Geotechnical Engineering

Environmental Engineering

Hydrogeology

Geological Engineering

Materials Testing

Building Science

Archaeological Services

patersongroup

Phase I Environmental Site Assessment

8 Withrow Avenue Ottawa, Ontario

Prepared For

Anglican Diocese of Ottawa

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 December 9, 2019

Report: PE4799-1

TABLE OF CONTENTS

EXE	CUTIVE	E SUMMARY	ii
1.0	INTRC	DUCTION	1
2.0	PHAS	E I PROPERTY INFORMATION	2
3.0	SCOP	E OF INVESTIGATION	3
4.0	RECO	RDS REVIEW	4
	4.1	General	4
	4.2	Environmental Source Information	
	4.3	Physical Setting Sources	
5.0	INTER	VIEWS	9
6.0 SITE RECONNAISSANCE		RECONNAISSANCE	
	6.1	General Requirements	10
	6.2	Specific Observations at the Phase I Property	. 10
7.0	REVIEW AND EVALUATION OF INFORMATION1		13
	7.1	Land Use History	13
	7.2	Conceptual Site Model	15
8.0		LUSIONS	
9.0		EMENT OF LIMITATIONS	
10.0	REFE	RENCES	20

List of Figures

Figure 1 - Key Plan Figure 2 - Topographic Map Drawing PE4799-1 – Site Plan Drawing PE4799-2 – Surrounding Land Use Plan

List of Appendices

- Appendix 1 Aerial Photographs Site Photographs
- Appendix 2 MECP Freedom of Information Request City of Ottawa HLUI Request Water Well Records TSSA Correspondence
- Appendix 3 Qualifications of Assessors

EXECUTIVE SUMMARY

Assessment

Paterson Group was retained by the Anglican Diocese of Ottawa to conduct a Phase I Environmental Site Assessment (Phase I-ESA) of 8 Withrow Avenue, in the City of Ottawa, Ontario. The purpose of this Phase I – Environmental Site Assessment 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 properties.

The subject site was first developed around 1955 with the church, hall and rectory. The subject site has remained largely unchanged since that date.

In the subject area, PCAs included various retail fuel outlets, garages and dry cleaners. Of these, three properties are believed to represent APECs and consist of two RFOs and a dry cleaners.

Following the historical review, a site visit was conducted. An underground storage tank, that stored fuel oil, is believed to be located towards the centre of the subject site and represents a PCA and an APEC.

Recommendations

Based on the results of the Phase I - Environmental Site Assessment, it is our opinion that a Phase II - Environmental Site Assessment is required for the subject site.

Based on the age of the subject buildings, asbestos-containing materials (ACMs) are potentially present in the subject structures. These materials include drywall joint compound, plaster, stippled plaster, pipe insulation and vinyl tiles. Generally, these materials were in good condition with the exception of some of the pipe insulation. An asbestos survey of the building must be conducted in accordance with Ontario Regulation 278/05, under the Occupational Health and Safety Act, if one has not already been done.

Lead-based paint may be present on any remaining original surfaces within the buildings. It is recommended that original paint is tested for lead content prior to its disturbance. Major work involving lead-based paint or other lead-containing products must be done in accordance with Ontario Regulation 843, under the Occupational Health and Safety Act.

If the subject building is going to be demolished, the above-noted testing programs should be completed as part of a designated substance survey.

1.0 INTRODUCTION

At the request of the Anglican Diocese of Ottawa, Paterson Group (Paterson) conducted a Phase I Environmental Site Assessment (Phase I ESA) for 8 Withrow Avenue, 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.

This report has been prepared specifically and solely for the above-noted project which is described herein. It contains all our findings and results of the environmental conditions at this site. Instruction to proceed was received from Ms. Anna Froehlich of CCOC Housing.

This Phase I-ESA report has been prepared in general accordance with the requirements of Ontario Regulation 153/04, as amended, under the 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:	8 Withrow Avenue, Ottawa, Ontario.
Property Identification Number:	04689-0001.
Location:	The subject site is situated on the western corner of the intersection between Withrow Avenue and Merivale Road, in the City of Ottawa. For the purpose of this report, Merivale Road is assumed to travel in a north-south direction.
Latitude and Longitude:	45° 21' 17" N, 75° 44' 12" W;
Site Description:	
Configuration:	Irregular.
Site Area:	7,800 m ² (approximate).
Zoning:	AM10 – Arterial Main Street Zone I1B – Minor Institutional Zone.
Current Use:	The subject site is currently occupied by a church fronting onto Merivale Road and a house (rectory) fronting on to Rossland Avenue.
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 available sources, the property was first developed around 1955 as a church with a rectory.

Fire Insurance Plans

The fire insurance plans do not cover the area of the subject site.

City of Ottawa Street Directories

City directories at the National Archives were reviewed in approximate 10-year intervals from 1956 to 2011 as part of the Phase I ESA. A summary of PCAs in the Phase I study area is provided in the table below.

Table 1: City Directories – Potentially Contaminating Activities (PCA) in Phase I Study Area					
Address	Listed Activity (years listed)	Distance / Orientation from site	APEC		
1528 Merivale Rd	Coin Laundry and King Cole Kleenette (1965 – 1975)	15 m north	Yes		
1548 Merivale Rd	Shell RFO (2005) Merivale Service Centre (1984)	20 m south	Yes		
1543 and 1545 Merivale Rd	Ultramar RFO (1996 – 2011) Spur Gas Bar (1975)	25 m east	Yes		
1537 Merivale Rd	Sunoco RFO (1965 - 2005) Can Save RFO (1984)	55 m north	No		
1533 Merivale Rd	Penzoil and Jiffy Lube (2011) Gulf Service Station (1984) Service Station (1965 – 1975)	90 m north	No		
1523 Merivale Rd	Crown Cleaners (1996 - 2011) Spic Span Cleaners (1975)	160 m north	No		
1529 Merivale Rd	Kwick Kopy (1996)	140 m north	No		
1507 Merivale Rd	Garry's Service Station (1996)	250 m north	No		

The site was first identified on the directory dating after 1970. No PCAs or APECs were identified on the subject site in the directories

Numerous PCAs were identified in the subject area. These consisted of RFOs, garages and dry cleaners. The King Cole Kleenette located north of the subject site and two of the RFOs are considered to represent APECs.

4.2 Environmental Source Information

Environment and Climate Change Canada

A search of the National Pollutant Release Inventory (NPRI) was conducted electronically on November 8, 2019. The subject site was not listed in the NPRI database. No records of pollutant release were listed in the database for properties located within the Phase I Study Area.

PCB Inventory

A search of national PCB waste storage sites was conducted. No PCB waste storage sites were identified on the subject site or within a 250m radius.

Ontario Ministry of Environment (MECP) Instruments

A request was submitted to the MECP Freedom of Information office for information with respect to certificates of approval, permits to take water, certificates of property use or any other similar MECP issued instruments for the site. At the time of the 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.

MECP 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 study area.

MECP Incident Reports

A request was submitted to the MECP Freedom of Information office for information with respect to records concerning environmental incidents, orders, offences, spills, discharges of contaminants or inspections maintained by the MECP for the site or adjacent properties. At the time of the 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.

MECP Waste Management Records

A request was submitted to the MECP Freedom of Information office for information with respect to waste management records. At the time of the 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.

MECP Submissions

A request was submitted to the MECP Freedom of Information office for information with respect to reports related to environmental conditions that have been submitted to the MECP. 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.

MECP Brownfields Environmental Site Registry

A search of the MECP Brownfields environmental site registry was conducted electronically on November 11, 2019. Two (2) record of site condition (RSC) sites were listed in the database for properties within a 250 m radius of the subject site.

The nearest RSC property to the subject site is located at 1541 Merivale Road with the RSC filed on March 11, 2019. The property, located across Merivale Road from the subject site, was found to be impacted with PHC F1 and F2. Specifically, the soils and groundwater of the western portion of the 1541 Merivale Road property, closest to the subject site, were found to be impacted.

The other RSC was filed on June 20, 2011, for the property located at 1537 Merivale Road. The property was remediated, with validation sampling found to be in compliance with MECP standards.

MECP 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 waste disposal sites were identified within the Phase I study area.

Areas of Natural and Scientific Interest (ANSI)

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) on November 11, 2019. 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 on November 12, 2019, to inquire about current and former underground/aboveground storage tanks, spills and incidents for the subject and neighbouring properties. The response details;

- □ five active and three expired records at 1548 Merivale Road,
- □ four expired records at 1537 Merivale Road,
- □ six active, three inactive and three expired reports at 1543 Merivale Road.

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

A search of the City's Historical Land Use Inventory (HLUI 2005) database for the subject property was conducted as part of the Phase I ESA. At the time of the 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.

Previous Engineering Reports

No historical reports have been conducted at the subject site to our knowledge.

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:

1965 A church occupies the central/eastern portion of the subject site at this time, while a dwelling occupied the western portion. The subject

site occupies most of a city block between Withrow Avenue and Rossland Avenue and fronts onto Merivale Road. To the west of the subject site, the land appears to be residential in use while properties fronting onto Merivale Road appear to be mostly commercial.

- 1976 No significant changes have been made to the subject site. In the surrounding area, retail fuel outlets can be seen to the south, across Rossland Avenue and to the east across Merivale Road.
- 1991 No significant changes have been made to the subject site. In the subject area, retail fuel outlets can be identified immediately south of the subject site, to the east on the opposite side of Merivale Road and north of the intersection between Capilano Drive and Merivale Road. Significant commercial retail development has occurred east and north of the property.
- 2002 No significant changes have been made to the subject site or surrounding properties.
- 2011 The house on the western portion of the subject site was extended at this time. The RFO north of the intersection between Capilano Drive and Merivale Road was demolished at this time.
- 2017 No significant changes have been made to the subject site or surrounding properties.

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. The topographic maps indicate that the subject site and surrounding area slopes down gently to the south and southwest. An illustration of the referenced topographic map is present in Figure 2 - Topographic Map following the body of 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, "where the land is rarely more than 150 m above sea level, except for the Monteregian Hills, which consist of intrusive igneous rocks".

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 the information from NRCAN, bedrock in the area of the site consists of dolostone and sandstone of the Beekmantown Group. Based on the maps, the thickness of overburden is anticipated to be around 1 m and consists of glacial till.

Water Well Records

A search of the MECP's web site for all drilled well records within 250 m of the subject site was conducted on November 8, 2019. The search identified 71 records in the subject area, dating from 1949 to 2016. Of these, 44 records detailed water supply wells with 27 recording monitoring wells.

Two wells were recorded on the subject site and consisted of water supply wells serving the rectory and church. These wells were drilled in 1955 and 1957. Given the municipally supplied area, potable water wells in the subject area are expected to be obsolete.

The well records on the subject site record a nominal thickness soil, if any, overlying limestone bedrock. Groundwater was encountered around 35 m depth.

Water Bodies and Areas of Natural Significance

There are no waterbodies or areas of natural and scientific interest on the subject site or within the study area.

5.0 INTERVIEWS

Property Owner Representative

As part of this assessment, Mr. Stephen Lane, the church custodian, met with Paterson personnel to provide access and answer questions. Mr. Lane has been involved with the church since around 1980. Mr. Lane gave a detailed tour of the property, describing the history and use of each area of the buildings. He reported that the original church hall and rectory were constructed around 1955.

No major renovations have been completed in recent years. Mr. Lane pointed out the furnace and basement sump, explaining how it once drained to an external dry

well (the location of which is unknown) however, it now discharges to the city sewer. He also pointed out the location of the former underground storage tank (UST) that stored fuel oil for the furnace before it was converted to natural gas. The UST is reportedly still in place, however, it is understood to be empty.

Mr. Lane was unaware of any environmental issues with regard to the subject site.

6.0 SITE RECONNAISSANCE

6.1 General Requirements

The site assessment was conducted on November 19, 2019. Weather conditions were sunny, with a temperature of approximately -5 °C. Mr. Philip Price from the Environmental Department of Paterson Group conducted the site visit. In addition to the site, the uses of neighbouring properties within the Phase I study area were also assessed at the time of the site reconnaissance.

6.2 Specific Observations at the Phase I Property

Buildings and Structures

The subject site is occupied by a multi-use institutional building, with space for worship, a community hall, kitchen, daycare/preschool, book shop, second-hand shop and storage/office spaces. A detached rectory was located to the rear of the subject site.

The church is constructed on with a basement level finished with concrete blockwork walls and poured concrete floor. The hall and southern portion of the property is partly underlain by the basement/tunnels and partly constructed on a slab-on-grade. The buildings are currently heated by natural gas-fired furnaces located in the basements, supplemented by electric baseboard heaters and radiators. Previously, the buildings were heated by oil-fired furnaces with a UST believed to be located outside the church hall. It is believed that the rectory was historically heated by an oil-fired furnace though no evidence of this was seen. The rectory is currently heated by a natural gas-fired furnace.

Site Features

The subject buildings occupy around 20% of the property with the remainder set to a mix of parking lots, landscaping and children's play area. Adjacent properties are approximately at grade with respect to the subject site. Site drainage consists of infiltration and runoff towards the adjacent roadways.

Below Ground Structures

The general location of a historical UST was pointed out during the site visit which was reportedly located left of the porch towards the centre of the subject site. No vent or fill pipes could be identified to confirm the location.

The property is understood to have been on a private septic system prior to its connection to the city sewer. The exact location of the septic system was not known.

Potable Water Source

The subject property is municipally serviced.

Potential Environmental Concerns

□ Waste Management

Waste is stored at the rear (west) of the property and is collected by the city.

Wastewater Discharge

Wastewater is discharged to the municipal sewer system.

Potable Wells

No potable wells were observed on the subject site.

Railway Lines

No railway lines were observed on the subject site or within the Phase I ESA study area.

Polychlorinated Biphenyls (PCBs)

No transformers were observed on the subject site.

Unidentified Substances

There were no unidentified substances on the exterior of the subject property at the time of this assessment.

Interior Assessment

A general assessment of the interior of the buildings is as follows:

- □ The floors consisted of concrete, several styles of vinyl tile, hardwood, carpet and terrazzo.
- □ The walls consisted of poured concrete, concrete block and drywall.
- □ The ceilings consisted of stippled plaster, plaster and suspended tiles.
- Lighting throughout the buildings was of incandescent and fluorescent fixtures.

Potentially Hazardous Building Products

□ Asbestos Containing Materials (ACMs)

Based on the approximate age of the buildings (1955), asbestos-containing materials may have been used during construction and may still be present within the structures. These materials include drywall joint compound, plaster, stippled plaster, pipe insulation and vinyl tiles. Generally, materials were in good condition with the exception of some of the pipe insulation.

Lead-Based Paint

Based on the age of the buildings (1955), there is the potential for leadbased paints to be present. Painted surfaces were generally in good condition.

Polychlorinated Biphenyls (PCBs)

No potentially PCB containing materials were observed during our site inspection.

Urea Formaldehyde Foam Insulation (UFFI)

No signs of UFFI were noted at the time of the site visit, however it should be noted that interior wall and ceiling cavities were not inspected for insulation type at the time of the site visit.

Other Potential Environmental Concerns

Wastewater Drainage

Wastewater drainage from the building is expected to drain into the City of Ottawa sewer system. Two sump pits were located in the basement. The water appeared clear with no sheen.

□ Ozone Depleting Substances (ODSs)

Potential sources of ODSs observed on-site include fire extinguishers, coolers, refrigerators and air conditioning units. These appliances should be regularly serviced by a licensed contractor.

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 Withrow Avenue followed by residential and commercial retail land.
- East Merivale Road with an Ultramar RFO and commercial retail land beyond.
- South Rossland Avenue followed by a Shell RFO and school, with commercial retail land beyond.
- West Residential land followed by St. Helen's Place, with further residential land beyond.

Land use within the Phase I study area is shown on Drawing PE4799-2 - Surrounding Land Use Plan.

7.0 REVIEW AND EVALUATION OF INFORMATION

7.1 Land Use History

The following table indicates the current and past uses of the site dating back to the first developed use of the site.

Table 2: Land Use History					
Time Period	Land Use	Potentially Contaminating Activities	Areas of Potential Environmental Concern		
1955 to present	Church/rectory	UST	UST		

Potentially Contaminating Activities (PCAs)

The presence of the former heating oil UST is considered a PCA and APEC on the subject site. In the subject area, six PCAs were identified consisting of RFOs, dry

cleaners and vehicle maintenance garages. Of the PCAs, the King Cole Kleenette, located north of the subject site and two of the RFOs are considered to represent APECs on the subject site. These Potentially Contaminating Activities are shown on Drawing PE4799-2 Surrounding Land Use Plan.

Areas of Potential Environmental Concern	Location of APEC with respect to Phase I Property	Potentially Contaminating Activity	Location of PCA (on- site or off- site)	Contaminants of Potential Concern	Media Potentially Impacted
Former heating oil UST	The central portion of the Phase I ESA property	Item 28 - Gasoline and Associated Products Storage in Fixed UST	On-Site	PHCs, BTEX	Soil and groundwater
King Cole Kleenette, 1528 Merivale Road	The northern portion of Phase I ESA property	Item 37 - operation of dry cleaning equipment	Off-Site	VOCs	Groundwater
Retail Fuel Outlet, 1548 Merivale Road	The southern portion of Phase I ESA property	Item 28 - Gasoline and Associated Products Storage in Fixed UST	Off-Site	PHCs, BTEX	Soil and groundwater
Retail Fuel Outlet, 1543 Merivale Road	Eastern portion of Phase I ESA property	Item 28 - Gasoline and Associated Products Storage in Fixed UST	Off-Site	PHCs, BTEX	Soil and groundwater

Areas of Potential Environmental Concern (APEC)

Contaminants of Potential Concern (CPC)

Based on the APECs, the following Contaminants of Potential Concern (CPCs) have been identified:

- Petroleum Hydrocarbons Fractions 1 through 4 (PHCs F1-F4) this suite of parameters encompasses gasoline (Fraction 1), diesel and fuel oil (Fraction 2), and heavy oils (Fractions 3 and 4). PHCs F1-F4 were selected as CPCs for the Phase I property based on the presence of a fuel storage tank (UST) on site and at the neighbouring retail fuel outlets.
- Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) were selected as CPCs for the Phase I property based on the presence of a fuel storage tank (UST) on site and at the neighbouring retail fuel outlets.
- □ Volatile Organic Compounds (VOCs) were selected as CPCs for the Phase I property due to the historical offsite drycleaners.

7.2 Conceptual Site Model

Geological and Hydrogeological Setting

Based on the information from NRCAN, bedrock in the area of the site consists of dolostone and sandstone of the Beekmantown Group. Based on the maps, the thickness of overburden is anticipated to be around 1 m and consists of glacial till.

Contaminants of Potential Concern

As per Section 7.1 of this report, CPCs identified on the subject site include PHCs and VOCs including BTEX.

Existing Buildings and Structures

The subject site is occupied by church and rectory, first constructed around 1955.

Water Bodies

There are no waterbodies on the subject property or within the Phase I ESA study area.

Areas of Natural Significance

There are no areas of natural and scientific interest on the subject property or within the Phase I ESA study area.

Drinking Water Wells

Records of 71 wells were found in the study area, consisting of 44 water supply wells and 27 observation/monitoring wells.

Two wells were recorded on the subject site and consisted of water supply wells serving the rectory and church. These wells were drilled in 1955 and 1957. Given the municipally supplied area, potable water wells in the subject area are expected to be obsolete.

Neighbouring Land Use

Neighbouring land use in the Phase I study area consists of residential, institutional and commercial properties. Land use is shown on Drawing PE4799-2 Surrounding Land Use Plan.

Potentially Contaminating Activities and Areas of Potential Environmental Concern

As per Section 7.1 of this report, Potentially Contaminating Activities and Areas of Potential Environmental Concern were identified within the Phase I ESA study area.

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 there are areas of potential environmental concern on the subject site. The presence of potentially contaminating activities was 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 the Anglican Diocese of Ottawa to conduct a Phase I Environmental Site Assessment (Phase I-ESA) of 8 Withrow Avenue, in the City of Ottawa, Ontario. The purpose of this Phase I – Environmental Site Assessment 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 properties.

The subject site was first developed around 1955 with the church, hall and rectory. The subject site has remained largely unchanged since that date.

In the subject area, PCAs included various retail fuel outlets, garages and dry cleaners. Of these, three properties are believed to represent APECs and consist of two RFOs and a dry cleaners.

Following the historical review, a site visit was conducted. An underground storage tank, that stored fuel oil, is believed to be located towards the centre of the subject site and represents a PCA and an APEC.

Recommendations

Based on the results of the Phase I - Environmental Site Assessment, it is our opinion that a Phase II - Environmental Site Assessment is required for the subject site.

Based on the age of the subject buildings, asbestos-containing materials (ACMs) are potentially present in the subject structures. These materials include drywall joint compound, plaster, stippled plaster, pipe insulation and vinyl tiles. Generally, these materials were in good condition with the exception of some of the pipe insulation. An asbestos survey of the building must be conducted in accordance with Ontario Regulation 278/05, under the Occupational Health and Safety Act, if one has not already been done.

Lead-based paint may be present on any remaining original surfaces within the buildings. It is recommended that original paint is tested for lead content prior to its disturbance. Major work involving lead-based paint or other lead-containing products must be done in accordance with Ontario Regulation 843, under the Occupational Health and Safety Act.



If the subject building is going to be demolished, the above-noted testing programs should be completed as part of a designated substance survey.

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, 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 differs from our findings, we request that we are notified immediately in order to allow for a reassessment.

This report was prepared for the sole use of the Anglican Diocese of Ottawa. Permission and notification from the above-noted party and Paterson will be required to release this report to any other party.

Paterson Group Inc.

Philip Price, BSc.



Mark S. D'Arcy, P.Eng., Q.P. ESA



Report Distribution:

- Anglican Diocese of Ottawa
- 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

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

Municipal Records

The City of Ottawa Historical Land Use Inventory. The City of Ottawa geoOttawa website.

Local Information Sources

Personal Interviews.

Public Information Sources

Google Earth. Google Maps/Street View

FIGURES

FIGURE 1 – KEY PLAN

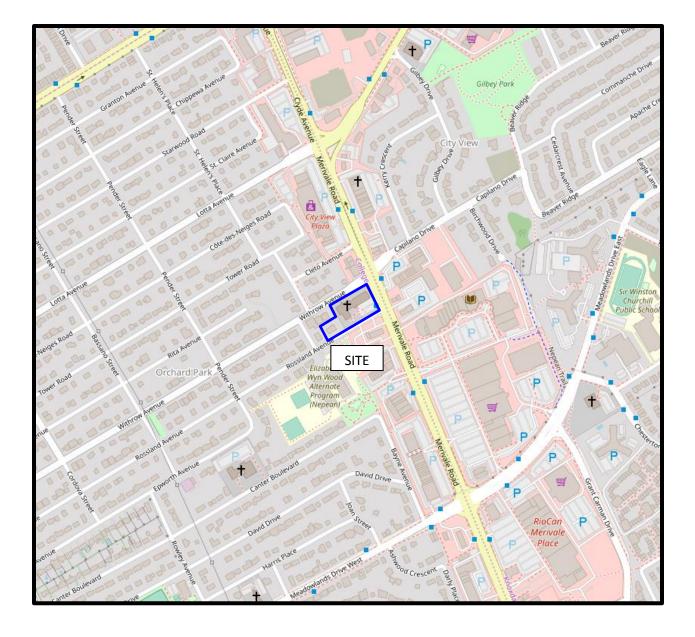
FIGURE 2 – TOPOGRAPHIC MAP

DRAWING PE4799-1 – SITE PLAN

DRAWING PE4799-2 – SURROUNDING LAND USE PLAN

patersongroup

<u>figure 1</u> KEY PLAN



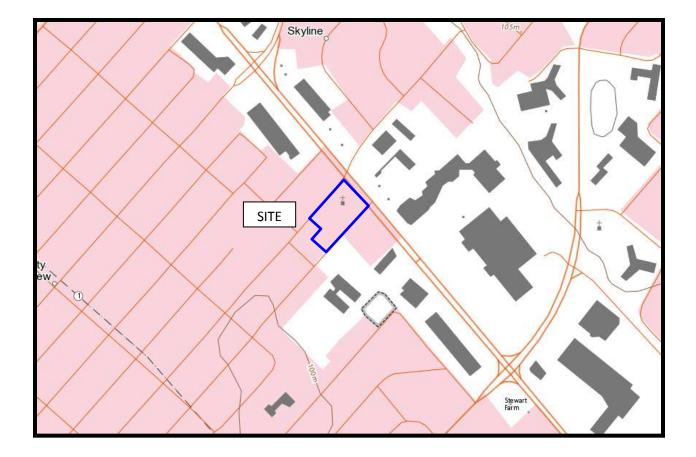
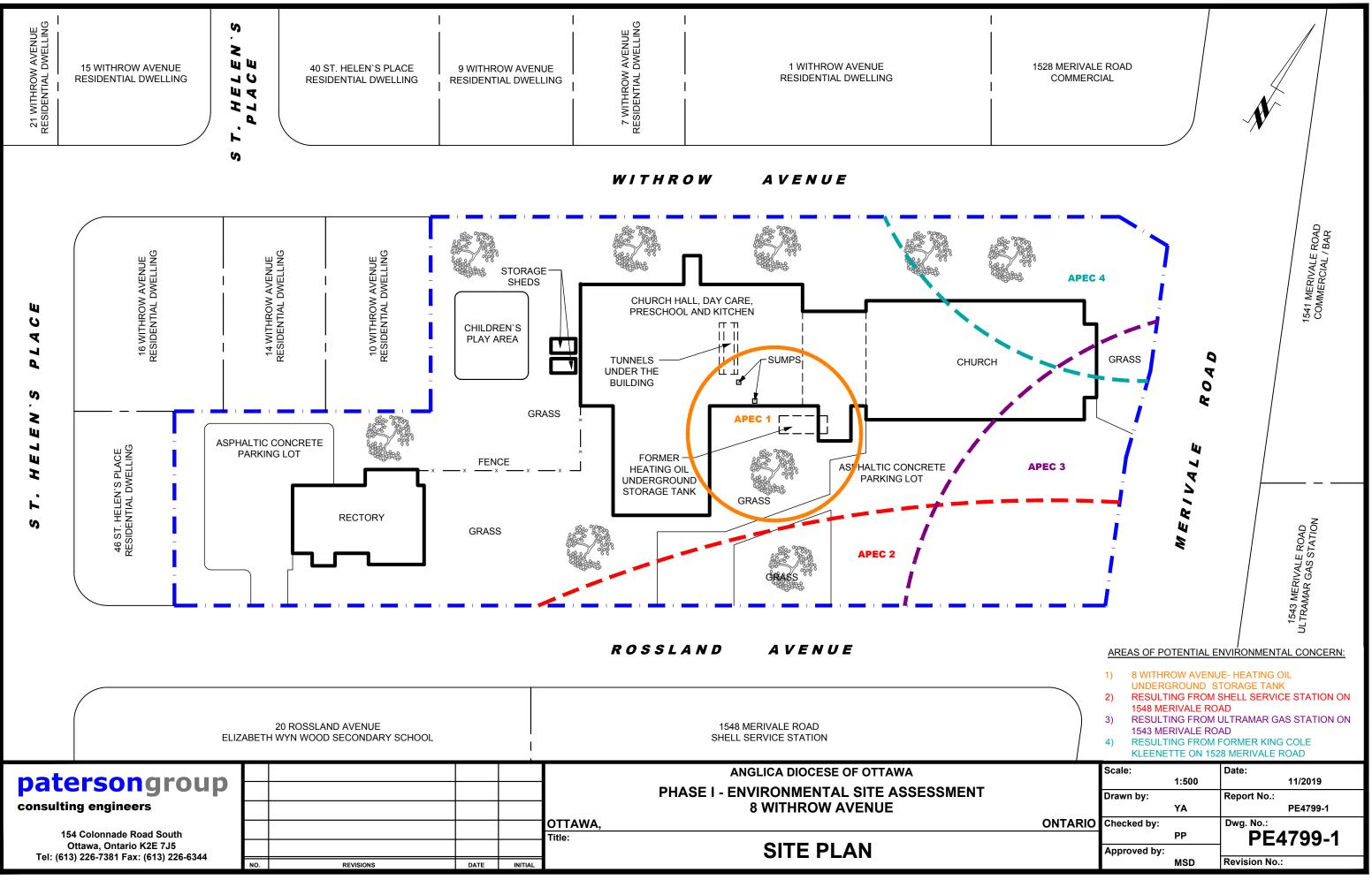
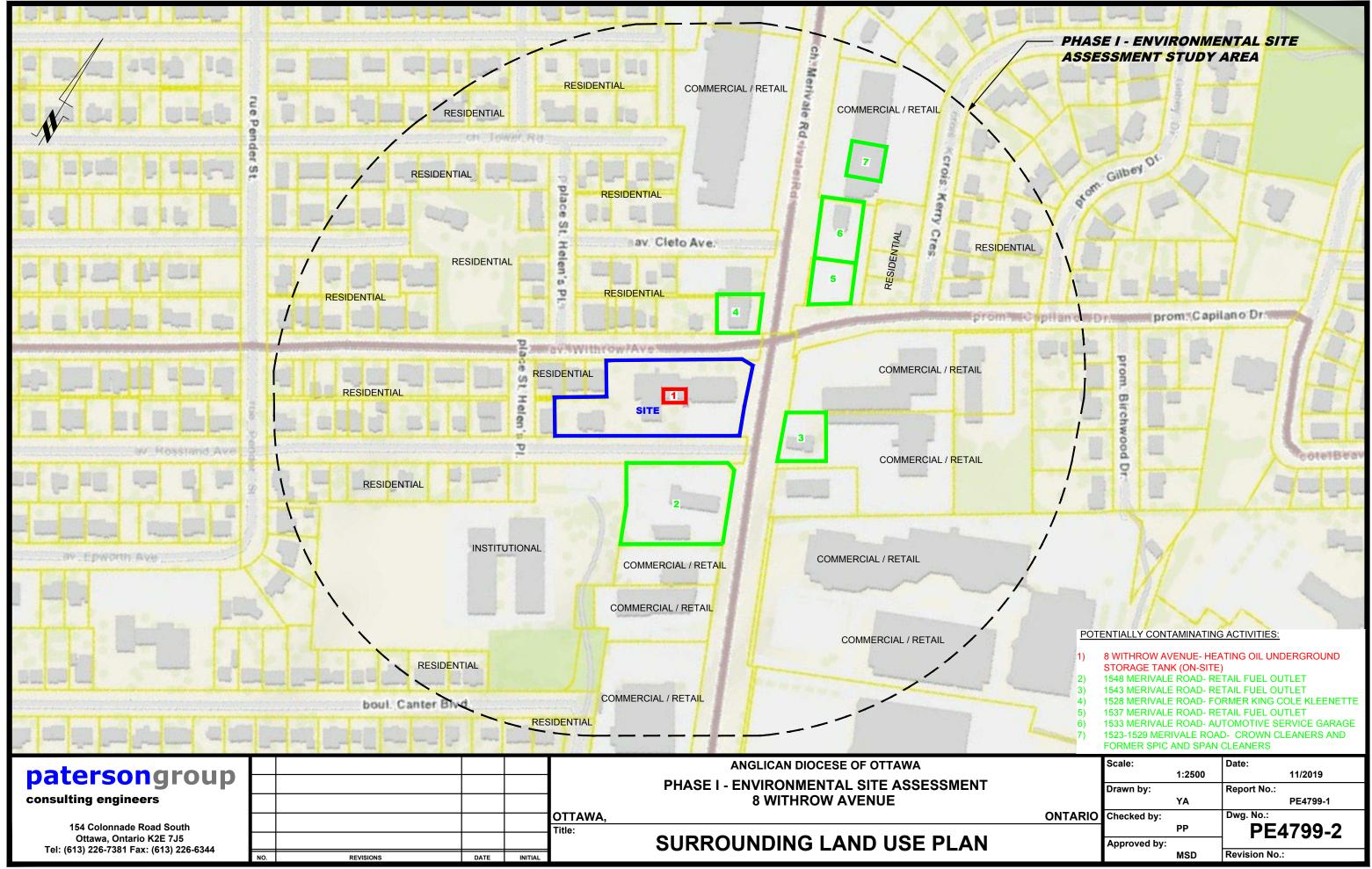


FIGURE 2 TOPOGRAPHIC MAP



utocad drawings\environmental\pe47xx\pe4799\pe4799-1-site plan



lautocad drawings\environmental\pe47xx\pe4799\pe4799-2-surrounding land use plan.dwg

APPENDIX 1

AERIAL PHOTOGRAPHS

SITE PHOTOGRAPHS













Site Photographs

PE4799-1

8 Withrow Avenue, Ottawa

December 9, 2019



Photograph 1: Southern face of the building with the church to the right and church hall to the left. The UST was reportedly located left of the porch towards the centre of the photo.



Photograph 2: Pipe lagging in poor condition. Located in the church balcony floor panel.

patersongroup

Site Photographs

PE4799-1

8 Withrow Avenue, Ottawa

December 9, 2019



Photograph 3 – Pipe lagging in poor condition located beside the basement sump pit.

Photograph 4 - Pipe lagging in poor condition located in the book shop.

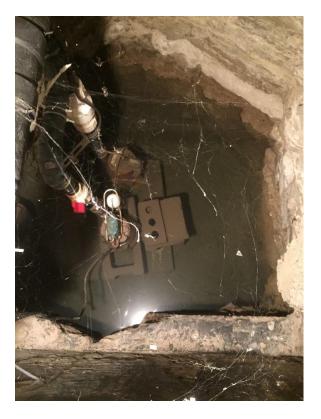
patersongroup

Site Photographs

PE4799-1

8 Withrow Avenue, Ottawa

December 9, 2019





Photograph 5 – Basement sump pit.

Photograph 6 – Gas-fired furnace.

patersongroup

APPENDIX 2

MECP FREEDOM OF INFORMATION REQUEST

CITY OF OTTAWA HLUI REQUEST

WATER WELL RECORDS

TSSA CORRESPONDENCE



Ministry of Environment and Energy

Freedom of Information Request

This form is for requesting documents which are in the Ministry's files on environmental concerns related to properties. Please refer to the guide on completion and use of this form. Our fax no. is (416) 314-4285.

	For Ministry Use Only					
Name, Company Name, Mailing Address and	Email Address of Requester	FOI Request No.		Date Request Received		
Philip Price		i Ornequestino.				
Paterson Group Inc. 154 Colonnade Road			Fee Paid	Fee Paid		
Ottawa, ON K2E 7J5				ם ג	VISA/MC 🗆 CASH	
Email address: pprice@pater	songroup.ca					
Telephone/Fax Nos. Tel. 613-226-7381	Your Project/Reference No.	Signature/Print /Name of Requester	□ CNR □ ER		R 🗆 SWR 🗆 WCR	
Fax 613-226-6344	PE4799					
		Request Parameters	3			
Municipal Address / Lot, Concession, Geog	graphic Township (Municipal	address essential for cities, towns or regio	ons)			
8 Withrow Avenue, Ottawa, 0 PIN - 04689-0001	Ontario					
Present Property Owner(s) and Date(s) of Own	nership					
Anglican Diocese of Ottawa	marahin					
Previous Property Owner(s) and Date(s) of Ow	mersnip					
Present/Previous Tenant(s),(if applicable)						
_Files older than 2 years may require		rch Parameters ere is no guarantee that records responsive	e to your request will be locat	ed	Specify Year(s) Requested	
Environmental concerns (General correspondence, occurrence reports, abatement) all					all	
_Ordersallall					all	
Spills all					all	
_Investigations/prosecutions	► Owner AND tena	nt information must be provided			all	
Waste Generator number/classes					all	
	Certificate	s of Approval > Proponent infor	mation must be provid	ed		
		h fees in excess of \$300.00 could be orting documents are also required				
				SD	Specify Year(s) Requested	
air <u>- emissions</u>					1986-present	
water - mains, treatment, ground level, standpipes & elevated storage, pumping stations (local & booster)					1986-present	
Sewage - sanitary, storm, treatment, stormwater, leachate & leachate treatment & sewage pump stations					1986-present	
waste water - industrial discharges1986-present					1986-present	
waste sites - disposal, landfill sites, transfer stations, processing sites, incinerator sites 1986-present					1986-present	
waste systems - PCB destruction	on, mobile waste processir	ng units, haulers: sewage, non-hazardous	& hazardous waste		1986-present	
pesticides - <i>licenses</i>						

A \$5.00 non-refundable application fee, payable to the Minister of Finance, is mandatory. The cost of locating on-site and/or preparing any record is \$30.00/hour and 20 cents/page for photocopying and you will be contacted for approval for fees in excess of \$30.00.

	Office Use Only	
Application Number:	Ward Number:	Application Received: (dd/mm/yyyy):
Client Service Centre Staff:		Fee Received: \$



Historic Land Use Inventory

Application Form

Notice of Public Record

All information and materials required in support of your application shall be made available to the public, as indicated by Section 1.0.1 of *The Planning Act*, R.S.O. 1990, C.P.13.

Municipal Freedom of Information and Protection Act

Personal information on this form is collected under the authority the *Planning Act*, RSO 1990, c. P. 13 and will be used to process this application. Questions about this collection may be directed by mail to Manager, Business Support Services, Planning Infrastructure and Economic Development Department, 110 Laurier Avenue West, Ottawa, K1P 1J1, or by phone at (613) 580-2424, ext. 24075

Background Information							
*Site Address or Location:	8 Withrow Avenue, Ottawa						
	* Mandatory Field						
Applicant/Agent	Information:						
Name:	Paterson Group						
Mailing Address:	154 Colonnade Road South, Ottawa, ON, K2E 7J5						
Telephone:	613-226-7381	Email Address:	pprice@patersongroup.ca				
Registered Property Owner Information:							
Name:	Julian of Norwich Anglican Church, Anglican Diocese Ottawa						
Mailing Address:	8 Withrow Avenue, Ottawa, ON						

 Telephone:
 (613) 224-7178

 Email Address:
 revmoniquestone@gmail.com

	Site Details			
and PIN: What is the land currently used for? Lot frontage: OR Lot are	N: 04689-0001 nurch m Lot depth: m Lot area: m ² ea: (irregular lot) 6,150 m ² ave Full Municipal Services: • Yes • No			
	Required Fees			
Please don't hesitate to visit <u>the Historic Land Use Inventory</u> website more information. Fees must be paid in full at the time of application submission. Planning Fee \$105.00				
	Submittal Requirements			

The following are required to be submitted with this application:

- 1. Consent to Disclose Information: Consultants and other third parties may make requests for information on behalf of an individual or corporation. However, if the requester is not the owner of the property, the requester must provide the City of Ottawa with a 'consent to disclose information' letter, signed by the property owner. This will authorize the City of Ottawa to release any relevant information about the property or its owner(s) to the requester. Consent for disclosure is required in the event that personal information or proprietary company information is found concerning the property and its owner. All consents must clearly indicate the name of the property owner as well as the name of the requester, and must be signed and dated.
- 2. Disclaimer: Requesters must read and understand the conditions included in the attached disclaimer and submit a signed disclaimer to the City of Ottawa's Planning, Infrastructure and Economic Development Department. This disclaimer is related to the Historic Land Use Inventory and must be received by the City of Ottawa, signed and dated by the requestor, before the process can begin.
- 3. A site plan or key plan of the property, its location and particular features.
- 4. Any significant dates or time frames that you would like researched.

Disclaimer For use with HLUI Database

CITY OF OTTAWA ("the City") is the owner of the Historical Land Use Inventory ("HLUI"), a database of information on the type and location of land uses within the geographic area of Ottawa, which had or have the potential to cause contamination in soil, groundwater or surface water.

The City, in providing information from the HLUI, to Paterson Group	("the Requester") does so only under the following

conditions and understanding:

- The HLUI may contain erroneous information given that such records and sources of information may be flawed. Changes in municipal addresses over time may have introduced error in such records and sources of information. The City is not responsible for any errors or omissions in the HLUI and reserves the right to change and update the HLUI without further notice. The City does not, however, make any commitment to update the HLUI. Accordingly, all information from the HLUI 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.
- 2. City staff will perform a search of the HLUI based on the information given by the Requester. City staff will make every effort to be accurate, however, the City does not provide an assurance, guarantee, warranty, representation (express or implied), as to the availability, accuracy, completeness or currency of information which will be provided to the Requester. The HLUI in no way confirms the presence or absence of contamination or pollution of any kind. The information provided by the City to the Requester is provided on the assumption that it will not be relied upon by any person whatsoever. The City denies all liability to any such persons attempting to rely on any information provided from the HLUI database.
- 3. The City, its employees, servants, agents, boards, officials or contractors take no responsibility for any actions, claims, losses, liability, judgments, demands, expenses, costs, damages or harm suffered by any person whatsoever including negligence in compiling or disseminating information in the HLUI.
- 4. Copyright is reserved to the City.
- 5. Any use of the information provided from the HLUI which a third party makes, or any reliance on or decisions to be based on it, are the responsibilities of such third parties. The City, its employees, servants, agents, boards, officials or contractors accept no responsibility for any damages, if any, suffered by a third party as a result of decisions made as a result of an information search of the HLUI.
- 6. Any use of this service by the Requestor indicates an acknowledgement, acceptance and limits of this disclaimer.
- 7. All information collected under this request and all records provided in response to this request are subject to the provisions of the Municipal Freedom of Information and Protection of Privacy Act, R.S.O. 1990, c. M.56, as amended.

Signed:	
Dated (dd/mm/yyyy): 11/11/2019	
Per: Philip Price	
(Please print name)	
Title: Environmental Engineer	
Company Raterian Crayn	

		31G-51	0		ΛE
UTM 118 2 44422		The second		ALL SHO	Nº 5699
5 R 510 12 12 1415	5 R 510 12 12 1415 10 N			GROU	IND W
Elev. 14 R 0131210	ON.	TARIO		UG 1 9 1957	
	The Wa	ater-well D	orillers Act, 1954		¹⁶ 1 9 1957
Basin 25 Ridedy Front			t of Mines	ONT RESOURC	ARIO WATER
,	Water	- 387 -	ell Rec	-	COMMISSION
106 211				VIU NEP	EAN
County or Territorial District	arleton	Tow	nship, Village, To	own or City	fiew-
Con4Lot	Street and 1	Number (j.	f in Village Ton	m on City Mariva	ale Bd
Owner St. Richards Chu Date completed	AV T057	•••••	Address	City View	
Date completed	(month)	(year)			
Pipe and Casing	z Record	(• ,		Dumping Tract	
				Pumping Test	
Casing diameter(s) $2I_2^{1}$					
Length(s)		•••••		400 gph	
Length of screen			1 0		
		••••••		st	••••••
Well Log				Water Record	
		1	Depth (a)	<u> </u>
Overburden and Bedrock Record	From ft.	To ft.	at which water (ch No. of feet	Kind of water (fresh, salty,
			found		or sulphur)
loam	0	2			
limestone	2	<u> </u>	II9	I05±	fresh
	•				
	······································				
		<u> </u>			
		<i>}</i>			
For what purpose(s) is the water t	o be used?	\mathbf{N}		Loopdian of Wall	AF
church	ar		In diagram	Location of Well below show distances of	of well from
is water clear or cloudy?				ot line. Indicate nort	
Is well on upland, in valley, or on J upland		11			
Drilling firm	Son	······		Merivale Re	1
Address	*******	N		1	
		1	< Z		
Name of Driller B. Foster				1	
Address				13	
Licence Number	•••••••••••••••••••••••••••			Chareh	
I certify that the fo	regoing		Ŋ	Church Bldg.	
statements of fact a			Å,	v9	
Data June 3, 1957	200		3< 20-		
Date	ature of Licensee		240		
			11		
orm 5			ک لک		

E RECEIVED UTN 1'812 1414121212151E 31650 15 R 5101212131610 N Nº 15 58 JAN 1 CINES GEULOGICAL BRANCH Elev. 14'r 1013 210 ONTARIO The Water-well Drillers Act, 1954RTMENT OF MINES Basin 25. **Department** of Mines Water-Well Record 1.+ ddress (day) (month) (year) Pipe and Casing Record **Pumping Test** 300 71 Pumping rate Type of screen Pumping level Length of screen Duration of test Well Log Water Record Depth (s) Kind of water From То at which No. of feet (fresh, salty, or sulphur) Overburden and Bedrock Record water(s) ft. ft. water rises found Limeston Rock 85-101 tresh 0 101 111 For what purpose(s) is the water to be used? Location of Well house In diagram below show distances of well from / Is water clear or cloudy?...... road and lot line. Indicate north by arrow. Drilling firm Ben le spark **A**..... Address 47 En Name of Driller Ben Sparks Address Licence Nymber. 4920 2 I certify that the foregoing statements of fact are true. poer Date See 1/5'5' Form 5

Philip Price

Subject:

TSSA Records Search, PE4799 - Ottawa, ON - Record Fuels

From: Public Information Services [mailto:publicinformationservices@tssa.org]
Sent: November-12-19 1:41 PM
To: Philip Price <PPrice@Patersongroup.ca>
Subject: RE: TSSA Records Search, PE4799 - Ottawa, ON - Record Fuels

Hello,

I have searched the below noted address (addresses) and I have located the following record:

Inst Number	Context	Address	City	Province	Postal Code	Status	Segment1
9190994	FS Facility	1548 MERIVALE RD	NEPEAN	ON	K2G 3J8	EXPIRED	FS GASOLINE STATION - SELF SERVE
9750264	FS Facility	1537 MERIVALE RD	NEPEAN	ON	K2G 3J3	EXPIRED	FS GASOLINE STATION - SELF SERVE
9800350	FS Facility	1543 MERIVALE RD	NEPEAN	ON	K2G 3J4	EXPIRED	FS GASOLINE STATION - FULL SERVE
9963601	FS Facility	1543 MERIVALE RD	NEPEAN	ON	K2G 3J4	EXPIRED	FS GASOLINE STATION - FULL SERVE
10060953	FS Facility	1548 MERIVALE RD	NEPEAN	ON	K2G 3J8	EXPIRED	FS GASOLINE STATION - SPLIT SERVE
10330614	FS Facility	1548 MERIVALE RD	NEPEAN	ON	K2G 3J8	Active	FS GASOLINE STATION - SELF SERVE
10382050	FS Facility	1548 MERIVALE RD	NEPEAN	ON	K2G 3J8	Active	FS CYLINDER EXCHANGE
64499806	FS Facility	1543 MERIVALE RD	NEPEAN	ON	K2G 3J4	Active	FS GASOLINE STATION - SELF SERVE
64763898	FS Facility	1543 MERIVALE RD	NEPEAN	ON	K2G 3J4	Active	FS GASOLINE STATION - SELF SERVE
10869866	FS Liquid Fuel Tank	1543 MERIVALE RD	NEPEAN	ON	K2G 3J4	Inactive	FS LIQUID FUEL TANK
10869882	FS Liquid Fuel Tank	1543 MERIVALE RD	NEPEAN	ON	K2G 3J4	Inactive	FS LIQUID FUEL TANK
10869903	FS Liquid Fuel Tank	1543 MERIVALE RD	NEPEAN	ON	K2G 3J4	Inactive	FS LIQUID FUEL TANK
11162399	FS Liquid Fuel Tank	1537 MERIVALE RD	NEPEAN	ON	K2G 3J3	EXPIRED	FS LIQUID FUEL TANK
11162408	FS Liquid Fuel Tank	1537 MERIVALE RD	NEPEAN	ON	K2G 3J3	EXPIRED	FS LIQUID FUEL TANK
11162418	FS Liquid Fuel Tank	1537 MERIVALE RD	NEPEAN	ON	K2G 3J3	EXPIRED	FS LIQUID FUEL TANK
11231456	FS Liquid Fuel Tank	1548 MERIVALE RD	NEPEAN	ON	K2G 3J8	Active	FS LIQUID FUEL TANK
11231476	FS Liquid Fuel Tank	1548 MERIVALE RD	NEPEAN	ON	K2G 3J8	Active	FS LIQUID FUEL TANK
11231495	FS Liquid Fuel Tank	1548 MERIVALE RD	NEPEAN	ON	K2G 3J8	Active	FS LIQUID FUEL TANK
64499807	FS Liquid Fuel Tank	1543 MERIVALE RD	NEPEAN	ON	K2G 3J4	EXPIRED	FS GASOLINE STATION - SELF SERVE
64537014	FS Liquid Fuel Tank	1543 MERIVALE RD	NEPEAN	ON	K2G 3J4	Active	FS LIQUID FUEL TANK

64537015	FS Liquid Fuel Tank	1543 MERIVALE RD	NEPEAN	ON	K2G 3J4	Active	FS LIQUID FUEL TANK
64763899	FS Liquid Fuel Tank	1543 MERIVALE RD	NEPEAN	ON	K2G 3J4	Active	FS LIQUID FUEL TANK
64763900	FS Liquid Fuel Tank	1543 MERIVALE RD	NEPEAN	ON	K2G 3J4	Active	FS LIQUID FUEL TANK

Effective November 1, 2017 TSSA requires that any requests for the release of public information, must complete the release for public information form. The release for public information form can be found at https://www.tssa.org/en/about-tssa/release-of-public-information.aspx?_mid_=392. Please complete the form (1 address per form) and email the completed form to <u>publicinformationservices@tssa.org</u> 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.

Although TSSA believes the information provided pursuant to your request is accurate, please note that TSSA does not warrant this information in any way whatsoever.

Thank you,

Roxana



Public Information Agent Facilities and Business Services 345 Carlingview Drive Toronto, Ontario M9W 6N9 Tel: +1-416-734-6222 | Fax: +1-416-734-3568 | E-Mail: <u>publicinformationservices@tssa.org</u>

From: Philip Price <<u>PPrice@Patersongroup.ca</u>> Sent: November 12, 2019 11:05 AM To: Public Information Services <<u>publicinformationservices@tssa.org</u>> Subject: TSSA Records Search, PE4799 - Ottawa, ON

Good morning,

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

7 Withrow Avenue 7 Rossland Avenue 1548 Merivale Road 1545 Merivale Road 1543 Merivale Road 1541 Merivale Road 1537 Merivale Road 1528 Merivale Road 1526 Merivale Road 20 Rossland Avenue

Thank you very much,

Philip Price

patersongroup

solution oriented engineering over 60 years servicing our clients

154 Colonnade Road South Ottawa, Ontario, K2E 7J5 Tel: (613) 226-7381 Ext. 250 Cell: (343) 999 7255

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

Mark S. D'Arcy, P. Eng.

patersongroup

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

Philip Price BSc.	patersongroup
FGS	POSITION
	Intermediate Environmental Scientist
	EDUCATION
Environmental	Kingston University, London, England, BSc (Hons), 2005 Geology
Engineering	EXPERIENCE
Geotechnical	2018 - Present: Paterson Group Inc. Consulting Engineers Environmental Division Intermediate Environmental Scientist
Engineering	2016 - 2018 Harrison Group Environmental Ltd. Consulting Engineers Senior Environmental Engineer
Materials Testing Quality Control	2013 - 2016 Harrison Group Environmental Ltd. Consulting Engineers Environmental Engineer
	2009 – 2011 AP Geotechnics Ltd. Consulting Engineers Geotechnical Engineer
Building Sciences	2006 - 2009 Harrison Group Environmental Ltd. Consulting Engineers Junior Environmental Engineer
	SELECT LIST OF PROJECTS
Hydrogeology	Remediation Supervision – Residential Development, Arnprior Remediation Supervision – Residential Development, Ottawa Remediation Supervision – Commercial Development, Ottawa Phase I & II ESA – Commercial Development, Bells Corners, Ottawa Groundwater Monitoring and Sampling – Various Location, Ottawa Phase I ESA – Various Locations, Ontario
Archaeological Services	