



## **Phase One Environmental Site Assessment**

5546 Albion Road  
Ottawa, Ontario

Prepared for:

MacEwen Petroleum Inc.  
18 Adelaide Street  
Maxville, Ontario  
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Attention: Mr. Roch Lortie

## EXECUTIVE SUMMARY

Environmental Site Assessment (ESA) on the property located at 5546 Albion Road in Ottawa, Ontario (herein referred to as the 'Site'). The Site is located within a generally rural residential and commercial area of Ottawa, at the northwest corner of the intersection of Albion Road, and Mitch Owens Road. The Site is presently developed and operated as a retail petroleum dispensing facility equipped with gasoline and diesel dispensing pumps and associated underground storage tank installation. A single-story convenience store is located at the approximate central portion of the Site with pavement structure associated with parking and circulation across the central and general eastern portions of the Site. The western and northern portions of the Site is manicured grass with trees. Based on available geological resources, bedrock in the vicinity of the Site is inferred to be at depths ranging between 7 and 16 m below grade. According to *The Atlas of Canada – Toporama*, the regional groundwater flow direction is to the northwest towards the Rideau River, located approximately 8.5 km to the west of the Site, however the shallow overburden soils were confirmed on the Site to flow in a southwesterly direction. For the purposes of this report, a groundwater flow direction of south-westerly will be inferred.

This assessment was conducted to identify potential environmental concerns or liabilities related to the past and present operations conducted on the property and the adjacent lands. A historical records review of the Site was conducted, as well as contact with relevant regulatory agencies, a walk-through Site inspection of the property and interviews with those knowledgeable of the Site. The assessment was conducted in the context of property development, in support of a Site Plan Application package to the City of Ottawa for the development of an industrial warehouse facility. The assessment was completed as per Canadian Standards Association (CSA) Standards. Should a Record of Site Condition (RSC) be required, the due diligence report will need to be revised to meet the Requirements of O. Reg. 153/04 as amended.

The Site is irregular shaped being generally rectangular with a portion of the southeastern extent being reduced. The Site is between approximately 85 and 110 m wide (east-west) by between 90 and 115 m deep (north-south) for an approximate surface area of 10 965 m<sup>2</sup> (2.7 acres).

Based on available geological data reviewed as part of this assessment, and the confirmed potable groundwater conditions, the area can be considered to be Table 2 Industrial Commercial Community (ICC) Use for Properties in a Potable Groundwater Condition.

The Site have been operated as a gasoline service station since the early 1990's (1993) and continues as such to this day. Furthermore, the activities on adjacent lands (east of the Site following Albion Road) from at least the early 1990's (1992) to the late 2010's (approximately 2018) has been light industrial with the presence of underground and aboveground petroleum storage tanks. The properties approximately 200 m northeast of the Site include various light industrial operations, such as an automotive repair facility. Mineral aggregate operations are identified approximately 400 m northwest of the Site.

Based on the results of the Phase One Environmental Site Assessment the following areas of potential environmental concern were identified:



O. Reg 153/04 Schedule D PCA	Location of PCA	Description and Source Information	Contribution to an APEC
<b>PCA 28:</b> Gasoline and Associated Products Storage in Fixed Tanks	On-Site	The Site is operated as a gasoline service station equipped with five (5) underground storage tanks along the southeastern extent of the Site. Fuel dispensing equipment is used on the Site, also located at the general southeastern portion of the property.	The PCA is located on the Site and is therefore automatically considered to contribute to an on-Site APEC.
<b>PCA 30:</b> Importation of Fill Materials of Unknown Quality	On-Site	At the time of the Site visit, there did appear to be intentional grading across the property, which further confirms the findings of buried fill across the Site, as presented in the previously prepared Phase II ESA.	The PCA is located on the Site and is therefore automatically considered to contribute to an on-site APEC.
<b>PCA Other:</b> Spill	On-Site	In 2007, approximately 300 L of gasoline was spilled to the parking lot, road and ditch at the Site. Groundwater and soil impacts were identified.	The PCA is located on the Site and is therefore automatically considered to contribute to an on-site APEC.
<b>PCA Other:</b> Spill	On-Site	In 2017, 25 L of gasoline and water was related to the ground.	The PCA is located on the Site and is therefore automatically considered to contribute to an on-site APEC.
<b>PCA Other:</b> Spill	On-Site	In 2020, approximately 27 L of oil was accidentally released from a vacuum truck.	The PCA is located on the Site and is therefore automatically considered to contribute to an on-site APEC.
<b>PCA 28:</b> Gasoline and Associated Products Storage in Fixed Tanks	5545 Albion Street, 30 m east of the Site following Albion Road (up-gradient).	Records retrieved through the EcologERIS search provider, revealed that a construction company operated at this property from at least the early 1990's (1992) through approximately 2018. The facility was equipped with both underground and above ground petroleum storage tanks.	The PCA is located east of the Site, up-gradient with respect to the groundwater flow direction, therefore represents an APEC across the general eastern portion of the Site.
<b>PCA 52:</b> Storage, maintenance, fuelling and repair of equipment,	5457 Albion Road South, approximately 200	In the 2000 City Directories reviewed, the property is listed as: Albion Glass & Mirror; Carson's Auto	The PCA is located north of the Site, up-gradient with respect to the groundwater flow direction, therefore

O. Reg 153/04 Schedule D PCA	Location of PCA	Description and Source Information	Contribution to an APEC
vehicles, and material used to maintain transportation systems	m north of the Site (up-gradient).	Repair; Doval Automotive; and Ouimet Rick Transport. And in 2006-07, this property is listed as Planet Granite; Albion Glass & Mirror, Can's Auto; and Doval Automotive.	represents an APEC across the general eastern portion of the Site.
<b>PCA Other:</b> Spill	Albion Road, north of Regional Road 8- assumed immediately east of the Site (up-gradient).	In 1993, a private owner at the, spilt 45 L of gasoline to the ditch resulting from an automobile accident.	The PCA is located north of the Site, up-gradient with respect to the groundwater flow direction, therefore represents an APEC across the general eastern portion of the Site.

Based on the findings of the Phase One ESA, it is recommended that a Phase II ESA be conducted on the Site to confirm the presence/absence of impacts in the areas of potential environmental concern identified.

As previously mentioned, a Phase II ESA was previously completed to address the APEC identified on the Site. This report should be read in conjunction with the previous Phase II ESA, dated March 17, 2023. The findings of the Phase II ESA has revealed that soil and groundwater across the Site generally meet the applicable SCS with the following exceptions:

- Conductivity impacts to the surface soil in the southeast portion of the Site; and
- Sodium and chloride impact in the groundwater across the Site.

The conductivity impacts in the soils are found to encompass an area of approximately 490 m<sup>2</sup> and are likely limited to the upper 2.0 m of overburden. The vertical, and horizontal extents of the impacted groundwater have not been established at this time. However, since salt was used for the de-icing purposes the impacts to soil and groundwater are not impact in accordance with O.Reg 153/04 as amended.

Although not confirmed through the corresponding intrusive investigation and associated sampling, it is anticipated that petroleum impacted are present within the existing underground storage tank installation nest extents and underlying the existing concrete apron and fuel dispensing pump. The approximate impacted plume is presented in the included Figure 5. The recommendations of the previous Phase II ESA should be referenced as part of this review. Remedial activities are anticipated as part of the proposed Site redevelopment and are to be completed in accordance with applicable provincial regulations.



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## 1 INTRODUCTION

MacEwen Petroleum Inc. (MPI) has retained LRL Associates Ltd. (LRL) to complete a Phase One Environmental Site Assessment (ESA) on the property located at 5546 Albion Road in Ottawa, Ontario (herein referred to as the 'Site'). The Site is located within a generally rural residential and commercial area of Ottawa, at the northwest corner of the intersection of Albion Road, and Mitch Owens Road. The Site is presently developed and operated as a retail petroleum dispensing facility equipped with gasoline and diesel dispensing pumps and associated underground storage tank installation. A single-story convenience store is located at the approximate central portion of the Site with pavement structure associated with parking and circulation across the central and general eastern portions of the Site. The western and northern portions of the Site is manicured grass with trees. Based on available geological resources, bedrock in the vicinity of the Site is inferred to be at depths ranging between 7 and 16 m below grade. According to *The Atlas of Canada – Toporama*, the regional groundwater flow direction is to the northwest towards the Rideau River, located approximately 8.5 km to the west of the Site, however the shallow overburden soils were confirmed on the Site to flow in a southwesterly direction. For the purposes of this report, a groundwater flow direction of south-westerly will be assumed.

This assessment was conducted to identify potential environmental concerns or liabilities related to the past and present operations conducted on the property and the adjacent lands. A historical records review of the Site was conducted, as well as contact with relevant regulatory agencies, a walk-through Site inspection of the property and interviews with those knowledgeable of the Site. The assessment was conducted in the context of property development, in support of a Site Plan Application package to the City of Ottawa for the development of an industrial warehouse facility. The assessment was completed as per Canadian Standards Association (CSA) Standards. Should a Record of Site Condition (RSC) be required, the due diligence report will need to be revised to meet the Requirements of O. Reg. 153/04 as amended.

The Site is irregular shaped being generally rectangular with a portion of the southeastern extent being reduced. The Site is between approximately 85 and 110 m wide (east-west) by between 90 and 115 m deep (north-south) for an approximate surface area of 10 965 m<sup>2</sup> (2.7 acres). The Site is supplied by a private drilled well, and sewage disposal system, located at the eastern and northern extents of the Site, respectively. Initial pre-consultation discussions with the City of Ottawa, September 22, 2021, revealed that the proposed development is located within the wellhead capture zone for the neighbouring Albion Sun Vista communal supply well system. This communal well is located downgradient (south) of the subject Site, following Mitch Owens Road and is sourced by the shallow bedrock aquifer which is hydraulically connected to the sand/gravel/till overburden recharge zone. The on-Site supply well extends into the underlying bedrock formation to a depth of 41.4 m, beyond the sand/gravel/till overburden.

Based on available geological data reviewed as part of this assessment, and the confirmed potable groundwater conditions, the area can be considered to be Table 2 Industrial Commercial Community (ICC) Use for Properties in a Potable Groundwater Condition.



## 1.1 Phase One Property Information

The Phase One Property Information is summarized below in the following **Table 1** and **Table 2**:

**Table 1: Phase One Property Information – Authorized and Regulation**

Parameters	Information
<b>Work Authorization</b>	The formal authorization to proceed with the Phase One ESA was received by LRL on October 25, 2023.
<b>Purpose of Phase One ESA</b>	<p>A Phase One ESA is required for the above referenced property in support of a Site Plan Application with the City of Ottawa, to support the proposed re-development of the existing gasoline service station.</p> <p>This assessment was conducted to identify potential environmental concerns or liabilities related to the past and present operations conducted on the property and the adjacent lands. The Phase One ESA identifies the existing environmental conditions and potential environmental liabilities associated with the subject property, focusing on the possible presence of contamination on the property. It includes a review of available information (historical data and aerial photographs) and a visual Site inspection to assess potential evidence of past or present activities conducted on the property itself and on adjacent properties that could be potentially contaminating activities (PCA).</p> <p>Potential contamination represents the uncontrolled release of foreign substances within the natural environment. Such an event can result in air, soil and groundwater contamination that may represent environmental liabilities towards the Site and perhaps towards adjacent properties. The ESA evaluates in a consistent manner, within the time constraints imposed for this report, whether such events have occurred at this Site. This level of work is a method of risk reduction and does not eliminate risk for the client.</p>
<b>Record of Site Condition</b>	Not Applicable. An application for a Record of Site Condition (RSC) is not required as part of the proposed land re-development activities.
<b>Regulation/Guideline used for Phase One ESA</b>	<ul style="list-style-type: none"> <li>Canadian Standards Association (CSA) Phase One Environmental Site Assessment, Z768 01 (R2016); and</li> <li>Ontario Regulation (O. Reg.) 153/04, as amended</li> </ul>
<b>Sampling and Testing</b>	<p>As part of a Phase One ESA, in-situ sampling, measuring, testing or analysing the conditions and characteristics of soil, groundwater, or building materials (if applicable), across the subject Phase One ESA Site is not included.</p> <p>These activities would be completed as part of a Phase II ESA or a designated substance and hazardous material survey, if required. A previous Phase II Environmental Site Assessment<sup>1</sup> was completed on the Site. This previous report should be read in conjunction with this report.</p>
<b>Reliance of Report</b>	This report is intended for the sole use of MacEwen Petroleum Inc. and their authorized agents. LRL will not be responsible for any use of the information contained within this report by any third party.

<sup>1</sup> Phase II Environmental Site Assessment, 5546 Albion Road, Ottawa, Ontario, prepared for MacEwen Petroleum Inc., dated March 17, 2023.

**Table 2: Phase One Property Information**

<b>Parameter</b>	<b>Information</b>
<b>Location/Address</b>	5546 Albion Road, Ottawa, Ontario The location of the Site is presented in the included <b>Figure 1</b> .
<b>Property Identification Number (PIN)</b>	PIN#: 5R-14863
<b>Legal Description</b>	Part of Lot 30, Concession 3 (Rideau Front), Geographic Township of Gloucester, City of Ottawa.
<b>Dimensions</b>	Irregular: Being between approximately 100 and 115 m wide (north-south) by between approximately 95 and 110 m deep. The general Site configuration is shown on the Site Plan in <b>Figure 2</b> .
<b>Area</b>	Approximately 10,965 m <sup>2</sup> (2.7 acres)
<b>Frontage / Access to Phase One ESA Property</b>	Albion Road and Mitch Owens Road
<b>Occupancy/Current Land Use</b>	Industrial Use: Retail Gasoline Service Station
<b>Proposed Land Use</b>	Industrial Use: Retail Gasoline Service Station
<b>Zoning</b>	Rural Commercial Zone (RC2)
<b>Phase One ESA Property Owner</b>	MacEwen Petroleum Inc.
<b>Phase One ESA Property Contact</b>	Mr. Roch Lortie 8 Adelaide Street, Maxville, Ontario K0C 1T0 613-527-2100

LRL Associates Ltd. was retained by the Phase One ESA Property owner to complete the Phase One ESA.



## 2 SCOPE OF INVESTIGATION

The Phase One ESA scope of the investigation is generally summarized in the following **Table 3**:

**Table 3: Phase One ESA Scope of Investigation**

Parameter	Information
<b>Regulation/Guideline used as part of the Phase One ESA</b>	<p>The Phase One ESA was carried out in general accordance with the following regulations and guidelines:</p> <ul style="list-style-type: none"> <li>• Canadian Standards Association (CSA) Phase One Environmental Site Assessment, Z768 01 (R2016); and</li> <li>• Parts I through VI of Schedule D of O. Reg. 153/04, as amended, made under the Environmental Protection Act (R.S.O. 1990, Chapter E.19).</li> </ul>
<b>Records Review</b>	<p>The Phase One ESA study area included a minimum radius from the Site boundaries of 250 m. Extending the study area beyond that of the 250 m radius would be dependant upon the sensitivity of the Site relative to surrounding properties. A previous Phase II Environmental Site Assessment was completed on the Site, and was reported in March 2023, which revealed that the Site is not sensitive, with exception to a local well head protection zone, but will have little influence of the findings of the Phase One ESA.</p> <p>The records which were reviewed and interpreted as part of the assessment, for the Phase One ESA property, and the Phase One ESA study area, included: Chain of Title Search; Fire Insurance Plans; Aerial Photographs including historical and current imagery; Topographical, Physiography, and Geological Maps; Previous Investigation reports for the Phase One ESA property, including Phase One ESAs, Phase Two ESA, or Geotechnical Reports; Well Head Protection Areas, Areas of Natural and Scientific Interest (ANSI) as maintained by the Ontario Ministry of Natural Resources; Water Well Information Systems; Permits to Take Water; Waste Disposal sites; Waste Generators &amp; Receiver Information (Ontario Regulation 347); Private &amp; Retail Fuel Storage Tanks (TSSA); Coal Gasification Plants and Coal Tar and Related Tar Industries, Certificates of Approval; Environmental Compliance Reports; Orders; Spills; Notices; Offences or Inspection Reports by the Ontario Ministry of the Environment, Conservation and Parks (MECP); Inventory of PCB Storage Sites; RSC on adjoining property; Certificates of Property Use; National Pollution Release Inventory (NPRI); National PCB Inventory; and all other available illustrated atlases, land registry records and government records.</p> <p>A Freedom of Information (FOI) request was made to the MECP, as well as to the City of Ottawa, for a record search in relation to reportable spills, orders, and convictions associated with the Phase One Property.</p> <p>A Historical Land Use Inventory (HLUI) request was made to the City of Ottawa as part of this Phase One ESA.</p> <p>EcoLog Environmental Risk Information Service (ERIS) was obtained to complete searches in all available environmental databases, including but not limited to the following:</p> <ul style="list-style-type: none"> <li>• National Pollutant Release Inventory (NPRI); PCB information;</li> <li>• Environmental Approvals, permits and certificates;</li> </ul>



Parameter	Information
	<ul style="list-style-type: none"> <li>• Inventory of coal gas plants; Records concerning environmental incidents;</li> <li>• Waste management records including Ontario Regulation 347 Waste Generators;</li> <li>• Fuel storage tanks information including Technical Standards and Safety;</li> <li>• Authority (TSSA) database;</li> <li>• Landfill information; and</li> <li>• Records of Site Condition.</li> </ul>
<b>Interview</b>	Interviewing current and previous owners and/or tenants and local and provincial authorities who have knowledge of the Phase One ESA property.
<b>Site Reconnaissance</b>	<p>The Site reconnaissance consisted of a walk-through of the Phase One Property including a visual inspection of the current land use for the purpose of validating the current and past land uses of Phase One Property that will be identified by the historical searches.</p> <p>The Phase One Study Area was viewed from publicly accessible areas and vantage points.</p> <p>The observations of the Phase One ESA property, and those of the Phase One Study Area, were used to further identify the potential presence of staining, or distressed vegetation which may be indication of a possible environmental concern.</p>
<b>Records and Observations Evaluation</b>	The information gathered from the records review, interview, and Site reconnaissance were reviewed and evaluated for any Potentially Contaminating Activities (PCAs) and any Areas of Potential Environmental Concerns (APECs).
<b>Reporting</b>	Preparation of a Phase One ESA Report, that includes and summarizes the findings of the assessment and records evaluation and provides recommendations for further investigation (if necessary).

This report will present the results of the ESA carried out between October 25<sup>th</sup> and December 4<sup>th</sup>, 2023.



### 3 RECORDS REVIEW

#### 3.1 General

The historical records review of current and past land use of the Phase One Property and the Phase One Study Area included:

- Land registry records;
- Chain of Title Search;
- Fire Insurance Plans;
- Topographical, Physiographical, Geological Maps; and,
- Aerial photographs (historical and current).

##### 3.1.1 Phase One Study Area Determination

The Phase One ESA Study area was established as 250 m from the Phase One ESA Site boundaries. Extending the study area beyond that of the 250 m radius would be dependant upon the sensitivity of the Site relative to surrounding properties. At this juncture, extending the area of influence is not warranted since the condition of the subsurface is relatively unknown and a Phase Two ESA has not been undertaken.

##### 3.1.2 First Developed Use Determination

First developed use is defined by O. Reg. 153/04 Section 22(1) as the first property use after 1875 that resulted in a building or structure or the first potentially contaminating activity, whichever is earlier. The first development use was established from a review of available Aerial Photographs (Section 3.6.1 for further detail); City Directory (Section 3.2 for further detail) in addition to observations made at the time the Site Reconnaissance.

Historically, the Site was used agricultural fields, since at least the mid-1970's (1976). Thereafter, since at least the late 1990's (1999) the Site has operated as a gasoline service station with upgrades in early 2000's (at least 2005).

##### 3.1.3 Fire Insurance Plans

Fire Insurance Plans (FIP) mapped streets and buildings of urban Canada in great detail and illustrate building construction, occupancy and potential fire hazards. They also provide detailed information regarding storage tanks, transformers, boilers and electrical rooms. The original plans were produced between 1875 and 1923 and continued to be produced and updated until production ceased in 1974.

No Fire Insurance Plans were found for the Site.

##### 3.1.4 Property Underwriters' Report

Property Underwriters Site Plans and Reports provide detailed information on a site-specific basis and include descriptions of building construction, heating sources, production processes, and the presence of chemicals or materials which may be stored on Site. They also indicate the presence of environmental hazards such as electrical rooms, transformers, boilers, and storage tanks.

One (1) Property Underwriters' Reports was retrieved for the site as part of this ESA. A copy of the Property Underwriters' Reports is included in **Appendix A**. The findings of the report are summarized as follows:



**Table 4: Property Underwriter’s Report**

Year	Relevant Information
2004	<p>At the time of the inspection, June 2004, the property was owned by MacEwen Petroleum Inc. &amp; 124952 Canada Inc. It is indicated that the building on the Site is a new construction with newly installed gasoline storage tanks. More specifically, the building was constructed in 2003, and encompassed a surface area of approximately 186 m<sup>2</sup>.</p> <p>The facility is building is heated by natural gas (propane) which is stored in an aboveground tank on the site. The facility is also cooled with a central air-cooling system.</p>
<p><b>Relevant information regarding potentially contaminating activity and areas of potential environmental concern:</b></p> <p>The gasoline storage tanks, and general facility operations present potential environmental concern to the Site.</p>	

### 3.2 Chain of Title

Land Titles contain legal title information concerning property ownership, transfer details, and any encumbrances such as mortgages or easements. Each time a new transaction occurs, property records are updated as soon as the instrument is registered. Schedule D of O. Reg. 153/04, as amended, specifies that the Chain of Title search should include all titles to date, dating back to Crown land. As this Phase One ESA is not required for an RSC, the Chain of Title search was not completed back to Crown land, but rather only recent exchanges.

The search of the Service Ontario Land Registry Office was completed by ERIS on November 7, 2023. A copy of the Chain of Title is included in **Appendix B**, and a summary of the pertinent information retrieved is summarized below in **Table 5**.

**Table 5: Chain of Title**

Property/PIN #	Details
<p><b>Grant Castle Corp.</b>                      /PIN#: 04327 - 0030 (LT)</p>	<p>The records reveal that the Site was transferred to 124952 Canada Inc. in January 1992.</p>

### 3.3 Environmental Reports

Below is a summary of the previous environmental reports available to LRL as part of this investigation, which includes:

- Phase II Environmental Site Assessment, 5546 Albion Road, Ottawa, Ontario, prepared for MacEwen Petroleum Inc. by LRL, March 17, 2023; and
- Hydrogeological Assessment & Terrain Analysis – Proposed Fuel Dispensing Facility Re-development, 5546 Albion Road, Ottawa, Ontario, prepared for MacEwen Petroleum Inc. by LRL, March 17, 2023.



<b>Report:</b>	Phase II Environmental Site Assessment, 5546 Albion Road, Ottawa, Ontario
<b>Date:</b>	March 17, 2023
<b>Author:</b>	LRL Associates Ltd.
<b>Prepared for:</b>	MacEwen Petroleum Inc.
<b>Description of data, analysis and findings relevant to the Phase One ESA:</b>	
<p>MacEwen Petroleum Inc. retained LRL to complete a Phase II Environmental Site Assessment (ESA) on the property located at 5546 Albion Road in Ottawa, Ontario. The assessment was conducted in the context of property redevelopment. The purpose of a Phase II ESA is to determine if recognized potential environmental concerns have negatively impacted soil and groundwater quality of the subject Site. The potential environmental concerns (PECs) identified that requires investigation include: Petroleum handling and dispensing facility operations and associated equipment on the Site; Aggregate extraction facility located approximately 390 m northeast and 600 m east of the Site; and the historical industrial/commercial development previously occupying the property located immediately east of the Site.</p> <p>The investigation involved advancing ten (10) boreholes across the Site at strategic locations based on areas of PECs. Four (4) of the boreholes were completed as monitoring wells to assess hydrogeological conditions and facilitate groundwater sampling. The subsurface soil conditions encountered generally consist of fill to depths between 0.4 and 1.8 m below ground surface (bgs), sand to between 2.8 and 4.5 m bgs, and glacial till to a depth of 4.6 m bgs, where the boreholes were terminated. The overburden material was noted to saturated at depths between 1.5 and 2.1 m bgs. Groundwater depth measurements from the monitoring wells installed were between 1.77 and 1.98 m bgs. Based on these elevations the groundwater flow direction on the Site is towards the south-southwest.</p> <p>Contaminants of potential concern (COPCs), for the soil and groundwater on the Site, include Petroleum Hydrocarbon Compounds (PHCs), Volatile Organic Compounds (VOCs), Polycyclic Aromatic Hydrocarbons (PAH), PCBs, metals, and inorganics.</p> <p>No olfactory or visual evidence of petroleum hydrocarbon impacts were observed in the soils collected from all boreholes, and the combustible soil vapour (CSV) concentrations measured in the soil samples collected ranged between &lt;0.1 ppm and 0.7 ppm. VOC and PAH parameters analysed were not detected in any of the soil samples submitted for analysis. Select PHC and metals parameters analysed were detected, however levels were measured below applicable Table 2 SCS's. The general inorganic parameters analysed met the applicable standards with the exception to one (1) sample (BH22-4-SS1A) which exceeded the SCS for conductivity.</p> <p>Headspace VOC levels in the monitoring wells ranged between &lt;0.1 ppm and 3.2 ppm. VOC, PAH, and PCB parameters were not detected in the groundwater samples submitted. PHC F3 and PHC F4 were detected in select locations, however the levels were below the SCSs. Sodium and chloride exceeded the SCS across the subject Site in the samples collected.</p> <p>The soil and groundwater across the Site generally meet the applicable SCS with the following exceptions:</p> <ul style="list-style-type: none"><li>• Conductivity impacts to the surface soil in the southeast portion of the Site; and</li><li>• Sodium and chloride impact in the groundwater across the Site.</li></ul> <p>The conductivity impacts in the soils are found to encompass an area of approximately 490 m<sup>2</sup> and are likely limited to the upper 2.0 m of overburden. The vertical, and horizontal extents of</p>	



the impacted groundwater have not been established at this time. Although not confirmed through the corresponding intrusive investigation and associated sampling, it is anticipated that petroleum impacted are present within the existing underground storage tank installation nest extents and underlying the existing concrete apron and fuel dispensing pump.

The findings presented herein, in this Phase II ESA report, may be relied upon by the client for the purposes of re-development, subject to the applicable conclusions and limitation outlined herein.

At the time of re-development, impacted soil should be removed from the Site in general accordance with Technical Standards and Safety Authority's (TSSA) Environmental Management Protocol for Fuel Handling Sites in Ontario, August 2012 (formerly GA1/99), in addition to the following provincial regulations:

- O. Reg. 406/19: On-Site and Excess Soil Management
- O. Regulation 558/00: General -Waste Management; and
- O. Reg. 153/04: Record of Site Condition.

It is recommended that if groundwater monitoring wells are not required for future monitoring purposes, they should be decommissioned in accordance with O. Reg. 903. It is also recommended that the USTs to be installed be constructed of fibreglass so the elevated sodium salts in the groundwater and soil will not impact the integrity of the walls of the tanks.

**Relevant information regarding potentially contaminating activity and areas of potential environmental concern:**

The anticipated petroleum impacted soils identified in the report present a potential environmental concern to the Site.



<b>Report:</b>	Hydrogeological Assessment & Terrain Analysis - Proposed Fuel Dispensing Facility Re-development, 5546 Albion Road South, Ottawa (Gloucester), Ontario
<b>Date:</b>	March 17, 2023
<b>Author:</b>	LRL Associates Ltd.
<b>Prepared for:</b>	MacEwen Petroleum Inc.
<b>Description of data, analysis and findings relevant to the Phase One ESA:</b>	
<p>LRL was retained by MacEwen Petroleum Inc. to complete a Hydrogeological Assessment &amp; Terrain Analysis for the property located at 5546 Albion Road in Ottawa (Gloucester), Ontario as part of a proposed site re-development and associated Site Plan Application submission to the City of Ottawa. It is anticipated that the existing fuel dispensing facility will be re-developed to include new fuel storage and dispensing equipment, and convenience store serviced by a private water supply well and sewage disposal system.</p> <p>The assessment was carried out to determine if the existing supply well can adequately and safely supply the proposed development with potable water according to the Ontario Drinking Water Standards (ODWS) and Procedure D-5-5 Technical Guideline for Private Wells: Water Supply Assessment (August 1996); and that the proposed development can be serviced with a private septic system. The assessment was also intended to confirm that the construction of the supply well, and proposed construction activities, will be such as to minimize impairment to the regional aquifer and that it meets the current Ontario Regulation 903 requirements.</p> <p>The assessment was conducted according to Ontario Ministry of the Environment, Conservation and Parks (MECP) "Hydrogeological Technical Information Requirements for Land Development Applications" (April 1995), which include the following guidelines and procedures:</p> <ul style="list-style-type: none"><li>• Guideline D-5 Planning for Sewage and Water Services (August 1996);</li><li>• Procedure D-5-4 Technical Guideline for Individual On-site Sewage Systems: Water Quality Impact Risk Assessment (August 1996); and</li><li>• Procedure D-5-5 Technical Guideline for Private Wells: Water Supply Assessment (August 1996).</li></ul> <p>The Site is located within the wellhead capture zone for the neighbouring Albion Sun Vista communal supply well system. This communal well is located downgradient (south) of the subject Site, following Mitch Owens Road and is sourced by the shallow bedrock aquifer which is hydraulically connected to the sand/gravel/till overburden recharge zone.</p> <p>As part of the assessment, a desktop review of potential sources of contamination to the supply aquifer was completed. This review was completed with general reference to Ontario Regulation 153/04. The review revealed the following potential sources of contamination, and the corresponding PCA as set out by Ontario Regulation 153/04:</p> <ul style="list-style-type: none"><li>• Petroleum handling and dispensing facility operations and associated equipment on the Site;</li><li>• Aggregate extraction facility located approximately 390 m northeast and 600 m east of the Site; and</li></ul>	

- The historical industrial/commercial development previously occupying the property located immediately east of the Site, which historically included a fueling station along the southern extent of the property, an above-grade storage container (tank) associated with the fueling station, and the numerous pieces of heavy machinery and large vehicles are visible across the property through historical aerial imagery reviewed.

A search was conducted of the well records from the MECP Water Well Record revealed 70 wells recorded within an approximately 500 m radius of the Site. The records of the wells within 500 m of the site revealed that the wells are drilled wells extending to depths between 14.0 and 67.9 m. geological conditions within 500 m are generally similar and consist of sand or sand and gravel mix, followed by clay over bedrock. Glacial till material was encountered in select wells retrieved, and additionally, clay was not identified in all locations. The bedrock typically includes limestone, sandstone, or a combination of both.

With consideration to the average daily flow demand, a 6-hr pump test was conducted on the existing supply well. The well was pumped at a constant flow rate ( $\pm 5\%$ ) of approximately 30 L/min over 6-hr period. The drawdown after 6-hr of pumping was 1.55 m which represents only approximately 4.0% of the available drawdown in the well. The specific capacity of the well after 6-hr of pumping was calculated to be 0.322 L/sec/m with a long-term availability of 51.1 m<sup>3</sup> per day. The recovery was commenced at the end of the 6-hr pumping duration. After one (1) hour of recovery, the well returned to 97.4% of the initial water level (3.02 m btc).

Based on the observed drawdown/recovery relationship, it is concluded that the long-term yield of the test well is in excess of minimum daily demand of 8 620 L (8.62 m<sup>3</sup>/day) and is found to be able meet a maximum pumping rate of 128.9 L/minute. This is considered sufficient to supply the inferred average and peak hourly flow demands of 17.95 L/min and 21.55 L/min, respectively.

Based on the Site's geology and hydrogeology the recommended potential supply aquifer for the Site, is the bedrock aquifer. The existing supply well currently intercepts this aquifer, and it is our understanding that the proposed re-development of the Site will utilize the existing well. Based on the findings of the Hydrogeological Assessment, it is considered acceptable for the proposed re-development to use the existing supply well on Site.

The Site has an area of 10 965 m<sup>2</sup> (1.09 hectare), therefore the Lot Size Consideration approach was used to assess the potential impacts on the groundwater. The subsurface conditions indicated for the Site are considered suitable for a Class IV septic sewage disposal system with a partially to fully raised leaching bed depending on the Site-specific soil and groundwater conditions at the actual location of the proposed septic system leaching bed. The leaching bed should be constructed to conform to the specifications set out in the Ontario Building Code (OBC).

**Relevant information regarding potentially contaminating activity and areas of potential environmental concern:**

The anticipated petroleum impacted soils identified in the report present a potential environmental concern to the Site.



### 3.4 City Directories

City Directories have been produced for most urban and some rural areas since the late 1800s. These directories are often archived in research and municipal libraries. The directories are generally not comprehensive and may contain gaps in time periods. Where available, city directories were reviewed in a minimum five-year increment to determine historical property use of the subject and adjoining properties. The City Directories search was completed by ERIS and included a search of the Vernon's Ottawa and Area, Ontario City Directory.

A copy of the City Directory is included in **Appendix C**, and a summary of the findings is included below in **Table 6**:

**Table 6: City Directories**

Location	Details
<b>Years Searched:</b>	1987 - 2021
<b>Historical Property Uses:</b>	
<b>Subject Site:</b>	The address was not listed from 1987 through 1994. In 1997, through to 2021, the Site was identified as MacEwen Petroleum Inc. (although not listed in 2006-07).
<b>Adjacent Land:</b>	<p><b>Ballycastle Crescent (North of the Site):</b> The street is not listed between 1987 and 2006-07. In 2012, the search revealed that no listings found through to 2021.</p> <p><b>Mitch Owens Road (South, South-East and South-West):</b> Mitch Owens Road is not listed in 1987 through 1994. One (1) address is specified in 1997 (6690 Mitch Owens Road) which is not listed. In 2000, 6600; 6690; and 6760 Mitch Owens Road are listed with signal occupants. No listings were found, or the address was not listed thereafter.</p> <p><b>Albion Road South (East &amp; West of the Site):</b> Albion Road South was not listed within the search radius in 1987 and 1994. The following listings were identified on Albion Road South:</p> <ul style="list-style-type: none"> <li>○ In 1997 through 2000, and in 2012 and 2017, 5545 Albion Road South, located immediately east of the site following Albion Road South, is listed as Vanson Construction Ltd. Danson Construction is included in the listing in 2012, 2017 and is the sole listing at this address in 2021; and</li> <li>○ In 2000, 5457 Albion Road South, approximately 200 m north of the Site, is listed as: Albion Glass &amp; Mirror; Carson's Auto Repair; Doval Automotive; and Ouimet Rick Transport. In 2006-07, this property is listed as Planet Granite; Albion Glass &amp; Mirror, Can's Auto; and Doval Automotive.</li> </ul>
<b>Relevant information regarding potentially contaminating activity and areas of potential environmental concern:</b>	
The subject Site activities since at last 1997 are considered a potential contaminating activity. The neighbouring construction company facilities to the east, and the automotive repair centre approximately 200 m north of the Site are considered potential environmental concerns.	



### 3.5 Environmental Source Information

As part of the Phase One ESA, a search was completed of available Federal, Provincial and Private Databases. The search covered the Phase One ESA Site, as well as the Phase One Study Area. The information was obtained through the following search providers:

- EcoLog ERIS search provider;
- MECP Water Well Registry;
- MECP Freedom of Information (FOI) Request;
- City of Ottawa FOI, Historical Land Use Inventory (HLUI) Requests and other available related documents; and
- Technical Standards and Safety Authority (TSSA).

A summary of the records retrieved, pertaining to the Phase One ESA Study Area, interpreted from the ERIS reports received are summarized below in **Table 7**. A copy of the report provided is included in **Appendix D**.

**Table 7: Summary of ERIS Search Records**

Database Searched	Records Retrieved		Description of data, analysis and findings relevant to the Phase One ESA
	Phase One Property	Phase One Study Area	
National Pollutant Release Inventory (NPRI)	0	0	No records were found within a 250 m radius from the Site.
Certificate of Approvals (CofA)	1	8	<p>Nine (9) records of CofA were retrieved within a 250 m radius from the Site. One (1) record retrieved was for the Site and indicated that 5546 Albion Road was issued a CofA for industrial sewage in June 2002. The details included that the stormwater management facility including hydrocarbon separator to be constructed to service a new fuel sales facility. The remaining CofA record retrieved as summarized as follows:</p> <ul style="list-style-type: none"> <li>○ Four (4) records were issued to Vanson Construction Ltd, listed east of the Site following Albion Road South, at 5545 Albion Road. The records were for a Waste Management System, approved in 2001, 2007 and 2008;</li> <li>○ Jack Hanna – Albion Sun Vista Trailer Park, located at 6600 Mitch Owen Road, approximately 50 m south of the Site, is listed as having an industrial waste approval in 1992 for a clean-up furnace oil spill; and</li> </ul>

Database Searched	Records Retrieved		Description of data, analysis and findings relevant to the Phase One ESA
	Phase One Property	Phase One Study Area	
			<ul style="list-style-type: none"> <li>○ Three (3) additional records were retrieved from Albion Sun Vista Mobile Home Park located approximately 50 m south of the Site, at Part Lot 1 Concession 4, is listed as having a CofA approved for municipal &amp; private sewage in 2000; and a CofA for municipal water cancelled in 1996. The details related to the sewage system approvals indicate <i>“This application is for 10 septic tank installations on the last phase and 17 installations for infilling in this Development”</i> and <i>“This application is for the private communal water system to supply existing units and new development in the Albion Sun Vista Mobile Home Park. Water is supplied from three existing wells on site through an inground pipe distribution system.”</i></li> </ul> <p>The MECP is not generally notified of sewage disposal systems which are designed to accept less than 10,000 L/day. Therefore, as this record was retrieved through a MECP database, it is likely the industrial sewage works is in excess of 10,000 L/day and is considered a potential contaminating activity to the Site.</p>
<b>Commercial Fuel Oil Tanks (CFOT)</b>	0	0	No records were found within a 250 m radius from the Site.
<b>Pesticide Register (PES)</b>	0	0	No records were found within a 250 m radius from the Site.
<b>Permit to Take Water (PTTW)</b>	0	2	<p>Two (2) records were retrieved for PTTW within a 250 m radius of the Site. They include the following:</p> <ul style="list-style-type: none"> <li>○ Albion Sun Vista Development Corp., Albion Sun Vista Community Address located at 6600 Mitch Owens Road, approximately 50 m south of the Site, was issued a PTTW in 2008; and</li> <li>○ Parkbridge Lifestyle Communities Inc., located also at 6600 Mitch Owens Road and</li> </ul>



Database Searched	Records Retrieved		Description of data, analysis and findings relevant to the Phase One ESA
	Phase One Property	Phase One Study Area	
			<p>1121 Stagecoach Road, approximately 50 m south of Site was issued a PTTW in 2015.</p> <p>The PTTW was issued to the community living facility and is likely associated with communal water supply wells. These records do not present a risk for potential environmental concern.</p>
Environmental Activity and Sector Registry (EASR)	0	0	No records were found within a 250 m radius from the Site.
List of Expired Fuels Safety Facilities (EXP)	0	0	No records were found within a 250 m radius from the Site.
Environmental Compliance Approval (ECA)	1	5	<p>One (1) record of ECA record was retrieved for the subject Site. In June 2022, an ECA – Industrial Sewage Works was issued to MacEwen Petroleum Inc.</p> <p>The remaining five (5) ECA records retrieved were for Vanson Construction Limited, located immediately east of the Site following Albion Road, at 5545 Albion Road. The ECAs for this property included approved or revoked/replaced waste management systems from between 2001 and 2014.</p> <p><b>The types of waste handled at Vanson Construction Limited, located immediately east of the Site following Albion Road, at 5545 Albion Road, were not specified and are considered a potential environmental concern. The industrial sewage works at the subject Site is also a potential concern, based on the site activities as a gasoline dispensing facility which is a potential contaminating activity.</b></p>
Ontario Regulation 347 Waste	1	3	MacEwen Petroleum Inc. is listed as a waste generator of light fuels (221 L) in October 2022. Based on LRLs knowledge of the property, namely the work completed in 2022, it is confirmed that this waste generator was limited to the excess soil



Database Searched	Records Retrieved		Description of data, analysis and findings relevant to the Phase One ESA
	Phase One Property	Phase One Study Area	
<b>Generators Summary (GEN)</b>			<p>cuttings, and groundwater monitoring well purge water produced, and removed from the Site as part of the previous Phase II Environmental Site Assessment activities. This does not present a potential environmental concern.</p> <p>The remaining three (3) records retrieved are listed to Vanson Construction Ltd., at 5545 Albion Road (based on other information collected to date). The records indicate that between 1992 and 2001, Vanson Construction Ltd. was registered as a generator of waterworks &amp; sewage comprised of waste oils and lubricants. And as of December 2017, they were further listed as a generator of light fuels.</p> <p><b>Based on the location of these identified waste generating facilities, trans-gradient with respect to the southerly groundwater flow direction, they do not represent a potential environmental concern or potential contaminating activity to the Site.</b></p>
<b>Record of Site Condition (RSC)</b>	0	0	No records were found within a 250 m radius from the Site.
<b>Retail Fuel Storage Tanks (RST)</b>	2	0	<p>The Site, 5546 Albion Road South, is registered as a service station gasoline oil &amp; natural gas. No further details are provided.</p> <p><b>The handling and storage of petroleum products is a potential environmental concern, and as it is on the subject Site, these records are recognized as a potential contaminating activity.</b></p>
<b>Environmental Registry (EBR)</b>	0	1	Vanson Construction Limited, immediate east of the site following Albion Road, at 5545 Albion Road, is listed as being registered in this data base in October 2000. No further details are available, other than that they include various construction sites around the Ottawa-Carlton Region.





Database Searched	Records Retrieved		Description of data, analysis and findings relevant to the Phase One ESA
	Phase One Property	Phase One Study Area	
			<b>Based on the trans-gradient location of this facility for the Site, it does not present a potential environmental concern.</b>
<b>ERIS Historical Searches (EHS)</b>	0	5	Five (5) records were retrieved within 250 m of the Site. These records retrieved are likely from previous Environmental Site Assessments completed on the neighbouring properties. The details presented do not provide additional value to this assessment with respect to potential contaminating activities, or potential environmental concerns.
<b>Water Well Information System (WWIS)</b>	0	10	Ten (10) records were retrieved within 250 m of the Site. The records retrieved are summarized as: <ul style="list-style-type: none"> <li>• Well ID# 1510978 is a domestic well located approximately 10 m southwest of the Site at Lot 30 Concession 3;</li> <li>• A second listing for Well ID# 1510978 was reported, which is a domestic to the south of the Site at Lot 30 Concession 4;</li> <li>• Well ID 7275892 is a domestic well located approximately 50 m southeast of the Site at 6690 Mitch Owens Road;</li> <li>• Well ID# 7234834 is a domestic supply well located approximately 150 m northwest of the Site at 647 Ballycastle Cres.;</li> <li>• Well ID# 7234935 is a domestic supply well located approximately 180 m northwest of the Site at 651 Ballycastle Cres.;</li> <li>• Well ID# 7108138 is a domestic supply well located approximately 200 m east of the Site at 6693 Pebble Trail;</li> <li>• Well ID# 7329110 is a domestic supply well located approximately 200 m northwest of the Site at 639 Ballycastle Cres.;</li> <li>• Well ID# 7330777 is a domestic supply well located approximately 200 m west of the Site at 655 Ballycastle Cres.;</li> <li>• Well ID# 1517522 is a domestic supply well located approximately 230 m northwest of the Site at Lot 30 Concession 4;</li> </ul>



Database Searched	Records Retrieved		Description of data, analysis and findings relevant to the Phase One ESA
	Phase One Property	Phase One Study Area	
			<ul style="list-style-type: none"> <li>Well ID# 7346286 is a domestic supply well located approximately 230 m northwest of the Site at 648 Ballycastle Cres.</li> </ul> <p>No environmental or health related impacts were reported for these wells, nor were they monitoring well/test wells which could be indications of potential areas of concern.</p>
<b>Environmental Condition Reports</b>	--	--	Not included in Phase One ESA ERIS searches.
<b>Areas of Natural Significance</b>	--	--	Not included in Phase One ESA ERIS searches.
<b>TSSA Pipeline Incidences (PINC)</b>	0	0	No records were found within a 250 m radius from the Site.
<b>Fuel Storage Tanks (FST)</b>	5	3	<p>Five (5) records of fuel storage tanks were retrieved for the Site, registered to MacEwen Petroleum Inc. The records indicate that two (2) of the fuel storage tanks on the site are doubled walled, jacketed tanks of fibreglass and steel construction, and installed in 2003. They include one (1) 26,000 L capacity tank holds diesel fuel, and 35,000. The remaining tanks are indicated to have an installation date of 1993, capacities of 25,000, 35,000 and 45,400 L and are single walled fibreglass. The contents include gasoline.</p> <p>The remaining three (3) records retrieved within 250 m of the Site are listed for Vanson Construction Ltd, east of the Site at 5545 Albion Road. The records indicate two (2) 13,600 L capacity single walled gasoline underground storage tanks installed in 1992; and one (1) singled walled above ground diesel storage tank with a capacity of 500 L, and dated 2000.</p> <p><b>The fuel storage tanks on the site present a potential containing activity. Based on the properties trans-gradient location of those at 5545 Albion Road, from the site, the above off-</b></p>



Database Searched	Records Retrieved		Description of data, analysis and findings relevant to the Phase One ESA
	Phase One Property	Phase One Study Area	
			<p>site records retrieved do not represent a potential environmental concern or potential contaminating activity to the Site.</p>
<b>Fuel Storage Tank – Historic (FSTH)</b>	2	2	<p>Two (2) records of historic fuel storage tanks were retrieved for the subject Site. The records indicate that as of August 2007, the retail fuel outlet at 5546 Albion Road, is registered to have five (5) underground petroleum storage tanks containing gasoline and diesel Three (3) of the installations were installed in 1993, and were single walled construction, with the remaining two (2) being installed in 2003 with a double walled construction.</p> <p>Two (2) records retrieved within 250 m of the Site were for Vanson Construction Ltd., located east of the Site at 5545 Albion Road. The records indicate that as of August 2007, the facility included a private fuel outlet – self serve, with three (3) petroleum storage tanks. Two (2) of the tanks were underground storage installations and contained gasoline with capacities of 13,600 L, installed in 1992; and one (1) was an above diesel storage tank with a 500 L capacity.</p> <p><b>The fuel storage tanks on the Site present a potential containing activity. Based on the properties trans-gradient location of those at 5545 Albion Road, from the Site, the above off-site records retrieved do not represent a potential environmental concern or potential contaminating activity to the Site.</b></p>
<b>Delisted Fuel Tanks (DTNK)</b>	4	0	<p>The records of delisted fuel tanks were reported for the Site. They included an expired fuel storage facility up to March 2012 and up to May 2013; in addition to associated piping which expired up to March 2012.</p> <p>One (1) record retrieved indicated an active gasoline station – self serve, reported in May 2021.</p> <p><b>The fuel storage tanks on the Site present a potential containing activity.</b></p>

Database Searched	Records Retrieved		Description of data, analysis and findings relevant to the Phase One ESA
	Phase One Property	Phase One Study Area	
Waste Disposal Sites - MOE CA Inventory	0	0	No records were found within a 250 m radius from the Site.
Ontario Spills (SPL)	3	3	<p>Six (6) spill incidents were reported within a 250 m radius of the Site, with three (3) of which reported at the Site. The records retrieved are summarized as follows:</p> <ul style="list-style-type: none"> <li>In 1993, a private owner at the Albion Road, north of Regional Road 8, spilt 45 L of gasoline to the ditch resulting from an automobile accident. Environmental impacts were confirmed;</li> <li>In 2022, at the intersection of Albion Road and Mitch Owens Road, immediately southeast of the Site, a collision resulted in spill incident. However, it was reported that the contaminant quantity was 0 liters and that the environmental impact was considered minor;</li> <li>In 2007, approximately 300 L of gasoline was spilt to the parking lot, road and ditch at the Site (MacEwen Petroleum located at 5546 Albion Road). Groundwater and soil impacts were identified. The incident was reported as a result of equipment failure;</li> <li>In 2017, a second incident was reported at the Site (5546 Albion Road South) when 25 L of gasoline and water was related to the ground. The incident was the result of operator error;</li> <li>In 2020, Tomlinson Environmental Services Ltd. spilt approximately 27 L of oil from a vacuum truck on the Site (5546 Albion Road). The incident was the result of equipment failure; and</li> <li>In 2019 at 6600 Mich Owens Road, Albion Sun Vista Community, approximately 50 m south of the Site, a spill incident was reported however the summary of the incident was indicated as improper waste disposal on Site.</li> </ul> <p><b>The incidents reported on the site are considered a potential contaminating activity. Those</b></p>



Database Searched	Records Retrieved		Description of data, analysis and findings relevant to the Phase One ESA
	Phase One Property	Phase One Study Area	
			reported offsite are located trans- to down-gradient of the site, therefore are not considered a potential environmental concern.
Private and Retail Fuel Storage Tanks (PRT)	0	0	No records were found within a 250 m radius from the Site.
Scott's Manufacturing Directories (SCT)	0	2	<p>Two (2) records were retrieved under the Scott's Manufacturing Directory. They included the following:</p> <ul style="list-style-type: none"> <li>Albion Sun Vista Park, 6600 Mitch Ownes Road, located approximately 50 m south of the Site, was reported as a All Other Wholesaler-Distributors established in 1982; and</li> <li>Albion Sun Vista Park, 6600 Mitch Ownes Road, located approximately 50 m south of the Site, was reported as a All Other Specialty-Line Building Supplies Wholesaler-Distributors established in 2000.</li> </ul> <p><b>Due to the record location down-gradient of the Site, this record is not considered to represent a potential environmental concern or potential contaminating activity to the Site.</b></p>

Based on the records retrieved, as discussed above, the following potential contaminating activities have been identified within a 250 m radius of the Site, which are unlikely to present a potential impact the subject Site:

- Certificate of approvals for municipal and private sewage works at the Albion Sun Vista Mobile Home Park, approximately 50 m south of the Site. Due to the record location down-gradient of the Site, this record is not considered to represent a potential environmental concern or potential contaminating activity to the Site;
- One (1) certificate of approval was issued for the Albion Sun Vista Mobile Home Park, approximately 50 m south (down-gradient) of the Site. The approval was for industrial waste associated with a furnace oil remediation. Due to the record location down-gradient of the Site, this record is not considered to represent a potential environmental concern or potential contaminating activity to the Site;



- Two (2) records were retrieved under the Scott's Manufacturing Directory. Due to the record location down-gradient of the Site, this record is not considered to represent a potential environmental concern or potential contaminating activity to the Site;
- Three (3) records were retrieved from the Ontario Regulation 347 Waste Generators Summary, which were for Vanson Construction Ltd., at 5545 Albion Road (based on other information collected to date). The records indicate that between 1992 and 2001, Vanson Construction Ltd. was registered as a generator of waterworks & sewage comprised of waste oils and lubricants. And as of December 2017, they were further listed as a generator of light fuels. Based on the location of these identified waste generating facilities, trans-gradient with respect to the southerly groundwater flow direction, they do not represent a potential environmental concern or potential contaminating activity to the Site;
- MacEwen Petroleum Inc. is listed as a waste generator of light fuels (221 L) in October 2022. Based on LRL's knowledge of the property, namely the work completed in 2022, it is confirmed that this waste generator was limited to the excess soil cuttings, and groundwater monitoring well purge water produced, and removed from the Site as part of the previous Phase II Environmental Site Assessment activities. This does not present a potential environmental concern;
- Vanson Construction Limited, immediate east of the site following Albion Road, at 5545 Albion Road, is listed as being registered in this data base in October 2000. No further details are available, other than that they include various construction sites around the Ottawa-Carlton Region. Based on the trans-gradient location of this facility for the Site, it does not present a potential environmental concern;
- Three (3) records of fuel storage tanks were retrieved for Vanson Construction Ltd, east of the Site at 5545 Albion Road. The records indicate two (2) 13,600 L capacity single walled gasoline underground storage tanks installed in 1992; and one (1) single walled above ground diesel storage tank with a capacity of 500 L, and dated 2000. Two (2) records of historic fuel storage tanks were retrieved. Based on the properties trans-gradient location of those at 5545 Albion Road, from the site, the above off-site records retrieved do not represent a potential environmental concern or potential contaminating activity to the Site;
- Three (3) spill incidents were reported within a 250 m radius of the Site. Those reported offsite are located trans- to down-gradient of the site, therefore are not considered a potential environmental concern; and
- Two (2) records were retrieved under the Scott's Manufacturing Directory. Due to the record location down-gradient of the Site, this record is not considered to represent a potential environmental concern or potential contaminating activity to the Site.

Furthermore, the records retrieved, as discussed above, have identified the following potential contaminating activities, which poses a risk to the Site:

- Four (4) certificate of approval records were issued to Vanson Construction Ltd, listed east of the Site following Albion Road South, at 5545 Albion Road. The records were for a Waste Management System. The types of waste handled at Vanson Construction Limited, located immediately east of the Site following Albion Road, at 5545 Albion Road, were not specified and are considered a potential environmental concern;
- Six (6) records of environmental compliance approvals were retrieved, of which one (1) was issued to the Site for Industrial Sewage Works; and five (5) were issued to Vanson Construction Limited, located immediately east of the Site following Albion Road. The types

of waste handled at Vanson Construction Limited, located immediately east of the Site following Albion Road, at 5545 Albion Road, were not specified and are considered a potential environmental concern. The industrial sewage works at the subject Site is also a potential concern, based on the site activities as a gasoline dispensing facility which is a potential contaminating activity;

- The Site, 5546 Albion Road South (the Site), is registered as a service station gasoline oil & natural gas. No further details are provided. The handling and storage of petroleum products is a potential environmental concern, and as it is on the subject Site, these records are recognized as a potential contaminating activity;
- Five (5) records of fuel storage tanks were retrieved for the Site, registered to MacEwen Petroleum Inc. The records indicate that two (2) of the fuel storage tanks on the site are doubled walled, jacketed tanks of fibreglass and steel construction, and installed in 2003. They include one (1) 26,000 L capacity tank holds diesel fuel, and 35,000. The remaining tanks are indicated to have an installation date of 1993, capacities of 25,000, 35,000 and 45,400 L and are single walled fibreglass. The contents include gasoline. Two (2) records of historical fuel storage tanks were also retrieved for the site. The fuel storage tanks (present and historic) on the site present a potential containing activity;
- The records of delisted fuel tanks were reported for the Site. They included an expired fuel storage facility up to March 2012 and up to May 2013; in addition to associated piping which expired up to March 2012. One (1) record retrieved indicated an active gasoline station – self serve, reported in May 2021. The fuel storage tanks on the Site present a potential containing activity; and
- Three (3) spill incidents were reported at the Site. The incidents reported on the site are considered a potential contaminating activity.

### 3.5.1 City of Ottawa

#### 3.5.1.1 City of Ottawa Historical Land Use Inventory (HLUI)

The City of Ottawa was contacted on October 31<sup>st</sup>, 2023, to obtain available information for the Site and surrounding areas through their Historical Land Use Inventory (HLUI). A formal response has been received on November 20<sup>th</sup>, 2023, and reviewed by LRL.

The Planning, Infrastructure and Economic Development Department at the City of Ottawa has the following information in response to the HLUI request for the Site, a copy of the HLUI response is included in **Appendix E**:

- According to the Planning, Infrastructure and Economic Development Department, the following was indicated:
  - Environmental Remediation Unit: No environmental records were found for the Site;
  - Ottawa Public Health – Environmental Health: LRL searched the link provided by the City of Ottawa to access Ottawa Public Health inspection results. No records were retrieved for the subject Site;
  - Sewer Use Program: Approvals, permits, violations of environmental statutes, regulations or bylaws, other environmental records were found by the City's Sewer Use Program for the Site; and
  - Solid Waste Services: No records were found for the property.

- The City of Ottawa has provided LRL with a HLUI summary report spreadsheet, in addition to a HLUI Map that includes landfills and environmental risk management areas within 500 m of the subject Site. LRLs review of the map provided indicates a HLUI Point Feature on the property to the east of the Site (5545 Albion Road), and HLUI area which encompasses the majority of the property within 500 m of the Site to the east and northeast.
  - The HLUI Point Feature identified by the City includes:
    - Vanson Construction Ltd. located at 5545 Albion Road, which is identified as a Gasoline Station – Self Serve facility with underground and above ground gasoline and diesel storage tanks. These details were indicated to be supplied by the Technical Standards and Safety Authority;
    - Vanson Construction Ltd., at 5545 Albion Road, is further indicated to be a private fuel outlet with gasoline and diesel tanks. These records were indicated to be retrieved from a Groundwater Study 2004; and
    - The Site is listed as an active gasoline service station with gasoline and diesel underground storage tanks. The source of these details are indicated to be from the Technical Standards and Safety Authority.
  - The HLUI Area Features identified by the City are summarized as follows:
    - Vanson Construction Limited, Industrial Construction at 5545 Albion Road, (Other Than Buildings); 1998 - 2017;
    - Danson Construction, Construction-Heavy Projects, 5545 Albion Road, 2017;
    - MacEwen Petroleum Inc., Gasoline Service Stations, at 5546 Albion Road, 1998 – 2017;
    - Ottawa Greenbelt Construction Ltd., Office/Shop at 5151 Albion Road and 2870 Rideau Road, 2012 – 2017;
    - Cace Construction, Non Residential Building and Development at 5360 Bank Street and 2870 Rideau Road, 2001 – 2017;
    - Dibble Construction Co. Limited, Sand and Gravel Pits, 2870 Rideau Road, 1967 – 1988;
    - Gloucester Sand & Gravel Limited, Other Utility Industries, 2870 Rideau Road, 1977 – 1987;
    - Howard Spratt Sand/Gravel Pit, 2870 Rideau Road, 1918 – 1985;
    - Greely Sand & Gravel Inc., 5362 Bank Street and 2870 Rideau Road, 2016;
    - RW Tomlinson Ltd. Construction, 5151 Albion Road and 2870 Rideau Road, 2016;
    - Pomerleau Sand & Gravel, 2870 Rideau Road, 2017;
    - Action Performance Centre, Motor Vehicles, Wholesale, 5457 Albion Road, 2001;
    - Active Automotive Garage, Motor Vehicles, Wholesale, 5457 Albion Road, 1998;





- Vintage Paving and Contracting, Highway and Heavy Construction, 5457 Albion Road, 1999;
- 124952 Canada Inc., Gasoline Service Stations, 5546 Albion Road, 2005;
- Moffatt Construction Materials Ltd., Sand and Gravel Pits, 5480 Bank Street, 1960 – 1988;
- O V I Developments Ltd., Sand and Gravel Pits, 5480 Bank Street, 1960;
- Ottawa Uplands Ltd., Sand and Gravel Pits, 5480 Bank Street, 1987;
- Pyper's Sand & Gravel, Sand and Gravel Pits, 5480 Bank Street, 1972 – 1980;
- Doval Automotive, Automobile Repairing & Service, 5457 Albion Road, 2001 – 2017;
- Old Country Autobody Motor Vehicle Repair Shops, 5457 Albion Road, 2001 – 2012;
- Ouimet Rick Transport, Truck Transport Industries, 5457 Albion Road, 2001;
- Albion Glass & Mirror, Lumber and Building Materials, Wholesale, 5457 Albion Road, 2005;
- Planet Granite Inc., Household Furniture Stores, 5457 Albion Road, 2005;
- Cari's Auto, Motor Vehicles, Wholesale, 5457 Albion Road, 1998 – 2006; and
- International Paving, Highway and Heavy Construction, 5457 Albion Road, 8 – 1999.

The findings of the HLUI report provided by the City of Ottawa has identified several potential environmental concerns related to neighbouring lands. In addition to the gasoline service station operations on the Site, the following activities at neighbouring properties within 250 m are a potential risk for environmental concern to the Site:

- 5545 Albion Road, east of the Site following Albion Road, is indicated to include an industrial construction operation between 1998 - 2017; construction-heavy projects company in 2017; and
- 5457 Albion Road, approximately 200 m north of the Site, is indicated to include an automotive repair and sales facility from generally 1998 through 2006. A paving highway and heavy construction contractor is listed at this property in 1999. An automotive repair and service facility is present at this property from 2001 through 2017, in addition to a transport truck industry in 2001. In 2005, a glass & mirror, lumber and building wholesales company operated at 5457 Albion Road with a household furniture store facility.

### 3.5.1.2 1988 Intera Report

Prior to the 2001 amalgamation, the City did not have a consolidated database of environmental concerns for City properties and typically referred all inquiries to the *1988 Mapping and Assessment of Former Industrial Sites, City of Ottawa*, prepared by Intera Technologies Ltd. (1988 Intera Report). This report describes an inventory and assessment study of former industrial sites in the former (prior to the 2001 amalgamation) City of Ottawa from 1850 to 1984 that likely



produced or handle hazardous wastes and materials. LRL reviewed a physical copy of the 1988 Intera Report.

The subject site is not included in the 1988 Intera Report, as the City of Ottawa limits did not include the area of Albion Road and Mitch Ownes Road.

#### *3.5.1.3 City of Ottawa Old Landfill Management Strategy Document, 2004*

A report entitled *Old Landfill Management Strategy Phase 1 – Identification of Sites City of Ottawa, Ontario*, was prepared by Golder Associates for the City of Ottawa in 2004. This report identified old landfill site for potential environmental consideration within the boundary of the amalgamated City of Ottawa.

LRL reviewed this report as part of the Phase I ESA desktop assessment for the Site and found no landfills present within 250 m of the Site. However, it should be noted that 1.1 km north of the site, approximately 200 m south of the Albion Road and Rideau Road intersection, the City of Ottawa owned Albion & Rideau Disposal Site was identified. The facility has an ID of GI-2, and was reported to have closed in 2002. The former waste facility covered an area of 24 hectares, however the waste disposal area is approximately 4 hectares with a waste thickness of between 1 and 2.5 m. The facility operated from the 1970's through to summer of 2002, as mentioned. At the time the *City of Ottawa Old Landfill Management Strategy Document, 2004* document was prepared, on-going monitoring was underway with MECP notification.

This former landfill site, 1.1 km north of the site does not present a potential environmental concern to the site due to its distance from the property.



### 3.5.2 Ontario Ministry of Environment Conservation, and Parks Freedom of Information Act

The MECP was contacted under the Freedom of Information Act (FOI) to obtain available information for the Site regarding:

- Certificates of Approvals or any permits relating to air emissions (including noise), water taking and discharging, waste disposal sites, septic systems, pesticides storage or other similar instruments;
- Incidents, orders, offences, spills, discharges of contaminants or inspections;
- Waste management records, including current and historical waste storage locations and waste generator and waste receiver information; and

Reports submitted to the MECP related to the environmental conditions of the property. Under the Freedom of Information Act, a freedom of Information Request was made to the MECP on October 31, 2023. A formal response was received on November 23, 2023, and has been reviewed by LRL. A copy of the MECP response is included in **Appendix F**.

Records retrieved by the MECP included the following:

- One (1) HWIN registration, issued to MacEwen Petroleum Inc., for the generation of liquid waste (waste class 221 – L – Light Fuels). The date of the registration is not confirmed;
- One (1) incident report was retrieved for a suspected fuel spill on the property in January 2018. The report details a report to the MECP by a company retained to service the Site installations (Triangle Pump Ltd.). The report stated that a large stain to the ground surface was observed in the vicinity of one (1) of the underground storage tanks. It was estimated that the stain extended from the tank location to approximately 50' along a curb. No catch basins were noted to be impacted or drains. A representative of MacEwen Petroleum Inc. indicated that it was determined that the spill was a result of approximately 50 – 60 L of diesel lost product. A remediation specialist was retained by MacEwen Petroleum Inc. to clean the spill;
- One (1) incident report was retrieved for spill which occurred in March 2007. A spill of between approximately 300 and 400 L of gasoline occurred when the elbow of a tanker truck filling the station installations broke. The product spilt into the parking lot and onto both Albion Road and Mitch Owens Road. MacEwen Petroleum retained a contractor to perform the necessary initial clean up activities. Conflicting details in the report indicate that the gasoline released to the asphalt and did not flow off the Site. In May 2007, an environmental consultant was retained to complete further remediation efforts with respect to the soils at the Site. It was reported that up to ten (10) truckloads of contaminated soils were removed from the Site. Groundwater resources were not impacted. The MECP indicated that no further action is required;
- One (1) incident report was found for a spill by Tomlinson Environmental at the Site in December 2020. It was indicated that approximately 27 L of oil from a vacuum truck was released to the site resulting from equipment failure. Absorbent booms were used to contain the release, and one (1) impacted catch basin was to be cleaned out following the incident. In April 2021, standing water in the catch-basin was cleaned in support of the remediation efforts. The MECP recommended that the incident be closed;
- One (1) incident report was found for a spill to the Site in August 2017 when approximately 25 L of gasoline and water was spilled from a storage container (jerry can) which was accidentally released from the rear of a vehicle. The spill area was cleaned with a high

pressure power washer and vacuum truck. The MECP recommended to close the incident as if it was cleaned up; and

- A record of a Certificate of Approval for Industrial Sewage Works (7257-5AEK47) was retrieved. The approval was dated June 2002 and was issued for a stormwater interceptor rated at 5 L/s with a sediment storage capacity of 1275 liters. The corresponding Engineering Assessment and cover letter were included with the approval.

The Certificate of Approval does not present an immediate risk for potential environmental concern, however, as previously mentioned in other sections of this report, the Sites previous and on-going activities are considered a concern. Each of the incidents reported were previously documented in this report above in Section 3.5. They each present a potential environmental concern to the Site.

### 3.5.3 Inventory of Coal Tar Industrial Sites in Ontario

The MECP has created an inventory of all known and historical coal gasification plants. It identifies industrial sites that produced and continue to produce or use coal tar or other related tars. The program was discontinued in 1988.

A search of the databased revealed no records within a 250 m radius from the Site.

### 3.5.4 Technical Standards and Safety Authority

Fuel storage at commercial and industrial facilities is regulated by the Technical Standards and Safety Authority (TSSA). Records of aboveground storage tanks are maintained for bulk storage facilities only. Underground storage tanks are required to be registered with the TSSA. There are no requirements to register private underground and aboveground fuel oil storage tanks for heating or waste oil. Records of registered and licensed tanks have been maintained since 1990.

TSSA was contacted on November 21<sup>st</sup>, 2023, regarding available information concerning the presence of petroleum storage tanks, fuel spill records, accidents or fuel-related incidents which may be registered on the Site or surrounding properties. The Public Information Agent has indicated the following records for 5545 Albion Road, east of the Site following Albion Road:

- Active FS Facility;
- Active FS Liquid Fuel Tank;
- Active FS Liquid Fuel Tank; and
- Active FS Liquid Fuel Tank.

Not records for the remaining neighbouring properties searched were retrieved, or were any details pertaining to the known, and existing fuel handling facilities at the Site were reported. A copy of the response from the TSSA is included in **Appendix G**.

### 3.5.5 Ministry of Environment, Conservation, and Parks Water Well Records

The MECP well records database provides information of locations and characteristics of water wells throughout Canada in accordance with Ontario Regulation 903. Information of the stratigraphy, depth of bedrock and approximate depth of water table is also provided. A search of the water well record database was completed on November 1<sup>st</sup>, 2023. Records of thirteen (13) wells were identified within a 250 m radius of the Site. Each of the wells identified are located on neighbouring properties, and the details of representative wells are summarized below.



The results are summarized in the following summary table, **Table 8**, and a copy of the available records retrieved are included in **Appendix H**.

**Table 8: Summary of Well Records Retrieved**

Well Identification	Details
1501841	A domestic supply well located on the Site, was installed in 1965. The subsurface conditions encountered include sand from surface extending to 3.0 m bgs, followed by gravel with boulders to a depth of 9.1 m bgs, followed by hard boulder till to a depth of 16.4 m bgs, followed by bedrock to a depth of 41.5 m bgs where the well was terminated. Fresh water found at a depth of 22.9 – 33.5 m bgs.
1510978	A domestic supply well located approximately 55 m east of the Site, was installed in 1970. The subsurface conditions encountered include clay from surface extending to 5.8 m bgs, followed by gravel to a depth of 9.1 m bgs, followed by clay to a depth of 16.2 m bgs, followed by limestone to a depth of 26.5 m bgs where the well was terminated. Fresh water was found at a depth of 26.5 m bgs.
7234834	A domestic supply well located approximately 135 m north of the Site, was installed in 2014. The subsurface conditions encountered include sand from surface extending to 2.4 m bgs, followed by clay to a depth of 6.1 m bgs, followed by gravel to a depth of 15.2 m bgs, followed by sandstone to a depth of 42.7 m bgs where the well was terminated. Untested water was found at a depth of 27.1 m bgs, 35.1 m bgs and 40.5 m bgs.
7234935	A domestic supply well located approximately 155 m north-west of the Site, was installed in 2014. The subsurface conditions encountered include sand from surface extending to 11.6 m bgs, followed by bedrock to a depth of 25.9 m bgs where the well was terminated. Fresh water was found at a depth of 20.4 m bgs.
7330777	A domestic supply well located approximately 180 m north-west of the Site, was installed in 2001. The subsurface conditions encountered include sand from surface extending to 3.0 m bgs, followed by clay to a depth of 12.8 m bgs, followed by limestone to a depth of 24.4 m bgs where the well was terminated. Fresh water was found at a depth of 18.0 m bgs and 19.8 m bgs.
7329110	A domestic supply well located approximately 195 m north of the Site, was installed in 2019. The subsurface conditions encountered include sand from surface extending to 12.2 m bgs, followed by sandstone to a depth of 36.6 m bgs where the well was terminated. Untested water was found at a depth of 3.0 m bgs and 34.4 m bgs.
7108138	A domestic supply well located approximately 195 m east of the Site, was installed in 2008. The subsurface conditions encountered include sand and gravel from surface extending to 6.1 m bgs, followed by limestone to a depth of 33.5 m bgs where the well was terminated. Untested water was found at a depth of 29.8 m bgs.
1517522	A domestic supply well located approximately 205 m north-east of the Site, was installed in 1980. The subsurface conditions encountered include sand from surface extending to 0.6 m bgs, followed by clay to a depth of 6.1 m bgs, followed by sand and boulders to a depth of 13.4 m bgs, followed by limestone to a depth of 19.2 m bgs where the well was terminated. Fresh water was found at a depth of 19.2 m bgs.
7346286	A domestic supply well located approximately 215 m north-west of the Site was installed in 2019. The subsurface conditions encountered include sand and gravel from surface extending to 10.4 m bgs, followed by bedrock to a depth of 37.2 m bgs where the well was terminated. Untested water was found at a depth of 34.7 m bgs.
1532212	A domestic supply well located approximately 250 m north-west of the Site, was installed in 2001. The subsurface conditions encountered include sand from surface



	extending to 2.4 m bgs, followed by clay to a depth of 6.7 m bgs, followed by gravel and boulders to a depth of 13.7 m bgs, followed by sandstone to a depth of 38.1 m bgs where the well was terminated. Untested water was found at a depth of 36.0 m bgs.
7216306	A domestic supply well located approximately 250 m north-west of the Site, was installed in 2013. The subsurface conditions encountered include sand from surface extending to 3.6 m bgs, followed by clay to a depth of 11.5 m bgs, followed by bedrock to a depth of 24.8 m bgs where the well was terminated. Fresh water was found at a depth of 3.9 m bgs and 8.2 m bgs.
7357345	A domestic supply well located approximately 250 m north-west of the Site, was installed in 2020. The subsurface conditions encountered include clay and boulders from surface extending to 11.0 m bgs, followed by limestone to a depth of 36.6 m bgs where the well was terminated. Untested water was found at a depth of 34.7 m bgs.
7329269	A domestic supply well located approximately 250 m north-west of the Site, was installed in 2019. The subsurface conditions encountered include sand from surface extending to 12.7 m bgs, followed by limestone to a depth of 37.0 m bgs where the well was terminated. Fresh water was found at a depth of 12.7 m bgs and 33.3 m bgs.

### 3.6 Physical Setting Sources

The topography of the Site and neighbouring lands is generally flat. The subject Site and the neighbouring lands have a common topographic elevation of approximately 100 m above mean sea level (amsl) according to *The Atlas of Canada - Toporama*. More specifically, the Site has a slight slope to the south, towards Mitch Owens Road. Elevations along the southern extent of the site range between 103.7 and 102.5 m amsl according to the Annis, O’Sullivan, Vollebekk Ltd. Topographic Survey plan, dated April 18, 2022, and included in **Appendix I**.

#### 3.6.1 Aerial Photographs

Aerial photographs were obtained through ERIS for the Phase One Subject Area, and surrounding lands. ERIS obtained the photographs from the National Air photos Library in addition to MAXAR TECHNOLOGIES (2023 Photograph). Each of the aerial photographs retrieved had a scale of 1:10,000. Furthermore, through the City of Ottawa interactive mapping system, *geoOttawa*, aerial imagery for 1976, 1991, 2002 and 2011 years were also reviewed as part of this assessment. Based on the viewing database used, these images were not scaled.

Review of the photographs was completed to develop a general history of the development of the Site and surrounding properties. Aerial photographs may be at a scale that limits a detailed review of the Site and surrounding properties. ERIS indicated that no aerial photographs were available for the 1920’s and 1930’ decades, and LRLs search of the *geoOttawa* interactive mapping system did not include imagery earlier than 1976. Copies of select aerial photographs retrieved from ERIS are included in **Appendix J**, and a summary is included in **Table 9**.



**Table 9: Summary of Aerial Photographs**

Year	Phase One Property (Site)	Phase One Study Area (Surrounding Area)
1945	The Site appears to be developed with an agricultural field, extending to the neighbouring lands to the north and west of the Site. No potential environmental concerns are identified on the site. A copy of the 1945 aerial photograph is included in <b>Appendix J</b> .	Mich Ownes Road is present to the south of the site, followed by forested land and agricultural fields. East of the site, following Albion Road is forested and un-developed. North and west of the site are developed with agricultural fields with forested land further north. No potential environmental concerns are identified in the surrounding area.
1955	The Site appeared similar to the observations made in 1945, with no significant changes or alterations. A copy of the 1955 aerial photograph is included in <b>Appendix J</b> .	The surrounding areas appeared similar to the observations made in 1945, with no significant changes or alterations.
1966	The Site appeared similar to the observations made in 1955, with no significant changes or alterations. A copy of the 1966 aerial photograph is included in <b>Appendix J</b> .	Generally, no significant changes were observed in comparison to the 1966 aerial photograph to the north, east and west of the site. Albion Road appears wider and some smaller developments are observed south of the site along Mitch Owens. Residential development is visible to the far southeast and southwest of the site.
1976	The site appears to be overgrown with brush or trees. No developments are observed on the site in 1976.	No significant changes were observed to the surrounding properties. Rather than agricultural operations to the north and west, the land appears similar to the site with overgrown brush or trees. The property east of the site, following Albion Road, is developed with a commercial establishment. No further details are observed. The commercial property to the east may be that of Vanson Construction Ltd., which based on additional records reviewed as part of this assessment, is known to store or handle petroleum products. However, based on its trans-gradient location from the site, it is not a potential environmental concern.



Year	Phase One Property (Site)	Phase One Study Area (Surrounding Area)
1991	The site appears to be overgrown with brush or trees. No developments are observed on the site in 1991, however there does appear to be some areas of exposed soils which may be an indication of earth moving or fill depositing. The introduction of fill of unknown origin is a potential environmental concern.	No significant changes were observed to the surrounding properties. A better view of the property to the southeast is available which depicts a possible residence and motel like structure. A pump island is visible on the property to the east of the site (Vanson Construction Ltd.), however, based on its trans-gradient location from the site, it is not a potential environmental concern
2002	The site is developed with a gasoline service station. The development only includes the southeastern portion of the entirety of the Site, with the remainder of the property undeveloped. The underground storage tank sump covers are visible to the southwest of the pump island canopy, which encompasses the central portion of the developed area of the property. The building is located immediately north of the canopy.	No significant changes were observed to the surrounding properties. Development of a road is visible to the south/southwest of the site.
2011	The previously encountered gasoline service station (2002) is re-developed and encompasses the general entirety of the site, and is found to be representative of the current configuration with grassed portion at the northwestern extent of the site, parking and circulation across the remainder with the pump island canopy and building at the approximate central to southeastern extents.	The property to the north of the site is under developed with a residential subdivision. The property immediately west of the site remains forested. Mineral extraction operations are visible northeast of the site, and a mix of commercial and residential developments are visible south of the site along Mitch Owens.
2023	No significant changes were observed in 2023 in comparison to the observation made in 2011. A copy of the 2023 aerial photograph is included in <b>Appendix J</b> .	No significant changes were observed to the surrounding properties.





### 3.6.2 Topography, Hydrology & Geology

An Ontario Base Map was retrieved by ERIS for the Phase One Subject Area, and surrounding properties. A copy of the map is included in **Appendix K**. Furthermore, the City of Ottawa interactive mapping system, geoOttawa, provides additional topographic information such as contours.

A summary of Topographical, Physiographical, Hydrogeological and Geological Conditions are summarized on **Table 10**.

**Table 10: Summary of Topographical, Physiographical, Hydrogeological and Geological Conditions**

Parameter	Source	Description
<b>Topography</b>	Ontario Base Map (included in <b>Appendix J</b> ), and geoOttawa	The topography of the Site and neighbouring lands is generally flat. The subject Site and the neighbouring lands have a common topographic elevation of approximately 100 m above mean sea level (amsl) according to The Atlas of Canada - Toporama. More specifically, the Site has a slight slope to the south, towards Mitch Owens Road. Elevations along the southern extent of the site range between 103.7 and 102.5 m amsl according to the Annis, O’Sullivan, Vollebekk Ltd. Topographic Survey plan, dated April 18, 2022, and included in <b>Appendix I</b> .
<b>Physiography</b>	Not Applicable	A review of the Physiography of the Phase One ESA property, and Subject Area was not included as part of this ESA.
<b>Hydrology</b>	Toporama – The Atlas of Canada	<p>The Site is generally flat with a slight incline mound at the northern portion of the property, in the location of the septic disposal field. According to a topographic survey completed for the Site, included <b>Appendix I</b>, in support of the proposed re-development activities, the top of the incline is approximately 104 amsl, and the toe of the mound has an elevation of approximately 103 m amsl. The Site has a slight slope to the south, towards Mitch Owens Road. Elevations along the southern extent of the site range between 103.7 and 102.5 m amsl.</p> <p>The Site is fitted with storm water structures, including catch basins and buried catchment drainage piping. These systems set in place are used to collect and control surface runoff across the Site and distributes it into accepted City services and infrastructure for further off-Site handling. No swales or drainage courses are present on the subject Site. A municipal ditch however does run in a general east-west direction along Mitch Owens Road, and along Albion Road at the western extent of the Site. A water course is also identified on the adjacent lands to the west. Based on the topography of the Site, and site features, it is inferred that the property drainage pattern flows south towards Mitch Owens Road.</p>



<p><b>Geology</b></p>	<p>Geological Survey of Canada mapping, as referenced above at the beginning of this Section.</p>	<p>Surficial soil deposit mapping indicates that the surficial geology is fine- to medium-grained sand, calcareous and commonly fossiliferous; nearshore sand generally occurs as a sheet or as bars or spits associated with glaciofluvial materials. Bedrock mapping indicates that the bedrock is described as the Oxford Formation: dolomite and limestone.</p> <p>According to the Brunton, F.R. and Dodge, J.E.P. Karst map of Southern Ontario, including Manitoulin Island; Ontario Geological Survey, Groundwater Resource Study 5, 2008, known areas to potential areas of karst geology is present in the vicinity of the Site, namely to the south. The Site and adjacent land to the east and west are identified as “Unknown or no observed evidence of karstification due to the character of bedrock, lack of outcrop and/or relative thickness of overburden.”</p> <p>Based on available geological resources, bedrock in the vicinity of the Site is inferred to be at depths ranging between 7 and 16 m below grade.</p>
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### 3.6.3 Fill Material

Based on our review of available historical information, it has been revealed that the Phase One property was agricultural land (between at least the mid 1940’s and at least the mid 1960’s) prior to the current use as a gasoline service station. To support the use as a gasoline service station, fill materials is likely to have been brought to the Phase One Property.

In the 1991 aerial photograph reviewed as part of this assessment, there does appear to be some areas of exposed soils which may be an indication of earth moving or fill depositing. The introduction of fill of unknown origin is a potential environmental concern.

At the time of the Phase II ESA, as detailed in the March 17, 2023, report, fill material was encountered across the areas investigated underlying the surficial pavement structure and extending to depth of between 0.6 and 1.8 m below grade.

### 3.6.4 Water Bodies, and Areas of Natural Significance

O. Reg. 153/04 identifies an Areas of Natural Significance through the following data bases and criteria:

- The Site is not part of a provincial park or conservation area;
- The Site is not within any Areas of Natural and Scientific Interest (ANSI) identified by the Ministry of Natural Resources (MNR) as having provincial significance;
- The Site does not include any area identified as Provincial Significance Wetland (PSW) by MNR,
- The Site does not include any area designated as environmental significant in municipal official plans;
- The Site does not include any area designated as an escarpment natural area by Niagara Escarpment Plan;



- The Site does not include any area which is a habitat of endangered species;
- The Site does not include any Oak Ridges Moraine Conservation area; and,
- The Site does not include any area designated as a wilderness area.

A watercourse is located on the neighbouring property to the west, however the City of Ottawa identifies it as a 'ditch' in the interactive mapping system, geoOttawa. According to available mapping features, the wooded lands located immediately west of the Site, and the neighbouring lands to the north, are identified to contain unevaluated wetlands according to provincial mapping systems (Ministry of Natural Resources and Forestry, Make a Map: Natural Heritage Areas).

GEMTEC Consulting Engineers and Scientists Limited (GEMTEC) were retained by MacEwen Petroleum Inc. to complete a Wetland Boundary Assessment for unevaluated wetland on the neighbouring lands. The assessment was initiated to confirm the extents of the unevaluated wetland in support planning and design of the proposed re-development of the Site. The conclusions of the report revealed that the unevaluated wetland boundaries, based on vegetation species, extends approximately 30 m from the western boundary of the Site.

### 3.6.5 Well Head Protection

Initial pre-consultation discussions with the City of Ottawa, September 22, 2021 with respect to the hydrogeological components of the proposed site plan application process, revealed that the proposed development is located within the wellhead capture zone for the neighbouring Albion Sun Vista communal supply well system. This communal well is located downgradient (south) of the subject Site, following Mitch Owens Road and is sourced by the shallow bedrock aquifer which is hydraulically connected to the sand/gravel/till overburden recharge zone.

A copy of the *Wellhead Protection Area Plan, Albion Sun Vista Community & Peer Review – Albion Sun Vista Wellhead Protection Area Plan* report, prepared by Trow Associates Inc. and Jacques Whitford Environmental Limited, dated June 2004, was provided to LRL from the City of reference. The report outlines details of the identified Wellhead Protection area, as well as clearly indicating appropriate recommendations to protect the drinking water source of the communal supply well.

The study interpreted a groundwater flow model that was initiated to determine the likely time of travel within the Albion Sun Vista Community capture zones. The modeling took into consideration local potential contamination sources to evaluate the relative risk of these areas towards the communal well. Seven (7) sites were identified to have, or potentially have uses and activities with the potential for contamination impacts to the groundwater within the wellhead capture zone, the risk to the communal wells supply aquifer was considered low to moderate due to the underlying low permeable layer present. The Site, as discussed herein, was identified as a potential for contamination impacts, based on its up-gradient location and facility operations. Based on the modelling included as part of the study, 5546 Albion Road is inferred to encompass the 50 Day – 2 Year Capture Zone, which signifies that groundwater can travel through the capture zone in less than two (2)-year time.

Based on the pre-consultation with the City of Ottawa, it has been indicated that the proposed re-development of the Site (pre and post- construction activities) must follow the recommendations set out in the Wellhead Protection Area Plan documentation prepared by Trow Associates Inc. and Jacques Whitford Environmental Limited, dated June 2004 to protect the communal supply aquifer. These recommendations are reiterated in Section **Error! Reference source not found.** of this report, but are summarized as follows:

- The sand and gravel unit, set over the bedrock layer, acts as the recharge area of the supply aquifer. A Risk Management Plan and Construction Management Plan shall be implemented, including the best management practices, spills prevention plan, spills response plan, staff training requirements outlined therein, during construction and throughout the operational period of the Site;
- Prior to finalization of the re-development of the Site, a sounding inspection of the exiting well grouting should be completed by a licenced well installer to confirm that the bedrock aquifer intercepted by the supply well construction is isolated from possible surficial impacts (i.e. spills);
- All underground storage tanks must be equipped with interstitial monitoring systems and the tanks and associated piping should have leak detection systems in place; and
- A monitoring program of the Site's supply well must be established to provide ongoing water quality information. This should include monitoring on an annual basis for general water quality parameters and metals in addition to parameters often associated with fuel dispensing and handling facilities: petroleum hydrocarbons (PHC) Fractions F1 through F4; and Volatile Organic Compounds (VOCs) including Benzene, Toluene, Ethylbenzene and Xylenes (BTEX).

### **3.7 Site Operating Records**

The Site is presently developed and operated as a retail petroleum dispensing facility equipped with the following equipment:

- Six (6) gasoline dispensing pumps;
- One (1) diesel dispensing pump, and
- Five (5) underground storage tank located at the general southeastern portion of the Site.

The fuel dispensing pumps are set over a concrete apron with an over-head canopy. A single-story convenience store is located at the approximate central portion of the Site with pavement structure associated with parking and circulation across the central and general eastern portions of the Site. No Site Operating Records are available for the subject property.



#### 4 INTERVIEWS

A summary of the interview conducted as part of this Phase One ESA is included in the following **Table 11**.

**Table 11: Summary of Interview**

Parameter	Information
<b>Interviewee</b>	Mr. Brad Moore, Vice President, Retail Fuels MacEwen Petroleum Inc.
<b>Interviewer</b>	Jessica Arthurs, Environmental Technician
<b>Interview Type</b>	Phase One ESA Interview form filled by the client
<b>Interview Date/</b>	December 4 <sup>th</sup> , 2023
<b>Interview Details/Pertinent Information</b>	<ul style="list-style-type: none"> <li>• Mr. Moore has knowledge of the Site since 2004.</li> <li>• Mr. Moore has indicated that the Site is operated as a retail gas station, with convenience store, and has been in such use since 1992.</li> <li>• The existing development was constructed in 2000. The previous structures, from 1992 through 2000 were located in the general same location as the current development envelope extents.</li> <li>• Mr. Moore is not aware of the previous use of the property prior to 1992.</li> <li>• The current development obtains its domestic water supply from an on-Site private drilled well, and is heated by propane. The Site is serviced by a private septic system.</li> <li>• The previous development was also supplied by a private drilled well, sewage disposal system, and was heated with propane. It was demolished in 2000.</li> <li>• To the best of Mr. Moores' knowledge, the Site has never operated or included a manufacturing facility, vehicle repair facility, commercial printing or dry cleaner operation, or any additional industrial or commercial operations other than the retail fuel outlet.</li> <li>• Mr. Moore is not aware of any commercial or industrial operations which may have operated on the neighbouring lands.</li> <li>• Mr. Moore is not aware of any notices of environmental violations, investigations by government agency or of any disputes or administrative proceedings associated with the Site or its associated activities.</li> </ul>
<b>Evaluation</b>	Based on the interview, it is found that the information retrieved corresponded to that obtained from the records reviewed with no inconsistencies or deviations encountered.

#### 5 SITE RECONNAISSANCE

A summary of the Site reconnaissance conducted as part of this Phase One ESA is included in the following **Table 12**.



**Table 12: Summary of the Site Reconnaissance**

Parameter	Information
<b>Date</b>	November 14 <sup>th</sup> , 2023
<b>Time</b>	12:00 am – 13:00 am
<b>Weather Conditions</b>	Overcast, 4°C
<b>Site Activity</b>	Gasoline service station with convenience store.
<b>Person conducting Site visit</b>	Jessica Arthurs, Environmental Engineering Manager
<b>Limitations to Site visit</b>	None.
<b>Site Reconnaissance Details</b>	<p>The following observations were made of the Phase One ESA Property, 5446 Albion Road, Ottawa, Ontario:</p> <ul style="list-style-type: none"> <li>• The Site is developed with a self-serve gasoline service station and convenience store.</li> <li>• The store is heated by propane, which is stored in an above ground cylinder along the north face of the building and is cooled with a central air unit.</li> <li>• The interior of the store includes Gyproc walls and ceiling finishes with ceramic floor tiles. The exterior of the store is finished with a press wood panel and a pitched shingled roof. Coolers for ice are present outdoors along the western face of the store, and a small storage shed is adjacent the store to the west.</li> <li>• The Site is serviced by a private supply well located at the eastern perimeter of the property, and a private septic system at the northern portion of the property.</li> <li>• The neighbouring lands to the south following Mich Ownes Road, and west, are undeveloped and forested. A residential subdivision is present to the north of the Site, and east of the Site, following Albion Road, is un-developed, however a supply well is observed along the western perimeter along with an asphalted portion at the southern extent.</li> <li>• The underground storage tanks associated with the Site activities are located at the southeastern portion of the Site.</li> <li>• Municipal ditches make up the east and west perimeters. The southern entrance to the Site slopes gently to the ditch. Storm drains are present across the Site to further collects surface runoff.</li> </ul>
<b>Utilities</b>	Overhead hydro services were observed.
<b>Site Visit Photographs</b>	Photographs from the Site visit are included in <b>Appendix L</b> .



### 5.1 Specific Observations of the Phase One ESA property

The specific observations encountered at the Phase One ESA property are summarized in the following **Table 13**.

**Table 13: Specific Observations of the Phase One ESA property**

Parameters	Information
<b>Property Dimensions</b>	Irregular: Being between approximately 100 and 115 m wide (north-south) by between approximately 95 and 110 m deep.
<b>Current Occupants/ Tenants</b>	Industrial Use: Retail Gasoline Service Station (MacEwen Petroleum Inc.).
<b>Structures/ Improvements</b>	<p>A single-story convenience store (approximately 245 m<sup>2</sup>) is located at the approximate central portion of the Site with pavement structure associated with parking and circulation across the central and general eastern portions of the Site. The western and northern portions of the Site includes manicured grass with trees and shrubbery.</p> <p>The Site is presently developed and operated as a retail petroleum dispensing facility equipped with the following equipment:</p> <ul style="list-style-type: none"> <li>• Six (6) gasoline dispensing pumps;</li> <li>• One (1) diesel dispensing pump, and</li> <li>• Five (5) underground storage tank located at the general southeastern portion of the Site.</li> </ul> <p>The pumps are set over a concrete apron located at the southeast portion of the Site, and protected from the elements with an overhead canopy. The underground storage tanks are located immediately south/southwest of the concrete apron along the southern extent of the Site, as shown in <b>Figure 2</b>.</p> <p>A small storage shed structure is also present to the west of the store, with an approximate surface area of 10 m<sup>2</sup>.</p>
<b>Sewage Works</b>	The Site is serviced with a private sewage disposal system located at the northern portion of the property.
<b>Landscaped &amp; Vegetated Areas</b>	The western and northern portions of the Site includes manicured grass with trees and shrubbery.
<b>Pavement, Roads &amp; Driveways:</b>	Pavement structure associated with parking and circulation across the central and general eastern portions of the Site.
<b>Topography</b>	The topography of the Site and neighbouring lands is generally flat. A slight descend is present in the southern entrance towards Mitch Owens Road.
<b>Surface Drainage</b>	<p>Although not observed, it is anticipated that the surface run-off or drainage is generally south towards the municipal ditch that intercepts between the Site and Mitch Owens Road. A second ditch is present along the eastern extent of the Site, however, it is more likely to account for off-Site drainage to the north of the Site, and Albion Road.</p> <p>Storm system catch basins are present across the Site. It is our understating that the storm catchment system includes an oil/water separator unit which prevents spills from the on-Site operations from being released into the natural environment further with storm water.</p>



Parameters	Information
<b>Drainage Improvements</b>	Storm system catch basins are present across the Site. It is our understating that the storm catchment system includes an oil/water separator unit which prevents spills from the on-Site operations from being released into the natural environment further with storm water.
<b>Receives Drainage from Adjacent Lands:</b>	None observed.
<b>Watercourses, Ditches or Standing Water:</b>	A municipal ditch runs in a general east-west direction along Mitch Owens Road, and along Albion Road at the western extent of the Site. A water coarse is also identified on the adjacent lands to the west. Standing water was observed in the water coarse to the west of the Site at the time of the Site visit.
<b>Aboveground storage tanks (ASTs)</b>	None observed.
<b>Underground storage tanks (USTs)</b>	Five (5) underground storage tank located at the general southeastern portion of the Site. The installations contain gasoline and diesel product.
<b>Fill Ports, Vent Pipes</b>	Vent pipes for the five (5) USTs are located at the southeastern perimeter of the Site.
<b>Storage Containers</b>	Propane used for heating of the on-Site convience store is present along the northern face of the building. The Site also operates as a propane cylinder exchange facility, which are stored along the east face of the building.
<b>Hazardous Materials</b>	None observed.
<b>Unidentified Substances</b>	None observed.
<b>Odours</b>	None observed.
<b>Air Emissions</b>	None observed.
<b>Wells</b>	The Site is serviced by an on-Site drilled supply well, located at the east-central extent of the property. The well has an MECP ID of 1501841 and based on the MECP Well Record Database, as detailed above in Section 3.5.5, the well extends to a depth of 41.4 m into the limestone/sandstone/granite bedrock aquifer.
<b>Sewage Disposal</b>	The Site is serviced by a private sewage disposal system, located at the northern portion of the Site. The size of the existing features is not known at this time, including the available maximum daily capacity.  It was observed that a pumping chamber is used to assist with the storage of sewage, and that a mantel is present across the north/northcentral portion of the Site. The system is partially raised and suspected to be a conventional Class IV system based on general observations.
<b>Pits and Lagoons, Wastewater or Solid Waste</b>	None observed.





Parameters	Information
<b>Stained Material and Stressed Vegetation</b>	No staining to the asphalt or grassed surfaces were observed. Dark discolouration was observed on the base of the diesel dispensing pump island. No stressed vegetations was encountered.
<b>Fill or previous fill activities</b>	<p>None observed, however based on our review of available historical information, it has been revealed that the Phase One property was agricultural land (between at least the mid 1940's and at least the mid 1960's) prior to the current use as a gasoline service station. To support the use as a gasoline service station, fill materials is likely to have been brought to the Phase One Property.</p> <p>In the 1991 aerial photograph reviewed as part of this assessment, there does appear to be some areas of exposed soils which may be an indication of earth moving or fill depositing. The introduction of fill of unknown origin is a potential environmental concern.</p> <p>At the time of the Phase II ESA, as detailed in the March 17, 2023, report, fill material was encountered across the areas investigated underlying the surficial pavement structure and extending to depth of between 0.6 and 1.8 m below grade.</p>
<b>Earth Moving Activities</b>	None observed.
<b>Railway Lines</b>	None observed.
<b>Other</b>	The Site was observed to store small quantities of oils and lubricants for retail purposes. These substances were observed to be stored in sealed containers, in secure locations, and were identified clearly with manufacturer labels.
<b>Potential Contaminating Activities (PCA)</b>	<ul style="list-style-type: none"> <li>• PCA 28 - Gasoline and Associated Products Storage in Fixed Tanks: The Site is operated as a gasoline service station equipped with five (5) underground storage tanks along the southeastern extent of the Site. Fuel dispensing equipment is used on the Site, also located at the general southeastern portion of the property; and</li> <li>• PCA 30 - Importation of Fill Materials of Unknown Quality: revealed through our review of historical aerial imagery in addition to intrusive investigations conducted in conjunction with this Phase One ESA.</li> </ul>
<b>Unidentified Substances</b>	None observed



## 5.2 Adjacent Land Use

The current land uses of the adjoining properties were observed from the property limits and publicly accessible locations to assess potential impacts to the Site that may arise from off-Site operations. The properties surrounding the subject Site are as follows:

- North:** Residential subdivision development. Approximately 200 m north/northeast of the Site includes an automotive repair facility. It is also noted that between approximately 400 m and 900 m northeast mineral aggregate extraction operations and granular storage operations are present.
- South:** Mitch Owens Road followed by wooded land and high-density residential developments, including the Albion Sun Vista mobile home community, between 160 m and 400 m from the southern property limit of the Site.
- East:** Albion Road, is un-developed grass land with the exception to the portion of the land in the vicinity to the Mitch Owen Road and Albion Road intersection which includes an asphalted structure across the ground surface, followed by a mineral extraction zone.
- West** Wooded in addition to an unevaluated wetland, as identified by the City of Ottawa



### 5.3 Special Attention Items

Eleven chemical contaminants have been identified under the Occupational Health and Safety Act (OHSA) and regulations have been set in place to prohibit, regulate restrict, limit or control workers exposure to these substances. Other hazardous materials not included in the OHSA but under the Environmental Protection Act were also observed. The observations presented herein do not constitute a designated substance/hazardous material survey but are rather for information purposes only.

#### 5.3.1 Designated Substances

##### **Asbestos Containing Material (ACM)**

Since the late 1970's the manufacture and use of asbestos containing building materials started to decrease. It is commonly presumed that buildings constructed prior to 1980 are more likely to contain both friable and non-friable forms of asbestos. General buildings constructed up to the mid 1980's are more likely to contain non-friable asbestos (flooring, joint compound).

Due to the estimated age of construction of the building on the Site (est. 2003), the building post-dates the use of asbestos containing materials in the province, therefore ACM is unlikely.

##### **Lead**

Lead may be present in a variety of building materials including paint and water distributions pipes, however, lead based paints (LBP) are considered the most significant hazard. According to published information by Health Canada concerning LBP, buildings constructed before 1980 may contain lead-based interior and exterior paints.

Due to the estimated age of construction of the building on the Site (est. 2003), the building post-dates the use of lead-based paints in the province, therefore lead-based paints are unlikely. Lead containing water distributions pipes and joints may however be present.

##### **Mercury**

Minor amounts of mercury are commonly found in a variety of building material including mercury vapour lamps, fluorescent light tubing and thermostats and other electrically control switches.

Fluorescent lighting was observed throughout the building, which may be mercury containing.

##### **Others**

As the Site is operated as a gasoline service station, the presence of benzene in underlying soils or groundwater may be encountered during soil excavation or buried utility installation or related work. The corresponding Phase II Environmental Site Assessment report, previously prepared (March 2023) should be read in conjunction with this report for details related to existing potential subsurface concerns.

No other designated substances were identified (i.e. arsenic, ethylene oxide, vinyl chloride, coke oven emissions, acrylonitrile or isocyanates).



### 5.3.2 Other Hazardous Building Materials/Items

<p><b>Microbial Contamination and Mould:</b> Areas of possible sources of mould (i.e. water damage, poor housekeeping, poor ventilation) were not observed during the Site visit.</p>
<p><b>Ozone-Depleting Substances (ODS):</b> ODS such as chlorofluorocarbons (CFC) and hydrochlorofluorocarbon (HCFC) are typically found in refrigeration equipment, air conditioners, aerosols, cleaning solvents and fire extinguishers. Federal regulations required the elimination of production and import of CFC and a freeze on the production and import of HCFC by January 1, 1996. The regulations govern only the production and import therefore these materials are still used as long as a supply is in place. Refrigeration units and air conditioning units were observed during the Site visit.</p>
<p><b>Polychlorinated Biphenyls (PCB):</b> The Federal Chlorobiphenyls Regulation, SOR/91-152 prohibits PCBs from being used in products, equipment, machinery, electrical transformers and capacitors which were manufactured or imported into the country after July 1, 1980. However, older equipment in use after this date may still contain PCBs if the equipment fluid has not been replaced. PCB-containing equipment can also include fluorescent, mercury, and sodium vapour light ballasts. PCBs containing equipment, including fluorescent lighting were observed.</p>
<p><b>Urea Formaldehyde Foam Insulation (UFFI):</b> UFFI was widely used as an insulating material until December 1980 when a ban was enacted under the Hazardous Products Act. UFFI was commonly injected through walls by drilling injections holes in roof structures, ceilings and overhangs. Due to the estimated date of construction of the building on the Site (2003), UFFI material is unlikely.</p>
<p><b>Radon:</b> Radon gas is a product of the decay series of uranium that is commonly found in geological units that contain black shale, sandstone or granite. Radon can percolate up through the soil where it may accumulate in basement of buildings with cracks or joints in the foundation. The Site is set in a guarded zone with respect to Radon. The Site does not have a basement, nor is the anticipated building to be constructed on the Site as part of the proposed development plan will have a basement, therefore the risk for Radon is considered low at the Site.</p>
<p><b>Electric and Magnetic Fields:</b> Electromagnetic fields are generally associated with high frequency power lines. No high voltage power lines were noted within 250 m of the Site.</p>
<p><b>Noise and Vibration:</b> Noise and vibration from the adjacent traffic along Mitch Ownes and Albion Road are detected on the Site; although it is considered typical noise and vibration of a light industrial environment (i.e. traffic).</p>
<p><b>Methane:</b> Methane gas is a colourless and odourless gas commonly formed by the decomposition of organic material. Records of a former waste disposal site were retrieved at the property located approximately 1.1 km northeast of the Site. Due to the distance from the Site, the risk of methane gas at the Site is considered unlikely.</p>



## 6 REVIEW AND EVALUATION OF INFORMATION

### 6.1 Enhanced Investigation Property

As defined in O. Reg. 153/04, as amended, an Enhanced Investigation Property “*means a property that is being used or has been used, in whole or in part, in a manner described in clause 32 (1) (b) to which subsection 32 (2) does not apply*”. Those property include the following:

- Industrial use which involves assembling, fabricating, manufacturing, processing, producing, storing, warehousing, or distributing goods or raw materials;
- a garage;
- bulk liquid dispensing facility; or
- dry-cleaning operation.

The Phase One ESA Property is used as a bulk liquid dispensing facility (gasoline service station); therefore, an enhanced property investigation is considered required at this time.

### 6.2 Phase One ESA – Investigation Details

LRL completed a Site reconnaissance of the subject property, as outlined above in Section 5. The Site reconnaissance included a detailed walkthrough of the Phase One ESA Property, to allow for a review of its current condition, as well as to evaluate the likely impacts from past uses and neighbouring properties. No limitations were encountered during the Site reconnaissance. The Site reconnaissance included the following:

- A thorough walkthrough of the Phase One Property, with a focus on:
  - The presence of structures or other features of construction;
  - The surface cover type and areas of fill, or debris;
  - Areas of staining, stressed vegetation or anomalous condition;
  - Presence of unidentifiable substances; and
  - The presence, or former evidence, of underground/ buried features or structures, including storage tanks and utility corridors;
- A perimeter walk-around, noting the condition and general characteristics of the Phase One Property limits;
- Visually observations of the neighbouring lands from the Phase One Property extents, to locate and document the following:
  - Potentially contaminating activities;
  - Water bodies; and
  - Possible storage tanks and areas of natural significance.

A summary of the observations encountered are included in **Figure 2**.



### 6.3 Phase One ESA Site Reconnaissance Findings

Based on the findings of the Site Reconnaissance, the following PCAs have been identified, which are summarized in the subsequent **Table 14**.

**Table 14: Site Reconnaissance Findings Corresponding to Areas of Potential Environmental Concern.**

O. Reg 153/04 Schedule D PCA	Location of PCA	Description and Source Information	Contribution to an APEC
<b>PCA 28:</b> Gasoline and Associated Products Storage in Fixed Tanks	On-Site	The Site is operated as a gasoline service station equipped with five (5) underground storage tanks along the southeastern extent of the Site. Fuel dispensing equipment is used on the Site, also located at the general southeastern portion of the property.	The PCA is located on the Site and is therefore automatically considered to contribute to an on-Site APEC.
<b>PCA 30:</b> Importation of Fill Materials of Unknown Quality	On-Site	At the time of the Site visit, there did appear to be intentional grading across the property, which further confirms the findings of buried fill across the Site, as presented in the previously prepared Phase II ESA.	The PCA is located on the Site and is therefore automatically considered to contribute to an on-site APEC.

## 7 REVIEW AND EVALUATION OF INFORMATION

### 7.1 Current and Past Uses

**Table 15** below is a summary of the current and past uses of 5546 Albion Road, Ottawa, Ontario.

**Table 15: Current and Past Uses**

Year	Name of Owner	Description of Property Use	Property Use	Source of Information
At least 1945 – at least 1976	Unknown	Agricultural land	Agricultural fields or pasture	Aerial Imagery
At least 1976 - 1991	Unknown	Forested or over-grown brush	Un-Developed	Aerial Imagery
1992	124592 Canada Inc.	Forested or over-grown brush	Un-Developed	Aerial Imagery, Land Title Search
1993 - Present	124592 Canada Inc.	Gasoline Service Station	Light Industrial	Aerial Imagery, Land Title Search, Ecolog ERIS Search Report

## 7.2 Potential Contaminating Activity (PCA) & Areas of Potential Environmental Concern (APEC)

A potentially contaminating activity is a use or activity set out in Table 2 of Schedule D of the O. Reg. 153/04. These activities are summarized in the Table included in **Appendix M**.

The Site have been operated as a gasoline service station since the early 1990's (1993) and continues as such to this day. Furthermore, the activities on adjacent lands (east of the Site following Albion Road) from at least the early 1990's (1992) to the late 2010's (approximately 2018) has been light industrial with the presence of underground and aboveground petroleum storage tanks. The properties approximately 200 m northeast of the Site include various light industrial operations, such as an automotive repair facility. Mineral aggregate operations are identified approximately 400 m northwest of the Site.

Based on the results of the Phase One Environmental Site Assessment the following areas of potential environmental concern were identified and are presented in **Figure 3**:

**Table 16: Potential Contaminating Activity (PCA) & Areas of Potential Environmental Concern (APEC)**

O. Reg 153/04 Schedule D PCA	Location of PCA	Description and Source Information	Contribution to an APEC
<b>PCA 28:</b> Gasoline and Associated Products Storage in Fixed Tanks	On-Site	The Site is operated as a gasoline service station equipped with five (5) underground storage tanks along the southeastern extent of the Site. Fuel is dispensing equipment is used on the Site, also located at the general southeastern portion of the property.	The PCA is located on the Site and is therefore automatically considered to contribute to an on-Site APEC.
<b>PCA 30:</b> Importation of Fill Materials of Unknown Quality	On-Site	At the time of the Site visit, there did appear to be intentional grading across the property, which further confirms the findings of buried fill across the Site, as presented in the previously prepared Phase II ESA.	The PCA is located on the Site and is therefore automatically considered to contribute to an on-site APEC.
<b>PCA Other:</b> Spill	On-Site	In 2007, approximately 300 L of gasoline was spilled to the parking lot, road and ditch at the Site. Groundwater and soil impacts were identified.	The PCA is located on the Site and is therefore automatically considered to contribute to an on-site APEC.
<b>PCA Other:</b> Spill	On-Site	In 2017, 25 L of gasoline and water was related to the ground.	The PCA is located on the Site and is therefore automatically considered to contribute to an on-site APEC.

O. Reg 153/04 Schedule D PCA	Location of PCA	Description and Source Information	Contribution to an APEC
<b>PCA Other:</b> Spill	On-Site	In 2020, approximately 27 L of oil was accidentally released from a vacuum truck.	The PCA is located on the Site and is therefore automatically considered to contribute to an on-site APEC.
<b>PCA 28:</b> Gasoline and Associated Products Storage in Fixed Tanks	5545 Albion Street, 30 m east of the Site following Albion Road (up-gradient).	Records retrieved through the EcologERIS search provider, revealed that a construction company operated at this property from at least the early 1990's (1992) through approximately 2018. The facility was equipped with both underground and above ground petroleum storage tanks.	The PCA is located east of the Site, up-gradient with respect to the groundwater flow direction, therefore represents an APEC across the general eastern portion of the Site.
<b>PCA Other:</b> Spill	6600 Mitch Owen Road, approximately 50 m south of the Site (down-gradient).	A record was retrieved for this property as having an industrial waste approval in 1992 for a clean-up furnace oil spill.	This record does not present an APEC to the Site based on the incidents down-gradient location with respect to the groundwater flow direction.
<b>PCA 56:</b> Treatment of Sewage equal to or greater than 10,000 litres per day	Albion Sun Vista Mobile Home Park located approximately 50 m southeast of the Site, at Part Lot 1 Concession 4 (down-gradient).	Records of CofAs for municipal & private sewage were retrieved. The MECP is not generally notified of sewage disposal systems which are designed to accept less than 10,000 L/day. Therefore, as this record was retrieved through a MECP database, it is likely the industrial sewage works is in excess of 10,000 L/day and is considered a potential contaminating activity.	This record does not present an APEC to the Site based on the incidents down-gradient location with respect to the groundwater flow direction.
<b>PCA 52:</b> Storage, maintenance, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems	5457 Albion Road South, approximately 200 m north of the Site (up-gradient).	In the 2000 City Directories reviewed, the property is listed as: Albion Glass & Mirror; Carson's Auto Repair; Doval Automotive; and Ouimet Rick Transport. And in 2006-07, this property is listed as Planet Granite; Albion Glass & Mirror, Can's Auto; and Doval Automotive.	The PCA is located north of the Site, up-gradient with respect to the groundwater flow direction, therefore represents an APEC across the general eastern portion of the Site.





O. Reg 153/04 Schedule D PCA	Location of PCA	Description and Source Information	Contribution to an APEC
<b>PCA Other:</b> Spill	Albion Road, north of Regional Road 8- assumed immediately east of the Site (up-gradient).	In 1993, a private owner at the, spilt 45 L of gasoline to the ditch resulting from an automobile accident.	The PCA is located north of the Site, up-gradient with respect to the groundwater flow direction, therefore represents an APEC across the general eastern portion of the Site.
<b>PCA Other:</b> Spill	At the intersection of Albion Road and Mitch Owens Road, immediately southeast of the Site (down-gradient).	In 2022, a collision resulted in spill incident. However it was reported that the contaminant quantity was 0 liters and that the environmental impact was considered minor.	This record does not present an APEC to the Site based on the incidents down-gradient location in addition to the 0 liters spilt reported.
<b>PCA Other:</b> Spill	6600 Mich Owens Road, Albion Sun Vista Community, approximately 230 m southeast of the Site (down-gradient).	In 2019 a spill incident was reported however the summary of the incident was indicated as improper waste disposal on site.	This record does not present an APEC to the Site based on the incidents down-gradient location with respect to the groundwater flow direction.
<b>PCA Other:</b> Manufacturing Facility	Albion Sun Vista Park, 6600 Mitch Ownes Road, located approximately 230 m southeast of the Site (down-gradient).	Records retrieved (Scott's Manufacturing Directories) revealed that this property included an All Other Wholesaler-Distributors established in 1982 and All Other Specialty-Line Building Supplies Wholesaler-Distributors established in 2000. The materials stored or distributed are not indicated.	This record does not present an APEC to the Site based on the incidents down-gradient location with respect to the groundwater flow direction.
<b>PCA 58:</b> Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners	1.1 km north of the Site, approximately 200 m south of the Albion Road and Rideau Road intersection (up-gradient).	The City of Ottawa owned Albion & Rideau Disposal Site was identified at this location, reported to have closed in 2002. The facility operated from the 1970's through to summer of 2002, as mentioned.	This record does not present an APEC to the Site due to it's distance from the subject Site.



### 7.3 Areas of Potential Environmental Concern

Based on the PCAs noted in Section 7.2 above, the following APECs on the subject Site were identified and are presented in **Figure 4**:

**Table 17: Areas of Potential Environmental Concern (APEC)**

<b>APEC</b>	<b>Location</b>	<b>Comments</b>	<b>Contaminants of Potential Concern</b>	<b>Media Potentially Impacted</b>
<b>APEC A</b> Impacts of Gasoline and Associated Products Storage in Fixed Tanks	On-Site.	The Site is operated as a gasoline service station equipped with five (5) underground storage tanks along the southeastern extent of the Site. Fuel dispensing equipment is used on the Site, also located at the general southeastern portion of the property.	PAHs, VOCs, PHCs, Metals	Soil and groundwater
<b>APEC B</b> Presence of Fill Materials of Unknown Quality	On-Site	At the time of the Site visit, there did appear to be intentional grading across the property, which further confirms the findings of buried fill across the Site, as presented in the previously prepared Phase II ESA.	PAHs, VOCs, PHCs, Metals, OP pesticides, General Inorganics	Soil and Groundwater
<b>APEC C</b> Impacts of 300 L gasoline spill on Site in 2007	On-Site	In 2007, approximately 300 L of gasoline was spilled to the parking lot, road and ditch at the Site. Groundwater and soil impacts were identified.	VOCs, PHCs	Soil and Groundwater
<b>APEC D</b> Impacts of 25 L gasoline and water spill on Site in 2017	On-Site	In 2017, 25 L of gasoline and water was related to the ground.	VOCs, PHCs	Soil and Groundwater
<b>APEC E</b> Impacts of 27 L oil spill on Site in 2020	On-Site	In 2020, approximately 27 L of oil was accidentally released from a vacuum truck.	VOCs, PHCs	
<b>APEC F</b> Impact from Gasoline and Associated Products Storage in Fixed Tanks	Eastern/southeastern portion of the Site.	5545 Albion Road, 30 m east of the Site, was equipped with both underground and above ground petroleum storage tanks from between the early 1990's (1992) through approximately 2018.	PAHs, VOCs, PHCs, Metals	Soil and Groundwater
<b>APEC G</b> Impacts from storage, maintenance, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems.	Eastern portion of the Site.	The property located at 5457 Albion Road, approximately 200 m north of the Site, includes the following operations in 2000 Albion Glass & Mirror; Carson's Auto Repair; Doval Automotive; and Ouimet Rick Transport. And in 2006-07, this property is listed as Planet Granite; Albion Glass & Mirror, Can's Auto; and Doval Automotive.	PAHs, VOCs, PHCs, Metals	Soil and Groundwater

<b>APEC H</b>	Albion Road, north of Regional Road 8- assumed immediately east of the Site.	In 1993, a private owner at the, spilt 45 L of gasoline to the ditch resulting from an automobile accident.	VOCs, PHCs	Soil and Groundwater
Impacts of 45 L gasoline spill to the ditch east of the Site.				

Notes: PEC – Potential Environmental Concern  
 PHC – Petroleum Hydrocarbons  
 PAH – Polycyclic Aromatic Hydrocarbons  
 VOC – Volatile Organic Compounds

1 - Area of Potential Environmental Concern (APEC) means the area on, in, or under a Phase One Property where one or more contaminants are potentially present, as determined through the Phase One ESA, including through:

- (a) Identification of past or present uses on, in, or under the Phase One Property, and
- (b) Identification of potentially contaminating activity.

2 - Potentially Contaminating Activity means a use or activity set out in Column A of Table 2 of Schedule D that is occurring or has occurred in a Phase One Study Area

3 - When completing this column, identify all contaminants of potential concern using the Method Groups as identified in the "Protocol for the Assessment of Properties under Part XV.1 of the Environmental Protection Act, March 9, 2004, amended as of July 1, 2011,

4 - When submitting a record of site condition for filing, a copy of this table must be attached.

#### 7.4 PCA Exclusion Rationale

As part of this Phase One ESA, additional PCAs were encountered in the vicinity of the Site, through the records retrieved. However, select PCAs encountered, have been excluded as an actual PCA to the Phase One ESA Property, as rationalized in the following **Table 16**. Exclusion of a PCA is often related to the location and distance of the in relation to the Phase One Property, the direction of groundwater flow, and the results from previous environmental reports pertaining to the Phase One Property (if any). A summary of the rationale used to exclude PCAs is presented in **Table 16**.

**Table 18: Potential Contaminating Activity (PCA) Exclusion Rationale**

O. Reg 153/04 Schedule D PCA	Location of PCA	Description and Source Information	Rationale
<b>PCA Other:</b> Spill	6600 Mitch Owen Road, approximately 230 m southeast of the Site (down-gradient).	A record was retrieved for this property as having an industrial waste approval in 1992 for a clean-up furnace oil spill.	This record does not present an APEC to the Site based on the incidents down-gradient location with respect to the groundwater flow direction.
<b>PCA 56:</b> Treatment of Sewage equal to or greater than 10,000 litres per day	Albion Sun Vista Mobile Home Park located approximately 230 m southeast of the Site, at Part Lot 1 Concession 4 (down-gradient).	Records of CofAs for municipal & private sewage were retrieved. The MECF is not generally notified of sewage disposal systems which are designed to accept less than 10,000 L/day. Therefore, as this record was retrieved through	This record does not present an APEC to the Site based on the incidents down-gradient location with respect to the groundwater flow direction.

		a MECP database, it is likely the industrial sewage works is in excess of 10,000 L/day and is considered a potential contaminating activity.	
<b>PCA Other:</b> Spill	At the intersection of Albion Road and Mitch Owens Road, immediately southeast of the Site (down-gradient).	In 2022, a collision resulted in spill incident. However it was reported that the contaminant quantity was 0 liters and that the environmental impact was considered minor.	This record does not present an APEC to the Site based on the incidents down-gradient location in addition to the 0 liters spilt reported.
<b>PCA Other:</b> Spill	6600 Mich Owens Road, Albion Sun Vista Community, approximately 230 m southeast of the Site (down-gradient).	In 2019 a spill incident was reported however the summary of the incident was indicated as improper waste disposal on site.	This record does not present an APEC to the Site based on the incidents down-gradient location with respect to the groundwater flow direction.
<b>PCA Other:</b> Manufacturing Facility	Albion Sun Vista Park, 6600 Mitch Owens Road, located approximately 230 m southeast of the Site (down-gradient).	Records retrieved (Scott's Manufacturing Directories) revealed that this property included an All Other Wholesaler-Distributors established in 1982 and All Other Specialty-Line Building Supplies Wholesaler-Distributors established in 2000. The materials stored or distributed are not indicated.	This record does not present an APEC to the Site based on the incidents down-gradient location with respect to the groundwater flow direction.
<b>PCA 58:</b> Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners	1.1 km north of the Site, approximately 200 m south of the Albion Road and Rideau Road intersection (up-gradient).	The City of Ottawa owned Albion & Rideau Disposal Site was identified at this location, reported to have closed in 2002. The facility operated from the 1970's through to summer of 2002, as mentioned.	This record does not present an APEC to the Site due to it's distance from the subject Site.

### 7.5 Uncertainties or Absence of Information

Based on the body of information acquired for this assessment, it is considered that the absence of any other information should not likely affect the final conclusion of the Phase One ESA. There were no material deviations to the Phase One ESA requirements set out in O. Reg. 153/04 that would cause uncertainty or absence of information that would affect the validity of the Phase One Conceptual Site Model or the findings of this Phase One ESA.



## 7.6 Phase One Conceptual Site Model

### 7.6.1 Conceptual Site Model Drawing

The location of the Site is shown in the attached **Figure 1** and the current layout of the Site is shown in the attached **Figure 2**. PCAs and APECs are shown in the included **Figure 3**, and **Figure 4**, respectively. It should be noted that the conclusions of the above referenced Phase II Environment Site Assessment (Section 3.3), previously completed at the Site, impacted groundwater conditions were encountered and an estimated impacted subsurface plume was depicted. The estimated impact plume is presented in the included **Figure 5** for discussion.

### 7.6.2 Description and Assessment

The PCAs identified on the Phase One Property, as well as those identified within the Phase One Study Area were recognised through the records review, interview, and Site reconnaissance. A total of eight (8) PCAs were identified. They are further summarized below in **Table 17** as follows:

**Table 19: Summary of Conceptual Site Model – PCAs**

O. Reg 153/04 Schedule D PCA	Location of PCA	Description and Source Information	Contribution to an APEC
<b>PCA 28:</b> Gasoline and Associated Products Storage in Fixed Tanks	On-Site	The Site is operated as a gasoline service station equipped with five (5) underground storage tanks along the southeastern extent of the Site. Fuel is dispensing equipment is used on the Site, also located at the general southeastern portion of the property.	The PCA is located on the Site and is therefore automatically considered to contribute to an on-Site APEC.
<b>PCA 30:</b> Importation of Fill Materials of Unknown Quality	On-Site	At the time of the Site visit, there did appear to be intentional grading across the property, which further confirms the findings of buried fill across the Site, as presented in the previously prepared Phase II ESA.	The PCA is located on the Site and is therefore automatically considered to contribute to an on-site APEC.
<b>PCA Other:</b> Spill	On-Site	In 2007, approximately 300 L of gasoline was spilt to the parking lot, road and ditch at the Site. Groundwater and soil impacts were identified.	The PCA is located on the Site and is therefore automatically considered to contribute to an on-site APEC.
<b>PCA Other:</b> Spill	On-Site	In 2017, 25 L of gasoline and water was related to the ground.	The PCA is located on the Site and is therefore automatically considered to contribute to an on-site APEC.



O. Reg 153/04 Schedule D PCA	Location of PCA	Description and Source Information	Contribution to an APEC
<b>PCA Other:</b> Spill	On-Site	In 2020, approximately 27 L of oil was accidentally released from a vacuum truck.	The PCA is located on the Site and is therefore automatically considered to contribute to an on-site APEC.
<b>PCA 28:</b> Gasoline and Associated Products Storage in Fixed Tanks	5545 Albion Street, 30 m east of the Site following Albion Road (up-gradient).	Records retrieved through the EcologERIS search provider, revealed that a construction company operated at this property from at least the early 1990's (1992) through approximately 2018. The facility was equipped with both underground and above ground petroleum storage tanks.	The PCA is located east of the Site, up-gradient with respect to the groundwater flow direction, therefore represents an APEC across the general eastern portion of the Site.
<b>PCA 52:</b> Storage, maintenance, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems	5457 Albion Road South, approximately 200 m north of the Site (up-gradient).	In the 2000 City Directories reviewed, the property is listed as: Albion Glass & Mirror; Carson's Auto Repair; Doval Automotive; and Ouimet Rick Transport. And in 2006-07, this property is listed as Planet Granite; Albion Glass & Mirror, Can's Auto; and Doval Automotive.	The PCA is located north of the Site, up-gradient with respect to the groundwater flow direction, therefore represents an APEC across the general eastern portion of the Site.
<b>PCA Other:</b> Spill	Albion Road, north of Regional Road 8- assumed immediately east of the Site (up-gradient).	In 1993, a private owner at the, spilt 45 L of gasoline to the ditch resulting from an automobile accident.	The PCA is located north of the Site, up-gradient with respect to the groundwater flow direction, therefore represents an APEC across the general eastern portion of the Site.

### 7.6.3 Contaminants of Potential Concern

The contaminates of potential concern, related to the identified PCAs, are as follows:

Contaminates	Parameters
Petroleum Hydrocarbon Compounds (PHCs)	PHC Fraction F1 through Fraction F4
Volatile Organic Compounds (VOCs)	Acetone; Benzene; Bromodichloromethane; Bromoform; Bromomethane; Carbon Tetrachloride; Chlorobenzene; Chloroform; Dibromochloromethane; Dichlorodifluoromethane; 1,2-Dichlorobenzene; 1,3-Dichlorobenzene; 1,4-Dichlorobenzene; 1,1-Dichloroethane; 1,2-Dichloroethane; 1,1-Dichloroethylene; cis-1,2-Dichloroethylene; trans-1,2-Dichloroethylene; 1,2-Dichloropropane; cis-

	1,3-Dichloropropylene; trans-1,3-Dichloropropylene; 1,3-Dichloropropene, total; Ethylbenzene; Ethylene dibromide (dibromoethane, 1,2-); Hexane; Methyl Ethyl Ketone (2-Butanone); Methyl Isobutyl Ketone; Methyl tert-butyl ether; Methylene Chloride; Styrene; 1,1,1,2-Tetrachloroethane; 1,1,2,2-Tetrachloroethane; Tetrachloroethylene; Toluene; 1,1,1-Trichloroethane; 1,1,2-Trichloroethane; Trichloroethylene; Trichlorofluoromethane; Vinyl Chloride; m/p-Xylene; o-Xylene; and Xylenes, total
Polycyclic Aromatic Hydrocarbons (PAH)	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]anthracene; Benzo[a]pyrene; Benzo[b]fluoranthene; Benzo[g,h,i]perylene; Benzo[k]fluoranthene; Chrysene; Dibenzo[a,h]anthracene; Fluoranthene; Fluorene; Indeno[1,2,3-cd]pyrene; 1-Methylnaphthalene; 2-Methylnaphthalene; Methylnaphthalene (1&2); Naphthalene; Phenanthrene; Pyrene
Regulation 153/04 Metals; and	Antimony; Arsenic; Barium; Beryllium; Boron (available); Boron; Cadmium; Chromium VI; Chromium; Cobalt; Copper; Lead; Mercury; Molybdenum; Nickel; Selenium; Silver; Thallium; Uranium; Vanadium; Zinc
General Inorganics	Sodium Absorption Ration (SAR); Conductivity; Cyanide, free; and pH

#### 7.6.4 Potential for Underground Utilities to Influence the Transportation and Distribution of Contaminates

Underground utilities are present on the Site and are generally associated with the on-Site operations as a gasoline service station including buried hydro services for the fuel dispensing pumps, and piping. Storm services are also present throughout the property. These installations may influence the transportation and distribution of potential contaminants on the Site. Details related to known contaminants on the Site are provided above in Section 3.3, and the estimated impacted subsurface plume is presented in **Figure 5** and **Figure 6**.

#### 7.6.5 Available Regional or Site-Specific Geological or Hydrogeological Information

The topography of the Site and neighbouring lands is generally flat. The subject Site and the neighbouring lands have a common topographic elevation of approximately 100 m above mean sea level (amsl) according to The Atlas of Canada - Toporama. More specifically, the Site has a slight slope to the south, towards Mitch Owens Road. Elevations along the southern extent of the site range between 103.7 and 102.5 m amsl according to the Annis, O’Sullivan, Vollebekk Ltd. Topographic Survey plan, dated April 18, 2022, and included in **Appendix I**.

Surficial soil deposit mapping indicates that the surficial geology is fine- to medium-grained sand, calcareous and commonly fossiliferous; nearshore sand generally occurs as a sheet or as bars or spits associates with glaciofluvial materials. Bedrock mapping indicates that the bedrock is described as the Oxford Formation: dolomite and limestone.

A watercourse is located on the neighbouring property to the west, however the City of Ottawa identifies it as a ‘ditch’.



## 8 CONCLUSIONS

Based on the findings of the Phase One ESA, it is recommended that a Phase II ESA be conducted on the Site to confirm the presence/absence of impacts in the areas of potential environmental concern identified. The identified APECs that should be addressed through the completion of a Phase II ESA are as follows:

- **APEC A: Impacts of Gasoline and Associated Products Storage in Fixed Tanks.** There is a high risk of environmental impacts across the southeastern and central portion of the Site. Contaminants of Concern include PAHs, VOCs, PHCs, Metals.
- **APEC B: Presence of Fill Materials of Unknown Quality.** There is a high risk of environmental impacts across the general majority of the Site. Contaminants of Concern include PAHs, VOCs, PHCs, Metals, OP pesticides, General Inorganics.
- **APEC C: Impacts of 300 L gasoline spill on Site.** There is a high risk of environmental impacts to the parking lot, road and ditch at the Site. Contaminants of Concern include VOCs and PHCs.
- **APEC D: Impacts of 25 L gasoline and water spill on Site.** There is a high risk of environmental impacts across the Site. Contaminants of Concern include PHCs and VOCs.
- **APEC E: Impacts of 27 L oil spill on Site.** There is a high risk of environmental impacts across the Site. Contaminants of Concern include PHCs and VOCs.
- **APEC F: Impact from Gasoline and Associated Products Storage in Fixed Tanks.** There is a low-medium risk of environmental impacts in the south/southeastern portion of the Site as a result of the previous fuel dispensing equipment on the neighbouring property to the east. Contaminants of Concern include PAHs, VOCs, PHCs and Metals.
- **APEC G: Impacts from storage, maintenance, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems.** There is a low-medium risk of environmental impacts in the eastern portion of the Site from the automotive repair operations north of the Site. Contaminants of Concern include PAHs, VOCs, PHCs, and Metals.
- **APEC H: Impacts of 45 L gasoline spill to the ditch east of the Site.** There is a low-medium risk of environmental impacts in the eastern portion of the Site as a result of a previous spill east of the Site. Contaminants of Concern include VOCs and PHCs.

As previously mentioned, a Phase II ESA was previously completed to address the APEC identified on the Site. This report should be read in conjunction with the previous Phase II ESA, dated March 17, 2023. The findings of the Phase II ESA has revealed that soil and groundwater across the Site generally meet the applicable SCS with the following exceptions:

- Conductivity impacts to the surface soil in the southeast portion of the Site; and
- Sodium and chloride impact in the groundwater across the Site.

The conductivity impacts in the soils are found to encompass an area of approximately 490 m<sup>2</sup> and are likely limited to the upper 2.0 m of overburden. The vertical, and horizontal extents of the impacted groundwater have not been established at this time.

Although not confirmed through the corresponding intrusive investigation and associated sampling, it is anticipated that petroleum impacts are present within the existing underground storage tank installation nest extents and underlying the existing concrete apron and fuel dispensing pump. The approximate impacted plume is presented in the included **Figure 5** and



**Figure 6.** The recommendations of the previous Phase II ESA should be referenced as part of this review. Remedial activities are anticipated as part of the proposed Site redevelopment and are to be completed in accordance with applicable provincial regulations.

## 9 LIMITATIONS AND USE OF REPORT

The results of this Phase One ESA should not be considered a warranty that the subject property is any free from and all contaminants from former and current practices, other than those noted in this report, nor that all compliance issues have been addressed.

The findings contained in this report are based on data and information collected during the Phase One ESA of the subject property conducted by LRL Associates Ltd. The conclusions and recommendations are based solely on-Site conditions encountered at the time of our inspection on November 14<sup>th</sup>, 2023, supplemented by historical information and data obtained as described in this report. No assurance is made regarding changes in conditions subsequent to the time of this investigation. If additional information is discovered or obtained, LRL Associates Ltd. should be requested to re-evaluate the conclusions presented in this report and to provide amendments as required.

In evaluating the subject property, LRL Engineering has relied in good faith on information provided by individuals as noted in this report. We assume that the information provided is factual and accurate. We accept no responsibility for any deficiencies, misstatements or inaccuracies contained in this report as a result of omissions, misinterpretation or fraudulent acts of the persons contacted.

This report is intended for the sole use of MacEwen Petroleum Inc. and their authorized agents. LRL Associates Ltd. will not be responsible for any use of the information contained within this report by any third party.

In addition, LRL Engineering will not be responsible for the real or perceived decrease in the property value, its saleability or ability to gain financing, through the reporting of information.

Yours truly,

LRL Engineering

Jessica Arthurs  
Environmental Engineering Manager

John (Gianni) Lametti, P. Eng. QP<sub>ESA</sub>  
Environmental Engineer



## 10 REFERENCES

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## FIGURES

**APPENDIX A**  
**Land Title Search**

# **APPENDIX B**

**City Directory**

# **APPENDIX C**

**Ecolog ERIS Report**

## **APPENDIX D**

**City of Ottawa Freedom of Information Response**

**APPENDIX E**  
**Historical Land Use Inventory (HLUI)**



# **APPENDIX F**

**MECP Freedom of Information Response**

**APPENDIX G**  
**MECP Water Well Records**

# **APPENDIX H**

## **Topographic Mapping**

**APPENDIX I**  
**Aerial Photographs**

**APPENDIX J**  
**Site Visit Photographs**

# **APPENDIX K**

**Table 2 of Schedule D of O. Reg. 153/04**