

Geotechnical
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Phase I - Environmental Site Assessment

Kanata Highlands, Huntmar Drive
Ottawa, Ontario

Prepared For

Richcraft Group of Companies

January 31, 2013

Report: PE0846-2

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EXECUTIVE SUMMARY

Assessment

A Phase I Environmental Site Assessment was carried out for two (2) vacant pieces of land divided by Terry Fox Drive located approximately 1.5km north of Richardson Side Road along Huntmar Drive, in the City of Ottawa, Ontario. The purpose of this assessment was to research the past and current uses of the site and adjacent lands in order to identify activities which may have impacted the soil and groundwater quality beneath the property.

Based on the historical review, the subject property has been either vacant or agricultural land with occasional farmsteads since 1945, although the land has not been used for agriculture for some time. Adjacent properties have also been vacant, or used for agricultural and/or residential purposes since 1945. No concerns were identified with respect to the historical use of the subject site or adjacent lands.

Following the historical review, a site visit was conducted. The site was vacant and unutilized. The site is divided by the Carp River and Terry Fox Drive, one part being low lying land while remaining portions are covered in rocky outcrops and larger trees. Adjacent and neighbouring properties consisted mainly of vacant treed land or residential properties. No concerns were observed during the site visit.

A subsurface investigation was carried out on the land in 2006 for geotechnical purposes. No signs of contaminants or deleterious fill material were observed during the drilling program.

Conclusion

Based on the results of this Phase I ESA, it is our opinion that a **Phase II ESA is not required for the subject property.**

1.0 INTRODUCTION

At the request of Richcraft Homes, Paterson Group (Paterson) conducted a Phase I - Environmental Site Assessment (ESA) for two (2) parcels of land separated by Terry Fox Drive, east of Huntmar Drive and approximately 1.5km north of Richardson Side Road in Ottawa, Ontario.

The purpose of the Phase I - ESA was to assess any potential risk to the subject site from present or past activities taking place on site and/or on adjacent properties, and any environmental implications with respect to future construction activities.

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

2.0 SITE INFORMATION

Location: Two (2) parcels of land separated by Terry Fox Drive, east of Huntmar Drive and approximately 1.5km north of the intersection of Huntmar Road and Richardson Side Road. Refer to Figure 1 - Key Plan in the Appendix for the site location.

Latitude and Longitude: 45° 19' 18" N, 75° 57' 11" W

Site Description:

Configuration/Area: Irregular/ ~77ha

Current Use: The subject site is currently vacant, grassed land with rock outcrops and a treed section to the north and west.

Services: The site is not municipally serviced, however services are available in the vicinity.

3.0 SCOPE OF WORK

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

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

4.0 METHOD OF INVESTIGATION

4.1 Historical Research

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

Federal Records

- Maps and photographs (Geological Survey of Canada surficial and subsurface mapping).
- Air photos at the Energy Mines and Resources Air Photo Library.
- National Archives.
- PCB Waste Storage Site Inventory.

Provincial Records

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

Municipal Records

- City of Ottawa document entitled "Old Landfill Management Strategy; Phase 1 - Identification of Sites, City of Ottawa, Ontario"; finalised October 2004.

Local Information Sources

- Personal Interviews
- Previous Engineering Reports

4.2 Field Assessment

The second segment of the Phase I - ESA consisted of a site visit which included a cursory assessment of the environmental conditions of the subject property. The field assessment was carried out on January 25, 2013, by personnel from the Environmental Division.

As part of the field assessment, the site was inspected for signs of the following:

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

5.0 FINDINGS OF THE ENVIRONMENTAL ASSESSMENT

5.1 Historical Review

Air Photo Research

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

- | | |
|------|---|
| 1945 | The subject site is predominantly agricultural land with some treed areas. There appears to be a few farmsteads located throughout the subject site. Neighbouring properties either are vacant and treed or agricultural land with occasional farmsteads. |
| 1959 | No significant changes appear to have been made to the subject site or neighbouring properties. |
| 1963 | The farmsteads on the subject site appear to be in disuse and trees appear to be reclaiming agricultural land. No significant changes appear to have been made to the neighbouring properties. |
| 1978 | No significant changes appear to have been made to the subject site or neighbouring properties. |
| 2002 | No significant changes appear to have been made to the subject site or neighbouring properties. |
| 2011 | (City of Ottawa) No significant changes appear to have been made to the subject site. A residential development is taking place to the south. |

Laser copies of selected aerial photographs reviewed are included in the Appendix of this report.

National Archives

Fire insurance plans (FIPs) and city directories are not available for the area of the subject property.

PCB Inventory

A search of national PCB waste storage sites was conducted. There are no PCB waste storage sites listed within the vicinity of the subject property.

Technical Standards and Safety Authority (TSSA)

The TSSA, Fuels Safety Branch in Toronto, was contacted electronically on January 25, 2013. Inquiries were made concerning underground/aboveground tanks, historical spills and/or other incidents/infractions for the subject site or adjacent properties. The response from the TSSA indicated that there were no records for the subject property or immediately adjacent properties.

Ontario Ministry of Environment (MOE)

The Ontario Ministry of Environment document entitled "Waste Disposal Site Inventory in Ontario, 1991." was reviewed as part of the historical research. This document includes all recorded active and closed waste disposal sites, industrial manufactured gas plants, and coal tar distillation plants in the Province of Ontario. There are no active or former waste disposal sites or other industrial plants within 1 km of the subject property.

A search of the MOE Brownfields environmental site registry was conducted as part of this assessment. No Records of Site Condition (RSC) were listed in the database for the subject site or adjacent or neighbouring properties within 1 km of the subject land.

City of Ottawa Old Landfill Document

A City of Ottawa document entitled "Old Landfill Management Strategy; Phase 1 - Identification of Sites, City of Ottawa, Ontario"; finalized October 2004, was reviewed as part of the update. There are no landfills with 1km of the subject site

Geotechnical Program

A geotechnical program (subsurface investigation) was carried out in 2006 by the Paterson Group. The geotechnical investigation advanced thirteen (13) boreholes with depths ranging from 2.0m to 15.5m below the ground surface. Samples were obtained using split spoon sampling and thin walled Shelby sampling methods. No signs of deleterious fill or contamination were encountered over the course of the geotechnical works.

Previous Environmental Reports

A Phase I Environmental Site Assessment was carried out in 2006 by the Paterson Group for the subject property. The Phase I concluded that there were no significant environmental concerns with the historical or current use of the subject site and neighbouring lands.

5.2 Exterior Assessment

Site

The subject site is vacant, undeveloped farmland and forest. The subject land slopes to the southwest. The northern and eastern portions of the property are located at a significantly higher elevation than the southern and western areas. Drainage on site consists mainly of surficial infiltration or sheet flow towards the Carp River, the lowest portion of the property. The parts of the site at higher elevations, to the northeast, are forested, while the lower lying areas around the Carp River towards the southwest is vacant undeveloped farmland. The site was snow covered at the time of the assessment.

Potential Environmental Concerns

Fuels and Chemical Storage

There were no above ground or underground fuel storage tanks observed on the subject property at the time of the assessment. There was no evidence of vent or fill pipes indicating the possibility of underground storage tanks. There were no hazardous chemicals, spills or stains observed at the time of the assessment.

Waste Management

Waste is not being generated on the subject property. No other concerns with regards to waste management were noted at the time of the site assessment.

Polychlorinated Biphenyls (PCBs)

No concerns with regards to PCBs were noted at the time of the site assessment.

Wastewater Discharges

Wastewater is not currently generated on site, therefore no concerns with respect to wastewater discharges were identified at the time of the site assessment.

Building Structures

Three farmsteads were situated on the property in the past. Very limited remnants of some wooden structures, which formed part of these farmsteads, were observed during the 2006 Phase I-ESA of the property. During the January 25, 2013 site visit only one wooden structure was noted on the property, near Huntmar Drive. However the site was entirely covered in snow and building materials could be concealed.

Fill Material

No evidence of fill material was observed with the exception of the banks along the Carp River. It is suspected that the fill was generated from the Carp River realignment project.

5.3 Adjacent Properties

Land use adjacent to the subject site was as follows:

- North - Single family dwellings and vacant treed land;
- East - Vacant, treed land, residential development is located further to the east;
- South - Vacant, grassed land, a residential subdivision is located further to the south;
- West - Huntmar Drive followed by, vacant grassed land, some residential homes.

Land use adjacent to the subject site does not pose a risk to the subject site and is illustrated on Drawing PE0846-2 - Site Plan in the Appendix.

6.0 ASSESSMENT AND CONCLUSION

6.1 Assessment

A Phase I Environmental Site Assessment was carried out for two (2) vacant pieces of land divided by Terry Fox Drive located approximately 1.5km north of Richardson Side Road along Huntmar Drive, in the City of Ottawa, Ontario. The purpose of this assessment was to research the past and current uses of the site and adjacent lands in order to identify activities which may have impacted the soil and groundwater quality beneath the property.

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6.2 Conclusion

Based on the results of this Phase I ESA, it is our opinion that a **Phase II ESA is not required for the subject property.**

7.0 STATEMENT OF LIMITATIONS

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

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

This report was prepared for the sole use of Richcraft Group of Companies. Permission and notification from Richcraft Group of Companies and Paterson Group will be required to release this report to any other party.

Paterson Group Inc.



Michael Beaudoin, B.Eng.



Mark D'Arcy, P. Eng.



Report Distribution:

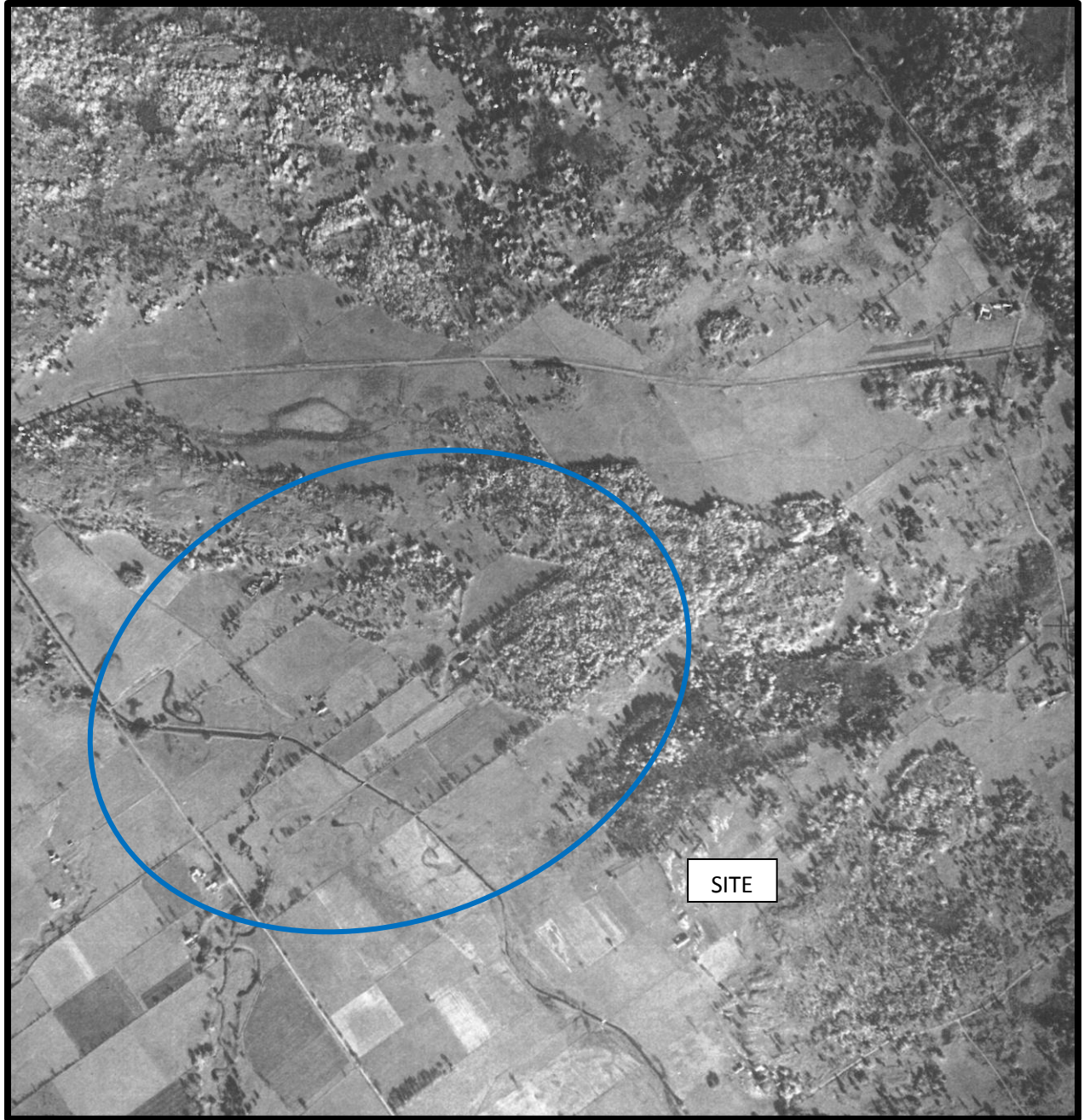
- Richcraft Group of Companies (6 hard copies and 1 pdf copy)
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APPENDIX

AERIAL PHOTOGRAPHS

FIGURE 1 - KEY PLAN

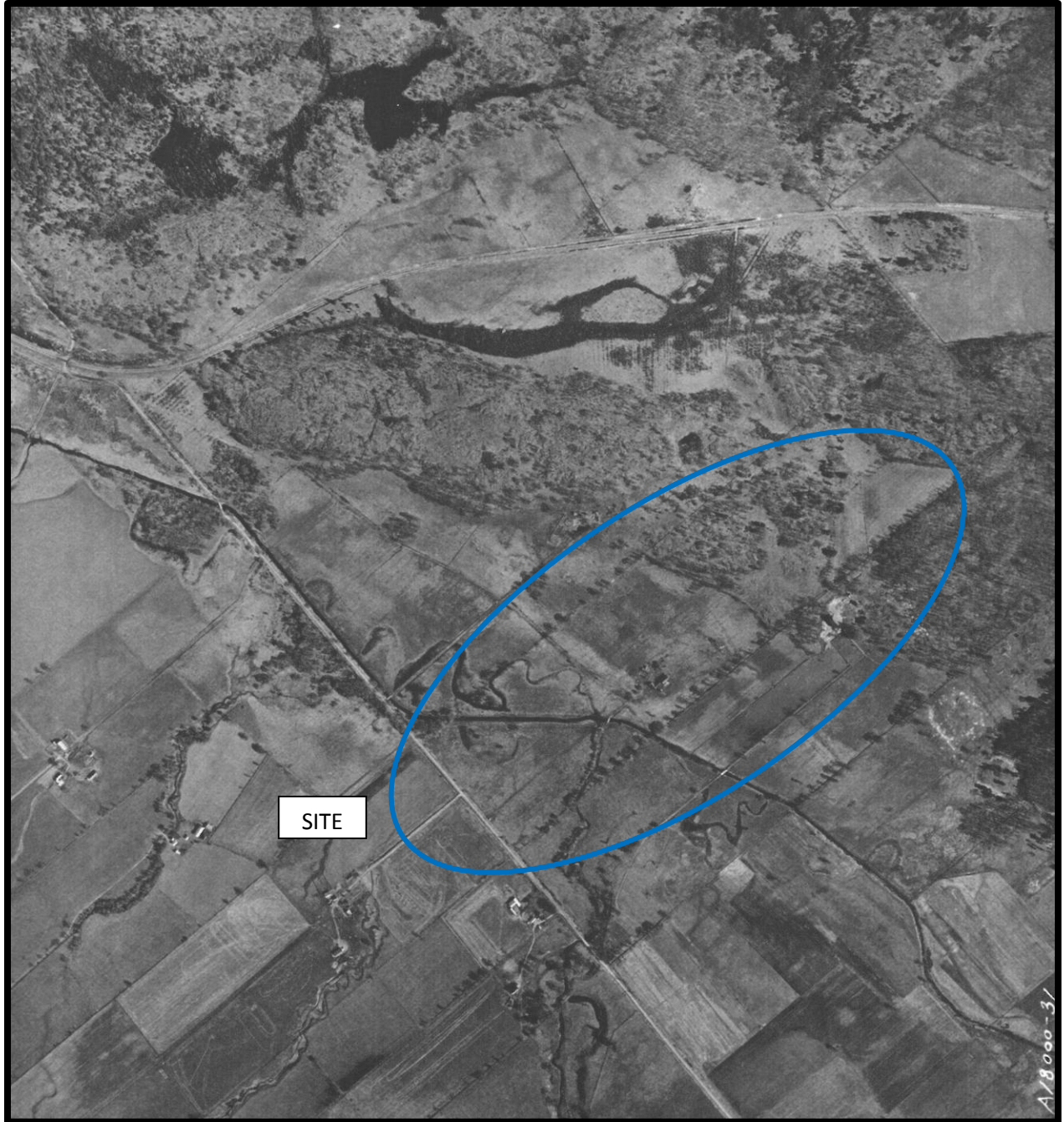
DRAWING NO. PE0846-2 - SITE PLAN



AERIAL PHOTOGRAPH
1945



AERIAL PHOTOGRAPH
1959



AERIAL PHOTOGRAPH
1963



AERIAL PHOTOGRAPH
1978



AERIAL PHOTOGRAPH
2002

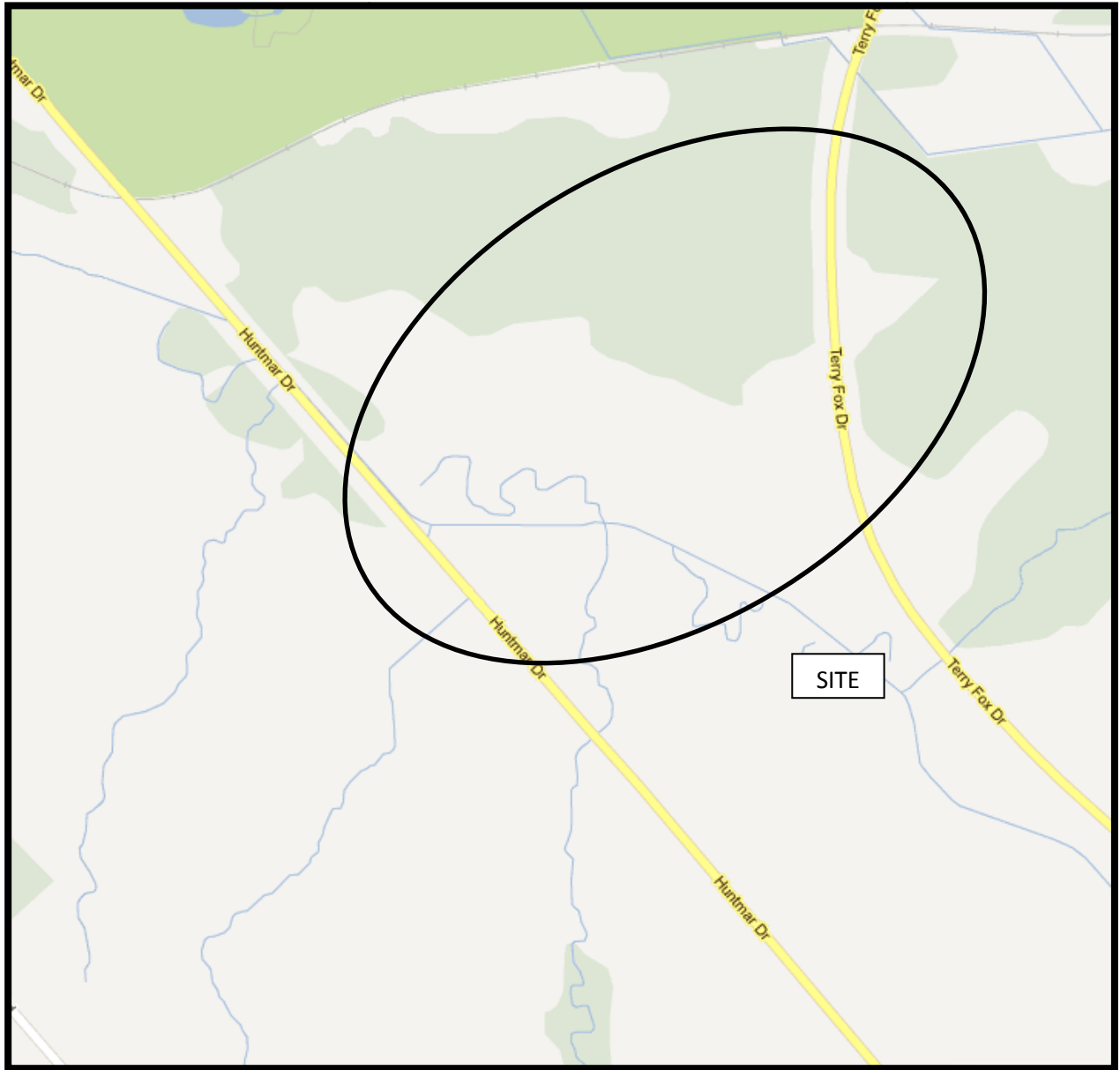


FIGURE 1
KEY PLAN

REGIONAL
CONSERVATION
PARK

FORMER CANADIAN NATIONAL RAILWAY

DENSE
FOREST

APPROX. LOCATION OF
FORMER FARMSTEAD

VACANT

CITY OF OTTAWA
CONSERVATION LANDS

RESIDENTIAL
DEVELOPMENT

OPEN
SPACE

APPROX.
LOCATION OF
FORMER
FARMSTEADS

CARP RIVER



AGRICULTURAL
LAND

RESIDENTIAL
SINGLE-FAMILY
DWELLING

HUNTMAR ROAD

AGRICULTURAL
LAND

LEGEND:

-  BOREHOLE LOCATION
-  BOREHOLE LOCATION, PREVIOUS INVESTIGATION, PATERSON GROUP REPORT PG0816-1 (08/2006)

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OTTAWA, ONTARIO

SITE PLAN

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Report No.: PE0846-2
Date: 04/2013