

**Geotechnical  
Engineering**

**Environmental  
Engineering**

**Hydrogeology**

**Geological  
Engineering**

**Materials Testing**

**Building Science**

**Archaeological  
Services**

**paterson**group

## **Phase I Environmental Site Assessment**

368 Chapel Street  
Ottawa, Ontario

**Prepared For**

368 Chapel Street Inc.

### **Paterson Group Inc.**

Consulting Engineers  
154 Colonnade Road South  
Ottawa (Nepean), Ontario  
Canada K2E 7J5

Tel: (613) 226-7381  
Fax: (613) 226-6344  
[www.patersongroup.ca](http://www.patersongroup.ca)

**November 20, 2017**

Report: PE4136-1

## TABLE OF CONTENTS

EXECUTIVE SUMMARY.....	ii
1.0 INTRODUCTION.....	1
2.0 PHASE I PROPERTY INFORMATION.....	2
3.0 SCOPE OF INVESTIGATION .....	3
4.0 RECORDS REVIEW .....	4
4.1 General.....	4
4.2 Environmental Source Information .....	5
4.3 Physical Setting Sources .....	7
5.0 INTERVIEWS .....	10
6.0 SITE RECONNAISSANCE .....	10
6.1 General Requirements.....	10
6.2 Specific Observations at Phase I Property .....	10
7.0 REVIEW AND EVALUATION OF INFORMATION .....	13
7.1 Land Use History .....	13
7.2 Conceptual Site Model.....	14
8.0 CONCLUSIONS .....	16
9.0 STATEMENT OF LIMITATIONS .....	17
10.0 REFERENCES .....	18

### List of Figures

Figure 1 - Key Plan  
Figure 2 - Topographic Map  
Drawing PE4136-1 - Site Plan  
Drawing PE4136-2 - Surrounding Land Use Plan

### List of Appendices

Appendix 1    Aerial Photographs  
                  Site Photographs

Appendix 2    MOECC Freedom of Information Request  
                  City of Ottawa HLUI Search Request  
                  MOECC Well Records  
                  TSSA Correspondence

Appendix 3    Qualifications of Assessors

## **EXECUTIVE SUMMARY**

### **Assessment**

Paterson Group was retained by 368 Chapel Street Inc. to conduct a Phase I Environmental Site Assessment (ESA) of the property located at 368 Chapel Street, in the City of Ottawa, Ontario. The purpose of this Phase I-Environmental Site Assessment (Phase I-ESA) was to research the past and current use of the site and study area and to identify any environmental concerns with the potential to have impacted the subject property.

According to the historical research, the subject property was developed with the present-day residential dwelling in 1910. Historical research indicates that surrounding land use has been mainly residential. A possible former dry cleaner located approximately 125 meters south of the subject site was identified in the City directories. No information regarding whether this property performed dry cleaning on-site or operated as a drop-off location was obtained. Based on the separation distance and the down-gradient location with respect to the subject site, the possible former dry-cleaner is not considered to represent an area of potential environmental concern on the subject site.

Following the historical research, an inspection of the subject site and the Phase I-ESA study area was conducted. The subject site is currently occupied by a two (2) storey residential dwelling. The majority of neighbouring properties were occupied by residences and embassies. Several commercial properties were identified along Somerset Street East. No concerns were identified with the use of the site or neighbouring properties within the Phase I study area.

Based on the results of the Phase I-ESA, **in our opinion, a Phase II Environmental Site Assessment is not required for the property.**

### **Recommendations**

It is our understanding that an addition is to be added to the building in the near future. Considering the potential presence of hazardous building materials within the subject buildings, it is recommended that a designated substance survey be conducted in accordance with Ontario Regulation 490/09, under the Occupational Health and Safety Act, if one has not already been completed.

## **1.0 INTRODUCTION**

At the request of 368 Chapel Street Inc., Paterson Group (Paterson) conducted a Phase I Environmental Site Assessment (Phase I ESA) of the property located at 368 Chapel Street, in the City of Ottawa, Ontario. The purpose of this Phase I ESA was to research the past and current use of the site and study area and to identify any environmental concerns with the potential to have impacted the subject property.

Paterson was engaged to conduct this Phase I ESA by Mr. Nizar Salem of 368 Chapel Street Inc. The offices of Chapel Street Inc are located at 225 Hudson Avenue, Ottawa, Ontario. Mr. Salem can be reached by telephone at (613) 600-7799.

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.

This Phase I-ESA report has been prepared in general accordance with Ontario Regulation 153/04 as amended by O.Reg. 269/11 (Environmental Protection Act), and also complies with 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.

## **2.0 PHASE I PROPERTY INFORMATION**

Address:	368 Chapel Street, Ottawa, Ontario.
Legal Description:	Part of Lot D, Concession D, Rideau Front, in the City of Ottawa.
Property Identification Number:	04209-0233.
Location:	The subject site is located on the west side of Chapel Street, south of Osgoode Street, in the City of Ottawa, Ontario. The subject site is shown on Figure 1 - Key Plan following the body of this report.
Latitude and Longitude:	45° 25' 29.82" N, 75° 40' 34.41" W.
<b>Site Description:</b>	
Configuration:	Rectangular.
Site Area:	375 square meters (approximate).
Zoning:	R4S – Residential Fourth Density
Current Use:	A two (2) storey residential dwelling is present on the site.
Services:	The subject site is located in a municipally serviced area.

### **3.0 SCOPE OF INVESTIGATION**

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

- Determine the historical activities on the subject site and study area by conducting a review of readily available records, reports, photographs, plans, mapping, databases and regulatory agencies;
- Investigate the existing conditions present at the subject site and study area by conducting site reconnaissance;
- Conduct interviews with persons knowledgeable of current and historic operations on the subject property, and if warranted, neighbouring properties;
- Present the results of our findings in a comprehensive report in general accordance with the requirements of Ontario Regulation 269/11 amending O.Reg. 153/04 made under the Environmental Protection Act and in compliance with the requirements of CSA Z768-01;
- Provide a preliminary environmental site evaluation based on our findings;
- Provide preliminary remediation recommendations and further investigative work if contamination is suspected or encountered.

## **4.0 RECORDS REVIEW**

### **4.1 General**

#### **Phase I-ESA Study Area Determination**

A radius of approximately 250 m was determined to be appropriate as a Phase I ESA study area for this assignment. Properties outside the 250 m radius are not considered to have impacted the subject land, based on their significant distance from the site.

#### **First Developed Use Determination**

Based on the city directories, it is our interpretation that the subject property was first developed with the present-day residential dwelling in 1910.

#### **Fire Insurance Plans**

The 1912 and 1956 FIPs were reviewed as part of this assessment. A residential dwelling, addressed 368 Chapel Street, is present on the subject site in the 1912 FIP. In the 1956 FIP, there is also a shed located on the west side of the property. The configuration of the residential dwelling shown on the FIPs corresponds to the existing structure. The neighbouring properties are used for residential purposes.

#### **City of Ottawa Street Directories**

City directories at the National Archives were reviewed in approximate ten (10) year intervals from 1900 to 2011 as part of the Phase I ESA. The subject and neighbouring properties within the Phase I study area were used for residential purposes and as embassies. Some commercial properties were located along Somerset Street East. The residential building addressed 368 Chapel Street, was first listed in 1910 and has always been used for residential purposes. The property was not listed in the directories in 1900, 1908 or 1909.

Spic & Span Cleaners was listed in 1960 at 308 Somerset Street East, located approximately 125 meters south of the subject site. In 1971, Spic & Span Coin Wash Rear Entrance was listed at 404 Chapel Street and is regarded as the same property as 308 Somerset Street East. No historical information was available regarding dry cleaning activities on this site. Based on the separation distance of 125m and its down-gradient location with respect to the subject site, the Spic and Span Cleaners is not considered to represent an area of potential environmental concern on the subject site.

## **Environmental Reports**

Paterson has conducted a number of environmental site assessments and geotechnical investigations in the vicinity of the subject site and these were reviewed as part of this assessment. The reports did not identify any areas of potential environmental concern for the subject site.

## **4.2 Environmental Source Information**

### **Environment Canada**

A search of the National Pollutant Release Inventory (NPRI) was conducted electronically on November 1, 2017. The subject site is not listed in the NPRI database. There are no properties registered in the NPRI database within the study area.

### **PCB Inventory**

A search of national PCB waste storage sites was conducted. No PCB waste storage sites are located within the Phase I study area.

### **Ontario Ministry of Environment and Climate Change (MOECC) Instruments**

A request was submitted to the MOECC Freedom of Information office for information with respect to certificates of approval, permits to take water, certificates of property use or any other similar MOECC issued instruments for the site. At the time of issuance of this report, a response had not been received. A copy of the response will be forwarded to the client, should it contain any pertinent information.

### **MOECC Coal Gasification Plant Inventory**

The Ontario Ministry of Environment document titled "Municipal Coal Gasification Plant Site Inventory, 1991" was reviewed to reference the locations of former plants with respect to the site. No coal gasification plants were identified within the Phase I ESA study area.



### **MOECC Incident Reports**

A request was submitted to the MOECC Freedom of Information office for information with respect to records concerning environmental incidents, orders, offences, spills, discharges of contaminants or inspections maintained by the MOECC for the site or adjacent properties. At the time of issuance of this report, a response had not been received. A copy of the response will be forwarded to the client, should it contain any pertinent information.

### **MOECC Waste Management Records**

A request was submitted to the MOECC Freedom of Information office for information with respect to waste management records. Applicable information of current and historical waste storage locations, waste generators and waste receivers pursuant to Ontario Regulation 347 was considered in this review. At the time of issuance of this report, a response had not been received. A copy of the response will be forwarded to the client, should it contain any pertinent information.

### **MOECC Submissions**

A request was submitted to the MOECC Freedom of Information office for information with respect to reports related to environmental conditions that have been submitted to the MOECC. At the time of issuance of this report, a response had not been received. A copy of the response will be forwarded to the client, should it contain any pertinent information.

### **MOECC Brownfields Environmental Site Registry**

A search of the MOECC Brownfields Environmental Site Registry was conducted as part of this assessment for the site, neighbouring properties and the general area of the site. No RSCs were filed for properties within the Phase I ESA study area.

### **MOECC Waste Disposal Site Inventory**

The Ontario Ministry of Environment document titled "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. No former waste disposal sites were identified within the Phase I ESA study area.

## **Areas of Natural Significance**

A search for areas of natural significance and features within the Phase I study area was conducted on the web site of the Ontario Ministry of Natural Resources (MNR). The search did not reveal any natural features or areas of natural significance within the Phase I study area.

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

The TSSA, Fuels Safety Branch in Toronto was contacted electronically on October 30, 2017 to inquire about current and former underground storage tanks, spills and incidents for the site and neighbouring properties. No records are listed in the TSSA registry for the subject site or neighbouring properties. A copy of the TSSA correspondence is included in Appendix 2.

## **City of Ottawa Landfill Document**

The document entitled “Old Landfill Management Strategy, Phase I – Identification of Sites, City of Ottawa”, was reviewed. No former waste disposal sites were located within the Phase I study area.

## **City of Ottawa Historical Land Use Inventory (HLUI) Database**

A search of the City of Ottawa’s Historical Land Use Inventory (HLUI) database was conducted as part of this assessment. No concerns were identified in the City of Ottawa HLUI database. A copy of the City of Ottawa correspondence has been included in Appendix 2.

## **4.3 Physical Setting Sources**

### **Aerial Photographs**

Historical air photos from the National Air Photo Library were reviewed in approximate ten (10) year intervals. The review period dates back to the first available air photos for the site. Based on the review, the following observations have been made:

- |      |  |
|------|--|
| 1928 | A residential dwelling occupies the subject site. Chapel Street appears in its present-day configuration. Neighbouring properties are used for residential purposes or are vacant. |
| 1938 | The scale of the photograph makes it difficult to discern details, however, it appears that no significant changes have been made to the subject site or neighbouring properties.  |

---

1945	The scale of the photograph makes it difficult to discern details, however, it appears that no significant changes have been made to the subject site. Neighbouring properties have been developed with additional residential dwellings.
1968	No significant changes have been made to the subject site. Neighbouring properties to the north and west have been developed with residential apartment buildings.
1976	(City of Ottawa, geoOttawa website) No significant changes have been made to the subject site. Several neighbouring properties along Osgoode Avenue and Somerset Street East have been redeveloped with residential apartment buildings.
1992	No significant changes have been made to the surrounding properties.
2002	(City of Ottawa, geoOttawa website) No significant changes have been made to the subject site or neighbouring properties.
2008	(City of Ottawa, geoOttawa website) No significant changes have been made to the subject site or neighbouring properties.
2014	(City of Ottawa, geoOttawa website) No significant changes have been made to the subject site or surrounding properties. The subject site is depicted as it appears today.

Laser copies of selected aerial photographs reviewed are included in Appendix 1.

### **Topographic Maps**

Topographic maps were obtained from Natural Resources Canada – The Atlas of Canada website and from the City of Ottawa website. Regionally, the topographic maps indicate a slope down towards the Rideau River located to the east. According to the map, the nearest water body is the Rideau River, located approximately 435 m to the east of the subject site. An illustration of the referenced topographic map is presented on Figure 2 – Topographic Map, appended to this report.

## **Physiographic Maps**

A Physiographic Map was reviewed from the Natural Resources Canada – The Atlas of Canada website. According to this physiographic map, the site is located in the St. Lawrence Lowlands. According to the mapping description provided: “The lowlands are plain-like areas that were all affected by the Pleistocene glaciations and are therefore covered by surficial deposits and other features associated with the ice sheets.” The subject site is located in the Central St. Lawrence Lowland, which is generally less than 150 m above sea level.

## **Geological Maps**

The Geological Survey of Canada website on the Urban Geology of the National Capital Area was consulted as part of this assessment. Based on this information, bedrock in the area of the site consists of interbedded shale and limestone of the Verulam Formation. Overburden soils are shown as offshore marine sediments with a drift thickness on the order of 10 to 15 m.

## **Water Well Records**

A search of the MOECC’s web site for all drilled well records within 250 m of the subject site was conducted on November 13, 2017. The search returned one (1) record for a monitoring well within the Phase I study area. The groundwater monitoring well was drilled near 324 Chapel Street, located 200m north of the subject site, likely as part of a Phase II Environmental Site Assessment. Based on the separation distance, this property is not considered to have had the potential to impact the subject site. The water well record is included in Appendix 2.

## **Water Bodies and Areas of Natural Significance**

The Rideau River is located approximately 435 m east of the subject property. There are no areas of natural significance within the Phase I study area.

## **5.0 INTERVIEWS**

### **Property Owners**

Mr. Nizar Salem, a representative of 368 Chapel Street Inc., was interviewed as part of the assessment. Mr. Salem was not aware of any environmental concerns with the current or former use of the subject property. Mr. Salem indicated that he intends to have an addition built at the rear of the building. Paterson was informed by Mr. Salem that 368 Chapel Street Inc. purchased the property from Victoria Wendy Nesbitt in October of 2016. Mr. Salem informed Paterson that he was planning on conducting an asbestos survey prior to renovation activities.

## **6.0 SITE RECONNAISSANCE**

### **6.1 General Requirements**

The visit to the subject property was conducted by a member from the Environmental Department of Paterson Group on November 7, 2017. In addition to the site, the uses of neighbouring properties were also assessed at the time of the site visit.

### **6.2 Specific Observations at Phase I Property**

#### **Buildings and Structures**

There is a two (2) storey residential dwelling with a single basement level and a stone foundation occupying the subject property. The exterior of the building is finished with brick and wood siding. The structure was constructed in 1910 based on City directories.

#### **Site Features**

The subject property is occupied by a two (2) storey residential dwelling as shown on Drawing PE4136-1 - Site Plan, appended to this report. The dwelling is located in the eastern portion of the site, with an asphaltic concrete driveway on the southern portion. The remainder of the property consists of grass covered areas. Site drainage consists of infiltration and sheet flow to catch basins along Chapel Street. Site topography is relatively flat while Chapel Street slopes downwards towards the south. The regional topography slopes down towards the Rideau River.

No evidence of recent excavation or fill placement was observed on the exterior of the subject property. No evidence of current or former railway or spur lines on the subject property was observed at the time of the site inspection. There were no unidentified substances observed on the exterior of the subject site. The above-noted site features are shown on Drawing PE4136-1 - Site Plan.

### **Interior Assessment**

A general description of the interior of the residential dwelling is as follows:

- ☐ The floors are finished with a combination of concrete, laminate flooring, ceramic tile and hardwood.
- ☐ The walls are composed of a combination stone block, drywall, plaster and wood panelling.
- ☐ The ceilings consisted of a wood decking and plaster.
- ☐ Lighting throughout the building was observed to be a mix of incandescent and fluorescent fixtures.

The building is heated with a natural gas fired furnace located in the basement.

### **Potentially Hazardous Building Products**

#### ☐ **Ozone Depleting Substances (ODSs)**

Refrigerators, coolers, freezers, fire extinguishers and air conditioning units may be potential sources of ozone depleting substances (ODSs) on site. These appliances should be regularly serviced and maintained by certified contractors.

#### ☐ **Lead-Based Paint**

Based on the age of the residential dwelling (1910), lead-based paints may be present on painted surfaces. Painted surfaces were observed to be in good condition at the time of the site visit.

#### ☐ **Asbestos Containing Materials (ACMs)**

Based on the age of the residential dwelling (1910), ACMs that may be present within the building are; laminate flooring, plaster walls and ceilings and drywall joint compound. These materials were in good to fair condition at the time of the site visit and do not pose an immediate environmental concern.

## **Other Potential Environmental Concerns**

### ☐ **Storage Tanks**

No evidence of aboveground storage tanks or vent fill pipes was observed during the site visit. No stains were observed in the basement level of the subject structure. No concerns were identified with the possible former use of oil within the residential dwelling at the time of the site visit.

### ☐ **Drains, Pits and Sumps**

Wastewater is discharged from the buildings into the City of Ottawa sewer system. No pits or sumps were observed at the subject site. A floor drain located in the basement was observed to be dry at the time of the site visit.

## **Potentially Contaminating Activities**

No potentially contaminating activities were observed at the site at the time of this assessment.

## **Neighbouring Properties**

An inspection of the neighbouring properties was conducted from publicly accessible roadways at the time of the site inspection. Land use adjacent to the subject site was as follows:

- North – Residential structures followed by Osgoode Street;
- South – Residential dwellings followed by Somerset Street East;
- East – Chapel Street followed by residential dwellings;
- West – Residential dwellings followed by Russell Avenue.

No environmental concerns were identified with the current use of the neighbouring properties.

## 7.0 REVIEW AND EVALUATION OF INFORMATION

### 7.1 Land Use History

The following table indicates the current and past uses of the site as well as associated potentially contaminating activities dating back to the first developed use of the site.

<b>Table 1 - Land Use History</b>				
<b>Year</b>	<b>Name of Owner</b>	<b>Description of Property Use</b>	<b>Property Use</b>	<b>Other Observations from Aerial Photos, FIPs, etc.</b>
1910-Unknown	Unknown	Residential Dwelling	Residential	None
Unknown-October 2016	Victoria Wendy Nesbitt	Residential Dwelling	Residential	None
October 2016-Present	368 Chapel Street Inc.	Residential Dwelling	Residential	None

#### Potentially Contaminating Activities

The following Potentially Contaminating Activity was identified within the Phase I study area:

- Item 37, Table 2, O.Reg. 153/04 as amended by O.Reg. 269/11: "Operation of Dry Cleaning Equipment (where chemicals are used)" - this PCA was identified based on the 1960 City directories which identified Spic & Span cleaners located at 308 Somerset Street East.

The suspected former dry cleaner was located approximately 125 meters to the south of the subject site. It is not known if dry cleaning was performed on-site. Based on the 125m separation distance from the subject site and its downgradient location with respect to 368 Chapel Street, 308 Somerset Street East is not considered to have had the potential to have impacted the subject site.

#### Areas of Potential Environmental Concern (APEC)

As discussed above, there are no PCAs that are considered to be areas of potential environmental concern for the subject property.



### **Contaminants of Potential Concern**

**No Contaminants of Potential Concern (CPC) were identified, since no APECs were identified on the subject site.**

## **7.2 Conceptual Site Model**

### **Geological and Hydrogeological Setting**

Based on information from the Geological Survey of Canada mapping, drift thickness in the area of the subject site is on the order of 10 to 15 m. Overburden soils consist of offshore marine sediments while bedrock consists of interbedded shale and limestone of the Verulam Formation. Groundwater flow is expected to reflect regional topography and flow in an easterly direction.

### **Contaminants of Potential Concern**

As per Section 7.1 of the report, no Contaminants of Potential Concern (CPCs) were identified on the subject site.

### **Existing Buildings and Structures**

The site is occupied by a two (2) storey residential dwelling with a single basement level. The exterior of the building is finished with brick and wood siding. The exact date of construction is 1910 based on City directories.

### **Water Bodies**

The Rideau River is located approximately 435m east of the subject site.

### **Areas of Natural Significance**

There are no areas of natural significance within the 250m study area.

### **Drinking Water Wells**

No drinking water wells are located at the subject site or within the Phase I study area.

### **Neighbouring Land Use**

Neighbouring land use in the Phase I study area is residential and institutional. Land use is shown on Drawing PE4136-2 - Surrounding Land Use Plan.

## **Potentially Contaminating Activities and Areas of Potential Environmental Concern**

As per Section 7.1 of this report, the potentially contaminating activity identified within the Phase I study area does not represent an area of potential environmental concern for the subject site.

## **Assessment of Uncertainty and/or Absence of Information**

The information available for review as part of the preparation of this Phase I-ESA is considered to be sufficient to conclude that the PCA identified within the Phase I study area is not considered to be an APEC for the subject site. This is confirmed by a variety of independent sources, and as such, the conclusions of this report are not affected by uncertainty which may be present with respect to the individual sources.

## 8.0 CONCLUSIONS

### Assessment

Paterson Group was retained by 368 Chapel Street Inc. to conduct a Phase I Environmental Site Assessment (ESA) of the property located at 368 Chapel Street, in the City of Ottawa, Ontario. The purpose of this Phase I-Environmental Site Assessment (Phase I-ESA) was to research the past and current use of the site and study area and to identify any environmental concerns with the potential to have impacted the subject property.

According to the historical research, the subject property was developed with the present-day residential dwelling in 1910. Historical research indicates that surrounding land use has been mainly residential. A possible former dry cleaner located approximately 125 meters south of the subject site was identified in the City directories. No information regarding whether this property performed dry cleaning on-site or operated as a drop-off location was obtained. Based on the separation distance and the down-gradient location with respect to the subject site, the possible former dry-cleaner is not considered to represent an area of potential environmental concern on the subject site.

Following the historical research, an inspection of the subject site and the Phase I-ESA study area was conducted. The subject site is currently occupied by a two (2) storey residential dwelling. The majority of neighbouring properties were occupied by residences and embassies. Several commercial properties were identified along Somerset Street East. No concerns were identified with the use of the site or neighbouring properties within the Phase I study area.

Based on the results of the Phase I-ESA, **in our opinion, a Phase II Environmental Site Assessment is not required for the property.**

### Recommendations

It is our understanding that an addition is to be added to the building in the near future. Considering the potential presence of hazardous building materials within the subject buildings, it is recommended that a designated substance survey be conducted in accordance with Ontario Regulation 490/09, under the Occupational Health and Safety Act, if one has not already been completed.

## 9.0 STATEMENT OF LIMITATIONS

This Phase I - Environmental Site Assessment report has been prepared in general accordance with O.Reg. 153/04 as amended by O.Reg. 269/11, and meets 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 368 Chapel Street Inc. Permission and notification from 368 Chapel Street Inc. and Paterson will be required to release this report to any other party.

### **Paterson Group Inc.**



Marek Moroz, G.I.T.



Mark S. D'Arcy, P.Eng.



### **Report Distribution:**

- 368 Chapel Street Inc. (3 copies)
- Paterson Group

## 10.0 REFERENCES

### **Federal Records**

Air photos at the Energy Mines and Resources Air Photo Library.  
National Archives.  
Maps and photographs (Geological Survey of Canada surficial and subsurface mapping).  
Natural Resources Canada – The Atlas of Canada.  
Environment Canada, National Pollutant Release Inventory.  
PCB Waste Storage Site Inventory.

### **Provincial Records**

MOECC Freedom of Information and Privacy Office.  
MOECC Municipal Coal Gasification Plant Site Inventory, 1991.  
MOECC document titled “Waste Disposal Site Inventory in Ontario”.  
MOECC Brownfields Environmental Site Registry.  
Office of Technical Standards and Safety Authority, Fuels Safety Branch.  
MNR Areas of Natural Significance.  
MOECC Water Well Inventory.

### **Municipal Records**

City of Ottawa Document “Old Landfill Management Strategy, Phase I - Identification of Sites.”, prepared by Golder Associates, 2004.  
City of Ottawa Historical Land Use Inventory (HLUI) database  
The City of Ottawa eMap website.

### **Local Information Sources**

Current Plan of Survey, prepared by Stantec Geomatic Ltd., dated November 2016.  
Personal Interviews.  
Previous Engineering Reports.

### **Public Information Sources**

Google Earth.  
Google Maps/Street View.

# **FIGURES**

**FIGURE 1 – KEY PLAN**

**FIGURE 2 – TOPOGRAPHIC MAP**

**DRAWING PE4136-1 – SITE PLAN**

**DRAWING PE4136-2 – SURROUNDING LAND USE PLAN**

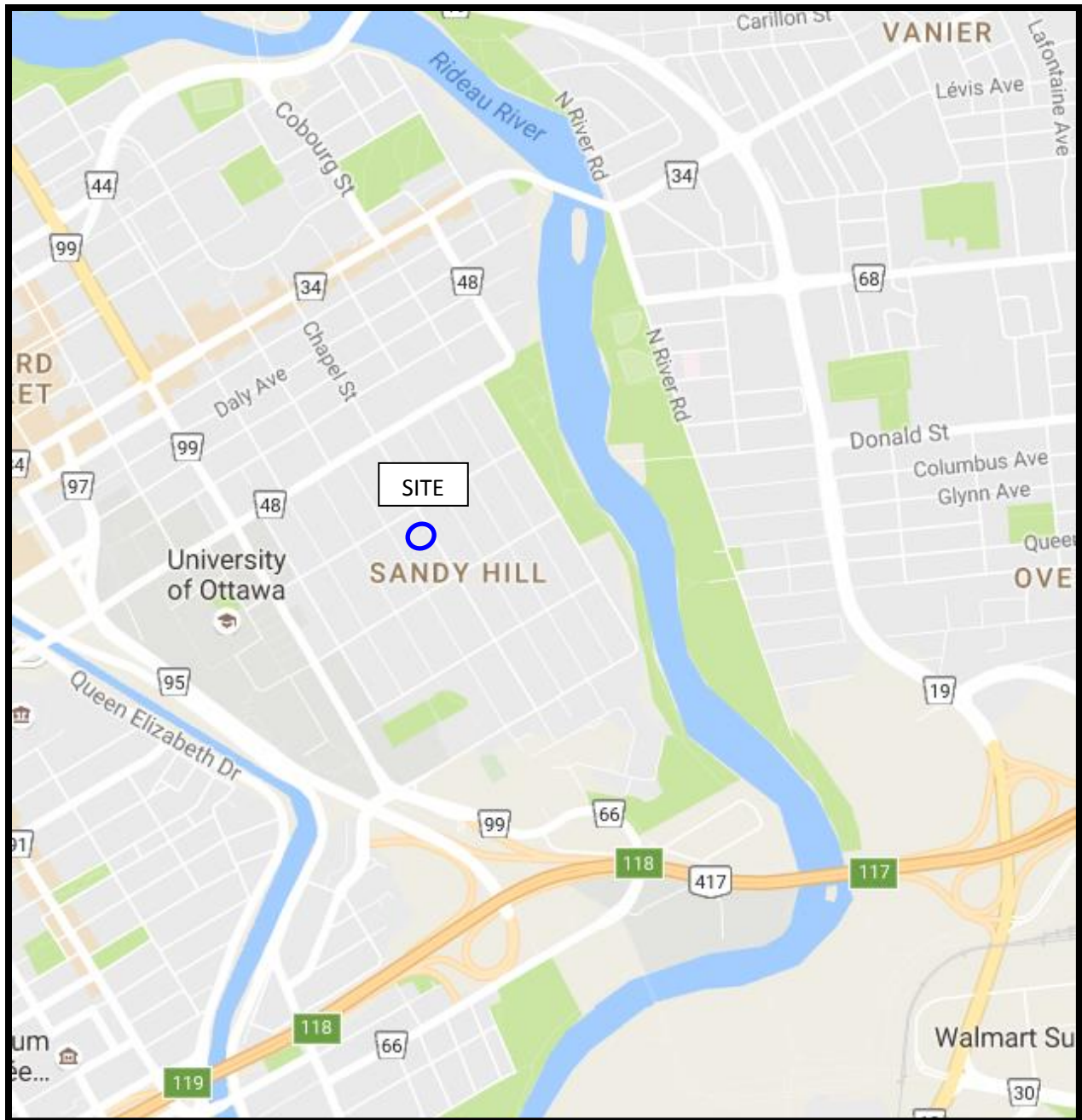


FIGURE 1  
KEY PLAN

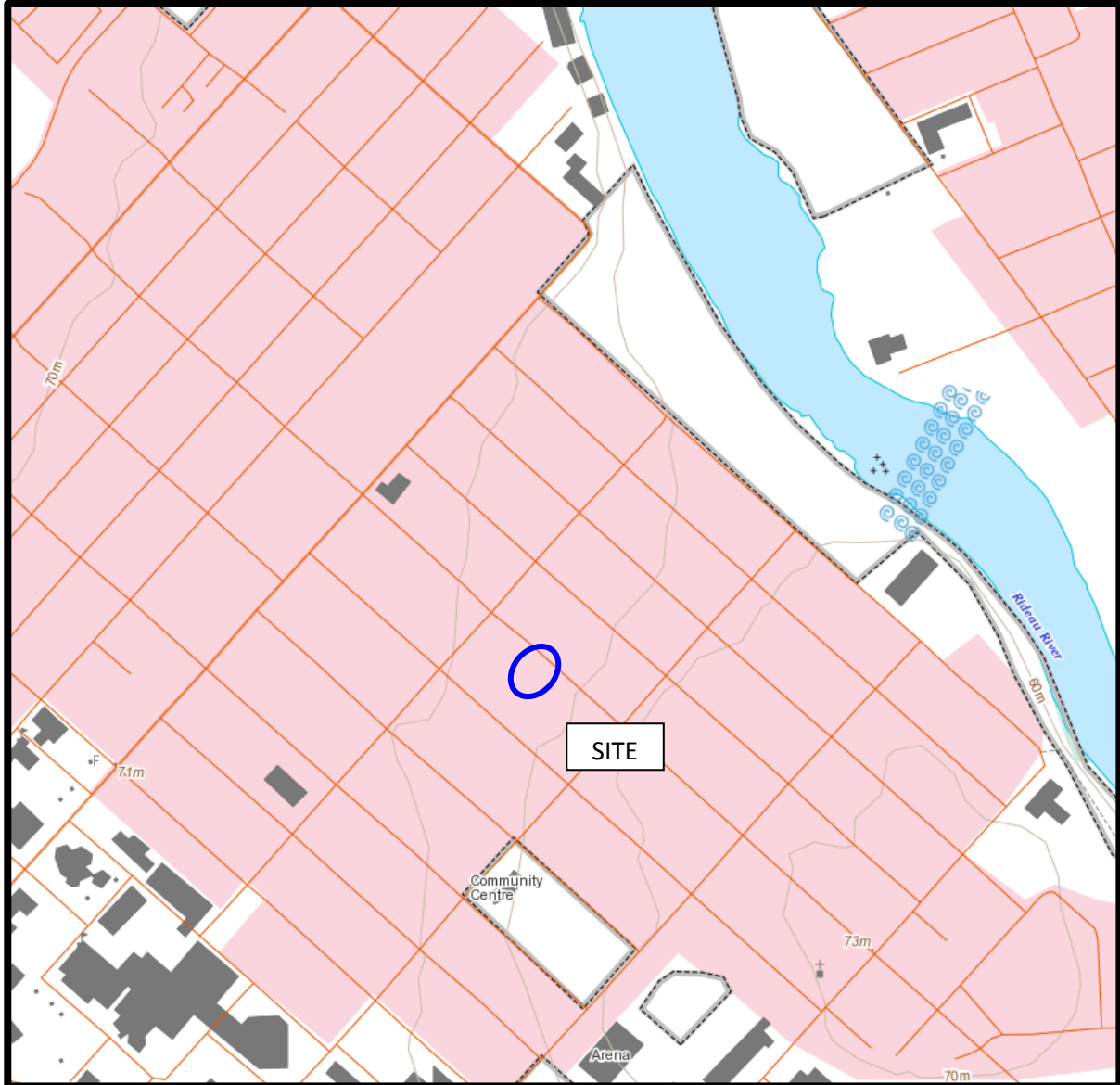
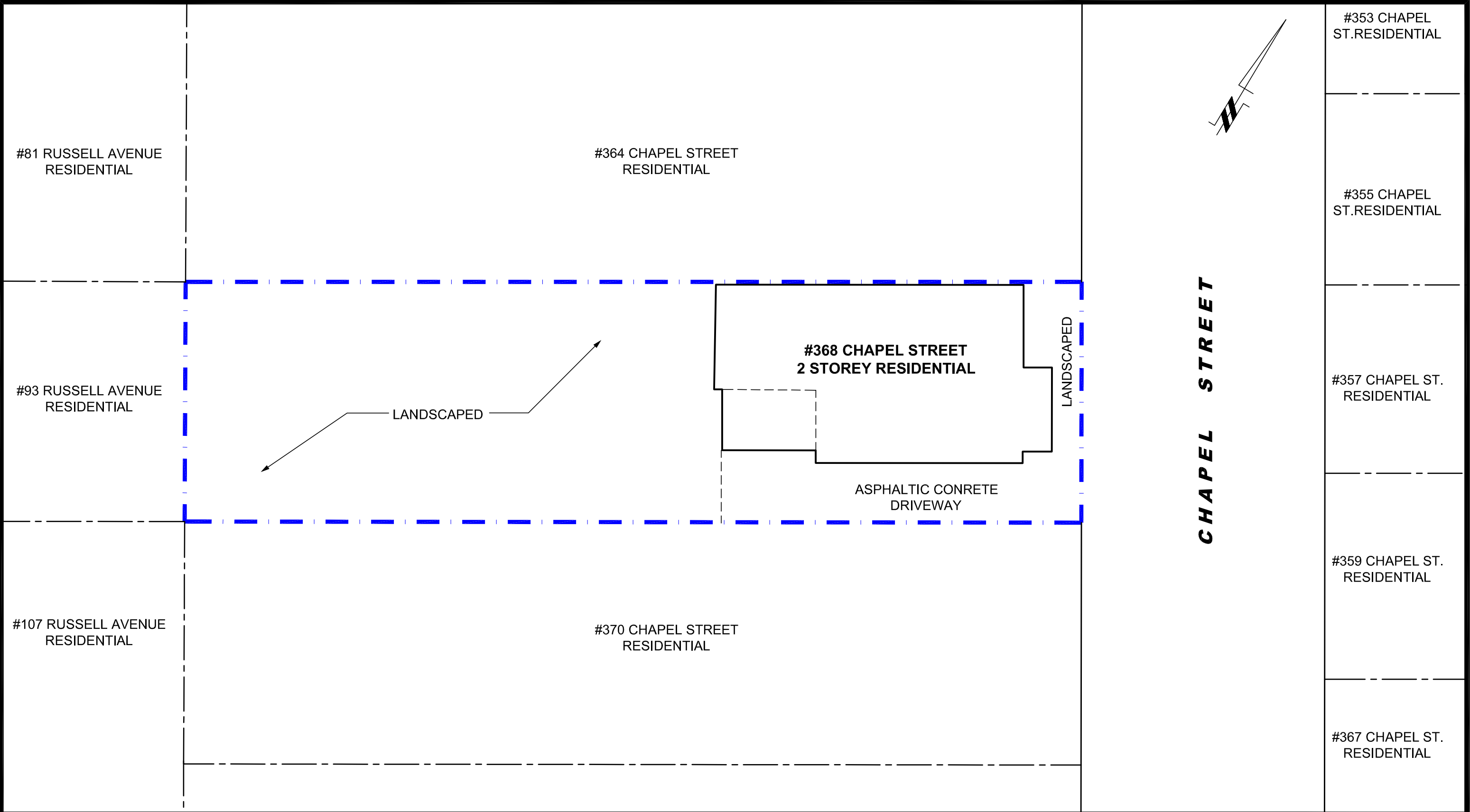


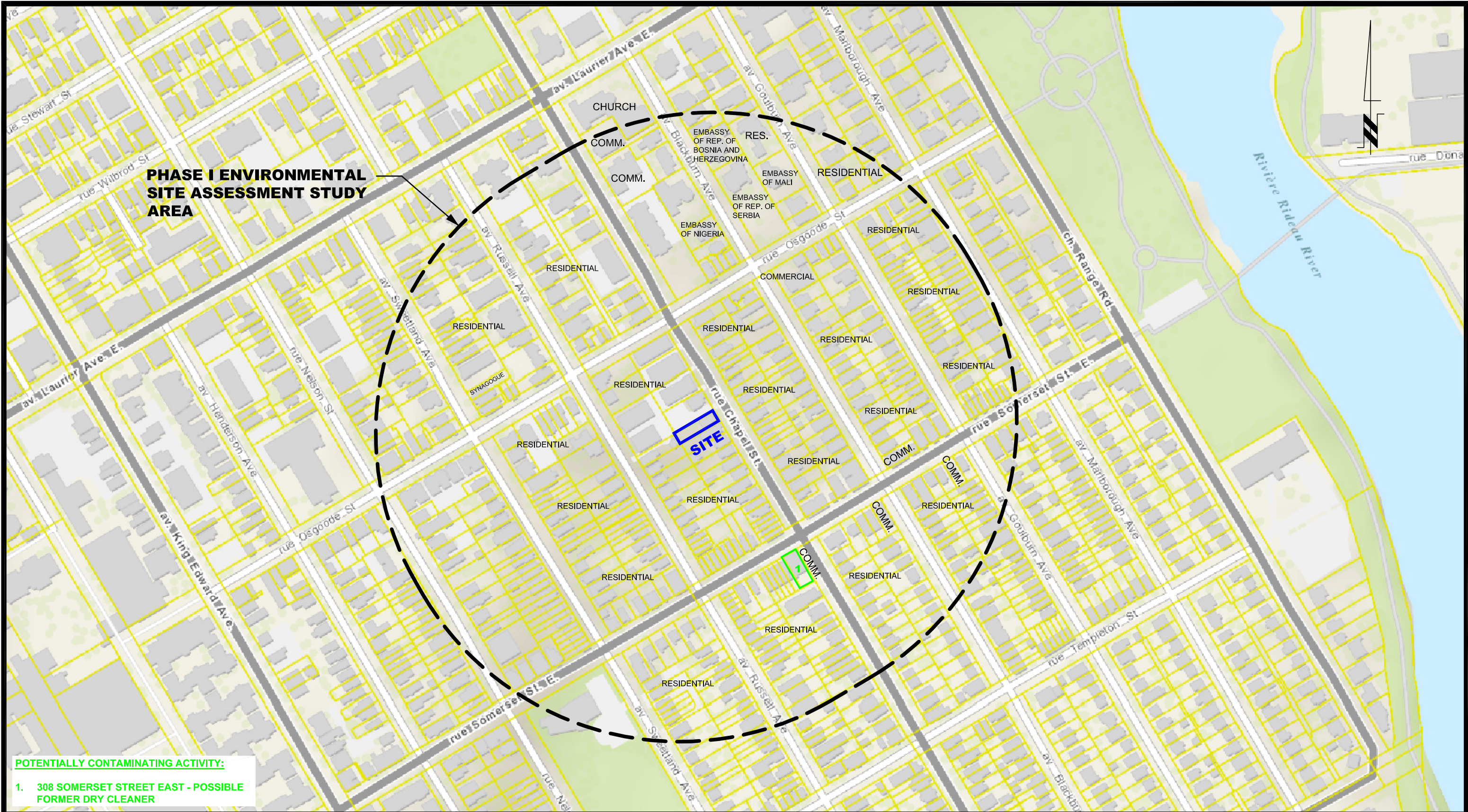
FIGURE 2  
TOPOGRAPHIC MAP





<div><div>patersongroup</div><div>consulting engineers</div><div>154 Colonnade Road South Ottawa, Ontario K2E 7J5 Tel: (613) 226-7381 Fax: (613) 226-6344</div></div>					OTTAWA, Title:	368 CHAPEL STREET INC. PHASE I - ENVIRONMENTAL SITE ASSESSMENT 368 CHAPEL STREET ONTARIO	Scale:	1:150	Date:	11/2017
							Drawn by:	RCG	Report No.:	PE4136-1
							Checked by:	MM	Dwg. No.:	PE4136-1
	0						Approved by:	MSD	Revision No.:	
	NO.	REVISIONS	DATE	INITIAL						





**PHASE I ENVIRONMENTAL  
SITE ASSESSMENT STUDY  
AREA**

**POTENTIALLY CONTAMINATING ACTIVITY:**

1. 308 SOMERSET STREET EAST - POSSIBLE  
FORMER DRY CLEANER

**patersongroup**  
consulting engineers

154 Colonnade Road South  
Ottawa, Ontario K2E 7J5  
Tel: (613) 226-7381 Fax: (613) 226-6344

0			
NO.	REVISIONS	DATE	INITIAL

368 CHAPEL STREET INC.  
PHASE I - ENVIRONMENTAL SITE ASSESSMENT  
368 CHAPEL STREET  
OTTAWA, ONTARIO

Title:  
**SURROUNDING LAND USE PLAN**

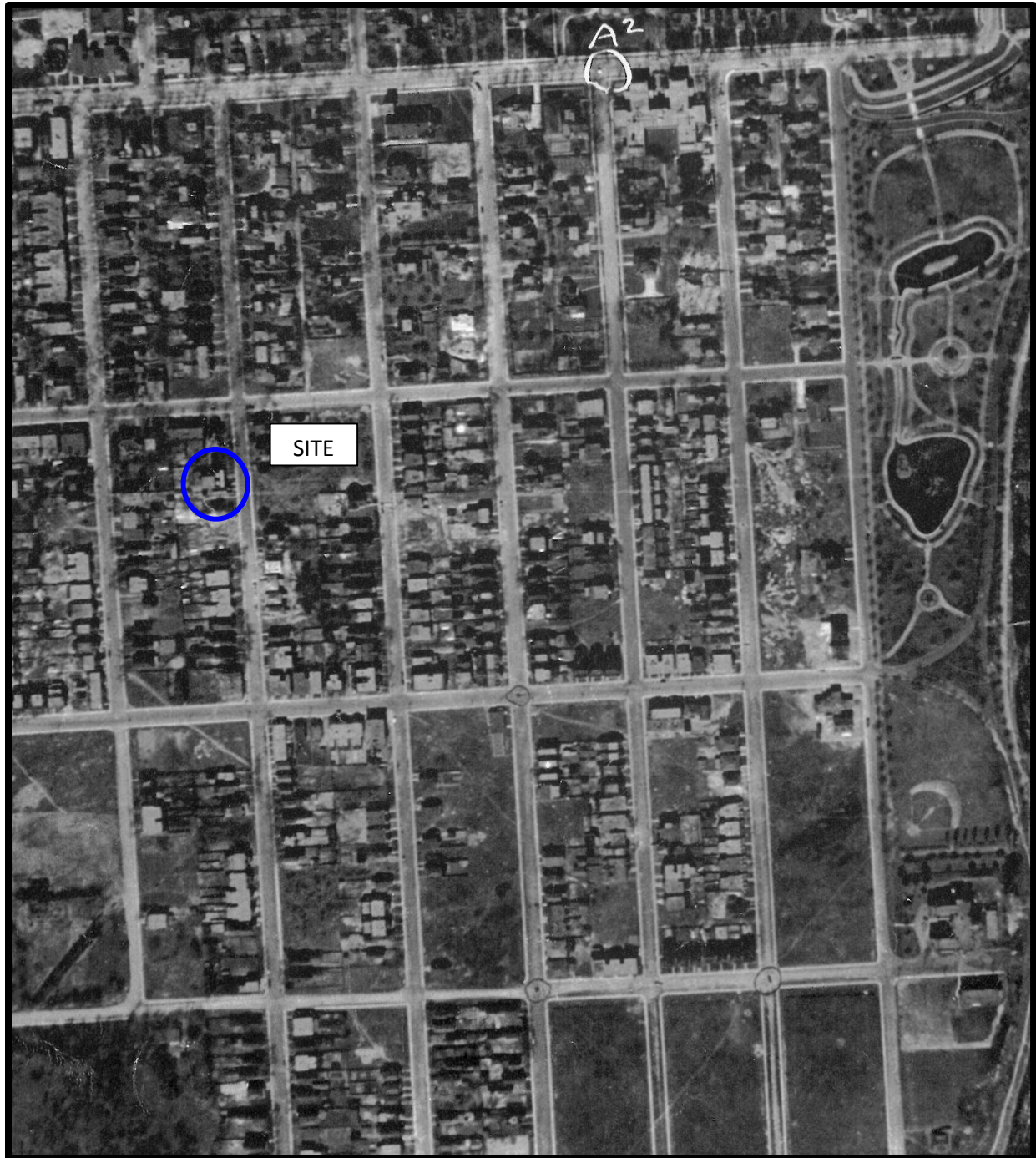
Scale:	1:3000	Date:	11/2017
Drawn by:	MPG	Report No.:	PE4136-1
Checked by:	MM	Dwg. No.:	<b>PE4136-2</b>
Approved by:	MSD	Revision No.:	0



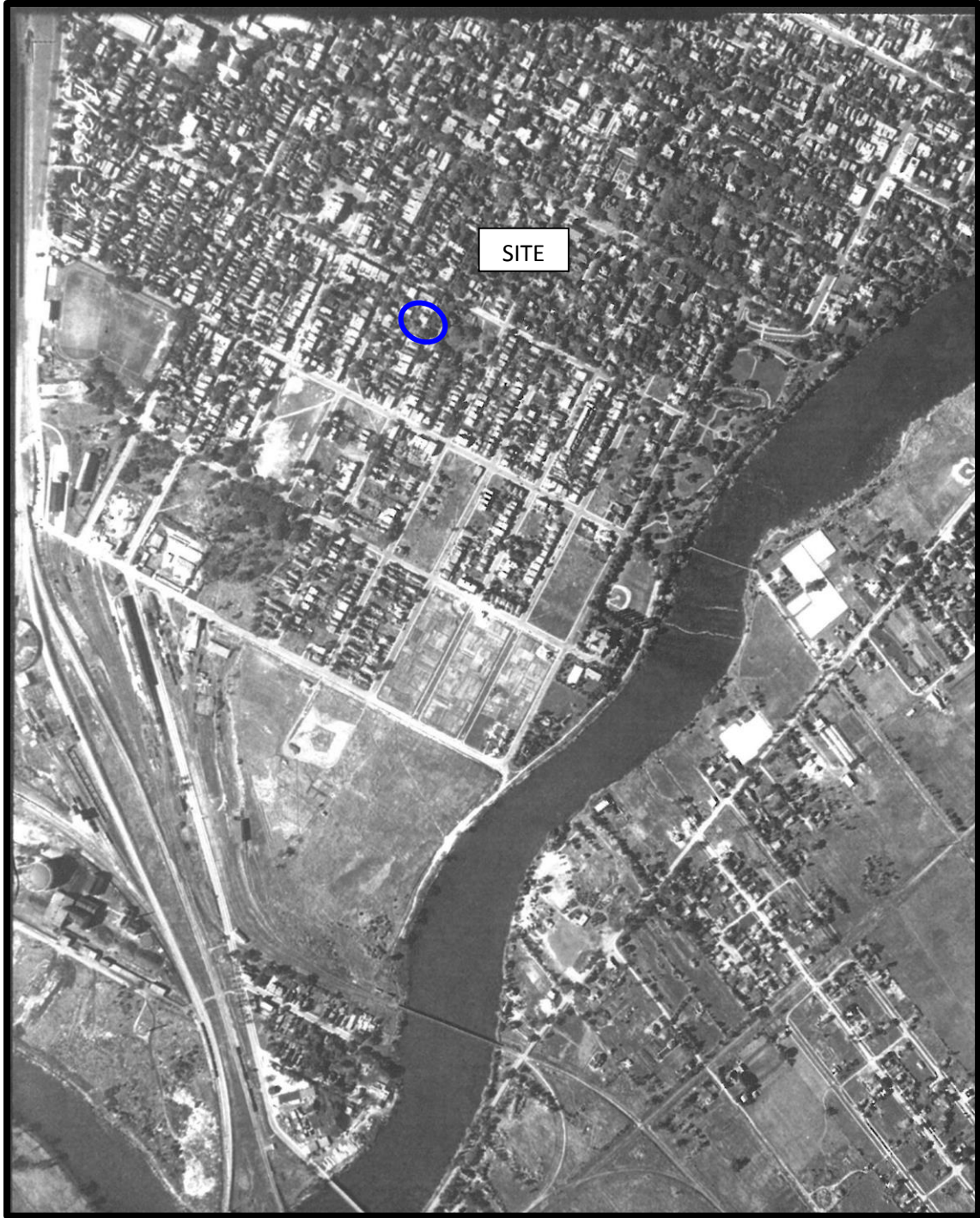
# **APPENDIX 1**

**AERIAL PHOTOGRAPHS**

**SITE PHOTOGRAPHS**



AERIAL PHOTOGRAPH  
1928



AERIAL PHOTOGRAPH  
1938



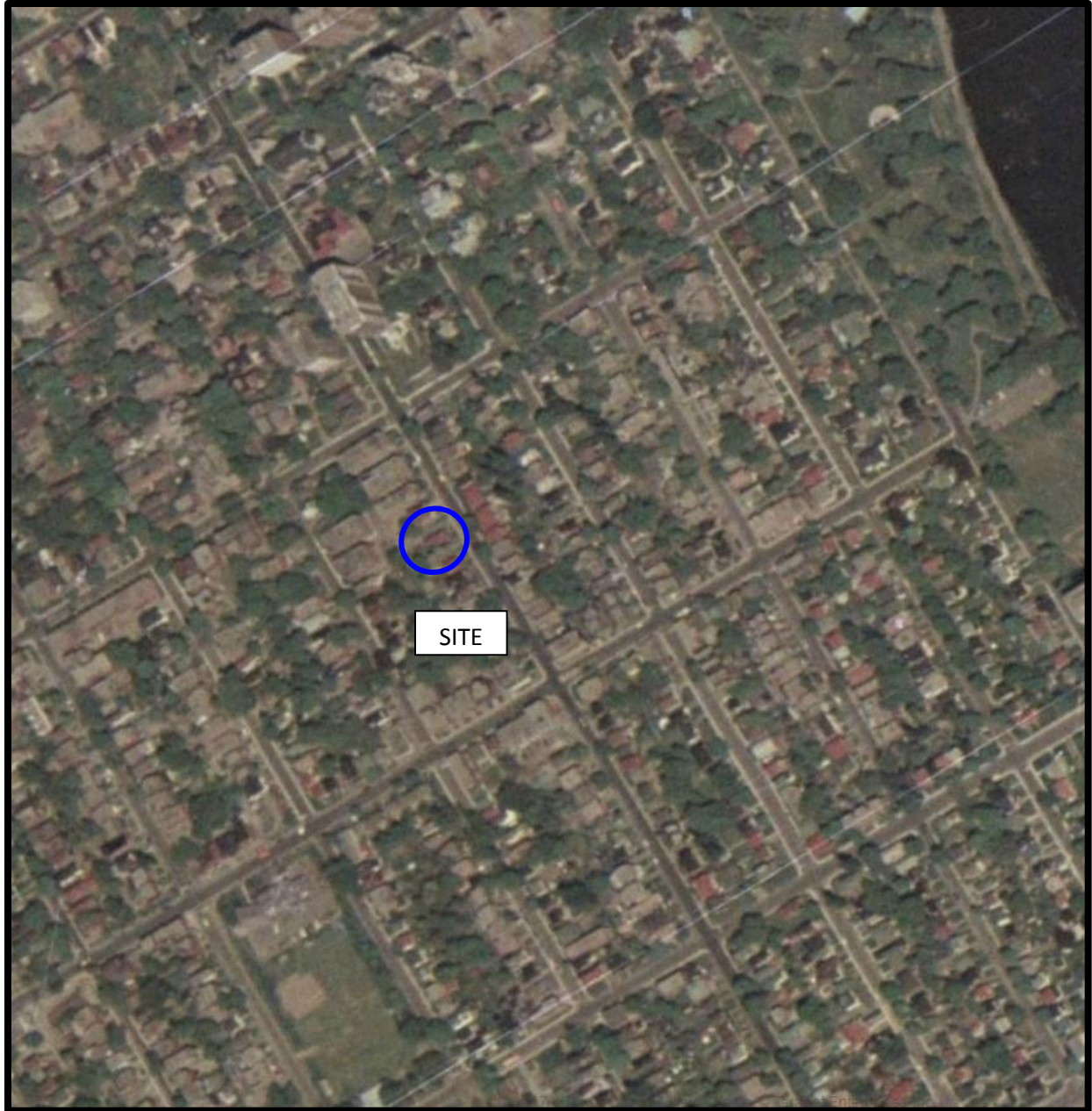


AERIAL PHOTOGRAPH  
1945





AERIAL PHOTOGRAPH  
1968



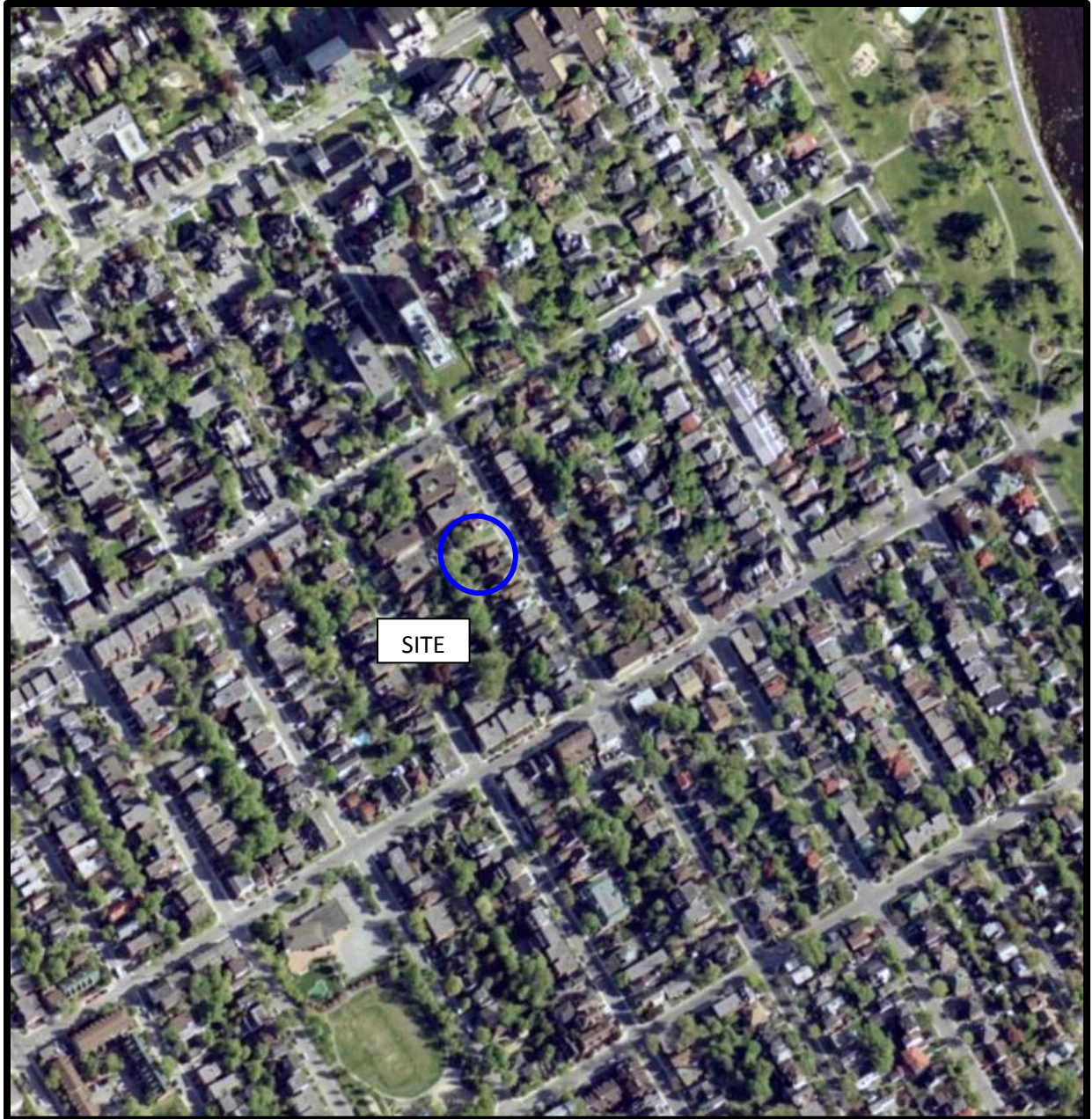
AERIAL PHOTOGRAPH  
1976





AERIAL PHOTOGRAPH  
1992





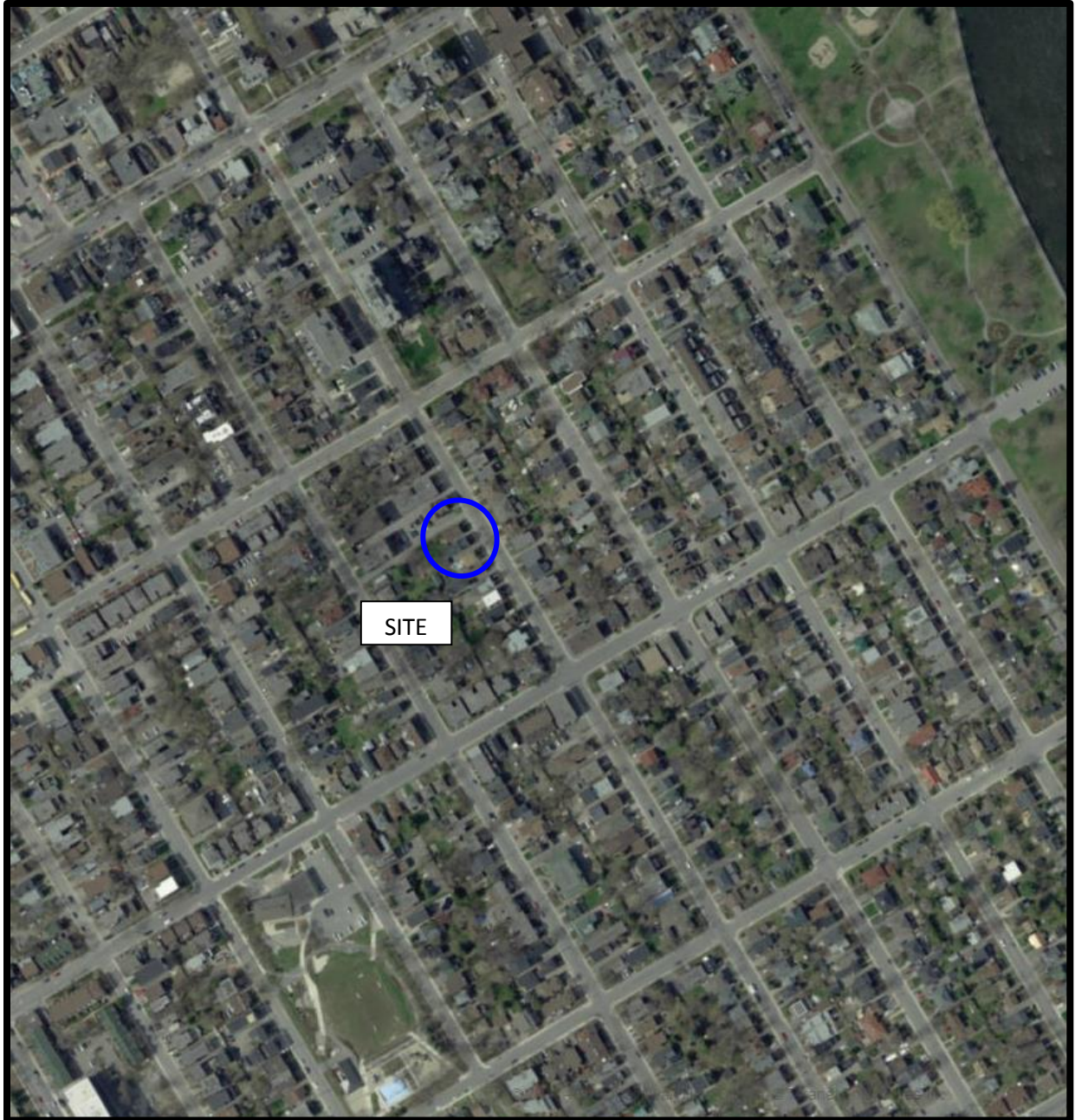
AERIAL PHOTOGRAPH  
2002





AERIAL PHOTOGRAPH  
2008





AERIAL PHOTOGRAPH  
2014



## Site Photographs

PE4136

368 Chapel Street, Ottawa, ON

November 13, 2017



Photograph 1: View of the eastern and northern portions of the subject site. Picture taken facing southeast. Photograph illustrates the residential dwelling and a landscaped area.



Photograph 2: View of the south portion of the subject site, facing west. Photograph illustrates an asphaltic concrete driveway.



## Site Photographs

PE4136

368 Chapel Street, Ottawa, ON

November 13, 2017



Photograph 3: View of the west portion of the subject site, facing west. Photograph illustrates a grass covered lawn and deck in the backyard. Trees are located around the perimeter of the subject site.



Photograph 4: Photograph of the interior of the residential dwelling on the lower level of the building.

# **APPENDIX 2**

**MOECC FREEDOM OF INFORMATION REQUEST**

**CITY OF OTTAWA HLUI SEARCH REQUEST**

**MOECC WELL RECORDS**

**TSSA CORRESPONDENCE**

Ministry of the Environment  
and Climate Change

Freedom of Information and  
Protection of Privacy Office

12<sup>th</sup> Floor  
40 St. Clair Avenue West  
Toronto ON M4V 1M2  
Tel: (416) 314-4075  
Fax: (416) 314-4285

Ministère de l'Environnement et de  
l'Action en matière de changement  
climatique

Bureau de l'accès à l'information et  
de la protection de la vie privée

12<sup>e</sup> étage  
40, avenue St. Clair ouest  
Toronto ON M4V 1M2  
Tél.: (416) 314-4075  
Téléc.: (416) 314-4285



October 31, 2017

Marek Moroz  
Paterson Group Inc  
154 Colonnade Rd  
Ottawa, ON K2E 7J5

Dear Marek Moroz:

RE: ***Freedom of Information and Protection of Privacy Act Request***  
**Our File # A-2017-07545, Your Reference PE4136**

The Ministry is in receipt of your request made pursuant to the *Freedom of Information and Protection of Privacy Act* and has received your payment in the amount of \$5.00 (non-refundable application fee), along with your \$30.00 deposit.

**The search is being conducted on the following: 368 Chapel Street, Ottawa. If there is any discrepancy please contact us immediately.**

You may expect a reply or additional communication as your request is processed. For your information, the Ministry charges for search, copying and preparation time.

If you have any questions regarding this matter, please contact Ginette Beaupre at [ginette.beaupre@ontario.ca](mailto:ginette.beaupre@ontario.ca).

Yours truly,



Janet Dadufalza  
FOI Manager





File Number: D06-03-17-0123

November 17, 2017

Marek Moroz  
Paterson Group  
154 Colonnade Road S  
Ottawa ON K2E 7S8

*Sent via email [mmoroz@patersongroup.ca]*

Dear Mr. Moroz,

**Re: Information Request  
368 Chapel Street, Ottawa, Ontario ("Subject Property")**

**Internal Department Circulation**

The Planning, Infrastructure and Economic Development Department has the following information in response to your request for information regarding the Subject Property:

- No information was returned on the Subject Property from Departmental circulation.

**Search of Historical Land Use Inventory**

**This acknowledges receipt of the signed Disclaimer regarding your request for information from the City's Historical Land Use Inventory (HLUI 2005) database for the Subject Property.**

A search of the HLUI database revealed the following information:

- There are no activities associated with the Subject Property.

The HLUI database was also searched for activity associated with properties located within 50m of the Subject Property. The search revealed the following:

- There are no activities associated with the properties located within 50m of the Subject Property.

Additional information may be obtained by contacting:

*Shaping our future together  
Ensemble, formons notre avenir*

City of Ottawa  
Planning, Infrastructure and Economic  
Development Department

110 Laurier Avenue West, 4th Floor  
Ottawa, ON K1P 1J1  
Tel: (613) 580-2424 ext. 14743  
Fax: (613) 560-6006  
www.ottawa.ca

Ville d'Ottawa  
Services de la planification, de l'infrastructure et  
du développement économique

110, avenue Laurier Ouest, 4e étage  
Ottawa (Ontario) K1P 1J1  
Tél.: (613) 580-2424 ext. 14743  
Télééc: (613) 560-6006  
www.ottawa.ca

## **Ontario's Environmental Registry**

The Environmental Registry found at <http://www.ebr.gov.on.ca/ERS-WEB-External/> contains "public notices" about environmental matters being proposed by all government ministries covered by the Environmental Bill of Rights. The public notices may contain information about proposed new laws, regulations, policies and programs or about proposals to change or eliminate existing ones. By using key words i.e. name of proponent/owner and the address one can ascertain if there is any information on the proponent and address under the following categories: Ministry, keywords, notice types, Notice Status, Acts, Instruments and published date (all years).

## **The Ontario Land Registry Office**

Registration of real property is recorded in the Ontario Land Registry Office through the Land Titles Act or the Registry Act. Documents relating to title and other agreements that may affect your property are available to the public for a fee. It is recommended that a property search at the Land Registry Office be included in any investigation as to the historic use of your property. The City of Ottawa cannot comment on any documents to which it is not a party.

Court House  
161 Elgin Street 4th Floor  
Ottawa ON K2P 2K1  
Tel: (613) 239-1230  
Fax: (613) 239-1422

**Please note, as per the HLUI Disclaimer, that the information contained in the HLUI database has been compiled from publicly available records and other sources of information. The HLUI may contain erroneous information given that the records used as sources of information may be flawed. For instance, changes in municipal addresses over time may introduce error. Accordingly, all information from the HLUI database is provided on an "as is" basis with no representation or warranty by the City with respect to the information's accuracy or exhaustiveness in responding to the request.**

**Furthermore, the HLUI database and the results of this search in no way confirm the presence or absence of contamination or pollution of any kind. This information is provided on the assumption that it will not be relied upon by any person for any purpose whatsoever. The City of Ottawa denies all liability to any persons attempting to rely on any information provided from the HLUI database.**

**Please note that in responding to your request, the City of Ottawa does not guarantee or comment on the environmental condition of the Subject Property. You may wish to contact the Ontario Ministry of Environment and Climate Change for additional information.**

If you have any further questions or comments, please contact Ben Crooks at 613-580-2424 ext. 14743 or HLUI@ottawa.ca

Sincerely,

A handwritten signature in black ink, appearing to read 'Ben Crooks', with a long horizontal flourish extending to the right.

Ben Crooks



Per:

Michael Boughton, MCIP, RPP  
Senior Planner  
Development Review East  
Planning Services  
Planning, Infrastructure and Economic Development Department

MB/BC

cc: File no. D06-03-17-0123



<p>Scale 1: n/a</p>	<p>368 Chapel Street Ottawa, ON File # D06-03-17-0123 Ben Crooks</p> 	<p><u>Overview</u></p> <p>ID# = Activity Identification Number</p> <p> = Subject Site</p>
---------------------	--	--

## Instructions for Completing Form

- For use in the **Province of Ontario** only. This document is a permanent **legal** document. Please retain for future reference.
- All Sections **must** be completed in full to avoid delays in processing. Further instructions and explanations are available on the back of this form.
- Questions regarding completing this application can be directed to the Water Well Help Desk (Toll Free) at 1-888-396-9355.
- All metre measurements shall be reported to 1/10<sup>th</sup> of a metre.**
- Please print clearly in blue or black ink only.

Ministry Use Only									
MUN	CON	LOT	CON	LOT	CON	LOT	CON	LOT	CON

Address of well location (County/District/Municipality)				Township				Lot				Concession			
RR#/Street Number/Name 324 Chapel Street								City/Town/Village Ottawa				Site/Compartment/Block/Tract etc.			
GPS Reading		NAD		Zone		Easting		Northing		Unit Make/Model		Mode of Operation:			
8.3		118		4469810		5030562		Magellan				<input type="checkbox"/> Undifferentiated <input checked="" type="checkbox"/> Averaged <input type="checkbox"/> Differentiated, specify _____			

## Log of Overburden and Bedrock Materials (see instructions)

General Colour	Most common material	Other Materials	General Description	Depth From	Metres To
Brown	Asphalt surface			0	1.7
Grey	Sand + gravel trace cobbles		med to fine grained	1.7	4.88
	Clay-silty, blocky		moist to wet		
1 Monitoring well installation as per O.MOE Reg 903					

Hole Diameter		
Depth From	Metres To	Diameter Centimetres
0	4.88	10

Water Record		
Water found at	Metres	Kind of Water
<input type="checkbox"/> m	<input type="checkbox"/> Fresh	<input type="checkbox"/> Sulphur
<input type="checkbox"/> Gas	<input type="checkbox"/> Salty	<input type="checkbox"/> Minerals
<input type="checkbox"/> Other:		
<input type="checkbox"/> m	<input type="checkbox"/> Fresh	<input type="checkbox"/> Sulphur
<input type="checkbox"/> Gas	<input type="checkbox"/> Salty	<input type="checkbox"/> Minerals
<input type="checkbox"/> Other:		
<input type="checkbox"/> m	<input type="checkbox"/> Fresh	<input type="checkbox"/> Sulphur
<input type="checkbox"/> Gas	<input type="checkbox"/> Salty	<input type="checkbox"/> Minerals
<input type="checkbox"/> Other:		
After test of well yield, water was		
<input type="checkbox"/> Clear and sediment free		
<input type="checkbox"/> Other, specify _____		
Chlorinated <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		

Construction Record					
Inside diam centimetres	Material	Wall thickness centimetres	Depth From	Metres To	
<b>Casing</b>					
51 mm	<input type="checkbox"/> Steel <input type="checkbox"/> Fibreglass <input checked="" type="checkbox"/> Plastic <input type="checkbox"/> Concrete <input type="checkbox"/> Galvanized	40	0	1.3	
<b>Screen</b>					
Outside diam	<input type="checkbox"/> Steel <input type="checkbox"/> Fibreglass <input checked="" type="checkbox"/> Plastic <input type="checkbox"/> Concrete <input type="checkbox"/> Galvanized	Slot No.			
58 mm		10	1.5	4.88	
<b>No Casing or Screen</b>					
<input type="checkbox"/> Open hole					

Test of Well Yield			
Pumping test method	Draw Down	Recovery	
	Time min	Water Level Metres	Time min
Pump intake set at - (metres)	Static Level		
Pumping rate - (litres/min)	1		1
Duration of pumping	2		2
hrs + min			
Final water level end of pumping	3		3
metres			
Recommended pump type	4		4
<input type="checkbox"/> Shallow <input type="checkbox"/> Deep			
Recommended pump depth	5		5
metres			
Recommended pump rate	10		10
(litres/min)			
If flowing give rate -	15		15
(litres/min)			
If pumping discontinued, give reason.	20		20
	25		25
	30		30
	40		40
	50		50
	60		60

Plugging and Sealing Record			<input checked="" type="checkbox"/> Annular space	<input type="checkbox"/> Abandonment
Depth set at - Metres	Material and type (bentonite slurry, neat cement slurry) etc.	Volume Placed (cubic metres)		
0.3	1 Bentonite	20 kg		

Method of Construction			
<input type="checkbox"/> Cable Tool	<input type="checkbox"/> Rotary (air)	<input type="checkbox"/> Diamond	<input type="checkbox"/> Digging
<input type="checkbox"/> Rotary (conventional)	<input type="checkbox"/> Air percussion	<input type="checkbox"/> Jetting	<input type="checkbox"/> Other
<input type="checkbox"/> Rotary (reverse)	<input type="checkbox"/> Boring	<input type="checkbox"/> Driving	<input checked="" type="checkbox"/> Auger

Water Use			
<input type="checkbox"/> Domestic	<input type="checkbox"/> Industrial	<input type="checkbox"/> Public Supply	<input checked="" type="checkbox"/> Other
<input type="checkbox"/> Stock	<input type="checkbox"/> Commercial	<input type="checkbox"/> Not used	<input checked="" type="checkbox"/> Sample
<input type="checkbox"/> Irrigation	<input type="checkbox"/> Municipal	<input type="checkbox"/> Cooling & air conditioning	

Final Status of Well			
<input type="checkbox"/> Water Supply	<input type="checkbox"/> Recharge well	<input type="checkbox"/> Unfinished	<input type="checkbox"/> Abandoned, (Other)
<input checked="" type="checkbox"/> Observation well	<input type="checkbox"/> Abandoned, insufficient supply	<input type="checkbox"/> Dewatering	
<input type="checkbox"/> Test Hole	<input type="checkbox"/> Abandoned, poor quality	<input type="checkbox"/> Replacement well	

Well Contractor/Technician Information	
Name of Well Contractor	Well Contractor's Licence No.
George Downing Estate Drilling Ltd	1844
Business Address (street name, number, city etc.)	
410 Main Street Grenville Sur La Rivee Qc J0V 1B0	
Name of Well Technician (last name, first name)	Well Technician's Licence No.
Downing Bruce	12173
Signature of Technician/Contractor	Date Submitted
<i>[Signature]</i>	2009 10 18

Location of Well	
In diagram below show distances of well from road, lot line, and building. Indicate north by arrow.	

Please see attached site plan

Audit No.	z 58316	Date Well Completed	2006 11 21
Was the well owner's information package delivered?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Date Delivered	YYYY MM DD

Ministry Use Only	
Date Source	Contractor
Date Received	1844
Date of Inspection	YYYY MM DD
Remarks	Well Record Number



LEGEND

MONITORING WELL

FENCE - CHAIN LINK

FENCE - WOODEN

PROPERTY BOUNDARY

SITE LOCATION

ONCR

STONE FILLERATION WALL

UTILITIES & STRUCTURES

STANDARD RICH BAR

HYDRO POLE

U/G ELECTRICAL

U/G TELEPHONE CABLE (TV)

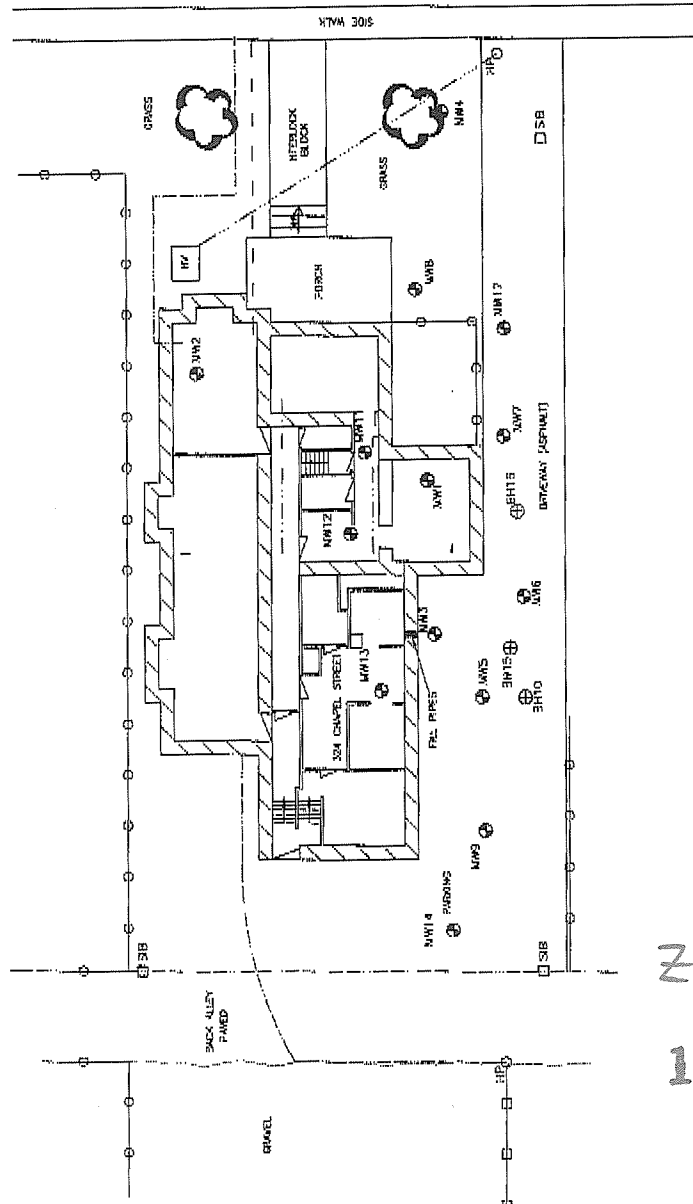
U/G NATURAL GAS

U/G SANITARY SEWER

U/G WATER LINE

HP

HP



CHapel STREET

SIDE WALK

GRASS

HERBARK BLOCK

PARKING

BACK ALLEY

CHapel

FILL PIPES

UNIT 1

UNIT 2

UNIT 3

UNIT 4

UNIT 5

UNIT 6

UNIT 7

UNIT 8

UNIT 9

UNIT 10

UNIT 11

UNIT 12

UNIT 13

UNIT 14

UNIT 15

NOTES

1. DRAWING COMPILED FROM FIELD NOTES FROM APRIL 2000

**SEACOR**  
ENVIRONMENTAL INC.

THE ECONOMICAL INSURANCE GROUP  
324 CHAPEL STREET  
OTTAWA, ONTARIO

PHASE II ENVIRONMENTAL SITE  
ASSESSMENT

SITE PLAN

SCALE	DATE	FILE NAME	DATE	DATE	DATE
1" = 20'	2000-04-20	2000-04-20	2000-04-20	2000-04-20	2000-04-20

Z58316

1844

JUN 04 2007



THIS DRAWING IS FOR CONCEPTUAL PURPOSES ONLY. ACTUAL  
LOCATIONS MAY VARY AND NOT ALL STRUCTURES ARE SHOWN.

## Marek Moroz

---

**From:** Prem Lal <plal@tssa.org> on behalf of Public Information Services  
<publicinformationservices@tssa.org>  
**Sent:** October-30-17 6:52 PM  
**To:** Marek Moroz  
**Subject:** RE: TSSA Records Search, PE4136 - Ottawa, ON

Hi Merek:

Thank you for your inquiry.

We have no record in our database of any fuel storage tanks at the subject address (addresses).

For a further search in our archives please submit your request in writing to Public Information Services via e-mail ([publicinformationservices@tssa.org](mailto:publicinformationservices@tssa.org)) or through mail along with a fee of \$56.50 (including HST) per location. The fee is payable with credit card (Visa or MasterCard) or with a Cheque made payable to TSSA.

Thank you and have a great day.

Prem



**Prem Lal | Public Information Coordinator**

Facilities and Business Services

345 Carlingview Drive

Toronto, Ontario M9W 6N9

Tel: +1-416-734-3570 | Fax: +1-416-734-3568 | E-Mail: [plal@tssa.org](mailto:plal@tssa.org)

[www.tssa.org](http://www.tssa.org)



---

**From:** Marek Moroz [mailto:[MMoroz@Patersongroup.ca](mailto:MMoroz@Patersongroup.ca)]  
**Sent:** October 30, 2017 2:53 PM  
**To:** Public Information Services <publicinformationservices@tssa.org>  
**Subject:** TSSA Records Search, PE4136 - Ottawa, ON

Good afternoon,

Could you please conduct a search of your records for underground/aboveground storage tanks, historical spills and other incidents/infractions for the following addresses for properties located in Ottawa, Ontario:

**81, 93, 107 Russell Avenue;**

**355, 357, 359, 364, 368, 370 Chapel Street;**

**and 195, 240 Osgoode Street**

Thank you very much,

Marek

Marek Moroz, G.I.T.

**patersongroup**  
solution oriented engineering  
60 years serving our clients

154 Colonnade Road South  
Ottawa, Ontario, K2E 7J5

Cell: (613) 229-9822

Tel: (613) 226-7381 Ext. 248

Fax: (613) 226-6344

Email: [MMoroz@patersongroup.ca](mailto:MMoroz@patersongroup.ca)

This electronic message and any attached documents are intended only for the named recipients.

This electronic message and any attached documents are intended only for the named recipients. This communication from the Technical Standards and Safety Authority may contain information that is privileged, confidential or otherwise protected from disclosure and it must not be disclosed, copied, forwarded or distributed without authorization. If you have received this message in error, please notify the sender immediately and delete the original message.



# **APPENDIX 3**

## **QUALIFICATIONS OF ASSESSORS**

Geotechnical  
Engineering

Environmental  
Engineering

Hydrogeology

Geological  
Engineering

Materials Testing

Building Science

Archaeological  
Services

## POSITION

Associate and Supervisor of the Environmental Division  
Senior Environmental/Geotechnical Engineer

## EDUCATION

Queen's University, B.A.Sc.Eng, 1991  
Geotechnical / Geological Engineering

## MEMBERSHIPS

Ottawa Geotechnical Group  
Professional Engineers of Ontario

## EXPERIENCE

*1991 to Present*

### **Paterson Group Inc.**

Associate and Senior Environmental/Geotechnical Engineer  
Environmental and Geotechnical Division  
Supervisor of the Environmental Division

## SELECT LIST OF PROJECTS

Mary River Exploration Mine Site - Northern Baffin Island  
Agricultural Supply Facilities - Eastern Ontario  
Laboratory Facility – Edmonton (Alberta)  
Ottawa International Airport - Contaminant Migration Study - Ottawa  
Richmond Road Reconstruction - Ottawa  
Billings Hurdman Interconnect - Ottawa  
Bank Street Reconstruction - Ottawa  
Environmental Review – Various Laboratories across Canada - CFIA  
Dwyer Hill Training Centre – Ottawa  
Nortel Networks Environmental Monitoring - Carling Campus – Ottawa  
Remediation Program - Block D Lands – Kingston  
Investigation of former landfill sites – City of Ottawa  
Record of Site Condition for Railway Lands – North Bay  
Commercial Properties – Guelph and Brampton  
Brownfields Remediation – Alcan Site - Kingston  
Montreal Road Reconstruction - Ottawa  
Appleford Street Residential Development - Ottawa  
Remediation Program - Ottawa Train Yards  
Remediation Program - Bayshore and Heron Gate  
Gladstone Avenue Reconstruction – Ottawa  
Somerset Avenue West Reconstruction - Ottawa

**Geotechnical  
Engineering**

**POSITION**

Environmental Consultant

**Environmental  
Engineering**

**EDUCATION**

**Hydrogeology**

Algonquin College, Graduate Certificate, 2017  
Environmental Management and Assessment

**Geological  
Engineering**

University of Ottawa, 2012  
Specialization in Geology with Minor in Spanish

**Materials Testing**

**MEMBERSHIPS**

**Building Science**

Ottawa Geotechnical Group  
Association of Professional Geoscientists of Ontario

**Archaeological  
Services**

**EXPERIENCE**

*2017 to Present:*

**Paterson Group Inc.**

Consulting Engineers  
Geotechnical and Environmental Division  
Environmental Consultant

*2016 to 2017*

**Geological Survey of Canada**

Federal Research Organization in Earth Sciences  
Canada Groundwater Program  
Physical Scientist

*2012 to 2015*

**KGHM International**

International Mining Company  
Geologist and Project Manager

**SELECT LIST OF PROJECTS**

Contaminated Soil and Groundwater Sampling - Various sites - Eastern Ontario  
Surcharge and Settlement Surveys - Ottawa, ON  
Regional Groundwater Assessment and Research - Lake Simcoe Region  
Geological Compilation and 3D Modelling - Franke Mine, Chile  
Resource Investigation and Mineral Exploration - Rosita, Nicaragua