SOIL ASSESSMENT RECORD

CLIENT & SITE INFORMATION

Client	Township of Esquimalt 1229 Esquimalt Road, Esquimalt, BC V9A 3P1
Soil Assessment Site Location (Source Site)	Roadway fronting 308 Uganda Avenue, Victoria, BC
CSR Soil Standards[1] Considered to Apply for Soil Relocation	Agricultural (AL), Urban Park (PL), Residential Low Density (RLld), Residential High Density (RLhd), Commercial (CL), Industrial (IL), and relevant Regional Background Concentrations[2].
Current Site Land Use	Municipal road right-of-way (IL).
Historical Site Land Use	According to our interview with the Client and review of available aerial/satellite imagery (Google Earth and the local government online mapping application), the Site has been a road right-of-way since at least the 1930s.
CSR Schedule 2 Activities	No current Schedule 2 activities identified based on our site inspection. We have reasonably assumed that no historical Schedule 2 activities would have occurred based on the site location and apparent history as a road right-of-way.

SCOPE OF WORK & FIELD OBSERVATIONS

Assessment Type	In-situ (borehole) sampling
Approximate Soil Volume (m3)	~30m^3
Soil Description	Fill soil (up to 0.5m depth): Silt, trace sand, trace rootlets, brown, firm, dry.
Potential Contamination Sources Identified	Fill soil of unknown origin identified, as described above. Potential road salting.
Field Evidence of Contamination	No staining, odours or elevated headspace vapour measurements (maximum 0 ppm) observed.
Laboratory Analysis	Potential Contaminants of Concern (PCOCs) analyzed: Metals, LEPHs[3], HEPHs[4], PAHs,[5] Sodium and Chloride Ions Rationale: These parameters were selected for general chemical assessment purposes, and to address the potential contamination sources described above.
Sample Count	1 discrete soil sample

[1] BC Contaminated Sites Regulation (CSR) Schedule 3.1, Parts 1, 2 and 3. Assumes that all site-specific factors apply (groundwater used for irrigation applied to Agricultural land uses only). For pH-dependent standards, the applicable soil pH was determined on a sample-by-sample basis.
[2] BC Ministry of Environment and Parks (ENV), Protocol 4 – Establishing Background Concentrations in Soil, Table 1
[3] Light Extractable Petroleum Hydrocarbons
[4] Heavy Extractable Petroleum Hydrocarbons
[5] Polycyclic Aromatic Hydrocarbons

Approximate Sample Frequency & Rationale	One sample per $30m^3$ This scope of work was considered sufficient to assess the overall chemical quality of the soil. The assessment generally followed the sampling methodologies provided in TG1[6], and our internal standard protocols. However, we note that TG1 was not considered to strictly apply, as the soil was not suspected to be contaminated.

Soil analysis results are presented on the attached Tables and Laboratory Certificates, and are summarized below:

SUMMARY OF RESULTS

Assessed Soil	Chemically Suitable for Disposal (Land Uses)	Chemically NOT Suitable for Disposal (Land Uses)	Comments
In-situ soil (AE25-BH106)	Urban Park Residential Low-Density Residential High-Density Commercial Industrial	Agricultural	This soil is suitable for a clean fill receiver site (Residential Low Density). The concentration Benzo(a)Pyrene exceeded the "rule of 20"[7] Hazardous Waste screening concentrations. While we considered there to be a low risk of Hazardous Waste being present, leachate analysis may be warranted prior to relocation to confirm that the soil is not Hazardous Waste.

Given that no current or historical Schedule 2 activities were identified at the Site, the assessment and relocation of this soil is not required to comply with the testing and public notification provisions set out in Section 55 of the BC Environmental Management Act, Sections 42 and 43 of the CSR, and Protocol 19[8].

It is the responsibility of the proposed soil receiver site operator and/or their Qualified Environmental Professional (QEP) to review the laboratory analytical results, to independently determine whether the assessed soil is suitable for acceptance, and to confirm that any necessary permits or other authorizations are in place. Active Earth may also be engaged to evaluate suitability of the soil for relocation to specific receiving sites.

For parameters with pH-dependent standards, the applicable soil pH was determined by Active Earth on a sample-by-sample basis. It is the responsibility of the proposed soil receiver site

[6] BC Ministry of Environment and Parks, Technical Guidance Document 1: Site Characterization and Confirmation Testing (January 2009).
[7] The leachate analysis procedure used to determine presence/absence of Hazardous Waste utilizes an extraction fluid that is 20 times the weight of the soil sample. The maximum possible concentration in the analysis leachate is therefore 1/20th of the concentration in soil. If the soil concentration is *less than* 20 times the HWR leachate standard, it is *not possible* for the soil to be Hazardous Waste. If the soil concentration is *equal to or greater than* 20 times the HWR leachate standard, it is *theoretically possible* for the soil to be Hazardous Waste.
[8] BC Ministry of Environment and Parks (ENV), Protocol 19: Site Investigation and Reporting (January 24, 2023).

operator and/or their QEP to determine whether the reported concentrations of parameters with pH-dependent standards are acceptable.

Our scope of work was strictly limited to assessing soil quality for relocation purposes. While we assume that the IL standards would apply to the Source Site, we have not verified this assumption, nor have we evaluated the site-specific factors that would apply to the Source Site.

Active Earth has confirmed that select results would exceed the *assumed* IL Source Site standards. As such, off-Site relocation of the assessed soil would be considered Independent Remediation. A QEP such as Active Earth should be engaged to verify the Source Site standards and submit the required notifications. **Notification of Independent Remediation (NIR) initiation must be submitted to the BC Ministry of Environment and Parks (ENV) within 3 days of the start of remediation, and NIR completion must be submitted to ENV within 90 days of the completion of remediation.**

LIMITATIONS & CLOSURE

The use of this report by anyone is subject the limitations provided here: https://activeearth.ca/documents/211206_soil_assessment_limitations.pdf

We trust this provides the information required at this time. If you have any questions, or require additional clarification, please contact the undersigned.

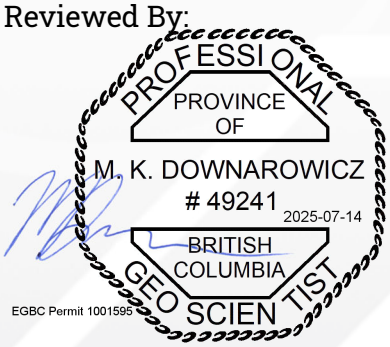
Sincerely,

ACTIVE EARTH ENGINEERING LTD.

Prepared By:

Emmanuelle Caws, P.Eng.
Project Engineer

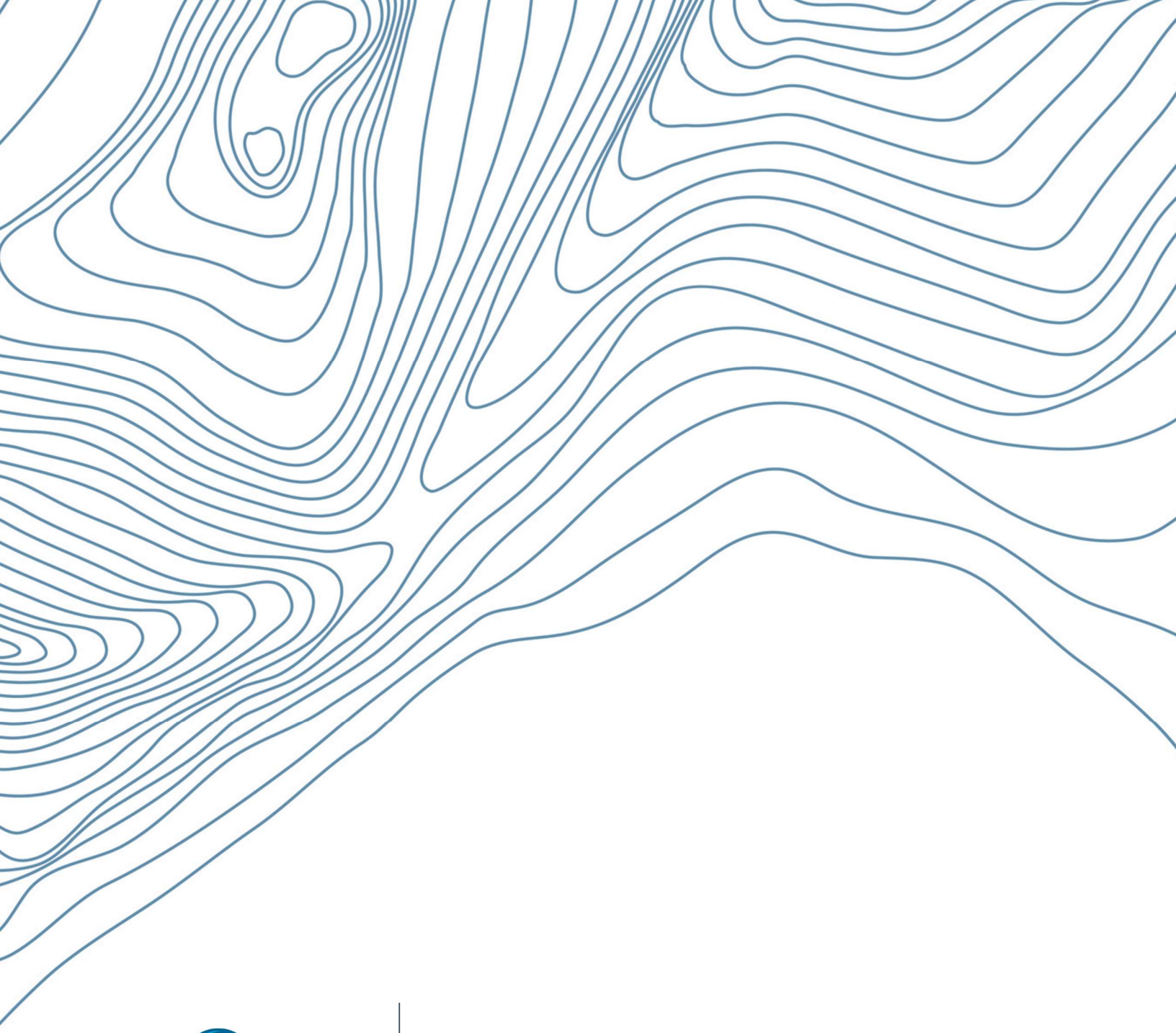
Reviewed By:



Marek Downarowicz, P.Geo.
Partner, Senior Geoscientist

ENCL.

- Figure – Soil Investigation Location
- Tables – Analytical Results for Soil (Conservative Soil Relocation Standards)
- Laboratory Certificates



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LIST OF ACRONYMS

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LIST OF ACRONYMS

AEC	Area of Environmental Concern
AiP	Approval in Principle
AL	Agricultural Land Use Standards (CSR), or Agricultural Guidelines/Standards (CCME CSQG or CWS)
APEC	Area of Potential Environmental Concern
AST	Above Ground Storage Tank
AWfw/m	Aquatic Life Standards (CSR) (fw – freshwater, m – marine)
BCWQG	British Columbia Water Quality Guidelines
BTEXS	Benzene, Toluene, Ethylbenzene, Xylenes, and Styrene
CCME	Canadian Council of Ministers of the Environment
CL	Commercial Land Use Standards (CSR), or Commercial Guidelines/Standards (CCME CSQG or CWS)
CoC	Certificate of Compliance
COC	Contaminant of Concern
CSM	Conceptual Site Model
CSQG	Canadian Soil Quality Guidelines (CCME)
CSR	Contaminated Sites Regulation
CWS	Canada Wide Standards (CCME)
DSI	Detailed Site Investigation
DW	Drinking Water Standards (CSR)
ENV	BC Ministry of Environment & Parks
EPHw	Extractable Petroleum Hydrocarbons (w – water)
ESA	Environmental Site Assessment
GCDWQ	Guidelines for Canadian Drinking Water Quality
HBM	Hazardous Building Materials
HDPE	High-Density Polyethylene
HEPHs	Heavy Extractable Petroleum Hydrocarbons (s – soil)
HWR	BC Hazardous Waste Regulation
IL	Industrial Land Use Standards (CSR), or Industrial Guidelines/Standards (CCME CSQG or CWS)
IW	Irrigation Water Standards (CSR)
LEPHs/w	Light Extractable Petroleum Hydrocarbons (s – soil, w – water)
LW	Livestock Watering Standards (CSR)
MDL	Method Detection Limit
MTBE	Methyl Tertiary Butyl Ether (also referred to as Methyl Tert-Butyl Ether)
NIR	Notification of Independent Remediation
PAH	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyl
PCOC	Potential Contaminant of Concern
PERC	Tetrachloroethylene
Phase I	Phase I Environmental Site Assessment
Phase II	Phase II Environmental Site Assessment
PL	Urban Park Land Use Standards (CSR), or Parkland Guidelines/Standards (CCME CSQG or CWS)
PSI	Preliminary Site Investigation
RL	Residential Guidelines/Standards (CCME CSQG or CWS)
RLld	Residential Low-Density Land Use Standards (CSR)
RLhd	Residential High-Density Land Use Standards (CSR)
Stage 1	Stage 1 Preliminary Site Investigation
Stage 2	Stage 2 Preliminary Site Investigation
TCE	Trichloroethylene
VOC	Volatile Organic Compounds
VHw	Volatile Hydrocarbons (w – water)
VPHs/w/v	Volatile Petroleum Hydrocarbons (s – soil, w – water, v – vapour)
UST	Underground Storage Tank
WLn	Wildlands Natural Land Use Standards (CSR)
WLr	Wildlands Reverted Land Use Standards (CSR)
WTN	Well Tag Number

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FIGURES

307

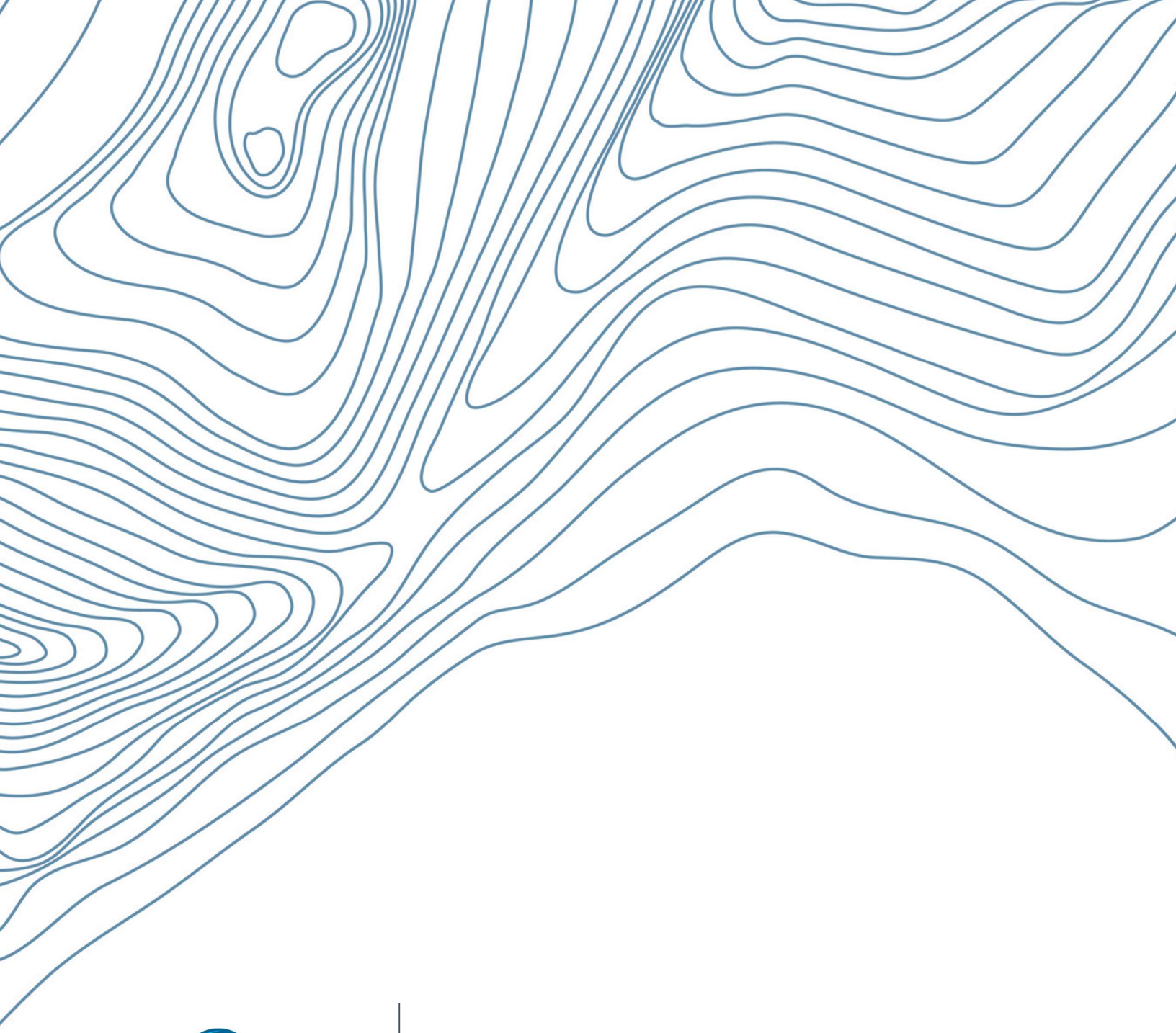
306

UGANDA AVE.

308

Power Box

AE25-BH106



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TABLES

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Analytical Table Footnotes: Analytical Results for Soil - Comparison to Conservative Soil Relocation Standards

Tables should be viewed and printed in colour.

All concentrations in µg/g, except pH or where otherwise noted.

All terms defined within the body of Active Earth's report.

< Result is less than the laboratory detection limit indicated.

\- Parameter not analyzed or no standard or guideline applies.

* RPDs are not normally calculated where one or more concentrations are less than five times MDL.

(1) BC Contaminated Sites Regulation (CSR BC Reg. 375/96, including amendments up to the date of this report), Numerical Soil Standards (Schedule 3.1 Parts 1, 2, and 3) for soil relocation to the receiver site land uses indicated below. When evaluating soil relocation, all site specific factors are considered to apply (except groundwater used for irrigation, which was considered to apply to Agricultural lands only, not Residential Low-Density or Urban Park lands). If any results exceed these standards, the soil relocation to the respective land use is prohibited unless the receiver site is duly authorized by Permit or Contaminated Soil Relocation Agreement (CSRA).

Applicable Site-Specific Factors (CSR)	Soil Relocation Land Use Standards (CSR)	
Intake of contaminated soil	Agricultural (AL)	Included for Information Purposes
Toxicity to soil invertebrates and plants	Urban Park (PL)	Included for Information Purposes
Groundwater used for drinking water	Residential - Low Density (RLld)	Included for Information Purposes
Groundwater flow to surface water used by aquatic life - freshwater and marine	Residential - High Density (RLhd)	Included for Information Purposes
Livestock ingesting soil and fodder (applied to Agricultural land use standards only)	Commercial (CL)	Included for Information Purposes
Major microbial functional impairment (applied to Agricultural land use standards only)	Industrial (IL)	Included for Information Purposes
Groundwater used for livestock watering (applied to Agricultural land use standards only)		
Groundwater used for irrigation (applied to Agricultural land use standards only)		

(2) The standards referenced are for light extractable petroleum hydrocarbons (LEPH) and heavy extractable petroleum hydrocarbons (HEPH), which are corrected for Polycyclic Aromatic Hydrocarbons (PAHs). EPH (c_{10} - c_{19}) and EPH (c_{19} - c_{32}) are uncorrected for PAH.

(3) Total chromium standard shown is the more conservative of the Standards for chromium +6 and chromium +3.

(4) BC Hazardous Waste Regulation (HWR BC Reg. 63/88 including amendments up to the date of this report), Schedule 1 and Schedule 4 Table 1. Hazardous Waste PAH standard as per Section 1 definition for Waste Containing PAH.

(5) ENV Protocol 4 - Establishing Background Concentrations in Soil (Version 14, March 20, 2023), Table 1.

(6) If the results are equal to or exceed the trigger concentration, then TCLP Leachate analysis may be required to determine if the material is Hazardous Waste before a receiver facility will accept the soil.

BLUE TEXT	Concentration less than Laboratory Method Detection Limit
BOLD, UNDERLINE	Laboratory Method Detection Limit exceeds one or more standard
THICK OUTLINE	Concentration greater than or equal to HW Leachate Analysis Trigger Concentration
MAGENTA SHADING	Concentration greater than HWR Standard
GREY SHADING	Concentration greater than applicable CSR Standard but within relevant Protocol 4 Regional Background Concentration
ORANGE SHADING	Concentration greater than CSR standards that control relocation to Agricultural (AL) Land Use Receiver Sites
LIGHT BLUE SHADING	Concentration greater than CSR standards that control relocation to Urban Park (PL) Land Use Receiver Sites
BLUE SHADING	Concentration greater than CSR standards that control relocation to Residential - Low Density (RLld) Land Use Receiver Sites
BOLD, BLUE SHADING	Concentration greater than CSR standards that control relocation to Residential - High Density (RLhd) Land Use Receiver Sites
RED SHADING	Concentration greater than CSR standards that control relocation to Commercial (CL) Land Use Receiver Sites
BOLD, RED SHADING	Concentration greater than CSR standards that control relocation to Industrial (IL) Land Use Receiver Sites

Associated Lab Files: VA25B1542

Table 1: Analytical Results for Hydrocarbons in Soil

							Sample Address		**308 Uganda Ave**
							Sample Location		**AE25-BH106**
							Sample ID		106-1
							Depth (m)		0.4
							Vapour Reading (ppm)		0
							Fill/Native		Fill
							Date Sampled		16-May-2025
Completed by: CL	**CSR Soil Relocation Standards[1] (Assumed/Conservative)**						**Hazardous Waste Standards[4]**	**Hazardous Waste Leachate Analysis Trigger Concentration[6]**	
Review by: HH	**Agricultural (AL)**	**Urban Park (PL)**	**Residential Low Density (RLld)**	**Residential High Density (RLhd)**	**Commercial (CL)**	**Industrial (IL)**			
Extractable Petroleum Hydrocarbons (ug/g)									
EPH (C10-C19)	**1,000**	**1,000**	**1,000**	**1,000**	**2,000**	**2,000**	-	-	<200
EPH (C19-C32)	**1,000**	**1,000**	**1,000**	**1,000**	**5,000**	**5,000**	-	-	<200
LEPHs	**1,000**	**1,000**	**1,000**	**1,000**	**2,000**	**2,000**	-	-	<200
HEPHs	**1,000**	**1,000**	**1,000**	**1,000**	**5,000**	**5,000**	-	-	<200
Polycyclic Aromatic Hydrocarbons (ug/g)									
Acenaphthene	**950**	**2,000**	**950**	**2,000**	**15,000**	**15,000**	-	-	0.0084
Acenaphthylene	-	-	-	-	-	-	-	-	0.160
Acridine	-	-	-	-	-	-	-	-	0.011
Anthracene	**2.5**	**2.5**	**2.5**	**30**	**30**	**30**		-	0.0870
Benz(a)anthracene	**0.1**	**1**	**1**	**10**	**10**	**10**	-	-	0.412
Benzo(a)pyrene	**5**	**10**	**5**	**10**	**30**	**50**	-	**0.02**	0.579
Benzo(b+j)fluoranthene	**0.1**	**1**	**1**	**10**	**10**	**10**	-	-	0.671
Benzo(b+j+k)fluoranthene	-	-	-	-	-	-	-	-	0.900
Benzo(g,h,i)perylene	-	-	-	-	-	-	-	-	0.290
Benzo(k)fluoranthene	**0.1**	**1**	**1**	**10**	**10**	**10**	-	-	0.229
Chrysene	**200**	**400**	**200**	**400**	**4,500**	**4,500**	-	-	0.546
Dibenz(a,h)anthracene	**0.1**	**1**	**1**	**10**	**10**	**10**	-	-	0.0696
Fluoranthene	**50**	**50**	**50**	**200**	**200**	**200**	-	-	0.814
Fluorene	**600**	**1,000**	**600**	**1,000**	**9,500**	**9,500**	-	-	0.026
Indeno(1,2,3-c,d)pyrene	**0.1**	**1**	**1**	**10**	**10**	**10**	-	-	0.362
Methylnaphthalene, 1-	**250**	**500**	**250**	**500**	**1,000**	**1,000**	-	-	<0.010
Methylnaphthalene, 2-	**60**	**100**	**60**	**100**	**950**	**950**	-	-	<0.010
Naphthalene	**0.6**	**0.6**	**0.6**	**20**	**20**	**20**	-	-	0.010
Phenanthrene	**0.1**	**5**	**5**	**50**	**50**	**50**	-	-	0.413
Pyrene	**0.1**	**10**	**10**	**100**	**100**	**100**	-	-	0.812
Quinoline	**2.5**	**4.5**	**2.5**	**4.5**	**10**	**10**	-	-	<0.010
PAH TEQ (Calculated)	-	-	-	-	-	-	**100**	-	0.82436

BLUE TEXT	Concentration less than Laboratory Method Detection Limit
BOLD, UNDERLINE	Laboratory Method Detection Limit exceeds one or more standard
THICK OUTLINE	Concentration greater than or equal to HW Leachate Analysis Trigger Concentration
MAGENTA SHADING	Concentration greater than HWR Standards
ORANGE SHADING	Concentration greater than CSR standards that control relocation to Agricultural (AL) Land Use Receiver Sites
LIGHT BLUE SHADING	Concentration greater than CSR standards that control relocation to Urban Park (PL) Land Use Receiver Sites
BLUE SHADING	Concentration greater than CSR standards that control relocation to Residential - Low Density (RLld) Land Use Receiver Sites
BOLD, BLUE SHADING	Concentration greater than CSR standards that control relocation to Residential - High Density (RLhd) Land Use Receiver Sites
RED SHADING	Concentration greater than CSR standards that control relocation to Commercial (CL) Land Use Receiver Sites
BOLD, RED SHADING	Concentration greater than CSR standards that control relocation to Industrial (IL) Land Use Receiver Sites

Table 2: Analytical Results for Metals and Salts in Soil

									Sample Address	**308 Uganda Ave**
									Sample Location	**AE25-BH106**
									Sample ID	106-1
									Depth (m)	0.4
									Fill/Native	Fill
									Date Sampled	16-May-2025
Completed by: CL		**CSR Soil Relocation Standards[1] (Assumed/Conservative)**						**Protocol 4 Background Concentrations[5]**	**Hazardous Waste Leachate Analysis Trigger Concentration[6]**	
Review by: HH		**Agricultural (AL)**	**Urban Park (PL)**	**Residential Low Density (RLld)**	**Residential High Density (RLhd)**	**Commercial (CL)**	**Industrial (IL)**	**Region 1 Vancouver Island**		
Physical Tests										
Moisture		-	-	-	-	-	-	-	-	11.4
pH (1:2 soil:water)		-	-	-	-	-	-	-	-	6.90
Salts (µg/g) via Sat. Paste.										
Sodium, soluble ion content		**200**	**200**	**200**	**1,000**	**1,000**	**1,000**	-	-	1.23
Chloride, soluble ion content		**40**	**100**	**100**	**100**	**100**	**100**	-	-	<4.6
Total Metals (µg/g)										
Aluminum		**40,000**	**40,000**	**40,000**	**40,000**	**250,000**	**250,000**	**55,000**	-	29400
Antimony		**20**	**20**	**20**	**40**	**40**	**40**	**4**	-	0.28
Arsenic		**10**	**10**	**10**	**10**	**10**	**10**	**4**	**50**	4.70
Barium		**350**	**350**	**350**	**350**	**350**	**350**	**250**	**2000**	167
Beryllium	pH <6.5 pH 6.5-<7.0 pH 7.0-<7.5 pH 7.5-<8.0 pH ≥8.0	**1** **4** **30** **85** **85**	**1** **4** **30** **150** **150**	**1** **4** **30** **85** **85**	**1** **4** **30** **150** **150**	**1** **4** **30** **250** **350**	**1** **4** **30** **250** **350**	**0.7**	-	0.53
Bismuth		-	-	-	-	-	-	-	-	<0.20
Boron		**8,500**	**15,000**	**8,500**	**15,000**	**50,000**	**1000000**	**1**	**10000**	<5.0
Cadmium	pH <7.0 pH 7.0-<7.5 pH 7.5-<8.0 pH ≥8.0	**1** **3** **10** **10**	**1** **3** **20** **30**	**1** **3** **20** **30**	**1** **3** **20** **40**	**1** **3** **20** **50**	**1** **3** **20** **50**	**0.95**	**10**	0.215
Calcium		-	-	-	-	-	-	-	-	8310
Chromium		**60**	**60**	**60**	**60**	**60**	**60**	**65**	**100**	49.1
Cobalt		**25**	**25**	**25**	**25**	**25**	**25**	**30**	-	17.9
Copper	pH <5.5 pH 5.5-<6.0 pH ≥6.0	**75** **100** **150**	**75** **100** **150**	**75** **100** **150**	**75** **100** **300**	**75** **100** **300**	**75** **100** **300**	**100**	**2000**	50.2
Iron		**35,000**	**35,000**	**35,000**	**35,000**	**150,000**	**150,000**	**70,000**	-	33600
Lead	pH <5.5 pH 5.5-<6.0 pH 6.0-<6.5 pH >6.5	**120**	**120**	**120**	**120**	**120** **150** **150** **150**	**120** **150** **800** **1,000**	**40**	**100**	20.2
Lithium		**30**	**65**	**30**	**65**	**450**	**450**	-	-	18.6
Magnesium		-	-	-	-	-	-	-	-	9260
Manganese		**2,000**	**2,000**	**2,000**	**2,000**	**2,000**	**2,000**	**5,000**	-	823
Mercury		**0.6**	**25**	**10**	**25**	**75**	**75**	**0.15**	**2**	0.0628
Molybdenum		**3**	**15**	**15**	**15**	**15**	**15**	**1**	-	0.31
Nickel	pH <7.5 pH >7.5	**70** **150**	**70** **150**	**70** **150**	**70** **250**	**70** **250**	**70** **250**	**50**	-	40.8
Phosphorus		-	-	-	-	-	-	-	-	865
Potassium		-	-	-	-	-	-	-	-	1580
Selenium		**1**	**1**	**1**	**1**	**1**	**1**	**4**	**20**	<0.20
Silver		**20**	**20**	**20**	**40**	**40**	**40**	**1**	**100**	0.25
Sodium		-	-	-	-	-	-	-	-	366
Strontium		**9,500**	**20,000**	**9,500**	**20,000**	**150,000**	**150,000**	**100**	-	47.2
Sulfur		**2,000**	-	-	-	-	-	**1,000**	-	<1000
Thallium		**2**	**9**	**9**	**25**	**25**	**25**	-	-	0.095
Tin		**5**	**50**	**50**	**300**	**300**	**300**	**4**	-	<2.0
Titanium		-	-	-	-	-	-	-	-	1050
Tungsten		**15**	**25**	**15**	**25**	**200**	**200**	-	-	<0.50
Uranium		**15**	**30**	**30**	**30**	**30**	**30**	-	**200**	0.695
Vanadium		**100**	**100**	**100**	**100**	**100**	**100**	**200**	-	79.0
Zinc	pH <8.0 pH >8.0	**150** **200**	**150** **200**	**150** **200**	**150** **200**	**150** **200**	**150** **200**	**150**	**10000**	92.2
Zirconium		-	-	-	-	-	-	-	-	2.1

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ACTIVE EARTH

LABORATORY CERTIFICATES

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CERTIFICATE OF ANALYSIS

Work Order	:	**VA25B1542**			
Client	:	**Active Earth Engineering Ltd.**	Laboratory	:	ALS Environmental - Vancouver
Contact	:	Emilia Schwarz	Account Manager	:	Virginia Smith
Address	:	304-2600 Gladys Avenue Abbotsford British Columbia Canada V2S 0E9	Address	:	8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	:	----	E-mail	:	Virginia.Smith@alsglobal.com
Project	:	4601-1	Telephone	:	+1 604 253 4188
PO	:	4601-1	Date Samples Received	:	16-May-2025 20:25
C-O-C number	:	----	Date Analysis Commenced	:	21-May-2025
Sampler	:	ES	Issue Date	:	26-May-2025 09:57
Site	:	----			
Quote number	:	VA22-ACTI100-001 (Default Pricing 2022+)			
No. of samples received	:	7			
No. of samples analysed	:	7			

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Cindy Tang	Team Leader - Inorganics	Inorganics, Burnaby, British Columbia
Ilnaz Badbezanchi	Supervisor - Metals Prep	Metals, Burnaby, British Columbia
Leon Yang	Analyst	Inorganics, Burnaby, British Columbia
Ophelia Chiu	Department Manager - Organics	Organics, Burnaby, British Columbia

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key: CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
%	percent
mg/kg	milligrams per kilogram
mg/L	milligrams per litre
pH units	pH units

<: less than.
>: greater than.
Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Qualifiers

Qualifier	Description
DLCI	Detection Limit Raised: Chromatographic interference due to co-elution.

Analytical Results

Sub-Matrix: Soil
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	101-1	102-1	103-1	104-1	105-1
					Client sampling date / time	16-May-2025 00:00	16-May-2025 00:00	16-May-2025 00:00	16-May-2025 00:00	16-May-2025 00:00
						VA25B1542-001	VA25B1542-002	VA25B1542-004	VA25B1542-005	VA25B1542-006
						Result	Result	Result	Result	Result
Physical Tests										
% Saturation	----	E141/VA	1.0	%		23.4	21.0	23.9	25.1	24.0
Moisture	----	E144/VA	0.25	%		5.55	7.14	6.57	6.75	6.70
pH (1:2 soil:water)	----	E108/VA	0.10	pH units		8.46	8.01	7.24	7.85	7.72
Saturated Paste Extractables										
Chloride, soluble ion content	16887-00-6	EC239A.Cl/VA	1.0	mg/kg		43.0	51.2	5.5	11.8	4.1
Chloride, soluble ion content	16887-00-6	E239.Cl/VA	10	mg/L		184	244	23	47	17
Sodium, soluble ion content	17341-25-2	EC442/VA	1.00	mg/kg		44.0	55.2	8.94	17.7	5.35
Sodium, soluble ion content	17341-25-2	E442/VA	2.0	mg/L		188	263	37.4	70.4	22.3
Metals										
Aluminum	7429-90-5	E440/VA	50	mg/kg		20300	17400	18200	21400	17900
Antimony	7440-36-0	E440/VA	0.10	mg/kg		<0.10	0.48	0.16	0.13	<0.10
Arsenic	7440-38-2	E440/VA	0.10	mg/kg		0.80	2.86	2.60	2.90	2.39
Barium	7440-39-3	E440/VA	0.50	mg/kg		37.7	61.3	57.9	44.5	43.8
Beryllium	7440-41-7	E440/VA	0.10	mg/kg		0.27	0.26	0.25	0.28	0.24
Bismuth	7440-69-9	E440/VA	0.20	mg/kg		<0.20	<0.20	<0.20	<0.20	<0.20
Boron	7440-42-8	E440/VA	5.0	mg/kg		<5.0	<5.0	<5.0	<5.0	<5.0
Cadmium	7440-43-9	E440/VA	0.020	mg/kg		0.049	0.082	0.070	0.055	0.056
Calcium	7440-70-2	E440/VA	50	mg/kg		11600	7500	7270	7980	7010
Chromium	7440-47-3	E440/VA	0.50	mg/kg		50.2	24.6	27.8	28.8	25.1
Cobalt	7440-48-4	E440/VA	0.10	mg/kg		14.9	10.4	11.8	12.7	10.8
Copper	7440-50-8	E440/VA	0.50	mg/kg		47.4	34.7	48.9	54.9	44.7

Analytical Results

Sub-Matrix: Soil
(Matrix: Soil/Solid)

					Client sample ID	101-1	102-1	103-1	104-1	105-1
					Client sampling date / time	16-May-2025 00:00	16-May-2025 00:00	16-May-2025 00:00	16-May-2025 00:00	16-May-2025 00:00
Analyte	CAS Number	Method/Lab	LOR	Unit		VA25B1542-001	VA25B1542-002	VA25B1542-004	VA25B1542-005	VA25B1542-006
						Result	Result	Result	Result	Result
Metals										
Iron	7439-89-6	E440/VA	50	mg/kg		24100	24000	24800	29800	26200
Lead	7439-92-1	E440/VA	0.50	mg/kg		9.00	15.7	7.49	3.43	2.98
Lithium	7439-93-2	E440/VA	2.0	mg/kg		4.3	8.5	8.0	10.1	8.6
Magnesium	7439-95-4	E440/VA	20	mg/kg		10900	7590	8610	10100	8130
Manganese	7439-96-5	E440/VA	1.0	mg/kg		432	632	514	568	531
Mercury	7439-97-6	E510/VA	0.0500	mg/kg		<0.0500	0.134	<0.0500	<0.0500	<0.0500
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg		0.34	0.25	0.51	0.35	0.26
Nickel	7440-02-0	E440/VA	0.50	mg/kg		29.0	20.0	23.3	22.6	20.7
Phosphorus	7723-14-0	E440/VA	50	mg/kg		985	683	606	547	565
Potassium	7440-09-7	E440/VA	100	mg/kg		710	610	570	550	530
Selenium	7782-49-2	E440/VA	0.20	mg/kg		<0.20	<0.20	<0.20	<0.20	<0.20
Silver	7440-22-4	E440/VA	0.10	mg/kg		<0.10	<0.10	<0.10	<0.10	<0.10
Sodium	7440-23-5	E440/VA	50	mg/kg		429	529	384	506	362
Strontium	7440-24-6	E440/VA	0.50	mg/kg		32.7	29.9	27.6	32.0	26.3
Sulfur	7704-34-9	E440/VA	1000	mg/kg		<1000	<1000	<1000	<1000	<1000
Thallium	7440-28-0	E440/VA	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
Tin	7440-31-5	E440/VA	2.0	mg/kg		<2.0	<2.0	<2.0	<2.0	<2.0
Titanium	7440-32-6	E440/VA	1.0	mg/kg		1380	1140	1520	1830	1250
Tungsten	7440-33-7	E440/VA	0.50	mg/kg		<0.50	<0.50	<0.50	<0.50	<0.50
Uranium	7440-61-1	E440/VA	0.050	mg/kg		0.403	0.228	0.244	0.228	0.229
Vanadium	7440-62-2	E440/VA	0.20	mg/kg		70.9	64.8	92.1	83.3	69.6

Analytical Results

Sub-Matrix: Soil
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID: 101-1	102-1	103-1	104-1	105-1
					Client sampling date / time: 16-May-2025 00:00	16-May-2025 00:00	16-May-2025 00:00	16-May-2025 00:00	16-May-2025 00:00
					VA25B1542-001	VA25B1542-002	VA25B1542-004	VA25B1542-005	VA25B1542-006
					Result	Result	Result	Result	Result
Metals									
Zinc	7440-66-6	E440/VA	2.0	mg/kg	38.9	47.8	48.4	45.0	40.8
Zirconium	7440-67-7	E440/VA	1.0	mg/kg	1.3	3.6	4.7	5.9	4.1
Hydrocarbons									
EPH (C10-C19)	----	E601A/VA	200	mg/kg	<200	<200	400	<200	<200
EPH (C19-C32)	----	E601A/VA	200	mg/kg	<200	<200	1690	<200	<200
HEPHs	----	EC600A/VA	200	mg/kg	<200	<200	1610	<200	<200
LEPHs	----	EC600A/VA	200	mg/kg	<200	<200	360	<200	<200
Hydrocarbons Surrogates									
Bromobenzotrifluoride, 2- (EPH surrogate)	392-83-6	E601A/VA	1.0	%	104	103	92.5	99.2	107
Polycyclic Aromatic Hydrocarbons									
Acenaphthene	83-32-9	E641A-L/VA	0.0050	mg/kg	<0.0050	<0.0050	0.491	<0.0050	<0.0050
Acenaphthylene	208-96-8	E641A-L/VA	0.0050	mg/kg	0.0132	0.784	6.53	0.0113	0.0050
Acridine	260-94-6	E641A-L/VA	0.010	mg/kg	<0.010	0.042	0.751	<0.010	<0.010
Anthracene	120-12-7	E641A-L/VA	0.0040	mg/kg	0.0091	0.479	9.74	0.0065	<0.0040
Benz(a)anthracene	56-55-3	E641A-L/VA	0.010	mg/kg	0.044	1.80	13.8	0.017	0.010
Benzo(a)pyrene	50-32-8	E641A-L/VA	0.010	mg/kg	0.061	3.35	12.9	0.018	0.011
Benzo(b+j)fluoranthene	n/a	E641A-L/VA	0.010	mg/kg	0.070	3.25	13.9	0.028	0.014
Benzo(b+j+k)fluoranthene	n/a	E641A-L/VA	0.015	mg/kg	0.095	4.38	19.2	0.028	<0.015
Benzo(g,h,i)perylene	191-24-2	E641A-L/VA	0.010	mg/kg	0.039	2.43	5.41	0.013	<0.010
Benzo(k)fluoranthene	207-08-9	E641A-L/VA	0.010	mg/kg	0.025	1.13	5.29	<0.010	<0.010
Chrysene	218-01-9	E641A-L/VA	0.010	mg/kg	0.066	1.89	13.7	0.025	0.011

Analytical Results

Sub-Matrix: Soil
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	101-1	102-1	103-1	104-1	105-1
					Client sampling date / time	16-May-2025 00:00	16-May-2025 00:00	16-May-2025 00:00	16-May-2025 00:00	16-May-2025 00:00
						VA25B1542-001	VA25B1542-002	VA25B1542-004	VA25B1542-005	VA25B1542-006
						Result	Result	Result	Result	Result
Polycyclic Aromatic Hydrocarbons										
Dibenz(a,h)anthracene	53-70-3	E641A-L/VA	0.0050	mg/kg		0.0097	0.487	1.60	<0.0050	<0.0050
Fluoranthene	206-44-0	E641A-L/VA	0.010	mg/kg		0.058	2.09	29.9	0.018	<0.010
Fluorene	86-73-7	E641A-L/VA	0.010	mg/kg		<0.010	<0.051 DLCI	7.78	<0.010	<0.010
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L/VA	0.010	mg/kg		0.044	2.70	7.59	0.018	<0.010
Methylnaphthalene, 1-	90-12-0	E641A-L/VA	0.010	mg/kg		0.018	<0.010	2.17	<0.010	<0.010
Methylnaphthalene, 2-	91-57-6	E641A-L/VA	0.010	mg/kg		0.032	0.016	1.85	<0.010	<0.010
Naphthalene	91-20-3	E641A-L/VA	0.010	mg/kg		0.016	0.029	1.22	<0.010	<0.010
Phenanthrene	85-01-8	E641A-L/VA	0.010	mg/kg		0.024	0.787	33.3	0.015	<0.010
Pyrene	129-00-0	E641A-L/VA	0.010	mg/kg		0.066	2.37	27.6	0.017	<0.010
Quinoline	91-22-5	E641A-L/VA	0.010	mg/kg		<0.010	<0.010	<0.034 DLCI	<0.010	<0.010
B(a)P total potency equivalents [B(a)P TPE]	----	E641A-L/VA	0.020	mg/kg		0.090	4.77	18.7	0.028	<0.020
IACR (CCME)	----	E641A-L/VA	0.150	-		0.988	46.2	214	0.338	0.197
Polycyclic Aromatic Hydrocarbons Surrogates										
Acridine-d9	34749-75-2	E641A-L/VA	0.1	%		112	114	95.9	113	129
Chrysene-d12	1719-03-5	E641A-L/VA	0.1	%		110	113	98.4	109	128
Naphthalene-d8	1146-65-2	E641A-L/VA	0.1	%		112	113	90.2	109	129
Phenanthrene-d10	1517-22-2	E641A-L/VA	0.1	%		111	116	100	111	130

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: Soil
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID: 106-1	----	----	----	----
					Client sampling date / time: 16-May-2025 00:00	----	----	----	----
					VA25B1542-007	----	----	----	----
					Result	----	----	----	----
Physical Tests									
% Saturation	----	E141/VA	1.0	%	45.6	----	----	----	----
Moisture	----	E144/VA	0.25	%	11.4	----	----	----	----
pH (1:2 soil:water)	----	E108/VA	0.10	pH units	6.90	----	----	----	----
Saturated Paste Extractables									
Chloride, soluble ion content	16887-00-6	EC239A.Cl/VA	1.0	mg/kg	<4.6	----	----	----	----
Chloride, soluble ion content	16887-00-6	E239.Cl/VA	10	mg/L	<10	----	----	----	----
Sodium, soluble ion content	17341-25-2	EC442/VA	1.00	mg/kg	1.23	----	----	----	----
Sodium, soluble ion content	17341-25-2	E442/VA	2.0	mg/L	2.7	----	----	----	----
Metals									
Aluminum	7429-90-5	E440/VA	50	mg/kg	29400	----	----	----	----
Antimony	7440-36-0	E440/VA	0.10	mg/kg	0.28	----	----	----	----
Arsenic	7440-38-2	E440/VA	0.10	mg/kg	4.70	----	----	----	----
Barium	7440-39-3	E440/VA	0.50	mg/kg	167	----	----	----	----
Beryllium	7440-41-7	E440/VA	0.10	mg/kg	0.53	----	----	----	----
Bismuth	7440-69-9	E440/VA	0.20	mg/kg	<0.20	----	----	----	----
Boron	7440-42-8	E440/VA	5.0	mg/kg	<5.0	----	----	----	----
Cadmium	7440-43-9	E440/VA	0.020	mg/kg	0.215	----	----	----	----
Calcium	7440-70-2	E440/VA	50	mg/kg	8310	----	----	----	----
Chromium	7440-47-3	E440/VA	0.50	mg/kg	49.1	----	----	----	----
Cobalt	7440-48-4	E440/VA	0.10	mg/kg	17.9	----	----	----	----
Copper	7440-50-8	E440/VA	0.50	mg/kg	50.2	----	----	----	----

Analytical Results

Sub-Matrix: Soil
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	106-1	----	----	----	----
					Client sampling date / time	16-May-2025 00:00	----	----	----	----
						VA25B1542-007	----	----	----	----
						Result	----	----	----	----
Metals										
Iron	7439-89-6	E440/VA	50	mg/kg		33600	----	----	----	----
Lead	7439-92-1	E440/VA	0.50	mg/kg		20.2	----	----	----	----
Lithium	7439-93-2	E440/VA	2.0	mg/kg		18.6	----	----	----	----
Magnesium	7439-95-4	E440/VA	20	mg/kg		9260	----	----	----	----
Manganese	7439-96-5	E440/VA	1.0	mg/kg		823	----	----	----	----
Mercury	7439-97-6	E510/VA	0.0500	mg/kg		0.0628	----	----	----	----
Molybdenum	7439-98-7	E440/VA	0.10	mg/kg		0.31	----	----	----	----
Nickel	7440-02-0	E440/VA	0.50	mg/kg		40.8	----	----	----	----
Phosphorus	7723-14-0	E440/VA	50	mg/kg		865	----	----	----	----
Potassium	7440-09-7	E440/VA	100	mg/kg		1580	----	----	----	----
Selenium	7782-49-2	E440/VA	0.20	mg/kg		<0.20	----	----	----	----
Silver	7440-22-4	E440/VA	0.10	mg/kg		0.25	----	----	----	----
Sodium	7440-23-5	E440/VA	50	mg/kg		366	----	----	----	----
Strontium	7440-24-6	E440/VA	0.50	mg/kg		47.2	----	----	----	----
Sulfur	7704-34-9	E440/VA	1000	mg/kg		<1000	----	----	----	----
Thallium	7440-28-0	E440/VA	0.050	mg/kg		0.095	----	----	----	----
Tin	7440-31-5	E440/VA	2.0	mg/kg		<2.0	----	----	----	----
Titanium	7440-32-6	E440/VA	1.0	mg/kg		1050	----	----	----	----
Tungsten	7440-33-7	E440/VA	0.50	mg/kg		<0.50	----	----	----	----
Uranium	7440-61-1	E440/VA	0.050	mg/kg		0.695	----	----	----	----
Vanadium	7440-62-2	E440/VA	0.20	mg/kg		79.0	----	----	----	----

Analytical Results

Sub-Matrix: Soil
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	106-1	----	----	----	----
					Client sampling date / time	16-May-2025 00:00	----	----	----	----
						VA25B1542-007	----	----	----	----
						Result	----	----	----	----
Metals										
Zinc	7440-66-6	E440/VA	2.0	mg/kg		92.2	----	----	----	----
Zirconium	7440-67-7	E440/VA	1.0	mg/kg		2.1	----	----	----	----
Hydrocarbons										
EPH (C10-C19)	----	E601A/VA	200	mg/kg		<200	----	----	----	----
EPH (C19-C32)	----	E601A/VA	200	mg/kg		<200	----	----	----	----
HEPHs	----	EC600A/VA	200	mg/kg		<200	----	----	----	----
LEPHs	----	EC600A/VA	200	mg/kg		<200	----	----	----	----
Hydrocarbons Surrogates										
Bromobenzotrifluoride, 2- (EPH surrogate)	392-83-6	E601A/VA	1.0	%		104	----	----	----	----
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A-L/VA	0.0050	mg/kg		0.0084	----	----	----	----
Acenaphthylene	208-96-8	E641A-L/VA	0.0050	mg/kg		0.160	----	----	----	----
Acridine	260-94-6	E641A-L/VA	0.010	mg/kg		0.011	----	----	----	----
Anthracene	120-12-7	E641A-L/VA	0.0040	mg/kg		0.0870	----	----	----	----
Benz(a)anthracene	56-55-3	E641A-L/VA	0.010	mg/kg		0.412	----	----	----	----
Benzo(a)pyrene	50-32-8	E641A-L/VA	0.010	mg/kg		0.579	----	----	----	----
Benzo(b+j)fluoranthene	n/a	E641A-L/VA	0.010	mg/kg		0.671	----	----	----	----
Benzo(b+j+k)fluoranthene	n/a	E641A-L/VA	0.015	mg/kg		0.900	----	----	----	----
Benzo(g,h,i)perylene	191-24-2	E641A-L/VA	0.010	mg/kg		0.290	----	----	----	----
Benzo(k)fluoranthene	207-08-9	E641A-L/VA	0.010	mg/kg		0.229	----	----	----	----
Chrysene	218-01-9	E641A-L/VA	0.010	mg/kg		0.546	----	----	----	----

Analytical Results

Sub-Matrix: Soil
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	106-1	----	----	----	----
					Client sampling date / time	16-May-2025 00:00	----	----	----	----
						VA25B1542-007	----	----	----	----
						Result	----	----	----	----
Polycyclic Aromatic Hydrocarbons										
Dibenz(a,h)anthracene	53-70-3	E641A-L/VA	0.0050	mg/kg		0.0696	----	----	----	----
Fluoranthene	206-44-0	E641A-L/VA	0.010	mg/kg		0.814	----	----	----	----
Fluorene	86-73-7	E641A-L/VA	0.010	mg/kg		0.026	----	----	----	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L/VA	0.010	mg/kg		0.362	----	----	----	----
Methylnaphthalene, 1-	90-12-0	E641A-L/VA	0.010	mg/kg		<0.010	----	----	----	----
Methylnaphthalene, 2-	91-57-6	E641A-L/VA	0.010	mg/kg		<0.010	----	----	----	----
Naphthalene	91-20-3	E641A-L/VA	0.010	mg/kg		0.010	----	----	----	----
Phenanthrene	85-01-8	E641A-L/VA	0.010	mg/kg		0.413	----	----	----	----
Pyrene	129-00-0	E641A-L/VA	0.010	mg/kg		0.812	----	----	----	----
Quinoline	91-22-5	E641A-L/VA	0.010	mg/kg		<0.010	----	----	----	----
B(a)P total potency equivalents [B(a)P TPE]	----	E641A-L/VA	0.020	mg/kg		0.824	----	----	----	----
IACR (CCME)	----	E641A-L/VA	0.150	-		9.18	----	----	----	----
Polycyclic Aromatic Hydrocarbons Surrogates										
Acridine-d9	34749-75-2	E641A-L/VA	0.1	%		111	----	----	----	----
Chrysene-d12	1719-03-5	E641A-L/VA	0.1	%		112	----	----	----	----
Naphthalene-d8	1146-65-2	E641A-L/VA	0.1	%		113	----	----	----	----
Phenanthrene-d10	1517-22-2	E641A-L/VA	0.1	%		112	----	----	----	----

Please refer to the General Comments section for an explanation of any qualifiers detected.

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA25B1542**	Page	: 1 of 12
Client	: **Active Earth Engineering Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact	: Emilia Schwarz	Account Manager	: Virginia Smith
Address	: 304-2600 Gladys Avenue Abbotsford BC Canada V2S 0E9	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: 4601-1	Date Samples Received	: 16-May-2025 20:25
PO	: 4601-1	Issue Date	: 26-May-2025 09:57
C-O-C number	: ----		
Sampler	: ES		
Site	: ----		
Quote number	: VA22-ACTI100-001 (Default Pricing 2022+)		
No. of samples received	: 7		
No. of samples analysed	: 6		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times* Rec	*Holding Times* Actual	*Eval*	*Analysis Date*	*Holding Times* Rec	*Holding Times* Actual	*Eval*
Hydrocarbons : BC PHCs - EPH by GC-FID										
Glass soil jar/Teflon lined cap 101-1	E601A	16-May-2025	21-May-2025	14 days	6 days	✓	23-May-2025	40 days	2 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Glass soil jar/Teflon lined cap 102-1	E601A	16-May-2025	21-May-2025	14 days	6 days	✓	23-May-2025	40 days	2 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Glass soil jar/Teflon lined cap 103-1	E601A	16-May-2025	21-May-2025	14 days	6 days	✓	23-May-2025	40 days	2 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Glass soil jar/Teflon lined cap 104-1	E601A	16-May-2025	21-May-2025	14 days	6 days	✓	23-May-2025	40 days	2 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Glass soil jar/Teflon lined cap 105-1	E601A	16-May-2025	21-May-2025	14 days	6 days	✓	23-May-2025	40 days	2 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Glass soil jar/Teflon lined cap 106-1	E601A	16-May-2025	21-May-2025	14 days	6 days	✓	23-May-2025	40 days	2 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap 101-1	E510	16-May-2025	23-May-2025	28 days	8 days	✓	24-May-2025	28 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times*		*Eval*	*Analysis Date*	*Holding Times*		*Eval*
				Rec	*Actual*			*Rec*	*Actual*	
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
102-1	E510	16-May-2025	23-May-2025	28 days	8 days	✓	24-May-2025	28 days	1 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
103-1	E510	16-May-2025	23-May-2025	28 days	8 days	✓	24-May-2025	28 days	1 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
104-1	E510	16-May-2025	23-May-2025	28 days	8 days	✓	24-May-2025	28 days	1 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
105-1	E510	16-May-2025	23-May-2025	28 days	8 days	✓	24-May-2025	28 days	1 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
106-1	E510	16-May-2025	23-May-2025	28 days	8 days	✓	24-May-2025	28 days	1 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
101-1	E440	16-May-2025	23-May-2025	180 days	8 days	✓	25-May-2025	180 days	8 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
102-1	E440	16-May-2025	23-May-2025	180 days	8 days	✓	25-May-2025	180 days	8 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
103-1	E440	16-May-2025	23-May-2025	180 days	8 days	✓	25-May-2025	180 days	8 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
104-1	E440	16-May-2025	23-May-2025	180 days	8 days	✓	25-May-2025	180 days	8 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times* Rec	*Holding Times* Actual	*Eval*	*Analysis Date*	*Holding Times* Rec	*Holding Times* Actual	*Eval*
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap 105-1	E440	16-May-2025	23-May-2025	180 days	8 days	✓	25-May-2025	180 days	8 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap 106-1	E440	16-May-2025	23-May-2025	180 days	8 days	✓	25-May-2025	180 days	8 days	✓
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap 101-1	E144	16-May-2025	----	----	----		21-May-2025	----	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap 102-1	E144	16-May-2025	----	----	----		21-May-2025	----	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap 103-1	E144	16-May-2025	----	----	----		21-May-2025	----	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap 104-1	E144	16-May-2025	----	----	----		21-May-2025	----	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap 105-1	E144	16-May-2025	----	----	----		21-May-2025	----	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap 106-1	E144	16-May-2025	----	----	----		21-May-2025	----	----	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap 101-1	E108	16-May-2025	23-May-2025	30 days	8 days	✓	23-May-2025	30 days	8 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
102-1	E108	16-May-2025	23-May-2025	30 days	8 days	✓	23-May-2025	30 days	8 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
103-1	E108	16-May-2025	23-May-2025	30 days	8 days	✓	23-May-2025	30 days	8 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
104-1	E108	16-May-2025	23-May-2025	30 days	8 days	✓	23-May-2025	30 days	8 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
105-1	E108	16-May-2025	23-May-2025	30 days	8 days	✓	23-May-2025	30 days	8 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
106-1	E108	16-May-2025	23-May-2025	30 days	8 days	✓	23-May-2025	30 days	8 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
101-1	E641A-L	16-May-2025	21-May-2025	14 days	6 days	✓	23-May-2025	40 days	2 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
102-1	E641A-L	16-May-2025	21-May-2025	14 days	6 days	✓	23-May-2025	40 days	2 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
103-1	E641A-L	16-May-2025	21-May-2025	14 days	6 days	✓	23-May-2025	40 days	2 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
104-1	E641A-L	16-May-2025	21-May-2025	14 days	6 days	✓	23-May-2025	40 days	2 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Polycyclic Aromatic Hydrocarbons : PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
105-1	E641A-L	16-May-2025	21-May-2025	14 days	6 days	✓	23-May-2025	40 days	2 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
106-1	E641A-L	16-May-2025	21-May-2025	14 days	6 days	✓	23-May-2025	40 days	2 days	✓
Saturated Paste Extractables : Ca, K, Mg, and Na by CRC ICPMS (Saturated Paste, mg/L)										
Glass soil jar/Teflon lined cap										
101-1	E442	16-May-2025	22-May-2025	365 days	7 days	✓	23-May-2025	180 days	1 days	✓
Saturated Paste Extractables : Ca, K, Mg, and Na by CRC ICPMS (Saturated Paste, mg/L)										
Glass soil jar/Teflon lined cap										
102-1	E442	16-May-2025	22-May-2025	365 days	7 days	✓	23-May-2025	180 days	1 days	✓
Saturated Paste Extractables : Ca, K, Mg, and Na by CRC ICPMS (Saturated Paste, mg/L)										
Glass soil jar/Teflon lined cap										
103-1	E442	16-May-2025	22-May-2025	365 days	7 days	✓	23-May-2025	180 days	1 days	✓
Saturated Paste Extractables : Ca, K, Mg, and Na by CRC ICPMS (Saturated Paste, mg/L)										
Glass soil jar/Teflon lined cap										
104-1	E442	16-May-2025	22-May-2025	365 days	7 days	✓	23-May-2025	180 days	1 days	✓
Saturated Paste Extractables : Ca, K, Mg, and Na by CRC ICPMS (Saturated Paste, mg/L)										
Glass soil jar/Teflon lined cap										
105-1	E442	16-May-2025	22-May-2025	365 days	7 days	✓	23-May-2025	180 days	1 days	✓
Saturated Paste Extractables : Ca, K, Mg, and Na by CRC ICPMS (Saturated Paste, mg/L)										
Glass soil jar/Teflon lined cap										
106-1	E442	16-May-2025	22-May-2025	365 days	7 days	✓	23-May-2025	180 days	1 days	✓
Saturated Paste Extractables : Chloride by IC (Saturated Paste)										
Glass soil jar/Teflon lined cap										
101-1	E239.Cl	16-May-2025	22-May-2025	365 days	7 days	✓	22-May-2025	28 days	0 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Saturated Paste Extractables : Chloride by IC (Saturated Paste)										
Glass soil jar/Teflon lined cap										
102-1	E239.Cl	16-May-2025	22-May-2025	365 days	7 days	✓	22-May-2025	28 days	0 days	✓
Saturated Paste Extractables : Chloride by IC (Saturated Paste)										
Glass soil jar/Teflon lined cap										
103-1	E239.Cl	16-May-2025	22-May-2025	365 days	7 days	✓	22-May-2025	28 days	0 days	✓
Saturated Paste Extractables : Chloride by IC (Saturated Paste)										
Glass soil jar/Teflon lined cap										
104-1	E239.Cl	16-May-2025	22-May-2025	365 days	7 days	✓	22-May-2025	28 days	0 days	✓
Saturated Paste Extractables : Chloride by IC (Saturated Paste)										
Glass soil jar/Teflon lined cap										
105-1	E239.Cl	16-May-2025	22-May-2025	365 days	7 days	✓	22-May-2025	28 days	0 days	✓
Saturated Paste Extractables : Chloride by IC (Saturated Paste)										
Glass soil jar/Teflon lined cap										
106-1	E239.Cl	16-May-2025	22-May-2025	365 days	7 days	✓	22-May-2025	28 days	0 days	✓
Saturated Paste Extractables : Saturation Percentage										
Glass soil jar/Teflon lined cap										
101-1	E141	16-May-2025	22-May-2025	----	----		22-May-2025	----	0 days	
Saturated Paste Extractables : Saturation Percentage										
Glass soil jar/Teflon lined cap										
102-1	E141	16-May-2025	22-May-2025	----	----		22-May-2025	----	0 days	
Saturated Paste Extractables : Saturation Percentage										
Glass soil jar/Teflon lined cap										
103-1	E141	16-May-2025	22-May-2025	----	----		22-May-2025	----	0 days	
Saturated Paste Extractables : Saturation Percentage										
Glass soil jar/Teflon lined cap										
104-1	E141	16-May-2025	22-May-2025	----	----		22-May-2025	----	0 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Saturated Paste Extractables : Saturation Percentage										
Glass soil jar/Teflon lined cap										
105-1	E141	16-May-2025	22-May-2025	----	----		22-May-2025	----	0 days	
Saturated Paste Extractables : Saturation Percentage										
Glass soil jar/Teflon lined cap										
106-1	E141	16-May-2025	22-May-2025	----	----		22-May-2025	----	0 days	

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Soil/Solid**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
pH by Meter (1:2 Soil:Water Extraction)	E108	2007164	1	13	7.6	5.0	✓
Saturation Percentage	E141	2007166	1	13	7.6	5.0	✓
Moisture Content by Gravimetry	E144	2007170	1	17	5.8	5.0	✓
Chloride by IC (Saturated Paste)	E239.Cl	2007165	1	13	7.6	5.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	2007159	1	13	7.6	5.0	✓
Ca, K, Mg, and Na by CRC ICPMS (Saturated Paste, mg/L)	E442	2007167	1	13	7.6	5.0	✓
Mercury in Soil/Solid by CVAAS	E510	2007158	1	13	7.6	5.0	✓
BC PHCs - EPH by GC-FID	E601A	2007169	1	17	5.8	5.0	✓
PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)	E641A-L	2007168	1	17	5.8	5.0	✓
Laboratory Control Samples (LCS)							
pH by Meter (1:2 Soil:Water Extraction)	E108	2007164	1	13	7.6	5.0	✓
Saturation Percentage	E141	2007166	2	13	15.3	10.0	✓
Moisture Content by Gravimetry	E144	2007170	1	17	5.8	5.0	✓
Chloride by IC (Saturated Paste)	E239.Cl	2007165	2	13	15.3	10.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	2007159	2	13	15.3	10.0	✓
Ca, K, Mg, and Na by CRC ICPMS (Saturated Paste, mg/L)	E442	2007167	2	13	15.3	10.0	✓
Mercury in Soil/Solid by CVAAS	E510	2007158	2	13	15.3	10.0	✓
BC PHCs - EPH by GC-FID	E601A	2007169	1	17	5.8	5.0	✓
PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)	E641A-L	2007168	1	17	5.8	5.0	✓
Method Blanks (MB)							
Saturation Percentage	E141	2007166	1	13	7.6	5.0	✓
Moisture Content by Gravimetry	E144	2007170	1	17	5.8	5.0	✓
Chloride by IC (Saturated Paste)	E239.Cl	2007165	1	13	7.6	5.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	2007159	1	13	7.6	5.0	✓
Ca, K, Mg, and Na by CRC ICPMS (Saturated Paste, mg/L)	E442	2007167	1	13	7.6	5.0	✓
Mercury in Soil/Solid by CVAAS	E510	2007158	1	13	7.6	5.0	✓
BC PHCs - EPH by GC-FID	E601A	2007169	1	17	5.8	5.0	✓
PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)	E641A-L	2007168	1	17	5.8	5.0	✓
Matrix Spikes (MS)							
BC PHCs - EPH by GC-FID	E601A	2007169	1	17	5.8	5.0	✓
PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)	E641A-L	2007168	1	17	5.8	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
pH by Meter (1:2 Soil:Water Extraction)	E108 ALS Environmental - Vancouver	Soil/Solid	BC Lab Manual	pH is determined by potentiometric measurement with a pH electrode at ambient laboratory temperature (normally 20 ± 5°C), and is carried out in accordance with procedures described in the BC Lab Manual (prescriptive method). The procedure involves mixing the dried (at <60 ºC) and sieved (10mesh/2mm) sample with ultra pure water at a 1:2 ratio of sediment to water. The pH is then measured by a standard pH probe.
Saturation Percentage	E141 ALS Environmental - Vancouver	Soil/Solid	CSSS Ch. 15 (mod)/AER D50	Saturation Percentage (SP) is determined as the total volume of water present in a saturated paste (in mL) divided by the dry weight of the sample (in grams), expressed as a percentage.
Moisture Content by Gravimetry	E144 ALS Environmental - Vancouver	Soil/Solid	CCME PHC in Soil - Tier 1	Moisture is measured gravimetrically by drying the sample at 105°C. Moisture content is calculated as the weight loss (due to water) divided by the wet weight of the sample, expressed as a percentage.
Chloride by IC (Saturated Paste)	E239.Cl ALS Environmental - Vancouver	Soil/Solid	CSSS Ch. 15 (mod)/EPA 300.1 (mod)	Inorganic anions are analyzed by obtaining a soil extract produced by the saturated paste extraction procedure which is then analyzed by Ion Chromatography with conductivity and/or UV detection.
Metals in Soil/Solid by CRC ICPMS	E440 ALS Environmental - Vancouver	Soil/Solid	EPA 6020B (mod)	This method is intended to liberate metals that may be environmentally available. Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCl. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Tl, V, W, and Zr. Silicate minerals are not solubilized. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. This method does not adequately recover elemental sulfur, and is unsuitable for assessment of elemental sulfur standards or guidelines. Analysis is by Collision/Reaction Cell ICPMS.
Ca, K, Mg, and Na by CRC ICPMS (Saturated Paste, mg/L)	E442 ALS Environmental - Vancouver	Soil/Solid	CSSS CH15/EPA 6020B (mod)	A soil extract produced by the saturated paste extraction procedure is analyzed for Calcium, Magnesium, Potassium and Sodium by Collision/Reaction Cell ICPMS as per "Soil Sampling Methods of Analysis" By M Carter.
Mercury in Soil/Solid by CVAAS	E510 ALS Environmental - Vancouver	Soil/Solid	EPA 200.2/1631 Appendix (mod)	Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCl, followed by CVAAS analysis.
BC PHCs - EPH by GC-FID	E601A ALS Environmental - Vancouver	Soil/Solid	BC MOE Lab Manual (EPH in Solids by GC/FID) (mod)	Sample extracts are analyzed by GC-FID for BC hydrocarbon fractions.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)	E641A-L ALS Environmental - Vancouver	Soil/Solid	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are extracted with hexane/acetone and analyzed by GC-MS. If reported, IACR (index of additive cancer risk, unitless) and B(a)P toxic potency equivalent (in soil concentration units) are calculated as per CCME PAH Soil Quality Guidelines fact sheet (2010) or ABT1.
Chloride by IC (Saturated Paste) (mg/kg)	EC239A.Cl ALS Environmental - Vancouver	Soil/Solid	CSSS Ch. 15 (mod)/EPA 300.1 (mod)	Inorganic anions are analyzed by obtaining a soil extract produced by the saturated paste extraction procedure which is then analyzed by Ion Chromatography with conductivity and/or UV detection.
Ca, K, Mg, Na by ICPMS (Saturated Paste, mg/kg)	EC442 ALS Environmental - Vancouver	Soil/Solid	CSSS CH15/EPA 6020B (mod)	A soil extract produced by the saturated paste extraction procedure is analyzed for Calcium, Magnesium, Potassium, Sodium by ICPMS.
LEPH and HEPH: EPH-PAH	EC600A ALS Environmental - Vancouver	Soil/Solid	BC MOE Lab Manual (LEPH and HEPH)	Light Extractable Petroleum Hydrocarbons (LEPH) and Heavy Extractable Petroleum Hydrocarbons (HEPH) are calculated as follows: LEPH = Extractable Petroleum Hydrocarbons (EPH10-19) minus Naphthalene and Phenanthrene; HEPH = Extractable Petroleum Hydrocarbons (EPH19-32) minus Benz(a)anthracene, Benzo(b+j)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Dibenz(a,h)anthracene, Indeno(1,2,3-cd)pyrene, and Pyrene.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Leach 1:2 Soil:Water for pH/EC	EP108 ALS Environmental - Vancouver	Soil/Solid	BC WLAP METHOD: PH, ELECTROMETRIC, SOIL	The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water.
Digestion for Metals and Mercury	EP440 ALS Environmental - Vancouver	Soil/Solid	EPA 200.2 (mod)	Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCl. This method is intended to liberate metals that may be environmentally available.
PHCs and PAHs Hexane-Acetone Tumbler Extraction	EP601 ALS Environmental - Vancouver	Soil/Solid	CCME PHC in Soil - Tier 1 (mod)	Samples are subsampled and Petroleum Hydrocarbons (PHC) and PAHs are extracted with 1:1 hexane:acetone using a rotary extractor.

QUALITY CONTROL REPORT

Work Order	: **VA25B1542**	Page	: 1 of 13
Client	: Active Earth Engineering Ltd.	Laboratory	: ALS Environmental - Vancouver
Contact	: Emilia Schwarz	Account Manager	: Virginia Smith
Address	: 304-2600 Gladys Avenue Abbotsford BC Canada V2S 0E9	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: 4601-1	Date Samples Received	: 16-May-2025 20:25
PO	: 4601-1	Date Analysis Commenced	: 21-May-2025
C-O-C number	: ----	Issue Date	: 26-May-2025 09:57
Sampler	: ES		
Site	: ----		
Quote number	: VA22-ACTI100-001 (Default Pricing 2022+)		
No. of samples received	: 7		
No. of samples analysed	: 6		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Reference Material (RM) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Cindy Tang	Team Leader - Inorganics	Vancouver Inorganics, Burnaby, British Columbia
Ilnaz Badbezanchi	Supervisor - Metals Prep	Vancouver Metals, Burnaby, British Columbia
Leon Yang	Analyst	Vancouver Inorganics, Burnaby, British Columbia
Ophelia Chiu	Department Manager - Organics	Vancouver Organics, Burnaby, British Columbia

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 2007164)											
VA25B1542-001	101-1	pH (1:2 soil:water)	----	E108	0.10	pH units	8.46	8.16	3.6%	5%	----
Physical Tests (QC Lot: 2007170)											
VA25B1493-001	Anonymous	Moisture	----	E144	0.25	%	16.0	15.8	1.28%	20%	----
Saturated Paste Extractables (QC Lot: 2007165)											
VA25B1542-001	101-1	Chloride, soluble ion content	16887-00-6	E239.Cl	10	mg/L	184	154	17.6%	30%	----
Saturated Paste Extractables (QC Lot: 2007166)											
VA25B1542-001	101-1	% Saturation	----	E141	1.0	%	23.4	22.4	4.35%	20%	----
Saturated Paste Extractables (QC Lot: 2007167)											
VA25B1542-001	101-1	Sodium, soluble ion content	17341-25-2	E442	2.0	mg/L	188	158	17.4%	30%	----
Metals (QC Lot: 2007158)											
VA25B1542-001	101-1	Mercury	7439-97-6	E510	0.0500	mg/kg	<0.0500	<0.0500	0	Diff <2x LOR	----
Metals (QC Lot: 2007159)											
VA25B1542-001	101-1	Aluminum	7429-90-5	E440	50	mg/kg	20300	18300	10.2%	40%	----
		Antimony	7440-36-0	E440	0.10	mg/kg	<0.10	0.11	0.007	Diff <2x LOR	----
		Arsenic	7440-38-2	E440	0.10	mg/kg	0.80	0.69	14.4%	30%	----
		Barium	7440-39-3	E440	0.50	mg/kg	37.7	32.6	14.5%	40%	----
		Beryllium	7440-41-7	E440	0.10	mg/kg	0.27	0.24	0.03	Diff <2x LOR	----
		Bismuth	7440-69-9	E440	0.20	mg/kg	<0.20	<0.20	0	Diff <2x LOR	----
		Boron	7440-42-8	E440	5.0	mg/kg	<5.0	<5.0	0	Diff <2x LOR	----
		Cadmium	7440-43-9	E440	0.020	mg/kg	0.049	0.039	0.010	Diff <2x LOR	----
		Calcium	7440-70-2	E440	50	mg/kg	11600	9810	16.5%	30%	----
		Chromium	7440-47-3	E440	0.50	mg/kg	50.2	47.4	5.82%	30%	----
		Cobalt	7440-48-4	E440	0.10	mg/kg	14.9	15.1	0.962%	30%	----
		Copper	7440-50-8	E440	0.50	mg/kg	47.4	44.6	6.18%	30%	----
		Iron	7439-89-6	E440	50	mg/kg	24100	24400	1.31%	30%	----
		Lead	7439-92-1	E440	0.50	mg/kg	9.00	7.95	12.3%	40%	----
		Lithium	7439-93-2	E440	2.0	mg/kg	4.3	4.2	0.03	Diff <2x LOR	----
		Magnesium	7439-95-4	E440	20	mg/kg	10900	10500	4.21%	30%	----
		Manganese	7439-96-5	E440	1.0	mg/kg	432	382	12.2%	30%	----
		Molybdenum	7439-98-7	E440	0.10	mg/kg	0.34	0.26	0.08	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Metals (QC Lot: 2007159) - continued											
VA25B1542-001	101-1	Nickel	7440-02-0	E440	0.50	mg/kg	29.0	29.5	1.86%	30%	----
		Phosphorus	7723-14-0	E440	50	mg/kg	985	839	15.9%	30%	----
		Potassium	7440-09-7	E440	100	mg/kg	710	640	10.6%	40%	----
		Selenium	7782-49-2	E440	0.20	mg/kg	<0.20	<0.20	0	Diff <2x LOR	----
		Silver	7440-22-4	E440	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	----
		Sodium	7440-23-5	E440	50	mg/kg	429	390	9.40%	40%	----
		Strontium	7440-24-6	E440	0.50	mg/kg	32.7	24.8	27.5%	40%	----
		Sulfur	7704-34-9	E440	1000	mg/kg	<1000	<1000	0	Diff <2x LOR	----
		Thallium	7440-28-0	E440	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tin	7440-31-5	E440	2.0	mg/kg	<2.0	<2.0	0	Diff <2x LOR	----
		Titanium	7440-32-6	E440	1.0	mg/kg	1380	1220	12.1%	40%	----
		Tungsten	7440-33-7	E440	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		Uranium	7440-61-1	E440	0.050	mg/kg	0.403	0.313	24.9%	30%	----
		Vanadium	7440-62-2	E440	0.20	mg/kg	70.9	62.0	13.4%	30%	----
		Zinc	7440-66-6	E440	2.0	mg/kg	38.9	33.8	13.9%	30%	----
		Zirconium	7440-67-7	E440	1.0	mg/kg	1.3	1.1	0.2	Diff <2x LOR	----
Hydrocarbons (QC Lot: 2007169)											
VA25B1493-001	Anonymous	EPH (C10-C19)	----	E601A	200	mg/kg	<200	<200	0	Diff <2x LOR	----
		EPH (C19-C32)	----	E601A	200	mg/kg	<200	<200	0	Diff <2x LOR	----
Polycyclic Aromatic Hydrocarbons (QC Lot: 2007168)											
VA25B1493-001	Anonymous	Acenaphthene	83-32-9	E641A-L	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----
		Acenaphthylene	208-96-8	E641A-L	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----
		Acridine	260-94-6	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Anthracene	120-12-7	E641A-L	0.0040	mg/kg	<0.0040	<0.0040	0	Diff <2x LOR	----
		Benz(a)anthracene	56-55-3	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Benzo(a)pyrene	50-32-8	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Benzo(b+j)fluoranthene	n/a	E641A-L	0.010	mg/kg	0.013	<0.010	0.003	Diff <2x LOR	----
		Benzo(g,h,i)perylene	191-24-2	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Benzo(k)fluoranthene	207-08-9	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Chrysene	218-01-9	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Dibenz(a,h)anthracene	53-70-3	E641A-L	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----
		Fluoranthene	206-44-0	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Fluorene	86-73-7	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Polycyclic Aromatic Hydrocarbons (QC Lot: 2007168) - continued											
VA25B1493-001	Anonymous	Methylnaphthalene, 1-	90-12-0	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Methylnaphthalene, 2-	91-57-6	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Naphthalene	91-20-3	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Phenanthrene	85-01-8	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Pyrene	129-00-0	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Quinoline	91-22-5	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 2007170)						
Moisture	----	E144	0.25	%	<0.25	----
Saturated Paste Extractables (QCLot: 2007165)						
Chloride, soluble ion content	16887-00-6	E239.Cl	10	mg/L	<10	----
Saturated Paste Extractables (QCLot: 2007166)						
% Saturation	----	E141	1	%	50.0	----
Saturated Paste Extractables (QCLot: 2007167)						
Sodium, soluble ion content	17341-25-2	E442	2	mg/L	<2.0	----
Metals (QCLot: 2007158)						
Mercury	7439-97-6	E510	0.005	mg/kg	<0.0050	----
Metals (QCLot: 2007159)						
Aluminum	7429-90-5	E440	50	mg/kg	<50	----
Antimony	7440-36-0	E440	0.1	mg/kg	<0.10	----
Arsenic	7440-38-2	E440	0.1	mg/kg	<0.10	----
Barium	7440-39-3	E440	0.5	mg/kg	<0.50	----
Beryllium	7440-41-7	E440	0.1	mg/kg	<0.10	----
Bismuth	7440-69-9	E440	0.2	mg/kg	<0.20	----
Boron	7440-42-8	E440	5	mg/kg	<5.0	----
Cadmium	7440-43-9	E440	0.02	mg/kg	<0.020	----
Calcium	7440-70-2	E440	50	mg/kg	<50	----
Chromium	7440-47-3	E440	0.5	mg/kg	<0.50	----
Cobalt	7440-48-4	E440	0.1	mg/kg	<0.10	----
Copper	7440-50-8	E440	0.5	mg/kg	<0.50	----
Iron	7439-89-6	E440	50	mg/kg	<50	----
Lead	7439-92-1	E440	0.5	mg/kg	<0.50	----
Lithium	7439-93-2	E440	2	mg/kg	<2.0	----
Magnesium	7439-95-4	E440	20	mg/kg	<20	----
Manganese	7439-96-5	E440	1	mg/kg	<1.0	----
Molybdenum	7439-98-7	E440	0.1	mg/kg	<0.10	----
Nickel	7440-02-0	E440	0.5	mg/kg	<0.50	----
Phosphorus	7723-14-0	E440	50	mg/kg	<50	----
Potassium	7440-09-7	E440	100	mg/kg	<100	----
Selenium	7782-49-2	E440	0.2	mg/kg	<0.20	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 2007159) - continued						
Silver	7440-22-4	E440	0.1	mg/kg	<0.10	----
Sodium	7440-23-5	E440	50	mg/kg	<50	----
Strontium	7440-24-6	E440	0.5	mg/kg	<0.50	----
Sulfur	7704-34-9	E440	1000	mg/kg	<1000	----
Thallium	7440-28-0	E440	0.05	mg/kg	<0.050	----
Tin	7440-31-5	E440	2	mg/kg	<2.0	----
Titanium	7440-32-6	E440	1	mg/kg	<1.0	----
Tungsten	7440-33-7	E440	0.5	mg/kg	<0.50	----
Uranium	7440-61-1	E440	0.05	mg/kg	<0.050	----
Vanadium	7440-62-2	E440	0.2	mg/kg	<0.20	----
Zinc	7440-66-6	E440	2	mg/kg	<2.0	----
Zirconium	7440-67-7	E440	1	mg/kg	<1.0	----
Hydrocarbons (QCLot: 2007169)						
EPH (C10-C19)	----	E601A	200	mg/kg	<200	----
EPH (C19-C32)	----	E601A	200	mg/kg	<200	----
Polycyclic Aromatic Hydrocarbons (QCLot: 2007168)						
Acenaphthene	83-32-9	E641A-L	0.005	mg/kg	<0.0050	----
Acenaphthylene	208-96-8	E641A-L	0.005	mg/kg	<0.0050	----
Acridine	260-94-6	E641A-L	0.01	mg/kg	<0.010	----
Anthracene	120-12-7	E641A-L	0.004	mg/kg	<0.0040	----
Benz(a)anthracene	56-55-3	E641A-L	0.01	mg/kg	<0.010	----
Benzo(a)pyrene	50-32-8	E641A-L	0.01	mg/kg	<0.010	----
Benzo(b+j)fluoranthene	n/a	E641A-L	0.01	mg/kg	<0.010	----
Benzo(g,h,i)perylene	191-24-2	E641A-L	0.01	mg/kg	<0.010	----
Benzo(k)fluoranthene	207-08-9	E641A-L	0.01	mg/kg	<0.010	----
Chrysene	218-01-9	E641A-L	0.01	mg/kg	<0.010	----
Dibenz(a,h)anthracene	53-70-3	E641A-L	0.005	mg/kg	<0.0050	----
Fluoranthene	206-44-0	E641A-L	0.01	mg/kg	<0.010	----
Fluorene	86-73-7	E641A-L	0.01	mg/kg	<0.010	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.01	mg/kg	<0.010	----
Methylnaphthalene, 1-	90-12-0	E641A-L	0.01	mg/kg	<0.010	----
Methylnaphthalene, 2-	91-57-6	E641A-L	0.01	mg/kg	<0.010	----
Naphthalene	91-20-3	E641A-L	0.01	mg/kg	<0.010	----
Phenanthrene	85-01-8	E641A-L	0.01	mg/kg	<0.010	----
Pyrene	129-00-0	E641A-L	0.01	mg/kg	<0.010	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 2007168) - continued						
Quinoline	91-22-5	E641A-L	0.01	mg/kg	<0.010	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 2007164)									
pH (1:2 soil:water)	----	E108	----	pH units	6 pH units	99.5	95.0	105	----
Physical Tests (QCLot: 2007170)									
Moisture	----	E144	0.25	%	50 %	99.3	90.0	110	----
Saturated Paste Extractables (QCLot: 2007165)									
Chloride, soluble ion content	16887-00-6	E239.Cl	10	mg/L	100 mg/L	101	80.0	120	----
Saturated Paste Extractables (QCLot: 2007166)									
% Saturation	----	E141	1	%	100 %	95.9	80.0	120	----
Saturated Paste Extractables (QCLot: 2007167)									
Sodium, soluble ion content	17341-25-2	E442	2	mg/L	50 mg/L	107	80.0	120	----
Metals (QCLot: 2007158)									
Mercury	7439-97-6	E510	0.005	mg/kg	0.1 mg/kg	90.4	80.0	120	----
Metals (QCLot: 2007159)									
Aluminum	7429-90-5	E440	50	mg/kg	200 mg/kg	102	80.0	120	----
Antimony	7440-36-0	E440	0.1	mg/kg	100 mg/kg	107	80.0	120	----
Arsenic	7440-38-2	E440	0.1	mg/kg	100 mg/kg	104	80.0	120	----
Barium	7440-39-3	E440	0.5	mg/kg	25 mg/kg	103	80.0	120	----
Beryllium	7440-41-7	E440	0.1	mg/kg	10 mg/kg	95.0	80.0	120	----
Bismuth	7440-69-9	E440	0.2	mg/kg	100 mg/kg	90.9	80.0	120	----
Boron	7440-42-8	E440	5	mg/kg	100 mg/kg	96.6	80.0	120	----
Cadmium	7440-43-9	E440	0.02	mg/kg	10 mg/kg	98.2	80.0	120	----
Calcium	7440-70-2	E440	50	mg/kg	5000 mg/kg	95.4	80.0	120	----
Chromium	7440-47-3	E440	0.5	mg/kg	25 mg/kg	103	80.0	120	----
Cobalt	7440-48-4	E440	0.1	mg/kg	25 mg/kg	100	80.0	120	----
Copper	7440-50-8	E440	0.5	mg/kg	25 mg/kg	98.0	80.0	120	----
Iron	7439-89-6	E440	50	mg/kg	100 mg/kg	101	80.0	120	----
Lead	7439-92-1	E440	0.5	mg/kg	50 mg/kg	96.8	80.0	120	----
Lithium	7439-93-2	E440	2	mg/kg	25 mg/kg	93.9	80.0	120	----
Magnesium	7439-95-4	E440	20	mg/kg	5000 mg/kg	104	80.0	120	----
Manganese	7439-96-5	E440	1	mg/kg	25 mg/kg	97.7	80.0	120	----
Molybdenum	7439-98-7	E440	0.1	mg/kg	25 mg/kg	102	80.0	120	----
Nickel	7440-02-0	E440	0.5	mg/kg	50 mg/kg	97.5	80.0	120	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Metals (QCLot: 2007159) - continued									
Phosphorus	7723-14-0	E440	50	mg/kg	1000 mg/kg	111	80.0	120	----
Potassium	7440-09-7	E440	100	mg/kg	5000 mg/kg	104	80.0	120	----
Selenium	7782-49-2	E440	0.2	mg/kg	100 mg/kg	101	80.0	120	----
Silver	7440-22-4	E440	0.1	mg/kg	10 mg/kg	95.4	80.0	120	----
Sodium	7440-23-5	E440	50	mg/kg	5000 mg/kg	102	80.0	120	----
Strontium	7440-24-6	E440	0.5	mg/kg	25 mg/kg	102	80.0	120	----
Sulfur	7704-34-9	E440	1000	mg/kg	5000 mg/kg	92.5	80.0	120	----
Thallium	7440-28-0	E440	0.05	mg/kg	100 mg/kg	91.2	80.0	120	----
Tin	7440-31-5	E440	2	mg/kg	50 mg/kg	98.4	80.0	120	----
Titanium	7440-32-6	E440	1	mg/kg	25 mg/kg	100	80.0	120	----
Tungsten	7440-33-7	E440	0.5	mg/kg	10 mg/kg	97.5	80.0	120	----
Uranium	7440-61-1	E440	0.05	mg/kg	0.5 mg/kg	98.2	80.0	120	----
Vanadium	7440-62-2	E440	0.2	mg/kg	50 mg/kg	102	80.0	120	----
Zinc	7440-66-6	E440	2	mg/kg	50 mg/kg	100	80.0	120	----
Zirconium	7440-67-7	E440	1	mg/kg	10 mg/kg	105	80.0	120	----
Hydrocarbons (QCLot: 2007169)									
EPH (C10-C19)	----	E601A	200	mg/kg	1130 mg/kg	94.7	70.0	130	----
EPH (C19-C32)	----	E601A	200	mg/kg	576 mg/kg	93.6	70.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 2007168)									
Acenaphthene	83-32-9	E641A-L	0.005	mg/kg	0.5 mg/kg	106	60.0	130	----
Acenaphthylene	208-96-8	E641A-L	0.005	mg/kg	0.5 mg/kg	106	60.0	130	----
Acridine	260-94-6	E641A-L	0.01	mg/kg	0.5 mg/kg	101	60.0	130	----
Anthracene	120-12-7	E641A-L	0.004	mg/kg	0.5 mg/kg	108	60.0	130	----
Benz(a)anthracene	56-55-3	E641A-L	0.01	mg/kg	0.5 mg/kg	120	60.0	130	----
Benzo(a)pyrene	50-32-8	E641A-L	0.01	mg/kg	0.5 mg/kg	117	60.0	130	----
Benzo(b+j)fluoranthene	n/a	E641A-L	0.01	mg/kg	0.5 mg/kg	124	60.0	130	----
Benzo(g,h,i)perylene	191-24-2	E641A-L	0.01	mg/kg	0.5 mg/kg	94.4	60.0	130	----
Benzo(k)fluoranthene	207-08-9	E641A-L	0.01	mg/kg	0.5 mg/kg	106	60.0	130	----
Chrysene	218-01-9	E641A-L	0.01	mg/kg	0.5 mg/kg	120	60.0	130	----
Dibenz(a,h)anthracene	53-70-3	E641A-L	0.005	mg/kg	0.5 mg/kg	115	60.0	130	----
Fluoranthene	206-44-0	E641A-L	0.01	mg/kg	0.5 mg/kg	107	60.0	130	----
Fluorene	86-73-7	E641A-L	0.01	mg/kg	0.5 mg/kg	100	60.0	130	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.01	mg/kg	0.5 mg/kg	113	60.0	130	----
Methylnaphthalene, 1-	90-12-0	E641A-L	0.01	mg/kg	0.5 mg/kg	98.0	60.0	130	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 2007168) - continued									
Methylnaphthalene, 2-	91-57-6	E641A-L	0.01	mg/kg	0.5 mg/kg	109	60.0	130	----
Naphthalene	91-20-3	E641A-L	0.01	mg/kg	0.5 mg/kg	93.3	50.0	130	----
Phenanthrene	85-01-8	E641A-L	0.01	mg/kg	0.5 mg/kg	106	60.0	130	----
Pyrene	129-00-0	E641A-L	0.01	mg/kg	0.5 mg/kg	109	60.0	130	----
Quinoline	91-22-5	E641A-L	0.01	mg/kg	0.5 mg/kg	99.2	60.0	130	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Hydrocarbons (QCLot: 2007169)										
VA25B1493-002	Anonymous	EPH (C10-C19)	----	E601A	880 mg/kg	947 mg/kg	92.8	60.0	140	----
		EPH (C19-C32)	----	E601A	440 mg/kg	481 mg/kg	91.8	60.0	140	----
Polycyclic Aromatic Hydrocarbons (QCLot: 2007168)										
VA25B1493-002	Anonymous	Acenaphthene	83-32-9	E641A-L	0.394 mg/kg	0.404 mg/kg	97.5	50.0	140	----
		Acenaphthylene	208-96-8	E641A-L	0.397 mg/kg	0.404 mg/kg	98.3	50.0	140	----
		Acridine	260-94-6	E641A-L	0.377 mg/kg	0.404 mg/kg	93.2	50.0	140	----
		Anthracene	120-12-7	E641A-L	0.410 mg/kg	0.404 mg/kg	101	50.0	140	----
		Benz(a)anthracene	56-55-3	E641A-L	0.451 mg/kg	0.404 mg/kg	112	50.0	140	----
		Benzo(a)pyrene	50-32-8	E641A-L	0.429 mg/kg	0.404 mg/kg	106	50.0	140	----
		Benzo(b+j)fluoranthene	n/a	E641A-L	0.446 mg/kg	0.404 mg/kg	110	50.0	140	----
		Benzo(g,h,i)perylene	191-24-2	E641A-L	0.354 mg/kg	0.404 mg/kg	87.6	50.0	140	----
		Benzo(k)fluoranthene	207-08-9	E641A-L	0.384 mg/kg	0.404 mg/kg	94.9	50.0	140	----
		Chrysene	218-01-9	E641A-L	0.452 mg/kg	0.404 mg/kg	112	50.0	140	----
		Dibenz(a,h)anthracene	53-70-3	E641A-L	0.432 mg/kg	0.404 mg/kg	107	50.0	140	----
		Fluoranthene	206-44-0	E641A-L	0.406 mg/kg	0.404 mg/kg	100	50.0	140	----
		Fluorene	86-73-7	E641A-L	0.378 mg/kg	0.404 mg/kg	93.6	50.0	140	----
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.417 mg/kg	0.404 mg/kg	103	50.0	140	----
		Methylnaphthalene, 1-	90-12-0	E641A-L	0.379 mg/kg	0.404 mg/kg	93.7	50.0	140	----
		Methylnaphthalene, 2-	91-57-6	E641A-L	0.418 mg/kg	0.404 mg/kg	103	50.0	140	----
		Naphthalene	91-20-3	E641A-L	0.374 mg/kg	0.404 mg/kg	92.5	50.0	140	----
		Phenanthrene	85-01-8	E641A-L	0.400 mg/kg	0.404 mg/kg	99.0	50.0	140	----
		Pyrene	129-00-0	E641A-L	0.410 mg/kg	0.404 mg/kg	101	50.0	140	----
		Quinoline	91-22-5	E641A-L	0.374 mg/kg	0.404 mg/kg	92.5	50.0	140	----

Reference Material (RM) Report

A Reference Material (RM) is a homogenous material with known and well-established analyte concentrations. RMs are processed in an identical manner to test samples, and are used to monitor and control the accuracy and precision of a test method for a typical sample matrix. RM results are expressed as percent recovery of the target analyte concentration. RM targets may be certified target concentrations provided by the RM supplier, or may be ALS long-term mean values (for empirical test methods).

Sub-Matrix:

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Saturated Paste Extractables (QCLot: 2007165)									
QC-2007165-003	RM	Chloride, soluble ion content	16887-00-6	E239.Cl	2120 mg/L	102	70.0	130	----
Saturated Paste Extractables (QCLot: 2007166)									
QC-2007166-003	RM	% Saturation	----	E141	43.9 %	91.7	70.0	130	----
Saturated Paste Extractables (QCLot: 2007167)									
QC-2007167-003	RM	Sodium, soluble ion content	17341-25-2	E442	1100 mg/L	104	70.0	130	----
Metals (QCLot: 2007158)									
QC-2007158-003	MRCA-21	Mercury	7439-97-6	E510	0.068 mg/kg	87.7	70.0	130	----
Metals (QCLot: 2007159)									
QC-2007159-003	MRCA-21	Aluminum	7429-90-5	E440	22500 mg/kg	107	70.0	130	----
QC-2007159-003	MRCA-21	Antimony	7440-36-0	E440	24.8 mg/kg	102	70.0	130	----
QC-2007159-003	MRCA-21	Arsenic	7440-38-2	E440	21.2 mg/kg	96.7	70.0	130	----
QC-2007159-003	MRCA-21	Barium	7440-39-3	E440	788 mg/kg	98.4	70.0	130	----
QC-2007159-003	MRCA-21	Beryllium	7440-41-7	E440	1.82 mg/kg	99.4	70.0	130	----
QC-2007159-003	MRCA-21	Bismuth	7440-69-9	E440	1.78 mg/kg	89.8	70.0	130	----
QC-2007159-003	MRCA-21	Cadmium	7440-43-9	E440	2.15 mg/kg	97.1	70.0	130	----
QC-2007159-003	MRCA-21	Calcium	7440-70-2	E440	4900 mg/kg	96.1	70.0	130	----
QC-2007159-003	MRCA-21	Chromium	7440-47-3	E440	56.9 mg/kg	101	70.0	130	----
QC-2007159-003	MRCA-21	Cobalt	7440-48-4	E440	32 mg/kg	99.2	70.0	130	----
QC-2007159-003	MRCA-21	Copper	7440-50-8	E440	969 mg/kg	96.1	70.0	130	----
QC-2007159-003	MRCA-21	Iron	7439-89-6	E440	32700 mg/kg	99.1	70.0	130	----
QC-2007159-003	MRCA-21	Lead	7439-92-1	E440	919 mg/kg	91.3	70.0	130	----
QC-2007159-003	MRCA-21	Lithium	7439-93-2	E440	47.3 mg/kg	103	70.0	130	----
QC-2007159-003	MRCA-21	Magnesium	7439-95-4	E440	7780 mg/kg	102	70.0	130	----
QC-2007159-003	MRCA-21	Manganese	7439-96-5	E440	8640 mg/kg	95.7	70.0	130	----
QC-2007159-003	MRCA-21	Molybdenum	7439-98-7	E440	25.1 mg/kg	96.7	70.0	130	----
QC-2007159-003	MRCA-21	Nickel	7440-02-0	E440	1000 mg/kg	97.3	70.0	130	----
QC-2007159-003	MRCA-21	Phosphorus	7723-14-0	E440	660 mg/kg	102	70.0	130	----
QC-2007159-003	MRCA-21	Potassium	7440-09-7	E440	10800 mg/kg	104	70.0	130	----
QC-2007159-003	MRCA-21	Selenium	7782-49-2	E440	1.04 mg/kg	106	60.0	140	----
QC-2007159-003	MRCA-21	Silver	7440-22-4	E440	8.98 mg/kg	95.6	70.0	130	----
QC-2007159-003	MRCA-21	Sodium	7440-23-5	E440	1770 mg/kg	108	70.0	130	----
QC-2007159-003	MRCA-21	Strontium	7440-24-6	E440	41 mg/kg	94.9	70.0	130	----

Sub-Matrix:

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Metals (QCLot: 2007159) - continued									
QC-2007159-003	MRCA-21	Sulfur	7704-34-9	E440	3940 mg/kg	66.8	50.0	150	----
QC-2007159-003	MRCA-21	Thallium	7440-28-0	E440	0.907 mg/kg	94.6	70.0	130	----
QC-2007159-003	MRCA-21	Tin	7440-31-5	E440	3.79 mg/kg	91.6	40.0	160	----
QC-2007159-003	MRCA-21	Titanium	7440-32-6	E440	2790 mg/kg	104	70.0	130	----
QC-2007159-003	MRCA-21	Tungsten	7440-33-7	E440	6.99 mg/kg	92.1	70.0	130	----
QC-2007159-003	MRCA-21	Uranium	7440-61-1	E440	3.97 mg/kg	108	70.0	130	----
QC-2007159-003	MRCA-21	Vanadium	7440-62-2	E440	66.2 mg/kg	98.8	70.0	130	----
QC-2007159-003	MRCA-21	Zinc	7440-66-6	E440	828 mg/kg	98.0	70.0	130	----
QC-2007159-003	MRCA-21	Zirconium	7440-67-7	E440	6.91 mg/kg	98.3	70.0	130	----

Chain of Custody (COC) / Analytical Request Form

COC Number: 22 -

Page 1 of 1

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

Report To	Contact and company name below will appear on the final report
Company:	Active Earth Engineering Ltd.
Contact:	Emilia Schwarz
Phone:	(250) 661-4352
	Company address below will appear on the final report
Street:	304 - 2600 Gladys Avenue
City/Province:	Abbotsford, BC
Postal Code:	V2S 0E9
Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	Active Earth Engineering Ltd.
Contact:	Angie Steidle

Reports / Recipients

Select Report Format: ☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)
Merge QC/QCI Reports with COA ☑ YES ☐ NO ☐ N/A
☐ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax labreports@activeearth.ca
Email 2 emilia.schwarz@activeearth.ca
Email 3 emmanuelle@activeearth.ca

Invoice Recipients

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax ap@activeearth.ca
Email 2

Turnaround Time (TAT) Requested

☑ Routine [R] if received by 3pm M-F - no surcharges apply
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
☐ Same day [E2] if received by 10am M-S - 200% rush surcharge.

Additional fees may apply to rush requests on weekends, statutory holidays and for non-routine tests.

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm am/pm

For all tests with rush TATs requested, please contact your AM to confirm availability.

AFFIX ALS BARCODE LABEL HERE (ALS use only)

Project Information

ALS Account # / Quote #:	VA22-ACTI100-001
Job #:	4601-1
PO / AFE:	(same as Job #)
LSD:	N/A

Oil and Gas Required Fields (client use)

AFE/Cost Center:	N/A	PO#	N/A
Major/Minor Code:	N/A	Routing Code:	N/A
Requisitioner:	N/A		
Location:	N/A		

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Lab Work Order # (ALS use only): 1542

ALS Contact: Sneha Sansare Sampler: ES

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	metals	Na/Cl (sat paste)	L/H/PAH	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	101-1	16-May-25		soil	2	✓	✓	✓			
	102-1				2	✓	✓	✓			
	102-2				2	✓	✓	✓	☒		
	103-1				2	✓	✓	✓			
	104-1				2	✓	✓	✓			
	105-1				2	✓	✓	✓			
	106-1				2	✓	✓	✓			

Environmental Division
Vancouver
Work Order Reference
VA25B1542

Telephone : +1 604 253 4188

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System?
☐ YES ☑ NO
Are samples for human consumption/ use?
☐ YES ☑ NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED
Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO
Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C	FINAL COOLER TEMPERATURES °C
	13°

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by: DS	Date: 16-May	Time: 8:25 pm

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

FED 2022 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.