

Phase II – Environmental Site Assessment

1200 Baseline Road
Ottawa, Ontario

Prepared for Zena Investment Corporation

Report: PE6468-2

Date: November 27, 2025

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EXECUTIVE SUMMARY

Assessment

Paterson Group was retained by Zena Investment Corporation to conduct a Phase II – Environmental Site Assessment (Phase II ESA) for 1200 Baseline Road, in the City of Ottawa, Ontario. The purpose of the Phase II ESA was to address potentially contaminating activities (PCAs) that were identified during the Phase I ESA and were considered to result in areas of potential environmental concern (APECs) on the Phase II Property.

The subsurface investigation for this assessment was carried out between March 5th and 16th, 2025 in combination with a geotechnical program, and consisted of drilling 16 boreholes (BH1-25 to BH16-25) across the Phase II Property. The boreholes were advanced to measured depths ranging from 0.58 to 10.34 m below the existing ground surface. 12 boreholes (BH1-25, BH4-25 through BH6-25, and BH9-25 through BH16-25) were advanced into bedrock by means of rock coring. Upon completion, 11 boreholes (BH1-25, BH5-25, BH6-25, and BH9-25 through BH16-25) were instrumented with groundwater monitoring wells in order to access the groundwater table.

In general, the subsurface soil profile encountered at the borehole locations consists of asphalt (exterior boreholes) or concrete (interior boreholes) over a brown silty sand and crushed stone fill material with varying amounts of clay, underlain by a thin intermittent topsoil layer, silty clay to clayey silt, and sandy glacial till. Bedrock surface was encountered at depths ranging from 0.71 to 5.77 m below ground surface.

During the field sampling program, the groundwater was measured at depths ranging from 1.31 to 3.67 m below the existing ground surface (bgs).

A total of 12 soil samples (and one duplicate sample) were submitted for laboratory analysis of BTEX, PHCs, VOCs, metals, Hg, CrVI, PAHs, PCBs, EC and/or SAR parameters. Based on the analytical test results, all analytical soil results comply with the MECP Table 7 standards with the exception of a barium concentration in the fill material in BH1-25.

A total of 8 groundwater samples were submitted for laboratory analysis of BTEX, PHCs, VOCs, metals, Hg, CrVI, PAHs, and/or PCB parameters. Based on the analytical test results, groundwater beneath or immediately adjacent to the service bay area of the automotive service garage is contaminated with BTEX, VOCs and PHC parameters.

Recommendations

Based on the analytical results, the fill material present at BH1-25 contains metals parameters which exceed site standards. Given the low-mobility of these contaminants, along with groundwater analytical results and delineation sampling to date, this contamination is considered to be confined to the fill material within this localized area.

It is our understanding that the Phase II Property will be developed for residential use in the near future. If a generic Record of Site Condition is to be filed for the Phase II Property, impacted soil will need to be remediated in order to meet the generic site condition standards. Additionally, any excess soil generated on site must be handed in accordance with O. Reg. 406/19: On-Site and Excess Soil Management. Based on the property's current use as a garage, additional excess soil testing and reporting requirements will be required in accordance with O. Reg. 406/19 based on the volume of excess soil generated during redevelopment. It is recommended that additional delineation in conjunction with excess soil testing in accordance with O. Reg. 406/19 be completed closer to the time of development so this soil can be properly managed off-site. It is further recommended that Paterson personnel be present on-site during remediation activities to direct the excavation and segregation of impacted soil, as well as to conduct confirmatory sampling as required.

Groundwater

Groundwater impacted with BTEX, VOCs and PHCs was identified on the Phase II Property and is suspected to be the result of on-site commercial activities resulting in the identified APECs on the RSC Property. Prior to the redevelopment of the Phase II Property, it is recommended that impacted groundwater be further assessed. Monitoring wells with impacted groundwater are recommended to be resampled to confirm the presence and concentrations of these contaminants. If the presence of impacted groundwater is confirmed, the extent of these impacts should be further delineated.

Depending upon the volume of impacted groundwater, several options may be available to treat the groundwater. The removal of impacted groundwater from the site by a licensed pumping contractor would be a feasible option for smaller volumes, while an on-site treatment system would likely be more economical for larger volumes over a longer period of time. An on-site treatment system would discharge to the City of Ottawa sewer system. Prior to discharging treated groundwater to the municipal sewer system, a Sanitary Sewer Agreement will be required from the City of Ottawa's Sewer Use Program.

Monitoring Wells

It is recommended that monitoring wells on site be maintained for future sampling purposes. These monitoring wells will be registered with the MECP under Ontario Regulation 903 (Ontario Water Resources Act). At such a time that the monitoring wells are no longer required, they must be decommissioned in accordance with O.Reg. 903.

1.0 INTRODUCTION

At the request of Zena Investment Corporation, Paterson Group (Paterson) conducted a Phase II – Environmental Site Assessment (Phase II ESA) for the property addressed 1200 Baseline Road, in the City of Ottawa, Ontario (the Phase II Property).

The purpose of this Phase II ESA has been to address the areas of potential environmental concern (APECs) identified on the Phase II Property as a result the findings of the Phase I ESA.

1.1 Site Description

Address: 1200 Baseline Road, Ottawa, Ontario.

Legal Description: Part of Lots 13, 14 & 15, and Part of Lot 12, Registered Plan 30, and Part of Block E, Registered Plan 592106, City of Ottawa, Ontario.

Location: The Phase II Property is located southeast of the intersection of Baseline Road and Merivale Road. Refer to Figure 1 - Key Plan for the site location.

Latitude and Longitude: 45° 21' 53" N, 75° 43' 48" W

Site Description:

Configuration: Irregular

Site Area: 2.60 ha (approximately)

Zoning: AM10 – Arterial Mainstreet Zone

Current Use: The Phase I Property is currently used as an automotive dealership and service garage. The land use, as defined by O.Reg. 153/04 is “commercial use”.

Services: The Phase I Property is situated in a municipally serviced area.

1.2 Property Ownership

The Phase II Property is currently owned by Zena Investment Corporation. Paterson was retained to complete this Phase II ESA by Mr. David Johnston of Zena Investment Corporation, who can be contacted at 1200 Baseline Road, Ottawa ON, or by telephone at (613) 225-2277.

1.3 Applicable Site Condition Standard

The site condition standards for the subject property were obtained from Table 7 of the document entitled, *“Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act”*, prepared by the Ministry of the Environment, Conservation and Parks (MECP), and dated April 15, 2011. The selected MECP standards are based on the following considerations:

- ☐ Shallow soil conditions;
- ☐ Coarse-grained soil conditions;
- ☐ Non-potable groundwater conditions;
- ☐ Residential land use.

Grain-size analysis was not conducted as part of this assessment, and as such, the coarse-grained soil standards were selected as a conservative approach.

2.0 BACKGROUND INFORMATION

2.1 Physical Setting

The Phase II Property is currently occupied by a commercial dealership and service garage building and a smaller storage building, with associated asphaltic concrete parking areas. The present Phase II Property use is commercial use.

The site area slopes gently from north to south. Site drainage occurs primarily via surface run-off towards catch basins on-site and along adjacent roadways. The regional topography slopes down to the southeast. The topographic maps indicate that the site is approximately 95 m ASL, and that the regional topography slopes down to the south. According to the maps, the nearest named water body is the Nepean Creek, located approximately 2.2 km south of the Phase I Property at its closest point.

3.0 SCOPE OF INVESTIGATION

3.1 Overview of Site Investigation

The subsurface investigation for this assessment was carried out in conjunction with a geotechnical investigation between March 5th and 16th, 2025, and consisted of drilling 16 boreholes (BH1-25 to BH16-25) across the Phase II Property.

The boreholes were advanced to depths ranging from approximately 0.58 m to 10.34 m below the existing ground surface. 12 boreholes (BH1-25, BH4-25, BH5-25, BH6-25, BH9-25, BH10-25, BH11-25, BH12-25, BH13-25, BH14-25, BH15-25, BH16-25), were advanced into bedrock by means of rock coring and terminated within the bedrock unit. The bedrock surface was encountered at depths ranging from 0.71 m to 5.77 m below ground surface at these locations.

Upon completion, 11 boreholes (BH1-25, BH5-25, BH6-25, BH9-25, BH10-25, BH11-25, BH12-25, BH13-25, BH14-25, BH15-25, BH16-25) were instrumented with groundwater monitoring wells in order to access the groundwater table for environmental or hydrogeological/geotechnical purposes. The groundwater was measured at depths ranging from approximately 1.31 to 3.67 m below the existing ground surface on March 24, 2025.

3.2 Media Investigated

During the course of this subsurface investigation, soil and groundwater samples were obtained from the Phase II Property and submitted for laboratory analysis. The rationale for sampling and analyzing these media is based on the contaminants of potential concern identified in the Phase I ESA.

The contaminants of potential concern for the soil and/or groundwater on the Phase II Property include the following:

Soil

- ☐ Benzene, Toluene, Ethylbenzene, and Xylene Mixture (BTEX);
- ☐ Volatile Organic Compounds (VOCs);
- ☐ Petroleum Hydrocarbons, Fractions F₁ to F₄ (PHCs);
- ☐ Metals;
- ☐ Hydride Forming Metals (As, Sb, Se);
- ☐ Mercury (Hg);
- ☐ Hexavalent Chromium (Cr(VI));

- ☐ Polycyclic Aromatic Hydrocarbons (PAHs);
- ☐ Polychlorinated Biphenyls (PCBs);
- ☐ Electrical Conductivity (EC);
- ☐ Sodium Adsorption Ratio (SAR);

Groundwater

- ☐ Benzene, Toluene, Ethylbenzene, and Xylene Mixture (BTEX);
- ☐ Volatile Organic Compounds (VOCs);
- ☐ Petroleum Hydrocarbons, Fractions F₁ to F₄ (PHCs);
- ☐ Metals;
- ☐ Hydride Forming Metals (As, Sb, Se);
- ☐ Mercury (Hg);
- ☐ Hexavalent Chromium (Cr(VI));
- ☐ Polycyclic Aromatic Hydrocarbons (PAHs);
- ☐ Polychlorinated Biphenyls (PCBs);

3.3 Phase I ESA Conceptual Site Model

Geological and Hydrogeological Setting

The Geological Survey of Canada website on the Urban Geology of the National Capital Area was consulted as part of this assessment. Based on the information from NRCAN, bedrock in the area of the Phase I Property consists of interbedded limestone and dolomite of the Gull River Formation. Based on the maps, the surficial geology consists of till with an overburden thickness of 1 to 10 m (increasing in depth moving east).

Water Bodies and Areas of Natural and Scientific Interest

No water bodies or areas of natural and scientific interest are present on the Phase II Property or within the Study Area.

The nearest named water body with respect to the Phase II Property is the Nepean Creek, located approximately 2.2 km to the south of the Phase II Property at its closest point.

Drinking Water Wells

Based on the availability of municipal services, no potable drinking water wells are anticipated to remain in use within the Phase II Study Area.

Existing Buildings and Structures

Two buildings are present on the Phase I Property:

Dealership and Service Garage Building

The main building on the Phase II Property is a commercial dealership building consisting of a showroom and offices in the northern portion of the building (including a second floor for offices), a parts store and display area in the northeastern portion of the building, a service drive-thru and parking area in the north-central portion of the building, and an automotive service garage in the southern and eastern portions of the building. The original portion of the building was constructed in approximately 1971, with additions completed in 1985 (drive-through service area) and 2008 (showroom expansion). The building is heated via natural gas rooftop HVAC units. The historic and continued use of this building as an automotive repair and service garage is considered to represent an APEC on the Phase I Property (APEC 3).

Storage Building

A smaller single storey commercial building, currently used for storage, is present in the western portion of the Phase II Property. This building features a poured concrete foundation, masonry block exterior finish, and a flat modified-bitumenous roof. The storage building has one basement level and is heated with a natural gas fired furnace.

Current and Future Property Use

The current Phase II Property use is Commercial Use. Based on the most recent drawings provided to Paterson, the site is being considered for redevelopment with seven mid to high-rise residential buildings. Since the property is proposed to be redeveloped for a more sensitive land use (commercial to residential use), a record of site condition (RSC) will need to be filed with the MECP.

Neighbouring Land Use

The surrounding land uses within the Phase I Study Area consists of a mixture of agricultural or other use, parkland, residential use, commercial use, and

institutional use. Current land use is depicted on Drawing PE6468-2 – Surrounding Land Use Plan, in the Figures section of this report.

Potentially Contaminating Activities and Areas of Potential Environmental Concern

As per Section 7.2 of the Phase I ESA report, 14 potentially contaminating activities (PCAs) resulting in areas of potential environmental concern (APECs) were identified with respect to the Phase II Property. These APECs include:

- ❑ APEC 1 (PCA 1 on Drawing PE6468-1, Item 30 “Importation of Fill Material of Unknown Quality”)

Based on a review of aerial photographs, as well as past subsurface investigations, fill material of unknown quality was imported to the Phase II Property during previous development and/or as grading material for buildings and pavement structure. The presence of the fill material is considered to represent an APEC potentially impacting soil on the Phase II Property.

APEC 1 is considered to extend across the entire Phase II Property.

- ❑ APEC 2 (PCA 2 on Drawing PE6468-1, No Item Number “Application of Road Salt”)

This APEC is related to the application of salt or similar substance to surfaces for the safety of vehicular or pedestrian traffic under conditions of snow or ice or both. The use of road salt is considered to represent an APEC potentially impacting soil on the Phase II Property.

APEC 2 is considered to extend across the entire Phase II Property.

- ❑ APEC 3 (PCA 3 on Drawing PE6468-1, No Item Number “Existing Automotive Service Garage”)

This APEC is related to the commercial automotive repair garage situated on the Phase II Property. This current and former activity is considered to represent an APEC potentially impacting soil and groundwater on the Phase II Property.

APEC 3 is situated in the western portion of the Phase II Property.

- ❑ APEC 4 (PCA 4 on Drawing PE6468-1, Item 28 “Existing and Former Aboveground Hydraulic Hoists (2-Post And 4-Post)”)

This APEC is related to the existing and former aboveground hydraulic hoists situated across the service bay areas on the Phase II Property. This current and former activity is considered to represent an APEC potentially impacting soil and groundwater on the Phase II Property.

APEC 4 is situated in the western portion of the Phase II Property.

- ❑ APEC 5 (PCA 5 on Drawing PE6468-1, Item 4 “Bulk Antifreeze Storage in Mobile Tanks”)

This APEC is related to bulk antifreeze storage on the Phase II Property from the servicing of vehicles including busses and fleet vehicles. Antifreeze stored in mobile tanks is considered to represent an APEC potentially impacting soil and groundwater on the Phase II Property.

APEC 5 is situated in the western portion of the Phase II Property.

- ❑ APEC 6 (PCA 6 on Drawing PE6468-1, Item 28 “Existing Motor Oil AST Location (3x541L)”)

This APEC is related to the location of an AST containing three attached new motor oil tanks of different grades for use in motor vehicles. The presence of these motor oil tanks is considered to represent an APEC potentially impacting soil and groundwater on the Phase II Property.

APEC 6 is situated in the western portion of the Phase II Property.

- ❑ APEC 7 (PCA 7 on Drawing PE6468-1, Item 28 “Existing Motor Oil AST Location (2x1136L)”)

This APEC is related to the location of two connected new motor oil ASTs for use in motor vehicles. The presence of these motor oil storage tanks is considered to represent an APEC potentially impacting soil and groundwater on the Phase II Property.

APEC 7 is situated in the western portion of the Phase II Property.

- ❑ APEC 8 (PCA 8 on Drawing PE6468-1, Item 28 “Existing Motor Oil AST Location (1000L)”)

This APEC is related to the location of a new motor oil AST for use in motor vehicles. The presence of this motor oil storage tank is considered to represent an APEC potentially impacting soil and groundwater on the Phase II Property.

APEC 8 is situated in the western portion of the Phase II Property.

- ❑ APEC 9 (PCA 9 on Drawing PE6468-1, Item 28 “Existing Transmission Oil AST Location (1140L)”)

This APEC is related to the location of a new transmission oil AST for use in motor vehicles. The presence of this transmission oil storage tank is considered to represent an APEC potentially impacting soil and groundwater on the Phase II Property.

APEC 9 is situated in the western portion of the Phase II Property.

- ❑ APEC 10 (PCA 10 on Drawing PE6468-1, Item 28 “Existing Motor Oil AST Location (1140L)”)

This APEC is related to the location of a new motor oil AST for use in motor vehicles. The presence of this motor oil storage tank is considered to represent an APEC potentially impacting soil and groundwater on the Phase II Property.

APEC 10 is situated in the western portion of the Phase II Property.

- ❑ APEC 11 (PCA 11 on Drawing PE6468-1, Item 28 “Existing Waste Oil AST Location (2200L)”)

This APEC is related to the location of a waste oil AST. The presence of this waste oil storage tank is considered to represent an APEC potentially impacting soil and groundwater on the Phase I Property.

APEC 11 is situated in the western portion of the Phase II Property.

- ☐ APEC 12 (PCA 12 on Drawing PE6468-1, Item 28 “Existing Waste Coolant AST Location (1100L)”)

This APEC is related to the location of a waste coolant AST. The presence of this waste coolant storage tank is considered to represent an APEC potentially impacting soil and groundwater on the Phase II Property.

APEC 12 is situated in the western portion of the Phase II Property.

- ☐ APEC 13 (PCA 13 on Drawing PE6468-1, Item 55 “Pad Mounted Transformer”)

This APEC is related to the location of a pad mounted transformer. The presence of this pad mounted transformer is considered to represent an APEC potentially impacting soil and groundwater on the Phase II Property.

APEC 13 is situated in the western portion of the Phase II Property.

- ☐ APEC 14 (PCA 14 on Drawing PE6468-1, Item 28 “Former Retail Fuel Outlet”)

This APEC is related to a former off-site retail fuel outlet to the north of the Phase II Property. The presence of this former RFO is considered to represent an APEC potentially impacting groundwater on the Phase II Property.

APEC 14 is situated in the northern portion of the Phase II Property.

Contaminants of Potential Concern

The contaminants of potential concern (CPCs) associated with the aforementioned APECs are considered to be:

Soil

- ☐ Benzene, Toluene, Ethylbenzene, and Xylene Mixture (BTEX);
- ☐ Volatile Organic Compounds (VOCs);
- ☐ Petroleum Hydrocarbons, Fractions F₁ to F₄ (PHCs);
- ☐ Metals;
- ☐ Hydride Forming Metals (As, Sb, Se);
- ☐ Mercury (Hg);
- ☐ Hexavalent Chromium (Cr(VI));
- ☐ Polycyclic Aromatic Hydrocarbons (PAHs);
- ☐ Polychlorinated Biphenyls (PCBs);

- ☐ Electrical Conductivity (EC);
- ☐ Sodium Adsorption Ratio (SAR);

Groundwater

- ☐ Benzene, Toluene, Ethylbenzene, and Xylene Mixture (BTEX);
- ☐ Volatile Organic Compounds (VOCs);
- ☐ Petroleum Hydrocarbons, Fractions F₁ to F₄ (PHCs);
- ☐ Metals;
- ☐ Hydride Forming Metals (As, Sb, Se);
- ☐ Mercury (Hg);
- ☐ Hexavalent Chromium (Cr(VI));
- ☐ Polycyclic Aromatic Hydrocarbons (PAHs);
- ☐ Polychlorinated Biphenyls (PCBs);

These CPCs have the potential to be present in the soil matrix and/or the groundwater situated beneath the Phase II Property.

Assessment of Uncertainty and/or Absence of Information

The information available for review as part of the preparation of the Phase I ESA is considered to be sufficient to conclude that there are PCAs and APECs associated with respect to the Phase II Property.

The presence of any PCAs was confirmed by a variety of independent sources, and as such, the conclusions of this report are not affected by uncertainty which may be present with respect to the individual sources.

3.4 Deviations from the Sampling and Analysis Plan

No deviations from the Sampling and Analysis were made during the course of this Phase II ESA.

3.5 Physical Impediments

No physical impediments were encountered during the course of the field drilling program.

4.0 INVESTIGATION METHOD

4.1 Subsurface Investigation

The subsurface investigation for this assessment was carried out in conjunction with a geotechnical investigation between March 5th and 16th, 2025, and consisted of drilling 16 boreholes (BH1-25 to BH16-25) across the Phase II Property.

The boreholes were advanced to depths ranging from approximately 0.58 m to 10.34 m below the existing ground surface. 12 boreholes (BH1-25, BH4-25 through BH6-25, and BH9-25 through BH16-25) were advanced into bedrock by means of rock coring and terminated within the bedrock unit. The bedrock surface was encountered at depths ranging from 0.71 m to 5.77 m below ground surface at these locations.

Upon completion, 11 boreholes (BH1-25, BH5-25, BH6-25, and BH9-25 through BH16-25) were instrumented with groundwater monitoring wells in order to access the groundwater table for environmental and hydrogeological/geotechnical purposes. The groundwater was measured at depths ranging from approximately 1.31 to 3.67 m below the existing ground surface on March 24, 2025.

Under the full-time supervision of Paterson personnel, the boreholes were drilled using a track-mounted drill rig provided by George Downing Estate Drilling of Hawkesbury, Ontario. The locations of the boreholes are illustrated on Drawing PE6468-3 – Test Hole Location Plan, appended to this report.

4.2 Soil Sampling

Soil sampling protocols were followed using the MECP document entitled, *“Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario”*, dated May 1996.

The samples were recovered using a stainless-steel split spoon, while wearing protective gloves (changed after each sample), and immediately placed into plastic bags. If significant contamination was encountered, the samples were instead placed into glass jars. Sampling equipment was routinely washed in soapy water and rinsed with methylhydrate after each split spoon to prevent any cross contamination of the samples. The samples were also stored in coolers to reduce analyte volatilization during transportation.

A total of 39 soil samples and 51 rock core samples were obtained from the boreholes by means of auger and split spoon sampling and diamond bit rock coring. The depths at which auger, split spoon, and rock core samples were obtained from the boreholes are shown as “**AU**”, “**SS**”, and “**RC**”, respectively, on the Soil Profile and Test Data Sheets, appended to this report.

4.3 Field Screening Measurements

All soil samples collected were subjected to a preliminary screening procedure, which included visual screening for colour and evidence of metals, as well as soil vapour screening with a Photo Ionization Detector.

The recovered soil samples were placed immediately into airtight plastic bags with nominal headspace. All lumps of soil inside the bags were broken by hand, and the soil was allowed to come to room temperature prior to conducting the vapour survey, ensuring consistency of readings between samples. To measure the soil vapours, the analyser probe was inserted into the nominal headspace above the sample. The sample was then agitated and manipulated gently by hand as the measurement was taken. The peak reading registered within the first 15 seconds was recorded as the vapour measurement. The parts per million (ppm) scale was used to measure concentrations of organic vapours.

The results of the vapour survey are presented on the Soil Profile and Test Data Sheets, appended to this report.

4.4 Groundwater Monitoring Well Installation

11 groundwater monitoring wells were installed on the Phase II Property during the course of the field investigation. These monitoring wells were constructed using 35mm diameter Schedule 40 threaded PVC risers and screens. A sand pack consisting of silica sand was placed around the screen with a bentonite seal placed above to minimize cross-contamination. A summary of the monitoring well construction details are listed below in Table 1 as well as on the Soil Profile and Test Data Sheets provided in Appendix 1.

Table 1 Monitoring Well Construction Details					
Well ID	Ground Surface Elevation (m ASL)	Total Depth (m BGS)	Screened Interval (m BGS)	Sand Pack (m BGS)	Bentonite Seal (m BGS)
BH1-25	96.60	10.31	8.79 - 10.31	4.92 - 10.31	1.85 - 4.92
BH5-25	96.46	10.34	8.79 - 10.31	8.56 - 10.31	1.63 - 8.56
BH6-25	94.17	10.06	4.68 - 5.59	4.27 - 5.59	3.45 - 4.27
BH9-25	95.39	6.15	3.10 - 6.15	2.77 - 6.15	1.57 - 2.77
BH10-25	95.32	7.21	3.20 - 6.25	2.74 - 6.25	0.61 - 2.74
BH11-25	96.94	7.21	3.05 - 6.10	2.82 - 6.10	1.55 - 2.82
BH12-25	95.30	7.16	2.87 - 5.92	2.62 - 5.92	0.91 - 2.62
BH13-25	95.46	4.39	1.34 - 4.39	1.22 - 4.39	0.61 - 1.22
BH14-25	95.46	4.52	1.47 - 4.52	1.17 - 4.52	0.61 - 1.17
BH15-25	95.46	4.62	1.57 - 4.62	1.21 - 4.62	0.61 - 1.21
BH16-25	95.46	4.60	1.50 - 4.55	0.91 - 4.39	0.30 - 0.91

Upon installation, the groundwater monitoring wells were developed using a dedicated inertial lift pump, with a minimum of three well volumes being removed from the wells. The wells were developed until the appearance of the water was noted to have stabilized. In addition, the ground surface elevations of each borehole were subsequently surveyed with respect to a known geodetic elevation using GPS equipment.

4.5 Field Measurement of Water Quality Parameters

Groundwater monitoring and sampling was conducted on March 24th, 2025. At this time, water quality parameters were measured in the field using a multi-parameter analyzer. Parameters measured in the field included temperature, pH and electrical conductivity.

Field parameters were measured after each well volume purged. Wells were purged prior to sampling until at least three well volumes had been removed or the field parameters were relatively stable. Stabilized field parameter values are included in Appendix 1.

4.6 Groundwater Sampling

Groundwater sampling protocols were followed using the MECP document entitled, *“Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario”*, dated May 1996.

Standing water was purged from each monitoring well prior to the recovery of the groundwater samples using dedicated sampling equipment. The samples were then stored in coolers to reduce possible analyte volatilization during their transportation. Further details of our standard operating procedure for groundwater sampling are provided in the Sampling and Analysis Plan, appended to this report.

4.7 Analytical Testing

Soil and groundwater samples submitted for analytical testing are presented in Tables 2 and 3 in Appendix 1.

Paracel Laboratories (Paracel), of Ottawa, Ontario, performed the laboratory analysis on the samples submitted for analytical testing. Paracel is a member of the Standards Council of Canada/Canadian Association for Laboratory Accreditation (SCC/CALA) and is accredited and certified by the SCC/CALA for specific tests registered with the association.

4.8 Residue Management

All soil cuttings, purge water and equipment cleaning fluids were retained on-site.

4.9 Elevation Surveying

The ground surface elevations at each borehole location were surveyed using a GPS device by Paterson personnel and referenced to a geodetic datum.

4.10 Quality Assurance and Quality Control Measures

A summary of the quality assurance and quality control (QA/QC) measures, undertaken as part of this assessment, is provided in the Sampling and Analysis Plan in Appendix 1.

5.0 REVIEW AND EVALUATION

5.1 Geology

In general, the subsurface soil profile encountered at the borehole locations consists of asphalt (exterior boreholes) or concrete (interior boreholes) over a brown silty sand and crushed stone fill material with varying amounts of clay, underlain by a thin intermittent topsoil layer, silty clay to clayey silt, and sandy glacial till. The bedrock surface was encountered at depths ranging from 0.71 m to 5.77 m below ground surface, although BH2-25, BH3-25, BH7-25 and BH8(A)-25, encountered auger refusal between 0.58 and 1.57 m bgs, which may be indicative of the bedrock surface depth in these locations, although this was not confirmed by means of rock coring.

Site geology details are provided in the Soil Profile and Test Data Sheets in Appendix 1.

5.2 Groundwater Elevations, Flow Direction, and Hydraulic Gradient

Groundwater levels were measured using an electronic water level meter on March 24, 2025. The groundwater at the Phase II Property was encountered within the bedrock in all borehole locations (except BH6-25) at depths ranging from approximately 1.31 to 3.67 m below the existing ground surface. The groundwater levels are summarized in the Soil Profile and Test Data Sheets provided in Appendix 1.

A slight hydrocarbon odour was identified in the groundwater samples recovered from BH10-25, and BH13-25 through BH16-25. No unusual visual observations were identified within any of the other recovered groundwater samples.

Using the groundwater elevations recorded during the sampling event, groundwater contour mapping was completed as part of this assessment. According to the mapped contour data, illustrated on Drawing PE6468-3 – Test Hole Location Plan in the appendix, the groundwater on the Phase II Property was calculated to flow in a southerly direction. A horizontal hydraulic gradient of 0.02 m/m was also calculated as part of this assessment. It should be noted that groundwater levels are expected to fluctuate throughout the year with seasonal variations.

5.3 Fine/Coarse Soil Texture

Grain size analysis was not completed as part of this investigation. As a result, the coarse-grained soil standards were chosen as a conservative approach.

5.4 Field Screening

Field screening of the soil samples collected during the drilling program resulted in organic vapour readings ranging from 0.0 ppm to 3.8 ppm, indicating that there is a low potential for the presence of volatile substances. Field screening results of each individual soil sample are provided on the Soil Profile and Test Data Sheets appended to this report.

5.5 Soil Quality

A total of 12 soil samples and one duplicate sample were submitted for laboratory analysis of metals, hydride forming metals (As, Se, Sb), benzene, ethylbenzene, toluene, and xylene mixture (BTEX), petroleum hydrocarbons fractions F₁ to F₄ (PHCs), electrical conductivity (EC), and sodium absorption ratio (SAR), mercury (Hg), hexavalent chromium (Cr(VI)), volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), and/or polychlorinated biphenyls (PCBs). The results of the analytical testing are presented in the Laboratory Certificates of Analysis included in Appendix 1.

Metals (including Hydride Forming Metals, As, Se, Sb)

11 soil samples were submitted for analysis of metals parameters (including hydride forming metals As, Se, Sb). Barium concentrations were identified above the MECP Table 7 standards in sample BH1-25-AU1. The remaining metals concentrations in the soil samples analyzed comply with MECP Table 7 standards.

The analytical results for metals and As, Se, Sb in soil on the Phase II Property are shown on the following drawings:

- ☐ Drawing PE6468-4 – Analytical Testing Plan – Soil (Metals (including As, Sb, Se), Mercury, Cr(VI))
- ☐ Drawing PE6468-4A – Cross Section A-A' – Soil (Metals (including As, Sb, Se), Mercury, Cr(VI))
- ☐ Drawing PE6468-4B – Cross Section B-B' – Soil (Metals (including As, Sb, Se), Mercury, Cr(VI))

Mercury

Ten soil samples were submitted for analysis of mercury. All mercury concentrations in the soil samples analyzed comply with the selected MECP Table 7 standards.

The analytical results for mercury in soil on the Phase II Property are shown on the following drawings:

- ☐ Drawing PE6468-4 – Analytical Testing Plan – Soil (Metals (including As, Sb, Se), Mercury, Cr(VI))
- ☐ Drawing PE6468-4A – Cross Section A-A' – Soil (Metals (including As, Sb, Se), Mercury, Cr(VI))
- ☐ Drawing PE6468-4B – Cross Section B-B' – Soil (Metals (including As, Sb, Se), Mercury, Cr(VI))

Cr(VI)

Ten soil samples were submitted for analysis of Cr(VI). All Cr(VI) concentrations in the soil samples analyzed comply with the selected MECP Table 7 standards.

The analytical results for Cr(VI) in soil on the Phase II Property are shown on the following drawings:

- ☐ Drawing PE6468-4 – Analytical Testing Plan – Soil (Metals (including As, Sb, Se), Mercury, Cr(VI))
- ☐ Drawing PE6468-4A – Cross Section A-A' – Soil (Metals (including As, Sb, Se), Mercury, Cr(VI))
- ☐ Drawing PE6468-4B – Cross Section B-B' – Soil (Metals (including As, Sb, Se), Mercury, Cr(VI))

PAHs

Two soil samples were submitted for analysis of PAH parameters. All PAH parameter concentrations in the soil samples analyzed comply with the selected MECP Table 7 standards.

The analytical results for PAHs in soil on the Phase II Property are shown on the following drawing:

- ☐ Drawing PE6468-5 – Analytical Testing Plan – Soil (PAHs)

VOCs

Seven soil samples were submitted for analysis of VOC parameters. All VOC parameter concentrations in the soil samples analyzed comply with the MECP Table 7 standards.

The analytical results for VOCs in soil on the Phase II Property are shown on the following drawing:

- ☐ Drawing PE6468-6 – Analytical Testing Plan – Soil (VOCs)

PHCs

11 soil samples were submitted for analysis of PHC parameters. All PHC parameter concentrations in the soil samples analyzed comply with the MECP Table 7 standards.

The analytical results for PHCs in soil on the Phase II Property are shown on the following drawing:

- ☐ Drawing PE6468-7 – Analytical Testing Plan – Soil (BTEX, PHCs)

BTEX

11 soil samples were submitted for analysis of BTEX parameters. All BTEX parameter concentrations in the soil samples analyzed comply with the MECP Table 7 standards.

The analytical results for BTEX in soil on the Phase II Property are shown on the following drawing:

- ☐ Drawing PE6468-7 – Analytical Testing Plan – Soil (BTEX, PHCs)

PCBs

One soil sample was submitted for analysis of total PCBs. Total PCB concentrations in the soil sample analyzed comply with the MECP Table 7 standards.

The analytical results for PCBs in soil on the Phase II Property are shown on the following drawing:

- ☐ Drawing PE6468-8 – Analytical Testing Plan – Soil (PCBs)

EC and SAR

Nine soil samples were submitted for analysis of EC and SAR parameters. Relying on Section 49.1 of O.Reg. 153/04, EC and SAR on the Phase II Property are deemed not to be exceeded for the purpose of Part XV.1 of the Act. Parameters EC and SAR are not considered to be contaminants of concern to the Phase II Property.

The analytical results for EC and SAR in soil on the Phase II Property are shown on the following drawing:

- ❑ Drawing PE6468-9 – Analytical Testing Plan – Soil (EC and SAR)

Summary of Soil Results

Based on the analytical results, soil on the Phase II Property is contaminated with metals (barium) in the fill material at BH1-25.

The results of the analytical testing are presented in the laboratory Certificates of Analysis included in Appendix 1.

5.6 Groundwater Quality

A total of eight groundwater samples and one duplicate sample were submitted for laboratory analysis of metals, As, Se, Sb, mercury, Cr(VI), BTEX, PHCs, VOCs, PAHs, and/or total PCB parameters as part of this investigation.

The results of the analytical testing are presented in the laboratory Certificates of Analysis included in Appendix 1 and are summarized below.

Metals (including Hydride Forming Metals As, Se, Sb)

One groundwater sample was submitted for laboratory analysis of metals parameters, including hydride forming metals. All metals parameter concentrations in the groundwater sample analyzed comply with the MECP Table 7 standards.

The analytical results for metals (including As, Se, Sb) in groundwater on the Phase II Property are shown on the following drawing:

- ❑ Drawing PE6468-10 – Analytical Testing Plan – Groundwater (Metals (including As, Sb, Se), Mercury, Cr(VI))

Mercury

One groundwater sample was submitted for analysis of mercury. Mercury concentrations in the groundwater sample analyzed comply with the MECP Table 7 standards.

The analytical results for mercury in groundwater on the Phase II Property are shown on the following drawing:

- ☐ Drawing PE6468-10 – Analytical Testing Plan – Groundwater (Metals (including As, Sb, Se), Mercury, Cr(VI))

Cr(VI)

One groundwater sample was submitted for analysis of Cr(VI). Cr(VI) concentrations in the groundwater sample analyzed comply with the MECP Table 7 standards.

The analytical results for Cr(VI) in groundwater on the Phase II Property are shown on the following drawing:

- ☐ Drawing PE6468-10 – Analytical Testing Plan – Groundwater (Metals (including As, Sb, Se), Mercury, Cr(VI))

PAHs

Four groundwater samples were submitted for laboratory analysis of PAH parameters. All PAH parameter concentrations in the groundwater samples analyzed comply with the MECP Table 7 standards.

The analytical results for PAHs in groundwater on the Phase II Property are shown on the following drawing:

- ☐ Drawing PE6468-11 – Analytical Testing Plan – Groundwater (PAHs)

VOCs

Seven groundwater samples were submitted for analysis of VOC parameters. Two groundwater samples (BH13-25-GW1 and BH15-25-GW1) exceed the MECP Table 7 standards for 1,4-dichlorobenzene.

One groundwater sample (BH16-25-GW1) exceeds the MECP Table 7 standards for chloroform. Municipally treated water was used for coring during the installation

of this monitoring well on-site, which was installed in bedrock. Chloroform was introduced to the groundwater through the use of municipally treated potable water during the drilling program. Chloroform is deemed not to exceed the applicable site condition standard as the source of chloroform is associated with water from a treated municipal water supply and all concentrations of chloroform in the groundwater samples on the Phase II Property were less than the 240 µg/L as listed in Table A of the MECP document entitled “Guidance for Addressing Chloroform at a Record of Site Condition Property.”

VOC parameter concentrations in groundwater exceed the MECP Table 7 standards in BH13-25 and BH15-25.

The analytical results for VOCs in groundwater on the Phase II Property are shown on the following drawings:

- ☐ Drawing PE6468-12 – Analytical Testing Plan – Groundwater (VOCs)
- ☐ Drawing PE6468-12A – Cross Section A-A’ – Groundwater (VOCs)
- ☐ Drawing PE6468-12B – Cross Section B-B’ – Groundwater (VOCs)

BTEX

Eight groundwater samples were submitted for analysis of BTEX parameters. Three groundwater samples exceed the MECP Table 7 standards for benzene (BH10-25-GW1 and BH14-25-GW1) and one sample exceeded for xylene mixture (BH13-25-GW1). The remaining BTEX parameter concentrations in the groundwater samples analyzed comply with the MECP Table 7 standards.

BTEX parameter concentrations in groundwater exceed the MECP Table 7 standards in BH10-25, BH13-25, and BH14-25.

The analytical results for BTEX in groundwater on the Phase II Property are shown on the following drawings:

- ☐ Drawing PE6468-13 – Analytical Testing Plan – Groundwater (BTEX)
- ☐ Drawing PE6468-13A – Cross Section A-A’ – Groundwater (BTEX)
- ☐ Drawing PE6468-13B – Cross Section B-B’ – Groundwater (BTEX)

PHCs

Eight groundwater samples were submitted for analysis of PHC parameters. One groundwater sample, BH13-25-GW1, exceeded the MECP Table 7 standards for PHCs F1. All remaining PHC parameter concentrations in the groundwater samples analyzed are in compliance with the MECP Table 7 standards.

PHC parameter concentrations in groundwater exceed the MECP Table 7 standards in BH13-25.

The analytical results for PHCs in groundwater on the Phase II Property are shown on the following drawings:

- ☐ Drawing PE6468-14 – Analytical Testing Plan – Groundwater (PHCs)
- ☐ Drawing PE6468-14A – Cross Section A-A' – Groundwater (PHCs)
- ☐ Drawing PE6468-14B – Cross Section B-B' – Groundwater (PHCs)

PCBs

One groundwater sample was submitted for laboratory analysis of total PCBs. PCB parameter concentrations in the groundwater sample analyzed comply with the MECP Table 7 standards.

The analytical results for PCBs in groundwater on the Phase II Property are shown on the following drawing:

- ☐ Drawing PE6468-15 – Analytical Testing Plan – Groundwater (PCBs)

Summary of Groundwater Results

Based on the analytical results, groundwater on the Phase II Property is contaminated with VOCs (1,4-dichlorobenzene), PHCs (F1), and BTEX (benzene or xylene mixture) parameters.

BTEX parameter concentrations in groundwater exceed the MECP Table 7 standards in BH10-25, BH13-25, and BH14-25. VOCs exceed the MECP Table 7 standards in BH13-25 and BH15-25. PHCs exceed the MECP Table 7 standards in BH13-25.

The results of the analytical testing are presented in the laboratory Certificates of Analysis included in Appendix 1.

5.7 Quality Assurance and Quality Control Results

All samples submitted as part of this Phase II ESA were handled in accordance with the analytical protocols with respect to holding time, preservation method, storage requirement, and container type.

As per Subsection 47(3) of O. Reg. 153/04, as amended by the Environmental Protection Act, the certificates of analysis have been received for each sample submitted for laboratory analysis and have been appended to this report.

As per the Sampling and Analysis Plan, one duplicate soil sample was obtained from soil sample BH12-25-AU1 for BTEX, PHCs, metals, mercury, Cr(VI), VOCs, EC, and SAR; and groundwater sample BH11-25-GW1 for BTEX and PHCs analysis. The relative percent difference (RPD) calculations for the original and duplicate samples are presented in Table 7 of the Soil Profile and Test Data Sheets included in Appendix 1.

The RPD calculated for the parameters detected fell within the selected range of 20% with the exception of PHC concentrations in soil sample BH12-25-AU1, considered to be due to the result of low parameter values causing higher relative percent differences, as well as the heterogeneous nature of the fill material. As a result, the data quality objectives outlined in the Sampling and Analysis Plan, appended to this report, are considered to have been met.

Based on the results of the QA/QC analysis, the quality of the field data collected during this Phase II ESA is considered to be sufficient to meet the overall objectives of this assessment.

5.8 Phase II Conceptual Site Model

The following section has been prepared in accordance with the requirements of O. Reg. 153/04 amended by the Environmental Protection Act. For the purposes of the proposed uses of this Phase II Property, the Phase II Conceptual Site Model was prepared with consideration for O.Reg. 153/04 only. Conclusions and recommendations are discussed in a subsequent section.

Site Description

Potentially Contaminating Activity and Areas of Potential Environmental Concern

As described in Section 7.1 of the Phase I ESA report, as well as Section 3.3 of this report, the following PCAs, as defined by Table 2 of O. Reg. 153/04, are considered to result in APECs on the Phase II Property:

Table 1: Areas of Potential Environmental Concern					
Area of potential environmental concern	Location of area of potential environmental concern on phase one property	Potentially contaminating activity	Location of PCA (on-site or off-site)	Contaminants of potential concern	Media potentially impacted (Groundwater, soil and/or sediment)
APEC 1 (Importation of Fill Material of Unknown Quality)	Across Entire Phase I Property	Item 30: Importation of Fill Material of Unknown Quality	On-site	BTEX PHCs Metals As, Sb, Se Hg Cr(VI) PAHs	Soil
APEC 2 Application of Road Salt	Across Entire Phase I Property	No PCA ID: Application of de-icing agents for the purposes of vehicle and pedestrian safety under conditions of snow and ice	On-site	EC SAR	Soil
APEC 3 Existing Automotive Service Garage	Western Portion of Phase I Property	Item 52: Storage, maintenance, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems	On-site	BTEX VOCs PHCs Metals As, Se, Sb Hg Cr(VI) PAHs	Soil
				BTEX VOCs PHCs PAHs	Groundwater
APEC 4 Existing And Former	Western Portion of Phase I Property	Item 28: Gasoline and Associated Products Storage	On-site	PHCs PAHs	Soil

Table 1: Areas of Potential Environmental Concern

Area of potential environmental concern	Location of area of potential environmental concern on phase one property	Potentially contaminating activity	Location of PCA (on-site or off-site)	Contaminants of potential concern	Media potentially impacted (Groundwater, soil and/or sediment)
Aboveground Hydraulic Hoists (2-Post And 4-Post)		in Fixed Tanks		PHCs PAHs	Groundwater
APEC 5 Bulk Antifreeze Storage in Mobile Tanks	Western Portion of Phase I Property	Item 4: Antifreeze and De-icing Manufacturing and Bulk Storage	On-site	VOCs	Soil
				VOCs	Groundwater
APEC 6 Existing Motor Oil AST Location (3x541L)	Western Portion of Phase I Property	Item 28: Gasoline and Associated Products Storage in Fixed Tanks	On-site	BTEX VOCs PHCs PAHs	Soil
				BTEX VOCs PHCs PAHs	Groundwater
APEC 7 Existing Motor Oil AST Location (2x1136L)	Western Portion of Phase I Property	Item 28: Gasoline and Associated Products Storage in Fixed Tanks	On-site	BTEX VOCs PHCs	Soil
				BTEX VOCs PHCs	Groundwater
APEC 8 Existing Motor Oil AST Location (1000L)	Western Portion of RSC Property	Item 28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site	BTEX VOCs PHCs PAHs	Soil
				BTEX PHCs VOCs	Groundwater
APEC 9 Existing Transmission Oil	Western Portion of RSC Property	Item 28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site	BTEX VOCs PHCs PAHs	Soil

Table 1: Areas of Potential Environmental Concern

Area of potential environmental concern	Location of area of potential environmental concern on phase one property	Potentially contaminating activity	Location of PCA (on-site or off-site)	Contaminants of potential concern	Media potentially impacted (Groundwater, soil and/or sediment)
AST Location (1140L)				BTEX VOCs PHCs PAHs	Groundwater
APEC 10 Existing Motor Oil AST Location (1140L)	Western Portion of RSC Property	Item 28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site	BTEX VOCs PHCs PAHs	Soil
				BTEX VOCs PHCs	Groundwater
APEC 11 Existing Waste Oil AST Location (2200L)	Western Portion of RSC Property	Item 28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site	BTEX VOCs PHCs Metals As, Sb, Se Hg Cr(VI) PAHs	Soil
				BTEX VOCs PHCs Metals As, Sb, Se Hg Cr(VI) PAHs	Groundwater
APEC 12 Existing Waste Coolant AST Location (1100L)	Western Portion of RSC Property	Item 28: Gasoline and Associated Products Storage in Fixed Tanks	On-Site	BTEX VOCs PHCs Metals As, Sb, Se Hg Cr(VI) PAHs	Soil

Table 1: Areas of Potential Environmental Concern

Area of potential environmental concern	Location of area of potential environmental concern on phase one property	Potentially contaminating activity	Location of PCA (on-site or off-site)	Contaminants of potential concern	Media potentially impacted (Groundwater, soil and/or sediment)
				BTEX VOCs PHCs Metals As, Sb, Se Hg Cr(VI) PAHs	Groundwater
APEC 13 Pad Mounted Transformer	Western Portion of RSC Property	Item 55: Transformer Manufacturing, Processing and Use	On-Site	PHCs PCBs	Soil
				PHCs PCBs PAHs	Groundwater
APEC 14 Former Retail Fuel Outlet	Northern Portion of RSC Property	Item 28: Gasoline and Associated Products Storage in Fixed Tanks	Off-Site	BTEX PHCs	Groundwater

Contaminants of Potential Concern (CPCs)

The contaminants of potential concern (CPCs) associated with the aforementioned APECs are considered to be:

Soil

- ☐ Benzene, Toluene, Ethylbenzene, and Xylene Mixture (BTEX);
- ☐ Volatile Organic Compounds (VOCs);
- ☐ Petroleum Hydrocarbons, Fractions F₁ to F₄ (PHCs);
- ☐ Metals;
- ☐ Hydride Forming Metals (As, Sb, Se);
- ☐ Mercury (Hg);
- ☐ Hexavalent Chromium (Cr(VI));
- ☐ Polycyclic Aromatic Hydrocarbons (PAHs);
- ☐ Polychlorinated Biphenyls (PCBs);
- ☐ Electrical Conductivity (EC);

- ☐ Sodium Adsorption Ratio (SAR);

Groundwater

- ☐ Benzene, Toluene, Ethylbenzene, and Xylene Mixture (BTEX);
- ☐ Volatile Organic Compounds (VOCs);
- ☐ Petroleum Hydrocarbons, Fractions F₁ to F₄ (PHCs);
- ☐ Metals;
- ☐ Hydride Forming Metals (As, Sb, Se);
- ☐ Mercury (Hg);
- ☐ Hexavalent Chromium (Cr(VI));
- ☐ Polycyclic Aromatic Hydrocarbons (PAHs);
- ☐ Polychlorinated Biphenyls (PCBs);

These CPCs have the potential to be present in the soil matrix and/or the groundwater situated beneath the Phase II Property.

Subsurface Structures and Utilities

Based on public and private locates received in February 2025, subsurface structures and utilities present on the Phase I Property include sanitary and storm sewers, water lines, underground electrical wire, fibre optic cable, natural gas services, and buried Bell cable/conduit.

Physical Setting

Site Stratigraphy

The stratigraphy of the Phase II Property generally consists of:

- ☐ Asphalt (exterior) or concrete (interior) surface cover, extending to between 0.06 and 0.18 m bgs;
- ☐ Fill material consisting of brown silty sand and crushed stone with varying amounts of clay, trace brick and organics, extending to between 0.28 and 2.64 m bgs;
- ☐ An intermittent layer of topsoil in BH8A-25, BH13-25, extending to 0.61 to 1.32 m bgs;
- ☐ Clayey silt, present in BH6-25 only, extending to 4.42 m bgs;

- ☐ Glacial till, of varying composition, present in BH6-25, BH13-25, and BH16-25 extending to between 0.89 and 5.77 m bgs;
- ☐ Limestone bedrock extending below confirmed bedrock surface depths ranging from 0.71 to 5.77 m bgs.

The site stratigraphy, from ground surface to the deepest aquifer or aquitard investigated, is provided in the Soil Profile and Test Data Sheets in Appendix 1.

Hydrogeological Characteristics

The groundwater at the Phase II Property was encountered within the limestone bedrock in all monitoring wells except for BH6-25, where it was encountered in the clayey silt, at measured depths ranging from 1.31 to 3.67 m below the existing ground surface.

Based on the measured groundwater levels, the groundwater was calculated to flow in a southerly direction.

Approximate Depth to Bedrock

Bedrock was cored in 11 boreholes with the bedrock surface measured between 0.71 to 5.77 m bgs in these locations. Boreholes BH2-25, BH3-25, BH7-25 and BH8(A)-25, encountered auger refusal between 0.58 and 1.57 m bgs, which may be indicative of the bedrock surface depth in these locations, although this was not confirmed by means of rock coring.

Approximate Depth to Water Table

The depth to the water table ranges from approximately 1.31 to 3.67 m below the existing ground surface.

Sections 41 and 43.1 of Ontario Regulation 153/04

Section 41 of the Regulation does not apply to the Phase II Property, as the Phase II Property is not within 30 m of an environmentally sensitive area.

Section 43.1 of the Regulation applies to the Phase II Property in that the Phase II Property is considered to be a Shallow Soil Property. The Phase II Property is not within 30 m of a water body.

As section 43.1 of the Regulation applies to the Phase II Property, “the qualified person shall not use the applicable stratified site condition standards pursuant to

sub-subparagraph 4 i C of subsection 168.4 (1) of the Act in certifying the record of site condition for the purposes of paragraph 4 of subsection 168.4 (1) of the Act.” *O. Reg. 511/09, s. 21.*

Existing Buildings and Structures

Two buildings are present on the Phase I Property:

Dealership and Service Garage Building

The main building on the Phase I Property is a commercial dealership building consisting of a showroom and offices in the northern portion of the building (including a second floor for offices), a parts store and display area in the northeastern portion of the building, a service drive-thru and parking area in the north-central portion of the building, and an automotive service garage in the southern and eastern portions of the building. The original portion of the building was constructed in approximately 1971, with additions completed in 1985 (drive-through service area) and 2008 (showroom expansion). The building is heated via natural gas rooftop HVAC units. The historic and continued use of this building as an automotive repair and service garage represents an APEC on the Phase I Property (APEC 3).

Storage Building

A smaller single storey commercial building, currently used for storage, is present in the western portion of the Phase I Property. This building features a poured concrete foundation, masonry block exterior finish, and a flat modified-bitumenous roof. The storage building has one basement level and is heated with a natural gas fired furnace.

Environmental Condition

Areas Where Contaminants are Present

Based on the findings of this assessment, soil (fill material) in BH1-25 (within APEC 1) is contaminated with metals parameters above the MECP Table 7 residential standards.

Based on the analytical test results, the groundwater beneath the Phase II Property is contaminated with BTEX at BH10-25, BH13-25, and BH14-25 (within APECs 3, 4, 6, 7, 10, 11, 12, and 13) above the MECP Table 7 residential standards. Groundwater beneath the Phase II Property is contaminated with VOCs at BH13-

25 and BH15-25 (within APECs 3, 5, 7, and 9), and with PHCs at BH13-25 (within APECs 3, 4, 5, and 7).

Types of Contaminants

Based on the findings of the Phase II ESA, the following contaminants of concern (CPCs) are considered to be present on the Phase II Property:

Soil:

- Metals (Including As, Se, Sb)
 - Barium

Groundwater:

- BTEX
 - Benzene
 - Xylene Mixture
- VOCs
 - 1,4-dichlorobenzene
- PHCs
 - F1

Contaminated Media

Based on the findings of this assessment, soil (fill material) on the Phase II Property is contaminated with metals above the MECP Table 7 Residential standards, and groundwater is contaminated with BTEX, VOCs, and PHCs above the MECP Table 7 Residential standards.

What Is Known About Areas Where Contaminants Are Present

Fill material present in the southeastern portion of the Phase II Property is impacted with metals above the MECP Table 7 Residential standards. The exact origin of this contaminant is unknown but may be the result of the importation of fill material of unknown quality during the redevelopment of this portion of the Phase II Property. These impacts are considered to be confined to the fill material (extending to 1.40 m bgs) in the immediate area of BH1-25.

Groundwater present beneath the western service bays in the automotive service garage building on the Phase II Property is contaminated with BTEX and PHCs

above the MECP Table 7 Residential standards. The origin of these contaminants is unknown but is likely to be the result of automotive service garage activities including the presence of aboveground fuel and waste storage tanks.

Groundwater present beneath the northern portion of the service bay area in the automotive service garage building on the Phase II Property is contaminated with VOCs (1,4-dichlorobenzene) above the MECP Table 7 Residential standards. The origin of these contaminants is unknown but may be the result of cleaning or deodorizing chemicals used historically during vehicle servicing, or from on-site janitorial supplies that may have been introduced to the groundwater via leaky floor drains, conduits and/or oil water separators.

Distribution and Migration of Contaminants

The distribution of metals impacts above the MECP Table 7 Residential standards is considered to be limited to the fill material in the immediate area of BH1-25. Based on the low mobility of this contaminant, as well as the water table being situated beneath the bedrock surface, contaminants are not suspected to have migrated from the fill into the water table.

BTEX, VOC and PHC contaminated groundwater is considered to be confined to the eastern portion of the Phase II Property, within or immediately adjacent to the service bay area of the automotive service garage.

Discharge of Contaminants

It is unknown where metals concentrations identified at BH1-25 originated from, but they may be the result of the importation of fill material of unknown quality during development.

It is unknown where BTEX, VOC and PHC contamination in groundwater encountered within or immediately adjacent to the service bay area of the automotive service garage originated, but it could be the result of spills related to on site petroleum-derived product storage tanks in these areas, and from on-site janitorial supplies that may have been introduced to the groundwater via leaky floor drains, conduits and/or oil water separators.

Climatic and Meteorological Conditions

In general, climatic and meteorological conditions have the potential to affect contaminant distribution. Two ways by which climatic and meteorological conditions may affect contaminant distribution include the downward leaching of

contaminants via the infiltration of precipitation, and the migration of contaminants via groundwater levels and/or flow, which may fluctuate seasonally.

Based on the clean groundwater results obtained during this investigation for metals, As, Se, Sb, mercury, Cr(VI), PHCs, and PAHs, no downward migration of contaminants is suspected to have occurred beyond the overburden (fill) for these contaminants.

Groundwater impacted with VOCs and BTEX parameters is considered to be confined to the eastern portion of the Phase II Property, within or immediately adjacent to the service bay area of the automotive service garage and not anticipated to have migrated significantly from the origin point.

Potential for Vapour Intrusion

The potential for vapour intrusion on the site currently is low, and is not considered to pose a significant risk to the current occupants given the nature of on-site activities. Given that the Phase II Property will be redeveloped in the near future, all contaminated soil and groundwater will be removed from the site at that time. As a result, there is no potential for future vapour intrusion on the Phase II Property.

6.0 CONCLUSIONS

Assessment

Paterson Group was retained by Zena Investment Corporation to conduct a Phase II – Environmental Site Assessment (Phase II ESA) for 1200 Baseline Road, in the City of Ottawa, Ontario. The purpose of the Phase II ESA was to address potentially contaminating activities (PCAs) that were identified during the Phase I ESA and were considered to result in areas of potential environmental concern (APECs) on the Phase II Property.

The subsurface investigation for this assessment was carried out between March 5th and 16th, 2025 in combination with a geotechnical program, and consisted of drilling 16 boreholes (BH1-25 to BH16-25) across the Phase II Property. The boreholes were advanced to measured depths ranging from 0.58 to 10.34 m below the existing ground surface. 12 boreholes (BH1-25, BH4-25 through BH6-25, and BH9-25 through BH16-25) were advanced into bedrock by means of rock coring. Upon completion, 11 boreholes (BH1-25, BH5-25, BH6-25, and BH9-25 through

BH16-25) were instrumented with groundwater monitoring wells in order to access the groundwater table.

In general, the subsurface soil profile encountered at the borehole locations consists of asphalt (exterior boreholes) or concrete (interior boreholes) over a brown silty sand and crushed stone fill material with varying amounts of clay, underlain by a thin intermittent topsoil layer, silty clay to clayey silt, and sandy glacial till. Bedrock surface was encountered at depths ranging from 0.71 to 5.77 m below ground surface.

During the field sampling program, the groundwater was measured at depths ranging from 1.31 to 3.67 m below the existing ground surface (bgs).

A total of 12 soil samples (and one duplicate sample) were submitted for laboratory analysis of BTEX, PHCs, VOCs, metals, Hg, CrVI, PAHs, PCBs, EC and/or SAR parameters. Based on the analytical test results, all analytical soil results comply with the MECP Table 7 standards with the exception of barium concentrations in the fill material in BH1-25.

A total of 8 groundwater samples were submitted for laboratory analysis of BTEX, PHCs, VOCs, metals, Hg, CrVI, PAHs, and/or PCB parameters. Based on the analytical test results, groundwater beneath or immediately adjacent to the service bay area of the automotive service garage is contaminated with BTEX, VOCs and PHC parameters.

Recommendations

Soil

Based on the analytical results, the fill material present at BH1-25 contains metals parameters which exceed site standards. Given the low-mobility of these contaminants, along with groundwater analytical results and delineation sampling to date, this contamination is considered to be confined to the fill material within this localized area.

It is our understanding that the Phase II Property will be developed for residential use in the future. If a generic Record of Site Condition is to be filed for the Phase II Property, impacted soil will need to be remediated in order to meet the generic site condition standards. Additionally, any excess soil generated on site must be handed in accordance with O. Reg. 406/19: On-Site and Excess Soil Management. Based on the property's current use as a garage, additional excess soil testing and

reporting requirements will be required in accordance with O. Reg. 406/19 based on the volume of excess soil generated during redevelopment. It is recommended that additional delineation in conjunction with excess soil testing in accordance with O. Reg. 406/19 be completed closer to the time of development so this soil can be properly managed off-site. It is further recommended that Paterson personnel be present on-site during remediation activities to direct the excavation and segregation of impacted soil, as well as to conduct confirmatory sampling as required.

Groundwater

Groundwater impacted with BTEX, VOCs and PHCs was identified on the Phase II Property and is suspected to be the result of on-site commercial activities resulting in the identified APECs on the RSC Property. Prior to the redevelopment of the Phase II Property, it is recommended that impacted groundwater be further assessed. Monitoring wells with impacted groundwater are recommended to be resampled to confirm the presence and concentrations of these contaminants. If the presence of impacted groundwater is confirmed, the extent of these impacts should be further delineated.

Depending upon the volume of impacted groundwater, several options may be available to treat the groundwater. The removal of impacted groundwater from the site by a licensed pumping contractor would be a feasible option for smaller volumes, while an on-site treatment system would likely be more economical for larger volumes over a longer period of time. An on-site treatment system would discharge to the City of Ottawa sewer system. Prior to discharging treated groundwater to the municipal sewer system, a Sanitary Sewer Agreement will be required from the City of Ottawa's Sewer Use Program.

Monitoring Wells

It is recommended that monitoring wells on site be maintained for future sampling purposes. These monitoring wells will be registered with the MECP under Ontario Regulation 903 (Ontario Water Resources Act). At such a time that the monitoring wells are no longer required, they must be decommissioned in accordance with O.Reg. 903.

7.0 STATEMENT OF LIMITATIONS

This Phase II – Environmental Site Assessment report has been prepared in general accordance with O. Reg. 153/04, as amended, and CSA Z769-00 (reaffirmed 2022). The conclusions presented herein are based on information gathered from a limited sampling and testing program. The test results represent conditions at specific test locations at the time of the field program.

The client should be aware that any information pertaining to soils and all test hole logs are furnished as a matter of general information only and test hole descriptions or logs are not to be interpreted as descriptive of conditions at locations other than those of the test holes themselves.

Should any conditions be encountered at the Phase II Property and/or historical information that differ from our findings, we request that we be notified immediately in order to allow for a reassessment.

This report was prepared for the sole use of Zena Investment Corporation. Permission and notification from the above noted party and Paterson Group will be required prior to the release of this report to any other party.

Paterson Group Inc.



Jesse Andrechek, P.Eng., QP_{ESA}



Mark D'Arcy, P.Eng., QP_{ESA}



Report Distribution:

- Zena Investment Corporation.
- Paterson Group Inc.

FIGURES

FIGURE 1 – KEY PLAN

DRAWING PE6468-1 – SITE PLAN

DRAWING PE6468-1B – INTERIOR SITE PLAN

DRAWING PE6468-2 – SURROUNDING LAND USE PLAN

DRAWING PE6468-3 – TEST HOLE LOCATION PLAN

DRAWING PE6468-4 – ANALYTICAL TESTING PLAN – SOIL (METALS (including As, Sb, Se), MERCURY, Cr(VI))

DRAWING PE6468-4A – CROSS SECTION A-A' – SOIL (METALS (including As, Sb, Se), MERCURY, Cr(VI))

DRAWING PE6468-4B – CROSS SECTION B-B' – SOIL (METALS (including As, Sb, Se), MERCURY, Cr(VI))

DRAWING PE6468-5 – ANALYTICAL TESTING PLAN – SOIL (PAHs)

DRAWING PE6468-6 – ANALYTICAL TESTING PLAN – SOIL (VOCs)

DRAWING PE6468-7 – ANALYTICAL TESTING PLAN – SOIL (BTEX, PHCs)

DRAWING PE6468-8 – ANALYTICAL TESTING PLAN – SOIL (PCBs)

DRAWING PE6468-9 – ANALYTICAL TESTING PLAN – SOIL (EC, SAR)

DRAWING PE6468-10 – ANALYTICAL TESTING PLAN – GROUNDWATER (METALS (Including As, Se, Sb), MERCURY, Cr(VI))

DRAWING PE6468-11 – ANALYTICAL TESTING PLAN – GROUNDWATER (PAHs)

DRAWING PE6468-12 – ANALYTICAL TESTING PLAN – GROUNDWATER (VOCs)

DRAWING PE6468-12A – CROSS SECTION A-A' – GROUNDWATER (VOCs)

DRAWING PE6468-12B – CROSS SECTION B-B' – GROUNDWATER (VOCs)

DRAWING PE6468-13 – ANALYTICAL TESTING PLAN – GROUNDWATER (BTEX)

DRAWING PE6468-13A – CROSS SECTION A-A' – GROUNDWATER (BTEX)

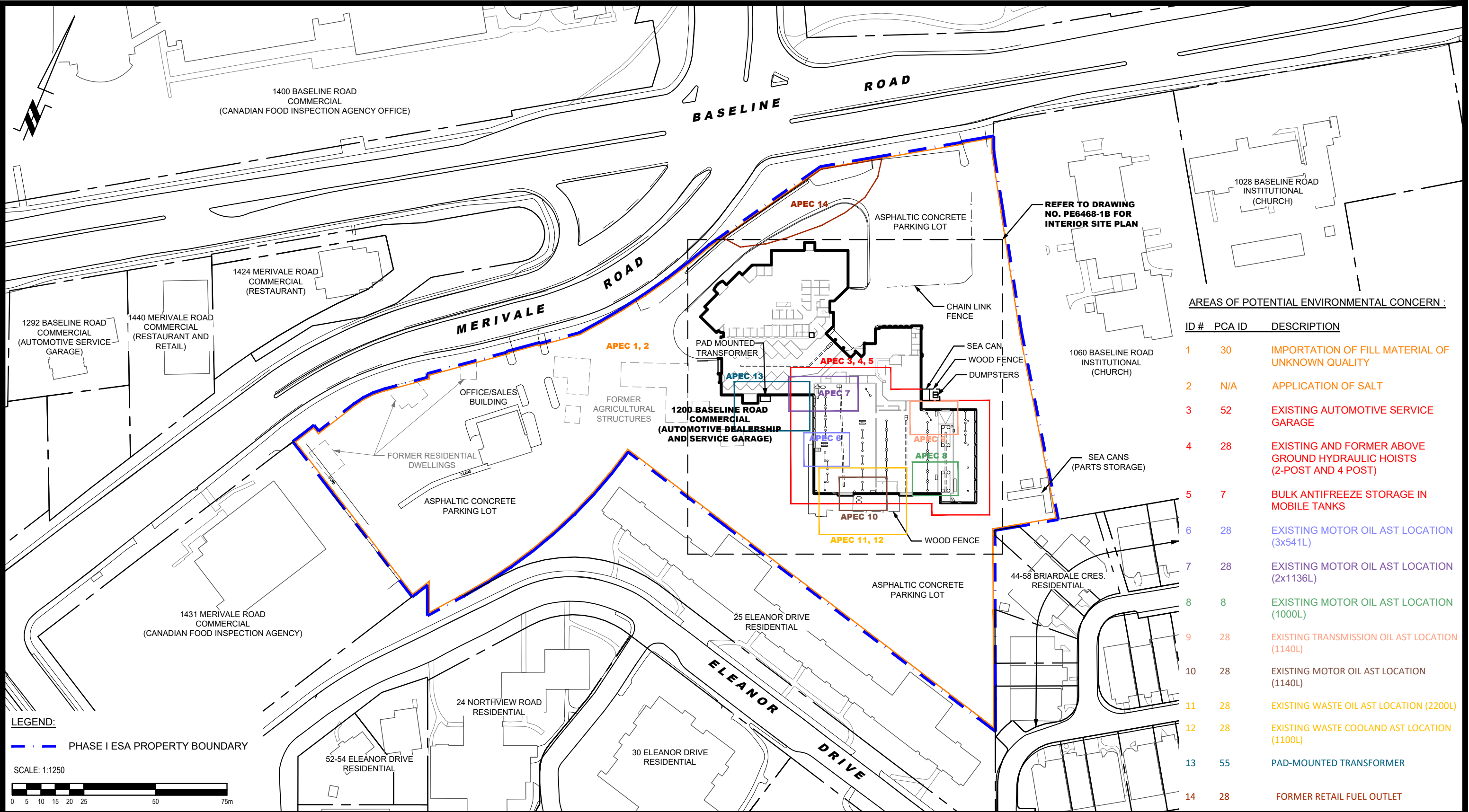
DRAWING PE6468-13B – CROSS SECTION B-B' – GROUNDWATER (BTEX)

DRAWING PE6468-14 – ANALYTICAL TESTING PLAN – GROUNDWATER (PHCs)

DRAWING PE6468-14A – CROSS SECTION A-A' – GROUNDWATER (PHCs)

DRAWING PE6468-14B – CROSS SECTION B-B' – GROUNDWATER (PHCs)

DRAWING PE6468-15 – ANALYTICAL TESTING PLAN – GROUNDWATER (PCBs)



AREAS OF POTENTIAL ENVIRONMENTAL CONCERN :

ID #	PCA ID	DESCRIPTION
1	30	IMPORTATION OF FILL MATERIAL OF UNKNOWN QUALITY
2	N/A	APPLICATION OF SALT
3	52	EXISTING AUTOMOTIVE SERVICE GARAGE
4	28	EXISTING AND FORMER ABOVE GROUND HYDRAULIC HOISTS (2-POST AND 4 POST)
5	7	BULK ANTIFREEZE STORAGE IN MOBILE TANKS
6	28	EXISTING MOTOR OIL AST LOCATION (3x541L)
7	28	EXISTING MOTOR OIL AST LOCATION (2x1136L)
8	8	EXISTING MOTOR OIL AST LOCATION (1000L)
9	28	EXISTING TRANSMISSION OIL AST LOCATION (1140L)
10	28	EXISTING MOTOR OIL AST LOCATION (1140L)
11	28	EXISTING WASTE OIL AST LOCATION (2200L)
12	28	EXISTING WASTE COOLAND AST LOCATION (1100L)
13	55	PAD-MOUNTED TRANSFORMER
14	28	FORMER RETAIL FUEL OUTLET



9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

NO.	REVISIONS	DATE	INITIAL

ZENA INVESTMENT CORPORATION

PHASE I - ENVIRONMENTAL SITE ASSESSMENT

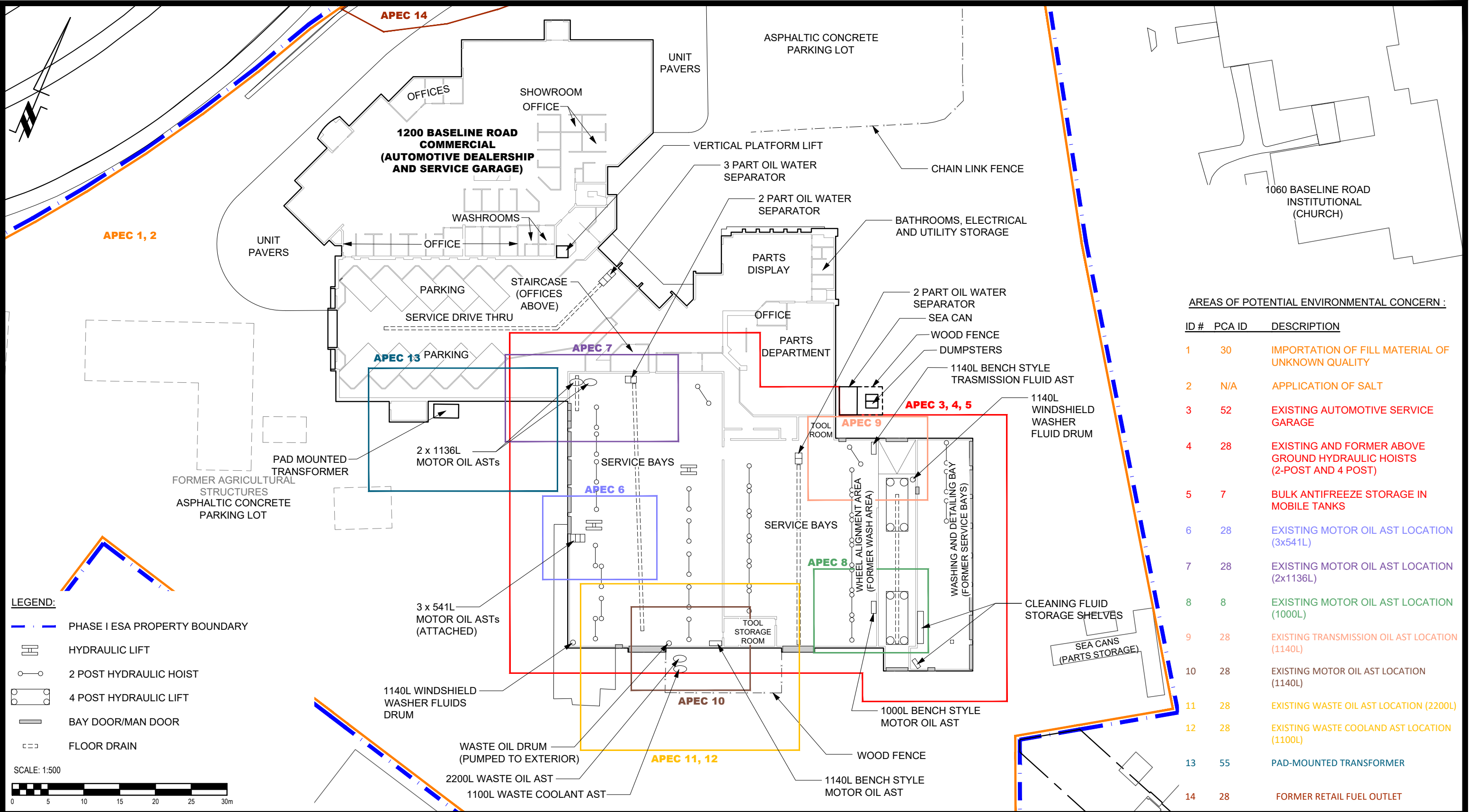
1200 BASELINE ROAD

OTTAWA, ONTARIO

Title:

SITE PLAN

Scale:	1:1250	Date:	11/2025
Drawn by:	ZS	Report No.:	PE6468-1
Checked by:	JA	Dwg. No.:	PE6468-1
Approved by:	MSD	Revision No.:	



AREAS OF POTENTIAL ENVIRONMENTAL CONCERN :

ID #	PCA ID	DESCRIPTION
1	30	IMPORTATION OF FILL MATERIAL OF UNKNOWN QUALITY
2	N/A	APPLICATION OF SALT
3	52	EXISTING AUTOMOTIVE SERVICE GARAGE
4	28	EXISTING AND FORMER ABOVE GROUND HYDRAULIC HOISTS (2-POST AND 4 POST)
5	7	BULK ANTIFREEZE STORAGE IN MOBILE TANKS
6	28	EXISTING MOTOR OIL AST LOCATION (3x541L)
7	28	EXISTING MOTOR OIL AST LOCATION (2x1136L)
8	8	EXISTING MOTOR OIL AST LOCATION (1000L)
9	28	EXISTING TRANSMISSION OIL AST LOCATION (1140L)
10	28	EXISTING MOTOR OIL AST LOCATION (1140L)
11	28	EXISTING WASTE OIL AST LOCATION (2200L)
12	28	EXISTING WASTE COOLANT AST LOCATION (1100L)
13	55	PAD-MOUNTED TRANSFORMER
14	28	FORMER RETAIL FUEL OUTLET



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PHASE I - ENVIRONMENTAL SITE ASSESSMENT

1200 BASELINE ROAD

OTTAWA, ONTARIO

Title: INTERIOR SITE PLAN

Scale:	1:500	Date:	04/2025
Drawn by:	ZS	Report No.:	PE6468-1
Checked by:	JA	Dwg. No.:	PE6468-1B
Approved by:	MSD	Revision No.:	



PHASE I - ENVIRONMENTAL SITE ASSESSMENT STUDY AREA

POTENTIALLY CONTAMINATING ACTIVITIES :

ID #	PCA ID	DESCRIPTION
1	30	IMPORTATION OF FILL MATERIAL OF UNKNOWN QUALITY
2	N/A	APPLICATION OF SALT
3	52	EXISTING AUTOMOTIVE SERVICE GARAGE
4	28	EXISTING AND FORMER ABOVE GROUND HYDRAULIC HOISTS (2-POST AND 4 POST)
5	7	BULK ANTIFREEZE STORAGE IN MOBILE TANKS
6	28	EXISTING MOTOR OIL AST LOCATION (3x541L)
7	28	EXISTING MOTOR OIL AST LOCATION (2x1136L)
8	8	EXISTING MOTOR OIL AST LOCATION (1000L)
9	28	EXISTING TRANSMISSION OIL AST LOCATION (1140L)
10	28	EXISTING MOTOR OIL AST LOCATION (1140L)
11	28	EXISTING WASTE OIL AST LOCATION (2200L)
12	28	EXISTING WASTE COOLAND AST LOCATION (1100L)
13	55	PCB CONTAINING PAD-MOUNTED TRANSFORMER
14	28	FORMER RETAIL FUEL OUTLET
15	52	FORMER AUTOMOTIVE SERVICE GARAGE
16	52	EXISTING AND FORMER AUTOMOTIVE SERVICE GARAGE
17	52	EXISTING AND FORMER AUTOMOTIVE SERVICE GARAGE
18	28	FORMER RETAIL FUEL OUTLET
19	29	FORMER RETAIL FUEL OUTLET

LEGEND:

PHASE I ESA PROPERTY BOUNDARY

SCALE: 1:4000

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NO.	REVISIONS	DATE	INITIAL

OTTAWA,
Title:

ONTARIO

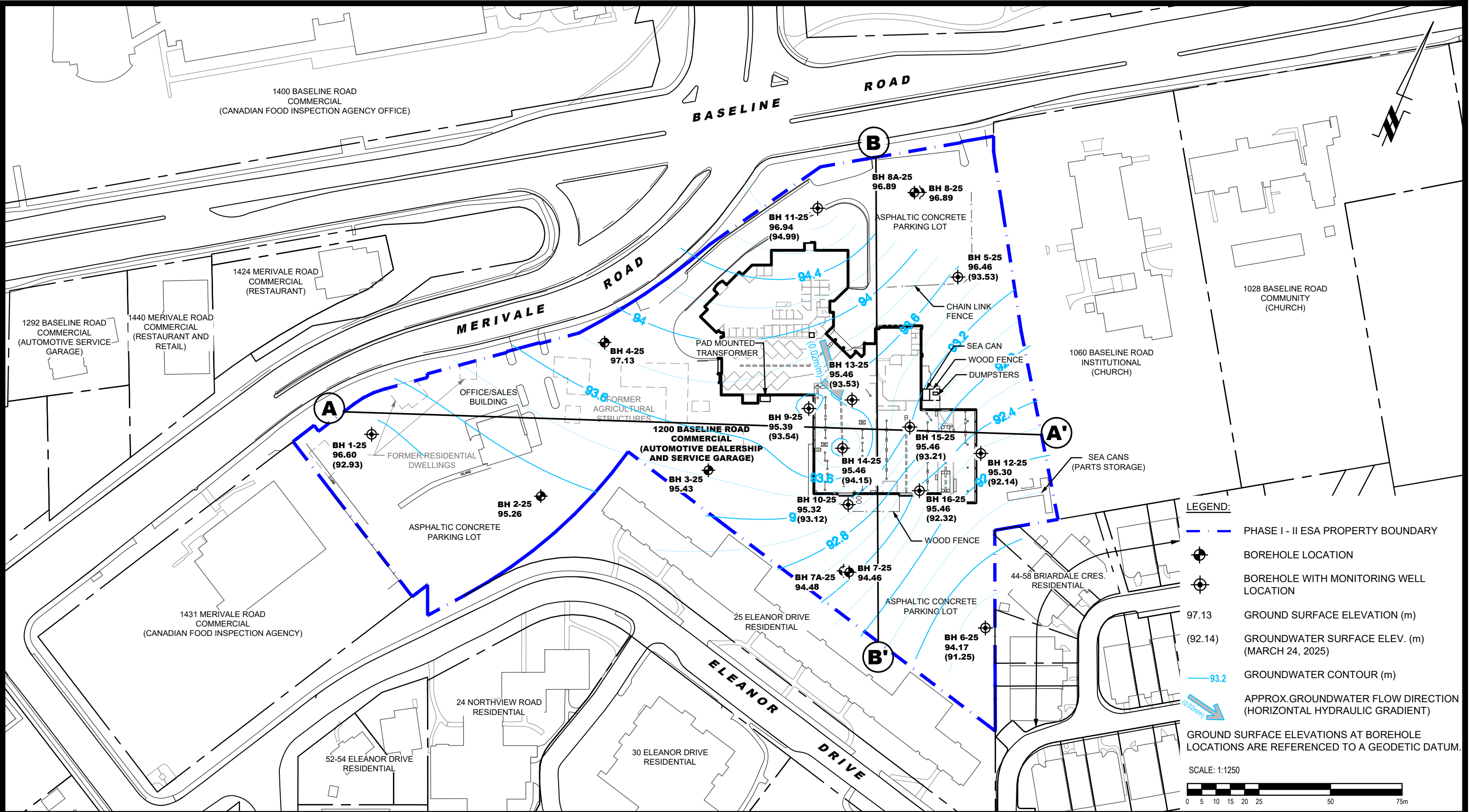
ZENA INVESTMENT CORPORATION

PHASE I - ENVIRONMENTAL SITE ASSESSMENT

1200 BASELINE ROAD

SURROUNDING LAND USE PLAN

Scale:	1:4000	Date:	11/2025
Drawn by:	ZS	Report No.:	PE6468-1
Checked by:	JA	Dwg. No.:	PE6468-2
Approved by:	MSD	Revision No.:	





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NO.	REVISIONS	DATE	INITIAL

ZENA INVESTMENT CORPORATION

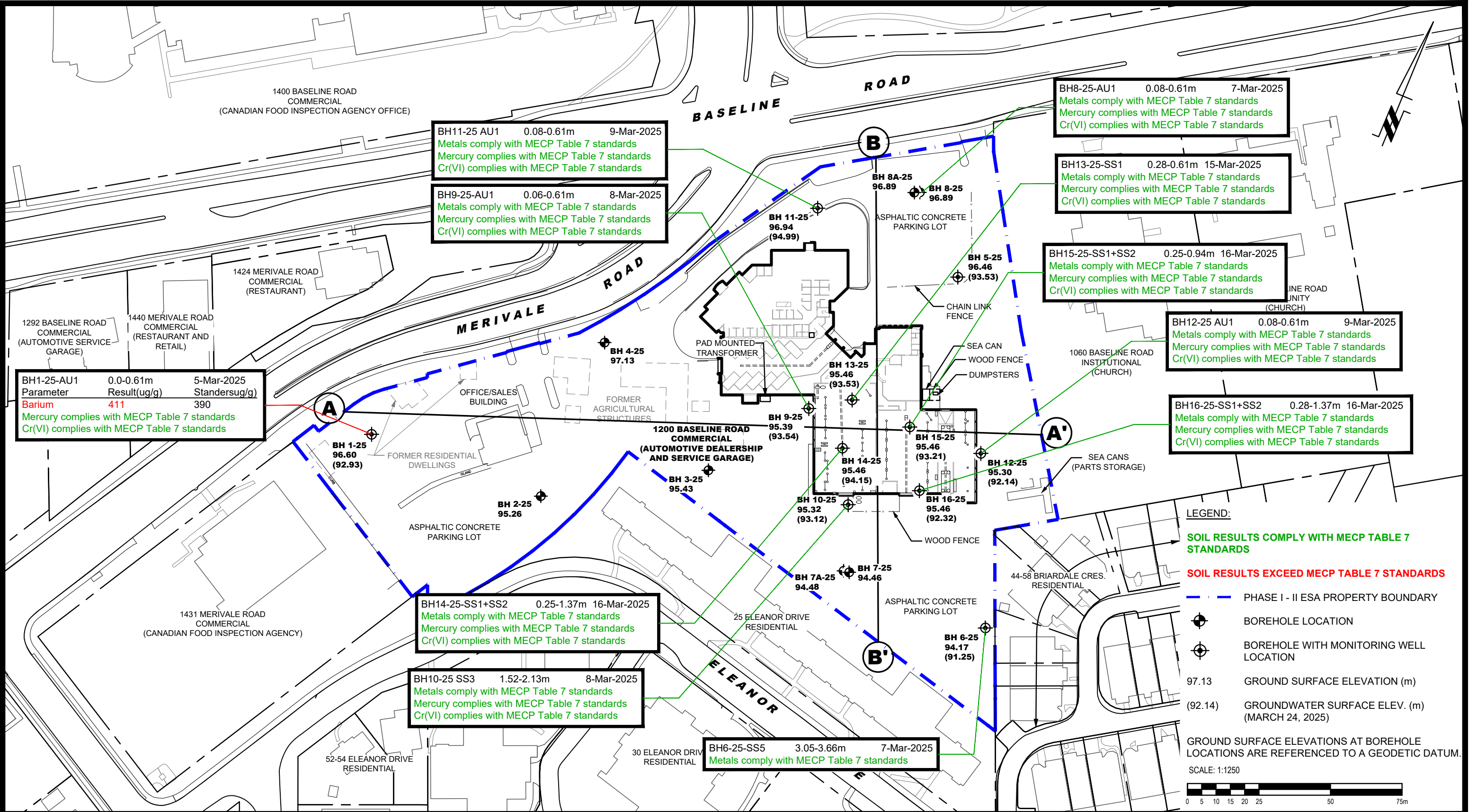
PHASE II - ENVIRONMENTAL SITE ASSESSMENT
1200 BASELINE ROAD

OTTAWA, ONTARIO

Title:

TEST HOLE LOCATION PLAN

Scale:	1:1250	Date:	11/2025
Drawn by:	GK	Report No.:	PE6468-2
Checked by:	JA	Dwg. No.:	PE6468-3
Approved by:	MSD	Revision No.:	



LEGEND:

SOIL RESULTS COMPLY WITH MECP TABLE 7 STANDARDS

SOIL RESULTS EXCEED MECP TABLE 7 STANDARDS

--- PHASE I - II ESA PROPERTY BOUNDARY

⊙ BOREHOLE LOCATION

⊙ BOREHOLE WITH MONITORING WELL LOCATION

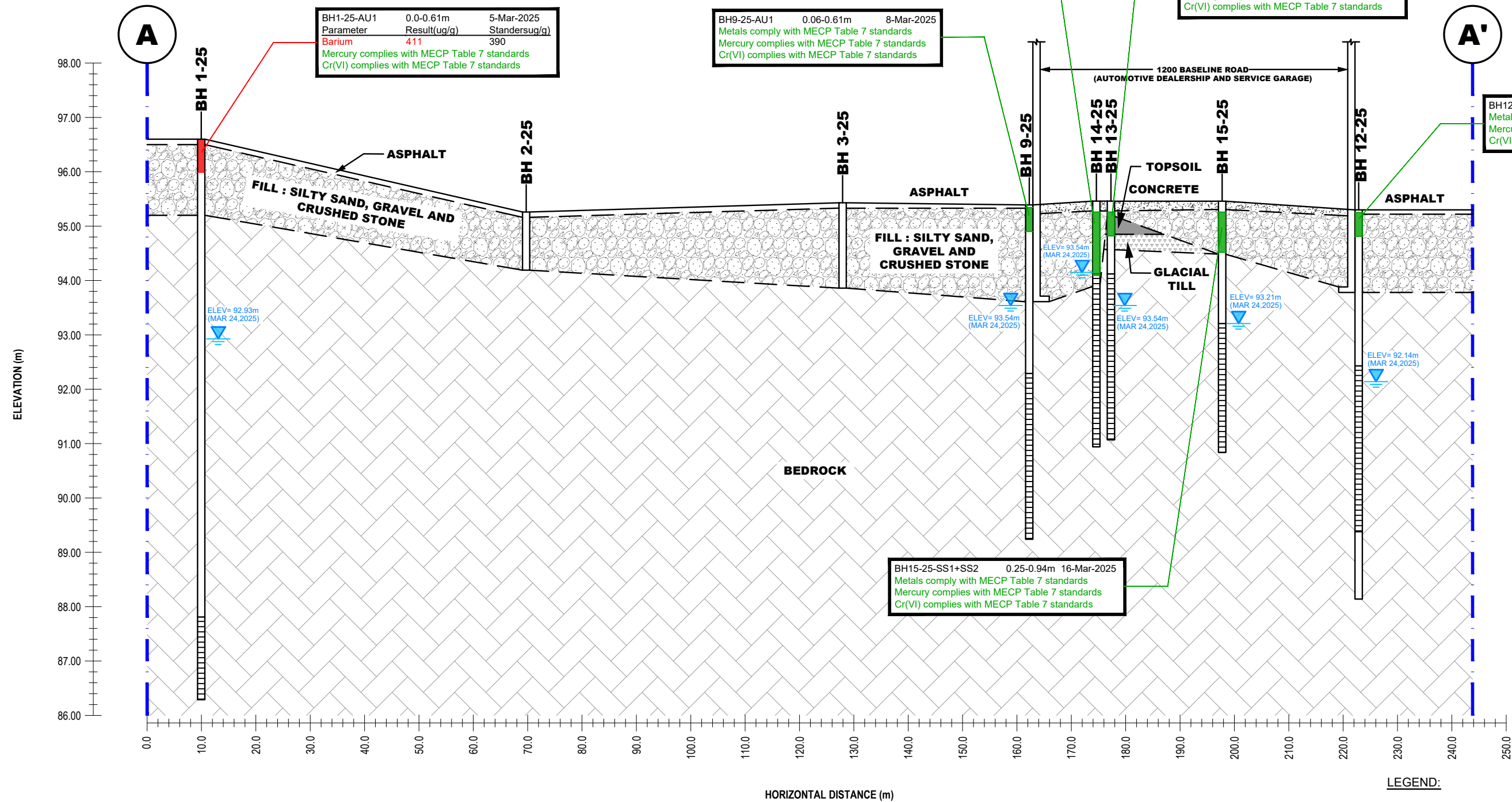
97.13 GROUND SURFACE ELEVATION (m)

(92.14) GROUNDWATER SURFACE ELEV. (m) (MARCH 24, 2025)

GROUND SURFACE ELEVATIONS AT BOREHOLE LOCATIONS ARE REFERENCED TO A GEODETIC DATUM.

SCALE: 1:1250

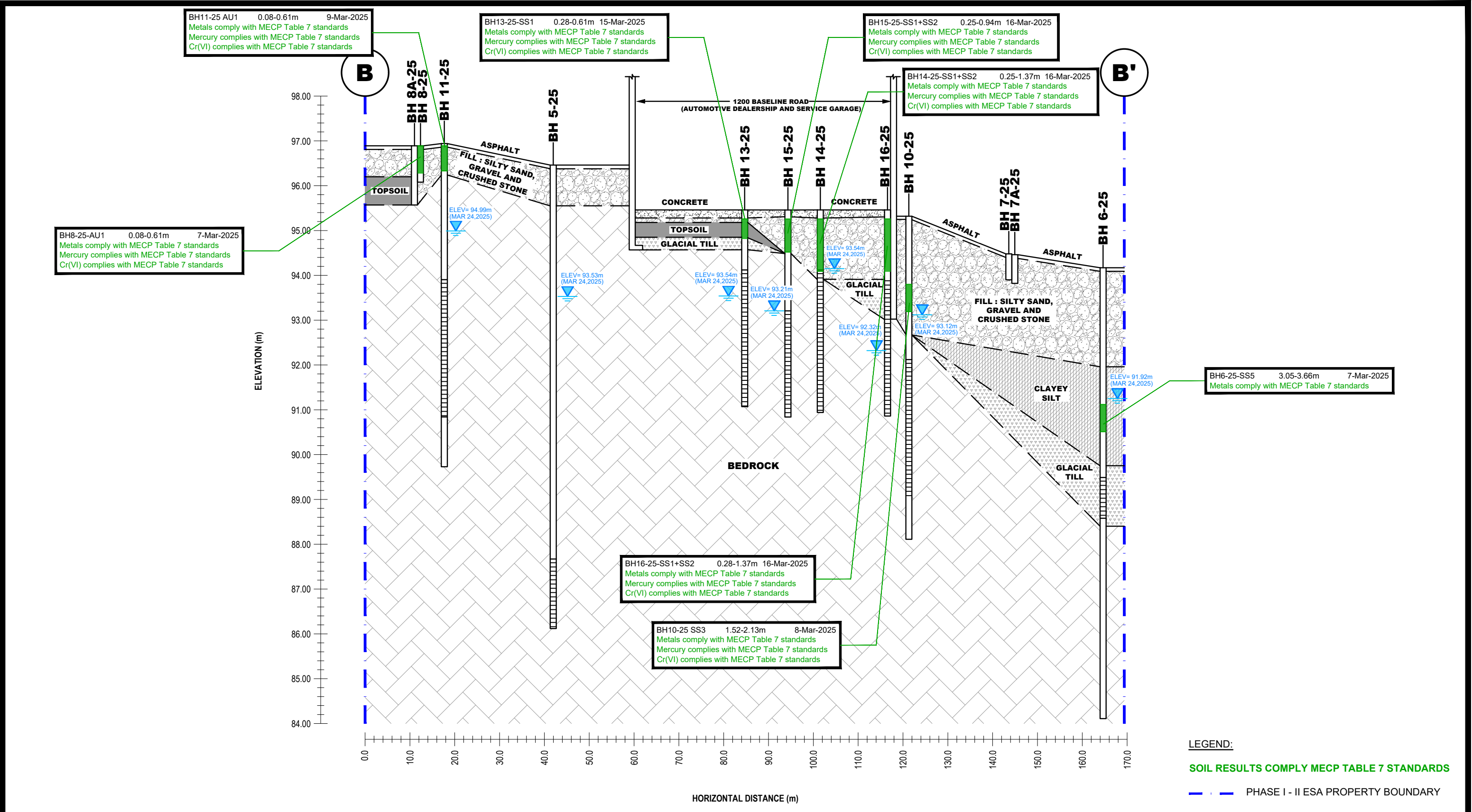
 PATERSON GROUP 9 AURIGA DRIVE OTTAWA, ON K2E 7T9 TEL: (613) 226-7381					ZENIA INVESTMENT CORPORATION		Scale:	1:1250	Date:	11/2025
					PHASE II - ENVIRONMENTAL SITE ASSESSMENT		Drawn by:	GK	Report No.:	PE6468-2
					1200 BASELINE ROAD		OTTAWA, Title:	Checked by:	JA	Dwg. No.:
								Approved by:	MSD	PE6468-4
	NO.	REVISIONS	DATE	INITIAL	ANALYTICAL TESTING PLAN - SOIL (METALS (including As, Sb, Se), MERCURY, Cr(VI))				Revision No.:	



NO.	REVISIONS	DATE	INITIAL

ZENIA INVESTMENT CORPORATION	
PHASE II - ENVIRONMENTAL SITE ASSESSMENT	
1200 BASELINE ROAD	
OTTAWA,	ONTARIO
Title: CROSS SECTION A-A' - SOIL	
(METALS (including As, Sb, Se), MERCURY, Cr(VI))	

Scale:	AS SHOWN	Date:	11/2025
Drawn by:	GK	Report No.:	PE6468-2
Checked by:	JA	Dwg. No.:	PE6468-4A
Approved by:	MSD	Revision No.:	



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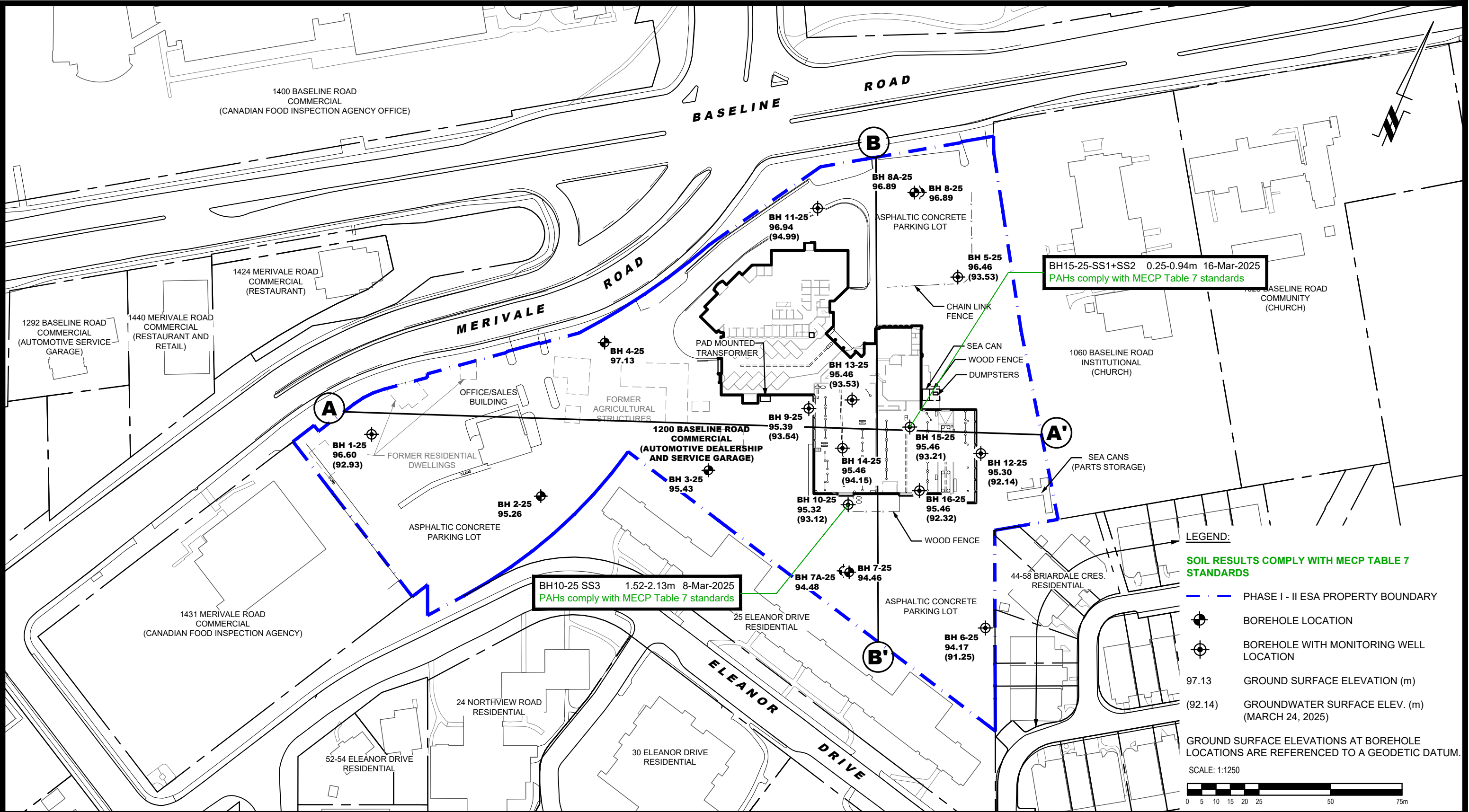
NO.	REVISIONS	DATE	INITIAL

ZENA INVESTMENT CORPORATION
PHASE II - ENVIRONMENTAL SITE ASSESSMENT
1200 BASELINE ROAD

OTTAWA, ONTARIO

Title: **CROSS SECTION A-A' - SOIL**
(METALS (including As, Sb, Se), MERCURY, Cr(VI))

Scale:	AS SHOWN	Date:	11/2025
Drawn by:	GK	Report No.:	PE6468-2
Checked by:	JA	Dwg. No.:	PE6468-4B
Approved by:	MSD	Revision No.:	



LEGEND:

SOIL RESULTS COMPLY WITH MECP TABLE 7 STANDARDS

— — — — — PHASE I - II ESA PROPERTY BOUNDARY

⊕ BOREHOLE LOCATION

⊕ BOREHOLE WITH MONITORING WELL LOCATION

97.13 GROUND SURFACE ELEVATION (m)

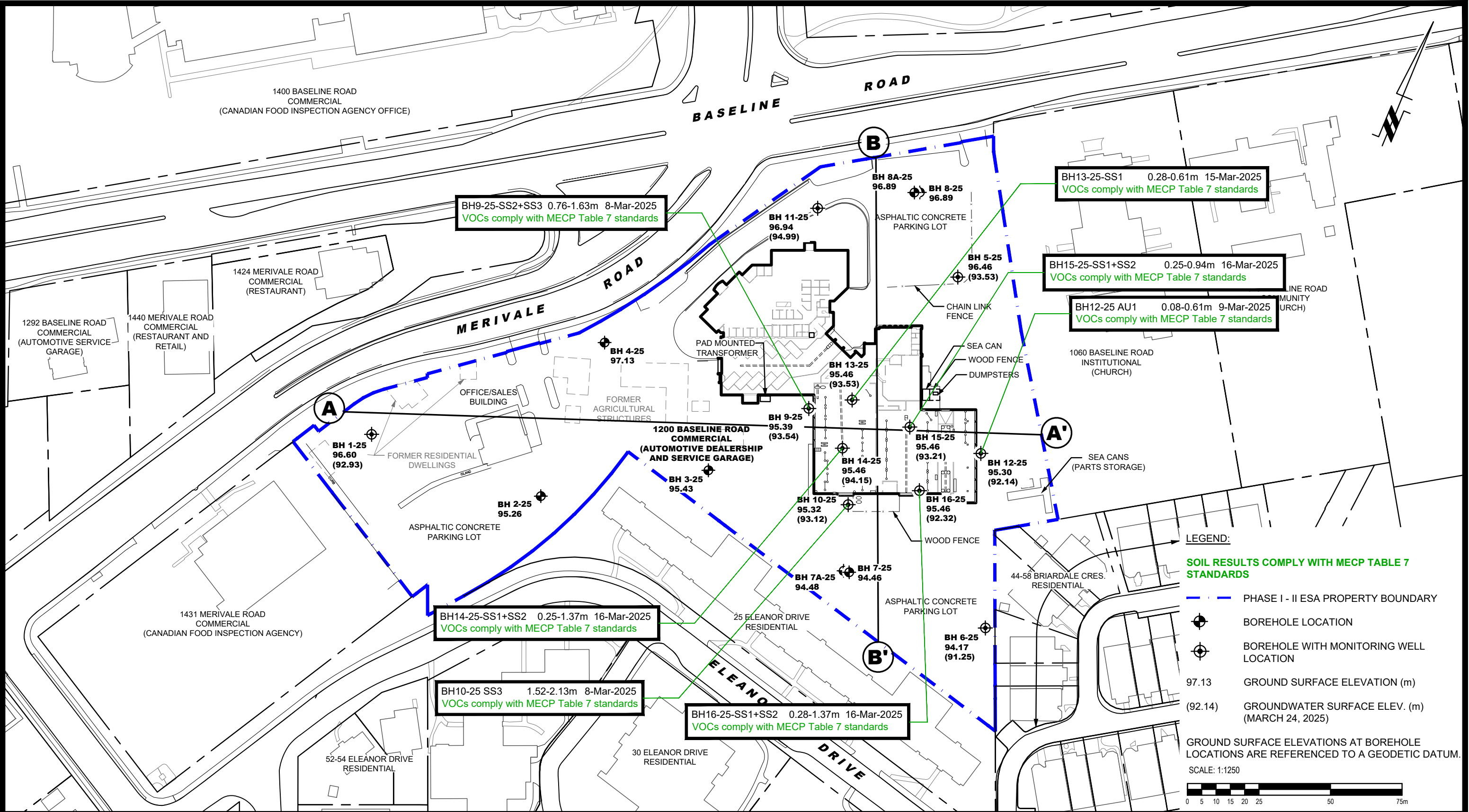
(92.14) GROUNDWATER SURFACE ELEV. (m) (MARCH 24, 2025)

GROUND SURFACE ELEVATIONS AT BOREHOLE LOCATIONS ARE REFERENCED TO A GEODETIC DATUM.

SCALE: 1:1250

0 5 10 15 20 25 50 75m

 PATERSON GROUP 9 AURIGA DRIVE OTTAWA, ON K2E 7T9 TEL: (613) 226-7381					ZENA INVESTMENT CORPORATION PHASE II - ENVIRONMENTAL SITE ASSESSMENT 1200 BASELINE ROAD OTTAWA, ONTARIO Title: ANALYTICAL TESTING PLAN - SOIL (PAHs)	Scale: 1:1250	Date: 11/2025	
						Drawn by: GK	Report No.: PE6468-2	
						Checked by: JA	Dwg. No.: PE6468-5	
						Approved by: MSD		Revision No.:



9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
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NO.	REVISIONS	DATE	INITIAL

OTTA

Title:

ZENA INVESTMENT CORPORATION

PHASE II - ENVIRONMENTAL SITE ASSESSMENT

1200 BASELINE ROAD

ONTARIO

ANALYTICAL TESTING PLAN - SOIL (VOCs)

Scale: 1:1250

Drawn by: GK

Checked by: JA

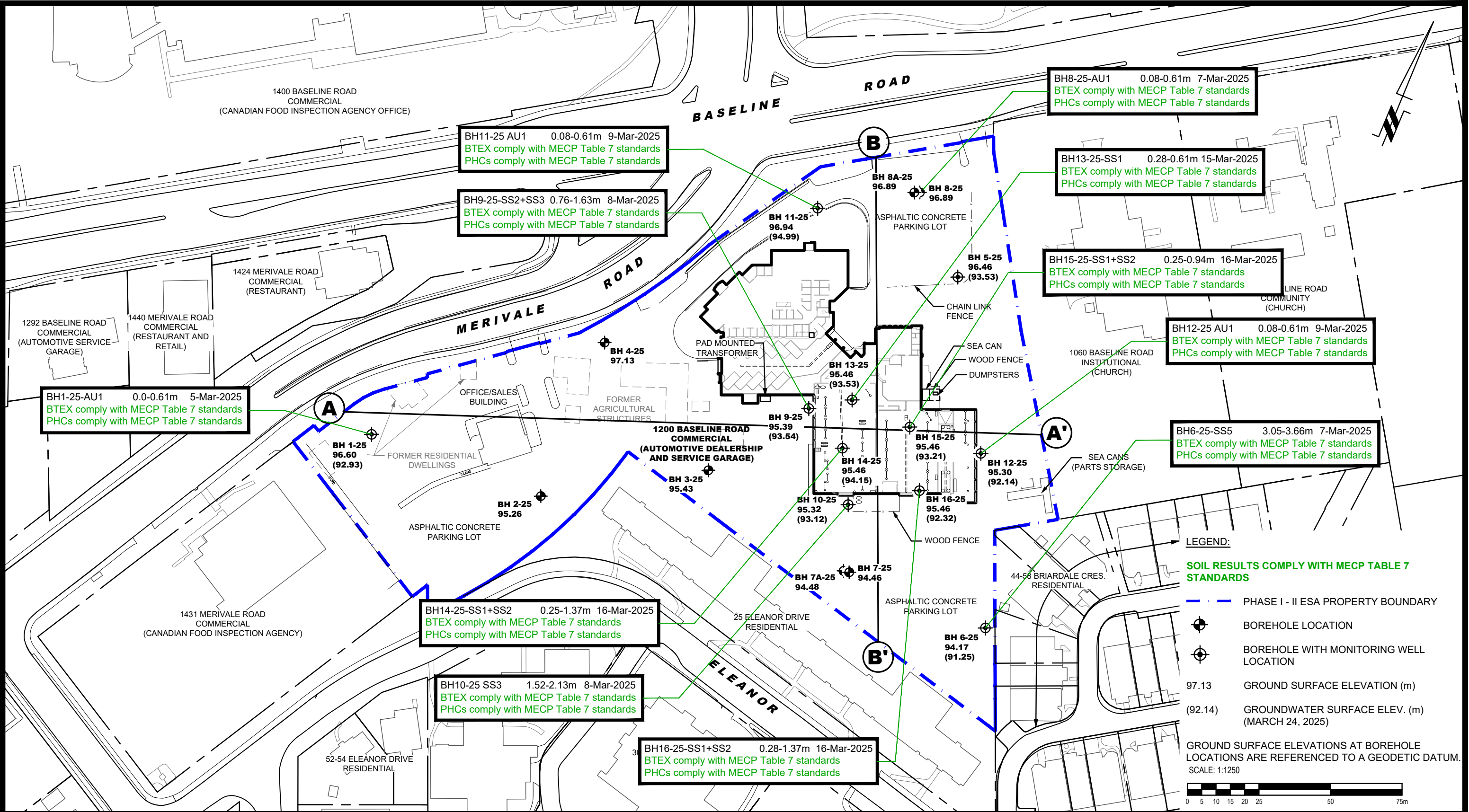
Approved by: MSD

Date: 11/2025

Report No.: PE6468-2

Dwg. No.: PE6468-6

Revision No.:





9 AURIGA DRIVE
OTTAWA, ON
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NO.	REVISIONS	DATE	INITIAL

OTTA

Title:

ONA

ANALYTICAL TESTING PLAN - SOIL (BTEX, PHCs)

Scale:

1:1250

Drawn by:

GK

Checked by:

JA

Approved by:

MSD

Date:

11/2025

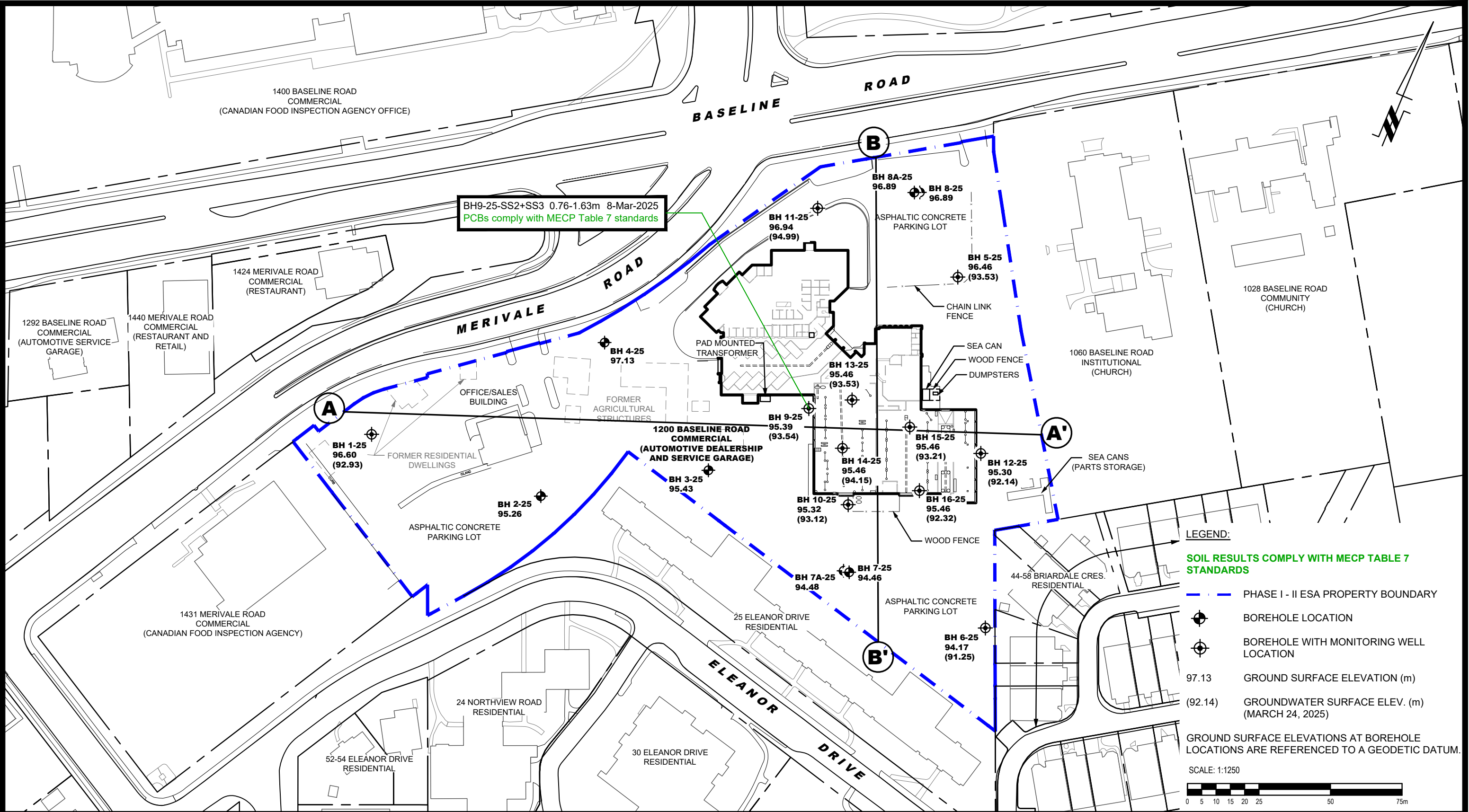
Report No.:

PE6468-2

Dwg. No.:

PE6468-7

Revision No.:



LEGEND:

SOIL RESULTS COMPLY WITH MECP TABLE 7 STANDARDS

--- PHASE I - II ESA PROPERTY BOUNDARY

⊕ BOREHOLE LOCATION

⊕ BOREHOLE WITH MONITORING WELL LOCATION

97.13 GROUND SURFACE ELEVATION (m)

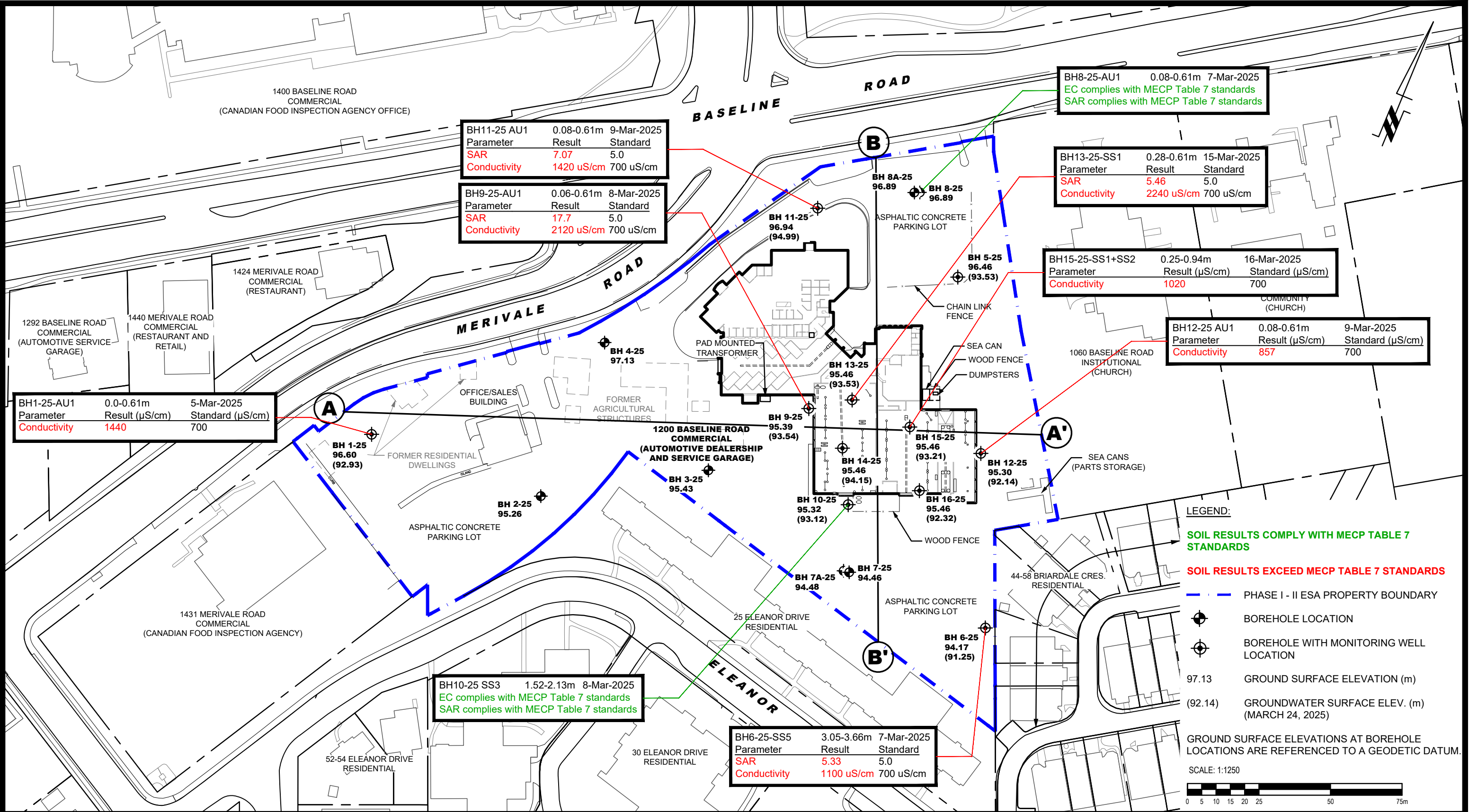
(92.14) GROUNDWATER SURFACE ELEV. (m) (MARCH 24, 2025)

GROUND SURFACE ELEVATIONS AT BOREHOLE LOCATIONS ARE REFERENCED TO A GEODETIC DATUM.

SCALE: 1:1250

0 5 10 15 20 25 50 75m

 PATERSON GROUP 9 AURIGA DRIVE OTTAWA, ON K2E 7T9 TEL: (613) 226-7381					ZENIA INVESTMENT CORPORATION		Scale: 1:1250	Date: 11/2025
					PHASE II - ENVIRONMENTAL SITE ASSESSMENT		Drawn by: GK	Report No.: PE6468-2
					1200 BASELINE ROAD		Checked by: JA	Dwg. No.: PE6468-8
					OTTAWA, ONTARIO		Approved by: MSD	
					Title: ANALYTICAL TESTING PLAN - SOIL (PCBs)			
NO.	REVISIONS	DATE	INITIAL					



LEGEND:

SOIL RESULTS COMPLY WITH MECP TABLE 7 STANDARDS

SOIL RESULTS EXCEED MECP TABLE 7 STANDARDS

--- PHASE I - II ESA PROPERTY BOUNDARY

⊕ BOREHOLE LOCATION

⊕ BOREHOLE WITH MONITORING WELL LOCATION

97.13 GROUND SURFACE ELEVATION (m)

(92.14) GROUNDWATER SURFACE ELEV. (m) (MARCH 24, 2025)

GROUND SURFACE ELEVATIONS AT BOREHOLE LOCATIONS ARE REFERENCED TO A GEODETIC DATUM.

SCALE: 1:1250

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NO.	REVISIONS	DATE	INITIAL

OTTAWA,
Title:

**ANALYTICAL TESTING PLAN - SOIL
(EC, SAR)**

ONTARIO

Scale: 1:1250

Drawn by: GK

Checked by: JA

Approved by: MSD

Date: 11/2025

Report No.: PE6468-2

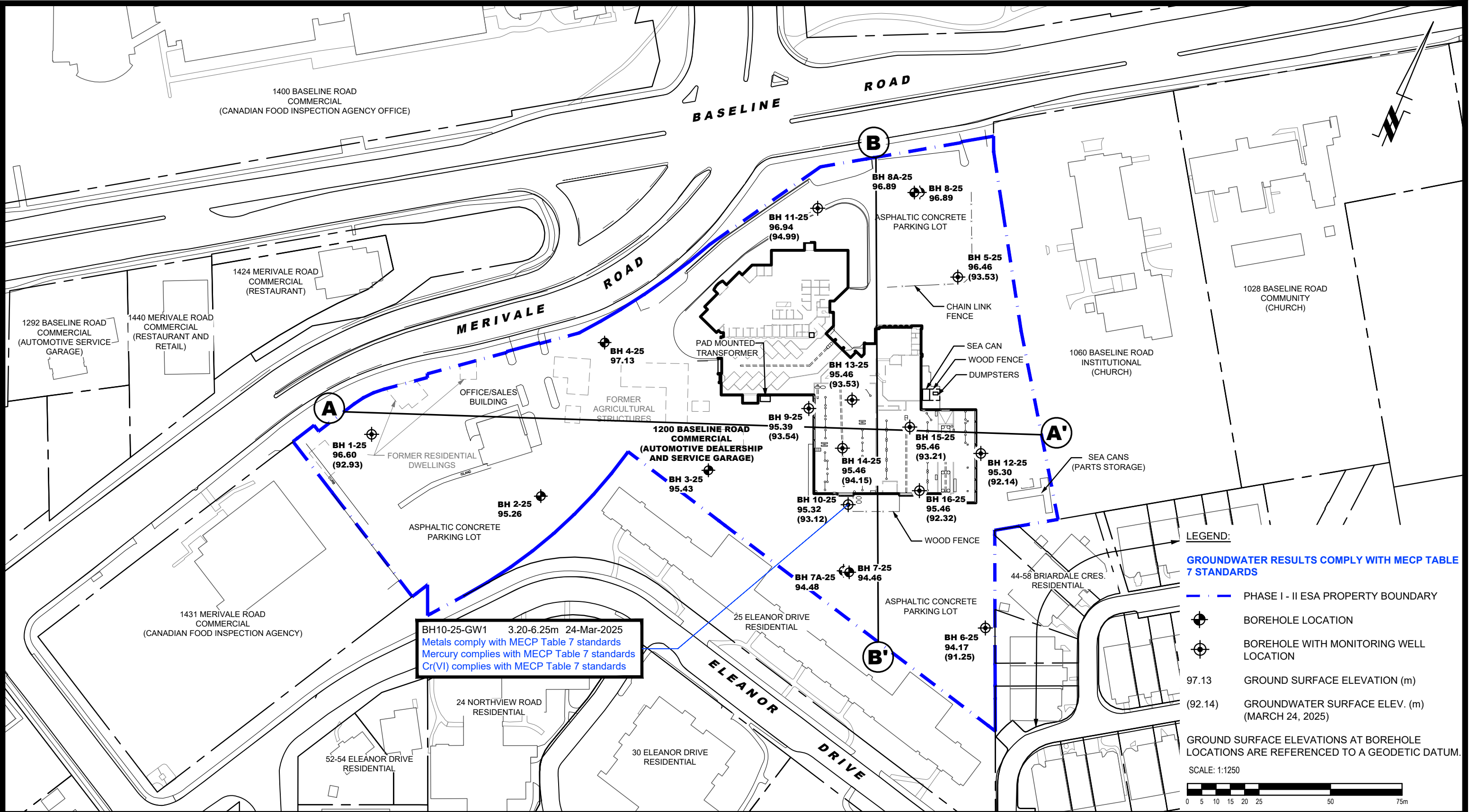
Dwg. No.: **PE6468-9**

Revision No.:

ZENA INVESTMENT CORPORATION

PHASE II - ENVIRONMENTAL SITE ASSESSMENT

1200 BASELINE ROAD



LEGEND:

GROUNDWATER RESULTS COMPLY WITH MECP TABLE 7 STANDARDS

— — — — — PHASE I - II ESA PROPERTY BOUNDARY

⊕ BOREHOLE LOCATION

⊕ BOREHOLE WITH MONITORING WELL LOCATION

97.13 GROUND SURFACE ELEVATION (m)

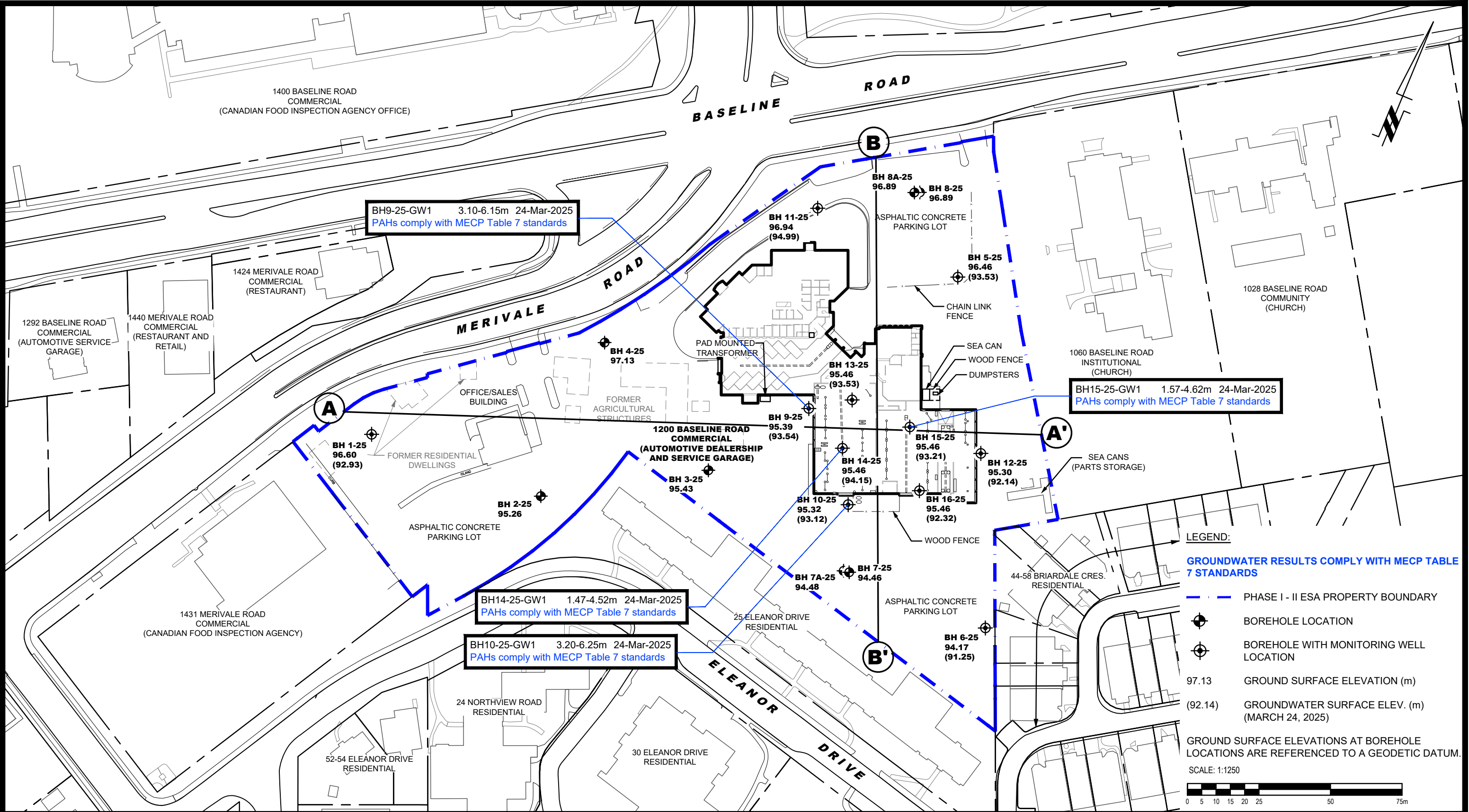
(92.14) GROUNDWATER SURFACE ELEV. (m) (MARCH 24, 2025)

GROUND SURFACE ELEVATIONS AT BOREHOLE LOCATIONS ARE REFERENCED TO A GEODETIC DATUM.

SCALE: 1:1250

0 5 10 15 20 25 50 75m

 PATERSON GROUP 9 AURIGA DRIVE OTTAWA, ON K2E 7T9 TEL: (613) 226-7381					ZENA INVESTMENT CORPORATION		Scale: 1:1250	Date: 11/2025
					PHASE II - ENVIRONMENTAL SITE ASSESSMENT		Drawn by: GK	Report No.: PE6468-2
					1200 BASELINE ROAD			
					OTTAWA,	ONTARIO	Checked by: JA	Dwg. No.: PE6468-10
					Title:	ANALYTICAL TESTING PLAN - GROUNDWATER	Approved by: MSD	
					(Metals (including As, Sb, Se), Mercury, Cr(VI))			
NO.	REVISIONS	DATE	INITIAL			Revision No.:		





9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

NO.	REVISIONS	DATE	INITIAL

OTTAWA,
Title:

ONTARIO

ZENA INVESTMENT CORPORATION

PHASE II - ENVIRONMENTAL SITE ASSESSMENT

1200 BASELINE ROAD

ANALYTICAL TESTING PLAN - GROUNDWATER (PAHs)

Scale: 1:1250

Drawn by: GK

Checked by: JA

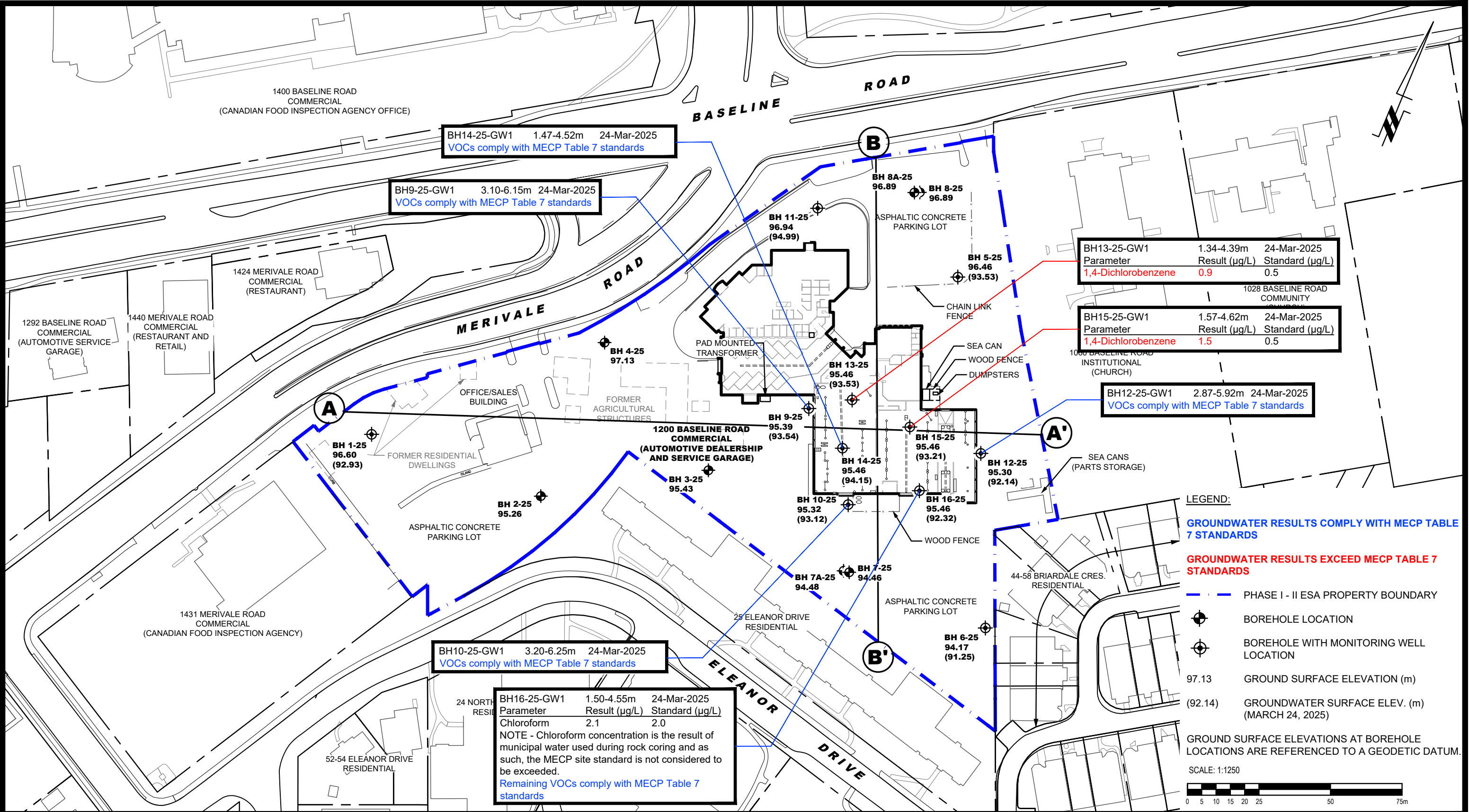
Approved by: MSD

Date: 11/2025

Report No.: PE6468-2

Dwg. No.: **PE6468-11**

Revision No.:



LEGEND:

GROUNDWATER RESULTS COMPLY WITH MECP TABLE 7 STANDARDS

GROUNDWATER RESULTS EXCEED MECP TABLE 7 STANDARDS

— — — — — PHASE I - II ESA PROPERTY BOUNDARY

⊕ BOREHOLE LOCATION

⊕ BOREHOLE WITH MONITORING WELL LOCATION

97.13 GROUND SURFACE ELEVATION (m)

(92.14) GROUNDWATER SURFACE ELEV. (m) (MARCH 24, 2025)

GROUND SURFACE ELEVATIONS AT BOREHOLE LOCATIONS ARE REFERENCED TO A GEODETIC DATUM.

SCALE: 1:1250

0 5 10 15 20 25 50 75m



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NO.	REVISIONS	DATE	INITIAL

ZENA INVESTMENT CORPORATION

PHASE II - ENVIRONMENTAL SITE ASSESSMENT

1200 BASELINE ROAD

OTTAWA, ONTARIO

Title: **ANALYTICAL TESTING PLAN - GROUNDWATER (VOCs)**

Scale: 1:1250

Drawn by: GK

Checked by: JA

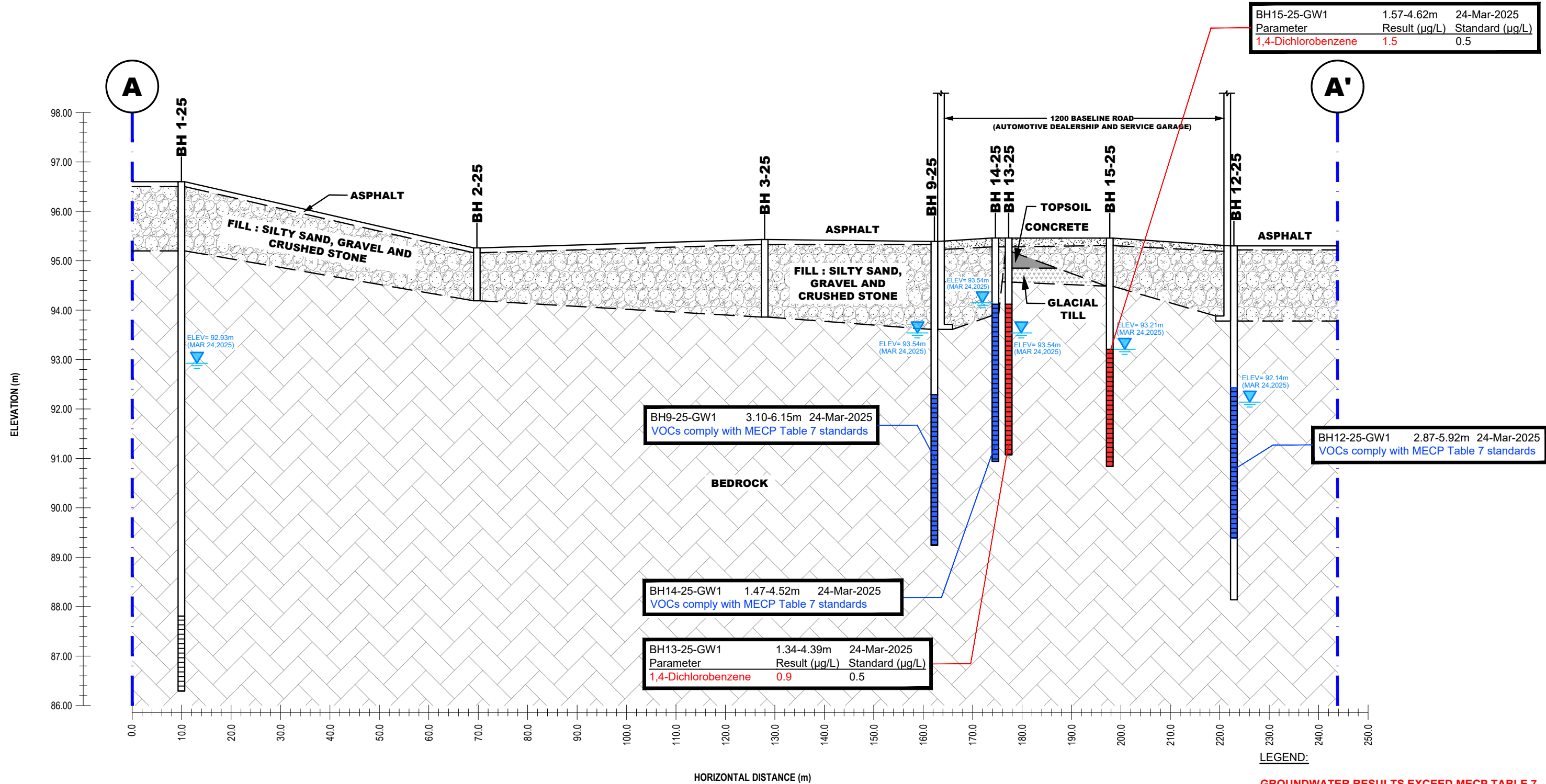
Approved by: MSD

Date: 11/2025

Report No.: PE6468-2

Dwg. No.: **PE6468-12**

Revision No.:



LEGEND:

GROUNDWATER RESULTS EXCEED MECP TABLE 7 STANDARDS

GROUNDWATER RESULTS COMPLY WITH MECP TABLE 7 STANDARDS

— — — — — PHASE I - II ESA PROPERTY BOUNDARY



PATERSON GROUP
9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

NO.	REVISIONS	DATE	INITIAL

ZENIA INVESTMENT CORPORATION

PHASE II - ENVIRONMENTAL SITE ASSESSMENT

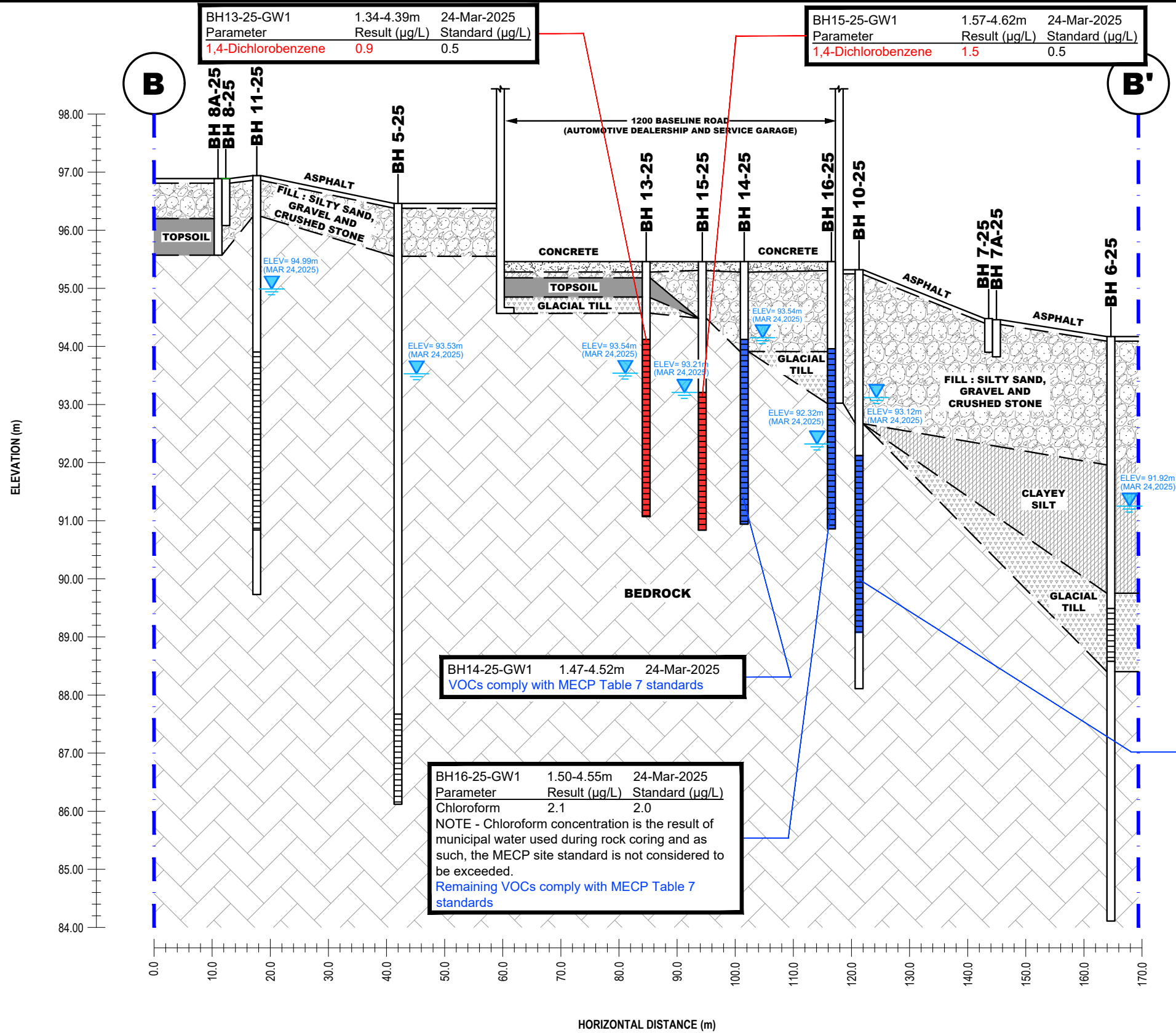
1200 BASELINE ROAD

OTTAWA, ONTARIO

Title:

CROSS SECTION A-A' - GROUNDWATER (VOCs)

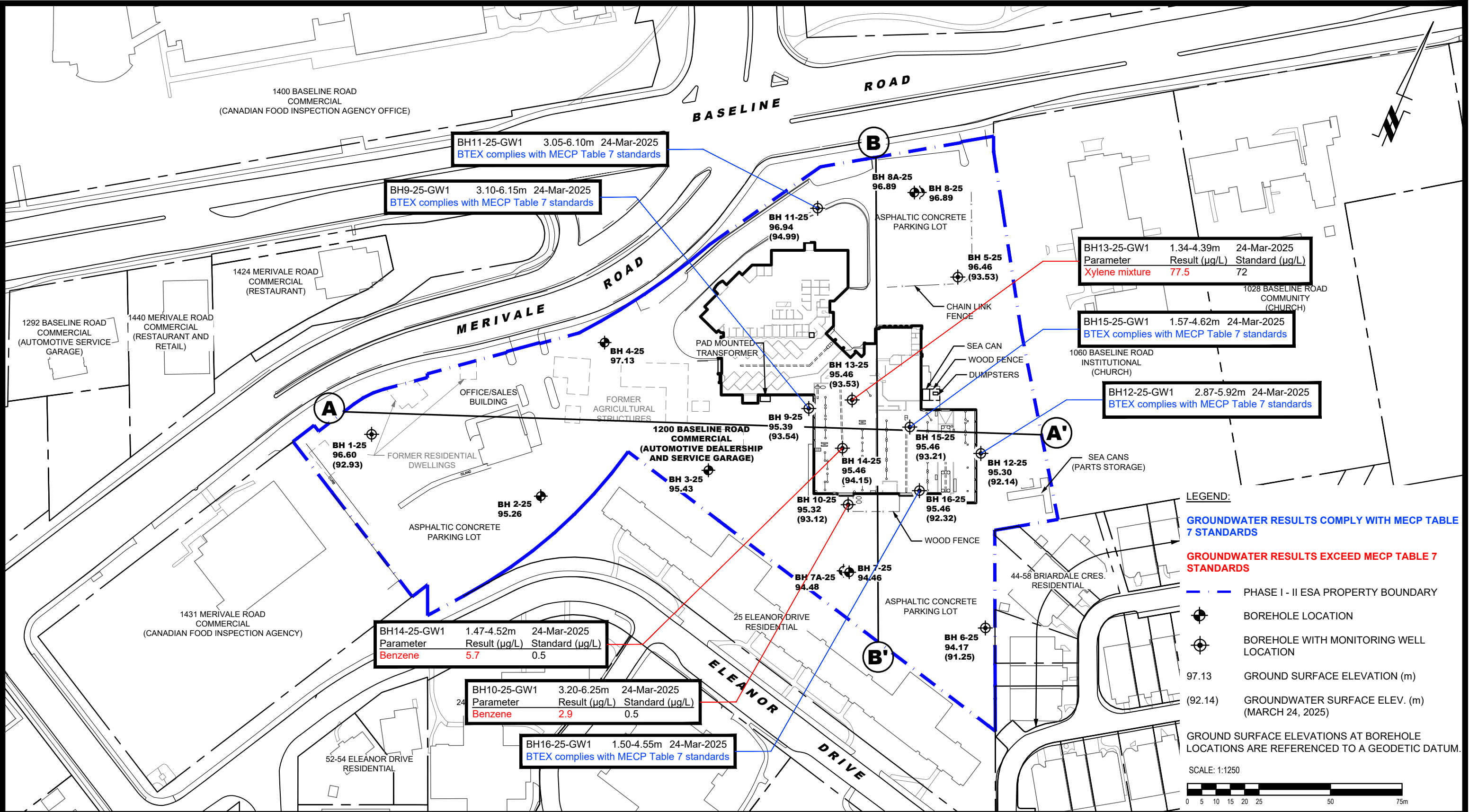
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Drawn by:	GK	Report No.:	PE6468-2
Checked by:	JA	Dwg. No.:	PE6468-12A
Approved by:	MSD	Revision No.:	



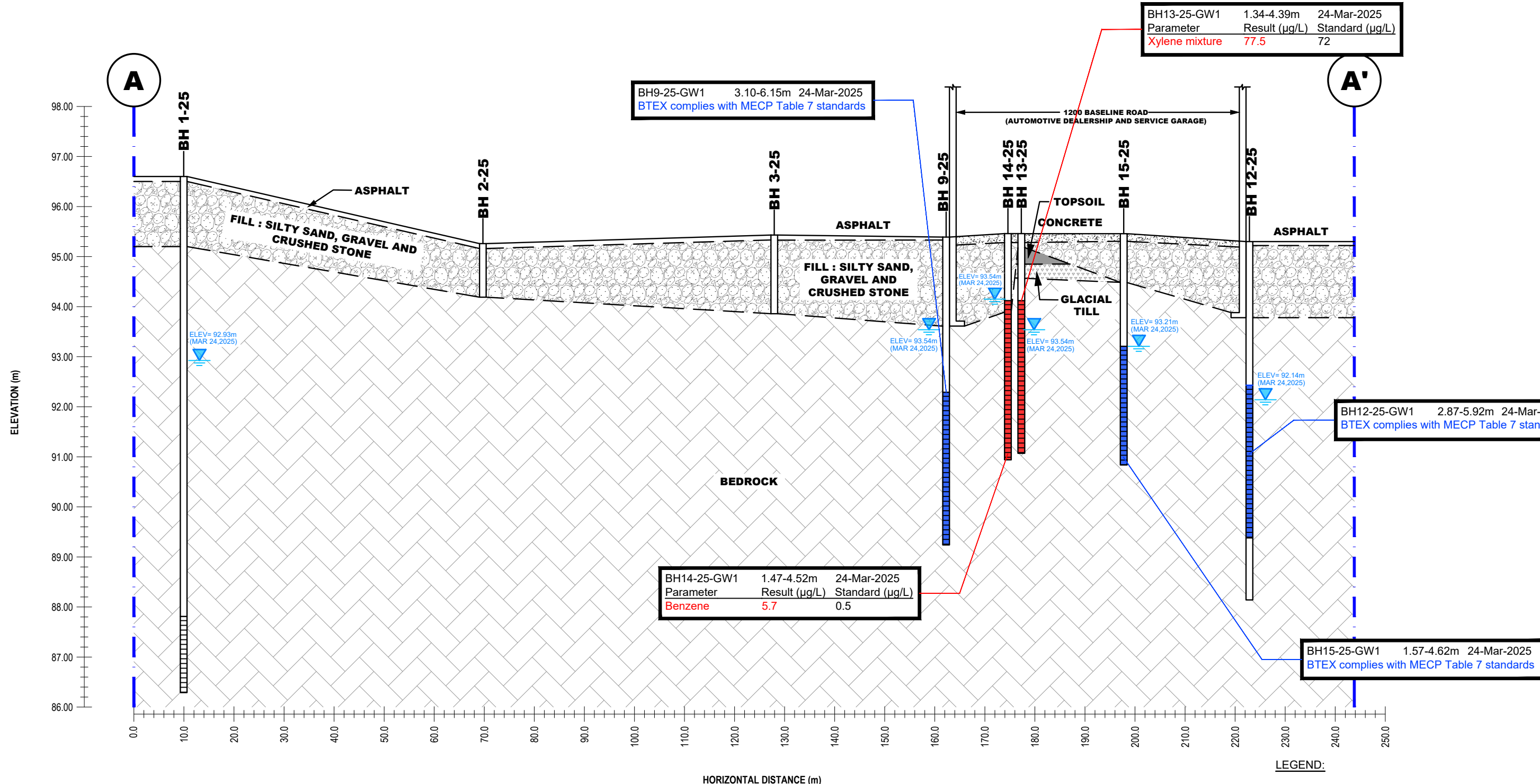
NO.	REVISIONS	DATE	INITIAL

ZENA INVESTMENT CORPORATION	
PHASE II - ENVIRONMENTAL SITE ASSESSMENT	
1200 BASELINE ROAD	
OTTAWA,	ONTARIO
Title:	CROSS SECTION A-A' - GROUNDWATER (VOCs)

Scale:	AS SHOWN	Date:	11/2025
Drawn by:	GK	Report No.:	PE6468-2
Checked by:	JA	Dwg. No.:	PE6468-12B
Approved by:	MSD	Revision No.:	



 PATERSON GROUP 9 AURIGA DRIVE OTTAWA, ON K2E 7T9 TEL: (613) 226-7381					ZENIA INVESTMENT CORPORATION				Scale:	1:1250	Date:	11/2025
					PHASE II - ENVIRONMENTAL SITE ASSESSMENT				Drawn by:	GK	Report No.:	PE6468-2
					1200 BASELINE ROAD				Checked by:	JA	Dwg. No.:	PE6468-13
					OTTAWA, ONTARIO				Approved by:	MSD	Revision No.:	
					Title: ANALYTICAL TESTING PLAN - GROUNDWATER (BTEX)							
	NO.	REVISIONS	DATE	INITIAL								



LEGEND:

GROUNDWATER RESULTS EXCEED MECP TABLE 7 STANDARDS

GROUNDWATER RESULTS COMPLY WITH MECP TABLE 7 STANDARDS

PHASE I - II ESA PROPERTY BOUNDARY



PATERSON GROUP
9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
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ZENIA INVESTMENT CORPORATION

PHASE II - ENVIRONMENTAL SITE ASSESSMENT

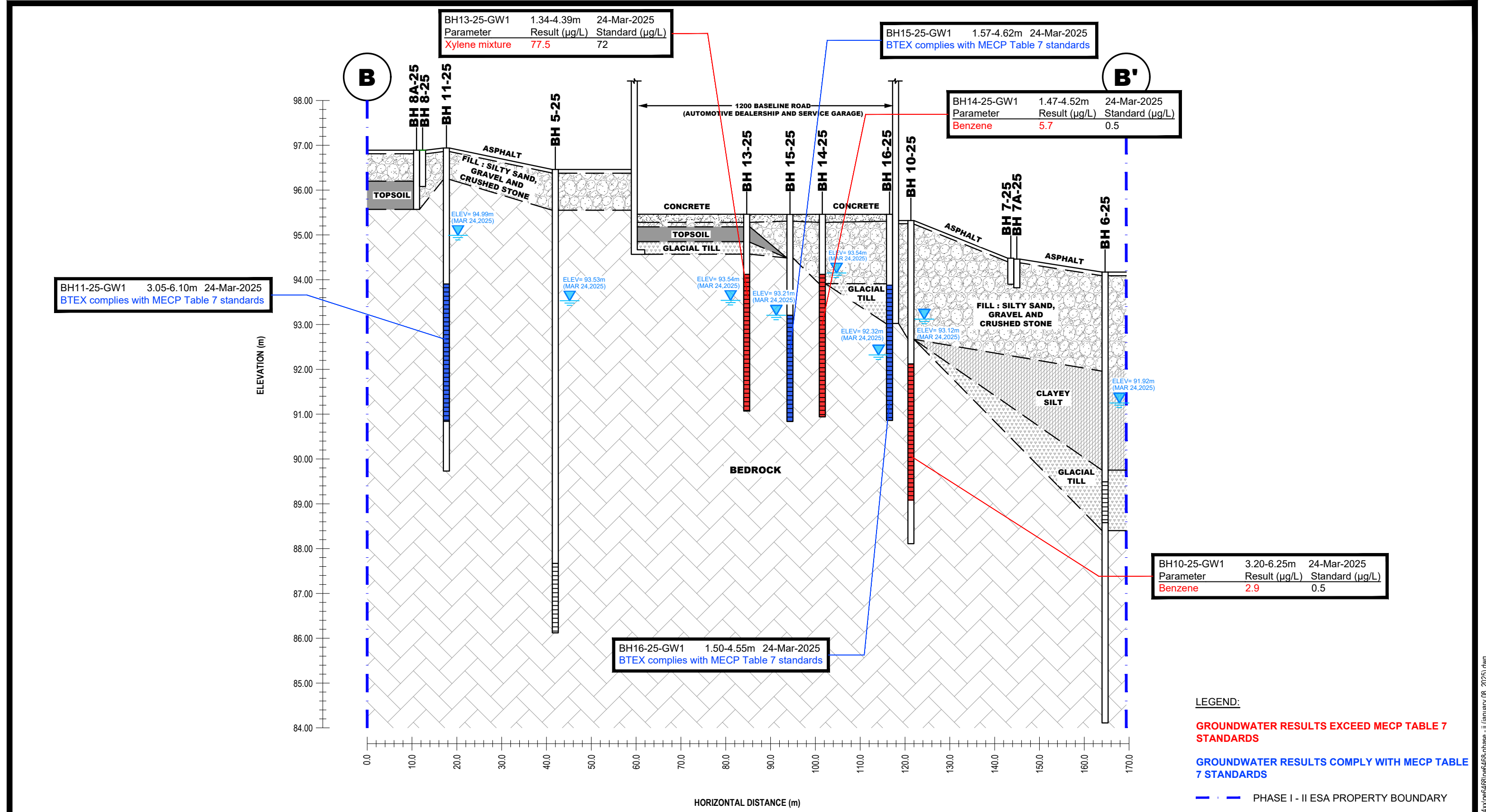
1200 BASELINE ROAD

OTTAWA, ONTARIO

Title:

CROSS SECTION A-A' - GROUNDWATER (BTEX)

Scale:	AS SHOWN	Date:	11/2025
Drawn by:	GK	Report No.:	PE6468-2
Checked by:	JA	Dwg. No.:	PE6468-13A
Approved by:	MSD	Revision No.:	



9 AURIGA DRIVE
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K2E 7T9
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ZENIA INVESTMENT CORPORATION

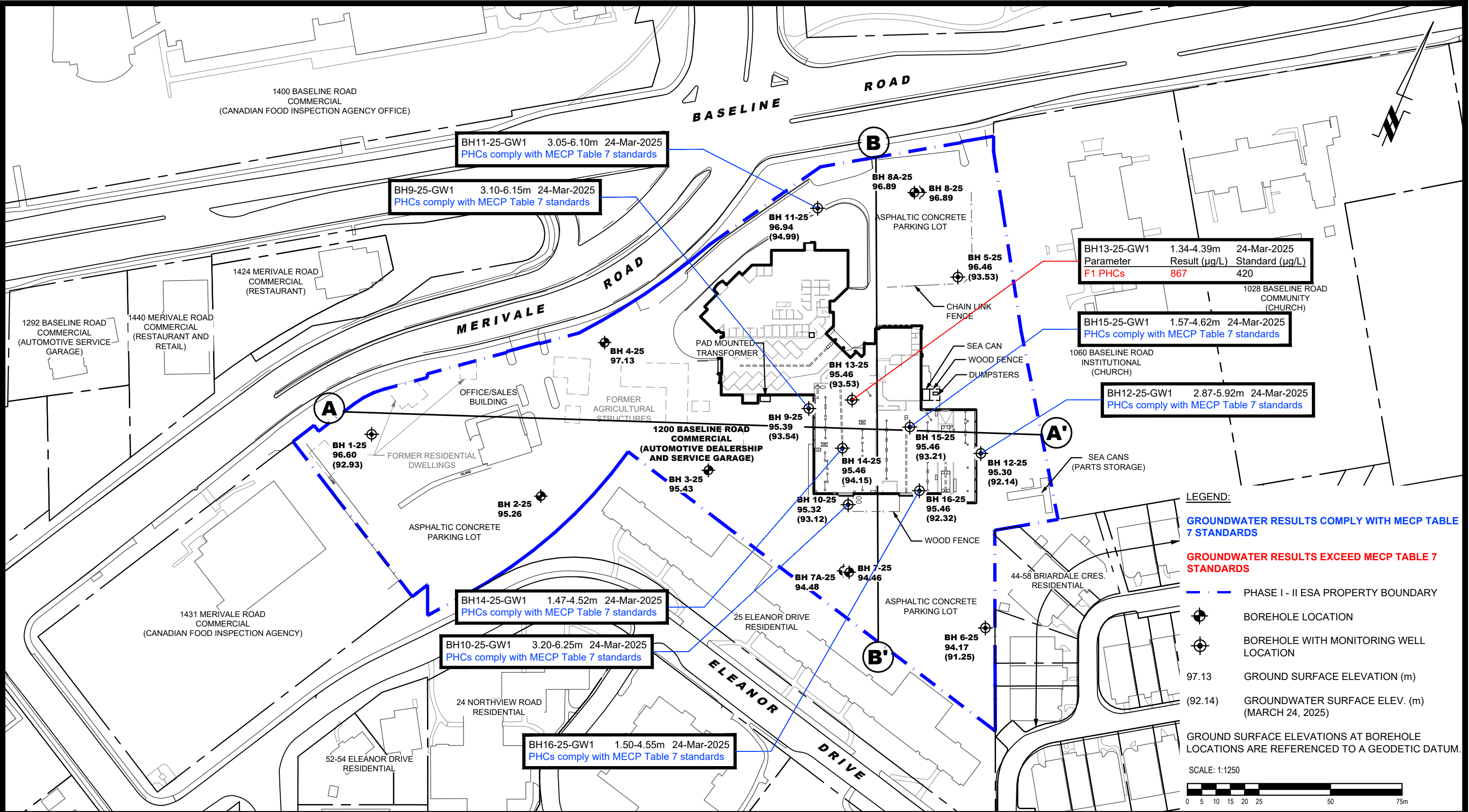
PHASE II - ENVIRONMENTAL SITE ASSESSMENT

1200 BASELINE ROAD

OTTAWA, ONTARIO

Title: CROSS SECTION A-A' - GROUNDWATER (BTEX)

Scale:	Date:
AS SHOWN	11/2025
Drawn by: GK	Report No.: PE6468-2
Checked by: JA	Dwg. No.: PE6468-13B
Approved by: MSD	Revision No.:



LEGEND:

GROUNDWATER RESULTS COMPLY WITH MECP TABLE 7 STANDARDS

GROUNDWATER RESULTS EXCEED MECP TABLE 7 STANDARDS

--- PHASE I - II ESA PROPERTY BOUNDARY

⊕ BOREHOLE LOCATION

⊕ BOREHOLE WITH MONITORING WELL LOCATION

97.13 GROUND SURFACE ELEVATION (m)

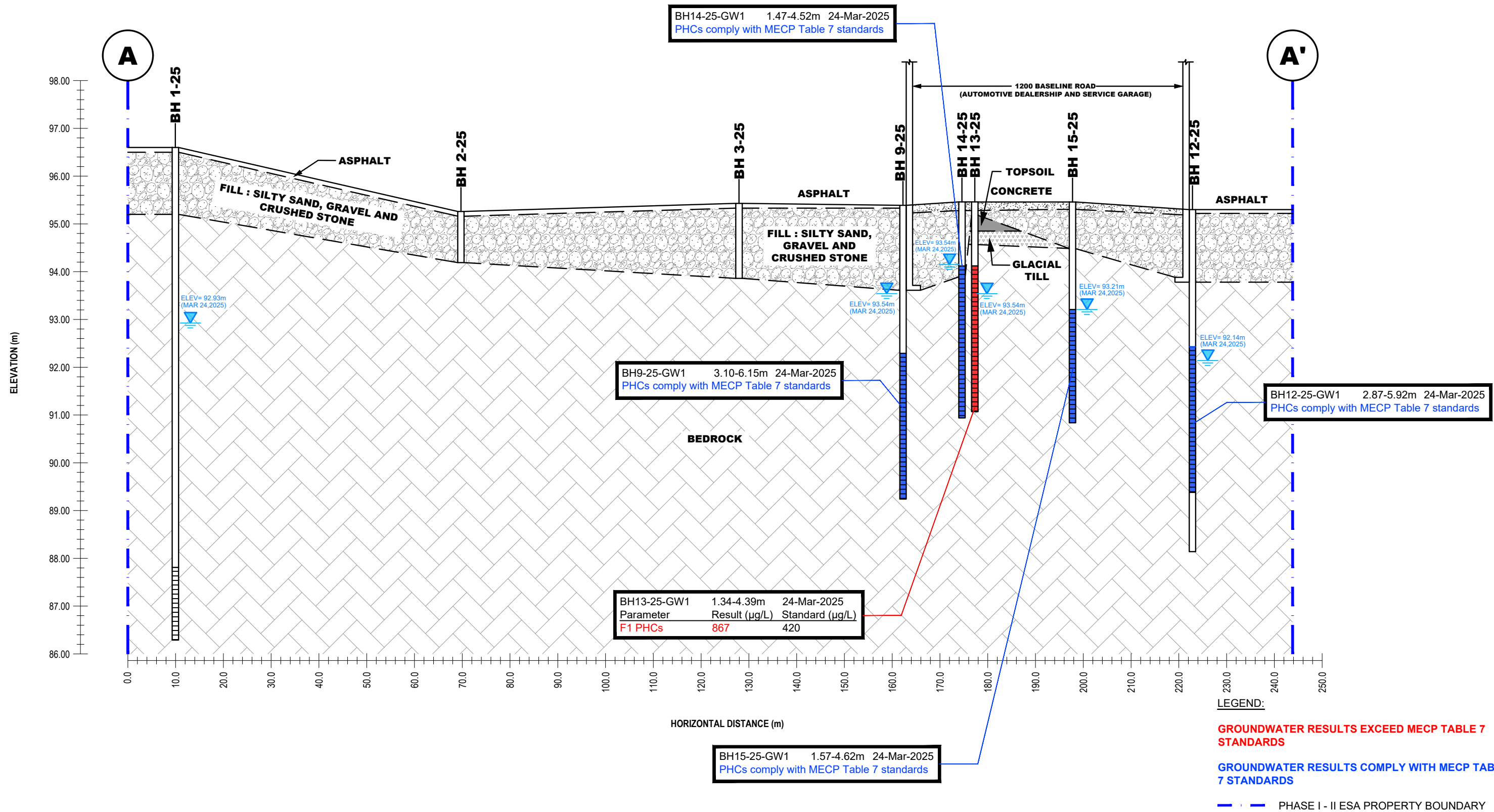
(92.14) GROUNDWATER SURFACE ELEV. (m) (MARCH 24, 2025)

GROUND SURFACE ELEVATIONS AT BOREHOLE LOCATIONS ARE REFERENCED TO A GEODETIC DATUM.

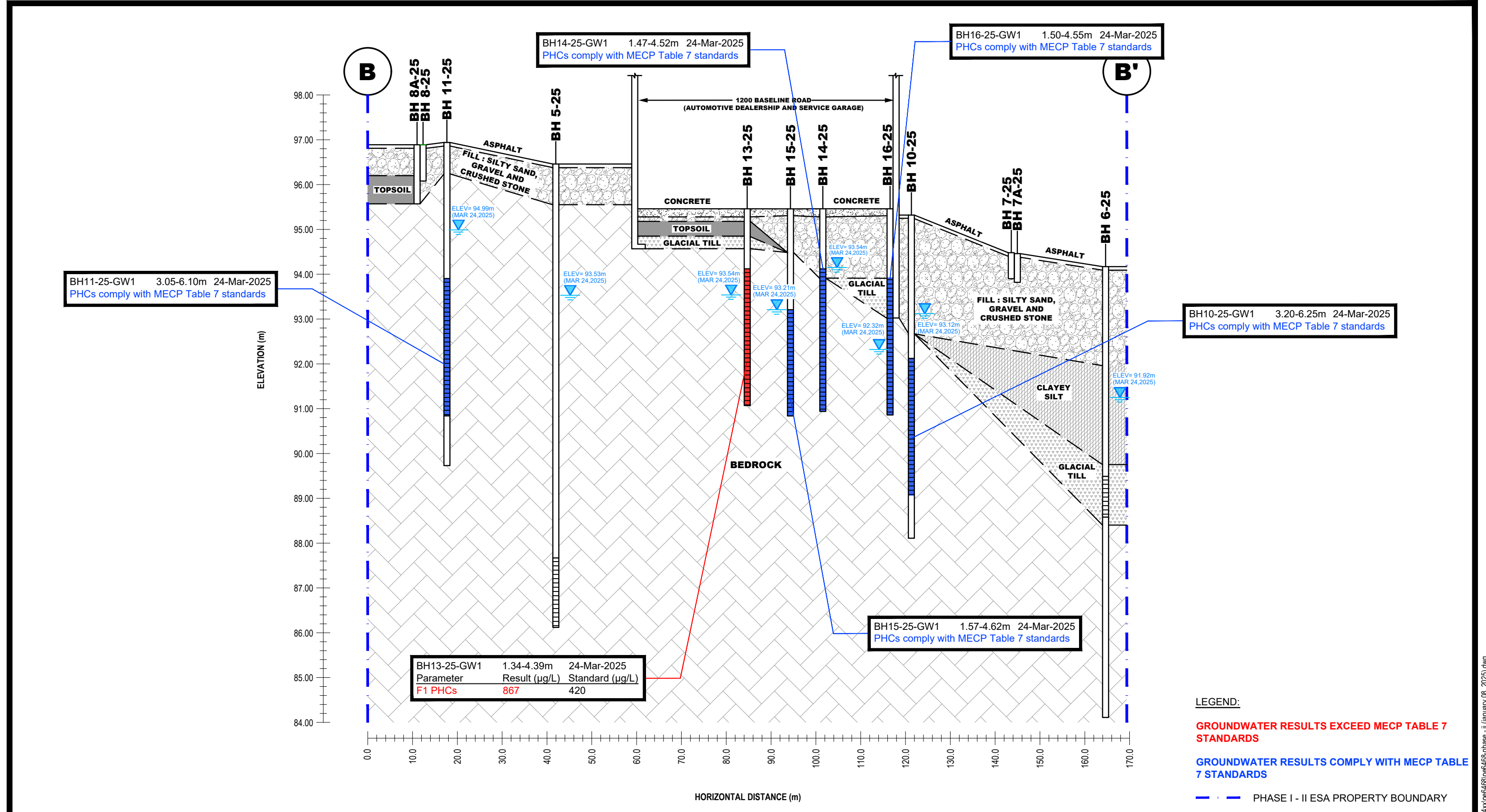
SCALE: 1:1250

0 5 10 15 20 25 50 75m

 PATERSON GROUP 9 AURIGA DRIVE OTTAWA, ON K2E 7T9 TEL: (613) 226-7381					ZENIA INVESTMENT CORPORATION				Scale:	1:1250	Date:	11/2025	
					PHASE II - ENVIRONMENTAL SITE ASSESSMENT				Drawn by:	GK	Report No.:	PE6468-2	
					1200 BASELINE ROAD								
					OTTAWA,				ONTARIO				
					Title:	ANALYTICAL TESTING PLAN - GROUNDWATER				Checked by:	JA	Dwg. No.:	PE6468-14
					(PHCs)				Approved by:	MSD	Revision No.:		
NO.	REVISIONS			DATE	INITIAL								



NO.	REVISIONS	DATE	INITIAL



9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

NO.	REVISIONS	DATE	INITIAL

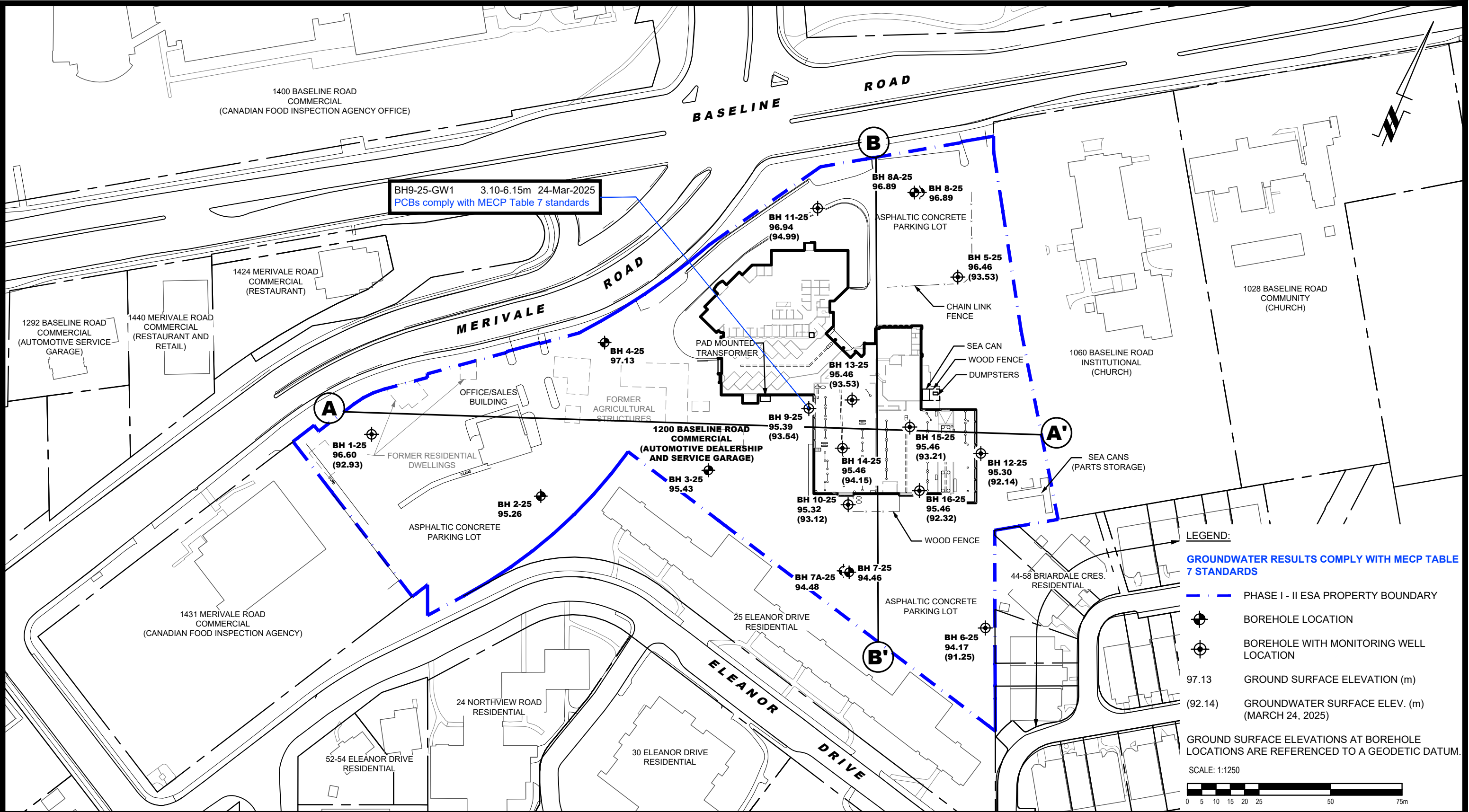
OTTAWA,
Title:

ONTARIO

ZENA INVESTMENT CORPORATION
PHASE II - ENVIRONMENTAL SITE ASSESSMENT
1200 BASELINE ROAD

CROSS SECTION A-A' - GROUNDWATER
(PHCs)

Scale:	Date:
AS SHOWN	11/2025
Drawn by:	Report No.:
GK	PE6468-2
Checked by:	Dwg. No.:
JA	PE6468-14B
Approved by:	Revision No.:
MSD	



LEGEND:

GROUNDWATER RESULTS COMPLY WITH MECP TABLE 7 STANDARDS

— — — — — PHASE I - II ESA PROPERTY BOUNDARY

⊕ BOREHOLE LOCATION

⊕ BOREHOLE WITH MONITORING WELL LOCATION

97.13 GROUND SURFACE ELEVATION (m)

(92.14) GROUNDWATER SURFACE ELEV. (m) (MARCH 24, 2025)

GROUND SURFACE ELEVATIONS AT BOREHOLE LOCATIONS ARE REFERENCED TO A GEODETIC DATUM.

SCALE: 1:1250

0 5 10 15 20 25 50 75m

 PATERSON GROUP 9 AURIGA DRIVE OTTAWA, ON K2E 7T9 TEL: (613) 226-7381					ZENA INVESTMENT CORPORATION PHASE II - ENVIRONMENTAL SITE ASSESSMENT 1200 BASELINE ROAD OTTAWA, ONTARIO Title: ANALYTICAL TESTING PLAN - GROUNDWATER (PCBs)	Scale: 1:1250	Date: 11/2025		
						Drawn by: GK	Report No.: PE6468-1		
						Checked by: JA	Dwg. No.: PE6468-15		
						Approved by: MSD		Revision No.:	
NO.	REVISIONS	DATE	INITIAL						

APPENDIX 1

SAMPLING AND ANALYSIS PLAN

SOIL PROFILE AND TEST DATA SHEETS

SYMBOLS AND TERMS

LABORATORY CERTIFICATES OF ANALYSIS

Sampling & Analysis Plan

1200 Baseline Road
Ottawa, Ontario

Prepared for Zena Investment Corp.

Report: PE6468-SAP
February 21, 2025

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1.0 SAMPLING PROGRAM

Paterson Group Inc. (Paterson) was commissioned by Regional Group, to conduct a Phase II – Environmental Site Assessment (Phase II ESA) for 1200 Baseline Road, Ottawa, Ontario.

Based on the findings of the Phase I ESA, the following subsurface investigation program was developed.

Borehole	Location	Rationale	Proposed Depth & Rationale
BH1-25	Western Portion of Phase I Property	For geotechnical and general coverage purposes, assessment of fill material of unknown quality (APEC 1) and preliminary excess soil testing	10 m; for geotechnical and general coverage purposes, and to install a deep monitoring well for geotechnical monitoring.
BH2-25	Southwestern Portion of Phase I Property	For geotechnical and general coverage purposes, assessment of fill material of unknown quality (APEC 1) and preliminary excess soil testing	5-7 m or to auger refusal; for geotechnical and general coverage purposes.
BH3-25	South-central Portion of Phase I Property	For geotechnical and general coverage purposes, assessment of fill material of unknown quality (APEC 1) and preliminary excess soil testing	5-7 m or to auger refusal; for geotechnical and general coverage purposes.
BH4-25	North-central Portion of Phase I Property	For geotechnical and general coverage purposes, assessment of fill material of unknown quality (APEC 1) and preliminary excess soil testing	10 m; for geotechnical and general coverage purposes.
BH5-25	East-central Portion of Phase I Property	For geotechnical and general coverage purposes, assessment of fill material of unknown quality (APEC 1) and preliminary excess soil testing	10 m; for geotechnical and general coverage purposes, and to install a deep monitoring well for geotechnical monitoring.
BH6-25	Southeastern Portion of Phase I Property	For geotechnical and general coverage purposes, assessment of fill material of unknown quality (APEC 1) and preliminary excess soil testing	10 m; for geotechnical and general coverage purposes, and to install a monitoring well for geotechnical monitoring.
BH7-25	Southeastern Portion of Phase I Property	For geotechnical and general coverage purposes, assessment of fill material of unknown quality (APEC 1) and preliminary excess soil testing	5-7 m or to auger refusal; for geotechnical and general coverage purposes.
BH8-25	Northeastern Portion of Phase I Property	For geotechnical and general coverage purposes, assessment of fill material of unknown quality (APEC 1) and preliminary excess soil testing	5-7 m; for geotechnical and general coverage purposes.

BH9-25	Central Portion of Phase I Property	Assessment of fill material of unknown quality (APEC 1), existing automotive service garage (APEC 3), existing and former aboveground hydraulic hoists (APEC 4), bulk antifreeze storage in mobile tanks (APEC 5), motor oil AST (APEC 7), and transformer (APEC 13)	5-7 m; for geotechnical and general coverage purposes, and to install a monitoring well for environmental monitoring.
BH10-25	Southeastern Portion of Phase I Property	Assessment of fill material of unknown quality (APEC 1), existing automotive service garage (APEC 3), existing and former aboveground hydraulic hoists (APEC 4), bulk antifreeze storage in mobile tanks (APEC 5), motor oil AST (APEC 10), waste oil AST (APEC 11), waste coolant AST (APEC 12)	5-7 m; for geotechnical and general coverage purposes, and to install a monitoring well for environmental monitoring.
BH11-25	Northeastern Portion of Phase I Property	Assessment of fill material of unknown quality (APEC 1), former off-site retail fuel outlet (APEC 14), and preliminary excess soil testing	5-7 m; for geotechnical and general coverage purposes, and to install a monitoring well for environmental monitoring.
BH12-25	Southeastern Portion of Phase I Property	Assessment of fill material of unknown quality (APEC 1), existing automotive service garage (APEC 3), existing and former aboveground hydraulic hoists (APEC 4), bulk antifreeze storage in mobile tanks (APEC 5)	5-7 m; for geotechnical and general coverage purposes, and to install a monitoring well for environmental monitoring.
BH13-25	Central Portion of Phase I Property	Assessment of fill material of unknown quality (APEC 1), existing automotive service garage (APEC 3), existing and former aboveground hydraulic hoists (APEC 4), bulk antifreeze storage in mobile tanks (APEC 5), motor oil AST (APEC 7)	5-7 m; for geotechnical and general coverage purposes, and to install a monitoring well for environmental monitoring.
BH14-25	Central Portion of Phase I Property	Assessment of fill material of unknown quality (APEC 1), existing automotive service garage (APEC 3), existing and former aboveground hydraulic hoists (APEC 4), bulk antifreeze storage in mobile tanks (APEC 5), and motor oil AST (APEC 6)	5-7 m; for geotechnical and general coverage purposes, and to install a monitoring well for environmental monitoring.
BH15-25	Central Portion of Phase I Property	Assessment of fill material of unknown quality (APEC 1), existing automotive service garage (APEC 3), existing and former aboveground hydraulic hoists (APEC 4), bulk antifreeze storage in mobile tanks (APEC 5), and transmission oil AST (APEC 9)	5-7 m; for geotechnical and general coverage purposes, and to install a monitoring well for environmental monitoring.

BH16-25	Southeastern Portion of Phase I Property	Assessment of fill material of unknown quality (APEC 1), existing automotive service garage (APEC 3), existing and former aboveground hydraulic hoists (APEC 4), bulk antifreeze storage in mobile tanks (APEC 5), and motor oil AST (APEC 8)	5-7 m; for geotechnical and general coverage purposes, and to install a monitoring well for environmental monitoring.
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Borehole locations are shown on Drawing PE6468-3 – Test Hole Location Plan, appended to the main report.

At each borehole, split-spoon samples of the overburden soils will be obtained at 0.76 m (2'6") intervals. All soil samples will be retained, and samples will be selected for submission following a preliminary screening analysis.

Following the borehole drilling, groundwater monitoring wells will be installed in identified locations to allow for the collection of groundwater samples.

2.0 ANALYTICAL TESTING PROGRAM

The analytical testing program for soil at the Phase I Property is based on the following general considerations:

- ☐ At least one sample from each borehole should be submitted, in order to delineate the horizontal extent of contamination across the site.
- ☐ At least one sample from each stratigraphic unit should be submitted, in order to delineate the vertical extent of contamination at the site.
- ☐ In boreholes where there is visual or olfactory evidence of contamination, or where organic vapour meter or photoionization detector readings indicate the presence of contamination, the 'worst-case' sample from each borehole should be submitted for comparison with MECP site condition standards.
- ☐ In boreholes with evidence of contamination as described above, a sample should be submitted from the stratigraphic unit below the 'worst-case' sample to determine whether the contaminant(s) have migrated downward.
- ☐ Parameters analyzed should be consistent with the Contaminants of Potential Concern identified in the Phase I ESA.

The analytical testing program for soil at the Phase I Property is based on the following general considerations:

- ☐ Groundwater monitoring wells should be installed in all boreholes with visual or olfactory evidence of soil contamination, in stratigraphic units where soil contamination was encountered, where those stratigraphic units are at or below the water table (i.e. a water sample can be obtained).
- ☐ Groundwater monitoring well screens should straddle the water table at sites where the contaminants of concern are suspected to be LNAPLs.
- ☐ At least one groundwater monitoring well should be installed in a stratigraphic unit below the suspected contamination, where said stratigraphic unit is water-bearing.
- ☐ Parameters analyzed should be consistent with the Contaminants of Concern identified in the Phase I ESA and with the contaminants identified in the soil samples.

3.0 STANDARD OPERATING PROCEDURES

3.1 Environmental Drilling Procedure

Purpose

The purpose of environmental boreholes is to identify and/or delineate contamination within the soil and/or to install groundwater monitoring wells in order to identify contamination within the groundwater.

Equipment

The following is a list of equipment that is in addition to regular drilling equipment stated in the geotechnical drilling SOP:

- ☐ Glass soil sample jars
- ☐ two buckets
- ☐ cleaning brush (toilet brush works well)
- ☐ dish detergent
- ☐ methyl hydrate
- ☐ water (if not available on site - water jugs available in trailer)
- ☐ latex or nitrile gloves (depending on suspected contaminant)
- ☐ Rkl Eagle organic vapour meter or MiniRae photoionization detector (depending on contamination suspected)

Determining Borehole Locations

If conditions on site are not as suspected, and planned borehole locations cannot be drilled, **call the office to discuss**. Alternative borehole locations will be determined in conversation with the field technician and supervising engineer.

After drilling is completed a plan with the borehole locations must be provided. Distances and orientations of boreholes with respect to site features (buildings, roadways, etc.) must be provided. Distances should be measured using a measuring tape or wheel rather than paced off. Ground surface elevations at each borehole should be surveyed relative to a geodetic benchmark, if one is available, or a temporary site benchmark which can be tied in at a later date if necessary.

Drilling Procedure

The actual drilling procedure for environmental boreholes is the same as geotechnical boreholes (see SOP for drilling and sampling) with a few exceptions as follows:

- ☐ Continuous split spoon samples (every 0.6 m or 2') or semi-continuous (every 0.76 m or 2'6") are required.
- ☐ Make sure samples are well sealed in plastic bags with no holes prior to screening and are kept cool but unfrozen.
- ☐ If sampling for VOCs, BTEX, or PHCs F₁, a soil core from each soil sample, which may be analyzed, must be taken and placed in the laboratory-provided methanol vial.
- ☐ Note all and any odours or discolouration of samples.
- ☐ Split spoon samplers must be washed between samples.
- ☐ If obvious contamination is encountered, continue sampling until vertical extent of contamination is delineated.
- ☐ As a general rule, environmental boreholes should be deep enough to intercept the groundwater table (unless this is impossible/impractical - call project manager to discuss).
- ☐ If at all possible, soil samples should be submitted to a preliminary screening procedure on site, either using a RKI Eagle, PID, etc. depending on type of suspected contamination.

Spoon Washing Procedure

All sampling equipment (spilt spoons, etc.) must be washed between samples in order to prevent cross contamination of soil samples.

- ☐ Obtain two buckets of water (preferably hot if available)
- ☐ Add a small amount of dish soap to one bucket
- ☐ Scrub spoons with brush in soapy water, inside and out, including tip
- ☐ Rinse in clean water
- ☐ Apply a small amount of methyl hydrate to the inside of the spoon. (A spray bottle or water bottle with a small hole in the cap works well)
- ☐ Allow to dry (takes seconds)
- ☐ Rinse with distilled water, a spray bottle works well.

The methyl hydrate eliminates any soap residue that may be on the spoon and is especially important when dealing with suspected VOCs.

Screening Procedure

The RKI Eagle is used to screen most soil samples, particularly where petroleum hydrocarbon contamination is suspected. The MiniRae is used when VOCs are suspected, however it also can be useful for detecting petroleum. These tools are for screening purposes only and cannot be used in place of laboratory testing. Vapour results obtained from the RKI Eagle and the PID are relative and must be interpreted.

Screening equipment should be calibrated on an approximately monthly basis, more frequently if heavily used.

- ☐ Samples should be brought to room temperature; this is specifically important in colder weather. Soil must not be frozen.
- ☐ Turn instrument on and allow to come to zero - calibrate if necessary
- ☐ If using RKI Eagle, ensure instrument is in methane elimination mode unless otherwise directed.
- ☐ Ensure measurement units are ppm (parts per million) initially. RKI Eagle will automatically switch to %LEL (lower explosive limit) if higher concentrations are encountered.
- ☐ Break up large lumps of soil in the sample bag, taking care not to puncture bag.
- ☐ Insert probe into soil bag, creating a seal with your hand around the opening.
- ☐ Gently manipulate soil in bag while observing instrument readings.
- ☐ Record the highest value obtained in the first 15 to 25 seconds
- ☐ Make sure to indicate scale (ppm or LEL); also note which instrument was used (RKI Eagle 1 or 2, or MiniRae).
- ☐ Jar samples and refrigerate as per Sampling and Analysis Plan.

3.2 Monitoring Well Installation Procedure

Equipment

- ☐ 5' x 2" threaded sections of Schedule 40 PVC slotted well screen (5' x 1 1/4" if installing in cored hole in bedrock)
- ☐ 5' x 2" threaded sections of Schedule 40 PVC riser pipe (5' x 1 1/4" if installing in cored hole in bedrock)
- ☐ Threaded end-cap
- ☐ Slip-cap or J-plug
- ☐ Asphalt cold patch or concrete
- ☐ Silica Sand
- ☐ Bentonite chips (Holeplug)
- ☐ Steel flushmount casing

Procedure

- ☐ Drill borehole to required depth, using drilling and sampling procedures described above.
- ☐ If borehole is deeper than required monitoring well, backfill with bentonite chips to required depth. This should only be done on wells where contamination is not suspected, in order to prevent downward migration of contamination.
- ☐ Only one monitoring well should be installed per borehole.
- ☐ Monitoring wells should not be screened across more than one stratigraphic unit to prevent potential migration of contaminants between units.
- ☐ Where LNAPLs are the suspected contaminants of concern, monitoring wells should be screened straddling the water table in order to capture any free product floating on top of the water table.
- ☐ Thread the end cap onto a section of screen. Thread second section of screen if required. Thread risers onto screen. Lower into borehole to required depth. Ensure slip-cap or J-plug is inserted to prevent backfill materials entering well.
- ☐ As drillers remove augers, backfill borehole annulus with silica sand until the level of sand is approximately 0.3 m above the top of the screen.
- ☐ Backfill with holeplug until at least 0.3 m of holeplug is present above the top of the silica sand.
- ☐ Backfill remainder of borehole with holeplug or with auger cuttings (if contamination is not suspected).
- ☐ Install flushmount casing. Seal space between flushmount and borehole annulus with concrete, cold patch, or holeplug to match surrounding ground surface.

3.3 Monitoring Well Sampling Procedure

Equipment

- ☐ Water level metre or interface probe on hydrocarbon/LNAPL sites
- ☐ Spray bottles containing water and methanol to clean water level tape or interface probe
- ☐ Peristaltic pump
- ☐ Polyethylene tubing for peristaltic pump
- ☐ Flexible tubing for peristaltic pump
- ☐ Latex or nitrile gloves (depending on suspected contaminant)
- ☐ Allen keys and/or 9/16" socket wrench to remove well caps
- ☐ Graduated bucket with volume measurements
- ☐ pH/Temperature/Conductivity combo pen
- ☐ Laboratory-supplied sample bottles

Sampling Procedure

- ☐ Locate well and use socket wrench or Allan key to open metal flush mount protector cap. Remove plastic well cap.
- ☐ Measure water level, with respect to existing ground surface, using water level meter or interface probe. If using interface probe on suspected NAPL site, measure the thickness of free product.
- ☐ Measure total depth of well.
- ☐ Clean water level tape or interface probe using methanol and water. Change gloves between wells.
- ☐ Calculate volume of standing water within well and record.
- ☐ Insert polyethylene tubing into well and attach to peristaltic pump. Turn on peristaltic pump and purge into graduated bucket. Purge at least three well volumes of water from the well. Measure and record field chemistry. Continue to purge, measuring field chemistry after every well volume purged, until appearance or field chemistry stabilizes.
- ☐ Note appearance of purge water, including colour, opacity (clear, cloudy, silty), sheen, presence of LNAPL, and odour. Note any other unusual features (particulate matter, effervescence (bubbling) of dissolved gas, etc.).
- ☐ Fill required sample bottles. If sampling for metals, attach 75-micron filter to discharge tube and filter metals sample. If sampling for VOCs, use low flow rate to ensure continuous stream of non-turbulent flow into sample bottles. Ensure no headspace is present in VOC vials.
- ☐ Replace well cap and flushmount casing cap.

4.0 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

The QA/QC program for this Phase II ESA is as follows:

- ☐ All non-dedicated sampling equipment (split spoons) will be decontaminated according to the SOPs listed above.
- ☐ All groundwater sampling equipment is dedicated (polyethylene and flexible peristaltic tubing is replaced for each well).
- ☐ Where groundwater samples are to be analyzed for VOCs, one laboratory-provided trip blank will be submitted for analysis with every laboratory submission.
- ☐ Approximately one (1) field duplicate will be submitted for every ten (10) samples submitted for laboratory analysis. A minimum of one (1) field duplicate per project will be submitted. Field duplicates will be submitted for soil and groundwater samples
- ☐ Where combo pens are used to measure field chemistry, they will be calibrated on an approximately monthly basis, according to frequency of use.

5.0 DATA QUALITY OBJECTIVES

The purpose of setting data quality objectives (DQOs) is to ensure that the level of uncertainty in data collected during the Phase II ESA is low enough that decision-making is not affected, and that the overall objectives of the investigation are met.

The quality of data is assessed by comparing field duplicates with original samples. If the relative percent difference (RPD) between the duplicate and the sample is within 20%, the data are considered to be of sufficient quality so as not to affect decision-making. The RPD is calculated as follows:

$$RPD = \left| \frac{x_1 - x_2}{(x_1 + x_2)/2} \right| \times 100\%$$

Where x_1 is the concentration of a given parameter in an original sample and x_2 is the concentration of that same parameter in the field duplicate sample.

For the purpose of calculating the RPD, it is desirable to select field duplicates from samples for which parameters are present in concentrations above laboratory detection limits, i.e. samples which are expected to be contaminated. If parameters are below laboratory detection limits for selected samples or duplicates, the RPD may be calculated using a concentration equal to one half the laboratory detection limit.

It is also important to consider data quality in the overall context of the project. For example, if the DQOs are not met for a given sample, yet the concentrations of contaminants in both the sample and the duplicate exceed the MOE site remediation standards by a large margin, the decision-making usefulness of the sample may not be considered to be impaired. The proximity of other samples which meet the DQOs must also be considered in developing the Phase II Conceptual Site Model; often there are enough data available to produce a reliable Phase II Conceptual Site Model even if DQOs are not met for certain individual samples.

These considerations are discussed in the body of the report.

6.0 PHYSICAL IMPEDIMENTS

Physical impediments to the Sampling and Analysis plan may include:

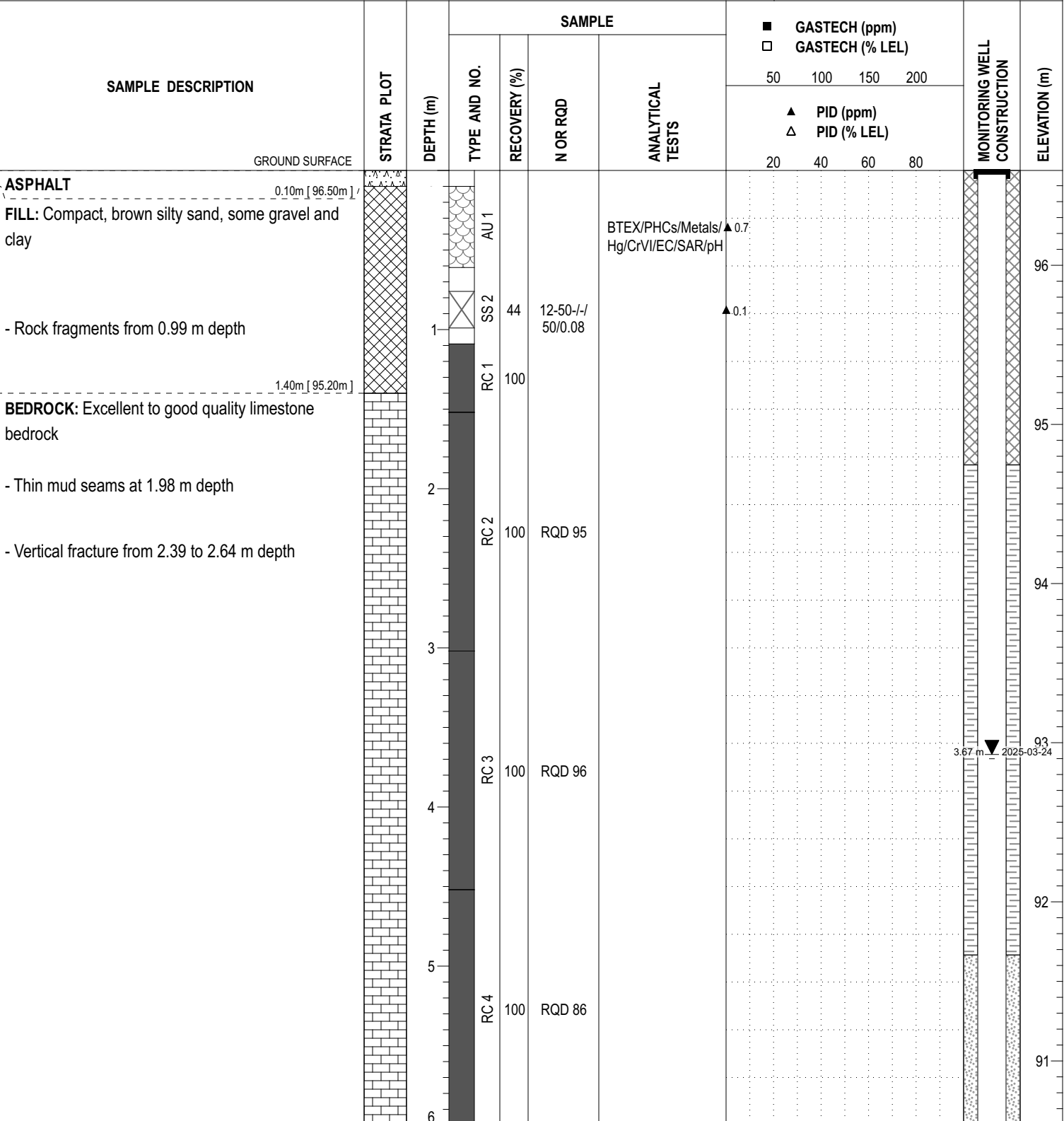
- ☐ The location of underground utilities
- ☐ Poor recovery of split-spoon soil samples
- ☐ Insufficient groundwater volume for groundwater samples
- ☐ Breakage of sampling containers following sampling or while in transit to the laboratory
- ☐ Elevated detection limits due to matrix interference (generally related to soil colour or presence of organic material)
- ☐ Elevated detection limits due to high concentrations of certain parameters, necessitating dilution of samples in laboratory
- ☐ Drill rig breakdowns
- ☐ Winter conditions
- ☐ Other site-specific impediments

Site-specific impediments to the Sampling and Analysis plan are discussed in the body of the Phase II ESA report.

COORD. SYS.: MTM ZONE 9 **EASTING:** 364983.13 **NORTHING:** 5025178.22 **ELEVATION:** 96.60

PROJECT: Proposed Development **FILE NO. :** PE6468

ADVANCED BY: CME-55 Low Clearance Drill

REMARKS: **DATE:** March 5, 2025 **HOLE NO. :** BH 1-25


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COORD. SYS.: MTM ZONE 9 **EASTING:** 364983.13 **NORTHING:** 5025178.22 **ELEVATION:** 96.60

PROJECT: Proposed Development **FILE NO. :** PE6468

ADVANCED BY: CME-55 Low Clearance Drill

REMARKS: **DATE:** March 5, 2025 **HOLE NO. :** BH 1-25

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE				GASTECH (ppm)				MONITORING WELL CONSTRUCTION	ELEVATION (m)
			TYPE AND NO.	RECOVERY (%)	N OR RQD	ANALYTICAL TESTS	GASTECH (% LEL)					
							50	100	150	200		
							▲ PID (ppm)	△ PID (% LEL)				

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COORD. SYS.: MTM ZONE 9 **EASTING:** 365046.00 **NORTHING:** 5025180.80 **ELEVATION:** 95.26

PROJECT: Proposed Development **FILE NO. :** PE6468

ADVANCED BY: CME-55 Low Clearance Drill

REMARKS: **DATE:** March 5, 2025 **HOLE NO. :** BH 2-25

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE				GASTECH (ppm)				PIEZOMETER CONSTRUCTION	ELEVATION (m)
			TYPE AND NO.	RECOVERY (%)	N OR RQD	ANALYTICAL TESTS	GASTECH (% LEL)					
							50	100	150	200		
GROUND SURFACE							▲ PID (ppm)	△ PID (% LEL)				
							20	40	60	80		
ASPHALT												
FILL: Compact, brown silty sand with gravel, trace clay and crushed stone			AU 1				▲ 0.4				95	
			SS 2	28	21-50-/-/ 50/0.03		▲ 0.2					
1.07m [94.19m]		1									94	
End of Borehole												
Practical refusal to augering at 1.07 m depth												
		2										
											93	
		3										
											92	
		4										
											91	
		5										
											90	
		6										

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COORD. SYS.: MTM ZONE 9		EASTING: 365096.66	NORTHING: 5025211.49	ELEVATION: 95.43
PROJECT: Proposed Development				FILE NO. : PE6468
ADVANCED BY: CME-55 Low Clearance Drill				HOLE NO. : BH 3-25
REMARKS:		DATE: March 5, 2025		

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE				GASTECH (ppm) GASTECH (% LEL)	PIEZOMETER CONSTRUCTION	ELEVATION (m)
			TYPE AND NO.	RECOVERY (%)	N OR RQD	ANALYTICAL TESTS	50 100 150 200		
							PID (ppm) PID (% LEL)		
GROUND SURFACE							20 40 60 80		
ASPHALT			AU 1				▲ 0.2		95-
FILL: Compact to dense, brown silty sand with gravel, trace clay - Rock fragments from 0.76 m depth		1	SS 2	4	20-21-15-13 36		▲ 0.1		94-
End of Borehole		2							93-
Practical refusal to augering at 1.57 m depth		3							92-
		4							91-
		5							90-
		6							

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COORD. SYS.: MTM ZONE 9 **EASTING:** 365046.12 **NORTHING:** 5025238.92 **ELEVATION:** 97.13

PROJECT: Proposed Development **FILE NO. :** PE6468

ADVANCED BY: CME-55 Low Clearance Drill

REMARKS: **DATE:** March 6, 2025 **HOLE NO. :** BH 4-25

SAMPLE DESCRIPTION	STRATA PLOT	SAMPLE				GASTECH (ppm) GASTECH (% LEL)				PIEZOMETER CONSTRUCTION	ELEVATION (m)	
		DEPTH (m)	TYPE AND NO.	RECOVERY (%)	N OR RQD	ANALYTICAL TESTS	50	100	150			200
							PID (ppm) PID (% LEL)					
							20	40	60			80
GROUND SURFACE												
ASPHALT			AU 1								97	
FILL: Compact to dense, brown silty sand, some gravel and clay, trace cobbles			SS 2	62	19-17-21-27 38/0.08						96	
- Rock fragments from 1.83 m depth			RC 1 SS 3	43	10-22-50-/ 72/0.1						95	
BEDROCK: Poor quality limestone bedrock			RC 2	97	RQD 88						94	
- Fair to excellent quality bedrock below 2.18 m depth			RC 3	100	RQD 98						93	
			RC 4	100	RQD 95						92	

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COORD. SYS.: MTM ZONE 9 **EASTING:** 365046.12 **NORTHING:** 5025238.92 **ELEVATION:** 97.13

PROJECT: Proposed Development **FILE NO. :** PE6468

ADVANCED BY: CME-55 Low Clearance Drill

REMARKS: **DATE:** March 6, 2025 **HOLE NO. :** BH 4-25

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE				■ □ GASTECH (ppm) GASTECH (% LEL)				PIEZOMETER CONSTRUCTION	ELEVATION (m)
			TYPE AND NO.	RECOVERY (%)	N OR RQD	ANALYTICAL TESTS	50	100	150	200		
							▲ △	20 40	60 80	PID (ppm) PID (% LEL)		
		6	RC 4									91
		7	RC 5	100	RQD 95							90
		8	RC 6	100	RQD 98							89
		9	RC 7	95	RQD 69							88
- Fair quality bedrock below 9.18 m depth												
- 10 mm mud seams at 9.5 m depth												
10.16m [86.97m]		10										87
End of Borehole		11										86
		12										

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1200 Baseline Road, Ottawa, Ontario

ELEVATION: 96.46

FILE NO. : PE6468

DATE: March 7, 2025

HOLE NO.: BH 5-25

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COORD. SYS.: MTM ZONE 9 **EASTING:** 365151.43 **NORTHING:** 5025307.14 **ELEVATION:** 96.46

PROJECT: Proposed Development **FILE NO. :** PE6468

ADVANCED BY: CME-55 Low Clearance Drill **HOLE NO. :** BH 5-25

REMARKS: **DATE:** March 7, 2025

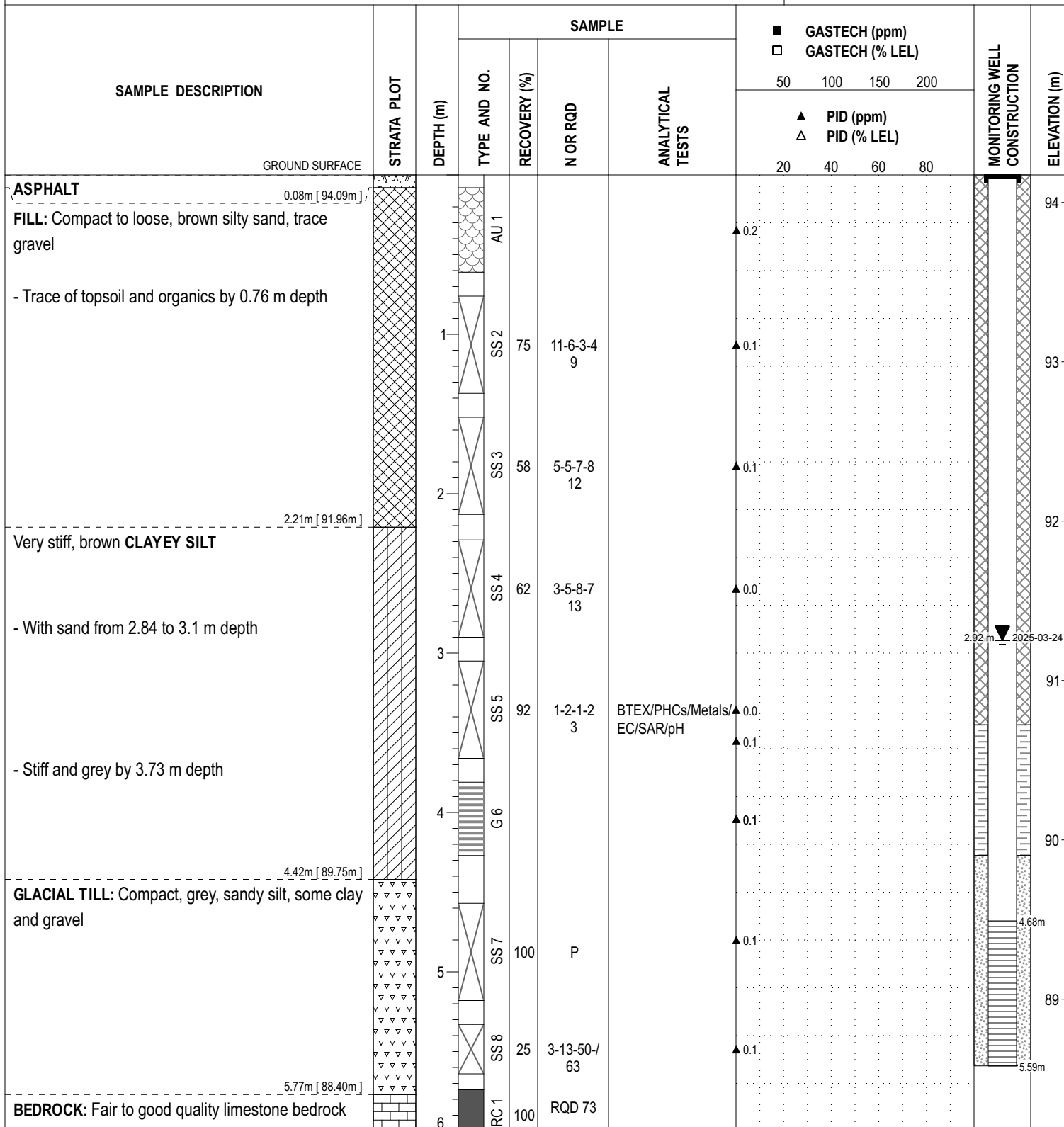
SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE				■ GASTECH (ppm) □ GASTECH (% LEL) ▲ PID (ppm) △ PID (% LEL)				MONITORING WELL CONSTRUCTION	ELEVATION (m)
			TYPE AND NO.	RECOVERY (%)	N OR RQD	ANALYTICAL TESTS	50	100	150	200		
							20	40	60	80		
- Vertical fracture from 6.1 to 6.55 m depth		6	RC 4									90
		7	RC 5	100	RQD 87							89
		8	RC 6	100	RQD 92							88
		9	RC 7	100	RQD 98							87
		10										86
End of Borehole		10.34m [86.12m]										86
(GWL at 2.93 m depth - March 24, 2025)												85
		11										
		12										

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COORD. SYS.: MTM ZONE 9 **EASTING:** 365207.11 **NORTHING:** 5025197.47 **ELEVATION:** 94.17

PROJECT: Proposed Development **FILE NO. :** PE6468

ADVANCED BY: CME-55 Low Clearance Drill

REMARKS: **DATE:** March 7, 2025 **HOLE NO. :** BH 6-25


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COORD. SYS.: MTM ZONE 9 **EASTING:** 365207.11 **NORTHING:** 5025197.47 **ELEVATION:** 94.17

PROJECT: Proposed Development **FILE NO. :** PE6468

ADVANCED BY: CME-55 Low Clearance Drill

REMARKS: **DATE:** March 7, 2025 **HOLE NO. :** BH 6-25

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE				GASTECH (ppm) GASTECH (% LEL)				MONITORING WELL CONSTRUCTION	ELEVATION (m)	
			TYPE AND NO.	RECOVERY (%)	N OR RQD	ANALYTICAL TESTS	50	100	150	200			
							PID (ppm) PID (% LEL)						
							20	40	60	80			
- Vertical fracture from 7.19 to 7.39 m depth		6	RC 1									88	
			RC 2	100	RQD 66								
		7											87
			RC 3	100	RQD 76								86
- Thin mud seams at 8.36 m depth		8											
			RC 4	100	RQD 87							85	
		9											
		10										84	
End of Borehole													
(GWL at 2.92 m depth - March 24, 2025)													
		11										83	
		12											

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[illegible]

PAGE: 1 / 1

COORD. SYS.: MTM ZONE 9 **EASTING:** 365153.71 **NORTHING:** 5025197.04 **ELEVATION:** 94.48

PROJECT: Proposed Development **FILE NO. :** PE6468

ADVANCED BY: CME-55 Low Clearance Drill

REMARKS: **DATE:** March 7, 2025 **HOLE NO. :** BH 7A-25

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE				■ GASTECH (ppm) □ GASTECH (% LEL)				PIEZOMETER CONSTRUCTION	ELEVATION (m)
			TYPE AND NO.	RECOVERY (%)	N OR RQD	ANALYTICAL TESTS	50	100	150	200		
							▲ PID (ppm) △ PID (% LEL)					
GROUND SURFACE							20	40	60	80		
OVERBURDEN												94
0.64m [93.84m]												
End of Borehole		1										
Practical refusal to augering at 0.64 m depth												93
		2										
												92
		3										
												91
		4										
												90
		5										
												89
		6										

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SOIL PROFILE AND TEST DATA

Phase II Environmental Site Assessment

1200 Baseline Road, Ottawa, Ontario

COORD. SYS.: MTM ZONE 9

EASTING: 365127.88

NORTHING: 5025329.42

ELEVATION: 96.89

PROJECT: Proposed Development

FILE NO. : PE6468

ADVANCED BY: CME-55 Low Clearance Drill

DATE: March 7, 2025

HOLE NO.: BH 8-25

REMARKS:

[illegible]

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PAGE: 1 / 1



Phase II Environmental Site Assessment

1200 Baseline Road, Ottawa, Ontario

ELEVATION: 96.89

FILE NO. : PE6468

HOLE NO.: BH 8A-25

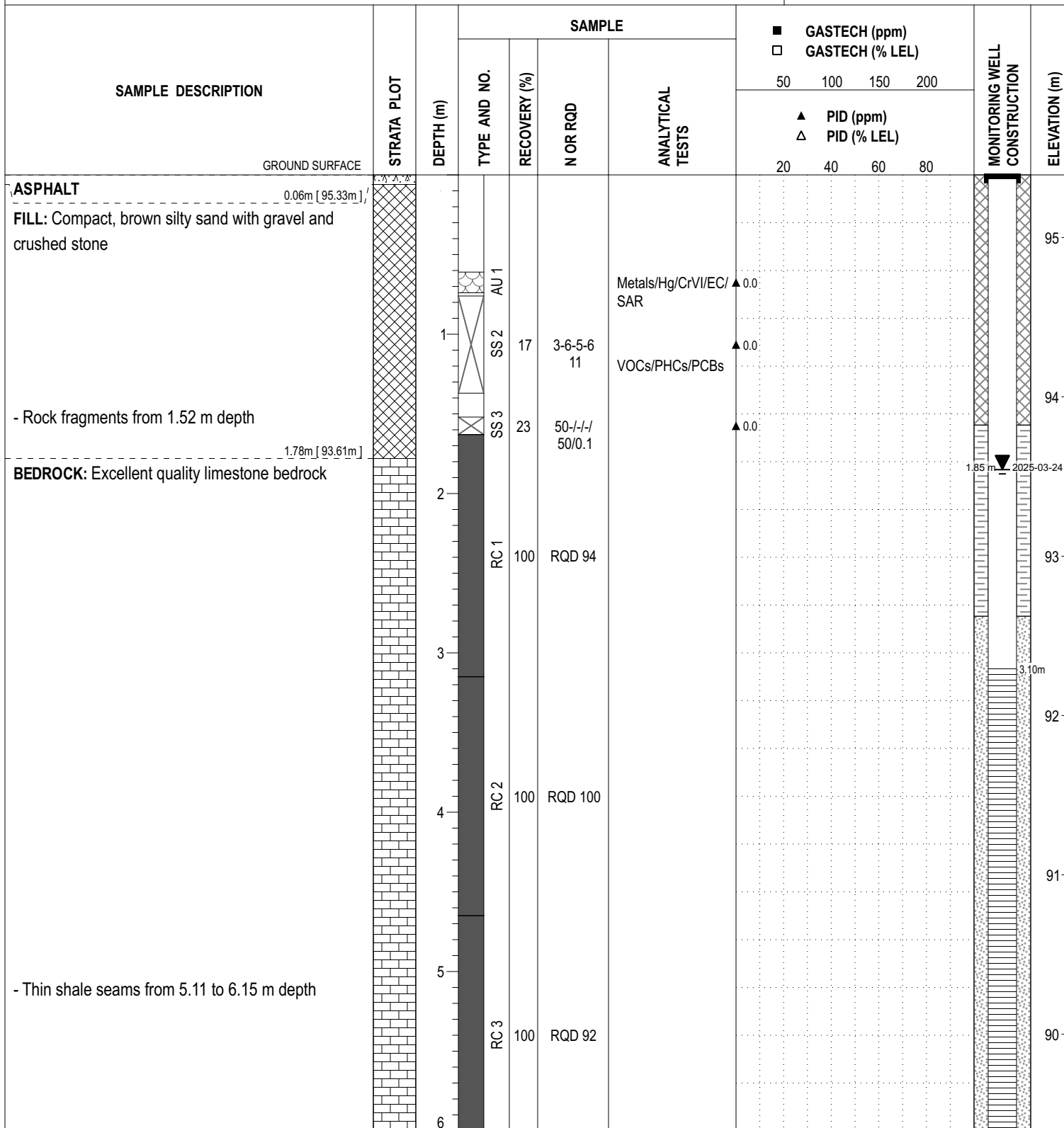
DATE: March 7, 2025

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COORD. SYS.: MTM ZONE 9 **EASTING:** 365120.82 **NORTHING:** 5025244.83 **ELEVATION:** 95.39

PROJECT: Proposed Development **FILE NO. :** PE6468

ADVANCED BY: CME-55 Low Clearance Drill

REMARKS: **DATE:** March 8, 2025 **HOLE NO. :** BH 9-25


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COORD. SYS.: MTM ZONE 9		EASTING: 365120.82	NORTHING: 5025244.83	ELEVATION: 95.39
PROJECT: Proposed Development ADVANCED BY: CME-55 Low Clearance Drill REMARKS:				FILE NO. : PE6468 HOLE NO. : BH 9-25

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COORD. SYS.: MTM ZONE 9 **EASTING:** 365146.36 **NORTHING:** 5025219.02 **ELEVATION:** 95.32

PROJECT: Proposed Development **FILE NO. :** PE6468

ADVANCED BY: CME-55 Low Clearance Drill

REMARKS: **DATE:** March 8, 2025 **HOLE NO. :** BH10-25

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE				GASTECH (ppm)				MONITORING WELL CONSTRUCTION	ELEVATION (m)
			TYPE AND NO.	RECOVERY (%)	N OR RQD	ANALYTICAL TESTS	GASTECH (% LEL)					
							50	100	150	200		
							▲ PID (ppm)	△ PID (% LEL)				
		6	RC 3									89
			RC 4	100	RQD 86							
		7										
7.21m [88.11m]												
End of Borehole												88
(GWL at 2.20 m depth - March 24, 2025)												
		8										87
		9										86
		10										85
		11										84
		12										

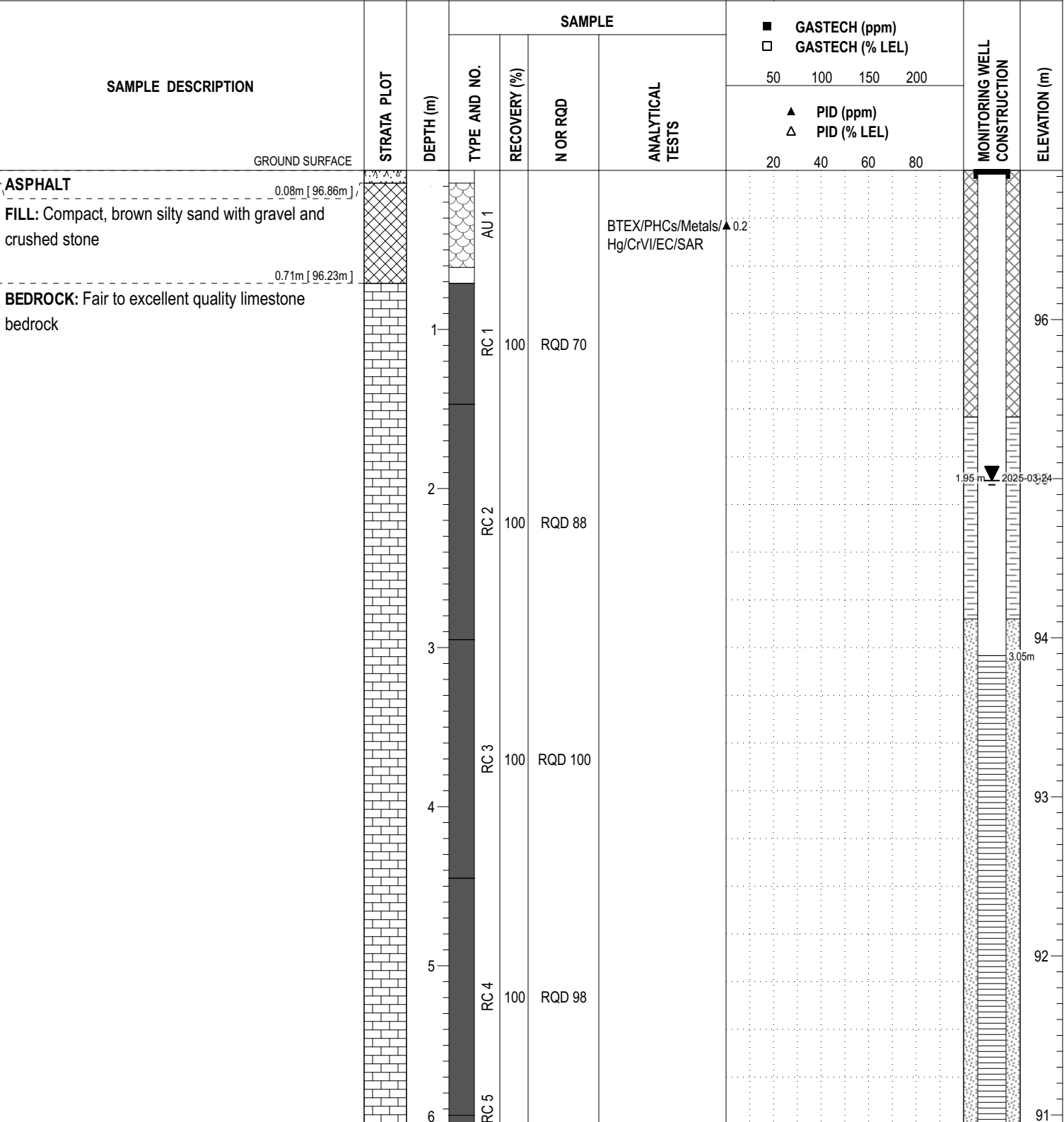
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COORD. SYS.: MTM ZONE 9 EASTING: 365097.00 NORTHING: 5025310.71 ELEVATION: 96.94

PROJECT: Proposed Development FILE NO.: PE6468

ADVANCED BY: CME-55 Low Clearance Drill HOLE NO.: BH11-25

REMARKS: DATE: March 9, 2025



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COORD. SYS.: MTM ZONE 9 **EASTING:** 365097.00 **NORTHING:** 5025310.71 **ELEVATION:** 96.94

PROJECT: Proposed Development **FILE NO. :** PE6468

ADVANCED BY: CME-55 Low Clearance Drill

REMARKS: **DATE:** March 9, 2025 **HOLE NO. :** BH11-25

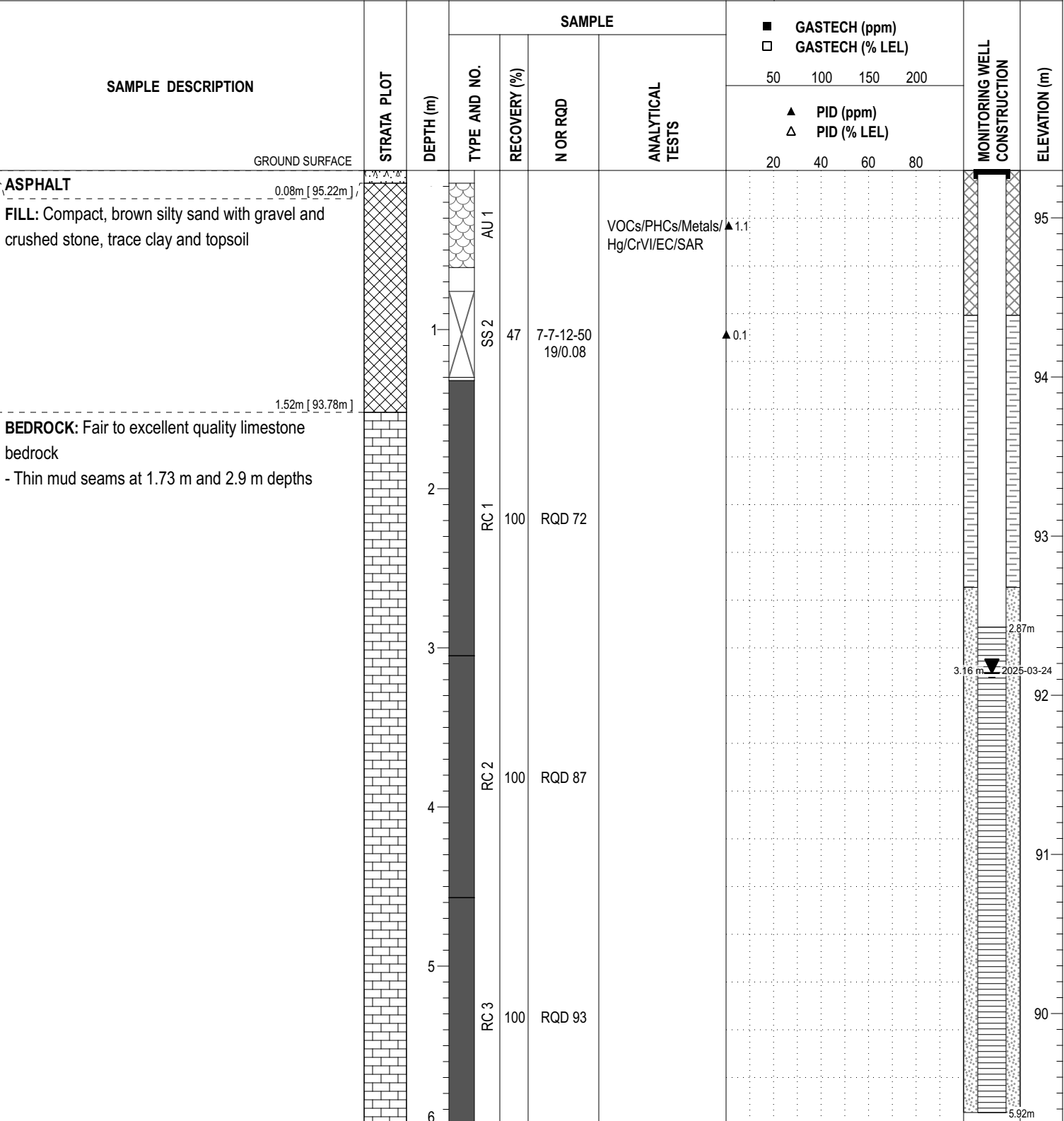
SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE				GASTECH (ppm) GASTECH (% LEL)				MONITORING WELL CONSTRUCTION	ELEVATION (m)
			TYPE AND NO.	RECOVERY (%)	N OR RQD	ANALYTICAL TESTS	50	100	150	200		
							▲ PID (ppm) △ PID (% LEL)					
							20	40	60	80		
- Thin shale seams from 6.25 to 6.55 m depth		6	RC 5	100	RQD 92							96.10m
		7										
End of Borehole												
(GWL at 1.95 m depth - March 24, 2025)												
		8										89
		9										88
		10										87
		11										86
		12										85

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COORD. SYS.: MTM ZONE 9 **EASTING:** 365182.38 **NORTHING:** 5025253.25 **ELEVATION:** 95.30

PROJECT: Proposed Development **FILE NO. :** PE6468

ADVANCED BY: CME-55 Low Clearance Drill

REMARKS: **DATE:** March 9, 2025 **HOLE NO. :** BH12-25


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COORD. SYS.: MTM ZONE 9 **EASTING:** 365182.38 **NORTHING:** 5025253.25 **ELEVATION:** 95.30

PROJECT: Proposed Development **FILE NO. :** PE6468

ADVANCED BY: CME-55 Low Clearance Drill

REMARKS: **DATE:** March 9, 2025 **HOLE NO. :** BH12-25

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE				GASTECH (ppm) GASTECH (% LEL)				MONITORING WELL CONSTRUCTION	ELEVATION (m)
			TYPE AND NO.	RECOVERY (%)	N OR RQD	ANALYTICAL TESTS	50	100	150	200		
							PID (ppm) PID (% LEL)					
		6	RC 3									89
- Thin shale seams from 6.58 to 6.86 m depth			RC 4	100	RQD 86							
7.16m [88.14m]		7										
End of Borehole												88
(GWL at 3.16 m depth - March 24, 2025)												
		8										87
		9										86
		10										85
		11										84
		12										

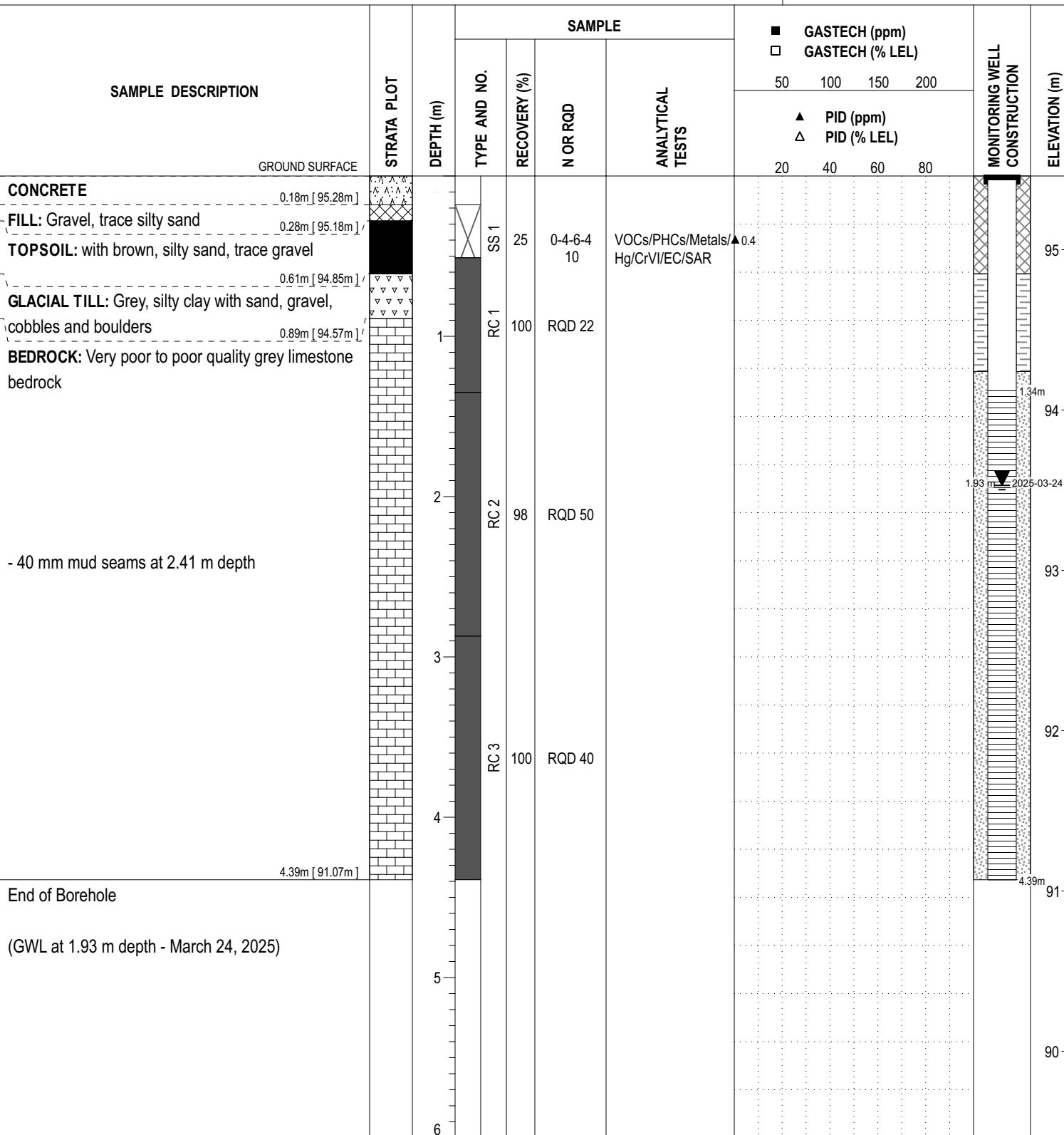
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COORD. SYS.: MTM ZONE 9 EASTING: 365133.67 NORTHING: 5025253.37 ELEVATION: 95.46

PROJECT: Proposed Development FILE NO.: PE6468

ADVANCED BY: CME-55 Low Clearance Drill

REMARKS: DATE: March 15, 2025 HOLE NO.: BH13-25



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COORD. SYS.: MTM ZONE 9

EASTING: 365136.99

NORTHING: 5025236.49

ELEVATION: 95.46

PROJECT: Proposed Development

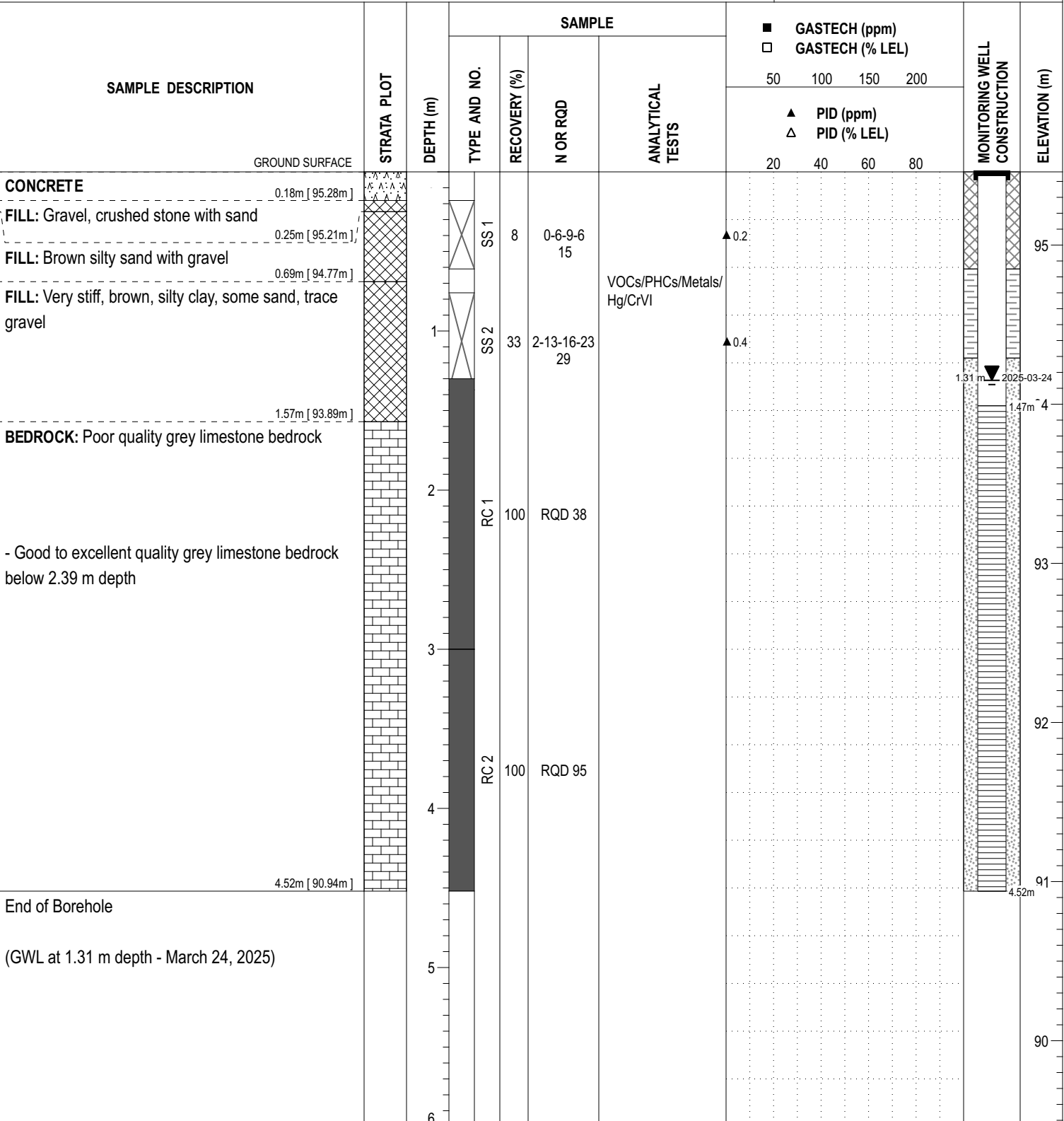
ADVANCED BY: CME-55 Low Clearance Drill

FILE NO.: PE6468

REMARKS:

DATE: March 16, 2025

HOLE NO.: BH14-25



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ELEVATION: 95.46

FILE NO. : PE6468

DATE: March 16, 2025

HOLE NO. : BH15-25



ELEVATION: 95.46

FILE NO. : PE6468

DATE: March 16, 2025

HOLE NO. : BH16-25

REMARKS:



PAGE: 1 / 1

SYMBOLS AND TERMS

SOIL DESCRIPTION

Behavioural properties, such as structure and strength, take precedence over particle gradation in describing soils. Terminology describing soil structure are as follows:

Desiccated	-	having visible signs of weathering by oxidation of clay minerals, shrinkage cracks, etc.
Fissured	-	having cracks, and hence a blocky structure.
Varved	-	composed of regular alternating layers of silt and clay.
Stratified	-	composed of alternating layers of different soil types, e.g. silt and sand or silt and clay.
Well-Graded	-	Having wide range in grain sizes and substantial amounts of all intermediate particle sizes (see Grain Size Distribution).
Uniformly-Graded	-	Predominantly of one grain size (see Grain Size Distribution).

The standard terminology to describe the relative strength of cohesionless soils is the compactness condition, usually inferred from the results of the Standard Penetration Test (SPT) 'N' value. The SPT N value is the number of blows of a 63.5 kg hammer, falling 760 mm, required to drive a 51 mm O.D. split spoon sampler 300 mm into the soil after an initial penetration of 150 mm. An SPT N value of "P" denotes that the split-spoon sampler was pushed 300 mm into the soil without the use of a falling hammer.

Compactness Condition	'N' Value	Relative Density %
Very Loose	<4	<15
Loose	4-10	15-35
Compact	10-30	35-65
Dense	30-50	65-85
Very Dense	>50	>85

The standard terminology to describe the strength of cohesive soils is the consistency, which is based on the undisturbed undrained shear strength as measured by the in situ or laboratory shear vane tests, unconfined compression tests, or occasionally by the Standard Penetration Test (SPT). Note that the typical correlations of undrained shear strength to SPT N value (tabulated below) tend to underestimate the consistency for sensitive silty clays, so Paterson reviews the applicable split spoon samples in the laboratory to provide a more representative consistency value based on tactile examination.

Consistency	Undrained Shear Strength (kPa)	'N' Value
Very Soft	<12	<2
Soft	12-25	2-4
Firm	25-50	4-8
Stiff	50-100	8-15
Very Stiff	100-200	15-30
Hard	>200	>30

SYMBOLS AND TERMS (continued)

SOIL DESCRIPTION (continued)

Cohesive soils can also be classified according to their “sensitivity”. The sensitivity, S_t , is the ratio between the undisturbed undrained shear strength and the remoulded undrained shear strength of the soil. The classes of sensitivity may be defined as follows:

Low Sensitivity:	$S_t < 2$
Medium Sensitivity:	$2 < S_t < 4$
Sensitive:	$4 < S_t < 8$
Extra Sensitive:	$8 < S_t < 16$
Quick Clay:	$S_t > 16$

ROCK DESCRIPTION

The structural description of the bedrock mass is based on the Rock Quality Designation (RQD).

The RQD classification is based on a modified core recovery percentage in which all pieces of sound core over 100 mm long are counted as recovery. The smaller pieces are considered to be a result of closely-spaced discontinuities (resulting from shearing, jointing, faulting, or weathering) in the rock mass and are not counted. RQD is ideally determined from NQ or larger size core. However, it can be used on smaller core sizes, such as BQ, if the bulk of the fractures caused by drilling stresses (called “mechanical breaks”) are easily distinguishable from the normal in situ fractures.

RQD %	ROCK QUALITY
90-100	Excellent, intact, very sound
75-90	Good, massive, moderately jointed or sound
50-75	Fair, blocky and seamy, fractured
25-50	Poor, shattered and very seamy or blocky, severely fractured
0-25	Very poor, crushed, very severely fractured

SAMPLE TYPES

SS	-	Split spoon sample (obtained in conjunction with the performing of the Standard Penetration Test (SPT))
TW	-	Thin wall tube or Shelby tube, generally recovered using a piston sampler
G	-	"Grab" sample from test pit or surface materials
AU	-	Auger sample or bulk sample
WS	-	Wash sample
RC	-	Rock core sample (Core bit size BQ, NQ, HQ, etc.). Rock core samples are obtained with the use of standard diamond drilling bits.

SYMBOLS AND TERMS (continued)

PLASTICITY LIMITS AND GRAIN SIZE DISTRIBUTION

WC%	-	Natural water content or water content of sample, %
LL	-	Liquid Limit, % (water content above which soil behaves as a liquid)
PL	-	Plastic Limit, % (water content above which soil behaves plastically)
PI	-	Plasticity Index, % (difference between LL and PL)
Dxx	-	Grain size at which xx% of the soil, by weight, is of finer grain sizes These grain size descriptions are not used below 0.075 mm grain size
D10	-	Grain size at which 10% of the soil is finer (effective grain size)
D60	-	Grain size at which 60% of the soil is finer
Cc	-	Concavity coefficient = $(D_{30})^2 / (D_{10} \times D_{60})$
Cu	-	Uniformity coefficient = D_{60} / D_{10}

Cc and Cu are used to assess the grading of sands and gravels:

Well-graded gravels have: $1 < Cc < 3$ and $Cu > 4$

Well-graded sands have: $1 < Cc < 3$ and $Cu > 6$

Sands and gravels not meeting the above requirements are poorly-graded or uniformly-graded.

Cc and Cu are not applicable for the description of soils with more than 10% silt and clay
(more than 10% finer than 0.075 mm or the #200 sieve)

CONSOLIDATION TEST

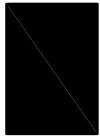
p'_o	-	Present effective overburden pressure at sample depth
p'_c	-	Preconsolidation pressure of (maximum past pressure on) sample
Ccr	-	Recompression index (in effect at pressures below p'_c)
Cc	-	Compression index (in effect at pressures above p'_c)
OC Ratio		Overconsolidation ratio = p'_c / p'_o
Void Ratio		Initial sample void ratio = volume of voids / volume of solids
Wo	-	Initial water content (at start of consolidation test)

PERMEABILITY TEST

k	-	Coefficient of permeability or hydraulic conductivity is a measure of the ability of water to flow through the sample. The value of k is measured at a specified unit weight for (remoulded) cohesionless soil samples, because its value will vary with the unit weight or density of the sample during the test.
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SYMBOLS AND TERMS (continued)

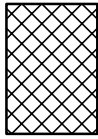
STRATA PLOT



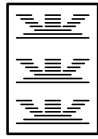
Topsoil



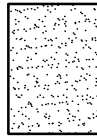
Asphalt



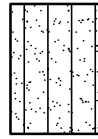
Fill



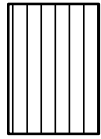
Peat



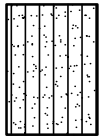
Sand



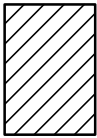
Silty Sand



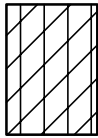
Silt



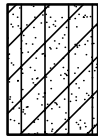
Sandy Silt



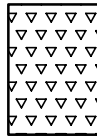
Clay



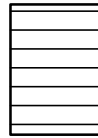
Silty Clay



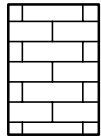
Clayey Silty Sand



Glacial Till



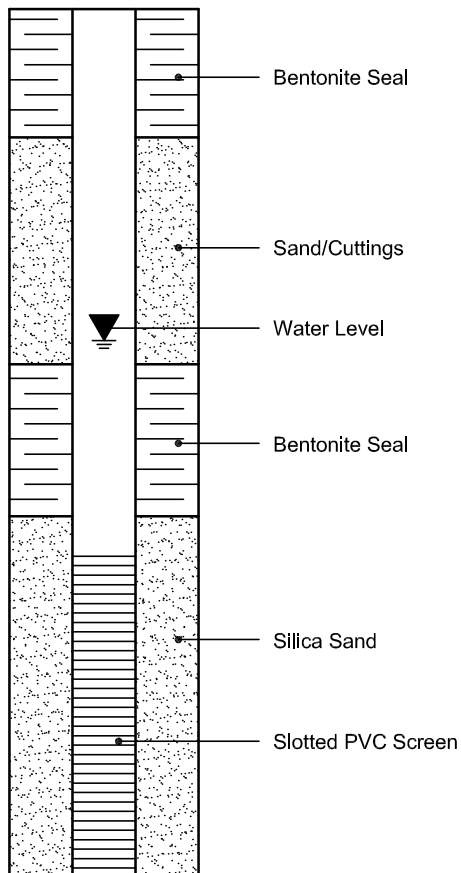
Shale



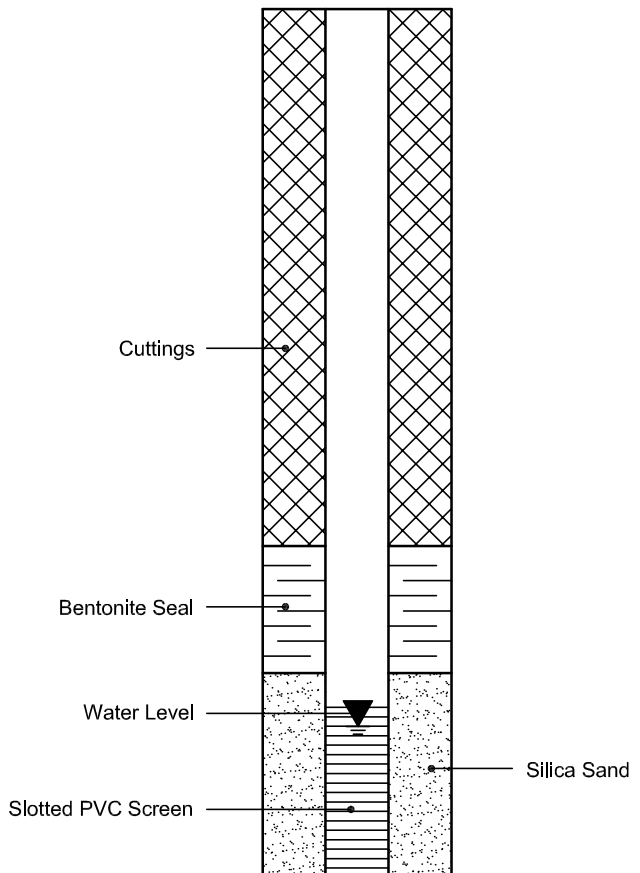
Bedrock

MONITORING WELL AND PIEZOMETER CONSTRUCTION

MONITORING WELL CONSTRUCTION



PIEZOMETER CONSTRUCTION



Certificate of Analysis

Paterson Group Consulting Engineers (Ottawa)

9 Auriga Drive
Ottawa, ON K2E 7T9
Attn: Jesse Andrechek

Client PO: 62544
Project: PE6468

Custody: _____ Revised Report

Report Date: 17-Mar-2025
Order Date: 6-Mar-2025

Order #: 2510457

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

Paracel ID	Client ID
2510457-01	BH1-25-AU1

Approved By:



Mark Foto, M.Sc.
Laboratory Director

Certificate of Analysis

Report Date: 17-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 6-Mar-2025

Client PO: 62544

Project Description: PE6468

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX by P&T GC-MS	EPA 8260 - P&T GC-MS	7-Mar-25	7-Mar-25
Chromium, hexavalent - soil	MOE E3056 - Extraction, colourimetric	14-Mar-25	14-Mar-25
Conductivity	MOE E3138 - probe @25 °C, water ext	11-Mar-25	11-Mar-25
Mercury by CVAA	EPA 7471B - CVAA, digestion	13-Mar-25	13-Mar-25
pH, soil	EPA 150.1 - pH probe @ 25 °C, CaCl buffered ext.	7-Mar-25	7-Mar-25
PHC F1	CWS Tier 1 - P&T GC-FID	7-Mar-25	7-Mar-25
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	10-Mar-25	10-Mar-25
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	7-Mar-25	10-Mar-25
SAR	Calculated	11-Mar-25	11-Mar-25
Solids, %	CWS Tier 1 - Gravimetric	7-Mar-25	10-Mar-25

Certificate of Analysis

Report Date: 17-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 6-Mar-2025

Client PO: 62544

Project Description: PE6468

Client ID:	BH1-25-AU1	-	-	-	-
Sample Date:	05-Mar-25 09:00	-	-	-	-
Sample ID:	2510457-01	-	-	-	-
Matrix:	Soil	-	-	-	-
MDL/Units					

Physical Characteristics

% Solids	0.1 % by Wt.	89.9	-	-	-	-
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General Inorganics

SAR	0.01 N/A	2.39	-	-	-	-
Conductivity	5 uS/cm	1440	-	-	-	-
pH	0.05 pH Units	7.64	-	-	-	-

Metals

Antimony	1.0 ug/g	<1.0	-	-	-	-
Arsenic	1.0 ug/g	2.7	-	-	-	-
Barium	1.0 ug/g	411	-	-	-	-
Beryllium	0.5 ug/g	0.5	-	-	-	-
Boron	5.0 ug/g	12.6	-	-	-	-
Cadmium	0.5 ug/g	<0.5	-	-	-	-
Chromium (VI)	0.2 ug/g	<0.2	-	-	-	-
Chromium	5.0 ug/g	18.2	-	-	-	-
Cobalt	1.0 ug/g	5.5	-	-	-	-
Copper	5.0 ug/g	22.9	-	-	-	-
Lead	1.0 ug/g	32.1	-	-	-	-
Mercury	0.1 ug/g	<0.1	-	-	-	-
Molybdenum	1.0 ug/g	<1.0	-	-	-	-
Nickel	5.0 ug/g	12.7	-	-	-	-
Selenium	1.0 ug/g	<1.0	-	-	-	-
Silver	0.3 ug/g	<0.3	-	-	-	-
Thallium	1.0 ug/g	<1.0	-	-	-	-
Uranium	1.0 ug/g	<1.0	-	-	-	-
Vanadium	10.0 ug/g	19.4	-	-	-	-

Certificate of Analysis

Report Date: 17-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 6-Mar-2025

Client PO: 62544

Project Description: PE6468

Client ID:	BH1-25-AU1	-	-	-	-
Sample Date:	05-Mar-25 09:00	-	-	-	-
Sample ID:	2510457-01	-	-	-	-
Matrix:	Soil	-	-	-	-
MDL/Units					

Metals

Zinc	20.0 ug/g	65.1	-	-	-	-
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Volatiles

Benzene	0.02 ug/g	<0.02	-	-	-	-
Ethylbenzene	0.05 ug/g	<0.05	-	-	-	-
Toluene	0.05 ug/g	<0.05	-	-	-	-
m,p-Xylenes	0.05 ug/g	<0.05	-	-	-	-
o-Xylene	0.05 ug/g	<0.05	-	-	-	-
Xylenes, total	0.05 ug/g	<0.05	-	-	-	-
Toluene-d8	Surrogate	103%	-	-	-	-

Hydrocarbons

F1 PHCs (C6-C10)	7 ug/g	<7	-	-	-	-
F2 PHCs (C10-C16)	4 ug/g	<4	-	-	-	-
F3 PHCs (C16-C34)	8 ug/g	32	-	-	-	-
F4 PHCs (C34-C50)	6 ug/g	33	-	-	-	-

Certificate of Analysis

Report Date: 17-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 6-Mar-2025

Client PO: 62544

Project Description: PE6468

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics								
Conductivity	ND	5	uS/cm					
Hydrocarbons								
F1 PHCs (C6-C10)	ND	7	ug/g					
F2 PHCs (C10-C16)	ND	4	ug/g					
F3 PHCs (C16-C34)	ND	8	ug/g					
F4 PHCs (C34-C50)	ND	6	ug/g					
Metals								
Antimony	ND	1.0	ug/g					
Arsenic	ND	1.0	ug/g					
Barium	ND	1.0	ug/g					
Beryllium	ND	0.5	ug/g					
Boron	ND	5.0	ug/g					
Cadmium	ND	0.5	ug/g					
Chromium (VI)	ND	0.2	ug/g					
Chromium	ND	5.0	ug/g					
Cobalt	ND	1.0	ug/g					
Copper	ND	5.0	ug/g					
Lead	ND	1.0	ug/g					
Mercury	ND	0.1	ug/g					
Molybdenum	ND	1.0	ug/g					
Nickel	ND	5.0	ug/g					
Selenium	ND	1.0	ug/g					
Silver	ND	0.3	ug/g					
Thallium	ND	1.0	ug/g					
Uranium	ND	1.0	ug/g					
Vanadium	ND	10.0	ug/g					
Zinc	ND	20.0	ug/g					
Volatiles								
Benzene	ND	0.02	ug/g					
Ethylbenzene	ND	0.05	ug/g					
Toluene	ND	0.05	ug/g					
m,p-Xylenes	ND	0.05	ug/g					

Certificate of Analysis

Report Date: 17-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 6-Mar-2025

Client PO: 62544

Project Description: PE6468

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
o-Xylene	ND	0.05	ug/g					
Xylenes, total	ND	0.05	ug/g					
Surrogate: Toluene-d8	7.74		%	96.8	50-140			

Certificate of Analysis

Report Date: 17-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 6-Mar-2025

Client PO: 62544

Project Description: PE6468

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
SAR	45.2	0.01	N/A	47.7			5.5	30	
Conductivity	1310	5	uS/cm	1340			1.9	5	
pH	10.46	0.05	pH Units	10.39			0.7	2.3	
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g	ND			NC	40	
F2 PHCs (C10-C16)	ND	4	ug/g	ND			NC	30	
F3 PHCs (C16-C34)	32	8	ug/g	39			18.3	30	
F4 PHCs (C34-C50)	ND	6	ug/g	ND			NC	30	
Metals									
Antimony	2.6	1.0	ug/g	2.5			4.3	30	
Arsenic	2.9	1.0	ug/g	3.4			14.0	30	
Barium	81.0	1.0	ug/g	85.7			5.7	30	
Beryllium	ND	0.5	ug/g	ND			NC	30	
Boron	14.6	5.0	ug/g	15.9			8.4	30	
Cadmium	ND	0.5	ug/g	ND			NC	30	
Chromium (VI)	ND	0.2	ug/g	ND			NC	35	
Chromium	12.9	5.0	ug/g	14.3			10.2	30	
Cobalt	4.0	1.0	ug/g	4.7			14.7	30	
Copper	24.7	5.0	ug/g	29.8			18.5	30	
Lead	231	1.0	ug/g	287			21.9	30	
Mercury	ND	0.1	ug/g	ND			NC	30	
Molybdenum	ND	1.0	ug/g	ND			NC	30	
Nickel	9.6	5.0	ug/g	10.6			9.7	30	
Selenium	ND	1.0	ug/g	ND			NC	30	
Silver	ND	0.3	ug/g	ND			NC	30	
Thallium	ND	1.0	ug/g	ND			NC	30	
Uranium	ND	1.0	ug/g	ND			NC	30	
Vanadium	15.8	10.0	ug/g	17.9			12.4	30	
Zinc	67.9	20.0	ug/g	71.4			4.9	30	

Physical Characteristics

Certificate of Analysis

Report Date: 17-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 6-Mar-2025

Client PO: 62544

Project Description: PE6468

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
% Solids	90.5	0.1	% by Wt.	90.9			0.5	25	
Volatiles									
Benzene	ND	0.02	ug/g	ND			NC	50	
Ethylbenzene	ND	0.05	ug/g	ND			NC	50	
Toluene	ND	0.05	ug/g	ND			NC	50	
m,p-Xylenes	ND	0.05	ug/g	ND			NC	50	
o-Xylene	ND	0.05	ug/g	ND			NC	50	
Surrogate: Toluene-d8	9.31		%		104	50-140			

Certificate of Analysis

Report Date: 17-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 6-Mar-2025

Client PO: 62544

Project Description: PE6468

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	177	7	ug/g	ND	103	85-115			
F2 PHCs (C10-C16)	103	4	ug/g	ND	108	60-140			
F3 PHCs (C16-C34)	304	8	ug/g	39	114	60-140			
F4 PHCs (C34-C50)	161	6	ug/g	ND	109	60-140			
Metals									
Arsenic	48.2	1.0	ug/g	1.3	93.7	70-130			
Barium	80.4	1.0	ug/g	34.3	92.2	70-130			
Beryllium	48.1	0.5	ug/g	ND	95.9	70-130			
Boron	52.1	5.0	ug/g	6.3	91.4	70-130			
Cadmium	45.6	0.5	ug/g	ND	90.9	70-130			
Chromium (VI)	3.5	0.2	ug/g	ND	63.0	48-112			
Chromium	56.9	5.0	ug/g	5.7	102	70-130			
Cobalt	50.6	1.0	ug/g	1.9	97.5	70-130			
Copper	54.5	5.0	ug/g	11.9	85.1	70-130			
Lead	368	1.0	ug/g	310	115	70-130			
Mercury	1.55	0.1	ug/g	ND	103	70-130			
Molybdenum	45.6	1.0	ug/g	ND	90.6	70-130			
Nickel	51.7	5.0	ug/g	ND	94.9	70-130			
Selenium	46.3	1.0	ug/g	ND	92.1	70-130			
Silver	36.8	0.3	ug/g	ND	73.5	70-130			
Thallium	46.2	1.0	ug/g	ND	92.2	70-130			
Uranium	47.0	1.0	ug/g	ND	93.6	70-130			
Vanadium	57.9	10.0	ug/g	ND	102	70-130			
Zinc	71.3	20.0	ug/g	28.5	85.6	70-130			
Volatiles									
Benzene	3.59	0.02	ug/g	ND	89.8	60-130			
Ethylbenzene	4.17	0.05	ug/g	ND	104	60-130			
Toluene	3.82	0.05	ug/g	ND	95.6	60-130			
m,p-Xylenes	7.87	0.05	ug/g	ND	98.3	60-130			
o-Xylene	4.03	0.05	ug/g	ND	101	60-130			

Certificate of Analysis

Report Date: 17-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 6-Mar-2025

Client PO: 62544

Project Description: PE6468

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Surrogate: Toluene-d8	7.90		%		98.7	50-140			

Certificate of Analysis

Report Date: 17-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 6-Mar-2025

Client PO: 62544

Project Description: PE6468

Qualifier Notes:

Sample Data Revisions:

None

Work Order Revisions / Comments:

Revision 1 - Revised report includes additional mercury and CrVI analysis, per client request.

Other Report Notes:

n/a: not applicable

ND: Not Detected

MDL: Method Detection Limit

Source Result: Data used as source for matrix and duplicate samples

%REC: Percent recovery.

RPD: Relative percent difference.

NC: Not Calculated

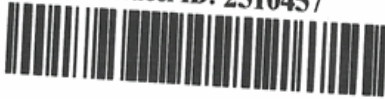
Soil results are reported on a dry weight basis unless otherwise noted.

Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

CCME PHC additional information:

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

Any use of these results implies your agreement that our total liability in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstances be liable to you in connection with this work.



Client Name: <u>Peterson</u>	Project Ref: <u>PE6468</u>	Page <u>1</u> of <u>1</u>
Contact Name: <u>Jesse Andrecheck</u>	Quote #:	Turnaround Time ☐ 1 day ☐ 3 day ☐ 2 day ☒ Regular
Address: <u>9 Ariga drive</u>	PO #: <u>62544</u>	
Telephone: <u>613 226 7351</u>	E-mail: <u>Jandrecheck@petersongroup.ca</u> <u>mbyok@petersongroup.ca</u>	
Date Required: _____		

☒ REG 153/04 ☐ REG 406/19		Other Regulation		Matrix Type: <u>S</u> (Soil/Sed.) <u>GW</u> (Ground Water) <u>SW</u> (Surface Water) <u>SS</u> (Storm/Sanitary Sewer) <u>P</u> (Paint) <u>A</u> (Air) <u>O</u> (Other)		Required Analysis														
☐ Table 1 ☐ Res/Park ☐ Med/Fine ☐ Table 2 ☐ Ind/Comm ☐ Coarse ☐ Table 3 ☐ Agri/Other ☐ Table _____ For RSC: ☐ Yes ☐ No	☐ REG 558 ☐ PWQO ☐ CCME ☐ MISA ☐ SU - Sani ☐ SU - Storm Mun: _____ ☐ Other: _____	Matrix	Air Volume	# of Containers	Sample Taken	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	<u>EC/SAR</u>	<u>PA</u>						
Sample ID/Location Name					Date	Time														
1 <u>BH1-25 AUI</u>		<u>5</u>		<u>2</u>	<u>March 5/25</u>		<u>X</u>		<u>X</u>				<u>X</u>	<u>X</u>						
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				

Comments:				Method of Delivery: <u>Parcel Courier</u>			
Relinquished By (Sign): <u>Mark Byok</u>	Received By Driver/Depot:	Received at Lab: <u>SD</u>	Verified By: <u>SD</u>				
Relinquished By (Print): <u>Mark Byok</u>	Date/Time:	Date/Time: <u>Mar 6, 2025 4:00pm</u>	Date/Time: <u>Mar 6, 2025 4:22pm</u>				
Date/Time: <u>March 6th 2025</u>	Temperature: _____ °C	Temperature: <u>9.4</u>	pH Verified: ☐ By: _____				

Certificate of Analysis

Paterson Group Consulting Engineers (Ottawa)

9 Auriga Drive
Ottawa, ON K2E 7T9
Attn: Jesse Andrechek

Client PO: 62565
Project: PE6468
Custody:

Report Date: 14-Mar-2025

Order Date: 10-Mar-2025

Order #: 2511091

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

Paracel ID	Client ID
2511091-01	BH6-25-SS5
2511091-02	BH8-25-AU1
2511091-03	BH9-25-AU1
2511091-04	BH9-25-SS2+SS3
2511091-05	BH10-25 SS3
2511091-06	BH11-25 AU1
2511091-07	BH12-25 AU1
2511091-08	DUP1-25

Approved By:



Mark Foto, M.Sc.

Laboratory Director

Certificate of Analysis

Report Date: 14-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 10-Mar-2025

Client PO: 62565

Project Description: PE6468

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX by P&T GC-MS	EPA 8260 - P&T GC-MS	11-Mar-25	12-Mar-25
Chromium, hexavalent - soil	MOE E3056 - Extraction, colourimetric	12-Mar-25	12-Mar-25
Conductivity	MOE E3138 - probe @25 °C, water ext	12-Mar-25	12-Mar-25
Mercury by CVAA	EPA 7471B - CVAA, digestion	12-Mar-25	12-Mar-25
PCBs, total	SW846 8082A - GC-ECD	11-Mar-25	11-Mar-25
pH, soil	EPA 150.1 - pH probe @ 25 °C, CaCl buffered ext.	12-Mar-25	12-Mar-25
PHC F1	CWS Tier 1 - P&T GC-FID	11-Mar-25	12-Mar-25
PHC F4G (gravimetric)	CWS Tier 1 - Extraction Gravimetric	12-Mar-25	13-Mar-25
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	12-Mar-25	12-Mar-25
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	12-Mar-25	12-Mar-25
REG 153: PAHs by GC-MS	EPA 8270 - GC-MS, extraction	12-Mar-25	13-Mar-25
REG 153: VOCs by P&T GC/MS	EPA 8260 - P&T GC-MS	11-Mar-25	12-Mar-25
SAR	Calculated	12-Mar-25	12-Mar-25
Solids, %	CWS Tier 1 - Gravimetric	11-Mar-25	12-Mar-25

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Report Date: 14-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 10-Mar-2025

Client PO: 62565

Project Description: PE6468

Client ID:	BH6-25-SS5	BH8-25-AU1	BH9-25-AU1	BH9-25-SS2+SS3		
Sample Date:	07-Mar-25 09:00	07-Mar-25 09:00	08-Mar-25 09:00	08-Mar-25 09:00	-	-
Sample ID:	2511091-01	2511091-02	2511091-03	2511091-04		
Matrix:	Soil	Soil	Soil	Soil		
MDL/Units						

Physical Characteristics

% Solids	0.1 % by Wt.	71.3	97.0	92.3	86.8	-	-
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General Inorganics

SAR	0.01 N/A	5.33	2.34	17.7	-	-	-
Conductivity	5 uS/cm	1100	347	2120	-	-	-
pH	0.05 pH Units	7.58	-	-	-	-	-

Metals

Antimony	1.0 ug/g	<1.0	<1.0	<1.0	-	-	-
Arsenic	1.0 ug/g	3.3	1.4	2.8	-	-	-
Barium	1.0 ug/g	288	12.3	125	-	-	-
Beryllium	0.5 ug/g	0.7	<0.5	<0.5	-	-	-
Boron	5.0 ug/g	8.6	9.3	12.7	-	-	-
Cadmium	0.5 ug/g	<0.5	<0.5	<0.5	-	-	-
Chromium (VI)	0.2 ug/g	-	<0.2	<0.2	-	-	-
Chromium	5.0 ug/g	40.1	8.0	13.4	-	-	-
Cobalt	1.0 ug/g	12.3	2.4	5.2	-	-	-
Copper	5.0 ug/g	24.5	<5.0	11.8	-	-	-
Lead	1.0 ug/g	5.4	6.4	8.2	-	-	-
Mercury	0.1 ug/g	-	<0.1	<0.1	-	-	-
Molybdenum	1.0 ug/g	<1.0	<1.0	<1.0	-	-	-
Nickel	5.0 ug/g	25.7	6.5	10.7	-	-	-
Selenium	1.0 ug/g	<1.0	<1.0	<1.0	-	-	-
Silver	0.3 ug/g	<0.3	<0.3	<0.3	-	-	-
Thallium	1.0 ug/g	<1.0	<1.0	<1.0	-	-	-
Uranium	1.0 ug/g	<1.0	<1.0	<1.0	-	-	-
Vanadium	10.0 ug/g	52.9	10.3	18.8	-	-	-

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Client ID:	BH6-25-SS5	BH8-25-AU1	BH9-25-AU1	BH9-25-SS2+SS3	-	-
Sample Date:	07-Mar-25 09:00	07-Mar-25 09:00	08-Mar-25 09:00	08-Mar-25 09:00	-	-
Sample ID:	2511091-01	2511091-02	2511091-03	2511091-04	-	-
Matrix:	Soil	Soil	Soil	Soil	-	-
MDL/Units						

Metals

Zinc	20.0 ug/g	60.9	<20.0	<20.0	-	-	-
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Volatiles

Acetone	0.50 ug/g	-	-	-	<0.50	-	-
Benzene	0.02 ug/g	-	-	-	<0.02	-	-
Bromodichloromethane	0.05 ug/g	-	-	-	<0.05	-	-
Bromoform	0.05 ug/g	-	-	-	<0.05	-	-
Bromomethane	0.05 ug/g	-	-	-	<0.05	-	-
Carbon Tetrachloride	0.05 ug/g	-	-	-	<0.05	-	-
Chlorobenzene	0.05 ug/g	-	-	-	<0.05	-	-
Chloroform	0.05 ug/g	-	-	-	<0.05	-	-
Dibromochloromethane	0.05 ug/g	-	-	-	<0.05	-	-
Dichlorodifluoromethane	0.05 ug/g	-	-	-	<0.05	-	-
1,2-Dichlorobenzene	0.05 ug/g	-	-	-	<0.05	-	-
1,3-Dichlorobenzene	0.05 ug/g	-	-	-	<0.05	-	-
1,4-Dichlorobenzene	0.05 ug/g	-	-	-	<0.05	-	-
1,1-Dichloroethane	0.05 ug/g	-	-	-	<0.05	-	-
1,2-Dichloroethane	0.05 ug/g	-	-	-	<0.05	-	-
1,1-Dichloroethylene	0.05 ug/g	-	-	-	<0.05	-	-
cis-1,2-Dichloroethylene	0.05 ug/g	-	-	-	<0.05	-	-
trans-1,2-Dichloroethylene	0.05 ug/g	-	-	-	<0.05	-	-
1,2-Dichloropropane	0.05 ug/g	-	-	-	<0.05	-	-
cis-1,3-Dichloropropylene	0.05 ug/g	-	-	-	<0.05	-	-
trans-1,3-Dichloropropylene	0.05 ug/g	-	-	-	<0.05	-	-
1,3-Dichloropropene, total	0.05 ug/g	-	-	-	<0.05	-	-
Ethylene dibromide (dibromoethane,	0.05 ug/g	-	-	-	<0.05	-	-

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Client ID:	BH6-25-SS5	BH8-25-AU1	BH9-25-AU1	BH9-25-SS2+SS3	-	-
Sample Date:	07-Mar-25 09:00	07-Mar-25 09:00	08-Mar-25 09:00	08-Mar-25 09:00	-	-
Sample ID:	2511091-01	2511091-02	2511091-03	2511091-04	-	-
Matrix:	Soil	Soil	Soil	Soil	-	-
MDL/Units						

Volatiles

Ethylbenzene	0.05 ug/g	-	-	-	<0.05	-	-
Hexane	0.05 ug/g	-	-	-	<0.05	-	-
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g	-	-	-	<0.50	-	-
Methyl Isobutyl Ketone	0.50 ug/g	-	-	-	<0.50	-	-
Methyl tert-butyl ether	0.05 ug/g	-	-	-	<0.05	-	-
Methylene Chloride	0.05 ug/g	-	-	-	<0.05	-	-
Styrene	0.05 ug/g	-	-	-	<0.05	-	-
1,1,1,2-Tetrachloroethane	0.05 ug/g	-	-	-	<0.05	-	-
1,1,2,2-Tetrachloroethane	0.05 ug/g	-	-	-	<0.05	-	-
Tetrachloroethylene	0.05 ug/g	-	-	-	<0.05	-	-
Toluene	0.05 ug/g	-	-	-	<0.05	-	-
1,1,1-Trichloroethane	0.05 ug/g	-	-	-	<0.05	-	-
1,1,2-Trichloroethane	0.05 ug/g	-	-	-	<0.05	-	-
Trichloroethylene	0.05 ug/g	-	-	-	<0.05	-	-
Trichlorofluoromethane	0.05 ug/g	-	-	-	<0.05	-	-
Vinyl chloride	0.02 ug/g	-	-	-	<0.02	-	-
m,p-Xylenes	0.05 ug/g	-	-	-	<0.05	-	-
o-Xylene	0.05 ug/g	-	-	-	<0.05	-	-
Xylenes, total	0.05 ug/g	-	-	-	<0.05	-	-
Dibromofluoromethane	Surrogate	-	-	-	84.5%	-	-
4-Bromofluorobenzene	Surrogate	-	-	-	112%	-	-
Toluene-d8	Surrogate	-	-	-	119%	-	-
Benzene	0.02 ug/g	<0.02	<0.02	-	-	-	-
Ethylbenzene	0.05 ug/g	<0.05	<0.05	-	-	-	-
Toluene	0.05 ug/g	<0.05	<0.05	-	-	-	-

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Client ID:	BH6-25-SS5	BH8-25-AU1	BH9-25-AU1	BH9-25-SS2+SS3		
Sample Date:	07-Mar-25 09:00	07-Mar-25 09:00	08-Mar-25 09:00	08-Mar-25 09:00	-	-
Sample ID:	2511091-01	2511091-02	2511091-03	2511091-04		
Matrix:	Soil	Soil	Soil	Soil		
MDL/Units						

Volatiles

m,p-Xylenes	0.05 ug/g	<0.05	0.08	-	-	-	-
o-Xylene	0.05 ug/g	<0.05	<0.05	-	-	-	-
Xylenes, total	0.05 ug/g	<0.05	0.08	-	-	-	-
Toluene-d8	Surrogate	128%	106%	-	-	-	-

Hydrocarbons

F1 PHCs (C6-C10)	7 ug/g	<7	<7	-	<7	-	-
F2 PHCs (C10-C16)	4 ug/g	<4	<4	-	<4	-	-
F3 PHCs (C16-C34)	8 ug/g	<8	103	-	15	-	-
F4 PHCs (C34-C50)	6 ug/g	<6	132 [1]	-	18	-	-
F4G PHCs (gravimetric)	50 ug/g	-	784	-	-	-	-

PCBs

PCBs, total	0.05 ug/g	-	-	-	<0.05	-	-
Decachlorobiphenyl	Surrogate	-	-	-	136%	-	-

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Order Date: 10-Mar-2025

Client PO: 62565

Project Description: PE6468

Client ID:	BH10-25 SS3	BH11-25 AU1	BH12-25 AU1	DUP1-25		
Sample Date:	08-Mar-25 09:00	09-Mar-25 09:00	09-Mar-25 09:00	09-Mar-25 09:00	-	-
Sample ID:	2511091-05	2511091-06	2511091-07	2511091-08		
Matrix:	Soil	Soil	Soil	Soil		
MDL/Units						

Physical Characteristics

% Solids	0.1 % by Wt.	86.7	94.8	89.7	89.4	-	-
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General Inorganics

SAR	0.01 N/A	1.42	7.07	3.31	3.67	-	-
Conductivity	5 uS/cm	414	1420	857	895	-	-

Metals

Antimony	1.0 ug/g	<1.0	<1.0	<1.0	<1.0	-	-
Arsenic	1.0 ug/g	5.6	1.8	3.5	3.8	-	-
Barium	1.0 ug/g	215	104	46.9	47.1	-	-
Beryllium	0.5 ug/g	0.6	<0.5	<0.5	0.5	-	-
Boron	5.0 ug/g	7.2	14.9	8.8	10.1	-	-
Cadmium	0.5 ug/g	<0.5	<0.5	<0.5	<0.5	-	-
Chromium (VI)	0.2 ug/g	<0.2	<0.2	<0.2	<0.2	-	-
Chromium	5.0 ug/g	15.0	10.4	12.5	13.1	-	-
Cobalt	1.0 ug/g	5.3	5.3	3.7	3.8	-	-
Copper	5.0 ug/g	9.6	8.7	6.1	6.3	-	-
Lead	1.0 ug/g	20.8	8.3	13.0	13.0	-	-
Mercury	0.1 ug/g	<0.1	<0.1	<0.1	<0.1	-	-
Molybdenum	1.0 ug/g	<1.0	<1.0	<1.0	<1.0	-	-
Nickel	5.0 ug/g	11.7	11.9	8.1	8.2	-	-
Selenium	1.0 ug/g	<1.0	<1.0	<1.0	<1.0	-	-
Silver	0.3 ug/g	<0.3	<0.3	<0.3	<0.3	-	-
Thallium	1.0 ug/g	<1.0	<1.0	<1.0	<1.0	-	-
Uranium	1.0 ug/g	<1.0	<1.0	<1.0	<1.0	-	-
Vanadium	10.0 ug/g	16.2	12.7	13.4	14.9	-	-
Zinc	20.0 ug/g	30.9	<20.0	28.0	29.2	-	-

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Client ID:	BH10-25 SS3	BH11-25 AU1	BH12-25 AU1	DUP1-25		
Sample Date:	08-Mar-25 09:00	09-Mar-25 09:00	09-Mar-25 09:00	09-Mar-25 09:00	-	-
Sample ID:	2511091-05	2511091-06	2511091-07	2511091-08		
Matrix:	Soil	Soil	Soil	Soil		
MDL/Units						

Volatiles

Acetone	0.50 ug/g	<0.50	-	<0.50	<0.50	-	-
Benzene	0.02 ug/g	<0.02	-	<0.02	<0.02	-	-
Bromodichloromethane	0.05 ug/g	<0.05	-	<0.05	<0.05	-	-
Bromoform	0.05 ug/g	<0.05	-	<0.05	<0.05	-	-
Bromomethane	0.05 ug/g	<0.05	-	<0.05	<0.05	-	-
Carbon Tetrachloride	0.05 ug/g	<0.05	-	<0.05	<0.05	-	-
Chlorobenzene	0.05 ug/g	<0.05	-	<0.05	<0.05	-	-
Chloroform	0.05 ug/g	<0.05	-	<0.05	<0.05	-	-
Dibromochloromethane	0.05 ug/g	<0.05	-	<0.05	<0.05	-	-
Dichlorodifluoromethane	0.05 ug/g	<0.05	-	<0.05	<0.05	-	-
1,2-Dichlorobenzene	0.05 ug/g	<0.05	-	<0.05	<0.05	-	-
1,3-Dichlorobenzene	0.05 ug/g	<0.05	-	<0.05	<0.05	-	-
1,4-Dichlorobenzene	0.05 ug/g	<0.05	-	<0.05	<0.05	-	-
1,1-Dichloroethane	0.05 ug/g	<0.05	-	<0.05	<0.05	-	-
1,2-Dichloroethane	0.05 ug/g	<0.05	-	<0.05	<0.05	-	-
1,1-Dichloroethylene	0.05 ug/g	<0.05	-	<0.05	<0.05	-	-
cis-1,2-Dichloroethylene	0.05 ug/g	<0.05	-	<0.05	<0.05	-	-
trans-1,2-Dichloroethylene	0.05 ug/g	<0.05	-	<0.05	<0.05	-	-
1,2-Dichloropropane	0.05 ug/g	<0.05	-	<0.05	<0.05	-	-
cis-1,3-Dichloropropylene	0.05 ug/g	<0.05	-	<0.05	<0.05	-	-
trans-1,3-Dichloropropylene	0.05 ug/g	<0.05	-	<0.05	<0.05	-	-
1,3-Dichloropropene, total	0.05 ug/g	<0.05	-	<0.05	<0.05	-	-
Ethylene dibromide (dibromoethane,	0.05 ug/g	<0.05	-	<0.05	<0.05	-	-
Ethylbenzene	0.05 ug/g	<0.05	-	<0.05	<0.05	-	-
Hexane	0.05 ug/g	<0.05	-	<0.05	<0.05	-	-

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Client ID:	BH10-25 SS3	BH11-25 AU1	BH12-25 AU1	DUP1-25		
Sample Date:	08-Mar-25 09:00	09-Mar-25 09:00	09-Mar-25 09:00	09-Mar-25 09:00	-	-
Sample ID:	2511091-05	2511091-06	2511091-07	2511091-08		
Matrix:	Soil	Soil	Soil	Soil		
MDL/Units						

Volatiles

Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g	<0.50	-	<0.50	<0.50	-	-
Methyl Isobutyl Ketone	0.50 ug/g	<0.50	-	<0.50	<0.50	-	-
Methyl tert-butyl ether	0.05 ug/g	<0.05	-	<0.05	<0.05	-	-
Methylene Chloride	0.05 ug/g	<0.05	-	<0.05	<0.05	-	-
Styrene	0.05 ug/g	<0.05	-	<0.05	<0.05	-	-
1,1,1,2-Tetrachloroethane	0.05 ug/g	<0.05	-	<0.05	<0.05	-	-
1,1,2,2-Tetrachloroethane	0.05 ug/g	<0.05	-	<0.05	<0.05	-	-
Tetrachloroethylene	0.05 ug/g	<0.05	-	<0.05	<0.05	-	-
Toluene	0.05 ug/g	<0.05	-	<0.05	<0.05	-	-
1,1,1-Trichloroethane	0.05 ug/g	<0.05	-	<0.05	<0.05	-	-
1,1,2-Trichloroethane	0.05 ug/g	<0.05	-	<0.05	<0.05	-	-
Trichloroethylene	0.05 ug/g	<0.05	-	<0.05	<0.05	-	-
Trichlorofluoromethane	0.05 ug/g	<0.05	-	<0.05	<0.05	-	-
Vinyl chloride	0.02 ug/g	<0.02	-	<0.02	<0.02	-	-
m,p-Xylenes	0.05 ug/g	<0.05	-	<0.05	<0.05	-	-
o-Xylene	0.05 ug/g	<0.05	-	<0.05	<0.05	-	-
Xylenes, total	0.05 ug/g	<0.05	-	<0.05	<0.05	-	-
Toluene-d8	Surrogate	117%	-	117%	117%	-	-
Dibromofluoromethane	Surrogate	83.2%	-	86.1%	84.8%	-	-
4-Bromofluorobenzene	Surrogate	111%	-	113%	112%	-	-
Benzene	0.02 ug/g	-	<0.02	-	-	-	-
Ethylbenzene	0.05 ug/g	-	<0.05	-	-	-	-
Toluene	0.05 ug/g	-	<0.05	-	-	-	-
m,p-Xylenes	0.05 ug/g	-	0.19	-	-	-	-
o-Xylene	0.05 ug/g	-	<0.05	-	-	-	-

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Client PO: 62565

Project Description: PE6468

Client ID:	BH10-25 SS3	BH11-25 AU1	BH12-25 AU1	DUP1-25		
Sample Date:	08-Mar-25 09:00	09-Mar-25 09:00	09-Mar-25 09:00	09-Mar-25 09:00	-	-
Sample ID:	2511091-05	2511091-06	2511091-07	2511091-08		
Matrix:	Soil	Soil	Soil	Soil		
MDL/Units						

Volatiles

Xylenes, total	0.05 ug/g	-	0.19	-	-	-	-
Toluene-d8	Surrogate	-	107%	-	-	-	-

Hydrocarbons

F1 PHCs (C6-C10)	7 ug/g	<7	<7	<7	<7	-	-
F2 PHCs (C10-C16)	4 ug/g	<4	<4	<4	<4	-	-
F3 PHCs (C16-C34)	8 ug/g	16	267	15	20	-	-
F4 PHCs (C34-C50)	6 ug/g	11	370 [1]	14	21	-	-
F4G PHCs (gravimetric)	50 ug/g	-	1470	-	-	-	-

Semi-Volatiles

Acenaphthene	0.02 ug/g	<0.02	-	-	-	-	-
Acenaphthylene	0.02 ug/g	<0.02	-	-	-	-	-
Anthracene	0.02 ug/g	<0.02	-	-	-	-	-
Benzo [a] anthracene	0.02 ug/g	0.05	-	-	-	-	-
Benzo [a] pyrene	0.02 ug/g	0.04	-	-	-	-	-
Benzo [b] fluoranthene	0.02 ug/g	0.05	-	-	-	-	-
Benzo [g,h,i] perylene	0.02 ug/g	0.02	-	-	-	-	-
Benzo [k] fluoranthene	0.02 ug/g	<0.02	-	-	-	-	-
Chrysene	0.02 ug/g	0.05	-	-	-	-	-
Dibenzo [a,h] anthracene	0.02 ug/g	<0.02	-	-	-	-	-
Fluoranthene	0.02 ug/g	0.11	-	-	-	-	-
Fluorene	0.02 ug/g	<0.02	-	-	-	-	-
Indeno [1,2,3-cd] pyrene	0.02 ug/g	0.02	-	-	-	-	-
1-Methylnaphthalene	0.02 ug/g	<0.02	-	-	-	-	-
2-Methylnaphthalene	0.02 ug/g	<0.02	-	-	-	-	-
Methylnaphthalene (1&2)	0.04 ug/g	<0.04	-	-	-	-	-

Certificate of Analysis

Report Date: 14-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 10-Mar-2025

Client PO: 62565

Project Description: PE6468

Client ID:	BH10-25 SS3	BH11-25 AU1	BH12-25 AU1	DUP1-25	
Sample Date:	08-Mar-25 09:00	09-Mar-25 09:00	09-Mar-25 09:00	09-Mar-25 09:00	-
Sample ID:	2511091-05	2511091-06	2511091-07	2511091-08	-
Matrix:	Soil	Soil	Soil	Soil	
MDL/Units					

Semi-Volatiles

Naphthalene	0.01 ug/g	<0.01	-	-	-	-
Phenanthrene	0.02 ug/g	0.06	-	-	-	-
Pyrene	0.02 ug/g	0.07	-	-	-	-
2-Fluorobiphenyl	Surrogate	93.2%	-	-	-	-
Terphenyl-d14	Surrogate	97.4%	-	-	-	-

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Report Date: 14-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 10-Mar-2025

Client PO: 62565

Project Description: PE6468

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics								
Conductivity	ND	5	uS/cm					
Hydrocarbons								
F1 PHCs (C6-C10)	ND	7	ug/g					
F2 PHCs (C10-C16)	ND	4	ug/g					
F3 PHCs (C16-C34)	ND	8	ug/g					
F4 PHCs (C34-C50)	ND	6	ug/g					
F4G PHCs (gravimetric)	ND	50	ug/g					
Metals								
Antimony	ND	1.0	ug/g					
Arsenic	ND	1.0	ug/g					
Barium	ND	1.0	ug/g					
Beryllium	ND	0.5	ug/g					
Boron	ND	5.0	ug/g					
Cadmium	ND	0.5	ug/g					
Chromium (VI)	ND	0.2	ug/g					
Chromium	ND	5.0	ug/g					
Cobalt	ND	1.0	ug/g					
Copper	ND	5.0	ug/g					
Lead	ND	1.0	ug/g					
Mercury	ND	0.1	ug/g					
Molybdenum	ND	1.0	ug/g					
Nickel	ND	5.0	ug/g					
Selenium	ND	1.0	ug/g					
Silver	ND	0.3	ug/g					
Thallium	ND	1.0	ug/g					
Uranium	ND	1.0	ug/g					
Vanadium	ND	10.0	ug/g					
Zinc	ND	20.0	ug/g					
PCBs								
PCBs, total	ND	0.05	ug/g					
Surrogate: Decachlorobiphenyl	0.0680		%	136	60-140			
Semi-Volatiles								

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Report Date: 14-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 10-Mar-2025

Client PO: 62565

Project Description: PE6468

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
Acenaphthene	ND	0.02	ug/g					
Acenaphthylene	ND	0.02	ug/g					
Anthracene	ND	0.02	ug/g					
Benzo [a] anthracene	ND	0.02	ug/g					
Benzo [a] pyrene	ND	0.02	ug/g					
Benzo [b] fluoranthene	ND	0.02	ug/g					
Benzo [g,h,i] perylene	ND	0.02	ug/g					
Benzo [k] fluoranthene	ND	0.02	ug/g					
Chrysene	ND	0.02	ug/g					
Dibenzo [a,h] anthracene	ND	0.02	ug/g					
Fluoranthene	ND	0.02	ug/g					
Fluorene	ND	0.02	ug/g					
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g					
1-Methylnaphthalene	ND	0.02	ug/g					
2-Methylnaphthalene	ND	0.02	ug/g					
Methylnaphthalene (1&2)	ND	0.04	ug/g					
Naphthalene	ND	0.01	ug/g					
Phenanthrene	ND	0.02	ug/g					
Pyrene	ND	0.02	ug/g					
Surrogate: 2-Fluorobiphenyl	1.28		%	95.7	50-140			
Surrogate: Terphenyl-d14	1.36		%	102	50-140			
Volatiles								
Acetone	ND	0.50	ug/g					
Benzene	ND	0.02	ug/g					
Bromodichloromethane	ND	0.05	ug/g					
Bromoform	ND	0.05	ug/g					
Bromomethane	ND	0.05	ug/g					
Carbon Tetrachloride	ND	0.05	ug/g					
Chlorobenzene	ND	0.05	ug/g					
Chloroform	ND	0.05	ug/g					
Dibromochloromethane	ND	0.05	ug/g					
Dichlorodifluoromethane	ND	0.05	ug/g					

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Client: Paterson Group Consulting Engineers (Ottawa)

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Client PO: 62565

Project Description: PE6468

Method Quality Control: Blank

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

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Project Description: PE6468

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
Surrogate: 4-Bromofluorobenzene	8.48		%	106	50-140			
Surrogate: Dibromofluoromethane	6.26		%	78.2	50-140			
Surrogate: Toluene-d8	9.08		%	113	50-140			
Benzene	ND	0.02	ug/g					
Ethylbenzene	ND	0.05	ug/g					
Toluene	ND	0.05	ug/g					
m,p-Xylenes	ND	0.05	ug/g					
o-Xylene	ND	0.05	ug/g					
Xylenes, total	ND	0.05	ug/g					
Surrogate: Toluene-d8	9.08		%	113	50-140			

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Report Date: 14-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 10-Mar-2025

Client PO: 62565

Project Description: PE6468

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
SAR	1.45	0.01	N/A	1.80			21.5	30	QR-05
Conductivity	203	5	uS/cm	231			13.1	5	
pH	7.60	0.05	pH Units	7.58			0.3	2.3	
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g	ND			NC	40	
F2 PHCs (C10-C16)	ND	4	ug/g	ND			NC	30	
F3 PHCs (C16-C34)	ND	8	ug/g	ND			NC	30	
F4 PHCs (C34-C50)	ND	6	ug/g	ND			NC	30	
Metals									
Antimony	ND	1.0	ug/g	ND			NC	30	
Arsenic	1.4	1.0	ug/g	1.0			27.5	30	
Barium	8.8	1.0	ug/g	8.0			9.9	30	
Beryllium	ND	0.5	ug/g	ND			NC	30	
Boron	ND	5.0	ug/g	ND			NC	30	
Cadmium	ND	0.5	ug/g	ND			NC	30	
Chromium (VI)	ND	0.2	ug/g	ND			NC	35	
Chromium	6.6	5.0	ug/g	6.2			6.0	30	
Cobalt	2.0	1.0	ug/g	1.9			6.8	30	
Copper	ND	5.0	ug/g	ND			NC	30	
Lead	1.9	1.0	ug/g	1.6			14.1	30	
Mercury	ND	0.1	ug/g	ND			NC	30	
Molybdenum	ND	1.0	ug/g	ND			NC	30	
Nickel	ND	5.0	ug/g	ND			NC	30	
Selenium	ND	1.0	ug/g	ND			NC	30	
Silver	ND	0.3	ug/g	ND			NC	30	
Thallium	ND	1.0	ug/g	ND			NC	30	
Uranium	ND	1.0	ug/g	ND			NC	30	
Vanadium	11.8	10.0	ug/g	11.0			7.3	30	
Zinc	ND	20.0	ug/g	ND			NC	30	

PCBs

Certificate of Analysis

Report Date: 14-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

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Client PO: 62565

Project Description: PE6468

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
PCBs, total	ND	0.05	ug/g	ND			NC	40	
Surrogate: Decachlorobiphenyl	0.0732		%		135	60-140			
Physical Characteristics									
% Solids	77.4	0.1	% by Wt.	78.6			1.6	25	
Semi-Volatiles									
Acenaphthene	0.042	0.02	ug/g	0.048			12.3	40	
Acenaphthylene	0.057	0.02	ug/g	0.088			43.3	40	QR-04
Anthracene	0.101	0.02	ug/g	0.186			59.2	40	QR-04
Benzo [a] anthracene	0.428	0.02	ug/g	0.616			35.9	40	
Benzo [a] pyrene	0.385	0.02	ug/g	0.556			36.2	40	
Benzo [b] fluoranthene	0.498	0.02	ug/g	0.712			35.2	40	
Benzo [g,h,i] perylene	0.225	0.02	ug/g	0.028			156.0	40	QR-04
Benzo [k] fluoranthene	0.136	0.02	ug/g	0.267			64.9	40	QR-04
Chrysene	0.483	0.02	ug/g	0.720			39.5	40	
Dibenzo [a,h] anthracene	0.029	0.02	ug/g	0.039			28.1	40	
Fluoranthene	0.595	0.02	ug/g	0.880			38.6	40	
Fluorene	0.089	0.02	ug/g	0.107			17.8	40	
Indeno [1,2,3-cd] pyrene	0.268	0.02	ug/g	0.370			32.0	40	
1-Methylnaphthalene	2.26	0.02	ug/g	3.02			28.6	40	
2-Methylnaphthalene	3.08	0.02	ug/g	4.06			27.5	40	
Naphthalene	1.59	0.01	ug/g	2.25			34.5	40	
Phenanthrene	1.15	0.02	ug/g	1.62			34.0	40	
Pyrene	0.457	0.02	ug/g	0.663			36.8	40	
Surrogate: 2-Fluorobiphenyl	1.06		%		73.4	50-140			
Surrogate: Terphenyl-d14	1.06		%		73.2	50-140			
Volatiles									
Acetone	ND	0.50	ug/g	ND			NC	50	
Benzene	ND	0.02	ug/g	ND			NC	50	
Bromodichloromethane	ND	0.05	ug/g	ND			NC	50	
Bromoform	ND	0.05	ug/g	ND			NC	50	
Bromomethane	ND	0.05	ug/g	ND			NC	50	

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Project Description: PE6468

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Carbon Tetrachloride	ND	0.05	ug/g	ND			NC	50	
Chlorobenzene	ND	0.05	ug/g	ND			NC	50	
Chloroform	ND	0.05	ug/g	ND			NC	50	
Dibromochloromethane	ND	0.05	ug/g	ND			NC	50	
Dichlorodifluoromethane	ND	0.05	ug/g	ND			NC	50	
1,2-Dichlorobenzene	ND	0.05	ug/g	ND			NC	50	
1,3-Dichlorobenzene	ND	0.05	ug/g	ND			NC	50	
1,4-Dichlorobenzene	ND	0.05	ug/g	ND			NC	50	
1,1-Dichloroethane	ND	0.05	ug/g	ND			NC	50	
1,2-Dichloroethane	ND	0.05	ug/g	ND			NC	50	
1,1-Dichloroethylene	ND	0.05	ug/g	ND			NC	50	
cis-1,2-Dichloroethylene	ND	0.05	ug/g	ND			NC	50	
trans-1,2-Dichloroethylene	ND	0.05	ug/g	ND			NC	50	
1,2-Dichloropropane	ND	0.05	ug/g	ND			NC	50	
cis-1,3-Dichloropropylene	ND	0.05	ug/g	ND			NC	50	
trans-1,3-Dichloropropylene	ND	0.05	ug/g	ND			NC	50	
Ethylbenzene	ND	0.05	ug/g	ND			NC	50	
Ethylene dibromide (dibromoethane, 1,2-)	ND	0.05	ug/g	ND			NC	50	
Hexane	ND	0.05	ug/g	ND			NC	50	
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g	ND			NC	50	
Methyl Isobutyl Ketone	ND	0.50	ug/g	ND			NC	50	
Methyl tert-butyl ether	ND	0.05	ug/g	ND			NC	50	
Methylene Chloride	ND	0.05	ug/g	ND			NC	50	
Styrene	ND	0.05	ug/g	ND			NC	50	
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g	ND			NC	50	
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g	ND			NC	50	
Tetrachloroethylene	ND	0.05	ug/g	ND			NC	50	
Toluene	ND	0.05	ug/g	ND			NC	50	
1,1,1-Trichloroethane	ND	0.05	ug/g	ND			NC	50	
1,1,2-Trichloroethane	ND	0.05	ug/g	ND			NC	50	
Trichloroethylene	ND	0.05	ug/g	ND			NC	50	

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Client: Paterson Group Consulting Engineers (Ottawa)

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Project Description: PE6468

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Trichlorofluoromethane	ND	0.05	ug/g	ND			NC	50	
Vinyl chloride	ND	0.02	ug/g	ND			NC	50	
m,p-Xylenes	ND	0.05	ug/g	ND			NC	50	
o-Xylene	ND	0.05	ug/g	ND			NC	50	
Surrogate: 4-Bromofluorobenzene	9.57		%		111	50-140			
Surrogate: Dibromofluoromethane	7.16		%		82.7	50-140			
Surrogate: Toluene-d8	10.2		%		118	50-140			
Benzene	ND	0.02	ug/g	ND			NC	50	
Ethylbenzene	ND	0.05	ug/g	ND			NC	50	
Toluene	ND	0.05	ug/g	ND			NC	50	
m,p-Xylenes	ND	0.05	ug/g	ND			NC	50	
o-Xylene	ND	0.05	ug/g	ND			NC	50	
Surrogate: Toluene-d8	10.2		%		118	50-140			

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Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 10-Mar-2025

Client PO: 62565

Project Description: PE6468

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	163	7	ug/g	ND	94.7	85-115			
F2 PHCs (C10-C16)	101	4	ug/g	ND	103	60-140			
F3 PHCs (C16-C34)	265	8	ug/g	ND	110	60-140			
F4 PHCs (C34-C50)	140	6	ug/g	ND	92.4	60-140			
F4G PHCs (gravimetric)	850	50	ug/g	ND	85.0	80-120			
Metals									
Arsenic	54.1	1.0	ug/g	ND	107	70-130			
Barium	53.4	1.0	ug/g	3.2	100	70-130			
Beryllium	55.6	0.5	ug/g	ND	111	70-130			
Boron	55.5	5.0	ug/g	ND	109	70-130			
Cadmium	50.6	0.5	ug/g	ND	101	70-130			
Chromium (VI)	4.3	0.2	ug/g	ND	83.0	48-112			
Chromium	58.2	5.0	ug/g	ND	111	70-130			
Cobalt	55.5	1.0	ug/g	ND	109	70-130			
Copper	55.0	5.0	ug/g	ND	107	70-130			
Lead	51.0	1.0	ug/g	ND	101	70-130			
Mercury	1.50	0.1	ug/g	ND	100	70-130			
Molybdenum	51.9	1.0	ug/g	ND	103	70-130			
Nickel	56.1	5.0	ug/g	ND	109	70-130			
Selenium	50.8	1.0	ug/g	ND	101	70-130			
Silver	43.9	0.3	ug/g	ND	87.8	70-130			
Thallium	53.1	1.0	ug/g	ND	106	70-130			
Uranium	55.4	1.0	ug/g	ND	111	70-130			
Vanadium	59.8	10.0	ug/g	ND	111	70-130			
Zinc	55.3	20.0	ug/g	ND	102	70-130			
PCBs									
PCBs, total	0.488	0.05	ug/g	ND	112	60-140			
Surrogate: Decachlorobiphenyl	0.0687		%		126	60-140			
Semi-Volatiles									
Acenaphthene	0.190	0.02	ug/g	0.048	78.3	50-140			

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Order Date: 10-Mar-2025

Client PO: 62565

Project Description: PE6468

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Acenaphthylene	0.267	0.02	ug/g	0.088	99.1	50-140			
Anthracene	0.327	0.02	ug/g	0.186	77.7	50-140			
Benzo [a] anthracene	0.809	0.02	ug/g	0.616	106	50-140			
Benzo [a] pyrene	0.698	0.02	ug/g	0.556	78.5	50-140			
Benzo [g,h,i] perylene	0.162	0.02	ug/g	ND	97.1	50-140			
Benzo [k] fluoranthene	0.346	0.02	ug/g	0.267	43.7	50-140			QM-04
Chrysene	0.965	0.02	ug/g	0.720	135	50-140			
Dibenzo [a,h] anthracene	0.262	0.02	ug/g	0.039	123	50-140			
Fluoranthene	1.08	0.02	ug/g	0.880	109	50-140			
Fluorene	0.237	0.02	ug/g	0.107	72.1	50-140			
Indeno [1,2,3-cd] pyrene	0.518	0.02	ug/g	0.370	81.6	50-140			
1-Methylnaphthalene	0.154	0.02	ug/g	ND	92.7	50-140			
2-Methylnaphthalene	0.174	0.02	ug/g	ND	105	50-140			
Naphthalene	0.162	0.01	ug/g	ND	97.4	50-140			
Phenanthrene	0.190	0.02	ug/g	ND	114	50-140			
Pyrene	0.801	0.02	ug/g	0.663	75.8	50-140			
Surrogate: 2-Fluorobiphenyl	1.11		%		76.6	50-140			
Surrogate: Terphenyl-d14	1.10		%		76.1	50-140			
Volatiles									
Acetone	11.7	0.50	ug/g	ND	117	50-140			
Benzene	4.83	0.02	ug/g	ND	121	60-130			
Bromodichloromethane	3.74	0.05	ug/g	ND	93.4	60-130			
Bromoform	3.49	0.05	ug/g	ND	87.3	60-130			
Bromomethane	3.25	0.05	ug/g	ND	81.2	50-140			
Carbon Tetrachloride	3.38	0.05	ug/g	ND	84.5	60-130			
Chlorobenzene	4.27	0.05	ug/g	ND	107	60-130			
Chloroform	3.90	0.05	ug/g	ND	97.6	60-130			
Dibromochloromethane	3.56	0.05	ug/g	ND	89.0	60-130			
Dichlorodifluoromethane	3.60	0.05	ug/g	ND	90.0	50-140			
1,2-Dichlorobenzene	3.86	0.05	ug/g	ND	96.4	60-130			
1,3-Dichlorobenzene	3.87	0.05	ug/g	ND	96.7	60-130			

Certificate of Analysis

Report Date: 14-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 10-Mar-2025

Client PO: 62565

Project Description: PE6468

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
1,4-Dichlorobenzene	3.91	0.05	ug/g	ND	97.7	60-130			
1,1-Dichloroethane	4.53	0.05	ug/g	ND	113	60-130			
1,2-Dichloroethane	4.06	0.05	ug/g	ND	101	60-130			
1,1-Dichloroethylene	3.77	0.05	ug/g	ND	94.3	60-130			
cis-1,2-Dichloroethylene	3.63	0.05	ug/g	ND	90.8	60-130			
trans-1,2-Dichloroethylene	3.04	0.05	ug/g	ND	75.9	60-130			
1,2-Dichloropropane	4.27	0.05	ug/g	ND	107	60-130			
cis-1,3-Dichloropropylene	4.36	0.05	ug/g	ND	109	60-130			
trans-1,3-Dichloropropylene	4.42	0.05	ug/g	ND	111	60-130			
Ethylbenzene	4.45	0.05	ug/g	ND	111	60-130			
Ethylene dibromide (dibromoethane, 1,2-)	3.39	0.05	ug/g	ND	84.7	60-130			
Hexane	4.38	0.05	ug/g	ND	109	60-130			
Methyl Ethyl Ketone (2-Butanone)	9.84	0.50	ug/g	ND	98.4	50-140			
Methyl Isobutyl Ketone	11.1	0.50	ug/g	ND	111	50-140			
Methyl tert-butyl ether	11.6	0.05	ug/g	ND	116	50-140			
Methylene Chloride	4.39	0.05	ug/g	ND	110	60-130			
Styrene	4.24	0.05	ug/g	ND	106	60-130			
1,1,1,2-Tetrachloroethane	3.55	0.05	ug/g	ND	88.9	60-130			
1,1,2,2-Tetrachloroethane	3.72	0.05	ug/g	ND	92.9	60-130			
Tetrachloroethylene	3.61	0.05	ug/g	ND	90.4	60-130			
Toluene	4.77	0.05	ug/g	ND	119	60-130			
1,1,1-Trichloroethane	3.78	0.05	ug/g	ND	94.4	60-130			
1,1,2-Trichloroethane	3.83	0.05	ug/g	ND	95.7	60-130			
Trichloroethylene	3.57	0.05	ug/g	ND	89.2	60-130			
Trichlorofluoromethane	3.55	0.05	ug/g	ND	88.7	50-140			
Vinyl chloride	3.30	0.02	ug/g	ND	82.5	50-140			
m,p-Xylenes	9.09	0.05	ug/g	ND	114	60-130			
o-Xylene	4.62	0.05	ug/g	ND	116	60-130			
Surrogate: 4-Bromofluorobenzene	7.40		%		92.5	50-140			
Surrogate: Dibromofluoromethane	6.65		%		83.1	50-140			
Surrogate: Toluene-d8	7.77		%		97.1	50-140			

Certificate of Analysis

Report Date: 14-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 10-Mar-2025

Client PO: 62565

Project Description: PE6468

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Benzene	4.83	0.02	ug/g	ND	121	60-130			
Ethylbenzene	4.45	0.05	ug/g	ND	111	60-130			
Toluene	4.77	0.05	ug/g	ND	119	60-130			
m,p-Xylenes	9.09	0.05	ug/g	ND	114	60-130			
o-Xylene	4.62	0.05	ug/g	ND	116	60-130			
Surrogate: Toluene-d8	7.77		%		97.1	50-140			

Certificate of Analysis

Client: Paterson Group Consulting Engineers (Ottawa)

Client PO: 62565

Report Date: 14-Mar-2025

Order Date: 10-Mar-2025

Project Description: PE6468

Qualifier Notes:**Sample Qualifiers :**

- 1: GC-FID signal did not return to baseline by C50
Applies to Samples: BH8-25-AU1, BH11-25 AU1

QC Qualifiers:

- QM-04 Visual evaluation of the sample indicates the RPD is above the control limit due to a non-homogeneous sample matrix.
QR-04 Duplicate results exceeds RPD limits due to non-homogeneous matrix.
QR-05 Duplicate RPDs higher than normally accepted. Remaining batch QA\QC was acceptable. May be sample effect.

Sample Data Revisions:

None

Certificate of Analysis

Client: Paterson Group Consulting Engineers (Ottawa)

Client PO: 62565

Report Date: 14-Mar-2025

Order Date: 10-Mar-2025

Project Description: PE6468

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable

ND: Not Detected

MDL: Method Detection Limit

Source Result: Data used as source for matrix and duplicate samples

%REC: Percent recovery.

RPD: Relative percent difference.

NC: Not Calculated

Soil results are reported on a dry weight basis unless otherwise noted.

Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

CCME PHC additional information:

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

Any use of these results implies your agreement that our total liability in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstances be liable to you in connection with this work.



Client Name: Peterson Group	Project Ref: PE6468	Page 1 of 1
Contact Name: Jesse Andrechek	Quote #:	Turnaround Time ☐ 1 day ☐ 3 day ☐ 2 day ☒ Regular
Address: 9 Huriga Drive	PO #: 62565	
Telephone: 613 226 7381	E-mail: jandrechek@petersongroup.ca	
Date Required:		

☒ REG 153/04 ☐ REG 406/19		Other Regulation		Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)		Required Analysis											
☐ Table 1 ☒ Res/Park ☐ Med/Fine ☐ Table 2 ☐ Ind/Comm ☒ Coarse ☒ Table 3 ☐ Agri/Other ☐ Table _____ For RSC: ☒ Yes ☐ No	☐ REG 558 ☐ PWQO ☐ CCME ☐ MISA ☐ SU - Sani ☐ SU - Storm Mun: _____ ☐ Other: _____	Matrix	Air Volume	# of Containers	Sample Taken Date	Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	EC/SAR	pH	PCRS	
Sample ID/Location Name																	
1 BH6-25-SS5		S		2	7/03/25	—	✓			✓				✓	✓		
2 BH8-25-AV1		S		2	7/03/25	—	✓			✓	✓	✓		✓			
3 BH9-25-AV1		S		2	8/03/25	—				✓	✓	✓		✓			
4 BH9-25 SS2+SS3		S		2	8/03/25	—	✓	✓							✓		
5																	
6 BH10-25 SS3		S		2	8/03/25	—	✓	✓	✓	✓	✓	✓		✓			
7 BH11-25 AV1		S		2	9/03/25	—	✓			✓	✓	✓		✓			
8 BH12-25 AV1		S		2	9/03/25	—	✓	✓		✓	✓	✓		✓			
9 DUPI-25		S		2	9/03/25	—	✓	✓		✓	✓	✓		✓			
10																	

Comments:				Method of Delivery: Parcel Courier			
Relinquished By (Sign): Katharina Barley		Received By Driver/Depot:		Received at Lab: So		Verified By: So	
Relinquished By (Print): Katharina Barley		Date/Time: 3/10/25 2:00pm		Date/Time: Mar 10, 2025 3:45p		Date/Time: Mar 10, 2025 4:29pm	
Date/Time: 3/10/25 2:00pm		Temperature: _____ °C		Temperature: 17.3		pH Verified: ☐ By: _____	

Certificate of Analysis

Paterson Group Consulting Engineers (Ottawa)

9 Auriga Drive
Ottawa, ON K2E 7T9
Attn: Jesse Andrechek

Client PO: 62620
Project: PE6468
Custody:

Report Date: 21-Mar-2025

Order Date: 17-Mar-2025

Order #: 2512073

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

Paracel ID	Client ID
2512073-01	BH13-25-SS1
2512073-02	BH14-25-SS1+SS2
2512073-03	BH15-25-SS1+SS2
2512073-04	BH16-25-SS1+SS2

Approved By:



Mark Foto, M.Sc.

Laboratory Director

Certificate of Analysis

Report Date: 21-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 17-Mar-2025

Client PO: 62620

Project Description: PE6468

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Chromium, hexavalent - soil	MOE E3056 - Extraction, colourimetric	21-Mar-25	21-Mar-25
Conductivity	MOE E3138 - probe @25 °C, water ext	19-Mar-25	19-Mar-25
Mercury by CVAA	EPA 7471B - CVAA, digestion	19-Mar-25	20-Mar-25
PHC F1	CWS Tier 1 - P&T GC-FID	18-Mar-25	18-Mar-25
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	18-Mar-25	18-Mar-25
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	18-Mar-25	19-Mar-25
REG 153: PAHs by GC-MS	EPA 8270 - GC-MS, extraction	20-Mar-25	20-Mar-25
REG 153: VOCs by P&T GC/MS	EPA 8260 - P&T GC-MS	18-Mar-25	18-Mar-25
SAR	Calculated	19-Mar-25	19-Mar-25
Solids, %	CWS Tier 1 - Gravimetric	18-Mar-25	19-Mar-25

Certificate of Analysis

Report Date: 21-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 17-Mar-2025

Client PO: 62620

Project Description: PE6468

Client ID:	BH13-25-SS1	BH14-25-SS1+SS2	BH15-25-SS1+SS2	BH16-25-SS1+SS2	-	-
Sample Date:	15-Mar-25 09:00	16-Mar-25 09:00	16-Mar-25 09:00	16-Mar-25 09:00	-	-
Sample ID:	2512073-01	2512073-02	2512073-03	2512073-04	-	-
Matrix:	Soil	Soil	Soil	Soil	-	-
MDL/Units						

Physical Characteristics

% Solids	0.1 % by Wt.	80.2	95.4	83.1	96.7	-	-
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General Inorganics

SAR	0.01 N/A	5.46	-	1.35	-	-	-
Conductivity	5 uS/cm	2240	-	1020	-	-	-

Metals

Antimony	1.0 ug/g	<1.0	<1.0	<1.0	<1.0	-	-
Arsenic	1.0 ug/g	6.2	2.6	4.7	2.6	-	-
Barium	1.0 ug/g	132	98.0	190	198	-	-
Beryllium	0.5 ug/g	0.8	<0.5	0.8	<0.5	-	-
Boron	5.0 ug/g	8.7	12.0	14.6	18.3	-	-
Cadmium	0.5 ug/g	<0.5	<0.5	<0.5	<0.5	-	-
Chromium	5.0 ug/g	26.4	16.4	27.5	15.0	-	-
Chromium (VI)	0.2 ug/g	<0.2	<0.2	<0.2	<0.2	-	-
Cobalt	1.0 ug/g	8.9	7.1	9.6	7.0	-	-
Copper	5.0 ug/g	12.8	12.6	19.6	12.4	-	-
Lead	1.0 ug/g	16.1	11.1	11.4	12.3	-	-
Mercury	0.1 ug/g	0.1	<0.1	<0.1	<0.1	-	-
Molybdenum	1.0 ug/g	<1.0	<1.0	<1.0	1.0	-	-
Nickel	5.0 ug/g	16.9	13.7	20.3	14.2	-	-
Selenium	1.0 ug/g	<1.0	<1.0	<1.0	<1.0	-	-
Silver	0.3 ug/g	0.5	0.3	0.5	0.3	-	-
Thallium	1.0 ug/g	<1.0	<1.0	<1.0	<1.0	-	-
Uranium	1.0 ug/g	<1.0	<1.0	<1.0	<1.0	-	-
Vanadium	10.0 ug/g	33.0	19.5	34.5	11.7	-	-
Zinc	20.0 ug/g	50.0	23.5	34.0	<20.0	-	-

Certificate of Analysis

Report Date: 21-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 17-Mar-2025

Client PO: 62620

Project Description: PE6468

Client ID:	BH13-25-SS1	BH14-25-SS1+SS2	BH15-25-SS1+SS2	BH16-25-SS1+SS2	-	-
Sample Date:	15-Mar-25 09:00	16-Mar-25 09:00	16-Mar-25 09:00	16-Mar-25 09:00	-	-
Sample ID:	2512073-01	2512073-02	2512073-03	2512073-04	-	-
Matrix:	Soil	Soil	Soil	Soil	-	-
MDL/Units						

Volatiles

Acetone	0.50 ug/g	<0.50	<0.50	<0.50	<0.50	-	-
Benzene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
Bromodichloromethane	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
Bromoform	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
Bromomethane	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
Carbon Tetrachloride	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
Chlorobenzene	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
Chloroform	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
Dibromochloromethane	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
Dichlorodifluoromethane	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
1,2-Dichlorobenzene	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
1,3-Dichlorobenzene	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
1,4-Dichlorobenzene	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
1,1-Dichloroethane	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
1,2-Dichloroethane	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
1,1-Dichloroethylene	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
cis-1,2-Dichloroethylene	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
trans-1,2-Dichloroethylene	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
1,2-Dichloropropane	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
cis-1,3-Dichloropropylene	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
trans-1,3-Dichloropropylene	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
1,3-Dichloropropene, total	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
Ethylbenzene	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
Ethylene dibromide (dibromoethane,	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
Hexane	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-

Certificate of Analysis

Report Date: 21-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 17-Mar-2025

Client PO: 62620

Project Description: PE6468

Client ID:	BH13-25-SS1	BH14-25-SS1+SS2	BH15-25-SS1+SS2	BH16-25-SS1+SS2	-	-
Sample Date:	15-Mar-25 09:00	16-Mar-25 09:00	16-Mar-25 09:00	16-Mar-25 09:00	-	-
Sample ID:	2512073-01	2512073-02	2512073-03	2512073-04	-	-
Matrix:	Soil	Soil	Soil	Soil	-	-
MDL/Units						

Volatiles

Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g	<0.50	<0.50	<0.50	<0.50	-	-
Methyl Isobutyl Ketone	0.50 ug/g	<0.50	<0.50	<0.50	<0.50	-	-
Methyl tert-butyl ether	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
Methylene Chloride	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
Styrene	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
1,1,1,2-Tetrachloroethane	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
1,1,2,2-Tetrachloroethane	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
Tetrachloroethylene	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
Toluene	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
1,1,1-Trichloroethane	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
1,1,2-Trichloroethane	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
Trichloroethylene	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
Trichlorofluoromethane	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
Vinyl chloride	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
m,p-Xylenes	0.05 ug/g	<0.05	0.11	<0.05	<0.05	-	-
o-Xylene	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
Xylenes, total	0.05 ug/g	<0.05	0.11	<0.05	<0.05	-	-
Toluene-d8	Surrogate	111%	105%	115%	105%	-	-
Dibromofluoromethane	Surrogate	106%	113%	115%	110%	-	-
4-Bromofluorobenzene	Surrogate	92.3%	93.6%	101%	92.5%	-	-

Hydrocarbons

F1 PHCs (C6-C10)	7 ug/g	<7	<7	<7	<7	-	-
F2 PHCs (C10-C16)	4 ug/g	<4	<4	<4	<4	-	-
F3 PHCs (C16-C34)	8 ug/g	<8	10	<8	20 [2]	-	-
F4 PHCs (C34-C50)	6 ug/g	<6	7	<6	7	-	-

Certificate of Analysis

Report Date: 21-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 17-Mar-2025

Client PO: 62620

Project Description: PE6468

Client ID:	BH13-25-SS1	BH14-25-SS1+SS2	BH15-25-SS1+SS2	BH16-25-SS1+SS2	-	-
Sample Date:	15-Mar-25 09:00	16-Mar-25 09:00	16-Mar-25 09:00	16-Mar-25 09:00	-	-
Sample ID:	2512073-01	2512073-02	2512073-03	2512073-04	-	-
Matrix:	Soil	Soil	Soil	Soil	-	-
MDL/Units						

Semi-Volatiles

Acenaphthene	0.02 ug/g	-	-	<0.02	-	-
Acenaphthylene	0.02 ug/g	-	-	<0.02	-	-
Anthracene	0.02 ug/g	-	-	<0.02	-	-
Benzo [a] anthracene	0.02 ug/g	-	-	<0.02	-	-
Benzo [a] pyrene	0.02 ug/g	-	-	<0.02	-	-
Benzo [b] fluoranthene	0.02 ug/g	-	-	<0.02	-	-
Benzo [g,h,i] perylene	0.02 ug/g	-	-	<0.02	-	-
Benzo [k] fluoranthene	0.02 ug/g	-	-	<0.02	-	-
Chrysene	0.02 ug/g	-	-	<0.02	-	-
Dibenzo [a,h] anthracene	0.02 ug/g	-	-	<0.02	-	-
Fluoranthene	0.02 ug/g	-	-	<0.02	-	-
Fluorene	0.02 ug/g	-	-	<0.02	-	-
Indeno [1,2,3-cd] pyrene	0.02 ug/g	-	-	<0.02	-	-
1-Methylnaphthalene	0.02 ug/g	-	-	<0.02	-	-
2-Methylnaphthalene	0.02 ug/g	-	-	<0.02	-	-
Methylnaphthalene (1&2)	0.04 ug/g	-	-	<0.04	-	-
Naphthalene	0.01 ug/g	-	-	<0.01	-	-
Phenanthrene	0.02 ug/g	-	-	<0.02	-	-
Pyrene	0.02 ug/g	-	-	<0.02	-	-
2-Fluorobiphenyl	Surrogate	-	-	86.3%	-	-
Terphenyl-d14	Surrogate	-	-	90.2%	-	-

Certificate of Analysis

Report Date: 21-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 17-Mar-2025

Client PO: 62620

Project Description: PE6468

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics								
Conductivity	ND	5	uS/cm					
Hydrocarbons								
F1 PHCs (C6-C10)	ND	7	ug/g					
F2 PHCs (C10-C16)	ND	4	ug/g					
F3 PHCs (C16-C34)	ND	8	ug/g					
F4 PHCs (C34-C50)	ND	6	ug/g					
Metals								
Antimony	ND	1.0	ug/g					
Arsenic	ND	1.0	ug/g					
Barium	ND	1.0	ug/g					
Beryllium	ND	0.5	ug/g					
Boron	ND	5.0	ug/g					
Cadmium	ND	0.5	ug/g					
Chromium (VI)	ND	0.2	ug/g					
Chromium	ND	5.0	ug/g					
Cobalt	ND	1.0	ug/g					
Copper	ND	5.0	ug/g					
Lead	ND	1.0	ug/g					
Mercury	ND	0.1	ug/g					
Molybdenum	ND	1.0	ug/g					
Nickel	ND	5.0	ug/g					
Selenium	ND	1.0	ug/g					
Silver	ND	0.3	ug/g					
Thallium	ND	1.0	ug/g					
Uranium	ND	1.0	ug/g					
Vanadium	ND	10.0	ug/g					
Zinc	ND	20.0	ug/g					
Semi-Volatiles								
Acenaphthene	ND	0.02	ug/g					
Acenaphthylene	ND	0.02	ug/g					
Anthracene	ND	0.02	ug/g					
Benzo [a] anthracene	ND	0.02	ug/g					

Certificate of Analysis

Report Date: 21-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 17-Mar-2025

Client PO: 62620

Project Description: PE6468

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
Benzo [a] pyrene	ND	0.02	ug/g					
Benzo [b] fluoranthene	ND	0.02	ug/g					
Benzo [g,h,i] perylene	ND	0.02	ug/g					
Benzo [k] fluoranthene	ND	0.02	ug/g					
Chrysene	ND	0.02	ug/g					
Dibenzo [a,h] anthracene	ND	0.02	ug/g					
Fluoranthene	ND	0.02	ug/g					
Fluorene	ND	0.02	ug/g					
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g					
1-Methylnaphthalene	ND	0.02	ug/g					
2-Methylnaphthalene	ND	0.02	ug/g					
Methylnaphthalene (1&2)	ND	0.04	ug/g					
Naphthalene	ND	0.01	ug/g					
Phenanthrene	ND	0.02	ug/g					
Pyrene	ND	0.02	ug/g					
Surrogate: 2-Fluorobiphenyl	1.09		%	82.0	50-140			
Surrogate: Terphenyl-d14	1.16		%	86.8	50-140			
Volatiles								
Acetone	ND	0.50	ug/g					
Benzene	ND	0.02	ug/g					
Bromodichloromethane	ND	0.05	ug/g					
Bromoform	ND	0.05	ug/g					
Bromomethane	ND	0.05	ug/g					
Carbon Tetrachloride	ND	0.05	ug/g					
Chlorobenzene	ND	0.05	ug/g					
Chloroform	ND	0.05	ug/g					
Dibromochloromethane	ND	0.05	ug/g					
Dichlorodifluoromethane	ND	0.05	ug/g					
1,2-Dichlorobenzene	ND	0.05	ug/g					
1,3-Dichlorobenzene	ND	0.05	ug/g					
1,4-Dichlorobenzene	ND	0.05	ug/g					
1,1-Dichloroethane	ND	0.05	ug/g					

Certificate of Analysis

Report Date: 21-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 17-Mar-2025

Client PO: 62620

Project Description: PE6468

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
1,2-Dichloroethane	ND	0.05	ug/g					
1,1-Dichloroethylene	ND	0.05	ug/g					
cis-1,2-Dichloroethylene	ND	0.05	ug/g					
trans-1,2-Dichloroethylene	ND	0.05	ug/g					
1,2-Dichloropropane	ND	0.05	ug/g					
cis-1,3-Dichloropropylene	ND	0.05	ug/g					
trans-1,3-Dichloropropylene	ND	0.05	ug/g					
1,3-Dichloropropene, total	ND	0.05	ug/g					
Ethylbenzene	ND	0.05	ug/g					
Ethylene dibromide (dibromoethane, 1,2-)	ND	0.05	ug/g					
Hexane	ND	0.05	ug/g					
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g					
Methyl Isobutyl Ketone	ND	0.50	ug/g					
Methyl tert-butyl ether	ND	0.05	ug/g					
Methylene Chloride	ND	0.05	ug/g					
Styrene	ND	0.05	ug/g					
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g					
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g					
Tetrachloroethylene	ND	0.05	ug/g					
Toluene	ND	0.05	ug/g					
1,1,1-Trichloroethane	ND	0.05	ug/g					
1,1,2-Trichloroethane	ND	0.05	ug/g					
Trichloroethylene	ND	0.05	ug/g					
Trichlorofluoromethane	ND	0.05	ug/g					
Vinyl chloride	ND	0.02	ug/g					
m,p-Xylenes	ND	0.05	ug/g					
o-Xylene	ND	0.05	ug/g					
Xylenes, total	ND	0.05	ug/g					
Surrogate: 4-Bromofluorobenzene	7.30		%	91.2	50-140			
Surrogate: Dibromofluoromethane	6.33		%	79.1	50-140			
Surrogate: Toluene-d8	8.30		%	104	50-140			

Certificate of Analysis

Report Date: 21-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 17-Mar-2025

Client PO: 62620

Project Description: PE6468

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
SAR	5.31	0.01	N/A	5.46			2.8	30	
Conductivity	182	5	uS/cm	180			0.9	5	
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g	ND			NC	40	
F2 PHCs (C10-C16)	ND	4	ug/g	ND			NC	30	
F3 PHCs (C16-C34)	ND	8	ug/g	ND			NC	30	
F4 PHCs (C34-C50)	ND	6	ug/g	ND			NC	30	
Metals									
Antimony	ND	1.0	ug/g	ND			NC	30	
Arsenic	5.5	1.0	ug/g	6.2			10.9	30	
Barium	126	1.0	ug/g	132			4.5	30	
Beryllium	0.8	0.5	ug/g	0.8			3.1	30	
Boron	8.6	5.0	ug/g	8.7			1.2	30	
Cadmium	ND	0.5	ug/g	ND			NC	30	
Chromium (VI)	ND	0.2	ug/g	ND			NC	35	
Chromium	23.7	5.0	ug/g	26.4			10.8	30	
Cobalt	8.0	1.0	ug/g	8.9			10.4	30	
Copper	11.6	5.0	ug/g	12.8			10.1	30	
Lead	14.1	1.0	ug/g	16.1			12.7	30	
Mercury	0.134	0.1	ug/g	0.130			3.0	30	
Molybdenum	ND	1.0	ug/g	ND			NC	30	
Nickel	15.7	5.0	ug/g	16.9			7.7	30	
Selenium	ND	1.0	ug/g	ND			NC	30	
Silver	0.7	0.3	ug/g	0.5			NC	30	
Thallium	ND	1.0	ug/g	ND			NC	30	
Uranium	ND	1.0	ug/g	ND			NC	30	
Vanadium	29.0	10.0	ug/g	33.0			13.0	30	
Zinc	46.4	20.0	ug/g	50.0			7.5	30	
Physical Characteristics									
% Solids	74.7	0.1	% by Wt.	75.0			0.3	25	

Certificate of Analysis

Report Date: 21-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 17-Mar-2025

Client PO: 62620

Project Description: PE6468

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g	ND			NC	40	
Acenaphthylene	ND	0.02	ug/g	ND			NC	40	
Anthracene	ND	0.02	ug/g	ND			NC	40	
Benzo [a] anthracene	ND	0.02	ug/g	ND			NC	40	
Benzo [a] pyrene	ND	0.02	ug/g	ND			NC	40	
Benzo [b] fluoranthene	ND	0.02	ug/g	ND			NC	40	
Benzo [g,h,i] perylene	ND	0.02	ug/g	ND			NC	40	
Benzo [k] fluoranthene	ND	0.02	ug/g	ND			NC	40	
Chrysene	ND	0.02	ug/g	ND			NC	40	
Dibenzo [a,h] anthracene	ND	0.02	ug/g	ND			NC	40	
Fluoranthene	ND	0.02	ug/g	ND			NC	40	
Fluorene	ND	0.02	ug/g	ND			NC	40	
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g	ND			NC	40	
1-Methylnaphthalene	ND	0.02	ug/g	ND			NC	40	
2-Methylnaphthalene	ND	0.02	ug/g	ND			NC	40	
Naphthalene	ND	0.01	ug/g	ND			NC	40	
Phenanthrene	ND	0.02	ug/g	ND			NC	40	
Pyrene	ND	0.02	ug/g	ND			NC	40	
Surrogate: 2-Fluorobiphenyl	1.17		%		80.3	50-140			
Surrogate: Terphenyl-d14	1.24		%		85.4	50-140			
Volatiles									
Acetone	ND	0.50	ug/g	ND			NC	50	
Benzene	ND	0.02	ug/g	ND			NC	50	
Bromodichloromethane	ND	0.05	ug/g	ND			NC	50	
Bromoform	ND	0.05	ug/g	ND			NC	50	
Bromomethane	ND	0.05	ug/g	ND			NC	50	
Carbon Tetrachloride	ND	0.05	ug/g	ND			NC	50	
Chlorobenzene	ND	0.05	ug/g	ND			NC	50	
Chloroform	ND	0.05	ug/g	ND			NC	50	
Dibromochloromethane	ND	0.05	ug/g	ND			NC	50	

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Report Date: 21-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 17-Mar-2025

Client PO: 62620

Project Description: PE6468

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Dichlorodifluoromethane	ND	0.05	ug/g	ND			NC	50	
1,2-Dichlorobenzene	ND	0.05	ug/g	ND			NC	50	
1,3-Dichlorobenzene	ND	0.05	ug/g	ND			NC	50	
1,4-Dichlorobenzene	ND	0.05	ug/g	ND			NC	50	
1,1-Dichloroethane	ND	0.05	ug/g	ND			NC	50	
1,2-Dichloroethane	ND	0.05	ug/g	ND			NC	50	
1,1-Dichloroethylene	ND	0.05	ug/g	ND			NC	50	
cis-1,2-Dichloroethylene	ND	0.05	ug/g	ND			NC	50	
trans-1,2-Dichloroethylene	ND	0.05	ug/g	ND			NC	50	
1,2-Dichloropropane	ND	0.05	ug/g	ND			NC	50	
cis-1,3-Dichloropropylene	ND	0.05	ug/g	ND			NC	50	
trans-1,3-Dichloropropylene	ND	0.05	ug/g	ND			NC	50	
Ethylbenzene	ND	0.05	ug/g	ND			NC	50	
Ethylene dibromide (dibromoethane, 1,2-)	ND	0.05	ug/g	ND			NC	50	
Hexane	ND	0.05	ug/g	ND			NC	50	
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g	ND			NC	50	
Methyl Isobutyl Ketone	ND	0.50	ug/g	ND			NC	50	
Methyl tert-butyl ether	ND	0.05	ug/g	ND			NC	50	
Methylene Chloride	ND	0.05	ug/g	ND			NC	50	
Styrene	ND	0.05	ug/g	ND			NC	50	
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g	ND			NC	50	
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g	ND			NC	50	
Tetrachloroethylene	ND	0.05	ug/g	ND			NC	50	
Toluene	ND	0.05	ug/g	ND			NC	50	
1,1,1-Trichloroethane	ND	0.05	ug/g	ND			NC	50	
1,1,2-Trichloroethane	ND	0.05	ug/g	ND			NC	50	
Trichloroethylene	ND	0.05	ug/g	ND			NC	50	
Trichlorofluoromethane	ND	0.05	ug/g	ND			NC	50	
Vinyl chloride	ND	0.02	ug/g	ND			NC	50	
m,p-Xylenes	ND	0.05	ug/g	ND			NC	50	
o-Xylene	ND	0.05	ug/g	ND			NC	50	

Certificate of Analysis

Report Date: 21-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 17-Mar-2025

Client PO: 62620

Project Description: PE6468

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Surrogate: 4-Bromofluorobenzene	10.3		%		101	50-140			
Surrogate: Dibromofluoromethane	9.98		%		97.9	50-140			
Surrogate: Toluene-d8	11.0		%		108	50-140			

Certificate of Analysis

Report Date: 21-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 17-Mar-2025

Client PO: 62620

Project Description: PE6468

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	189	7	ug/g	ND	110	85-115			
F2 PHCs (C10-C16)	135	4	ug/g	ND	99.2	60-140			
F3 PHCs (C16-C34)	360	8	ug/g	ND	108	60-140			
F4 PHCs (C34-C50)	199	6	ug/g	ND	94.3	60-140			
Metals									
Arsenic	50.1	1.0	ug/g	2.5	95.2	70-130			
Barium	98.3	1.0	ug/g	52.9	91.0	70-130			
Beryllium	50.2	0.5	ug/g	ND	99.9	70-130			
Boron	50.5	5.0	ug/g	ND	94.0	70-130			
Cadmium	49.8	0.5	ug/g	ND	99.3	70-130			
Chromium (VI)	0.1	0.2	ug/g	ND	71.5	48-112			
Chromium	62.2	5.0	ug/g	10.6	103	70-130			
Cobalt	55.0	1.0	ug/g	3.5	103	70-130			
Copper	53.8	5.0	ug/g	5.1	97.3	70-130			
Lead	53.2	1.0	ug/g	6.4	93.5	70-130			
Mercury	1.64	0.1	ug/g	0.130	101	70-130			
Molybdenum	48.8	1.0	ug/g	ND	97.0	70-130			
Nickel	56.3	5.0	ug/g	6.8	99.0	70-130			
Selenium	49.8	1.0	ug/g	ND	99.1	70-130			
Silver	45.7	0.3	ug/g	ND	90.9	70-130			
Thallium	47.4	1.0	ug/g	ND	94.6	70-130			
Uranium	50.6	1.0	ug/g	ND	100	70-130			
Vanadium	62.5	10.0	ug/g	13.2	98.6	70-130			
Zinc	65.7	20.0	ug/g	20.0	91.3	70-130			
Semi-Volatiles									
Acenaphthene	0.181	0.02	ug/g	ND	99.8	50-140			
Acenaphthylene	0.186	0.02	ug/g	ND	102	50-140			
Anthracene	0.204	0.02	ug/g	ND	112	50-140			
Benzo [a] anthracene	0.217	0.02	ug/g	ND	119	50-140			
Benzo [a] pyrene	0.204	0.02	ug/g	ND	112	50-140			

Certificate of Analysis

Report Date: 21-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 17-Mar-2025

Client PO: 62620

Project Description: PE6468

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Benzo [b] fluoranthene	0.145	0.02	ug/g	ND	80.0	50-140			
Benzo [g,h,i] perylene	0.174	0.02	ug/g	ND	96.1	50-140			
Benzo [k] fluoranthene	0.183	0.02	ug/g	ND	101	50-140			
Chrysene	0.208	0.02	ug/g	ND	114	50-140			
Dibenzo [a,h] anthracene	0.185	0.02	ug/g	ND	102	50-140			
Fluoranthene	0.221	0.02	ug/g	ND	122	50-140			
Fluorene	0.189	0.02	ug/g	ND	104	50-140			
Indeno [1,2,3-cd] pyrene	0.193	0.02	ug/g	ND	106	50-140			
1-Methylnaphthalene	0.170	0.02	ug/g	ND	93.6	50-140			
2-Methylnaphthalene	0.188	0.02	ug/g	ND	104	50-140			
Naphthalene	0.163	0.01	ug/g	ND	90.1	50-140			
Phenanthrene	0.193	0.02	ug/g	ND	106	50-140			
Pyrene	0.189	0.02	ug/g	ND	104	50-140			
Surrogate: 2-Fluorobiphenyl	1.29		%		88.8	50-140			
Surrogate: Terphenyl-d14	1.39		%		95.5	50-140			
Volatiles									
Acetone	13.0	0.50	ug/g	ND	130	50-140			
Benzene	3.82	0.02	ug/g	ND	95.4	60-130			
Bromodichloromethane	4.26	0.05	ug/g	ND	106	60-130			
Bromoform	4.56	0.05	ug/g	ND	114	60-130			
Bromomethane	4.48	0.05	ug/g	ND	112	50-140			
Carbon Tetrachloride	4.16	0.05	ug/g	ND	104	60-130			
Chlorobenzene	2.78	0.05	ug/g	ND	69.6	60-130			
Chloroform	5.09	0.05	ug/g	ND	127	60-130			
Dibromochloromethane	3.50	0.05	ug/g	ND	87.5	60-130			
Dichlorodifluoromethane	4.81	0.05	ug/g	ND	120	50-140			
1,2-Dichlorobenzene	3.37	0.05	ug/g	ND	84.3	60-130			
1,3-Dichlorobenzene	3.20	0.05	ug/g	ND	80.1	60-130			
1,4-Dichlorobenzene	3.27	0.05	ug/g	ND	81.8	60-130			
1,1-Dichloroethane	3.54	0.05	ug/g	ND	88.6	60-130			
1,2-Dichloroethane	3.83	0.05	ug/g	ND	95.6	60-130			

Certificate of Analysis

Report Date: 21-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 17-Mar-2025

Client PO: 62620

Project Description: PE6468

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
1,1-Dichloroethylene	4.68	0.05	ug/g	ND	117	60-130			
cis-1,2-Dichloroethylene	4.17	0.05	ug/g	ND	104	60-130			
trans-1,2-Dichloroethylene	4.68	0.05	ug/g	ND	117	60-130			
1,2-Dichloropropane	4.14	0.05	ug/g	ND	104	60-130			
cis-1,3-Dichloropropylene	4.15	0.05	ug/g	ND	104	60-130			
trans-1,3-Dichloropropylene	4.46	0.05	ug/g	ND	112	60-130			
Ethylbenzene	3.62	0.05	ug/g	ND	90.4	60-130			
Ethylene dibromide (dibromoethane, 1,2-)	2.66	0.05	ug/g	ND	66.6	60-130			
Hexane	4.21	0.05	ug/g	ND	105	60-130			
Methyl Ethyl Ketone (2-Butanone)	12.3	0.50	ug/g	ND	123	50-140			
Methyl Isobutyl Ketone	11.8	0.50	ug/g	ND	118	50-140			
Methyl tert-butyl ether	10.1	0.05	ug/g	ND	101	50-140			
Methylene Chloride	4.70	0.05	ug/g	ND	118	60-130			
Styrene	3.15	0.05	ug/g	ND	78.8	60-130			
1,1,1,2-Tetrachloroethane	2.87	0.05	ug/g	ND	71.8	60-130			
1,1,2,2-Tetrachloroethane	2.84	0.05	ug/g	ND	71.1	60-130			
Tetrachloroethylene	2.89	0.05	ug/g	ND	72.1	60-130			
Toluene	3.11	0.05	ug/g	ND	77.7	60-130			
1,1,1-Trichloroethane	4.77	0.05	ug/g	ND	119	60-130			
1,1,2-Trichloroethane	4.09	0.05	ug/g	ND	102	60-130			
Trichloroethylene	3.95	0.05	ug/g	ND	98.8	60-130			
Trichlorofluoromethane	4.22	0.05	ug/g	ND	105	50-140			
Vinyl chloride	3.67	0.02	ug/g	ND	91.7	50-140			
m,p-Xylenes	5.49	0.05	ug/g	ND	68.6	60-130			
o-Xylene	2.80	0.05	ug/g	ND	70.0	60-130			
Surrogate: 4-Bromofluorobenzene	6.85		%		85.7	50-140			
Surrogate: Dibromofluoromethane	8.29		%		104	50-140			
Surrogate: Toluene-d8	7.85		%		98.2	50-140			

Certificate of Analysis

Report Date: 21-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 17-Mar-2025

Client PO: 62620

Project Description: PE6468

Qualifier Notes:**Login Qualifiers :**

Container and COC sample IDs don't match. Report includes container IDs as directed by client. -

Applies to Samples: BH13-25-SS1

Sample Qualifiers :

- 2: Some peak(s) in the GC-FID Chromatogram are not typical of petroleum hydrocarbon distillates. May be the result of high concentrations of non-mineral based compounds not completely removed by the method cleanup. Results may be biased high.

Applies to Samples: BH16-25-SS1+SS2

QC Qualifiers:Sample Data Revisions:

None

Certificate of Analysis

Client: Paterson Group Consulting Engineers (Ottawa)

Client PO: 62620

Report Date: 21-Mar-2025

Order Date: 17-Mar-2025

Project Description: PE6468

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable

ND: Not Detected

MDL: Method Detection Limit

Source Result: Data used as source for matrix and duplicate samples

%REC: Percent recovery.

RPD: Relative percent difference.

NC: Not Calculated

Soil results are reported on a dry weight basis unless otherwise noted.

Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

CCME PHC additional information:

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

Any use of these results implies your agreement that our total liability in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstances be liable to you in connection with this work.



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Parcel Order Number

(Lab Use Only)

2512073

Chain Of Custody

(Lab Use Only)

Client Name: Puterson	Project Ref: P26468	Page 1 of 1
Contact Name: Jesse Andre chek	Quote #:	Turnaround Time ☐ 1 day ☐ 3 day ☐ 2 day ☒ Regular Date Required: _____
Address: a Ariga Drive	PO #: 62620	
Telephone: 613-226-7381	E-mail: janduechek@putersongroup.ca	

☒ REG 153/04 ☐ REG 406/19	Other Regulation	Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)	Required Analysis																
☐ Table 1 ☒ Res/Park ☐ Med/Fine ☐ Table 2 ☐ Ind/Comm ☐ Coarse ☒ Table 3 ☐ Agri/Other ☐ Table _____ For RSC: ☒ Yes ☐ No	☐ REG 558 ☐ PWQO ☐ CCME ☐ MISA ☐ SU - Sani ☐ SU - Storm Mun: _____ ☐ Other: _____		Matrix	Air Volume	# of Containers	Sample Taken		PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	EC/SAR				
Sample ID/Location Name						Date	Time												
1 BH13-25 - SS1+SS2						15/03/25	-												
2 BH14-25 - SS1+SS2						16/03/25	-												
3 BH15-25 - SS1+SS2						16/03/25	-												
4 BH16-25 - SS1+SS2						16/03/25	-												
5																			
6																			
7																			
8																			
9																			
10																			

Comments:			Method of Delivery: Parcel Courier		
Relinquished By (Sign): [Signature]	Received By Driver/Depot:	Received at Lab: Sb	Verified By: Sb		
Relinquished By (Print): Katharina Barley	Date/Time:	Date/Time: Mar 17, 2025 4:00pm	Date/Time: Mar 17, 2025 4:16pm		
Date/Time: 17/03/2025	Temperature: _____ °C	Temperature: 12.7	pH Verified: ☐ By: _____		

Chain of Custody (Blank).xlsx

Revision 4.0

Certificate of Analysis

Paterson Group Consulting Engineers (Ottawa)

9 Auriga Drive
Ottawa, ON K2E 7T9
Attn: Jesse Andrechek

Client PO: 62676
Project: PE6468
Custody:

Report Date: 31-Mar-2025

Order Date: 25-Mar-2025

Order #: 2513195

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

Paracel ID	Client ID
2513195-01	BH9-25-GW1
2513195-02	BH10-25-GW1
2513195-03	BH11-25-GW1
2513195-04	BH12-25-GW1
2513195-05	BH13-25-GW1
2513195-06	BH14-25-GW1
2513195-07	BH15-25-GW1
2513195-08	BH16-25-GW1
2513195-09	DUP1-GW1

Approved By:



Mark Foto, M.Sc.

Laboratory Director

Certificate of Analysis

Report Date: 31-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 25-Mar-2025

Client PO: 62676

Project Description: PE6468

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX by P&T GC-MS	EPA 624 - P&T GC-MS	31-Mar-25	31-Mar-25
Chromium, hexavalent - water	MOE E3056 - colourimetric	27-Mar-25	27-Mar-25
Mercury by CVAA	EPA 245.2 - Cold Vapour AA	26-Mar-25	26-Mar-25
Metals, ICP-MS	EPA 200.8 - ICP-MS	26-Mar-25	26-Mar-25
PCBs, total	EPA 608 - GC-ECD	26-Mar-25	26-Mar-25
PHC F1	CWS Tier 1 - P&T GC-FID	28-Mar-25	31-Mar-25
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	26-Mar-25	26-Mar-25
REG 153: PAHs by GC-MS	EPA 625 - GC-MS, extraction	28-Mar-25	28-Mar-25
REG 153: VOCs by P&T GC-MS	EPA 624 - P&T GC-MS	31-Mar-25	31-Mar-25

Certificate of Analysis

Report Date: 31-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 25-Mar-2025

Client PO: 62676

Project Description: PE6468

Client ID:	BH9-25-GW1	BH10-25-GW1	BH11-25-GW1	BH12-25-GW1	-	-
Sample Date:	24-Mar-25 16:15	24-Mar-25 14:45	24-Mar-25 17:00	24-Mar-25 16:50	-	-
Sample ID:	2513195-01	2513195-02	2513195-03	2513195-04	-	-
Matrix:	Ground Water	Ground Water	Ground Water	Ground Water	-	-
MDL/Units						

Metals

Mercury	0.1 ug/L	-	<0.1	-	-	-	-
Antimony	0.5 ug/L	-	<0.5	-	-	-	-
Arsenic	1 ug/L	-	3	-	-	-	-
Barium	1 ug/L	-	365	-	-	-	-
Beryllium	0.5 ug/L	-	<0.5	-	-	-	-
Boron	10 ug/L	-	158	-	-	-	-
Cadmium	0.1 ug/L	-	<0.1	-	-	-	-
Chromium	1 ug/L	-	<1	-	-	-	-
Chromium (VI)	10 ug/L	-	<10	-	-	-	-
Cobalt	0.5 ug/L	-	0.8	-	-	-	-
Copper	0.5 ug/L	-	1.9	-	-	-	-
Lead	0.1 ug/L	-	0.2	-	-	-	-
Molybdenum	0.5 ug/L	-	4.8	-	-	-	-
Nickel	1 ug/L	-	8	-	-	-	-
Selenium	1 ug/L	-	<1	-	-	-	-
Silver	0.1 ug/L	-	<0.1	-	-	-	-
Sodium	200 ug/L	-	662000	-	-	-	-
Thallium	0.1 ug/L	-	<0.1	-	-	-	-
Uranium	0.1 ug/L	-	0.8	-	-	-	-
Vanadium	0.5 ug/L	-	<0.5	-	-	-	-
Zinc	5 ug/L	-	<5	-	-	-	-

Volatiles

Acetone	5.0 ug/L	<5.0	<5.0	-	<5.0	-	-
Benzene	0.5 ug/L	<0.5	2.9	-	<0.5	-	-
Bromodichloromethane	0.5 ug/L	<0.5	<0.5	-	<0.5	-	-

Certificate of Analysis

Report Date: 31-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 25-Mar-2025

Client PO: 62676

Project Description: PE6468

Client ID:	BH9-25-GW1	BH10-25-GW1	BH11-25-GW1	BH12-25-GW1	-	-
Sample Date:	24-Mar-25 16:15	24-Mar-25 14:45	24-Mar-25 17:00	24-Mar-25 16:50	-	-
Sample ID:	2513195-01	2513195-02	2513195-03	2513195-04	-	-
Matrix:	Ground Water	Ground Water	Ground Water	Ground Water	-	-
MDL/Units						

Volatiles

Bromoform	0.5 ug/L	<0.5	<0.5	-	<0.5	-	-
Bromomethane	0.5 ug/L	<0.5	<0.5	-	<0.5	-	-
Carbon Tetrachloride	0.2 ug/L	<0.2	<0.2	-	<0.2	-	-
Chlorobenzene	0.5 ug/L	<0.5	<0.5	-	<0.5	-	-
Chloroform	0.5 ug/L	1.5	0.5	-	1.6	-	-
Dibromochloromethane	0.5 ug/L	<0.5	<0.5	-	<0.5	-	-
Dichlorodifluoromethane	1.0 ug/L	<1.0	<1.0	-	<1.0	-	-
1,2-Dichlorobenzene	0.5 ug/L	<0.5	4.4	-	<0.5	-	-
1,3-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	-	<0.5	-	-
1,4-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	-	<0.5	-	-
1,1-Dichloroethane	0.5 ug/L	<0.5	<0.5	-	<0.5	-	-
1,2-Dichloroethane	0.5 ug/L	<0.5	<0.5	-	<0.5	-	-
1,1-Dichloroethylene	0.5 ug/L	<0.5	<0.5	-	<0.5	-	-
cis-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	-	<0.5	-	-
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	-	<0.5	-	-
1,2-Dichloropropane	0.5 ug/L	<0.5	<0.5	-	<0.5	-	-
cis-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	-	<0.5	-	-
trans-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	-	<0.5	-	-
1,3-Dichloropropene, total	0.5 ug/L	<0.5	<0.5	-	<0.5	-	-
Ethylbenzene	0.5 ug/L	<0.5	<0.5	-	<0.5	-	-
Ethylene dibromide (dibromoethane,	0.2 ug/L	<0.2	<0.2	-	<0.2	-	-
Hexane	1.0 ug/L	<1.0	<1.0	-	<1.0	-	-
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	<5.0	<5.0	-	<5.0	-	-
Methyl Isobutyl Ketone	5.0 ug/L	<5.0	<5.0	-	<5.0	-	-
Methyl tert-butyl ether	2.0 ug/L	<2.0	<2.0	-	<2.0	-	-

Certificate of Analysis

Report Date: 31-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 25-Mar-2025

Client PO: 62676

Project Description: PE6468

Client ID:	BH9-25-GW1	BH10-25-GW1	BH11-25-GW1	BH12-25-GW1	-	-
Sample Date:	24-Mar-25 16:15	24-Mar-25 14:45	24-Mar-25 17:00	24-Mar-25 16:50	-	-
Sample ID:	2513195-01	2513195-02	2513195-03	2513195-04	-	-
Matrix:	Ground Water	Ground Water	Ground Water	Ground Water	-	-
MDL/Units						

Volatiles

Methylene Chloride	5.0 ug/L	<5.0	<5.0	-	<5.0	-	-
Styrene	0.5 ug/L	<0.5	<0.5	-	<0.5	-	-
1,1,1,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	-	<0.5	-	-
1,1,2,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	-	<0.5	-	-
Tetrachloroethylene	0.5 ug/L	<0.5	<0.5	-	<0.5	-	-
Toluene	0.5 ug/L	<0.5	0.6	-	1.2	-	-
1,1,1-Trichloroethane	0.5 ug/L	<0.5	<0.5	-	<0.5	-	-
1,1,2-Trichloroethane	0.5 ug/L	<0.5	<0.5	-	<0.5	-	-
Trichloroethylene	0.5 ug/L	<0.5	<0.5	-	<0.5	-	-
Trichlorofluoromethane	1.0 ug/L	<1.0	<1.0	-	<1.0	-	-
Vinyl chloride	0.5 ug/L	<0.5	<0.5	-	<0.5	-	-
m,p-Xylenes	0.5 ug/L	<0.5	10.0	-	<0.5	-	-
o-Xylene	0.5 ug/L	<0.5	2.1	-	<0.5	-	-
Xylenes, total	0.5 ug/L	<0.5	12.1	-	<0.5	-	-
4-Bromofluorobenzene	Surrogate	109%	107%	-	111%	-	-
Toluene-d8	Surrogate	105%	105%	-	105%	-	-
Dibromofluoromethane	Surrogate	71.5%	62.0%	-	73.1%	-	-
Benzene	0.5 ug/L	-	-	<0.5	-	-	-
Ethylbenzene	0.5 ug/L	-	-	<0.5	-	-	-
Toluene	0.5 ug/L	-	-	<0.5	-	-	-
m,p-Xylenes	0.5 ug/L	-	-	<0.5	-	-	-
o-Xylene	0.5 ug/L	-	-	<0.5	-	-	-
Xylenes, total	0.5 ug/L	-	-	<0.5	-	-	-
Toluene-d8	Surrogate	-	-	106%	-	-	-

Hydrocarbons

Certificate of Analysis

Report Date: 31-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 25-Mar-2025

Client PO: 62676

Project Description: PE6468

Client ID:	BH9-25-GW1	BH10-25-GW1	BH11-25-GW1	BH12-25-GW1	-	-
Sample Date:	24-Mar-25 16:15	24-Mar-25 14:45	24-Mar-25 17:00	24-Mar-25 16:50	-	-
Sample ID:	2513195-01	2513195-02	2513195-03	2513195-04	-	-
Matrix:	Ground Water	Ground Water	Ground Water	Ground Water	-	-
MDL/Units						

Hydrocarbons

F1 PHCs (C6-C10)	25 ug/L	<25	<25	<25	<25	-	-
F2 PHCs (C10-C16)	100 ug/L	<100	<100	<100	<100	-	-
F3 PHCs (C16-C34)	100 ug/L	<100	<100	<100	<100	-	-
F4 PHCs (C34-C50)	100 ug/L	<100	<100	<100	<100	-	-

Semi-Volatiles

Acenaphthene	0.05 ug/L	<0.05	<0.05	-	-	-	-
Acenaphthylene	0.05 ug/L	<0.05	<0.05	-	-	-	-
Anthracene	0.01 ug/L	<0.01	<0.01	-	-	-	-
Benzo [a] anthracene	0.01 ug/L	<0.01	<0.01	-	-	-	-
Benzo [a] pyrene	0.01 ug/L	<0.01	<0.01	-	-	-	-
Benzo [b] fluoranthene	0.05 ug/L	<0.05	<0.05	-	-	-	-
Benzo [g,h,i] perylene	0.05 ug/L	<0.05	<0.05	-	-	-	-
Benzo [k] fluoranthene	0.05 ug/L	<0.05	<0.05	-	-	-	-
Chrysene	0.05 ug/L	<0.05	<0.05	-	-	-	-
Dibenzo [a,h] anthracene	0.05 ug/L	<0.05	<0.05	-	-	-	-
Fluoranthene	0.01 ug/L	<0.01	<0.01	-	-	-	-
Fluorene	0.05 ug/L	<0.05	0.21	-	-	-	-
Indeno [1,2,3-cd] pyrene	0.05 ug/L	<0.05	<0.05	-	-	-	-
1-Methylnaphthalene	0.05 ug/L	<0.05	1.40	-	-	-	-
2-Methylnaphthalene	0.05 ug/L	<0.05	0.31	-	-	-	-
Methylnaphthalene (1&2)	0.10 ug/L	<0.10	1.71	-	-	-	-
Naphthalene	0.05 ug/L	<0.05	1.13	-	-	-	-
Phenanthrene	0.05 ug/L	<0.05	<0.05	-	-	-	-
Pyrene	0.01 ug/L	<0.01	0.07	-	-	-	-
2-Fluorobiphenyl	Surrogate	103%	92.2%	-	-	-	-

Certificate of Analysis

Report Date: 31-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 25-Mar-2025

Client PO: 62676

Project Description: PE6468

Client ID:	BH9-25-GW1	BH10-25-GW1	BH11-25-GW1	BH12-25-GW1		
Sample Date:	24-Mar-25 16:15	24-Mar-25 14:45	24-Mar-25 17:00	24-Mar-25 16:50	-	-
Sample ID:	2513195-01	2513195-02	2513195-03	2513195-04		
Matrix:	Ground Water	Ground Water	Ground Water	Ground Water		
MDL/Units						

Semi-Volatiles

Terphenyl-d14	Surrogate	110%	94.5%	-	-	-	-
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PCBs

PCBs, total	0.05 ug/L	<0.05	-	-	-	-	-
Decachlorobiphenyl	Surrogate	121%	-	-	-	-	-

Certificate of Analysis

Report Date: 31-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 25-Mar-2025

Client PO: 62676

Project Description: PE6468

Client ID:	BH13-25-GW1	BH14-25-GW1	BH15-25-GW1	BH16-25-GW1	-	-
Sample Date:	24-Mar-25 15:20	24-Mar-25 13:35	24-Mar-25 14:30	24-Mar-25 15:15	-	-
Sample ID:	2513195-05	2513195-06	2513195-07	2513195-08	-	-
Matrix:	Ground Water	Ground Water	Ground Water	Ground Water	-	-
MDL/Units						

Volatiles

Acetone	5.0 ug/L	17.8	6.6	<5.0	29.8	-	-
Benzene	0.5 ug/L	<0.5	5.7	<0.5	<0.5	-	-
Bromodichloromethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-	-
Bromoform	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-	-
Bromomethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-	-
Carbon Tetrachloride	0.2 ug/L	<0.2	<0.2	<0.2	<0.2	-	-
Chlorobenzene	0.5 ug/L	<0.5	<0.5	20.5	<0.5	-	-
Chloroform	0.5 ug/L	1.0	1.3	<0.5	2.1	-	-
Dibromochloromethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-	-
Dichlorodifluoromethane	1.0 ug/L	<1.0	<1.0	<1.0	<1.0	-	-
1,2-Dichlorobenzene	0.5 ug/L	92.9	2.9	7.6	<0.5	-	-
1,3-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	0.5	<0.5	-	-
1,4-Dichlorobenzene	0.5 ug/L	0.9	<0.5	1.5	<0.5	-	-
1,1-Dichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-	-
1,2-Dichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-	-
1,1-Dichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-	-
cis-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-	-
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-	-
1,2-Dichloropropane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-	-
cis-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-	-
trans-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-	-
1,3-Dichloropropene, total	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-	-
Ethylene dibromide (dibromoethane,	0.2 ug/L	<0.2	<0.2	<0.2	<0.2	-	-
Ethylbenzene	0.5 ug/L	9.3	<0.5	0.8	<0.5	-	-
Hexane	1.0 ug/L	<1.0	<1.0	<1.0	<1.0	-	-

Certificate of Analysis

Report Date: 31-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

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Client PO: 62676

Project Description: PE6468

Client ID:	BH13-25-GW1	BH14-25-GW1	BH15-25-GW1	BH16-25-GW1	-	-
Sample Date:	24-Mar-25 15:20	24-Mar-25 13:35	24-Mar-25 14:30	24-Mar-25 15:15	-	-
Sample ID:	2513195-05	2513195-06	2513195-07	2513195-08	-	-
Matrix:	Ground Water	Ground Water	Ground Water	Ground Water	-	-
MDL/Units						

Volatiles

Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	<5.0	<5.0	<5.0	121	-	-
Methyl Isobutyl Ketone	5.0 ug/L	<5.0	<5.0	<5.0	<5.0	-	-
Methyl tert-butyl ether	2.0 ug/L	<2.0	<2.0	<2.0	<2.0	-	-
Methylene Chloride	5.0 ug/L	<5.0	<5.0	<5.0	<5.0	-	-
Styrene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-	-
1,1,1,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-	-
1,1,2,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-	-
Tetrachloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-	-
Toluene	0.5 ug/L	1.9	<0.5	0.6	<0.5	-	-
1,1,1-Trichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-	-
1,1,2-Trichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-	-
Trichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-	-
Trichlorofluoromethane	1.0 ug/L	<1.0	<1.0	<1.0	<1.0	-	-
Vinyl chloride	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-	-
m,p-Xylenes	0.5 ug/L	30.5	2.0	1.3	<0.5	-	-
o-Xylene	0.5 ug/L	47.0	2.5	2.6	<0.5	-	-
Xylenes, total	0.5 ug/L	77.5	4.5	3.9	<0.5	-	-
4-Bromofluorobenzene	Surrogate	112%	104%	106%	108%	-	-
Dibromofluoromethane	Surrogate	71.2%	76.7%	78.4%	81.8%	-	-
Toluene-d8	Surrogate	105%	104%	105%	106%	-	-

Hydrocarbons

F1 PHCs (C6-C10)	25 ug/L	867	30	79	<25	-	-
F2 PHCs (C10-C16)	100 ug/L	<100	<100	<100	<100	-	-
F3 PHCs (C16-C34)	100 ug/L	<100	<100	<100	<100	-	-
F4 PHCs (C34-C50)	100 ug/L	<100	<100	<100	<100	-	-

Certificate of Analysis

Report Date: 31-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 25-Mar-2025

Client PO: 62676

Project Description: PE6468

Client ID:	BH13-25-GW1	BH14-25-GW1	BH15-25-GW1	BH16-25-GW1	-	-
Sample Date:	24-Mar-25 15:20	24-Mar-25 13:35	24-Mar-25 14:30	24-Mar-25 15:15	-	-
Sample ID:	2513195-05	2513195-06	2513195-07	2513195-08	-	-
Matrix:	Ground Water	Ground Water	Ground Water	Ground Water	-	-
MDL/Units						

Semi-Volatiles

Acenaphthene	0.05 ug/L	-	<0.05	<0.05	-	-
Acenaphthylene	0.05 ug/L	-	<0.05	<0.05	-	-
Anthracene	0.01 ug/L	-	<0.01	<0.01	-	-
Benzo [a] anthracene	0.01 ug/L	-	<0.01	<0.01	-	-
Benzo [a] pyrene	0.01 ug/L	-	<0.01	<0.01	-	-
Benzo [b] fluoranthene	0.05 ug/L	-	<0.05	<0.05	-	-
Benzo [g,h,i] perylene	0.05 ug/L	-	<0.05	<0.05	-	-
Benzo [k] fluoranthene	0.05 ug/L	-	<0.05	<0.05	-	-
Chrysene	0.05 ug/L	-	<0.05	<0.05	-	-
Dibenzo [a,h] anthracene	0.05 ug/L	-	<0.05	<0.05	-	-
Fluoranthene	0.01 ug/L	-	<0.01	<0.01	-	-
Fluorene	0.05 ug/L	-	<0.05	<0.05	-	-
Indeno [1,2,3-cd] pyrene	0.05 ug/L	-	<0.05	<0.05	-	-
1-Methylnaphthalene	0.05 ug/L	-	2.58	<0.05	-	-
2-Methylnaphthalene	0.05 ug/L	-	1.98	<0.05	-	-
Methylnaphthalene (1&2)	0.10 ug/L	-	4.56	<0.10	-	-
Naphthalene	0.05 ug/L	-	3.10	0.31	-	-
Phenanthrene	0.05 ug/L	-	<0.05	<0.05	-	-
Pyrene	0.01 ug/L	-	<0.01	<0.01	-	-
2-Fluorobiphenyl	Surrogate	-	78.4%	65.6%	-	-
Terphenyl-d14	Surrogate	-	60.7%	67.4%	-	-

Certificate of Analysis

Report Date: 31-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 25-Mar-2025

Client PO: 62676

Project Description: PE6468

Client ID:	DUP1-GW1					
Sample Date:	24-Mar-25 00:00				-	-
Sample ID:	2513195-09					
Matrix:	Ground Water					
MDL/Units						

Volatiles

Benzene	0.5 ug/L	<0.5	-	-	-	-
Ethylbenzene	0.5 ug/L	<0.5	-	-	-	-
Toluene	0.5 ug/L	<0.5	-	-	-	-
m,p-Xylenes	0.5 ug/L	<0.5	-	-	-	-
o-Xylene	0.5 ug/L	<0.5	-	-	-	-
Xylenes, total	0.5 ug/L	<0.5	-	-	-	-
Toluene-d8	Surrogate	105%	-	-	-	-

Hydrocarbons

F1 PHCs (C6-C10)	25 ug/L	<25	-	-	-	-
F2 PHCs (C10-C16)	100 ug/L	<100	-	-	-	-
F3 PHCs (C16-C34)	100 ug/L	<100	-	-	-	-
F4 PHCs (C34-C50)	100 ug/L	<100	-	-	-	-

Certificate of Analysis

Report Date: 31-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 25-Mar-2025

Client PO: 62676

Project Description: PE6468

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons								
F1 PHCs (C6-C10)	ND	25	ug/L					
F2 PHCs (C10-C16)	ND	100	ug/L					
F3 PHCs (C16-C34)	ND	100	ug/L					
F4 PHCs (C34-C50)	ND	100	ug/L					
Metals								
Mercury	ND	0.1	ug/L					
Antimony	ND	0.5	ug/L					
Arsenic	ND	1	ug/L					
Barium	ND	1	ug/L					
Beryllium	ND	0.5	ug/L					
Boron	ND	10	ug/L					
Cadmium	ND	0.1	ug/L					
Chromium (VI)	ND	10	ug/L					
Chromium	ND	1	ug/L					
Cobalt	ND	0.5	ug/L					
Copper	ND	0.5	ug/L					
Lead	ND	0.1	ug/L					
Molybdenum	ND	0.5	ug/L					
Nickel	ND	1	ug/L					
Selenium	ND	1	ug/L					
Silver	ND	0.1	ug/L					
Sodium	ND	200	ug/L					
Thallium	ND	0.1	ug/L					
Uranium	ND	0.1	ug/L					
Vanadium	ND	0.5	ug/L					
Zinc	ND	5	ug/L					
PCBs								
PCBs, total	ND	0.05	ug/L					
Surrogate: Decachlorobiphenyl	0.287		%	115	60-140			
Semi-Volatiles								
Acenaphthene	ND	0.05	ug/L					
Acenaphthylene	ND	0.05	ug/L					

Certificate of Analysis

Report Date: 31-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 25-Mar-2025

Client PO: 62676

Project Description: PE6468

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
Anthracene	ND	0.01	ug/L					
Benzo [a] anthracene	ND	0.01	ug/L					
Benzo [a] pyrene	ND	0.01	ug/L					
Benzo [b] fluoranthene	ND	0.05	ug/L					
Benzo [g,h,i] perylene	ND	0.05	ug/L					
Benzo [k] fluoranthene	ND	0.05	ug/L					
Chrysene	ND	0.05	ug/L					
Dibenzo [a,h] anthracene	ND	0.05	ug/L					
Fluoranthene	ND	0.01	ug/L					
Fluorene	ND	0.05	ug/L					
Indeno [1,2,3-cd] pyrene	ND	0.05	ug/L					
1-Methylnaphthalene	ND	0.05	ug/L					
2-Methylnaphthalene	ND	0.05	ug/L					
Methylnaphthalene (1&2)	ND	0.10	ug/L					
Naphthalene	ND	0.05	ug/L					
Phenanthrene	ND	0.05	ug/L					
Pyrene	ND	0.01	ug/L					
Surrogate: 2-Fluorobiphenyl	19.0		%	94.9	50-140			
Surrogate: Terphenyl-d14	20.0		%	100	50-140			
Volatiles								
Acetone	ND	5.0	ug/L					
Benzene	ND	0.5	ug/L					
Bromodichloromethane	ND	0.5	ug/L					
Bromoform	ND	0.5	ug/L					
Bromomethane	ND	0.5	ug/L					
Carbon Tetrachloride	ND	0.2	ug/L					
Chlorobenzene	ND	0.5	ug/L					
Chloroform	ND	0.5	ug/L					
Dibromochloromethane	ND	0.5	ug/L					
Dichlorodifluoromethane	ND	1.0	ug/L					
1,2-Dichlorobenzene	ND	0.5	ug/L					
1,3-Dichlorobenzene	ND	0.5	ug/L					

Certificate of Analysis

Report Date: 31-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 25-Mar-2025

Client PO: 62676

Project Description: PE6468

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
1,4-Dichlorobenzene	ND	0.5	ug/L					
1,1-Dichloroethane	ND	0.5	ug/L					
1,2-Dichloroethane	ND	0.5	ug/L					
1,1-Dichloroethylene	ND	0.5	ug/L					
cis-1,2-Dichloroethylene	ND	0.5	ug/L					
trans-1,2-Dichloroethylene	ND	0.5	ug/L					
1,2-Dichloropropane	ND	0.5	ug/L					
cis-1,3-Dichloropropylene	ND	0.5	ug/L					
trans-1,3-Dichloropropylene	ND	0.5	ug/L					
1,3-Dichloropropene, total	ND	0.5	ug/L					
Ethylbenzene	ND	0.5	ug/L					
Ethylene dibromide (dibromoethane, 1,2-)	ND	0.2	ug/L					
Hexane	ND	1.0	ug/L					
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L					
Methyl Isobutyl Ketone	ND	5.0	ug/L					
Methyl tert-butyl ether	ND	2.0	ug/L					
Methylene Chloride	ND	5.0	ug/L					
Styrene	ND	0.5	ug/L					
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L					
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L					
Tetrachloroethylene	ND	0.5	ug/L					
Toluene	ND	0.5	ug/L					
1,1,1-Trichloroethane	ND	0.5	ug/L					
1,1,2-Trichloroethane	ND	0.5	ug/L					
Trichloroethylene	ND	0.5	ug/L					
Trichlorofluoromethane	ND	1.0	ug/L					
Vinyl chloride	ND	0.5	ug/L					
m,p-Xylenes	ND	0.5	ug/L					
o-Xylene	ND	0.5	ug/L					
Xylenes, total	ND	0.5	ug/L					
Surrogate: 4-Bromofluorobenzene	88.2		%	110	50-140			
Surrogate: Dibromofluoromethane	63.2		%	78.8	50-140			

Certificate of Analysis

Report Date: 31-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 25-Mar-2025

Client PO: 62676

Project Description: PE6468

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
<i>Surrogate: Toluene-d8</i>	83.4		%	104	50-140			
Benzene	ND	0.5	ug/L					
Ethylbenzene	ND	0.5	ug/L					
Toluene	ND	0.5	ug/L					
m,p-Xylenes	ND	0.5	ug/L					
o-Xylene	ND	0.5	ug/L					
Xylenes, total	ND	0.5	ug/L					
<i>Surrogate: Toluene-d8</i>	83.4		%	104	50-140			

Certificate of Analysis

Report Date: 31-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 25-Mar-2025

Client PO: 62676

Project Description: PE6468

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	25	ug/L	ND			NC	30	
Metals									
Mercury	ND	0.1	ug/L	ND			NC	20	
Antimony	ND	0.5	ug/L	ND			NC	20	
Arsenic	ND	1	ug/L	ND			NC	20	
Barium	97.7	1	ug/L	96.6			1.1	20	
Beryllium	ND	0.5	ug/L	ND			NC	20	
Boron	12	10	ug/L	12			0.2	20	
Cadmium	ND	0.1	ug/L	ND			NC	20	
Chromium (VI)	ND	10	ug/L	ND			NC	20	
Chromium	ND	1	ug/L	ND			NC	20	
Cobalt	0.84	0.5	ug/L	0.83			1.0	20	
Copper	ND	0.5	ug/L	ND			NC	20	
Lead	ND	0.1	ug/L	ND			NC	20	
Molybdenum	1.21	0.5	ug/L	1.16			4.0	20	
Nickel	2.3	1	ug/L	2.3			1.6	20	
Selenium	ND	1	ug/L	ND			NC	20	
Silver	ND	0.1	ug/L	ND			NC	20	
Sodium	144000	200	ug/L	147000			2.3	20	
Thallium	ND	0.1	ug/L	ND			NC	20	
Uranium	4.8	0.1	ug/L	5.0			2.7	20	
Vanadium	1.39	0.5	ug/L	1.32			4.7	20	
Zinc	ND	5	ug/L	ND			NC	20	
Volatiles									
Acetone	ND	5.0	ug/L	ND			NC	30	
Benzene	ND	0.5	ug/L	ND			NC	30	
Bromodichloromethane	ND	0.5	ug/L	ND			NC	30	
Bromoform	ND	0.5	ug/L	ND			NC	30	
Bromomethane	ND	0.5	ug/L	ND			NC	30	
Carbon Tetrachloride	ND	0.2	ug/L	ND			NC	30	

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Report Date: 31-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 25-Mar-2025

Client PO: 62676

Project Description: PE6468

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Chlorobenzene	ND	0.5	ug/L	ND			NC	30	
Chloroform	1.54	0.5	ug/L	1.48			4.0	30	
Dibromochloromethane	ND	0.5	ug/L	ND			NC	30	
Dichlorodifluoromethane	ND	1.0	ug/L	ND			NC	30	
1,2-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,3-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,4-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,1-Dichloroethane	ND	0.5	ug/L	ND			NC	30	
1,2-Dichloroethane	ND	0.5	ug/L	ND			NC	30	
1,1-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
cis-1,2-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
trans-1,2-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
1,2-Dichloropropane	ND	0.5	ug/L	ND			NC	30	
cis-1,3-Dichloropropylene	ND	0.5	ug/L	ND			NC	30	
trans-1,3-Dichloropropylene	ND	0.5	ug/L	ND			NC	30	
Ethylbenzene	ND	0.5	ug/L	ND			NC	30	
Ethylene dibromide (dibromoethane, 1,2-)	ND	0.2	ug/L	ND			NC	30	
Hexane	ND	1.0	ug/L	ND			NC	30	
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L	ND			NC	30	
Methyl Isobutyl Ketone	ND	5.0	ug/L	ND			NC	30	
Methyl tert-butyl ether	ND	2.0	ug/L	ND			NC	30	
Methylene Chloride	ND	5.0	ug/L	ND			NC	30	
Styrene	ND	0.5	ug/L	ND			NC	30	
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L	ND			NC	30	
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L	ND			NC	30	
Tetrachloroethylene	ND	0.5	ug/L	ND			NC	30	
Toluene	ND	0.5	ug/L	ND			NC	30	
1,1,1-Trichloroethane	ND	0.5	ug/L	ND			NC	30	
1,1,2-Trichloroethane	ND	0.5	ug/L	ND			NC	30	
Trichloroethylene	ND	0.5	ug/L	ND			NC	30	
Trichlorofluoromethane	ND	1.0	ug/L	ND			NC	30	

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Report Date: 31-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 25-Mar-2025

Client PO: 62676

Project Description: PE6468

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Vinyl chloride	ND	0.5	ug/L	ND			NC	30	
m,p-Xylenes	ND	0.5	ug/L	ND			NC	30	
o-Xylene	ND	0.5	ug/L	ND			NC	30	
Surrogate: 4-Bromofluorobenzene	83.9		%		104	50-140			
Surrogate: Dibromofluoromethane	58.9		%		73.3	50-140			
Surrogate: Toluene-d8	83.2		%		104	50-140			
Benzene	ND	0.5	ug/L	ND			NC	30	
Ethylbenzene	ND	0.5	ug/L	ND			NC	30	
Toluene	ND	0.5	ug/L	ND			NC	30	
m,p-Xylenes	ND	0.5	ug/L	ND			NC	30	
o-Xylene	ND	0.5	ug/L	ND			NC	30	
Surrogate: Toluene-d8	83.2		%		104	50-140			

Certificate of Analysis

Report Date: 31-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 25-Mar-2025

Client PO: 62676

Project Description: PE6468

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	626	25	ug/L	ND	88.5	0-200			
F2 PHCs (C10-C16)	1450	100	ug/L	ND	90.8	60-140			
F3 PHCs (C16-C34)	3590	100	ug/L	ND	91.6	60-140			
F4 PHCs (C34-C50)	1930	100	ug/L	ND	77.8	60-140			
Metals									
Mercury	2.58	0.1	ug/L	ND	85.9	70-130			
Arsenic	56.0	1	ug/L	ND	111	80-120			
Barium	140	1	ug/L	96.6	87.1	80-120			
Beryllium	54.3	0.5	ug/L	ND	109	80-120			
Boron	54	10	ug/L	12	84.4	80-120			
Cadmium	44.9	0.1	ug/L	ND	89.8	80-120			
Chromium (VI)	195	10	ug/L	ND	97.5	75-115			
Chromium	57.4	1	ug/L	ND	115	80-120			
Cobalt	53.9	0.5	ug/L	0.83	106	80-120			
Copper	48.9	0.5	ug/L	ND	97.1	80-120			
Lead	43.4	0.1	ug/L	ND	86.8	80-120			
Molybdenum	47.1	0.5	ug/L	1.16	91.8	80-120			
Nickel	52.6	1	ug/L	2.3	101	80-120			
Selenium	50.5	1	ug/L	ND	101	80-120			
Silver	42.5	0.1	ug/L	ND	85.1	80-120			
Sodium	9780	200	ug/L	ND	97.8	80-120			
Thallium	46.6	0.1	ug/L	ND	93.2	80-120			
Uranium	51.2	0.1	ug/L	5.0	92.6	80-120			
Vanadium	59.8	0.5	ug/L	1.32	117	80-120			
Zinc	45	5	ug/L	ND	86.6	80-120			
PCBs									
PCBs, total	0.952	0.05	ug/L	ND	95.2	65-135			
Surrogate: Decachlorobiphenyl	0.273		%		109	60-140			
Semi-Volatiles									
Acenaphthene	4.54	0.05	ug/L	ND	90.8	50-140			

Certificate of Analysis

Report Date: 31-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 25-Mar-2025

Client PO: 62676

Project Description: PE6468

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Acenaphthylene	4.70	0.05	ug/L	ND	93.9	50-140			
Anthracene	5.07	0.01	ug/L	ND	101	50-140			
Benzo [a] anthracene	5.32	0.01	ug/L	ND	106	50-140			
Benzo [a] pyrene	5.45	0.01	ug/L	ND	109	50-140			
Benzo [b] fluoranthene	5.20	0.05	ug/L	ND	104	50-140			
Benzo [g,h,i] perylene	4.88	0.05	ug/L	ND	97.7	50-140			
Benzo [k] fluoranthene	4.54	0.05	ug/L	ND	90.8	50-140			
Chrysene	5.44	0.05	ug/L	ND	109	50-140			
Dibenzo [a,h] anthracene	5.31	0.05	ug/L	ND	106	50-140			
Fluoranthene	5.82	0.01	ug/L	ND	116	50-140			
Fluorene	4.75	0.05	ug/L	ND	95.0	50-140			
Indeno [1,2,3-cd] pyrene	5.32	0.05	ug/L	ND	106	50-140			
1-Methylnaphthalene	4.29	0.05	ug/L	ND	85.7	50-140			
2-Methylnaphthalene	4.76	0.05	ug/L	ND	95.2	50-140			
Naphthalene	4.16	0.05	ug/L	ND	83.2	50-140			
Phenanthrene	4.92	0.05	ug/L	ND	98.4	50-140			
Pyrene	4.70	0.01	ug/L	ND	94.0	50-140			
Surrogate: 2-Fluorobiphenyl	18.0		%		90.2	50-140			
Surrogate: Terphenyl-d14	18.8		%		94.2	50-140			
Volatiles									
Acetone	79.9	5.0	ug/L	ND	79.9	50-140			
Benzene	36.5	0.5	ug/L	ND	90.4	50-140			
Bromodichloromethane	37.8	0.5	ug/L	ND	94.1	50-140			
Bromoform	46.6	0.5	ug/L	ND	116	50-140			
Bromomethane	40.2	0.5	ug/L	ND	99.1	50-140			
Carbon Tetrachloride	30.5	0.2	ug/L	ND	75.4	50-140			
Chlorobenzene	36.7	0.5	ug/L	ND	91.7	50-140			
Chloroform	33.9	0.5	ug/L	0.68	83.1	50-140			
Dibromochloromethane	46.8	0.5	ug/L	ND	117	50-140			
Dichlorodifluoromethane	53.7	1.0	ug/L	ND	132	50-140			
1,2-Dichlorobenzene	36.9	0.5	ug/L	ND	91.7	50-140			

Certificate of Analysis

Report Date: 31-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 25-Mar-2025

Client PO: 62676

Project Description: PE6468

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
1,3-Dichlorobenzene	36.5	0.5	ug/L	ND	91.3	50-140			
1,4-Dichlorobenzene	36.5	0.5	ug/L	ND	90.3	50-140			
1,1-Dichloroethane	29.9	0.5	ug/L	ND	74.3	50-140			
1,2-Dichloroethane	43.1	0.5	ug/L	ND	107	50-140			
1,1-Dichloroethylene	29.0	0.5	ug/L	ND	72.2	50-140			
cis-1,2-Dichloroethylene	31.0	0.5	ug/L	ND	76.6	50-140			
trans-1,2-Dichloroethylene	30.1	0.5	ug/L	ND	74.6	50-140			
1,2-Dichloropropane	38.0	0.5	ug/L	ND	95.1	50-140			
cis-1,3-Dichloropropylene	39.3	0.5	ug/L	ND	97.8	50-140			
trans-1,3-Dichloropropylene	44.5	0.5	ug/L	ND	110	50-140			
Ethylbenzene	34.8	0.5	ug/L	ND	86.1	50-140			
Ethylene dibromide (dibromoethane, 1,2-)	52.1	0.2	ug/L	ND	129	50-140			
Hexane	37.1	1.0	ug/L	ND	92.7	50-140			
Methyl Ethyl Ketone (2-Butanone)	131	5.0	ug/L	ND	131	50-140			
Methyl Isobutyl Ketone	137	5.0	ug/L	ND	137	50-140			
Methyl tert-butyl ether	138	2.0	ug/L	ND	138	50-140			
Methylene Chloride	31.2	5.0	ug/L	ND	78.0	50-140			
Styrene	35.7	0.5	ug/L	ND	88.5	50-140			
1,1,1,2-Tetrachloroethane	41.8	0.5	ug/L	ND	103	50-140			
1,1,2,2-Tetrachloroethane	55.5	0.5	ug/L	ND	138	50-140			
Tetrachloroethylene	38.7	0.5	ug/L	ND	95.9	50-140			
Toluene	37.3	0.5	ug/L	ND	92.2	50-140			
1,1,1-Trichloroethane	31.3	0.5	ug/L	ND	78.0	50-140			
1,1,2-Trichloroethane	48.1	0.5	ug/L	ND	120	50-140			
Trichloroethylene	32.8	0.5	ug/L	ND	81.7	50-140			
Trichlorofluoromethane	32.3	1.0	ug/L	ND	79.9	50-140			
Vinyl chloride	29.2	0.5	ug/L	ND	72.4	50-140			
m,p-Xylenes	68.2	0.5	ug/L	ND	84.4	50-140			
o-Xylene	33.6	0.5	ug/L	ND	83.1	50-140			
Surrogate: 4-Bromofluorobenzene	80.5		%		100	50-140			
Surrogate: Dibromofluoromethane	73.6		%		91.6	50-140			

Certificate of Analysis

Report Date: 31-Mar-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 25-Mar-2025

Client PO: 62676

Project Description: PE6468

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
<i>Surrogate: Toluene-d8</i>	80.0		%		99.6	50-140			
Benzene	36.5	0.5	ug/L	ND	90.4	50-140			
Ethylbenzene	34.8	0.5	ug/L	ND	86.1	50-140			
Toluene	37.3	0.5	ug/L	ND	92.2	50-140			
m,p-Xylenes	68.2	0.5	ug/L	ND	84.4	50-140			
o-Xylene	33.6	0.5	ug/L	ND	83.1	50-140			
<i>Surrogate: Toluene-d8</i>	80.0		%		99.6	50-140			

Certificate of Analysis

Client: Paterson Group Consulting Engineers (Ottawa)

Client PO: 62676

Report Date: 31-Mar-2025

Order Date: 25-Mar-2025

Project Description: PE6468

Qualifier Notes:**Sample Data Revisions:**

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable

ND: Not Detected

MDL: Method Detection Limit

Source Result: Data used as source for matrix and duplicate samples

%REC: Percent recovery.

RPD: Relative percent difference.

NC: Not Calculated

CCME PHC additional information:

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

Any use of these results implies your agreement that our total liability in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstances be liable to you in connection with this work.



Client Name: Paterson Group	Project Ref: PE6468	Page 1 of 1
Contact Name: Jesse Andrechek	Quote #:	Turnaround Time ☐ 1 day ☐ 3 day ☐ 2 day ☒ Regular
Address: 9 Auriga Dr. Nepean, ON.	PO #: 62676	
Telephone: 613-226-7381	E-mail: jesseandrechek@patersongroup.ca mdarcy@patersongroup.ca dlandry@patersongroup.ca	
Date Required:		

☒ REG 153/04 ☐ REG 406/19	Other Regulation	Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)		Required Analysis															
☐ Table 1 ☐ Agri/Other ☐ Med/Fine ☐ Table 2 ☐ Res/Park ☐ Coarse ☐ Table 3 ☐ Ind/Comm ☐ Table _____ For RSC: ☐ Yes ☐ No	☐ REG 558 ☐ PWQO ☐ CCME ☐ MISA ☐ SU - Sani ☐ SU - Storm Mun: _____ ☐ Other: _____	Matrix	Air Volume	# of Containers	Field Filtered	Sample Taken		PHCs FL-F4-BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	PCBS				
Sample ID/Location Name						Date	Time												
1 BH9-25-GW1						March 24-25	4:15p												
2 BH10-25-GW1						March 24-25	2:45p												
3 BH11-25-GW1						March 24-25	5:00p												
4 BH12-25-GW1						March 24-25	4:50p												
5 BH13-25-GW1						March 24-25	3:20pm												
6 BH14-25-GW1						March 24-25	1:35p												
7 BH15-25-GW1						March 24-25	2:30p												
8 BH16-25-GW1						March 24-25	3:15p												
9 DUP1-GW1						March 24-25	----												
10																			

Comments:				Method of Delivery: PARACEL COURIER	
Relinquished By (Sign):	Received at Depot:	Received at Lab: LTJ	Verified By: SO		
Relinquished By (Print): Dominic Landry	Date/Time:	Date/Time: 25/03/25-08:45PM	Date/Time: 25, 2025 4:12pm		
Date/Time: March 25, 2025	Temperature: °C	Temperature: 10.4 °C	pH Verified: ☒ By: LTJ		