PHASE 1 ENVIRONMENTAL SITE ASSESSMENT – ENHANCED
1546 SCOTT STREET
OTTAWA, ONTARIO

Prepared for:
Starbank Developments 2000 Corp.
1918 Avenue Road
Toronto, Ontario
M5M 4A1

Prepared by:
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178 Fincham Avenue
Markham, Ontario
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Project No. 0394-04

EXECUTIVE SUMMARY

COLESTAR Environmental Inc. was retained by Starbank Developments 2000 Corp. to conduct a Phase 1 Environmental Site Assessment (ESA) of the site located at 1546 Scott Street in Ottawa, Ontario (the "site")). The Phase 1 ESA is to support a Record of Site Condition and was completed in accordance with the requirements set out in *Ontario Regulation 153,* as amended. The Phase 1 ESA was conducted to satisfy the objectives described in section 24 of Regulation 153, and included the components described in section 25 of Regulation 153. As such, it was conducted to identify contaminants (if any) from current or former activities carried out at, or in the area of, the site; determine the likelihood that identified contaminants, if any, have affected land or water on, in or under the site; determine whether a Phase 2 ESA is required; provide the basis for carrying out any Phase 2 ESA, including by collecting the information required for the effective planning and carrying out of a Phase 2 ESA; and provide preliminary information about environmental conditions on, in or under the site for the conduct of a risk assessment, if needed after a Phase two ESA. The Phase 1 ESA consists of a records review, interviews, site and surrounding property reconnaissance, an evaluation of the information collected, and the development of a conceptual site model.

The historical records indicate that the site was first developed in about 1902 with residential dwellings that were demolished and replaced with two commercial buildings and a parking lot in the late 1950s. The buildings resided in the northeast site quadrant and central part of the site and were occupied by Rene Goulet Construction Ltd. and Jordash Co. Ltd., and Brewers Retail, respectively. In the late 1980s, the commercial buildings were demolished and replaced with the current day building and parking lot which have been utilized by The Beer Store and its prior affiliated company (Brewers Retail) since construction.

The information that was found relating to the construction company (Rene Goulet Construction Ltd.) that operated in the former building in the northeast site quadrant indicates that this company may have been a design build construction company. Although no supporting information was found, it is conservatively assumed that this company may have used part of the building as a construction equipment repair and servicing garage.

Jordash Co. Ltd. is a restaurant equipment supply company and most likely used the former building at the site as a retail warehouse.

It is noted that the site was occupied during the coal burning era (1800s to 1930s) and as a result it is considered possible that coal and burnt coal residuals (cinder, clinker, ash) may have been deposited within the upper part of the soil profile beneath the site.

The Phase 1 ESA found a number of APECs at the site. These APECs are illustrated on Figure 4 and summarized as follows:

APEC 1 - Potential Coal and Burnt Coal Deposition
APEC 2 – Potential Former Service Garage
APEC 3 – East Side of Site in Direction of Offsite PCAs (service stations, auto service garages, auto-bodies, dry cleaner, tin product fabrication)
APEC 4 – South Side of Site in Direction of Offsite PCAs (metal manufacturing plants/foundries, printing plants, service stations, auto service garages)

Based on the information collected, compiled and interpreted in the Phase 1 ESA, it was concluded that a Phase 2 ESA is required to:

- assess fill quality to ascertain if coal or burnt coal residuals have adversely affected soil and/or groundwater quality beneath the site;
- assess soil and groundwater quality in the area of the former building occupied by the construction company to establish if soil and groundwater quality has been adversely affected by potential equipment/vehicle repair operations conducted within the former garage portion of the building;
- assess groundwater quality on the east side of the site to ascertain if sources at offsite PCAs (service stations, auto service garages, auto-bodies, dry cleaner, tin product fabrication) have adversely affected groundwater quality beneath the site; and
- assess groundwater quality on the south side of the site to ascertain if sources at offsite PCAs (metal manufacturing plants/foundries, printing plants, service stations, auto service garages) have adversely affected groundwater quality beneath the site.

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1.0 INTRODUCTION

COLESTAR Environmental Inc. was retained by Starbank Developments 2000 Corp. to conduct a Phase 1 Environmental Site Assessment (ESA) of the site located at 1546 Scott Street in Ottawa, Ontario (the "site", or the "Phase 1 Property)) in order to obtain a record of site condition (RSC) for the site. In accordance with the requirements in Regulation 153, the objectives of the Phase 1 ESA are:

- To identify contaminants, if any, from current or former activities carried out at or in the area of the site;
- To determine the likelihood that identified contaminants, if any, have affected land or water on, in or under the Phase 1 property;
- To determine the need for a Phase 2 ESA, if any;
- To provide a basis for carrying out any phase two ESA work that may be required; and
- To provide adequate preliminary information about environmental conditions on, in or under the site for use in a risk assessment (if necessary).

As indicated above, the Phase 1 ESA was carried out to support a RSC. It was completed in accordance with *Part XV.1* of the *Environmental Protection Act* and the requirements set out in *Ontario Regulation 153/04,* including amendments ("Regulation 153).

The guidelines provided in the *"Guide for Completing Phase One Environmental Site Assessments under Ontario Regulation 153/04"* publication issued by the *Ontario Ministry of the Environment (MOE)* in June 2011 were followed in the preparation of the Phase 1 ESA.

This report is structured in accordance with prescribed section headings and reporting requirements defined in Schedule D of the Regulation. It includes the required components of the Phase 1 ESA organized as primary headings, as follows:

EXECUTIVE SUMMARY
1.0 INTRODUCTION
2.0 SCOPE OF INVESTIGATION
3.0 RECORDS REVIEW
4.0 INTERVIEWS
5.0 SITE RECONNAISSANCE

6.0 REVIEW AND EVALAUTION OF INFORMATION
7.0 CONCLUSIONS
8.0 REFERENCES

1.1 Phase 1 Property Information

A slab on grade building and parking lot, utilized by The Beer Store, occupy the site (also referred to as the Phase 1 Property). The municipal address of the site is 1546 Scott Street, Ottawa, Ontario. The site area is approximately 0.25 hectares (0.62 Acres). The site is bordered by Scott Street to the north and is situated approximately 80 m west of Parkdale Avenue. The site location is illustrated on Figure 1. A site plan is provided as Figure 2.

The Property Identification Number (PIN) of the site is PIN #04034-0023 (LT). The legal description of the site is "Part Lots 3 & 4, Plan 58 North Side of Bullman Street, South Side of Scott Street; Part Lots 1290 & 12902, Plan 157; Part Lot 1303 Plan 157; Parts of 6, 8 & 10 Plan 4R6192". A current plan of survey prepared and signed by an Ontario Land Surveyor is provided in Appendix D.

As per City of Ottawa Zoning By-Law (online 2020), the site is designated as a Mixed Use Centre Zone (MC12).

The planned redevelopment of the site is mixed use (commercial and residential). The future plan for the site is redevelopment with a multiple storey mixed use building with two to four levels of underground parking. At the time of preparation of this report, drawings detailing the planned building and underground parking garage were not available.

The Owner of the site is Starbank Developments 2000 Corp. The contact particulars of the Owner are:

Mr. Dung Lam
Starbank Developments 2000 Corp.
1918 Avenue Road
Toronto, Ontario
M5M 4A1
Tel.: (416) 922-2222
starbank@rogers.com

2.0 SCOPE OF INVESTIGATION

The Phase 1 ESA was carried out in accordance with the requirements set out in *Ontario Regulation 153, as* amended. As such, it was conducted to complete the objectives described in section 1.0 above, including the requirements in Regulation 153. As required by Regulation 153, the Phase 1 ESA included the components described in section 25 of Regulation 153; namely:

- Records Review;
- Interviews;
- Site and Surrounding Property Reconnaissance;
- Review and Evaluation of Information Collected; and
- This Phase 1 ESA report.

The records review was the first step in the process. It included a review of all of the mandatory information sources described in Regulation. 153 for both the site and surrounding lands falling within the study area defined in Section 3.1.1. Additional information sources were also reviewed. A complete list of the information sources reviewed as well as the information derived from each source is provided in Section 3.0 of this report. The objective of the records review was to identify potentially contaminating activities (PCAs) within the study area that could result in a possible contaminant impact to the site either directly (i.e. at the site) or via groundwater flow and contaminant transport from offsite locations. To aid in establishing this potential, a conceptual hydrogeological model was developed that inferred the groundwater flow regime and contaminant transport pathways within the study area. This model was used as a basis in establishing offsite PCAs that have the potential to affect groundwater, and potentially soil, quality on, in or under the site.

Interviews were carried out with persons with knowledge relating to past and current site use, potential contaminant sources and locations, building demolition specifics, and site utilities and services. Interview information was collected from the interviewees over the duration of the records review process. An assessment of the information gathered from the interviewees was carried out against the information derived from other sources to evaluate the validity of the interview information.

The site reconnaissance involved the identification and assessment of the mandatory site reconnaissance items as defined under the enhanced site investigation approach;

namely: structures and improvements; storage tanks; water sources; utilities/services; heating systems; cooling systems; pits, drains and sumps; stains and vegetative distress; fill and debris; wells and salt storage; railway lines; processes and operations; hazardous materials; products manufactured; by-products and wastes; raw materials storage and handling; storage facilities; oil/water separators; vehicle and equipment maintenance; spills; discharge points; hydraulic lift equipment and potentially contaminating activities. Because former buildings at the site had been demolished prior to this Phase 1 ESA, the mandatory site visit items were integrated, where required, with information derived from the records review and interviews. An assessment of the surrounding properties with a focus on those identified with PCAs in the records review, from publicly accessible locations was also carried out. The assessment of surrounding lands included the identification of visible items of potential environmental concern such as drums, tanks, tank aprons, vent stacks, waste piles, debris piles, chemical storage facilities and visual evidence of anthropogenic impact at ground surface (staining or vegetative distress).

Information derived from the records review, interviews and site reconnaissance's was compiled and interpreted and used to determine the site occupancy history, PCAs and APECs defined in this study.

All elements of the P1ESA were carried out and/or supervised by Mr. Darren Coleman, P.Eng., QP of COLESTAR Environmental Inc. The qualifications of Mr. Coleman are provided in Appendix B.

3.0 RECORDS REVIEW

This section provides details of the information gathered from the records review. It defines the sources reviewed and information gathered from each source with a focus on activities, operations and land uses within the study area that could be deemed PCAs. The sources reviewed included the required sources outlined in the Regulation, as follows:

- Fire Insurance Plans
- Chain of Title Records
- Environmental Source Information, including:
    - Environment Canada's National Pollutant Release Inventory
    - MECP PCB Inventory
    - MECP Environmental Registry for information such as Permits to Take Water, Records of Site Condition, Certificates of Approvals, Certificates of Property Use, among other information
    - MECP Inventory of Coal Gasification Plants
    - MECP Inventory of Waste Disposal Sites
    - MECP Records relating to orders, offences, discharges of contaminants and inspections
    - MECP current and historical waste generator and receiver information
    - MECP Freedom of Information Act information such as incident and inspection reports and reports relating to the environmental condition of the site
    - Technical Standards and Safety Authority (TSSA) fuel storage tank information
    - Areas of Natural Significance defined by the Ministry of National Resources
- Aerial Photographs
- Topographic, Physiographic and Geologic Maps
- MECP Water Well Records

Additional sources of information were also reviewed to enhance the understanding of the history of the study area and aid in establishing PCAs of possible environmental concern to the site. These additional sources included:

- Street Directories;
- Historical Maps;

- Historical Records;
- MNR Pits and Quarries Inventory;
- Ministry of Northern Development and Mines Abandoned Mine Inventory;
- Canada Mines Location Database;
- ECOLOG Automobile Wreckers and Recyclers Database;
- Environment Canada Inventory of PCB Waste Disposal and Storage Facilities;
- Andersons' Inventory of Waste Disposal Sites;
- Department of National Defence (DND) Waste Disposal Site Inventory;
- DND Storage Tank Inventory;
- Parks Canada Inventory of Storage Tanks;
- Transport Canada Inventory of Storage Tanks;
- Department of Indian and Northern Affairs Canada Inventory of Storage Tanks;
- Fisheries and Oceans Canada Storage Tank Inventory;
- Andersons Inventory of Storage Tanks;
- ECOLOGs Inventory of Storage Tanks;
- DND Spills Inventory;
- Ontario Oil and Gas Well Inventory;
- Nickels Oil and Gas Well Inventory;
- Ontario Environmental Compliance and Convictions Database;
- Environment Canada Fines and Convictions Database;
- Canada Pulp and Paper Mills Inventory;
- Scott's Manufacturing Directory;
- National Environmental Emergencies System database (relates to spills of hazardous substances);
- National Analysis of Trends in Emergencies System database (voluntary significant spill reporting);
- Federal Contaminated Sites database;
- Environmental Issues Inventory System (First Nation Reserve lands); and
- Environmental Effects Monitoring database (environmental effects of industrial discharges to surface waters).

Where required, additional sub-sections were added to this report to reflect the information gathered from the supplemental sources. In cases where the source was similar to the mandatory source, information gleaned from the supplemental source was added to the applicable sub-section.

Information acquired from the above sources is provided in the following sections.

3.1 General

3.1.1 Phase 1 Study Area Determination

The Phase 1 ESA study area includes the site as well as surrounding lands falling within a 250 m radius of the site boundaries. The aerial extent of coverage of the Phase 1 ESA study area is depicted on Figure 3. As illustrated, it generally extends to Hinchey Avenue to the east, Armstrong Street to the south, Huron Avenue to the west and Lyndale Avenue to the north. The search area focusses on the site and surrounding properties falling within the inferred up-gradient groundwater flow field (UGFF) of the study area. The UGFF is used throughout the records review process to define surrounding properties that may pose a potential concern to groundwater, and potentially soil, quality beneath the site. Specifically, the study area is used to define surrounding properties that may, in the event of a contaminant release, represent a concern with respect to contaminant migration towards the site via groundwater flow (advection) and other contaminant transport mechanisms (diffusion and dispersion).

3.1.2 First Developed Use Determination

The first developed use of the site was established from a collaborative review of historical maps, aerial photographs, street directories, land title records, historical records and interview information. Collectively, the records indicate that the site was first developed in about 1902 with residential dwellings that were demolished and replaced with two commercial buildings and a parking lot in the late 1950s. The buildings resided in the northeast site quadrant and central part of the site and were occupied by Rene Goulet Construction Ltd. and Jordash Co. Ltd., and Brewers Retail, respectively. In the late 1980s, the commercial buildings were demolished and replaced with the current day building and parking lot which have been utilized by The Beer Store and its prior affiliated company (Brewers Retail) since construction.

3.1.3 Fire Insurance Plans

Fire insurance plans (FIPs) dated 1888/1901, 1902, 1912, 1915, 1922, 1938, 1948 and 1965 held at the Toronto Public Library and acquired through ECOLOG ERIS were reviewed for the site and surrounding lands. Information gathered from each FIP is

detailed in the following sections. Copies of the fire insurance plans are retained on file at COLESTAR's office in Markham, Ontario.

3.1.3.1 1888/1901 Fire Insurance Plan

There is no coverage of the site or study area on the 1888/1901 fire insurance plan.

3.1.3.2 1902 Fire Insurance Plan

This plan includes the site and surrounding lands extending more than 250 m south, east and west of the site.

The site address is defined as 118 Scott Street and the site is occupied by two residential dwellings, one fronting Scott Street on the north side of the site and the other fronting the former Bullman Street alignment on the south side of the site.

The main railway line of the CPR borders Scott Street to the north of the site. A tinsmith with an address of 114 Scott Street occupies the property to the immediate east of the site. Lands south and further east are sporadically occupied by residential dwellings and lands to the west and north of the railway are unoccupied/undeveloped.

An industrial building that is under construction and occupied by Capital Wire Cloth Manufacturing Co. Ltd. is shown at 210 Hamilton Avenue located approximately 180 m south of the site.

3.1.3.3 1912 Fire Insurance Plan

This plan includes the site and surrounding lands extending more than 250 m south, east and west of the site.

The site address is defined as 118 Scott Street and the site is occupied by two residential dwellings, one fronting Scott Street on the north side of the site and the other fronting the former Bullman Street alignment on the south side of the site.

The main railway line of the CPR borders Scott Street to the north of the site. A tinsmith with an address of 114 Scott Street occupies the property to the immediate east of the

site. Lands south and further east are sporadically occupied by residential dwellings and lands to the west and north of the railway are unoccupied/undeveloped.

An industrial building occupied by Capital Wire Cloth Manufacturing Co. Ltd. is shown at 210 Hamilton Avenue located approximately 180 m south of the site.

3.1.3.4 1915 Fire Insurance Plan

This plan includes the site and surrounding lands extending more than 250 m south, east and west of the site.

The site address is defined as 118 Scott Street and the site is occupied by two residential dwellings, one fronting Scott Street on the north side of the site and the other fronting the former Bullman Street alignment on the south side of the site.

The main railway line of the CPR borders Scott Street to the north of the site. A tinsmith with an address of 114 Scott Street occupies the property to the immediate east of the site. Lands south and further east are sporadically occupied by residential dwellings and lands to the west and north of the railway are unoccupied/undeveloped.

An industrial building occupied by Capital Wire Cloth Manufacturing Co. Ltd. is shown at 210 Hamilton Avenue located approximately 180 m south of the site.

3.1.3.5 1922 Fire Insurance Plan

This plan includes the site and surrounding lands extending more than 250 m south, east and west of the site.

The site address is defined as 118 Scott Street and the site is occupied by three residential dwellings. One of the dwellings fronts Scott Street on the north side of the site and the other two dwellings front the former Bullman Street road alignment at the rear or south side of the site.

The main railway line of the CPR borders Scott Street to the north of the site. A tinsmith with an address of 114 Scott Street occupies the property to the immediate east of the site. A contractors' yard with scattered building materials and U shaped building occupies the property to the west of the site.

A stove manufacturing plant/foundry that is partially under construction, serviced by a railway spur, and operated by Beach Foundry Ltd. is situated approximately 15 m south of the site. The plant/foundry occupies land bounded by Spencer Avenue, Holland Avenue, Hamilton Avenue and Bullman Street.

An industrial building occupied by Capital Wire Cloth Manufacturing Co. Ltd. with a 250,000 gallon gasoline underground storage tank is shown at 42 Hamilton Avenue located approximately 180 m south of the site. The former address (210) of this property is struck.

3.1.3.6 1938 Fire Insurance Plan

This plan includes coverage of lands to the north of the site and Scott Street. The plan shows the main railway line of the CPR bordering the north side of Scott Street with no offsite PCAs apparent north of the railway.

3.1.3.7 1948 Fire Insurance Plan

This plan includes the site and surrounding lands extending more than 250 m south, east and west of the site.

The site address is defined as 118 Scott Street and the site is occupied by three residential dwellings. One of the dwellings fronts Scott Street on the north side of the site and the other two dwellings front the former Bullman Street road alignment at the rear or south side of the site.

The main railway line of the CPR borders Scott Street to the north of the site. A commercial building with a garage addressed as 114 Scott Street occupies the property to the immediate east of the site. The property to the immediate west of the site (120 Scott Street) is occupied by McLaughlin Brothers Contractors Ltd. This property is occupied by a U shaped building and is used as a construction yard and for the storage of building materials.

A stove manufacturing plant/foundry operated by Beach Foundry Ltd. is situated approximately 15 m south of the site. The plant/foundry occupies land bounded by Spencer Avenue, Holland Avenue, Hamilton Avenue and Bullman Street and is complete

with pickling vats, boilers and a spray room. Operations carried out in the foundry include forging, enamelling or plating, finishing, welding, sand blasting, grinding, crating and assembly. Additional manufacturing plants that are shown within the study area on the plan are as follows:

- Instruments Ltd., manufacturer of scientific instruments, at 300 Parkdale Avenue located approximately 40 m southeast of the site.
- Dominion Loose Leaf Co. Ltd. with an oil room at 320 Parkdale Avenue located approximately 85 m south-southeast of the site.
- Capital Wire Cloth Manufacturing Co. Ltd. at 265 Armstrong Street located approximately 170 m south of the site.
- Sperry Gyroscope Ottawa Ltd. at 3 Hamilton Avenue and 340 Parkdale Avenue located approximately 175 m south-southeast of the site.
- J. Robinson & Sons Foundry with two gasoline USTs at 2 Hinton Avenue located approximately 175 m south of the site.

Additional offsite PCAs shown on the plan include:

- A commercial building with a garage is identified at 100 Scott Street located approximately 100 m east-northeast of the site.
- A gasoline UST on the property occupied by The Department of Health and Welfare at 45 Spencer Street located approximately 140 m south of the site.
- A service station/auto service garage with two gasoline USTs at 65 Holland Avenue located approximately 225 m south of the site.
- A service station/auto service garage at 50 Scott Street located approximately 210 m east-northeast of the site.

3.1.3.8 1965 Fire Insurance Plan

This plan includes the site and surrounding lands extending more than 250 m north, south, east and west of the site.

The former address of the site (118) is struck and amended to 1542/1544 Scott Street and the site is occupied by three residential dwellings and a commercial building. One of the dwellings fronts Scott Street on the north side of the site and the other two dwellings front the former Bullman Street road alignment at the rear or south side of the site. The commercial building is occupied by Rene Goulet Construction Co. Ltd.

The former address (114) of the property to the immediate east of the site is struck and amended to 1536 Scott Street and the property is occupied by a residential dwelling and a commercial building that is complete with a garage. The property to the immediate west of the site (1550 Scott Street) is occupied by McLaughlin Brothers Contractors Ltd. This property is used for storage and as a construction yard. The former address of this property (120 Scott Street) is struck out on the plan. This property is occupied by a U shaped building and is used as a construction yard and for the storage of building materials. A commercial building with a warehouse and a residential dwelling are identified at 1530 Scott Street (formerly 110) located approximately 15 m east of the site.

A stove manufacturing plant/foundry operated by Beach Foundry Ltd. is situated approximately 15 m south of the site. The plant/foundry occupies land bounded by Spencer Avenue, Holland Avenue, Hamilton Avenue and Bullman Street and is complete with pickling vats, boilers and a spray room. Operations carried out in the foundry include forging, enamelling or plating, finishing, welding, sand blasting, grinding, crating and assembly. Additional manufacturing plants that are shown within the study area on the plan are as follows:

- Instruments Ltd., manufacturer of scientific instruments, at 300 Parkdale Avenue located approximately 40 m southeast of the site.
- Dominion Loose Leaf Co. Ltd. with an oil room at 320 Parkdale Avenue located approximately 85 m south-southeast of the site.
- Capital Wire Cloth Manufacturing Co. Ltd. plant at 265 Armstrong Street located approximately 170 m south of the site.
- Sperry Gyroscope Ottawa Ltd. at 3 Hamilton Avenue located approximately 175 m south-southeast of the site.
- J. Robinson & Sons Foundry with two gasoline USTs at 2 Hinton Avenue located approximately 175 m south of the site.

Additional offsite PCAs shown on the plan include:

- A service station with two gasoline USTs at the southeast corner of Scott Street and Holland Avenue, approximately 70 m west of the site.
- A motor service garage at 1484 Scott Street located approximately 120 m east-northeast of the site.

- A service station/auto service garage at 1480 Scott Street located approximately 150 m east-northeast of the site.
- A service station/auto service garage with two gasoline USTs at 65 Holland Avenue located approximately 225 m south of the site.

3.1.4 Historical Maps and Photographs

No historical maps that were of use to the P1ESA were acquired via the internet.

3.1.5 Historical Records

The following information was acquired from internet searches:

- Jordash Co. Ltd., former site occupant, is a supplier of restaurant equipment and was established in 1979 [Jordash Co. Ltd. website].
- Rene Goulet Construction Co. Ltd. was a contractor that completed design and construction work on buildings.
- The Beach Foundry manufactured stoves and appliances and operated on lands bounded by Holland Avenue, Hamilton Avenue, Spencer Street and Scott Street from 1923 to 1980. Numerous explosions and fires that resulted in foundry dust dispersion to surrounding properties occurred at the foundry. Several of the explosions were derived from the explosion of tanks containing paint thinners and gasoline. [The Beach Foundry – A Kitchissippi Landmark; March 17, 2015]

3.1.6 Chain of Title

A chain of property title was completed by ECOLOG ERIS for the site. Copies of the title records reviewed and compiled to establish site ownership history of the site are retained on file at COLESTARs Markham Ontario office. The title records indicate that the site was formerly composed of two parcels, an east parcel and a west parcel that correspond approximately to the two buildings observed on the aerial photographs in 1965 and 1976 aerial photographs. Land registry records dating back to 1801 were reviewed with the site ownership chain summarized for the east parcel and west parcel in Tables 1a and 1b.

Table 1a – East Parcel
Chain of Site Ownership
1546 Scott Street, Ottawa, Ontario – PIN #04034-0023 (LT)

Date of Transaction	Acquired by
Pre June 30, 1801	The Crown
June 30, 1801	Colin Murchison
January 17, 1835	Colin Chrisholm
July 12, 1864	Robert Hinton
April 18, 1873	Joseph Hinton
July 23, 1874	Michael Naughton
November 21, 1877	Peter Gelhausen
July 2, 1889	Finan McCormick
April 10, 1900	Robert McCormick
October 4, 1905	Richard Traverse
April 17, 1909	William Robertson
July 21, 1911	Richard Traverse
March 1, 1950	Ethel Parker
October 17, 1951	Frank Burke
April 10, 1952	Rene Goulet
July 6, 1953	Rene Goulet Construction Co. Ltd.
October 6, 1980	453803 Ontario Ltd./Jordash Co. Ltd.
November 15, 1985	617314 Ontario Limited
July 21, 1989	Brewers Retail Inc
December 20, 2019	Starbank Developments 2000 Corp.

As presented in Table 1a, the east parcel of the site was acquired by the current owner (Starbank Developments 2000 Corp.) on December 20, 2019. Prior owners of the east parcel have included Rene Goulet Construction Co. Ltd from 1953 to 1980; Jordash Co. Ltd. from 1980 to 1985; 617314 Ontario Limited from 1985 to 1989 and Brewers Retail Inc. from 1989 to 2019. Various individuals owned the east parcel from 1801 to 1953.

Table 1b – West Parcel
Chain of Site Ownership
1546 Scott Street, Ottawa, Ontario – PIN #04034-0023 (LT)

Date of Transaction	Acquired by
Pre June 30, 1801	The Crown
June 30, 1801	Colin Murchison
July 12, 1864	Robert Hinton
January 24, 1916	Thomas McLaughlin
January 1, 1934	Andrew McLaughlin
May 16, 1957	McLaughlin Bros. Contractors Ltd.
February 2, 1961	Brewers' Warehousing Co. Ltd.
January 28, 1963	Brewers' Warehousing Stores Ltd.
February 2, 1987	617314 Ontario Limited
July 21, 1989	Brewers Retail Inc.
December 20, 2019	Starbank Developments 2000 Corp.

As presented in Table 1a, the west parcel of the site was acquired by the current owner (Starbank Developments 2000 Corp.) on December 20, 2019. Prior owners of the west parcel have included McLaughlin Bros. Contractors Ltd. from 1957 to 1961; Brewers' Warehousing Co. Ltd. from 1961 to 1963; Brewers' Warehousing Stores Ltd. from 1963 to 1987; 617314 Ontario Limited from 1987 to 1989; and Brewers Retail Inc. from 1989 to 2019. Various individuals owned the west parcel from 1801 to 1957.

3.1.7 Street Directories

Street directory records were obtained for Scott Street, Parkdale Avenue, Hamilton Avenue and Holland Avenue from the Toronto Public Library (TPL) and online to aid in establishing occupancy of the site and surrounding properties. The online street directories reviewed included 1909, 1911, 1913, 1914, 1915, 1916 and 1923. Street directories acquired from the TPL that were reviewed included 1945, 1950, 1955, 1960, 1965, 1970, 1975, 1980, 1985, 1990, 1995 and 2000. Copies of the street directories are retained on-file at COLESTAR's office in Markham, Ontario.

3.1.7.1 Subject Site (Phase 1 Property)

As established from the fire insurance plans and other sources, the site has had several former addresses over its history, including 118, 1542/1544, 1550, 1580 and its current address 1546. Taking the address changes into account, the street directories indicate the following with respect to historical occupancy of the site:

1909-1950 Residential Dwellings
1955-1975 Rene Goulet Construction Co. Ltd.
1980-1985 Jordash Co. Ltd.
1965-1985 Brewers Retail
1990-2000 The Beer Store

3.1.7.2 Surrounding Properties with PCAs

The following listings of potential environmental concern were identified on surrounding properties within the study area in the street directories:

- Leslie P & Sons Tinsmith (1911-1923) and Campbell Motors (1945 to 1965) at 112-114/1536 Scott Street located to the immediate east of the site.
- McLaughlin General Contractors (1945-1965) at 120/1550 Scott Street located to the immediate west of the site.
- A service station/auto service garage (1960-1980) at 1570 Scott Street located approximately 70 m west of the site.
- A motor service garage (1955-1990) at 1484 Scott Street located approximately 120 m east-northeast of the site.
- A service station/auto service garage (1950-2000) at 1480 Scott Street located approximately 150 m east-northeast of the site.
- A service station/auto service garage (1950-1980) at 65 Holland Avenue located approximately 225 m south of the site.
- Gervais Motors (1950-1975) and Somerset Bridge Garage (1980) at 255 Parkdale Avenue located approximately 110 m east-northeast of the site.
- Comet Cleaners (1970, 1975) at 275 Parkdale Avenue located approximately 105 m east of the site.
- Instruments Ltd. Manufacturing Plant (1945-1965) at 290/300 Parkdale Avenue located approximately 40 m south of the site.

- Dominion Loose Leaf Ltd. plant (1945-1965) at 312-320 Parkdale Avenue located approximately 85 m south of the site.
- Sperry Gyroscope Ottawa Ltd. and Honeywell Sperry manufacturing plant (1965-2000) at 340 Parkdale Avenue located approximately 175 m south-southeast of the site.

3.1.8 Environmental Reports

No environmental reports were provided for review.

3.2 Environmental Source Information

Numerous environmental information sources and databases were reviewed as part of this P1ESA. This included information provided by ERIS and others and information collected by COLESTAR personnel, all of which is retained on file at COLESTARs' Markham Ontario office. The information sources reviewed are summarized as follows:

- Pits, Quarries and Mines - Inventories and Databases
- Waste Disposal Site Inventories
- Coal Gasification Plant Inventory
- Automobile Wrecking and Supplies Inventory
- MECP Certificates of Approvals
- Borehole and Water Well Records
- Environmental Registry Database
- Ontario Waste Generators and Receivers Database
- PCB Storage Site Inventories
- Storage Tank Inventories
- TSSA Records
- Spills Inventories
- Pesticide Register
- Scott's Manufacturing Directory
- MECP Records of Site Conditions
- MECP Freedom of Information Act Information
- Compliance and Convictions Databases
- Oil and Gas Well Inventory
- Pulp and Paper Inventory

- Additional Federal Databases and Inventories

With respect to identifying PCAs and APECs, the information reviewed included records on the site as well as available records on surrounding properties falling within the study area defined in Section 3.1.1. The following sections provide details on the information gathered from the environmental information sources.

3.2.1 Quarries and Mines

A search of the *Ministry of Natural Resources* databases for active and inactive pits and quarries did not reveal pits or quarries at the site or in the study area.

The *Abandoned Mines Information System* maintained by the *Ministry of Northern Development and Mines (MNDM)* did not have any records of abandoned mines in the study area. This inventory maintains records dating back to 1800.

The *Canadian Mine Locations* database which maintains records from 1989 to 2009 did not identify mines that are active, closed or under development in the study area.

3.2.2 Waste Disposal Sites

Three waste disposal site databases were searched, as follows:

- Andersons Waste Disposal Site database (1860s to present);
- MECP Waste Disposal Site Certificate of Approvals database (1970 to present); and
- Department of National Defence (DND) Waste Disposal Site Database.

The databases maintain records of active and closed waste disposal sites in the province of Ontario.

The *"Waste Disposal Site Inventory"* dated June 1991 published by the *Waste Management Branch of the Ontario Ministry of the Environment* was also reviewed. This publication contains records of all known active and closed waste disposal sites in Ontario up to the year 1990.

No waste disposal sites were identified at, or within 250 m of, the site in the inventory or databases.

3.2.3 Coal Gasification Plants

A review of the *"Inventory of Coal Gasification Plant Waste Sites in Ontario"* publication prepared by *INTERA Technologies Ltd.* and dated April 1987 did not reveal any coal gasification plants at, or within 250 m of, the site.

3.2.4 Automobile Wreckers and Recyclers

A review of the automobile wreckers and recyclers' database did not identify any autowrecker facilities at, or within 250 m of, the site.

3.2.5 Certificates of Approvals

Certificates of Approvals (CofA) are required for any facility operating in Ontario that releases emissions to the atmosphere, discharges wastewater to ground or surface water, provides potable water supplies or stores, transports or disposes of wastes. CofA records dating back to 1985 are maintained on the Environmental Registry database.

A search of this database, identified no CofAs issued to the site.

Seven CofAs are issued to offsite properties within the study area, six for sewage or water municipal works and one for the operation of a vapour recovery system at Building #4, Tunney's Pasture located in the federal building complex to the north of the site. The offsite CofAs are not deemed to pose an adverse risk to soil or groundwater quality beneath the site due to their down-gradient position or type of CofA (water or sewage works).

3.2.6 Borehole and Water Well Records

Water well information maintained by the Ontario Ministry of the Environment and borehole log information maintained by the Ministry of Transportation and Ontario Geological Survey and Conservation Authorities among other agencies was acquired for the study area as part of this P1ESA.

Logs for water wells situated within the study area indicate that the native soil stratigraphy generally consists of sand or sand and gravel overlying limestone bedrock encountered at 0.8 to 2.2 m below grade (bg).

3.2.7 Environmental Registry

The environmental registry is a means of informing the public of proposals, decisions and exceptions pertaining to Acts, instruments, or regulations that could affect the environment. It has been in use since 1994 and contains information relating to environmental permits, approvals, applications and orders, among other information. A search of the registry, revealed no records attributed to the site and the CofA records identified and discussed in Section 3.2.5 on offsite properties within the study area.

3.2.8 Ontario Waste Generators and Receivers

This database maintains waste generator and receiver records dating back to 1986. It includes an inventory of generators and receivers of wastes regulated under *Ontario Regulation 347* and its amendments. A search of this database, revealed the following:

- No waste generator records for the site;
- No waste receiver/transfer sites within the study area; and
- 107 waste generator records for offsite businesses/addresses situated within the study area.

The waste generator records attributed to offsite properties situated within the study area include:

- One waste generator record for unspecified wastes generated at 1600 Scott Street located to the immediate west of the site. The records are registered to Colonnade Development Inc. in 2012.
- Two (2) waste generator records for petroleum distillates generated at 1536 Scott Street located to the immediate east of the site. The records are registered to Capital City Rustproofing Limited on an annual basis from 1986 to 1998.
- Fourteen (14) waste generator records for pharmaceutical and/or pathological wastes generated at 1620 Scott Street located within the multi-unit building bordering the site to the west. The records are registered to Pharma Plus, Holland Cross dental Centre and Rexall Pharmacy.

- Six (6) waste generator records for waste oils, lubricants, paints, pigments and coatings generated at 13/13A Bullman Street located approximately 30 m east of the site. The records are registered to Aristotec Generator Services Inc., Carriage House Restoration and Antiques and 2021694 Ontario Ltd. on an annual basis from 1986 to 2006.
- One waste generator record for light fuel wastes generated at 1 Hamilton Avenue North located approximately 75 m west of the site. The records are registered to Ontario Petroleum Pump in 2005.
- Three (3) waste generator records for waste oils, lubricants and light fuels generated at 1611 Scott Street located approximately 70 m north of the site. The records are registered to Capital City Rustproofing Limited on an annual basis from 2016 to 2017.
- Four (4) waste generator records for aliphatic solvents, paints, pigments and coatings generated at 11 Holland Avenue located approximately 75 m west of the site. The records are registered to Colonnade Development Inc. in 2007 and 2008 and ITF CJTP Real Estate in 2019.
- Thirteen (13) waste generator records for aliphatic solvents, acids, alkalines, metals, paints, pigments, coatings, inorganic chemicals and organic chemicals at 300 Parkdale Avenue located approximately 40 m south of the site. The records are registered to M.O.M Printing and Scintrec Trace Corp. on an annual basis from 1986 to 2020.
- One waste generator record for oil skimmings' and sludge's at 45 Holland Avenue approximately 170 m south-southwest of the site. The records are registered to CCC476 in 2007 and 2008.
- Three (3) waste generator records for photo-processing wastes at 45 Spencer Avenue located approximately 140 m south of the site. The records are registered to Graphic Display Canada, a Division of M.O.M Printing on an annual basis from 1986 to 2020.
- Four (4) waste generator records for oils, lubricants and organic chemicals at 7 Hinton Avenue located approximately 190 m south of the site. The records are registered to Metcalfe Realty Company Limited in 2006, 2009 and 2012.
- Fifty-two (52) waste generator records registered to various government departments in the federal government buildings located more than 100 m northwest and north of the site. The records are issued on an annual basis from 1988 to 2020 and include halogenated solvents, aliphatic solvents, aromatic solvents, inorganic and organic chemicals, halogenated pesticides, oils, lubricants, PCBs, acids, alkalines, petroleum distillates and light fuels.

- Two (2) waste generator records for light fuels generated at 1480 Scott Street located approximately 150 m east-northeast of the site. The records are registered to Leones Service Centre Limited in 2013 and 2014.
- One waste generator record for oils and lubricants generated at 1484 Scott Street located approximately 120 m east-northeast of the site. The record is registered to Carol Raymond in 2010.

3.2.9 PCB Storage Site Inventories

The Waste Management Branch of the Ontario Ministry of the Environment has maintained an inventory of PCB waste sites in the province since 1987. Environment Canada keeps records of federal and some private PCB waste disposal and storage facilities in Canada and has done so since around 1988.

No PCB waste disposal sites were identified at the site or within the study area in the inventories/databases.

3.2.10 Storage Tank Inventories

Private, retail and commercial fuel and chemical storage tank inventories/databases maintained by Andersons (1915-1953 {Toronto only}), TSSA (2000 to present), the Fuel Branch of the former Ministry of Consumer and Commercial Relations (1986 to approx. 1999) and ECOLOG were searched with the results summarized as follows:

- No storage tank records were found for the site.
- Nine records were found for fuel facilities in operation at 1480 Scott Street located approximately 150 m east-northeast of the site. The records are registered to Leones Service Centre Limited. The records indicate that the fuel facilities which include one diesel UST and two gasoline USTs expired in 2014.

In addition, storage tank inventories maintained by the federal government for lands occupied and/or owned by the Government of Canada were searched, including:

- Transport Canada Storage Tank Inventory (1970-2007);
- Parks Canada Storage Tank Inventory (1920-2005);
- Department of National Defence Storage Tank Inventory (up to 2001);

- Department of Indian and Northern Affairs Canada Storage Tank Inventory (1950-2003); and
- Fisheries and Oceans Canada Storage Tank Inventory (1964-2003).

No storage tanks were identified at the site or within the study area in the federal storage tank inventories.

3.2.11 TSSA Records

The TSSA was contacted via email communication for information relating to fuel storage facility records on the site. As per there response, the TSSA has no fuel facility records pertaining to the site.

A search of TSSA databases, did not identify TSSA records for UST abandonment, pipeline incidents, historic incidents, expired facilities (excluding those mentioned in Section 3.2.10) or fuel spills registered against the site or surrounding properties within the study area.

3.2.12 Spills Inventories

The MECP spills database provides information on contaminant spills or releases to the environment in the province of Ontario. It also includes information on reported fires. The database includes records dating back to 1988. The records typically include: location and date of spill/fire, quantity released, environmental impact, cause of release/fire, abatement action taken, among other information. A search of the Spills database, revealed the following:

- No spill records were identified for the site.

- Numerous spills on federal lands to the north and northwest, however, all were either minor or situated on lands outside the inferred UGFF and/or the study area (i.e. >250 m from the site).

- Numerous spills are also reported on public and private properties within the study area, however, most are generally minor, contained within paved roadways and/or situated outside the inferred UGFF. Several spills of significance were, however identified within the UGFF, as follows:

- A 1997 fuel oil spill at the private residence at 259 Parkdale Avenue located approximately 110 m east-northeast of the site.

- A 1993 fuel oil spill to the earthen basement floor within the private residence at 50 Pinehurst Avenue located approximately 150 m east of the site.

- A 1991 fuel oil spill into the basement floor drain within the private residence at 20 Pinehurst Avenue located approximately 155 m east-southeast of the site.

- A 2016 fuel oil spill at 320 Parkdale Avenue located approximately 85 m south-southeast of the site.

The spills database maintained by DND was also searched. This database contains spill records for lands occupied and/or owned by DND. A search of this database indicated no reported spills within the study area.

3.2.13 Pesticide Register

The pesticide register database maintained by the MECP and complete with records on pesticide manufacturers and vendors of registered pesticides dating back to the year 1988 was searched. The search revealed no pesticide vendors at the site or at surrounding properties within the study area.

3.2.14 Scott's Manufacturing Directory

The Scott's Directory search did not identify any businesses of potential environmental concern at the site. The directories search identified the following offsite PCAs within the limits of the UGFF that in the event of a release could pose a concern to soil and groundwater quality:

- A printing plant, established in 1963 and operated by M.O.M Printing, at 300 Parkdale Avenue located approximately 40 m south of the site.
- A printing plant, established in 1979 and operated by Graphics Display Canada, at 45 Spencer Street located approximately 140 m south of the site.

3.2.15 Records of Site Conditions

A search of the Environmental Registry indicates that no Records of Site Conditions (RSCs) have been filed for the site or offsite properties within the study area.

There are, however two RSCs filed on Scott Street, one at 1946 Scott Street (RSC 225148) and the other at 1960 Scott Street (RSC 224822) located within 1.5 km of the site. The RSCs indicate that limestone bedrock is encountered at shallow depths (1 to 2.2 m below grade) and that groundwater resides within the limestone bedrock formation at depths ranging from 5 to 7.9 m below grade. Groundwater flow is established as towards the Ottawa River to the north and northwest.

3.2.16 MECP Freedom of Information Act Information

A request for information subject to the Freedom of Information and Privacy Act (FOIPA) was made for the site through the MECP Toronto District office. The information requested is maintained by the MECP Investigations and Enforcement Branch, Environmental Assessment and Approvals Branch, Sector Compliance Branch and Safe Drinking Water Branch. The information requested included records on environmental concerns, orders, spills, investigations/prosecutions, Waste Generator Numbers/Classes and Certificates of Approval. At the time of issue of this report, a response had not been provided by the MECP. If the information provided by the MECP materially affects the conclusions and recommendations provided in this report, COLESTAR will document the information and its effect on the reports' conclusions and recommendations in an addendum.

3.2.17 Compliance and Convictions Database

Databases which provide records of environmental related fines and convictions to corporations and individuals imposed by the Ontario courts since 1989 and Environment Canada (1988 to 2007) were searched. No fines or convictions to corporations or individuals residing within the study area were identified in these databases.

3.2.18 Oil and Gas Well Inventory

A search of the Ontario oil and gas well inventory (1800 to 2011) and Nickel's Energy Group oil and gas well inventory (2001 to 2011) did not identify any oil and gas wells within the study area.

3.2.19 Pulp and Paper Inventory

A search of the Canada Pulp and Paper Inventory did not identify any pulp and paper mills within the study area.

3.2.20 Additional Federal Databases and Inventories

Additional databases and inventories searched, included:

- National Pollutant Release Inventory (1993-2011);
- National Environmental Emergencies System database (relates to spills of hazardous substances, 1974-2003);
- National Analysis of Trends in Emergencies System database (voluntary significant spill reporting, 1974 to 1994);
- Federal Contaminated Sites database (2000-2011);
- Environmental Issues Inventory System (First Nation Reserve lands, 1992-2001); and
- Environmental Effects Monitoring database (environmental effects of industrial discharges to surface waters, 1992-2007).

The databases and inventories did not have records for the site or surrounding properties within the study area.

3.2.21 City of Ottawa Records

Information from other sources was deemed sufficient. As a result, records (if any) pertaining to the site in the City of Ottawa files were not reviewed.

3.3 Physical Setting Sources

3.3.1 Aerial Photographs

Aerial photographs covering the P1ESA study area were obtained and reviewed from a number of sources, as follows:

- 1928, 1958, 1965, 1976, 1991, 1999, 2002, 2005, 2007, 2008, 2009, 2010, 2011, 2014, 2015 and 2017 online via Ottawa Interactive Maps (geoOttawa);
- 2004, 2007, 2008, 2009, 2012, 2013, 2014, 2015, 2016, 2017, 2018 and 2020 satellite images accessed via the historical mapping interface on Google Earth.

The following was gathered from a review of the aerial photographs:

Site

The current day building and parking lot is visible at the site on the 1991 to 2020 aerial photographs. Two commercial buildings and a parking lot occupy the site on the 1965 and 1976 aerial photographs. The buildings include a building that resembles the building shown on the fire insurance plans in the northeast site quadrant and a centrally located building. Residential dwellings are visible at the site on the 1928 to 1958 aerial photographs.

Surrounding Lands

North

Several railway lines are visible bordering the north side of Scott Street on the 1928 to 1965 aerial photographs. The numerous current day federal buildings are visible to the north of Scott Street in 1965 to 2020.

West

The construction yard and associated building shown on the fire insurance plans is visible to the immediate west of the site on the 1928 to 1958 aerial photographs. A service station/auto service garage is visible at 1570 Scott Street located approximately 70 m west of the site on the 1958 to 1976 aerial photographs. Lands to the west of the site are occupied by a mixed use building that abuts the onsite building and is complete with two high rise towers on the 1991 to 2020 aerial photographs.

East

The commercial building shown on the fire insurance plans is visible to the immediate east of the site on the 1928 to 2020 aerial photographs. Lands further east are occupied by residential dwellings and commercial buildings, the latter of which generally front Scott Street, on the 1928 to 2020 aerial photographs.

South

The foundry is visible to the south of the site on the 1928 to 1976 aerial photographs. The other factories/manufacturing plants shown on the fire insurance plans are visible to the south and south-southeast of the site on the 1958 to 1991 aerial photographs.

3.3.2 Topography, Hydrology and Geology

3.3.2.1 Topography

The regional topography of the study area is illustrated on Figure 3. The source of this figure is the Topographical Map acquired from the City of Ottawa Interactive Map Interface (geoOttawa, online). As illustrated, regional topography generally trends towards the Ottawa River located approximately 810 and 1440 m to the north and west, respectively.

The site surface elevation ranges from 62 to 63 metres above sea level (masl). Topography and drainage at the site generally trends north towards Scott Street.

The approximate surface water elevations in the Ottawa River to the north and west of the site is 56 masl.

3.3.2.2 Geology

According to *Map 2556, Quaternary Geology of Ontario, Southern Sheet; Ministry of Natural Resources (1991)*, the overburden geology in the vicinity of the study area consists of a thin layer of overburden. According to *Map 2544, Bedrock Geology of Ontario, Southern Sheet; Ministry of Natural Resources (1991)*, the site and study area are underlain by limestone, dolostone, shale, arkose and/or sandstone.

Logs for water wells situated within the study area indicate that the native soil stratigraphy generally consists of sand or sand and gravel overlying limestone bedrock encountered at 0.8 to 2.2 m bg.

3.3.2.3 Hydrology and Hydrogeology

The site is located in the Ottawa River Watershed (ORW) that consists of the Ottawa River and its tributaries. Surface drainage in the ORW is generally towards the River and its tributaries. Based on Record of Site Conditions and water well logs obtained on offsite properties within 1.5 km of the site, limestone bedrock is encountered at shallow depths (1 to 2.2 m below grade) and the groundwater unit resides within the limestone bedrock formation. Groundwater flow is inferred as towards the Ottawa River at depths ranging from 5 to 7.9 m. Given that limestone bedrock in the area generally consists of numerous laterally continuous limestone beds or layers that are separated by horizontal fractures and or thin shale/silt interbeds, it is probable that the formation is imparting a degree of anisotropy, promoting largely horizontal confined groundwater flow along open bedding planes, layering fractures, and/or more permeable limestone layers.

3.3.3 Fill Materials

No evidence of the placement of fill material was uncovered in the records reviewed.

It is noted that the site was occupied during the coal burning era (1800s to 1930s) and as a result it is considered possible that coal and burnt coal residuals (cinder, clinker, ash) may have been deposited within the upper part of the soil profile beneath the site.

3.3.4 Water Bodies and Areas of Natural Significance

The closest water body to the site is the Ottawa River located approximately 810 m to the north of the site. As a result, a water body does not reside on, or within 30 m of, the site.

As per the *City of Ottawa, Official Plan (online)*, the site is not located in, or within 30 m of, an Area of Natural Significance. The site is also not considered an Area of Natural Significance under the other evaluation criteria set out in O. Reg. 153 as it is not located in or within 30 m of:

- An area reserved or set apart as a provincial park or conservation reserve under the *Provincial Parks and Conservation Reserves Act, 2006*;
- An area of natural and scientific interest (life science or earth science) identified by the Ministry of Natural Resources as having provincial significance;
- A wetland identified by the Ministry of Natural Resources as having provincial significance;
- An area designated as an escarpment natural area or an escarpment protection area by the Niagara Escarpment Plan under the *Niagara Escarpment Planning and Development Act*;
- An area identified by the Ministry of Natural Resources as significant habitat of a threatened or endangered species;
- An area which is habitat of a species that is classified under Section 7 of the *Endangered Species Act, 2007* as a threatened or endangered species;
- Property within an area designated as a natural core area or natural linkage area within the area to which the Oak Ridges Moraine Conservation Plan under the *Oak Ridges Moraine Conservation Act, 2001* applies; and
- An area set apart as a wilderness area under the *Wilderness Area Act*.

3.4 Site Operating Records

No site operating records were available for review.

3.5 Summary of Findings – Records Review

The following is surmised with respect to site history and PCAs from a review of the information gathered from the records review.

3.5.1 Site

Collectively, the records indicate that the site was first developed in about 1902 with residential dwellings that were demolished and replaced with two commercial buildings and a parking lot in the late 1950s. The buildings resided in the northeast site quadrant and central part of the site and were occupied by Rene Goulet Construction Ltd. and Jordash Co. Ltd., and Brewers Retail, respectively. In the late 1980s, the commercial buildings were demolished and replaced with the current day building and parking lot which have been utilized by The Beer Store (formerly known as Brewers Retail) since construction.

The information found pertaining to the construction company (Rene Goulet Construction Ltd.), which operated in the former building in the northeast site quadrant, indicated that this company may have been a design build construction company. Although no supporting information was found, it is conservatively assumed that this company may have used part of the building as a construction equipment repair and servicing garage.

Jordash Co. Ltd. is a restaurant equipment supply company and most likely used the former building at the site as a retail warehouse.

It is noted that the site was occupied during the coal burning era (1800s to 1930s) and as a result it is considered possible that coal and burnt coal residuals (cinder, clinker, ash) may have been deposited within the upper part of the soil profile beneath the site.

3.5.2 Surrounding Properties

Surrounding properties with PCAs that fall within the inferred up-gradient groundwater flow field (UGFF) of the study area that in the event of a release, could pose an environmental concern to groundwater, and possibly soil, quality beneath the site are illustrated on Figure 3 and defined in Table 2.

Table 2
Surrounding PCAs of Potential Environmental Concern

Reg. 153 PCA #	Business Type/PCA	Estimated Occupancy Period	Address/ Location	Distance/ Direction wrt Site	Source Information
34	Tinsmith	1902-1922	1536 Scott St.	East/0 m	Fire Insurance Plans (Section 3.1.3)
10, 28, 52	Campbell Motors (Auto Service Garage, Auto Body, Fuel Depot)	1928 to late 1960s	1536 Scott St.	East/0 m	Fire Insurance Plans (Section 3.1.3) Street Directories (Section 3.1.7) Aerial Photographs (Section 3.3.1)
32, 33, 34	Stove Manufacturing Plant/Foundry	1923 to 1980	---	South/15 m	Fire Insurance Plans (Section 3.1.3) Street Directories (Section 3.1.7) Aerial Photographs (Section 3.3.1)
33, 43	Instrument Manufacturing Plant	Early 1940s to 1963	300 Parkdale Ave.	SE/40 m	Fire Insurance Plans (Section 3.1.3) Street Directories (Section 3.1.7) Aerial Photographs (Section 3.3.1)
31	Printing Plant	1963 to 2020	300 Parkdale Ave.	SE/40 m	Street Directories (Section 3.1.7) Waste Records (Section 3.2.8) Scott's Directories (Section 3.2.14) Aerial Photographs (Section 3.3.1)
31	Printing Plant (Dominion Loose Leaf)	Early 1940s to late 1960s	320 Parkdale Ave.	SSE/85 m	Fire Insurance Plans (Section 3.1.3) Street Directories (Section 3.1.7) Aerial Photographs (Section 3.3.1)
37	Comet Cleaners	1970s	275 Parkdale Ave.	East/105 m	Street Directories (Section 3.1.7)
10, 28, 52	Auto Dealership (Auto Service Garage, Auto Body, Fuel Depot)	Late 1950s to early 1980s	255 Parkdale Ave.	ENE/110 m	Street Directories (Section 3.1.7)
28	Gasoline UST	1948	45 Spencer St.	South/140 m	Fire Insurance Plans (Section 3.1.3)
31	Printing Plant	1979	45 Spencer St.	South/140 m	Fire Insurance Plans (Section 3.1.3) Street Directories (Section 3.1.7)
28, 52	Service Station/Auto Service Garage	Late 1940s to 2014	1480 Scott St.	ENE/150 m	Fire Insurance Plans (Section 3.1.3) Street Directories (Section 3.1.7) Aerial Photographs (Section 3.3.1)
33, 43	Sperry Gyroscope – military equipment/ instrument manufacturer	1948 to 2000	340 Parkdale Ave. & 3 Hamilton Ave.	SSE/175 m	Fire Insurance Plans (Section 3.1.3) Street Directories (Section 3.1.7) Aerial Photographs (Section 3.3.1)
32	JB Robinson Foundry	Mid 1940s to late 1960s	2 Hinton Ave.	South/175 m	Fire Insurance Plans (Section 3.1.3) Street Directories (Section 3.1.7) Aerial Photographs (Section 3.3.1)
32, 33, 34	Capitol Wire Cloth Manufacturing Co. Ltd.	1902 to late 1960s	42 Hamilton Ave.	South/180 m	Fire Insurance Plans (Section 3.1.3) Street Directories (Section 3.1.7) Aerial Photographs (Section 3.3.1)
28, 52	Service Station/Auto Service Garage	1940s to early 1990s	1484 Scott Street	ENE/210 m	Street Directories (Section 3.1.7)
28, 52	Service Station/Auto Service Garage	1948 to early 1980s	65 Holland Ave.	South/225 m	Street Directories (Section 3.1.7)

The above addresses/properties are conservatively considered to be of potential environmental concern to the site because their operations include PCAs as defined in Regulation 153 and they are located within the inferred up-gradient groundwater flow field

portion of the study area that is considered to result in a potential impact to the site via groundwater flow and contaminant transport.

Additional offsite PCAs which fall within the study area but do not represent a concern to soil or groundwater quality beneath the site because they fall outside the inferred up-gradient groundwater flow field are as follows:

- Former contractor at 1550 Scott Street located to the immediate west of the site.
- Former railway lines located adjacent to Scott Street approximately 40 m north of the site.
- Former service station/auto service garage (1958 to late 1980s) at 1570 Scott Street located approximately 70 m west of the site.
- The numerous Canadian government departments occupying the federal buildings situated more than 100 m to the north of the site. Fifty-two (52) waste generator records and numerous spills are registered to the government departments on lands to the north of the site. The waste generator records are issued on an annual basis from 1988 to 2020 and include halogenated solvents, aliphatic solvents, aromatic solvents, inorganic and organic chemicals, halogenated pesticides, oils, lubricants, PCBs, acids, alkalines, petroleum distillates and light fuels.

Should intrusive investigation indicate that the groundwater flow trend is not as inferred in the P1ESA (i.e. north, northwest or west), the excluded offsite PCAs should be incorporated into a supplemental P2ESA to the extent necessary to ensure all APECs derived from offsite sources are appropriately considered.

4.0 INTERVIEWS

An interview was carried out with the Mr. Dung Lam, representative of the site's owner, prior to the site visit. Beer Store personnel were interviewed at the time of the site visit. The Beer Store personnel and Mr. Lam were not aware of any environmental related issues that could adversely affect land or water quality on, in or under the site. Interview sources generally could not provide information related to the history of the site or surrounding area.

5.0 SITE RECONNAISSANCE

5.1 General Requirements

The reconnaissance of the site and surrounding properties was carried out on July 9, 2017 by Mr. Darren Coleman, P.Eng., QP of COLESTAR Environmental Inc. The qualifications of Mr. Coleman are provided in Appendix B. The site visit was conducted to assess the site for PCAs and APECs derived from current and historic operations/activities. Weather on July 9, 2017 was sunny, partly cloudy, 25^{o}C. The site visit was conducted between 9:30 to 12:30.

A commercial building and an asphalt paved parking lot, both utilized by The Beer Store, occupy the site (Figure 2). The parking lot borders the building to the east and south. A grassed/landscaped area resides within the central region of the parking lot in the southern half of the site.

Pictures of the site and surrounding properties from various vantage points are provided in Appendix C. The pictures are provided to complement the information presented in the following sections.

5.2 Specific Observations at Phase One Property

5.2.1 Structures and Site Improvements

The site is occupied by a slab on-grade commercial building and an asphalt paved parking lot.

5.2.2 Storage Tanks

No evidence of storage tanks, current or former, were noted during the site visit.

5.2.3 Potable and Non-Potable Water Resources

The site is located within an area serviced by a municipal water distribution and treatment system which draws its source water from the Ottawa River.

5.2.4 Utilities and Services

The site building is serviced with hydro-electricity and underground natural gas, water and sanitary sewer services. The water service is connected to a municipal water distribution system. The sanitary service connects to the municipal sanitary sewer system.

Site drainage flows inwards into catch-basins situated within the parking lot. Drainage collecting in the catch-basins is discharged by underground pipeline to the storm sewer positioned below Scott Street.

5.2.5 Heating Systems

The building is heated with natural gas fired furnaces.

5.2.6 Cooling Systems

The Beer Store is equipped with chiller/refrigeration units which were observed in good condition.

5.2.7 Pits, Drains and Sumps

There were no pits, drains or sumps of environmental concern noted at the site at the time of the site visit.

5.2.8 Unidentified Substances

There were no unidentified substances present at the site at the time of the site visit.

5.2.9 Stains and Vegetative Distress

No surface staining or vegetative distress was observed at the site at the time of the site visit.

5.2.10 Fill and Debris

No fill or debris was observed at the site.

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5.2.11 Wells and Salt Storage

Two monitoring wells were observed at the site. As documented in the records review section of this report, no water wells or oil and gas wells were identified at the site.

No information to suggest that the site was used for salt storage was found in the records reviewed. There was also no evidence of salt storage at the site at the time of the site visit.

5.2.12 Railway Lines

Railway lines or spurs were not noted at the site at the time of the site visit. Further, the historical records reviewed, did not reveal the former existence of railway lines or spurs on the site.

5.2.13 Potentially Contaminating Activity – Subject Site

No PCAs were observed at the site at the time of the site visit.

5.2.14 Surrounding Lands

The results of the reconnaissance of surrounding lands are visually depicted on the photographs provided in Appendix C. The photographs include street panoramic and close-up views of surrounding properties within the study area from various vantage points. Photographs of surrounding properties with PCAs that reside within the up-gradient groundwater flow field that were defined in the records review are also included. Surrounding land use observed at the time of the site visit was as follows:

North:	Scott Street Roadway Right-of-Way.
	>100 m – Government of Canada Federal Buildings
West:	Commercial (stores, restaurants and offices).
East:	Commercial (parking lot and stores).

South: Residential and Commercial/Industrial (Scintrex Trace at 300 Parkdale Avenue located approximately 40 m southeast of the site).

Other than the Scintex property at 300 Parkdale Avenue, no offsite PCAs were observed in the vicinity of the site.

The walkover did not identify any Areas of Natural Significance at, or within 30 m of, the site.

5.2.15 Enhanced Investigation Property

The historical review identified the possible operation of a construction equipment repair garage at the site. Under O.Reg. 153, commercial uses such as garages require completion of an enhanced investigation. The additional assessment items required in an enhanced investigation are provided in the following sections.

5.2.15.1 Processes and Manufacturing

No visual evidence of current or former industrial manufacturing or process operations were apparent at the site at the time of the site visit.

5.2.15.2 Hazardous Materials

No hazardous materials were observed stored or in use at the site at the time of the site visit.

5.2.15.3 Products Manufactured

No products associated with a manufacturing process were observed at the site at the time of the site visit.

5.2.15.4 By-Products and Wastes

No by-products and/or wastes were observed at the site at the time of the site visit.

5.2.15.5 Raw Materials Handling and Storage

No raw materials were observed handled or stored at the site at the time of the site visit.

5.2.15.6 Drums, Totes and Bins

No drums, totes or bins of environmental concern were observed at the site at the time of the site visit.

5.2.15.7 Oil/Water Separators

No oil/water separators or evidence of former oil/water separators were observed at the site at the time of the site visit.

5.2.15.8 Vehicle and Equipment Maintenance

The site may have been utilized as a vehicle or equipment maintenance service garage; however, no details of the former operations/activities carried out were found in the records reviewed.

5.2.15.9 Spills

No spills have been reported at the site (Section 3.2.11).

5.2.15.10 Discharge Points

There were no pits, drains, or sumps of environmental concern or evidence of former pits, drains or sumps noted at the site at the time of the site visit. Discharge points associated with site drainage are defined in Section 5.2.7.

Storm water drainage/flow across the site surface is as documented in Section 5.2.4.

5.2.15.11 Operations

See Section 5.2.15 and Section 5.2.15.1.

5.2.15.12 Hydraulic Lift Equipment

Hoists were not observed at the site at the time of the site visit.

5.3 Written Description of Investigations

Each of the investigations carried out as part of the site reconnaissance involved a physical walkover of the site with visual observations relating to each investigation photographed and recorded. Where required, the site investigations were supplemented with information derived from the records review and interviews. A written description of each of the investigations performed is provided along with their associated results or findings below:

- Structures and Site Improvements - This investigation item was assessed through visual observation of the entire site area at the time of the site visit. Photographs were taken to document the investigation results. The investigation found: no structures or buildings.
- Storage Tanks – This investigation item was assessed through visual observation of the entire site area for the presence of storage tanks and indicators of the potential presence of storage tanks (vent pipes, concrete tank aprons, fill ports). It was enhanced with information from the records review and interviews which did not identify any current or former storage tanks at the site. Visual observations at the time of the site visit did not reveal the presence of any storage tanks or indicators of possible storage tanks.
- Potable and Non-Potable Water Resources – Information acquired from the records review was used for this investigation item. The information indicated that the building is serviced with potable water via the City of Ottawa municipal system.
- Utilities and Services – This investigation item was assessed through visual observation of the site for the presence of utilities which established that the building is serviced with electricity, natural gas, potable water and sanitary.
- Heating Systems – This item was assessed in the field at the time of the site visit.
- Cooling Systems – This item was assessed in the field at the time of the site visit.
- Pits, Drains and Sumps – This investigation item was assessed through visual observation of the entire site area; the results of which, did not identify any pits, sumps or drains of environmental concern on the grounds of the site at the time of the site visit.

- Unidentified Substances - This investigation item was assessed through visual observation of the entire site area; the results of which, did not identify any unidentified substances stored at the site.
- Stains and Vegetative Distress - This investigation item was assessed through visual observation of the entire site area; the results of which, did not identify any staining of the ground surface or vegetative distress within the limits of the site.
- Fill and Debris - This investigation item was assessed through visual observation of the entire site area and by way of the records review; the results of which, suggested that the presence of imported fill is not anticipated.
- Wells and Salt Storage – This investigation item was assessed through visual examination of the site and via information derived from the records review. No water wells or oil and gas wells or evidence to suggest that the site was used as a salt storage facility was identified at the site in the records reviewed or at the time of the site visit. Two environmental monitoring wells were noted at the site.
- Railway Lines – This investigation item was assessed through visual observation at the time of the site visit and from information derived from the records review process. The results of this investigation did not identify any current or former railway lines at the site.
- Surrounding Lands – This investigation item was assessed through visual observation of surrounding properties from publicly accessible vantage points. It included a walk around of the study area with photographs of properties within the study area taken to assist in the documentation of observations noted in the field. The investigation included the identification of each business/company operating within the study area and an evaluation of each to determine if they have PCAs as defined in the regulation and as determined by our QP. The investigation also included the various former facilities/companies identified on surrounding lands with PCAs as established via the records review. Each property identified with current or former PCAs was investigation from publically accessible vantage points for visual evidence of storage tanks, indicators of storage tanks, waste piles, debris piles, drums, chemical storage, fill areas, discharge pits and sumps, fuel/chemical facilities and staining and vegetative distress.

5.4 Summary of Site Reconnaissance Findings

The results of the site reconnaissance work are summarized as follows:

- The site visit did not identify any current PCAs or APECs at the site; and

- Other than the Scintrex Trace plant at 300 Parkdale Avenue which is detailed in the records review, no offsite PCAs were identified within the UGFF of the study area at the time of the site visit.

6.0 REVIEW AND EVALUATION OF INFORMATION

6.1 Current and Past Uses

The current and past uses of the site are presented in Table 3.

Table 3
Table of Current and Past Uses of the Phase One Property
1546 Scott Street, Ottawa, Ontario

Year	East Parcel Owner	West Parcel Owner	Description of Property Use	Other Observations
1801	The Crown	The Crown	Agricultural/Residential	Historical records (fire insurance plans, aerial photographs, street directories identify residential dwellings at the site from 1902 to 1958
1801	Colin Murchison	Colin Murchison		
1835	Colin Chrisholm			
1864	Robert Hinton	Robert Hinton		
1873	Joseph Hinton			
1874	Michael Naughton			
1877	Peter Gelhausen			
1889	Finan McCormick			
1900	Robert McCormick			
1905	Richard Traverse			
1909	William Robertson			
1911	Richard Traverse			
1916		Thomas McLaughlin		
1934		Andrew McLaughlin		
1950	Ethel Parker			
1951	Frank Burke			
1952	Rene Goulet			
1953	Rene Goulet Construction Co. Ltd.			
1957		McLaughlin Bros. Contractors Ltd.	Commercial	Site is occupied by two commercial buildings, one occupied by Rene Goulet Construction and later Jordash Co. Ltd. (east parcel) and the other by Brewers Retail (west parcel)
1958				
1961		Brewers' Warehousing Co. Ltd.		
1963		Brewers' Warehousing Stores Ltd.		
1980	453803 Ontario Ltd./Jordash Co. Ltd.			
1985	617314 Ontario Limited			
1987	617314 Ontario Limited		Commercial	The Beer store occupies current day building and parking lot.
1989	Brewers Retail Inc			
2019	Starbank Developments 2000 Corp.			

6.2 Potentially Contaminating Activity

6.2.1 Subject Site

Site uses and/or activities that include PCAs were identified in this Phase 1 ESA, as follows:

a) The possible deposition of surplus coal and burnt coal residual in the fill layer at the site [PCA 30 – importation of imported fill of unknown quality].
b) The possible operation of a construction equipment service garage within the building that formerly occupied the northeast quadrant of the site – Rene Goulet Construction Ltd. operated out of this former building [PCA 52 – Storage maintenance, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems].

Given that the site was occupied during the coal burning era, it is possible that the fill layer at the site may contain surplus coal and burnt coal residuals derived from the former operation of coal fired furnaces, chimneys or boilers at, and in the area of, the site. The Contaminants of Potential Concern (COPCs) associated with coal and burnt coal residuals include petroleum hydrocarbons (PHCs), polycyclic aromatic hydrocarbons (PAHs) and metals.

Sources of concern at vehicle/equipment maintenance garages include vehicle fluids – oil, engine coolant, transmission fluid, gasoline, diesel and waste fluids generated from maintenance and repair operations. COPCs associated with the maintenance garages include volatile organic compounds (VOCs), PHCs, PAHs and metals.

6.2.2 Surrounding Lands

PCAs which have the potential to affect groundwater, and possibly soil, quality beneath the site were identified on surrounding lands in this Phase 1 ESA. The PCAs are outlined in Sections 3.5.2 and 5.2.14 and summarized as follows:

- A former metal fabrication facility (Leslie P & Sons Tinsmiths) at 1536 Scott Street located to the immediate east of the site.
- A former auto service garage, auto body and potential fuel depot (Campbell Motors) at 1536 Scott Street located to the immediate east of the site.

- A former stove manufacturing plant/foundry (Beach Foundry Ltd.) situated approximately 15 m south of the site. The plant/foundry occupied land bounded by Spencer Avenue, Holland Avenue, Hamilton Avenue and Bullman Street and was complete with pickling vats, boilers and a spray room. Operations carried out in the foundry include forging, enamelling or plating, finishing, welding, sand blasting, grinding, crating and assembly. Numerous explosions and fires that resulted in foundry dust dispersion to surrounding properties occurred at the plant/foundry. Several of the explosions were derived from the explosion of tanks containing paint thinners and gasoline. [The Beach Foundry – A Kitchissippi Landmark; March 17, 2015].
- A former scientific instrument manufacturing plant (Instruments Ltd.) at 300 Parkdale Avenue located approximately 40 m southeast of the site.
- A former printing plant (MOM Printing) at 300 Parkdale Avenue located approximately 40 m southeast of the site.
- A former printing plant (Dominion Loose Leaf Co. Ltd.) at 320 Parkdale Avenue located approximately 85 m south-southeast of the site.
- A former dry cleaner (Comet Cleaners) at 275 Parkdale Avenue located approximately 105 m east of the site.
- A former auto service garage and auto body and potential fuel depot (Gervais Motors, Somerset Bridge Garage) at 255 Parkdale Avenue located approximately 110 m east-northeast of the site.
- A former motor service garage at 1484 Scott Street located approximately 120 m east-northeast of the site.
- A former gasoline UST at 45 Spencer Street located approximately 140 m south of the site.
- A former printing plant at 45 Spencer Street located approximately 140 m south of the site.
- A former service station/auto service garage at 1480 Scott Street located approximately 150 m east-northeast of the site.
- A former metal wire cloth (Capital Wire Cloth Manufacturing Co. Ltd.) manufacturing plant at 265 Armstrong Street located approximately 170 m south of the site.
- A former military equipment/instrument manufacturing plant (Sperry Gyroscope Ottawa Ltd.) at 3 Hamilton Avenue/ 340 Parkdale Avenue located approximately 175 m south-southeast of the site.

- A former metal product manufacturing plant/foundry (J. Robinson & Sons Foundry) with two gasoline USTs at 2 Hinton Avenue located approximately 175 m south of the site.
- A former service station/auto service garage with two gasoline USTs at 65 Holland Avenue located approximately 225 m south of the site.

The above offsite properties are considered to be of potential environmental concern to the site because their operations include PCAs as defined in Regulation 153 and they are located within the inferred up-gradient groundwater flow field of the study area deemed to result in a potential impact to the site via groundwater flow and contaminant transport.

6.3 Areas of Potential Environmental Concern

The APECs identified in this P1ESA are illustrated on Figure 4 and defined in Table 4.

Table 4
Areas of Potential Environmental Concern
1546 Scott Street, Ottawa, Ontario

Area of Potential Environmental Concern	Location of APEC on Phase One Property	Potentially Contaminating Activity	Location of PCA (onsite or off-site)	Contaminants of Potential Concern	Media Potentially Impacted
APEC 1 – Potential Coal and Burnt Coal Deposition	Entire Site	30 – Importation of Fill Material of Unknown Quality	Onsite	PHCs, PAHs, metals	Soil
APEC 2 – Potential Former Service Garage	Former building in northeast site quadrant	52- Storage, maintenance, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems	Onsite	VOCs, PHCs, PAHs, metals	Soil and Groundwater
APEC 3 – East Side of Site in Direction of Former Offsite PCAs (service stations, auto service garages, auto-bodies, dry cleaner, tin product fabrication)	Subsurface, proximate to site boundary in direction of offsite PCAs	10- Commercial Autobody Shops	Offsite, 0 m E & 110 m ENE	VOCs, PHCs, PAHs, metals	Groundwater
		28 – Gasoline and Associated Products Stored in Fixed Tanks	Offsite, 0 m E & 110 & 150 m ENE	BTEX, PHCs, Lead	
		52- Storage, maintenance, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems	Offsite, 0 m E & 110, 120 & 150 m ENE	VOCs, PHCs, PAHs, metals	
		34 – Metal Fabrication	Offsite, 0 m E	VOCs, PHCs, PAHs, metals	
		37 – Operation of Dry Cleaning Equipment (where chemicals are used)	Offsite, 105 m E	VOCs	
APEC 4 – South Side of Site in Direction of Former Offsite PCAs (metal manufacturing plants/foundries, printing plants, service stations, auto service garages)	Subsurface, proximate to site boundary in direction of offsite PCAs	28 – Gasoline and Associated Products Stored in Fixed Tanks	Offsite, 140 & 225 m S	BTEX, PHCs, Lead	Groundwater
		52- Storage, maintenance, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems	Offsite, 225 m S	VOCs, PHCs, PAHs, metals	
		31 – Ink Manufacturing, Processing and Bulk Storage	Offsite, 40 m SE, 85 m SSE, 140 m S	VOCs, PHCs, metals	
		32 – Iron and Steel Manufacturing and Processing	Offsite, 15, 170 & 175 m S, 40 m SE, & 175 m SSE	VOCs, PHCs, PAHs, metals	
		33- Metal Treatment, Coating, Plating and Finishing		VOCs, PHCs, PAHs, metals	
		34 – Metal Fabrications		VOCs, PHCs, PAHs, metals	

PCAs at the site and on surrounding lands were established using the PCAs defined in Regulation 153 as a basis with a focus on the site and offsite lands falling within the inferred up-gradient groundwater flow field (UGFF) of the study area defined in Section 3.1.1. Groundwater flow trends were inferred based on topography, position of surrounding water bodies, and via RSCs completed within 1.5 km of the site which collectively suggest/establish that groundwater flow trends west, northwest or north towards the Ottawa *River*. Information acquired from the records review, interviews and site reconnaissances was compiled, assessed and evaluated to define current and past PCAs at the site and in the study area. Lands with current or historic PCAs at the site and on offsite lands within the inferred up-gradient groundwater flow field of the study area were deemed to have the potential to impair soil and groundwater quality beneath the subject site either; directly (ie. at the site); or, via groundwater flow (advection) and contaminant transport mechanisms (i.e. dispersion and diffusion).

As presented in Table 4, there are a number of former property uses at the site and on surrounding lands within the UGFF that represent PCAs. For the purposes of defining contaminants of potential concern (COPCs), the PCAs are grouped as follows:

- Fill Quality
- Vehicle/Equipment Maintenance Garages
- Service Stations and Fuel Depots
- Autobody
- Dry Cleaning
- Metal Fabrication and Manufacturing
- Printing Plants

Given that the site was occupied during the coal burning era, it is possible that the fill layer at the site may contain surplus coal and burnt coal residuals derived from the former operation of coal fired furnaces, chimneys or boilers at, and in the area of, the site. The Contaminants of Potential Concern (COPCs) associated with coal and burnt coal residuals include petroleum hydrocarbons (PHCs), polycyclic aromatic hydrocarbons (PAHs) and metals.

Sources of concern at vehicle/equipment maintenance garages include vehicle fluids – oil, engine coolant, transmission fluid, gasoline, diesel and waste fluids generated from

maintenance and repair operations. COPCs associated with the maintenance garages include volatile organic compounds (VOCs), PHCs, PAHs and metals.

The contaminant sources of concern at service stations and fuel depots are the fuels (gasoline, diesel) that are typically stored in underground storage tanks and conveyed by underground pipelines to fuel dispensers. COPCs associated with service stations/fuel depots include benzene, toluene, ethylbenzene and xylenes (BTEX), PHCs and lead.

Operations of potential environmental concern at auto body shops include sandblasting to remove paint and painting. COPCs associated with auto body shops include VOCs, PHCs, PAHs and metals.

The sources of concern at dry cleaning facilities are the solvents used in the process. These solvents include trichloroethylene and tetrachloroethlyene as well as the degradation by-products (ethenes, ethanes and vinyl chloride) produced in aerobic and anaerobic subsurface environments. COPCs associated with dry cleaners include VOCs.

Foundries and metal manufacturing plants utilize various process operations (melting, heat treating, molding, surface cleaning and degreasing, bending, shaping, forming, plating and finishing) and generate waste by products (slag, foundry sand) that could result in subsurface contamination. Given the era of operation of the metal product manufacturing plants it is likely that they utilized coal fired furnaces and/or boilers. COPCs associated with foundries include VOCs, PAHs, PHCs and metals.

The sources of concern at printing facilities are the inks that are typically stored in bulk and used in the printing process. There are a variety of liquid inks used in the printing industry. The primary types are aqueous based and solvent based inks. Aqueous based inks are a mixture of water, glycol and dyes or pigments. Solvent based inks are a mixture of solvent and dyes or pigments. The primary contaminants of concern in inks are VOCs such as toluene, methyl ethyl ketone and xylenes, petroleum hydrocarbons and heavy metals (used as binders) such as lead, cadmium, copper and nickel. CoPCs associated with printing companies include metals, PHCs and VOCs.

Uncertainty and its effect on the findings and conclusions of this P1ESA is defined and discussed in Section 6.4.

6.4 Phase One Conceptual Site Model

6.4.1 Geology and Hydrogeology

The site is located in the Ottawa River Watershed (ORW) that consists of the Ottawa River and its tributaries. Surface drainage in the ORW is generally towards the River and its tributaries. Based on Record of Site Conditions and water well logs obtained on offsite properties within 1.5 km of the site, limestone bedrock is encountered at shallow depths (1 to 2.2 m below grade) and the groundwater unit resides within the limestone bedrock formation. Groundwater flow is inferred as towards the Ottawa River at depths ranging from 5 to 7.9 m. Given that limestone bedrock in the area generally consists of numerous laterally continuous limestone beds or layers that are separated by horizontal fractures and or thin shale/silt interbeds, it is probable that the formation is imparting a degree of anisotropy, promoting largely horizontal confined groundwater flow along open bedding planes, layering fractures, and/or more permeable limestone layers.

6.4.2 Phase 1 ESA Study Area

The Phase 1 ESA study area includes the site as well as surrounding lands falling within a 250 m radius of the site boundaries. The aerial extent of coverage of the Phase 1 ESA study area is depicted on Figure 3. As illustrated, it generally extends to Hinchey Avenue to the east, Armstrong Street to the south, Huron Avenue to the west and Lyndale Avenue to the north. The search area focusses on the site and surrounding properties falling within the inferred up-gradient groundwater flow field (UGFF) of the study area. The UGFF is used throughout the records review process to define surrounding properties that may pose a potential concern to groundwater, and potentially soil, quality beneath the site. Specifically, the study area is used to define surrounding properties that may, in the event of a contaminant release, represent a concern with respect to contaminant migration towards the site via groundwater flow (advection) and other contaminant transport mechanisms (diffusion and dispersion).

6.4.3 Current, Historical and Future Site Uses

Collectively, the records indicate that the site was first developed in about 1902 with residential dwellings that were demolished and replaced with two commercial buildings and a parking lot in the late 1950s. The buildings resided in the northeast site quadrant and central part of the site and were occupied by Rene Goulet Construction Ltd. and Jordash Co. Ltd., and Brewers Retail, respectively. In the late 1980s, the commercial

buildings were demolished and replaced with the current day building and parking lot which have been utilized by The Beer Store and its prior affiliated company (Brewers Retail) since construction.

The information found pertaining to details of the construction company (Rene Goulet Construction Ltd.) that operated in the former building in the northeast site quadrant indicated that this company may have been a design build construction company. Although no supporting information was found, it is conservatively assumed that this company may have used part of the building as a construction equipment repair and servicing garage.

Jordash Co. Ltd. is a restaurant equipment supply company and most likely used the former building at the site as a retail warehouse.

It is noted that the site was occupied during the coal burning era (1800s to 1930s) and as a result it is considered possible that coal and burnt coal residuals (cinder, clinker, ash) may have been deposited within the upper part of the soil profile beneath the site.

As per City of Ottawa Zoning By-Law (online 2020), the site is designated as a Mixed Use Centre Zone (MC12).

The planned redevelopment of the site is mixed use (commercial and residential). The future plan for the site is redevelopment with a multiple storey mixed use building with two to four levels of underground parking. At the time of preparation of this report, drawings detailing the planned building and underground parking garage were not available.

No domestic use water wells or areas of natural environmental significance were identified at, or within 30 m of, the site.

6.4.4 Onsite PCAs and APECs

Site uses and/or activities that include onsite PCAs were identified in this P1 ESA. The PCAs result in the APECs that are shown on Figure 4, defined in Table 4 and listed below:

APEC 1 - Potential Coal and Burnt Coal Deposition
APEC 2 – Potential Former Service Garage

Given that the site was occupied during the coal burning era, it is possible that the fill layer at the site may contain surplus coal and burnt coal residuals derived from the former operation of coal fired furnaces, chimneys or boilers at, and in the area of, the site. The Contaminants of Potential Concern (COPCs) associated with coal and burnt coal residuals include petroleum hydrocarbons (PHCs), polycyclic aromatic hydrocarbons (PAHs) and metals.

Sources of concern at service garages include vehicle fluids – oil, engine coolant, transmission fluid, gasoline, diesel and waste fluids generated from maintenance and repair operations. COPCs associated with the maintenance garages include volatile organic compounds (VOCs), PHCs, PAHs and metals.

6.4.5 Offsite PCAs and APECs

The inferred local groundwater flow trend (west, northwest, north) of the shallow groundwater aquifer defined in Section 6.4.1 was used to define offsite PCAs which in the event of a contaminant release could affect soil and/or groundwater quality beneath the site via groundwater flow and contaminant transport mechanisms. This assessment yielded offsite PCAs that are considered of potential environmental concern to subsurface media quality beneath the site (Figure 4). These offsite PCAs were used to establish onsite APECs that corresponds to the direction of the offsite PCAs (Figure 4). The APECs defined are as follows:

APEC 3 – East Side of Site in Direction of Offsite PCAs (service stations, auto service garages, auto-bodies, dry cleaner, tin product fabrication)
APEC 4 – South Side of Site in Direction of Offsite PCAs (metal manufacturing plants/foundries, printing plants, service stations, auto service garages)

For the purposes of defining COPCs, the offsite PCAs are grouped as follows:

- Vehicle/Equipment Maintenance Garages
- Service Stations and Fuel Depots
- Autobody
- Dry Cleaning
- Metal Fabrication and Manufacturing
- Printing Plants

Sources of concern at vehicle/equipment maintenance garages include vehicle fluids – oil, engine coolant, transmission fluid, gasoline, diesel and waste fluids generated from maintenance and repair operations. COPCs associated with the maintenance garages include volatile organic compounds (VOCs), PHCs, PAHs and metals.

The contaminant sources of concern at service stations and fuel depots are the fuels (gasoline, diesel) that are typically stored in underground storage tanks and conveyed by underground pipelines to fuel dispensers. COPCs associated with service stations/fuel depots include benzene, toluene, ethylbenzene and xylenes (BTEX), PHCs and lead.

Operations of potential environmental concern at auto body shops include sandblasting to remove paint and painting. COPCs associated with auto body shops include VOCs, PHCs, PAHs and metals.

The sources of concern at dry cleaning facilities are the solvents used in the process. These solvents include trichloroethylene and tetrachloroethlyene as well as the degradation by-products (ethenes, ethanes and vinyl chloride) produced in aerobic and anaerobic subsurface environments. COPCs associated with dry cleaners include VOCs.

Foundries and metal manufacturing plants utilize various process operations (melting, heat treating, molding, surface cleaning and degreasing, bending, shaping, forming, plating and finishing) and generate waste by products (slag, foundry sand) that could result in subsurface contamination. Given the era of operation of the metal product manufacturing plants/foundries it is likely that they utilized coal fired furnaces and/or boilers. COPCs associated with metal manufacturing/foundries include VOCs, PAHs, PHCs and metals.

The sources of concern at printing facilities are the inks that are typically stored in bulk and used in the printing process. There are a variety of liquid inks used in the printing industry. The primary types are aqueous based and solvent based inks. Aqueous based inks are a mixture of water, glycol and dyes or pigments. Solvent based inks are a mixture of solvent and dyes or pigments. The primary contaminants of concern in inks are VOCs such as toluene, methyl ethyl ketone and xylenes, petroleum hydrocarbons and heavy metals (used as binders) such as lead, cadmium, copper and nickel. COPCs associated with printing companies include metals, PHCs and VOCs.

6.4.6 Preferential Transport Pathways

Underground utilities within the limits of the site are not expected to act as preferential contaminant transport pathways because they reside within the overburden and according to RSCs and well records, groundwater beneath the site and study area generally resides within the underlying limestone bedrock formation. This disconnect prevents interaction between the utility corridors and the shallow groundwater unit and by extensions eliminates the potential for preferential contaminant transport.

6.4.7 Uncertainty

Uncertainty in the geological and hydrogeological components of the conceptual site model can affect the validity of the groundwater flow and contaminant transport assumptions used as a basis to establish PCAs both at the site and on surrounding lands that have the potential to affect soil and groundwater quality beneath the site. This uncertainty is, however, minimized in this study due to strong correlation of regional geological data with local geological data and the determination of actual regional groundwater flow trends via Records of Site Conditions obtained on offsite properties with like subsurface conditions within 1.5 km of the site. In addition, the groundwater flow trend defined as towards the Ottawa River agrees with what would be expected based on study area topography, site elevation and regional surface water elevations (Ottawa River). There is still the potential, however, for the groundwater flow system to deviate from the presumed trends based on factors such as unidentified pathways which could influence groundwater flow at the local scale. This uncertainty would be addressed and reduced via intrusive assessment carried out at the P2ESA phase of a project.

Additional uncertainty exists in timeline gaps in the information used to define occupancy at the site and on surrounding properties. This uncertainty was, however, minimized in this study through the acquisition of extensive historical records and maps which collectively served to reduce the timeline gap to several years; thereby, enhancing the ability to define occupancy and subsequently PCAs and APECs with a greater degree of certainty.

Accuracy of information is another uncertainty item which is assessed in part through the correlation of information from various sources. In this study, information acquired and reviewed from the multiple sources generally correlated well and as such reduced uncertainty with respect to accuracy of information. The accuracy of information was also enhanced and validated through interview information which generally agreed with

information acquired from other sources such as historical maps and records and environmental source information.

7.0 CONCLUSIONS

The following is concluded from the information collected, compiled and interpreted in this P1ESA:

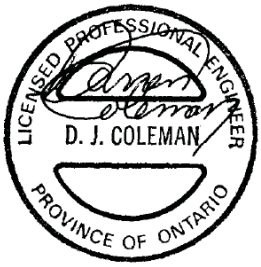
- A P2ESA is required to:

    - assess fill quality across the site to ascertain if coal or burnt coal residuals have adversely affected soil and/or groundwater quality beneath the site;
    - assess soil and groundwater quality in the area of the former building occupied by the construction company to establish if soil and groundwater quality has been adversely affected by potential equipment/vehicle repair operations conducted within the former garage portion of the building;
    - assess groundwater quality on the east side of the site to ascertain if sources at offsite PCAs (service stations, auto service garages, auto-bodies, dry cleaner, tin product fabrication) have adversely affected groundwater quality beneath the site; and
    - assess groundwater quality on the south side of the site to ascertain if sources at offsite PCAs (metal manufacturing plants/foundries, printing plants, service stations, auto service garages) have adversely affected groundwater quality beneath the site.

The conclusion relating to the onsite and offsite PCAs is based on the identification of current and/or historic PCAs at the site and on properties positioned hydraulically up-gradient of the site. The offsite PCAs warranting further intrusive investigation were defined using the PCA List provided in Regulation. 153 and its amendments. The primary sources used to define the onsite and offsite PCAs included fire insurance plans, historical maps, historical records, aerial photographs, street directories, MECP records and interviewees.

All aspects of this Phase 1 ESA, including the records review, interviews, site reconnaissance's, compilation and interpretation of information, development of the conceptual site model, and derivation of the findings and conclusions were completed by Mr. Darren Coleman, P.Eng., QP. Please be advised that the limitations and general conditions outlined in Attachment 1 form part of this report. Should you have any questions, please do not hesitate to contact Mr. Darren Coleman at (905) 554-4156.

Yours truly,
COLESTAR Environmental Inc.



Darren J. Coleman, P.Eng., QP
President

8.0 REFERENCES

The following references and information sources were used in the development of this P1ESA:

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- Abandoned Mines Information System, Ministry of Northern Development and Mines (MNDM)
- Canadian Mine Locations database
- *Inventory of Coal Gasification Plant Waste Sites in Ontario, INTERA Technologies Ltd.,* April 1987
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- MECP Environmental Registry
- Ontario Regulation 347 Waste Generators and Receivers Database
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- Inventory of PCB Waste Disposal and Storage Sites, Environment Canada
- Andersons Fuel and Chemical Storage Tank Inventory
- TSSA Fuel Facility Inventory
- ECOLOGs Fuel and Chemical Storage Tank Inventory
- Transport Canada Storage Tank Inventory
- Parks Canada Storage Tank Inventory
- DND Storage Tank Inventory
- Department of Indian and Northern Affairs Canada Storage Tank Inventory
- Fisheries and Oceans Canada Storage Tank Inventory
- MECP Spills Database
- DND Spills Database
- MECP Pesticide Register
- Scott's Manufacturing Directory
- Ontario Environmental Fines and Convictions Database
- Environment Canada, Environmental Fines and Convictions Database
- Ontario Oil and Gas Well Inventory
- Nickel's Energy Group Oil and Gas Well Inventory
- Canada Pulp and Paper Mill Inventory
- National Pollutant Release Inventory
- National Environmental Emergencies System Database
- National Analysis of Trends in Emergencies System Database
- Federal Contaminated Sites Database
- Environmental Issues Inventory System
- Environmental Effects Monitoring Database
- Topographical Map 040P/01; Energy, Mines and Resources, Canada; 1994

- Map 2556, Quaternary Geology of Ontario, Southern Sheet; Ministry of Natural Resources; 1991
- Map 2544, Bedrock Geology of Ontario, Southern Sheet; Ministry of Natural Resources; 1991

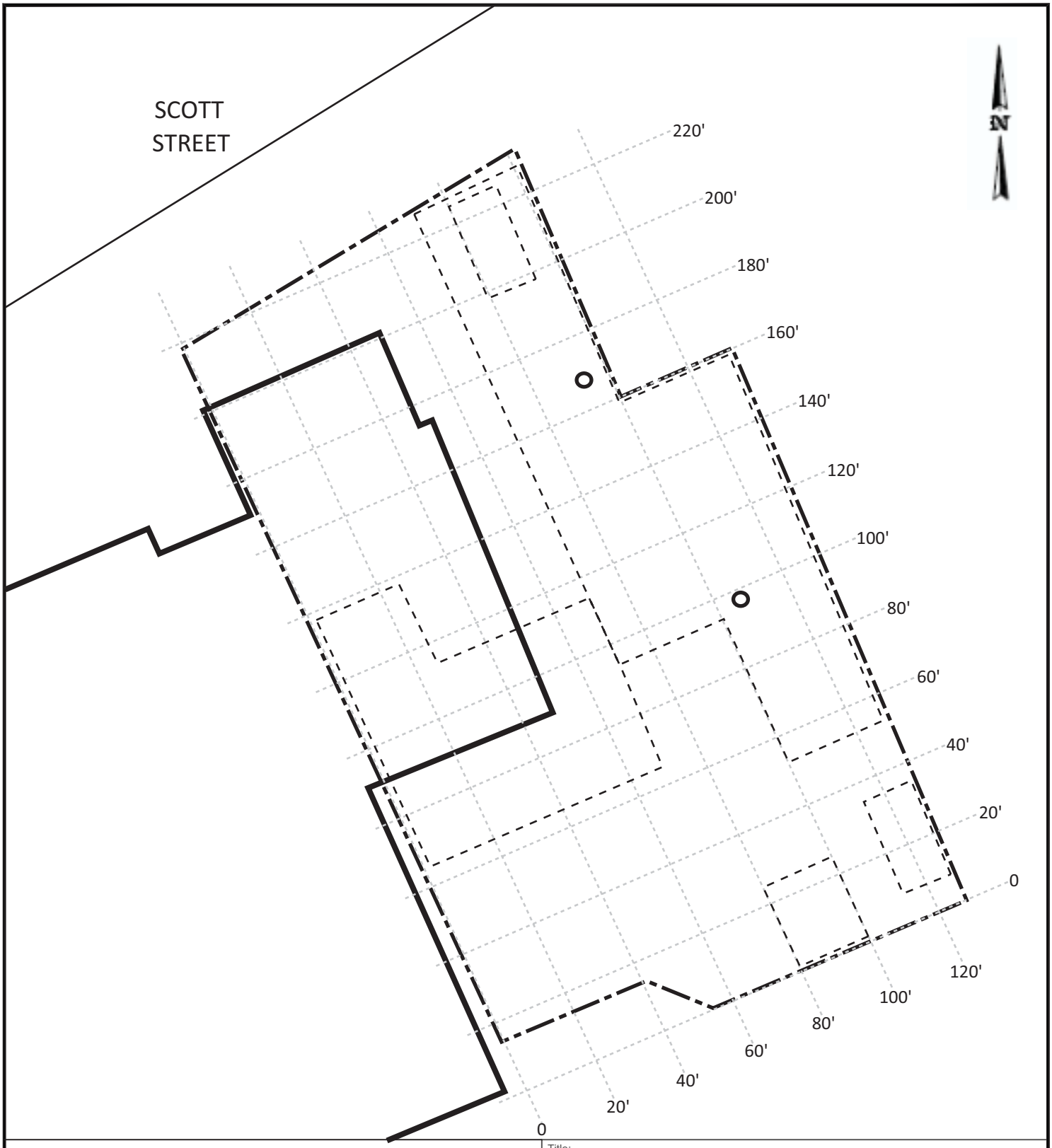
FIGURES

LEGEND

SOURCE: Ottawa Interactive Maps

Title:	SITE LOCATION
Project:	PHASE 1 ENVIRONMENTAL SITE ASSESSMENT 1546 SCOTT STREET, OTTAWA, ONTARIO
Project Number:	0394-04
Client:	STARBANK DEVELOPMENTS 2000 CORP.
NOT TO SCALE	Date: JULY 2020
	FIGURE 1

COLESTAR Environmental Inc.



LEGEND

- Site Boundary
- Former Building
- Building
- Exisiting Monitoring Well

SOURCE: Ottawa Interactive Maps

Title: SITE PLAN

COLESTAR Environmental Inc.

Project: PHASE 1 ENVIRONMENTAL SITE ASSESSMENT
1546 SCOTT STREET, OTTAWA, ONTARIO

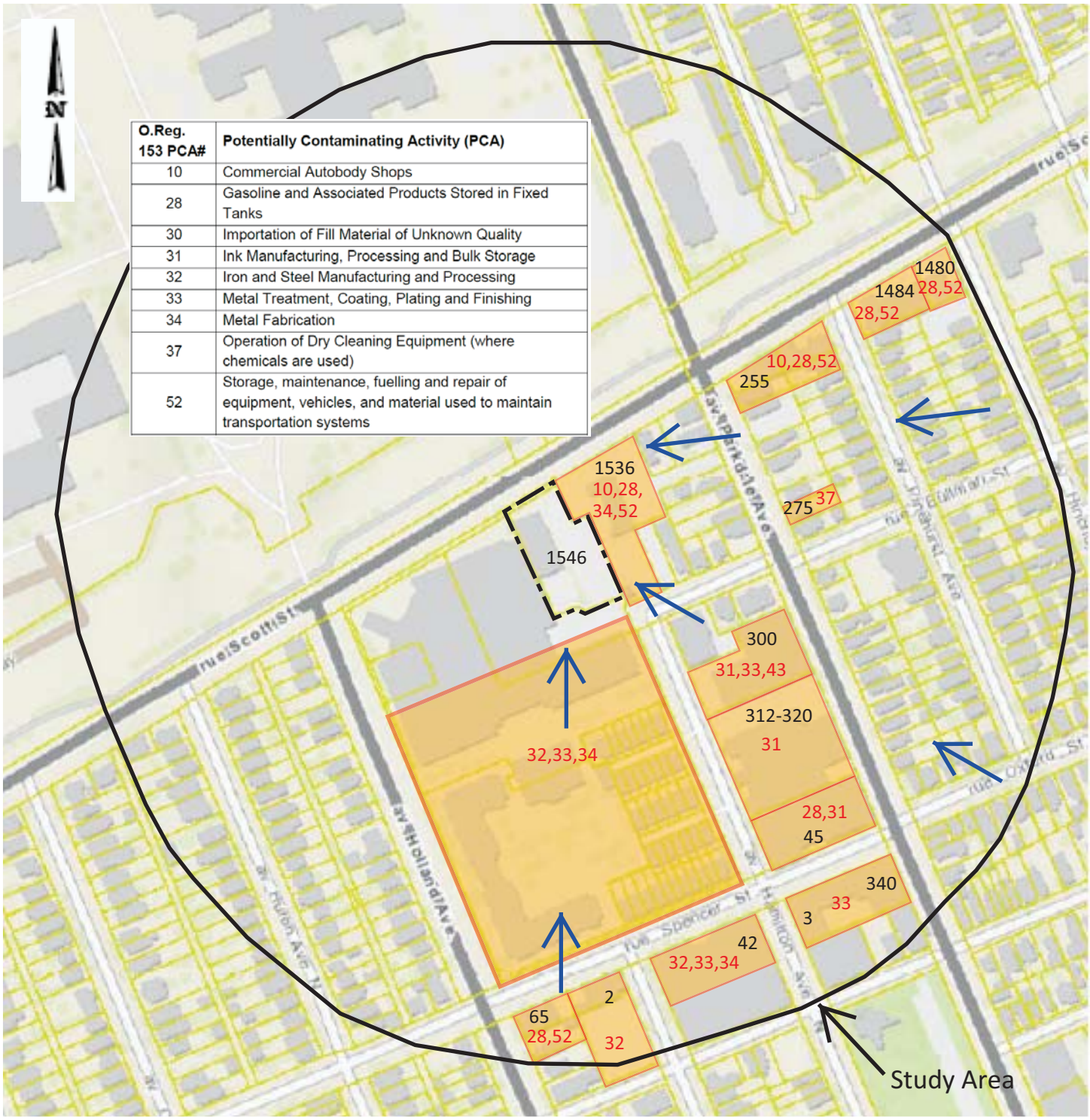
Project Number: 0394-04

Client: STARBANK DEVELOPMENTS 2000 CORP.

0	20'	40'	60 ft
0	6.1	12.2	18.3 m

Date: JULY 2020

FIGURE 2



O.Reg. 153 PCA#	Potentially Contaminating Activity (PCA)
10	Commercial Autobody Shops
28	Gasoline and Associated Products Stored in Fixed Tanks
30	Importation of Fill Material of Unknown Quality
31	Ink Manufacturing, Processing and Bulk Storage
32	Iron and Steel Manufacturing and Processing
33	Metal Treatment, Coating, Plating and Finishing
34	Metal Fabrication
37	Operation of Dry Cleaning Equipment (where chemicals are used)
52	Storage, maintenance, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems

LEGEND

- Site Boundary
- 1546 Municipal Address
- 10 Offsite PCA and O.Reg. PCA Number
- Inferred Groundwater Flow Direction

SOURCE: Ottawa Interactive Maps

Title: STUDY AREA and OFFSITE PCAs

COLESTAR Environmental Inc.

Project: PHASE 1 ENVIRONMENTAL SITE ASSESSMENT
1546 SCOTT STREET, OTTAWA, ONTARIO

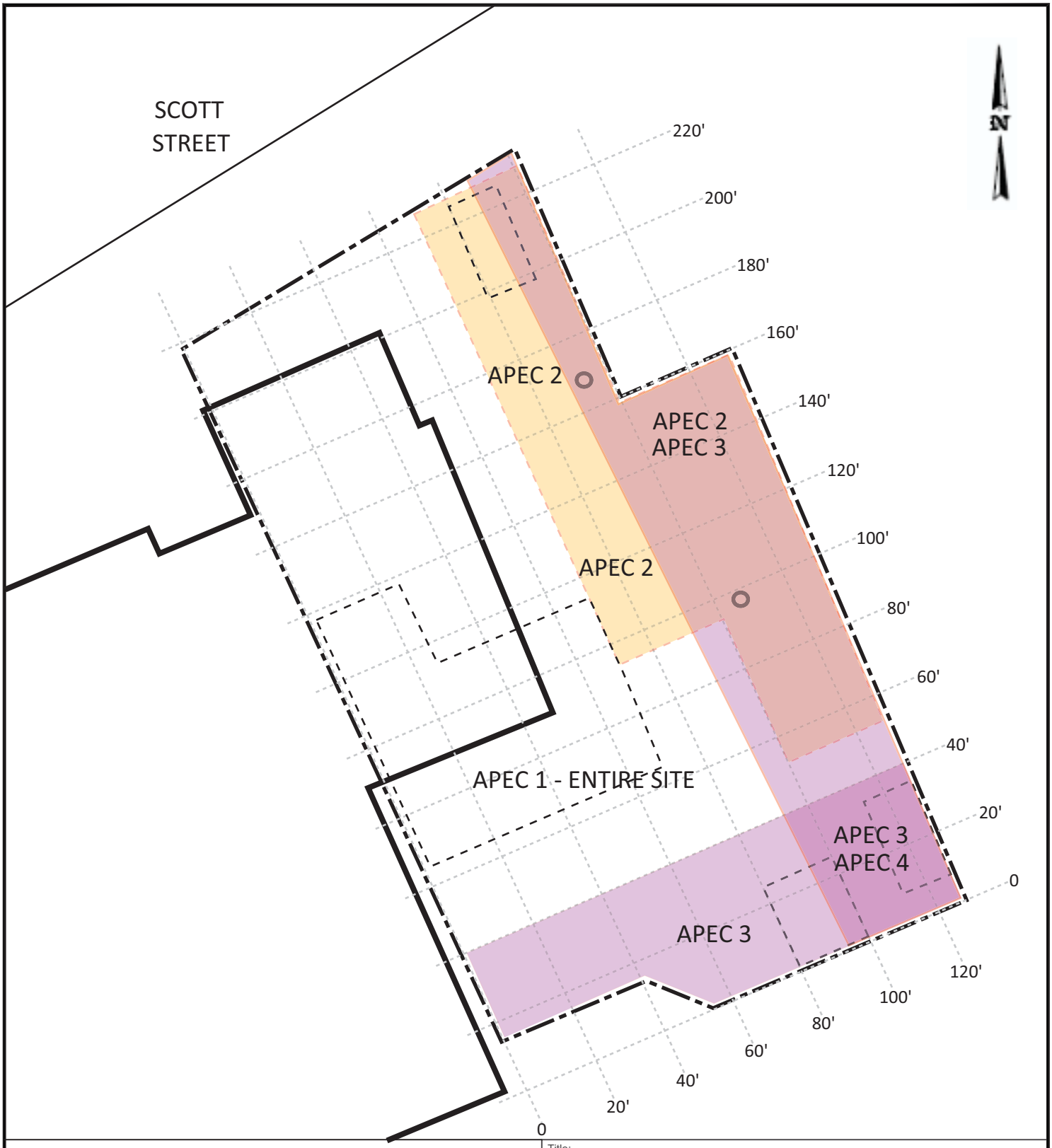
Project Number: 0394-04

Client: STARBANK DEVELOPMENTS 2000 CORP.

0 50 100 150 m

Date: JULY 2020

FIGURE 3



LEGEND

- Site Boundary
- Former Building
- Building
- Exisiting Monitoring Well

SOURCE: Ottawa Interactive Maps

Title: AREAS OF POTENTIAL ENVIRONMENTAL CONCERN (APECs)

COLESTAR Environmental Inc.

Project: PHASE 1 ENVIRONMENTAL SITE ASSESSMENT
1546 SCOTT STREET, OTTAWA, ONTARIO

Project Number: 0394-04

Client: STARBANK DEVELOPMENTS 2000 CORP.

0 20' 40' 60 ft
0 6.1 12.2 18.3 m

Date: JULY 2020

FIGURE 4

APPENDIX A

PLAN OF SURVEY

APPENDIX B

QUALIFICATIONS OF THE ASSESSOR

Darren J. Coleman, P.Eng.

Position: Project Director, Project Manager and Senior Environmental Engineer

BIOGRAPHY

Mr. Coleman has 25 years of experience in environmental site assessments, hydrogeology, risk assessment, risk management, remediation and site closures. He is the president of COLESTAR Environmental Inc. and has led teams of environmental professionals, both at COLESTAR as well as with other companies. He is geographically diverse with experience in nine Canadian provinces/territories. Mr. Coleman has experience with a wide array of contaminants (PHCs, PAHs, cVOCs, pesticides, fertilizers, PCBs and metals) in various media (soil, groundwater, soil gas, sediment and surface water). His projects involve detailed phase 1, 2 & 3 investigations, risk assessment and management, evaluation of remedial/risk management (RRMs) options, development of RRM plans, design and implementation of RRM systems, permitting, Certificates of Approvals, Records of Site Conditions, regulatory compliance, site closures, among other services. Over the years, Mr. Coleman and his team have designed and implemented a number of site assessment and remedial programs that have resulted in successful site closures. These RRMs/remedial programs have included air sparging, soil vapour extraction, bioventing, pump-and-treat, passive and active subsurface vapour collection, venting and treatment systems, barriers, MPE, DPE, biopiles, landfarms, vapour management systems, remedial excavations and engineered caps and containment cells.

REGISTRATIONS/ASSOCIATIONS

Professional Engineer (P.Eng.) – PEO Ontario
Professional Engineer (P.Eng.) – APEGBC British Columbia
Professional Engineer (P.Eng.) – APEGA Alberta
Professional Engineer (P.Eng.) – APEGS Saskatchewan
Professional Engineer (P.Eng.) – APEGM Manitoba
Qualified Person Under O. Reg 153 – ESAs, RAs and TRNs
PEO C of A No. 100140463, COLESTAR Environmental Inc., Responsible Practitioner – D. Coleman, P.Eng.
APEGA Permit to Practise P11799, COLESTAR Environmental Inc., Responsible Practitioner – D. Coleman, P.Eng.
APEGM C of A No. 5200, COLESTAR Environmental Inc., Responsible Practitioner – D. Coleman, P.Eng.
APEGS C of A No. 24384, COLESTAR Environmental Inc., Responsible Practitioner – D. Coleman, P.Eng.
APEGBC C of A, COLESTAR Environmental Inc., Responsible Practitioner – D. Coleman, P.Eng.

ACADEMIC BACKGROUND

B.A.Sc. (1994), Civil Engineering, University of Waterloo, Waterloo, Ontario
Diploma (1989), Civil Engineering Technology, Conestoga College, Kitchener, Ontario

EXPERIENCE HISTORY

COLESTAR Environmental Inc., Markham, Ontario (2008+) – President, Senior Environmental Engineer
Franz Environmental Inc. Mississauga, Ontario (2006 – 2008) – Manager, Mississauga Office
Franz Environmental Inc. Mississauga, Ontario (2000 – 2006) – Project Manager
O'Connor Associates Environmental Inc., Edmonton, AB (1997 – 2000) – Manager, Edmonton Office
O'Connor Associates Environmental Inc., Oakville, ON (1994 – 1997) – Project Manager
Conestoga Rovers and Associates (1991 - 1994)

PROJECT COORDINATION and PROJECT EXPERIENCE

- **Prime Consultant and Project Manager** responsible for the provision of environmental services under a sole source arrangement to large bus company **(Greyhound/First Student)** at sites across Canada. Services have been provided since 2010 at over 250 school bus/coach bus maintenance and fuelling facilities. Services provided include Phase 1, 2 and 3 ESAs, review of programs proposed by others, remediation options analysis, development and implementation of risk management/remedial action plans, screening level risk

assessments, waste characterization and management plans, environmental liability assessments, and remediation/risk management site closures.

- **Project Manager** responsible for the provision of environmental services to Walmart through a paretenership arrangement with another consulting firm Services have been provided since 2018 at over 25 Walmart lube service facilities in western Canada (Saskatchewan, Manitoba, Alberta and British Columbia). Services provided include Phase 1, 2 and 3 ESAs, review of programs proposed by others, remediation options analysis, development and implementation of risk management/remedial action plans and screening level risk assessments.

- **Prime Consultant and Project Manager** providing environmental services [since 2006] to several property developers in Toronto and Brantford. Services have been provided at various sites (brownfields, industrial and commercial properties) and have included a range of contaminants (PHCs, PAHs, metals, PCBs, inorganics). Services provided included Phase 1-3 ESAs, peer reviews, remedial/risk management (RRM) options development and analysis, development and implementation of RRM action plans, risk assessment, acquisition of RSCs and CofAs, permitting, RRM and remediation site closures, among other services. RRMs implemented have included engineered caps, engineered containment cells, passive and active soil gas venting systems, groundwater and vapour barriers, in-situ treatment using MPE, SVE and AS. Some of the RSCs acquired for these clients by Mr. Coleman which included site assessment and remediation are as follows: **RSC 206326, RSC 223589, RSC 223368, RSC 224315 and RSC 224638.**

- **Prime Consultant and Project Manager** responsible for the provision of environmental services under a sole source arrangement to a property developer in Toronto. Services have been provided since 2006 at over 40 sites (Brownfields, waste disposal facilities, tanneries, manufacturing plants and facilities, commercial properties) for a wide range of contaminants (PHCs, PAHs, metals, PCBs, inorganics). Services provided include Phase 1, 2 and 3 ESAs, review of programs proposed by others, remediation options analysis, development and implementation of risk management/remedial action plans, risk assessment, waste characterization and management plans, environmental liability assessments, assistance in acquisition of Brownfield remediation funding, acquisition of RSCs, and remediation/risk management site closures. Remedial and risk management measures implemented at the sites have included remedial excavations, containment of contaminated soil within engineered cells, passive and active soil gas venting/treatment systems beneath future buildings, groundwater and contaminant barriers, groundwater remedial systems, in-situ treatment using MPE, SVE and AS.

- **Project Director, Manager and Prime Consultant** responsible for the management of environmental issues at a power plant (**Ontario Power Generation**) in Ontario since 2003. Mr. Coleman has completed a wide array of projects at this facility, including detailed environmental assessments, landfill monitoring and CofA compliance, risk assessments (human and ecological based) and remedial system and risk management/abatement system design. He has been responsible for the development of remedial options and detailed remedial and risk management plans. Mr. Coleman has designed a number of remedial/risk management systems which are currently in operation at the power plant. He has also conducted detailed treatability studies on existing plant treatment facilities and has carried out risk assessments on wastewater and effluent discharges to a local water body. He was the lead in the design and execution of a number of large scale hydrogeological studies to assess hydraulic trap conditions in the vicinity of contaminant plumes and assess the integrity of large treatment ponds in operation at the plant. He also conducted a large scale naturally occuring contaminant and hydrogeological study at the power plant that demonstarted that petroleum constituents are present naturally in bitumnuous shale inclusions within the limestone bedrock formation that underlies the plant property. The study has been reviewed and accepted by the regulators (TSSA and MOECP) and has been utilized to eliminate the need for further remedial action on unexpected detections of petroleum constitnuents at concentrations above generic standards in bedrock groundwater at

various locations on the plant property.

- **Senior Engineer** responsible for the completion of screening level risk assessments at numerous downstream service station and petroleum bulk plant sites for a large consulting firm in Ontario. The RAs were completed for a petroleum company and included exposure pathway analysis and tabulation of site specific remedial targets/objectives for constituents found at concentrations above generic standards in soil and groundwater. Several of the projects also included soil gas probe installations, soil gas monitoring, tabulation of risk based soil gas objectives and the development and evaluation of RRMs. The RAs followed provincial guidelines and also used the framework set out in federal guidelines for ecological and human health RAs (i.e. Health Canada's HHPQRA and ERE guidelines). Mr. Coleman was responsible for all aspects of the RAs and RRMs, including design, development and implementation and reporting.

- **Senior Remediation Engineer** responsible for the development and analysis of remedial/risk management options for several property parcels located at the Oshawa Harbour. The work was done for a large consulting firm working on behalf of PWGSC and included the development of the preferred options into a detailed remedial action plan. Mr. Coleman was responsible for the RRM component of this study (including reporting).

- **Senior Remediation Engineer** responsible for the development and analysis of lagoon closure options for a wastewater treatment plant located in Niagara-On-The-Lake, Ontario. The work was done for a large consulting firm working on behalf of PWGSC and included the development of numerous options with one selected as preferred and incorporated into a detailed remedial action/lagoon closure plan. Mr. Coleman was responsible for all aspects of this study, including reporting.

- **Prime Consultant and Project Manager** acting to resolve environmental claims for an insurance company. Mr. Coleman has serviced this client since 2006 and has to date successfully restored or remediated a number of sites to the extent necessary to achieve closure of the claims. Services provided have included expert environmental advice, environmental site assessment and investigation, risk assessment/management and remediation, peer review of programs proposed by others (for third parties), environmental liability assessments, air quality studies and site closures. Technologies implemented to restore the sites have included soil vapour extraction, air sparging with SVE as well as ex-situ methods (i.e. excavation with offsite disposal of contaminated media).

- **Project Director and Manager** for the Goose Bay Remediation Project (GBRP) on which Mr. Coleman's former firm (FRANZ) was acting as a sub-consultant. Mr. Coleman served as the project director on the GBRP from 2005 to 2008 and was responsible for all elements of this project. This included the management of a team of environmental professionals including project managers, risk assessment professionals, geologists, hydrogeologists, technicians and technologists. Mr. Coleman oversaw and executed an array of large scale hydrogeological, natural attenuation, remedial and risk management design, and detailed contaminant plume and soil gas assessment projects. He was responsible for the development of remedial/risk management options and the design of detailed remedial/risk management plans. He has also been involved in the modelling of soil gas transport and associated risk assessment of exposure (human) to contaminants in the vapour phase at several area buildings. On past studies at this Base, Mr. Coleman was the lead on groundwater modelling and contaminant transport studies and several risk assessments.

- **Project Manager and Remediation Design Engineer** for the investigation and remediation of offsite and onsite gasoline contamination for a large development company at a Brownfields site in Toronto, Ontario. Offsite remediation was achieved in-situ using a soil vapour extraction/air sparging system that was designed by Mr. Coleman. Mr. Coleman also supervised the construction and operation of the system as well as the pre- and post- remediation investigation programs. Offsite remediation was succesful and to the satisfaction

of both the regulator and the City of Toronto. Mr. Coleman also managed the investigation and remediation of onsite contamination and obtained site closures through the acquisition of four acknowledged Records of Site Conditions corresponding to the development phases (areas/sites) of property. Two of the RSCs were audited by the MOE and both were deemed compliant with the requirements set out under O. Reg 153/04.

- **Project Manager and Senior Remediation Design Engineer** responsible for the design and construction oversight of a 750 m Passive Phase Seperator along SW No. 4 in Goose Bay, Newfoundland and Labrador. The separator was designed to cut-off petroleum hydrocarbon sheens and reduce/eliminate contaminant load to SW4, a surface water body. The separator was designed as a shoreline extension of the water body atop an abandoned dump site, located along the toe of a 35 m high escarpment. The design was cost effective as it eliminated the need for costly geotechnical shoring of the escarpment slope and contaminated waste excavation, handling and disposal. Further, the trench system was designed to act as an in-situ phase separator complete with cofferdam, barrier wall, head load stabilizers, horizontal collection pipe and recovery and monitoring well infrastructure. This passive phase separator design reduced future operation and maintenance costs. The existing three dimensional groundwater flow model for Goose Bay was used by Mr. Coleman in the phase separator design. Simulations were run using this model to establish ideal head load stabilizer positions, i.e., positions which would through natural drawdown optimize sheen capture and containment. The design also included the capture of overland fuel seeps with the resulting flow directed into the trench system via a surface drainage collection system. As part of this work, Mr. Coleman designed high flow treatment systems complete with infrastructure to handle dewatering fluids and sediment. This included pumping systems and fluid/sediment transfer piping, the design of a large phase separator/settling treatment tank using existing infrastructure, and a large sediment containment facility (SCF) complete with liner and leachate collection system. Mr. Coleman oversaw and produced the construction tender documents. Mr. Coleman and the project team also oversaw and supervised the construction of the Works (trench, dewatering system and sediment containment facility). The design was commissioned in March 2006 and the Works constructed by the end of November 2006. The SCF has since been converted into a potential containment/treatment facility for contaminated soil generated at 5 Wing, the design/construction amendments of which were provided by Mr. Coleman's engineering team.

- **Project Manager and Senior Remediation Design Engineer** for a detailed Phase 2 investigation, remediation and risk assessment of petroleum hydrocarbon and hot water soluble boron impacts for a private developer at a Brownfields site in Brantford, Ontario. The remediation and risk assessment/management measures implored at this site included the placement of the HWS boron impacted soil in an engineered containment cell designed by Mr. Coleman. The risk assessment and risk management measures were approved by the Ontario Ministry of the Environment with a Record of Site Condition and Certificate of Property Use issued for the site.

- **Project Manager and Senior Remediation Engineer** responsible for the restoration of a former bulk fuel marine terminal, deemed a Brownfield site, on behalf of a large petroleum company. Contaminants of concern included petroleum hydrocarbons, PAHs (coal tar) and lead. The project consisted of: review of previous investigations, soil waste characterization remedial plan development; acquisition of Certificates of Approval to operate a Waste Management and Waste Disposal Site, remedial excavation, contaminated soil management & treatment, design of soil & groundwater treatment systems (biopiles, soil screening & aeration, oil-water separation, soil washing), and site closure complete with acknowledged Record of Site Condition (**RSC 3566)** and subsequent Transition Notice (**TRN 3397**) into Ontario Regulation 153/04. The RSC was audited by the MOE and was deemed compliant with the requirements set out under O. Reg 153/04.

- **Senior Environmental Engineer and Project Manager** responsible for the soil remediation program at the Fort Nelson Airport in British Columbia from 2001 to 2005. This project involved the site assessment and contaminant delineation of numerous sites situated within the airport, remedial excavation of numerous

contaminated sub-sites, excavation dewatering and treatment, soil staging and management, soil bio-treatability assessments, bio-treatment of petroleum hydrocarbon contaminated soil at the Soil Treatment Facility and landfill assessment, monitoring and permit compliance. Process soil volumes ranged from 15,000 to 30,000 m^3 per annum. Groundwater treatment volumes ranged from 25,000 Litres to 5 Million Litres per annum. Mr. Coleman led the team on this project, designed the groundwater treatment system that was used to treat excavation dewatering fluid (LNAPL and groundwater), and oversaw and managed the site investigations, remedial excavations, soil staging operations and soil bio-treatment processes.

- **Project Manager & Senior Remediation Engineer** for environmental site assessment and remediation of lead and benzo(a)pyrene contamination in soils at a former skeet shooting range at Toronto's Pearson Airport. Conducted gap analysis, designed work plan to collect data required for remediation screening, remedial option evaluation, developed remedial action plan using on-site soil stabilization, and conducted stabilization/solidification treatability studies.

- **Project Manager & Senior Remediation Engineer** for the free product recovery optimization study performed on subsurface LNAPL plumes (4.5 million Litres) at the Upper Tank Farm, 5 Wing Goose Bay. The study was comprehensive and looked at pressure differential and capillary fringe effects on product recovery and included the monitoring of LNAPL plume distributions and the development of methods to optimize LNAPL recovery using existing and alternate infrastructure/technology.

- **Project Manager** responsible for environmental studies carried out at 12 federal prisons across Canada (NB, NS, QC, ON, MB, AB, BC). The study, carried out for Correctional Services Canada, focussed on hydrocarbon and metals contamination and involved Phase II&III ESAs to delineate subsurface contamination, SSRA to assess risks to humans and the environment and the development of remedial options.

- **Project Manager** responsible for the delineation and groundwater/contaminant transport modelling of contamination arising from two light non-aqueous phase plumes present in the subsurface on Moose Factory Island, Ontario.

- **Project Manager** responsible for the environmental study of the former ammunition, ordnance and hazardous material storage depots at a military base in Labrador, Newfoundland. The study involved: a Phase I study; historical hydro-chemical data evaluation; phase II investigation; groundwater and contaminant transport/fate modelling; particle tracking; risk assessment and remedial option development and screening. The contaminants considered in the study included VOCs, cVOCs, PAHs and metals.

- **Project Manager and Remediation Engineer** for the environmental assessment, investigation and remediation of numerous industrial sites located in Saskatchewan and Alberta for a large liquid/solid commodity transport company. The work involved several different media (soil, sediment, soil gas, groundwater and surface water) and an array of contaminants; including, petroleum hydrocarbons, polycyclic aromatic hydrocarbons, chlorinated organic compounds, chlorides, metals and nitrates.

- **Project Manager** responsible for the management of Phase I assessments, Phase II investigations, environmental liability assessments, third party impact assessments, and remediation of numerous commercial and industrial sites in Alberta and Saskatchewan for several large real estate corporations. The sites included paint storage and packaging facilities; truck maintenance and fuelling yards; vehicle maintenance, repair and service complexes; and, commercial malls with dry-cleaners and service stations. Assessments involved soil and groundwater media and one, several or all of the following contaminants; petroleum hydrocarbons, chlorinated volatile organic compounds, polycyclic aromatic hydrocarbons and heavy metals. Remediation activities included remedial excavations with onsite treatment (biopiles/landfarms) or offsite disposal and in-situ treatment (air sparging, vapour extraction, multi-phase

extraction, barrier walls, pump and treat, LNAPL recovery, etc.).

- **Project Manager** responsible for an environmental evaluation of a Printing Facility in Ontario. The project included a detailed Phase I assessment/compliance audit; a vapour and light non-aqueous phase liquid migration pathway(s) assessment; and, development of a remedial work plan.

- **Project Manager** responsible for the investigation and remediation of over 100 petroleum hydrocarbon contaminated sites (bulk plants, marine terminals and service stations) in Ontario, British Columbia, Alberta, Saskatchewan, Manitoba and the Northwest Territories for several large petroleum companies. A number of the sites were in the Canadian north with permafrost conditions. Responsibilities, included: detailed intrusive investigations to delineate free product plumes and soil and groundwater contamination; development and evaluation of remedial options; remedial action plans; remediation system design, tendering, construction and operation; permitting, certificates of approvals and site closures. Remedial systems designed and put in-place at these sites included liners, passive vapour management systems, active vapour management systems, an in-situ phase separator, and pump and treat, LNAPL recovery, multi-phase extraction, vapour extraction, air sparging and soil vapour extraction systems, enhanced bioremediation, natural attenuation, biopiles and landfarming).

- **Project Manager** responsible for a detailed Phase I Environmental Assessment and follow-up Phase II investigation for a large steel pressure vessel manufacturing facility in Alberta. Assessment involved soil and groundwater media and petroleum hydrocarbon and heavy metal contaminants.

- **Project Manager** responsible for the assessment of subsurface salinity impacts associated with four large Brine Ponds for a Petroleum Fractionation facility in Alberta. The assessment involved a review of investigation activities carried out by others as well as the development of Phase II investigation activities designed to ascertain whether saline groundwater may be impacting a nearby freshwater river. The work also included the development of several preliminary remedial/risk management options complete with order of magnitude cost estimates to mitigate the worst case scenario; plume migration towards and into the River.

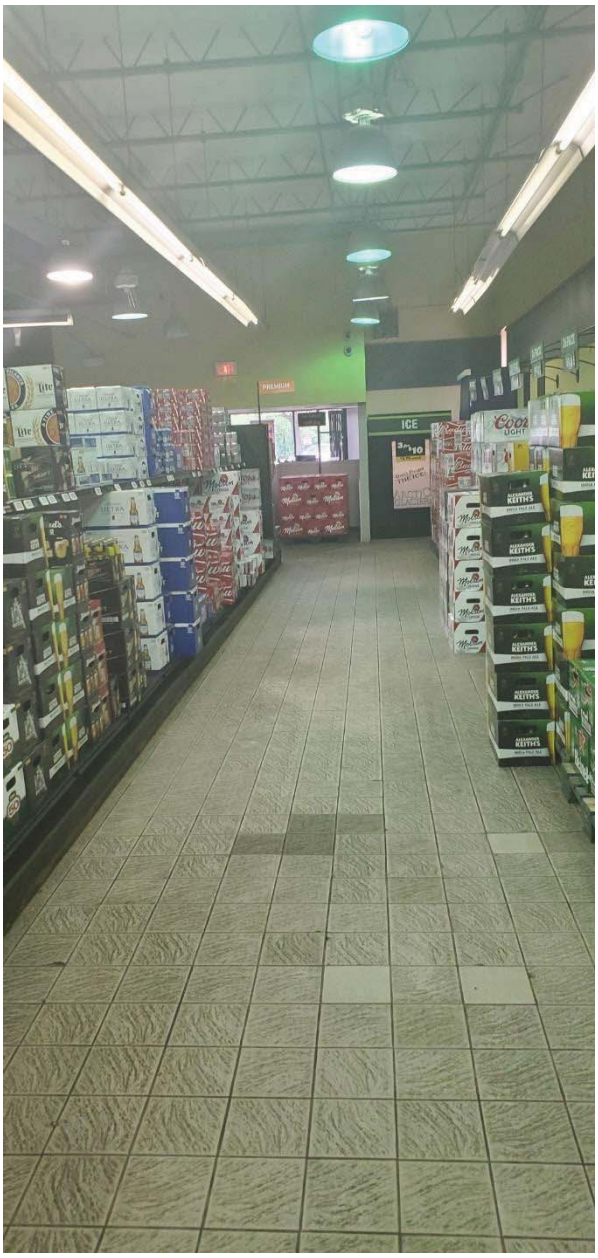
APPENDIX C

PHOTOGRAPHS – SITE AND SURROUNDING LANDS

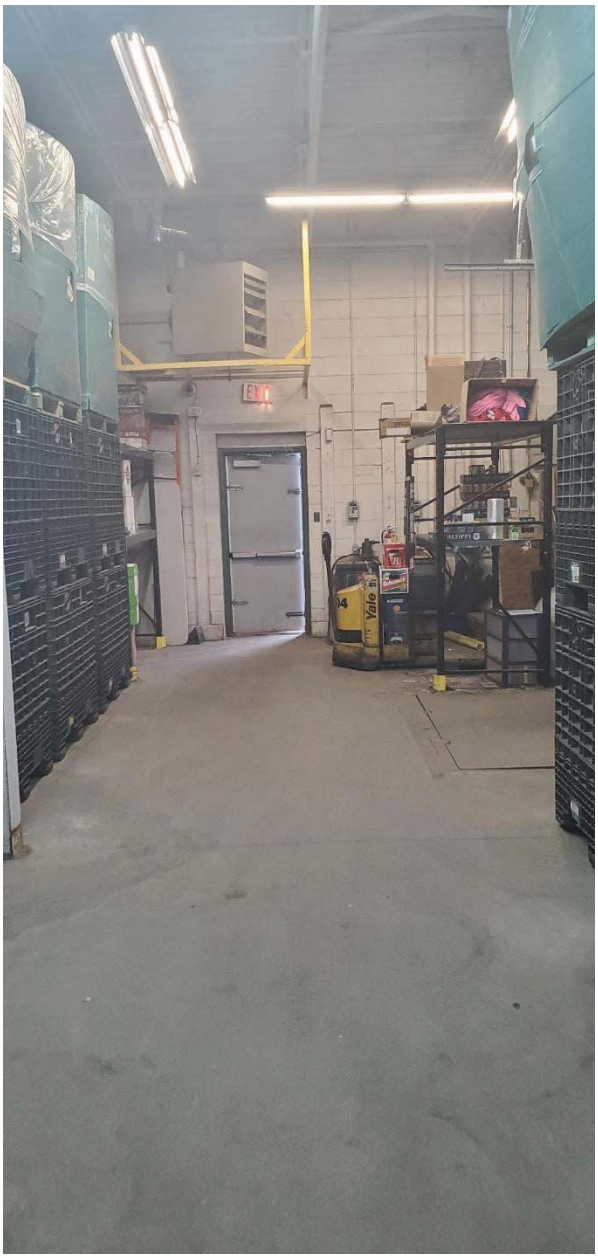
Photograph 1: Site north side.

Photograph 2: Site east side.

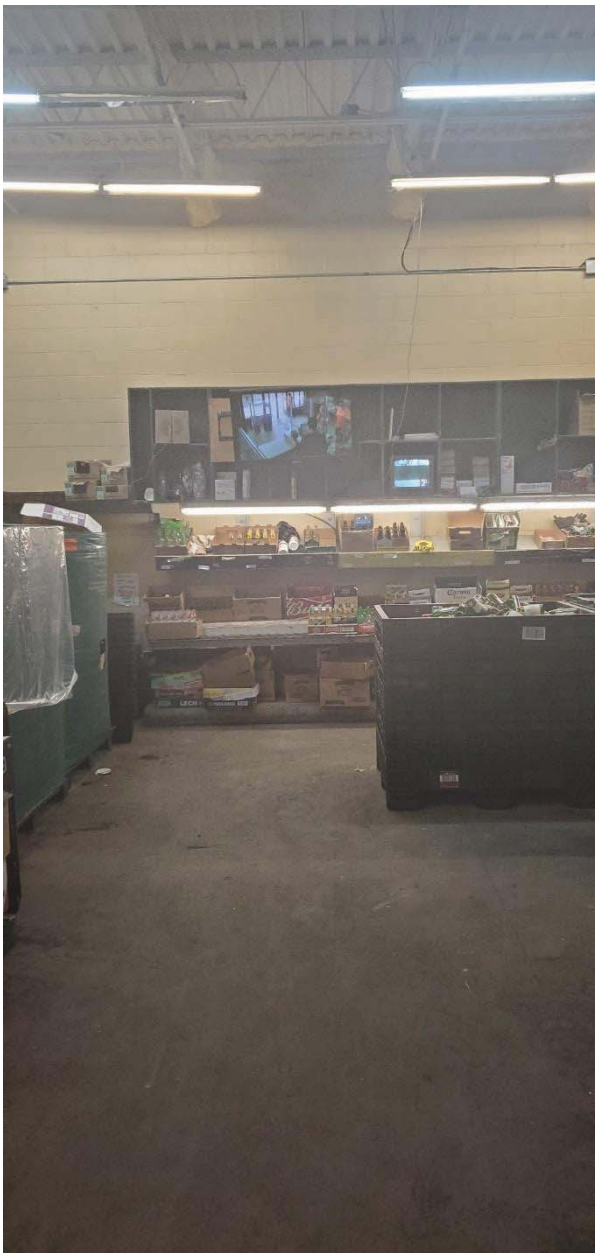
Photograph 3: Site, south side.



Photograph 4: Retail store.



Photograph 5: Recycling Area.



Photograph 6: Recycling Area.

ATTACHMENT 1

GENERAL CONDITIONS AND LIMITATIONS

COLESTAR ENVIRONMENTAL INC.

GENERAL CONDITIONS AND LIMITATIONS

1. This report has been prepared in accordance with generally accepted engineering and environmental practices for the exclusive use of the client named in the report preceding these limitations. This report is based on the information obtained while conducting authorized environmental assessment, investigation and/or remediation activities at the property or subject site.

2. The findings and conclusions presented in this report are based exclusively on the field parameters measured and the chemical parameters tested at specific locations. It should be recognized that subsurface conditions between and beyond the sample locations may vary. COLESTAR cannot expressly guarantee that subsurface conditions between and beyond the sample locations do not vary from the results determined at the sample locations. Notwithstanding these limitations, this report is believed to provide a reasonable representation of the environmental conditions apparent at the site on the dates of measurement and chemical testing.

3. The contents of this report are based on the information collected during assessment, investigation and/or remediation activities, our understanding of the actual site conditions, and our professional opinion according to the information available at the time of preparation of this report. This report gives a professional opinion and, by consequence, no guarantee is attached to the conclusions or expert advice depicted in this report. This report does not provide a legal opinion in regards to Regulations and applicable Laws.

4. Any use of this report by a third party and any decision made based on the information contained in this report by the third party is the sole responsibility of that third party. COLESTAR will not accept any responsibility for damages resulting from a decision or an action made by a third party based on the information contained in this report.

5. Third party information reviewed and used to develop the opinions and conclusions contained in this report is assumed to be complete and correct. COLESTAR used this information in good faith and will not accept any responsibility for deficiencies, mis-interpretation or incompleteness of the information contained in documents prepared by third parties.

6. The services performed and outlined in this report were based, in part, upon visual observations of the site and attendant structures. Our opinion cannot be extended to portions of the site which were unavailable for direct observation, reasonably beyond our control.

7. The objective of this report was to assess environmental conditions at the site, within the context of the agreed scope of work and existing environmental regulations within the applicable jurisdiction. Evaluating compliance of past or future owners with applicable local, provincial and federal government laws and regulations was not included in our contract for services.