



Phase I Environmental Site Assessment

185 Mill Street, Gananoque, Ontario

Client

Brennan Custom Homes Inc.
Suite 803
130 Bloor Street West
Toronto, ON M5S 1N5

Attn: Mr. Brett Vukets

Project Number

KIN-26260-A0

Prepared By:

Exp Services Inc.
Suite 315 The Woolen Mill
4 Cataraqui Street
Kingston, ON K7K 1Z7

Date Submitted

April 25, 2013

Executive Summary

Exp Services Inc. (**exp**) was recently retained by Brennan Custom Homes Inc. to complete a Phase I Environmental Site Assessment (ESA) at 185 Mill Street in Gananoque, Ontario, hereinafter referred to as the 'Site'. The objective of the investigation was to support the filing of a Record of Site Condition in accordance with Ontario Regulation 153/04 (O.Reg.153), as amended by Ontario Regulation 511/09 (O.Reg. 511).

The Site, located at 185 Mill Street is situated on the north-east side of Mill Street and south-west shore of the Gananoque River (Figure 2). The Site is approximately rectangular in shape and measured approximately 0.57 hectares. Two buildings are situated on the property. The northern building was constructed circa 1869 and the southern building was constructed circa 1897. The buildings are presently vacant and unoccupied with the doors and windows boarded up. There are remnants of a third building located at the southeast end of the property. The majority of the exterior grounds are graded with gravel. A boat launch and dock were situated along the shore of the Gananoque River at the north-east end of the Site. The Site slopes north-easterly from Mill Street toward the Gananoque River.

A portion of the property is regulated by virtue of *Ontario Regulation 148/06: Development, Interference with Wetlands and Alterations to Shorelines and Watercourses*, made pursuant to the *Conservation Authorities Act* and, therefore, development, including construction, filing and site grading may require a permit from the CRCA under the said regulation.

A Phase I ESA is a systematic qualitative process to assess the environmental condition of a site based on its historical and current uses. This Phase I ESA was conducted in accordance with the Phase I ESA standard as defined by Ontario Regulation 153/04, as amended by Ontario Regulation 511/09 (O.Reg. 153/04), and in accordance with generally accepted professional practices. Subject to this standard of care, **exp** makes no express or implied warranties regarding its services and no third party beneficiaries are intended. Limitation of liability, scope of report and third party reliance are outlined in Appendix A of this report.

Please note that general environmental management and housekeeping practices were reviewed as part of this assessment insofar as they could impact the environmental condition of the property. However, a detailed review of regulatory compliance issues was beyond the scope of our investigation.

This Phase I ESA does not constitute an audit of environmental management practices, indicate geotechnical conditions or identify geologic hazards.

Exp's observations and action recommendations are summarized in the following table:

Issue Identified	Recommendation	Rationale
Subject Site		
The Site has been utilized for various industrial/manufacturing uses by a variety of occupants since circa 1869.	Complete a Phase II ESA, including borehole drilling and soil and groundwater sampling.	Delineate potential soil and groundwater impacts.
Previous environmental investigations conducted over the period from 1997 through 2005 (OMM/Eco-Quinte) identified concentrations that exceeded the applicable criteria at the time in the soil (beryllium, lead, vanadium, zinc and vinyl chloride) and groundwater cis- and trans-1,2-dichloroethene, vinyl chloride, cadmium, cobalt, copper, lead, mercury, vanadium and zinc). Additionally, a soil remediation program (OMM, 1999) reported that impacted soil with elevated concentrations of cadmium, copper, lead and zinc in the vicinity of the dock could not be removed due to structural concerns. Furthermore, an incident report provided by the MOE reported that an environmental investigation conducted in 2007 by DL Services found that the Site was contaminated with TCE and vinyl chloride.	Complete a Phase II ESA, including borehole drilling and soil and groundwater sampling.	Delineate potential soil and groundwater impacts.
Fill of unknown origin are likely present in the Canal Reserve located along the southwest end of the property along the shoreline at the southeast end of the property.	Complete a Phase II ESA, including borehole drilling and soil and groundwater sampling.	Delineate potential soil and groundwater impacts.
A large coal storage pile was formerly located at the northwest end of the property.	Complete a Phase II ESA, including borehole drilling and soil and groundwater sampling.	Delineate potential soil and groundwater impacts.
Reportedly, auto body repairs were formerly conducted in the former northwest extension of Building A.	Complete a Phase II ESA, including borehole drilling and soil and groundwater sampling.	Delineate potential soil and groundwater impacts.

Issue Identified	Recommendation	Rationale
Reportedly, an engine/motor repair shop was formally located in the now demolished building at the southern end of the Site. Previous investigations conducted on-site (Geo Core, 1997) reported that one 900 litre fuel-oil AST was situated inside the former motor shop building that was utilized for waste oil and a second used exterior rated 900 litre fuel-oil AST was situated outside the motor shop.	Complete a Phase II ESA, including borehole drilling and soil and groundwater sampling.	Delineate potential soil and groundwater impacts.
The Site was historically listed as a generator of Light Fuels for residential building construction by Edgecon Contracting Corporation.	Complete a Phase II ESA, including borehole drilling and soil and groundwater sampling.	Delineate potential soil and groundwater impacts.
A pit is located in the floor at the north end of Building A. Wood debris and a brown coloured liquid were noted at the bottom of the pit.	Complete a Phase II ESA, including borehole drilling and soil and groundwater sampling.	Identify the liquid inside the pit and delineate potential soil and groundwater impacts.
An accumulation of bird droppings was noted on the flooring throughout the top floor at both of the Site buildings	It is recommended that the entry points into the building be sealed and the bird droppings be removed. Appropriate garb should be worn by clean-up workers.	To prevent worker exposure and possible transmission of diseases and parasites.
It is a possibility that the fluorescent light ballasts located in the subject site may contain small quantities of PCBs.	If renovations or demolition are planned, it is recommended that these materials be assessed and managed in accordance with applicable regulations and guidelines.	To eliminate exposure to the workers and potential impact to the soil and groundwater.
Asbestos may be present in the pipe wrap insulation.	If renovations or demolition are planned, it is recommended that these materials be assessed and managed in accordance with applicable regulations and guidelines.	To eliminate exposure to the workers.

Issue Identified	Recommendation	Rationale
Lead based paints may have historically been utilized within the building. Leaded solder may have historically been utilized to seal the plumbing fittings within the building.	If renovations or demolition are planned, it is recommended that these materials be assessed and managed in accordance with applicable regulations and guidelines.	To eliminate exposure to the workers.
Mercury containing paints may have historically been used at the subject site building. Mercury may also be present in thermostats, switches or batteries.	If renovations or demolition are planned, it is recommended that these materials be assessed and managed in accordance with applicable regulations and guidelines.	To eliminate exposure to the workers.
Radon emissions from the underlying bedrock into the building interiors are possible.	It is recommended that testing be conducted to confirm the presence/absence of radon.	To eliminate exposure to the workers.
Surrounding Properties		
The 1947 Fire Insurance Plan identified an 8,000 gallon fuel-oil UST at the property at 15 Clarence Street (Parmenter and Bullock Company Limited). It is unknown whether the UST still exists.		
Three large transformers were mounted on a platform at the southern exterior of the building located at 15 Clarence Street. The 15 Clarence Street was also listed in the Inventory of PCB Storage Sites.	Complete a Phase II ESA, including borehole drilling and soil and groundwater sampling.	Delineate potential soil and groundwater impacts.
The property located at 15 Clarence Street (Textron Canada Ltd.) located approximately 25 metres south-west of the Site was historically listed as a waste generator of acid waste – heavy metals, other inorganic acid wastes, alkaline wastes – heavy metals, alkaline wastes – other metals, alkaline phosphates, neutralized wastes – heavy metals, inorganic laboratory chemicals, aromatic solvents, petroleum distillates, halogenated solvents, PCB's, oil skimmings and sludges, waste oils and lubricants, detergents/soaps, and organic laboratory chemicals; organic acids.	Complete a Phase II ESA, including borehole drilling and soil and groundwater sampling.	This property is situated up-gradient of the subject site. Accordingly, delineate potential soil and groundwater impacts.

Issue Identified	Recommendation	Rationale
<p>The property located at 67 Mill Street is occupied by Brennan Marine. A large AST and two 200 litre drums were observed adjacent to the west exterior wall of the building. Additionally, a marine gasoline filling station was located on the docks at the east end of the property. The retail fuel storage tank database identified a 13,638 litre storage tank for retail purposes situated at the property.</p>	<p>Complete a Phase II ESA, including borehole drilling and soil and groundwater sampling.</p>	<p>This property is situated up- or cross-gradient of the subject site. Accordingly, delineate potential soil and groundwater impacts.</p>
<p>The property located at 26 Mill Street (Arc Industries) located approximately 130 metres north west of the Site was historically listed as a waste generator for 241 – halogenated solvents.</p>	<p>Complete a Phase II ESA, including borehole drilling and soil and groundwater sampling.</p>	<p>This property is situated up- or cross-gradient of the subject site. Accordingly, delineate potential soil and groundwater impacts.</p>
<p>A rail line or spur was historically located southwest of the Site.</p>	<p>Complete a Phase II ESA, including borehole drilling and soil and groundwater sampling.</p>	<p>The former rail line was situated up-gradient of the subject site. Accordingly, delineate potential soil and groundwater impacts.</p>

This executive summary is a brief synopsis of the report and should not be read in lieu of reading the report in its entirety.

Table of Contents

Executive Summary	1
1 Introduction	1
1.1 General	
1.2 Site Description	1
2 Scope of Investigation	2
3 Records Review	3
3.1 General	
3.1.1 Phase I ESA Study Area Determination	3
3.1.2 First Developed Use Determination	3
3.1.3 Fire Insurance Plans	3
3.1.4 Chain of Title	5
3.1.5 Environmental Reports	5
3.2 Environmental Source Information	11
3.2.1 Federal and Provincial Database Search	11
3.2.2 Municipal Records	16
3.2.3 Ontario Ministry of the Environment Records	20
3.2.4 Technical Standards and Safety Authority	21
3.3 Physical Setting Sources	21
3.3.1 Aerial Photographs	21
3.3.2 Geological and Soil Maps	22
3.3.3 Fill Materials	22
3.3.4 Water Bodies and Areas of Natural Significance	22
3.3.5 Well Records	23
3.4 Site Operating Records	23
4 Interviews	24
5 Site Reconnaissance	25
5.1 General Requirements	25
5.2 Specific Observations at Phase I ESA Property	25
5.2.1 Site Description and Buildings	25
5.2.2 Heating and Cooling Systems	26
5.2.3 Site Utilities and Services	26
5.2.4 Site Production and Manufacturing	26
5.2.5 Drains, Pits and Sumps	26
5.2.6 Monitoring Wells	26
5.2.7 Storage Tanks	27
5.2.8 Site Housekeeping	27
5.2.9 Chemical Storage and Handling and Floor Condition	27
5.2.10 Areas of Stained Soil or Stressed Vegetation	27
5.2.11 Fill and Debris	28
5.2.12 Air Emissions	28
5.2.13 Odours	28

5.2.14	Noise	28
5.2.15	Hazardous Building Materials and Designated Substances.....	28
5.2.16	Radon	31
5.2.17	Mould.....	31
5.3	Enhanced Investigation Property Observations	32
5.4	Adjacent and Surrounding Properties	32
5.5	Written Description of Investigation	33
6	Review and Evaluation of Information	34
6.1	Current and Past Uses	34
6.2	Potentially Contaminating Activities.....	34
6.3	Areas of Potential Environmental Concern	34
6.4	Phase I ESA Conceptual Site Model	34
7	Conclusions	36
8	References	40

List of Figures

- Figure 1 – Site Location Plan
- Figure 1b – Site Plan - Schematic
- Figure 2 – Study Area
- Figure 3 – Surrounding Property Use Plan
- Figure 4 – Conceptual Site Model

List of Tables

- Table 1 – Current and Past Uses
- Table 2 – Table of Areas of Potential Environmental Concern

List of Appendices

- Appendix A: Limitation of Liability
- Appendix B: Survey Plan
- Appendix C: Qualification of Assessors
- Appendix D: Chain of Title Documentation
- Appendix E: EcologERIS Report
- Appendix F: Government Records
- Appendix G: Well Records
- Appendix H: Site Photographs
- Appendix I: Questionnaire

- Pocket
Legal Survey

1 Introduction

1.1 General

Exp Services Inc. (**exp**) was retained by Brennan Custom Homes Inc. to complete a Phase I Environmental Site Assessment (ESA) at 185 Mill Street, Gananoque, Ontario, hereinafter referred to as the 'Site'. The objective of the investigation was to support the filing of a Record of Site Condition in accordance with Ontario Regulation 153/04 (O.Reg.153), as amended by Ontario Regulation 511/09 (O.Reg. 511).

At the time of the investigation, the Site was owned by Mill Street Property Ltd. The owner contact information is provided below:

Company Name	Mill Street Property Ltd.
Company Address	1046 Young Street Toronto, Ontario M4W 2L1
Contact Name	Mr. Joe Pal
Contact Title	_____
Contact Telephone	_____
Contact email	_____

A Phase I ESA is a systematic qualitative process to assess the environmental condition of a site based on its historical and current uses. This Phase I ESA was conducted in accordance with the Phase I ESA standard as defined by Ontario Regulation 153/04, as amended by Ontario Regulation 511/09 (O.Reg. 153/04), and in accordance with generally accepted professional practices. Subject to this standard of care, **exp** makes no express or implied warranties regarding its services and no third party beneficiaries are intended. Limitation of liability, scope of report and third party reliance are outlined in Appendix A.

1.2 Site Description

The Site, located at 185 Mill Street is situated on the north-east side of Mill Street and south-west shore of the Gananoque River (Figure 1). The Site is approximately rectangular in shape and measured approximately 0.57 hectares. Two buildings are situated on the property (Figure 1b). The northern building (Building A) was constructed circa 1869 and the southern building (Building B) was constructed circa 1897. The buildings are presently vacant and unoccupied with the doors and windows boarded up. There are remnants of a third building located at the southeast end of the property. The majority of the exterior grounds are graded with gravel. A boat launch and dock were situated along the shore of the Gananoque River at the north-east end of the Site. The Site slopes north-easterly from Mill Street toward the Gananoque River.

The Site is legally described as "Lot 1020, part of lots 1021, 1017,1018,1019, W Gananoque River, Plan 86 as in G7817, Part of the Bed of the Gananoque River in Leeds County, plan 86, Part of the Canal Reserve, W Gananoque River, Plan 86, Gananoque"

The approximate Universal Transverse Mercator (UTM) coordinates for the Site centroid was NAD83 18-407431 E 4908756 N. The UTM coordinates were based on measurements obtained from Google Earth. The accuracy of the centroid was estimated to range from 10 to 15 m.

2 Scope of Investigation

The scope of work for the Phase I ESA consisted of the following activities:

- Reviewing the historical occupancy of the Site through the use of available archived and relevant municipal and business directories, fire insurance plans (FIPs), topographical maps, and aerial photographs;
- Contacting municipal and provincial agencies to determine the existence of records of environmental regulatory non-compliance, if any, and reviewing such records where available;
- Obtaining an EcoLog Environmental Risk Information Services Ltd. (ERIS) report for the Site and surrounding properties within a 250 meter radius of the Site;
- Reviewing available geological maps and well records for the vicinity of the Site;
- Obtaining and reviewing a chain of title and assessment rolls for the Site;
- Conducting interviews with designated Site representative(s) as a resource for current and historical Site information, as well as to provide **exp** staff with unrestricted access to all areas of the Site and Site buildings (as required by O.Reg.153);
- Conducting a Site reconnaissance in order to identify any land use practices that may have impacted the environmental condition of the Site;
- Conducting a reconnaissance of the surrounding properties from the Site and publically accessible areas in order to identify any land use practices that may have impacted the environmental condition of the Site; and,
- Preparing a report to document the findings.

In completing the scope of work, **exp** did not conduct any intrusive investigations, including sampling, analyses or monitoring.

Exp has not confirmed neither the completeness nor the accuracy of any of the records that were obtained or any of the statements made by others.

Exp personnel who conducted assessment work for this project included Mr. Matthew Whitney, P.Eng. and Ms. Paula A. Formanek, M.Sc.(Eng.), P.Geo., a Qualified Person as defined by O.Reg. 511/09. An outline of their qualifications is provided in Appendix C.

3 Records Review

3.1 General

3.1.1 Phase I ESA Study Area Determination

For the purpose of this assignment, the Phase I ESA study area consisted of neighbouring properties within a distance of 250 metres from the Site boundary. The Phase I ESA study area was bounded by Pine Street to the North, South Street to the East, the St. Lawrence River to the South, and King Street West to the West (Figures 2, 3 and 4).

3.1.2 First Developed Use Determination

Based on a review of historical aerial photographs, chain of title information, historical maps, and other records, the northern and southern portions of the Site were first developed circa 1869 and circa 1897, respectively. A more detailed discussion of the Site history documents that were reviewed is provided below.

3.1.3 Fire Insurance Plans

The Catalogue of Canadian Fire Insurance Plans 1875 – 1975 (Catalogue) was used to determine if fire insurance plans (FIPs) for the Site may have existed. Based on a review of the Catalogue, two FIPs dated 1897 (revised 1914) and 1947 were available for Gananoque, Ontario. The FIP dated 1897 revised 1914 was obtained from Insurers' Advisory Organization Inc. and the FIP dated 1947 was obtained from Queen's University Library.

The 1897 (revised 1914) FIP identified the following:

- The northern portion of the Site was occupied by Parmenter and Bullock Company Limited labelled as a nail and rivet works. The southern portion of the property was occupied by Steel Company.
- Gananoque Spring and Axle Company Limited was situated north-west of the Site with Wheel Factory beyond.
- A head race and Thousand Island Railway were situated south-west of the Site.
- The properties located at 15 Clarence Street and 60 Mill Street were occupied by Parmenter and Bullock Company Limited.

The 1947 FIP identified the following:

- The north portion of the property was part of the Parmenter and Bullock Company Limited which was also situated on the land located north of the Site (now a municipal parking area), 15 Clarence Street and 60 Mill Street.

- Building A (Figure 1b) at the Site was approximately twice the size as its present state with extensions at the north-east and south-west ends of the building. The main area of the building (which corresponds with the present location of Building A) was labelled as spool storage and empty container storage. The north-east extension of the building was labelled as auto body repairs and the south-west extension was labelled as vacant.
- A coal pile was shown situated along the Gananoque River at the north-west end of the north portion of the property.
- The southern portion of the property part was occupied by Link Manufacturing Company Limited which was part of the adjacent property to the southeast (currently occupied by Gananoque Boat Line (parking lot and ticket booth)).
- Building B (Figure 1b) at the Site was labelled as steam moulding and machine shop, assembling and warehouse and woodworking. Spray painting was indicated at the northern end and nickel plating was indicated at the eastern end of Building B. A boat house was located at the north-east end of the building. Additionally, two smaller buildings were located southeast of the south building labelled as a machine shop and garage and as a maintenance shop and coal boiler room. Furthermore, a gate house and auto garage were located south-west of the south building and a shipping dock and lumber storage warehouse were located south of Building B. A coal yard was shown south of the Site buildings. This location is now part of the adjacent property to the South.
- A head race was shown at the south-west end of the property and was labelled as being filled in.
- Thousand Islands Railway and Mill Street were situated south-west of the head race.
- The property located at 15 Clarence Street was occupied by Parmenter and Bullock Company Limited. The building was used for industrial purposes including metal forming. The plan shows a buried fuel oil tank (8,000 gallons) at the rear of the property.

The Insurers' Advisor Organization's site plan for the subject site dated 1998 was reviewed. The site plan indicates two large building in the present configuration (Buildings A and B; Figure 1b) with three smaller buildings situated south of the large buildings. The three smaller buildings include a building of brick construction, a vacant building with collapsed roof and a private boat house.

The 1998 Multirisk Narrative Report by Federation Insurance Group was reviewed. The 1998 report identified that the property was occupied by Cliffe Craft. One of the smaller buildings, constructed in 1900 (estimated) at the south end of the property was utilized as an outboard motor repair shop and storage of used parts and had offices on the second floor. A parts wash tank for washing small engine parts was noted in the smaller building. The report noted that Building B was constructed in 1900 (estimated) and was occupied by a woodworking shop to manufacture wooden spools and for boat storage on the second floor. The report also noted that Building A was constructed in 1875 (estimated) and was utilized for boat storage on the ground floor and the second floor was vacant with a proposed use for storage of wooden spools.

Additionally, the 2002 Insurers' Advisory Organization Inc. Inspection Report was reviewed. The 2002 report indicated that there were three buildings situated at the Site. The smaller building at the south end of the Site was vacant while Buildings A and B were utilized for the manufacture of wood pallets and wood spools. A small welding operation was situated in Building A.

3.1.4 Chain of Title

A title search was completed for the Site by Ecolog Eris. The legal description of the property containing the Site was "Lot 1020, part of lots 1021, 1017, 1018, 1019, W Gananoque River, Plan 86 as in G7817, Part of the Bed of the Gananoque River in Leeds County, plan 86, Part of the Canal Reserve, W Gananoque River, Plan 86, Gananoque". The Title search, enclosed in Appendix D, indicated the Site was developed circa 1869 for industrial purposes with various occupants over the years including The Economy Engine & Machine Company, The Thousand Islands Carriage Company, The George Gillies Company, Toronto Bolt & Forging Company, Canada Bolt & Nut Company, Steel Company of Canada, Morden Manufacturing, Gibson Harness Company Ltd., Shortall Fuel Company, Link Manufacturing Company, Parmentor & Bulloch, Textron and Cliffe Craft.

3.1.5 Environmental Reports

The reports reviewed during the preparation of the Phase I ESA included the following:

1. Phase I Environmental Site Assessment, Cliffe Craft Limited, 185 Mill Street, Gananoque, Ontario. GeoCore Engineering Inc. September 1997.
2. Phase II Environmental Site Assessment, Cliffe Craft Limited, 185 Mill Street, Gananoque, Ontario. Oliver, Mangione, McCalla & Associates (OMM). December 1, 1997.
3. Additional Soil & Groundwater Investigations, Cliffe Craft Limited, 185 Mill Street, Gananoque, OMM. January 28, 1998.
4. Excavation of Contaminated Soil and Installation of Monitoring Wells, Cliffe Craft Limited, 185 Mill Street, Gananoque, OMM. March 31, 1999.
5. Phase I/II Environmental Site Assessment, Cliffe Craft Limited, 185 Mill Street, Town of Gananoque, Ontario. Quite-Eco Consultants Inc. July 10, 2003.
6. Groundwater Monitoring Well Installation and Sampling, 185 Mill Street, Town of Gananoque, Ontario. Quite-Eco Consultants Inc. October 31, 2005.

A summary of these reports is provided below.

1. Phase I Environmental Site Assessment, Cliffe Craft Limited, 185 Mill Street, Gananoque, Ontario. GeoCore Engineering Inc. September 1997

A Phase I ESA was conducted by GeoCore Engineering Inc. (GeoCore). The Phase I ESA was conducted to evaluate the existing environmental Site conditions and identify actual or potential

significant environmental liabilities related to historic activities and operations conducted on- and off-Site. At the time of the investigation, the property was occupied by Cliffe Craft (owner) and Korkey Systems (tenant). It was reported that Cliffe Craft operated on-site since the mid-1960's. Cliffe Craft manufactured, repaired and restored watercraft on the premises. The tenant Korkey Systems produced cleaning fluids (i.e., Spray Nine).

GeoCore identified the following pertinent items at the Site in the Phase I ESA:

- The buildings were municipally serviced with potable water but were not connected to the municipal sewer. Drains were suspected to drain directly to the Gananoque River.
- Pipe insulation may contain asbestos;
- Fluorescent light ballasts in the buildings may contain PCB's;
- One 900 litre fuel-oil aboveground storage tank (AST) was located inside the back of the motor shop. The AST was utilized for waste oil;
- One used exterior rated AST was located outside the motor shop;

The following recommendations were made by GeoCore in the Phase I ESA:

- Soil and groundwater sampling was recommended;
- Sampling for asbestos containing material (ACM) was recommended;
- Secondary containment of the waste oil AST was recommended; and
- Sealing the existing drains was recommended;

2. Phase II Environmental Site Assessment, Cliffe Craft Limited, 185 Mill Street, Gananoque, Ontario. Oliver, Mangione, McCalla & Associates. December 1, 1997.

A Phase II Environmental Site Assessment was conducted by OMM to evaluate the existing environmental Site conditions and identify actual or potential significant environmental liabilities related to historic activities and operations conducted on- and off-Site. The scope of work included the following:

- Advancement of 5 boreholes (BH-I through BH-V) on-Site into soil to depths ranging from 0.3 to 2.90 metres below ground surface;
- Installation of one groundwater monitoring wells (MW-I) into the overburden;
- Construction of three hand dug test pits to depths up to 1.2 metres below ground surface;
- Sampling and analytical testing of soil from the boreholes for analysis of Total Petroleum Hydrocarbons (TPH), Benzene, Toluene, Ethylbenzene and Xylenes (BTEX), Polycyclic Aromatic Hydrocarbons (PAHs), Polychlorinated Biphenyls (PCBs) and metals.

- Sampling and analytical testing of groundwater from the monitoring well for analysis of TPH, PAHs, Volatile Organic Compounds (VOCs) and metals.
- Sampling and analytical testing of surface water from the Gananoque River that abuts the property for analysis of VOCs.
- Conduct an inspection for asbestos containing material (ACM) and lead based paint in the Site buildings.

The results are summarized as follows:

- The depth to the on-site bedrock was found to range from just below surface to 0.3 to 2.90 metres below surface grade. The predominant soil types observed were sand, gravel and clay. Black staining and/or coal fragments were observed at four boreholes locations;
- The direction of groundwater flow in the overburden aquifer was inferred to be northerly toward the Gananoque River;
- Concentrations of two parameters equaled or exceeded the applicable Site Condition Standards (SCS) at the time of the investigation (MOE (1997) Table B) in samples submitted from the soil including: beryllium and vanadium;
- Concentrations of two parameters equaled or exceeded the applicable SCS at the time of the investigation (MOE (1997) Table B) in samples submitted from the on-site overburden groundwater including: trans-1,2-dichloroethene and cis-1,2-dichloroethene;
- Concentrations detected within the applicable SCS at the time of the investigation (MOE (1997) Table B) in samples submitted for VOC analysis from the on-site Gananoque River;
- The designated substances asbestos and lead based paints were detected within the subject premises.

3. Additional Soil & Groundwater Investigations, Cliffe Craft Limited, 185 Mill Street, Gananoque, OMM. January 28, 1998.

Additional subsurface investigations were conducted by OMM in 1997 and 1998. The scope of work included the following:

- Construction of nine (9) test pits across the Site (TP-1b through TP-9b);
- Collection of water samples from eight (8) test pits and the existing monitoring well MW-1.
- Sampling and analytical testing of soil and groundwater from the test pits and groundwater from the existing monitoring well for analysis of VOCs.
- Collection of additional soil samples (S-1 through S-6) from the immediate vicinity of an old sewer line that serviced Building B. The samples were collected at a depth of approximately 0.55 metres below grade.
- Sampling and analytical testing of additional soil samples for analysis of VOCs and metals.

The results are summarized as follows:

- VOC's were not detected in the soil samples and met the provincial criteria in place at the time of sampling (MOE (1997) Table B).
- VOC's were detected above the provincial criteria in place at the time of sampling (MOE (1997) Table B) in the groundwater samples at MW-1, including cis-1,2-dichloroethene (180 ug/L) and vinyl chloride (23.4 ug/L).
- Vinyl chloride, lead and zinc were found at concentrations above the provincial criteria in place at the time of sampling (MOE (1997) Table B) in the additional soil samples.
- It was concluded that it appeared that the source for the vinyl chloride, metals and other contamination detected in the soil and/or groundwater north of the Building B is from an old sewer line, possibly from solvents and other compounds used on-site over the years that may have been disposed of down the sink.
- It was recommended that a soil remediation program including the excavation and removal of impacted material be undertaken.

4. Excavation of Contaminated Soil and Installation of Monitoring Wells, Cliffe Craft Limited, 185 Mill Street, Gananoque, OMM. March 31, 1999.

Excavation of contaminated soil and installation of an additional monitoring well was undertaken by OMM. The soil remediation included the excavation with off-site disposal of approximately 240 m³ of soil. All confirmatory samples met the provincial criteria at the time (MOE (1997) Table B). It was reported that some material impacted with cadmium, copper, lead and zinc could not be excavated in the vicinity of the dock due to structural concerns with the dock. Additionally, the excavation entailed the removal of the existing monitoring well, MW-1. Following backfilling of the excavation MW-1 was replaced with a new monitoring well, MW-2. The groundwater in the new monitoring well was sampled in January 1999 for TPH and VOC. One parameter, 1,1-dichloroethane was detected at a concentration (4,700 ug/L) exceeding the provincial criteria in place at the time (MOE (1997) Table B).

5. Phase I/II Environmental Site Assessment, Cliffe Craft Limited, 185 Mill Street, Town of Gananoque, Ontario. Quinte-Eco Consultants Inc. July 10, 2003.

A combined Phase I and II ESA was conducted by Quinte-Eco Consultants. The Phase I ESA was conducted to evaluate the existing environmental Site conditions and identify actual or potential significant environmental liabilities related to historic activities and operations conducted on- and off-Site. A Phase II Environmental review of all historical research on the Site and the surrounding properties was completed for the Site. At the time of the investigation, the property was zoned "Commercial/Industrial" and was occupied by a three buildings. Ground cover at the Site consisted of gravel parking areas and driveway.

The Phase I ESA noted that the Site historically (circa 1871) housed a foundry to manufacture carriages, later cabinetry and harnessing.

Quite-Eco Consults did not identify any areas of potential environmental concern (APEC's) at the Site or surrounding area, however the following pertinent items were identified in the Phase I ESA:

- Some of pipe wrap material at the steam lines that was previously identified to be ACM were present in the Site buildings. Reportedly, the remaining pipe wrap was in good condition;
- Approximately 25 fluorescent light ballasts were present in the Site buildings that may contain PCB's.
- Reportedly, surfaces previously identified to contain lead paint have been scraped and repainted with latex paint.
- One 200 gallon AST that was formerly used for waste oil collection was located inside the south building (i.e., the smaller building to the south that has since been demolished). The tank was located within a concrete block containment area. No ground staining was noted in the area of the AST.
- Repairs to boat motors were formerly conducted at the Site. The waste oil generated by these repairs was reportedly collected in the 200 gallon AST and disposed of by a licensed hauler.

A Phase II Environmental Site Assessment was conducted by Quite-Eco Consultants to evaluate the existing environmental Site conditions and identify actual or potential significant environmental liabilities related to historic activities and operations conducted on- and off-Site. The scope of work included the following:

- Advancement of 2 boreholes (Boreholes #1 and #2) on-Site into soil to depths ranging from approximately 1.5 and 1.7 metres below ground surface;
- Installation of one groundwater monitoring wells (Monitoring Well #2) into the overburden to a depth of approximately 2.1 metres below ground surface;
- Sampling and analytical testing of soil from the boreholes for analysis of metals.
- Sampling and analytical testing of groundwater from the newly installed and existing monitoring wells for analysis of VOCs.

The results are summarized as follows:

- The depth to the on-site bedrock was found to range from 1.5 to greater than 2.1 metres below surface grade. The predominant soil types observed were sand and clay;
- Concentrations of the tested metals parameters were detected within the applicable Site Condition Standards (SCS) at the time of the investigation (MOE (1997) Table B) in samples submitted from the soil;

- Concentrations of the tested VOC parameters met applicable SCS at the time of the investigation (MOE (1997) Table B for commercial/industrial property use) in samples submitted from the on-site overburden groundwater; however vinyl chloride was detected at a concentration (2.7 µg/L) exceeding MOE (1997) Table B for residential property use (0.5 µg/L) at Monitoring Well #01;

It was concluded by Quite-Eco Consultants that there were no significant environmental issues for the subject property at the time of the assessment.

6. Groundwater Monitoring Well Installation and Sampling, 185 Mill Street, Town of Gananoque, Ontario. Quite-Eco Consultants Inc. October 31, 2005.

Quite-Eco conducted a groundwater investigation entailing the installation of three monitoring wells (MW03, MW04 and MW05) into the overburden. The approximate locations of the monitoring wells are shown in Figure 1b. Bedrock refusal was reported at 2.74, 1.82 and 2.13 metres at MW03, MW04 and MW-05, respectively. Groundwater samples were collected from each of the newly installed monitoring wells for analysis of VOCs and metals. Soil samples were not submitted. VOCs were not detected in the water samples at all three newly installed monitoring wells. Various metals were detected at concentrations exceeding the applicable MOE (2004) SCS as follows:

- MW03: Cadmium (3.3 ug/L), Cobalt (16 ug/L), Copper (152 ug/L), Lead (152 ug/L), Mercury (0.26 ug/L), Vanadium (31 ug/L) and Zinc (250 ug/L);
- MW04: Copper (54 ug/L), Lead (298 ug/L), Mercury (0.07 ug/L) and Zinc (209 ug/L);
- MW05: Copper (17 ug/L) and Lead (30.1 ug/L).

The highest metals concentrations were detected near the west property boundary.

3.2 Environmental Source Information

3.2.1 Federal and Provincial Database Search

A search of provincial and federal databases for records pertaining to the Site and properties within 250 metres of the Site was conducted by EcoLog ERIS. **Exp** has confirmed neither the completeness nor the accuracy of the records that were provided. A copy of the EcoLog ERIS report is provided in Appendix E with a summary of the findings provided below.

3.2.1.1 Abandoned Aggregate Inventory

The ERIS report did not identify any records in the Abandoned Aggregate Inventory within 0.25 km of the Site.

3.2.1.2 Anderson's Waste Disposal Site

The ERIS report did not identify any records in the Anderson's Waste Disposal Site database within 0.25 km of the Site.

3.2.1.3 Certificates of Approval (1985 – June 2011)

The ERIS report did not identify any Certificates of Approval records for the Site.

The following C of As were listed in the ERIS report for properties located within the Phase I ESA study area:

- Townsend (Division of Textron Canada Ltd.) situated at 15 Clarence Street was issued C of A's (air) in 1992 and 1993 for exhaust to control in-plant oil mist.
- Camcar (Division of Textron Canada Ltd.) situated at 15 Clarence Street was issued a C of A (air) in 1998 for a natural gas fired parts washer.
- Townsend (Division of Textron Canada Ltd.) situated at 15 Clarence Street was issued a C of A (air) in 1993 for dust collection.
- Three C of As were issued for municipal and private sewage works;
- Eight C of As were issued for municipal water; and
- Ten C of As were issued for municipal sewage.

3.2.1.4 Chemical Register (1992, 1999 – June 2010)

The ERIS report did not identify any properties listed in the Chemical Register within 250 m of the Site.

3.2.1.5 Environmental Registry (1989 – June 2011)

The ERIS report did not identify any properties listed in the Environmental Registry within 250 m of the Site.

3.2.1.6 Inventory of PCB Storage Sites

The ERIS report identified the following properties in the Inventory of PCB Storage Sites within 250 m of the Site.

- Townsend (Division of Textron Canada) located at 15 Clarence Street; and
- Camcar Textron Canada located at 15 Clarence Street.

3.2.1.7 Fuel Storage Tank Private and Retail Fuel Storage Tanks (1989-1996) Databases

The ERIS report identified one property in the Fuel Storage Tank Private and Retail Fuel Storage Tanks Database within 0.25 km of the Site as follows.

- Brennan Marine Ltd. located at 67 Mill Street was listed with a 13,638 litre storage tank for retail purposes.

3.2.1.8 Fuel Storage Tank Database

The ERIS report identified one property in the Fuel Storage Tank Database located within 0.25 km of the Site as follows.

- One gasoline underground storage tank was listed at Brennan Marine Ltd. situated at 67 Mill Street; and

3.2.1.9 List of TSSA Expired Facilities

The ERIS report did not identify any properties listed in the List of TSSA Expired Facilities within 250 m of the Site.

3.2.1.10 National Pollutant Release Inventory (NPRI) (1993 – 2009)

The ERIS report did not identify any properties listed in the National Pollutant Release Inventory within 250 m of the Site.

3.2.1.11 National PCB Inventory

The ERIS report identified the following property in the National PCB Inventory within 250 m of the Site.

- Townsend (Division of Textron Canada) at 15 Clarence Street;
- Camcar Textron Canada located at 15 Clarence Street;
- Gananoque Light and Power Ltd. situated at 5 King Street East; and
- Granite Power Corporation situated at 5 King Street East.

3.2.1.12 Ontario Regulation 347 Waste Generators Summary (1986 – October 2010)

The Site was identified in the database as a waste generator for 221 – Light Fuels for residential building construction by Edgecon Contracting Corporation.

The following properties in the Phase I ESA study area were identified in the database as waste generators:

- The property located at 15 Clarence Street (Camcar/Townsend – Divisions of Textron Canada Ltd.) located approximately 25 metres south-west of the Site was listed for the following waste codes and descriptions:
 - 112 – acid waste – heavy metals;
 - 114 – other inorganic acid wastes;
 - 121 – alkaline wastes – heavy metals;

- 122 – alkaline wastes – other metals;
 - 123 – alkaline phosphates;
 - 131 – neutralized wastes – heavy metals;
 - 148 – inorganic laboratory chemicals;
 - 211 – aromatic solvents;
 - 213 – petroleum distillates;
 - 241 – halogenated solvents;
 - 243 – PCB's;
 - 251 – oil skimmings and sludges;
 - 252 – waste oils and lubricants;
 - 262 – detergents/soaps;
 - 263 – organic laboratory chemicals; and
 - 267 – organic acids;
- The property located at 26 Mill Street (Arc Industries) located approximately 130 metres north-west of the Site was listed for 241 – halogenated solvents.

The property located at 70 Pine Street (Gananoque Funeral Home) located across the Gananoque River and approximately 225 metres north of the Site was listed for 312 – pathological wastes.

- The property located at 5 King Street East (Canadian Niagara Power Inc.) located across the Gananoque River and approximately 225 metres north-west of the Site was listed for the following waste codes and descriptions:
 - 213 – petroleum distillates;
 - 251 – oil skimmings & sludges; and
 - 252 – waste oils & lubricants.

3.2.1.13 Ontario Spills

The ERIS report identified six records within the study area. The spill incidents are summarized in the table below:

Company	Address	Distance and Direction from Site	Date of Incident	Incident Summary
Town of Gananoque	60 Water Street	Adjacent to the south	September 10, 2006	Sewage to pavement and Gananoque River.
Town of Gananoque	Water Street at Main Street	135 m south	April 3, 2012	Sewage leak to St. Lawrence River.
Fortis Ontario Inc.	25 Mill Street	150 m north-west	March 23, 2009	Non-PCB transformer oil leak to ground.
Town of Gananoque	St Lawrence River; Stone and Water Street.	175 m east, across the Gananoque River	October 17, 2000	Sewage wastewater discharge to St. Lawrence River.
Private Owner	Bay and Clarence Street	25 metres south-west	August 7, 2001	Oil sheen in St. Lawrence River at Gananoque Marina.
Town of Gananoque	Bay and Clarence Street	25 metres south-west	July 30, 2004	Diesel fuel spill in Marina Slips in St. Lawrence River.

3.2.1.14 Permit to Take Water

The ERIS report did not identify any properties listed in the Permit to Take Water within 250 m of the Site.

3.2.1.15 Pesticide Register

The ERIS report did not identify any properties listed in the Pesticide Register within 250 m of the Site.

3.2.1.16 Record of Site Condition (1997 – September 2001 and October 2004 – June 2011)

The ERIS report did not identify any Record of Site Conditions filed within 250 m of the Site.

3.2.1.17 Scott's Manufacturing Directory (1992 to 2009)

The ERIS report identified the following records in the Scott's Manufacturing Directory within 0.25 km of the Site.

Company	Address	Established	Plant Size, m2	Description
Cliffe Craft Ltd.	185 Mill St.	1954	Not Specified	-All other miscellaneous wood product manufacturing
Textron Fastening Systems Automotive	15 Clarence St.	Not Specified	557	-All other plastic product manufacturing -Other motor vehicle parts manufacturing
Camcar Textron	15 Clarence St.	Not	557	-Bolts, nuts, screws, rivets,

- Triad Division		Specified		and washers
Textron Fastening Systems	15 Clarence St.	Not Specified	557	-Turned product and screw, nut and bolt manufacturing

3.2.1.18 TSSA Historical Incidents

The ERIS report identified one incident in the TSSA Historical Incidents database within 0.25 km of the Site as follows.

- A natural gas pipeline strike at intersection of Main Street and Mill Street.

3.2.1.19 Waste Disposal Sites – MOE 1991 Historical Approval Inventory

The ERIS report did not identify any properties listed in the MOE 1991 Waste Disposal Site Historical Approval Inventory within 250 m of the Site.

3.2.1.20 Water Well Information System (1955 – March 2011)

The ERIS report identified 9 well information system records located at the Site. Eight of the wells were described as test holes and one of the wells was described as not used. In general, the soil lithology consisted of a layer of topsoil, gravel, silt and/or sand to 0.61 to 3.05 metres, underlain with limestone. Additionally, one location described peat and wood fragments from 3.05 to 3.96 metres.

The ERIS report identified the 3 well information system records within 250 m of the Site. The uses of the off-site wells in the study area are described as domestic.

3.2.2 Municipal Records

3.2.2.1 Property Use Directories

The available Town of Gananoque directories dated 1927 and 1929 were reviewed at the Central Branch of the Frontenac Public Library in order to identify the occupancy history of the site and adjacent properties. The 1927/1929 directories did not list numerical property addresses. However, based on the Fire Insurance Plan (1914) the Site was likely occupied by Steel Company of Canada Limited at the southern end and Parmenter and Bulloch Company Limited at the northern end. A summary of the listings for properties in the vicinity are summarized as follows:

1. Mill Street (St. Lawrence River to Main Street):

- East Side:
 - Steel Company of Canada Limited.
 - Parmenter and Bulloch Company Limited – factory

- Ontario Wheel Company Limited – factory
- St. Lawrence Steel and Wire Company Limited.
- Power Station
- West Side:
 - St. Lawrence Street
 - Parmenter and Bulloch Company Limited – factory
 - Clarence Street
 - Ontario Wheel Company Limited

2. Water Street (Gananoque River to Main Street):

- North Side:
 - Taylor James and Son Coal
 - Mill Street
 - Railway tracks cross
 - Main Street
- South Side:
 - Railway tracks cross
 - Main Street

3. Main Street (St. Lawrence River to Main Street):

- East Side:
 - Water Street
 - St. Lawrence Street
 - 5 Residential Properties
 - Mill Street
- West Side:
 - Thousand Islands Railway Depot

- Water Street
- Commercial and Residential Properties
- St. Lawrence Street
- Residential Properties
- Clarence Street
- Blink Bonnie Hotel and International Hotel

The various industrial uses of the Site and properties in the vicinity listed in the directories present potential sources of environmental concern to the on-site soil and/or groundwater.

3.2.2.2 Town of Gananoque – Municipal Records

On March 19, 2013, a request for information pertaining to the Site was submitted by **exp** to the Town of Gananoque through the Municipal Freedom of Information and Protection of Privacy Act (FOI).

On April 16, 2013, the Town of Gananoque gave permission to **exp** to review the Town's files for the Site. The files were reviewed by **exp** at the Town Hall in Gananoque, Ontario on April 16, 2013. The pertinent information from **exp's** review of the files has been incorporated into this Phase I ESA report.

On April 19, 2013 a written response was received from the Town of Gananoque. The Town provided a table that identified the historical Site building utilization. A summary of the table is below in Tables 3.2.2.2a and 3.2.2.2b. A copy of the response from the Town of Gananoque is included in Appendix F.

Table 3.2.2.2a: Three Storey Stone Masonry Building (Building A)

Date	Occupant	Comments
1869-1890	Economy Engine and Machine	Manufacture of steam engines, tooling and machining
1891-1944	George Gillies (Steel Company of Canada)	Machine Shop, forging, and metal stamping
1951-1961	Link Manufacturing	Manufacture of aircraft frames and canoes
1967-Time of Report (1997)	Cliffe Craft Ltd.	Manufacture and restoration of wood boats, watercraft and furniture
	Korkey Systems (lower floor)	Manufacture of cleaning product

Table 3.2.2.2b: Two Storey Brick Building (Building B):

Date	Occupant	Comments
1897-1901	Thousand Islands Carriage Company	Manufacture of carriages (foundry)
1901-1908	Morden Manufacturing	Cabinets
1910-1942	William J Gibson Harness Company	Manufacture of harnesses
1942-1961	Link Manufacturing	Manufacture of aircraft frames and canoes
1967-Time of Report (1997)	Cliffe Craft Ltd.	Manufacture and restoration of wood boats, watercraft and furniture

3.2.2.3 Cataraqui Region Conservation Authority (CRCA)

On April 10, 2013, a legal inquiry request was submitted to the Cataraqui Region Conservation Authority (CRCA). A copy of the request is included in Appendix F.

On April 18, 2013 a response was received from the CRCA. The CRCA reported that they are not aware of any directive, order, or other breach of regulation under our jurisdiction with respect to these properties. The CRCA indicated that a portion of the property is regulated by virtue of *Ontario Regulation 148/06: Development, Interference with Wetlands and Alterations to Shorelines and Watercourses*, made pursuant to the *Conservation Authorities Act* and therefore,

development, including construction, filing and site grading may require a permit from the CRCA under said regulation. The CRCA specifies the extent of the regulated area and setbacks for development from flood plain hazard and erosion hazard. Based on the aerial photograph provided by the CRCA, a portion of the existing building (Building B) is located within the flood plain.

3.2.3 Ontario Ministry of the Environment Records

3.2.3.1 Ministry of the Environment

On March 22, 2013, a request for information pertaining to the Site was submitted to the MOE through the Municipal Freedom of Information and Protection of Privacy Act (FOI).

On April 22, 2013 a response to our request was provided by the MOE. The MOE reported that the search of their files revealed one incident report at the property dated December 4, 2007. A copy of the response from the MOE including the incidence report is included in Appendix F. The incidence report identified a potential offsite TCE and vinyl chloride plume. The incidence report identified that Mr. Paul Kennedy and an undisclosed partner retained Quinte Eco to conduct an additional environmental investigation at the Site which reaffirmed that there were no environmental issues at the Site. Subsequently, DL Services was retained to conduct an environmental investigation at the Site and the investigation conducted by DL Services confirmed that the Site was contaminated. The report also noted that there is a lawsuit on this issue.

3.2.3.2 MOE Environmental Bill of Rights (EBR)

On April 10, 2013, the MOE Environmental Bill of Rights (EBR) registry website was searched for postings within the Phase I ESA Study Area. The Site was not listed in the EBR registry. The EBR registry identified the following one (1) record in the study area:

EBR Registry Number	Ministry Reference Number	Title or Proponent	Type	Published Date
IA7E1574	8418497 19971015	Textron Canada Limited (Camcar Division) – 15 Clarence Street – Environmental Compliance Approval (project type: air)	Instrument Decision	January 19, 1998

3.2.3.3 MOE Brownfields Environmental Site Registry

On April 10, 2013, a search of the MOE Brownfields Environmental Site Registry website was conducted for Records of Site Condition (RSC) for the Site and surrounding properties. The search indicated the Site and properties within the Phase I ESA study area were not listed in the MOE Brownfields Environmental Site Registry.

3.2.4 Technical Standards and Safety Authority

On March 19, 2013 a request for information pertaining to the Site was submitted to the Technical Standards and Safety Authority (TSSA) for information regarding fuel storage at the Site.

On March 27, 2013 a response to our request was provided by the TSSA. The TSSA indicated that a search of their database indicated they had no record of any outstanding instructions, incident reports, fuel oil spills, or contamination records for the Site. Additionally, the TSSA indicated that they had no records of retail facilities or licensed or registered underground storage tanks at the Site. A copy of the response provided by the TSSA is provided in Appendix F.

3.3 Physical Setting Sources

3.3.1 Aerial Photographs

Aerial photographs for the Site dated 1953, 1967, 1974, 1978 and 1991 were obtained from Queen's University Map and Air Photo Library. Using Google Earth, aerial views of the site and surrounding area from 2005 were viewed. Our review of the aerial photographs indicated the following:

Photo Year	Site	North	East	South	West
1953	Two large buildings at southeast end of Site. One small building at north-west end of Site.	Gananoque River. Adjacent property to north-west developed with multiple structures.	Gananoque River.	Possible rail line (south-west). Vacant land beyond. Two small structures (southeast).	Possible rail line. Large structure beyond.
1967	Two large buildings at southeast end of Site. Two small building at north-west end of Site.	Gananoque River. Adjacent property to the north-west developed with multiple structures and dock extending into the Gananoque River.	Same as above.	Possible rail line (south-west). Large dark area of land on adjacent property to the southeast.	Same as above.
1978	Two large buildings at southeast end of Site. Two small building at north-west end of Site.	Same as above.	Same as above.	Road and possible rail line (south-west). Parking area at adjacent property to the southeast.	Road and possible rail line. Large structure beyond.
1991	Two large buildings at southeast end of Site. Three small buildings at north-west end of Site.	Same as above.	Same as above.	Road (south-west). Two structures and parking area on adjacent property to the southeast.	Road. Large structure beyond.

Photo Year	Site	North	East	South	West
2005	Two large structures at southeast end of Site. Parking area at north-west end of Site.	Same as above.	Same as above.	Road. Four small structures and parking area on property to the southeast.	Same as above.

3.3.2 Geological and Soil Maps

The following information sources were reviewed, to determine the nature of the subsurface materials of the Site:

1. "Geological Highway Map" Map 2441, Ontario Geological Survey, 1979.
2. "Physiography of the Eastern Portion of Southern Ontario" Map 2227, Ont. Dept. of Mines and Northern Affairs, 1972.

Physiography mapping indicates that the subject site is situated within a physiographic formation known as shallow till and rock ridges.

The geological map indicates that the area is located near the division of two (2) geological formations of the late to middle Precambrian age and the Cambrian age, including: Felsic intrusive rocks including granite, granophyre, granodiorite, quartz diorite, quartz monzonite, syenite, trondhjemite, and derived gneisses; and Potsdam or Nepean formation, including sandstone.

3.3.3 Fill Materials

At the time of the Site visit, it was reported by the Site contact, Mr. Vukets of Brennan Custom Homes, that the west end of the property was historically built up with fill material when a historical canal located west of the Site was filled in. The Canal Reserve is shown on the survey plan. The survey plan also shows that the property was built up with fill along and likely into the river. The parking areas are graded with gravel, which was likely imported. Building material debris was noted cover the ground surface at the south-eastern end of the Site and within the ground floor of Building B.

3.3.4 Water Bodies and Areas of Natural Significance

The Gananoque River is situated adjacent to the Site to the north-east. The Gananoque River flows in a southeasterly direction into the St. Lawrence River, located approximately 93 metres southeast of the Site.

The Ministry of Natural Resources (MNR) Natural Heritage website was reviewed to assess if the Site was considered to be an Area of Natural and Scientific Interest (ANSI). Based on the review of the MNR website, no ANSIs were identified in the Phase I ESA study area.

3.3.5 Well Records

Water Wells

A search of wells listed to be within 500 metres of the subject property, based on UTM coordinates, was requested from the Ministry of the Environment. The review of the water well records indicated the following:

- Nine (9) water wells were situated at the Site. One was constructed in 2005 and 8 were constructed in 2007. Four were completed into the overburden and five were completed into the limestone bedrock. The use of the water was not reported.
- In general, the soil lithology for the on-Site wells consisted of layer of sand and gravel, underlain with silt, sand and gravel at some locations to depths ranging from 0.6 to 2.7 metres. The silt, sand and gravel was underlain with peat and wood fragments at two locations to 4.0 metres.
- The underlying shallow limestone bedrock in the on-site wells was encountered at depths ranging from approximately 0.6 to greater than 4.0 metres.
- Water in the on-site wells was found at depths ranging from 0.9 to 4.0 metres.
- Thirteen (13) water wells were situated within 500 metres of the Site (not including on-site wells). The overburden thickness was reported to range from 0.9 metres to greater than 5.5 metres at 9 locations, 34.7 metres at 1 location and was not reported at 3 locations. The underlying bedrock identified in the records were as follows: four as sandstone, three as granite and one as limestone. The use of the wells was identified as follows: five as domestic and eight were not indicated.

A summary table of the MOE well records as well as available detailed MOE well records for the on-site monitoring wells is provided in Appendix G.

Oil, Gas, and Salt Wells

A search of the Oil, Gas & Salt Resources Library (www.ogsrlibrary.com) website was completed to identify oil, gas and salt wells within the vicinity of the Site. The search of the website indicated there were no oil, gas or salt wells within the Phase I ESA study area.

3.4 Site Operating Records

No Site operating records were provided to **exp** as part of this Phase I ESA.

4 Interviews

Interviews were conducted by **exp** with the individuals identified to be the most knowledgeable about both the current and historical Site uses. The interviews were conducted in order to obtain information to assist in identifying areas of potential environmental concern and identify details of potentially contaminating activities or potential contaminant pathways, in, on or below the Site.

During the completion of this Phase I ESA, the following individuals were interviewed:

1. Mr. Brett Vukets, of Brennan Custom Homes Inc. accompanied **exp** during the Site visit and provided information about the Site. The relevant information provided by Mr. Vukets has been integrated into this report, in the appropriate sections.
2. **Exp's** standard Phase I Environmental Site Assessment Questionnaire was provided to Mr. Brett Vukets of Brennan Custom Homes Inc. to forward to a representative of Mill Street Property Ltd. A copy of the completed questionnaire from Mr. Joe Pal of Mill Street Property Ltd. is included in Appendix I. The relevant information provided by Mr. Pal has been integrated into this report, in the appropriate sections.
3. Ms. Brenda Guy, Manager of Community Development of the Town of Gananoque was contacted regarding historical information about the Site. The relevant information provided by Ms. Guy has been integrated into this report, in the appropriate sections.

5 Site Reconnaissance

5.1 General Requirements

The initial Phase I ESA Site reconnaissance was conducted on April 4th, 2013 by Mr. Matthew Whitney, P.Eng., under the supervision of Ms. Paula Formanek, M.Sc.(Eng.), P.Ge., a Qualified Person as defined by O.Reg. 511/09. At the time of the Site reconnaissance, the weather was partly cloudy and cold (approximately 3 °C). The ground surface was fully visible.

Photographs documenting the Site Reconnaissance are included in Appendix H.

5.2 Specific Observations at Phase I ESA Property

5.2.1 Site Description and Buildings

The Site, located at 185 Mill Street is situated on the north-east side of Mill Street and south-west shore of the Gananoque River (Figure 1). Photographs of the exterior grounds of the Site are presented as Photos 1 through 10 (Appendix H). The Site is approximately rectangular in shape and measured approximately 0.57 hectares. Two buildings are situated on the property (Figure 1b). The buildings are presently vacant and unoccupied with the doors and windows boarded up. There are remnants of a third building located at the southeast end of the property. The majority of the exterior grounds are graded with gravel. A boat launch and dock were situated along the shore of the Gananoque River at the north-east end of the Site. The Site slopes north-easterly from Mill Street toward the Gananoque River.

The main characteristics of the Site buildings are included in the following tables:

Building A (North Building):

Building Surface	Building Material Description
Floor Surfaces	Upper Floors: Wood Basement: Concrete
Ceilings	Wood
Interior Walls	Brick, Wood
Exterior Walls	Stone Masonry
Roof	Metal

Building B (South Building):

Building Surface	Building Material Description
Floor Surfaces	Ground Floor: Rubble, Concrete, Wood Upper Floor: Wood, Carpet
Ceilings	Wood, Drywall/Plaster
Interior Walls	Brick, Wood, Drywall/Plaster
Exterior Walls	Brick, Stone Masonry Foundation
Roof	Metal

5.2.2 Heating and Cooling Systems

At the time of the Site visit, the Site contact, Mr. Vukets reported that no heating or cooling systems were present at the Site. No heating and cooling systems were observed on-Site by **exp** during the Site visit. Remnants of forced air return ductwork (Photo 35; Appendix H) were noted inside the ground floor of the Building B. Additionally, unused metal pipes that appeared to be historical boiler lines (Photo 34; Appendix H) were noted in the ground floor of the south building.

5.2.3 Site Utilities and Services

At the time of this Phase I ESA the Site services were disconnected. Potable water and sanitary sewage services for the vicinity would be provided by the Town of Gananoque, electricity by Eastern Ontario Power and natural gas by Union Gas. Utility drawings were not available for review at the time of the Site visit.

5.2.4 Site Production and Manufacturing

No production and manufacturing activities were observed on-Site during the Site visit.

5.2.5 Drains, Pits and Sumps

A pit was located in the floor at the north end of Building A (Photos 22 and 23; Appendix H). Wood debris and a brown coloured liquid were noted at the bottom of the pit (Photo 23; Appendix H). There was no sheen observed on the liquid and no olfactory odours were noted in the vicinity of the pit. Additionally, approximately 12 core holes were noted through the basement floor slab of Building A (Photo 24; Appendix H). The core holes were covered with metal lids (Photo 25; Appendix H). A sump pit was located at the south end of Building A (Photo 26; Appendix H). There was no sump pump in the pit, however, black ABS piping with hose clamps at the bottom end were located above the sump pit and extended up and through the south exterior wall. The outlet of the ABS piping could not be located at the exterior of the building and may possibly be below grade.

The majority of the flooring on the ground floor in Building B has been removed (Photos 31 and 32; Appendix H). Additionally, old piping leads into the ground at the northern end of Building B were observed (Photo 32; Appendix H). This piping is likely related to the former clay sewer that discharged into the Gananoque River (OMM, 1999). A metal pipe also leads into the ground at the north-east end of Building B (Photo 33; Appendix H). It is unknown if this drain has been sealed or if it discharges to the Gananoque River.

5.2.6 Monitoring Wells

Monitoring wells were observed throughout the external grounds at the Site. Based on previous reporting in MOE water well records, the monitoring wells were constructed during four separate subsurface investigations at the Site as follows:

- One overburden monitoring well was installed following soil remediation in the vicinity of a former clay sewer pipe (OMM, 1999).

- One overburden monitoring well was installed during a Phase II ESA in 2003 (Quite-Eco Consultants, 2003).
- Three overburden monitoring wells were installed during a subsurface investigation in 2005 (Quite-Eco Consultants, 2005).
- Three overburden and five bedrock monitoring wells were installed throughout the Site in 2007. With the exception of the MOE Water Well Records and the information provided by the MOE (discussed Section 3.2.3.1 above), no records regarding the 2007 investigation conducted for Gananoque Resorts were available for review. Additionally, the Town of Gananoque had no records in their files regarding this investigation. Ms. Guy advised that Gananoque Resorts was planning on rebuilding the Site into condominiums, however they pulled out and vacated the property around this time.

5.2.7 Storage Tanks

At the time of the Site visit no underground storage tanks (USTs) or aboveground storage tanks (ASTs) were observed on-Site.

5.2.8 Site Housekeeping

An accumulation of bird droppings was noted on the flooring throughout the top floor at both the Site buildings (Photos 19 and 29; Appendix H). During the Site visit, pigeons were observed entering Building A through a gap beneath the roof. No other concerns with housekeeping at the Site were noted during the Site visit.

5.2.9 Chemical Storage and Handling and Floor Condition

No operating records, including chemical inventories were available to **exp** for review at the time of this investigation.

One plastic container approximately 20 litre capacity labelled as "Speedenamel 4318" was noted in the upper floor of the north building (Photo 21; Appendix H). This enamel is commonly used as a protection coating for machinery, process equipment, structural steel and piping

Various 200 litre drums were located in the Site buildings (Photo 28; Appendix H). The drums contained miscellaneous solid items or wastes; no liquids or chemicals were observed in the drums. There were no legible labels on the drums that indicated the former contents of the drums.

5.2.10 Areas of Stained Soil or Stressed Vegetation

No stained soil was observed on the Site at the time of the Site visit.

No stressed vegetation was observed on the Site or the immediately surrounding properties.

5.2.11 Fill and Debris

At the time of the Site visit, it was reported by the Site contact, Mr. Vukets of Brennan Custom Homes that the west end of the property was historically built up with fill material when a historical canal located west of the Site was filled in. The Canal Reserve is shown on the survey plan. The survey plan also shows that the property was built up with fill along and likely into the river. The parking areas are graded with gravel, which was likely imported (Photos 4, 7 and 8; Appendix H). Building material debris was noted covering the ground surface at the south-eastern end of the Site (Photos 9 and 10; Appendix H) and within the ground floor of Building B (Photos 31 and 32; Appendix H).

5.2.12 Air Emissions

Regulatory control of air emissions in Ontario is the responsibility of the MOE. According to the Environmental Protection Act (EPA), a Certificate of Approval (C of A) (Air) is required for the ongoing operation of any equipment that may discharge a contaminant into the natural environment if the equipment was installed, modified or altered after June 29th, 1988. Retroactive approval should be sought for equipment installed and unchanged between 1972 and June 29th, 1988 when the requirement for a C of A was added to the EPA. Unless explicitly exempted, most industrial processes or modifications to industrial processes and equipment require a C of A. The EPA provides a list of specific equipment and conditions, which are exempt from C of A (Air) requirements (i.e. fuel burning equipment for comfort heating in a building using natural gas or number 2 fuel oil at a rate of less than 1.5 million British Thermal Units per hour [BTU/hour]).

No active or passive air emissions were observed at the Site during exp's investigation.

5.2.13 Odours

A musty olfactory odour was noted in the ground floor of the south building during the Site visit. No other strong olfactory odours were noted during the Site visit.

5.2.14 Noise

No excessive noise was noted at the Site during the Site visit.

5.2.15 Hazardous Building Materials and Designated Substances

5.2.15.1 Asbestos

Asbestos-containing materials (ACMs) are fibrous hydrated silicates, and can be found in building materials as either "unbound" or "bound" asbestos. Friable asbestos refers to materials where the asbestos fibres can be separated from the material with which it is associated. Non-Friable asbestos refers to asbestos, which is associated with a binding agent (such as tar or cement). Friable asbestos is commonly found in boiler and pipe insulation. Non-Friable asbestos is typically found in roofing tars, floor and ceiling tiles, and asbestos-containing cement.

ACMs in the workplace are defined as a Designated Substance under the Ontario Occupational Health and Safety Act (OHSA). Under OHSA, persons in the workplace are required to be notified of the presence of ACMs once they are suspected to be present, and if there is a potential for workers to be exposed. The use of ACMs was discontinued in Canada in the late 1970s/early 1980s, although non-friable asbestos can still be found in recently constructed buildings.

A previous asbestos audit (OMM, December 1, 1977) found that the insulation material in the old steam lines to contain ACM. Pipe wrap that may contain ACM was observed at the west end of the south building during this Phase I ESA (Photo 34; Appendix H).

5.2.15.2 Ozone Depleting Substances (ODSs)

Chlorofluorocarbons (CFCs) often referred to as Freon, ceased production in Canada in 1993 as a result of their ozone-depleting characteristics. Importation of CFCs into Canada ceased in 1997 and a total ban on their use is proposed. The use of these materials is still permitted in existing equipment, but equipment must be serviced by a licensed contractor such that CFCs are contained and not released to the environment during servicing or operation.

Refrigerators and air conditioning units exist on-site that may contain ODSs. Under the management of a licensed contractor, the subject systems do not represent a significant impact to human health or the environment.

There were no potential ODSs observed on-Site during this investigation.

5.2.15.3 Lead

Lead has frequently been used in oil-based paints, roofing materials, cornices, tank linings, electrical conduits and soft solders for tinsplate and plumbing. The use of lead based paints (LBPs) was phased out circa 1976. Paint that was produced or used between 1976 and 1980 may contain small amounts of lead. Paint that was produced or used prior to 1950 may contain high levels of lead. The main concern regarding lead paint is its potential to become lead dust or chips either through deterioration and/or mechanical means (i.e., sanding, abrasion, etc.). Exposure to lead dust or chips occurs by ingestion or inhalation.

A previous audit for lead based paints (OMM, December 1, 1997) found lead based paints in the motor shop and the first floor of the southern building. The motor shop building no longer exists at the Site as it has been demolished. Additionally, based on the age of the buildings, there is potential for lead to exist within the painted surfaces throughout the buildings. The painted surfaces are generally in poor condition.

5.2.15.4 Mercury

Mercury can be found in some batteries, light bulbs, old paints, thermostats, old mirrors, etc. Based on an investigation by Consumer and Corporate Affairs Canada, and an assessment of potential health risks by Health and Welfare Canada, in 1991 the decision was made to eliminate the use of mercury compounds in indoor latex paints. The Canadian Paint and Coatings Association (CPCA) supported the withdrawal and all Canadian manufacturers and

formulators of the preservative voluntarily agreed to remove "interior uses" from their product labels.

Mercury may be contained in any thermostats located in the building. Mercury may also be contained in a vapour form within the fluorescent light tubes in the Site building. Additionally, based on the age of the building, there is potential for mercury to exist within the painted surfaces throughout the building. The painted surfaces are generally in poor condition.

5.2.15.5 Polychlorinated Biphenyls (PCBs)

The manufacture of PCBs in North America was prohibited under the Toxic Substances Control Act (1977). Their use as a constituent of new products manufactured in or imported into Canada was prohibited by regulations in 1977 and 1980. As such, sites developed or significantly renovated after 1980 are unlikely to have PCBs-containing equipment on the Site. Potential equipment, which could contain PCBs include fluorescent mercury and sodium vapour light ballasts, oil filled capacitors and transformers. Any electrical equipment containing PCBs must be disposed in accordance with Ontario Regulation 362 when it is removed from service. Ongoing operation of equipment containing PCBs is permissible.

No transformers were observed at the Site during the Site visit. Three large transformers were mounted on a platform at the southern exterior of the building located at 15 Clarence Street (Photo 15; Appendix H). As discussed in Section 3.2.1.6 above the property at 15 Clarence Street was listed in the Inventory of PCB Storage Sites. Additionally, various pole mounted transformers were observed in the study area that may contain PCBs.

5.2.15.6 Urea-Formaldehyde Foam Insulation

Formaldehyde is a pungent, colourless gas commonly used in water solution as a preservative and disinfectant. It is also a basis for major plastics, including durable adhesives. It occurs naturally in the human body and in the outdoor environment. Formaldehyde is used to bond plywood, particleboard, carpets and fabrics, and it contributes to "that new house smell".

Formaldehyde is also a by-product of combustion; it is found in tobacco smoke, vehicle exhaust and the fumes from furnaces, fireplaces and wood stoves. While small amounts of formaldehyde are harmless, it is an irritating and toxic gas in significant concentrations. Symptoms of overexposure to formaldehyde include irritation to eyes, nose and throat; persistent cough and respiratory distress; skin irritation; nausea; headache; and dizziness.

Urea-formaldehyde foam insulation (UFFI) was developed in Europe in the 1950s as an improved means of insulating difficult-to-reach cavities in the walls. It is typically made at a construction site from a mixture of urea-formaldehyde resin, a foaming agent and compressed air. When the mixture is injected into the wall, urea and formaldehyde unite and "cure" into an insulating foam plastic.

During the 1970s, when concerns about energy efficiency led to efforts to improve building insulation in Canada, UFFI became an important insulation product for existing buildings. Most installations occurred between 1977 and the further use of UFFI was banned in Canada in 1980s.

There was no evidence, such as patched circular holes in the walls of the Site buildings that suggest that UFFI has been used on the subject Site.

5.2.15.7 Other Substances

No other special attention substances were suspected to be present at the Site at the time of this Phase I ESA.

5.2.16 Radon

Radon is a colourless, odourless, radioactive gas that occurs naturally in the environment. It comes from the natural breakdown of uranium in soils and rocks. Exposure to high levels of radon increases the risk of developing lung cancer. This relationship has prompted concern that radon levels in some Canadian buildings may pose a health risk. Radon gas can move through small spaces in the soil and rock and seep into a building through cracks in concrete, sumps, joints and basement drains. Concrete-block walls are particularly porous to radon and radon trapped in water from wells can be released into the air when the water is used.

Due to the potential health concerns associated with radon, Health Canada released a guideline in June 2007 for a maximum acceptable level of radon gas of 200 becquerels per cubic metre (Bq/m³). Where radon gas is present and the annual radon concentration exceeds 200 Bq/m³ in the normal occupancy area, Health Canada recommends taking the necessary actions to reduce radon levels.

As the Site the underlying bedrock consists of limestone, sandstone and/or granite, radon gas emissions are possible, however, testing for radon is the only way to determine if radon emissions are a concern at the site.

5.2.17 Mould

Mould is found in the natural environment and is required for the breakdown of plant debris such as leaves and wood. Mould spores are found in the air in both the indoor and outdoor environments. In order for mould to grow it requires a food source (i.e. gypsum wallboard, carpets, wallpaper, wood, etc.) and moist conditions. Mould can have an impact on human health depending on the species and concentration of the mould. Health effects can include allergies and mucous membrane irritation.

Currently there are no regulations governing mould; however, there are several guidelines addressing mould assessments and abatement. At the moment the industry standards include the Canadian Construction Association (CCA) document 82-2004 titled "Mould Guidelines for the Canadian Construction Industry" and the Environmental Abatement Council of Ontario (EACO) guidelines titled "EACO Mould Abatement Guidelines, Edition 2 (2010)".

It is important to note that The Ministry of Labour (MOL) has governed protecting workers under the Occupational Health and Safety Act, which states that employers are required to take every precaution reasonable to protect their workers. This includes protecting workers from mould within workplace buildings.

A large pit and a sump pit were located at the north and south ends of the basement floor in Building A that both contained water. Additionally, the stone walls and floor at the north end of Building A was damp. These wet areas could provide suitable conditions for mould growth. Furthermore, a musty odour was noted in the ground floor of the south building. No other signs of mould were noted during the Site visit.

5.3 Enhanced Investigation Property Observations

An Enhanced Investigation Property is “(i) a property used, or has ever been used, in whole or part, for an industrial purpose, or (ii) a commercial property used as a garage, a bulk liquid dispensing facility, including a gasoline outlet or for the operation of dry cleaning equipment” (O.Reg. 511/09).

Based on the records review, the Site would classify as an Enhanced Investigation Property.

5.4 Adjacent and Surrounding Properties

A visual inspection of the adjacent properties and properties within the Phase I ESA study area was conducted from publically accessible areas to identify the occupants and document the uses and sources of potential environmental concerns that may impact the Site. The adjacent property use is as follows:

- North – Parking lot and boat storage with Brennan Marine (beyond) located at 67 Mill Street (Photos 11, 12 and 13; Appendix H).
- West – Mill Street with large commercial/industrial building (beyond) at 15 Clarence Street (Photos 14, 15 and 16; Appendix H).
- South – Boathouse and derelict building (Photos 9 and 10; Appendix H) with Gananoque Boat Line parking lot and ticket booth (beyond) (Photo 18; Appendix H). Water Street and St. Lawrence River further beyond.
- East – Gananoque River.

The following table provides a list of surrounding properties within 250 m of the Site that were identified through the visual site reconnaissance to have sources of potential environmental concerns. The locations are shown in Figure 2.

Location	Address	Company / Tenant
North	67 Mill Street	Brennan Marine
West	15 Clarence Street	Former Textron Building currently owned by the Town of Gananoque. Thousand Island Playhouse (tenant)

The property located at 67 Mill Street is occupied by Brennan Marine. A large AST and two 200 litre drums were observed adjacent to the west exterior wall of the building (Photo 13; Appendix H). Additionally, a marine gasoline filling station was located on the docks at the east end of the property (Photo 12; Appendix H). Additionally, the property located at 15 Clarence Street contains a large industrial building (the former Textron Building with reported historical industrial uses including the manufacture of bolts, nuts, screws, washers, motor vehicle parts and plastic products) (Photos 14, 15 and 16; Appendix H). Three large platform mounted transformers were noted at the south exterior of the building (Photo 15; Appendix H).

Based on the inferred easterly and southerly groundwater flow direction, the present and former use of the identified properties located at 67 Mill Street and 15 Clarence Street may pose an environmental liability to the Site.

5.5 Written Description of Investigation

The potentially contaminating activities identified at the Site and within the Phase I ESA study area are summarized in Table 2 and shown on Figure 4.

6 Review and Evaluation of Information

6.1 Current and Past Uses

Based on the available records review and Site reconnaissance, the current and past uses of the Site has been manufacturing since circa 1869. From circa 1914 to 1929, the northern portion of the Site was used by Parmentor and Bullock Company Limited for nail and rivet works and the southern portion of the property was occupied by Steel Company of Canada Limited. The Site was occupied by Cliffe Craft over the period from 1967 through 2004 where the Site was utilized for outboard motor repair and storage of used parts, offices, small engine part washing, manufacture of wooden spools and boat storage. At the time of the Site visit both Site buildings were vacant.

6.2 Potentially Contaminating Activities

The Gananoque River is considered as a hydrological boundary and accordingly, properties located east of the Gananoque River are not considered as potential contaminating activities for the Site. The potentially contaminating activities identified at the Site and within the Phase I ESA study area are summarized in Table 2 and shown on Figure 4.

6.3 Areas of Potential Environmental Concern

The areas of potential environmental concern associated with the potential contaminating activities identified within the Phase I ESA study area are summarized in Table 2 and shown on Figure 4.

6.4 Phase I ESA Conceptual Site Model

The Site, located at 185 Mill Street is situated on the north-east side of Mill Street and south-west shore of the Gananoque River (Figure 1). The Site is approximately rectangular in shape and measures approximately 0.57 hectares (Figure 2). Two buildings are situated on the property (Figure 1b). The northern building ("A") was constructed circa 1869 and the southern building was constructed circa 1897. The buildings are presently vacant and unoccupied with the doors and windows boarded up. There are remnants of a third building located at the southeast end of the property. The majority of the exterior grounds are graded with gravel. A boat launch and dock were situated along the shore of the Gananoque River at the north-east end of the Site. The Site slopes north-easterly from Mill Street toward the Gananoque River.

Adjacent Property Use

- North – Parking lot and boat storage with Brennan Marine (beyond) located at 67 Mill Street.
- West – Mill Street with large commercial/industrial building (beyond) at 15 Clarence Street.
- South – Boathouse and derelict building with Gananoque Boat Line parking lot and ticket booth (beyond). Water Street and St. Lawrence River further beyond.
- East – Gananoque River.

The Site is bound by a Parking Lot and boat storage to the north, Gananoque Boat Line to the south, the Gananoque River to the east and Mill Street to the west (as shown in Figures 2 through 4).

Geological, Hydrogeological, Water Well Information

Based on the information provided on the physiographic, geologic and topographic maps, the Site was situated within a physiographic formation known as shallow till and rock ridges, characterized by a very thin or non-existent overburden cover. The geological map indicates that the area is located near the division of two (2) geological formations of the late to middle Precambrian age and the Cambrian age, including: Felsic intrusive rocks including granite, granophyre, granodiorite, quartz diorite, quartz monzonite, syenite, trondhjemite, and derived gneisses; and Potsdam or Nepean formation, including sandstone.

A portion of the property is regulated by virtue of *Ontario Regulation 148/06: Development, Interference with Wetlands and Alterations to Shorelines and Watercourses*, made pursuant to the *Conservation Authorities Act* and therefore, development, including construction, filing and site grading may require a permit from the CRCA under said regulation.

Based on information provided from previous subsurface investigations and MOE Water Well Records (WWR), the predominant soil type observed was gravel, sand, silt and clay. The depth to the on-site bedrock was found to range from 0.3 to 2.9 metres below grade. The bedrock aquifer at the Site was reported in the MOE WWR as limestone.

A water well records search indicated there were 13 water wells within 500 metres of the Site (not including on-site wells). The overburden thickness was reported to range from 0.9 metres to greater than 5.5 metres at nine locations, 34.7 metres at one location and was not reported at three locations. The underlying bedrock identified in the records was as follows: four as sandstone, three as granite and one as limestone. The use of the wells was identified as follows: five as domestic and eight were not indicated.

Potential Contaminating Activities

The potentially contaminating activities identified at the Site and within the Phase I ESA study area are summarized in Table 2 and shown on Figure 4.

Utilities

At the time of this Phase I ESA the Site services were disconnected. Potable water and sanitary sewage services for the Site would be provided by the Town of Gananoque, electricity by Eastern Ontario Power and natural gas by Union Gas. Utility drawings were not available for review at the time of the Site visit.

7 Conclusions

Based on the Phase I ESA findings, the following conclusions are provided:

Issue Identified	Recommendation	Rationale
Subject Site		
The Site has been utilized for various industrial/manufacturing uses by a variety of occupants since circa 1869.	Complete a Phase II ESA, including borehole drilling and soil and groundwater sampling.	Delineate potential soil and groundwater impacts.
Previous environmental investigations conducted over the period from 1997 through 2005 (OMM/Eco-Quinte) identified concentrations that exceeded the applicable criteria at the time in the soil (beryllium, lead, vanadium, zinc and vinyl chloride) and groundwater cis- and trans-1,2-dichloroethene, vinyl chloride, cadmium, cobalt, copper, lead, mercury, vanadium and zinc). Additionally, a soil remediation program (OMM, 1999) reported that impacted soil with elevated concentrations of cadmium, copper, lead and zinc in the vicinity of the dock could not be removed due to structural concerns. Furthermore, an incident report provided by the MOE reported that an environmental investigation conducted in 2007 by DL Services found that the Site was contaminated with TCE and vinyl chloride.	Complete a Phase II ESA, including borehole drilling and soil and groundwater sampling.	Delineate potential soil and groundwater impacts.
Fill of unknown origin are likely present in the Canal Reserve located along the southwest end of the property along the shoreline at the southeast end of the property.	Complete a Phase II ESA, including borehole drilling and soil and groundwater sampling.	Delineate potential soil and groundwater impacts.
A large coal storage pile was formerly located at the northwest end of the property.	Complete a Phase II ESA, including borehole drilling and soil and groundwater sampling.	Delineate potential soil and groundwater impacts.
Reportedly, auto body repairs were formerly conducted in the former northwest extension of Building A.	Complete a Phase II ESA, including borehole drilling and soil and groundwater sampling.	Delineate potential soil and groundwater impacts.

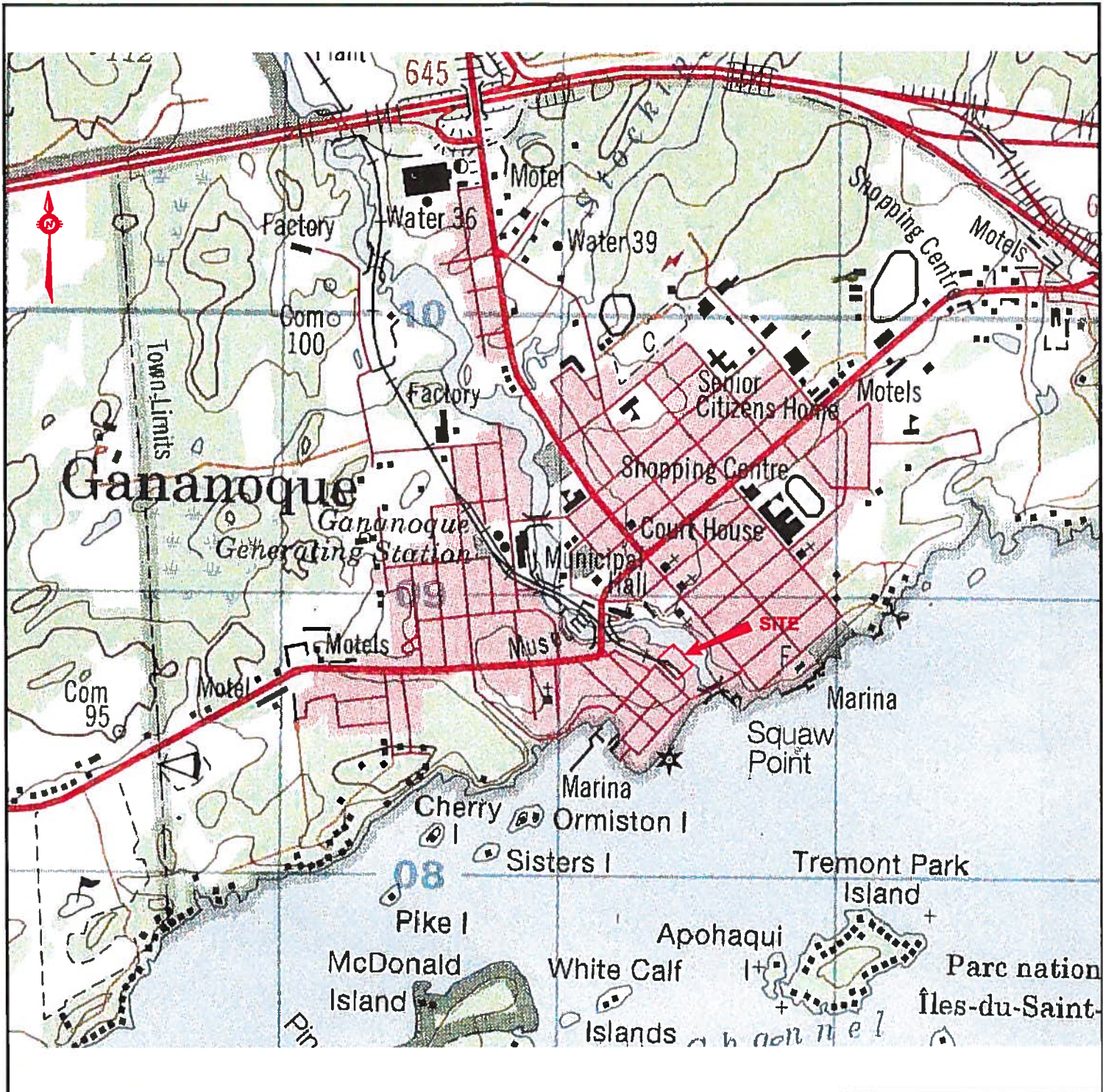
Issue Identified	Recommendation	Rationale
Reportedly, an engine/motor repair shop was formally located in the now demolished building at the southern end of the Site. Previous investigations conducted on-site (Geo Core, 1997) reported that one 900 litre fuel-oil AST was situated inside the former motor shop building that was utilized for waste oil and a second used exterior rated 900 litre fuel-oil AST was situated outside the motor shop.	Complete a Phase II ESA, including borehole drilling and soil and groundwater sampling.	Delineate potential soil and groundwater impacts.
The Site was historically listed as a generator of Light Fuels for residential building construction by Edgecon Contracting Corporation.	Complete a Phase II ESA, including borehole drilling and soil and groundwater sampling.	Delineate potential soil and groundwater impacts.
A pit is located in the floor at the north end of Building A. Wood debris and a brown coloured liquid were noted at the bottom of the pit.	Complete a Phase II ESA, including borehole drilling and soil and groundwater sampling.	Identify the liquid inside the pit and delineate potential soil and groundwater impacts.
An accumulation of bird droppings was noted on the flooring throughout the top floor at both of the Site buildings	It is recommended that the entry points into the building be sealed and the bird droppings be removed. Appropriate garb should be worn by clean-up workers.	To prevent worker exposure and possible transmission of diseases and parasites.
It is a possibility that the fluorescent light ballasts located in the subject site may contain small quantities of PCBs.	If renovations or demolition are planned, it is recommended that these materials be assessed and managed in accordance with applicable regulations and guidelines.	To eliminate exposure to the workers and potential impact to the soil and groundwater.
Asbestos may be present in the pipe wrap insulation.	If renovations or demolition are planned, it is recommended that these materials be assessed and managed in accordance with applicable regulations and guidelines.	To eliminate exposure to the workers.

Issue Identified	Recommendation	Rationale
Lead based paints may have historically been utilized within the building. Leaded solder may have historically been utilized to seal the plumbing fittings within the building.	If renovations or demolition are planned, it is recommended that these materials be assessed and managed in accordance with applicable regulations and guidelines.	To eliminate exposure to the workers.
Mercury containing paints may have historically been used at the subject site building. Mercury may also be present in thermostats, switches or batteries.	If renovations or demolition are planned, it is recommended that these materials be assessed and managed in accordance with applicable regulations and guidelines.	To eliminate exposure to the workers.
Radon emissions from the underlying bedrock into the building interiors are possible.	It is recommended that testing be conducted to confirm the presence/absence of radon.	To eliminate exposure to the workers.
Surrounding Properties		
The 1947 Fire Insurance Plan identified an 8,000 gallon fuel-oil UST at the property at 15 Clarence Street (Parmenter and Bullock Company Limited). It is unknown whether the UST still exists.	Complete a Phase II ESA, including borehole drilling and soil and groundwater sampling.	Delineate potential soil and groundwater impacts.
Three large transformers were mounted on a platform at the southern exterior of the building located at 15 Clarence Street. The 15 Clarence Street was also listed in the Inventory of PCB Storage Sites.	Complete a Phase II ESA, including borehole drilling and soil and groundwater sampling.	Delineate potential soil and groundwater impacts.
The property located at 15 Clarence Street (Textron Canada Ltd.) located approximately 25 metres south-west of the Site was historically listed as a waste generator of acid waste – heavy metals, other inorganic acid wastes, alkaline wastes – heavy metals, alkaline wastes – other metals, alkaline phosphates, neutralized wastes – heavy metals, inorganic laboratory chemicals, aromatic solvents, petroleum distillates, halogenated solvents, PCB's, oil skimmings and sludges, waste oils and lubricants, detergents/soaps, and organic laboratory chemicals; organic acids.	Complete a Phase II ESA, including borehole drilling and soil and groundwater sampling.	This property is situated up-gradient of the subject site. Accordingly, delineate potential soil and groundwater impacts.

8 References

1. Canadian Standards Association. November 2001. Z768-0 *Phase I Environmental Site Assessment*.
2. Ministry of Labour (MOL), *Occupational Health and Safety Act*.
3. Ministry of Northern Development and Mines, OGS Earth website application (<https://www.biodiversityexplorer.mnr.gov.on.ca>).
4. Oil, Gas & Salt Resources Library website (www.ogslibrary.com).
5. Ontario Geological Survey, 1979, Geological Highway Map, Map 2441.
6. Ontario Department of Mines and Northern Affairs, 1972, Physiography of the Eastern Portion of Southern Ontario, Map 2227.
7. Ontario Ministry of the Environment, Environmental Registry website (www.ene.gov.on.ca/envision/env_reg/ebr/english/index.htm).
8. Ontario Ministry of Environment, *Guideline for Use at Contaminated Sites in Ontario*, February 1997.
9. Ontario Ministry of the Environment, Inventory of Coal Gasification Plant Waste Sites in Ontario. June 1991.
10. Ontario Ministry of the Environment, Ontario Inventory of PCB Storage Sites. 1995.
11. Ontario Ministry of the Environment, Brownfields Registry website (www.ene.gov.on.ca/environet/BESR/index.htm).
12. Ontario Ministry of the Environment, Hazardous Waste Information Network website (www.hwin.ca).
13. Ontario Ministry of the Environment, Waste Management Branch, Waste Disposal Site Inventory. June 1991.
14. Ontario Ministry of Natural Resources, Natural Heritage website (<http://nhic.mnr.gov.on.ca/>).
15. Ontario Ministry of Northern Development, Mines and Forestry website (http://www.mndmf.gov.on.ca/mines/ogs_earth_e.asp).

Figures



LEGEND:

Source: Natural Resources Canada, NTS Map Sheet 31 C/8 "Gananoque" (2000)

 APPROXIMATE PROPERTY BOUNDARY



exp Services Inc.

315-4 CATARAQUI STREET, KINGSTON, ONTARIO K7K 1Z7

DATE:
APRIL 2013

CLIENT:

BRENNAN CUSTOM HOMES INC.

DRAWING NO:

KIN-26260-A0

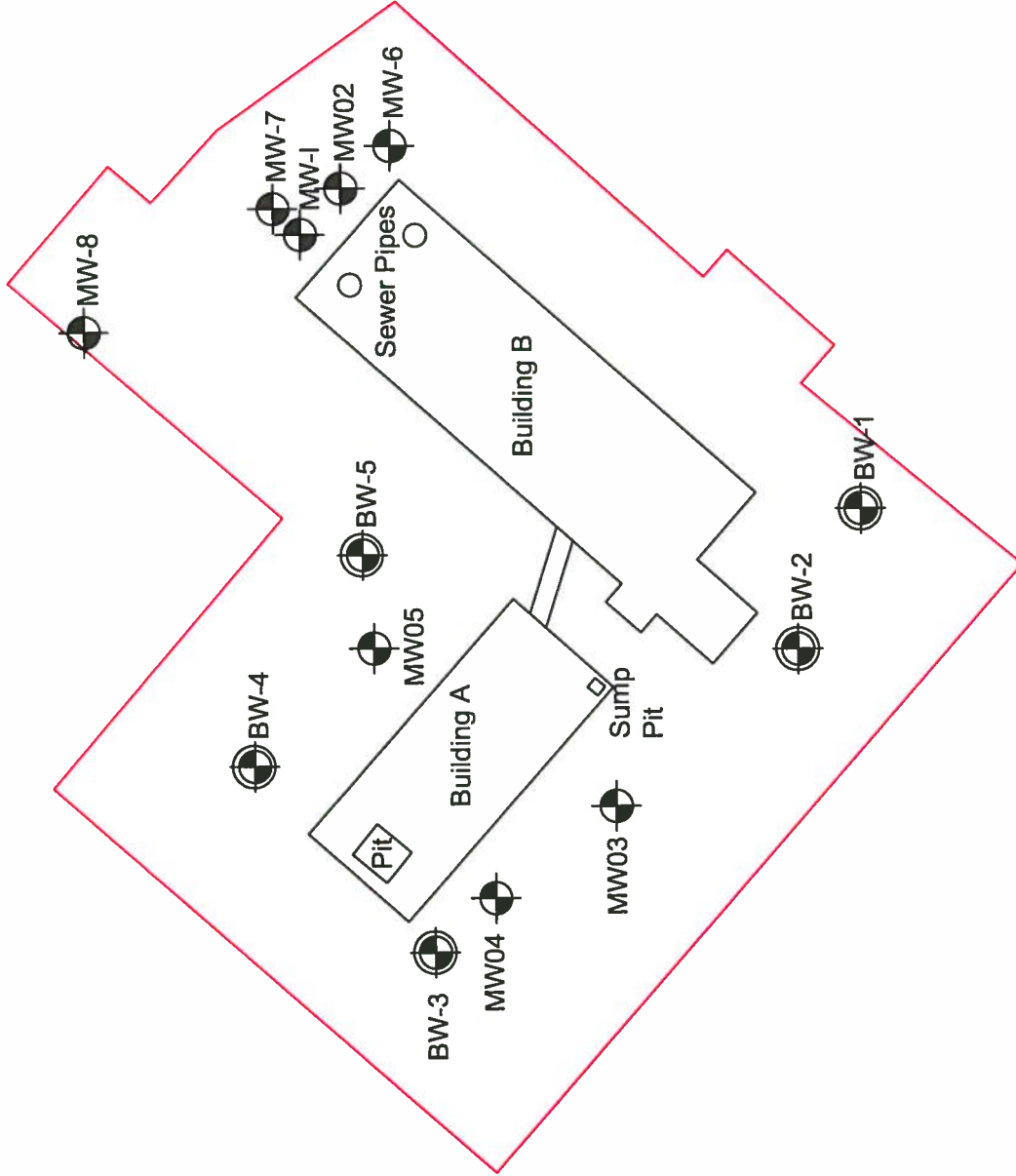
SCALE:

1:20 000

TITLE:

**SITE LOCATION PLAN
185 MILL STREET, GANANOQUE, ONTARIO**

FIG. 1



LEGEND:

-  APPROXIMATE PROPERTY BOUNDARY
-  MW-1 EXISTING OVERBURDEN MONITORING WELL LOCATION
-  BW-1 EXISTING BEDROCK MONITORING WELL LOCATION

Note: The condition and presence of the existing monitoring wells has not been verified.
All Locations Approximate

exp.
exp Services Inc.
315-4 CATARAQUI STREET, KINGSTON, ONTARIO K7K 1Z7

DATE: APRIL 2013	CLIENT: BRENNAN CUSTOM HOMES INC.	DRAWING NO: FIG. 1b
SCALE: 1:750	TITLE: SITE PLAN - SCHEMATIC 185 MILL STREET GANANOQUE, ONTARIO	PROJECT NO: KIN-26260-A0



Source: LiveATC.net (<http://LiveATC.Net>), 2006



exp Services Inc.

315-4 CATARAQUI STREET, KINGSTON, ONTARIO K7K 1Z7

DATE: APRIL 2013	CLIENT: BRENNAN CUSTOM HOMES INC.	DRAWING NO: FIG. 2
SCALE: 1:5000	TITLE: STUDY AREA 185 MILL STREET GANANOQUE, ONTARIO	PROJECT NO: KIN-26260-A0

LEGEND:



APPROXIMATE PROPERTY BOUNDARY
STUDY AREA - 250 m RADIUS OF SITE



Source: LiveATC.net (<http://LiveATC.Net>), 2006



exp Services Inc.

315-4 CATARAQUI STREET, KINGSTON, ONTARIO K7K 1Z7

LEGEND:

- APPROXIMATE PROPERTY BOUNDARY
- STUDY AREA - 250 m RADIUS OF SITE

DATE: APRIL 2013
SCALE: 1:5000

CLIENT: BRENNAN CUSTOM HOMES INC.

TITLE: SURROUNDING PROPERTY USE PLAN
185 MILL STREET
GANANOQUE, ONTARIO

DRAWING NO: FIG. 3

PROJECT NO: KIN-26260-A0



Source: LiveATC.net (<http://LiveATC.Net>), 2006



exp Services Inc.

315-4 CATARAQUI STREET, KINGSTON, ONTARIO K7K 1Z7

LEGEND:

- APPROXIMATE PROPERTY BOUNDARY
- STUDY AREA - 250 m RADIUS OF SITE
- 1 POTENTIAL CONTAMINATING ACTIVITIES AND LOCATION ID (TO BE USED IN CONJUNCTION WITH TABLE 1)

DATE: APRIL 2013	CLIENT: BRENNAN CUSTOM HOMES INC.	DRAWING NO: FIG. 4
SCALE: 1:5000	TITLE: CONCEPTUAL SITE MODEL 185 MILL STREET GANANOQUE, ONTARIO	PROJECT NO: KIN-26260-A0

Tables

**TABLE 1 "TABLE OF CURRENT AND PAST USES OF THE PHASE ONE PROPERTY"
185 Mill Street, Gananoque, Ontario**

Year	Name of Owner	Description of Property Use	Property Use	Other Observations from Aerial Photographs, Fire Insurance Plans, Etc.
1802	Crown	Unknown	Industrial	Not Applicable
1802 – 1825	Sir John Johnson	Unknown	Industrial	Not Applicable
1825 – 1842	John Macdonald	Unknown	Industrial	Not Applicable
1842 – 1852	Charles Macdonald	Unknown	Industrial	Not Applicable
1852 – 1872	William Macdonald	Unknown	Industrial	The property use history provided by the Town of Gananoque reported that Economy Engine and Machine operated on the Site from 1869 to 1890.
1872 – 1890	Erastus Cook	Unknown	Industrial	The property use history provided by the Town of Gananoque reported that Economy Engine and Machine operated on the Site from 1869 to 1890.
1890 – 1897	Malcom Macintyre	Unknown	Industrial	The property use history provided by the Town of Gananoque reported that George Gillies (Steel Company of Canada) operated on-site from 1891 to 1944.
1897 – 1901	The Thousand Islands Carriage Company	Unknown	Industrial	The property use history provided by the Town of Gananoque reported that Thousand Islands Carriage Company operated on-site from 1897 to 1901 and George Gillies (Steel Company of Canada) operated on-site from 1891 to 1944.
1901	The Corporation of the Town of Gananoque	Unknown	Industrial	The property use history provided by the Town of Gananoque reported that George Gillies (Steel Company of Canada) operated on-site from 1891 to 1944.
1901 – 1910	Morden Manufacturing Company Limited	Unknown	Industrial	The property use history provided by the Town of Gananoque reported that George Gillies (Steel Company of Canada) operated on-site from 1891 to 1944 and Morden Manufacturing from 1901 to 1908.

**TABLE 1 "TABLE OF CURRENT AND PAST USES OF THE PHASE ONE PROPERTY"
185 Mill Street, Gananoque, Ontario**

Year	Name of Owner	Description of Property Use	Property Use	Other Observations from Aerial Photographs, Fire Insurance Plans, Etc.
1910 - 1915	William J. Gibson	Unknown	Industrial	The 1914 Fire Insurance Plan indicated that the northern portion of the Site was occupied by Parmenter and Bullock Company Limited labelled as a nail and rivet works. The southern portion of the property was occupied by Steel Company of Canada. The property use history provided by the Town of Gananoque reported that George Gillies (Steel Company of Canada) operated on-site from 1891 to 1944 and William J Gibson Harness Company from 1910 to 1942.
1915 – 1930	The W.J. Gibson Harness Company Limited	Unknown	Industrial	The property use history provided by the Town of Gananoque reported that George Gillies (Steel Company of Canada) operated on-site from 1891 to 1944 and William J Gibson Harness Company from 1910 to 1942.
1930 - 1942	John Douglass Matthew	Unknown	Industrial	The property use history provided by the Town of Gananoque reported that George Gillies (Steel Company of Canada) operated on-site from 1891 to 1944 and William J Gibson Harness Company from 1910 to 1942.
1942 - 1964	The Link Manufacturing Company	Unknown	Industrial	The 1947 fire insurance plan identified various industrial uses of the property. The 1953 aerial photograph shows two large buildings at south-east end of Site and one small building at north-west end of Site. The 1962 aerial photograph shows a second small building at the north-west end of Site. The property use history provided by the Town of Gananoque reported that George Gillies (Steel Company of Canada) operated on-site from 1891 to 1944 and Link Manufacturing from 1942 to 1961.
1964 - 1967	Edwin Link	Unknown	Industrial	The 1962 aerial photograph shows a second small building at the north-west end of Site.
1967 – 2004	Cliffe Craft	Unknown	Industrial	The 1978 aerial photograph shows two large buildings at southeast end of Site and two small building at north-west end of Site. The 1991 shows a third small building at the north-west end of Site.

**TABLE 1 "TABLE OF CURRENT AND PAST USES OF THE PHASE ONE PROPERTY"
185 Mill Street, Gananoque, Ontario**

Year	Name of Owner	Description of Property Use	Property Use	Other Observations from Aerial Photographs, Fire Insurance Plans, Etc.
2004 - 2012	Gananoque Resorts Limited	Unknown	Industrial	The 2005 aerial photography shows two large structures at southeast end of Site and a parking area at the north-west end of Site.
2012 - Present	Mill Street Property Ltd.	Vacant	Industrial	Two vacant buildings were situated at the Site during the Phase I ESA Site visit in 2013.

Notes:

1 - for each owner, specify one of the following types of property use (as defined in O.Reg. 153/04) that applies:

- Agriculture or other use
- Commercial use
- Community use
- Industrial use
- Institutional use
- Parkland use
- Residential use

2 - when submitting a record of site condition for filing, a copy of this table must be attached

****Cette publication hautement spécialisée n'est disponible qu'en anglais en vertu du règlement 671/92, qui en exempte l'application de la Loi sur les services en français. Pour obtenir de l'aide en français, veuillez communiquer avec le ministère de l'Environnement au 1-800-461-6290**

**Table 2: "TABLE OF AREAS OF POTENTIAL ENVIRONMENTAL CONCERN"
(Refer to clause 16(2)(a), Schedule D, O. Reg. 153/04)**

Area of Potential Environmental Concern ¹	Location of Area of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity ²	Location of PCA (on-site or off-site)	Contaminants of Potential Concern ³	Media Potentially Impacted (Ground water, soil and/or sediment)
<p>APEC1 – The Site has historically been occupied by a variety of manufacturers for industrial purposes including metal work, boat manufacturing, motor/engine repair, wood products and furniture, auto body repair, and manufacture of cleaning products.</p>	<p>Entire Property</p>	<p>7. Boat Manufacturing 10. Commercial Autobody Shops 27. Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles 34. Metal Fabrication 50. Soap and Detergent Manufacturing, Processing and Bulk Storage 59. Wood Treating and Preservative Facility and Bulk Storage of Treated and Preserved Wood Products</p>	<p>On-Site</p>	<p>PHCs, BTEX, VOCs, PAHs and metals.</p>	<p>Soil and Groundwater</p>
<p>APEC2 – A head race situated at the south-west end of the property was historically filled in with fill of unknown origin or quality.</p>	<p>South-West End of Property</p>	<p>30. Importation of Fill Material of Unknown Quality</p>	<p>On-Site</p>	<p>PHCs, BTEX, VOCs and metals.</p>	<p>Soil and Groundwater</p>
<p>APEC3 – The north-east end of the site was historically filled in with fill of unknown origin or quality.</p>	<p>North-East End of Property</p>	<p>30. Importation of Fill Material of Unknown Quality</p>	<p>On-Site</p>	<p>PHCs, BTEX, VOCs and metals.</p>	<p>Soil and Groundwater</p>
<p>APEC4 – Reportedly, a waste oil AST was historically stored inside the former building located at the south-east end of the property and an used AST was situated outside of this building.</p>	<p>South-East End of Property</p>	<p>28. Gasoline and Associated Products Storage in Fixed Tanks</p>	<p>On-Site</p>	<p>PHCs, BTEX, VOCs and metals.</p>	<p>Soil and Groundwater</p>
<p>APEC5 – The Site was historically listed as a generator of Light Fuels for residential building construction by Edgecon Contracting Corporation.</p>	<p>Entire Property</p>	<p>28. Gasoline and Associated Products Storage in Fixed Tanks</p>	<p>On-Site</p>	<p>PHCs, BTEX and VOCs.</p>	<p>Soil and Groundwater</p>

**Table 2 (Continued): "TABLE OF AREAS OF POTENTIAL ENVIRONMENTAL CONCERN"
(Refer to clause 16(2)(a), Schedule D, O. Reg. 153/04)**

Area of Potential Environmental Concern ¹	Location of Area of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity ²	Location of PCA (on-site or off-site)	Contaminants of Potential Concern ³	Media Potentially Impacted (Ground water, soil and/or sediment)
APEC6 – The 1947 Fire Insurance Plan identified an 8,000 gallon fuel-oil UST at the property at 15 Clarence Street. It is unknown whether the UST still exists.	Approximately 25 metres south-west of Site at 15 Clarence Street.	28. Gasoline and Associated Products Storage in Fixed Tanks	Off-Site	PHC and BTEX	Soil and Groundwater
APEC7 – Three large transformers were mounted on a platform at the southern exterior of the building located at 15 Clarence Street. The 15 Clarence Street was also listed in the Inventory of PCB Storage Sites.	Approximately 25 metres south-west of Site at 15 Clarence Street.	55. Transformer Manufacturing, Processing and Use	Off-Site	PCBs	Soil and Groundwater
APEC8 – The property located at 15 Clarence Street was historically listed as a waste generator of acid waste – heavy metals, other inorganic acid wastes, alkaline wastes – heavy metals, alkaline wastes – other metals, alkaline phosphates, neutralized wastes – heavy metals, inorganic laboratory chemicals, aromatic solvents, petroleum distillates, halogenated solvents, PCB's, oil skimmings and sludges, waste oils and lubricants, detergents/soaps, and organic laboratory chemicals; organic acids.	Approximately 25 metres south-west of Site at 15 Clarence Street.	58. Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosolids as soil conditioners	Off-Site	PHC, BTEX, VOCs, PCBs and Metals	Soil and Groundwater
APEC9 – The property located at 67 Mill Street is occupied by Brennan Marine. A large AST and two 200 litre drums were observed adjacent to the west exterior wall of the building. Additionally, a marine gasoline filling station was located on the docks at the east end of the property. The retail fuel storage tank database identified a 13,638 litre storage tank for retail purposes situated at the property.	Approximately 30 metres north-west of Site at 67 Mill Street	28. Gasoline and Associated Products Storage in Fixed Tanks 52. Storage, maintenance, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems	Off-Site	PHC, BTEX, VOCs, PCBs and Metals	Soil and Groundwater

**Table 2 (Continued): "TABLE OF AREAS OF POTENTIAL ENVIRONMENTAL CONCERN"
(Refer to clause 16(2)(a), Schedule D, O. Reg. 153/04)**

Area of Potential Environmental Concern ¹	Location of Area of Potential Concern on Phase One Property	Potentially Contaminating Activity ²	Location of PCA (on-site or off-site)	Contaminants of Potential Concern ³	Media Potentially Impacted (Ground water, soil and/or sediment)
APEC10 – The property located at 26 Mill Street was historically listed as a waste generator of halogenated solvents.	Approximately 90 metres north-west of Site at 26 Mill Street.	58. Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosolids as soil conditioners	Off-Site	VOCs	Soil and Groundwater
APEC11 – The 1914 and 1947 Fire Insurance Plans showed a rail line (Thousand Islands Railway) adjacent to the south-west property line of the Site.	Approximately 10 metres south-west of Site.	46. Rail Yards, Tracks and Spurs	Off-Site	PAHs, metals	Soil and Groundwater

Notes:

1 - Area of Potential Environmental Concern means the area on, in or under a phase one property where one or more contaminants are potentially present,

as determined through the phase one environmental site assessment, including through,

- (a) identification of past or present uses on, in or under the phase one property, and
- (b) identification of potentially contaminating activity.

2 - Potentially Contaminating Activity means a use or activity set out in Column A of Table 2 of Schedule D that is occurring or has occurred in a phase one study area

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

ABNs	PCBs	Metals	Electrical Conductivity	SAR
CPs	PAHs	As, Sb, Se	Cr (VI)	
1,4-Dioxane	THMs	Na	Hg	
Dioxins/Furans, PCDDs/PCDFs	VOCs	B-HWS	Methyl Mercury	
OCs	BTEX	Cl-	high pH	
PHCs	Ca, Mg	CN-	low pH	

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

**Cette publication hautement spécialisée n'est disponible qu'en anglais en vertu du règlement 671/92, qui en exempte l'application de la Loi sur les services en français. Pour obtenir de l'aide en français, veuillez communiquer avec le ministère de l'Environnement au 1-800-461-6290

Appendix A – Limitation of Liability

LIMITATIONS AND USE OF REPORT

BASIS OF REPORT

The Report is based on site conditions known or inferred by the investigation undertaken as of the date of the Report. Should changes occur which potentially impact the condition of the site the recommendations of **exp** may require re-evaluation. Where special concerns exist, or the Client has special considerations or requirements, these should be disclosed to **exp** to allow for additional or special investigations to be undertaken not otherwise within the scope of investigation conducted for the purpose of the Report.

Where applicable, recommended field services are the minimum necessary to ascertain that construction is being carried out in general conformity with building code guidelines, generally accepted practices and **exp's** recommendations. Any reduction in the level of services recommended will result in **exp** providing qualified opinions regarding the adequacy of the work, **exp** can assist design professionals or contractors retained by the Client to review applicable plans, drawings, and specifications as they relate to the Report or to conduct field reviews during construction.

RELIANCE ON INFORMATION PROVIDED

The evaluation and conclusions contained in the Report are based on conditions in evidence at the time of site inspections and information provided to **exp** by the Client and others. The Report has been prepared for the specific site, development, building, design or building assessment objectives and purpose as communicated by the Client. **Exp** has relied in good faith upon such representations, information and instructions and accepts no responsibility for any deficiency, misstatement or inaccuracy contained in the Report as a result of any misstatements, omissions, misrepresentation or fraudulent acts of persons providing information. Unless specifically stated otherwise, the applicability and reliability of the findings, recommendations, suggestions or opinions expressed in the Report are only valid to the extent that there has been no material alteration to or variation from any of the information provided to **exp**.

STANDARD OF CARE

This report ("Report") has been prepared in a manner consistent with the degree of care and skill exercised by engineering consultants currently practicing under similar circumstances and locale. No other warranty, expressed or implied, is made. Unless specifically stated otherwise, the Report does not contain environmental consulting advice.

COMPLETE REPORT

All documents, records, data and files, whether electronic or otherwise, generated as part of this assignment form part of the Report. This material includes, but is not limited to, the terms of reference given to **exp** by the Client, communications between **exp** and the Client, other reports, proposals or documents prepared by **exp** for the Client in connection with the site described in the Report. In order to properly understand the suggestions, recommendations and opinions expressed in the Report, reference must be made to the Report in its entirety. **Exp** is not responsible for use by any party of portions of the Report.

USE OF REPORT

The information and opinions expressed in the Report, or any document forming part of the Report, are for the sole benefit of the Client. No other party may use or rely upon the Report in whole or in part without the written consent of **exp**. Any use of the Report, or portion of the Report, by a third party are the sole responsibility of such third party. **Exp** is not responsible for damages suffered by any third party resulting from unauthorized use of the Report.

REPORT FORMAT

Where **exp** has submitted both electronic file and a hard copy of the Report, or any document forming part of the Report, only the signed and sealed hard copy shall be the original documents for record and working purposes. In the event of a dispute or discrepancy, the hard copy shall govern. Electronic files transmitted by **exp** utilize specific software and hardware systems. **Exp** makes no representation about the compatibility of these files with the Client's current or future software and hardware systems. Regardless of format, the documents described herein are **exp's** instruments of professional service and shall not be altered without the written consent of **exp**.

Appendix B – Survey Plan

Source:



exp Services Inc.

315-4 CATARAQUI STREET, KINGSTON, ONTARIO K7K 1Z7

DATE:
2013

CLIENT: **BRENNAN CUSTOM HOMES INC.**

DRAWING NO:

SCALE:
1:

TITLE:
**SURVEY PLAN
185 MILL STREET, GANANOQUE, ONTARIO**

KIN-26260-A0

FIG. B-1

Appendix C – Qualification of Assessors



QUALIFICATIONS OF ASSESSORS

Exp services Inc. (founded in 1957) provides a full range of environmental services through a full-time Environmental Services Group. **exp's** Environmental Services Group has developed a strong working relationship with clients in both the private and public sectors and has developed a positive relationship with the Ontario Ministry of the Environment. Personnel in the numerous branch offices form part of a large network of full-time dedicated environmental professionals in the **exp** organization.

The Site reconnaissance was conducted by Mr. Matthew Whitney, P.Eng. Mr. Whitney has been trained to conduct Phase I and II ESAs in accordance with the CSA Standard and has conducted Phase I and II ESAs for various clients and government agencies and is routinely engaged in this field.

Paula A. Formanek, M.Sc. (Eng.), P.Geo., QP is a Senior Hydrogeologist at **exp**, and manager of the Kingston Branch. She has been with the firm since 1989 and is responsible for many hundreds of Environmental Site Assessments, remediation projects, and other investigations for residential, industrial, commercial and institutional properties.

Appendix D – Chain of Title Documentation

CHAIN OF TITLE REPORT

Page 1

Order # 20130320028

185 Mill Street, Gananoque

Lot 1020 w Gananoque River Plan 86; Pt Lots 1021, 1017, 1018, 1019;

Part of The Bed of the Gananoque River Plan 86; Part Canal Reserve Plan 86

PIN 44249-0189(LT)

INSTR #	DOC. TYPE	REG. DATE	PARTY FROM	PARTY TO
	Patent	17 05 1802	Crown	Sir John JOHNSON
2	Deed	08 07 1825	John Johnson -- estate	John MACDONALD
508	Deed	24 12 1842	John MacDonald	Charles MACDONALD
248	Deed	26 06 1852	Charles MacDonald	William MACDONLD
378	Deed	27 12 1872	William MacDonald -- estate	Erastus COOK
2724	Deed	05 05 1890	Erastus Cook	Malcolm MCINTYRE
3860	Deed	14 12 1897	Malcolm McIntyre	The Thousand Islands Carriage Company Limited
4333	Deed	24 08 1901	Josephus T. Green (liquidator of Thousand Islands)	Corporation of The Town of Gananoque

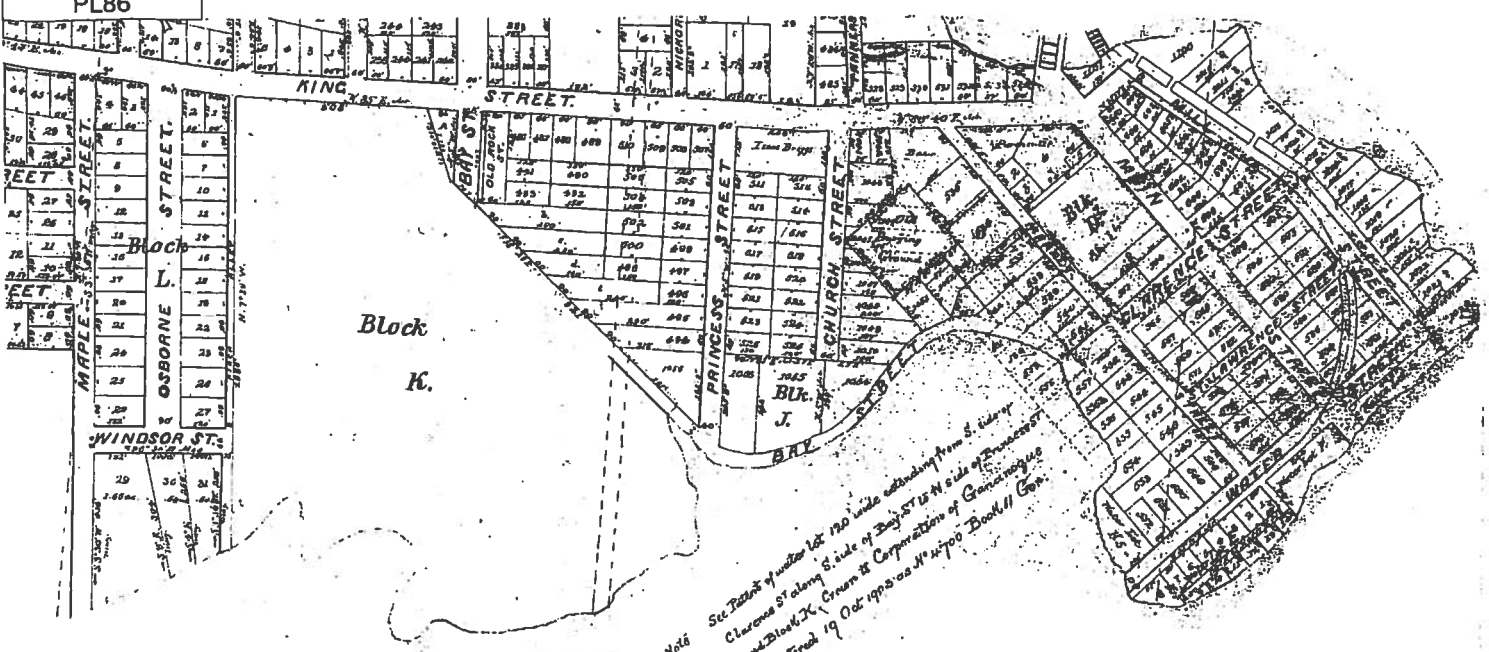
Cont'd on page 2

CHAIN OF TITLE REPORT

Order # 20130320028
 185 Mill Street, Gananoque
 Lot 1020 w Gananoque River Plan 86; Pt Lots 1021, 1017, 1018, 1019;
 Part of The Bed of the Gananoque River Plan 86; Part Canal Reserve Plan 86
 PIN 44249-0189(LT)

INSTR #	DOC. TYPE	REG. DATE	PARTY FROM	PARTY TO
4364	Deed	19 10 1901	Corporation of The Town of Gananoque	Morden Manufacturing Company Limited
5922	Deed	02 06 1910	Edgar A. Wright (liquidator of Canada Cabinets formerly Morden Mfg. Co)	William J. GIBSON
6745	Deed	22 02 1915	William J. Gibson	The W.J. Gibson Harness Company Limited
8968	Deed	15 08 1930	The W.J. Gibson Harness Co Ltd	John Douglas MATTHEW
1005	Deed	21 06 1942	John D. Matthew	The Link Manufacturing Company Limited
6775	Deed	31 03 1964	Alan Moretow, trustee (The Link Mfg. Co., bankrupt)	Edwin LINK
7817	Deed	13 02 1967	Edwin Link	Cliffe Craft Limited
LR350485	Deed	26 11 2004	Ganreel Manufacturing inc. (formerly Cliffe Craft Ltd)	Gananoque Resort inc.
LR369908	Deed	12 04 2012	Gananoque Resort inc.	Mill Street Property Ltd.

PL86



R I V E R

Note: See Record of water lot 120' wide extending from S. side of
 Clarence St along S. side of Bay St to N. side of Prince St
 and Block K, Crown & Corporation of Genoa, Va.
 registered 19 Oct 1903 as W 44-100 Book 11 Com.

PL86

