Geotechnical Engineering

Environmental Engineering

Hydrogeology

Geological Engineering

**Materials Testing** 

**Building Science** 

#### **Phase I - Environmental Site Assessment**

Proposed Neighbourhood 5 Residential Development Mer Bleue Road and Tenth Line Road Ottawa, Ontario

#### **Prepared For**

C. Fleming Developments Ltd.

#### November 14, 2005

Report: PE0644-1

#### Paterson Group Inc.

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#### EXECUTIVE SUMMARY

On October 10, 2005, Paterson Group (Paterson) conducted a Phase I- Environmental Site Assessment of three (3) parcels of vacant, agricultural land located south of Innes Road, between Mer Bleue and Tenth Line Roads, in the City of Ottawa (formerly Cumberland), Ontario.

Our findings regarding environmental issues pertaining to the subject property and recommendations are summarized below. Detailed recommendations are provided in Section 6.0 of this report.

Summary of Findings and Recommendations									
Potential Environmental Issue(s)	Level of Concern	Findings	R ecommendation	Reference Section(s)					
Historical Land Use									
Subject Property	low	Vacant with the exception of one residential dwelling and two storage sheds/barns.	none	5.1					
Adjacent Properties	low	Vacant and residential.	none	5.1					
Exterior Assessment									
Fuels and Chemicals	low	No concerns identified.	none	5.2					
Waste Management	low	Domestic waste and recycling (2233 Mer Bleue) collected curbside by municipality. Some construction debris in and around barn.	Proper disposal of construction debris during site development.	5.2					
		No waste generated on remainder of property.							

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Summary of Findings and Recommendations									
Potential Environmental Issue(s)	Level of Concern	Findings	R ecommendation	Reference Section(s)					
Hazardous Building Products									
Asbestos Containing Materials (ACMs)	low	Based on date of construction of 2233 Mer Bleue, possible ACMs include drywall joint compound, vinyl floor tiles and linoleum.	Test prior to disturbance of potential ACMs.	5.3					
Lead	low	Lead-based paints may be present within residential dwelling based on age of the residence.	Test prior to disturbance of this material.	5.3					
Polychlorinated Biphenyls (PCBs)	low	No concerns identified.	none	5.3					
Urea Formaldehyde Foam Insulation (UFFI)	low	Not identified or suspected, however wall cavities were not inspected.	none	5.3					
Interior Assessment									
Air Discharges	low	No concerns.	none	5.3					
Fuels and Chemicals	low	One Aboveground Storage Tank (AST) in basement of the dwelling. One Pulso Pump and oil filter as well as several empty oil canisters observed in barn. No staining in general area.	Proper disposal of tank, if not in use. Proper disposal of pump and filter during redevelopment of site.	5.3					
Ozone Depleting Substances (ODSs)	low	One refrigerator and air conditioning unit.	Regular service and maintenance.	5.3					

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Summary of Findings and Recommendations								
Potential EnvironmentalLevelIssue(s)Concernance		Findings	R ecommendation	Reference Section(s)				
Wastewater Discharges	low	Property at 2233 Mer Bleue is serviced with a septic system.	Septic system should be properly decommissioned upon redevelopment of site.	5.3				
Potable Water Well	low	Property at 2233 Mer Bleue is serviced with a potable water well.	The well should be properly abandoned during redevelopment of the site.	5.3				
Geotechnical Investigation low		No visual or olfactory indications of contamination observed.	none	5.1, 6.1				
Adjacent Land								
Adjacent Properties	low	Vacant land, residential and commercial (automobile service garage at 2319 Mer Bleue).	Additional borehole placed during geotechnical investigation. One soil sample submitted for analysis of benzene, toluene, ethylbenzene and xylenes (BTEX) and petroleum hydrocarbons (PHCs).	5.4				
Analytical Test Results								
Soil	low	No BTEX or PHC parameters detected in soil sample submitted for analytical testing.	none	5.4				

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#### 1.0 INTRODUCTION

At the request of C. Fleming Developments Ltd. (Fleming), Paterson Group conducted a Phase I - Environmental Site Assessment (ESA) of three (3) parcels of vacant land located south of Innes Road, between Mer Bleue and Tenth Line Roads, in the City of Ottawa (formerly Cumberland), Ontario. It should be noted that the residential properties addressed as 2322 and 2366 Tenth Line Road as well as 2351, 2345, 2319, 2311, 2303, 2215, 2201, 2179 and 2171 Mer Bleue Road have not been included in this assessment. However, the residential dwelling addressed as 2233 Mer Bleue Road was inspected as part of a previous Phase I-ESA carried out in July of 2004, by Paterson for Fleming. Observations made at that time will be included in the following report.

This report has been prepared specifically and solely for the above noted project which is described herein. It contains all of our findings and results of the environmental conditions at this site.

#### 2.0 SITE INFORMATION

Location:	The property is located south of Innes Road, between
	Mer Bleue and Tenth Line Roads. Refer to Figure 1- Key
	Plan in the Appendix for the site location.

#### Site Description:

Configuration: Total Site Area: Current Use:	Irregular 138 hectares (approximate) The majority of the subject property is currently vacant. A Hydro One corridor borders the northern portion. A residential dwelling (2233 Mer Bleue Road) and two (2) outbuildings are situated along Mer Bleue near the central portion of the site.
Zoning:	RU
Services:	The majority of the subject property is not currently serviced. The residential dwelling located on the subject site and those adjacent to the subject site are serviced with private water wells and sewage systems.

#### 3.0 SCOPE OF WORK

The scope of work for this Phase I - Environmental Site Assessment was as follows:

- □ Investigate the existing conditions present at the subject site by carrying out a field study and historical review in accordance with CSA Z768-01.
- Present the results of our findings in a comprehensive report.
- Provide a preliminary environmental site evaluation based on our findings.
- Provide preliminary remediation recommendations and further investigative work if contamination is encountered or suspected.

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#### 4.0 METHOD OF INVESTIGATION

#### 4.1 <u>Historical Research</u>

The methodology for the Phase I - Environmental Site Assessment program was carried out in two segments. The first consisted of a historical review which included a brief research of the past use of the site. This portion of the program was carried out by personnel from our environmental division. The following is a list of the key information sources reviewed by this firm.

#### **Federal Records**

- Maps and photographs, (Geological Survey of Canada surficial and subsurface mapping).
- Air photos at the Energy Mines and Resources Air Photo Library.
- □ National Archives.

#### **Provincial Records**

- MOE document entitled "Waste Disposal Site Inventory in Ontario".
- Office of Technical Standards and Safety Authority, Fuels Safety Branch.

#### Local Information Sources

- Personal interviews.
- □ Previous engineering reports.
- Current geotechnical investigation.
- Plans provided by client.

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#### 4.2 <u>Field Assessment</u>

The second segment of the assessment consisted of a field investigation which included a walk-through inspection and detailed visual assessment of the environmental conditions of the subject property. The field investigation was carried out on October 10, 2005, by personnel from our Environmental Division.

As part of the field assessment, the site and existing structures were carefully inspected for signs of the following:

- Evidence of previous or existing fuel storage tanks.
- On-site use or storage of hazardous materials.
- On-site handling or disposal of liquid or solid waste materials.
- Above-ground piping systems, including pumps, valves and joints.
- Truck or rail loading or unloading areas.
- Electrical conduits, abandoned pipelines or pumping stations.
- **Remnants of old buildings.**
- Signs of surficial contamination (ie. staining, distressed vegetation).
- Unnaturally discoloured, ponded or flowing waters.
- Surficial drainage, wetlands, natural waterways or watercourses through the property (ie. ditches, creeks, ponds, poor drainage).
- Any evidence of potable water supply wells or groundwater monitoring wells (such as leak detection monitoring wells for underground storage tank systems, or abandoned systems).
- Any abnormal odours associated with the site, whether from on-site or off-site sources.
- The presence of any recent soil disturbances such as soil removal, filling, tilling, grading, etc.
- Asbestos containing materials (ACM).
- Urea formaldehyde foam insulation (UFFI).
- PCB containing products.
- Ozone depleting substances (ODS).
- Lead-containing materials.
- Current use of neighbouring properties.

#### 5.0 FINDINGS OF THE ENVIRONMENTAL ASSESSMENT

#### 5.1 <u>Historical Review</u>

#### Air Photo Research

Historical air photos of the subject site were reviewed at the National Air Photo Library. Based on the review, the following observations have been made:

- 1967 The subject site was vacant, agricultural land. Several residential properties/farmsteads were located along Mer Bleue and Tenth Line Roads. (As mentioned previously, these properties are not part of this assessment.) A ditch, transects the southwest corner of the subject site in a northwest-southeast direction. Adjacent properties are mostly vacant, agricultural lands with several farmsteads south, west and north of the subject site. The adjacent property east of the site is not shown on this photograph.
- 1976 No significant changes have been made to the subject site or to the adjacent properties. The adjacent property east of the subject site, not seen in the previous photograph, was a combination of vacant, agricultural land and residential dwellings.
- 1989 No significant changes have been made to the subject sites or the adjacent properties.
- 1994 No significant changes have been made to the subject or neighbouring properties. Significant residential development has occurred north of Innes Road.

Laser copies of the above aerial photographs are included in the Appendix.

#### **National Archives**

As part of the historical portion of this assessment, city directories and fire insurance plans (FIPs) were reviewed at the National Archives.

No FIPs or city directories were available for the subject or adjacent properties.

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#### Technical Standards and Safety Authority (TSSA)

The TSSA, Fuels Safety Branch in Toronto was contacted on October 14, 2005. There are no underground storage tanks recorded in the TSSA registry for the subject property. The subject site is not registered with the TSSA as a private fuel outlet. Surrounding properties immediately adjacent to the subject site are also not registered with the TSSA.

#### **Ontario Ministry of Environment (MOE)**

The Ontario Ministry of Environment document entitled "Waste Disposal Site Inventory in Ontario, 1991" was reviewed as part of the historical research. This document includes all recorded active and closed waste disposal sites, industrial manufactured gas plants, and coal tar distillation plants in the Province of Ontario. Based on this document, there are no active or abandoned waste disposal sites in the vicinity of the subject property. The document does not indicate the presence of former industrial sites in the vicinity of the subject site.

#### **Concurrent Geotechnical Report**

A geotechnical investigation for the northern and southern property parcels was carried out by Paterson Group, in conjunction with this Phase I-ESA report. A total of sixteen (16) boreholes were placed at selected locations across the subject property. No visual or olfactory signs of contamination were observed in any of the soil samples recovered from these boreholes.

#### **Previous Engineering Reports**

Our files were reviewed for information pertaining to the subject property and adjacent sites. Previous Phase I ESAs and geotechnical investigations have been carried out for the two (2) northernmost parcels of land. No concerns were identified during site assessment. No visual or olfactory signs of contamination were noted in any of the soil samples recovered during the field program.

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#### 5.2 <u>Exterior Assessment</u>

#### **Buildings**

As mentioned previously, all buildings located along Mer Bleue and Tenth Line Road have been excluded from this assessment, with the exception of the property located at 2233 Mer Bleu Road. It should be noted that a Phase I-ESA entitled *"Phase I -Environmental Site Assessment, 2233 Mer Bleue Road, Ottawa, Ontario"* was prepared for C. Fleming Developments Inc., by Paterson in July of 2004.

The property addressed as 2233 Mer Bleue Road is occupied by a one-storey residence with a basement level. The building was constructed with a concrete foundation and is finished on the exterior with a combination of brick and vinyl siding as well as a peaked roof with asphalt shingles.

According to the property owner, the dwelling was constructed around 1969 and has always been heated with a forced air oil furnace.

A barn and a carport/shed are present east of the house and are finished with either wood or metal siding and have metal roofs (see Site Plan in the Appendix). The shed and barn were reportedly built prior to 1954 and an addition was made to the barn sometime after 1967.

#### Site

With the exception of the abovementioned structures, the subject property is vacant.

The northern parcel of land is covered with a combination of tall grass and trees. The western portion of the central property parcel (2233 Mer Bleue) is occupied by the subject structures and an associated gravel driveway as well as several small piles of construction debris observed in and around the barn. The remainder of this property parcel is covered with grass. The southern property parcel is covered with a combination of tall grass and trees.

Drainage on site consists of surface infiltration and ditches. Ditches run in a northsouth direction along both Mer Bleue and Tenth Line Roads. Shallow ditches also run throughout the property. A deeper ditch transects the southwest corner of the subject site in a northwest-southeast direction, travels east-west along the southern property line and continues onto the adjacent property to the south. There was no ponding of water or any signs of surficial contamination at the time of the investigation. It should be noted that due to the size of the property, it was not feasible to thoroughly inspect the entire property.

#### **Potential Environmental Concerns**

#### **Gamma** Fuels and Chemical Storage

No aboveground storage tanks or signs of underground storage tanks were observed on the subject property at the time of the current site inspection. No other fuels or chemicals were observed at the time of the site inspection.

#### □ Waste Management

General refuse removal and recycling services for the residential dwelling (2233 Mer Bleue) are provided through the municipality. The construction debris was not considered to be a significant concern, but will require proper disposal during redevelopment of the site.

Waste is not currently generated on the remainder of the property.

#### Polychlorinated Biphenyls (PCBs)

Pole mounted transformers were located along both Tenth Line and Mer Bleue Roads. No signs of leakage or staining were observed on or around any of the units and they are not considered to be a concern to the subject property.

#### 5.3 Interior Assessment

A general description of the residential dwelling located at 2233 Mer Bleue Road is provided below:

- □ The first floor of the house had a combination of painted gypsum board and ceramic tile walls and ceilings. The floors were covered with a combination of carpet and linoleum.
- □ The basement had poured concrete floors and walls. The walls in the furnace room were not finished. Basement bedrooms were finished with a combination of vinyl tile (12x12) and carpet flooring. The walls and ceilings were finished with a combination of wood panelling and painted gypsum board.
- □ Incandescent lighting was used throughout the dwelling.

An oil furnace was present as well as one 900 litre AST situated on a concrete pad.

Finished portions of the shed and barn, consisted of wood. The floors were either poured concrete or dirt. Incandescent lighting was observed in the barn.

#### Potentially Hazardous Building Products

#### □ Asbestos Containing Materials (ACMs)

Based on the date of construction of the residential dwelling, potential ACMs observed within the residential dwelling include drywall joint compound, vinyl floor tiles and linoleum. These materials were generally observed to be in good condition.

#### Lead-Based Paint

Based on the age of the residential dwelling, lead-containing paint may be present on original painted surfaces throughout the building. Paint samples were not analysed for lead content. The painted surfaces observed were in poor condition at the time of the site inspection.

#### D PCBs

No potential sources of PCBs were observed within the subject structures.

#### Urea Formaldehyde Foam Insulation (UFFI)

**No** signs indicating the presence of UFFI were observed during the inspection of the property, however, the wall cavities were not inspected to check for insulation type.

#### **Other Potential Environmental Concerns**

#### □ Air Discharges

There are no sources of air emissions that require a Certificate of Approval or represent an environmental concern.

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#### Fuels and Chemical Storage

A 900 litre AST was located in the basement of the house. The currently used storage tank, situated on a concrete slab, was in very good condition. No leaks were observed and there was no staining on the floor. No other hazardous chemicals, spills or stains were observed in the house at the time of the investigation.

Cleaning and maintenance chemicals were observed throughout the house.

There was one Pulso Pump with an oil filter and several empty oil canisters observed in the barn structure at 2233 Mer Bleue Road at the time of the previous investigation. The pump, used in the milking station of the barn, was no longer in use. No staining was observed on the concrete slab beneath the pump and filter which was observed to be empty.

No other fuels or hazardous chemicals were observed at the time of the site inspection.

#### □ Ozone Depleting Substances (ODSs)

Potential sources of ODSs include the refrigerator and the air conditioner in the residence. These appliances should be regularly serviced and maintained by licenced contractors.

#### U Waste Management

The liquid discharge from the subject property would include the washwater and the sewage from the washroom of the residence. The subject site discharges into a private septic bed.

#### Potable Water Well

The site addressed as 2233 is serviced by a private potable water well located east of the shed.

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#### 5.4 Adjacent Properties

Land use adjacent to the subject site was as follows:

- □ North Vacant, agricultural land and Hydro One corridor;
- □ South *Vacant, agricultural land*;
- East Tenth Line Road followed by residential;
- West Mer Bleue Road, followed by vacant, agricultural land, residential dwellings and commercial properties (2284 Mer Bleue Road -LeBlanc Welding, 6615 Renaud Road - private fuel outlet, 2311 Mer Bleue Road - Helene's Antique Heaven and 2319 Mer Bleue Road - Pat Faubert Auto Tech).

The adjacent property addressed as 2319 Mer Bleue Road was considered to have the potential to impact the subject site. The property addressed as 2319 is occupied by a residential dwelling as well as a small automobile service garage. An aboveground storage tank was observed inside the garage and also on the exterior of the garage along the east wall, approximately 2.75 m west of the subject site.

During the geotechnical field program, an additional borehole was placed on the subject site, in the vicinity of the AST located on the exterior of the garage. Six soil samples were recovered from the borehole. No obvious signs of impact were noted in the soil samples. A combustible vapour survey was performed on each sample and based on the results of this survey, one (1) soil sample was submitted for analytical testing of benzene, toluene, ethylbenzene and xylenes (BTEX) and petroleum hydrocarbons (PHCs). The analytical test results indicated that no BTEX or PHC parameters were detected in the soil sample. The Soil Profile and Test Data sheet as well as a copy of the laboratory report is included in the Appendix.

What appeared to be a private fuel outlet with two (2) aboveground storage tanks, was located on the west side of Mer Bleue Road, opposite 2303 Mer Bleue Road. Based on the distance (approximately 90 m) of the ASTs from the subject site, they are not considered to have had the potential to impact the subject site.

The remaining adjacent properties are not considered to have had an environmental impact on the subject site. Land use adjacent to the subject site is illustrated on Drawing No. PE0644-1 - Site Plan in the Appendix.

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#### 6.0 ASSESSMENT AND RECOMMENDATIONS

#### 6.1 <u>Assessment</u>

A Phase I - Environmental Site Assessment was carried out for three (3) parcels of land located south of Innes Road and between Mer Bleu and Tenth Line Roads in the City of Ottawa (formerly Cumberland), Ontario. The purpose of this environmental assessment was to research the past use of the site and identify any potential concerns associated with the site or adjacent properties that could potentially impact the subject property.

It should be noted that the residential properties located along Mer Bleue and Tenth Line Roads are not included in this assessment with the exception of 2233 Mer Bleue Road which was inspected during a previous Phase I-ESA carried out by Paterson for Fleming.

The historical data researched for this site did not indicate any areas of concern regarding the past uses of the subject and adjacent properties.

Following the historical research, a site inspection was conducted to assess any potential areas of concern. No significant environmental concerns were identified during the site visit with the current conditions of the subject site. No concerns were identified with the surrounding properties with the exception of that property located at 2319 Mer Bleue Road.

The property addressed as 2319 is occupied by a residential dwelling and an automobile service garage. Two (2) ASTs were observed on the property: one (1) inside the garage and (1) on the exterior of the east garage wall. No visual or olfactory signs of contamination were noted in the soil samples recovered. In addition to geotechnical boreholes placed over the property an additional borehole was placed to address the exterior AST observed at 2319. No visual or olfactory signs of contamination were observed in any of the soil samples recovered from this borehole. One (1) confirmatory soil sample from the additional borehole was submitted to Paracel Laboratories for BTEX and PHC analyses. The analytical test results indicated that no BTEX or PHC parameters were detected in the sample.

No visual or olfactory indications of contamination were observed in any of the soil samples recovered from the boreholes placed for geotechnical purposes.

Based on the results of the assessment, it is our opinion that **a Phase II-**Environmental Site Assessment is not required for the subject property.

#### 6.2 <u>Recommendations</u>

As discussed in Section 5.3 of this report, asbestos may be present in the drywall joint compound, vinyl floor tiles and linoleum that may have been installed within the residential dwelling at 2233 Mer Bleue Road prior to 1980. The materials were observed to be in good condition, and as a result, they do not pose an immediate concern. However, asbestos testing should be conducted on any potential ACMs prior to their disturbance.

The encapsulation, handling or removal of asbestos containing material should be carried out by a contractor specialized for these works. The handling of ACMs is currently regulated by Ontario Regulation 278, under the Occupational Health and Safety Act. All works pertaining to the handling of asbestos containing materials must be done according to the most current applicable legislation. Asbestos containing materials should be inspected on a regular basis to ensure their integrity.

Lead-based paints are suspected to be present in the residence based on the age of the building. At the time of the assessment, the painted surfaces were noted to be in poor condition. If major repairs on painted surfaces are needed to be conducted in the future, testing should be conducted to determine the presence of lead. Precautions should be taken to avoid ingestion of lead during work conducted on lead containing products. Major works involving these painted surfaces must be done in accordance with Ontario Regulation 843, under the Occupational Health and Safety Act.

During the initial site inspection there were waste materials present on the residential property addressed as 2233 Mer Bleue Road. These materials included small piles of construction debris. The presence of these items on site is not considered to be a significant concern. However, these items will require proper disposal off-site during redevelopment of the subject property. Similarly, the potable water well will require proper abandonment at the time of redevelopment. Proper decommissioning of the septic system is also recommended at the time of redevelopment.

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#### 7.0 STATEMENT OF LIMITATIONS

This Phase I - Environmental Site Assessment report has been prepared in general accordance with the agreed scope-of-work and the requirements of CSA Z768-01. The conclusions presented herein are based on information gathered from a limited historical review and field inspection program. The findings of the Phase I - ESA are based on a review of readily available geological, historical and regulatory information and a cursory review made at the time of the field assessment. The historical research relies on information supplied by others, such as local, provincial and federal agencies and was limited within the scope-of-work, time and budget of the project herein.

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

This report was prepared for the sole use of C. Fleming Developments Ltd. Permission and notification from the above noted party and this firm will be required to release this report to any other party.

### Paterson Group Inc.

Kaup Munch:

Karyn Buote, B.Eng.



Mark S. D'Arcy, P. Eng.

#### **Report Distribution:**

- C. Fleming Developments Ltd.(3 copies)
- Paterson Group Inc. (1 copy)



### **APPENDIX**

SOIL PROFILE AND TEST DATA SHEET

ANALYTICAL TEST RESULTS

AERIAL PHOTOGRAPHS

FIGURE 1 - KEY PLAN

DRAWING NO. PE0644-1 - SITE PLAN

natersonaro		n	Cons	ulting					TEST	DATA	
-	Prop			Geotechnical Investigation Prop. Development, Mer Bleue Rd. and 10th Line Ottawa, Ontario				e Rd.			
DATUM Approximate geodetic					100				FILE NO.	<b>D</b> OOCO	<b>F</b>
REMARKS									HOLE NO.	PG068	C
BORINGS BY CME 55 Power Auger				D	ATE !	5 OCT 0	5			BH16	
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GROUND SURFACE	STF	Ĥ	INN	RECI	NO			20	40 60	80	-0
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		∦ss	4	100	2	3-					
- firm to soft by 2.9m depth		ss	5	100	1						
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(GWL @ 0.60m-Oct. 28/05)											
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-											
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▲ Undisturbed △ Remoulded

#### Paracel Laboratories Ltd.

#### Certificate of Analysis

#### Client: Paterson Group Inc.

Client PO: 2738

Project: PE0644

Report Date: 17-Oct-2016 Order Date: 12-Oct-2015

Hatrix: Soil		
	Sample ID:	BH16-SS5
	Sample Date:	05/10/2005
Parameter	MDL/Units	K1911.1
Bendena	0.05 ug/g	< 0.05
Ethylbenzene	0.05 ug/g	< 0.05
Toluene	0.05 ug/g	< 0.05
m/p-Xylene	0.1 ug/g	< 0.1
o-Xylene	0.05 ug/g	< 0.05
Poluene-d8	surrogate	99%
E1 PHCs (C6-C10)	20 ug/g	< 20
22 PHCs (C10-C16)	10 ug/g	< 10
73 PHCs (C16-C34)	10 ug/g	. < 10
24 PHCs (C34-C50)	10 ug/g	< 10

300-2319 St. Laurent Blvd. Ottawa, ON K1G 4J8 tel: 613-731-9577 fax: 613-731-9064 email: paracci@paraccilabs.com

### Report Dat



AERIAL PHOTOGRAPH 1967

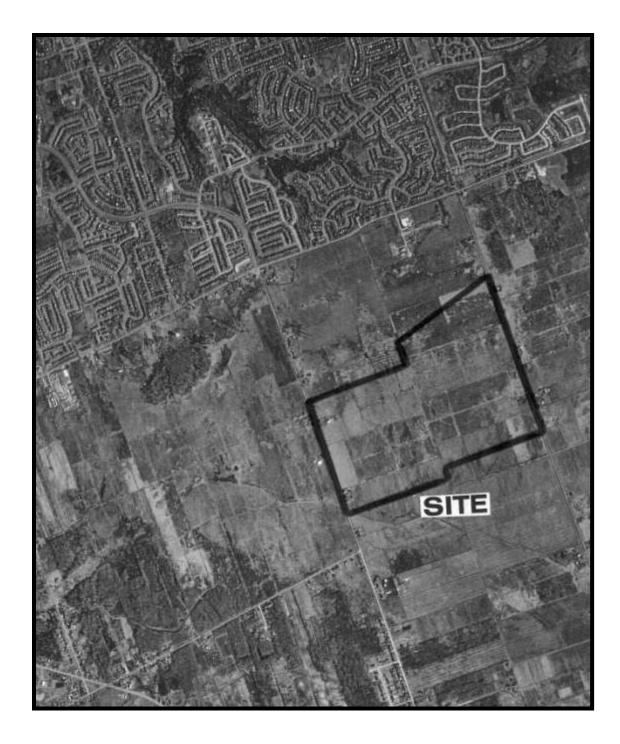
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AERIAL PHOTOGRAPH 1976

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AERIAL PHOTOGRAPH 1989



AERIAL PHOTOGRAPH 1994



### <u>figure 1</u> KEY PLAN

