan Ralitsch, PhD
Senior Technical Manager

Certificate of Analysis

Client: Hallex Environmental Ltd.

Client PO:

Report Date: 07-Sep-2021

Order Date: 31-Aug-2021

Project Description: E-21-55-2

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
PHC F1	CWS Tier 1 - P&T GC-FID	3-Sep-21	4-Sep-21
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	3-Sep-21	7-Sep-21
REG 153: Metals by ICP/MS, water	EPA 200.8, ICP-MS	31-Aug-21	1-Sep-21
REG 153: PAHs by GC-MS	EPA 625 - GC-MS, extraction	3-Sep-21	3-Sep-21
REG 153: VOCs by P&T GC-MS	EPA 624 - P&T GC-MS	4-Sep-21	4-Sep-21

Certificate of Analysis
Client: Hallex Environmental Ltd.
Client PO:

Report Date: 07-Sep-2021
Order Date: 31-Aug-2021
Project Description: E-21-55-2

Summary of Exceedances

(If this page is blank then there are no exceedances)

Only those criteria that a sample exceeds will be highlighted in red

Regulatory Comparison:

Paracel Laboratories has provided regulatory guidelines on this report for informational purposes only and makes no representations or warranties that the data is accurate or reflects the current regulatory values. The user is advised to consult with the appropriate official regulations to evaluate compliance. Sample results that are highlighted have exceeded the selected regulatory limit. Calculated uncertainty estimations have not been applied for determining regulatory exceedances. Regulatory limts displayed in brackets, (), applies to medium and fine textured soils.

				Criteria:
Client ID	**Analyte**	**MDL / Units**	**Result**	**Reg 153/04 (2011)-Table 2 Potable Groundwater**
55-MW-1	Benzo [a] pyrene	0.01 ug/L	0.22	(0.01) 0.01 ug/L
55-MW-1	Benzo [b] fluoranthene	0.05 ug/L	0.24	(0.1) 0.1 ug/L
55-MW-1	Benzo [k] fluoranthene	0.05 ug/L	0.11	(0.1) 0.1 ug/L
55-MW-1	Chrysene	0.05 ug/L	0.24	(0.1) 0.1 ug/L
55-MW-1	Fluoranthene	0.01 ug/L	0.57	(0.41) 0.41 ug/L

Certificate of Analysis

Client: **Hallex Environmental Ltd.**

Client PO:

Report Date: 07-Sep-2021

Order Date: 31-Aug-2021

Project Description: E-21-55-2

	Client ID:	55-MW-1	55-MW-2	55-MW-3	-	Criteria:	
	Sample Date:	31-Aug-2021	31-Aug-2021	31-Aug-2021	-		
	Sample ID:	2136245-01	2136245-02	2136245-03	-	Reg 153/04 (2011)-Table 2 Potable Groundwater	
	Matrix:	Ground Water	Ground Water	Ground Water	-		
	MDL/Units						
Metals							
Antimony	0.5 ug/L	-	<0.5	<0.5	-	(6) 6	ug/L
Arsenic	1.0 ug/L	-	<1.0	<1.0	-	(25) 25	ug/L
Barium	1.0 ug/L	-	44.0	52.3	-	(1,000) 1,000	ug/L
Beryllium	0.5 ug/L	-	<0.5	<0.5	-	(4) 4	ug/L
Boron	10.0 ug/L	-	124	92.5	-	(5,000) 5,000	ug/L
Cadmium	0.2 ug/L	-	<0.2	<0.2	-	(2.7) 2.7	ug/L
Chromium	1.0 ug/L	-	<1.0	<1.0	-	(50) 50	ug/L
Cobalt	0.5 ug/L	-	<0.5	<0.5	-	(3.8) 3.8	ug/L
Copper	0.5 ug/L	-	3.3	2.7	-	(87) 87	ug/L
Lead	0.2 ug/L	-	<0.2	0.3	-	(10) 10	ug/L
Molybdenum	0.5 ug/L	-	1.9	1.3	-	(70) 70	ug/L
Nickel	1.0 ug/L	-	3.0	3.1	-	(100) 100	ug/L
Selenium	1.0 ug/L	-	1.7	<1.0	-	(10) 10	ug/L
Silver	0.2 ug/L	-	<0.2	<0.2	-	(1.5) 1.5	ug/L
Sodium	200 ug/L	-	17200	60100	-	(490,000) 490,000	ug/L
Thallium	0.5 ug/L	-	<0.5	<0.5	-	(2) 2	ug/L
Uranium	0.2 ug/L	-	1.8	2.5	-	(20) 20	ug/L
Vanadium	0.5 ug/L	-	<0.5	<0.5	-	(6.2) 6.2	ug/L
Zinc	5.0 ug/L	-	<5.0	<5.0	-	(1,100) 1,100	ug/L
Volatiles							
Acetone	5.0 ug/L	<5.0	-	<5.0	-	(2,700) 2,700	ug/L
Benzene	0.5 ug/L	<0.5	-	<0.5	-	(5) 5	ug/L
Bromodichloromethane	0.5 ug/L	<0.5	-	<0.5	-	(16) 16	ug/L

Certificate of Analysis

Client: **Hallex Environmental Ltd.**

Client PO:

Report Date: 07-Sep-2021

Order Date: 31-Aug-2021

Project Description: E-21-55-2

	Client ID:	55-MW-1	55-MW-2	55-MW-3	-	Criteria:	
	Sample Date:	31-Aug-2021	31-Aug-2021	31-Aug-2021	-		
	Sample ID:	2136245-01	2136245-02	2136245-03	-	Reg 153/04 (2011)-Table 2 Potable Groundwater	
	Matrix:	Ground Water	Ground Water	Ground Water	-		
	MDL/Units						
Bromoform	0.5 ug/L	<0.5	-	<0.5	-	(25) 25	ug/L
Bromomethane	0.5 ug/L	<0.5	-	<0.5	-	(0.89) 0.89	ug/L
Carbon Tetrachloride	0.2 ug/L	<0.2	-	<0.2	-	(5) 0.79	ug/L
Chlorobenzene	0.5 ug/L	<0.5	-	<0.5	-	(30) 30	ug/L
Chloroform	0.5 ug/L	<0.5	-	<0.5	-	(22) 2.4	ug/L
Dibromochloromethane	0.5 ug/L	<0.5	-	<0.5	-	(25) 25	ug/L
Dichlorodifluoromethane	1.0 ug/L	<1.0	-	<1.0	-	(590) 590	ug/L
1,2-Dichlorobenzene	0.5 ug/L	<0.5	-	<0.5	-	(3) 3	ug/L
1,3-Dichlorobenzene	0.5 ug/L	<0.5	-	<0.5	-	(59) 59	ug/L
1,4-Dichlorobenzene	0.5 ug/L	<0.5	-	<0.5	-	(1) 1	ug/L
1,1-Dichloroethane	0.5 ug/L	<0.5	-	<0.5	-	(5) 5	ug/L
1,2-Dichloroethane	0.5 ug/L	<0.5	-	<0.5	-	(5) 1.6	ug/L
1,1-Dichloroethylene	0.5 ug/L	<0.5	-	<0.5	-	(14) 1.6	ug/L
cis-1,2-Dichloroethylene	0.5 ug/L	<0.5	-	<0.5	-	(17) 1.6	ug/L
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	-	<0.5	-	(17) 1.6	ug/L
1,2-Dichloropropane	0.5 ug/L	<0.5	-	<0.5	-	(5) 5	ug/L
cis-1,3-Dichloropropylene	0.5 ug/L	<0.5	-	<0.5	-		
trans-1,3-Dichloropropylene	0.5 ug/L	<0.5	-	<0.5	-		
1,3-Dichloropropene, total	0.5 ug/L	<0.5	-	<0.5	-	(0.5) 0.5	ug/L
Ethylbenzene	0.5 ug/L	<0.5	-	<0.5	-	(2.4) 2.4	ug/L
Ethylene dibromide (dibromoethane	0.2 ug/L	<0.2	-	<0.2	-	(0.2) 0.2	ug/L
Hexane	1.0 ug/L	<1.0	-	<1.0	-	(520) 51	ug/L
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	<5.0	-	<5.0	-	(1,800) 1,800	ug/L

Certificate of Analysis

Client: **Hallex Environmental Ltd.**

Client PO:

Report Date: 07-Sep-2021

Order Date: 31-Aug-2021

Project Description: E-21-55-2

	Client ID:	55-MW-1	55-MW-2	55-MW-3	-		
	Sample Date:	31-Aug-2021	31-Aug-2021	31-Aug-2021	-	**Criteria:**	
	Sample ID:	2136245-01	2136245-02	2136245-03	-	**Reg 153/04 (2011)-Table 2 Potable Groundwater**	
	Matrix:	Ground Water	Ground Water	Ground Water	-		
	MDL/Units						
Methyl Isobutyl Ketone	5.0 ug/L	<5.0	-	<5.0	-	(640) 640	ug/L
Methyl tert-butyl ether	2.0 ug/L	<2.0	-	<2.0	-	(15) 15	ug/L
Methylene Chloride	5.0 ug/L	<5.0	-	<5.0	-	(50) 50	ug/L
Styrene	0.5 ug/L	<0.5	-	<0.5	-	(5.4) 5.4	ug/L
1,1,1,2-Tetrachloroethane	0.5 ug/L	<0.5	-	<0.5	-	(1.1) 1.1	ug/L
1,1,2,2-Tetrachloroethane	0.5 ug/L	<0.5	-	<0.5	-	(1) 1	ug/L
Tetrachloroethylene	0.5 ug/L	<0.5	-	<0.5	-	(17) 1.6	ug/L
Toluene	0.5 ug/L	<0.5	-	<0.5	-	(24) 24	ug/L
1,1,1-Trichloroethane	0.5 ug/L	<0.5	-	<0.5	-	(200) 200	ug/L
1,1,2-Trichloroethane	0.5 ug/L	<0.5	-	<0.5	-	(5) 4.7	ug/L
Trichloroethylene	0.5 ug/L	<0.5	-	<0.5	-	(5) 1.6	ug/L
Trichlorofluoromethane	1.0 ug/L	<1.0	-	<1.0	-	(150) 150	ug/L
Vinyl chloride	0.5 ug/L	<0.5	-	<0.5	-	(1.7) 0.5	ug/L
m,p-Xylenes	0.5 ug/L	<0.5	-	<0.5	-		
o-Xylene	0.5 ug/L	<0.5	-	<0.5	-		
Xylenes, total	0.5 ug/L	<0.5	-	<0.5	-	(300) 300	ug/L
4-Bromofluorobenzene	Surrogate	92.9%	-	94.2%	-		
Dibromofluoromethane	Surrogate	59.0%	-	58.6%	-		
Toluene-d8	Surrogate	103%	-	103%	-		
Hydrocarbons							
F1 PHCs (C6-C10)	25 ug/L	<25	-	<25	-	(750) 750	ug/L
F2 PHCs (C10-C16)	100 ug/L	<100	-	<100	-	(150) 150	ug/L
F3 PHCs (C16-C34)	100 ug/L	<100	-	<100	-	(500) 500	ug/L
F4 PHCs (C34-C50)	100 ug/L	<100	-	<100	-	(500) 500	ug/L

Certificate of Analysis

Client: **Hallex Environmental Ltd.**

Client PO:

Report Date: 07-Sep-2021

Order Date: 31-Aug-2021

Project Description: E-21-55-2

	Client ID:	55-MW-1	55-MW-2	55-MW-3	-	Criteria:	
	Sample Date:	31-Aug-2021	31-Aug-2021	31-Aug-2021	-		
	Sample ID:	2136245-01	2136245-02	2136245-03	-	Reg 153/04 (2011)-Table 2 Potable Groundwater	
	Matrix:	Ground Water	Ground Water	Ground Water	-		
	MDL/Units						
Semi-Volatiles							
Acenaphthene	0.05 ug/L	<0.05	-	<0.05	-	(4.1) 4.1	ug/L
Acenaphthylene	0.05 ug/L	<0.05	-	<0.05	-	(1) 1	ug/L
Anthracene	0.01 ug/L	0.06	-	<0.01	-	(2.4) 2.4	ug/L
Benzo [a] anthracene	0.01 ug/L	0.30	-	<0.01	-	(1) 1	ug/L
Benzo [a] pyrene	0.01 ug/L	0.22	-	<0.01	-	(0.01) 0.01	ug/L
Benzo [b] fluoranthene	0.05 ug/L	0.24	-	<0.05	-	(0.1) 0.1	ug/L
Benzo [g,h,i] perylene	0.05 ug/L	0.07	-	<0.05	-	(0.2) 0.2	ug/L
Benzo [k] fluoranthene	0.05 ug/L	0.11	-	<0.05	-	(0.1) 0.1	ug/L
Chrysene	0.05 ug/L	0.24	-	<0.05	-	(0.1) 0.1	ug/L
Dibenzo [a,h] anthracene	0.05 ug/L	<0.05	-	<0.05	-	(0.2) 0.2	ug/L
Fluoranthene	0.01 ug/L	0.57	-	<0.01	-	(0.41) 0.41	ug/L
Fluorene	0.05 ug/L	<0.05	-	<0.05	-	(120) 120	ug/L
Indeno [1,2,3-cd] pyrene	0.05 ug/L	0.08	-	<0.05	-	(0.2) 0.2	ug/L
1-Methylnaphthalene	0.05 ug/L	0.10	-	<0.05	-	(3.2) 3.2	ug/L
2-Methylnaphthalene	0.05 ug/L	0.17	-	<0.05	-	(3.2) 3.2	ug/L
Methylnaphthalene (1&2)	0.10 ug/L	0.28	-	<0.10	-	(3.2) 3.2	ug/L
Naphthalene	0.05 ug/L	0.15	-	<0.05	-	(11) 11	ug/L
Phenanthrene	0.05 ug/L	0.21	-	<0.05	-	(1) 1	ug/L
Pyrene	0.01 ug/L	0.44	-	<0.01	-	(4.1) 4.1	ug/L
2-Fluorobiphenyl	Surrogate	101%	-	109%	-		
Terphenyl-d14	Surrogate	100%	-	115%	-		

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	25	ug/L						
F2 PHCs (C10-C16)	ND	100	ug/L						
F3 PHCs (C16-C34)	ND	100	ug/L						
F4 PHCs (C34-C50)	ND	100	ug/L						
Metals									
Antimony	ND	0.5	ug/L						
Arsenic	ND	1.0	ug/L						
Barium	ND	1.0	ug/L						
Beryllium	ND	0.5	ug/L						
Boron	ND	10.0	ug/L						
Cadmium	ND	0.2	ug/L						
Chromium	ND	1.0	ug/L						
Cobalt	ND	0.5	ug/L						
Copper	ND	0.5	ug/L						
Lead	ND	0.2	ug/L						
Molybdenum	ND	0.5	ug/L						
Nickel	ND	1.0	ug/L						
Selenium	ND	1.0	ug/L						
Silver	ND	0.2	ug/L						
Sodium	ND	200	ug/L						
Thallium	ND	0.5	ug/L						
Uranium	ND	0.2	ug/L						
Vanadium	ND	0.5	ug/L						
Zinc	ND	5.0	ug/L						
Semi-Volatiles									
Acenaphthene	ND	0.05	ug/L						
Acenaphthylene	ND	0.05	ug/L						
Anthracene	ND	0.01	ug/L						
Benzo [a] anthracene	ND	0.01	ug/L						
Benzo [a] pyrene	ND	0.01	ug/L						
Benzo [b] fluoranthene	ND	0.05	ug/L						
Benzo [g,h,i] perylene	ND	0.05	ug/L						
Benzo [k] fluoranthene	ND	0.05	ug/L						
Chrysene	ND	0.05	ug/L						
Dibenzo [a,h] anthracene	ND	0.05	ug/L						
Fluoranthene	ND	0.01	ug/L						
Fluorene	ND	0.05	ug/L						
Indeno [1,2,3-cd] pyrene	ND	0.05	ug/L						
1-Methylnaphthalene	ND	0.05	ug/L						
2-Methylnaphthalene	ND	0.05	ug/L						

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Methylnaphthalene (1&2)	ND	0.10	ug/L						
Naphthalene	ND	0.05	ug/L						
Phenanthrene	ND	0.05	ug/L						
Pyrene	ND	0.01	ug/L						
Surrogate: 2-Fluorobiphenyl	*3.34*		*ug/L*		*84.0*	*50-140*			
Surrogate: Terphenyl-d14	*4.49*		*ug/L*		*112*	*50-140*			
Volatiles									
Acetone	ND	5.0	ug/L						
Benzene	ND	0.5	ug/L						
Bromodichloromethane	ND	0.5	ug/L						
Bromoform	ND	0.5	ug/L						
Bromomethane	ND	0.5	ug/L						
Carbon Tetrachloride	ND	0.2	ug/L						
Chlorobenzene	ND	0.5	ug/L						
Chloroform	ND	0.5	ug/L						
Dibromochloromethane	ND	0.5	ug/L						
Dichlorodifluoromethane	ND	1.0	ug/L						
1,2-Dichlorobenzene	ND	0.5	ug/L						
1,3-Dichlorobenzene	ND	0.5	ug/L						
1,4-Dichlorobenzene	ND	0.5	ug/L						
1,1-Dichloroethane	ND	0.5	ug/L						
1,2-Dichloroethane	ND	0.5	ug/L						
1,1-Dichloroethylene	ND	0.5	ug/L						
cis-1,2-Dichloroethylene	ND	0.5	ug/L						
trans-1,2-Dichloroethylene	ND	0.5	ug/L						
1,2-Dichloropropane	ND	0.5	ug/L						
cis-1,3-Dichloropropylene	ND	0.5	ug/L						
trans-1,3-Dichloropropylene	ND	0.5	ug/L						
1,3-Dichloropropene, total	ND	0.5	ug/L						
Ethylbenzene	ND	0.5	ug/L						
Ethylene dibromide (dibromoethane, 1,2-	ND	0.2	ug/L						
Hexane	ND	1.0	ug/L						
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L						
Methyl Isobutyl Ketone	ND	5.0	ug/L						
Methyl tert-butyl ether	ND	2.0	ug/L						
Methylene Chloride	ND	5.0	ug/L						
Styrene	ND	0.5	ug/L						
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L						
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L						
Tetrachloroethylene	ND	0.5	ug/L						
Toluene	ND	0.5	ug/L						
1,1,1-Trichloroethane	ND	0.5	ug/L						

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
1,1,2-Trichloroethane	ND	0.5	ug/L						
Trichloroethylene	ND	0.5	ug/L						
Trichlorofluoromethane	ND	1.0	ug/L						
Vinyl chloride	ND	0.5	ug/L						
m,p-Xylenes	ND	0.5	ug/L						
o-Xylene	ND	0.5	ug/L						
Xylenes, total	ND	0.5	ug/L						
Surrogate: 4-Bromofluorobenzene	*74.7*		*ug/L*		*93.4*	*50-140*			
Surrogate: Dibromofluoromethane	*47.9*		*ug/L*		*59.9*	*50-140*			
Surrogate: Toluene-d8	*81.5*		*ug/L*		*102*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	25	ug/L	ND			NC	30	
Metals									
Antimony	ND	0.5	ug/L	ND			NC	20	
Arsenic	1.1	1.0	ug/L	1.1			2.0	20	
Barium	58.9	1.0	ug/L	59.1			0.2	20	
Beryllium	ND	0.5	ug/L	ND			NC	20	
Boron	113	10.0	ug/L	108			4.5	20	
Cadmium	ND	0.2	ug/L	ND			NC	20	
Chromium	ND	1.0	ug/L	ND			NC	20	
Cobalt	3.1	0.5	ug/L	3.0			2.6	20	
Copper	ND	0.5	ug/L	ND			NC	20	
Lead	ND	0.2	ug/L	ND			NC	20	
Molybdenum	ND	0.5	ug/L	ND			NC	20	
Nickel	2.9	1.0	ug/L	3.0			1.6	20	
Selenium	ND	1.0	ug/L	ND			NC	20	
Silver	ND	0.2	ug/L	ND			NC	20	
Sodium	120000	200	ug/L	118000			1.2	20	
Thallium	ND	0.5	ug/L	ND			NC	20	
Uranium	ND	0.2	ug/L	0.5			NC	20	
Vanadium	ND	0.5	ug/L	ND			NC	20	
Zinc	ND	5.0	ug/L	ND			NC	20	
Volatiles									
Acetone	5.97	5.0	ug/L	5.95			0.3	30	
Benzene	0.54	0.5	ug/L	0.53			1.9	30	
Bromodichloromethane	ND	0.5	ug/L	ND			NC	30	
Bromoform	ND	0.5	ug/L	ND			NC	30	
Bromomethane	ND	0.5	ug/L	ND			NC	30	
Carbon Tetrachloride	ND	0.2	ug/L	ND			NC	30	
Chlorobenzene	ND	0.5	ug/L	ND			NC	30	
Chloroform	ND	0.5	ug/L	ND			NC	30	
Dibromochloromethane	ND	0.5	ug/L	ND			NC	30	
Dichlorodifluoromethane	ND	1.0	ug/L	ND			NC	30	
1,2-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,3-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,4-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,1-Dichloroethane	ND	0.5	ug/L	ND			NC	30	
1,2-Dichloroethane	ND	0.5	ug/L	ND			NC	30	
1,1-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
cis-1,2-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
trans-1,2-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
1,2-Dichloropropane	ND	0.5	ug/L	ND			NC	30	
cis-1,3-Dichloropropylene	ND	0.5	ug/L	ND			NC	30	
trans-1,3-Dichloropropylene	ND	0.5	ug/L	ND			NC	30	
Ethylbenzene	ND	0.5	ug/L	ND			NC	30	
Ethylene dibromide (dibromoethane, 1,2-	ND	0.2	ug/L	ND			NC	30	
Hexane	ND	1.0	ug/L	ND			NC	30	
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L	ND			NC	30	
Methyl Isobutyl Ketone	ND	5.0	ug/L	ND			NC	30	
Methyl tert-butyl ether	ND	2.0	ug/L	ND			NC	30	
Methylene Chloride	ND	5.0	ug/L	ND			NC	30	
Styrene	ND	0.5	ug/L	ND			NC	30	
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L	ND			NC	30	
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L	ND			NC	30	
Tetrachloroethylene	ND	0.5	ug/L	ND			NC	30	
Toluene	ND	0.5	ug/L	ND			NC	30	
1,1,1-Trichloroethane	ND	0.5	ug/L	ND			NC	30	
1,1,2-Trichloroethane	ND	0.5	ug/L	ND			NC	30	
Trichloroethylene	5.59	0.5	ug/L	4.91			13.0	30	
Trichlorofluoromethane	ND	1.0	ug/L	ND			NC	30	
Vinyl chloride	ND	0.5	ug/L	ND			NC	30	
m,p-Xylenes	ND	0.5	ug/L	ND			NC	30	
o-Xylene	ND	0.5	ug/L	ND			NC	30	
Surrogate: 4-Bromofluorobenzene	*80.7*		ug/L		*101*	*50-140*			
Surrogate: Dibromofluoromethane	*52.7*		ug/L		*65.9*	*50-140*			
Surrogate: Toluene-d8	*80.7*		ug/L		*101*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	697	25	ug/L	ND	98.5	68-117			
F2 PHCs (C10-C16)	1640	100	ug/L	ND	99.4	60-140			
F3 PHCs (C16-C34)	3680	100	ug/L	ND	99.2	60-140			
F4 PHCs (C34-C50)	2440	100	ug/L	ND	91.5	60-140			
Metals									
Antimony	49.0	0.5	ug/L	ND	98.0	70-130			
Arsenic	57.7	1.0	ug/L	1.1	113	70-130			
Barium	104	1.0	ug/L	59.1	89.3	70-130			
Beryllium	50.4	0.5	ug/L	ND	101	70-130			
Boron	149	10.0	ug/L	108	81.9	70-130			
Cadmium	46.8	0.2	ug/L	ND	93.5	70-130			
Chromium	47.1	1.0	ug/L	ND	94.2	70-130			
Cobalt	48.8	0.5	ug/L	3.0	91.7	70-130			
Copper	44.5	0.5	ug/L	ND	89.1	70-130			
Lead	43.4	0.2	ug/L	ND	86.8	70-130			
Molybdenum	49.3	0.5	ug/L	ND	98.7	70-130			
Nickel	48.6	1.0	ug/L	3.0	91.3	70-130			
Selenium	61.7	1.0	ug/L	ND	123	70-130			
Silver	43.9	0.2	ug/L	ND	87.8	70-130			
Sodium	113000	200	ug/L	118000	-584	70-130			QM-4X
Thallium	43.8	0.5	ug/L	ND	87.6	70-130			
Uranium	45.9	0.2	ug/L	0.5	90.8	70-130			
Vanadium	49.0	0.5	ug/L	ND	98.0	70-130			
Zinc	45.1	5.0	ug/L	ND	90.3	70-130			
Semi-Volatiles									
Acenaphthene	2.37	0.05	ug/L	ND	118	50-140			
Acenaphthylene	2.40	0.05	ug/L	ND	120	50-140			
Anthracene	2.63	0.01	ug/L	ND	132	50-140			
Benzo [a] anthracene	2.64	0.01	ug/L	ND	132	50-140			
Benzo [a] pyrene	2.74	0.01	ug/L	ND	137	50-140			
Benzo [b] fluoranthene	2.35	0.05	ug/L	ND	117	50-140			
Benzo [g,h,i] perylene	1.92	0.05	ug/L	ND	96.1	50-140			
Benzo [k] fluoranthene	2.10	0.05	ug/L	ND	105	50-140			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Chrysene	2.33	0.05	ug/L	ND	117	50-140			
Dibenzo [a,h] anthracene	2.09	0.05	ug/L	ND	104	50-140			
Fluoranthene	2.63	0.01	ug/L	ND	132	50-140			
Fluorene	2.54	0.05	ug/L	ND	127	50-140			
Indeno [1,2,3-cd] pyrene	2.07	0.05	ug/L	ND	104	50-140			
1-Methylnaphthalene	2.51	0.05	ug/L	ND	126	50-140			
2-Methylnaphthalene	2.43	0.05	ug/L	ND	122	50-140			
Naphthalene	2.17	0.05	ug/L	ND	109	50-140			
Phenanthrene	2.60	0.05	ug/L	ND	130	50-140			
Pyrene	2.49	0.01	ug/L	ND	125	50-140			
Surrogate: 2-Fluorobiphenyl	*4.09*		*ug/L*		*103*	*50-140*			
Surrogate: Terphenyl-d14	*4.06*		*ug/L*		*101*	*50-140*			
Volatiles									
Acetone	93.5	5.0	ug/L	ND	95.8	50-140			
Benzene	36.3	0.5	ug/L	ND	90.2	60-130			
Bromodichloromethane	33.4	0.5	ug/L	ND	83.1	60-130			
Bromoform	35.7	0.5	ug/L	ND	88.8	60-130			
Bromomethane	32.1	0.5	ug/L	ND	80.2	50-140			
Carbon Tetrachloride	32.7	0.2	ug/L	ND	81.7	60-130			
Chlorobenzene	34.4	0.5	ug/L	ND	85.6	60-130			
Chloroform	37.3	0.5	ug/L	ND	92.7	60-130			
Dibromochloromethane	35.2	0.5	ug/L	ND	88.1	60-130			
Dichlorodifluoromethane	38.1	1.0	ug/L	ND	95.2	50-140			
1,2-Dichlorobenzene	32.5	0.5	ug/L	ND	81.2	60-130			
1,3-Dichlorobenzene	32.4	0.5	ug/L	ND	81.1	60-130			
1,4-Dichlorobenzene	32.3	0.5	ug/L	ND	80.3	60-130			
1,1-Dichloroethane	32.3	0.5	ug/L	ND	80.7	60-130			
1,2-Dichloroethane	36.7	0.5	ug/L	ND	91.3	60-130			
1,1-Dichloroethylene	30.7	0.5	ug/L	ND	76.7	60-130			
cis-1,2-Dichloroethylene	31.5	0.5	ug/L	ND	78.4	60-130			
trans-1,2-Dichloroethylene	30.8	0.5	ug/L	ND	76.6	60-130			
1,2-Dichloropropane	33.2	0.5	ug/L	ND	83.1	60-130			
cis-1,3-Dichloropropylene	30.4	0.5	ug/L	ND	76.1	60-130			
trans-1,3-Dichloropropylene	30.6	0.5	ug/L	ND	76.2	60-130			
Ethylbenzene	33.5	0.5	ug/L	ND	83.4	60-130			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Ethylene dibromide (dibromoethane, 1,2-	33.1	0.2	ug/L	ND	82.4	60-130			
Hexane	37.4	1.0	ug/L	ND	93.6	60-130			
Methyl Ethyl Ketone (2-Butanone)	91.6	5.0	ug/L	ND	89.4	50-140			
Methyl Isobutyl Ketone	78.6	5.0	ug/L	ND	80.6	50-140			
Methyl tert-butyl ether	80.0	2.0	ug/L	ND	80.0	50-140			
Methylene Chloride	38.1	5.0	ug/L	ND	94.7	60-130			
Styrene	33.6	0.5	ug/L	ND	83.3	60-130			
1,1,1,2-Tetrachloroethane	34.0	0.5	ug/L	ND	85.0	60-130			
1,1,2,2-Tetrachloroethane	32.1	0.5	ug/L	ND	79.8	60-130			
Tetrachloroethylene	35.6	0.5	ug/L	ND	88.7	60-130			
Toluene	33.3	0.5	ug/L	ND	83.2	60-130			
1,1,1-Trichloroethane	32.9	0.5	ug/L	ND	82.4	60-130			
1,1,2-Trichloroethane	33.9	0.5	ug/L	ND	84.3	60-130			
Trichloroethylene	35.4	0.5	ug/L	ND	88.2	60-130			
Trichlorofluoromethane	32.3	1.0	ug/L	ND	80.8	60-130			
Vinyl chloride	32.9	0.5	ug/L	ND	82.2	50-140			
m,p-Xylenes	66.7	0.5	ug/L	ND	83.2	60-130			
o-Xylene	33.4	0.5	ug/L	ND	83.0	60-130			
Surrogate: 4-Bromofluorobenzene	*82.8*		*ug/L*		*103*	*50-140*			
Surrogate: Dibromofluoromethane	*86.2*		*ug/L*		*108*	*50-140*			
Surrogate: Toluene-d8	*78.0*		*ug/L*		*97.5*	*50-140*			

PARACEL LABORATORIES LTD.

Order #: 2136245

Certificate of Analysis

Client: Hallex Environmental Ltd.

Client PO:

Report Date: 07-Sep-2021

Order Date: 31-Aug-2021

Project Description: E-21-55-2

Qualifier Notes:

QC Qualifiers :

QM-4X : The spike recovery was outside of QC acceptance limits due to elevated analyte concentration.

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable
ND: Not Detected
MDL: Method Detection Limit
Source Result: Data used as source for matrix and duplicate samples
%REC: Percent recovery.
RPD: Relative percent difference.
NC: Not Calculated

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory. All prescribed quality criteria identified in the method has been met.
- F1 range corrected for BTEX.
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.
- In the case where F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC criteria.
- When reported, data for F4G has been processed using a silica gel cleanup.

Paracel ID: 2136245

PARACEL LABORATORIES LTD.

www.paracellabs.com

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)

Client Name: Hallex Environmental	Project Ref: E-21-55-2	Page 1 of 1
Contact Name: Kevin Christian	Quote #:	
Address: 4999 Victoria Avenue, Niagara Falls, ON	PO #:	Turnaround Time: ☐ 1 day ☐ 3 day ☐ 2 day ☒ Regular
Telephone: 905-988-8030	E-mail: jglasier@hallex.ca, kchristian@hallex.ca	Date Required:

Regulation 153/04: ☐ Table 1 ☒ Res/Park ☒ Med/Fine ☒ Table 2 ☐ Ind/Comm ☐ Coarse ☐ Table 3 ☐ Agri/Other ☐ Table ___ For RSC: ☒ Yes ☐ No

Other Regulation: ☐ REG 558 ☐ PWQO ☐ CCME ☐ MISA ☐ SU - Sani ☐ SU - Storm Mun: ☐ Other:

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken: Date	Sample Taken: Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	PHCs (F1-44)	Required Analysis
1	55-MW-1	GW		4	Aug 31/21	AM	☐	✓	✓	☐	☐	☐	☐	✓	
2	55-MW-2	GW		1	"	AM	☐	☐	☐	✓	☐	☐	☐	☐	
3	55-MW-3	GW		5	"	PM	☐	✓	✓	✓	☐	☐	☐	✓	
4							☐	☐	☐	☐	☐	☐	☐	☐	
5							☐	☐	☐	☐	☐	☐	☐	☐	
6							☐	☐	☐	☐	☐	☐	☐	☐	
7							☐	☐	☐	☐	☐	☐	☐	☐	
8							☐	☐	☐	☐	☐	☐	☐	☐	
9							☐	☐	☐	☐	☐	☐	☐	☐	
10							☐	☐	☐	☐	☐	☐	☐	☐	

Comments:

Method of Delivery: Walkin

Relinquished By (Sign):	Received By Driver/Depot:	Received at Lab: AM	Verified By: AM
Relinquished By (Print): C. COLBOURNE	Date/Time:	Date/Time: 31/8/21 15:30	Date/Time: 31/8/21 15:55
Date/Time: Aug 31/21 @1431hrs	Temperature: °C	Temperature: 21.2 °C	pH Verified: ☐ By: AM

Chain of Custody (Env).xlsx

Revsion 3.0