Mer Bleue Municipal Transformer Station

Final Environmental Study Report

Hydro Ottawa Limited

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Prepared and Reviewed By:
Gaëtan Beauchesne, P.Eng., Project Manager
EXP Services Inc.
100-2650 Queensview Drive
Ottawa, ON K2B 8H6, Canada
T: 613 688-1899
F: 613 225-7337
www.exp.com

Signature

Approved By:
Alam Ansari, M.Sc., P.Eng., Director

Signature

Date + Time Submitted:
2025-06-27

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List of Acronyms / Abbreviations

AAQC - Ambient Air Quality Criteria

ANSI - Area of Natural and Scientific Interest

Class EA – Class Environmental Assessment for Minor Transmission Facilities, 2022

cm – centimeter

°C - Degree Celsius

DR – Demand Response

EA – Environmental Assessment

EA Act - Environmental Assessment Act

EASR - Environmental Activity and Sector Registry

ECCC – Environment and Climate Change Canada

EE – Energy Efficiency

EIS – Environmental Study Report

ESA Report– Environmental Site Assessment Report

ESA – Endangered Species Act, 2007

ESR – Environmental Study Report

HONI and Hydro One – Hydro One Networks Inc.

Hydro Ottawa – Hydro Ottawa Limited

IESO – Independent Electricity System Operator

IRRP – Integrated Regional Resources Plan

km – Kilometer

km^2 – Square kilometer

kV - Kilovolt

m – Meter

m^2 – Square meter

MNRF – Ministry of Natural Resources and Forestry

MECP – Ministry of Environment, Conservation & Parks

MTS – Municipal Transformer Station

NCC – National Capital Commission

LIO – Land Information Ontario

SNCA – South Nation Conservation Authority

SAR – Species at Risk

SARA – Species at Risk Act

TS – Transformer Station

1 Executive Summary

A Class EA Environmental Study Report was prepared on behalf of Hydro Ottawa Limited in support of their plan to construct a new municipal transformer station in the southeast end of the City of Ottawa. Hydro One has indicated that Bilberry Creek TS will reach its end-of-life in the near term and will require substantial refurbishment to continue operation. This issue was examined as part of the 2020 Ottawa Area Sub-region IRRP. The recommendation of the IRRP report was to decommission and replace the Bilberry Creek TS with a new MTS station, as this would allow for sufficient capacity in the Orleans pocket beyond the year 2037.

The new sub-station will be located on the north side of the existing hydro corridor, approximately 300 m northwest of the Brian Coburn Boulevard and Mer Bleue Road intersection, in Ottawa, Ontario. Hydro Ottawa proposes to construct a new 27.6kV municipal transformer station (MTS) on the west side of Mer Bleue Road and connect the new power station to Hydro One's existing 230kV transmission line located south of the subject station. The station elements include a transmission line connection to the existing HONI corridor 230 kV circuits, yard equipment including high voltage transformers, breakers and switches, a switchgear and control building.

Five site locations were considered for the new transformer station: site location 1: Parcel of land along Navan Road, site location 2: Parcel of land Glenview Homes Subdivision, site location 3: Parcel of land on Phoenix Undeveloped Land, site location 4: Parcel of land along Mer-Bleue Road on Richcraft Homes, and site location 5: Parcel of land on Innes Road Snow Facility along Mer Bleue Rd.

As required by the EA Act and the Class EA procedures, the identification and assessment of alternatives to the proposed project were considered. The following alternatives were explored by the Greater Ottawa Region Working Group in April 2023:

Alternative 1: Do Nothing

Alternative 2: Retire Bilberry Creek TS and Add New Station (Mer Bleue MTS)

Alternative 3: Refurbished Bilberry Creek TS and Provide Two Additional Feeder Positions to Hydro Ottawa

The most viable alternative method was Alternative 2.

The potential sites for the new transformer station were evaluated with respect to eight environmental and socio-economic screening criteria including: surface water and groundwater impacts, land impacts, air and noise impacts, impacts of the natural environment of the area, impacts on the local natural resources, socio-economic impacts, heritage and cultural impacts, impacts on local Aboriginal communities, impacts on others such as any negative environmental effects not covered by the criteria mentioned.

A public and agency stakeholder consultation program is instituted to ensure that the stakeholders are aware of what is being proposed and will have an opportunity to provide input before final decisions are made. Hydro Ottawa developed a list comprised of provincial agencies, Indigenous communities, City of Ottawa, local conservation authority, community associations and Industry stakeholders. Moreover, inputs which will be obtained during the review from the public and agency stakeholders will be considered by the study team and incorporated into the project where appropriate.

Based on the evaluation of the site locations shown, the parcel of land at Site location 4 (2190 Mer Bleue Road) was determined to be the best location for building a new municipal transformer station with a capacity of 27.6 kV due to its overall advances across potential environmental impacts, technical considerations and economic considerations. Some of the key advantages of this site include non-agricultural land, privately owned, not part of the Greenbelt, no SAR presence and land available to purchase for the transformer station development.

The proposed Project and related design work will go through detailed engineering and design after the Class EA process is finished. The findings of a geotechnical assessment will serve as the basis for the final design plans, which will be created after discussions with the stakeholders.

Hydro Ottawa will provide guidance for both construction and maintenance. The MTS will be maintained in accordance with Hydro Ottawa's maintenance guidelines. To reduce any risks or electrical system interruptions, Hydro Ottawa will also make sure that all applicable safety laws and industry standards are followed.

The project is anticipated to begin construction in September 2025 and reach completion in May 2027.

Potential impacts that may occur during the construction and operation of the transformer station on the preferred site were considered and recommended impact management and mitigation measures will be implemented as stated in this report.

2 Introduction and Background

This Class EA Environmental Study Report was prepared on behalf of Hydro Ottawa Limited in support of their plan to construct a new municipal transformer station in the southeast end of the City of Ottawa. This report has been prepared in accordance with the Class Environmental Assessment for Minor Transmission Facilities.

2.1 Project Proponent

Hydro Ottawa Limited, a subsidiary of Hydro Ottawa Holding Inc., which is wholly owned by the City of Ottawa, is the third largest municipal electricity distribution company in the province. Hydro Ottawa is responsible for the safe, reliable delivery of electricity to more than 359,000 residential and business customers in the City of Ottawa and the village of Casselman.

As a community company, Hydro Ottawa Limited is committed to delivering value to the customers they serve through providing reliable, affordable service. Hydro Ottawa has consistently maintained one of the most reliable electricity distribution networks in Ontario. At the same time, industry comparisons have also shown that Hydro Ottawa is one of the most efficient electricity distributors in the province, with operating, maintenance, and administration costs much lower than the provincial average.

The executive management team at Hydro Ottawa Limited includes:

- Bryce Conrad, President and Chief Executive Officer, Hydro Ottawa Limited
- Geoff Simpson, Chief Financial Officer, Hydro Ottawa Limited
- Guillaume Paradis**,** Chief Electricity Distribution Officer. Hydro Ottawa Limited
- Julie Lupinacci**,** Chief Customer Officer, Hydro Ottawa Limited
- Lyne Parent-Garvey, Chief Human Resources Officer, Hydro Ottawa Limited
- Mark Fernandes**,** Chief Information and Technology Officer, Hydro Ottawa Limited
- Adnan Khokhar, Chief Energy and Infrastructure Service Officer, Hydro Ottawa Limited
- Greg Clarke, Chief Electricity Generation Officer, Hydro Ottawa Limited

Additional details about Hydro Ottawa Limited can be found at www.hydroottawa.com.

2.2 Need for Undertaking

Orleans is a suburb in the eastern part of the City of Ottawa located along the Ottawa River. Like other areas outside the Greenbelt, development is underway in this area, including development of the East Urban Community and the Orleans Industrial Park. The area is supplied by one 230 kV circuit (D5A) and several 115 kV circuits (including H9A, A2, and A4K) that emanate from Hawthorne TS toward the northeast. The Orleans area is supplied by Bilberry Creek TS which is supplied by the 115 kV system, and Orleans TS is supplied by both the 230 kV and 115 kV systems.

Bilberry Creek TS is a 115 kV connected supply station built in 1976 to supply the Orleans area. The station is owned by Hydro One and supplies distribution customers from both Hydro One and Hydro Ottawa.

Hydro One has indicated that Bilberry Creek TS will reach its end-of-life in the near term and will require substantial refurbishment to continue operation. This issue was examined as part of the 2020 Ottawa Area Sub-region IRRP (see **Appendix A**), and it was recommended that Bilberry Creek TS be decommissioned and a new MTS station be constructed, as this would allow for sufficient capacity in the Orleans pocket beyond the year 2037. However, considering recent load growth projections on the Ottawa 115 kV system, there may be

alternate solutions that would solve Bilberry Creek TS end-of-life need while also addressing needs on the upstream 115 kV system.

2.2.1 Existing Transformer Stations

The Orleans pocket is served primarily by Bilberry Creek TS and Orleans TS. The two stations are in close geographic proximity and can supply local load growth interchangeably. The long-term emergency ratings of Bilberry Creek TS and Orleans TS are 85 MW and 117 MW, respectively, resulting in a combined capacity of 202 MW. The coincident demand forecast shows load in this pocket reaching a maximum of 183 MW in 2041, with Bilberry Creek TS serving 75 MW of load and Orleans TS serving the other 108 MW. This means that the combined capacity in the pocket can sufficiently accommodate the full 20-year demand forecast for the pocket.

Bilberry Creek TS has a maximum non-coincident peak of 81 MW in 2041, while that of Orleans TS is 117 MW. Neither of the stations exceed their individual long-term emergency ratings based on their non-coincident forecasts. While this is the case, there is only 4 MW of remaining capacity at Bilberry Creek TS and zero at Orleans TS by 2041. This can potentially result in challenges with any additional growth in the pocket beyond the reference forecast. Refer to the **Appendix B**.

Orleans TS Capacity Need

Orleans TS is a dual element spot network (DESN) type station, a design that consists of two transformers typically supplied by two circuits, one transformer connected to each. The existing configuration of Orleans TS, however, is such that one transformer is connected to 115 kV circuit H9A and the other transformer is connected to 230 kV circuit D5A. Because the transformers are supplied at two different voltages the station must be operated in a way that doesn't parallel the 230 kV and 115 kV systems through the low voltage bus.

With all elements in-service, Orleans TS is typically supplied by the 115 kV system today. If there is a contingency to the 115 kV circuit H9A, supply will be restored to affected customers via the 230 kV circuit D5A through an automatic load transfer scheme. However, the 115 kV supply to Orleans TS is insufficient to accommodate the forecasted peak demand of the station. As such, during periods of peak demand, Orleans TS is operated in a way where the station load is divided between the two supply points pre-contingency.

The 2015 IRRP noted that although this supply configuration is acceptable, regional planning should consider potential opportunities to convert this station to a typical DESN configuration in conjunction with addressing other reliability needs in the vicinity. At the time Orleans TS was constructed, 115 kV circuit H9A was built ready for conversion to 230 kV operation; however, presently it operates at 115 kV.

The study forecast for Orleans TS anticipates it will be loaded to the planning capacity level of 117 MW by 2041.

Voltage Regulation on 115 kV Circuit 79M1

The 115 kV circuit 79M1 supplies Rockland DS, Rockland East DS, Clarence DS, Wendover DS, and Hawkesbury MTS. The 79M1 circuit is supplied from Hawthorne TS via circuit H9A. Total distance from Hawthorne TS to Hawkesbury MTS (last station on 79M1) is approximately 80km. As a result of this long distance and circuit loading, lower voltage can be expected at the end of the line. The post-contingency voltage at Hawkesbury MTS will drop below the minimum voltage criteria within the next five years. While not the primary contributor, the Orleans area load fed from H9A exacerbates the problem.

2.3 New Station (Mer Bleue MTS) Description

The new sub-station will be located on the north side of the existing hydro corridor, just north-west of the Brian Coburn Boulevard and Mer Bleue Road intersection, in Ottawa, Ontario as shown in Figure 1.

Hydro Ottawa proposes:

1. to construct a new 27.6kV municipal transformer station (MTS) on the west side of Mer Bleue Road and approximately 300 m northwest of Mer Bleue Road and Brian Coburn Boulevard intersection.; and
2. to connect the new power station to Hydro One's existing 230kV transmission line located south of the subject station.

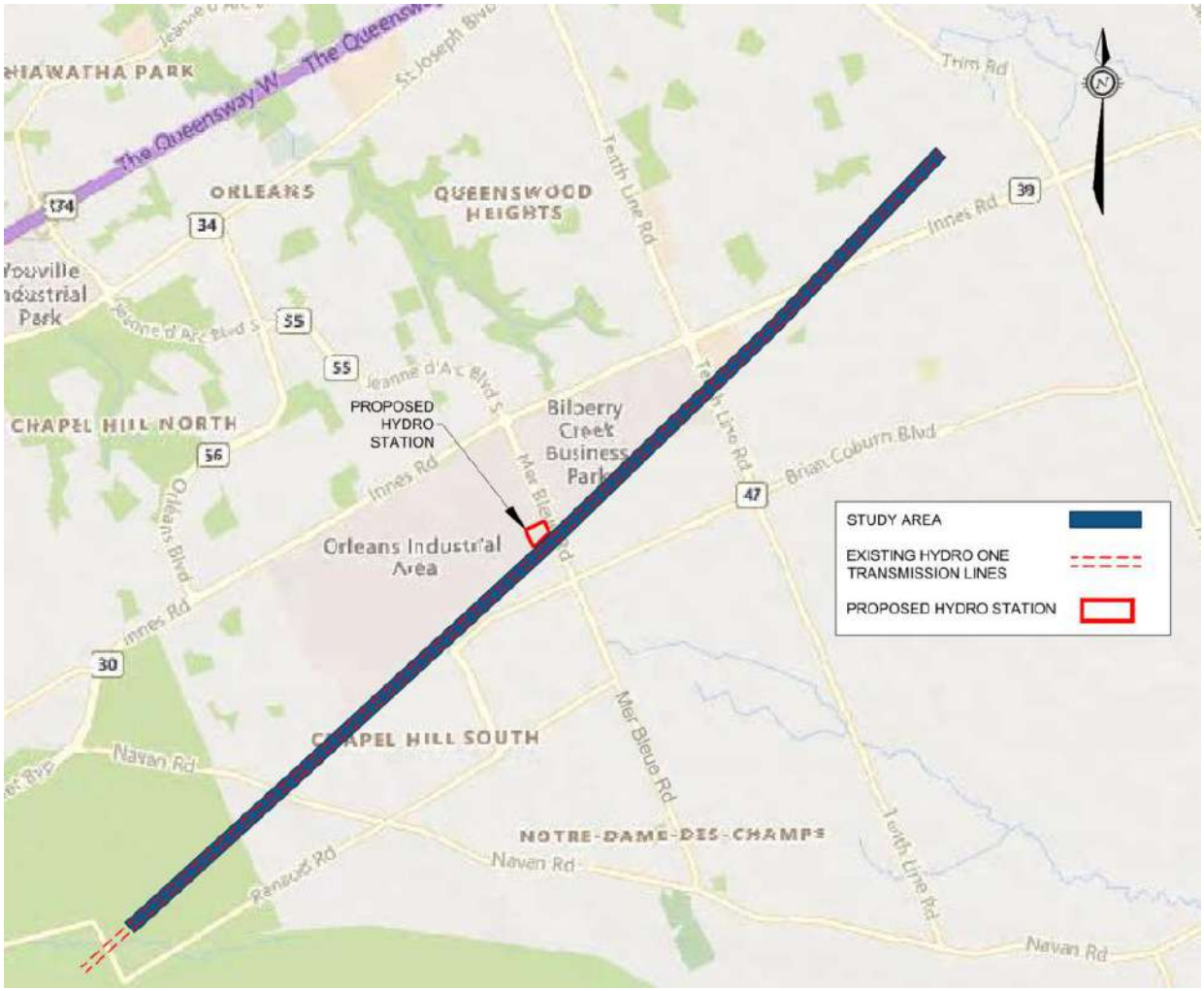

Figure 1: Proposed Mer Bleue MTS Site Location

2.3.1 General

Figure 2 below illustrates a typical 27.6 kV transformer station plan. The station elements include:

- A transmission line connection to the existing HONI corridor 230 kV circuits.
- Yard equipment including high voltage transformers, breakers and switches
- A switchgear and control building.

2.3.2 Transmission

The station will accommodate a dual, three-phase overhead supply tap (i.e., three conductors and an overhead ground wire). The final tap arrangement is to be designed and installed by HONI and tap structures will be in the HONI Corridor.

2.3.3 Switchgear and Control Building

A building is required for the new station to house the 27.6 kV switchgear, protective relaying and control facilities. The building is typically operated remotely. The design of the structure will be conventional concrete wall, single storey with a basement.

2.3.4 Feeder

Feeder egress will be designed for below grade duct or direct buried installations. The 27.6 kV feeder cables will reach system locations where they can be linked to currently installed aerial circuits.

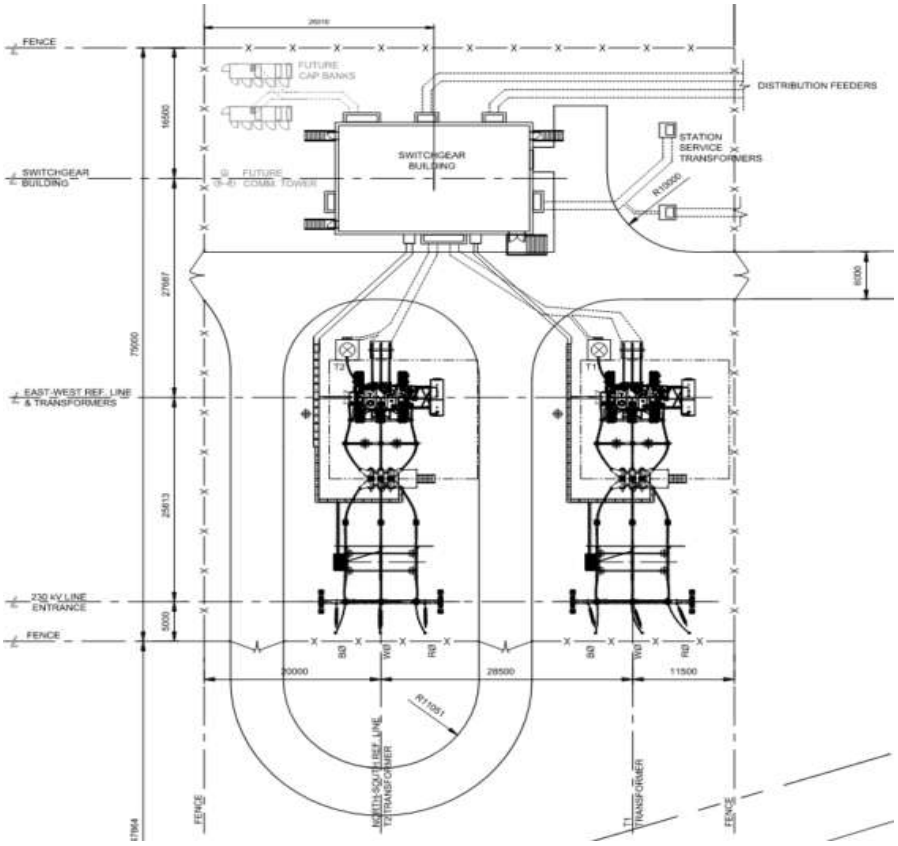

Figure 2: Mer Bleue MTS Plan

2.4 Alternatives to the Undertaking

The identification and assessment of alternatives to the proposed project are required by the EA Act and the Class EA procedure. These stand-in solutions offer functionally unique approaches to meeting the project's fundamental needs. The standards of economic viability, environmental soundness, and technical feasibility must be met by these substitutes.

The following alternatives were explored by the Greater Ottawa Region Working Group in April 2023 and are addressed in Section 6.

Alternative 1: Do Nothing

Alternative 2: Retire Bilberry Creek TS and Add New Station (Mer Bleue MTS)

Alternative 3: Refurbished Bilberry Creek TS & Provide Two Additional Feeder Positions to Hydro Ottawa

2.5 Approval Process and Regulatory Requirements

2.5.1 Environmental Assessment Act Approval

The Class EA process falls under the *Ontario Environmental Assessment Act* and is an effective way of ensuring that transmission projects, which have a predictable range of effects, are planned and carried out in a manner that is environmentally acceptable.

This draft Environmental Study Report (ESR) shall be made available for stakeholder review and comment for a period of 30 calendar days, as required by [class EA process], for consultation engagement with the members of public, government agencies and municipalities, First Nations and Métis communities.

Hydro Ottawa will respond and make best efforts to resolve any issues raised during the review period. If no issues are raised during the review period, Hydro Ottawa will finalize the ESR and file it with the Ministry of the Environment, Conservation and Parks (MECP). The project will be considered acceptable and may proceed as outlined in the ESR.

Section 16 Requests

The Environmental Assessment Act, as amended through the COVID-19 Economic Recovery Act, 2020, allows a person with concerns pertaining to potential adverse impacts to Aboriginal or treaty rights, that have not been addressed through the Class Environmental Assessment process to request under Section 16 of the Environmental Assessment Act (EAA) that the Minister make an order requiring an Individual EA or that conditions be imposed on the project. Such requests must be addressed in writing to the Minister of Environment, Conservation and Parks, as well as to the Director of the Environmental Assessment Branch, and received.

2.5.2 Other Permits, Licenses and Approvals

In addition to the required approval under the *Ontario Environmental Assessment Act*, various other provincial and municipal approvals may be required. Some of the other potential permits, license, approval and compliance requirements include, but are not necessarily limited to: Certificate of Approval under the *Ontario Environmental Protection Act* for noise levels; Certificate of Approval under the *Ontario Water Resources Act* for site drainage; Ontario Energy Board approval; Independent Electrical System Operator approval; Ontario Building Code permits and compliance with local municipal by-laws.

Hydro Ottawa will contact appropriate regulatory agencies as defined and determined in this report to ensure that the proposed project meets applicable requirements and that approvals are obtained as necessary.

3 Class EA Process

The Environmental Assessment Act (EAA) provides for the 'protection, conservation, and wise management' of the environment in Ontario. It sets out requirements for approval of a class environmental assessment (Class EA). The purpose of the Class Environmental Assessment for Minor Transmission Facilities is to provide information to the Minister of the Environment, Minister of Conservation and Parks for review and enable them to approve such transmission projects. The projects under the Class EA will have environmental effects which can be mitigated.

The proposed project is subject to approval under the provincial Environmental Assessment Act (EAA), in accordance with the Class Environmental Assessment for Minor Transmission Facilities (Class EA) July 2022.

This process is mandated by the Ministry of the Environment, Conservation and Parks (MECP), and establishes a framework for involving municipal and provincial ministries/agencies, interested organizations and individuals. This Environmental Study Report (ESR) has been completed as part of the Class EA process.

This Class EA study has determined the preferred location for the proposed station-based criteria identified in section 2.4/6.2. Among the factors considered were agricultural resources, appearance of the landscape, biological resources, forestry resources, heritage resources, human settlement, mineral resources and recreational resources. Each potential site was also assessed based on technical constraints and economics.

3.1 Stakeholders Notification

Given that the proposed site of the Mer-Bleue municipal transformer station is located on the edge of Hydro Ottawa's service territory, the project team coordinated with Hydro One Networks Inc. to hand-deliver a notice of commencement of class environmental assessment to 167 residents and businesses (mostly Hydro One customers) in the study area in early December 2024. This notice included an invitation to upcoming community information sessions scheduled for the new year. Also in early December 2024, electronic mails were sent to Indigenous communities and groups, the local conservation authority, City of Ottawa staff and local Councillor, the area's community association, Hydro One Networks Inc., Ontario Government EA notifications, and Ministry of the Environment, Conservation & Parks. A dedicated project email (merbleue@hydroottawa.com) and web page (www.hydroottawa.com/merbleue) were also established to ensure public engagement and transparency . The web page included all pertinent information, FAQs and resources, as well as contact information details. A private virtual information session for Councillor Catherine Kitts was held by the project team on Monday, Jaunuary 13, 2025, and two public information sessions were held on Thursday, January 16, 2025. The virtual public information session was held from 12:15 PM to 1:00 PM via the GoTo Webinar platform, while an in-person session was held that evening from 6:45 PM to 8:00 PM at the Queenswood Heights Community Centre. The stakeholder notifications can be found in **Appendix C.**

Following the completion of the draft ESR, Hydro Ottawa will notify all interested parties, including interest groups, Indigenous and First Nations communities and groups, potentially affected individuals and directly impacted municipal, provincial, and federal government officials and agencies. The final notification will ensure that all relevant stakeholders are informed of the draft ESR's completion and have an opportunity to review and provide feedback. This inclusive approach aims to promote transparency and collaboration in decision-making, allowing for a thorough assessment of potential impacts and considerations from various perspectives.

All relevant feedback that will be received during the review period for the draft Environmental Class Assessment Study Report (ECA) will be incorporated into the initial draft following the conclusion of the review period. Next, the final version of the report will be made public on the project's official website and archived at the Hydro Ottawa office. Finally, the completed report will be formally submitted to the Ministry of Environment, Conservation, and Parks (MECP) Environmental Approvals Branch (EAB) for official filing.

Class Environmental Assessment Process

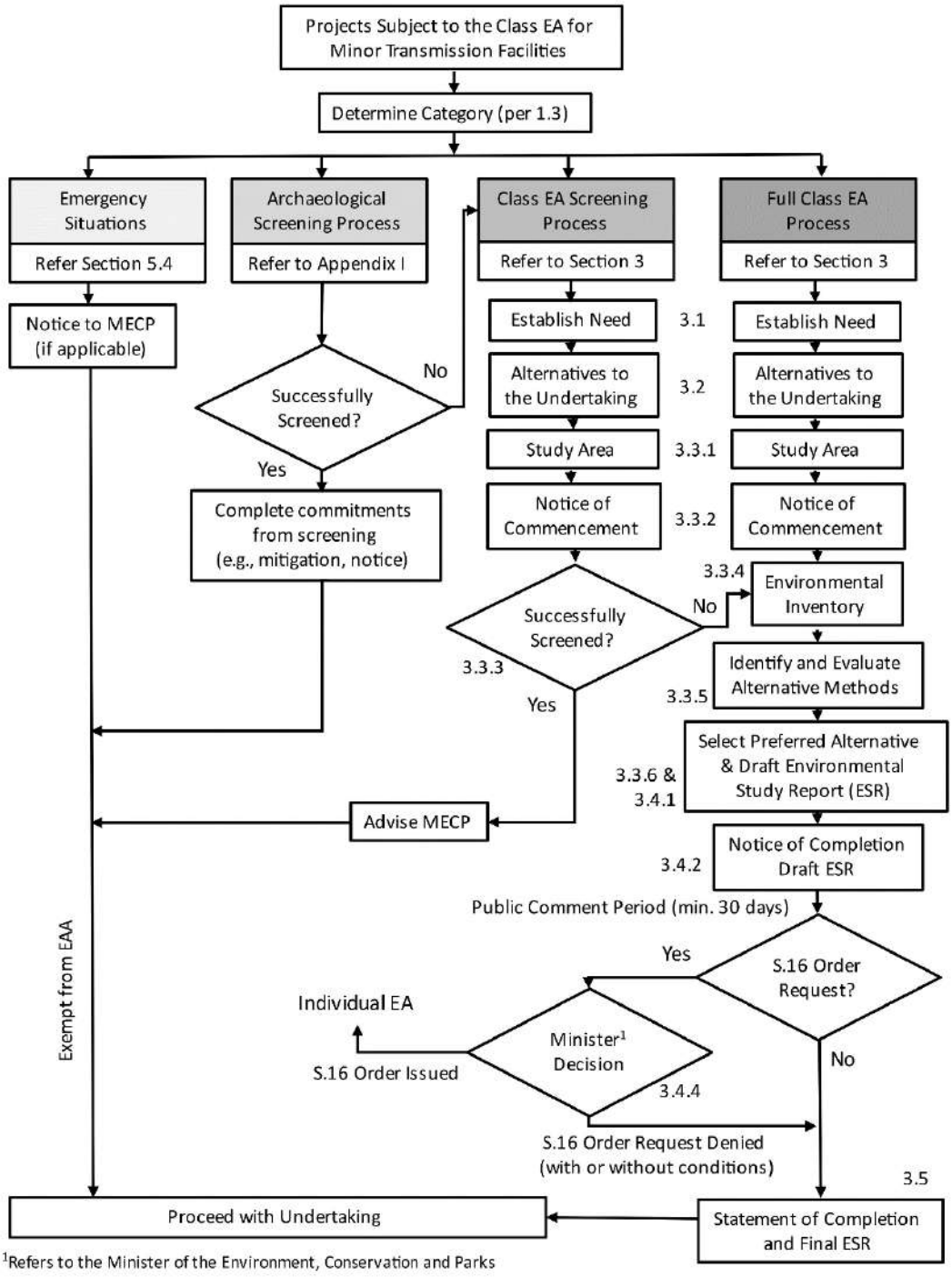

Figure 3: Class EA Process

3.2 Study Area Description

The area of the proposed sub-station development is located within Community 1, as described in the 2021 EIS (**Appendix D**) and northwest of the Brian Coburn Boulevard and Mer Bleue Road intersection. The land surrounding the Site is zoned for industrial land use. However, there are existing commercial and residential properties along the east side of Mer-Bleue Road, immediately to the west is the Innes Snow Disposal Facility, and south of the transmission corridor.

3.3 Potential Site Locations and Descriptions

Five site locations have been identified as possibilities for setting up a new transformer station:

Site Location 1: Parcel of land along Navan Road

Site Location 2: Parcel of land Glenview Homes Subdivision

Site Location 3: Parcel of land on Phoenix Undeveloped Land

Site Location 4: Parcel of land along Mer-Bleue Road on Richcraft Homes

Site Location 5: Parcel of land on Innes Road Snow Facility along Mer Bleue Rd



Figure 4: Location of Alternative Sites

3.3.1 Site Location 1: Parcel of land along Navan Road

The subject site is located off Navan Road and is bounded to the Northeast by Navan Road, approximately 550 m to the South by Renaud Road. The total area of the site is 9.464 and the site is undeveloped and relatively flat and reserved for development. It is surrounded by Residential Zoning to the north and south, Agricultural Zoning (AM) to the west and Parks and Open Space Zone (O) and General Mixed used Zone (GM) to the east.

3.3.2 Site Location 2: Parcel of land Glenview Homes Subdivision

The subject site is located at 3610 Innes Road and is bounded by Innes Road to the north, Brian Coburn Road to the south and Lamarche Avenue to the east and having a total area of 14.063 acres. The land is undeveloped and relatively flat. It is under Light Industrial Zone (IL) and surrounded by Arterial Mainstreet Zone (AM), Light Industrial Zone (IL), and Residential Zone.

3.3.3 Site Location 3: Parcel of land on Phoenix Undeveloped Land

The subject site is located at 2159 Mer Bleue Road, and it is bounded to the west side by the Mer Bleue Road and to the south by HONI corridor. The total area is 13.5 acres, which consists of Dry-moist Old Field Meadow and Cattail mineral shallow marsh. The area is surrounded by the Arterial Mainstreet Zone (AM) to the north; General Mixed Used Zone (GM), Mixed Used Center Zone (MC), Residential Third and Fifth Density Zone (R3, R5) to the south; Development Reserve Zone (DR) and General Industrial Zone (IG) to the east and Light Industrial Zone (IL) to the west. The site itself is classified as General Industrial Zone (IG).

3.3.4 Site Location 4: Parcel of land along Mer-Bleue Road on Richcraft Homes

The subject site is the southern property portion of the municipal address 2190 Mer Bleue Road. It is legally described as Part 1 of (PIN) identification number 044042501. The property is irregular in shape and has a total area of approximately 1.62 hectares (4.0 acres). It is bounded by Mer Bleue Road to the east, a municipal snow disposal facility to the west, vacant and undeveloped land to the north and the HONI corridor to the south.

3.3.5 Site Location 5: Parcel of land on Innes Road Snow Facility along Mer Bleue Road

The subject site is the portion of Innes Snow Disposal Facility located at 2170 Mer Bleue Road. It is bounded by Mer Bleue Road to the east and Brian Coburn Blvd to the south. The area of the site is 4 acres and classified as Cattail mineral shallow marsh. The site is surrounded by vacant, agricultural and light brush areas to the west, the HONI corridor to the south and light commercial to the north and east.

3.4 Screening Criteria

The five potential sites were evaluated with respect to eight environmental and socio-economic screening criteria including:

- Surface water and groundwater impacts
- Land impacts
- Air and noise impacts
- Impacts of the natural environment of the area
- Impacts on the local natural resources
- Socio-economic impacts
- Heritage and cultural impacts
- Impacts on local Aboriginal communities
- Impacts on others such as any negative environmental effects not covered by the criteria above

The potential environmental impacts were assessed using the screening criteria outlined in the Ministry of Environment, Conservation, and Parks (MECP) *Guide to Environmental Assessment Requirements for Electricity Projects* (2011). These screening criteria are further described and discussed in Section 6 of this report.

4 Environmental Characteristics of the Study Area

4.1 Study Area Location

The Phase One property is a portion of the municipal address 2190 Mer Bleue Road. It is located on the western side of Mer Bleue Road and approximately 300 m northwest of Mer Bleue Road and Brian Coburn Boulevard intersection in Ottawa, Ontario. The Phase One property is irregular in shape and has a total area of approximately 1.1 hectares. The Phase One property is currently undeveloped land and is legally described as Part Lot 1, Concession 3 Ottawa Front, Gloucester, Parts 3, 4 and 5 Plan 4R32717 Subject to an Easement in Gross Over Parts 4 and 5 Plan 4R32717 as in OC952706 City of Ottawa.

4.2 Study Area Agricultural Resources

The study area was generally flat with mostly former agricultural fields that have regenerated in early successional species. A majority of the sites were fields, with swamp and woodland pockets. A rock barren was identified south of Innes Park Woods.

4.3 Study Area Forestry Resources

According to tree conservation report from Kilgour & Associates Ltd., Oct 2017 (**Appendix D**), the subject site is primarily composed of American Elm (*Ulmus americana*) from sapling size (less than 10 cm) to approximately 30 cm DBH. Subordinate trees species found in these patches include Trembling Aspen (*Populus tremuloides*), Green Ash (*Fraxinus pennsylvanica*), White Birch (*Betula papyrifera*), and the occasional White Pine (*Pinus strobus*). These trees also range in size from saplings to approximately 30 cm. Shrub species are also common in these patches and include willow species (*Salix* spp.), buckthorn species (*Rhamnus* spp.), and Red Osier Dogwood (*Cornus sericea*).

4.4 Study Area Archaeological and Cultural Heritage Resources

The Past Recovery Archaeological Services Inc. was retained in October 2024 (Appendix D), by EXP to complete the due diligence report and to confirm that the archaeological assessment presented in Stage 1 Archaeological assessment by Golder Associates Ltd. and Stage 2 Archaeological assessment by Paterson follow the Standards and Guidelines for Consultant Archaeologists (MCM 2011).

An archaeological assessment titled “Stage 1 Assessment Mer Bleue Road Widening Class Environmental Assessment, City of Ottawa, Regional Municipality of Ottawa-Carleton, Ontario” was completed by Archaeological Services Inc. in 2006. This assessment indicated that the proposed hydro substation study area retained moderate archaeological potential requiring Stage 2 assessment, based on the proximity of Mer Bleue Road and nineteenth century structures, as well as the potential for relict streambeds that provided drainage during the pre-Contact era.

In 2016, another archaeological assessment was done by Golder Associates Ltd. titled "Stage 1 Archaeological Assessment East Urban Community Centre (EUC) Project Community Design Plan (CDP) Lots 1-4 Concession 3 Geographic Township of Gloucester and Lots 1-2 Concession 11 Geographic Township of Cumberland City of Ottawa Ontario”. During the assessment, the entire area was determined to be previously deeply disturbed as a result of road ditching and the construction of the adjacent snow removal storage facility which removed any archaeological potential.

In 2023, Paterson Group performed the Stage 2 Archaeological assessment in a larger project parcel. While no testing was undertaken within the proposed MTS site on the basis of Golder recommendations, the Stage 2 report implies that no further archaeological work is needed for the proposed substation parcel as there was not enough material in the vicinity of the proposed site.

4.5 Human Settlements

There are no human settlements in the proposed site area.

4.6 Mineral Resources

There are no mineral resources found in the proposed site area.

4.7 Study Area Natural Environment Resources

4.7.1 Physical Environment

There are no water bodies on the subject site. There is a stormwater pond located approximately 100 meters west of the Phase One property. The closest water body is the Mer Bleue Bog, located approximately 2.8 km south of the Phase One property. Topographically, the Phase One property is relatively flat. The surrounding area slopes towards the Mer Bleue Blog. It is inferred that groundwater flows south towards the Mer Bleue Bog but there is no substantial evidence to confirm groundwater flow direction (Phase One Environmental Site Assessment, **Appendix D**).

4.7.2 Atmospheric Environment

- Climate

The City of Ottawa is in the Great Lakes/St. Lawrence climate region and has humid continental weather (ECCC, 2018a). This section's information is based on data from the Ottawa Macdonald-Cartier International Airport meteorological station (Climate Identifier ID 6106000). The data presented in this section is based on 1981-2010 Climate Normal data.

- Temperature

The climate normal mean annual temperature at the Ottawa Macdonald-Cartier International Airport meteorological station is 6.4 degree Celsius. The climate normal daily average temperature varies between -10.3 degree Celsius (January) and 21.0 degree Celsius (July). Extreme climate normal temperatures range from -36.1 degree Celsius (February) to 37.8 degree Celsius (August). The climate normal frost-free period is from May 1 to October 6 (159 days).

- Precipitation

Precipitation is distributed throughout the four seasons, with snowfall typical from November to April, and rainfall typical from May to November. Climate normal days with precipitation is 163 days per year.

The climate normal monthly precipitation varies between 54.3 millimetres (mm) (February) and 92.8 mm (June). The climate normal total annual precipitation is 943.4 mm. On average, over the course of a year snowfall represents 223.5 centimeters (cm) of precipitation while rainfall represents 758.2 mm. The climate normal extreme daily rainfall volume ranges from 36.3 mm (December) to 135.4 mm (September). Extreme daily snowfalls ranges from zero to 40.6 centimetres (March).

- Wind

Based on five consecutive years of data, (January 1, 1996 - December 31, 2000), winds primarily blow from the southwest and northwest with an average wind speed of 3.25 meters per second (m/s).

- Air Quality

Air quality criteria used for assessing ambient air quality in the study area includes provincial criteria, and federal standards and objectives where provincial criteria are not available. Specifically, the MECP has issued guidelines related to ambient air concentrations, which are summarized in Ontario's Ambient Air Quality Criteria (AAQC) which are applied to CO, NO2, SPM, PM10, and SO2 (MECP, 2018a). Contaminants which do not have an AAQC, namely PM2.5, are compared to the Canadian Ambient Air Quality Standards (CAAQS).

During the site visit, no air emission stations were discovered.

4.7.3 Study Area Bedrock Geology

Based on available data from Paterson Group, Feb 2024 (**Appendix D**), one borehole BH34-18, was drilled to a depth of 4.57 m from the original ground level at the proposed site. Also, bedrock contour lines from the same report indicated that the bedrock elevation varies from 7.1 m to 3.0 m from the ground surface.

4.7.4 Surficial Geology

A review of the Ontario Ministry of Mines Geology Ontario (gov.on.ca) surficial geological mapping database was completed. Based on the review, the site is underlain by Quaternary glaciomarine foreshore or basinal deposit of clay, silty clay and silt, commonly calcareous and fossiliferous, locally overlain by thin sands. Upper parts are generally mottled or laminated reddish brown and bluish grey and may contain lenses and pockets of sand, but at depth the clay is uniform. These deposits are also identified as part of the Champlain Sea deposit.

4.7.5 Soil and Groundwater Characteristics

On August 2, 2024, three boreholes (MW24-1, MW24-2, and MW24-3) were advanced at the site by George Downing Estate Drilling, a licensed well contractor. The drilling was completed under the full-time supervision of EXP staff. The locations of the boreholes are shown in Phase one ESA.

- Topsoil and Fill Material

A 100-200 mm layer of topsoil was present at the ground surface in the location of each borehole. No deleterious fill materials were identified and there were no visual or olfactory indications of petroleum impact.

- Native Material

Below the topsoil materials were a unit of native silty clay to clay to the maximum depth drilled of 4.9 mbgs. Gravel till was observed at 3.6 m below ground surface (mbgs) in MW24-1. There were no visual or olfactory indications of petroleum impact to the native silty clay/clay soil.

- Bedrock

Suspected bedrock was encountered below the gravel till at 3.6 mbgs in MW24-1 but was not encountered in other boreholes down to a maximum drilled depth of 4.9 mbgs.

- Groundwater

The groundwater elevations and water levels were measured at the site on August 7, 2024. The depth to groundwater ranged from 1.53 mbgs in MW24-2, 1.82 mbgs in MW24-1, and 1.92 mbgs in MW24-3. No petroleum sheen was observed in the monitoring well water. The groundwater was determined to flow in northeast direction.

- Soil Quality

The soil analytical results are summarized in EXP Phase One ESA report. The report concluded that the concentrations of PHC, BTEX, metals, and general inorganic parameters measured in the analyzed groundwater samples were less than the MECP 2011 Table 3 SCS.

- Groundwater Quality

The groundwater analytical results are summarized in EXP phase one ESA report. The report concluded that the concentrations of PHC, BTEX, metals, and general inorganic parameters measured in the analyzed groundwater samples were less than the MECP 2011 Table 3 SCS.

4.7.6 Special Nature Areas or Significant Area of Natural and Scientific Interest

There are no Area of Natural Significance (ANSI) within the Phase One study area, according to the Ministry of Natural Resources and Forestry Natural Heritage.

4.7.7 Vegetation Community

According to the GEMTEC SAR report (**Appendix D**), a meadow in the north area of Community 1 is dominated by herbaceous vegetation, and a thicket in the south area of Community 1, which is the project area, dominated by a mix of young tree and shrub species.

The thicket habitat contains a higher portion of trees and shrub coverage. Species in the Herbaceous layer of thicket include reed canary grass (*Phalaris arundinacea*), common reed grass (*Phragmites australis*), white meadowsweet (*Spiraea alba*), purple loosestrife (*Lythrum salicaria*), goldenrod (*Solidago* sp.), common milkweed (*Asclepias syriaca*), aster (*Aster* sp.), wild parsnip (*Pastinaca sativa*), and wild carrot (*Daucus carota*). Cultural thicket is a young deciduous forest inclusion, dominated by trembling aspen. The sub canopy and ground cover are minimal, however consisting of common buckthorn, aster, goldenrod, honeysuckle (*Lonicera* sp.), and wild strawberry (*Fragaria vesca*).

4.7.8 Wildlife

According to the GEMTEC SAR report (**Appendix D**), three wildlife occurrences were documented during the time of the field investigation, American Goldfinch (*Carduelis tristis*), American tree sparrow (*Spizelloides arborea*), and common loon (*Gavia immer*), all of which have an S-Rank of S5B (breeding population is secure in Ontario).

Further, due to the timing of the field investigation, many migrant species were not anticipated to be encountered. A higher diversity of wildlife would be anticipated to occur during the spring and summer active season.

4.7.9 Fish Habitat

Based on a review of GeoOttawa and the 2021 EIS (GHD 2021, **Appendix D**), four surface water features were identified, but no fish were observed within any of the surface water features on-site during the field investigation. Given the lack of water depths and permanency, the watercourses within the project area are unlikely to provide direct fish habitat, however, may contribute to downstream fish habitat.

4.7.10 Species at Risk Screening

The field investigation was conducted by GEMTEC on November 1, 2024 (**Appendix D**), and no species at risk were observed. However, the desktop screening exercise identified three mammalian endangered SAR with a moderate potential to occur within the project area. Additionally, four species of special concern were identified

as having a moderate potential to occur within the project area. However, below mentioned are some species which are moderately at risk based on their desktop assessment:

Table 1 - Potential Species at Risk On-Site

Species	ESA Status	Probability of Occurrence within Project Area
1 - Mammalian		
Eastern small-footed Myotis	Endangered	Moderate
Little Brown Myotis	Endangered	Moderate
Tri-colored Bat	Endangered	Moderate
2 - Insects		
American Bumble Bee	Special Concern	Moderate
Monarch Butterfly	Special Concern	Moderate
Yellow-banded Bumble Bee	Special Concern	Moderate
3 - Avian		
Eastern Wood-Pewee	Special Concern	Moderate

- Eastern Small-Footed Myotis, Little Brown Myotis, and Tri-Colored Bat

Habitat for SAR bats is limited to tree cavities. As the project is likely to require removal of trees, shrubs and ground layer vegetation to accommodate the proposed substation, which has the potential to impact the SAR bats. Potential indirect impacts to these species also include temporary increased disturbance due to human presence and elevated noise levels during construction, and habitat encroachment. Given the scope of the project and availability of surrounding wooded habitats, impacts to SAR bats are anticipated to be minimal and temporary. Mitigations measures to prevent harm to these species is discussed in section 8 of this report below.

- Eastern Wood-Pewee

Habitat for eastern wood-pewee includes the surrounding wooded communities and the open field habitats within the study area. As the project is anticipated to require some vegetation clearing, direct impacts to avian species of special concern may include a minor loss of wooded/shrub habitat. Potential indirect impacts may include temporary increased disturbances due to human presence, elevated noise levels during construction, and habitat encroachment. Eastern Wood-Pewee is under special concern, which does not receive habitat protection under the ESA, but individuals are protected. Furthermore, active nests are protected under the ESA and the Migratory Bird Convention Act (MBCA).

- American Bumble Bee, Monarch Butterfly, and Yellow-Banded Bumble Bee

Potential habitat for the insect species of special concern includes the cultural meadow, grasses along the road, and nearby fields. Common milkweed, a crucial plant species for the lifecycle of the monarch butterfly, were observed on-site, primarily within the cultural meadow. However, as discussed above, species of special concern do not receive habitat protection under the ESA, but individuals are protected. However, given that the proposed development is to occur within the cultural thicket, herbaceous vegetation within the cultural meadow is anticipated to remain intact and available for foraging insect SAR. Potential indirect impacts may

include temporary increased disturbances due to human presence, elevated noise levels during construction, and habitat encroachment.

4.8 Study Area Recreational Resources

The proposed site area does not have any recreational resources.

4.9 Visual and Aesthetic Resources

The proposed site area does not have any aesthetic resources.

4.10 Study Area Biological Resources

The proposed site area does not have any biological resources.

4.11 Study Area Archaeological Resources

Section 3.4 describes the results of Archaeological assessments done by Golder Associates Ltd. In 2016 and by Paterson Group in 2023. Thus, due diligence report of Past Recovery Archaeological Services Inc. confirms that the acceptance of these reports could be used to validate that no further archaeological assessment is required for the property.

4.12 Indigenous Communities

Hydro Ottawa contacted the Kitigan Zibi Anishinabeg, Ottawa Métis Council and the Algonquins of Ontario. EXP contacted Ottawa Métis Council and Ministry of Indigenous Affairs which are dealing with aboriginal issues. No specific interests or concerns, from the aboriginal communities, with respect to the study area for the new transformer station have been identified. See Sections 4.1.2 for additional information regarding the indigenous consultation process undertaken for this project.

5 Public & Agency Stakeholders Consultation

Consultation is a crucial part of the Environmental Assessment (EA) process to give people who might be interested in or possibly impacted by the proposed Project timely and sufficient information as well as opportunities to participate in the planning process. Through consultation, the proponent can also learn about social, cultural, economic, and environmental factors that are directly relevant to the project under consideration. It also gives them a way to inform and clarify the project's approach and value.

A public and agency stakeholder consultation program is instituted to ensure that the stakeholders are aware of what is being proposed and will have an opportunity to provide input before final decisions are made. Hydro Ottawa developed a list comprised of provincial agencies, Indigenous communities, City of Ottawa, local conservation authority, community associations and Industry stakeholders. Moreover, inputs which will be obtained during the review from the public and agency stakeholders will be considered by the study team and incorporated into the project where appropriate.

The consultation process throughout the class EA process is described in greater detail in the following sections, but included the following elements:

- Initial Notification
- Notice of Commencement - Public Notices (Email, project website)
- Indigenous Communities
- Provincial Government and Agency Consultation
- Municipal Government and Local Agencies
- Potentially affected and Interested Persons and Community Association
- Notice of Commencement - Public Open House Sessions (POHS)
- Draft ESR Review Period

5.1 Public Consultation

5.1.1 Initial Notification

- Emails

To inform the community of the project and announce initial notification, a comprehensive list of stakeholders, refined by Hydro Ottawa, were notified by emails, which included the Notice of Commencement and a map of the study area.

- Project Website

A specific, up-to-date project webpage on Hydro Ottawa's website was created and made accessible to the public. It contained details about the in-person information session as well as a copy of the notice of commencement, a list of frequently asked questions, contact information, and a map of the study area. After the first information session, the site will be updated accordingly to include the presentation slides shown at the virtual and in-person sessions.

Project webpage: hydroottawa.com/merbleue

5.1.2 Indigenous Communities

Indigenous communities are subject to the Class EA process's consultation requirements. Notification of the proposed project was sent to Ministry of the Algonquins of Ontario (AOO), the Ottawa Metis Council, and the Kitigan Zibi Anishinabeg (KZA) First Nation communities and related government agencies.

Hydro Ottawa initiated consultation by sending a notice of commencement and invitation to the public open house session via email to Algonquins of Ontario (AOO) and Kitigan Zibi Anishinabeg (KZA) on December 6, 2024. Also, Ottawa Metis Council and Ministry of Indigenous Affairs were notified by EXP via email on December 9, 2024. At this time, there has been no response or comment on the project from these communities.

The Mer Bleue MTS Project Team is committed to providing early, ongoing, clear and timely communications as the project continues to develop. A second public open house will take place in May 2025 and will be providing further opportunities for feedback during the consultation process.

5.1.3 Provincial Government and Agencies Consultation

The following significant provincial government organizations were contacted as part of the proposed Project's consultation plan:

- Ministry of Environment, Conservation & Parks (MECP)
- Ministry of Indigenous Affairs (MIA)
- Ontario Government EA Notifications
- Planning and Policy
- Source Water Protection
- Climate Change
- Air Quality, Dust and Noise
- Ecosystem Protection and Restoration
- Species at Risk
- Surface Water
- Groundwater
- Excess Materials Management
- Contaminated Sites
- Servicing, Utilities and Facilities
- Mitigation and Monitoring
- Consultation
- Environmental Screening Process

The MECP were notified on December 10, 2024, and MIA and Ontario Government EA notifications were notified on December 9, 2024, by EXP via email which included notice of commencement and an invitation to attend in-person information session. In response, Regional Environmental Planner for the Eastern Region of MECP, Jon Orpana suggested including the following check list in the class environment assessment report.

5.1.4 Municipal Government and Agencies Consultation

The following significant municipal government organizations were contacted as part of the proposed Project's consultation plan:

- City of Ottawa; Planning Department
- City of Ottawa; Councilor
- South Nation Conservation Authority (SNCA)

On December 9, 2024, the City of Ottawa Planning Department and South Nation Conservation Authority received an email containing the Notice of Commencement and an invitation to the first POHS. On December 6, 2024, members of Hydro Ottawa also sent a notice of commencement to the City of Ottawa councilors, Catherine Kitts and Laura Dudas.

5.1.5 Potentially Affected and Interested Persons and Community Association

Throughout the project, emails were sent to owners of residential, commercial, and industrial properties as well as to nearby residents who might be impacted by the proposed project. To receive updates on the project, the interested parties were also urged by the project team to subscribe to the project email list. The Chapel Hill South Community Association was also contacted as part of the project's consultation plan.

5.1.6 Public Open House Sessions

The purpose of these Public Open House Sessions (POHSs) is to provide an opportunity to learn more about the project and the Class EA process, as well as provide feedback and discuss questions or concerns with our project team. During EA process, the first POHS was held in the month of January, both virtually and in-person.

First Public Open House Session

On January 16th, 2025, the project team hosted one round of POHS for the proposed project. The virtual session was held on January 16th, 2025, from 12:10 PM to 1:00 PM via GoTo Webinar. While an in-person session was held on the same day from 6:45 PM to 8:00 PM at Queenswood Heights Community Centre at 1485 Duford Drive in Orleans, Ottawa. There were no public attendees at the in-person session period.

In total, three residents attended the virtual information session. The panel included the information about the following:

1. Information on the proposed Project location
2. How electricity is delivered in the community
3. Why the station is necessary?
4. How the project would benefit the community
5. Project timelines
6. Summary of the proposed municipal transformer station
7. Criteria for site/connection selection
8. Layout map showing study area and proposed site location
9. Considerations when rebuilding the transmission line
10. Overview of the need for the proposed Project
11. Overview of the Class EA process including other approvals
12. Details on the environmental planning process

Second Public Open House Session

On May 21, 2025, at 12:15 PM, Hydro Ottawa held a virtual session of the second public open house session. Eight (8) people attended the virtual session in total, including five (5) panelists— four from Hydro Ottawa and one from EXP Services Inc. and three (3) attendees.

Hydro Ottawa inaugurated the webinar, and the presentation was shared. Recognizing the project's energy partners kicked off the presentation. The necessity of building the station in the southeast of Ottawa was reaffirmed by Hydro Ottawa. Benefits to the community were discussed, and a proposal example was provided. Finally, the participants were explained about the environmental assessment process and the results of conducted studies.

The presentation slides which were shared during the virtual session are included in Appendix C.

Hydro Ottawa emphasized the importance of community engagement throughout the entire process and assured that all concerns would be taken into consideration. The participants were encouraged to provide feedback and ask questions regarding the proposed municipal transformer station and its potential impact on the community. Two questions were asked during the session as follows:

- Will there be any power disruption during the construction phase?
- Will there be any traffic disruption during the construction phase?

On May 21, 2025, from 6:15 PM to 7:00 PM, Hydro Ottawa had arranged another virtual session, which got canceled as the Councillor was the only person who registered for the session. Hydro Ottawa reached out to Councillor's office directly and offered to answer any questions personally.

5.2 Statement of Completion

Hydro Ottawa did not receive any further comments on the draft ESR. The 30 days comment period of the draft ESR ended on June 12, 2025. The copy of the final ESR report will be submitted to EAB and Regional EA Coordinator at the appropriate Regional Office for filing. Hydro Ottawa submitted the Statement of Completion form to the MECP along with the finalized ESR.

5.3 Summary of Key Questions and Responses

A summary of key questions and responses are provided below in Table 2.

Table 2 - Summary of Key Questions and Responses

Category	Questions/Inquiries	Project Team Responses
Traffic Impacts	Will there be any traffic during the construction phase?	During the construction phase of the project, local residents may see various types and frequencies of construction traffic depending on the stage of the construction. That being said, there will not be a sustained long-term traffic impact associated with the Mer-Bleue project.
Power Disruptions / Outages	Will there be any planned power outrages?	There are no power outages planned at this time. Plans are in place so that electricity service can be maintained during construction of the new facilities. If there is a need for a planned power outage of more than four hours in duration, we provide our customers with as much notice as possible. This includes notifications by

		phone, text and/or email depending on the account contact information we have on file, as well as hand-delivered letters where applicable. We also post notices on the planned work section of our website.
Pause in Construction Phase	Will there be any pause after the construction begins?	There will be no pause in construction once it starts to break the ground. The foundation work will begin in the year 2025, and electric work will be done in 2026.

6 Alternative Methods

6.1 Alternative 1: Do Nothing

Since this alternative ignores the region's need for greater transformation capacity, this alternative is not viable.

6.2 Alternative 2: Retire Bilberry Creek TS and Add New Station (Mer Bleue MTS)

Based on the Greater Ottawa Region Scoping Assessment Outcome Report, March 2023 report (**Appendix B**),

Retire Bilberry Creek TS

This alternative involves decommissioning Bilberry Creek TS and constructing a new 230 kV connected supply station in the area. Connecting this new supply station, Mer Bleue MTS, will require expansion of the 230 kV supply into Orleans. The expansion involves a new 230 kV transmission circuit to be constructed from Hawthorne TS to Orleans TS. The new 230 kV connected supply station will have a capacity of 100 MW, an increase of approximately 15 MW.

Convert Orleans TS to Dual 230 kV Supply (Modified H9A Circuit)

Orleans TS will be upgraded from its current two voltage supply via 115 kV circuit H9A and 230 kV circuit D5A, to having a dual 230 kV supply from Hawthorne TS. As part of this upgrade, transformer T1 at Orleans TS will need to be replaced with a new 230-27.6 kV step-down transformer. Now with a dual 230 kV supply, the upgraded Orleans TS will have an improved station capacity of 153 MW, an increase of approximately 35 MW.

6.3 Alternative 3: Refurbish Bilberry Creek TS, and Provide Two Additional Feeder Positions for Hydro Ottawa

This alternative involves the like-for-like refurbishment of the Bilberry Creek TS which primarily includes replacing two step-down transformers, replacing the majority of the low voltage breakers, and installing a new protection and control building. By refurbishing the Bilberry Creek TS, the voltage regulation problem at the end of 79M1 circuit near Hawkesbury MTS will remain unsolved and additional reactive support will be required along 79M1 in the near-term to address post contingency voltage violations at Hawkesbury MTS. This alternative maintains the existing Orleans area supply capacity, but it will limit future growth in the Orleans area as there is only 20 MW of remaining capacity available (Orleans area planning study).

7 Site Locations Evaluation

7.1 Summary of Site Location Advantages & Disadvantages

The following sections provide a more descriptive summary of the advantages and the disadvantages of the five potential site locations to construct the new substation.

7.1.1 Site Location 1 – Parcel of land along Navan Road

Advantages:

- The site is flat with some trees cover to the North.
- The site is adjacent to the existing HONI transmission corridor to the South.
- No significant and/or sensitive natural features were present on the site.
- No archeological resources of cultural heritage value or interest were discovered.

Disadvantages:

- The site is not readily accessible from Navan Road. City plans to develop new access road through parcel of land.
- A new access road through parcel will be required which will have incremental environmental effects.
- No parcel of land was available to purchase.
- This site was deemed a non-viable solution to construct the substation.

7.1.2 Site Location 2 – Parcel of land on Glenview Homes

Advantages:

- The site is flat with no tree cover.
- The site is readily accessible from Innes Road.
- No significant and/or sensitive natural features were present on the site.
- No archeological resources of cultural heritage value or interest were discovered.

Disadvantages:

- The land is non severable.
- The site is more than 2km from the existing HONI transmission corridor which will have incremental environmental effects associated with extension of the transmission corridor.
- The existing access road structure is not built for heavy construction equipment.
- No parcel of land was available to purchase.
- This site was deemed a non-viable solution to construct the substation.

7.1.3 Site Location 3 – Parcel of land on The Phoenix Undeveloped land

Advantages:

- The site is flat with little tree cover.
- The site is readily accessible from Mer Bleue Road.
- No significant and/or sensitive natural features were present on the site.
- No archeological resources of cultural heritage value or interest were discovered.

Disadvantages:

- The land is non severable.
- The site is more than 2km from the existing HONI transmission corridor which will have incremental environmental effects associated with the extension of the transmission corridor.
- No parcel of land was available to purchase.
- This site was deemed a non-viable solution to construct the substation.

7.1.4 Site Location 4 – Parcel of land along Mer-Bleue Road on Richcraft Homes

Advantages:

- The Owner is willing to sever approximately 4 acres of the land.
- The site is flat with little tree cover.
- The site is readily accessible from Mer Bleue Road.
- No significant and/or sensitive natural features were present on the site.
- No archeological resources of cultural heritage value or interest were discovered.
- The site is adjacent to the existing HONI transmission corridor.
- The site is not classified as a significant woodland.
- The proposed construction activity at the substation site has low potential to impact or alter the hydrogeological characteristics and function (groundwater and surface water interactions) of the natural environmental in the area.
- The site was available to purchase.
- This site was deemed a viable solution to construct the substation.

Disadvantages:

- The desktop screening exercise identified three mammalian endangered SAR with a moderate potential to occur within the project area. Additionally, four species of special concern were identified as having a moderate potential to occur within the project area.

7.1.5 Site Location 5 – Parcel of land on Innes Road Snow Facility along Mer Bleue Road

Advantages:

- The site is flat with little tree cover.
- The site is readily accessible from Mer Bleue Road via an access easement agreement with the City.
- No significant and/or sensitive natural features were present on the site.
- No archeological resources of cultural heritage value or interest were discovered.
- The site is adjacent to the existing HONI transmission corridor.
- The site is not classified as a significant woodland.
- The proposed construction activity at the substation site has low potential to impact or alter the hydrogeological characteristics and function (groundwater and surface water interactions) of the natural environment in the area.
- This site was deemed a viable solution to construct the substation.

Disadvantages:

- City not willing to sever the property. However, the severance process could be initiated to obtain feedback from council, public and other stakeholders.
- A new access road through the parcel will be required which will have incremental environmental effects.

7.2 Site Evaluation Criteria

The site selection process included completing a comparative quantitative and qualitative evaluation. The purpose of the evaluation was to identify a preferred site for the new municipal transformer station which satisfies the main criteria such as severity of impact on natural environment, socio-economic environment, technical and cost factors. Lastly, net effects will be addressed in environmental evaluation by considering residual effects after mitigation is considered. Table 3 below depicts site evaluation criteria.

Table 3 - Site Evaluation Criteria

Criteria Category	Evaluation Criteria
Natural Environment	• Potential impacts on the natural environment including noise, air, wetland, surface watercourses, woodland, SAR, wildlife, and other environmentally sensitive areas
Socio-Economic Environment	• Compatibility with current land use and compatibility with future land use • Potential for disturbing the neighbors and clashing with the landscape's aesthetics • Potential conflicts with archeological discoveries
Technical and Cost Factors	• Proximity to the existing HONI Corridor • Ease of construction based upon existing geology • Ease of construction and maintenance/operation • Easy access to the roads • Environmental Risk Mitigation • Availability if suitable property and acquisition • Tree Clearing and access • Construction cost and maintenance

7.3 Site Evaluation Results and the Decision on Preferred Site

Site Location 4 (Richcraft Homes) is the preferred parcel due to its overall advantages across potential environmental impacts, technical considerations and economic considerations. Some of the key advantages of this site include non-agricultural land, privately owned, not part of the Greenbelt, no SAR presence and land available to purchase for the transformer station development. Table 4 below reflects the evaluation completed for the portion of the proposed Project.

Table 4 - Detailed Evaluation of Potential Sites

Evaluation Criteria	Site Locations				
	1 Parcel at Navan Rd	2 3610 Innes Rd (Glenview Homes)	3 2159 Mer Bleue Rd (Pheonix land)	4 2190 Mer Bleue (Richcraft Homes)	5 2170 Mer Bleue (Innes Snow Dump)
Natural Environment					
Watercourse Crossing per site (Numbers)	1	0	0	0	0
Wetlands Concentration (Low, Moderate, Excessive)	Low	Low	Low	Low	Low
Area of Special Natural Environment (Yes/No)	No	No	No	No	No
Agricultural Land (Yes/No)	No	No	No	No	No
Vegetation Concentration (Low, Moderate, Excessive)	Moderate	Low	Low	Low	Low
Species at Risk (Potential / Not)	Potential	No	Potential	Potential	Potential
Environmentally Protected Zone (Yes/No)	No	No	No	No	No
Socio-Economic Environment					
Potential Conflict with Archeological Findings (Yes/No)	No	No	No	No	No

Evaluation Criteria	Site Locations				
	1 Parcel at Navan Rd	2 3610 Innes Rd (Glenview Homes)	3 2159 Mer Bleue Rd (Pheonix land)	4 2190 Mer Bleue (Richcraft Homes)	5 2170 Mer Bleue (Innes Snow Dump)
Adjacent Residential Properties (Yes/No)	Yes	Yes	Yes	Yes	Yes
Adjacent Commercial, Industrial area (Yes/No)	No	Yes	Yes	Yes	Yes
Adjacent Recreational Resources (Yes/No)	No	No	No	No	No
Adjacent Institutional (Schools, hospitals, Monastery)	No	No	No	No	No
Aesthetic Concerns from residents (Yes/No)	No	No	No	No	No
Technical and Cost Factors					
Proximity to HONI existing ransmission corridor and demand growth (good/bad)	Bad	Bad	Good	Good	Good
Acquisition Availability if suitable property (Available/ Not available)	Not available	Not Available	Available	Available	Potentially Available
Tree Clearing (Low, Moderate, Excessive)	Low	Low	Low	Low	Low

Evaluation Criteria	Site Locations				
	1 Parcel at Navan Rd	2 3610 Innes Rd (Glenview Homes)	3 2159 Mer Bleue Rd (Pheonix land)	4 2190 Mer Bleue (Richcraft Homes)	5 2170 Mer Bleue (Innes Snow Dump)
Ease of road access (Yes/No)	No	Yes	Yes	Yes	Yes
Feasible for construction based upon existing geology (Yes/No)	Yes	Yes	Yes	Yes	Yes
Ease of construction and maintenance / operation (Easy/Moderate/complicated)	Moderate	Moderate	Moderate	Moderate	Moderate
Federal land/Conflict in acquisition of land (Yes/No)	No	No	No	No	No

8 Preferred Site Location

Table 5 below summarizes the overall ranking of the five potential site locations for the new municipal transformer station to be completed.

Table 5 - Summarizing the Ranking of the Five Potential Site Locations

Rank	Site Location	Description
4	1	Parcel at Navan Road
5	2	3610 Innes Road (Glenview Homes)
3	3	2159 Mer Bleue Road (Pheonix land)
1	4	2190 Mer Bleue Road (Proposed)
2	5	2170 Mer Bleue Road (Snow Dump Facility)

8.1.1 Preferred Site Location in the Study Area

Based on the evaluation of the site locations shown in the above table, a parcel of land at Site location 4 (2190 Mer Bleue Road) was determined to be the best location for building a new municipal transformer station with a capacity of 27.6 kV.

In summary, to accommodate the footprint of a new MTS, this parcel of land at Site location 4 will require some vegetation clearance.

According to the recommendation made in the Greater Ottawa Region Scoping Assessment Outcome Report dated March 21, 2023 and current IRRP 2024, Site location 4 has been chosen as the preferred option to support the growth in demand in Orleans area of the City of Ottawa. The benefits that Site location 4 offers over the other four site locations are as follows:

Natural environment:

- Given the project's non-intrusive nature and future substation operations, the proposed substation is not anticipated to cause any adverse effect on the nearby soils or landforms.
- It is not a part of the environmentally sensitive areas, and it is not zoned as agricultural land.
- The site is not classified as a significant woodland.
- The proposed construction activity at the substation site has low potential to impact or alter the hydrogeological characteristics and function (groundwater and surface water interactions) of the natural environment in the area.

Socio – Economic Environment:

- No archeological resources of cultural heritage value or interest were discovered.

Technical and Cost benefit:

- Offers adequate construction work access and space from Mer Bleue Road.

9 Project Description and Schedule

The section below summarizes the description of the proposed project including detailed design phase, pre-construction, construction, and operation & maintenance phase.

9.1 New 27.6kV Supply Station (Mer Bleue MTS)

The description of the proposed MTS has been described in section 1.3.

9.2 Detailed Design, Construction Phase & Maintenance Phase

The proposed Project and related design work will go through detailed engineering and design after the Class EA process is finished. The findings of a geotechnical assessment will serve as the basis for the final design plans, which will be created after discussions with the stakeholders.

Hydro Ottawa will provide guidance for both construction and maintenance. The MTS will be maintained in accordance with Hydro Ottawa's maintenance guidelines. To reduce any risks or electrical system interruptions, Hydro Ottawa will also make sure that all applicable safety laws and industry standards are followed.

9.3 Project Schedule

Table 6 outlines the Project Schedule for the construction of the station:

Table 6 - Project Schedule

Milestone	Date
20%, Completion of SIA Package, Transformer & Breaker Specification	Oct - 2024
33%, Single Line Diagram Approved, City Approvals, Switchgear package issued for tender & P&C, package for tender	Feb - 2025
66% Completion, Other equipment for tendering	Apr - 2025
80% IFB/ IFC Gate Completion, City permits	Jun - 2025
Civil Construction Start	Sep - 2025
Electrical Construction Start	Aug - 2026
Commissioning and Energization	Apr - 2027
Completion	May - 2027

10 Impact Management and Mitigation Measures

This section contains a summary of the potential impacts that may occur during the construction and operation of the transformer station on the preferred site, and recommended impact management and mitigation measures that may be employed to reduce these potential impacts and address public concerns.

The project team has experience working on other similar projects, and the possible environmental effects of building and operating the proposed project are well known. With a proven track record of environmental compliance and stewardship, the project team is dedicated to completing a thorough environmental and social analysis as well as mitigating any potential environmental effects.

Table 7 documents the interaction between project activities, their potential effects, the proposed mitigation measures, and the resulting residual effects.

Table 7 - Type of Impacts, Potential Effects, Proposed Mitigation Measures, and Net Effects

Impacts	Potential Effects	Proposed Mitigation Measures	Net (Residual) Effects
Short Term Effects			
Air Quality and Noise (construction)	There is the potential for noise, dust and air pollutant emissions related to construction activities	Noise levels will be monitored, and efforts will be made to conform to municipal noise bylaws. Construction equipment will be maintained and monitored to ensure that their operation conforms to normal parameters. Dust suppression measures will be implemented at the construction site.	No long-term residual effects are predicted.
Traffic Disruption	There is the potential for minor traffic disruptions during the construction of the station due to the movement of large trucks and construction equipment.	A traffic management plan will be developed to minimize traffic disruption.	No long-term residual effects are predicted.
Waste Creation	There is the potential for the generation of waste materials during the construction of the station.	Waste materials generated during the construction of the station will be disposed of in accordance with applicable regulations by licensed waste haulers.	No long-term residual effects are predicted.
Long-term Effects			

Impacts	Potential Effects	Proposed Mitigation Measures	Net (Residual) Effects
Surface and Ground Water	There is the potential for environmental impact to surface and ground water resources due to a transformer oil leak or spill.	Oil containment and storm water run-off controls will be implemented during the design phase of the station to ensure station discharges are within regulatory limits.	No long-term residual effects are predicted.
Natural Environment	There is the potential for impact to a possible wildlife corridor that may include the subject site.	Efforts will be made to protect wildlife and prevent entry to the switchyard.	No significant long-term effects are predicted.
Aesthetics	The proposed station will be visible from Mer Bleue Road and adjacent neighborhood.	While transformer stations are for utility use, the station will include landscape screening, tree planting and be designed to match the surrounding landscape, and the architectural features in the area. The design is also subject to local by-laws.	No significant long-term effects are predicted.
Noise (operation)	There is the potential for noise generated by transformer hum, cooling fans and circuit breaker operation.	The transformers will be designed to ensure that the noise levels at the adjacent residential and institutional developments will meet MECP noise level criteria. Adequate measures will be taken around each transformer to achieve noise attenuation.	No significant long-term effects are predicted. The noise level will meet the MECP noise level criteria.
EMF Exposure	Health Canada and the World Health Organization provide guidance with respect to EMF exposure. To date, the advice is that a health risk from EMF exposure has not been established.	No mitigation necessary.	No negative effects are predicted.

10.1 Surface Water and Groundwater

This section refers to item 1.4 of the MECP screening criteria "Will the project cause potential negative effects on surface or ground water from accidental spills or releases to the environment?"

An impact assessment was carried out for the pre-construction and construction phase, which concludes the following: There will be no environmental impact because there are no sensitive environmental features near the preferred site where the substation will be built. Since the excavation for the substation foundation pad is expected to be shallow, high-volume groundwater pumping is not anticipated, and thus the potential for impacts on private water supply wells nearby is not anticipated. Furthermore, because the excavation will be limited to the shallow overburden material and the nearby recorded wells are all completed in the bedrock, there is no risk of site activities interfering with the performance and function of the water wells.

While there is the potential for environmental impact to surface and ground water resources due to a transformer oil leak or spill during operations phase, the transformers will be installed atop oil containment pits. These oil containment pits will consist of a reinforced concrete pit, lined with a waterproof liner and filled with river washed stone. A drain line will lead from the bottom of the pit to a sump. This will ensure that there is no loss of insulating oil to the surrounding environment. This water is then treated so that any contaminating oil is removed, and clean water can be discharged from the site.

The discharge from the site may be permitted as overland flow downslope if the discharge water quality meets the PWQO guideline standards. To manage discharge within PWQO guideline limits, a discharge management plan shall be developed, if needed and implemented as needed during the construction dewatering period.

The station will not use or release processed waters. Storm water drainage will be subject to a Certificate of Approval from the MECP and will be designed in accordance with municipal and regulatory agency requirements. Site surface drainage will likely flow to the drainage ditch along the HONI corridor and Mer Bleue Road.

No long-term residual effects to surface water and groundwater are anticipated.

10.2 Land Impacts

This section refers to item 2.1 to 2.5 of the MECP screening criteria "Will the project;

- cause potential negative effects on residential, commercial, or institutional land uses within 500 m of the site?
- be inconsistent with the Provincial Policy Statement, provincial land use or resource management plans?
- be inconsistent with municipal land use policies, plans and zoning bylaws?
- use hazard lands or unstable lands subject to erosion?
- have potential negative effects related to the remediation of contaminated land?

The proposed project does not adversely affect land impacts in any way.

10.3 Air and Noise

This section refers to items 3.1 to 3.4 of the MECP screening criteria. Specifically, "Will the project:

- have negative effects on air quality due to emissions of nitrogen dioxide, suspended particulates, or other pollutants?
- cause negative effects from the emission of greenhouse gases (CO2 and methane)?
- cause negative effects from the emission of dust or odour?
- cause negative effects from the emission of noise?

10.3.1 Air

The proposed project's construction phase has the potential to have a short-term, geographically limited impact on air quality in its vicinity. Construction-related emissions primarily consist of airborne particulate matter and byproducts generated by the operation and mobility of construction machinery and vehicles. These emissions may cause inconvenience or disruption to nearby residents and land occupants during the construction stage.

Dust generation is also likely to occur during construction activities. This short-term impact will be mitigated using dust suppression controls (such as windbreaks and water spraying) and no residual effects are predicted.

The following are some mitigation techniques to lessen the possibility of air quality deterioration and dust annoyances:

- Maintaining construction equipment in accordance with manufacturer guidelines and performing routine maintenance, such as tune-ups and inspections, can help reduce exhaust emissions.
- Use efficient dust suppression methods as needed, such as road sweeping and on-site watering.
- Strong winds can easily carry dust particles over long distances, avoiding construction work in such instances.

10.3.2 Noise

There is potential for short-term noise impacts related to site construction activities. Noise levels will be monitored, and efforts will be made to conform to municipal noise bylaws. No long-term residual effects are predicted.

There is also the potential for long-term noise impacts related to transformer hum, cooling fans and circuit breaker operation. To lessen the possibility of noise-related annoyances, noise barriers or berms surrounding individual transformers are recommended to mitigate noise from the transformers.

An Environmental Acoustic Assessment was completed by EXP during the preliminary design. The assessment concluded that the sound level limits will meet MECP publication NPC-300 with the implementation of noise barriers.

10.4 Natural Environment

This section refers to items 4.1 to 4.4 and 4.7 of the MECP screening criteria. Specifically, “Will the project:

- cause negative effects on rare, threatened, or endangered species of flora or fauna or their habitat?
- cause negative effects on protected natural areas such as ANSIs, ESAs or other significant natural areas?
- cause negative effects on wetlands?
- have negative effects on wildlife habitat, populations, corridors, or movement?
- have negative effects on locally important or valued ecosystems or vegetation?

There is a snow disposal facility located immediately west of the Phase One Property, which was initially considered to contribute to an area of potentially environmental concern (APEC) and as a result supplemental soil and groundwater sampling was recommended. On August 2, 2024, three boreholes instrumented with monitoring wells were advanced at the site. As a result, the concentrations of PHC, BTEX, metals and general inorganics measured in the analyzed soil samples were less than the Ministry of the Environment, Conservation and Parks (MECP) 2011 Table 3 site condition standards (SCS).

10.5 Resources Impacts

There are no impacts on the resources at the proposed site.

10.6 Socio-Economic Impacts

This section refers to item 6.7 of the MECP screening criteria “Will the project have any negative effects related to traffic?”

There is potential for minor traffic disturbance during the station’s construction phase. No significant long-term effects are anticipated.

10.7 Heritage and Culture

No negative effects are anticipated on the heritage buildings and sites, as they do not exist in the vicinity of the preferred site.

10.8 Indigenous

No negative effects are anticipated on indigenous communities.

10.9 Other Impacts

There are no other impacts anticipated.

11 Effects Monitoring Plan

The Contractor in charge of carrying out the proposed project is responsible for the implementation and ongoing monitoring of the mitigation measures outlined. If new information becomes available after the date of publication of this report, the Contractor will be responsible for developing new measures as needed. Routine work area inspections and mitigation measures will include, but are not limited to, the following:

- All erosion and sediment control measures must be examined on a regular basis to ensure proper operation. This includes the removal of accumulated sediment as well as the proper maintenance of sediment fencing to prevent surface water flow, sediment passage, or fencing breaches.
- Inspections of wildlife exclusion fencing on a regular basis to ensure its effectiveness.
- Compliance with the controlled areas for equipment, vehicles, and fuels.
- Adherence to all mitigation measures specified (including any additional measures determined after the report's publication).
- Immediate correction of any shortcomings in the above-mentioned mitigation measures.

12 Conclusions and Recommendations

A Class EA Environmental Study Report was prepared on behalf of Hydro Ottawa Limited in support of their plan to construct a new municipal transformer station in the southeast end of the City of Ottawa. Hydro Ottawa proposes to construct a new 27.6kV municipal transformer station (MTS) approximately 300 m northwest of Mer Bleue Road and Brian Coburn Boulevard intersection and connect the new power station to Hydro One's existing 230kV transmission line located south of the subject station. The station elements include a transmission line connection to the existing HONI corridor 230 kV circuits, yard equipment including high voltage transformers, breakers and switches, a switchgear and control building. Five site locations were considered for the new transformer station.

As required by the EA Act and the Class EA procedures, the identification and assessment of alternatives to the proposed project were considered. The most viable alternative method was to decommission and replace Bilberry creek TS.

The potential sites for the new municipal transformer station were evaluated with respect to eight environmental and socio-economic screening criteria including: surface water and groundwater impacts, land impacts, air and noise impacts, impacts of the natural environment of the area, impacts on the local natural resources, socio-economic impacts, heritage and cultural impacts, impacts on local Aboriginal communities, impacts on others such as any negative environmental effects not covered by the criteria mentioned.

A public and agency stakeholder consultation program was instituted to ensure that the stakeholders are aware of what is being proposed and will have an opportunity to provide input before final decisions are made. Hydro Ottawa developed a list comprised of provincial agencies, Indigenous communities, City of Ottawa, local conservation authority, community associations and Industry stakeholders.

Based on the evaluation of the site locations shown, the parcel of land at Site location 4 (2190 Mer Bleue Road) was determined to be the best location for building a new municipal transformer station with a capacity of 27.6 kV due to its overall advances across potential environmental impacts, technical considerations and economic considerations. Some of the key advantages of this site include non-agricultural land, privately owned, not part of the Greenbelt, no SAR presence and land available to purchase for the transformer station development.

The proposed Project and related design work will go through detailed engineering and design after the Class EA process is finished. The findings of a geotechnical assessment will serve as the basis for the final design plans, which will be created after discussions with the stakeholders. The project is anticipated to begin construction in September 2025 and reach completion in May 2027.

Potential impacts that may occur during the construction and operation of the transformer station on the preferred site were considered and recommended impact management and mitigation measures will be implemented as discussed in this report.

13 References

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10. Stage 1 Archaeological Assessment East Urban Community Centre (EUC) Project Community Design Plan (CDP) Lots 1-4 Concession 3 Geographic Township of Gloucester and Lots 1-2 Concession 11 Geographic Township of Cumberland City of Ottawa Ontario (Golder Associates Ltd. 2016)
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12. Greater Ottawa Region Assessment Outcome Report (Technical Working Group March 21, 2023)

Appendix A: Ottawa Sub-Region: Integrated Regional Resource Plan 2020

Ottawa Sub-Region:

Integrated Regional Resource Plan

Part of the Greater Ottawa Regional Planning Region

March 4, 2020

ieso
Connecting Today.
Powering Tomorrow.

Integrated Regional Resource Plan

Ottawa Sub-Region

This Integrated Regional Resource Plan (IRRP) was prepared by the Independent Electricity System Operator (IESO) pursuant to the terms of its Ontario Energy Board license, EI-2013-0066.

The IESO prepared the IRRP on behalf of the Ottawa Sub-Region Working Group (Working Group), which included the following members:

- Independent Electricity System Operator
- Hydro Ottawa Limited
- Hydro One Networks Inc. (Distribution)
- Hydro One Networks Inc. (Transmission)

The Working Group developed a plan that considers the potential for long-term electricity demand growth and varying supply conditions in the Ottawa Sub-Region, and maintains the flexibility to accommodate changes to key conditions over time.

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Appendix A: Overview of the Regional Planning Process
Appendix B: Demand Outlook and Methodology
Appendix C: Planning Study Report
Appendix D: Evaluation of Non-Wires Options

List of Abbreviations

Abbreviations	Descriptions
2019 APS	Achievable Potential Study
A	Amp
ACSR	Aluminum Conductor Steel-Reinforced Conductors
BES	Bulk Electric System
BPS	Bulk Power System
CDM	Conservation and Demand Management
CFF	Conservation First Framework
CHP	Combined Heat and Power
City	City of Ottawa
DER	Distributed Energy Resource
DESN	Dual Element Spot Network
DG	Distributed Generation
DR	Demand Response
EE	Energy Efficiency
FIT	Feed-in Tariff
GS	Generating Stations
Hydro One or Hydro One Transmission	Hydro One Networks Inc.
Hydro Ottawa	Hydro Ottawa Limited
ICG	IESO Controlled Grid
IESO	Independent Electricity System Operator
IRRP	Integrated Regional Resource Plan
kV	Kilovolt
LDC	Local Distribution Company
LMC	Load Meeting Capability

Abbreviations	Descriptions
LTE	Long-Term Emergency ratings
LTR	Limited Time Rating
MS	Municipal Station
MVA	Mega Volt Amp
MW	Megawatt
NERC	North American Electric Reliability Corporation
NPCC	Northeast Power Coordinating Council
OEB or Board	Ontario Energy Board
ORTAC	Ontario Resource and Transmission Assessment Criteria
PPWG	Planning Process Working Group
RIP	Regional Infrastructure Plan
SCGT	Simple Cycle Gas Turbine
SIA	System Impact Assessment
STE	Short-Term Emergency ratings
sub-region	Ottawa Sub-Region
TS	Transformer Station
TWh	Terawatt-Hours
Working Group	Technical Working Group for Ottawa Sub-Region IRRP

1 Introduction

This Integrated Regional Resource Plan (IRRP) documents the studies, conclusions, recommendations and actions required to address the electricity needs of the Ottawa Sub-Region (sub-region) over the next 20 years. It was prepared by the Independent Electricity System Operator (IESO) on behalf of a technical working group (Working Group) composed of the IESO, Hydro Ottawa Limited (Hydro Ottawa), Hydro One Distribution, and Hydro One Transmission. Hydro Ottawa, a municipally-owned utility which operates in the City of Ottawa (City) and in the Village of Casselman, and Hydro One Distribution are local distribution companies (LDCs) that serve customers in the sub-region. Hydro One is the transmission asset owner in the sub-region.

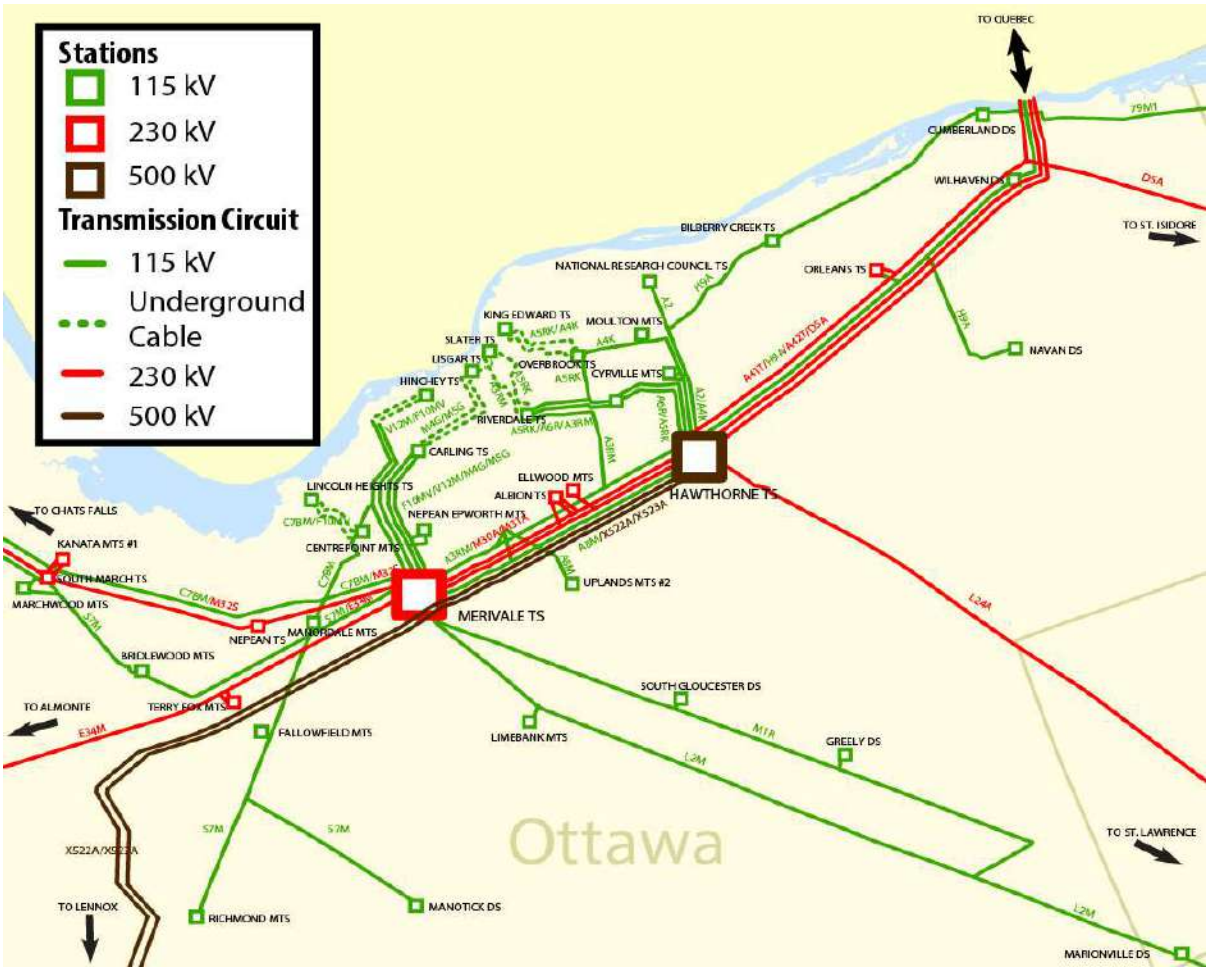
In Ontario, planning to meet the electrical supply and reliability needs of a large area or region is carried out through regional electricity planning, a process that was formalized by the Ontario Energy Board (OEB) in 2013. In accordance with this process, transmitters, distributers, and the IESO are required to carry out regional planning activities for 21 electricity planning regions across Ontario, at least once every five years. The Ottawa Sub-Region covered by this IRRP is a sub-region of the "Greater Ottawa" Region, as shown in Figure 1-1 and

Figure **1-2**. The sub-region encompasses the City, including the Kanata, Nepean, and Orléans communities.

Figure 1-1: Sub-Regions of the Greater Ottawa Regional Planning Region



Figure 1-2: Ottawa Sub-Region Transmission System



The City of Ottawa has grown steadily over recent years, reaching a population of one million in 2019. This trend for growth is expected to continue; the City's Official Plan anticipates a 16% population increase between 2016 and 2031.[1] This expansion is resulting in residential and commercial development plans across the City, particularly in the suburban areas outside the Greenbelt. As a result, the electricity demand forecast for the City shows growth over the nearly 20-year forecast horizon.

This IRRP identifies upcoming power system capacity, reliability, and end-of-life asset replacement needs and recommends specific investments to address the most imminent needs.

[1] [1] https://ottawa.ca/en/city-hall/get-know-your-city/statistics-and-economic-profile/statistics/ottawas-population

This IRRP also recommends near-term activities to manage longer-term requirements. The next planning cycle is scheduled to be initiated in 2023, but may be triggered sooner depending on demand growth or other factors. Annual monitoring of potential needs will provide additional input on when the next regional planning cycle should be initiated.

This report is organized as follows:

- A summary of the recommended plan for the Ottawa Sub-Region is provided in Section 2;
- The process and methodology used to develop the plan are discussed in Section 3;
- The context for electricity planning in the sub-region and the study scope are discussed in Section 4;
- The demand outlook scenarios, as well as energy efficiency and distributed energy resource (DER) assumptions, are described in Section 5;
- Electricity needs in the Ottawa Sub-Region are presented in Section 6;
- Options and recommendations for addressing the needs are described in Section 7;
- A summary of engagement activities to date, and moving forward, is provided in Section 8; and
- A conclusion is provided in Section 9.

2 The Integrated Regional Resource Plan

This is the second IRRP for the Ottawa Sub-Region. The first IRRP was produced in 2015. Regional plans are based on 20-year station level demand forecasts generated by the local distribution companies that supply customers in the sub-region. The planning forecast for the Ottawa Sub-Region has changed since the 2015 IRRP. The planning forecast for this IRRP is about five percent higher in the long term; attributable mostly to changes in energy efficiency programs in the sub-region. Much of the load growth is forecast to occur in the communities of Kanata, Stittsville, Nepean and Barrhaven and Orleans, with smaller changes expected in the central part of Ottawa.

The Ottawa Sub-Region IRRP documents the sub-region's forecast electricity needs, based on the application of the IESO's Ontario Resource and Transmission Assessment Criteria (ORTAC).[2] The IRRP was developed based on a set of planning considerations, including reliability, cost, feasibility and flexibility; and, in the near term, it seeks to maximize the use of existing electricity system assets.

This IRRP identifies three planning horizons: from the base year when the forecast was originated (2017) through the near term (up to and including 2022), medium term (six to 10 years, from 2023 to 2027 inclusive), and longer term (11 to 20 years, or from 2028 to 2037 inclusive). This IRRP identifies and recommends investments to address the most imminent needs. The IRRP also spells out specific actions that will address remaining near term and medium-term needs. The Working Group will monitor long-term needs on an annual basis until the next regional planning cycle.

Ottawa's growth is increasing the burden on the transmission network that supplies the sub-region. Many stations across the sub-region are supplied by the older regional 115 kV transmission network. The demand at these stations is forecast to exceed the capability of that 115 kV system in coming years. The 115 kV transmission system is in turn supplied mainly by 230 kV bulk transmission lines that connect the sub-region to the rest of the province. Planning for the bulk transmission system is carried out separately from regional planning, since bulk facilities serve both local and provincial needs, however the two planning processes must be coordinated. The IESO is currently working on a plan for bulk transmission supply to the

[2] Refer to the ORTAC for details:
www.ieso.ca/~/.../IMO-REQ-0041 -TransmissionAssessmentCriteria.pdf

Ottawa area, which is expected to be completed later in 2020. Accordingly, this regional planning process has considered opportunities to coordinate regional planning decisions with the ongoing bulk planning process.

Ontario's formalized regional planning process is based on a minimum five-year review cycle. However, the process allows a regional planning cycle to be triggered before the five-year mark due to, for example, material resource or demand changes. The active part of this cycle is made up of needs assessment, scoping assessment, IRRP, and Regional Infrastructure Plan (RIP) stages, which take up approximately half of the typical five-year timeframe. In many regions, this period of active planning is followed by a period when plan implementation begins, and the technical working group monitors demand trends until the next cycle begins. In some large or fast growing regions like Ottawa, however, the complexity of issues requires the technical working group to continue to be engaged in integrated planning throughout the regional planning cycle, after the completion of the IRRP.

2.1 RECOMMENDED ACTIONS

The recommended actions are summarized in Table 2-1, below.

In the case of two near-term regional planning needs identified in this IRRP, it is beneficial to defer confirming a long-term plan until after the bulk transmission plan has been completed, to allow for integration between bulk planning and regional planning.

In the first case, there is a need for increased supply to the Kanata-Stittsville area, however the bulk transmission plan may provide additional options that should be considered before confirming a plan for long-term supply to the area. The IESO's Save on Energy Local Program Fund has recently approved two Hydro Ottawa programs to target system cost-effective energy efficiency measures to reduce station demand at three Hydro Ottawa stations in the Kanata-Stittsville area as a near-term measure to support reliable supply until a long-term solution for the area is implemented. In addition, Hydro Ottawa is planning distribution system transfers to reduce demand at heavily loaded stations.

In the second case, there is a need for increased supply to the regional 115 kV system, and the options for a long-term plan are closely related to the bulk transmission plan, which will focus on the 230 kV and 500 kV system. The technical Working Group will continue integrated planning for the 115 kV system after this IRRP is released, working in parallel with the IESO's ongoing bulk transmission planning study. A long-term plan for the 115 kV system is expected

to be released later in 2020. The IESO will lead engagement with communities and stakeholders on the long-term plan for the 115 kV system, which will include assessment of non-wires alternatives. In the near term, Hydro One will replace transformer T22 at Merivale TS with one that is approximately equal to T21 as a first step to address the need for increased supply to the 115 kV system.

Four outcomes included in this plan address the future of assets that are approaching end of life at Bilberry Creek TS, Slater TS, Albion TS, and Lincoln Heights TS.

Finally, to address the need for additional supply station capacity in southeastern Ottawa, Hydro Ottawa will initiate development work and seek approval for a new 230 kV connected supply station.

Table 2-1: Recommended Actions Resulting from the Ottawa Sub-Region IRRP

Area	Action	Timeline
Kanata-Stittsville	Hydro Ottawa is to implement the North Kanata Retrofit Top-Up Program and the North Kanata Smart Thermostat Program, targeted commercial and residential energy efficiency programs. Hydro Ottawa is also planning distribution system transfers to reduce demand at heavily loaded stations.	Beginning in 2020
Regional 115 kV System	Hydro One is to replace Merivale TS Transformer T22 with one that is approximately equivalent to T21.	Planned Completion: mid-2020s
Orleans	Hydro One is to proceed with the like-for-like refurbishment of Bilberry Creek TS, which is approaching its end of life, and expand the station to accommodate two additional breaker positions to supply Hydro Ottawa customers.	Planned Completion: 2025
Central Ottawa	Hydro One is to replace Slater TS T2 and T3, which are approaching their end of life, with larger transformers, approximately 100 MVA, as was done for the recent replacement of T1.	Planned Completion: late 2023
Central Ottawa	Hydro One is to replace the two 75 MVA transformers at Albion TS, which are approaching their end of life, with similar size transformers.	Planned Completion: mid 2026
Central Ottawa	Hydro One is to replace the two 75 MVA transformers at Lincoln Heights, which are approaching their end of life, with similar size transformers.	Planned Completion: 2025
Southeast Ottawa	Hydro Ottawa is to plan and seek approval for a new 230 kV connected supply station in southeast Ottawa.	Estimated in-service date for the new station: 2025

3 Development of the Plan

3.1 THE REGIONAL PLANNING PROCESS

In Ontario, preparing to meet the electricity needs of customers at a regional level is achieved through regional planning. Regional planning assesses the interrelated needs of a region — defined by common electricity supply infrastructure — over the near, medium, and long term and results in a plan to ensure cost-effective, reliable electricity supply. A regional plan considers the existing electricity infrastructure in an area, forecast growth and customer reliability, evaluates options for addressing needs, and recommends actions.

The current regional planning process was formalized by the OEB in 2013 and is performed on a five-year planning cycle for each of the 21 planning regions in the province. The process is carried out by the IESO, in collaboration with the transmitter(s) and LDC(s) in each planning region.

The process consists of four main components:

1. A Needs Assessment, led by the transmitter, which completes an initial screening of a region's electricity needs;
2. A Scoping Assessment, led by the IESO, which identifies the appropriate planning approach for the identified needs and the scope of any recommended planning activities;
3. An IRRP, led by the IESO, which proposes recommendations to meet the identified needs requiring coordinated planning; and/or
4. A RIP which provides further details on recommended wires solutions.

Further details on the regional planning process and the IESO's approach to regional planning can be found in Appendix A.

The IESO is also currently conducting a Regional Planning Review Process to consider lessons learned and findings from the previous cycle of regional planning and other regional planning development initiatives, such as pilots and studies.[3]

[3] http://www.ieso.ca/en/Sector-Participants/Engagement-Initiatives/Engagements/Regional-Planning-Review-Process

3.2 OTTAWA SUB-REGION WORKING GROUP AND IRRP DEVELOPMENT

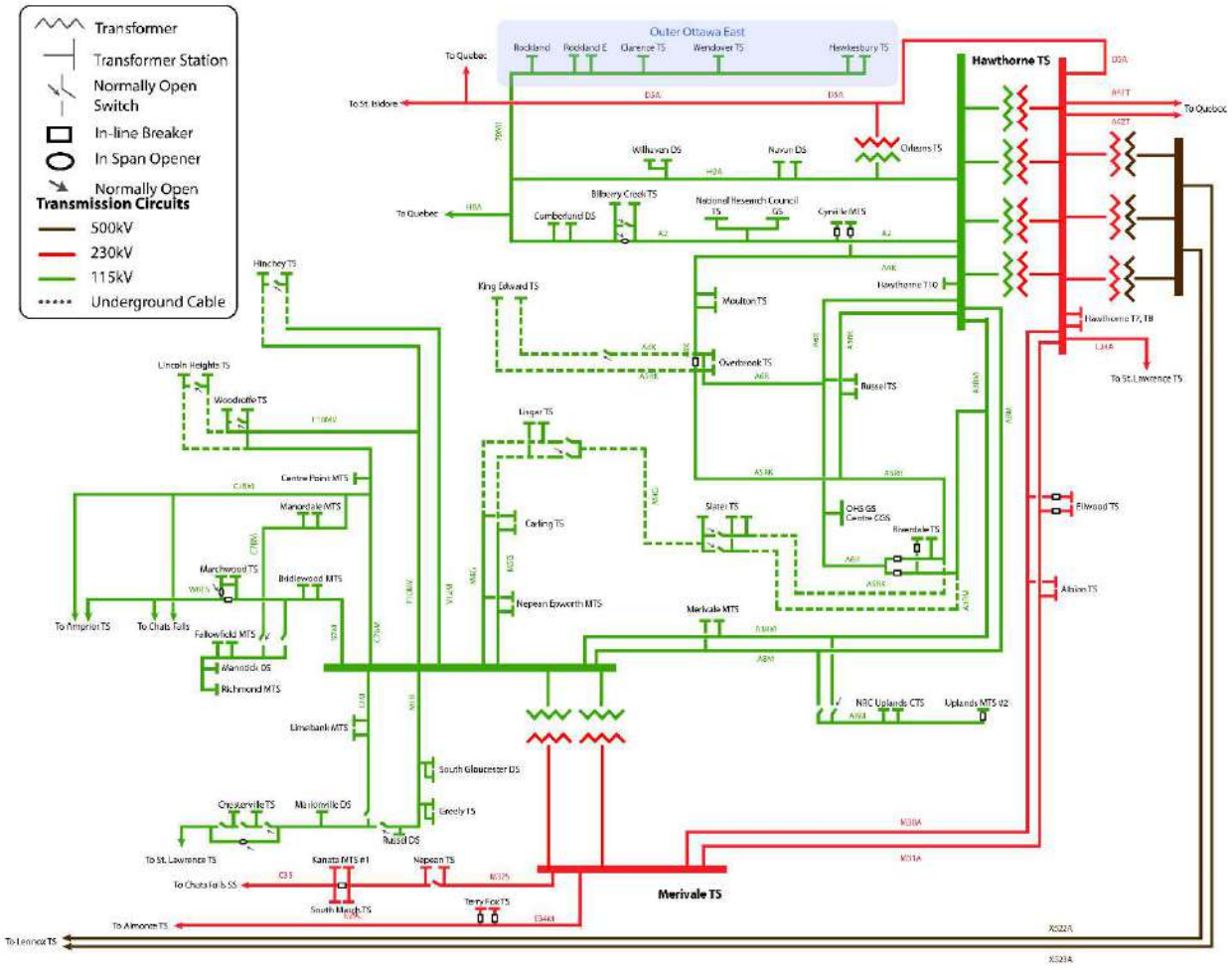
Development of the Ottawa Sub-Region IRRP was initiated in 2018 with the release of the Needs Assessment report for the Greater Ottawa Region. This product was prepared by Hydro One Transmission with participation from the IESO, Hydro Ottawa, and Hydro One Distribution. Screening for needs was carried out to identify needs that may require coordinated regional planning. The subsequent Scoping Assessment Outcome Report prepared by the IESO recommended that an IRRP should be developed to address previously identified and new needs in the Ottawa Sub-Region due to the potential for coordinated solutions.

In 2018 the Working Group was formed to develop Terms of Reference for this IRRP, gather data, identify near- to long-term needs in the sub-region, and recommend actions to address them.

4 Regional Overview

The Ottawa Sub-Region, as shown in 4-1, is supplied by both transmission connections to the Ontario grid and nearby electricity generation facilities, including hydroelectric generating stations on the Madawaska and Ottawa Rivers and renewable generation procured through the Feed-in Tariff (FIT) and microFIT programs.

Figure 4-1: Ottawa Sub-Region Electrical Single Line Diagram



Transmission supply to the sub-region is provided through a 500 kV double-circuit bulk system transmission line connecting to Hawthorne TS, a major TS on the eastern side of the city, and an expansive network of 230 kV and 115 kV transmission lines. Hawthorne TS and a second major TS on the west side of the city, Merivale TS, are the two main supply points for the sub-region. These stations have a total of six 230/115 kV transformers providing supply to the 115 kV

system: four at Hawthorne and two at Merivale. Hawthorne and Merivale are connected by two 230 kV circuits in parallel with two 115 kV circuits. Together, these circuits make up the Hawthorne-Merivale transmission interface, the major transmission supply path across the City. Merivale TS is the primary supply point for the western half of the sub-region and receives the majority of its supply through the Hawthorne-Merivale interface.

The Greater Ottawa Region is home to 536 MW of contracted hydroelectric capacity. There are three transmission-connected hydroelectric generating stations on the Madawaska River (Stewartville, Barrett Chute and Arnprior) and one on the Ottawa River (Chats Falls) which, due to their connectivity in the western part of the Ottawa area system, have the potential to reduce the need for supply from the transmission system. However, it is important to note that these hydroelectric plants are run-of-river type generators, which do not have the ability to store water for controlled use at specific times. This type of generating facility typically produces peak output during the spring due to melting snow and ice and produce relatively low output at the time of peak system demand (which typically occurs during the summer). According to the ORTAC, a planning study shall assume a level of output for run-of-river hydroelectric generation that is available 98% of the time. This results in an output level for the of approximately 70 MW for these generators.

4.1 RECENT PLANNING ACTIVITIES IN THE REGION

This is the second cycle of regional planning for the Ottawa Sub-Region. When the OEB formalized the regional planning process in 2013, planning work was already underway in Ottawa. As such, the Needs Assessment and Scoping Assessment for the first cycle of the regional planning process were deemed to be complete and Ottawa was identified as a "transitional" region within the Group 1 planning regions, the first group to utilize the formalized regional planning process.

In April 2015 the Ottawa Area IRRP documented a number of recommendations to address near-term needs. In summary, these recommendations can be organized into four primary areas.

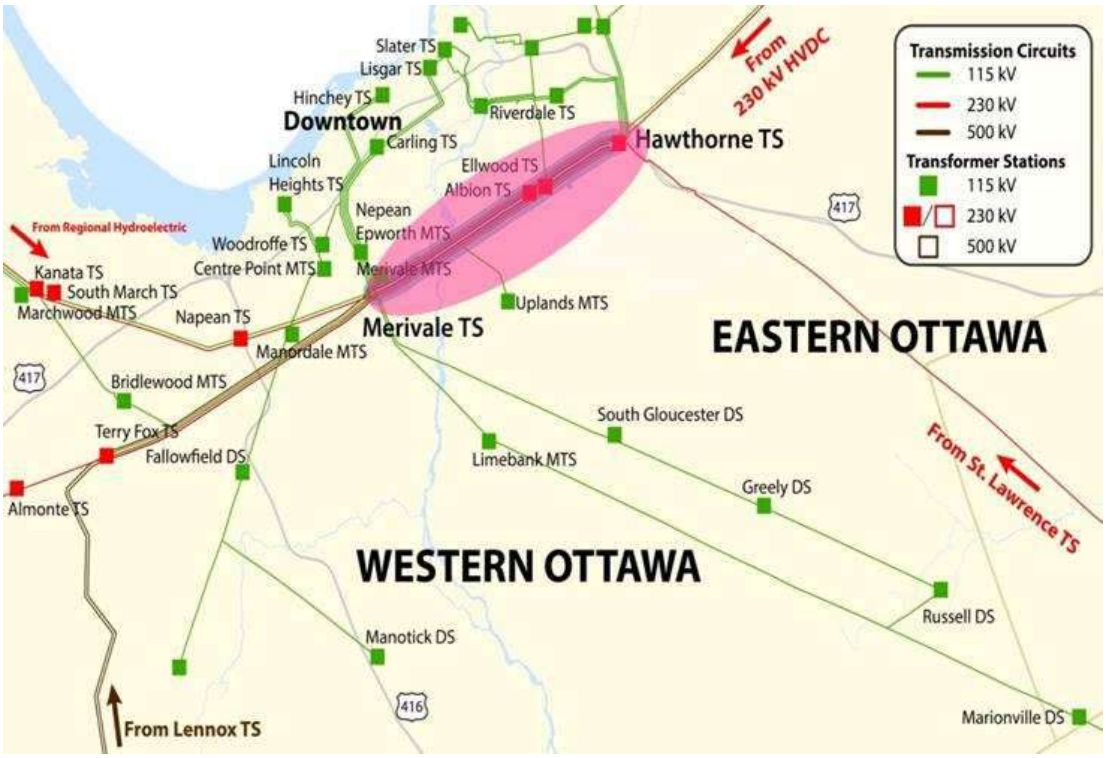
1. To reinforce electricity supply to southwest Ottawa: a 230 kV in-line breaker at Almonte TS was installed (2015), a section of the S7M circuit was upgraded (2017), and development work for a new South Nepean MTS and connection line ensued (expected in-service date of 2022).

2. To reinforce electricity supply to central Ottawa: Overbrook TS transformers were replaced and reconfigured (2018), a section of the A5RK circuit was rebuilt (2019), station capacity at King Edward TS will be increased (2023), and more generally, distribution system transfer capability between central Ottawa stations was increased.
3. To reinforce electricity supply to east Ottawa: transformers T7/T8 at Hawthorne TS were replaced with higher rated (125 MVA) transformers (2019).
4. More broadly, to reinforce the overall regional supply: end-of-life Hawthorne transformers T5/T6 are in the process of being replaced with higher rated transformers (T6 has been completed, T5 will be completed in 2021).

Two medium-term needs, the need for additional 230/115 kV transformer capacity at Merivale TS, and the need for an end-of-life plan for Bilberry Creek TS were also identified in that report, though no specific action was recommended. These two issues are now more imminent and are revisited in this report.

In addition to the enhancements identified in the 2015 IRRP, the IESO provided a hand-off letter to Hydro One in February 2019, requesting the transmitter to proceed with the upgrading of the 230 kV circuits M30A and M31A in the Hawthorne to Merivale transmission corridor (as shown in Figure 4-2). These circuits are critical for supplying customers in the western half of the City of Ottawa and providing a transmission path for a portion of the power transfers between Eastern Ontario and the Greater Toronto Area. The M30/31A reinforcements have a target in-service date of December 2022.

Figure 4-2: Hawthorne to Merivale Transmission Corridor



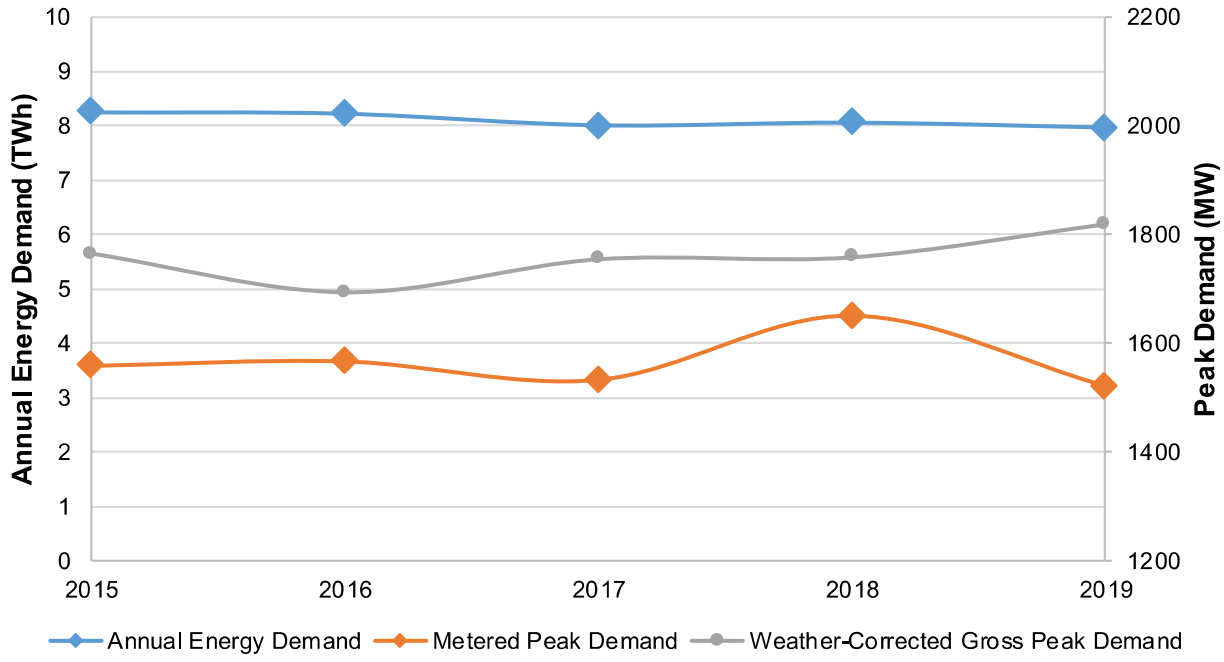
5 Demand Outlook

This section describes the development of the demand forecast for the Ottawa Sub-Region. Section 5.1 begins by describing the historic electricity demand in the sub-region from 2015-2019 inclusive. Section 5.2 describes the demand forecast used in this IRRP and the methodology used to develop it. Furthermore, Section 5.3 provides an overview of changes to the forecast since the 2015 Ottawa Area IRRP. Additional details on the demand forecast assumptions can be found in Appendix B.

5.1 HISTORICAL DEMAND

Over recent years, the electric system in the Ottawa Sub-Region has been summer-peaking, with the primary load centre being its central area within the Greenbelt. As seen in Figure 5-1, over the past five years, the annual energy requirements and coincident net peak demand in the sub-region have been around 8 TWh and 1600 MW, respectively. After correcting historical metered data for weather and the impact of both distributed generation and energy efficiency, the coincident peak demand in the Ottawa Sub-Region was determined to be closer to 1800 MW. This weather-normalized, gross peak-demand data more accurately represents customer electricity demand and its changes in the past five years; the process for calculating this is described in the next section of the IRRP.

Figure 5-1: Historical Net Summer Demand and Energy Consumption for the Ottawa Sub-Region



5.2 DEMAND FORECAST METHODOLOGY

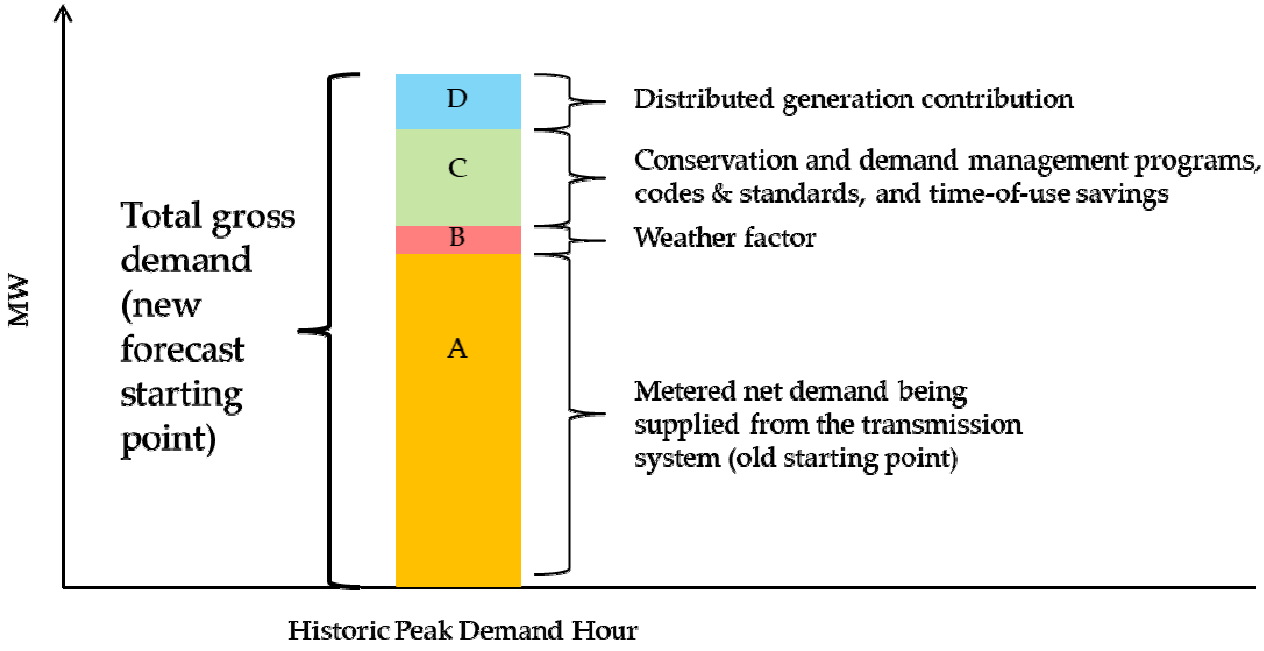
5.2.1 Forecast Starting Point

Since electricity supply infrastructure is sized to meet peak-demand requirements, the Working Group developed a 20-year planning forecast to assess electricity supply and reliability needs in the sub-region. Due to their direct relationship with customers, LDCs have the best information on customer and regional growth expectations in the near- and medium term. These considerations include known connection applications and typical electrical demand for similar customer types. Gross demand was therefore forecast at the supply station level by the LDCs. The LDCs also used the IESO's forecast starting points developed through a load "unbundling" process and based on available data.

Historically (as was the case for the 2015 Ottawa Area IRRP), the starting point of the forecast was based on net demand (i.e., metered data). Recognizing that this was no longer an adequate representation of actual customer demand due to the impact of distributed generation, energy efficiency, and weather, the IESO established a new starting point to reflect actual gross demand under median weather conditions. Doing so allowed LDCs to forecast growth from a value that represents "true" customer demand, rather than simultaneously growing the existing savings from distribution generation and energy efficiency too. For illustrative purposes, this

approach is summarized in Figure 5-2. Note that for the Ottawa Sub-Region, unbundling gross load was achieved to the extent for which the necessary data was available. More details regarding this methodology can be found in Appendix B.

Figure 5-2: Load Unbundling to Establish a Gross Demand Starting Point for Forecasting



The gross-demand forecasts provided by the LDCs after using these starting points are described in the following section. A net forecast is established for extreme weather conditions and used as the final planning forecast (later described in Section 5.2.5).

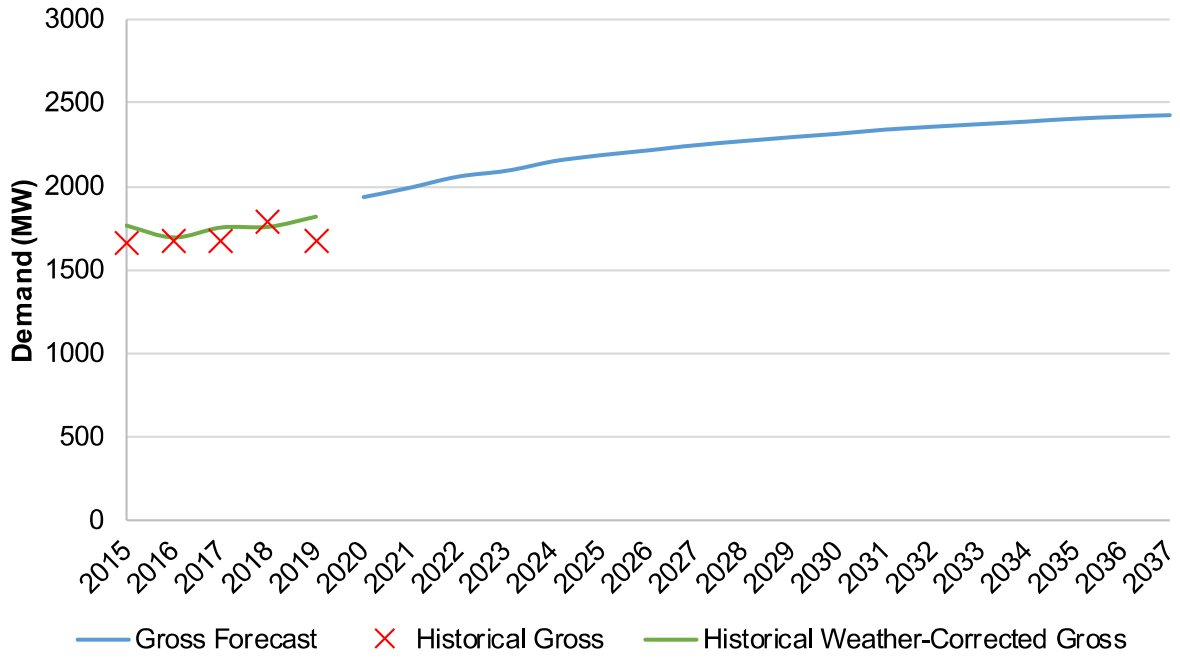
5.2.2 Gross-Demand Forecast

Gross supply station demand forecasts provided by the LDCs account for increases in demand from new or intensified development, but not for the full impact of future energy efficiency measures such as future codes and standards and energy efficiency programs. This is instead later accounted for when developing the net planning forecast.

The graph in

Figure **5-3** shows the forecast gross-demand outlook for the Ottawa Sub-Region under median weather conditions, combined with historical data points for comparison. Details regarding the station-level gross-demand forecast are provided by Hydro Ottawa and Hydro One Distribution in Appendix B.

Figure 5-3: Ottawa Sub-Region Demand Outlook (Median Weather Summer Gross Forecast)



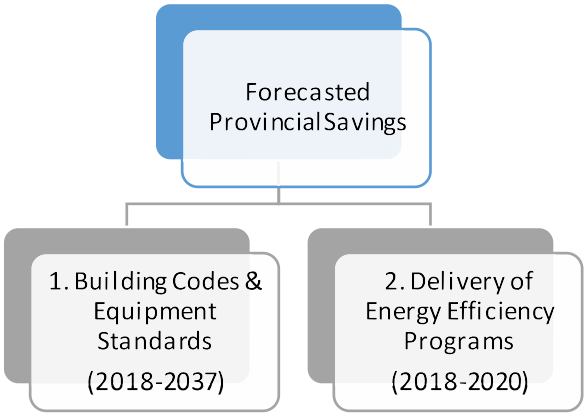
5.2.3 Energy Efficiency Assumed in the Forecast

Energy savings can be achieved through a mix of program-related energy efficiency activities, as well as mandated efficiencies from building codes and equipment standards. It plays a key role in maximizing the use of existing assets and maintaining reliable supply by offsetting a portion of a region's growth, and helping to ensure demand does not exceed equipment capability. The expected energy efficiency savings expected building codes and equipment standards and committed programs that are forecast for the Ottawa Sub-Region have been applied to the gross peak-demand forecast for median weather, along with the peak contribution of distributed generation resources (described in Section 5.2.4), to determine the net peak demand for the sub-region.

Future energy efficiency savings for the Ottawa Sub-Region have been applied to the gross peak-demand forecast to take into account both policy-driven and funded energy efficiency through the Interim Framework (estimated peak-demand impacts due to program delivery to the end of 2020), as well as expected peak-demand impacts due to building codes and equipment standards for the duration of the forecast. As policy related to future provincial energy efficiency activities changes, the forecast assumptions will be updated accordingly.

To estimate the peak-demand impact of energy-efficiency savings in the sub-region, the forecast provincial savings were divided into two main categories:

Figure 5-4: Categories of Energy Efficiency Savings



1. *Savings due to building codes & equipment standards*
2. *Savings due to the delivery of energy efficiency programs*

For the Ottawa Sub-Region, the IESO worked with the LDCs to establish a methodology to assess the estimated savings for each category, which were further subdivided by customer sector: residential, commercial and industrial. This provides a better resolution for the forecast energy efficiency, as energy efficiency potential estimates vary by sector due to differing energy consumption characteristics and applicable measures.

For the Ottawa Sub-Region, LDCs provided both their gross-demand forecast and a breakdown of electrical demand by sector for each TS. Once sectoral gross demand at each TS was estimated, peak-demand savings were assessed for each energy efficiency category – codes and standards, and energy efficiency programs. Due to the unique characteristics and available data associated with each group, estimated savings were determined separately. The final estimated energy efficiency peak-demand reduction, 173 MW by 2037, was applied to the gross demand to create the planning forecast. Table 5-1 provides the peak-demand savings for a selection of the forecast years.

Table 5-1: Peak-Demand Savings from Energy Efficiency (Select Years), in MW

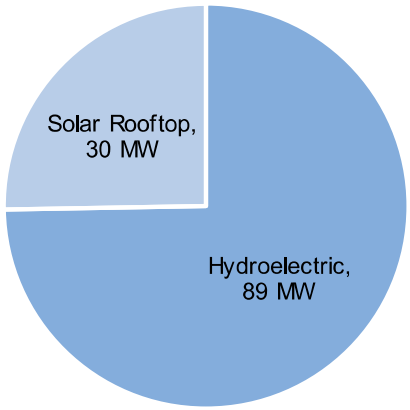
Year	2020	2025	2030	2037
Savings (MW)	108	122	150	173

Additional energy efficiency forecast details are provided in Appendix B.

5.2.4 Distributed Generation Assumed in the Forecast

There are several contracted distributed generation resources in the Ottawa Sub-Region. A full breakdown of distributed generation resources is shown in Figure 5-5.

Figure 5-5: Installed Distributed Generation in the Ottawa Sub-Region in 2020 by Resource Type (Type, Contract Capacity in MW)



The contracted distribution-connected generators in the forecast comprise a mix of rooftop solar and hydroelectric projects. Most of these generators in the sub-region are hydroelectric (75% of total contracted DG capacity in 2020), with solar accounting for 25% of the contracted capacity. Capacity contribution factors of 62% and 30% (hydroelectric and solar respectively) to the regional peak have been assumed to account for the expected output of the mix of local generation resources during summer peak conditions. Based on the IESO contract list as of February 2019, distributed generation projects are expected to offset 64 MW of peak demand within the Ottawa Sub-Region by 2020.

In the process of adjusting the gross forecast (described in Section 5.2.2) to produce a net forecast, projected load is decremented by the expected effect of the distributed generation at each station. This considers the typical peak effective contribution of the relevant generation technology. Once a generation contract expires, the effect of that generation is removed from the forecast.

For the Ottawa Sub-Region, this approach meant that the gross forecast was decremented by 30% of the total installed solar at each station. However, because hourly output data from existing distribution-connected hydroelectric facilities was not available for the creation of the gross forecast, their contribution to peak-demand savings was assumed to be embedded in the

gross forecasts provided by the LDCs. For instance, this was the case for the 29 MW Chaudière Hydro facility at Carling TS, which came into service in 2017. Consequently, the gross forecast was not decremented by 62% of all installed hydroelectric at each station – rather, only the new hydroelectric capacity. This corresponds to approximately 40 MW of new installed hydroelectric generation between Hinchey TS and Lisgar TS starting in 2020, corresponding to the Gatineau No. 1 and Hull No. 2 units.

Additional information on the regional demand impacts from distributed generation are provided in Appendix B.

5.2.5 Planning Forecasts

After taking into consideration the combined impacts of energy efficiency and distributed generation, as well as extreme weather, a 20-year planning (net extreme) forecast was produced for the Ottawa Sub-Region. Generally, the forecast indicates an average growth rate of 1.7% each year and a total increase in load of 340 MW over the next 10 years. This is nearly a 20% increase from the weather-corrected peak gross demand observed for the Ottawa Sub-Region in 2019.

Figure 5-6: Ottawa Sub-Region Demand Outlook (Summer Planning Forecast)

The following three figures show this planning forecast divided into three smaller forecast areas based on electricity system connectivity, in order to indicate the distribution of demand and forecast growth across the City. The West Ottawa planning forecast generally consists of stations outside the Greenbelt supplied by Merivale TS. Here, an average growth rate of 2.2% is observed for each year and a total of 169 MW of load is projected by 2030. The Central Ottawa planning forecast generally consists of stations within the Greenbelt. In this area, the average growth rate is 0.9 % per year, with 76 MW of additional load estimated within the next decade. The East Ottawa planning forecast consists of stations outside the Greenbelt supplied by Hawthorne TS. The average growth rate is 2.4% year-over-year, and a total increase of 96 MW is projected by 2030.

The detailed breakdown of stations within each sub-forecast area can be found in Appendix B.

Figure 5-7: West Ottawa Summer Planning Forecast

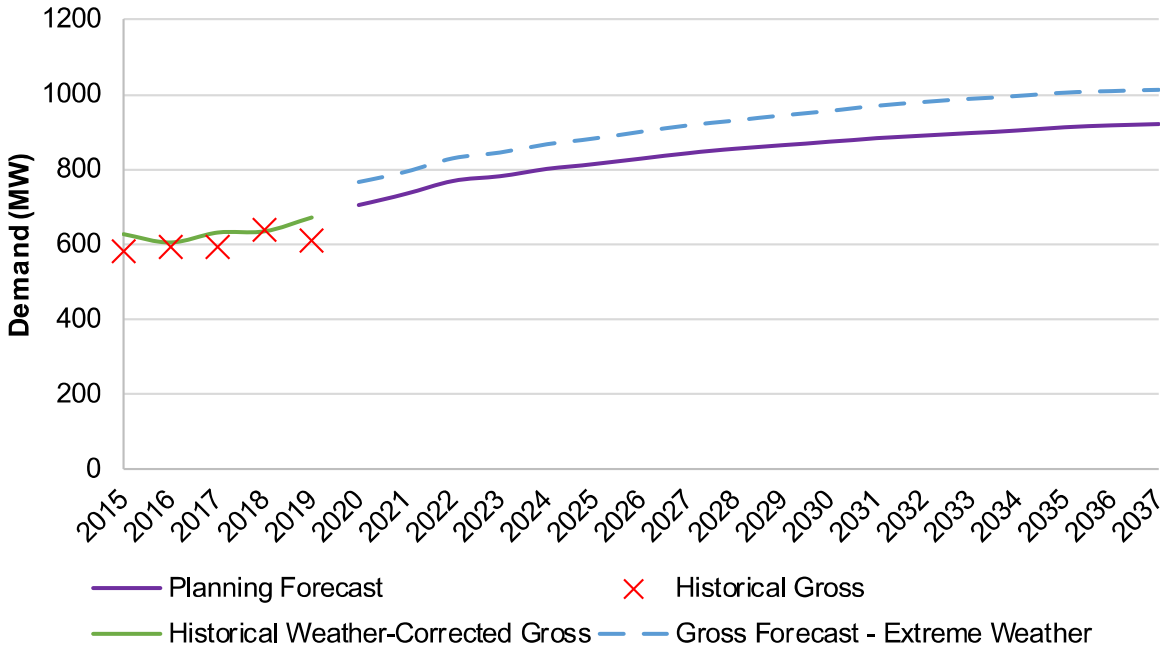


Figure 5-8: Central Ottawa Summer Planning Forecast

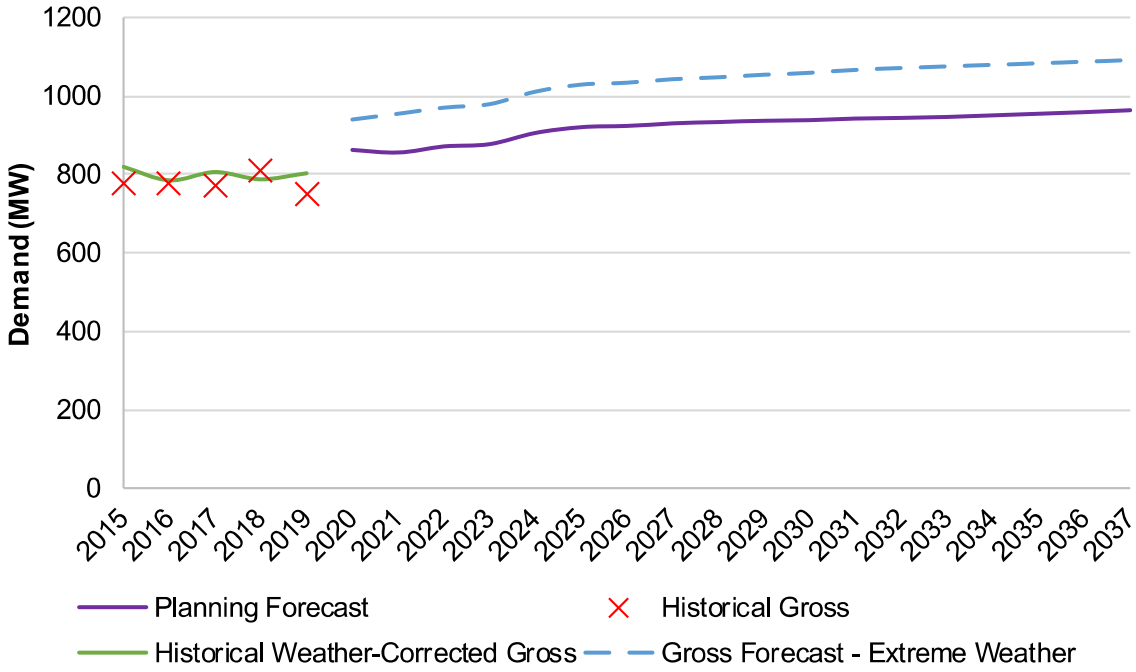
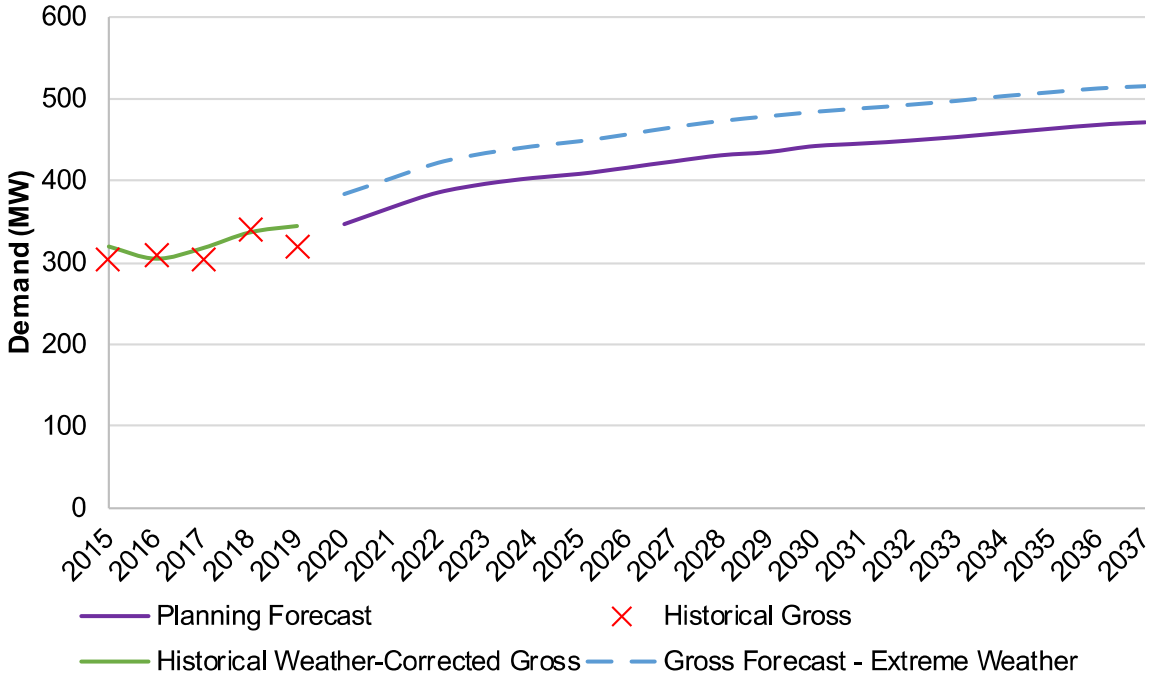


Figure 5-9: East Ottawa Summer Planning Forecast



5.2.6 Hourly Forecasts

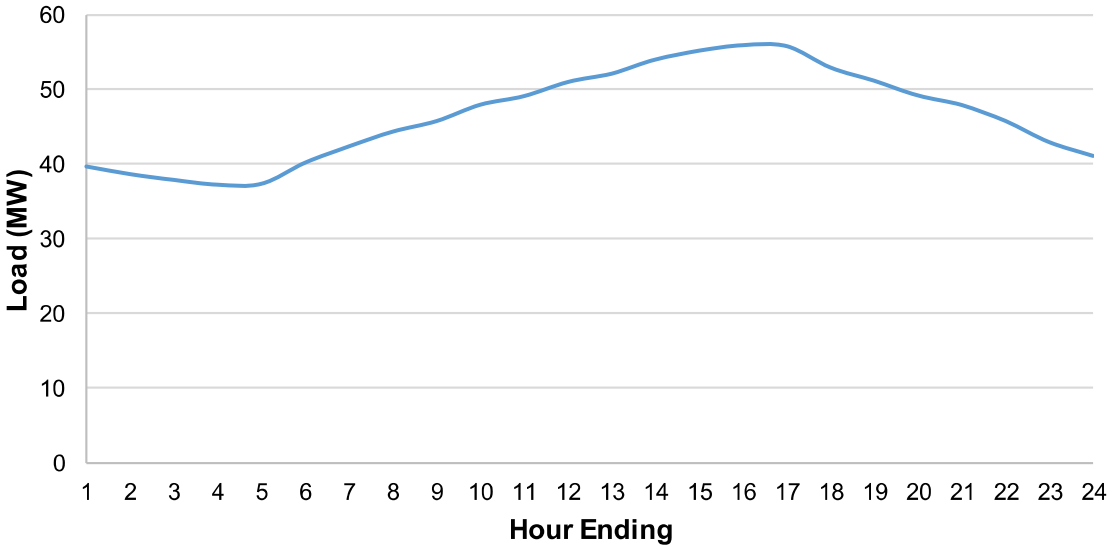
While needs later described in Section 5.3 are primarily based upon annual peak-demand forecasts, additional work was done to develop hourly forecasts. These projected hourly load profiles were integral to better understanding the needs in the Ottawa Sub-Region on a more granular level and ultimately, for evaluating the feasibility of non-wires options (explained further in Section 7.1.1).

Hourly load forecasts were created for the following stations:

- Kanata-Stittsville: Terry Fox MTS, Marchwood MTS, Kanata MTS
- Southeast Ottawa: Leitrim MS

Figure 5-10 shows a sample hourly forecast profile in 2037.

Figure 5-10: Sample Hourly Profile for a Summer Peak Day in 2037 at Leitrim MS

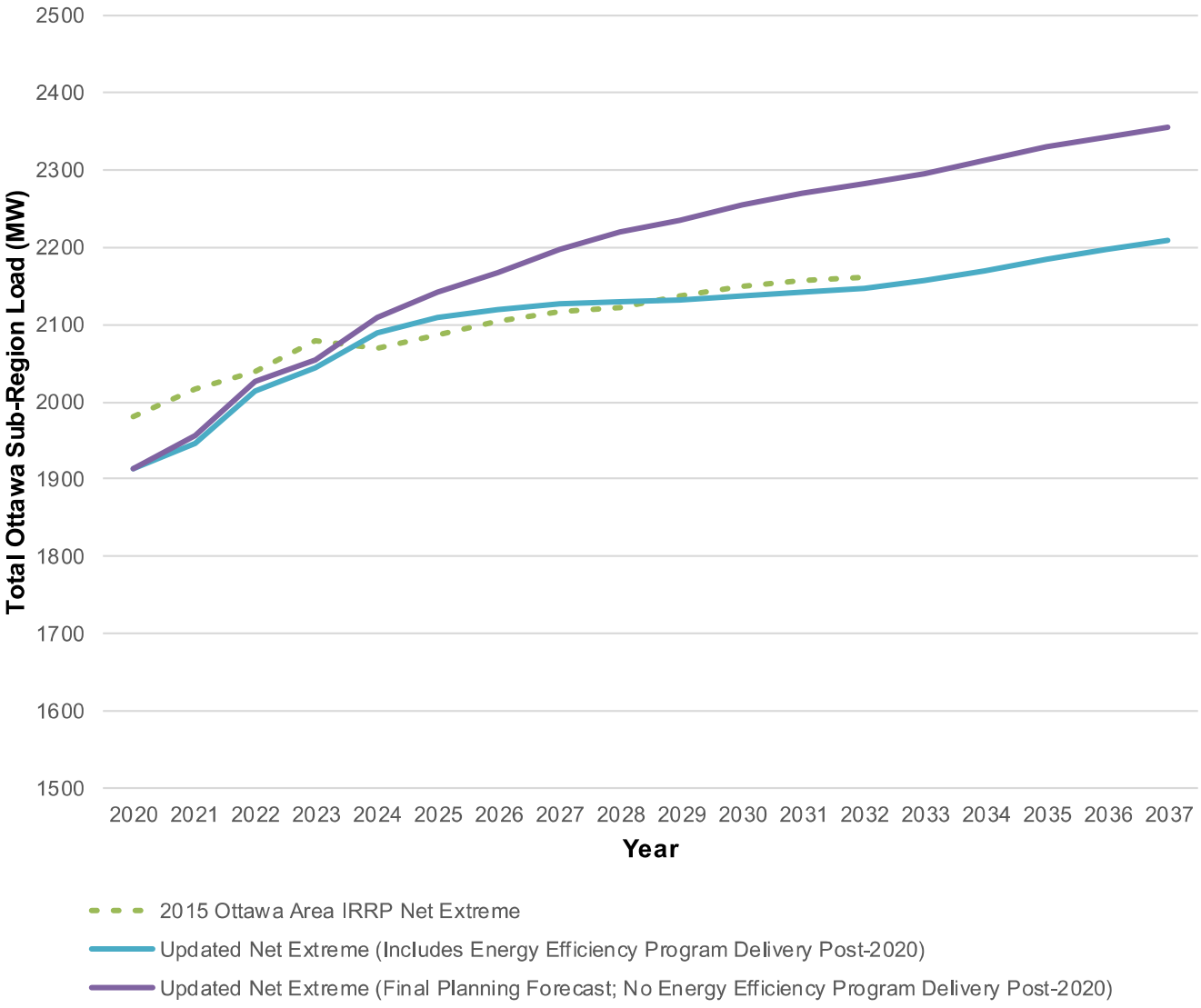


Additional details regarding the hourly forecasting methodology can be found in Appendix D.

5.3 COMPARISON OF PEAK FORECASTS

To better understand the nature of the load growth in the Ottawa Sub-Region – and therefore, the electricity needs later identified in Section 6 – this IRRP compares the most up-to-date planning forecast against what was previously estimated in the 2015 Ottawa Area IRRP. This comparison is summarized in Figure 5-11.

Figure 5-11: Comparison of Total Sub-Region Planning Forecasts (Current and 2015 Ottawa Area IRRP)



Ten years from now, in 2030, the overall planning forecast (net extreme) for the Ottawa Sub-Region is moderately different from its counterpart in the 2015 Ottawa Area IRRP. However, the forecasts differ even more depending on station and area within the sub-region. For instance, when comparing planning forecasts at year 2030, many stations in the current IRRP have projected loads that are at least 15 MW greater than previously predicted:

- Marchwood MTS
- Uplands MTS
- Greely DS
- Kanata MTS
- Terry Fox MTS

- King Edward TS
- Orleans TS
- Hawthorne TS

These changes can lead to imminent needs later identified in Section 6. Table 5-2 further summarizes the planning forecast differences at year 2030 according to the area within the Ottawa Sub-Region.[4]

Table 5-2: Current Net Extreme Forecast vs. 2015 Ottawa Area IRRP Net Extreme Forecast, by Area, in 2030

Forecast Scenario		Current Forecast – Old Forecast (in Year 2030)
Net Extreme	West Ottawa	+134 MW
	East Ottawa	-52 MW
	Central Ottawa	+23 MW
	Entire Region	+105 MW

The old and new forecasts diverge in the long term. Two key factors account for this divergence:

1) Long-term energy efficiency savings targets no longer being assumed in the planning forecast, and
2) The predicted extreme weather impact on load.

Weather correction is integral to the development of a forecast because peak demand is sensitive to different weather conditions. Since the 2015 Ottawa Area IRRP, for which a standard 6% extreme weather factor was applied to the entire region, the Technical Working Group more closely explored the local weather-load behaviour. Continuous improvement efforts led to a new approach that uses an extreme weather correction factor based on historical weather-load behaviour for each area. For the Ottawa Sub-Region, this required a more a more granular analysis. Rather than correcting the region as a whole, loads were weather-normalized separately for three areas (West Ottawa, Central Ottawa, and East Ottawa), assuming that stations located closely together experience similar weather conditions. Linear regression was performed for each area using 31 years of historical temperature and load data. Median weather and extreme weather conditions were also defined using this data set. As a result, a factor

[4] These areas are defined in Appendix B and were used for weather normalization.

between 7-9% was applied to the median forecast depending on the area within the Ottawa Sub-Region. Additional details on the weather normalization methodology can be found in Appendix B.

In addition to the predicted extreme weather impact, changes to the planning forecast's energy efficiency assumptions result in more load (approximately 120 MW) than previously indicated in the 2015 IRRP. Ultimately, these factors advance some needs in the Ottawa Sub-Region, as identified through this current IRRP.

6 Needs

The Working Group identified needs for this IRRP at several different stages of the regional planning process. The preliminary regional planning Needs Assessment was completed by Hydro One in June 2018. The Scoping Assessment was completed by the IESO in September 2018. Finally, in 2019 the IESO completed the needs assessment for the IRRP based on the final IRRP planning forecast provided by Hydro One Distribution and Hydro Ottawa. This needs assessment is described in Appendix C. This section summarizes the needs that were identified for this IRRP.

6.1 NEEDS ASSESSMENT METHODOLOGY

The ORTAC are used for assessing the reliability of the transmission system. These criteria were applied to the existing system to assess supply capacity and reliability needs. The Working Group also considered end-of-life asset replacement needs identified by the asset owners.

6.1.1 Station and Transmission Capacity

Station and transmission capacity describes the electricity system's ability to deliver power to the distribution network through regional step-down transformer stations. In most cases, the MW load meeting capability (LMC) of a transformer station is determined based on the number of transformers at the station and their specifications. For stations with more than one transformer, the LMC is equivalent to the 10-day limited time rating (LTR) of a station's smallest transformer(s), assuming that the largest transformer is out of service. The LMC of one or more transformer stations can also be limited when another system element, such as the transmission line that supplies the station(s) or a circuit breaker, limits the total supply capacity of the line.

The distribution systems in urban areas are often networked, in which case the LDC has options for transferring feeders (which supply distribution customers) from being supplied by their primary supply station to being supplied by an alternate station. This is different than the situation in areas with sparse electricity supply infrastructure, where there may only be one supply station in the vicinity. In both cases, the station's LMC is used to indicate the need to plan for adequate supply capacity based on the station's annual peak-demand forecast.

6.1.2 Voltage Regulation

The ORTAC includes voltage related criteria such as the limits of the acceptable voltage range, and the magnitude of acceptable voltage change for all buses that make up the IESO controlled grid (ICG). The voltage criteria prescribed by the ORTAC are described in Appendix C.

6.1.3 Load Security and Restoration

Load security and restoration refers to the electricity system's ability to minimize the impact of potential supply interruptions to customers in the event of a major transmission outage, such as the loss of a double-circuit tower line resulting in the loss of both circuits. Load security describes the total amount of electricity supply that would be interrupted in the event of a major transmission outage. Restoration describes the electricity system's ability to restore power to those affected by a major transmission outage within reasonable timeframes. The specific load security and restoration requirements prescribed by the ORTAC are described in Appendix C. A summary of these requirements are found in

Table 6-1 and

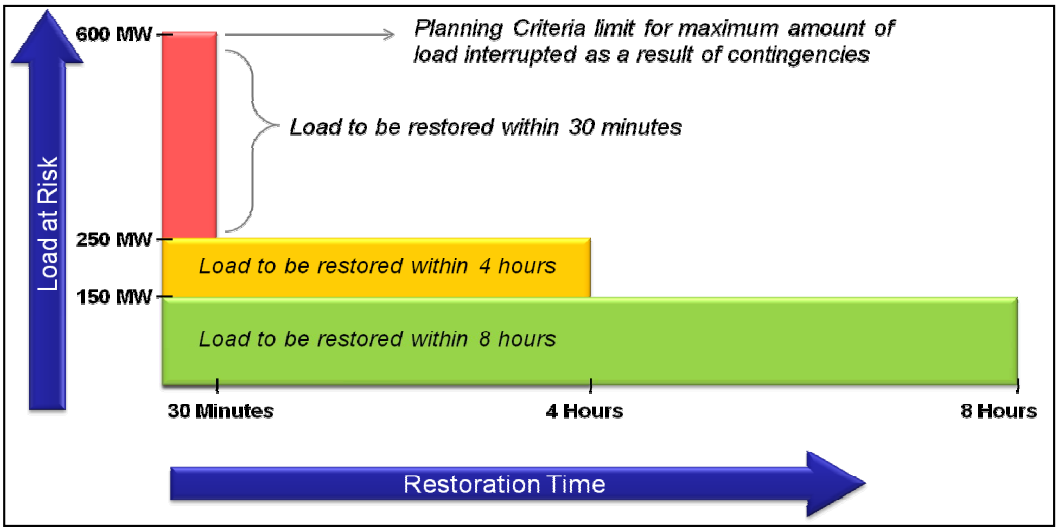
Figure 6-1 below.

Table 6-1: Load Security Criteria

Number of transmission elements out of service	Local generation outage?	Amount of load allowed to be interrupted by configuration	Amount of load allowed to be interrupted by load rejection or curtailment	Total amount of load allowed to be interrupted by load curtailment, rejection, and curtailment
One	No	≤ 150 MW	None	≤ 150 MW
	Yes	≤ 150 MW	≤ 150 MW	≤ 150 MW
Two	No	≤ 600 MW	≤ 150 MW	≤ 600 MW

	Yes	≤ 600 MW	≤ 600 MW	≤ 600 MW

Figure 6-1: Load Restoration Criteria



6.1.4 End-of-Life Equipment

As described in the 2018 Greater Ottawa Needs Assessment, equipment end of life presents an opportunity to:

1) Maintain the status quo,
2) Replace the equipment with similar equipment with lower ratings and built to current standards,
3) Replace equipment with equipment with lower ratings and built to current standards by transferring some load to other existing facilities,
4) Eliminate the equipment by transferring all of the load to other existing facilities,

5) Replace equipment with similar equipment and built to current standards (i.e., "like-for-like" replacement), or

6) Replace equipment with equipment with higher ratings and built to current standards.[5]

End-of-life planning should begin when an aging asset is approaching the end of its expected service life, which is an estimate of the lifespan. However, the condition of the asset, which can only be confirmed by physical testing, along with the risk associated with the failure of the asset may shorten or extend the timeline for implementation of the plan, and could affect which options are available. Replacement needs identified in the near-term typically reflect the condition of the assets, while replacement needs identified in the longer-term are often based on the expected service life of the equipment. As such, any recommendations for longer-term needs should reflect the potential for the need date to change as condition information is routinely updated.

6.2 POWER SYSTEM NEEDS

Electricity demand growth is forecast across the Ottawa area. Ottawa's population is growing faster than that of Ontario or Canada.[6] In June 2019 the City celebrated reaching a population of one million. In particular portions of the City outside the Greenbelt are the focus of increasing intensification and development. The existing transmission and distribution systems in these areas were designed to supply agricultural or low density suburban communities. Changing development patterns are adding new residential, commercial and institutional customers in these areas. As a result, many existing stations are operating at or near their LMC.

This needs section is divided into the following local areas, which describe the status and specific needs for each portion of the electricity system in the sub-region:

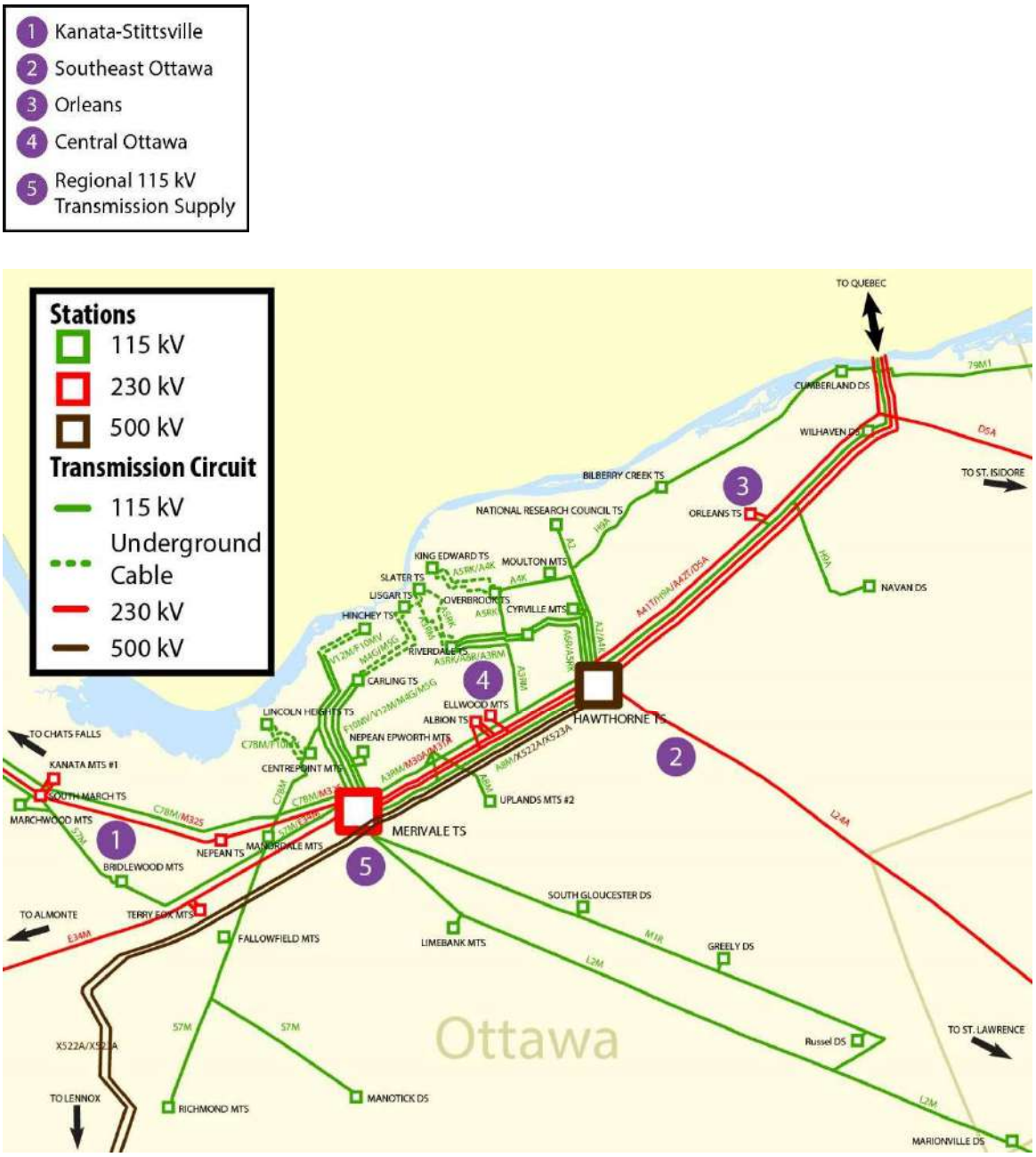
- the Kanata-Stittsville area,
- the Southeast Ottawa area,
- Orleans,
- Central Ottawa, and
- the regional 115 kV system.

These locations are identified on a transmission map in Figure 6-2. Each section concludes with a table summarizing the needs in each portion of the system.

[5] Greater Ottawa Needs Assessment 2018, p. 15.

[6] https://ottawa.ca/en/city-hall/get-know-your-city/statistics-and-economic-profile/statistics/ottawas-population

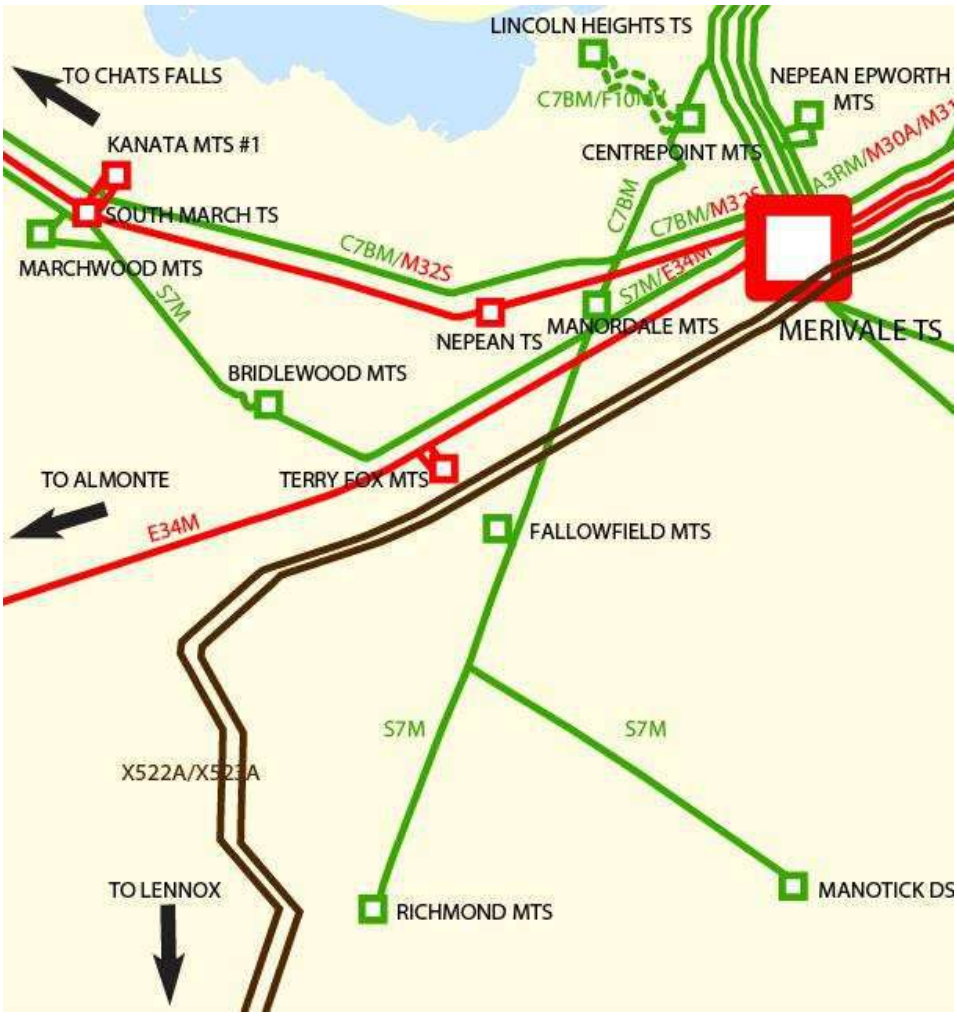
Figure 6-2: Needs Assessment Locations for the Ottawa Sub-Region



6.2.1 The Kanata-Stittsville Area

Kanata-Stittsville is a suburban portion of the City of Ottawa located west of the Greenbelt, about 25 km from downtown Ottawa. This area has been a centre for high tech employers for several decades. This area is supplied by several transformer stations, including South March TS, Kanata MTS, Marchwood MTS, Bridlewood MTS and Terry Fox MTS. The demand forecast for these stations reflects growing interest in intensification and development in the area. This forecast has increased since the 2015 IRRP; however, there is uncertainty associated with the timing of new developments included in the forecast, such as the Kanata North Community Development Plan and the Fernbank Community. The Kanata-Stittsville area is shown in Figure 6-3, below.

Figure 6-3: Transmission System in the Kanata-Stittsville Area



27.6 kV Supply Station Capacity

Three stations in the area, Marchwood MTS (115 kV supplied), Kanata MTS (230 kV supplied), and Terry Fox MTS (230 kV supplied) supply load at the 27.6 kV voltage level, which makes it feasible to transfer demand between the stations, depending on the individual feeder capabilities. All three of these stations are owned by Hydro Ottawa. Marchwood MTS and Kanata MTS are already loaded near their LMC. Terry Fox MTS came into service in 2013 and is the newest of the three stations. Loading at Terry Fox is forecast to reach its LMC by 2030. The combined demand of the three Kanata-Stittsville 27.6 kV stations is forecast to exceed the combined LMC for the three stations by 41 MW in 2020, and 65 MW in 2028. While this appears to represent an imminent capacity shortfall, because distribution transfer options are available it is acceptable to load these stations above the LMC for an interim period until a plan for long-term reliable supply can be implemented. In such a case, customers may experience a supply interruption if a transformer experiences an unplanned outage (contingency) when a station is loaded above the LMC. Relying on distribution transfer capability for post-contingency restoration makes the distribution system more complex for an LDC to operate. As an interim measure, this approach represents a limited risk to customers because annual peak loading only lasts for a short period of time and there are many periods of the year when a station that is heavily loaded at peak will be supplying much lower demand. Nevertheless, the forecast exceeding the LMC for these stations indicates the need to plan for an enduring solution for reliable supply to the Kanata-Stittsville area.

Summary of Needs in Kanata-Stittsville

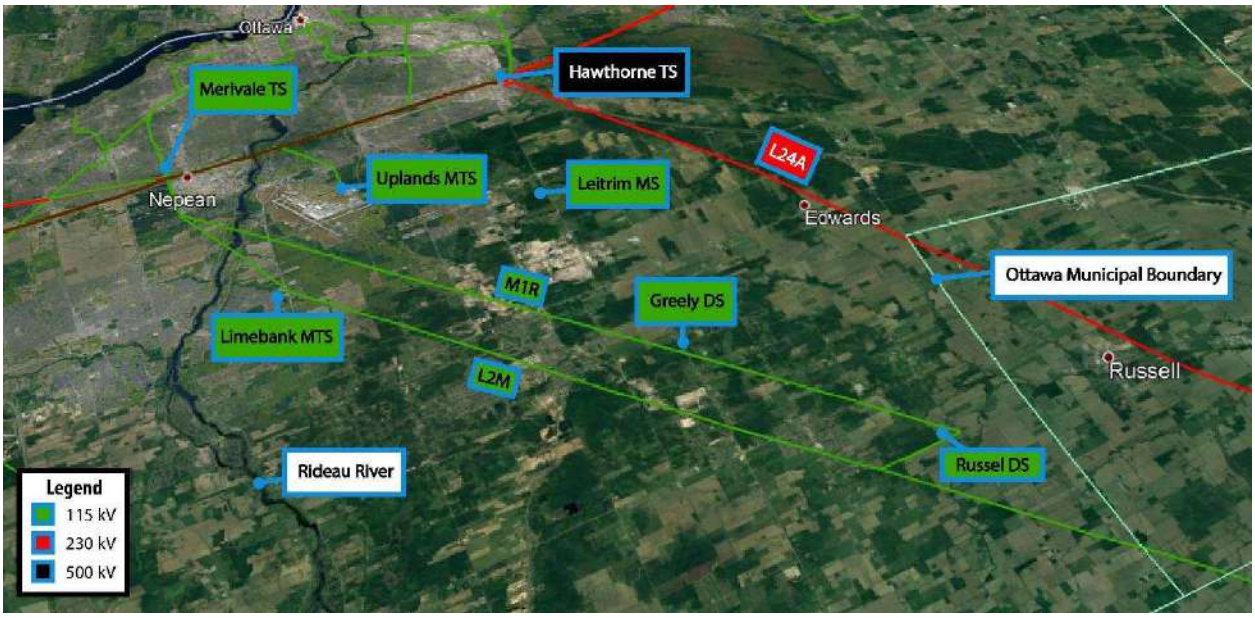
Description	Need	Forecast Timing
27.6 kV Supply Station Capacity (Terry Fox MTS, Marchwood MTS and Kanata MTS)	Station Capacity	In the near term Hydro Ottawa is able to manage high demand at these stations operationally. A plan for an enduring solution to be implemented in the medium term is required.

6.2.2 The Southeast Ottawa Area

For the purpose of this plan, the southeast area of the City of Ottawa describes the portion of the City bounded by the Rideau River (west), the Greenbelt (northwest), Highway 417 (northeast) and the municipal boundary between Ottawa and the Municipality of Prescott-

Russell (east and south). Highway 417 is the Trans-Canada Highway that connects Ottawa and Montreal. The Macdonald-Cartier International Airport, located south of the Greenbelt, on the east side of the Rideau River is also located in this area. This area is primarily agricultural, however there are several recent and planned residential, mixed and industrial developments that are increasing electricity demand in this area. The Hydro Ottawa service territory boundary passes through this area, with Hydro One Distribution serving customers in the outer portions of the City. The Southeast Ottawa area is shown in Figure 6-4, below.

Figure 6-4: Transmission System in the Southeast Ottawa Area



The southeast Ottawa area is presently supplied by four 27.6 kV supply stations: Uplands MTS #2 (115 kV/27.6 kV), Limebank MTS (115 kV/27.6 kV), Greely DS (115 kV/27.6 kV), and Leitrim MS (44kV/27.6kV), which is supplied by Hawthorne TS. Uplands MTS, Limebank MTS and Leitrim MS are owned by Hydro Ottawa. Greely DS and Hawthorne TS are owned by Hydro One. Uplands MTS is located slightly north of Macdonald-Cartier International Airport. Limebank MTS is located about 3 km south of the Airport. Leitrim MS is located about 6 km east of the Airport, and 8 km west of the Highway 417/Boundary Rd. intersection. Greely DS is located about 20 km southeast of the airport, and about 13 km south of the Highway 417/Boundary Rd. intersection. Leitrim MS is supplied by a 44 kV feeder from Hawthorne TS, which is about 7 km to the north. One 230 kV circuit (L24A) extends southeast from Hawthorne TS, a few km south of Highway 417.

Station Capacity at Uplands MTS and Limebank MTS

As a result of anticipated demand increases, Hydro Ottawa is currently implementing plans to expand the LMC at Uplands MTS and Limebank MTS, both of which are loaded to near their LMC. At Uplands MTS, this work will consist of replacing the existing 33 MVA 115/27.6 kV transformer with two 50 MVA transformers. This will increase the station's LMC from 33 MVA to 50 MVA (45 MW). This expansion is expected to be completed in 2021. The planning forecast anticipates demand at Uplands MTS will exceed the station's expanded LMC by 2024.

Hydro Ottawa plans to install the 33 MVA transformer that is removed from Uplands MTS at Limebank MTS, adding to the three existing 33 MVA transformers at that station. This will increase the station capacity from 66 MVA to 99 MVA (89.1 MW) however it is expected that the capability of the existing transmission circuit L2M will limit the LMC of the station to about 75 MW. It is possible that upgrading the transmission circuit could increase the LMC to 89 MW, however Hydro Ottawa has not yet committed to upgrading L2M. Hydro Ottawa expects to complete this station upgrade project by 2021. The IRRP planning forecast anticipates demand at Limebank MTS will reach 75 MW by 2021.

The existing transformers at Limebank MTS are approaching their end of life around the early 2030s.[7] The opportunity to consider future plans for Limebank MTS will be reviewed in the next IRRP cycle.

Station Capacity at Leitrim MS and Hawthorne TS

As described above, Leitrim MS is a 44/27.6 kV supply station connected to a 44 kV feeder that is supplied by Hawthorne TS. The 44 kV feeder limits the LMC of Leitrim MS to 25 MVA (22.5 MW). Leitrim MS supplies Hydro Ottawa customers as far away as Hydro Ottawa's service territory boundary, approximately 15 km to the east, as Hydro Ottawa does not have any other supply stations in the vicinity. The planning forecast for Leitrim MS is shown in Table 6-2, below. This is a forecast of the remaining demand at Leitrim MS after Hydro Ottawa has maximized the potential to transfer loads in the southeast area to Uplands MTS and to Limebank MTS, both of which are west of Leitrim. The planning forecast anticipates demand at Leitrim MS will exceed the station's LMC by 2022. Leitrim MS is forecast to be overloaded by 33.5 MW by 2037.

[7] This is updated end-of-life information. The 2018 Needs Assessment indicated that the Limebank MTS transformers would reach their end of life in the early 2020s.

Table 6-2: Electricity Planning Forecast for Leitrim MS

	Summer Planning Peak-Demand Forecast (MW)									
Station	**LTR**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**
Leitrim MS	**22.5**	18.9	20.8	26.7	29.8	30.3	32	33.7	36.2	38.8
		2029	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**
		41.8	43.3	44.8	46.2	48.3	50.4	52.6	54.7	56

Hawthorne TS is a 230/44 kV transformer station on the east side of central Ottawa. Both Hydro Ottawa and Hydro One supply customers from this station. As noted in Section 4.1 a station expansion project that was recommended as part of the 2015 IRRP was completed in 2019. This project has increased the LMC of Hawthorne TS to 158 MVA (142 MW). The IRRP forecast anticipates demand at Hawthorne TS will reach the expanded LMC by 2028, however the overloading at Leitrim MS is a large factor in this. If the overloading at Leitrim MS were removed from Hawthorne TS the station forecast would be within the LMC for the entire forecast period.

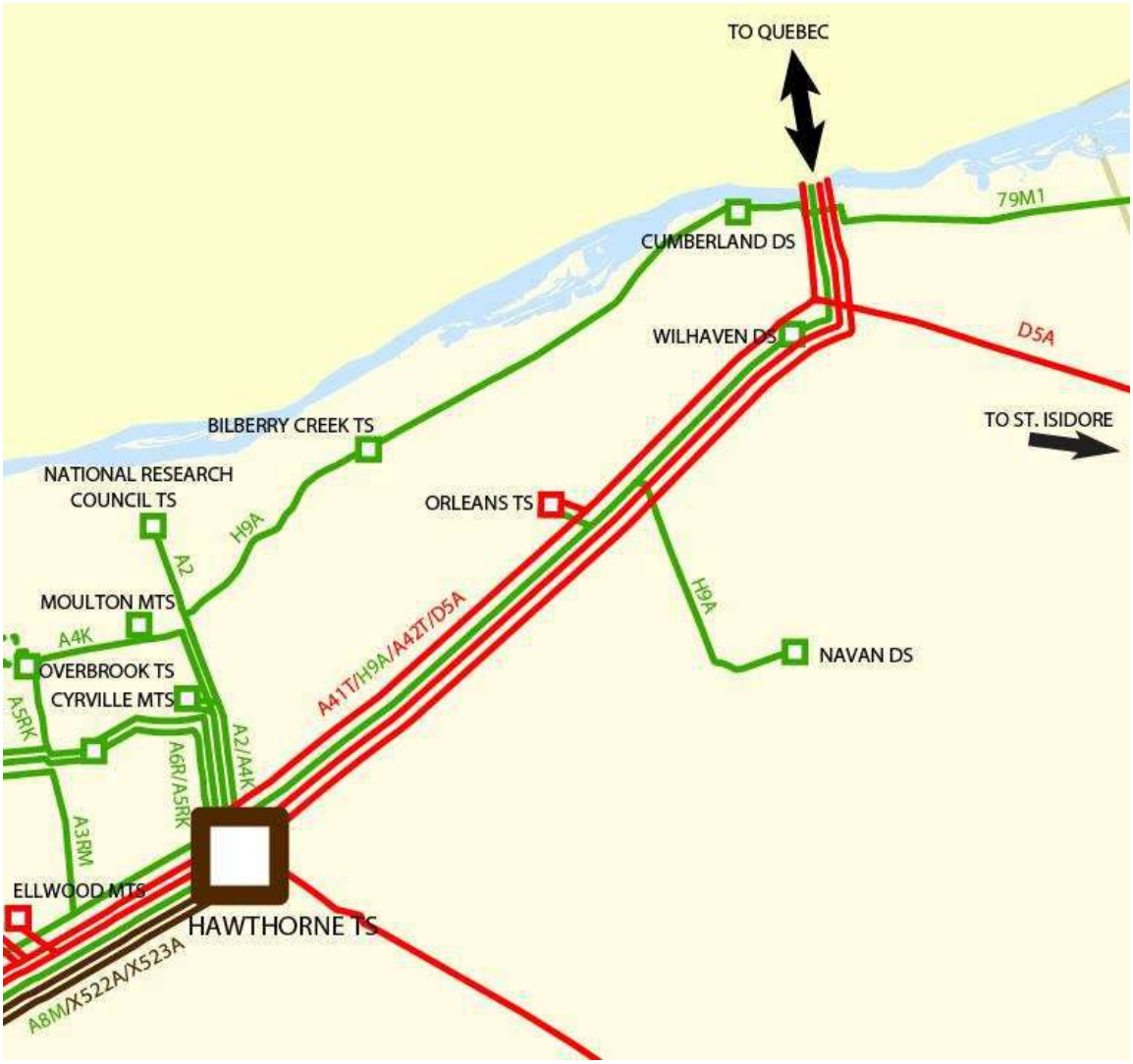
Summary of Needs in Southeast Ottawa

Description	Need	Forecast Timing
Uplands MTS	Station Capacity	Medium Term (after planned Hydro Ottawa station expansions)
Limebank MTS	Station Capacity	Near Term (after planned Hydro Ottawa station expansions)
Limebank MTS	End-of-Life Transformers	Medium Term
Leitrim MS (44/27.6 kV station supplied by Hawthorne TS)	Station Capacity	Near Term
Hawthorne TS	Station Capacity	Medium Term

6.2.3 Orleans

Orleans is a suburb in the eastern part of the City of Ottawa located along the Ottawa River. Like other areas outside the Greenbelt, development is underway in this area, including development of the East Urban Community and the Orleans Industrial Park. East Ottawa is supplied by one 230 kV circuit (D5A) and a network of 115 kV circuits (including H9A, A2, and A4K) that emanate from Hawthorne TS toward the northeast. The Orleans community is supplied by five stations. Four of these stations, Bilberry Creek TS, Cumberland DS, Navan DS and Wilhaven DS are supplied by the 115 kV system. Orleans TS is the newest station, completed in 2015. It is supplied at both the 230 kV and 115 kV voltage levels. Figure 6-5 below shows the location of the Orleans planning area in relation to Hawthorne TS.

Figure 6-5: Transmission System in Orleans



Station Capacity at Orleans TS

Orleans TS is a dual element spot network (DESN) type station, a design that consists of two transformers typically supplied by two circuits, one transformer connected to each. The existing configuration of Orleans, however, is such that one transformer is connected to 115 kV circuit H9A and the other transformer is connected to 230 kV circuit D5A. Because the transformers are supplied at two different voltages the station must be operated with the low voltage bus-tie breaker open. If there is an outage on one of the supply circuits supply will be restored to affected customers by closing the bus-tie breaker, after a momentary outage. The 2015 IRRP noted that although this supply configuration is acceptable, regional planning should consider potential opportunities to convert this station to a typical DESN configuration in conjunction with addressing other reliability needs in the vicinity. At the time Orleans TS was constructed, 115 kV circuit H9A was built ready for conversion to 230 kV operation; however, presently it operates at 115 kV.

The IRRP planning forecast for Orleans TS anticipates it will be loaded to the planning capacity level of 117 MW by 2025.

Upcoming End-of-Life of Bilberry Creek TS

Bilberry Creek TS is a 115 kV connected supply station built in 1964 to supply the Orleans area. Bilberry Creek TS is owned by Hydro One and supplies both Hydro One and Hydro Ottawa.

Hydro One has indicated that Bilberry Creek TS will reach its end of life around 2023 and will require substantial refurbishment to continue operation. This issue was identified prior to the 2015 IRRP. At that time, the Working Group determined that there was sufficient time available to defer the decision about the future of Bilberry Creek TS until this IRRP. A plan for the long-term reliability supply to customers supplied by Bilberry Creek TS must be confirmed in this IRRP. This plan should be coordinated with the plan for Orleans TS which is located 5 km south of Bilberry Creek.

Summary of Needs in Orleans

Description	Need	Forecast Timing
Orleans TS	Station Capacity	Near Term
Bilberry Creek TS	End of Life	Near Term

6.2.4 Central Ottawa

Central Ottawa is the portion of the City inside the Greenbelt. Section 6.2.5, below, describes the supply to central Ottawa in more detail, in the context of the 115 kV transmission system that supplies most of the area. This section focuses on the end-of-life replacement of transformers and other equipment at three central Ottawa stations: Slater TS and Lincoln Heights TS, which are supplied by the 115 kV system, and Albion TS, which is supplied by the 230 kV system.

Upcoming End-of-Life of Slater TS Components

Slater TS is a supply station in downtown Ottawa which was originally consisted of three 65 MVA transformers. Transformer T1 failed in 2018 and was replaced with a 100 MVA unit in 2018. Transformers T2 and T3 are reaching their end of life around 2022. A decision on the size of the replacement transformers is required.

Upcoming End-of-Life of Albion TS Components

Albion TS is a supply station in south central Ottawa. The two 75 MVA transformers at Albion TS and station switchgear are reaching their end of life around 2028. A decision on the size of the replacement transformers is required.

Upcoming End-of-Life of Lincoln Heights TS Components

Lincoln Heights TS is a supply station in central Ottawa that consists of two 75 MVA transformers that are reaching their end of life around 2027. A decision on the size of the replacement transformers is required.

Summary of Central Ottawa Needs

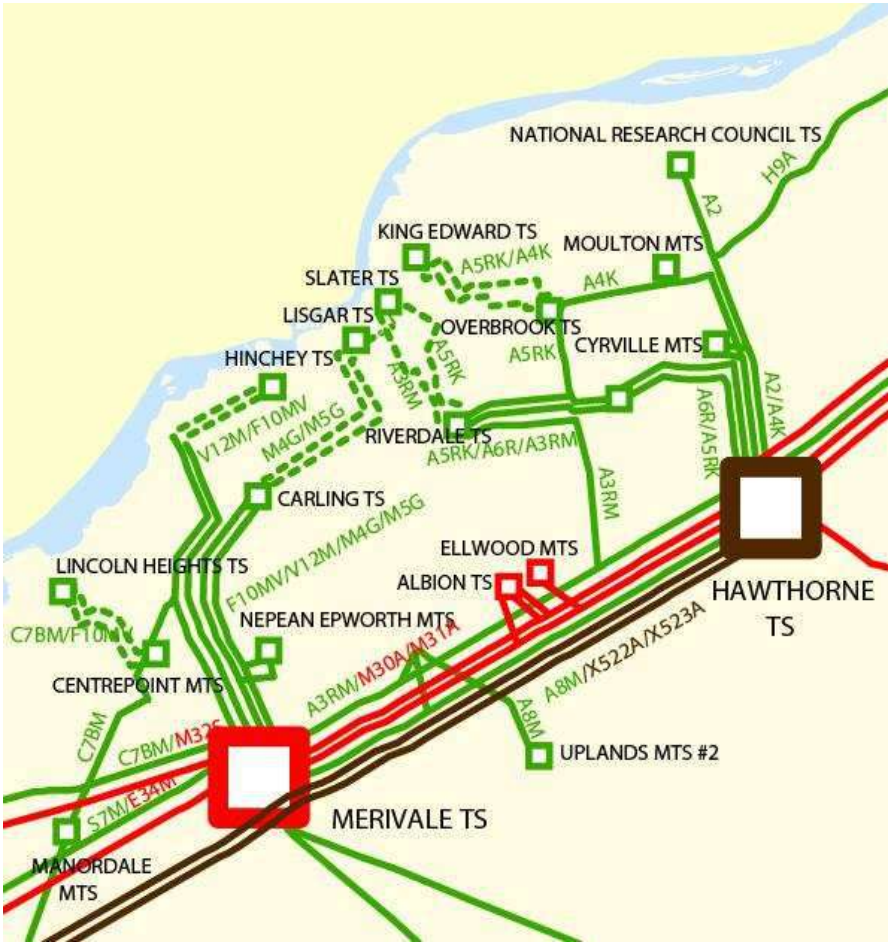
Description	Need	Forecast Timing
Slater TS	End of Life	Near Term
Albion TS	End of Life	Medium Term
Lincoln Heights TS	End of Life	Medium Term

6.2.5 The Regional 115 kV System

As described in Section 4, the 115 kV system is supplied by a total of six 230/115 kV transformers: four at Hawthorne TS, on the east side of the City, and two at Merivale TS, on the west side. A large number of stations in the sub-region, including nearly all of the stations located within the Greenbelt, are supplied by the 115 kV transmission system, which includes overhead transmission lines as well as underground cables that supply several stations in downtown Ottawa.

Figure 6-6 below shows the 115 kV system in central Ottawa, however this figure does not show the full extent of the 115 kV transmission circuits that connect Ottawa with three 115 kV connected hydroelectric generating stations west of the City. As described in Section 4, while these facilities supply variable amounts of energy throughout the year, the 115 kV transmission system in the Ottawa area is mainly supplied from the 230 kV system during peak periods.

Figure 6-6: The 115 kV Transmission System in Ottawa



Demand growth on the 115 kV system is increasing the power flow through the 230/115 kV transformers to the point where they are generally reaching their LMC. This issue was identified prior to the 2015 IRRP. At that time, the Working Group determined that sufficient time and mitigating options were available to defer the decision on a plan for the 115 kV system. A plan for long-term reliable supply to the 115 kV system must be confirmed in the near future.

The combined capacity of the existing 115 kV supply stations is generally matched to the LMC of the 230/115 kV transformers. Accordingly, the planning forecast indicates that a number of these stations are currently being operated at or near their planning capacity. Notwithstanding other station limitations, the potential to expand these stations will be limited by the LMC of the 115 kV system as a whole. An integrated plan for the 115 kV system will consider the options for increasing the LMC of the 115 kV system in conjunction with the limitations of the 115 kV transmission lines and the LDCs plans for the 115 kV supply stations. This plan will determine a strategy for the future of the 115 kV system.

230/115 kV Transformation Capacity – Merivale TS T22 Limitation

As described above, the LMC of the 115 kV system is limited by the thermal capability of the 230/115 kV transformers. The most limiting transformer is T22 at Merivale TS. Transformers T21 and T22 at Merivale TS have different overload capabilities, with T22 having a lower thermal rating. Merivale TS transformer T22 would today be exceeding its limited time thermal rating after the loss of the companion transformer, T21, at time of peak demand. The existing transformer T22 came into service in 1978. Addressing this limitation in this IRRP will increase the LMC of the 115 kV system in the near term. It is important to note, however, that the increase will only be adequate for a few years because once this limitation is removed the LMC will be limited by other factors, including the continuous rating of 230/115 kV transformer T21 at Merivale TS, and the continuous rating of 230/115 kV transformers at Hawthorne TS.

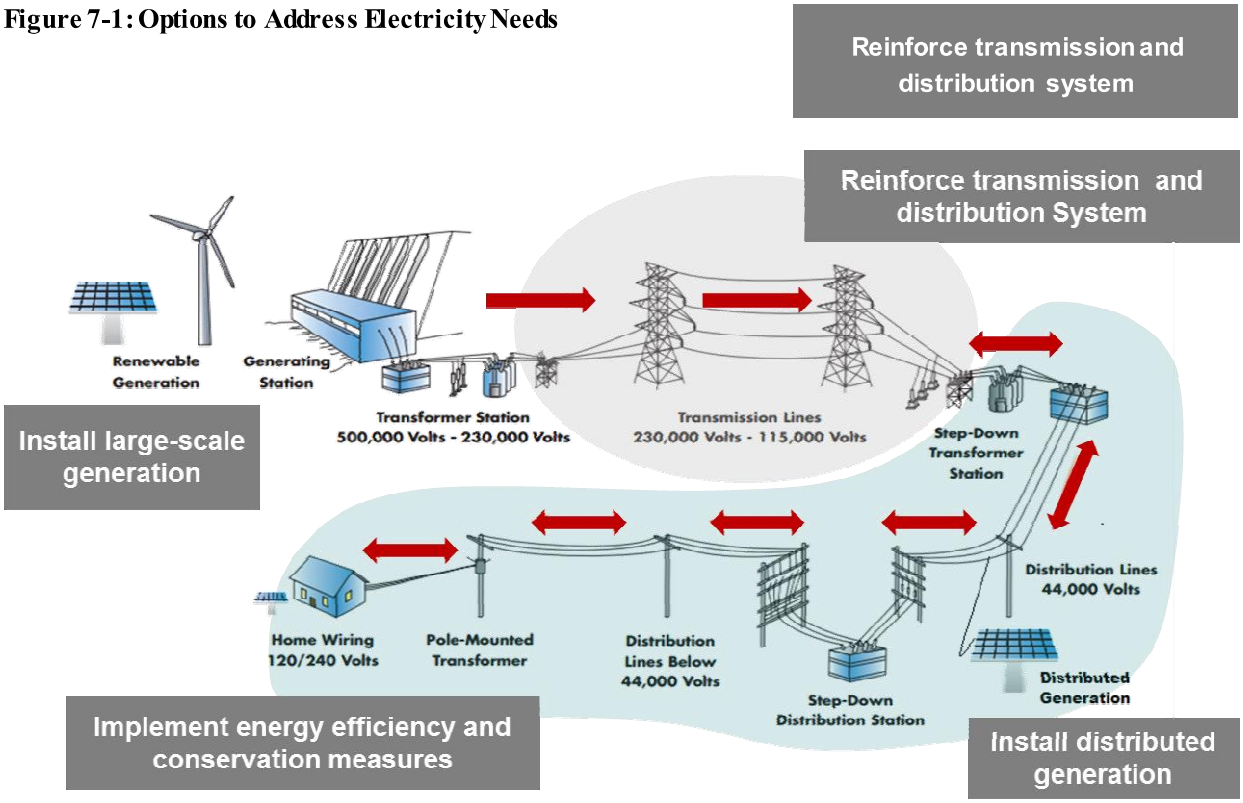
Summary of Regional 115 kV System Needs

Description	Need	Forecast Timing
Merivale TS T22 – LTR exceeded post-contingency (loss of T21)	230/115 kV Transformer Capacity	Near Term

7 Options and Recommendations

As shown in Figure 7-1, Ontario communities have traditionally been supplied with electricity generated from large, centralized generation sources delivered through transmission and distribution infrastructure. To address regional and local electricity needs, one approach is therefore to reinforce the transmission and distribution infrastructure supplying the local area. In recent years, communities and customers have also been exploring opportunities to reduce their reliance on the provincial electricity system by meeting their electricity needs with local, distributed energy resources and community-based solutions. This approach includes a combination of emerging technologies and programs, such as targeted demand response and energy efficiency programs, distributed generation and advanced storage technologies, micro-grid and smart-grid technologies, and more efficient and integrated process systems combining heat and power.

Figure 7-1: Options to Address Electricity Needs



7.1 GENERAL OVERVIEW OF OPTIONS EVALUATION

When evaluating alternatives, the Working Group considered a number of factors, including technical feasibility to meet capacity needs, timing, cost, solution flexibility, alignment with

broader planning policies and priorities, and consistency with long-term needs and options. Solutions that maximized the use of existing infrastructure were given priority.

Investing in new electricity infrastructure such as a new transmission line or a generation facility requires substantial capital investment and may have environmental or land-use impacts. This, in conjunction with the long-service life of such facilities, requires the Working Group to give careful consideration to the longer-term cost implications, value, and potential risks (e.g., stranded or underutilized assets) before recommending an investment. Furthermore, considering the lengthy process of obtaining necessary approvals, construction, and other activities during the development phase, decisions on new facilities must take into account the required lead time to ensure they are available when needed.

When assessing the need for infrastructure investments, it is also important to strike a balance between overbuilding infrastructure (e.g., committing to infrastructure when there is insufficient demand to justify the investment) and under-investing (e.g., avoiding or deferring investment despite insufficient infrastructure to support growth in the region). Investment cost, as well as cost responsibility, for recommendations made through regional planning depend on the type and classification of assets. Costs may potentially be shared by all provincial ratepayers or recovered only by the specific customers they serve (e.g., LDCs, industrial customers). In some cases, a combination of cost-sharing may occur when there are both provincial and local benefits.

In developing the IRRP, the Working Group examined a wide range of integrated solutions to address local and regional needs, as well as identified additional studies that will help inform mid- and long-term plans and actions. These options are discussed in detail in Sections 7.2-7.7, organized by areas of need in the Ottawa Sub-Region. Preceding this, in Section 7.1.1, is commentary specifically on how non-wires options were considered for this IRRP.

7.1.1 Consideration of Non-Wires Options

Complementary to the IRRP's objective to consider the most effective integrated solutions to address regional electricity system needs, technologies continue to advance and mature, increasing customer and community choice. While there is an abundance of options that may be evaluated, many resource options may not suitable for all different types of needs (whether they be capacity, load security and restoration, end of life, etc.). Moreover, resource options may

address some types of needs, but perhaps only for a few years. Key considerations when evaluating non-wires option feasibility are further explained in this section.

Technical Ability to Address the Local Capacity Need

As previously described, regional planning identifies needs based upon provincial planning criteria, peak-demand forecasts, and the existing system load supply capability. While the cause of needs can vary, IRRPs focus on the shortfall between the LMC of the local area's existing transmission infrastructure and its projected load requirements during periods of peak demand.

Before other matters, the recommendations in this IRRP prioritize options that can, either alone or as a package of solutions, provide the peak capacity (MW) needed and allow the local transmission system to fulfill planning criteria. Options are therefore developed and sized according to capacity requirements rather than multi-hour energy needs. However, in recognition that non-wires options offer diverse services, hourly load forecasts (as first mentioned in Section 5.2.6) were developed for the Ottawa Sub-Region to better understand needs beyond the single peak hour. From these hourly load forecasts, needs were further characterized by three primary traits:

1. The magnitude (MW) over the supply limit,
2. The duration (consecutive hours) that demand exceeds the supply limit, and
3. The frequency at which the need occurs per year or season.

To help visualize these characteristics and show the probabilistic nature of needs – which vary daily and seasonally – the hourly load forecasts were used to produce "heat maps". An example is shown in Figure 7-2 where the estimated needs in the Kanata-Stittsville area during 2037 are depicted.

Figure 7-2: Heat Map for Kanata-Stittsville Area (Terry Fox MTS, Marchwood MTS, Kanata MTS) Needs in 2037)

Each cell in the heat map shows the probability that, of the total numbers of hours where demand exceeds supply capability, a need will occur in the hour shown on the x-axis and with a

MW / Hour	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
24	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%
18	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%
12	2%	2%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	2%	2%	2%	2%
6	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
0	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%

magnitude shown on the y-axis or greater. For instance, of all the hours of need in the Kanata-Stittsville area in 2037, ~4% is expected to occur at 5 PM. Moreover, ~1% of need events is estimated to occur at 5 PM *and* exceed 18 MW in magnitude. Figure 7-2 also suggests that for the Kanata-Stittsville area in 2037, a need event likely occurs throughout all hours of the day – albeit its magnitude will likely vary hour to hour.

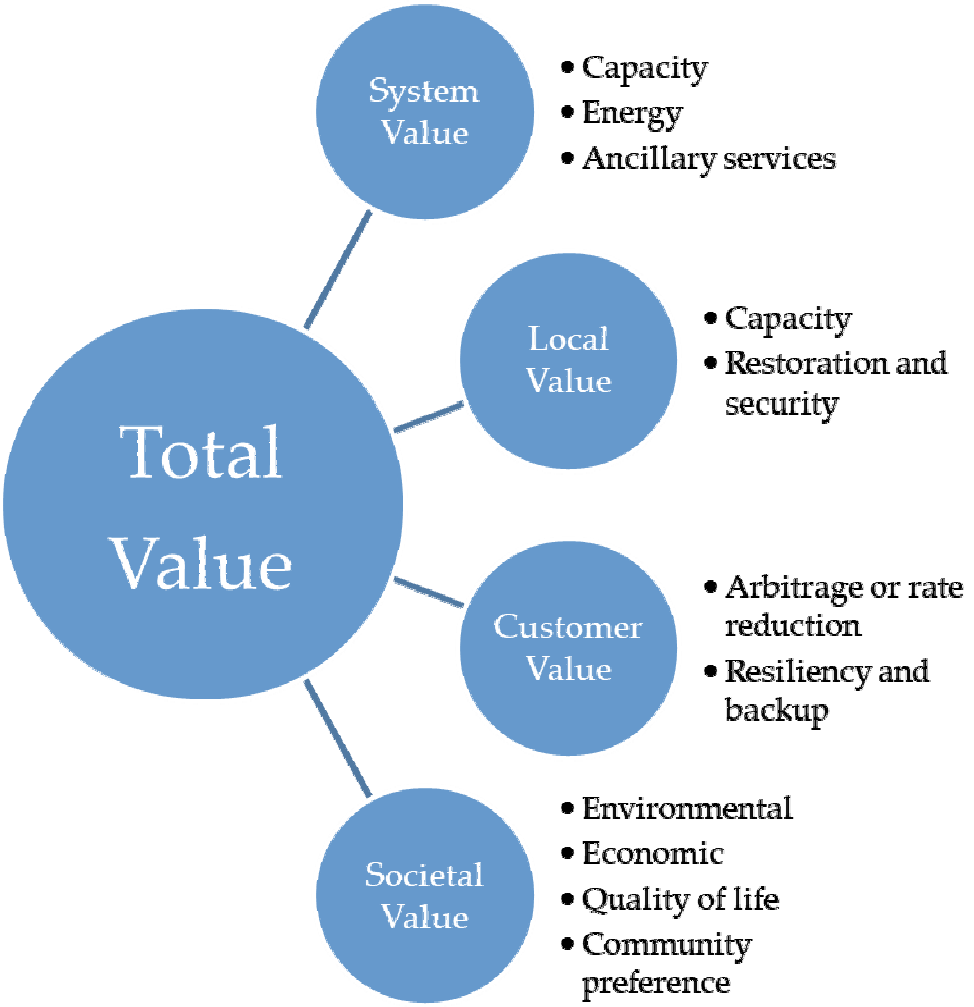
It is worthwhile to note that forecasts have less certainty as they project farther into the long-term time horizon – and this is even more significant when forecasting on a level as granular as each hour. As such, the heat maps and hourly forecasts developed for this IRRP are intended only to help better understand the nature of the needs and guide the development of non-wires options. Ultimately, when evaluating a non-wires option's technical ability to solve a need, the Working Group assessed its capacity contribution or expected performance during predicted need hours. This technical potential (a resource's capability without considering cost-effectiveness or market adoption) was then united with economic considerations to screen in or out a non-wires option.

Further details on the hourly forecasting methodology and more heat maps can be found in Appendix D.1 and D.2, respectively.

Costs and Benefits

While many non-wires options may have some technical potential to address local capacity needs identified in an IRRP, costliness can detract from their candidacy. To gauge the full costs and benefits of non-wires options, various value or funding streams must be considered. A non-wires option may have to provide multiple services concurrently to be economically viable, recovering costs through mechanisms such as regulated rates, market revenues, or program funding through uplift. Some potential value streams are highlighted in the figure below.

Figure 7-3: Potential Value Streams Provided by a Non-Wires Option



Since IRRPs focus on regional needs and their possible solutions, an option's *local value* is naturally best identified through regional planning and is traditionally recovered through regulated rates. Conversely, *system value* refers to the resource's ability to provide services to the bulk system, and is typically identified and accessed through wholesale markets.[8] *Customer value*, which may be defined as the option's ability to provide services and financial benefits directly to the customer, can be established between the option proponent and electricity customers. *Societal value* is determined by the community and includes benefits that are beyond

[8] The IESO's 2020 Annual Planning Outlook includes an avoided cost analysis that considers both avoided energy and capacity costs due to reduced demand. This avoided cost data can be found in the data tables at http://www.ieso.ca/Sector-Participants/Planning-and-Forecasting/Annual-Planning-Outlook.

what is typically recovered by the ratepayer (such as greenhouse gas emission reduction, economic stimuli, improved air quality, etc.).

In IRRPs, the local value of each option is prioritized. As the electricity industry evolves (including any market reform), standardized tools and methodologies may be developed to confidently compute and sum different value streams for more resource types. Overall relative costs and rates of return between all options – wires or otherwise – may be calculated, allowing for a more comprehensive comparison. Table 7-1 below characterizes the non-wires options that were considered during the development of this IRRP. Specific details regarding the local capacity deferral value available are described later, as they are dependent on the unique Ottawa area need. Additional details on the methodology for quantifying resource potential and economic comparison can be found in Appendix D.3 and D.4.

Table 7-1: All Non-Wires Options Considered for the Ottawa Sub-Region

Resource Type	Description
Energy Efficiency	Technologies and operational measures that increase the efficiency of electricity usage at the end-use level. Examples include programs for high-efficiency HVAC equipment or LED lighting.
Lithium Battery Energy Storage	Energy is stored and then dispatched during times of need.
Demand Response	Curtailment of electricity consumption targeting specific hours when a need occurs; considered to be a dispatchable resource that responds to price signals or is implemented through contractual obligations.
Natural Gas Generation	Simple Cycle Gas Turbine (SCGT): natural gas power plant whose waste heat is not used; best for peak power needs on the electric grid. Combined Heat and Power (CHP): gas generation providing both electricity and heat (for end-use).
Solar Generation	Solar panels (typically rooftop or ground-mounted) installed to provide electricity.

Other Barriers to Implementation

Even beyond a non-wires option's technical and economic feasibility, a multitude of barriers to implementation may still persist and had to be considered during the development of the Ottawa Sub-Region IRRP.[9] Some of these barriers were easily quantifiable – such as the option's

[9] Launched in 2018, the Regional Planning Process Review is exploring a number of enhancements to regional

lead time in comparison to the timing of the need, or even the duration of the need versus the longevity or persistence of the resource. Generally, demand management and energy efficiency programs can be implemented within six months (or up to two years for larger projects), whereas transmission and distribution facilities can take five to seven years to come into service. The lead time for generation development is typically two to three years, but could be longer depending on the size, technology type, or environmental impact assessment. All of these factors were considered in unison with the firmness of the needs that were identified.

Successful implementation of a non-wires option also requires community input and local intelligence. Community preferences, such as those for non-emitting resources, were inherently considered in this IRRP through its engagement process. These preferences not only influenced which options were initially evaluated by the Working Group, but also indicated the likelihood of feasibility. Zoning or siting of resources (such as large gas generation) and firmness of acquisition potential are examples of factors that impact feasibility of an option and are unique to the Ottawa Sub-Region's customers (or whoever else is ultimately responsible for hosting or implementing the solution). It is not only the maturity of a technology that was considered; local unfamiliarity and lack of experience with measures such as demand response or specific energy efficiency programs can lead to both cost and implementation uncertainty. Moreover, operational requirements (to fulfill both local and bulk system needs) and regulatory structures for cost recuperation may not yet be well defined enough to actualize all value streams. All of this, in conjunction with unknown future market behaviour and other competitive procurement processes, can contribute to even greater cost and implementation variability. These are all considerations taken into account during the development of this IRRP's recommendations.

7.1.2 Energy Efficiency Opportunities

Since March 2019, the IESO has been given a mandate to centrally deliver energy efficiency programs on a province-wide basis with a focus on business and industrial programs. Through the 2019-2020 Interim Framework, the IESO offers energy efficiency incentives and rebates to electricity customers through a suite of Save on Energy programs, which provide a valuable and cost-effective system resource that helps customers better manage their energy costs.

The IESO is currently working with government and stakeholders to consider opportunities for energy efficiency in Ontario beyond 2020 and recently completed an integrated electricity and

Planning and includes the Barriers to Non-Wires sub-initiative. More information can be found here: http://www.ieso.ca/en/Sector-Participants/Engagement-Initiatives/Engagements/Regional-Planning-Review-Process

natural gas conservation achievable potential study (2019 APS) in partnership with the OEB. This 2019 APS identified significant and sustained potential for energy and efficiency across all customer sectors throughout the study period.

Energy efficiency investment decisions are typically determined by assessing the cost effectiveness of the initiative (i.e., whether the incremental cost of the energy efficiency measure is outweighed by the benefits to the electricity system, with some value also being attributed to non-energy benefits such as customer comfort or improved business productivity). The 2019 APS identified energy efficiency opportunities that are cost-effective from the system perspective in all areas of the province. The cost-effective energy efficiency opportunities throughout Ottawa are shown in Appendix D, alongside more information about the methodology used to calculate energy efficiency potential. Across the Ottawa Sub-Region, by 2037, system cost-effective energy efficiency could reduce the summer peak demand by approximately 28 MW.

While the rapid growth in a region may limit the ability for energy efficiency to fully meet forecast near-term needs, any medium- to longer-term needs can present an opportunity for system cost-effective energy efficiency. Energy efficiency could also be used as an interim measure to support reliability until long-term solutions in an area are implemented. Consequently, the impact on load growth of any near-term energy efficiency initiatives in the area should be evaluated and monitored between regional planning cycles.

7.2 OPTIONS FOR ADDRESSING KANATA-STITTSVILLE AREA NEEDS

27.6 kV Supply Station Capacity

As described in Section 6.2.2, there is a need for additional station capacity to supply the 27.6 kV distribution system in the Kanata-Stittsville area because the combined demand at the three existing 27.6 kV stations is forecast to exceed the combined LMC of the three stations by 41 MW in 2020, increasing to 65 MW by 2028.[10] Demand is expected to continue increasing, at a consistent, slower rate, over the second half of the forecast period. While using this measure suggests the need for additional supply capacity is imminent, the networked 27.6 kV distribution system supplied by these three stations provides the capacity for Hydro Ottawa to

[10] These numbers are the difference between the combined demand forecast for the three Kanata-Stittsville 27.6 kV stations and the combined planning rating (LTR) of 160 MW for the three stations.

supply peak loading above the LMC for the near term. Nevertheless, a plan to address the need for supply capacity in the area should be readied for implementation in the medium term.

Several options were evaluated while considering the magnitude and timing of the cumulative capacity need: the expansion of existing stations, the construction of a new station, and the use of non-wires alternatives.

Option 1: Expansion of Existing 27.6 kV Stations

Options for reinforcing one or more existing stations in the Kanata-Stittsville area were considered – specifically, expanding Kanata MTS and Marchwood MTS. The Working Group determined that these were inadequate options due to the number of egress feeders from these stations, which are in close proximity. With no space for additional feeders on existing overhead lines, any expansion would require underground extensions. This would increase the complexity and cost of these options.

Option 2: A New Supply Station in Kanata-Stittsville

The demand forecast indicates that there is a need for 65 MW of additional station capacity in the Kanata-Stittsville area by 2028. This growth is expected to come from new residential, commercial and institutional customer connections in the area. These customers will each require an incremental amount of electricity supply, despite technological improvements in end-use efficiency. This is enough demand to utilize about 80% of the capacity of a station similar to Terry Fox MTS, which has a LMC of about 80 MW. A new supply station is therefore an important option to consider for this area of Ottawa. According to Hydro Ottawa, a new station, if built, should be located in the northern part of Kanata, to the north of Kanata MTS, and Marchwood MTS.

Developing a long-term plan for a new supply station requires evaluation of the potential transmission connection points for the new station. The IESO is currently leading the development of a long-term bulk transmission supply plan for the Ottawa area. This bulk transmission plan may recommend changes to the transmission configuration in the Kanata-Stittsville area, which may change the consideration of transmission connection options for a new station. The following paragraphs provide a high-level assessment of existing transmission connection options.

There are three existing transmission circuits that pass through the northern part of Kanata: 230 kV circuit C3S is part of a 230 kV transmission path between Ottawa and the Greater Toronto Area, and 115 kV circuits C7BM and W6CS are part of the 115 kV network between Merivale TS and the Ottawa River and Madawaska River hydroelectric generation sites. Due to the limited LMC of the 115 kV system, as described in Section 6.2.4, the Working Group determined that a 230 kV connection would be preferable.

As mentioned above, the IESO has a bulk transmission planning study underway to consider the potential end-of-life options for several circuits that were placed into service as early as the 1930s. The IESO expects to complete this study in 2020. The outcome of this study will include a plan for long-term reliable supply to Ottawa. This plan may result in changes to transmission flow on existing circuits in the area, including C3S. The study may also recommend transmission reinforcement in the western Ottawa area which could provide an additional option(s) for connecting a new supply station for northern Kanata.

Option 3: Non-Wires Alternatives

The Working Group examined the feasibility of implementing non-wires resources to offset load growth in the Kanata-Stittsville area. These potential resources, considered both on an individual basis and as a package of solutions, were outlined previously in Table 7-1.

Non-wires options may be preferred over a wires investment due to their ability to address needs more incrementally. However, due to the size of the capacity and energy needs in the Kanata-Stittsville area, most non-wires options were found to be insufficient for the deferral of a new station if used alone. For instance, peak reduction of battery energy storage was not a cost-effective option due to the long duration (spanning multiple hours) and large MW size of the need. This was illustrated in heat maps (Figure 7-2). With solar resources, because the expected capacity contribution for peak-demand reduction ranges between 13% - 30%, the costs increase significantly to install the capacity actually required. Consequently, for full station deferral in the Kanata-Stittsville area, the lowest cost resource alternative was identified to be a new natural gas-fired SCGT.

The table below shows the costs for the most cost-effective package of non-wires alternatives and compares them to the local value (i.e., what would be spent on the wires alternative). A planning estimate of approximately $33 million was used for the cost of a new 90 MVA 230 kV connection station. Note that any additional 230 kV connection costs would increase this preliminary estimate.

Table 7-2: Non-Wires Options Considered for the Kanata-Stittsville Area

Most Cost-Effective Non-Wires Alternative	Cost (2019 $CAD, millions)	Local Value (2019 $CAD, millions)	Remaining Costs to be Recovered (2019 $CAD, millions)
70 MW of SCGT	244	39	205
Package of solutions: - 55 MW of SCGT - 4.5 MW of DR - 10 MW of system cost-effective EE[11]	230		191

This NPV assessment indicates that the majority of their costs would need to be recovered through funding streams beyond local value. This includes the possibility of the resource contributing to system needs (capacity, energy, or otherwise) and having the potential for high customer or societal value. However, considering the magnitude of remaining costs to be funded, in addition to the other barriers to implementation described in Section 7.1.1, the probability of full cost recovery for the non-wires options appears to be low. While it is prudent at this time for the Working Group to continue considering a new transformer station as the cost cost-effective long-term solution, non-wires options proponents may wish to investigate other funding streams and services provided by the non-wires options.

Details on the NPV calculation and assumptions can be found in Appendix D.4.

Recommended Actions

Addressing the need for additional 27.6 kV supply capacity in the Kanata-Stittsville area involves several components. Analysis in this IRRP suggests that the long-term plan will likely consist of a new station; however, development of this option should be coordinated with ongoing bulk transmission planning. Operational measures, as well as targeted energy efficiency, will support reliability in this area until the long-term plan is implemented.

The long-term plan for Kanata-Stittsville will be confirmed after the bulk transmission plan for the area is complete, later in 2020. In addition to considering new station connection options that arise from the bulk transmission supply plan, the long-term plan for Kanata-Stittsville will

[11] For the purpose of this non-wires options assessment, costs of system cost-effective EE were assumed to be zero. This assumes that their costs would be incurred through provincial program delivery.

consider the most up-to-date information on the potential and cost for non-wires alternatives that is available at that time.

Interim Measures

The networked distribution system in the Kanata-Stittsville area allows Hydro Ottawa to restore peak demand post-contingency at the heavily loaded Marchwood MTS and Kanata MTS. Hydro Ottawa's distribution system plan includes investments to increase load transfer capability and post-contingency capacity. While this operational capability is not equivalent to new supply capacity, this approach will support reliability at these stations for the near term.

In 2019, in consultation with IESO staff, Hydro Ottawa submitted two proposals to Save on Energy's LDC Local Program Fund (the "Fund), a program application stream which allows LDCs to continue to design and deliver energy efficiency programs that serve the needs of their specific customers. Programs approved through the Fund must demonstrate cost-effectiveness based on the resulting net benefit when comparing the program investment (cost) against the provincial average avoided costs of providing electricity (benefit). So while these investments will benefit ratepayers province-wide, these offerings are also expected to help reduce the reliability risk due to heavily loaded stations in Kanata-Stittsville.

The IESO recently approved both of Hydro Ottawa's proposed programs for delivery in 2020, which include the Kanata North Retrofit+ Program and the Kanata North Smart Thermostat Program. As highlighted below, both of these programs leverage the existing delivery infrastructure of current electricity and natural gas province-wide programs, which reduces administrative costs, streamlines customer experiences, and avoids market duplication and confusion. These local programs are an example of using system cost-effective energy efficiency to help address local system needs, and can inform similar approaches in the future. It is forecasted that these two initiatives could combine to offset more than 3 MW of peak demand in the Kanata North area in 2022. In doing so, these programs could help address the capacity need in the Kanata-Stittsville area and support reliable supply until a long-term solution for the area is implemented.

<u>Kanata North Retrofit+ Program</u>

The Kanata North Retrofit+ Program mimics the existing province-wide Save on Energy Retrofit program in that it provides participant incentives to the business sector to upgrade their facilities with measures that reduce electricity consumption. However, in the case of the local

program, businesses in Kanata North are offered up to triple the provincial Retrofit incentives for measures that reduce peak demand. This is intended to make the business cases for energy efficiency projects much more attractive in order to drive higher uptake in the constrained area. In addition to the increased incentives, this program will be supported by a targeted outreach strategy that embeds three full-time resources – one energy consultant and one program consultant, along with a sales support agent – to work with customers to identify opportunities, develop business plans, submit incentive applications and support the implementation of energy efficiency measures. The energy consultant will target and engage primarily with the subsectors which represent the largest technical potential for peak-demand reduction (primarily large commercial buildings, manufacturing facilities, and data centers). The program consultant will target and engage primarily with schools, hotels, food stores, box stores, and other small businesses in the area.

Kanata North Smart Thermostat Program

The Kanata North Smart Thermostat Program intends to leverage the existing Smart Thermostat Program offered by Enbridge Gas Inc., where customers who reside in single-family households are eligible to receive an instant $75 rebate towards a qualifying smart thermostat purchased online or at Home Depot stores province-wide. However, in addition to the $75 rebate that the participant receives from Enbridge, the local program will, in many cases, subsidize the remaining cost of the smart thermostat for those qualifying households located in the area of Kanata North. Once more, this offering is meant to increase uptake in the grid-constrained area by creating a very attractive value proposition for customers to invest in energy efficiency.

By offering energy efficiency programs to a specific local area, Hydro Ottawa and Save on Energy are helping customers better manage energy use in communities where local infrastructure is in need of reinforcement. The electricity system relies on various resources and approaches to help balance electricity needs, and with offerings such as the Kanata North Retrofit+ and Smart Thermostat programs, energy efficiency is being positioned as one of the tools. Encouraging customers now to invest in energy efficiency provides short and long-term savings could reduce the need to build new infrastructure while supporting businesses as they continue to grow. The benefits of these energy efficiency programs persist over the lifetime of the equipment installed, which in most cases means they'll continue to provide relief until the long-term local supply plan can be implemented.

7.3 OPTIONS FOR ADDRESSING THE SOUTHEAST OTTAWA AREA NEEDS

27.6 kV Supply Station Capacity

As described in Section 6.2.3, there is a foreseeable need for additional station capacity to supply the 27.6 kV distribution system in the southeast Ottawa area. The planning forecast for Leitrim MS, the most southeasterly of the stations, exceeds the station's LMC by 4 MW in 2022, 20 MW in 2030 and 33 MW in 2037. This forecast is the demand remaining at Leitrim MS after the capability to transfer growth away from Leitrim MS to Uplands MTS and Limebank MTS has been maximized. Demand growth is located east of Leitrim MS at the outer edge of the station's distribution feeder range. As a result, new station capacity is required in the southeast as early as 2022, based on the limited LMC of Leitrim MS. Hydro Ottawa estimates the cost of a new 90 MVA 230 kV connection station to be approximately $28 million, plus about $5 million in 230 kV connection costs.[12]

The Working Group evaluated several options while considering the magnitude and timing of the capacity need, including non-wires resources, expansion of existing stations, and construction of a new station.

Options for New or Expanded 27.6 Supply in Southeast Ottawa

As described in Section 6.2.2, Hydro Ottawa is already pursuing expansions to Uplands MTS and Limebank MTS, to supply demand growth in the southeast Ottawa area.

Section 6.2.2 also describes how the demand at the recently expanded Hawthorne TS, which supplies Leitrim MS, is forecast to be exceed the station LMC by 2027. As noted in Section 6.2.2, a large portion of the demand growth is forecast at Leitrim MS, and moving this growth away from both Leitrim MS and Hawthorne TS removes the need for additional supply capacity at Hawthorne TS. Accordingly, expanding Leitrim MS or supplying a new 44kV/27.6 kV station from Hawthorne TS is not a feasible means of increasing 27.6 kV supply capacity in southeast Ottawa.

Transmission circuit L24A is a 230 kV circuit that connects Hawthorne TS to St. Lawrence TS (in the Cornwall area) and is part of the bulk transmission system that supplies the Ottawa area from the south. This circuit passes through southeast Ottawa, slightly west of Highway 417.

[12] Connection cost estimate is based on preliminary assumptions about the connection configuration and the proximity of the station to the transmission line.

Due to the sparse transmission network on the east side of Ottawa, L24A is the only option for connecting a new station to supply the southeast area.

Non-Wires Alternatives

The Working Group examined the feasibility of implementing non-wires resources to reduce the forecast demand in the area and defer the need for a new station or existing station expansion. These potential resources, considered both on an individual basis and as a package of solutions, were defined previously in Table 7-1. Similar to the economic assessment performed for Kanata-Stittsville area needs, costs for the most cost-effective package of non-wires alternatives in Southeast Ottawa were compared to the theoretical local value (i.e., what would be spent on the new 90 MVA 230 kV connection station).

Table 7-3: Non-Wires Options Considered for the Southeast Ottawa Area

Option	Cost (2019 $CAD, millions)	Local Value (2019 $CAD, millions)	Remaining Costs to be Recovered (2019 $CAD, millions)
35 MW of SCGT	151	39	112
Package of solutions: - 25 MW of SCGT - 4.5 MW of DR - 7 MW of system cost-effective EE[13]	93		54

Similar to what was described for the Kanata-Stittsville area options, the NPV assessment for the Southeast Ottawa area indicates that the majority of the non-wires alternatives costs would need to be recovered through other funding streams beyond local value. Therefore, the probability of full cost recovery for the non-wires options appears to be low, and it is prudent for the Working Group to continue considering a new transformer station as the most cost-effective long-term solution.

Details on the NPV calculation and assumptions can be found in Appendix D.4.

[13] For the purpose of this non-wires options assessment, costs of system cost-effective EE were assumed to be zero. This assumes that their costs would be incurred through provincial program delivery.

Recommended Actions

A new 27.6 kV station supplied by 230 kV circuit L24A is the preferred wires option to supply the southeast Ottawa area. This station will provide a new supply point in a growing part of the City that is more than 10 km from the existing supply stations, therefore reducing distribution distances for customers.

Hydro Ottawa, the station proponent, has not yet identified a site for a new station in proximity to circuit L24A. Once a site is identified, Hydro Ottawa will initiate the environmental approval process, which will include engaging with stakeholders and communities. The size and design of the new station will be similar to that of two other Hydro Ottawa stations: Terry Fox MTS, completed in 2014, and South Nepean MTS which is currently under construction and scheduled to be in service before the end of 2022. Based on the costs of these two stations, the estimated cost of the new supply station is $28 million, plus approximately $5 million in 230 kV connection costs, assuming the new station is in close proximity to 230 kV circuit L24A. Hydro Ottawa indicates this station could be in service as early as 2025. The Working Group recommends that Hydro Ottawa initiate development work and seek approval for this new station.

Interim Measures

Hydro Ottawa has indicated that they will continue to redistribute loads in the southeast area between their existing supply stations over the coming years, for example as expanded capacity becomes available at Uplands MTS and Limebank MTS. Hydro Ottawa may also utilize some of the small amount of supply capacity available at Hydro One's Greely TS (less than 10 MW) to meet near-term demands near the service boundary as an interim measure until the new station is available.

7.4 OPTIONS FOR ADDRESSING ORLEANS AREA NEEDS

Bilberry Creek TS End-of-Life

As described in Section 2.3, the Working Group has been aware since the previous regional planning cycle that Bilberry Creek TS is approaching its end of life. The Working Group considered the two main options of retiring Bilberry Creek TS or refurbishing Bilberry Creek TS with like-for-like transformers. These options are described in the following subsections.

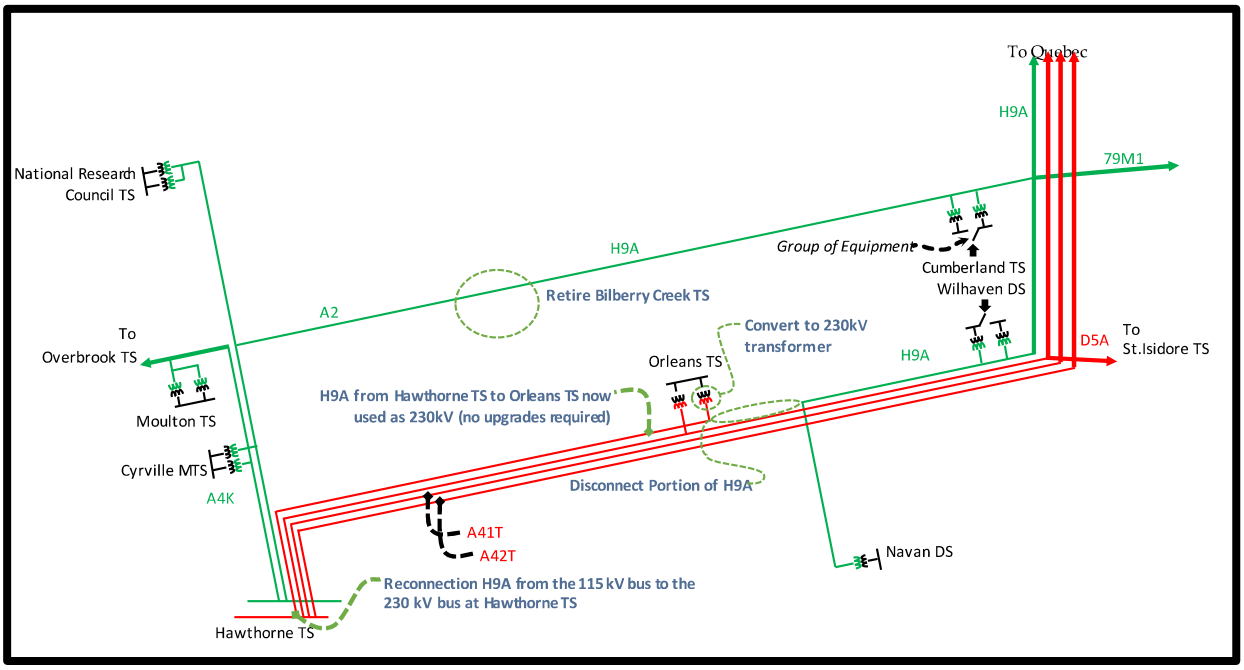
Option 1: Retire Bilberry Creek TS

In local areas where electricity demand is declining or shifting geographically retiring an existing transmission station at the end of its life and consolidating demand at a newer station may be part of a cost-effective plan. Like many parts of Ottawa, Orleans is a growing community with an increasing electricity demand forecast. While Bilberry Creek TS itself is not fully loaded, the nearby Orleans TS is forecast to be loaded to its planning capacity by 2025. The combined demand forecast for the two stations is 167 MW in 2023, rising slowly to 179 MW in 2028. The planning capacity of Orleans TS is 117 MW, so in terms of these two stations combined, if Bilberry Creek TS were retired in 2023 there would be an immediate shortfall of station capacity in the area. Additional station capacity (i.e., a new station or an expansion of Orleans TS), preferably supplied by the local 230 kV network due to the supply limitations on the regional 115 kV transmission system, would be needed to replace the loss of Bilberry Creek TS as soon as it were retired.

The retirement of Bilberry Creek TS option was therefore considered in conjunction with transferring Bilberry Creek TS customers to an expanded Orleans TS. This option would take advantage of the opportunity to convert 115 kV circuit H9A to 230 kV operation and convert the existing Orleans TS DESN to dual 230 kV supply, eliminating the brief outages that occur before switching to 230 kV operation when 115 kV circuit H9A is not available, as described in Section 6.2.3. A single line diagram of this configuration is shown in Figure 7-4. Hydro One indicated that in conjunction with the conversion to dual 230 kV supply the existing Orleans TS DESN could be expanded to 170 MVA (153 MW). This option would cost approximately $21 million, but would not result in sufficient capacity to supply the combined Bilberry Creek TS and Orleans TS demand forecast for 2023.

The option of retiring Bilberry Creek TS, would therefore need to be implemented in conjunction with a larger incremental capacity option than the expansion of the existing Orleans TS DESN could provide. This would likely take the form of a new second DESN station at the Orleans TS location, an option that would cost about $30 million.

Figure 7-4: Single Line Diagram of the East Ottawa Transmission System if Bilberry Creek TS Were Retired

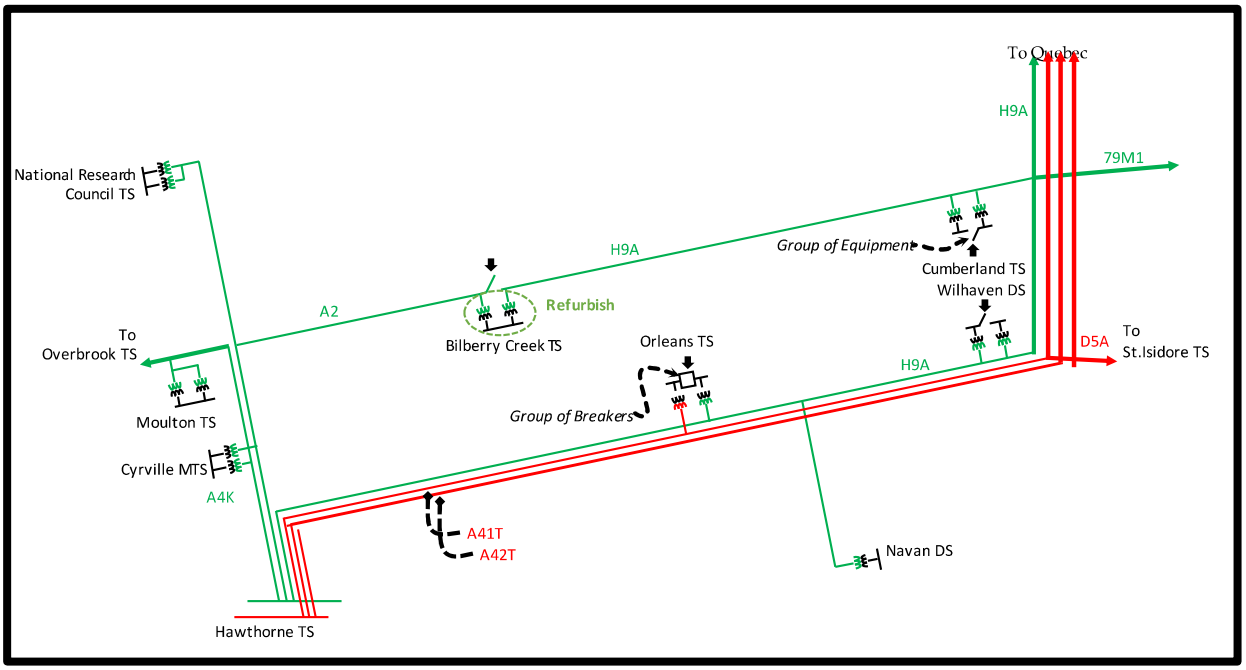


Option 2: Refurbish Bilberry Creek TS

The second main option is to refurbish Bilberry Creek TS. This includes the like-for-like replacement of two step-down transformers, the replacement of the majority of the low voltage breakers, and the installation of a new protection and control building. A single line diagram of this configuration is shown in

Figure 7-5. This option maintains the existing total of 225 MVA (202.5 MW) of supply capacity at the two stations; however, two new feeder positions would need to be added to Bilberry Creek TS to enable Hydro Ottawa to transfer some of the demand growth forecast for Orleans TS. This option would cost approximately $22 million and would provide adequate supply station capacity for the forecast period.

Figure 7-5: Single Line Diagram of the Existing Transmission Configuration in Orleans (Consistent with Option 2)



Recommended Actions

A comparison of the retire Bilberry Creek and refurbish Bilberry Creek options is shown in Table 7-4, on the following page. The demand forecast for Bilberry Creek TS and Orleans TS is also provided in Table 7-5 for reference.

le 7-4: Comparison of Two End-of-Life Options for Bilberry Creek TS

Option	Estimated Cost	Resulting Supply Capacity in 2023	Adequacy of Supply Capacity for Combined Bilberry Creek TS and Orleans TS Forecast	Additional Benefits
tire Bilberry Creek TS, Expand Orleans TS and Convert rleans TS to dual 230 kV supply	$21 million	153 MW	Insufficient supply capacity for the forecast period. Additional supply capacity (i.e., a second DESN station at Orleans TS) would be required in 2023.	• Orleans TS is converted to dual 230 kV supply • Decreases demand on the 115 kV system in the area
furbish Bilberry Creek TS and rovide Two Additional Feeder Positions for Hydro Ottawa	$22 million	202.5 MW	Adequate supply capacity for the forecast period	• Retains a second supply point in the northern part the community

le 7-5: IRRP Forecast for Bilberry Creek TS and Orleans TS

	Station Forecast (MW)							
ation	**2023**	**2025**	**2027**	**2029**	**2031**	**2033**	**2035**	**2037**
berry Creek TS	51.8	51.5	51.2	51	50.7	50.9	50.9	51
leans TS	115	119.4	126.1	129.1	130.8	132.1	134	134.9
tal	**166.8**	**170.9**	**177.3**	**180.1**	**181.5**	**183**	**184.9**	**185.9**

The Working Group recommends that Hydro One proceed with the like-for-like refurbishment of Bilberry Creek TS, with expansion to accommodate two additional breaker positions to supply Hydro Ottawa customers. The two options that were considered have similar estimated costs, however only the refurbishment option results in sufficient capacity to supply the combined demand forecast at Bilberry Creek TS and Orleans TS.

The decision to refurbish Bilberry Creek TS and expand the station in order to transfer some of the demand growth from Orleans TS will increase the loading on 115 kV circuit H9A by the mid-2020s. The 2018 Needs Assessment identified a potential voltage regulation need on 79M1, a 65 km 115 kV transmission circuit that branches off of 115 kV circuit H9A and supplies five stations on the outskirts of Ottawa. The Needs Assessment noted that the voltage on circuit 79M1 is dependent on the loading on H9A. As stated in the 2018 Greater Ottawa Needs Assessment, Hydro One will review the impact of forecast changes on the 79M1 voltage as part of the Regional Infrastructure Plan.

7.5 OPTIONS FOR ADDRESSING CENTRAL OTTAWA NEEDS

Recommended Action for Slater TS

Hydro Ottawa and Hydro One are investigating the feasibility and cost-effectiveness of replacing T2 and T3 at Slater TS with larger 100 MVA transformers, as was the case for the recent replacement of T1. This will increase the station's LMC by approximately 50%. This additional LMC would provide Hydro Ottawa with flexibility to transfer load from other stations in the downtown Ottawa area, where there are limited options for siting new supply stations. Hydro One anticipates completing the transformer replacement at Slater TS by the end of 2023.

Recommended Action for Albion TS

The working group has confirmed the need to retain the station at its existing transformation capacity. Hydro One will therefore proceed with its sustainment plan, with expected in service of 2026.

Recommended Action for Lincoln Heights TS

Hydro One intends to replace transformers T1 and T2 at Lincoln Heights with equivalent transformers when they reach end of life. Hydro One, the asset owner, anticipates completing the transformer replacement at Lincoln Heights TS later than 2025.

7.6 OPTIONS FOR ADDRESSING THE REGIONAL 115 KV SYSTEM NEEDS

As described in Section 6.2.4, T22 at Merivale TS is presently limiting the LMC of the 115 kV system. The Working Group recommends that Hydro One replace T22 with a larger capacity transformer so that it more closely matches the T21, the companion transformer Merivale TS. Hydro One estimates that this project will cost $10 million. Transformer T22 was put in service in 1978. Replacing it in the near-term advances the end-of-life replacement.

After transformer T22 is replaced, the LMC of the 115 kV system will be limited pre and post contingency by several of the 230/115 kV transformers. The complexity of the multiple subsequent constraints means that further increasing 115 kV supply will require consideration of expanding Merivale TS to include a third 230/115 kV transformer, an option that costs in the range of $100 million. This potential costly option to increase the LMC of the 115 kV system must be considered in conjunction with planning for the loading of 115 kV transmission circuits, and the 115 kV system stations, in order to ensure that all costs related to 115 kV system expansion option are included. A plan for the 115 kV system will consider the potential for non-wires alternatives to manage demand growth at heavily loaded individual stations supplied by the 115 kV system, while maintaining demand on the overall 115 kV system within the LMC of the existing 230/115 kV transformers. Another approach that will be considered is the potential for converting some 115 kV transmission lines and supply stations to 230 kV supply.

This IRRP has identified the scope and complexity of integrated planning needs for the 115 kV system in the Ottawa area, however additional work is required beyond the timeframe of this IRRP. Following the completion of this IRRP, the Working Group will focus on developing a long-term integrated plan for the 115 kV transmission system. This work will be coordinated with the IESO's ongoing bulk transmission planning study for the Ottawa area, which may consider bulk transmission options that provide additional considerations for future supply to existing 115 kV stations.

7.7 SUMMARY OF RECOMMENDED ACTIONS AND NEXT STEPS

Table 7-6, below, summarizes the specific recommendations that should be implemented immediately to address the most imminent electricity supply needs in the Ottawa area.

le 7-6: Summary of 2020 Ottawa Sub-Region IRRP Recommendations

Area	Need	Recommended Solutions	Lead Responsibility	Estimated Cost	Timelin
a-Stittsville	27.6 kV Supply Capacity	Implement the North Kanata Retrofit Top-Up Program and the North Kanata Smart Thermostat Program, targeted commercial and residential energy efficiency programs.	Hydro Ottawa	Cost for these system cost-effective resources will be recovered through a provincial program.	Beginning in
east Ottawa	27.6 kV Supply Capacity	Plan and seek approval for a new 230 kV connected supply station in southeast Ottawa.	Hydro Ottawa	MTS: $28 million; 230 kV connection: $5 million	Estimated in-s date for the new 2025
rleans	Bilberry Creek TS End-of-Life	Proceed with the like-for-like refurbishment of Bilberry Creek TS, with expansion to accommodate two additional breaker positions to supply Hydro Ottawa customers.	Hydro One	$22 million	Planned comp 2025
al Ottawa	Slater TS End-of-Life Transformers	Replace end-of-life Slater TS transformers T2 and T3 with larger 100 MVA transformers, as was done for the recent end-of-life replacement of T1.	Hydro One	To be confirmed	Planned comple 2023
al Ottawa	Albion-TS End-of-Life Transformers and Switchgear	Proceed with the like-for-like replacement of the transformers which are approaching their end of life.	Hydro One	To be confirmed	Planned comp mid 2026

al Ottawa	Lincoln Heights TS End-of-Life Transformers	Proceed with the sustainment plan for replacement of the transformers which are approaching their end of life.	Hydro One	To be confirmed	Planned comp 2025
nal 115 kV ystem	115 kV Supply Capacity	Replace Merivale TS Transformer T22 with one that is approximately equivalent to T21.	Hydro One	$10 million	Planned comp mid-2020

e Working Group has also identified the following additional planning activities to address ongoing regional planning needs.

Targeted Need or Area	Action	Timeframe
cross the ub-Region	Monitor the City of Ottawa's Energy Evolution mandate and explore the potential for alignment between integrated regional planning and the Energy Evolution mandate.	Throughout the ne regional plannin cycle
Regional 115 kV System	Develop a long-term plan for the 115 kV transmission system. This study will include an assessment of the potential for non-wires alternatives to manage demand growth at heavily loaded stations supplied by the 115 kV system while maintaining demand on the overall 115 kV transmission system within the capability of the existing 230/115 kV transformers.	2020
cross the ub-Region	Monitor demand growth and the status of major development proposals on an annual basis. The next regional planning cycle is scheduled to begin in 2023, however it could be triggered sooner if the Working Group identifies a material need.	Annually

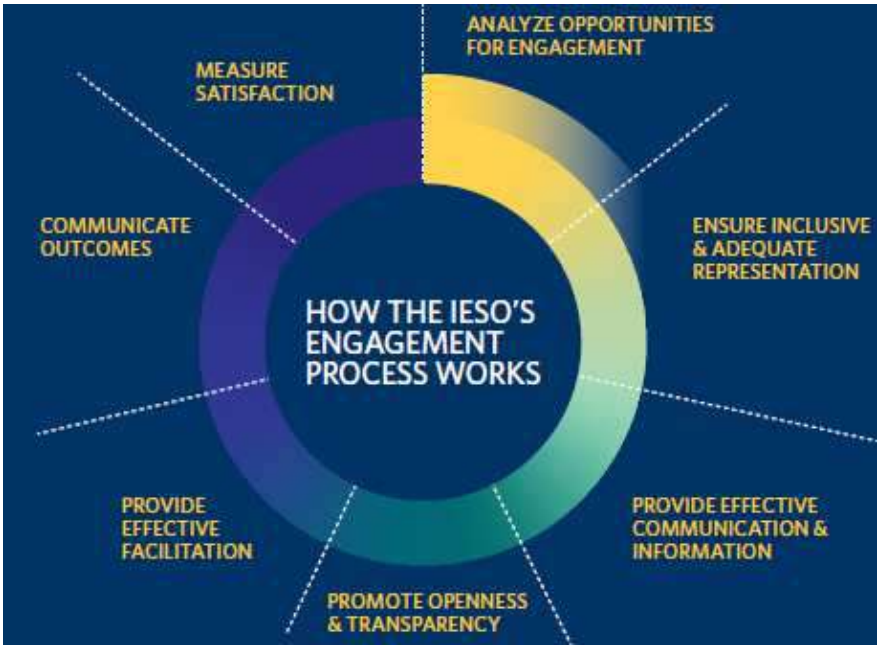
8 Community and Stakeholder Engagement

Engaging with communities and interested parties is an integral component of the regional planning process. Providing opportunities for input in regional planning enables the views and preferences of the community to be considered in the development of an IRRP and helps lay the foundation for successful implementation. This section outlines the engagement principles and activities undertaken for the Ottawa Sub-Region IRRP.

8.1 ENGAGEMENT PRINCIPLES

The IESO's Engagement Principles[14] guided the process to help ensure that all interested parties were aware of and could contribute to the development of this IRRP. The IESO uses these principles to ensure inclusiveness, sincerity, respect and fairness in its engagements, and to support its efforts to build trusted relationships.

Figure 8-1: IESO Engagement Principles



[14] http://www.ieso.ca/Sector-Participants/Engagement-Initiatives/Overview/Engagement-Principles

8.2 CREATING AN ENGAGEMENT APPROACH

The outreach and engagement approach was designed to ensure the IRRP reflected input from key community and stakeholder representatives. A dedicated engagement web page[15] was also created to provide openness and transparency throughout the engagement process. This web page hosted all engagement activities, including background information, presentations and public meetings/webinars on the development of this IRRP, as well as previous plans for the area.

The IESO's email subscription service for the Greater Ottawa planning region was used to send information to interested communities and stakeholders who subscribed to receive updates. Targeted outreach to municipalities, Indigenous communities and other business sectors in the region was also conducted at the outset of this engagement and continued throughout the planning process.

In addition, regular communications were sent via the IESO's weekly Bulletin, which includes subscribers from across Ontario's electricity sector.

8.3 ENGAGE EARLY AND OFTEN

Leveraging relationships built during the previous planning cycle, the IESO held preliminary discussions to help inform the engagement approach during this second planning cycle – starting with the Scoping Assessment Outcome Report.

Early communication and engagement activities began with invitations to all subscribers and targeted communities to learn about and provide comments on the draft Greater Ottawa Scoping Assessment Outcome Report before it was finalized. This scoping assessment identified the need for an IRRP specifically for the Ottawa Sub-Region, and included Terms of Reference to guide development of the plan. Following a window for comments to be submitted by interested parties, the final Scoping Assessment Outcome Report was published in September 2018. No comments were received during this feedback period.

Outreach then began with targeted communities to inform early discussions for the development of the IRRP including the IESO's approach to engagement. In response to the input received through these initial discussions, the IESO undertook direct outreach and

[15] http://www.ieso.ca/en/Sector-Participants/Engagement-Initiatives/Engagements/Integrated-Regional-Resource-Plan-Ottawa-Area-Sub-Region

engagement with municipal councilors in targeted areas of need in the City of Ottawa. The launch of a broader engagement initiative followed with an invitation to subscribers to ensure that all interested parties were made aware of this opportunity for input.

Two public webinars were held at major junctures during IRRP development to give interested parties an opportunity to hear about its progress and provide comments on key components. Both webinars received strong participation with cross-representation of stakeholders and community representatives attending the webinar, and submitting written feedback during a 14-day comment period.

The first webinar sought input on the electricity demand forecast and needs in the Ottawa area and potential solutions to be examined. Several comments were received during the feedback window that touched on the following major themes:

- Non-wires solutions
- Land use
- GHG reduction
- Cost effectiveness
- Feasibility of generation

As a final step in the engagement initiative, a second public webinar was held to seek input on the analysis of options and draft IRRP recommendations. Feedback received during the written comment period were related to the major themes below:

- Options analysis: delivery models
- Options analysis: non-wires alternatives
- Alignment with local initiatives
- Engagement

Based on the discussion in the webinar and written feedback received, it is clear that there is a strong interest and need for ongoing monitoring of capacity and local demand growth and continued discussion and engagement with communities and stakeholders. While there is strong community interest in non-wires alternatives, the near-term nature of the needs will require other solutions to be in place in order to ensure a continued reliable electricity supply to support rapid local growth. Furthermore, other factors and initiatives that may have an impact on local electricity needs will continue to evolve post IRRP, such as projects arising from the City of Ottawa's Energy Evolution. To that end, ongoing discussions will continue through the

IESO's Eastern Ontario Regional Electricity Network to keep interested parties engaged on local developments, priorities and planning initiatives.

All background information, including engagement presentations, recorded webinars, detailed feedback submissions, and responses to comments received, are available on the IESO's Integrated Regional Resource Plan engagement web page.

8.4 OUTREACH WITH MUNICIPALITIES

As the City of Ottawa was a key stakeholder in the development of this IRRP, the IESO held a number of meetings with City representatives, to exchange information on municipal planning and electricity planning processes, as well as the City's community energy transition strategy, called Energy Evolution. Meetings began in August 2018 at the outset of this planning project and continued in April, August and October 2019. These meetings were held with municipal representatives in the climate change resiliency and planning areas, as well as with some City Councilors to build awareness and provide opportunities to raise concerns that might arise from their constituents. No concerns were raised. The potential for future alignment between Energy Evolution and regional planning was also a topic of discussion with municipal representatives. In addition to helping to inform the City's electricity needs, these meetings also provided opportunities to strengthen relationships to enable ongoing dialogue beyond this IRRP process.

9 Conclusion

This report documents an IRRP that has been carried out for the Ottawa Sub-Region of the OEB's Greater Ottawa planning region. The IRRP identifies electricity needs in the sub-region over the 20-year period from 2018-2037 and recommends preferred solutions to address near-term needs. The Working Group recommends Hydro One initiate a RIP. The Working Group will continue to provide support throughout the RIP process, and assist with any regulatory matters that may arise during plan implementation.

The IRRP also identifies actions to monitor, defer, and address remaining needs and to inform the next regional planning cycle. The Ottawa Sub-Region Working Group will continue to meet at regular intervals to monitor developments in the sub-region and track progress toward the plan deliverables. In the event that underlying assumptions change a new regional planning cycle may be initiated sooner than the OEB mandated five-year schedule.

Appendix B: Greater Ottawa Region Scoping Assessment Outcome Report March 21 2023



Greater Ottawa Region Scoping Assessment Outcome Report

March 21, 2023

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1. Introduction

This Scoping Assessment Outcome Report is part of the Ontario Energy Board's (OEB or Board) endorsed Regional Planning Process.

The new cycle of the regional planning for the Greater Ottawa region started on August 23, 2022. The Needs Assessment[1] (NA) is the first step in the regional planning process and was carried out by the Greater Ottawa Technical Working Group (TWG) and led by Hydro One Networks Inc. (Hydro One). The report, which was published on December 20th, 2022, provided updates on previously identified needs, identified a number of new asset renewal and supply capacity needs, and recommended that further regional coordination is required. Results from the NA were used as an input into the Scoping Assessment (SA) to determine the nature of the planning process required.

During the SA, the TWG reviewed the nature and timing of known needs to determine the most appropriate planning approach, as well as the best geographic grouping of the needs in order to efficiently facilitate further studies. The planning approaches considered include

- An Integrated Regional Resource Plan (IRRP) – through which a greater range of options, including non-wires alternatives, are to be considered and/or closer coordination with communities and stakeholders is required;
- A Regional Infrastructure Plan (RIP) led by the transmitter – which considers more straight-forward wires only options with limited engagement; or
- A Local Plan undertaken by the transmitter and affected local distribution company (LDC) – for which no further regional coordination is needed.

This Scoping Assessment report:

- Lists the needs requiring more comprehensive planning, as identified in the Needs Assessment report;
- Reassesses the areas that need to be studied and the geographic grouping of the needs;
- Determines the appropriate regional planning approach and scope for each sub-region (when applicable) where a need for more comprehensive planning is identified;
- Establishes a terms of reference for an IRRP if an IRRP is required; and
- Establishes the composition of the TWG for each sub-region recommended for an IRRP (when applicable).

[1] The Greater Ottawa Region Needs Assessment report is available on the Hydro One website (link)

2. Technical Working Group

This report was prepared by the Greater Ottawa Region TWG, led by the IESO. The report presents the results of the assessment based on information provided by Hydro One, the Local Distribution Companies (LDC) and the Independent Electricity System Operator (IESO). Participants of the TWG include:

- Hydro 2000
- Hydro Hawkesbury
- Hydro One Networks (Distribution)
- Hydro One Networks (Lead Transmitter)
- Hydro Ottawa Limited
- Independent Electricity System Operator
- Ottawa River Power Corporation
- Renfrew Hydro

3. Categories of Needs, Analysis, and Results

3.1 Overview of the Region

The Greater Ottawa Region is located in eastern Ontario and covers the municipalities bordering the Ottawa River from Stewartville in the west to Hawkesbury in the east and north of Highway 43. At the center of this region is the City of Ottawa. The Greater Ottawa Region lies within the traditional territory of the Algonquin peoples, including the Algonquins of Pikwakanagan and the communities represented by the Algonquins of Ontario Consultation Office. Ottawa is also home to the MNO Ottawa Region Métis Council. Near Ottawa are the Mohawks of Akwesasne. Ottawa, along with much of southern Ontario, was once the home of the Huron Wendat who are now located in Wendake, Quebec.

This region includes all or part of the following Counties and Districts: the City of Ottawa and Clarence-Rockland, the town of Arnprior, Carleton Place, Mississippi Mills, and townships of East Hawkesbury, Champlain, Alfred and Plantagenet, Russell, Beckwith, Drummond/North Elmsley, Tay Valley, North Frontenac, Lanark Highlands, McNab/Braeside, Greater Madawaska and the municipality of The Nation. For electricity planning purposes, the planning region is defined by electricity infrastructure boundaries, not municipal boundaries.

The electricity infrastructure supplying the Greater Ottawa Region is shown in **Figure 1**. Hydro One is the transmission asset owner in the Region. The region is divided into three sub-regions: Outer Ottawa West, Ottawa Area and Outer Ottawa East.

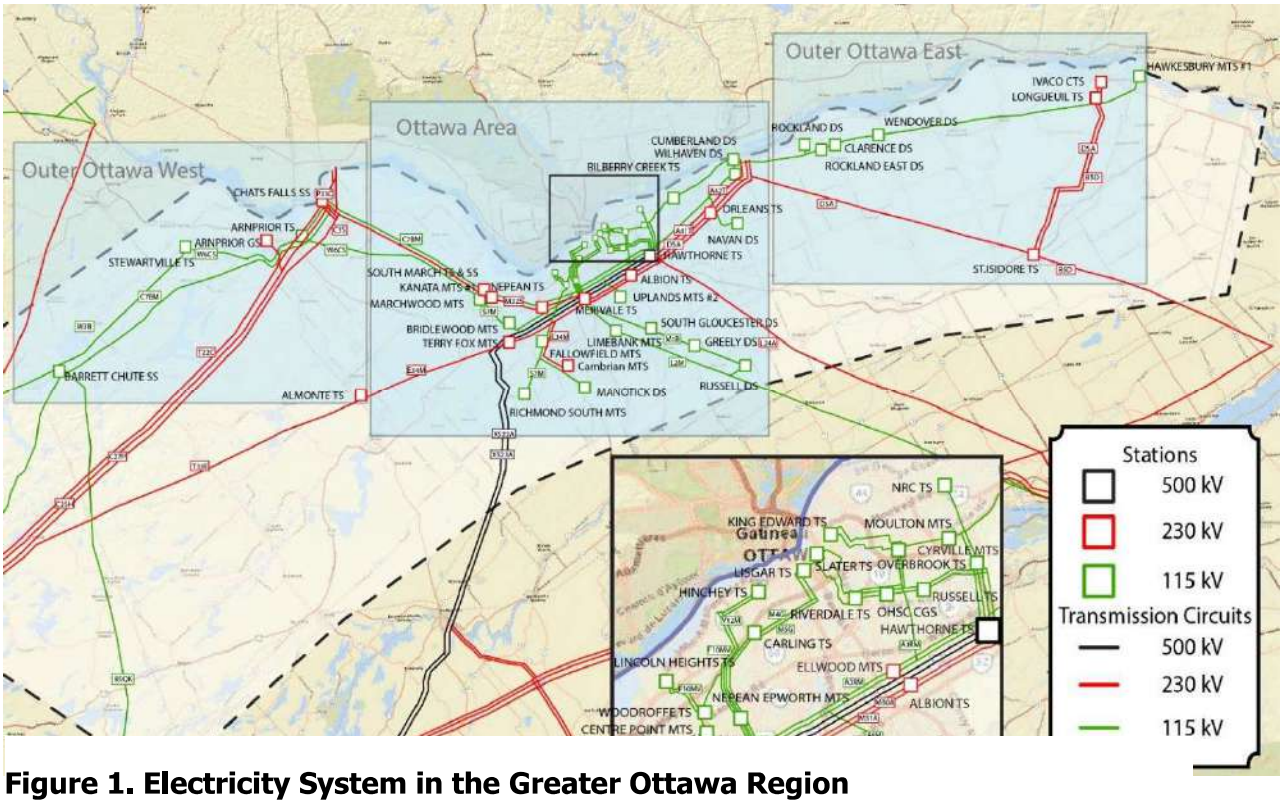


Figure 1. Electricity System in the Greater Ottawa Region

The Outer Ottawa West Sub-region is served by one (1) 230 kV and two (2) 115 kV step-down transformer stations. Hydro One Distribution is the main LDC in the Outer Ottawa West sub-region with two additional embedded LDCs, Ottawa River Power Corp. and Renfrew Hydro, served from Hydro One's feeders at Almonte TS and Stewartville TS. The area includes a number of transmission connected hydro-electric generation stations in Barrett Chute GS, Chats Falls GS, and Stewartville GS with a combined peak generation capacity of approximately 450 MW.

The Ottawa Area Sub-region comprises primarily of the City of Ottawa. It is supplied by two (2) 230/115 kV autotransformer stations (Hawthorne TS and Merivale TS), eight (8) 230 kV and thirty-three (33) 115 kV transformer stations stepping down to a lower voltage. There is one local transmission connected generator in the area, the 74 MW Ottawa Health Sciences Center cogeneration plant located near the downtown area and connected to the 115 kV network. Hydro Ottawa is the main LDC that serves the electricity demand for the City of Ottawa. Hydro One Distribution supplies load in the outlying areas of the sub-region. Both Hydro Ottawa and Hydro One Distribution receive power at the stepdown transformer stations and distribute it to end users, including industrial, commercial, and residential customers.

The Outer Ottawa East Sub-region is served by three (3) 230 kV and five (5) 115 kV step-down transformer stations. There are three LDCs, Hydro One Distribution, Hydro Hawkesbury, and Hydro 2000, in the Outer Ottawa East Sub-region. Hydro 2000 is an embedded LDC that supplies its customers from Longueuil TS via Hydro One Distribution's 44 kV feeders. This area also includes a transmission-connected industrial customer in L'Orignal, Ontario.

3.2 Previous Cycle of Regional Planning in Greater Ottawa

The previous cycle of regional planning for the Greater Ottawa region was carried out during 2018-2020. After reviewing the identified needs, the TWG decided that a IRRP was required for the Ottawa Sub-region as the assessment of non-wires alternatives, co-ordination with upstream transmission system issues, and closer coordination with communities and stakeholders were required. The TWG further determined that the needs identified for Outer Ottawa East and Outer Ottawa West would not require an IRRP and instead would be studied through local planning.

The Ottawa Area Sub-region IRRP was published in March 2020. The IRRP used a 20-year demand forecast and made recommendations to monitor long-term needs in the region while providing clear direction on actions required in the near-term.

Recommendations made in the IRRP are summarized in the sections below:

Kanata-Stittsville

- Implement the North Kanata Retrofit Top-Up Program and the North Kanata Smart Thermostat Program, targeted commercial and residential energy efficiency programs – The IESO posted a Request for Proposals for targeted energy efficiency programs in the Ottawa region as part of the Local Initiatives Program[2] under the 2021-2024 CDM Framework. The Request for Proposals, which sought proposals for programs that will deliver approximately 7 MW of peak demand savings in the Kanata-Stittsville area and an additional 7 MW in outside of the area, closed on February 1, 2023. Energy efficiency measures delivered under this program are expected to be installed between 2023 and 2025.
- Improve distribution load transfer capability at the heavily loaded stations Marchwood MTS and Kanata MTS – Ongoing

Southeast Ottawa

- Plan and seek approval for a new 230 kV connected supply station in southeast Ottawa – planning for the new station is underway targeting to be placed in-service in year 2026

Central Ottawa

- Replace transformers T2 and T3 at Slater TS, which are approaching their end-of-life, with larger transformers, approximately 100 MVA, as was done for the recent replacement of T1 – work underway, expected completion in 2024
- Replace transformers T1 and T2 at Albion TS, which are approaching their end-of-life, with similar size transformers – planning underway with an expected completion in 2031-2033

Replace transformers T1 and T2 at Lincoln Heights, which are approaching their end-of-life, with similar size transformers – work underway, expected completion in 2024

Orleans

- Proceed with the like-for-like refurbishment of Bilberry Creek TS, which is approaching its end-of-life, and expand the station to accommodate two additional breaker positions to supply Hydro Ottawa customers – Not proceeding.

In mid-2022, Hydro Ottawa indicated to the TWG that the forecasted demand in the Ottawa Area Sub-region is expected to increase significantly from the demand forecast developed during the previous cycle of regional planning. Further, this increase is expected to have a more profound impact to the loads at the 115 kV connected supply stations. As a result, the TWG decided to re-evaluate the decision to refurbish Bilberry Creek TS and instead re-consider alternatives examined during the 2020 Ottawa Area Sub-region IRRP that can better address both the EOL needs at Bilberry Creek TS as well as addressing broader supply capacity needs on the Ottawa 115 kV System.

[2] More information about the Local Initiatives Program is available on the IESO's Save on Energy website (link)

The IESO, Hydro Ottawa and Hydro One are reviewing an alternative that would result in the decommissioning of the EOL 115 kV connected Bilberry Creek TS and transferring the loads to a new 230 kV connected supply station. The new station would be located south of Bilberry Creek TS and connected to the along the existing D5A/H9A transmission corridor. In addition, the existing Orleans TS will be upgraded and will be able to provide additional supply capacity to accommodate future demand growth. More information regarding the Bilberry Creek and Orleans area work can be found in the 2022 Greater Ottawa Region NA[3]. In addition to providing incremental supply capacity to the Orleans area, these changes will also result in approximately 120 MW of load being transferred from the 115 kV system to the 230 kV system, alleviating some of the capacity issues on the 230-115 kV auto-transformers at Merivale TS and Hawthorne TS.

Regional 115 kV System

- Replacing Merivale T22 with one that is equivalent to T21 – planning underway with an expected completion in 2026-2028
- IESO to conduct a separate study of the Ottawa 115 kV system – study in progress

Study work on the Ottawa 115 kV system is still in progress. Preliminary results indicate that a third 230-115 kV auto-transformer is needed to mitigate overloading of the existing auto-transformers T21 and T22 at Merivale TS. Work on the study will need to continue and reflect the changes in the Orleans area and updated demand forecasts as part of the current cycle of regional planning for Greater Ottawa.

3.3 Transmission Needs

The Greater Ottawa NA report identified a number of transmission system issues that need to be addressed during this cycle of regional planning using a 10-year station level demand forecast developed by the LDCs, updated asset condition information, as well as the conservation and demand management (CDM) and distributed generation (DG) forecast provided by the IESO. The transmission needs and their timing are listed in **Table 1** below. Their location is shown in Figure 3-3.

Table 1. Newly Identified Needs to be Addressed in this Planning Cycle

Need #	Need	Timing	Need Description
1	South March TS: T1/T2 EOL	2030-32	Transformers are nearing EOL and requires replacement in the medium-term
2	Lisgar TS: T1 EOL	2031-33	Transformers are nearing EOL and requires replacement in the medium-term

[3] The 2022 Greater Ottawa Region Needs Assessment report is available on Hydro One's website (link).

Need #	Need	Timing	Need Description
3	S7M EOL	To be confirmed	Two sections of 115 kV circuit S7M are nearing EOL and requires replacement over the near-term
4	Regional 115 kV System Capacity	Beyond 10 year forecast	Auto-transformers at Hawthorne are approaching their long-term emergency ratings and may become overloaded beyond the 10 year forecast period
5	L2M Supply Capacity	2029-2031	Circuit becomes overloaded, additional supply capacity needed
6	Kanata-Stittsville Area Capacity	2027-2031	The transformer stations supplying the Kanata-Stittsville area which include Kanata MTS, Marchwood MTS, and Terry Fox MTS are overloaded, additional supply capacity needed
7	King Edward TS, Riverdale TS, Ellwood MTS, Cyrville MTS, Centrepoint MTS Station Capacity	2022-2029	Various transformer stations across Ottawa becomes overloaded, additional supply capacity needed
8	Voltage on Circuit 79M1	2022	The voltage on circuit 79M1, which supply Rockland DS, Rockland East DS, Clarence DS, Wendover DS, and Hawkesbury MTS, approaches the low voltage limit post-contingency (loss of circuit A2)[4].

[4] The TWG has been monitoring the load growth in the area for the past two cycles of regional planning. As the demand has stayed relatively consistent, no transmission improvements have been planned to address the low voltages on 79M1. Further, the transmission system changes in the Orleans area discussed in section 3.2 mitigates the voltage issues on 79M1 by reducing the loading on the supply circuit.

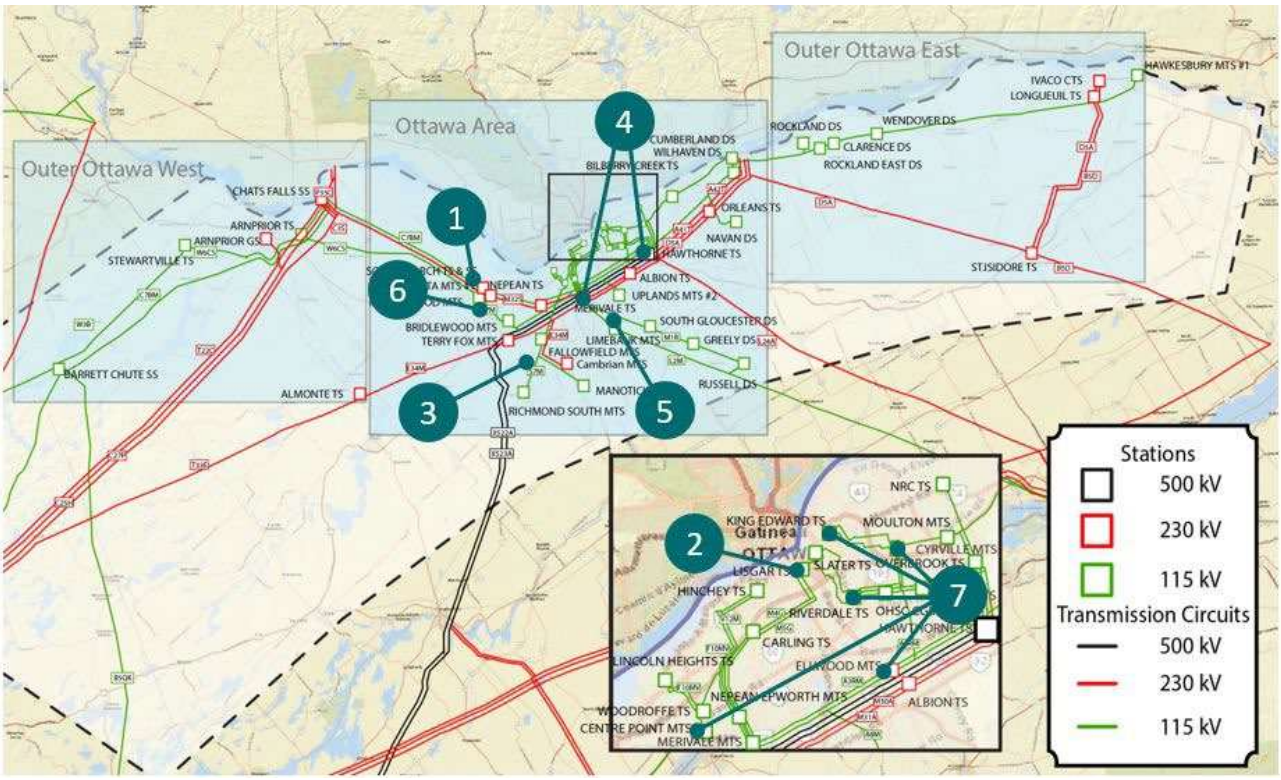


Figure 2. Geographic Location of Needs Identified in the Needs Assessment

3.4 Analysis of Needs

The TWG has outlined the needs in the Greater Ottawa region and potential planning approaches to address them.

South March TS, Lisgar TS – Asset Renewal Need

South March TS is located in the Kanata-Stittsville area and is supplied from 230 kV circuits M32S and C3S. The station has two 230 kV/44 kV, 50/67/83 MVA transformers that were placed in-service in 1971. The transformers are approaching EOL and would need to be replaced around 2030-2032. Additionally, based on the Needs Assessments' non-coincident load forecast, the station's 10-day LTR of 116.2 MW will be exceeded by 2026.

Lisgar TS is located in the City of Ottawa and is supplied by two 115 kV circuits, M4G and M5G. The station has two 115 kV/13.8 kV, 45/60/75MVA transformers, which were placed in-service in 1974. Transformer T2 was replaced in 2011 due to a failure. Based on asset condition, T1 is also in need of replacement by 2031-2033. Additionally, the 10-day LTR of the station is 74.7MW and based on a non-coincident forecast, this capacity is reached in 2026.

The TWG recommends that the capacity need for the area be further reviewed in an IRRP to examine potential opportunities for upsizing transformers when they reach EOL or addressing the overloads using non-wires or energy efficiency.

S7M – Asset Renewal Need

The 115 kV circuit S7M supplies a number of stations in west Ottawa. Sections of S7M are nearing EOL and they are planned for refurbishment in 2024. Additionally, potential load growth has been identified in the area that may reconfiguring or upgrading the transmission supply in the area.

The TWG recommends that the transmission supply for the area be further reviewed in an IRRP to examine potential opportunities for coordinating the EOL needs and supply capacity requirements in the area.

Regional 115 kV System – Capacity Need

The Ottawa 115 kV system supplies approximately 60% of the total Ottawa demand. While the previous recommendation to replace EOL auto-transformer T22 at Merivale TS, and the recent development to reconfigure the supply in the Orleans area will help defer needs in the on the 115 kV system to beyond the 10-year forecast period, additional improvements to the Ottawa 115 kV system will likely be required over the long-term (year 10-20). This may occur earlier under a high growth electrification scenario.

The TWG recommends that the regional 115 kV system be further reviewed in an IRRP to develop a long-term plan for the system. Further improvements to the regional 115 kV system may require improvements with significantly longer lead times to develop (i.e. new transmission lines or new resources).

L2M – Capacity Need

L2M is a 115 kV circuit supplying two stations in southern Ottawa: Limebank MTS and Marionville DS. The two circuits are normally radially supplied by L2M from Merivale TS. Additionally, the circuit extends to the St. Lawrence TS 115 kV network via a normally opened point at Chesterville TS, meaning transfers between the Merivale L2M network and the St. Lawrence L2M network are possible. The circuit is thermally limited to 480A (approximately 86 MW).

In the previous cycle of regional planning, the circuit was identified as reaching its thermal limit in 2029, and several options were considered to address this capacity need. The TWG recommended to wait for the conclusion of the Gatineau Corridor EOL Study and to re-evaluate the L2M capacity need during the next cycle of regional planning since potential supply changes may be recommended by that study. The Gatineau Corridor EOL Study Report was published in December 2022[5] and no supply changes for the area were recommended.

The TWG recommends that the L2M capacity need be further reviewed in an IRRP to examine opportunities for integrated solutions involving both wires and non-wires solutions.

[5] The Gatineau Corridor EOL Study report is available on the IESO website (link).

Kanata-Stittsville – Capacity Need

The Kanata-Stittsville area has experienced significant load growth in recent years. The area is primarily supplied by Kanata MTS, Marchwood MTS, and Terry Fox MTS. Based on a non-coincident forecast, these three stations are expected to be loaded above their long-term emergency ratings for the entire study period. Each station is roughly 10MW overloaded in 2022, increasing to 47MW by 2031.

This area was identified as a high load growth area with possible capacity needs in the previous cycle of regional planning. The TWG recommended to wait for the conclusion of the Gatineau Corridor EOL Study and to re-evaluate the Kanata-Stittsville capacity need during the next cycle of regional planning since potential supply changes may be recommended by that study. As noted earlier, the Gatineau Corridor EOL Study was completed in December 2022, and similarly no supply changes for the Kanata-Stittsville area were recommended. However, the study did recommend that up to 230 MW of energy efficiency measures be pursued over the 20-year forecast period.

The TWG recommends that the Kanata-Stittsville capacity need be further reviewed in an IRRP to further examine the timing of the need due to effects of the recommended energy efficiency measures, and to examine opportunities for integrated solutions involving both wires and non-wires solutions.

Various Stations – Capacity Need

Based on a non-coincident forecast, King Edward TS, Riverdale TS, Ellwood MTS, Cyrville MTS, and Centrepoint MTS are all expected to be loaded above their long-term emergency ratings during the 10-year forecast period.

The TWG recommends that the capacity needs for the identified stations be further reviewed in an IRRP to examine opportunities for integrated solutions involving both wires and non-wires solutions.

Demand Forecast – Electrification/Decarbonization

The 2020 Ottawa sub-region IRRP TWG recommended monitoring the City of Ottawa's Energy Evolution plan and exploring the potential for alignment between integrated regional planning and the Energy Evolution plan. Outreach discussions with the City of Ottawa during the development of the 2020 IRRP also identified the potential for future alignment between Energy Evolution and regional planning.

For the upcoming IRRP, the TWG will engage with stakeholders and communities to ensure growth plans and implementation of decarbonization targets are considered and reflected in the IRRP electricity demand forecast. To help support this work, the City of Ottawa, the local distribution companies, and the IESO will participate in focused discussions on the impacts of Energy Evolution and GHG emission reduction targets on the demand forecast. Outcomes of these discussions seek to inform considerations (e.g., timing, magnitude of electrification, and effective tracking against the energy efficiency plan) that will be used to demand forecast scenario(s) to be contemplated as part of the upcoming Ottawa Area Sub-region IRRP.

Recommendation

Due to the shared geographic impact of the needs identified in the Ottawa Area-sub region, and opportunities which may arise from considering solutions to those needs in a coordinated manner, an IRRP study should be undertaken for the Ottawa Area Sub-region. Due to the number and complexity of needs, the greater number of potential solutions to consider, the potential bulk system impact, the additional EOL opportunities, and the additional engagement needed with stakeholders and communities to ensure growth plans and implementation of decarbonization targets are considered and reflected in the IRRP electricity demand forecast, the full 18-month timeline is expected to be required.

Given that no needs were identified for the Outer Ottawa West and Outer Ottawa East sub-regions, no further coordinated regional planning is necessary for those areas.

4. Conclusions and Next Steps

The Scoping Assessment concludes that an IRRP be undertaken to identify, evaluate and recommend solutions to address the needs identified for the Ottawa Area Sub-region. No further coordinated regional planning is required for the Outer Ottawa East and Outer Ottawa West Sub-regions.

All IRRPs will include opportunities for engagement with local communities and stakeholders, as well as include discussion of any local initiatives focused on energy and/or reducing GHG emissions, and how the IRRP can coordinate with these plans. This could include Community Energy Plans, Net-Zero strategies, or similar. Particular attention will be paid to opportunities for information sharing and/or coordination of goals and outcomes.

The draft Terms of Reference for the Ottawa Area Sub-region IRRP is attached in Appendix 2.

Appendix 1 – List of Acronyms

Acronym	Definition
CDM	Conservation and Demand Management
CTS	Customer Transformer Station
DG	Distributed Generation
DS	Distribution Station
EOL	End of Life
FIT	Feed-in-Tariff
GHG	Green House Gas
GS	Generating Station
IESO	Independent Electricity System Operator
IRRP	Integrated Regional Resource Plan
LDC	Local Distribution Company
LTR	Long-term Emergency Rating
LV	Low Voltage
MTS	Municipal Transformer Station
MVA	Megavolt ampere
MW	Megawatt
NA	Needs Assessment
NERC	North American Electric Reliability Corporation
NPCC	Northeast Power Coordinating Council
OEB	Ontario Energy B

Acronym	Definition
ORTAC	Ontario Resource Transmission Assessment Criteria
RIP	Regional Infrastructure Plan
SA	Scoping Assessment
TS	Transformer Station
TWG	Technical Working Group

Appendix 2 – Ottawa Area Sub-region IRRP Terms of Reference

1. Introduction and Background

These Terms of Reference establish the objectives, scope, key assumptions, roles and responsibilities, activities, deliverables, and timelines for an Integrated Regional Resource Plan of the Ottawa Area Sub-region region.

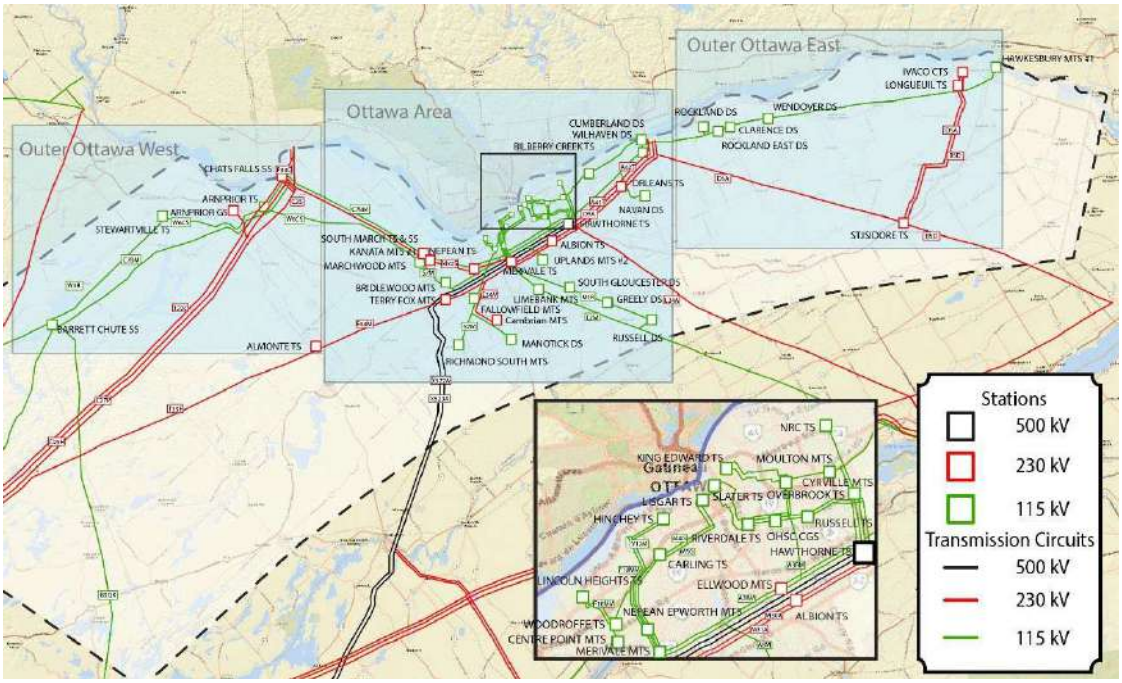
Due to the shared geographic impact of the needs identified in the Ottawa Area-sub region, and opportunities which may arise from considering solutions to those needs in a coordinated manner, an IRRP study should be undertaken for the Ottawa Area Sub-region.

Ottawa Area Sub-region

The Ottawa Area sub-region primarily encompasses the City of Ottawa. Bulk electrical supply to the sub-region is provided through the 500/230 kV autotransformers at Hawthorne TS, a network of 230 kV and 115 kV transmission lines, and two 230/115 kV autotransformer stations at Hawthorne TS and Merivale TS. Local generation in the area comprises of the Ottawa Health Science Non-Utility Generator located near downtown and a number of hydro generation stations on the Ottawa River and the St. Lawrence River. Loads in the area are supplied by eight (8) 230 kV and thirty-three (33) 115 kV transformer stations stepping down to a lower voltage. Two Local Distribution Companies (LDC) – Hydro Ottawa and Hydro One Distribution -provide retail electricity service to load customers in the area. The approximate geographical boundaries of the region are shown in Figure A-3.

The Ottawa Area Sub-region lies within the traditional territory of the Algonquin peoples, including the Algonquins of Pikwakanagan and the communities represented by the Algonquins of Ontario Consultation Office. Ottawa is also home to the MNO Ottawa Region Métis Council. Near Ottawa are the Mohawks of Akwesasne. Ottawa, along with much of southern Ontario, was once the home of the Huron Wendat who are now located in Wendake, Quebec.

Figure A-3 | Overview of the Greater Ottawa Region

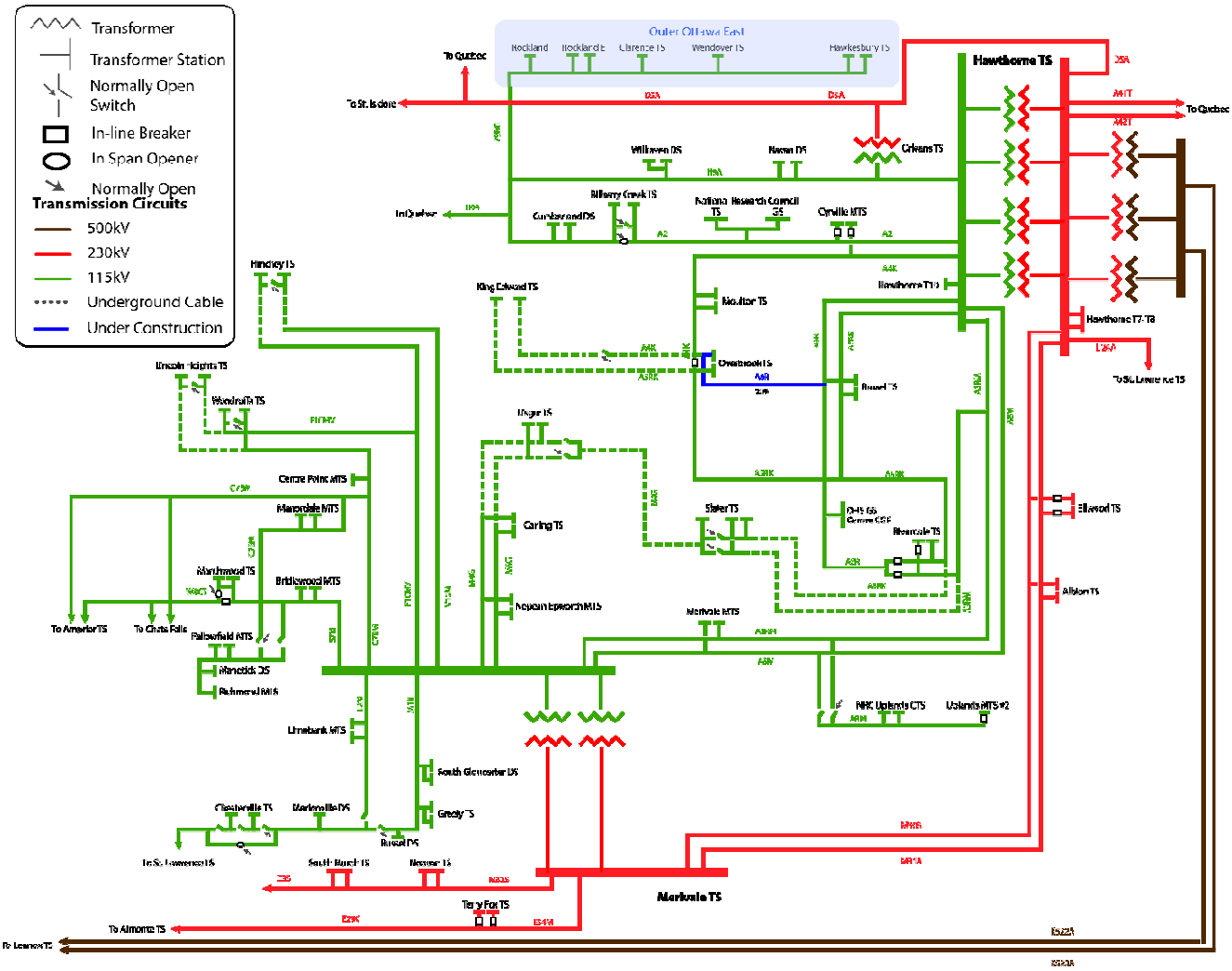


Engagement on this regional plan may be extended to include additional communities outside of the IRRP area boundaries.

Ottawa Area Sub-region Electricity System

The electricity system supplying the Ottawa Area Sub-region is shown in Figure A-4.

Figure A-4 | Ottawa Area Sub-region Electricity System



2. Objectives

1. To assess the adequacy of electricity supply to customers in the Ottawa Area Sub-region over the next 20 years.
2. To develop a flexible, comprehensive, integrated electricity plan for the Ottawa Area Sub-region.
3. To develop an implementation plan, while maintaining flexibility in order to accommodate changes in key assumptions over time.

3. Scope

This IRRP will develop and recommend an integrated plan to meet the needs of the Ottawa Area Sub-region. The plan is a joint initiative involving Hydro One Distribution, Hydro One Transmission, Hydro Ottawa Limited, and the IESO, and will incorporate input from community engagement. The plan will integrate forecast electricity demand growth, conservation and demand management in the area with transmission and distribution system capability, end-of-life of major facilities in the area, relevant community plans, other bulk system developments, and generation uptake, and will develop an integrated plan to address needs.

The following infrastructure is within the scope of this plan:

- **115 kV Stations:** Bilberry Creek TS, Bridlewood MTS, Carling TS, Centerpoint MTS, Cyrville MTS, Fallowfield DS, Greely DS, Hinchey TS, King Edward TS, Limebank MTS, Lincoln Hights TS, Lisgar TS, Manordale MTS, Manotick DS, Marchwood MTS, Marionville DS, Merivale TS, Moulton MTS, National Aeronautical CTS, National Research CTS, Nepean Epworth TS, Orleans TS, Overbrook TS, Richmond DS, Riverdale TS, Russell DS, Russell TS, Slater TS, South Gloucester DS, Uplands MTS, Wilhaven DS, Woodroffe TS
- **230 kV Stations:** Albion TS, Cambrian TS, Ellwood MTS, Hawthorne TS, Kanata MTS, Merivale MTS, Nepean TS, Orleans TS, South March TS, Terry Fox MTS
- **500 kV Stations:** Hawthorne TS
- **115 kV Circuits:** L2M, M1B, S7M, C7BM, F10MV, V12M, M4G, M5G, W8CS, A3RM, A8M, M1G, A5RK, A6R, A4K, 79M1, A2, H9A
- **230 kV Circuits:** E34M, M32S, C3S, M30A, M31A, L24A, A41T, A42T, D5A
- **500 kV Circuits:** X522A, X523A

The Ottawa Area Sub-region IRRP will:

- Prepare a 20-year electricity demand forecast for the appropriate stations and establish needs over this timeframe
- Examine the load meeting capability and reliability of the existing transmission system supplying the Ottawa Area Sub-region, taking into account facility ratings and performance of transmission elements, transformers, local generation, and other facilities such as reactive power devices
- Establish feasible integrated alternatives including a mix of CDM, generation, transmission and distribution facilities, and other electricity system initiatives in order to address the needs of the Renfrew region
- Evaluate options using decision-making criteria including but not limited to: technical feasibility, economics, reliability performance, environmental and social factors

4. Data and Assumptions

The plan will consider the following data and assumptions:

Demand Data

- Historical coincident peak demand information
- Median and extreme weather conditions
- Gross peak demand forecast scenarios
- Forecasted regional coincident peak demand data including transmission-connected customers
- Identified potential future load customers
- Customer/load segmentation information (e.g. residential, commercial, industrial) by TS

Conservation and Demand Management

- Conservation forecast for LDC customers, based on region's share of current energy efficiency programs
- Potential for CDM at transmission-connected customers' facilities

Local resources

- Existing local generation, including distributed generation, district energy, customer-based generation, Non-Utility Generators and hydroelectric facilities as applicable
- Existing or committed renewable generation from [previous] Feed-in-Tariff (FIT) and non-FIT procurements
- Future district energy plans, combined heat and power, energy storage, or other generation proposals

Relevant local plans, as applicable

- LDC Distribution System Plans
- Community Energy Plans and Municipal Energy Plans
- Community Climate Action Plans
- Municipal Growth Plans
- Indigenous Community Energy Plans

Criteria, codes and other requirements

- Ontario Resource and Transmission Assessment Criteria (ORTAC)
- NERC and NPCC reliability criteria, as applicable
- OEB Transmission System Code
- OEB Distribution System Code
- Reliability considerations, such as the frequency and duration of interruptions to customers
- Other applicable requirements

Existing system capability

- Transmission line ratings as per transmitter records
- System capability as per computer simulation results using the current IESO base cases
- Transformer station ratings (10-day LTR) as per asset owner
- Load transfer capability
- Technical and operating characteristics of local generation

End-of-life asset considerations/sustainment plans

- Transmission assets
- Distribution assets
- Other considerations, as applicable

5. Technical Working Group

The core TWG will consist of planning representative/s from the following organizations:

- Independent Electricity System Operator *(Team Lead for IRRP)*
- Hydro One Transmission
- Hydro One Distribution
- Hydro Ottawa Limited

Authority and Funding

Each entity involved in the study will be responsible for complying with regulatory requirements as applicable to the actions/tasks assigned to that entity under the implementation plan resulting from this IRRP. For the duration of the study process, each participant is responsible for their own funding.

6. Engagement

Integrating early and sustained engagement with communities and stakeholders in the planning process was recommended to and adopted by the provincial government to enhance the regional planning and siting processes in 2013. These recommendations were subsequently referenced in the 2013 Long Term Energy Plan. As such, the TWG is committed to conducting plan-level engagement throughout the development of the Ottawa Area Sub-region IRRP.

The first step in engagement will consist of the development of a public engagement plan, which will be made available for comment before it is finalized. The data and assumptions as outlined in Section 4.0 will help to inform the scope of community and stakeholder engagement to be considered for this IRRP.

7. Activities, Timeline, and Primary Accountability

Activity	Lead Responsibility	Deliverable(s)	Timeframe
1. Prepare Terms of Reference considering stakeholder input	IESO	Finalized Terms of Reference	Q2 2023
2. Develop the planning forecast		Long-term planning forecast scenarios	Q2/Q3 2023
Establish historical coincident (for the region) and non-coincident peak demand information	IESO		
Establish weather correction factors for median and extreme conditions	IESO		
Establish gross peak demand forecast	LDCs		
Establish existing, committed and potential DG	IESO, LDCs		
Establish near- and long-term conservation forecast based on planned energy efficiency activities and codes and standards	IESO		
Develop planning forecast scenarios for sensitivity analyses, including focused discussions with the City of Ottawa to develop a decarbonization based forecast scenario to examine the impacts of Energy Evolution and GHG emission reduction targets on electricity demand.	IESO, LDCs, City of Ottawa		
3. Reconfirm load transfer capabilities for stations in the region	LDCs	Load transfer capabilities under normal and emergency conditions	Q2/Q3 2023
4. Provide and review relevant community plans, if applicable	LDCs, First Nations and IESO	Relevant community plans	Q2/Q3 2023

Activity	Lead Responsibility	Deliverable(s)	Timeframe
5. Complete system studies to identify needs - Obtain load flow base case - Apply reliability criteria as defined in ORTAC and other applicable criteria to demand forecast scenarios - Confirm and refine the need(s) and timing/load levels	IESO, Hydro One Transmission	Summary of needs based on demand forecast scenarios for the 20-year planning horizon	Q3/Q4 2023
6. Develop options and alternatives		Develop flexible planning options for forecast scenarios	Q4 2023/Q2 2024
Conduct a screening to identify which non-wires options warrant further analysis	IESO		
Produce hourly forecasts for each transformer station to enable detailed needs characterization and support options development	IESO		
Develop screened-in energy efficiency options	IESO and LDCs		
Develop screened-in local generation/demand management options	IESO and LDCs		
Confirm the transmission and distribution alternatives: advancement of EOL transformer replacement plans and/or load transfers	IESO, Hydro One Transmission and LDCs		
Develop portfolios of integrated alternatives	All		
Technical comparison and evaluation	All		
7. Plan and undertake community & stakeholder outreach and engagement	IESO	Community and Stakeholder Engagement Plan Input from local municipalities, First Nation communities, and Métis organizations	Ongoing

Activity	Lead Responsibility	Deliverable(s)	Timeframe
Early engagement including with local municipalities and First Nation communities within study area, First Nation communities who may have an interest in the study area, and the Métis organizations	All		
Develop communications materials	All		
Undertake community and stakeholder engagement	All		
Summarize input and incorporate feedback	All		
8. Develop long-term recommendations and implementation plan based on community and stakeholder input	IESO	Implementation plan Monitoring activities and identification of decision triggers Procedures for annual review	Q2 2024
9. Prepare the IRRP report detailing the recommended near, medium and long-term plan for approval by TWG	IESO	IRRP report	Q3 2024

Independent Electricity System Operator
1600-120 Adelaide Street West
Toronto, Ontario M5H 1T1

Phone: 905.403.6900
Toll-free: 1.888.448.7777
E-mail: customer.relations@ieso.ca

ieso.ca

@IESO_Tweets
linkedin.com/company/IESO

ieso
Connecting Today.
Powering Tomorrow.

Appendix C: Stakeholders Consultation

Appendix C1: Stakeholders List

Mer Bleue Stakeholder Contact List

Type	Organization	Contact Name	Email	Phone Number	Address	Responsible	Notice of Commencement Date Emailed	Canada Post Tracking Number	Date Mailed	Date Recieved	Sent?
Indeginous communities and groups	Algonquins of Ontario	To whom it may concern	algonquins@tanakiwin.com	(613) 735-3759	31 Riverside Drive, Suite 101, Pembroke, ON K8A 8R6	Communications	December 6, 2024				Yes
	Kitigan Zibi Anishinabeg	Chief Dylan Whiteduck	dylan.whiteduck@kza.qc.ca info@aantc-ctnaa.ca	(819) 449-5170	P.O. Box 309, 1 Paganakomin Mikan, Maniwaki, QC J9E 3C9	Communications	December 6, 2024				Yes
	Ministry of Indigenous Affairs	To whom it may concern	moeccpermissions@ontario.ca			EXP	December 9, 2024				Yes
	Ottawa Metis Council	To whom it may concern	president.ormc@gmail.com	(613) 748-1880 Ext. 306	Suite 400 – 214 Montreal Road, Ottawa, Ontario, K1L 6C9	EXP	December 9, 2024				Yes
Local conservation authority	South Nation Conservation Authority	Michelle Cavanagh James Holland	mcavanagh@nation.on.ca jholland@nation.on.ca	(613) 984-2948	38 Victoria Street. P.O. Box 29, Finch, ON, K0C 1K0	EXP	December 9, 2024				Yes
City of Ottawa	City of Ottawa Planning Department	To whom it may concern	DIOinquiry@ottawa.ca	(613) 580-2400	110 Laurier Avenue West, Ottawa, ON, K1P 1J1	EXP	December 9, 2024				Yes
	Councillor Catherine Kitts (Ward 19)	Catherine Kitts	Catherine.Kitts@ottawa.ca	(613) 580-2489	110 Laurier Avenue West, Ottawa, ON, K1P 1J1	Communications	December 6, 2024				Yes
	Councillor Laura Dudas (Ward 2)	Laura Dudas	Laura.Dudas@ottawa.ca	(613) 580-2472	110 Laurier Avenue West, Ottawa, ON, K1P 1J1	Communications	December 6, 2024				Yes
Community Associations	Chapel Hill South Community Association (Boundaries: Mer Bleue/Innes/Prescott Russell Trail Link)		chapelhillsouth@gmail.com		https://chapelhillsouth.net/	Communications	December 6, 2024				Yes
Industry	Hydro One Networks Inc.	scott.mcnair@hydroone.com, Jayde Suleman, Temesghen Bzuayehu	scott.mcnair@hydroone.com Jayde.Suleman@HydroOne.com temesghen.bzuayehu@hydroone.com	613-318-4667		Communications	December 3, 2024				Yes
Government	Ontario Government EA Notifications	To whom it may concern	ClassEAnotices@ontario.ca eanotification.eregion@ontario.ca			EXP	December 9, 2024				Yes
	Ministry of the Environment, Conservation & Parks	Jon K. Orpana	Jon.Orpana@ontario.ca (eanotification.eregion@ontario.ca)	(613) 548-6918	PO Box 22032, 1259 Gardiners Road, Kingston, Ontario, K7M 8S5	EXP	December 10, 2024				Yes
	Ministry of Municipal Affairs and Housing				777 Bay Street, 17th floor Toronto, Ontario M7A 2J3	EXP					No Response
Study area	Local residents in study area					Communications	December 8, 2024				Yes
	Individuals expressing interest					Communications					

Appendix C2: Notice of Commencement Issued by Emails

Mer Bleue MTS

Notice of Commencement Issued by Emails on December 8, 2024

Councillor: Catherine Kitts was cc'd

Civic Address	Current Use
2179 Mer-Bleue Rd	Commercial
2171 Mer-Bleue Rd	Residential
2159 Mer-Bleue Rd	Vacant Land
2147 Mer-Bleue Rd	Commercial
2139 Mer-Bleue Rd	Residential
2141 Mer-Bleue Rd	Residential
2133 Mer-Bleue Rd	Residential
2127 Mer-Bleue Rd	Commercial
2123 Mer-Bleue Rd	Residential
2115 Mer-Bleue Rd	Residential
2115 Mer-Bleue Rd	Residential
2180 & 2190 Mer-Bleue Rd	Vacant Lands
2170 Mer-Bleue Rd	Snow Disposal Facility
2220 Mer-Bleue Rd	Residential/ Commercial
2201 Mer-Bleue Rd	Residential
2215 Mer-Bleue Rd	Vacant Land
2225 Mer-Bleue Rd	Commercial
3738 Innes Rd	Vacant Land
101 Chaperal Private	Residential
103 Chaperal Private	Residential
105 Chaperal Private	Residential
107 Chaperal Private	Residential
109 Chaperal Private	Residential
111 Chaperal Private	Residential
113 Chaperal Private	Residential
115 Chaperal Private	Residential
117 Chaperal Private	Residential
119 Chaperal Private	Residential
121 Chaperal Private	Residential
123 Chaperal Private	Residential
125 Chaperal Private	Residential
127 Chaperal Private	Residential
129 Chaperal Private	Residential
200 Chaperal Private	Residential
202 Chaperal Private	Residential
204 Chaperal Private	Residential
206 Chaperal Private	Residential
208 Chaperal Private	Residential
210 Chaperal Private	Residential
212 Chaperal Private	Residential

Civic Address	Current Use
521 Chaperal Private	Residential
523 Chaperal Private	Residential
525 Chaperal Private	Residential
527 Chaperal Private	Residential
529 Chaperal Private	Residential
600 Chaperal Private	Residential
602 Chaperal Private	Residential
604 Chaperal Private	Residential
606 Chaperal Private	Residential
608 Chaperal Private	Residential
610 Chaperal Private	Residential
612 Chaperal Private	Residential
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616 Chaperal Private	Residential
618 Chaperal Private	Residential
620 Chaperal Private	Residential
622 Chaperal Private	Residential
624 Chaperal Private	Residential
626 Chaperal Private	Residential
628 Chaperal Private	Residential
379 Gerry Lalonde Dr	Residential
381 Gerry Lalonde Dr	Residential
383 Gerry Lalonde Dr	Residential
385 Gerry Lalonde Dr	Residential
387 Gerry Lalonde Dr	Residential
389 Gerry Lalonde Dr	Residential
391 Gerry Lalonde Dr	Residential
393 Gerry Lalonde Dr	Residential
395 Gerry Lalonde Dr	Residential
397 Gerry Lalonde Dr	Residential
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409 Gerry Lalonde Dr	Residential
411 Gerry Lalonde Dr	Residential
413 Gerry Lalonde Dr	Residential
415 Gerry Lalonde Dr	Residential
417 Gerry Lalonde Dr	Residential

214 Chaperal Private	Residential
216 Chaperal Private	Residential
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511 Chaperal Private	Residential
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515 Chaperal Private	Residential
517 Chaperal Private	Residential
519 Chaperal Private	Residential

419 Gerry Lalonde Dr	Residential
421 Gerry Lalonde Dr	Residential
423 Gerry Lalonde Dr	Residential
425 Gerry Lalonde Dr	Residential
427 Gerry Lalonde Dr	Residential
429 Gerry Lalonde Dr	Residential
431 Gerry Lalonde Dr	Residential
600 Trigoria Cres	Residential
602 Trigoria Cres	Residential
604 Trigoria Cres	Residential
606 Trigoria Cres	Residential
608 Trigoria Cres	Residential
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612 Trigoria Cres	Residential
614 Trigoria Cres	Residential
628 Trigoria Cres	Residential
100 Livorno Crt	Residential
101 Livorno Crt	Residential
102 Livorno Crt	Residential
104 Livorno Crt	Residential
106 Livorno Crt	Residential
108 Livorno Crt	Residential
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122 Livorno Crt	Residential
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125 Livorno Crt	Residential
126 Livorno Crt	Residential
127 Livorno Crt	Residential
128 Livorno Crt	Residential
129 Livorno Crt	Residential

Appendix C3: Notice of Commencement

Mer-Bleue Municipal Transformation Station

Notice of commencement of class environmental assessment and invitation to community information session

We're planning now to meet your future electricity needs

To ensure Ottawa's eastern region has the power to grow, Hydro Ottawa Limited (Hydro Ottawa) has initiated a Class Environmental Assessment (Class EA) for a new 27.6 kV municipal transformer station (MTS) in Orléans.

This project will support projected growth in electricity demand for the area and provide redundancy to our system in the event of future extreme weather events. The Mer-Bleue Municipal Transformer Station (MTS) is one of many future-planning projects we are spearheading to support growth and grid resilience, and to make the electricity system as clean, and as modern as possible.

The need for new facilities was identified through the Integrated Regional Resource Plan (IRRP) for the Ottawa eastern region. Released in March 2020 and revised in 2024, the IRRP is a twenty-year plan that has been developed by a regional planning working group consisting of the Independent Electricity System Operator (IESO), Hydro Ottawa and Hydro One.

The Mer-Bleue Municipal Transformer Station project proposal

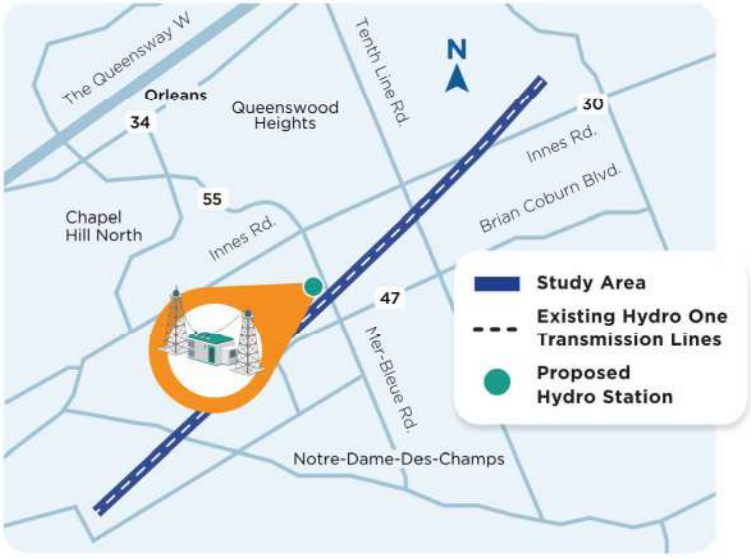
- To construct a new 27.6kV municipal transformer station (MTS) on the west side of Mer-Bleue Road and approximately 300 metres north west of Mer-Bleue Road and Brian Coburn Boulevard intersection.
- To connect the new power station to Hydro One's existing 230kV transmission power line located to the south of the station.

Planning and approvals

The Mer-Bleue Municipal Transformer Station is being planned in accordance with the Environmental Assessment Act of Ontario and developed in compliance with the Class EA for Minor Transmission Facilities. The Class EA is a streamlined process to ensure that smaller transmission facility projects with a known range of effects are planned and executed in an efficient and environmentally responsible way. It is anticipated that construction on the new station could begin in August 2025 and be in-service by May 2027 (pending the resolution of the Class EA procedure and other permits).

We look forward to speaking with you

Consultation is an important part of the Class EA process and our commitment to keeping our customers informed. As such, you are invited to attend one of our upcoming community information sessions to learn about the project, speak directly with members of our project team, and provide your feedback.



For your reference, the map of the study area shows the existing Hydro One transmission lines, as well as the proposed location of the new station (pending approvals).

Please join us at one of our sessions

VIRTUAL INFORMATION SESSION

Thursday, January 16, 2025
12:15 pm - 1:00 pm

Visit **hydroottawa.com/merbleue** to register for our virtual event.

IN-PERSON INFORMATION SESSION

Thursday, January 16, 2025
6:45 pm - 8:00 pm

Queenswood Heights Community Centre
1485 Duford Drive, Orléans

For more information

If you have questions, or would like to join our contact list for email updates, please visit our website or reach out to our Mer-Bleue Municipal Transformer Station team at:

Email: merbleue@hydroottawa.com **Project website:** hydroottawa.com/merbleue

At the request of the Ministry of the Environment, Conservation and Parks, information regarding the Freedom of Information and Protection of Privacy Act is included and can be viewed below.

Freedom of Information and Protection of Privacy Act

All personal information included in a submission – such as name, address, telephone number and property location – is collected, maintained and disclosed by the Ministry of the Environment, Conservation and Parks for the purpose of transparency and consultation. The information is collected under the authority of the Environmental Assessment Act or is collected and maintained for the purpose of creating a record that is available to the general public as described in s. 37 of the Freedom of Information and Protection of Privacy Act. Personal information you submit will become part of a public record that is available to the general public unless you request that your personal information remain confidential. For more information, please contact the Ministry of the Environment, Conservation and Parks' Freedom of Information and Privacy Coordinator at 416-327-1434.

Poste de transformation municipal Mer-Bleue

Avis de démarrage d'une évaluation environnementale et invitation à une séance d'information

Nous planifions aujourd'hui pour répondre à vos besoins d'électricité de demain

Afin de s'assurer que le secteur est d'Ottawa ait suffisamment d'électricité pour soutenir sa croissance, Hydro Ottawa limitée (Hydro Ottawa) a amorcé une évaluation environnementale de portée générale (EE) relativement à la construction d'un nouveau poste de transformation municipal (PTM) de 27,6 kV à Orléans.

Ce projet contribuera à répondre à la croissance prévue de la demande d'électricité dans le secteur et procurera une redondance à notre réseau en cas d'événements météo extrêmes. Le poste de transformation municipal (PTM) Mer-Bleue est l'un des nombreux projets porteurs d'avenir que nous planifions pour soutenir la croissance de la région et la résilience du réseau ainsi que pour rendre nos infrastructures électriques aussi propres et modernes que possible.

La nécessité de nouvelles installations a été mise en lumière par le Plan intégré des ressources régionales (PIRR) pour le secteur est d'Ottawa. Publié en mars 2020 et révisé en 2024, le PIRR est un plan de 20 ans qui a été élaboré par un groupe de travail consacré à la planification régionale, constitué de la Société indépendante d'exploitation du réseau d'électricité (SIERE), d'Hydro Ottawa et d'Hydro One.

Proposition de projet de poste de transformation municipal Mer-Bleue

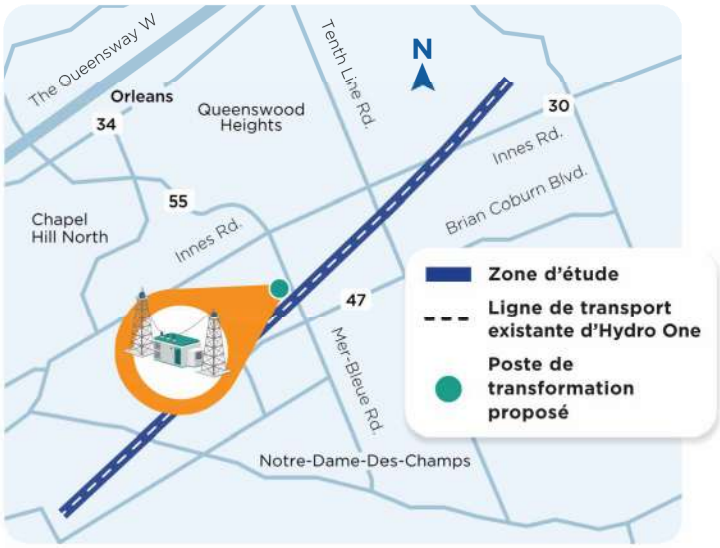
- Construction d'un nouveau poste de transformation municipal (PTM) de 27,6 kV du côté ouest du chemin Mer-Bleue et à environ 300 mètres au nord-ouest de l'intersection entre le chemin Mer-Bleue et le boulevard Brian-Coburn.
- Raccordement du nouveau poste à la ligne de transport existante de 230 kV d'Hydro One, située au sud du poste.

Planification et approbations

Le poste de transformation municipal Mer-Bleue fait l'objet d'une planification en conformité avec la Loi sur les évaluations environnementales de l'Ontario, et son développement est conforme à l'évaluation environnementale de portée générale (EE) relative aux installations de transmission secondaires. Cette EE est un processus simplifié conçu pour veiller à ce que les projets d'installations de transport plus petites, dont la portée des effets est connue, soient planifiés et réalisés d'une manière efficace et écoresponsable. La construction du nouveau poste pourrait commencer en août 2025, pour une mise en service d'ici mai 2027 (sous réserve de l'issue du processus d'EE et de l'obtention d'autres permis).

Nous tenons à en discuter avec vous

La consultation est un élément important du processus d'EE et de notre engagement à tenir nos clients bien informés. Par conséquent, nous vous invitons à assister à l'une de nos séances d'information pour en savoir davantage sur le projet, parler directement aux membres de notre équipe de projet et émettre vos commentaires.



Pour votre information, la carte de la zone d'étude fait état de la ligne de transport existante d'Hydro One ainsi que de l'emplacement où pourrait se trouver le nouveau poste (sous réserve des approbations).

Veuillez vous joindre à nous lors d'une de ces séances :

SÉANCE D'INFORMATION VIRTUELLE

Jeudi 16, janvier 2025
12 H 15 à 13 H

Pour vous inscrire à notre événement virtuel, visitez **hydroottawa.com/fr/merbleue**

SÉANCE D'INFORMATION EN PERSONNE

Jeudi 16, janvier 2025
18 H 45 à 20 H

Centre communautaire Queenswood Heights
1485, promenade Duford, Orléans

Pour obtenir plus d'information

Si vous avez des questions ou souhaitez vous inscrire à notre liste de mises à jour par courriel, visitez notre site Web ou contactez notre équipe responsable du poste de transformation municipal Mer-Bleue à :

Courriel : merbleue@hydroottawa.com **Page Web du projet :** hydroottawa.com/fr/merbleue

À la demande du ministère de l'Environnement, de la Protection de la nature et des Parcs, nous incluons ci-dessous de l'information relative à la Loi sur l'accès à l'information et la protection de la vie privée.

Loi sur l'accès à l'information et la protection de la vie privée

Tous les renseignements personnels indiqués dans une demande – comme un nom, une adresse, un numéro de téléphone et l'emplacement d'une propriété – sont recueillis, conservés et divulgués par le ministère de l'Environnement, de la Protection de la nature et des Parcs à des fins de transparence et de consultation. Les renseignements sont recueillis avec l'autorisation de la Loi sur les évaluations environnementales ou sont recueillis et conservés aux fins de la création d'un dossier qui est accessible par le grand public, tel que décrit à l'article 37 de la Loi sur l'accès à l'information et la protection de la vie privée. Les renseignements personnels que vous fournissez feront partie d'un dossier public accessible par le grand public, sauf si vous demandez que vos renseignements personnels demeurent confidentiels. Pour obtenir davantage d'information, veuillez contacter la personne qui coordonne l'accès à l'information et la protection de la vie privée au ministère de l'Environnement, de la Protection de la nature et des Parcs au 416 327-1434.

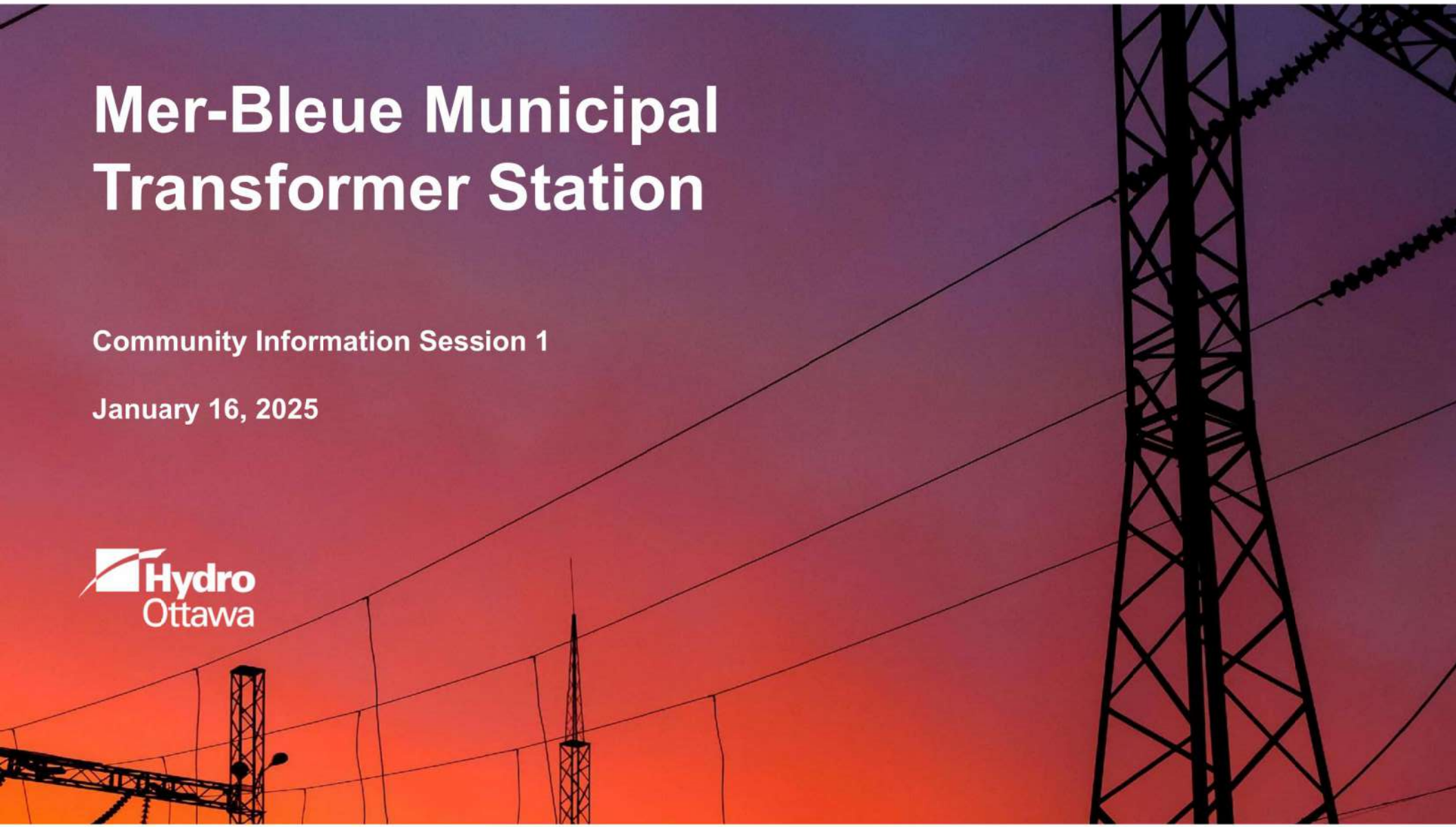
Appendix C4: First Public Open House Session Panel

Mer-Bleue Municipal Transformer Station

Community Information Session 1

January 16, 2025

Hydro Ottawa



Outline

Welcome to our community information session

- Energy partners
- How electricity is delivered to your community
- Community benefits
- Anticipated project schedule
- What's being proposed
- Where - Project area map
- Environmental Assessment
- Next steps
- Your input is important to us / Thank you

Hydro Ottawa

Partners

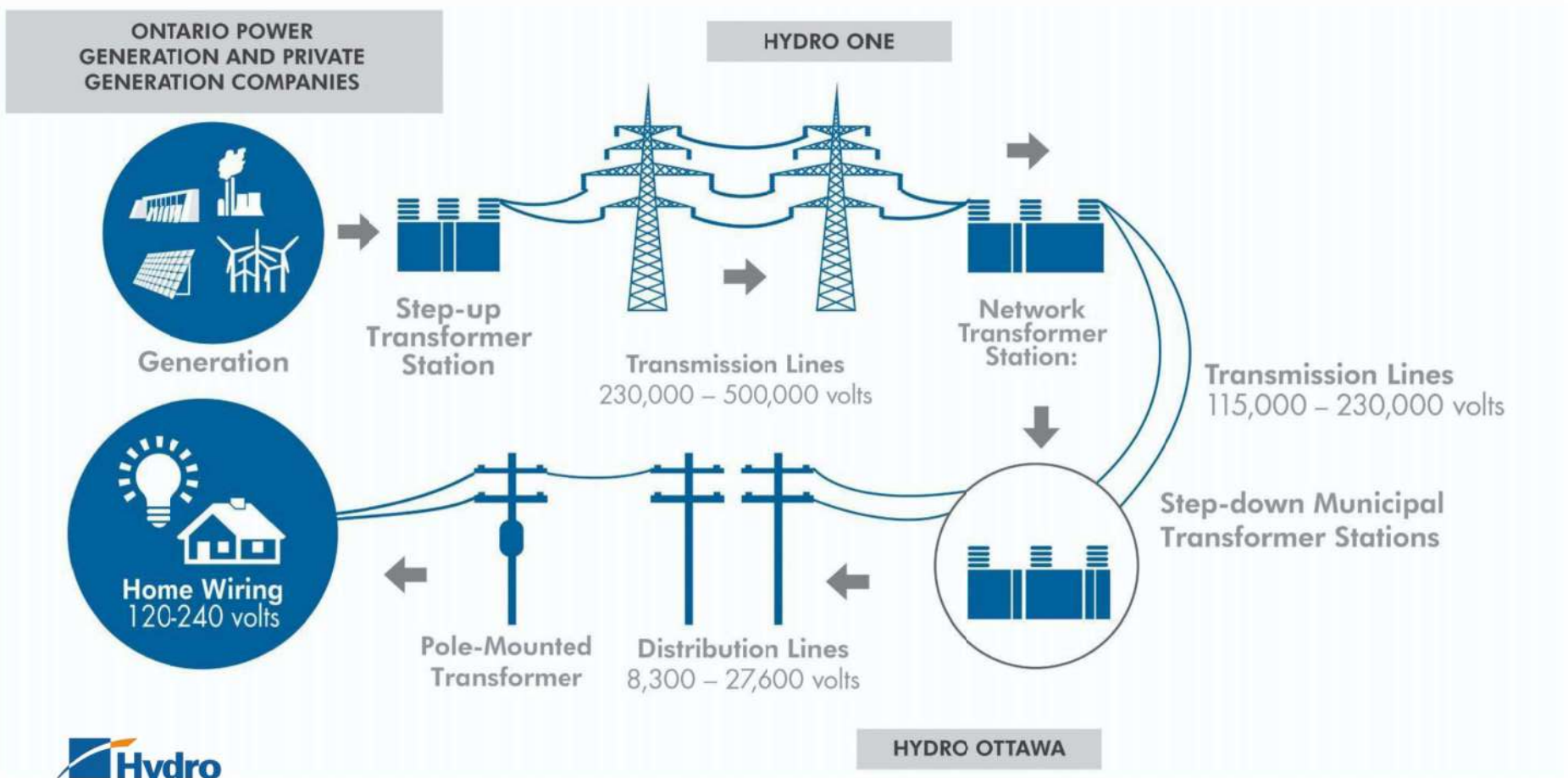
Hydro Ottawa
Builds, owns, operates and maintains the distribution of electricity facilities to more than 364,000 homes and businesses in Ottawa and Casselman.

Hydro One Networks Inc.
Builds, owns, operates and maintains the electricity transmission and distribution facilities across Ontario.

Independent Electricity System Operator
Operates the provincial electricity system, and is responsible for planning to ensure electricity needs are met both now and in the future.

Ministry of the Environment, Conservation and Parks
The legislative authority responsible for environmental assessments in the province of Ontario.

Electricity



Hydro Ottawa

Benefits

Community benefits

- The Mer-Bleue Municipal Transformer Station (MTS) project is part of Hydro Ottawa's future planning to modernize our grid, ensure a clean and reliable electricity supply, and meet the projected growth in electricity demand for new and existing customers in the east.
- By investing in new technology for the electricity grid, customers will be further protected from prolonged outages caused by extreme weather-related events.
- In response to population growth and the electrification of heating and transportation in our community, Hydro Ottawa is embarking on the largest grid investment program in its history in order to support our customers as they transition to an increasingly electrified way of life.
- A reliable source of electricity is essential to supporting community growth - powering homes, schools, businesses, and transportation.

Hydro Ottawa

What's being proposed



Hydro Ottawa

What's being proposed

- To meet future electricity needs responsibility, this project proposes:
  - to construct a new 27.6kV municipal transformer station (MTS) on the west side of Mer-Bleue Road, located 300 metres north west of the intersection at Brian Coburn Boulevard; and
  - to connect the new power station to Hydro One's existing 230kV transmission line, located south of the proposed station.
- As part of our sustainability commitments, Hydro Ottawa intends to develop Mer–Bleue as a low-carbon substation.
- We are currently undertaking a full project review of the station's construction, including an innovative design, procurement and construction techniques that include using lower Global Warming Potential (GWP) materials, and equipment that will address embodied carbon associated with the construction and operation of the substation.

Hydro Ottawa

Where



Hydro Ottawa

Mer-Bleue Municipal Transformer Station

Anticipated Project Schedule

Schedule

March 2020	The need for a new station is identified in the twenty-year Integrated Regional Resource Plan by Hydro Ottawa, Hydro One and the Independent Electricity System Operator. (IESO)
April 2023	Orléans area planning study performed by the IESO.
January 2024	Developement work begins, including planning, pre-construction studies and identifying possible site locations for the new station.
September 2024 - March 2025	**Environmental Assessment.**
July 2025	Pre-construction planning.
July 2025	Third series of community information sessions (pre-construction).
August 2025	Anticipated start of construction.
April 2027	Target in-service date for new facility.

Class Environmental Assessment for Minor Transmission Facilities Schedule

December 2024	Notice of commencement of Class Environmental Assessment (Class EA).
January 2025	First series of community information sessions.
April 2025	Notice of completion of draft Environmental Study Report (ESR).
April 2025	Second series of community information sessions.
May 2025	Public review and comment period for draft Environmental Study Report.
June 2025	Submit final Environmental Study Report to the Ministry of the Environment, Conservation and Parks.

Hydro Ottawa

Environmental Assessment

This class environmental assessment sets out a planning process for specific minor transmission line and transmission station projects. Potential effects of the project will be examined through a number of detailed studies, taking into consideration factors relating to:

- The natural and socio-economic environments;
- cultural/heritage resources;
- recreational resources;
- existing and planned land uses;
- visual landscapes;
- technical/cost considerations; and
- the concerns and interests of local business and residential property owners, Indigenous communities, government agencies and other interested parties.

Hydro Ottawa

Process

Environmental Assessment *Cont'd*

A number of natural environment field studies will be undertaken in the project area as part of the Class EA process. This will include:

- Species at Risk (SAR) surveys, as required by government agencies;
- ecological land classification;
- botanical and tree surveys;
- aquatic habitat assessments;
- incidental wildlife observations; and,
- potential significant wildlife habitat mapping.

Where effects on the natural environment cannot be avoided, appropriate mitigation measures will be proposed.

Hydro Ottawa

What happens next

Following this community information session, the project team will:

- Consider all feedback received from stakeholders and respond to inquiries in a timely manner.
- Complete the Environmental Study Report (ESR)
  - The ESR is part of the Class EA process
  - a draft version of the ESR will be made available for review
  - Notifications will be sent out when the draft ESR is available
- Host a second community information session about the ESR, its finding, and gather input from stakeholders

Next Steps

Hydro Ottawa

Your input is important to us

Thank you for joining us at our community information session.

We will continue to provide early, ongoing and respectful communications about the project and our plans.

Your feedback during the consultation process will be used to refine our project implementation plans and determine appropriate ways to minimize and mitigate impacts, where feasible.

We are committed to working together to achieve a successful outcome for the community.

Hydro Ottawa

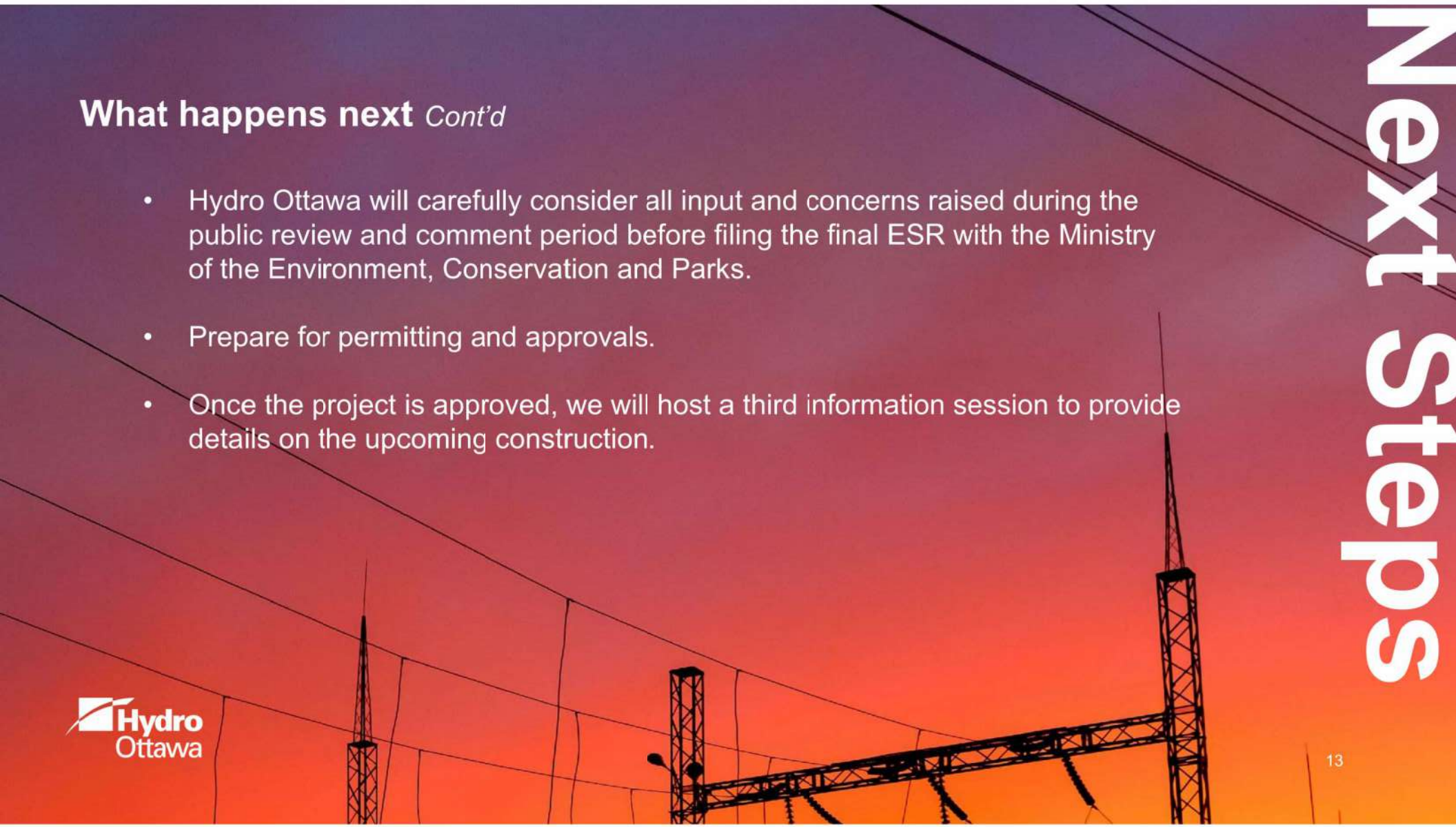
Join our project mailing list:
merbleue@hydroottawa.com

Visit our website for updates:
hydroottawa.com/merbleue

Thank you

What happens next *Cont'd*

- Hydro Ottawa will carefully consider all input and concerns raised during the public review and comment period before filing the final ESR with the Ministry of the Environment, Conservation and Parks.
- Prepare for permitting and approvals.
- Once the project is approved, we will host a third information session to provide details on the upcoming construction.



Next Steps

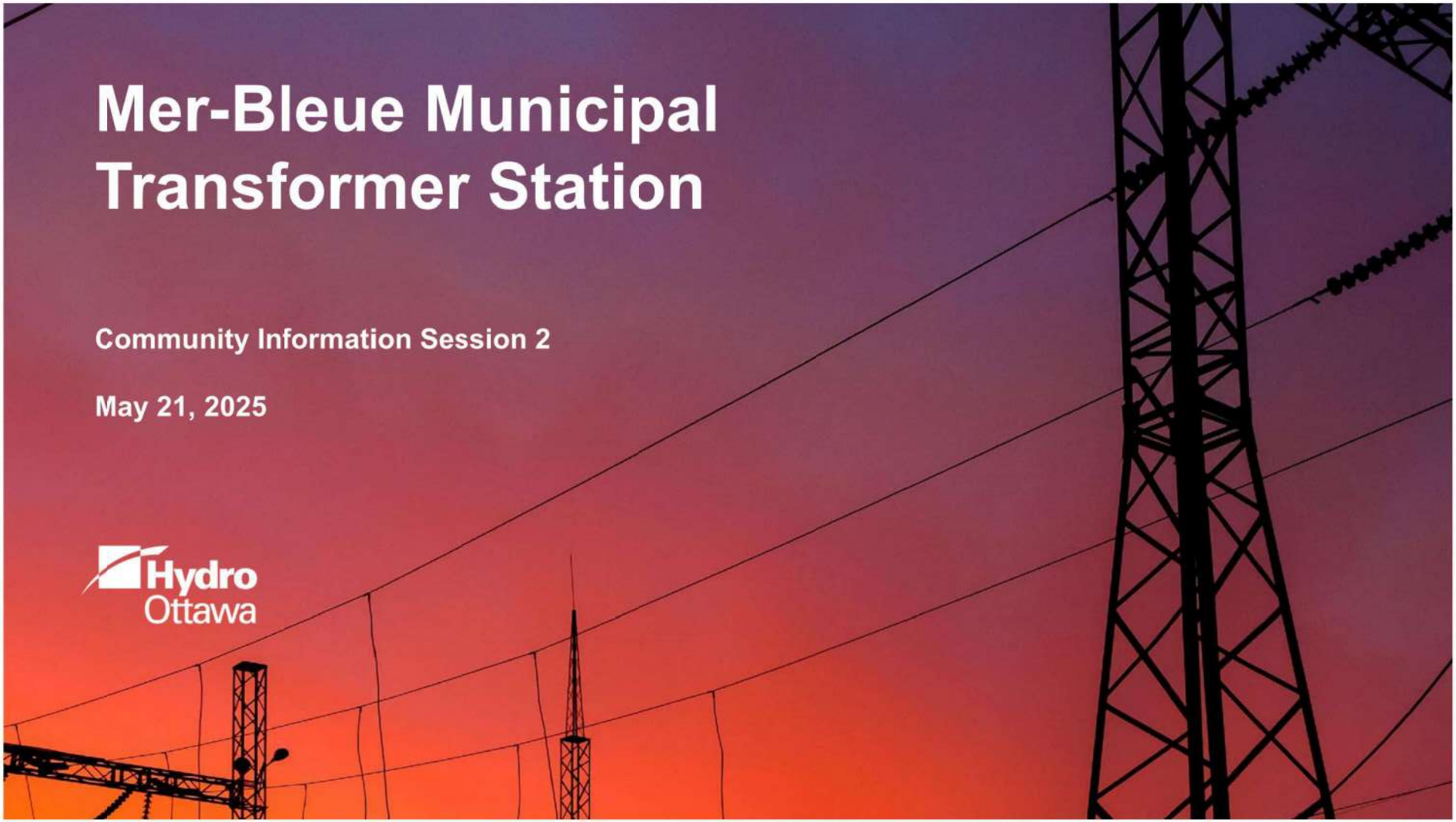
Hydro Ottawa

Appendix C5: Second Public Open House Session Panel

Mer-Bleue Municipal Transformer Station

Community Information Session 2

May 21, 2025



Outline

Welcome to our community information session

- Energy partners
- How electricity is delivered to your community
- Community benefits
- What's being proposed
- Where - Project area map
- Environmental Assessment process and study findings
- Next steps
- Anticipated project schedule
- Your input is important to us / Thank you

Hydro Ottawa

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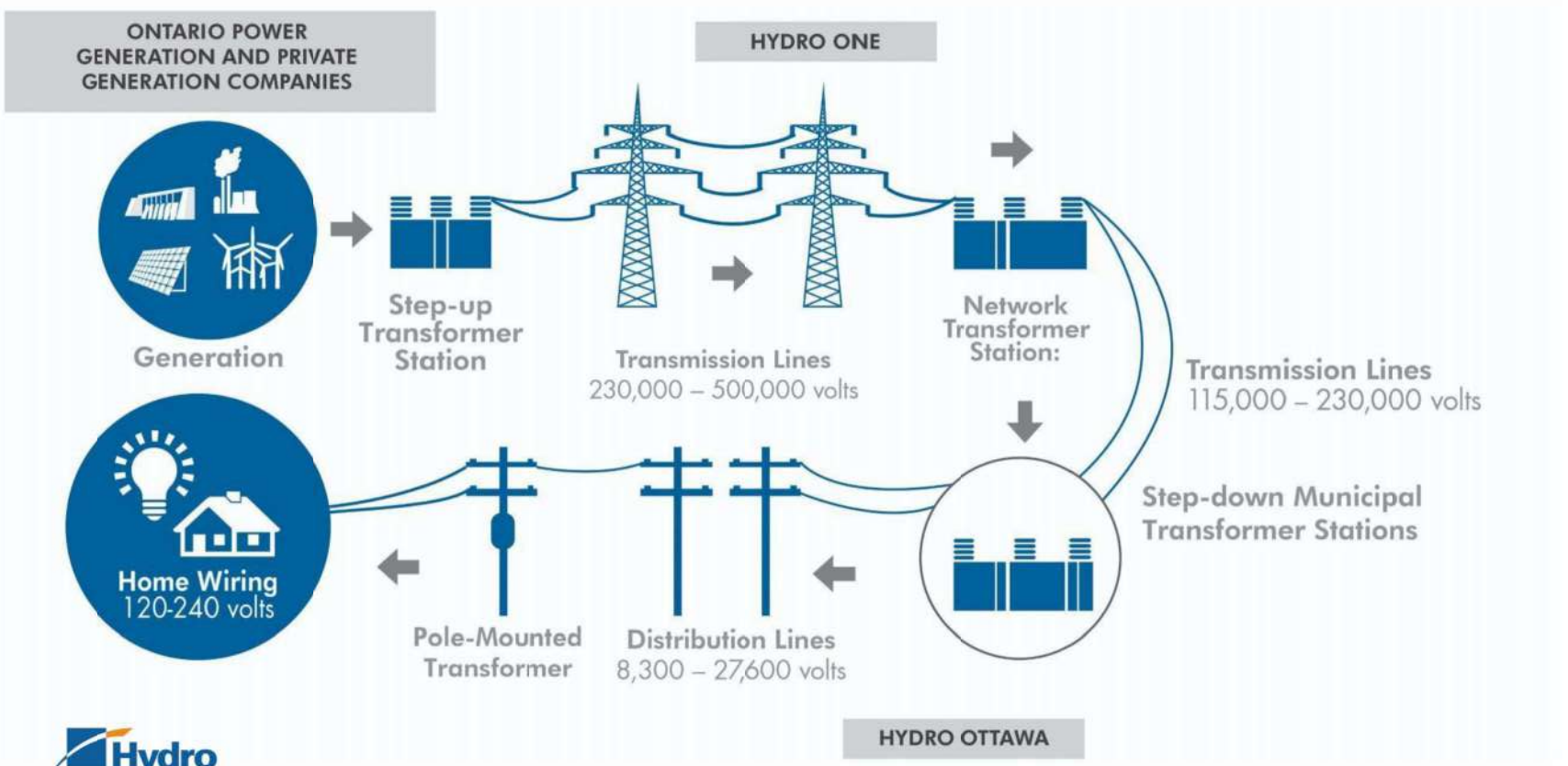

Community benefits

- The Mer-Bleue Municipal Transformer Station (MTS) project is part of Hydro Ottawa's future planning to modernize our grid, ensure a clean and reliable electricity supply, and meet the projected growth in electricity demand for new and existing customers in the east.
- By investing in new technology for the electricity grid, customers will be further protected from prolonged outages caused by extreme weather-related events.
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Benefits

Hydro Ottawa

What's being proposed



Hydro Ottawa

What's being proposed

- To meet future electricity needs responsibility, this project proposes:
  - to construct a new 27.6kV municipal transformer station (MTS) on the west side of Mer-Bleue Road, located 300 metres north west of the intersection at Brian Coburn Boulevard; and
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- As part of our sustainability commitments, Hydro Ottawa intends to develop Mer–Bleue as a low-carbon substation.
- We are currently undertaking a full project review of the station's construction, including an innovative design, procurement and construction techniques that include using lower Global Warming Potential (GWP) materials, and equipment that will address embodied carbon associated with the construction and operation of the substation.

Hydro Ottawa

Where



Hydro Ottawa

Environmental Assessment

This class environmental assessment sets out a planning process for specific minor transmission line and transmission station projects. Potential effects of the project will be examined through a number of detailed studies, taking into consideration factors relating to:

- The natural and socio-economic environments;
- cultural/heritage resources;
- recreational resources;
- existing and planned land uses;
- visual landscapes;
- technical/cost considerations; and
- the concerns and interests of local business and residential property owners, Indigenous communities, government agencies and other interested parties.

Hydro Ottawa

Environmental Assessment *Cont'd*

A number of natural environment field studies will be undertaken in the project area as part of the Class EA process. This will include:

- Species at Risk (SAR) surveys, as required by government agencies;
- ecological land classification;
- botanical and tree surveys;
- aquatic habitat assessments;
- incidental wildlife observations; and,
- potential significant wildlife habitat mapping.

Where effects on the natural environment cannot be avoided, appropriate mitigation measures will be proposed.

Hydro Ottawa

Environmental Study Report findings

The execution of this assessment was entrusted to a licensed archaeologist, who produced the complete Archaeological Stage 1 and 2 Report. The following summary outlines the notable findings.

- The results of the background research discussed by the archaeological consultant in the Archeological Stage 1 Report indicated that the study area exhibited potential for the presence of significant archaeological resources.
- Consequently, the archeological consultant recommended that areas of the study site showing archaeological potential should undergo a Stage 2 archaeological assessment before any sub-surface soil disturbances or other alterations are initiated in the future.
- The Stage 2 Archaeological field survey has confirmed that there are no archaeological resources of concern, ensuring that there is no need for any additional archaeological assessment in the study area.

Archeology

Environmental Study Report findings *Cont'd*

The project site was assessed by a professional biologist. The following summary outlines the notable findings.

Results:

- No Species at Risk (SAR) birds were detected or audibly identified from the August 2023 survey.
- No significant animal movement corridors exist on the project site.
- Additionally, no evidence of SAR presence or any indications thereof were recorded during the surveys.
- Butternut trees were not observed on the project site.
- There were no sightings of SAR insects or appropriate host plants.
- The surveys did not reveal the presence of reptiles or suitable turtle habitats.
- Furthermore, evening exit surveys yielded no observations of bats roosting in trees with cavities, and no SAR bats were identified.

What happens next

Following this community information session, the project team will:

- Consider all feedback received from stakeholders and respond to inquiries in a timely manner.
- Complete the Environmental Study Report (ESR)
  - The ESR is part of the Class EA process;
  - Address and/or document any outstanding concerns; and
  - Issue the final ESR following the review period and incorporate feedback received from stakeholders.
- Prepare for permitting and approvals.
- Host a pre-construction community information session.

Hydro Ottawa

Next Steps

Schedule

Mer-Bleue Municipal Transformer Station

Anticipated Project Schedule

March 2020	The need for a new station is identified in the twenty-year Integrated Regional Resource Plan by Hydro Ottawa, Hydro One and the Independent Electricity System Operator. (IESO)
April 2023	Orléans area planning study performed by the IESO.
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Class Environmental Assessment for Minor Transmission Facilities Schedule

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Hydro Ottawa

Your input is important to us

Thank you for joining us at our community information session.

We will continue to provide early, ongoing and respectful communications about the project and our plans.

Your feedback during the consultation process will be used to refine our project implementation plans and determine appropriate ways to minimize and mitigate impacts, where feasible.

We are committed to working together to achieve a successful outcome for the community.

Hydro Ottawa

Join our project mailing list:
merbleue@hydroottawa.com

Visit our website for updates:
hydroottawa.com/merbleue

Thank you

Appendix D: Environmental Features in the Study Area

Appendix D1: Archaeological Assessment Due Diligence Report, Past Recovery Archaeological Services Inc. 2024

Past Recovery
Archaeological Services Inc.
99C Dufferin Street, Unit 1
Perth, ON K7H 3A5
Phone: 613-267-7028
Email: pras@pastrecovery.com
Website: www.pastrecovery.com

October 18th, 2024

Gaëtan Beauchesne, P.Eng.
Senior Project Manager, Water/Wastewater
EXP
2650 Queensview Drive, Suite 100
Ottawa, ON K2B 8H6

Re: Ottawa Hydro Mer Bleue MTS Class EA for Minor Transmission Facilities Archaeological Assessment Due Diligence Report

Dear Gaëtan:

The following is a brief review of the archaeological assessment presented in *Stage 1 Archaeological Assessment East Urban Community Centre (EUC) Project Community Design Plan (CDP) Lots 1-4 Concession 3 Geographic Township of Gloucester and Lots 1-2 Concession 11 Geographic Township of Cumberland City of Ottawa Ontario* (Golder Associates Ltd. 2016) with the aim of determining that the work was to current standards and that the archaeological potential determination and recommendations as they apply to the property above are accurate and adequate to satisfy the current requirements of the *Class Environmental Assessment for Minor Transmission Facilities* being completed by EXP.

Study Area

The proposed location for the new Ottawa Hydro substation consists of a 1.6 ha parcel of currently regenerating former farmland on the west side of Mer Bleue Road (part of the larger property at 2180 Mer Bleue Road), on part of Lot 1, Concession 3, Ottawa Front, of the geographic Township of Gloucester, now part of the City of Ottawa (Figures 1 and 2). The study area is currently bordered to the north by additional land in the property parcel, to the east by Mer Bleue Road, to the south by an Ontario Hydro corridor and to the west by a bermed City of Ottawa snow removal storage facility.

Previous Archaeological Assessments

An archaeological management plan was completed for the City of Ottawa in 1999 (Archaeological Services Inc. and Geomatics International Inc. 1999). Known as the *Ottawa Archaeological Master Plan*, the plan was created for the use of City planning staff to support the implementation of municipal policies and procedures for identifying and conserving archaeological resources. The project included the production of both pre-

and post-Contact archaeological potential mapping, generated through the use of a deductive model to appropriately weight a variety of environmental (e.g. water, soils) and historical factors. The mapping produced by this study did not identify the present study area as exhibiting archaeological potential. It should be noted, however, that the methods and conclusions in this study would not be considered sufficient under current provincial standards for archaeological assessments (Ontario Ministry of Citizenship and Multiculturalism or MCM 2011).

In contrast, a previous archaeological assessment titled *Stage 1 Assessment Mer Bleue Road Widening Class Environmental Assessment, City of Ottawa, Regional Municipality of Ottawa-Carleton, Ontario* was completed by Archaeological Services Inc. (the same firm who undertook the *Ottawa Archaeological Master Plan* modelling) on behalf of the City of Ottawa in 2006. The current study area at the time consisted of regenerating abandoned agricultural field. This assessment indicated that the proposed hydro substation study area retained moderate archaeological potential requiring Stage 2 assessment, based on the proximity of Mer Bleue Road and nineteenth century structures in the vicinity, as well as the potential for relict streambeds providing drainage during the pre-Contact era. This study has been entered into the provincial registry of archaeological reports, indicating that it has been accepted by MCM. Once again, however, it should be noted that the report pre-dates the current provincial standards for archaeological assessments (MCM 2011).

A previous archaeological assessment titled *Stage 1 Archaeological Assessment East Urban Community Centre (EUC) Project Community Design Plan (CDP) Lots 1-4 Concession 3 Geographic Township of Gloucester and Lots 1-2 Concession 11 Geographic Township of Cumberland City of Ottawa Ontario* was completed for a large area including the present study area by Golder Associates Ltd. in 2016. This study was undertaken for the proposed East Urban Community Mixed Use Centre put forward by Richcraft Homes Ltd., in support of a *Community Design Plan* under Schedule B of the City of Ottawa's *Official Plan* application under the *Planning Act* and Section 2.6 of the *Provincial Policy Statement* (2005). The current *Standards and Guidelines for Consultant Archaeologists* (MCM 2011) were followed to provide an accurate determination of archaeological potential for the overall study area. Sources consulted included:

- An updated listing of archaeological sites within one kilometre of the study area registered with MCM;
- Relevant previous archaeological reports;
- Primary historical records including registry records, assessment roles and census records;
- Historical, archaeological and environmental literature;
- Historical and environmental mapping; and,
- Historical and current aerial photographs.

The study also included a property inspection on November 15, 2013, to review current conditions. The results of this research indicated that while the proposed hydro substation study area was found to lie within 300 m of historical (nineteenth century) structures and within 100 m of a historical (nineteenth century) road, both indicating that it lay within buffers indicating historical archaeological potential, the entire area was determined to be previously deeply disturbed as a result of road ditching and the construction of the adjacent snow removal storage facility, removing any archaeological potential (Figure 3). Thus the current study area was determined not to require Stage 2 archaeological assessment (Figure 4). This study was entered into the provincial registry of archaeological reports in 2016, indicating that it has been found compliant with current standards and accepted by MCM.

A previous archaeological assessment titled *Stage 2 Archaeological Assessment: Trailsedge Phase 5 North, Part Lots 1, 2, 3, & 4, Concession 3 OF, Part 2 Plan 5R8348 PIN 04404-1472, Part 1 Plan 4R29569 PIN 04404-0503, Part 1 Plan 4R23507 PIN 04404-0541, Part 5 Plan 4R-23507 PIN 04404-0539, Part 2 Plan 4R-22552 PIN 04404-0543, and Part 1 Plan 4R22552 PIN 04404-0542, Geographic Township of Gloucester, City of Ottawa, Ontario* was completed for a large area including the proposed hydro substation study area by the Paterson Group, again for Richcraft Homes Ltd., between 2020 and 2023. Two archaeological sites were found during this survey, one (registered as the Taillefer site, BiFv-27) just to the north of the entrance road to the snow removal storage facility and thus within 300 m of the current study area, providing an additional buffer of archaeological potential. The site consisted of a scatter of 15 mid- to late nineteenth century artifacts found both through field walking and the excavation of intensification units. While these items were found in a location with no mapped nineteenth century residence, it was deemed that there was not enough material to warrant a Stage 3 assessment of the site, and no further archaeological work was recommended. The proposed substation property itself was not tested based on the recommendations in the previous 2016 Golder report. The Paterson Group study was entered into the provincial registry of archaeological reports in 2023, indicating that it has been found compliant with current standards and accepted by MCM.

Background Resource Review, Analysis and Conclusions

A review of the historical, environmental and archaeological information relevant to the proposed hydro substation parcel has confirmed that the current study area lies within buffers from features in the landscape that indicate it has archaeological potential, though all relate to nineteenth century settlement in the area. The absence of topographical features such as water sources within 300 m, the relatively flat terrain resulting from the area once having been part of the Champlain Sea, and the heavy clay, poorly drained soils typical of the Mer Bleue to the south all indicate that the study area has very low potential for pre-Contact Indigenous archaeological site potential. Historical factors indicating archaeological potential include at least parts of the study area being within

100 m of Mer Bleue Road which is illustrated as having been opened on the 1863 H.F. Walling map of Carleton County and the 1879 Belden map of Gloucester Township and is therefore considered a historical transportation corridor, as well as the parcel lying within 300 m of four nineteenth century residences or farmsteads shown on these maps. Of particular note, three of these residences are no longer standing, though none were directly within the study area (see Figure 3). An updated search of the archaeological sites database maintained by MCM has revealed that there are five archaeological sites registered within 1 km of the current study area (three since the completion of the Golder Stage 1 report), including the Taillefer site (BiFv-27) mentioned above, located within 300 m of the current study area, as well as the Proulx site (BiFv-25), found in proximity to one of the nineteenth century farmsteads to the south of the hydro corridor illustrated on the 1879 Belden map. Discovered during the Stage 2 survey of a large parcel to the south of the hydro corridor by the Paterson Group in 2020, this site was determined to merit further archaeological work and a Stage 3 assessment was recommended (Paterson Group 2022). As with the Taillefer site (BiFv-27), it lies within 300 m of the current study area and provides an additional buffer indicating archaeological potential.

The historical mapping reviewed[1] does not illustrate any nineteenth century structures within the current study area. Early twentieth century aerial photographs show it as agricultural field, with the nearest farmstead at that time lying on the opposite side of Mer Bleue Road. The area remained agricultural field into the late twentieth century, with the hydro line constructed along the southern edge by 1976 (Figure 5). The current snow removal storage facility was constructed between 2008 and 2009, which involved extensive grading and levelling immediately to the west of the proposed hydro substation study area, the placement of an entrance lane from Mer Bleue Road to the north and the erection of berms flanking both the levelled area and the entrance lane (see Figure 5). Mer Bleue Road had been widened by 2011, which included deep ditching for drainage on both sides of the road adjacent to the study area, and subdivision development has been proceeding to the east and south (see Figures 1, 2 and 5).

In contrast to the findings of the 2016 Golder Stage 1 report, however, which determined that the entire block formed by the snow removal storage facility and the land between it and Mer Bleue Road (bounded to the north by the entrance lane and to the south by the hydro corridor and thus including the current study area) had been deeply disturbed and therefore retained no archaeological potential, the sequence of available twenty-first century satellite images indicates that this was not the case (see Figures 2, 3 and 5). While the construction of the snow removal storage facility and the widening of Mer Bleue Road and its associated ditching may have affected the fringes of the proposed hydro substation study area, aerial and satellite images taken prior to development in 2008 and those following through to the present show the same pattern of scrub re-growth on most

[1] This included the 1863 Walling map of Carleton County, the 1879 Belden map of Gloucester Township and the 1906 first edition one-inch-to-one-mile topographic map of the area.

of the current parcel (see Figure 5). This is in clear contrast to the surrounding foliage patterns altered by the construction. Most of the proposed substation property therefore remained unaltered through this period, remaining abandoned agricultural field and thus retaining archaeological potential given the buffers from known historical features described above. A new Stage 1 assessment of the parcel would thus likely recommend Stage 2 assessment for most if not all of the property.

As stated in the previous section, however, there is an existing Stage 1 report (Golder Associates Ltd. 2016) that has recommended no further archaeological work for the proposed hydro substation study area, and an existing Stage 2 report (Paterson Group 2023) that included the current study area in the larger project parcel. While no physical testing was undertaken within the current property on the basis of the Golder recommendations, the conclusions in the Stage 2 report imply that no further archaeological work is needed for the proposed hydro substation parcel. As both of these reports post-date the implementation of *Standards and Guidelines for Consultant Archaeologists* (MCM 2011) and have been found compliant and accepted into the register of archaeological reports by MCM, the regulating government department is satisfied that any archaeological conditions constraining development have been met. Thus despite the findings of this due diligence review, the acceptance of these reports could be used to validate that no further archaeological assessment is required for the property. The recommendations in Section 5.0 *Advice on Compliance with Legislation* in the 2016 Golder Stage 1 report would still apply, however, including:

> *Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48 (1) of the Ontario Heritage Act. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48 (1) of the Ontario Heritage Act.*

We very much appreciate having been involved with this project. Please do not hesitate to contact us should you require additional information.

Sincerely yours,



Jessalyn Miller, M.A.
Staff Archaeologist

References

Archaeological Services Inc.

2006 *Stage 1 Assessment Mer Bleue Road Widening Class Environmental Assessment, City of Ottawa, Regional Municipality of Ottawa-Carleton, Ontario.* (PIF: P057-223-2006) Report on file, Ontario Ministry of Citizenship and Multiculturalism, Toronto.

Archaeological Services Inc. and Geomatics International Inc.

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Golder Associates Inc.

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Ontario Ministry of Citizenship and Multiculturalism (MCM)

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Paterson Group

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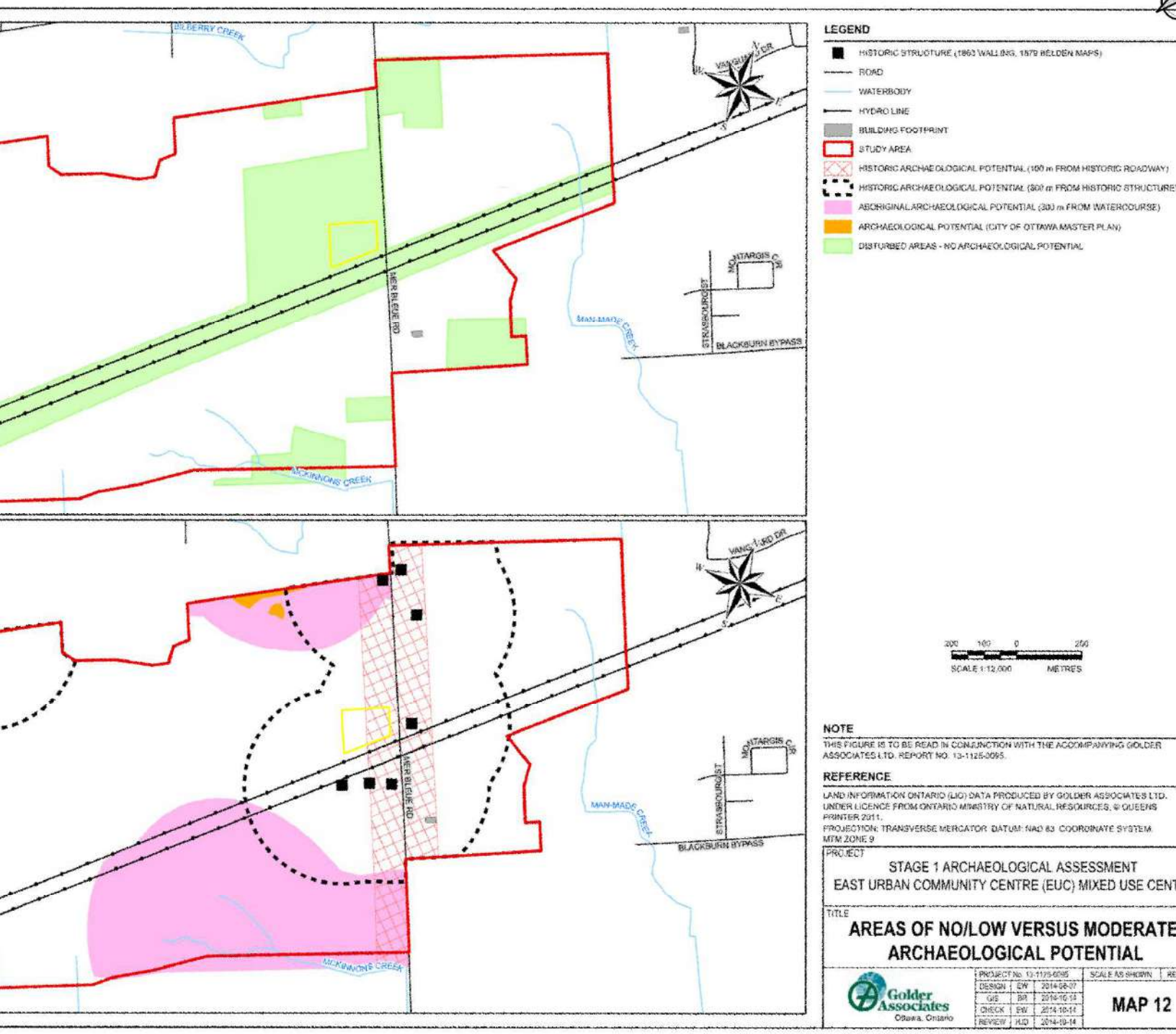
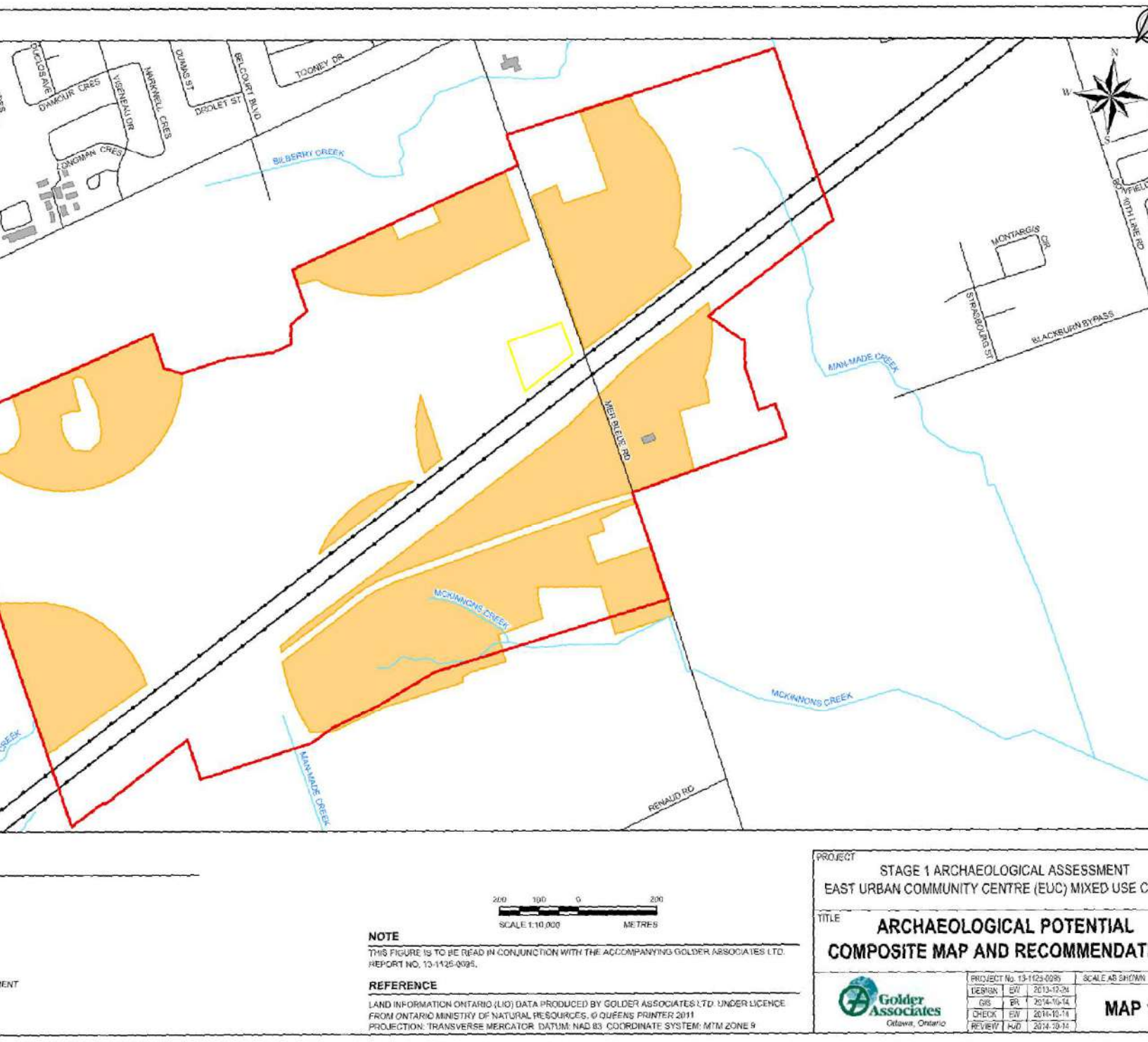
Hydro Mer Bleue MTS study area.



r Bleue MTS study area.



assessment showing areas with deep disturbance and buffers of archaeological potential from historical feature
(adapted from Golder 2016)



ssessment showing areas recommended for Stage 2 assessment with the Ottawa Hydro Mer Bleue MTS study are



d satellite images showing the development of the proposed Ottawa Hydro Mer Bleue MTS study area throug

Appendix D2: Stage 1 Archaeological Assessment East Urban Community Centre (EUC), Golder Associates Ltd. 2016

REPORT

September 2, 2016

REVISED REPORT

Stage 1 Archaeological Assessment East Urban Community Centre (EUC) Project Community Design Plan (CDP) Lots 1-4 Concession 3 Geographic Township of Gloucester and Lots 1-2 Concession 11 Geographic Township of Cumberland City of Ottawa Ontario

PIF#: P366-0040-2013
Licensee: Erin Wilson (P366)

Submitted to:
Stephen Grandmont and Phil Castro
Richcraft Homes Ltd.
2280 St. Laurent Blvd.
Suite 101
Ottawa, Ontario
K1G 4K1

Report Number: 13-1125-0095

Distribution:

1 e-copy - Richcraft Homes Ltd.
1 e-copy - Ministry of Tourism, Culture and Sport
2 copies - Golder Associates Ltd.

Golder Associates

Executive Summary

The Executive Summary highlights key points from the report only; for complete information and findings, as well as the limitations, the reader should examine the complete report.

Golder Associates Ltd. (Golder) was contracted by Richcraft Homes Ltd. (Richcraft) to conduct a Stage 1 archaeological assessment of the proposed East Urban Community (EUC) Mixed Use Centre located east-west across Mer Blue Road, south of Innes Road, Part Lots 1-4, Concession 3 Ottawa Front, Township of Gloucester and Lots 1-3, Concession 11, Township of Cumberland, City of Ottawa.

The Stage 1 Assessment seeks to fulfill the objectives and requirements of the Ministry of Tourism, Culture and Sports' (MTCS) *Standards and Guidelines for Consultant Archaeologists* (2011). The objective of the assessment was to determine the presence of archaeological resources in the area that may be affected by the proposed development, and; if encountered recommend appropriate strategies for further assessment.

This archaeological assessment is also being conducted to support documentation necessary for completion of a Community Design Plan (CDP) under Schedule B of the City of Ottawa's *Official Plan* application under the *Planning Act* and section 2.6 of the Provincial Policy Statement (2005).

The investigation included consultation with the MTCS's updated archaeological site database and previous archaeological assessments, review of relevant historical, archaeological and environmental literature, examination of primary historical documentation including land registry records, assessment roles, census records and aerial photographs.

A property inspection was conducted on November 15, 2013. Over half of the study area consisted of abandoned agricultural fields, some of which were overgrown by trees and brush. The remaining areas included disturbance caused by recent development of the property, such as a Hydro Transmission Corridor, the City of Ottawa's Snow Removal Facility, commercial and residential properties as well as soil stripping and fill deposits. Drainage within the study area is provided by Billberry Creek to the north, McKinnon's Creek to the south and Mud Creek to the west located within the study area and most appear to have been channelled through drainage ditches.

Although no archaeological sites are registered in the study area it is considered to have moderate aboriginal archaeological potential based on the City of Ottawa's Archaeological Master Plan and the MTCS' *Standards and Guidelines for Consultant Archaeologists* (2011). The study area is within 300 m of Billberry, McKinnon's and Mud Creeks which is considered a potential transportation corridor for aboriginal navigation as well as settlement. Historical site potential is associated with the location of eight known nineteenth century buildings within 300 m of the study area. Further potential is added by the proximity of Mer Bleue Road, a pre-1879 historic transportation corridor which runs north-south through the study area. Archaeological potential has been removed in certain locations by the development of the Hydro Transmission Corridor, the City of Ottawa's Snow Removal Facility, the various commercial and residential properties as well as roadside development, soil stripping and fill and areas of previous Stage 2 archaeological assessments. These areas were found to be unsuitable for further archaeological assessment.

Based on the site assessment and features of archaeological interest within the study area, a Stage 2 assessment is required for the undisturbed areas of the property. The Stage 2 investigation is to consist of a test pit survey at 5 m intervals in areas which cannot be ploughed and feature woodlot or brush. All remaining areas

of archaeological potential will require ploughing according to the MTCS Standards and Guidelines (2011) and surface surveyed at 5 m intervals. Some poorly drained areas were noted during the field inspection, particularly in the areas immediately north and south of the Hydro Transmission Corridor. Inspection of these areas prior to construction activity may be necessary to determine whether Stage 2 testing will have to be conducted during an appropriate time of year or whether some areas may not be suitable for Stage 2 testing because the area remains wet year round.

This report and MTCS consultation has formed the basis for the following recommendations:

1) That all areas indicated as possessing archaeological potential as outlined in Map 13 (p. 42) be subject to Stage 2 archaeological assessment by a licenced archaeologist prior to any future disturbance. The assessment should involve shovel testing at 5 m intervals in treed/overgrown areas and surface survey in ploughable open grassed areas at 5 m intervals; and,

2) That no further archaeological assessment is required for areas indicated as possessing no/low archaeological potential or previously assessed areas (Map 13, p. 42).

Project Personnel

Client Contact	Steve Grandmont and Phil Castro, Richcraft Homes Ltd.
Project Manager	Erin Wilson, M.A. (P366)
Project Director	Hugh J. Daechsel, M.A. (P051)
Archaeological Lead	Erin Wilson, M.A. (P366)
Report Preparation	Erin Wilson, M.A. (P366)
Property Inspection	Erin Wilson, M.A. (P366)
GIS/Mapping	Bojan Radojevic
Administration	Melanie Duffy
Senior Reviewer	Hugh J. Daechsel, M.A. (P051)

Abbreviations

Richcraft	Richcraft Homes Ltd.
Golder	Golder Associates Ltd.
LAC	Library and Archives Canada
m	Metre(s)
MTCS	Ministry of Tourism, Culture and Sport
City	City of Ottawa
AMP	Archaeological Master Plan (City of Ottawa)
NAPL	National Air Photo Library

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1.0 PROJECT CONTEXT

1.1 Development Context

Golder Associates Ltd. (Golder) was contracted by Richcraft Homes Ltd. (Richcraft) to conduct a Stage 1 archaeological assessment for the proposed East Urban Community (EUC) Mixed Use Centre located across Mer Blue Road, south of Innes Road, Part Lots 1-4, Concession 3 Ottawa Front, Township of Gloucester and Lots 1-3, Concession 11, Township of Cumberland, City of Ottawa (Maps 1-3, pp. 30-32). This archaeological assessment is being conducted to support documentation necessary for completion of a Community Design Plan (CDP) under Schedule B of the City of Ottawa's Official Plan application under the *Planning Act* and section 2.6 of the Provincial Policy Statement (2005).

Policies in the Official Plan stipulate that development in the Mixed Use Centre west of Mer Bleue Road will be permitted only upon completion of a Community Design Plan (CDP) and its adoption as a Secondary Plan. Official Plan policies permit landowners to initiate and coordinate a CDP for an eligible area with the participation and collaboration of the City.

A CDP was completed in 2006 for the portion of the Mixed-Use Centre designation east of Mer Bleue Road and south of the future Transitway. A CDP was completed in 2005 for the lands to the south of the Mixed Use Centre designation (EUC Phase 1 CDP). Richcraft wishes to initiate a CDP process for the remaining Mixed Use Centre lands located east and west of Mer Bleue Road.

Permission to access the property for the purpose of the archaeological assessment was provided by Phil Castro of Richcraft Homes Ltd.

1.1.1 Objectives

This Stage 1 Archaeological Assessment was completed to identify known archaeological resources on and in the vicinity of the study area as well as assess the archaeological potential of the subject property. The assessment will determine if any additional archaeological investigations are required. The objectives of a Stage 1 assessment are based on principles outlined in the *Ontario Heritage Act* (Consolidated 2007), and comply with the Ministry of Tourism, Culture and Sports' *Standards and Guidelines for Consulting Archaeologists* (2011). More specifically, studies were completed with the following objectives:

- To provide information about the property's geography, history, previous archaeological fieldwork and current land condition; and,
- To evaluate in detail the property's archaeological potential, which will support recommendations for Stage 2 survey for all or parts of the property.

1.2 Historical Context

There are various published historic accounts on the historical development of the study area. The earliest appears in Belden's Illustrated *Historical Atlas of Carleton County* and *Historic Atlas of Prescott and Russell Counties* (1879). General references to the area are provided in the *Carleton Saga* (Walker and Walker 1968), the *Ottawa Country* (Bond 1968) and *Gloucester Routes* (Kemp ed: 1991). A brief history of Blackburn Hamlet is provided in *Blackburn-Glen Olgilvie Centennial History 1867–1967*. There is very little published information on Cumberland's history with Cumberland Heritage the only reference identified in this study.

1.2.1 Regional Pre-European Aboriginal History

The present understanding of the local sequence of human activity in the area following the recession of the last ice sheet and the Champlain Sea some 11,000 years ago is very incomplete. It is possible, however, to provide a general outline of prehistoric occupation in the area based on archaeological investigations of south-eastern Ontario.

The earliest human occupation of southern Ontario dates back approximately 12,000 years ago with the arrival of small groups of hunter-gatherers referred to by archaeologists as Paleo-Indians who moved into Ontario as the last of the glaciers retreated northward. Characterized by their nomadic lifestyle, these highly mobile people relied on the caribou, small game, fish and wild plants found in the sub-arctic environment of the time.

The Ottawa Valley remained very much on the fringe of occupation during this period. The ridges and old shorelines of the Champlain Sea and Ottawa River, including part of the Prescott Russell Sand Plain, would be the most likely areas to find evidence of Paleo-Indian occupation.

The environment of southern Ontario approached present conditions during the succeeding Archaic Period extending from 9,000 to 3,000 years ago. Stone tool technologies changed during this period as a broader range of tool types were created although the skill and workmanship declined from Paleo-Indian standards. Ground stone tools appeared, such as adzes and gouges, tool types which indicate increased wood working and adaptation to new environmental conditions. During the middle and late portions of the Archaic Period, trading networks spanning the Great Lakes developed. By 6,000 years ago, copper was being mined in the Upper Great Lakes and traded into the southern Ontario region.

Several Archaic sites have provided the first definitive evidence for human occupation in the general vicinity of the study area. Archaic artifacts have been found at Jessup's Falls near the mouth of the South Nation River and at Spencerville near the source of the river (Daechsel, 1980). There was a significant occupation of the St. Lawrence Valley with a number of "Laurentian" or Middle Archaic sites in the vicinity of Cornwall (Dailey and Wright, 1955), and Late Archaic sites have been identified at Leamy Lake near the junction of the Gatineau and Ottawa Rivers, in the Rideau Lakes (Watson, 1982).

The Archaic Period was followed by the Woodland Period, beginning around 2,500 years ago in Ontario, and lasting until 450 years ago. This period is distinguished by the first appearance of ceramics, while there is also evidence of ceremonial rituals including elaborate grave goods. Woodland subsistence strategies were still based on hunting and gathering and their migratory routes followed seasonal patterns to proven hunting locations rather than following migrating herds. Trade networks continued to flourish throughout the Woodland Period and reached their peak around 1,800 years ago when they covered much of North America.

Towards the end of the Middle Woodland Period (approximately 1,500 years ago) agriculture was introduced and began to take on a larger role in subsistence strategies. It began with the cultivation of corn, beans and tobacco and eventually led to the development of semi-permanent and permanent villages. Many of these villages were surrounded by palisades, indicating increased hostilities between neighbouring groups. This settlement pattern was more common in regions with arable land such as southern Ontario. The impact of these changes did not appear to have been significantly felt in the areas north of the St. Lawrence Valley which continued to be used as a hunting area and trade route where many groups retained a semi-nomadic lifestyle. Middle Woodland sites have been identified in the South Nation Drainage Basin (Daechsel, 1980) and along the Ottawa River including the northwest end of Ottawa at Marshall's and Sawdust Bays (Daechsel, 1981).

During the Late Woodland Period, the South Nation River basin appears to have been a zone of interaction between Iroquoian speaking populations who relied primarily on domesticated crops to the south and Algonquian speaking groups who continued as hunter-gatherers to the north. The Huron peoples along the north shore of Lake Ontario had moved to the Lake Simcoe-Georgian Bay region, leaving the area of eastern Ontario, except for some small Algonquin groups, unoccupied by the time the first French explorers arrived in the beginning of the seventeenth century. Six St. Lawrence Iroquoian villages dating to ca. 1400 AD have been found in the Spencerville area, while an Algonquian site has been investigated near Casselman (Clark, 1905).

1.2.2 Regional Post-European Canadian History

The St. Lawrence Iroquois disappeared in the sixteenth century not long after initial contact with Jacques Cartier in 1535. Étienne Brûlé is reported to have been the first European to pass through what is now the Ottawa area. He portaged at the Rideau Falls in 1610, followed by Champlain in 1613. The Ottawa River served as a major route for explorers, traders and missionaries throughout the seventeenth and eighteenth centuries. A series of trading posts and forts were constructed by the French along the river in the early eighteenth century.

The French documented three Algonquin groups in the regional vicinity of the study area (Heidenreich & Wright, 1987). These included the Matouweskarini along the Madawaska River, the Onontchataronon in the Gananoque River Basin, and the Weskarini, the largest of the three, situated on the Petite Nation River Basin. It is likely that prolonged occupation in the Ottawa area was avoided at this time because of hostilities with Iroquoian speaking populations to the south, although it is suggested that at least the northern reaches of the South Nation River Basin were used as hunting territories by these groups.

Following his retirement from the French military, a Count and his wife are purported to have settled in the Ottawa area with the intention of establishing a post to promote the fur trade with the local First Nations population. Accompanied by a man named Perault and three or four canoe men, they settled in an area known as Butternut Grove, probably near present-day Rockland. A settlement was established which included a contingent of First Nations people along the bank of the Ottawa River. The relationship between the French settlers and the native population is suggested to have been productive and continued for an extended period of time (Serre, 2005).

Just after the French defeat in New France by the British in 1760, Alexander Henry travelled up the Ottawa River and describes observing a small establishment somewhere “east of Lievre”, probably near present-day Rockland. This compound appeared to have been recently abandoned when Henry passed through the area (Bond, 1968). It is possible this reference relates to the earlier French settlement in this area described above.

Another eighteenth century settlement along the Ottawa River was established by James Fox, a Revolutionary soldier originating from Ireland. After marrying his wife in Quebec, Fox is said to have settled in the area known as Foxes Point, near present-day Clarence Point and Thurso. After initially establishing a relationship with the First Nation population through the fur trade, Fox later abandoned this commercial enterprise and lived a more sedimentary lifestyle. He and his wife stayed in this area until their death and are believed to be buried at Foxes Point (Serrre, 2005).

Commonly acknowledged as the first permanent European resident in the area, Philemon Wright settled in Hull Township with five families and thirty-three men in 1800 (Bond, 1984). This community grew over the next few years along the north shore of the Ottawa River and by 1805 Wright had begun significant lumbering activity in the area. Settlement of the south shore was very slow through the early nineteenth century. In 1809 another

American, Jehiel Collins, erected a store at what was to become known as Bellows and later Richmond Landing. The first settler in the area was Ira Honeywell, who, in 1810, constructed a cabin west of the Chaudiere Rapids (Bond, 1984). Another early settler was Braddish Billings, who established a small cabin in Gloucester Township in 1812. Billings went into the lumbering business with Philemon Wright and developed his homestead into a large family estate along the banks of the Rideau River.

The construction of the Rideau Canal (1827–1832) provided the new settlement of Bytown with its first major growth in population. This resulted in the development of two areas: Lower Bytown to the east of the Canal primarily populated by French Canadian and Irish labourers and merchants, and Upper Bytown to the west with a predominantly white Anglo-Saxon Protestant population. Bytown was incorporated as the City of Ottawa on January 1, 1855, with a population of 10,000. The selection of Ottawa as the capital of Canada in 1857 was the major catalyst in the subsequent development of the city.

By the late eighteenth century, John Graves Simcoe, Lieutenant Governor of Upper Canada, had issued a proclamation aimed at attracting new settlers to the Ottawa Valley. To help facilitate the influx of expected immigration to the area individual lots were surveyed within each township boundary and many of these settlement lots were granted by the Crown to United Empire Loyalists and other prospective immigrants.

By the late eighteenth century, John Graves Simcoe, Lieutenant Governor of Upper Canada, had issued a proclamation aimed at attracting new settlers to the Ottawa Valley. To help facilitate the influx of expected immigration to the area individual lots were surveyed within each township boundary and many of these settlement lots were granted by the Crown to United Empire Loyalists and other prospective immigrants.

1.2.3 Gloucester Township

Originally identified as “Township B”, Gloucester Township was first surveyed in 1772. Land registry records indicate that patents for some of the lots within the township were issued as early as 1802, although many of the grantees never actually came to the area or ever saw their granted property.

It is suggested in the Centennial history of Blackburn that the timber rights to the area were sold by the Crown in 1790 (Elliot 1967: 10). Walker and Walker indicate that the sale was to a Mr. Erskine (1968: 208). However, a review of land registry records does not reveal any transactions of this nature for the study area. The earliest lumbering activity in the area would most likely have been either by Wright and or Billings in the early nineteenth century.

Settlement steadily increased through the first half of the nineteenth century along the lower concessions of the Rideau Front and the Junction Gore. Lots on the Ottawa Front as well as the rear lots in the Rideau Front were settled less quickly. Settlement in the vicinity of the study area occurred generally along early roadways such as Innes Road and Mer Bleue; a pattern that continues in this area to the present day.

The first settlers were dependant on waterways for travel and early residences were established along the Ottawa River. The development of the area was dependant on the logging industry and the Ottawa River played a vital role in the transport of felled lumber to commercial centers where it was sold for a profit.

Coffin’s 1825 plan of Gloucester Township shows the distribution of property ownership within the study area (Map 4, p. 33). Unfortunately though, this map only provides the name of the property owner, most of whom were absentee landowners, and does not identify who, if anyone was actually living within the area of the lots. Another limitation of this map is that it does not identify built structures within Gloucester Township to this date.

Fueled by overpopulation of cultivable areas in Quebec; and the desire of the Catholic Church to establish a greater influence in Upper Canada; there was a significant migration of Quebecois to the Cumberland-Gloucester region during the mid-nineteenth century. The earlier American and other English speaking settlers and landowners (some absentee) had by passed the low clay plains of the lower Ottawa River.

1.2.4 Cumberland Township

Originally named after the Duke of Cumberland Ernest Augustus, Cumberland Township was first surveyed in 1789 as part of an official policy to settle the area through Crown property grants. The majority of accessible land fronting the Ottawa River was granted to United Empire Loyalists and their descendants, many of whom never actually came to the area and remained absentee landowners.

Early settlers to Cumberland Township included the families of Amable Foubert and Abijah Dunning who immigrated to the area in the early nineteenth century. These two pioneering families settled close to each other along the Ottawa River, with the Foubert's occupying Lot 14 and the Dunning family owning Lots 12 and 13. By 1807, Foubert had established a trading post in the township. The Dunning family had arrived from Massachusetts and secured 800 acres within Cumberland Township. Frustrated with the lack of improvements to roads and bridges which impeded commerce and transportation through this area, Abijah left Cumberland by 1812. His son William, however, returned to the area in 1817 and re-established the Dunning family along the Ottawa River in Cumberland Township.

The scarcity of roads and the poor state of transportation beyond the shore of the Ottawa River slowed settlement within the Township in the early nineteenth century (Belden, 1881). While Coffin's 1825 map shows the ownership of individual lots along the Ottawa River like the Gloucester map, it does not differentiate between absentee landowners and those residing within the township and their associated built structures (Map 4, p. 33). Census records reveal that by 1822 there were six families living along the waterfront lots of Concession 1 and by 1832 this number had risen to fifteen (Serre, 1998). The pace of settlement within Cumberland Township lagged about one generation behind the development of neighbouring Gloucester Township.

1.2.5 Property History

The EUC property is located on Lots 1 to 4, Concession 3 Ottawa Front in Gloucester Township and Lots 1 and 2, Concession 11 in Cumberland Township. Documents reviewed in order to understand the property history of the study area include the Land Registry Abstract Indices held at the Land Registry Office in Ottawa and available nineteenth century maps including the 1825 Coffin Map, 1862–63 Walling and the 1879–81 Belden maps (Maps 4-5, pp. 33-34), 1906 topographic map (Map 6, p. 35), and aerial photographs from the National Air Photo Library (NAPL) dating from 1945, 1980, and 2012 (Map 7, p. 36).

What follows is an overview of the general pattern of land use and occupation from the nineteenth century into the present occupation of the area.

Lots 1-4, Concession 3, Gloucester Township

The earliest patent issued in the study area was to William Henderson for Lot 4, Concession 3 Ottawa Front, in 1802. Shortly thereafter, both Eleanor McGregor and David McCallum received patent for Lots 1 and 2 in 1809. Henderson's name is illustrated within Lot 4 on the 1825 Coffin Map, as is McGregor on Lot 1 and McCallum on Lot 2 (Map 4, p. 33).

According to the land registry records, Lots 1 and 2 were acquired by the Honourable Peter McGill from McGregor and McCallum in 1840. McGill soon sold both lots to Colin Russell in 1851 whereby Russell sold Lot 1 to J.B. Proulx in 1853. Proulx appears to be the first permanent resident on the property.

Walling's 1863 map of Gloucester Township provides additional evidence of settlement within the study area (Map 4, p. 33). This plan does not show any evidence of settlement on Lot 3, but does depict Proulx's dwelling west along Mer Bleue Road (Lot 1), "G. Bedourie" fronting Innes Road (Lot 2) and "William Redwell" and "J. Laflair" along Innes Road (Lot 4).

At this point Lot 1 has remained intact. However, Proulx divides his property among family members including Louis, Francis and Leon in 1862. Jean Proulx sold 33.3 acres to Gai Taillefer in 1874. Honore Richer acquired another 33 acres from Jas Proulx in 1875 and François Gautheir 33 acres in 1880 from Leon Lachaine who had purchased the parcel in 1874 from Celestine Proulx. The lot was divided into six sections in the 1879 Belden map of the township (Map 4, p. 33). Three of these lots are owned by the Proulx family one by Lachaine, the other Richez/Richer and the last by Taillefer. All three contain homes, three fronting on Innes Road and the other three in an alignment extending westward from Mer Bleue Road. These may be the buildings noted in Heritage Quest's Stage 2 investigation of the water transmission line discussed in "Topographic Map and Air Photo Review" below (Sattelbeger 1995).

Jean B. Corbeille, whose name appears in the 1879 atlas with two dwellings fronting Innes Road (Map 4, p. 33), purchased the entire 200 acres in 1870 from Sarah Russell. A portion of this lot would remain with the Corbeille family for 80 years until its purchase by the Canada Cement Limited (Lafarge) in 1956.

It appears that by 1879, Lot 3 was divided by two property owners "O. Demarse" with one house fronting Innes Road and "John Makar" with two houses fronting Innes Road (1879 Belden, Map 4, p. 33). The eastern portion of Lot 4 appears to have changed hands from Redwell to "Peter Groulx" and the western half remaining in the "Laflair" or "Lafluer" family, both with houses along Innes Road.

It is important to note that Mer Bleue Road beyond the houses located on Lot 1 and Renaud Road east beyond Navan Road was not established until sometime after 1879 as indicated by the nineteenth century historic maps (Map 4, p. 33).

Lots 1 and 2, Concession 11, Cumberland Township

Lot 1 was patented in two halves in 1858 to Joseph Labelle (north half), and Pierre Boyer in 1861 (south half). The slow settlement of Cumberland Township is reflected in the series of historic maps for the area (Map 5, p. 34). Some settlement, however, took place along the east side of Mer Bleue according to the 1863 Walling Map for Gloucester, despite the historic Cumberland Township maps (Map 4, p. 33). From north to south east along Mer Bleue Road, four houses are illustrated with owners: B. LaBelle, P. Boyer, A. Labelle and E. Poquette.

According to the land registry records, Lot 1 was quickly divided with Joseph Lapointe purchasing a section in 1867, Eli Racettee 25 acres in 1881, and Alphouse Chaine the 100 acres from Joseph Labelle in 1892. The north half of the lot was acquired by Joseph Lapointe in 1893. There is a 15-year hiatus in the transactions ending with Alexander Roy's purchase of the south half in 1913. Octave Salroix purchased the north half of the south half in 1928. Rene Taillefeur purchased a section of the property in 1938. Portion of the lot appears to have remained with the Taillefeur family until the present day.

Lot 2 was divided into three parcels. The north 100 acres was patented by Nordear Souvigny in 1865, and the south half was patented in two by Baptiste and Vincent Joennisse in 1860. The north half of the lot would undergo a series of transactions during the nineteenth century. Souvigny sold to Thomas Kinly in 1868, followed by Toussant Ethier in 1868, Theodule Gauthier in 1884 and Onesime Lachapelle and Telesphore in 1896. Baptiste Joennisse retained the south half of Lot 2 for the remainder of the nineteenth century.

Topographic Map and Air Photo Review

The 1906 Topography map of Ottawa (Map 6, p. 35) and 1945 aerial photograph (Map 7, p. 36) illustrates that the two out of three houses once marked on the Belden Map as owned by "L. Lachaine", "J. Proulx" and "H. Richer" remained present on Lot 1, Concession 3 west of Mer Bleue Road. By 1980, the house furthest west of Mer Bleue Road had been removed and the house nearest the road continues to be occupied to present (house #2226). During Heritage Quest's Stage 1/2 assessment of the water feedermain project, Peter Sattelberger was provided some details regarding the houses located furthest west and their removal by Mr. Ladouceur, current owner of 2226 Mer Bleue Road:

"Mr. Ladouceur, a retired farmer whose family have owned this property since 1914, was contacted during the field study and provided further information with respect to his knowledge of the history of the immediate area. Mr. Ladouceur discussed the other two farms west of his property, each 33 and 1/3 acres in size (portions of Lot 1, Concession 3, Gloucester), and recalled having participated in their removal many decades ago, but was unsure precisely when. He described the houses as small frame structures sitting on stones on the ground; the stones were also removed so the land could be ploughed. He also stated that these properties had access to Mer Bleue Road by way of a small track which ran through the north end of his property." (Sattelberger, 1995b:10)

The 1906 Topography map (Map 6, p. 35) also illustrates three houses along the east side of the Mer Blue corridor some of which may also have been present in the 1863 Walling map (Map 4, p. 33). These houses are still present in the 1945 and 1980 air photos, however are no longer present in the 2012 air photo (Map 7, p. 36).

Review of aerial photographs from 1945, 1980 and 2012 was also undertaken to determine how the study area has developed over time and to identify any previous features or disturbances that might indicate archaeological potential (Map 7, p. 36). The 1945 and 1980 aerial photographs show that the study area had been primarily used for agricultural purposes with 95% of the study area having been cleared and operating as agricultural fields. The remaining consisting of occupational structures. According to the same air photos, McKinnon Creek was located southwest within the study area and Bilberry Creek further northwest of the study area. Commercial and residential use of the area significantly increased after the 1980s, as evidenced by the 2012 air photo. The Hydro Transmission line cut diagonally through the study area, the City of Ottawa Snow Removal Facility was built west of Mer Blue Road along with the addition of houses along both sides of the corridor. Slowly over time, some fields were abandoned and have now become overgrown with small brush.

1.3 Archaeological Context

1.3.1 Study Area Environment

The study area lies within the Ottawa Valley Clay Plains (Chapman and Putnam, 1984) (Map 8, p. 37). The clay plains are characterized by a flat, poorly drained topography. The study area reflects this relatively characterized flat topography with a very gentle slope from east to west.

The study area is split between two surficial geological features, with the eastern section comprised of fine-textured glaciomarine deposits and the western portion consisting of coarse-textured glaciomarine deposits (Map 9, p. 38). The fine-textured deposit is represented by well laminated material composed of silt and clay with minor residues of sand and gravel, while the coarse-textured sediment represents a foreshore and basinal deposit consisting primarily of sand and gravel with minor components of silt and clay.

The study area passes through two distinct regions of soil morphology (Map 10, p. 39). The Carlsbad soils are represented within the majority of the project study area and consist of shallow layers of organic matter with excessive to well drained sand and predominant reddish brown or strong brown horizons. To the north lie Farmington Loam soils. These loamy soils are typically found three feet above bedrock and feature moderate drainage.

The study area lies within the Upper St. Lawrence sub-region of the Great Lakes-St. Lawrence Forest Region (Rowe, 1977). The deciduous trees characterizing this sub-region include sugar and red maple, beech, yellow and white birch, basswood, white ash, red and burr oak, and largetooth aspen. Coniferous species include eastern hemlock, eastern white pine, alder, willow, white and black spruce and balsam fir.

The distance from navigable and potable water sources are regarded as useful variables for the evaluation of aboriginal pre-contact site potential. The study area drains to the north, west and south.

The only real feature relief to the landscape appears at the southwestern corner of the study area where a portion of Mud Creek, a tributary of the Green's Creek drainage system which discharges into the Ottawa River west of Orleans, have eroded several gullies into the edge of the clay plain towards the area west of Pagé Road. Approximately 1 km to the west, Mud Creek also cuts a low escarpment at Navan Road which represents a former shoreline of the Ottawa River.

A number of stormwater ponds have recently been constructed east of Pagé Road which helps facilitate the modern drainage system in this region. Other drainage within the study area is provided by McKinnon's Creek, the headwaters of which begin within the study corridor approximately halfway between Pagé Road and Mer Bleue Road. McKinnon's Creek and other small tributaries flows to the southeast into Bear Brook Creek, Mer Bleue Bog and the South Nation River to the south and east. There are a number of ditches and small streams in the study area most of which have been channelized in an effort to enhance drainage (Image 1, p. 20). Areas of standing water and wetland were also identified within the western and eastern portions of the study corridor (Images 2-4, pp. 20-21).

A property inspection of the study area was conducted on November 15, 2013, to help determine its archaeological potential. The general landscape of the property consisted mostly of mixed fallow and agricultural fields (Image 5, p. 22). Woodlots and brush have encroached upon the western and northwestern portions of the study area (Image 6, p. 22) while the central and eastern areas were partially ploughed (Image 7, p. 23). Channels or ditches for McKinnons Creek were visible along field lines (Image 8, p. 23) and poor drainage of the central western area was obvious with the saturation of the ploughed furrows (Image 9, p. 24). The remaining areas consisted of houses and commercial facilities immediately north along Innes Road and east and west along Mer Bleue corridor.

A number of disturbed areas were observed throughout the study area negating potential for recovering archaeological resources. The footprint of various developments such as the commercial property in the northwest corner fronting Innes Road (Image 10, p. 24), the City of Ottawa's Snow Removal Facility (Image 11,

p. 25), the Hydro Transmission Line (Image 12, p. 25), concrete drainage ditch in the north (Image 13, p. 26), and various residences have all affected the ground beyond subsoil. Mer Bleue Road narrows from two lanes to four approximately 300 m south of the Innes Road intersection (Image 14, p. 26) and features characteristically disturbed markers such as deep ditches, wide gravel shoulders and overhead hydro and bell lines (Image 15, p. 27). Areas which consisted of soil stripping and fill mounds were also identified in two portions of the property east of Mer Bleue Road (Images 16-17, p. 27) and along the southwestern border of the study area (Image 18, p. 28).

1.3.2 Previous Research and Archaeological Investigations

All of the archaeological work in the region has been undertaken as part of Cultural Resource Management Studies.

A number of known archaeological investigations have previously been completed within the immediate vicinity of the study area. These include a Stage 1 assessment along Innes Road north of the study area (Heritage Quest, 2000), a Stage 1 and 2 investigation for the Cumberland Transitway and Blackburn Hamlet Roadway extension (Heritage Quest, 1999), a Stage 1 and 2 assessment within Concession 4, Lot 3, located immediately south of the study area (Golder, 2008) which included a Stage 3 investigation on the same property (Fisher, n.d.), a Stage 2 assessment within part of Lots 2 and 3, Concession 3 (Gromoff, 2007), and a Stage 2 archaeological investigation on part of Lots 2, 3 and 4, Concession 4, located immediately south of the study area (Heritage Quest, 2007). Also, an assessment of a long corridor encompassing parts of lots along Concession 2, Gloucester Township, situated north of the study area, was recently completed (Golder, 2013).

Of particular interest to this study are the archaeological assessments conducted within the study area (Map 11, p. 40). Heritage Quest Inc. undertook Stage 1 and 2 assessments of a water feedermain study which focused on a 5 km corridor following the Hydro Transmission corridor from Page Road west to Innes Road (Sattleberger 1995a & 1995b). The Stage 1 study identified archaeological potential along Mud Creek, the headwaters of McKinnon Creek and historic potential for the area of the Mer Bleue crossing. Subsequent Stage 2 testing was undertaken of the areas determined to have archaeological potential. The testing, concentrated in 3 areas, failed to reveal any indication of archaeological resources and recommended no further assessments.

A Stage 1/2 archaeological assessment was also conducted for the proposed alignments for the Cumberland Transitway and Blackburn Hamlet Bypass Extension (Daechsel, 1999). One option for the corridor ran south parallel the present Hydro Transmission line and the other broke from the transmission alignment south at Lot 1, Concession 3, Gloucester Township to run perpendicular to Mer Bleue Road. The results of the Stage 1 identified three areas requiring Stage 2 testing: Mud Creek, McKinnon Creek and Ladouceur Farm (2226 Mer Bleue Road). A single piece of ironstone was discovered during the Stage 2 testing in the McKinnon Creek study area. Otherwise no other artifacts or features were identified during in the assessment. No further archaeological assessments were recommended.

In 2006, Archaeological Services Inc. conducted a Stage 1 archaeological assessment and built heritage and cultural landscape assessment for the Mer Bleue Road Widening EA which extended from Innes to Navan Road (ASI 2006a, 2006b). The assessment identified moderate archaeological potential and Stage 2 testing along the corridor and its various alternative routes based on the proximity to McKinnon Creek and previous nineteenth-century structures and historic roadway. The built heritage assessment also identified a heritage structure located at 2226 Mer Bleue Road. The house is listed on the City of Ottawa's heritage inventory as 2220 Mer

Bleue Road. It was suggested that the main portion of the house was likely the original Jean Baptiste Proulx dit Clement house as illustrated in the 1879 Belden Map and constructed in circa 1856. The owner's family at the time of the study (Ladoucer, as mentioned above) has resided on the property since 1914.

Finally, a Stage 1/2 archaeological assessment was undertaken by Golder Associates Ltd. for the proposed Brian Coburn Boulevard extension which runs 2.4 km south of the present Hydro Transmission corridor (Golder 2013). The Stage 1 portion of the study highlighted the same triggers for archaeological potential within the study area as identified in previous studies: Mud Creek, McKinnon Creek, historic structures and Mer Bleue Road as a historic corridor. A Stage 2 assessment was conducted along the entire length of the extension. No archaeological artifacts or features were discovered during the investigation.

1.3.3 Archaeological Sites

The primary source of information regarding known archaeological sites within the province is the Ontario Ministry of Tourism, Culture and Sport's archaeological site database. As of September 3, 2013, there were no registered archaeological sites within 1 km of the study area perimeter (MTCS, 2013).

A small concentration of late nineteenth century artifacts was identified during a Stage 2 archaeological investigation within Lot 3, Concession 4 Ottawa Front, approximately 1.5 kilometres south of the current study area. This site was registered as the Cosgrove Site and assigned Borden Number BiFv-11 (Heritage Quest, 2007). The material culture was deemed significant to continue with a Stage 3 investigation, which has since been completed (Fisher, n.d.).

Two additional archaeological sites have been registered within the same Lot and Concession as the study area currently under investigation. The Rathwell/Kehoe Farmstead, comprising the remains of a farmhouse and log shed was identified south of Innes Road on Lot 3, Concession 3 Ottawa Front, and registered as Borden Number BiFv-13. This site is located approximately 300 m north of the study area and dated to the mid-to-late nineteenth century. Another collection of historic artifacts was identified on Lot 2, Concession 3 Ottawa Front, located approximately 300 m north of the study area. This site, known as the Belanger/Corbeille Farmstead (BiFv-14), consisted of two clusters of artifacts dating between the late nineteenth and early twentieth centuries, although no evidence of the house associated with this residential settlement was found, which is suggested to have possibly been located south of the artifact deposits. Both of these historic sites were discovered during a Stage 2 archaeological investigation south of Innes Road (Gromoff, 2007).

2.0 FIELD METHODS

A property inspection was carried out on November 15, 2013. The objective of the inspection was to help identify the appropriate Stage 2 archaeological assessment strategy and to determine the presence or absence features of archaeological potential. The inspection consisted of walking through the subject property and randomly spot-checking different locations within it. The inspection covered the entire study area and was conducted in overcast weather, with a temperature of 6 degrees Celsius.

Field notes and photographs of the property were taken during the inspection. The photographic locations and directions were noted and all photographs were catalogued (Appendix A). All photograph locations and directions referenced in this report have been shown on Map 1A, p. 32. No archaeological remains were noted during the course of the property inspection.

Features which would affect the archaeological strategy included a number of variables identified on the property, as mentioned in Section 1.3.1 above. Ground surface disturbance consisted in large part by local development such as commercial buildings, residential buildings, the Hydro Transmission Line, roadway ditches, soil stripping, fill and the City of Ottawa Snow Removal Facility which included substantial landscaping. These areas are too disturbed to require further Stage 2 testing.

Also noted were some portions of the study area within the wooded and open fields (concentrating around the Hydro Transmission Line both east and west) which were poorly drained and may be unsuitable for further testing. Since the field inspection was conducted in November, it is uncertain whether the season would play a role in Stage 2 suitability. Inspection of these areas prior to construction activity will be necessary to determine whether Stage 2 testing will have to be conducted during an appropriate time of year.

Areas which would require Stage 2 shovel testing included all areas within the treed and overgrown brush portions of the site to the north, west and south. All other grassed and open areas that can be ploughed require Stage 2 surface survey.

3.0 ANALYSIS AND CONCLUSIONS

3.1 Archaeological Potential

The archaeological potential of a given area is determined by a number of variables including physiographic features, property histories and disturbances. These criteria were formulated in close consultation with the Ministry of Tourism and Culture's set guidelines for archaeological resource potential (2011).

The Regional Municipality of Ottawa Carleton's (RMOC) *Archaeological Master Plan* (AMP) by Archaeological Services Inc. (ASI 1999a 1999b) shows two small areas of archaeological potential within the study area to the north and the southwest corner (Map 12, p. 41).

A number of criteria are used to determine archaeological site potential. For aboriginal or pre-contact sites these criteria are principally focussed on topographical features such as the distance to and the nature of the nearest water source. Elevation is also important- ridges, knolls and eskers providing well drained living areas as well as excellent vantage points (depending upon the surrounding vegetation). Other factors involved in determining aboriginal site location are the existence of raw materials such as exploitable supplies of lithic material, clay, shell and copper. The presence of previously recorded pre-contact sites is also a major factor in assessing the potential of an area as such sites often occur in clusters. These criteria were formulated in close consultation with the Ministry of Tourism Culture and Sport's set guidelines for archaeological resource potential mapping (2011). The study area possesses areas of aboriginal potential identified by the AMP and also associated with Mud, McKinnon and Billberry Creeks.

The assessment of historic site potential is usually dependent upon historical research (e.g. land registry records, census and assessment rolls, historical cartography and aerial photographs) and the inspection of the study area for possible above ground remains or other evidence of demolished historic structures. Areas within 300 m of historic churches, cemeteries, commercial buildings, industrial sites and 100 m within historic roads are required to be assessed. Also considered in the assessment is the proximity of known archaeological sites (300 m). These guidelines were applied to the study area after the research described above, generating the following observations regarding areas of archaeological potential. The locations of three historic homesteads are identified within the study area: these are the eight unregistered locations of the historic structures illustrated in the 1863 Walling and 1879 Belden maps (Maps 4 & 12, pp. 33 & 41). Further potential is added by the historic Mer Bleue Road, a forced road established by 1879 that divides Gloucester and Cumberland Township.

Archaeological potential has been removed in certain locations by the development of the Hydro Transmission Line, City of Ottawa's Snow removal facility, various commercial and residential buildings, the development of Mer Bleue Road, and the stripped and fill deposited soils. These areas are not suitable for further archaeological assessment (Map 12, p. 41).

Map 13 (p. 42) considers all remaining areas which are left and contain archaeological potential once the previous areas of archaeological assessments (Map 11, p. 40) and areas of disturbance (Map 12, p. 41) were removed.

4.0 RECOMMENDATIONS

Based on the historic background documentation, the property inspection and the results of previous archaeological investigations, portions of the subject property have archaeological potential and will require further archaeological assessment and possible mitigation should archaeological sites be found. A Stage 2 assessment in the form of shovel testing at 5 m intervals is recommended in areas with tree cover which inhibits the possibility of ploughing. All other open grassed areas require ploughing according to MTCS standards and surface surveyed at 5 m intervals. No further work is recommended in the areas that feature recent disturbance or previously archaeology assessed areas as outlined in Maps 11-12, pp. 40-41.

This report and with MTCS consultation has formed the basis for the following recommendations:

1) That all areas indicated as possessing archaeological potential as outlined in Map 13 (p. 42) be subject to Stage 2 archaeological assessment by a licenced archaeologist prior to any future disturbance. The assessment should involve shovel testing at 5 m intervals in treed/overgrown areas and surface survey in ploughable open grassed areas at 5 m intervals; and,

2) That no further archaeological assessment is required for areas indicated as possessing no/low archaeological potential or previously assessed areas (Map 13, p. 42).

5.0 ADVICE ON COMPLIANCE WITH LEGISLATION

This report is submitted to the Ministry of Tourism, Culture and Sport as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c 0.18. The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Tourism and Culture, a letter will be issued by the Ministry stating that there are no further concerns with regard to alterations to archaeological sites by the proposed development.

It is an offence under Sections 48 and 69 of the *Ontario Heritage Act* for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed archaeological fieldwork on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeology Reports referred to in Section 65.1 of the *Ontario Heritage Act*.

Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48 (1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48 (1) of the *Ontario Heritage Act*.

The *Funeral, Burial and Cremation Services Act*, 2002, S.O. 2002, c.33, requires that any person discovering or having knowledge of a burial site shall immediately notify the police or coroner. It is recommended that the Registrar of Cemeteries at the Ministry of Consumer Services is also immediately notified.

Reports recommending further archaeological fieldwork or protection for one or more archaeological sites must include the following standard statement: "Archaeological sites recommended for further archaeological fieldwork or protection remain subject to Section 48 (1) of the *Ontario Heritage Act* and may not be altered, or have artifacts removed from them, except by a person holding an archaeological licence."

6.0 IMPORTANT INFORMATION AND LIMITATIONS OF THIS REPORT

Golder Associates Ltd. (Golder) has prepared this report in a manner consistent with that level of care and skill ordinarily exercised by members of the archaeological profession currently practicing under similar conditions in the jurisdiction in which the services are provided, subject to the time limits and physical constraints applicable to this report. No other warranty, expressed or implied is made.

This report has been prepared for the specific site, design objective, developments and purpose described to Golder by Richcraft Homes Ltd. (the Client). The factual data, interpretations and recommendations pertain to a specific project as described in this report and are not applicable to any other project or site location.

The information, recommendations and opinions expressed in this report are for the sole benefit of the Client. No other party may use or rely on this report or any portion thereof without Golder's express written consent. If the report was prepared to be included for a specific permit application process, then upon the reasonable request of the client, Golder may authorize in writing the use of this report by the regulatory agency as an Approved User for the specific and identified purpose of the applicable permit review process. Any other use of this report by others is prohibited and is without responsibility to Golder. The report, all plans, data, drawings and other documents as well as all electronic media prepared by Golder are considered its professional work product and shall remain the copyright property of Golder, who authorizes only the Client and Approved Users to make copies of the report, but only in such quantities as are reasonably necessary for the use of the report by those parties. The Client and Approved Users may not give, lend, sell, or otherwise make available the report or any portion thereof to any other party without the express written permission of Golder. The Client acknowledges the electronic media is susceptible to unauthorized modification, deterioration and incompatibility and therefore the Client cannot rely upon the electronic media versions of Golder's report or other work products.

Unless otherwise stated, the suggestions, recommendations and opinions given in this report are intended only for the guidance of the Client in the design of the specific project.

Special risks occur whenever archaeological investigations are applied to identify subsurface conditions and even a comprehensive investigation, sampling and testing program may fail to detect all or certain archaeological resources. The sampling strategies incorporated in this study comply with those identified in the Ministry of Tourism, Culture and Sports' *Standards and Guidelines for Consultant Archaeologists* (2011).

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8.0 IMAGES



Image 1: Channelized ditch located in the eastern portion of the study area, facing west.



Image 2: Areas of standing water in western portion of study area, looking south.



Image 3: Wet areas located northeast within the property, looking northeast.



Image 4: Wetland conditions east within the study area. Photo facing southeast.



Image 5: Example of mixed agricultural and fallow fields in the central portion of the study area, facing southwest.



Image 6: Agricultural land now overgrown with trees and brush in western area. Photo facing southeast.



Image 7: Ploughed field located in the northeastern portion of the property, looking west.



Image 8: Channelized ditch from McKinnon's Creek located towards the southwestern portion of the study area, facing southwest.



Image 9: Ploughed area in south-central portion of study area showing poorly drained area. Photo facing southeast.



Image 10: Fill and refuse pile located in back of commercial property. Northwestern corner of property, looking northeast.



Image 11: View of City of Ottawa's Snow Removal Facility (in foreground) and significantly altered landscape with elevated berms and fence line. Photo taken looking northwest.



Image 12: Hydro Transmission Line which runs diagonal across the entire study area, looking southwest.



Image 13: Drainage area located behind commercial properties fronting Innes Road, looking west.



Image 14: Deep drainage ditch disturbance west along Mer Bleue Road, facing northwest.



Image 15: Drainage ditch west along Mer Bleue Road causing deep ground impact. Photo taken looking northwest.



Image 16: Significant soil stripping and deposits northeast along Mer Bleue Road, facing east.

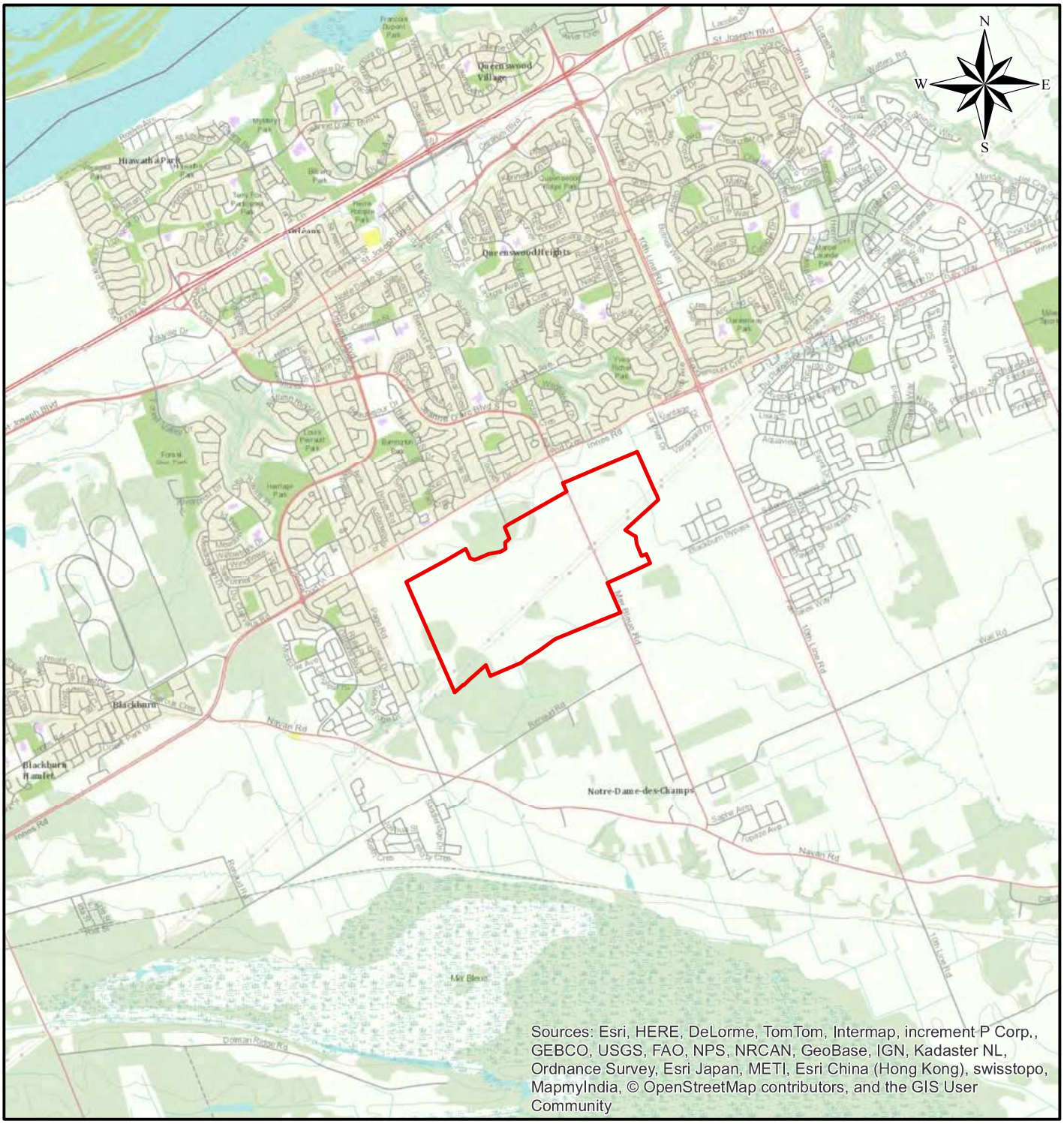


Image 17: Land development being undertaken in the southeastern portion of the property, looking east.



Image 18: Standing above large fill deposit consisting of soil and gravel located along the southern border of the property, looking south.

9.0 MAPS



LEGEND

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NOTE

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DATUM: NAD 83, COORDINATE SYSTEM: MTM ZONE 9

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SCALE 1:10,000 METRES

NOTE

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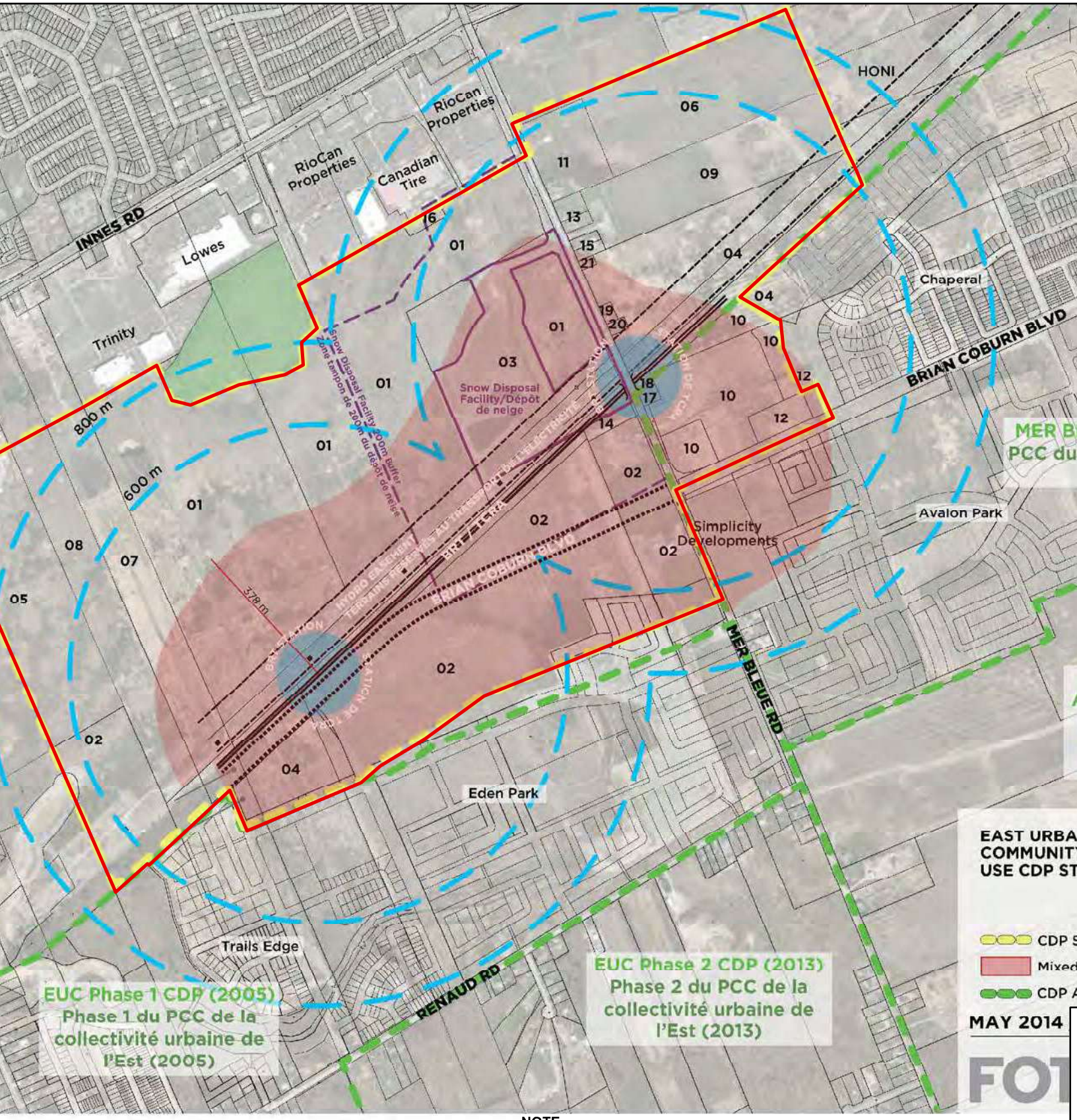

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DEVELOPMENT PLAN PROVIDED BY RICHCRAFT IN PDF FORMAT, 2014-10-14.
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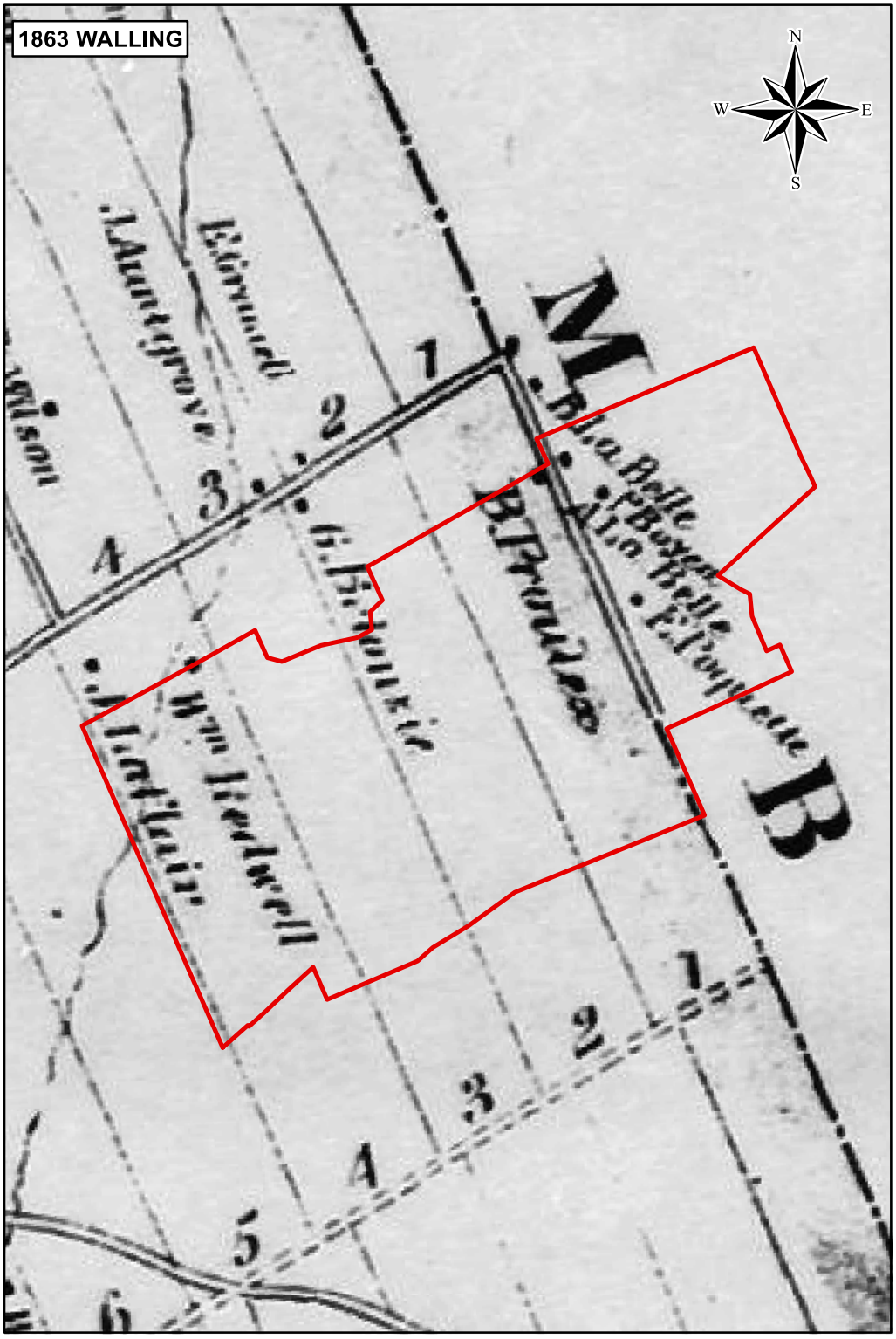

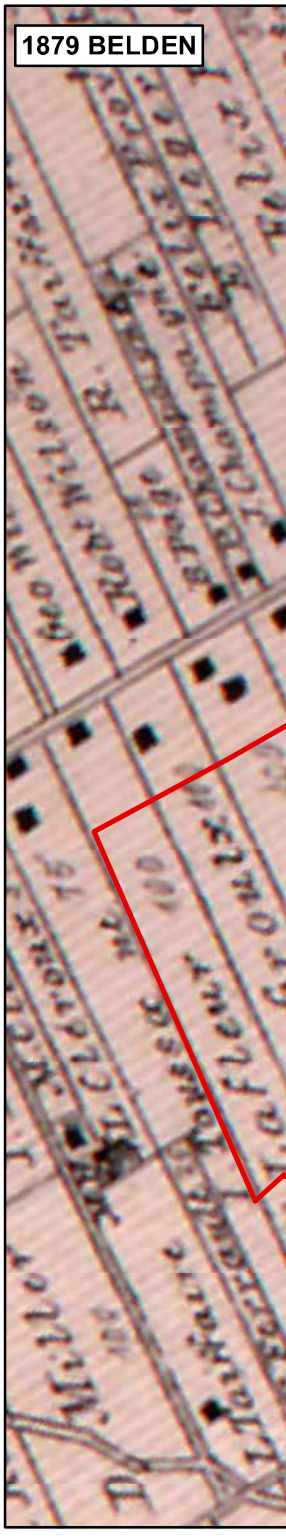

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NOTE

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REFERENCE

HISTORICAL MAPS:
COFFIN, WILLIAM, 1825, COUNTY OF GLOUCESTER. ARCHIVES AND LIBRARY CANADA NMC4830.
WALLING, HENRY FRANCIS,1863, CANADA WEST. COUNTY OF GLOUCESTER, ONTARIO, D. P. PUTNAM, NMC43061-21.
BELDEN, H.,1879. ILLUSTRATED HISTORICAL ATLAS OF COUNTY OF GLOUCESTER. TORONTO, H. BELDEN & CO.
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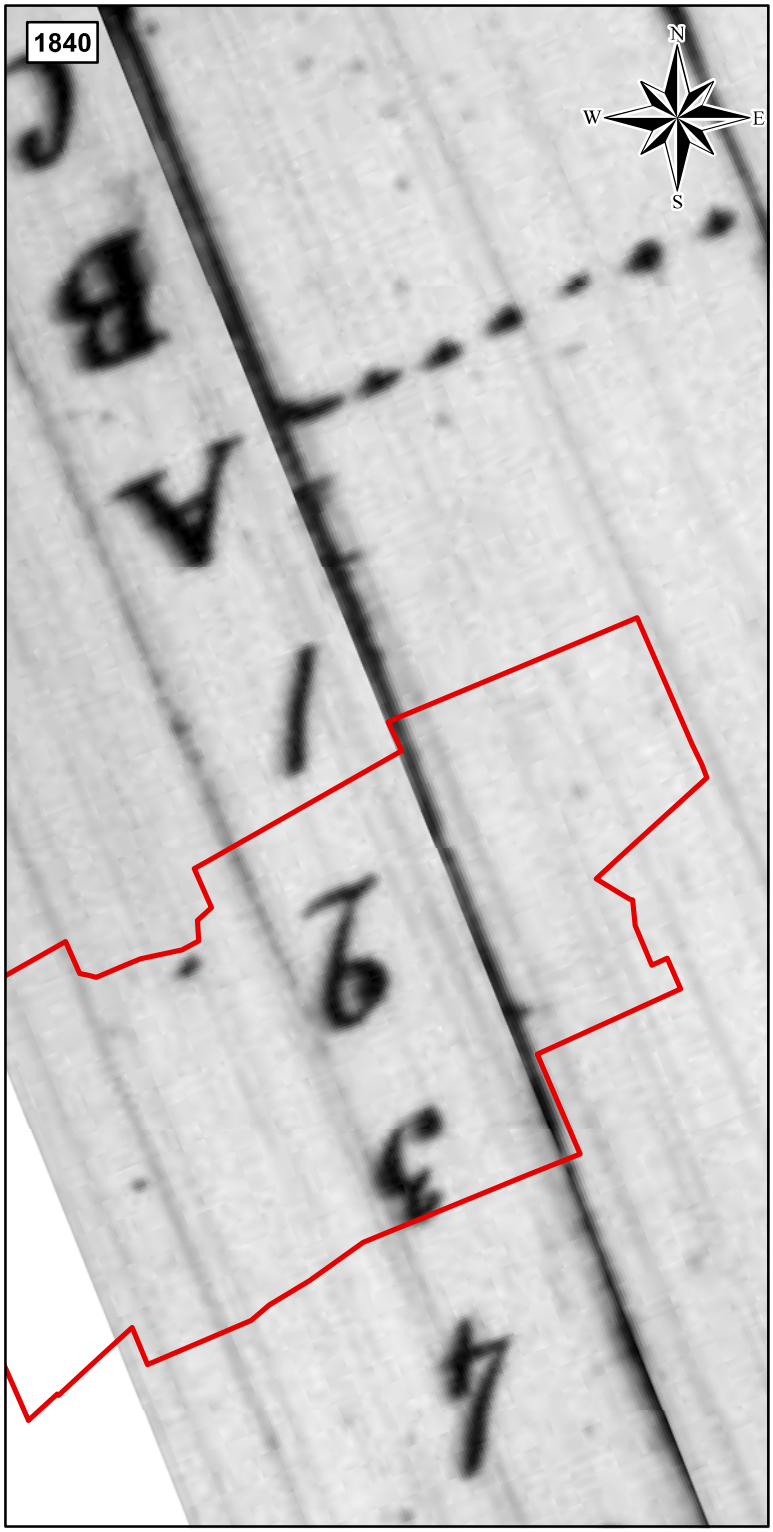



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NOTE

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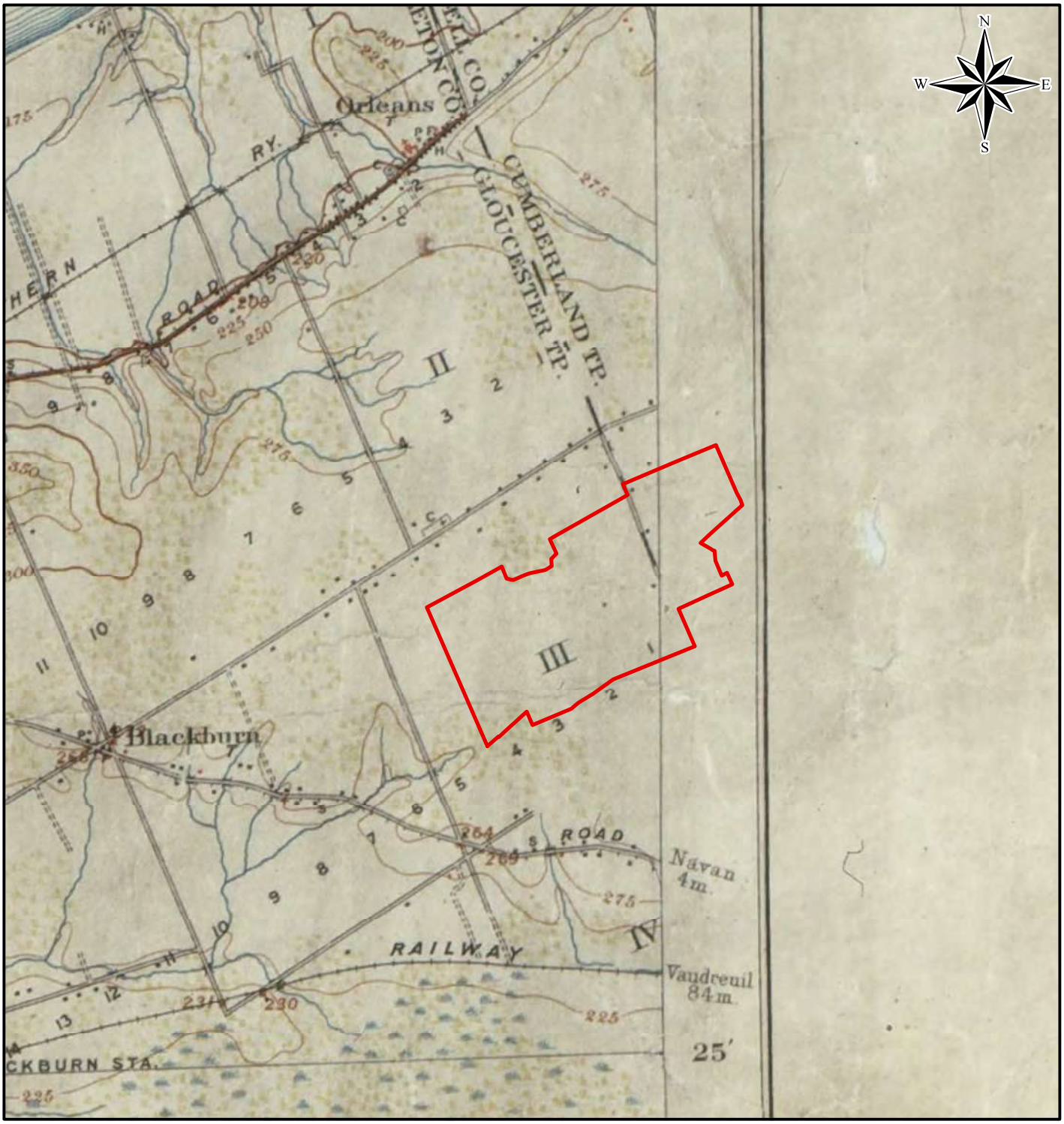
REFERENCE

COFFIN, WILLIAM, 1825, PLAN OF CARLETON COUNTY. ARCHIVES AND LIBRARY CANADA NMC 3425.
ANONYMOUS,1840, PLAN ACCOMPANYING THE CENSUS ASSESSMENT ROLL FOR CUMBERLAND TOWNSHI
ARCHIVES AND LIBRARY CANADA. MICROFILM REEL M-7735.
WALLING, HENRY FRANCIS, 1862, MAP OF THE COUNTIES OF STORMONT, DUNDAS, GLENGARRY, PRESCOTT AND RUSSELL, CANADA WEST.
BELDEN, H., 1881, ILLUSTRATED HISTORICAL ATLAS OF PRESCOTT AND RUSSELL COUNTIES. TORONTO, H. BELDEN & CO.
DATUM: NAD 83, COORDINATE SYSTEM: MTM ZONE 9



LEGEND

STUDY AREA

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NOTE

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REFERENCE

1906 TOPOGRAPHIC MAP, NATIONAL LIBRARY AND ARCHIVES CANADA, NMC-18372. DATUM: NAD 83, COORDINATE SYSTEM: MTM ZONE 9

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GIS	BR
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REVIEW	HJD

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1906 TOPOGRAPHIC MAP

PROJECT STAGE 1 ARCHAEOLOGICAL ASSESSMENT
EAST URBAN COMMUNITY CENTRE (EUC) MIXED USE CENTRE

MAP 6

Path: N:\Active\Spatial_IM\RichcraftHomes\EastUrbanCommunityCentre\GIS\MXDs\1311250095-1000-06.mxd







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NOTE

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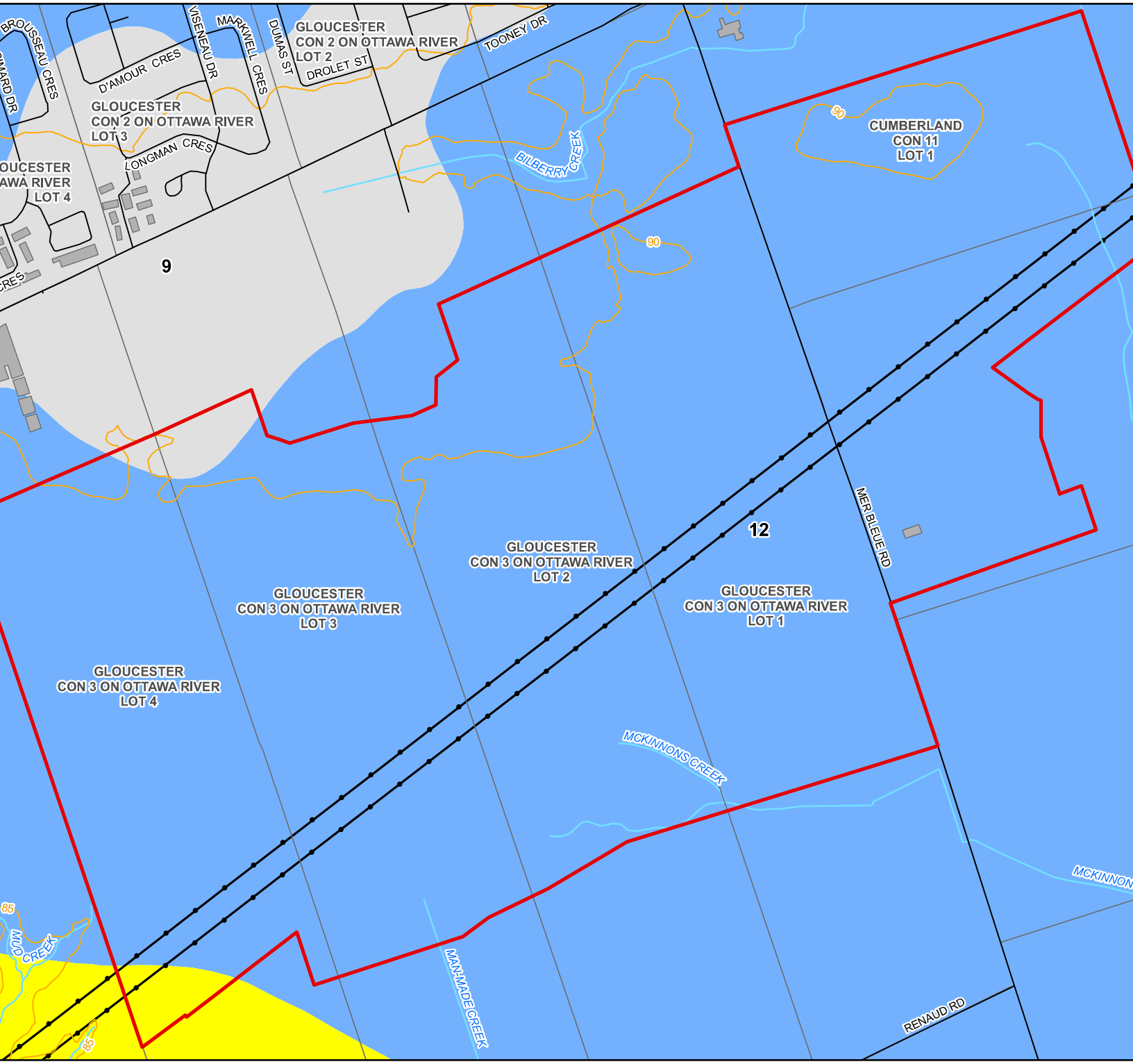
REFERENCE

1945 AERIAL PHOTO - NAPL - A9546-083.
1980 AERIAL PHOTO - NAPL - A25448-016.
2012 AERIAL PHOTO - BING MAPS AERIAL - (C) 2010 MICROSOFT CORPORATION AND ITS DATA SUPPLIERS.
DATUM: NAD 83, COORDINATE SYSTEM: MTM ZONE 9



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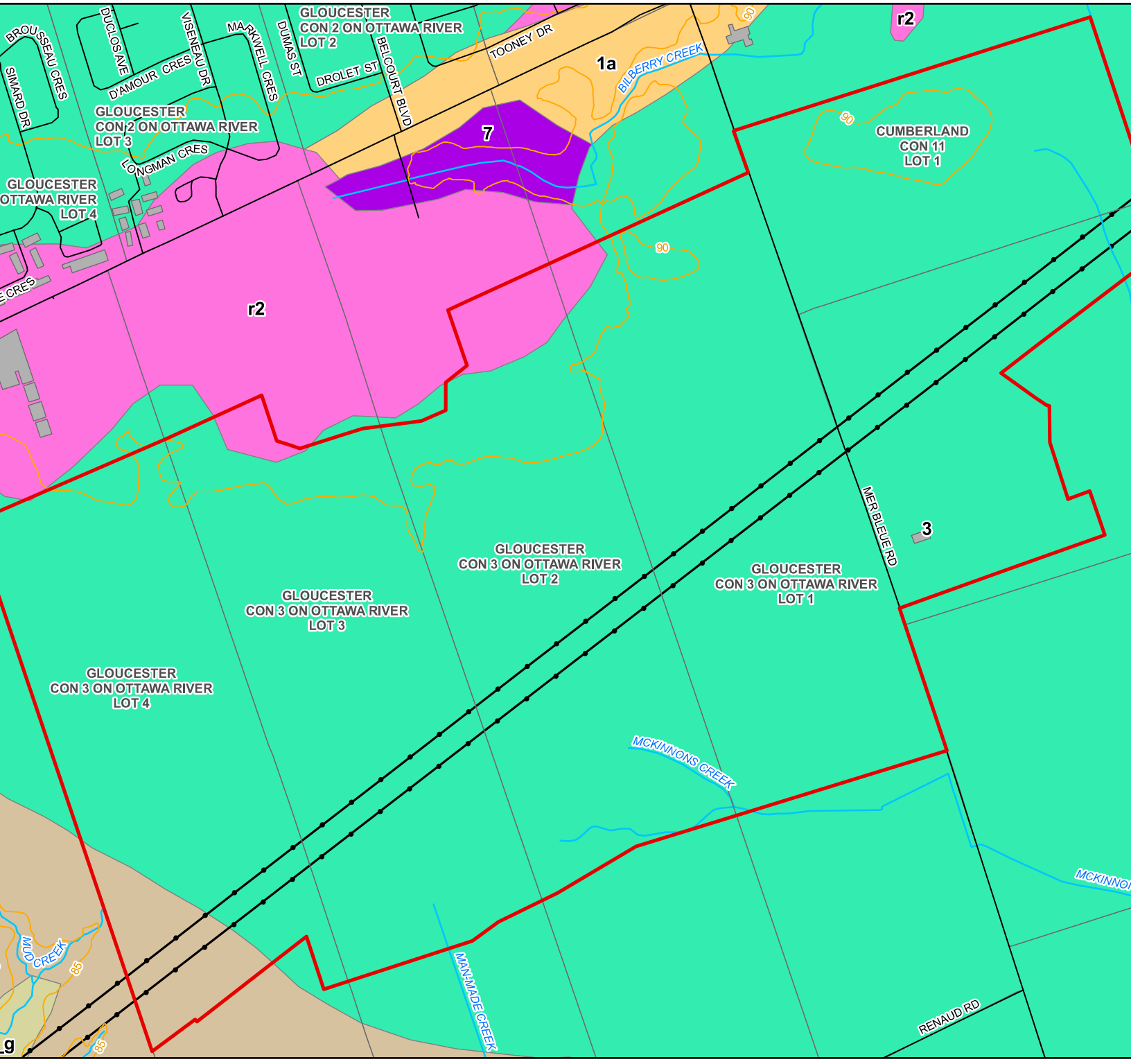
SCALE 1:10,000 METRES

NOTE

THIS FIGURE IS TO BE READ IN CONJUNCTION WITH THE ACCOMPANYING GOLDER ASSOCIATES LTD. REPORT NO. 13-1125-0095.

REFERENCE

CHAPMAN, L.J. AND PUTNAM, D.F. 2007. PHYSIOGRAPHY OF SOUTHERN ONTARIO; ONTARIO GEOLOGICAL SURVEY, MISCELLANEOUS RELEASE–DATA 228 ISBN 978-1-4249-5158-1.
LAND INFORMATION ONTARIO (LIO) DATA PRODUCED BY GOLDER ASSOCIATES LTD. UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2011
PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: MTM ZONE 9



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EDIUM TO FINE GRAINED SAND (GULLIES &

SILTY CLAY & SILT

ANDSTONE & LOCAL SHALE

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SCALE 1:10,000 METRES

NOTE

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REFERENCE

BÉLANGER, J. R. 2008 URBAN GEOLOGY OF THE NATIONAL CAPITAL AREA, GEOLOGICAL SURVEY OF CANADA, OPEN FILE 5311, 1 DVD.

LAND INFORMATION ONTARIO (LIO) DATA PRODUCED BY GOLDER ASSOCIATES LTD. UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2011

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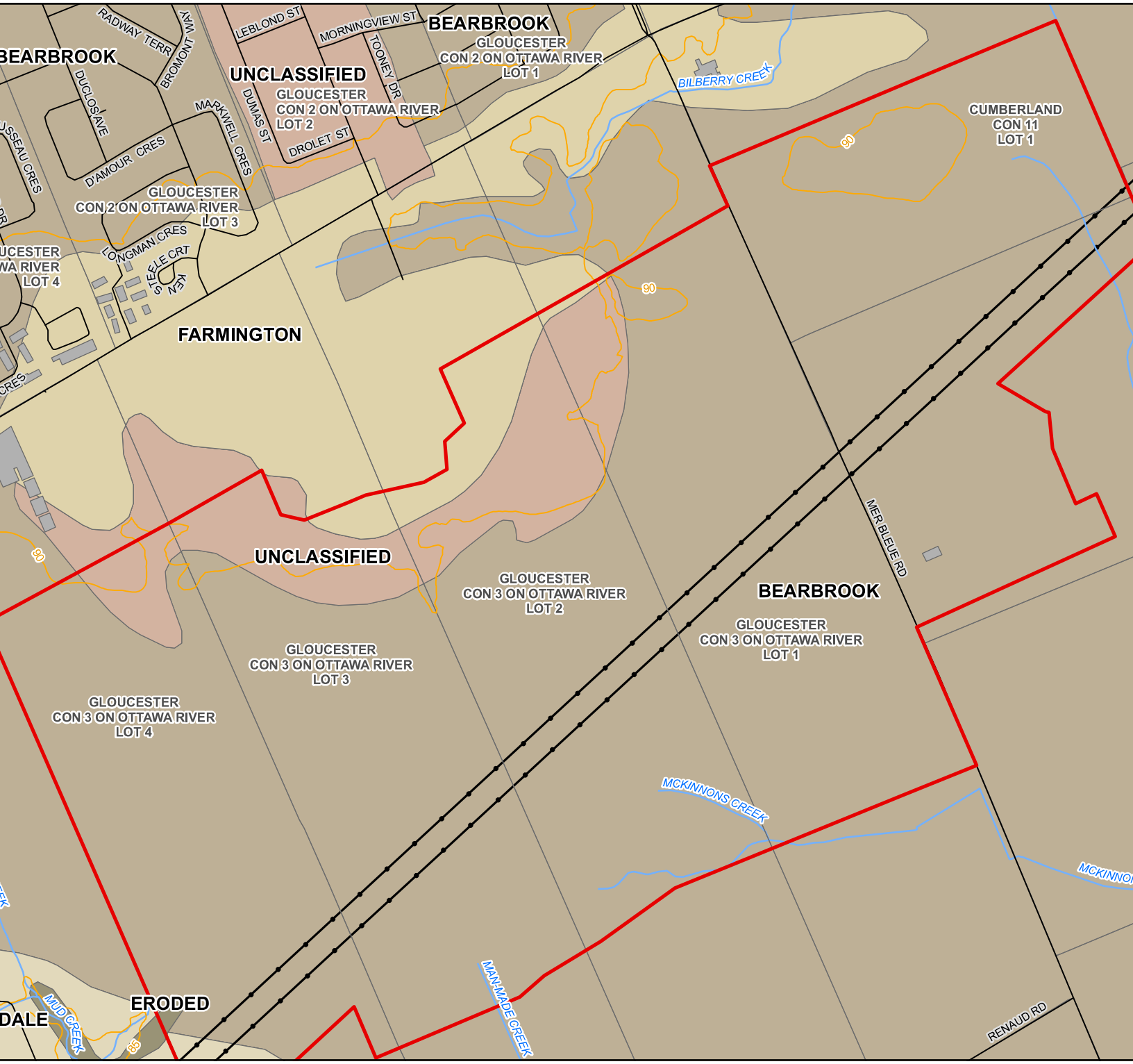

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SCALE 1:10,000 METRES

NOTE

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REFERENCE

ONTARIO SOIL INFORMATION DATABASE (ONSID) - DETAILED SOIL SURVEY . CREATED BY THE ONTARIO LAND RESOURCE UNIT, OTTAWA, ONTARIO AND THE RESOURCE INFORMATION & BUSINESS SERVICES ENVIRONMENTAL MANAGEMENT BRANCH, ONTARIO MINISTRY OF AGRICULTURE FOOD AND RURAL AFFAIRS, GUELPH, ONTARIO. © HER MAJESTY THE QUEEN IN RIGHT OF CANADA (YEAR), AS REPRESENTED BY THE MINISTER OF AGRICULTURE AND AGRI-FOOD CANADA. ALL RIGHTS RESERVED LAND INFORMATION ONTARIO (LIO) DATA PRODUCED BY GOLDER ASSOCIATES LTD. UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2011
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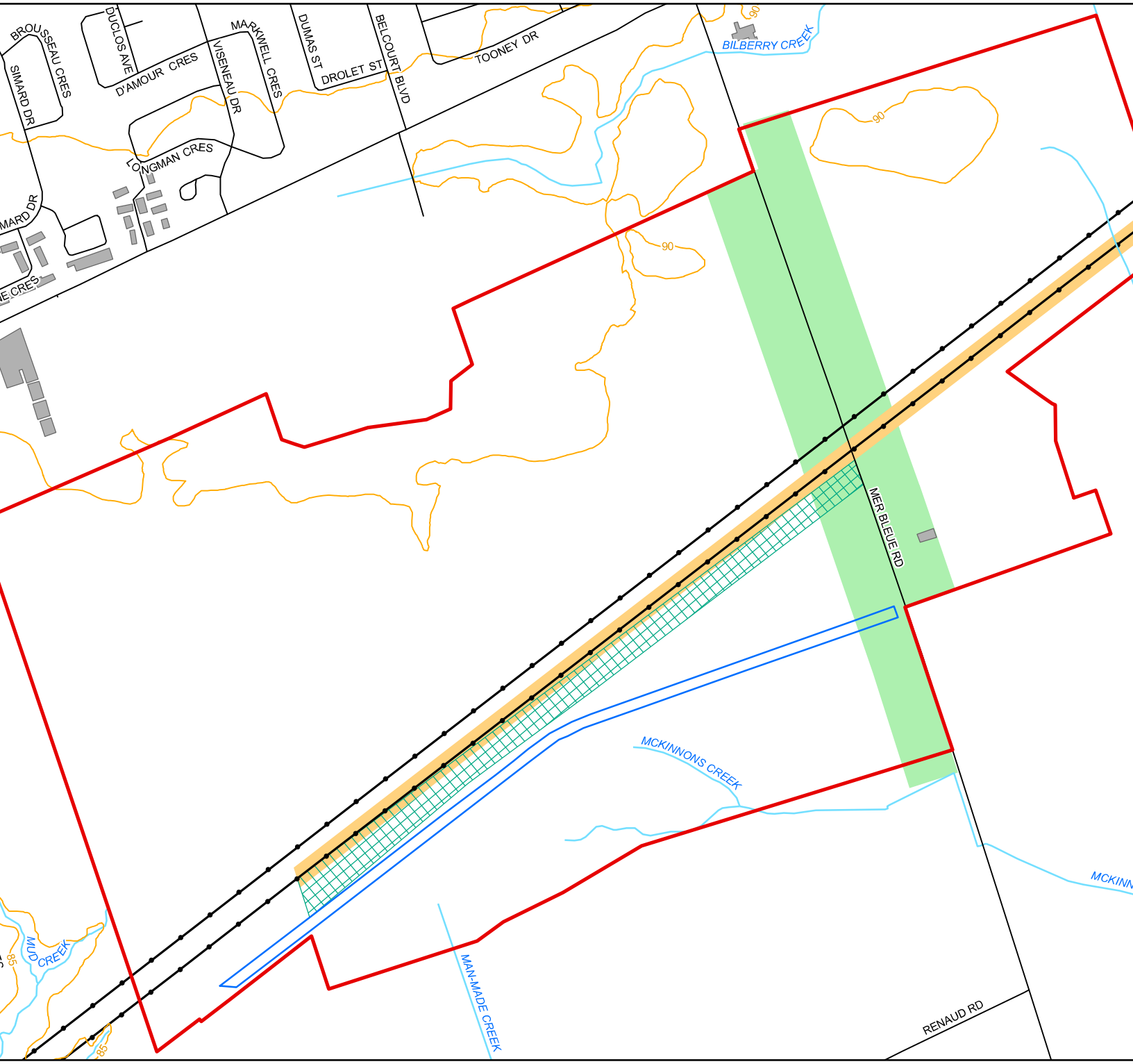

NT (GOLDER, 2013)

R BLUE ROAD WIDENING (ASI, 2006)

NT CUMBERLAND TRANSITWAY (DAESCHEL, 1999)

NT WATER FEEDERMAIN (SATTLEBERGER, 1995a, 1995b)

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SCALE 1:10,000 METRES

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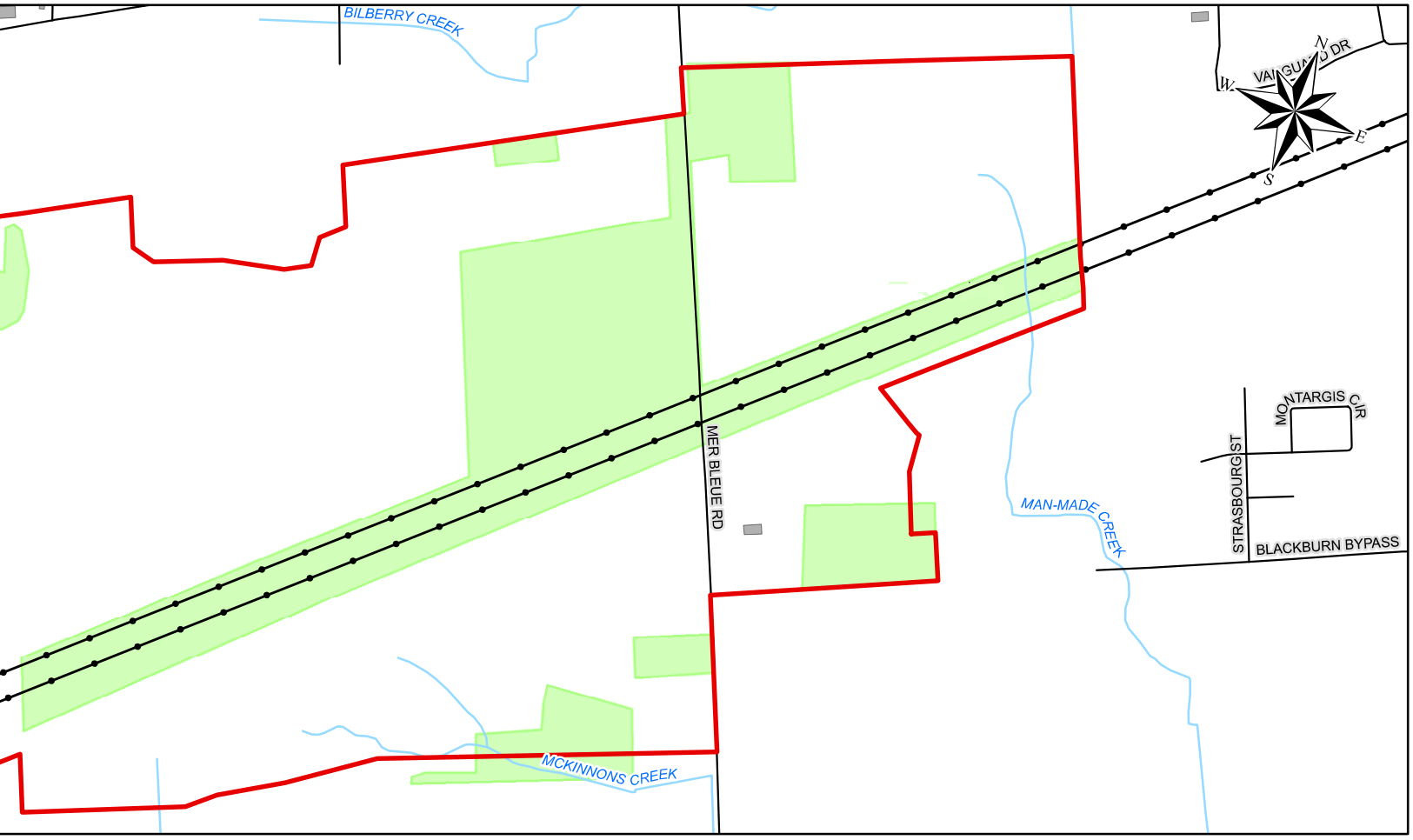
BILBERRY CREEK
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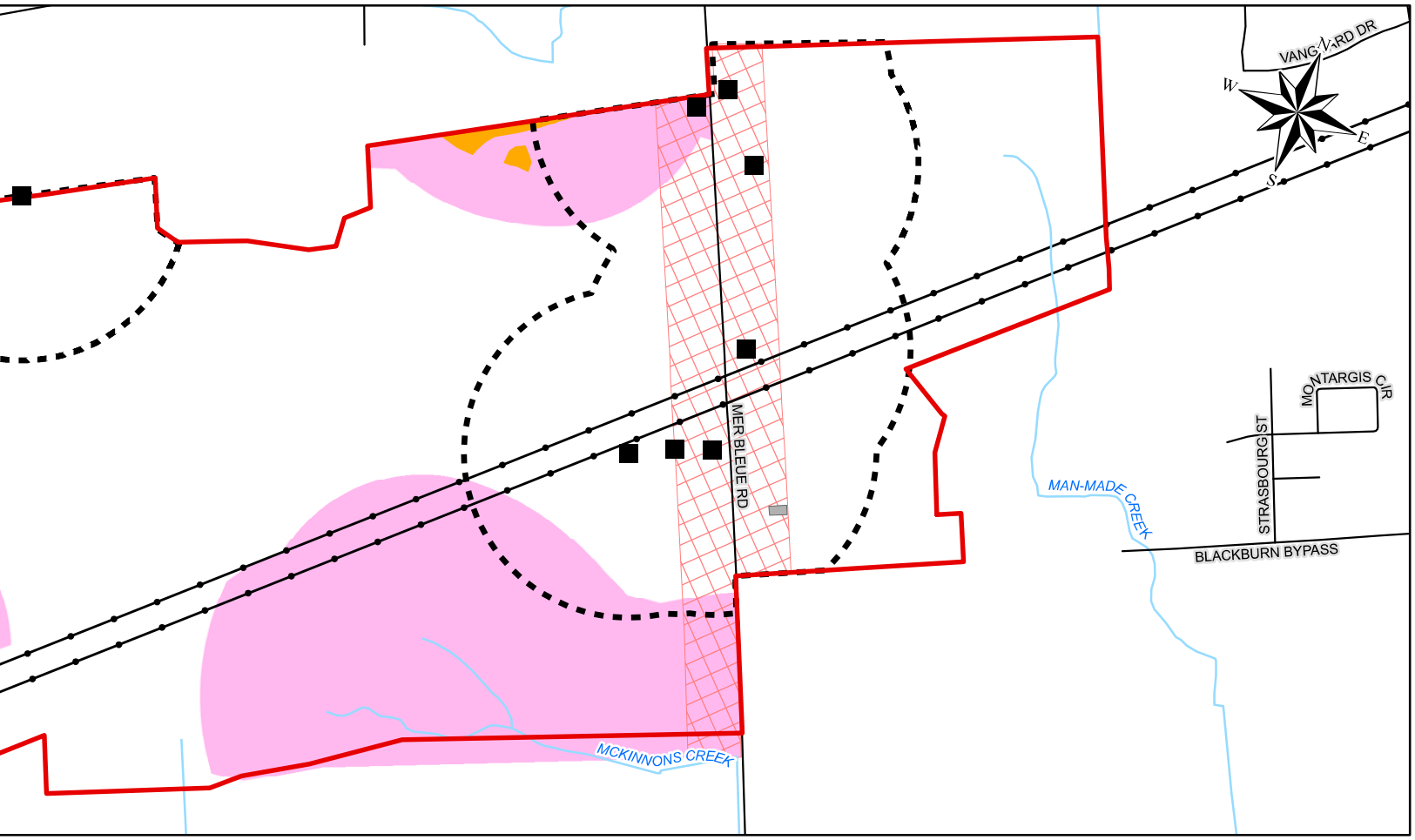
MER BLEUE RD
MONTARGIS CIR
STRASBOURG ST
BLACKBURN BYPASS
MAN-MADE CREEK
MCKINNONS CREEK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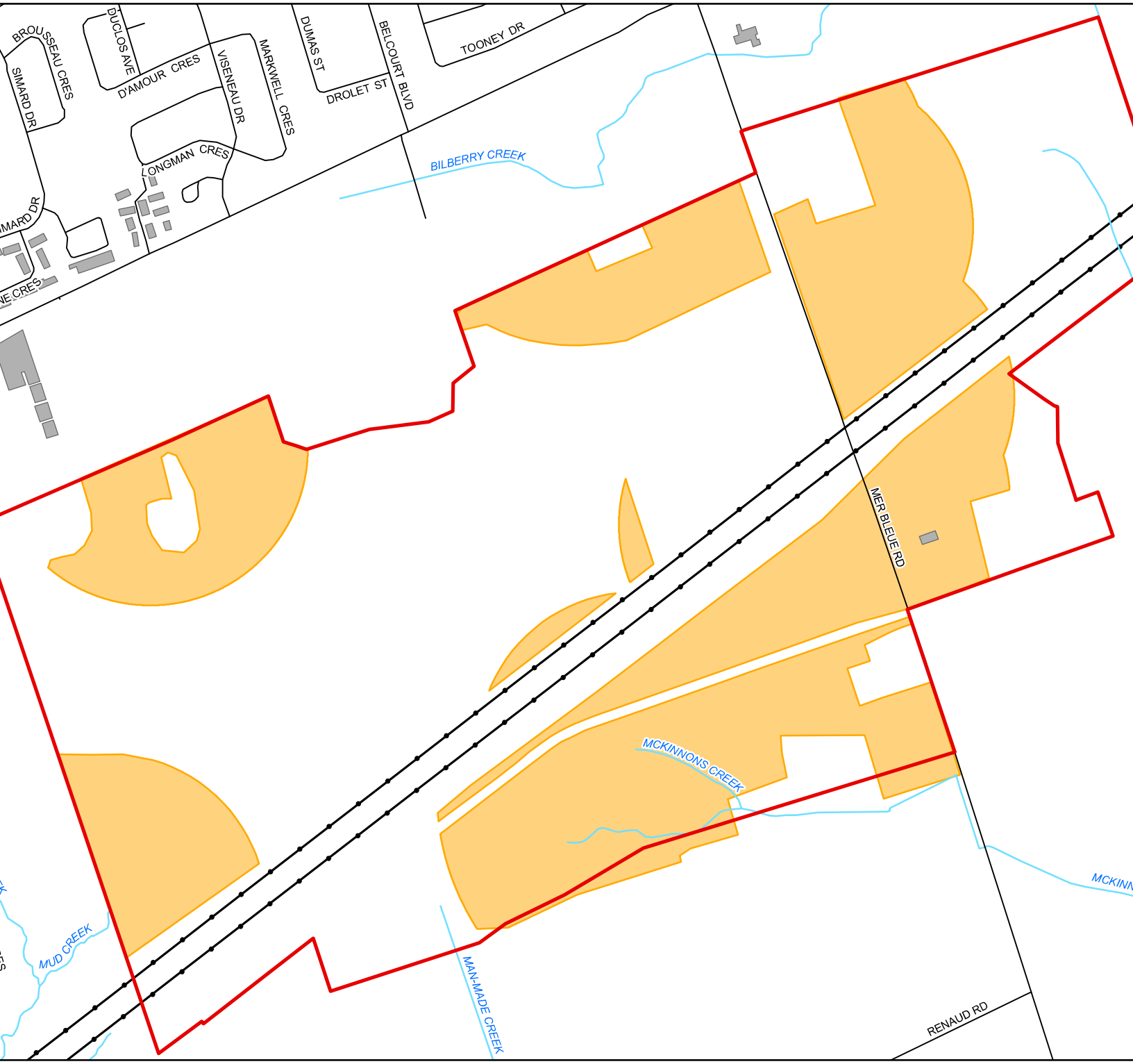
MCKINNONS CREEK



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AL ASSESSMENT

NOTE

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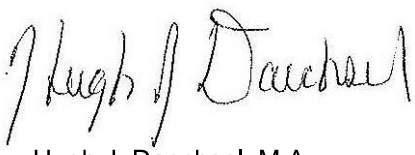
CLOSURE

We trust that this report meets your current needs. If you have any questions, or if we may be of further assistance, please contact the undersigned.

GOLDER ASSOCIATES LTD.



Erin Wilson, M.A.
Archaeologist



Hugh J. Daechsel, M.A.
Principal, Senior Archaeologist

EW/HJD/ca/mvrd

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APPENDIX A

Photographic Catalogue

Photo	Description	Direction	Date	Photographer
1311250095-D01	View of wooded area in northwest corner of study area	NE	11/15/2014	EW
1311250095-D02	View of wooded area in northwest corner of study area	S	11/15/2014	EW
1311250095-D03	Drainage channel in northwestern border	SW	11/15/2014	EW
1311250095-D04	Fill and debris deposit from commercial property in northwest corner	NE	11/15/2014	EW
1311250095-D05	Fill and debris deposit from commercial property in northwest corner	E	11/15/2014	EW
1311250095-D06	Field, northwest area	SE	11/15/2014	EW
1311250095-D07	Field, northwest area	W	11/15/2014	EW
1311250095-D08	Field, northwest area	W	11/15/2014	EW
1311250095-D09	Field, northwest area	S	11/15/2014	EW
1311250095-D10	Field, northwest area	W	11/15/2014	EW
1311250095-D11	Field with poor drainage, northwest area	N	11/15/2014	EW
1311250095-D12	Field, northwest area	W	11/15/2014	EW
1311250095-D13	Field, northwest area	W	11/15/2014	EW
1311250095-D14	Field, northwest area	N	11/15/2014	EW
1311250095-D15	Hydro line, central-western area	E	11/15/2014	EW
1311250095-D16	Hydro line, central-western area	W	11/15/2014	EW
1311250095-D17	Hydro line, central-western area	SE	11/15/2014	EW
1311250095-D18	Mixed fallow and agricultural fields in central-western area	N	11/15/2014	EW
1311250095-D19	Mixed fallow and agricultural fields in central-western area	SE	11/15/2014	EW
1311250095-D20	Channelized McKinnons Creek in southwest	SW	11/15/2014	EW
1311250095-D21	Ploughed fields with poor drainage	N	11/15/2014	EW
1311250095-D22	Ploughed fields with poor drainage	NE	11/15/2014	EW
1311250095-D23	Ploughed fields with poor drainage	NE	11/15/2014	EW
1311250095-D24	Ploughed fields with poor drainage	NW	11/15/2014	EW
1311250095-D25	Fill mound located in southwestern border	N	11/15/2014	EW
1311250095-D26	Fill mound located in southwestern border	E	11/15/2014	EW
1311250095-D27	Fill mound located in southwestern border	E	11/15/2014	EW
1311250095-D28	Mer Bleue Road looking northwest	NW	11/15/2014	EW
1311250095-D29	Snow removal facility and landscaping	NW	11/15/2014	EW
1311250095-D30	Snow removal facility and landscaping	W	11/15/2014	EW
1311250095-D31	Snow removal facility and landscaping	N	11/15/2014	EW

Photo	Description	Direction	Date	Photographer
1311250095-D32	Snow removal facility and landscaping	W	11/15/2014	EW
1311250095-D33	Snow removal facility and landscaping	W	11/15/2014	EW
1311250095-D34	Snow removal facility and landscaping	S	11/15/2014	EW
1311250095-D35	Deep cut ditch west of Mer Bleue Road	NW	11/15/2014	EW
1311250095-D36	Concrete ditch located south of commercial properties along Innes Road	SW	11/15/2014	EW
1311250095-D37	Concrete ditch located south of commercial properties along Innes Road	W	11/15/2014	EW
1311250095-D38	Concrete ditch located south of commercial properties along Innes Road	N	11/15/2014	EW
1311250095-D39	Exposed bedrock in open area to the north	S	11/15/2014	EW
1311250095-D40	Stripped soil east behind residences along Mer Bleue	SE	11/15/2014	EW
1311250095-D41	Stripped soil east behind residences along Mer Bleue	E	11/15/2014	EW
1311250095-D42	Stripped soil east behind residences along Mer Bleue	N	11/15/2014	EW
1311250095-D43	Standing water in northeast corner of property	SW	11/15/2014	EW
1311250095-D44	Standing water in northeast corner of property	NE	11/15/2014	EW
1311250095-D45	Ploughed field in northeast	S	11/15/2014	EW
1311250095-D46	Ploughed field in northeast	SE	11/15/2014	EW
1311250095-D47	Wetland conditions near eastern subdivision	SE	11/15/2014	EW
1311250095-D48	Hydro corridor	SW	11/15/2014	EW
1311250095-D49	Channelized drainage ditch	W	11/15/2014	EW
1311250095-D50	Stripping and housing development in southeast corner	NW	11/15/2014	EW
1311250095-D51	Stripping and housing development in southeast corner	NE	11/15/2014	EW
1311250095-D52	Stripping and housing development in southeast corner	N	11/15/2014	EW
1311250095-D53	Houses east along Mer Bleue Road	NW	11/15/2014	EW
1311250095-D54	Houses east along Mer Bleue Road	SE	11/15/2014	EW
1311250095-D55	Houses east along Mer Bleue Road	N	11/15/2014	EW

EW = Erin Wilson

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www.golder.com

Golder Associates Ltd.
1931 Robertson Road
Ottawa, Ontario, K2H 5B7
Canada
T: +1 (613) 592 9600

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Appendix D3: Phase One Environmental Site Assessment and Soil/Groundwater Characterization Report, EXP Services Inc. 2024

Phase One Environmental Site Assessment and Soil / Groundwater Characterization Report

2170 Mer Bleue Road, Ottawa, Ontario

Client:
Hydro Ottawa Limited

Type of Document:
Final Report

Project Name:
Phase One Environmental Site Assessment and Soil/Groundwater Characterization

Project Number:
OTT-23010468-A0

Prepared By:
Devin Clouthier, B.Sc.

Reviewed By:
Scott Lessard, B.Sc.
Chris Kimmerly, P. Geo.

EXP Services Inc.
100-2650 Queensview Drive
Ottawa, Ontario K2B 8H6
t: +1.613.688.1899
f: +1.613.225.7337

Date Submitted:
2024-08-21

Legal Notification

This report was prepared by EXP Services Inc. for the account of **Hydro Ottawa Limited**.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. EXP Services Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this project.

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Executive Summary

EXP Services Inc. (EXP) was retained by Hydro Ottawa Limited to complete a Phase One Environmental Site Assessment (ESA) of the property located at 2170 Mer Bleue Road in Ottawa, Ontario hereinafter referred to as the 'Phase One property' or 'Site'. At the time of the investigation, the Phase One property was undeveloped. In addition to the Phase One ESA, EXP also carried out soil and groundwater sampling at the request of Hydro Ottawa to determine any impact of the adjacent snow on the soil and groundwater of the Phase One property.

A Phase One ESA is a systematic qualitative process to assess the environmental condition of a site based on its historical and current uses. This Phase One ESA was conducted in accordance with the Phase One ESA standard as defined by Ontario Regulation 153/04, as amended, and in accordance with generally accepted professional practices. Subject to this standard of care, EXP makes no express or implied warranties regarding its services and no third-party beneficiaries are intended. Limitation of liability, scope of report and third-party reliance are outlined in Section 9 of this report.

The purpose of this Phase One ESA is to determine if past or present site activities have resulted in actual or potential contamination at the Phase One property. It is understood that the report will be used to support a site plan amendment with the City of Ottawa.

EXP understands that the Phase One Property is currently undeveloped, and it is intended that the Phase One Property will be developed by Hydro Ottawa Limited as Hydro Ottawa Brian Coburn Substation. As the Phase One Property is in the Light Industrial Zone and the proposed future use is industrial, a Record of Site Condition (RSC) will not be required.

The Phase One property is a portion of the municipal address 2170 Mer Bleue Road. It is located on the western side of Mer Bleue Road and approximately 300 m northwest of the Mer Bleue Road and Brian Coburn Boulevard intersection in Ottawa, Ontario. The Phase One property is irregular is shape and has a total area of approximately 1.1 hectares.

The Phase One property is currently undeveloped land and is legally described as Part Lot 1, Concession 3 Ottawa Front, Gloucester, Parts 3, 4 and 5 Plan 4R32717 Subject to an Easement in Gross Over Parts 4 and 5 Plan 4R32717 as in OC952706 City of Ottawa. The Property identification number (PIN) is 044042501.

Based on a review of historical aerial photographs and other records review, it appears the Phase One property has never been developed.

Ontario Regulation (O. Reg.) 153/04 defines a Potential Contaminating Activity (PCA) as one of fifty-nine (59) industrial operations set out in Table 2 of Schedule D that occurs or has occurred in the Phase One study area.

The following onsite PCA was identified as part of the Phase One ESA:

EXP PCA #	Location of PCA	Potentially Contaminating Activity (PCA)	Description	Rationale
PCA 1	2701 Mer Bleue Road (immediately west)	PCA #Other – Snow Disposal Facility	Snow disposal facility in operation since approximately 2010.	It is considered likely that significant amounts of road salt and other debris picked up during plowing activities are deposited with the snow at this disposal facility. The snow disposal facility is located up gradient and directly adjacent to the Phase One property. The groundwater flow direction on the Phase One study area is not known at this time and no data in the immediate vicinity is available. Therefore, it is considered an environmental concern to the Phase One property from a groundwater perspective.

The snow disposal facility (**PCA 1**) was determined to contribute to an area of potential environmental concern (APEC) and as a result, supplemental soil and groundwater sampling was recommended following the Phase One ESA. The APEC is summarized as follows:

Area of Potential Environmental Concern (APEC)	Location of APEC on Phase One Property	Potentially Contaminating Activity (PCA)	Location of PCA (On-Site or Off-Site)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, Soil and/or Sediment)
1. Snow disposal facility immediately west of the Phase One property	Westen extent of the Phase One property	**PCA 1**: PCA #Other – Snow Disposal Facility	Off-site	Inorganics, metals, petroleum hydrocarbons (PHC)	Soil and groundwater

The Qualified Person can confirm that the Phase One Environmental Site Assessment was conducted per the requirements of Ontario Regulation 153/04, as amended, and in accordance with generally accepted professional practices.

Based on the results and recommendations of the Phase One report, soil and groundwater analyses were conducted for due diligence purposes to address the above noted APEC to the Site. A total of three (3) boreholes were advanced on the Site (MW24-1, MW24-2 and MW24-3). Soil and groundwater samples were collected and submitted for laboratory analysis of PHC, benzene, toluene, ethylbenzene and xylenes (BTEX), metals and select inorganics. The following conclusions are provided:

- On August 2, 2024, three (3) boreholes were advanced at the Site and were each instrumented with a monitoring well.
- The stratigraphy at the Site generally consists of a 100-200 mm layer of topsoil at the ground surface. Below the topsoil was a unit of native silty clay to clay. A small amount of gravel till was observed at 3.66 m below ground surface (mbgs) in MW24-1 followed by suspected bedrock. No deleterious materials were identified in the topsoil or native soil and there were no visual or olfactory indications of soil contamination. The boreholes were advanced to a maximum drilled depth of 4.88 mbgs.
- One soil sample of the native material collected at the water table was submitted for laboratory analysis of PHC, BTEX, metals and general inorganics. One field duplicate sample was also collected and analysed for the same parameters.
- On August 7, the depth to groundwater ranged from 1.53 mbgs in MW24-2, 1.82 mbgs in MW24-1, to 1.92 mbgs in BH/MW-3. The groundwater flow direction was determined to be to the northeast.
- Based on the analytical results received, the concentrations of PHC, BTEX, metals and general inorganics measured in the analyzed soil samples were less than the applicable Ministry of the Environment, Conservation and Parks (MECP) 2011 Table 3 site condition standards (SCS), with the exception of slight exceedances for vanadium in all soil samples. However, it is well established that naturally occurring trace metal concentrations (including barium, chromium, cobalt and vanadium) in fine-grained Champlain Sea sediments in Eastern Ontario often exceed the SCS. The data is evidenced in the technical documents entitled “Elevated Background Metals Concentrations in Champlain Sea Clay – Ottawa Region” (Geofirma Engineering/Dillon Consulting, 2017) and “Background Metals in Champlain Sea Sediments: Updates from 2019 Drilling and Sampling Program (Geofirma, 2023). As such, the vanadium exceedances in soil do not represent a concern in terms of the environmental quality of the soil on the Site.
- The concentrations of PHC, BTEX, metals, and general inorganic parameters measured in the analysed groundwater samples were less than the MECP 2011 Table 3 SCS.

Based on the above results and conclusions, no recommendations are deemed necessary at this time.

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

1.0 Introduction

EXP Services Inc. (EXP) was retained by Hydro Ottawa Limited to complete a Phase One Environmental Site Assessment (ESA) of the property located at 2170 Mer Bleue Road in Ottawa, Ontario hereinafter referred to as the 'Phase One property'. At the time of the investigation, the Phase One property was undeveloped. In addition to the Phase One ESA and based on its recommendations, EXP also carried out soil and groundwater sampling at the request of Hydro Ottawa to determine any impact of the adjacent snow on the soil and groundwater of the Phase One property (see Section 7.0).

A Phase One ESA is a systematic qualitative process to assess the environmental condition of a site based on its historical and current uses. This Phase One ESA was conducted in accordance with the Phase One ESA standard as defined by Ontario Regulation 153/04, as amended, and in accordance with generally accepted professional practices. Subject to this standard of care, EXP makes no express or implied warranties regarding its services and no third-party beneficiaries are intended. Limitation of liability, scope of report and third-party reliance are outlined in Section 9 of this report.

Please note that general environmental management and housekeeping practices were reviewed as part of this assessment insofar as they could impact the environmental condition of the property, however, a detailed review of regulatory compliance issues was beyond the scope of our investigation. This Phase One ESA does not constitute an audit of environmental management practices, indicate geotechnical conditions or identify geologic hazards.

1.1 Objective

The purpose of this Phase One ESA is to determine if past or present site activities have resulted in actual or potential contamination at the Phase One property. It is understood that the report will be used to support a site plan amendment with the City of Ottawa.

EXP understands that the Phase One Property is currently undeveloped, and it is intended that the Phase One Property will be developed by Hydro Ottawa Limited as Hydro Ottawa Brian Coburn Substation. As the Phase One Property is in the Light Industrial Zone and the proposed future use is industrial, a Record of Site Condition (RSC) will not be required.

EXP personnel who conducted assessment work for this project included Devin Clouthier, B.Sc., Scott Lessard, B.Sc., and Chris Kimmerly, P.Geo. An outline of their qualifications is provided in Appendix A.

1.2 Phase One Property Information

The Phase One property is a portion of the municipal address 2170 Mer Bleue Road and is located on the western side of Mer Bleue Road and approximately 300 m northwest of the Mer Bleue Road and Brian Coburn Boulevard intersection in Ottawa, Ontario. The Phase One property is irregular in shape and has a total area of approximately 1.1 hectares. A Site Location Plan is provided as Figure 1 in Appendix B.

The Phase One property is currently undeveloped land and is legally described as Part Lot 1, Concession 3 Ottawa Front, Gloucester, Parts 3, 4 and 5 Plan 4R32717 Subject to an Easement in Gross Over Parts 4 and 5 Plan 4R32717 as in OC952706 City of Ottawa. The Property identification number (PIN) is 044042501.

The approximate Universal Transverse Mercator (UTM) coordinates for the Phase One property centroid are Zone 18, 460774 m E and 5032880 m N. The UTM coordinates are based on measurements from Google Earth Pro, published by the Google Limited Liability Company (LLC). The accuracy of the centroid is estimated to be less than 10 m.

The Phase One property is owned by 2322028 Ontario Inc. Authorization to proceed with this investigation was provided by Mr. William Youssef of Hydro Ottawa. Contact information for Mr. William Youssef is 2711 Hunt Club Road, Ottawa, Ontario K1G 3S4.

2.0 Scope of Investigation

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

- Reviewing the historical occupancy of the Phase One property through the use of available archived and relevant municipal and business directories, fire insurance plans (FIPs), topographical maps, and aerial photographs;
- Reviewing municipal and provincial records to determine whether activities that have occurred within the Phase One study area pose a potential environmental concern to the Phase One property;
- Obtaining an EcoLog Environmental Risk Information Services Ltd. (ERIS) report for the Phase One property and surrounding properties within a 250-metre radius of the Phase One property;
- Reviewing available geological maps, well records and utility maps for the vicinity of the Phase One property;
- Obtaining a search of land title and assessment rolls for the Phase One property;
- Conducting at least one reconnaissance of the Phase One property and surrounding properties within a 250-metre radius of the Phase One property in order to identify the presence of actual and/or potential environmental contaminants or concerns of significance;
- Conducting interviews with designated representative(s) as a resource for current and historical information;
- Reviewing the current use of the Phase One property and any land use practices that may have impacted its environmental condition;
- Reviewing the current use of the surrounding properties and any land use practices that may have impacted the environmental condition of the Phase One property; and,
- Preparing a report to document the findings.

EXP has confirmed neither the completeness nor the accuracy of any of the records that were obtained or of any of the statements made by others during the Phase One ESA.

In completing the scope of work for the Phase One ESA, supplemental intrusive investigation, including sampling and analyses of soil and groundwater was conducted (refer to Section 7.0).

3.0 Records Review

3.1 Phase One ESA Study Area Determination

The Phase One study area comprises the Phase One property and surrounding properties wholly or partly within 250 metres of the property boundaries. The 250-metre radius was used to gain an understanding of the current and past uses of surrounding properties to determine whether such uses may have contributed to subsurface environmental impacts at the Phase One property. At the time of the site reconnaissance, land usage within 250 metres of the Phase One property was primarily a mix of residential and commercial.

The Phase One property is zoned IL2 – Light Industrial Zone. The surrounding properties surrounding the Phase One property are zoned as Heavy Industrial, Development Reserve Zone, Arterial Main Street Zone and Mixed-Use Centre Zone.

The Phase One study area is shown on Figure 2 in Appendix B.

3.2 First Developed Use Determination

Based on a review of historical aerial photographs and other records review, it appears the Phase One property has never been developed.

3.3 Fire Insurance Plans

Fire Insurance Plans (FIP) were not available as the Phase One property has never been developed.

3.4 Chain of Title

A chain of title was provided by Read Abstracts. The property historically has never been developed. The Phase One property was acquired by the current property owner, 2322028 Ontario Inc., in 2012.

Chain of title documentation is included in Appendix C.

3.5 City Directories

As part of the previous Phase One ESAs, city directories pertaining to the site were requested from the EcoLog Environmental Risk Information Services (or EcoLog ERIS) for the municipal street directories in the Phase One study area. EcoLog ERIS is an environmental database and information service provider.

None of the streets in the Phase One study area were listed prior to 1960. There were not any properties of interest noted in the City Directories report.

3.6 Environmental Reports

The following reports pertaining to the Phase One property were provided for review:

1. EXP Services Inc., DRAFT *Hydro Ottawa Brian Coburn Substation Preliminary Site Evaluation Report, Hydro Ottawa Limited*, February 2024.

A draft Preliminary Site Evaluation Report conducted by EXP identified that the adjacent property to the west, has been used as a snow dump with associated stormwater pond. The report noted presence of the snow dump is considered a potentially contaminating activity (PCA) and it is possible that contaminants (ie. metals, inorganics, petroleum hydrocarbons) could be entrained in the snow and melt onto the ground surface. These contaminants have the potential to leach down to the overburden water table and could migrate on to the subject site, depending on overburden groundwater flow. Considering

that the surficial geology is reported to consist of clay, the risk is considered low due to the low permeability of the overburden soils. This activity presents a Potentially Contaminating Activity (**PCA 1 –** PCA #41 Other – Snow Disposal Facility).

3.7 Environmental Source Information

Information pertaining to the Phase One property was obtained by reviewing documents that are available to the public through municipal and provincial sources. EXP did not identify the need to contact any federal agencies.

Written responses from regulatory agencies and copies of documents obtained via searches are provided in Appendix C.

3.7.1 Ontario Ministry of the Environment, Conservation and Parks Records

Records pertaining to the Phase One property were requested from the Ministry of the Environment, Conservation and Parks (MECP) through the *Freedom of Information and Protection of Privacy Act* (FOI).

A response was received on May 29, 2024. The following provides a summary of the MECP records for the snow disposal facility located to the adjacent west of the Phase One property.

- The records reference an ECA that was issued in 2009 for the snow disposal facility located at 2191 Mer Bleue Road. The ECA outlines the wastewater treatment process which includes the near term and ultimate capacities of the facility. A manhole type oil and grit separator with an oil storage capacity of 1300L is referenced which discharges via a 450mmm diameter storm sewer inlet to a wetpond. The wetpond is clay lined with a total storage volume of 14,150 cu.m. A 450mm overflow pipe discharges high-water into a manhole to discharge into a swale located at the hydro easement of the City. A 250m diameter drain from the perforated tile drains from the collection and pond embankment area and a 450mm diameter outlet pipe on the pond bottom drain to a 2.4m diameter wetwell Pumpstation Manhole. Two (2) submersible pumps discharge meltwater via a 150mm diameter forcemain. The foremain is listed at approx. 1700m long and located along the hydro easement of the City to discharge onto a riprap apron outfall at Mud Creek. Measures to reduce the amount of silt carried to the stormwater detention pond and Mud Creek are outlined.
- It is noted that the spill prevention control and procedures for the removal of sediment and oil from the catch basins, manholes, stormwater and oil/grit separator were not available for review.
- During periods of effluent discharge, grab samples must be collected from the stormwater management pond for analysis of general chemistry, volatile organic compounds (VOCs) and metals. Grab samples must also be collected from the pump header and analysed for total suspended solids (TSS), heavy metals, temperature, pH, and oil and grease. A minimum of 12 samples during the spring and summer seasons are required as per the ECA.
- TSS values were reported to be in compliance in 2011 and out of compliance in 2012. The 2011 and 2012 annual reports outline several exceedances of the Provincial Water Quality Objectives. VOCs were not collected for the 2010/2011 operating year. No additional information was provided.
- To determine if the operation of the snow disposal facility was having an impact on the groundwater in the area, the City installed 3 monitoring wells in 2012 and are required to sample each well on a months basis for TSS, total phosphorus and total ammonia nitrogen (heavy metals annually). No comments were provided in terms of groundwater quality or impacts due to the operation of the snow disposal facility.
- An inspection of the facility was conducted in 2013. It was determined that the City of Ottawa must comply with the Effluent Monitoring sampling requirements for the stormwater management pond which included the sampling of VOCs annually. TSS must be measured prior to discharge to ensure compliance. There were no records provided pertaining to the actual sampling and analysis of VOC.

3.7.2 Historical Land Use Inventory

On February 12, 2024, records pertaining to the site were requested from the City of Ottawa for the Historical Land Use Inventory (HLUI) through the Municipal FOI for the property located at 2170 Mer Bleue Road.

A response dated March 6, 2024 was received. One activity associated with the property was identified. The activity at the section of property located 2170 Mer Bleue Road directly adjacent to the west of the property relates to a snow disposal facility. There appears to be environmental monitoring conducted by the City's Environmental Remediation Unit (i.e. it appears that the last monitoring report was conducted for the 2009/2010 season). EXP submitted a request for this report, but it has not yet been received. When the report is received by EXP, it will be reviewed, and the client will be notified of any pertinent information provided.

No other activities within 250m of the Phase One property represent a PCA.

Based on the review of the HLUI report, the snow disposal facility is considered a potentially contaminating activity (**PCA 1** PCA #Other – Snow Disposal Facility).

3.7.3 Environmental Registry

On May 20, 2024, the MECP Environmental Registry website was searched for postings in the vicinity of the Phase One property. No records were found.

3.7.4 Environmental Access

On May 20, 2024, the MECP Environmental Access website was searched for postings within the Phase One study area. The following records were found:

- Block 20, Lot 2, Concession 11 (75 m north) An Environmental Compliance Approval (ECA) was issued to Tamarack (Mer Bleue) Corporation for municipal and private sewage works.
- 1900 Innes Centre (125 m south) – An ECA was issued to Innes Shopping Centres Limited for municipal and private sewage works.
- 2107 Mer Bleue Road Lot 1, Concession 3 (135 m north) – An ECA was issued to the City of Ottawa for municipal and private sewage works.
- 3910 Innes Road (250 m north) – A Pesticides Limited Vendor Licence was issued to Gestion Claude L'Heureux Inc..

None of these postings pose an environmental concern to the Phase One Property.

3.7.5 Hazardous Waste Information Network

On May 20, 2024, the MECP Hazardous Waste Program (HWP) Registry website was searched for registered waste generators within the Phase I study area. No information was found.

3.7.6 Records of Site Condition

On May 20, 2024, the MECP Brownfields Registry website was searched for postings of Records of Site Condition within the Phase One study area. No RSC's were identified.

3.7.7 Coal Gasification Plants

Documents entitled *Inventory of Industrial Sites Producing or Using Coal Tar and Related Tars in Ontario* prepared by the MECP and *Inventory of Coal Gasification Plant Waste Sites in Ontario* prepared by Intera Technologies Ltd. were reviewed. There were no coal gasification plants identified within the Phase One study area.

3.7.8 PCB Storage Sites

Documents entitled *National Inventory of PCBs in Use and PCB Wastes in Storage in Canada*, *2003 Annual Report* prepared by Environment Canada and *Ontario Inventory of PCB Storage Sites* prepared by the MECP were reviewed. No records pertaining to PCB storage sites were identified within the Phase One study area.

3.7.9 Waste Disposal Sites

Documents entitled *Old Landfill Management Strategy, Phase 1, Identification of Sites, City of Ottawa, Ontario* prepared by Golder Associates Ltd. and *Waste Disposal Site Inventory* prepared by the MECP were reviewed. No former landfills or waste disposal sites were identified within the Phase One study area.

3.7.10 Former Industrial Sites

The document entitled *Mapping and Assessment of Former Industrial Sites; City of Ottawa* prepared by Intera Inc. was reviewed. No historic industrial sites were identified within the Phase One study area.

3.8 EcoLog ERIS Database Search

A search of provincial and federal databases for records pertaining to the Phase One property and properties within the Phase One study area was conducted by EcoLog ERIS. EXP has confirmed neither the completeness nor the accuracy of the records that were provided. A copy of the EcoLog ERIS report is provided in Appendix D.

The following entries from the EcoLog ERIS report were reviewed and summarized below:

Location	Proximity to the Site	Description	Database	Environmental Concern to Site (Yes/No) & Rationale
2170 Mer-Bleue Road	Site Property and adjacent properties	A number of water wells were installed along with boreholes in the area, possibly on the Phase One property, between 1963 to 1972.	WWIS	No, the Site and majority of surrounding properties appear to be serviced by municipal water, it is unlikely that the historical wells are in use.
2170 Mer-Bleue Road	West adjacent	City of Ottawa HSP Events listed for the Site as the waste generator. It appears that the City of Ottawa may have used this Site as a drop-off location for household hazardous waste. The Site is not actively used for this purpose, and it appears to be conducted on a limited occasion to allow City of Ottawa residents to drop-off hazardous waste appropriately. The Site is a registered waste generator (ON4616329) for pathological wastes, waste compressed gases, organic laboratory chemicals, pharmaceuticals, waste oil & lubricants, halogenated pesticides, light fuels, aliphatic solvents, inorganic laboratory chemicals, chemical fertilizer wastes, other specified inorganics, paint / pigment / coating residues, alkaline waste-heavy metals, and acid waste heavy metals. Site has been listed from 2021 to 2022.	GEN	No, HWIN generation was likely the result of a temporary project / service provided to City of Ottawa residents.

Location	Proximity to the Site	Description	Database	Environmental Concern to Site (Yes/No) & Rationale
2107 Mer Bleue Road	136 m north	The City of Ottawa Site is listed as having a Certificate of Approval and an Environmental Compliance Approval (2191-7MCT5Y) for Municipal and Private Sewage Works in 2009.	CA ECA	No, since the approvals indicate periodic testing and maintenance procedures are to be followed to maintain a CA and ECA.
2127 Mer-Bleue Road	146 m northeast	April 22, 2013, a Hydro One Inc. spill incident from a transformer due to a leak / break. Approximately 10 L of transformer oil was released to the ground surface resulting in limiting vegetation damage.	SPL	No, the small volume of transformer oil release is unlikely to migrate / cause impacts.
2035, 2045 and 2055 Mer-Bleue Road	180 m northeast	McGiac Realty Corporation is listed as having an Environmental Compliance Approval (ECA) in 2013 for Municipal and Private Sewage Works (7413-9DWQJA).	ECA	No, since the approvals indicate periodic testing and maintenance procedures are to be followed to maintain ECA.
2225 Mer-Bleue Road	242 m southeast	Hospital of Montfort is a registered waste generator for pharmaceuticals, and pathological wastes as of Nov 2021 (ON3529500).	GEN	No, due to large intervening distance.
		EllisDon Corporation is a registered waste generator for 252 L of waste crankcase oils and lubricants on Nov 2021 (ON7961801) at the Hospital of Montfort.	GEN	No, the generator number was probably the result of a temporary project.
3910 Innes Road	<250 m northwest	Gestion Claude L'Heureux Inc. is listed as a registered waste generator of acid waste / alkaline wastes heavy metals, paint/pigment/coating residues, inorganic laboratory chemical, heavy fuels, halogenated pesticides, organic laboratory chemical waste and waste compressed gases in 2007 to 2020 (ON2890821).	GEN	No, due to large intervening distance (not in Phase One Study Area).
		July 8, 2008, a natural gas pipeline strike on the 3910 Innes Road property occurred resulting in the release of natural gas.	HINC	No, a natural gas leak was released into the atmosphere and would not result in an impact to the Phase One property.
		Gestion Claude L'Heureux Inc./ Canadian Tire Orleans holds a license as a general vendor and operator of pesticides.	PES	No, pesticide on the property would be for retail purposes only.
2020 Mer-Bleue Road	<250 m north northwest	October 23, 2008, a natural gas pipeline strike occurred on the 2020 Mer-Bleue Road property.	HINC	No, a natural gas leak was released into the atmosphere and would not result in impact to the Phase One property.

Databases:

CA - Certificates of Approval
ECA - Environmental Compliance Approval
GEN - Ontario Regulation 347 Waste Generators Summary
HINC - TSSA Historic Incidents
PES - Pesticide Register
SPL - Ontario Spills
WWIS - Water Well Information System

In addition to the databases outlined above, the following entries from the EcoLog ERIS report were reviewed and summarized below:

- The Certificate of Approval, Environmental Compliance Approval, and Environmental Registry databases identified ten records in the Phase One study area. All of the records were for water and sewage works;
- The Pipeline Incidents database and the Ontario Spills database identified two records for a natural gas pipeline strike. As natural gas is discharged to the atmosphere, these records are not a concern to the Phase One property; and,
- There were thirteen records found in the Water Well Information System (WWIS) database for the Phase Onestudy area. Ten records were domestic wells, and three records were monitoring wells. All of the records were for monitoring wells. There is one domestic well located on the Phase One Property.

Based on the review of the ERIS report, no environmental concerns to the Site were identified that have not been previously identified in other records.

3.9 Physical Setting Sources

3.9.1 Aerial Photographs

Aerial photographs from 1975, 1991, 2002, 2011, 2014, and 2022 were available for review on the City of Ottawa (geoOttawa) website. The following table summarizes the development and land use history of the site and adjacent properties as depicted on the reviewed aerial photographs. Copies of the aerial photographs are provided in Appendix E.

Aerial Photograph (year)	Details
1975	The site and surrounding lands are undeveloped.
1991	The site and adjacent sites are undeveloped, hydro towers are visible to the south and southwest. A small race track appears east of the site across Mer Bleue Rd.
2002	The site and adjacent sites are undeveloped, hydro towers are visible to the south and southwest. A remnant small racetrack appears east of the site across Mer Bleue Rd.
2011	The site is partially tree covered. The stormwater pond and snow dump located to the adjacent west appears recently operational. A Hydro corridor is visible to the south. A remnant small racetrack appears east of the site across Mer Bleue Rd.
2014	The site is partially tree covered. The stormwater pond and snow dump located to the adjacent west is visible. Hydro corridor remains visible to the south. The remnant small racetrack appears east of the site across Mer Bleue Rd.
2022	No significant changes to the Phase One property of surrounding properties.

Based on the review of the aerial photographs, no additional PCAs have been identified in the Phase One study area in addition to those mentioned in previous sections.

3.9.2 Topography, Hydrology, Geology

The following information sources were reviewed to determine the nature of the subsurface materials at the site:

- Map 1506A, Surficial Geology, Ottawa- Hull. Scale 1:50,000. 1982;
- Map 1508A, Generalized Bedrock Geology, Ottawa- Hull. Scale 1:125,000. 1980; and,

- MECP Water Well Records.

Based on the review the Phase One property is underlain by Quaternary glaciomarine foreshore or basinal deposit of clay, silty clay and silt, commonly calcareous and fossiliferous; locally overlain by thin sands. Upper parts are generally mottled or laminated reddish brown and bluish grey and may contain lenses and pockets of sand, but at depth the clay is uniform. These deposits are also identified as part of the Champlain Sea deposit.

3.9.3 Fill Materials

Based on a review of aerial photographs and records review, the Phase One property has never been developed. Therefore, it is unlikely that significant quantities of fill are present on the Phase One property.

3.9.4 Water Bodies and Areas of Natural Significance

There are no water bodies on the subject site. There is a stormwater pond located approximately 100 metres west of the Phase One property. The closest water body is the Mer Bleue Bog, located approximately 2.8 km south of the Phase One property. Topographically, the Phase One property is relatively flat. The surrounding area slopes towards the Mer Bleue Blog. It is inferred that groundwater flows south towards the Mer Bleue Bog but there is no substantial evidence to confirm groundwater flow direction.

There are no Area of Natural Significance (ANSI) within the Phase One study area, according to the Ministry of Natural Resources and Forestry Natural Heritage website (www.gisapplication.lrc.gov.on.ca/mamnh/Index.html).

3.9.5 Well Records

The Ontario well records website (www.ontario.ca/environment-and-energy/map-well-records water wells) was accessed. There were thirteen well records for the Phase One study area, with one domestic well listed on the Phase One Property. Ten of the records were for domestic wells and three records were for monitoring wells.

According to Section 3.7.1, at least three monitoring wells are located at the snow disposal facility located to the adjacent west as of 2012. The nature of the domestic wells is unknown but it is considered likely that they are located in the vicinity of the Phase One property since there is a margin of error associated with the well records search locations.

There are no oil, gas, or salt wells within the Phase One study area, according to the Oil, Gas & Salt Resources Library (maps.ogsrlibrary.com/wells/).

3.10 Site Operating Records

No site operating records were provided to EXP for review.

3.11 Summary of Records Review

The following PCAs were identified in the records review:

- Off-site snow disposal facility located at municipal address 2170 Mer Bleue Road (PCA 1 - PCA#Other - Snow Disposal Facility).

4.0 Interviews

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

Mr. Milind Patel, a project manager for Hydro Ottawa and Mr. Caleb Schmidt, an asset planner for Hydro Ottawa were interviewed during the site visit on May 16, 2024. Mr. Patel and Mr. Schmidt have been familiar with the site for approximately six months.

Both Mr. Patel and My. Schmidt were unaware of any previous investigations having been conducted on the Phase One property, or any environmental issues with the Phase One property.

5.0 Site Reconnaissance

5.1 General Requirements

On May 16, 2024, at 1:00 pm, Mr. Devin Clouthier of EXP conducted the site visit for the Phase One property. The weather was sunny with an approximate temperature of 22 degrees Celsius on.

The site visit was conducted in accordance with EXP's internal health and safety protocols and with the Ministry of Labour health and safety regulations. The purpose of the site visit was to assess the current conditions of the Phase One property.

Observations of the Phase One property and surrounding properties within the Phase One study area were conducted. Adjoining properties were observed from within the grounds of the Phase One property and from public roads and sidewalks.

Photographs were taken at the Phase One property on May 16, 2024, and pertinent photographs are included in Appendix F.

5.2 Specific Observations at the Phase One Property

5.2.1 Buildings and Structures

There were not any buildings or structures observed on the Phase One property.

5.2.2 Site Utilities and Services

The Site is not serviced with municipal sewer and water, hydro and natural gas. It is assumed that connections to these services are available.

5.3 Storage Tanks

5.3.1 Underground Storage Tanks

EXP did not observe any evidence of underground storage tanks (USTs), such as vent and fill pipes, during the site reconnaissance.

5.3.2 Above Ground Storage Tanks

EXP did not observe any evidence of aboveground storage tanks (ASTs) during the site reconnaissance.

5.4 Chemical Storage Handling and Floor Condition

EXP did not observe any evidence of chemical storage handling during the site reconnaissance.

5.5 Areas of Stained Soil, Pavement or Stressed Vegetation

No staining or stressed vegetation was observed.

5.6 Fill and Debris

The Phase One property has never been developed and there was no evidence of fill or debris ever being imported to the Phase One property.

5.7 Air Emissions

Regulatory control of air emissions in Ontario is the responsibility of the MECP. According to the Environmental Protection Act (EPA), an ECA (Air) is required for the ongoing operation of any equipment that may discharge a contaminant into the natural environment if the equipment was installed, modified or altered after June 29, 1988.

No air emissions of concern were identified at the time of the site visit.

5.8 Odours

No strong odours were present during the site visit.

5.9 Noise

No excessive noise was heard during the site visit.

5.10 Other Observations

The previously identified There were no pits and lagoons, no railways or spurs and no unidentified substances observed on the Phase One property.

5.11 Special Attention Items, Hazardous Building Materials and Designated Substances

There Phase one property has never been developed, therefore, there was no evidence of any special attention items, hazardous building materials, or designated substances (asbestos, ozone depleting substances, lead, mercury, polychlorinated biphenyls (PCB), urea formaldehyde foam insulation, mould, or other special attention substances).

5.12 Abandoned and Existing Wells

No domestic or monitoring wells were observed on the Phase One property. It is noted that a domestic well was identified according to the well records search in Sections 3.8 and 3.9.5 above. However, no evidence of a domestic well was observed on the Phase One property. EXP considers it likely that the historical domestic well was decommissioned at some point in the past.

5.13 Roads, Parking Facilities and Right of Ways

Vehicular access to the Phase One property is via Mer Bleue Road to the east.

5.14 Adjacent and Surrounding Properties

A visual inspection of the adjacent properties and properties within 250 m of the Phase One property was conducted from publicly accessible areas to identify the occupants and document the uses and sources of potential environmental concerns that may impact the Phase One property. Refer to Figure 3 in Appendix B for the adjacent land uses.

The following land uses border the Phase One property:

- North: Undeveloped;
- West: Municipal snow disposal facility;
- East: Mer Bleue Road followed by residential; and,
- South: Power line corridor followed by residential.

The snow disposal facility immediately west of the Phase One property has been identified as **PCA 1 (**PCA #Other Snow Disposal Facility) for the Phase One property.

5.26 Enhanced Investigation Property

Ontario Regulation 153/04 defines an enhanced investigation property as a "property that is used, or has ever been used, in whole or in part for an industrial use or any of the following commercial uses: a garage; a bulk liquid dispensing facility, including a gasoline outlet; or, for the operation of dry-cleaning equipment."

Therefore, in accordance with Regulation 153/04, the property is not considered to be an enhanced investigation property.

5.27 Summary and Written Description of Investigation

Based on the findings of this investigation the following PCA has been identified in the Phase One study area:

- PCA #Other – Snow Disposal Facility

The off-site snow disposal facility located to the adjacent west of the Phase One property contributes to an area of potential environmental concern based on the following rationale:

The snow disposal facility has been in operation since approximately 2009/2010. It is considered plausible that the groundwater conditions have been impacted by the road salt and other potential contaminants deposited at the snow disposal facility. Based on the information provided by the MECP, there have been several exceedances based on the ongoing monitoring programs required as part of the ECA and there is additional uncertainty regarding the results of the monitoring since 2012.

Mobile contaminants such as salts produced by the snow disposal facility have the potential to leach down to the overburden water table and could migrate onto the subject site, depending on overburden groundwater flow. The proximity and higher elevation of the snow disposal facility in relation to the Phase One property suggest groundwater may be migrating onto the Phase One property. At this point, groundwater flow direction has not been determined and no data in the area is available for review.

6.0 Review and Evaluation of Information

6.1 Current and Past Uses

Based on a review of historical aerial photographs and other records review, it appears the Phase One property has never been developed. The Phase One property was acquired by the current property owner, 2322028 Ontario Inc., in 2012.

6.2 Potentially Contaminating Activity

Ontario Regulation (O. Reg.) 153/04 defines a PCA as one of fifty-nine (59) industrial operations set out in Table 2 of Schedule D that occurs or has occurred in the Phase One study area. The following PCA were identified for the Phase One property and the Phase One study area:

The following PCAs were identified:

- **PCA 1** – 2170 Mer Bleue Road (immediately west) – Municipal snow disposal facility in operation since approximately 2010, PCA #Other – Snow Disposal Facility.

No other PCAs that took place within the vicinity of the Phase One property (approximately 250 m radius) were identified.

6.3 Areas of Potential Environmental Concern

Ontario Regulation 153/04 defines an APEC as an area on a property where one or more contaminants are potentially present.

- PCA 1 contributes to an APEC (APEC #1) to the Phase One property on the basis of potential groundwater contamination from the municipal snow dump facility located to the adjacent west.

6.4 Phase One Conceptual Site Model

To develop a conceptual model for the Phase One property, the following physical characteristics and pathways were considered. A CSM showing the topography of the site, inferred groundwater flow, general site features, and the PCA is shown in Figure 2.

6.4.1 Underground Utilities

The Phase One property, is reportedly supplied by a municipal drinking water system, as defined in the Safe Drinking Water Act, provided by the City of Ottawa. Further, the Phase One property is not located in an area designated in the municipal official plan as a well-head protection. However, it is likely that other properties in the Phase One study area may be served by private wells due to several domestic wells identified in Section 3.9.5. Thus, in accordance with Section 35 of Ontario Regulation 153/04, potable water standards apply to the Phase One property.

No underground utilities were present at the Phase One property. This was confirmed in the locate package provided by USL-1 prior to the soil and groundwater characterization program.

6.4.2 Water Bodies and Groundwater Flow Direction

There are no water bodies on the subject site. There is a stormwater pond located approximately 100 metres west of the Phase One property. The closest water body is the Mer Bleue Bog, located approximately 2.8 km south of the Phase One property. Topographically, the Phase One property is relatively flat. The surrounding area slopes towards the Mer Bleue Blog. It is inferred that groundwater flows south towards the Mer Bleue Bog but there is no substantial evidence to confirm groundwater flow direction.

6.4.3 Areas of Natural Significance

The Phase One property is not located within an area of natural significance, and it does not include land that is within 30 metres of an area of natural significance. In accordance with Section 41 of Ontario Regulation 153/04, the Phase One property is not an environmentally sensitive area.

6.4.4 Water Wells

Based on the well records in Section 3.9.5, there appears to be several domestic wells used as a source of potable water in the Phase One study area.

However, no domestic or monitoring wells were observed on the Phase One property. It is noted that a domestic well was identified according to the well records search in Sections 3.8 and 3.9.5 above. However, no evidence of a domestic well was observed on the Phase One property. EXP considers it likely that the historical domestic well was decommissioned at some point in the past.

6.4.5 Potentially Contaminating Activity

Ontario Regulation 153/04 defines a PCA as one of 59 operations set out in Table 2 of Schedule D that occurs or has occurred in a Phase One study area.

Ontario Regulation 153/04 defines a PCA as one of 59 operations set out in Table 2 of Schedule D that occurs or has occurred in a property study area. If an activity is not listed in Table 2, the PCA is to be identified as "other" and described. A PCA was identified on-Site and within 250 m from the Phase One property site boundaries (Figure 2). The PCA was further evaluated to determine if the activity may be contributing to an APEC at the Phase One property or if they are considered de-minimis and not contributing to an APEC.

The following PCAs were identified:

EXP PCA #	Location of PCA	Potentially Contaminating Activity (PCA)	Description	Rationale
PCA 1	2701 Mer Bleue Road (immediately west)	PCA #Other – Snow Disposal Facility	Snow disposal facility in operation since approximately 2010.	It is considered likely that significant amounts of road salt and other potential contaminants are deposited with the snow at this disposal facility. The snow disposal facility is located up gradient and directly adjacent to the Phase One property. The groundwater flow direction on the Phase One study area is not known at this time and no data in the immediate vicinity is available. Therefore, it is considered an environmental concern to the Phase One property from a groundwater perspective.

It is possible that the off-site snow disposal facility (**PCA 1**) has impacted the groundwater conditions on the Phase One property and was considered to contribute to an APEC.

6.4.6 Areas of Potential Environmental Concern

Ontario Regulation 153/04 defines an APEC as an area on a property where one or more contaminants are potentially present.

The following APEC were identified:

Area of Potential Environmental Concern (APEC)	Location of APEC on Phase One Property	Potentially Contaminating Activity (PCA)	Location of PCA (On-Site or Off-Site)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, Soil and/or Sediment)
APEC 1: Snow disposal facility immediately west of the Phase One property	Western portion of the Phase One property	**PCA 1**: PCA #Other – Snow Disposal Facility	Off-site	Inorganics, metals, petroleum hydrocarbons	Soil and groundwater

6.4.7 Subsurface Stratigraphy

Phase One property is underlain by Quaternary glaciomarine foreshore or basinal deposit of clay, silty clay and silt, commonly calcareous and fossiliferous; locally overlain by thin sands. Upper parts are generally mottled or laminated reddish brown and bluish grey and may contain lenses and pockets of sand, but at depth the clay is uniform. These deposits are also identified as part of the Champlain Sea deposit.

6.4.8 Uncertainty Analysis

The CSM is a simplification of reality, which aims to provide a description and assessment of any areas where potentially contaminating activity that occurred within the Phase One study area may have adversely affected the Phase One property. All information collected during this investigation, including records, interviews, and site reconnaissance, has contributed to the formulation of the CSM.

Information was assessed for consistency, however EXP has confirmed neither the completeness nor the accuracy of any of the records that were obtained or of any of the statements made by others. All reasonable inquiries to obtain accessible information were made, as required by Schedule D, Table 1, Mandatory Requirements for Phase One Environmental Site Assessment Reports. The CSM reflects our best interpretation of the information that was available during this investigation.

7.0 Soil and Groundwater Characterization

Based on the results and recommendations of the Phase One ESA, a soil and groundwater analysis was undertaken to address the APEC identified to the Phase One property. The scope of work for the investigation consisted of the following activities:

- Request local public utility locating companies (cable, telephone, gas, hydro) to mark any underground utilities present at the site;
- Retain a private utility locating company to mark all underground utilities present in the vicinity of the borehole location and to clear the individual borehole location;
- Advance three (3) boreholes at the site, and instrument them with a monitoring well to facilitate groundwater sampling;
- Collect representative soil samples for chemical analysis of petroleum hydrocarbons (PHC), benzene, toluene, ethylbenzene, and toluene (BTEX), metals, electrical conductivity (EC), sodium absorption ratio (SAR) and chloride;
- Collect groundwater samples from the new monitoring wells for chemical analysis of PHC, BTEX, metals, EC, SAR, and chloride;
- Measure the groundwater level within the monitoring wells and complete an elevation survey of the monitoring wells relative to an assumed benchmark;
- Review the analytical soil and groundwater data; and summarize data in comparison to applicable provincial standards.

7.1 Site Assessment Criteria

The assessment criteria, Site Condition Standards (SCS), applicable to a given site in Ontario are established under subsection 168.4(1) of the Environmental Protection Act. Tabulated generic criteria are provided in *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act*, MOE, April 2011. These criteria are based on site sensitivity (sensitive or non-sensitive), groundwater use (potable or non-potable), property use (residential, parkland, institutional, commercial, industrial, community and agricultural/other), soil type (coarse or medium to fine textured) and restoration depth (full or stratified restoration). In addition, site specific criteria may be established on the basis of the findings of a Risk Assessment carried out in accordance with Part IX and Schedule C of Ontario Regulation 153/04 (as amended).

For assessment purposes, EXP selected the Ontario Ministry of Environment, Conservation and Parks (MECP) Table 3 SCS for an industrial land use with fine textured soil in a non-potable groundwater condition. The selection of this category of the generic criteria was based on the following factors:

- The site was not considered a sensitive site and is not located in an area designated in a municipal official plan as a well-head protection area or other designation identified by the municipality for the protection of groundwater;
- The area is supplied with potable water from the City of Ottawa;
- There are no potable water wells on the site;
- The site will continue to be used for industrial purposes;
- The depth to bedrock is greater than 2 m;
- The predominant soil type on the site is considered to be fine-textured (predominantly silty clay and clay);
- There is no intention to carry out a stratified restoration at the site; and,
- The site is not situated within 30 m of a surface water body.

7.2 Methodology

7.2.1 Service Clearances

Prior to the commencement of drilling, the locations of underground public utilities including telephone, natural gas, water and sewer, and electrical lines were marked at the site by locating companies. A private utility locating contractor was also retained to clear the individual borehole locations.

7.2.2 Drilling and Soil Sampling

On August 2, 2024, three boreholes (MW24-1, MW24-2, and MW24-3) were advanced at the site by George Downing Estate Drilling, a licensed well contractor. The drilling was completed under the full-time supervision of EXP staff. The locations of the boreholes are shown on Figure 2 in Appendix B.

EXP staff continuously monitored the drilling activities to log the stratigraphy observed from the recovered soil cores, to record the depth of soil sample collection, to record total depths of borings, and to record visual or olfactory observations of potential impacts. Soil samples were recovered from the borehole at regular depth intervals using steel direct push samplers. Dedicated nitrile gloves (i.e., one pair per sample) were used during sample handling to prevent cross contamination. No petroleum-based greases or solvents were used during drilling activities. Field observations are summarized in the borehole logs provided in Appendix G.

Soil samples identified for possible laboratory analysis were collected from the acetate lined direct push tube sampler and placed directly into pre-cleaned, laboratory-supplied glass sample jars/vials. Samples to be analysed for BTEX were collected using a soil core sampler and placed into vials containing methanol as a preservative. The jars and vials were sealed with Teflon-lined lids to minimize head-space and reduce the potential for induced volatilization during storage/transport prior to analysis.

The remaining portion of each soil sample was placed in a sealed Ziploc plastic bag and allowed to reach ambient temperature prior to field screening with a combustible vapour meter calibrated to hexane gas prior to use. The field screening measurements were made by inserting the instrument's probe into the plastic bag while manipulating the sample to ensure volatilization of the soil gases. These 'headspace' readings provide a real-time indication of the relative concentration of combustible vapours encountered in the subsurface during drilling and are used to aid in the assessment of the vertical and horizontal extent of potential impacts and the selection of soil samples for analysis.

Soil samples were selected for laboratory analysis based on combustible vapour measurements and visual and olfactory evidence of impacts, where observed. One soil sample of the native material at the suspected water table was submitted for laboratory analysis of PHC, BTEX, metals, EC, SAR, and chloride. The soil samples were placed in coolers with ice packs and transported to Paracel Laboratories of Ottawa, Ontario, under Chain of Custody protocol, within 24 hours of sample collection for chemical analysis.

Table 7.1: Summary of Soil Samples Submitted for Laboratory Analyses

Borehole & Soil Sample Identification	Depth (m)	Soil Type	Analysed parameters
MW24-1 SS5	2.4 – 3.0	Silty clay - clay, wet, stiff, no odours or sheen	PHC, BTEX, metals, EC, SAR, chloride
DUP (duplicate of MW24-1 SS5)	2.4 – 3.0	Silty clay - clay, wet, stiff, no odours or sheen	PHC, BTEX, metals, EC, SAR, chloride
MW24-2 SS6	3.0 – 3.6	Silty clay - clay, wet, stiff, no odours or sheen	PHC, BTEX, metals, EC, SAR, chloride
MW24-3 SS7	3.6 – 4.2	Silty clay - clay, wet, stiff, no odours or sheen	PHC, BTEX, metals, EC, SAR, chloride

Note: PHC – petroleum hydrocarbons fractions F1 to F4
BTEX – benzene, toluene, ethylbenzene, xylenes
EC – electrical conductivity
SAR – sodium absorption ratio

7.2.3 Monitoring Well Installation

A groundwater monitoring well was installed in each of the three boreholes. The monitoring wells were installed in general accordance with the Ontario Water Resources Act - R.R.O. 1990, Regulation 903 - Amended by O. Reg. 128/03 - by licensed well contractors (Strata Soil).

The monitoring wells were constructed of a 25 mm diameter, 3.0 m long Schedule 40 PVC screen and appropriate length riser pipe. The well screen has a slot size of approximately 0.25 mm (slot 10) and was sealed at the base with a PVC end cap. The annular space around the well screen was backfilled with silica sand to approximately 0.3 m above the top of the screen. The sand pack was extended above the screen to allow for compaction of the sand pack and expansion of the overlying well seal. A granular bentonite ('Hole Plug') seal was placed in the borehole annulus from the top of the sand pack to approximately 0.3 metres below ground surface (mbgs). Each monitoring well was completed with a monument protective steel casing cemented into place. Details of the well installations are provided on the borehole logs in Appendix G.

The monitoring wells were surveyed using a level survey and were referenced to an assumed benchmark (manhole cover north of BH/MW-4, with assumed elevation of 100.00 m above sea level). The survey along with the groundwater levels allowed for the determination of the groundwater flow direction of the Site.

7.2.4 Groundwater Monitoring and Sampling

Each monitoring well was developed on August 7, 2024 by purging all standing groundwater up to three times the well volume. Prior to well development, the static water level was measured, and the depth of the well was recorded using an interface probe to measure the possible presence of light non-aqueous phase liquid (LNAPL) and dense non-aqueous phase liquid (DNAPL) in the monitoring well.

Groundwater monitoring and sampling activities were completed on August 8, 2024. Prior to sampling, the static water level was measured, and the well was then sampled using a "low flow" technique whereby the well was continuously purged using an electric pump (equipped with dedicated tubing).

Prior to sampling, the groundwater was continuously monitored for visual and olfactory evidence of petroleum impact (sheen and odour), and pH, conductivity, salinity, ORP, turbidity, dissolved oxygen, and temperature. Well stabilization is considered to occur when three consecutive readings do not change more than 10%. The groundwater samples were collected into

laboratory provided sample bottles and submitted to a certified laboratory for analysis of PHC, BTEX, metals, EC, SAR, and chloride. A 0.45 um field filter was used when sampling for metals in order to remove sediment. The groundwater samples were placed in coolers with ice packs and transported to Paracel Laboratories of Ottawa, under Chain of Custody protocol, within 24 hours of sample collection for chemical analysis.

7.3 Findings

7.3.1 Subsurface Conditions

The detailed soil profile encountered in the boreholes are provided on the attached borehole logs (Appendix G). Boundaries of soils indicated on the log are intended to reflect transition zones for the purpose of environmental assessment and should not be interpreted as exact planes of geological change. A brief description of the soil stratigraphy at the site, in order of depth, is summarized in the following sections.

7.3.2 Topsoil and Fill Material

A 100-200 mm layer of topsoil was present at the ground surface in the location of each borehole. No deleterious fill materials were identified and there were no visual or olfactory indications of petroleum impact.

7.3.3 Native Material

Below the topsoil materials was a unit of native silty clay to clay to the maximum depth drilled of 4.9 mbgs. Gravel till was observed at 3.6 m below ground surface (mbgs) in MW24-1. There were no visual or olfactory indications of petroleum impact to the native silty clay/clay soil.

7.3.4 Bedrock

Suspected bedrock was encountered below the gravel till at 3.6 mbgs in MW24-1 but was not encountered in other boreholes down to a maximum drilled depth of 4.9 mbgs.

7.3.5 Groundwater

The groundwater elevations and water levels were measured at the site on August 7, 2024. The depth to groundwater ranged from 1.53 mbgs in MW24-2, 1.82 mbgs in MW24-1, and 1.92 mbgs in MW24-3. The groundwater elevations are summarized below in Table 11.1. No petroleum sheen was observed in the monitoring well water.

Table 7.2: Groundwater Elevations

Monitoring Well ID	Ground Surface Elevation (m)	Top of Well Casing (m)	August 7, 2024	
			Water level (mbtoc)	Groundwater Elevation (m)
MW24-1	100.025	99.105	1.82	97.29
MW24-2	99.654	98.824	1.53	97.29
MW24-3	100.079	99.159	1.92	97.24

Note: Elevations were referenced to assumed benchmark (storm drain east of MW24-3, with assumed elevation of 100.00 m above sea level).

Based on the groundwater elevations, the groundwater flow direction was determined to the to the northeast. The groundwater elevations and flow direction are presented on Figure 2 in Appendix B.

7.4 Analytical Results

7.4.1 Soil Quality

In accordance with the scope of work, chemical analyses were performed on selected soil samples recovered from the boreholes. One soil sample of the native material was collected at the water table and submitted for chemical analyses. The soil analytical results are summarized on Tables 1 to 3 in Appendix H and the Certificates of Analysis are enclosed in Appendix I.

7.4.1.1 PHC and BTEX

The PHC and BTEX concentrations in soil are shown in Table 1 in Appendix H. The concentrations of PHC and BTEX measured in the analysed soil samples were less than the MECP 2011 Table 3 SCS.

7.4.1.2 Metals

The metals concentrations in soil are shown in Table 2 in Appendix H. The concentrations of metals measured in the analysed soil samples were less than the MECP 2011 Table 3 SCS with the exception of slight exceedances for vanadium in all soil samples. However, it is well established that naturally occurring trace metal concentrations (including barium, chromium, cobalt and vanadium) in fine-grained Champlain Sea sediments in Eastern Ontario often exceed the Table 3 SCS. The data is evidenced in the technical document entitled “Background Metals in Champlain Sea Sediments: Updates from 2019 Drilling and Sampling Program (Geofirma, 2023). As such, the vanadium exceedances in soil do not represent a concern in terms of the environmental quality of the soil on the Site.

7.4.1.3 General Inorganics

The concentrations of inorganic parameters including EC, SAR, and chloride in soil are shown in Table 3 in Appendix H. The concentrations of inorganics measured in the analysed soil samples were less than the MECP 2011 Table 3 SCS.

7.5 Groundwater Quality

Chemical analyses were performed on a groundwater sample collected from each of the three monitoring wells. The groundwater analytical results are summarized in Tables 4 to 6 in Appendix H and the laboratory certificates of analysis are enclosed in Appendix I.

7.5.1 PHC and BTEX

The PHC and BTEX concentrations in groundwater are shown in Table 4 in Appendix H. The concentrations of PHC and BTEX measured in the analysed groundwater samples were less than the MECP 2011 Table 3 SCS.

7.5.2 Metals

The metals concentrations in groundwater are shown in Table 5 in Appendix H. The concentrations of metals measured in the analysed groundwater samples were less than the MECP 2011 Table 3 SCS.

7.5.3 General Inorganics

The concentrations of inorganic parameters including EC, SAR, and chloride in groundwater are shown in Table 6 in Appendix H. The concentrations of inorganics measured in the analysed groundwater samples were less than the MECP 2011 Table 3 SCS.

11.0 Quality Assurance

Details regarding quality assurance measures taken in the field, including instrument calibration, decontamination procedures, use of dedicated equipment, sample storage and Chain of Custody documentation were provided in Section 10, Methodology.

The subcontract laboratory used during this investigation, Paracel Laboratories Ltd., is accredited by the Standards Council of Canada/Canadian Association of Environmental Analytical Laboratories (Accredited Laboratory No.97) in accordance with ISO/IEC 17025:1999 – "General Requirements for the Competence of Testing and Calibration Laboratories" for the analysis of all parameters for all samples in the scope of work for which SCS have been established under Ontario Regulation 153/04.

The "*Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act*" ("the Analytical Protocol"), prepared by the MOE, March 2004 amended as of July 1, 2011, establishes criteria used in assessing the performance of analytical laboratories when the data are used in support of the filing of Records of Site Condition.

The analytical program conducted by Paracel included analytical test group specific QA/QC measures to evaluate the accuracy and precision of the analytical results and the efficiency of analyte recovery during solute extraction procedures. The Paracel laboratory QA/QC program consisted of the preparation and analysis of laboratory duplicate samples to assess precision and sample homogeneity, method blanks to assess analytical bias, spiked blanks and QC standards to evaluate analyte recovery, matrix spikes to evaluate matrix interferences and surrogate compound recoveries to evaluate extraction efficiency. The laboratory QA/QC results are presented in the Quality Assurance Report provided in the Certificate of Analysis prepared by Paracel. The QA/QC results are reported as percent recoveries for matrix spikes, spike blanks and QC standards, relative percent difference for laboratory duplicates and analyte concentrations for method blanks. All prescribed data quality criteria were met.

12.0 Conclusions

Based on the findings of the Phase One ESA, the following PCA was identified on the Phase One property:

EXP PCA #	Location of PCA	Potentially Contaminating Activity (PCA)	Description	Rationale
PCA 1	2701 Mer Bleue Road (immediately west)	PCA #Other – Snow Disposal Facility	Snow disposal facility in operation since approximately 2010.	It is considered likely that significant amounts of road salt and other debris picked up during plowing activities are deposited with the snow at this disposal facility. The snow disposal facility is located up gradient and directly adjacent to the Phase One property. The groundwater flow direction on the Phase One study area is not known at this time and no data in the immediate vicinity is available. Therefore, it is considered an environmental concern to the Phase One property from a groundwater perspective.

It is likely that the snow disposal facility (**PCA 1**) may have impacted the groundwater conditions on the Phase One property and was considered to contribute to an area of potential environmental concern (APEC) and as a results supplemental soil and groundwater sampling is recommended.

The above PCA represents the following APEC to the Phase One property:

Area of Potential Environmental Concern (APEC)	Location of APEC on Phase One Property	Potentially Contaminating Activity (PCA)	Location of PCA (On-Site or Off-Site)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, Soil and/or Sediment)
1. Snow disposal facility immediately west of the Phase One property	Westen extent of the Phase One property	**PCA 1**: PCA #Other – Snow Disposal Facility	Off-site	Inorganics, metals, petroleum hydrocarbons (PHC)	Soil and groundwater

The Qualified Person who oversaw this work, Chris Kimmerly, P.Geo., recommended that a soil and groundwater sampling and analysis is conducted to satisfy the requirements of Ontario Regulation 153/04(as amended). If it is anticipated that excess soil may be generated during site development, a soil sampling program should also be conducted to satisfy the requirements of Ontario Regulation 406/19 – On site and Excess Soil Management

The Qualified Person can confirm that the Phase One Environmental Site Assessment was conducted per the requirements of Ontario Regulation 153/04, as amended, and in accordance with generally accepted professional practices.

Based on the findings of the Phase One report, a soil and groundwater analysis program was conducted for due diligence purposes to determine if any contaminated soil or groundwater is present on the Site. A total of three (3) boreholes were advanced on the Site (MW24-1, MW24-2 and MW24-3). Soil and groundwater samples were collected and submitted for laboratory analysis of PHC, BTEX, metals and select inorganics. The following conclusions are provided:

- On August 2, 2024, three (3) boreholes were advanced at the Site and were each instrumented with a monitoring well.
- The stratigraphy at the Site generally consists of a 100-200 mm layer of topsoil at the ground surface. Below any topsoil was a combination of silty clay or clay, which is considered to be native soil material. A small amount of gravel

till was observed at 3.66 m below ground surface (mbgs) in MW24-1 followed by suspected bedrock. No deleterious materials were identified in the topsoil or native soil and there were no visual or olfactory indications of soil contamination. The boreholes were advanced to a maximum depth drilled of 4.88 mbgs.

- One worst case soil sample of the native material collected at the water table from each borehole was submitted for laboratory analysis of PHC, BTEX, metals and select inorganics. One field duplicate sample was also collected and analysed for the same parameters.
- On August 7, the depth to groundwater ranged from 1.53 mbgs in MW24-2, 1.82 mbgs in MW24-1, to 1.92 mbgs in MW24-3. The groundwater flow direction was determined to be to the northeast.
- The concentrations of PHC, BTEX, metals and general inorganics measured in the analyzed soil samples were less than the Ministry of the Environment, Conservation and Parks (MECP) 2011 Table 3 site condition standards (SCS), with the exception of slight exceedances for vanadium in all soil samples. However, it is well established that naturally occurring trace metal concentrations (including barium, chromium, cobalt and vanadium) in fine-grained Champlain Sea sediments in Eastern Ontario often exceed the SCS. The data is evidenced in the technical documents entitled “Elevated Background Metals Concentrations in Champlain Sea Clay – Ottawa Region” (Geofirma Engineering/Dillon Consulting, 2017) and “Background Metals in Champlain Sea Sediments: Updates from 2019 Drilling and Sampling Program (Geofirma, 2023). As such, the vanadium exceedances in soil do not represent a concern in terms of the environmental quality of the soil on the Site.
- The concentrations of PHC, BTEX, metals, and general inorganic parameters measured in the analysed groundwater samples were less than the MECP 2011 Table 3 SCS.

Based on the above results and conclusions, no recommendations are deemed necessary at this time.

13.0 References

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- Ontario Ministry of Natural Resources and Forestry, Natural Heritage website (www.gisapplication.lrc.gov.on.ca/mamnh/Index.html).

14.0 Limitation of Liability, Scope of Report, and Third Party Reliance

Basis of Report

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

Reliance on Information Provided

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

Standard of Care

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

Complete Report

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

Use of Report

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

Report Format

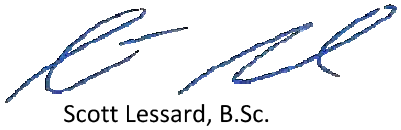
Where EXP has submitted both electronic file and a hard copy of the Report, or any document forming part of the Report, only the signed and sealed hard copy shall be the original documents for record and working purposes. In the event of a dispute or discrepancy, the hard copy shall govern. Electronic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

15.0 Signatures

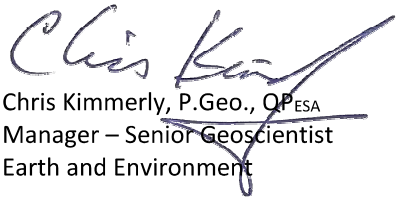
We trust this report meets your current needs. If you have any questions pertaining to the investigation undertaken by EXP, please do not hesitate to contact the undersigned. The Qualified Person can confirm that the Phase One Environmental Site Assessment was conducted per the requirements of Ontario Regulation 153/04, as amended, and in accordance with generally accepted professional practices.



Devin Clouthier, B.Sc.
Environmental Scientist
Earth and Environment



Scott Lessard, B.Sc.
Project Manager
Earth and Environment



Chris Kimmerly, P.Geo., QP$_{ESA}$
Manager – Senior Geoscientist
Earth and Environment

Appendix A: Qualifications of Assessors

Qualifications of Assessors

EXP provides a full range of environmental services through a full-time Environmental Services Group. EXP's Earth and Environment Group has developed a strong working relationship with clients in both the private and public sectors and has developed a positive relationship with Ontario Ministry of the Environment, Conservation and Parks. Personnel in the numerous branch offices form part of a large network of full-time dedicated environmental professionals in the EXP organization.

Devin Clouthier BSc., has 4 years of experience in the environmental consulting field. He has worked on numerous Phase I Environmental Site Assessments (ESA); Phase II ESAs, completing soil and groundwater sampling, assisting in report preparation and data entry and analysis.

Scott Lessard, B.Sc., is a Project Manager with 8 years of experience in the environmental consulting field. A graduate of Concordia University in Environmental Science, his technical undertakings have included: project coordination; Phase I and II Environmental Site Assessments; contaminated site investigations including drilling supervision, environmental sampling and data evaluation including Designated Substance Surveys; proposal preparation, client liaison and technical report preparation.

Chris Kimmerly, M.Sc., P.Geo., has more than 31 years of environmental consulting experience, 30 of which have been with EXP. A graduate of Brock University with a Master of Science Degree in Geological Science, His technical experience includes managing, coordinating, and conducting environmental site assessments; groundwater sampling programs; soil and groundwater remedial action and risk mitigation plans; mineral aggregate assessments; hydrogeological and terrain analysis assessments; designated substances and hazardous materials surveys. Mr. Kimmerly is a Qualified Person for completing Phase One and Two Environmental Site Assessments as per O.Reg. 153/04.

Appendix B: Figures



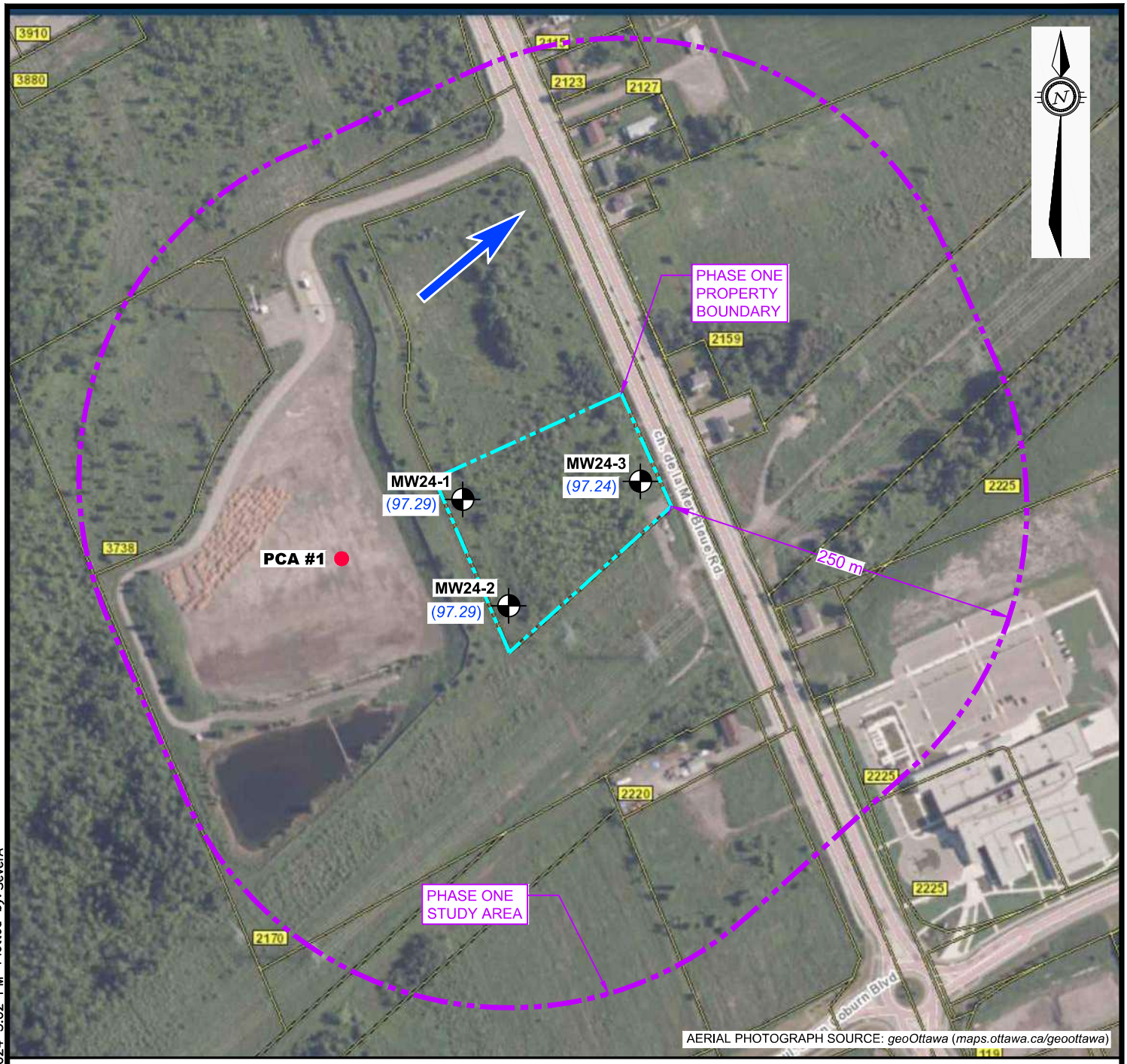
APPROXIMATE PROPERTY BOUNDARY

200m 400m 800m

HORIZONTAL 1:20,000

EXP Services Inc. www.exp.com
t: +1.613.688.1899 | f: +1.613.225.7337
2650 Queensview Drive, Suite 100
Ottawa, ON K2B 8H6, Canada

DATE: AUGUST 2024	CLIENT: HYDRO OTTAWA LIMITED		project no. OTT-
DESIGN: DC / CHECKED: SL	PROPERTY ADDRESS: 2170 MER-BLEUE ROAD, OTTAWA, ONTARIO		scale 1
DRAWN BY: AS	PROJECT: PHASE ONE ENVIRONMENTAL SITE ASSESSMENT		
	TITLE: SITE LOCATION PLAN		F



LEGEND

- PROPERTY BOUNDARY
- STUDY AREA (250m)
- MW24-1 (97.29) — MONITORING WELL NUMBER AND LOCATION GROUND WATER ELEVATION (m)
- GROUNDWATER FLOW DIRECTION
- PCA #1 — POTENTIALLY CONTAMINATING ACTIVITY (PCA) RESULTING IN APEC
- PCA #2 — POTENTIALLY CONTAMINATING ACTIVITY (PCA) NOT RESULTING IN APEC

0 40m 80m 160m

HORIZONTAL 1:4,000

EXP Services Inc. www.exp.com
t: +1.613.688.1899 | f: +1.613.225.7337
2650 Queensview Drive, Suite 100
Ottawa, ON K2B 8H6, Canada

DATE: AUGUST 2024	CLIENT: HYDRO OTTAWA LIMITED	project no.: OTT-23010468-A0
DESIGN: DC / CHECKED: SL	PROPERTY ADDRESS: 2170 MER-BLEUE ROAD, OTTAWA, ONTARIO PROJECT: PHASE ONE ENVIRONMENTAL SITE ASSESSMENT	scale: 1:4,000
DRAWN BY: AS	TITLE: PHASE ONE STUDY AREA	FIG 2

Filename: E:\OTT\OTT-23010468-A0\60 Execution\65 Drawings\OTT-23010468-A0_Ph-1_2170-Mer-Bleue-Rd.dwg
Last Saved: Aug 15, 2024 12:10 PM Last Plotted: Aug 15, 2024 3:02 PM Plotted by: SeverA



AERIAL PHOTOGRAPH SOURCE: *geoOttawa* (*maps.ottawa.ca/geoottawa*)

LEGEND

PROPERTY BOUNDARY

MW24-1 — MONITORING WELL NUMBER AND LOCATION

AREA OF POTENTIAL ENVIRONMENTAL CONCERN

APEC 1

0 10m 20m 50m

HORIZONTAL 1:1250

EXP Services Inc. www.exp.com
t: +1.613.688.1899 | f: +1.613.225.7337
2650 Queensview Drive, Suite 100
Ottawa, ON K2B 8H6, Canada

DATE: AUGUST 2024	CLIENT: HYDRO OTTAWA LIMITED	project no.: OTT-23010468-A0
DESIGN: DC / CHECKED: SL	PROPERTY ADDRESS: 2170 MER-BLEUE ROAD, OTTAWA, ONTARIO PROJECT: PHASE ONE ENVIRONMENTAL SITE ASSESSMENT	scale: 1:1,250
DRAWN BY: AS	TITLE: PHASE ONE PROPERTY - SITE PLAN	FIG 3

Filename: E:\OTT\OTT-23010468-A0\60 Execution\65 Drawings\OTT-23010468-A0_Ph-1_2170-Mer-Bleue-Rd.dwg
Last Saved: Aug 15, 2024 3:06 PM Last Plotted: Aug 15, 2024 3:11 PM Plotted by: SeverA

Appendix C: Municipal Records & Provincial Records

HISTORIC LAND USE INVENTORY (HLUI) - REPORT REFERENCE MAP



File Number: D06-03-24-0018

March 6, 2024

Kathy Radisch
EXP Services Inc.

Sent via email kathy.radisch@exp.com

Dear Kathy,

Re: _Information Request
2170 Mer Bleue Road, 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:

- **Environmental Remediation Unit:** The City's Environmental Remediation Unit has a report that includes data for this site entitled "Snow Disposal Facilities, Environmental Effects Monitoring Report – 2009/2010 Season". Please contact ERU-UAE@ottawa.ca to obtain a copy of the report if required.

- **Ottawa Public Health - Environmental Health:** all public inspection results are publicly available on the Ottawa Public Health website: https://www.ottawapublichealth.ca/en/public-health-services/public-health-inspections.aspx

- **Sewer Use Program:** The City's Sewer Use Program has found no information pertaining to the subject property.
- **Solid Waste Services:** The subject property is not within 5 kilometers of a Solid Waste Services facility.

Documents Provided:

HLUI Summary Report and HLUI Map

The HLUI Summary Report Excel spreadsheet identifies HLUI area, point and line features within 250 metres of the Subject Property, as shown on the provided HLUI Map PDF. Within 500 metres of the Subject Property, landfills and Environmental Risk Management Area (ERMA) are also identified if applicable.

For more information on how to interpret the HLUI data identified in the attached excel sheet ('HLUI Summary report.xlsx'), please refer to the Overview and User Guide."

Additional information may be obtained by contacting:

Ontario's Environmental Registry

The Environmental Registry found at https://ero.ontario.ca/ 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 keys 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

Ottawa Public Health

Ottawa Public Health inspects many different types of establishments. To view inspection results, please visit the Ottawa Public Health website: Public Health Inspections - Ottawa Public Health

Please note that Ottawa Public Health is not the lead agency on land use contamination in the City of Ottawa – contact the Ministry of Environment Conservation and Parks (MECP) for further information.

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 HLUI@ottawa.ca.

Sincerely,

Timurul Hoque Kazi
Student Planner

Per:

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

MB / **THK**

Enclosures: (2)
1. HLUI Map
2. HLUI Summary Report

cc: File no. D06-03-24-0018

ACILITY_TYPE	SOURCE_UPDATE_SORTED	QAQC	YEAR	YEAR_1	ST_NUM	ST_NAME	ST_SUFFIX
	2016-PID; 2017-SalesGenie	1	2016-2017	PID2016; Sal	3910	INNES	RD
ile Repairing & Service	2017-SalesGenie	1	2017	SalesGenie 2017			
rniture Industries	2005-SelectPhone	2	2005	c. 2001; c. 2(	2133	MER BLEUE	RD
ehicles, Wholesale	2001-ES	1	2001	c. 2001	2284	MER BLEUE	RD
g Contractors	2017-SalesGenie	1	2017	SalesGenie 2017			
ile Dealers-New Cars	2017-SalesGenie	1	2017	SalesGenie 2017			
ile Dealers-New Cars	2017-SalesGenie	1	2017	SalesGenie 2017			

AL_201	PIN2017	MUNICIPALITY2017	NAICS	SIC	COMMENTS	STORAGE_TANK	Shape_Length	Shape_Area
K9	44040521	GLOUCESTER	452991				814.8787	39217.82
K9	44040521	GLOUCESTER	81111104	Jan-38			814.8787	39217.82
	44041418	GLOUCESTER	337123; 337214				1854.305	88450.84
	44041418	GLOUCESTER	811310				1854.305	88450.84
	44040995	GLOUCESTER	23891006	1794-03			641.2604	24010.65
	1.46E+08	CUMBERLAND	44111001	11-Feb			531.0742	16947.99
	1.46E+08	CUMBERLAND	44111001	11-Feb			491.9317	12897.64

Ontario

Ministry of the Environment
Ministère de l'Environnement

INCIDENT REPORT

Reference Number:	4311-966NZY	**File Storage Number:**	SI OT CU IN 230
Module:	Incident Reporting	**Module Type:**	CofA/Permit Non-Compliance
Cross Reference:	(doc link)	**Task Link:**	3618-966QDF
Originating Document:		**Created by:**	Kyle Straberger
Incident Report Reference Number:		4311-966NZY	
Date Created:	2013/03/26	**Date Completed:**	
Bring Forward Date:		**Bring Forward Reason:**	
Status:	In progress		
Program	Sewage - Municipal/Private and commercial	**Activity:**	Inspections - Municipal Owned

Is this an **air emission** (measured or modelled) or **wastewater** (sewage) **discharge exceedance** that will become part of the Environmental Compliance Report?

(legislation, certificate of approval, order, or guideline)

○ Yes ● No ○ To be determined *Click here for Guidance*

Caller or PO Information

Reported By:		
First Name	**Last Name**	
Kyle	Straberger	

Contact Mailing Address

Municipality:			
Ottawa			

Reported By:	

MOE Information

Date & Time Reported to MOE:	2013/02/27 13:54		
Office Receiving Incident Report:	Ottawa District Office		
Incident Info Received By:	Kyle Straberger		
MOE Response:	No Field Response	**Site Region:**	Eastern
Date & Time of MOE Arrival at Scene:			
Master Incident Report Number:			
SAC Action Class:			
Non-Standard Procedure:	No		

ERP Call-out Initiated:			

Client(s)

Client Details

City of Ottawa
Mailing Address: 100 Constellation Cres Infrastructure Services Department, 6th Floor, Ottawa, Ontario, Canada, K2G 6J8
Physical Address: 100 Constellation Cres, Ottawa, City, Ontario, Canada, K2G 6J8
Telephone: (613)580-2424, Extension: 14102, FAX: (613)560-6064, email: randy.dempsey@ottawa.ca
Client #: 8140-95CLYY, Client Type: Municipal Government, NAICS: 237110

Site(s)

Site Details

Mer Bleue Snow Disposal Facility
Address: 2170 Mer Bleue Rd Municipal Snow Disposal Facility, Ottawa, City
District Office: Ottawa
GeoReference: Map Datum: NAD83, Zone: 18, Accuracy Estimate: 1-10 metres eg. Good Quality GPS, Method: GIS Software, UTM Easting: 460600, UTM Northing: 5033234, UTM Location Description: Near Intersection of Innes Road & Mer Bleue Road,
Site #: 0406-95CM49

Incident Information

Incident Summary:	Inspection - ECA Non-compliance *cannot be longer than 60 characters*
Incident Description:	The ministry completed an industrial sewage works inspection at the Mer Bleue Snow Disposal Facility, owned and operated by the City of Ottawa, and noted the following actions required to ensure compliance with the issued Environmental Compliance Approval: 1. The City of Ottawa must comply with Condition 4 of the ECA by developing and implementing the Operations & Maintenance Manual. A copy of the Operation and Maintenance Manual shall be provided to the undersigned officer by no later than April 17, 2013. 2. The City of Ottawa must comply with the sampling requirements as outlined in Condition 6 - Table 1 - Effluent Monitoring for the SWMF Pond which includes the sampling of VOCs annually. Note - 2. City of Ottawa was informed at the time of the inspection and confirmed after documentation was provided to the MOE that the effluent monitoring program was not amended to removed VOCs from the program. The City of Ottawa will start sampling for VOCs. No further MOE action required. As outlined in Condition 6(4) of the ECA, the City of Ottawa can apply for a reduction in the monitoring frequency and monitoring parameters after two (2) years of obtaining monitoring results. The request to reduce the monitoring program is to be submitted to the District Manager of the Ottawa District Office and written request must be completed by an Engineer on behalf of the Owner (City of Ottawa). 3. The City of Ottawa must comply with monitoring requirements as outlined in Condition 7 - Table 2 - Groundwater Monitoring for the SWMF by monitoring for all parameters and their specific frequencies. 4. The City of Ottawa must ensure the discharge of snow melt water is below the total suspended solids criteria of 40 mg/L. Sample results should be collected prior to discharge to ensure compliance.

Links & Comments:	
Attachments Names:	

Date & Time of Incident	**Incident Date Confirmation?** Actual 2013/02/27		
Source Type:		**Sector Type:**	
Nearest Watercourse:		**Watershed Category Code:**	
Environmental Impact:			
Nature of Impact:			
Incident Event:		**Incident Reason:**	
Damaged Party:	No		

Contaminants Table

Contaminant Name	Code	UN#	Limit	Quantity	[units]	[freq]

Controller of Material:		**Owner of Material:**	
Estimated Clean Up Cost:		**Who Cleaned Up:**	
% Clean Up:	%	**MOE/Other Agencies Involved:**	

Voluntary / Mandatory Abatement

Is there Voluntary Abatement Activity?	● Yes	○ No	○ To be determined

Voluntary / Mandatory Compliance Items

Type	Parent RefNo	Work Summary (may be truncated)	Date	AttainList
VA	4311-966NZY	1. The City of Ottawa must comp ...	2013/04/17	2013/04/17
VA	4311-966NZY	2. The City of Ottawa must comp ...	2013/03/26	2013/03/26
VA	4311-966NZY	3. The City of Ottawa must comp ...	2013/04/17	2013/04/17
VA	4311-966NZY	4. The City of Ottawa must ensu ...	2013/04/17	2013/04/17
VAI	3125-95CM89	1. The City of Ottawa must comp ...	2013/04/17	2014/06/17
VAI	3125-95CM89	3. The City of Ottawa must com ...	2014/04/17	2013/04/17
VAI	3125-95CM89	2. The City of Ottawa must comp ...	2013/04/17	2013/04/17
VAI	3125-95CM89	4. The City of Ottawa must ensu ...	2013/04/17	2013/04/17

Offence(s)

Suspected Violation(s)/Offence(s):
Act - Regulation - Section, **Description** **(General Offence)**

Provincial Officer:
Name:
Badge No:

Work Unit:
District/Area Office:
Date:

Signature:

District/Area Supervisor:

Name:

Work Unit:
District/Area Office:
Date:

Signature:

Voluntary Compliance

Parent Reference #:	4311-966NZY	**Compliance Date:**	2013/04/17 16

Work Description:

3. The City of Ottawa must comply with monitoring requirements as outlined in Condition 7 - Table 2 - Groundwater Monitoring for the SWMF by monitoring for all parameters and their specific frequencies.

Work Type:	Conduct Study - Monitoring or Sampling Program
Compliance Status:	Compliance Attained
Original Compliance Date:	2013/04/17
Compliance Attained Date:	2013/04/17

Incident Reference #:	4311-966NZY
Compliance Type:	VA

Voluntary Compliance

Parent Reference #:	4311-966NZY	**Compliance Date:**	2013/04/17 16

Work Description:

1. The City of Ottawa must comply with Condition 4 of the ECA by developing and implementing the Operations & Maintenance Manual. A copy of the Operation and Maintenance Manual shall be provided to the undersigned officer by no later than April 17, 2013.

Work Type:	Submit Report / Confirm Compliance to Ministry
Compliance Status:	Compliance Attained
Original Compliance Date:	2013/04/17
Compliance Attained Date:	2013/04/17

Incident Reference #:	4311-966NZY
Compliance Type:	VA

Voluntary Compliance

Parent Reference #:	4311-966NZY	**Compliance Date:**	2013/03/26

Work Description:

2. The City of Ottawa must comply with the sampling requirements as outlined in Condition 6 - Table 1 - Effluent Monitoring for the SWMF Pond which includes the sampling of VOCs annually.

Work Type:	Conduct Study - Monitoring or Sampling Program
Compliance Status:	Compliance Attained
Original Compliance Date:	2013/03/26
Compliance Attained Date:	2013/03/26

Incident Reference #:	4311-966NZY
Compliance Type:	VA

Voluntary Compliance

Parent Reference #:	4311-966NZY	**Compliance Date:**	2013/04/17 15

Work Description:

4. The City of Ottawa must ensure the discharge of snow melt water is below the total suspended solids criteria of 40 mg/L. Sample results should be collected prior to discharge to ensure compliance.

Work Type:	Implement Process or Procedures Change and associated Training
Compliance Status:	Compliance Attained
Original Compliance Date:	2013/04/17
Compliance Attained Date:	2013/04/17

Incident Reference #:	4311-966NZY
Compliance Type:	VA

Draft Voluntary Abatement Inspections

Parent Reference #:	3125-95CM89	**Compliance Date:**	2013/04/17 16

Work Description:

1. The City of Ottawa must comply with Condition 4 of the ECA by developing and implementing the Operations & Maintenance Manual. A copy of the Operation and Maintenance Manual shall be provided to the undersigned officer by no later than April 17, 2013.

Work Type:	Submit Report / Confirm Compliance to Ministry
Compliance Status:	Compliance Attained
Original Compliance Date:	
Compliance Attained Date:	2014/06/17

Incident Reference #:	4311-966NZY
Compliance Type:	VAI
Compliance Type Code:	6

Draft Voluntary Abatement Inspections

Parent Reference #:	3125-95CM89	**Compliance Date:**	2014/04/17 16

Work Description:

3. The City of Ottawa must comply with monitoring requirements as outlined in Condition 7 - Table 2 - Groundwater Monitoring for the SWMF by monitoring for all parameters and their specific frequencies.

Work Type:	Conduct Study - Monitoring or Sampling Program
Compliance Status:	Compliance Attained
Original Compliance Date:	
Compliance Attained Date:	2013/04/17

Incident Reference #:	4311-966NZY
Compliance Type:	VAI

Draft Voluntary Abatement Inspections

Parent Reference #:	3125-95CM89	**Compliance Date:**	2013/04/17 16

Work Description:

2. The City of Ottawa must comply with the sampling requirements as outlined in Condition 6 - Table 1 - Effluent Monitoring for the SWMF Pond which includes the sampling of VOCs annually.

Work Type:	Conduct Study - Monitoring or Sampling Program
Compliance Status:	Compliance Attained
Original Compliance Date:	
Compliance Attained Date:	2013/04/17

Incident Reference #:	4311-966NZY
Compliance Type:	VAI

Draft Voluntary Abatement Inspections

Parent Reference #:	3125-95CM89	**Compliance Date:**	2013/04/17 16

Work Description:

4. The City of Ottawa must ensure the discharge of snow melt water is below the total suspended solids criteria of 40 mg/L. Sample results should be collected prior to discharge to ensure compliance.

Work Type:	Conduct Study - Monitoring or Sampling Program
Compliance Status:	Compliance Attained
Original Compliance Date:	
Compliance Attained Date:	2013/04/17

Incident Reference #:	4311-966NZY
Compliance Type:	VAI

Ontario

Ministry of the Environment
Ministère de l'Environnement

RECORD OF SITE VISIT

Reference Number:	4084-95CLX7	**File Storage Number:**	SI.OT.CU.IN.230
Module:	Inspections	**Module Type:**	sfIndustrialSewage
Cross Reference:	(doc link)	**Task Link:**	0466-95CM83
Originating Document:		**Created by:**	Kyle Straberger
Incident Report Reference Number:		4311-966NZY	
Date Created:	2013/02/28	**Date Completed:**	2013/03/30
Bring Forward Date:		**Bring Forward Reason:**	
Status:	Final Signed-Off		
Program	Sewage - Industrial	**Activity:**	Inspections - Industrial Sewage

Client(s)

Client Details

City of Ottawa
Mailing Address: 100 Constellation Cres, Ottawa, Ontario, Canada, K2G 6J8
Physical Address: 100 Constellation Cres, Ottawa, City, Ontario, Canada, K2G 6J8
Telephone: (613)580-2424, Extension: 21122, FAX: (613)580-9605, email: Gary.OConnor@Ottawa.ca
Client #: 8140-95CLYY, Client Type: Municipal Government

Site(s)

Site Details

Mer Bleue Snow Disposal Facility
Address: 2170 Mer Bleue Rd Municipal Snow Disposal Facility, Ottawa, City
District Office: Ottawa
GeoReference: Map Datum: NAD83, Zone: 18, Accuracy Estimate: 1-10 metres eg. Good Quality GPS, Method: GIS Software, UTM Easting: 460600, UTM Northing: 5033234, UTM Location Description: Near Intersection of Innes Road & Mer Bleue Road,
Site #: 0406-95CM49

General

Date of Last Inspection:		**Inspection Due Date:**	
Inspection Start Date:	2013/02/27	**Inspection Finish Date:**	2013/02/27
Inspection Pass/Fail:	Fail	**Risk Score:**	
With Minor Admin Violation:	No	**IJM Score:**	A2
Site Region:	Eastern		
File Review:			
Comments:			

Compliance Level	IJM Score
In Compliance	A0 to F0
In Compliance with Comments	A1, B1 and C1
Significant Non-Compliance	Other than above

Inspection Time Of Day

Inspection Time of Day
Indicate if this inspection was conducted during a week day (normal hours) or during an evening, night, weekend or holiday (after hours)
● Normal Hours Inspection ○ After Hours Inspection

Risk Assessment

Plan Category	Planned	Fiscal year	2012/2013

Media	Water	
Facility Selection Rationale		
Anticipated	**Actual**	
☐ HE	☐ HE	A: Known Significant Human Health and/or Environmental Impact/Impairment
☐ CV	☐ CV	A: Previous Record of Convictions/Charges Laid (Non-Administrative)
☐ NC	☐ NC	A: A Record of Significant (Non-Administrative) Non-Compliance
☐ DI	☐ DI	A: Lack of Demonstrated Improvement towards Compliance/Remediation (an outright failure (non-administrative) in previous inspection where compliance has not been achieved.
☐ AN	☐ AN	B: Human Health and/or Environmental Impairment is Anticipated/Suspected.
☐ VS	☒ VS	B: Violation of a Legal Requirement is Suspected (with human health and/or environmental impact.
☐ BP	☐ BP	B: Nature of Site Operations/Business Represent an Inherent Level of Risk (where impact to human health and/or environment is anticipated due to nature of site/Facility Processes and Waste Streams and/or Discharges)
☐ ES	☐ ES	B: Emerging Sectors (where knowledge is limited but concern for environmental impacts exists)
☒ UK	☐ UK	C: Risk Unknown/New Facility and/or General Deterrent
☐ CP	☐ CP	C: Corporate Priority
☐ LP	☐ LP	C: Low Priority
Risk Category Anticipated		C: Unknown Risk to Human Health or Environment
Risk Category Actual		B: Anticipated Human Health or Environmental Impact
Reason for Risk Change		Violation confirmed
Risk Change Discussed with and Approved by District Manager		Yes
Why were changes made to Risk Information?		

Ontario

Ministry of the Environment
Ministère de l'Environnement

Industrial Sewage Inspection Report

Client:	City of Ottawa Mailing Address: 100 Constellation Cres, Ottawa, Ontario, Canada, K2G 6J8 Physical Address: 100 Constellation Cres, Ottawa, City, Ontario, Canada, K2G 6J8 Telephone: (613)580-2424, Extension: 21122, FAX: (613)580-9605, email: Gary.OConnor@Ottawa.ca Client #: 8140-95CLYY, Client Type: Municipal Government		
Inspection Site Address:	Mer Bleue Snow Disposal Facility Address: 2170 Mer Bleue Rd Municipal Snow Disposal Facility, Ottawa, City District Office: Ottawa GeoReference: Map Datum: NAD83, Zone: 18, Accuracy Estimate: 1-10 metres eg. Good Quality GPS, Method: GIS Software, UTM Easting: 460600, UTM Northing: 5033234, UTM Location Description: Near Intersection of Innes Road & Mer Bleue Road, LIO GeoReference: Zone: , UTM Easting: , UTM Northing: , Latitude: , Longitude:		
Contact Name:	Gary O'Connor	**Title:**	Engineer, Surface Operations
Contact Telephone:	(613) 580-2424 **ext**21122	**Contact Fax:**	(613) 580-9605
Last Inspection Date:			
Inspection Start Date:	2013/02/27	**Inspection Finish Date:**	2013/02/27
Region:	Eastern		

1.0 INTRODUCTION

The Ministry of the Environment conducted a planned inspection at a Snow Disposal Facility owned and operated by the City of Ottawa. The Snow Disposal Facility is located at 2191 Mer Bleue Road within the City of Ottawa (referred to as the "Site"). The inspection focused on compliance with issued Environmental Compliance Approval No. 2191-7MCT5Y (ECA) issued to the City of Ottawa on January 16, 2009, the Ontario Water Resources Act (OWRA), applicable guidelines and policies.

The inspection incorporated a file review of the records available at the Ottawa District Office of the Ministry of the Environment as well as monitoring records provided at the time of the inspection by Gary O'Connor, City of Ottawa. A site tour was completed which looked at the collection, transmission, treatment, and disposal of the snow melt and the approved system.

No previous MOE inspection had taken place prior to the February 27, 2013 inspection.

2.0 INSPECTION OBSERVATION

Facility MEWS (Works) Number:
N/A

Sector Type:
Other

Specify Other:
Snow Disposal Facility to provide proper treatment and disposal of snowmelt stormwater

Effluent Type:
Storm Water, Other

Specify Other:
Collection and treatment of snowmelt stormwater

Receiver Type:
Surface Water

Name of Receiver:
Muds Creek

Is there a sensitive receptor on/in the receiver?
No

Certificate of Approval Number(s):
Yes
C of A Number(s): Environmental Compliance Approval No. 2191-7MCT5Y
Issue Date: January 16, 2009

2.1 WASTEWATER TREATMENT PROCESS DESCRIPTION

The Site is approved for the construction and operation of the following wastewater treatment process description as described in the issued ECA:

"establishment of stormwater management works for the collection, treatment and disposal of stormwater run-off from the snowmelt at the Innes Snow Disposal Facility designed for 125,000cu.m/year near term and 225,000cu.m./year ultimate capacity on a 7.862ha. developed land area, to provide enhanced level of water quality protection and to attenuate post-development peak flows to a predetermined controlled discharge rate, for all storm events up to and including the 100 year return storm, consisting of the following:

Oil and Grit Separator:- one (1) manhole type oil and grit separator rated at 15L/s flow without by-passing, having a sediment storage capacity of 2.70cu.m., oil storage capacity of 1300L and a minimum total volume of 4.0cu.m. to discharge via a 450mm diameter storm sewer inlet to a wetpond as described below:

Wet pond (quality and quantity control): - a clay lined wet pond with a forebay, consisting of approximate permanent pool volume of 9,500cu.m., an extended detention volume of 1,400cu.m. and total storage volume of 14,150cu.m., together with:

- one (1) 450mm diameter overflow pipe from a headwall located in the forebay to discharge high-water into a 1.2m X 1.2m Manhole complete with removable closing plate and guides (closed for Spring melt-off and open for Summer run-off) to discharge into a swale located at the hydro easement of the City (OHEPC),

- one (1) 250mm diameter PVC drain from the forebay, 100mm diameter perforated tile drains from the collection and pond embankment area and a 450mm diameter outlet pipe from a 450 X 450 perforated T-riser on the pond bottom surrounded in 25mm diameter crushed stone; all to drain into a 2.4m diameter wetwell Pumpstation Manhole as described below:

Pumpstation:- a wetwell pumpstation consisting of two (2) submersible pumps (Flygt Model NP 3153.181HT or approved equal) with integral electric motors, each rated 22L/s at 25m TDH, at 15Hp, including all piping, valves, flowmeter, sampling ports, appurtenances and controls located in a 2.4mX2.4m Valve Chamber with a 3.0m X 3.0m above ground prefabricated preinsulated concrete Control Building to discharge meltwater via a 150mm diameter forcemain as described below:

Forcemain:- a 150mm diameter, approximately 1700m long, to be located along the hydro easement of the City (OHEPC) to discharge onto a riprap apron Outfall at the Mud Creek, including all perimeter swales, monitoring wells, access roads, drain culverts, security fences, temporary and permanent erosion/sedimentation control measures during every stage of construction to minimize the effects on external lands and to reduce the amount of silt carried to the stormwater detention pond and the Creek;"

Condition 4 - Operation and Maintenance

At the time of the inspection the IO requested the operation and maintenance manual for the operation of the snow disposal facility as required by condition 4 of the ECA. The following observations were made:

- the spill prevention control and countermeasure plan was not available for review

- the procedures for receiving, responding and recording public complaints was not available for review

- the procedures for the removal of sediment and oil from the catchbasins, manholes, stormwater, and oil/grit separator, including methods for determining when maintenance is required was not available for review

- the logbook required to record the results of the snow disposal system inspections was not available at the time of the inspection. A logbook was reviewed at the time of the inspection however the information recorded did not address condition 4(8) requirements

****Please see Section 5.0 of this Report for action items required to be completed to ensure compliance with Condition 4 of the issued ECA****

2.2 EFFLUENT SUMMARY REPORT

What are the facility's effluent limits based on?
Certificate of Approval/Permit, Policy/Guidelines

Does the facility comply with its limits?
No

The ECA outlines the effluent monitoring requirements for the operation of the sewage works. Condition 6 of the ECA speaks to the City of Ottawa's responsibility to monitoring the effluent discharge. The ECA does not state specific effluent limits but rather restricts the pumping/discharge of water if the samples results show a concentration of **total suspended solids (TSS) in excess of 40mg/L.**

The ECA outlines the effluent monitoring program the City of Ottawa is required to complete during periods of discharge. During effluent discharge, at least one effluent grab sample must be collected and analysed as per Table 1 - Effluent Monitoring for SWMF Pond and a grab sample must be collected from the pump header and analysed for total suspended solids, heavy metals, temperature, pH and oil and grease. Additional samples are required to be collected and analysed for the above referenced parameters everyday the system discharges with a minimum of 12 samples during spring and summer seasons.

Table 1: The table below outlines the effluent parameters, frequency, and sample type the City of Ottawa must follow when the stormwater is discharging.

Table 1 - Effluent Monitoring for SWMF Pond		
Effluent Parameter	**Frequency**	**Sample Type**
General Chemistry[Note 1]	Annually	Grab
Volatile Organic Compounds (VOC)[Note 2]	Annually	Grab
Metals Scan[Note 3]	Annually	Grab

The Inspecting Officer (IO) reviewed the monitoring data provided by the City of Ottawa for the 2011 and 2012 operating year and compared the result to the total suspended solids effluent limit of 40 mg/L. The results of the comparison is outlined below:

Total Suspended Solids (2011):

In 2011 the total suspended solids values were below the stated limit of 40 mg/L

Total Suspended Solids (2012):

In 2012 the total suspended solids values exceeded the effluent limit of 40 mg/L on two separate sample collection

events:

MBLSDF - 03 - 2012

Sample Date: April 26, 2012
Parameter: TSS
Effluent Limit: 40 mg/L
Value: 55 mg/L

Sample Date: May 7, 2012
Parameter: TSS
Effluent Limit: 40 mg/L
Value: 93 mg/L

****Please see Section 5.0 of this Report****

Additional Monitoring Parameters (2011 - 2012):

The inspecting officer reviewed the additional samples requirements as outlined above and noted the following findings:

General Chemistry & Metals Scan: Samples were collected by the City of Ottawa on several occasions to determine the general chemistry and metals concentration of the effluent discharge. The 2011 & 2012 annual report outline several exceedances of the Provincial Water Quality Objectives.

****Please see Section 6.0 of this Report****

Volatile Organic Compounds (VOC):
- VOCs were not collected for the 2010/2011 operating year. At the time of the inspection the IO discussed the lack of sampling for the effluent monitoring program and was informed that correspondence between the City of Ottawa and the MOE in 2010 provided relief in effluent parameters in the monitoring program. The IO requested a copy of a letter or email correspondence supporting the modification to the effluent monitoring requirements. Emails were provided to the IO however the emails did not support the modification nor did they contain any formal amendment to the current ECA.

****Please see Section 5.0 of this Report****

2.3 SEWAGE TREATMENT WORKS CAPACITY ASSESSMENT

Flow (m^3/day)	Year 1 2010	Year 2 2011	Year 3 2012
Average daily flow	0.00	0.00	0.00
Maximum daily flow	0.00	0.00	0.00
Capacity Design	125000.00	125000.00	125000.00
% of capacity (based on average daily flow)	0.00	0.00	0.00

2.4 SAMPLING REQUIREMENTS

What are the facility's sampling requirements based on?
Certificate of Approval/Permit

Does the facility meet sampling requirements?
Yes

As referenced in Section 2.3, the monitoring/sampling requirements of the effluent are outlined in Condition 6 of the ECA. On top of the effluent monitoring requirements, the City of Ottawa is also required to develop and implement a groundwater monitoring program to ensure the operation of the snow disposal facility is not having an impact on surrounding properties. The requirements of the effluent monitoring and groundwater monitoring are outlined below:

Condition 7 - Ground-Water Monitoring and Recording

To determine if the operation of the snow disposal facility is having an impact on the groundwater in the area, the City

of Ottawa installed 3 monitoring wells and are required to sample each well on a monthly (except heavy metals - annually) basis for the parameters outlined in Table 2 - Groundwater Monitoring outlined below.

Table 2 - Groundwater Monitoring - (Wells # 1, 2 and 3)		
Parameters	**Sample Type**	**Frequency**
Total Suspended Solids	(Grab)	Monthly
Total Phosphorus	(Grab)	Monthly
Total Ammonia Nitrogen	(Grab)	Monthly
Heavy metal scan	(Grab)	Yearly once in late Octobe

As part of the inspection process the Inspecting Officer (IO) reviewed the groundwater monitoring data provided by the City of Ottawa and compared the results against the Provincial Drinking Water Standards to determine potential impacts to the surrounding environment. The following observations were made:

-Additional sample parameters were added to the groundwater monitoring program by the City of Ottawa (ions, total metals, and hydrocarbons) which are not required by the ECA
- Samples were not collected at MW#2 in February , November, and December of 2011 for total suspended solids and total phosphorus
- Samples were not collected at MW#3 in February, November, and December of 2011 for total suspended solids and total phosphorus
- Sample results requested by the IO did not include values for total ammonia nitrogen (TAN) but rather total kjeldahl nitrogen

At this time no comments can be made on groundwater quality, impacts as a result of the operation of the snow disposal facility, and groundwater trends. The City of Ottawa is required to continue the monitoring program until sufficient data is collected.

**** Please see Section 5.0 of this Report****

2.5 REPORTING REQUIREMENTS

What are the facility's reporting requirements based on?
None

Does the facility meet reporting requirements?
Yes

The ECA does not outline any reporting requirements for the City of Ottawa to complete. Please be aware that all spills must be reported to the Ministry of the Environment's Spills Action Centre at 1-800-268-6060. All other issues regarding non-compliance with ECA conditions are to be directed to the Ministry of the Environment's Ottawa District Office at (613) 521-3450.

2.6 FLOW MEASUREMENT

The ECA does not outline any requirement for the City of Ottawa to install a flow meter or flow measuring device to control, regulate and record the discharge rate at the effluent discharge point to the natural environment.

2.7 MINISTRY SAMPLE RESULTS

Were Ministry samples collected during the inspection?
No

Reason:
At the time of the inspection the snow disposal facility and sewage treatment system was covered in snow and ice. The ECA does not state effluent limits which would determine if the system is operating in compliance with the ECA therefore ministry samples would not provide any useful information pertaining to compliance assessment.

2.8 FINANCIAL ASSURANCE

The Site is not required to obtain financial assurance for the construction and operation of the municipal sewage treatment system.

2.9 SPILL PREVENTION AND CONTINGENCY PLANS

Is the facility required to have a Spill Prevention and Contingency Plan (SPCP) as required by Ontario Regulation 224/07?
No

Has the facility had any spills since the last inspection?
No

Were all the spills reported to the ministry?
N/A

Does the facility's operations or spill history suggest that a SPCP be developed?
No

Comments:

The Site has not reported any spills to the Ministry of the Environment's Spills Action Centre as a result of the operation of the sewage treatment system nor does the Site have any chemicals or liquid waste which could cause a spill to the natural environment resulting in the need for the City of Ottawa to develop and implement a Spill Prevention and Contingency Plan.

3.0 REVIEW OF PREVIOUS NON-COMPLIANCE ISSUES

No previous non-compliance issues were identified prior to completing the inspection at the Site.

4.0 SUMMARY OF INSPECTION FINDINGS

Was there any indication of a known or anticipated human health impact during the inspection and/or review of relevant material, related to this Ministry's mandate?
No

Specifics:

Was there any indication of a known or anticipated environmental impact during the inspection and/or review of relevant material?
No

Specifics:

Was there any indication of a known or suspected violation of a legal requirement during the inspection and/or review of relevant material which could cause a human health impact or environmental impairment?
Yes

Specifics:

- Failure to development and implement an Operation & Maintenance Manual for the operation of the snow disposal facility as required by condition 4 of the issued ECA

- Failure to conduct and complete monitoring requirements as outlined in condition 6 of the issued ECA

- Failure to conduct and complete monitoring requirements as outlined in condition 7 of the issued ECA

- Discharge of snow melt water in excess of the 40mg/L effluent criteria in April and May of 2012

Was there any indication of a potential for environmental impairment during the inspection and/or the review of relevant material?

No

Specifics:

Was there any indication of minor administrative non-compliance?

No

Specifics:

5.0 ACTION(S) REQUIRED

1. The City of Ottawa must comply with Condition 4 of the ECA by developing and implementing the Operations & Maintenance Manual. A copy of the Operation and Maintenance Manual shall be provided to the undersigned officer by no later than April 17, 2013.

2. The City of Ottawa must comply with the sampling requirements as outlined in Condition 6 - Table 1 - Effluent Monitoring for the SWMF Pond which includes the sampling of VOCs annually.

As outlined in Condition 6(4) of the ECA, the City of Ottawa can apply for a reduction in the monitoring frequency and monitoring parameters after two (2) years of obtaining monitoring results. The request to reduce the monitoring program is to be submitted to the District Manager of the Ottawa District Office and written request must be completed by an Engineer on behalf of the Owner (City of Ottawa).

3. The City of Ottawa must comply with monitoring requirements as outlined in Condition 7 - Table 2 - Groundwater Monitoring for the SWMF by monitoring for all parameters and their specific frequencies.

4. The City of Ottawa must ensure the discharge of snow melt water is below the total suspended solids criteria of 40 mg/L. Sample results should be collected prior to discharge to ensure compliance.

1. 1. The City of Ottawa must comply with Condition 4 of the ECA by developing and implementing the Operations & Maintenance Manual. A copy of the Operation and Maintenance Manual shall be provided to the undersigned officer by no later than April 17, 2013.

2. 2. The City of Ottawa must comply with the sampling requirements as outlined in Condition 6 - Table 1 - Effluent Monitoring for the SWMF Pond which includes the sampling of VOCs annually.

3. 3. The City of Ottawa must comply with monitoring requirements as outlined in Condition 7 - Table 2 - Groundwater Monitoring for the SWMF by monitoring for all parameters and their specific frequencies.

4. 4. The City of Ottawa must ensure the discharge of snow melt water is below the total suspended solids criteria of 40 mg/L. Sample results should be collected prior to discharge to ensure compliance.

6.0 OTHER INSPECTION FINDINGS

Groundwater monitoring data was not reviewed for environment impacts as a result of the operation of the snow disposal facility but rather completion to determine compliance with applicable conditions. Additional monitoring is

required to determine trends in groundwater quality.

7.0 INCIDENT REPORT

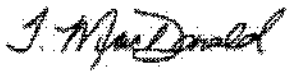
Applicable
4311-966NZY

8.0 ATTACHMENTS

PREPARED BY:
Environmental Officer:
Name: **Kyle Straberger**
District Office: **Ottawa District Office**
Date: **2013/03/26**
Signature

REVIEWED BY:
District Supervisor:
Name: **Tara MacDonald**
District Office: **Ottawa District Office**
Date: **2013/03/30**

Signature:



File Storage Number: SI OT CU IN 230

Note:
"This inspection report does not in any way suggest that there is or has been compliance with applicable legislation and regulations as they may apply to this facility. It is, and remains, the responsibility of the owner and/or the operating authority to ensure compliance with all applicable legislative and regulatory requirements"

Ministry of the Environment, Conservation and Parks

Corporate Services Branch
40 St. Clair Avenue West
Toronto ON M4V 1M2

Ministère de l'Environnement, de la Protection de la nature et des Parcs

Direction des services ministériels
40, avenue St. Clair Ouest
Toronto ON M4V 1M2

Ontario

May 29, 2024

Momin Malek
EXP Services Inc.
2650 Queensview Drive, Unit 100
Ottawa, Ontario K2B 8H6
momin.malek@exp.com

Dear Momin Malek:

RE: MECP FOI A-2024-02987, Your Reference #: OTT-23010468-A0 – Record Release Letter

This letter is further to your request made pursuant to the Freedom of Information and Protection of Privacy Act (the Act) relating to 2170 Mer Bleue Road, Ottawa

Attached is a copy of the records.

You may request a review of my decision within 30 days from the date of this letter by contacting the Information and Privacy Commissioner/Ontario at http://www.ipc.on.ca. Please note there may be a fee associated with submitting the appeal.

If you have any questions regarding this matter, contact Tara Hachey at tara.hachey@ontario.ca.

Yours truly,

Tara Hachey

For:

Josephine DeSouza
Manager, Access, and Privacy Office

Attachment

ERIS

CITY DIRECTORY

Project Property:	*Phase I ESA OTT-23010468-A0 _Scott Lessard* *2170 Mer-Bleue Rd* *Ottawa,ON K4A 3T8*
Project No:	*OTT-23010468-A0*
Requested By:	*exp Services Inc.*
Order No:	*24051000232*
Date Completed:	*May 16, 2024*

Environmental Risk Information Services
A division of Glacier Media Inc.
1.866.517.5204 | info@erisinfo.com | erisinfo.com

May 16, 2024
RE: CITY DIRECTORY RESEARCH
2170 Mer-Bleue Rd
Ottawa,ON K4A 3T8

Thank you for contacting ERIS regarding our City Directory Search services. Our staff has conducted a reverse listing City Directory search to determine prior occupants of the subject site and adjacent properties. When searching a range of addresses, all civic addresses within that range found in the Directory are included.

Note: Reverse Listing Directories generally are focused on highly developed areas, while newly developed areas may be covered in the more recent years, older directories tend to cover only "central" parts of the city. To complete the search, we have either utilized the Toronto Reference Library, Library & Archives Canada and multiple digitized directories. While these do not claim to be a complete collection of all reverse listing city directories produced, ERIS has made every effort to provide accurate and complete information. ERIS shall not be held liable for missing, incomplete, or inaccurate information. If you believe there are additional addresses or streets that require searching, please contact us.

Search Criteria:

2170 of Mer-Bleue Rd

Search Notes:

Search Results Summary

Data from 2012 to 2021 does not include residential information

Date	Source	Comment
2021	DIGITAL BUSINESS DIRECTORY	
2017	DIGITAL BUSINESS DIRECTORY	
2012	DIGITAL BUSINESS DIRECTORY	
2006-07	VERNONS	
2000	POLKS	
1997	POLKS	
1991	MIGHTS	
1987	MIGHTS	
1981-82	MIGHTS	
1976	MIGHTS	
1971	MIGHTS	
1966	MIGHTS	
1960	MIGHTS	

SOURCE: DIGITAL BUSINESS DIRECTORY

NO LISTING FOUND

SOURCE: DIGITAL BUSINESS DIRECTORY

NO LISTING FOUND

SOURCE: DIGITAL BUSINESS DIRECTORY

NO LISTING FOUND

SOURCE: VERNONS

2170 **ADDRESS NOT LISTED**

SOURCE: POLKS

2170 **STREET NOT LISTED**

SOURCE: POLKS

2170 **ADDRESS NOT LISTED**

SOURCE: MIGHTS

2170 **STREET NOT LISTED**

SOURCE: MIGHTS

2170 **STREET NOT LISTED**

SOURCE: MIGHTS

2170 **STREET NOT LISTED**

SOURCE: MIGHTS

2170 **STREET NOT LISTED**

SOURCE: MIGHTS

2170 **STREET NOT LISTED**

SOURCE: MIGHTS

2170 **STREET NOT LISTED**

SOURCE: MIGHTS

2170 **STREET NOT LISTED**

Appendix D: EcoLog ERIS Report

DATABASE REPORT

Project Property:	*Phase I ESA* *2170 Mer-Bleue Road* *Ottawa ON K4A 3T8*
Project No:	*OTT-23010468-A0 _100_AlamAnsari*
Report Type:	*Quote - Custom-Build Your Own Report*
Order No:	*24021300487*
Requested by:	*exp Services Inc.*
Date Completed:	*February 15, 2024*

Environmental Risk Information Services
A division of Glacier Media Inc.
1.866.517.5204 | info@erisinfo.com | erisinfo.com

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Executive Summary

Property Information:

Project Property:	*Phase I ESA* *2170 Mer-Bleue Road Ottawa ON K4A 3T8*
Project No:	*OTT-23010468-A0 _100_AlamAnsari*

Order Information:

Order No:	*24021300487*
Date Requested:	*February 13, 2024*
Requested by:	*exp Services Inc.*
Report Type:	*Quote - Custom-Build Your Own Report*

Historical/Products:

ERIS Xplorer	*ERIS Xplorer*

Executive Summary: Report Summary

Database	Name	Searched	Project Property	Boundary to 0.25km	Total
AAGR	Abandoned Aggregate Inventory	Y	0	0	0
AGR	Aggregate Inventory	Y	0	0	0
AMIS	Abandoned Mine Information System	Y	0	0	0
ANDR	Anderson's Waste Disposal Sites	Y	0	0	0
AST	Aboveground Storage Tanks	Y	0	0	0
AUWR	Automobile Wrecking & Supplies	Y	0	0	0
BORE	Borehole	Y	1	2	3
CA	Certificates of Approval	Y	0	1	1
CDRY	Dry Cleaning Facilities	Y	0	0	0
CFOT	Commercial Fuel Oil Tanks	Y	0	0	0
CHEM	Chemical Manufacturers and Distributors	Y	0	0	0
CHM	Chemical Register	Y	0	0	0
CNG	Compressed Natural Gas Stations	Y	0	0	0
COAL	Inventory of Coal Gasification Plants and Coal Tar Sites	Y	0	0	0
CONV	Compliance and Convictions	Y	0	0	0
CPU	Certificates of Property Use	Y	0	0	0
DRL	Drill Hole Database	Y	0	0	0
DTNK	Delisted Fuel Tanks	Y	0	0	0
EASR	Environmental Activity and Sector Registry	Y	0	0	0
EBR	Environmental Registry	Y	0	0	0
ECA	Environmental Compliance Approval	Y	0	4	4
EEM	Environmental Effects Monitoring	Y	0	0	0
EHS	ERIS Historical Searches	Y	0	5	5
EIIS	Environmental Issues Inventory System	Y	0	0	0
EMHE	Emergency Management Historical Event	Y	0	0	0
EPAR	Environmental Penalty Annual Report	Y	0	0	0
EXP	List of Expired Fuels Safety Facilities	Y	0	0	0
FCON	Federal Convictions	Y	0	0	0
FCS	Contaminated Sites on Federal Land	Y	0	0	0
FOFT	Fisheries & Oceans Fuel Tanks	Y	0	0	0
FRST	Federal Identification Registry for Storage Tank Systems (FIRSTS)	Y	0	0	0
FST	Fuel Storage Tank	Y	0	0	0
FSTH	Fuel Storage Tank - Historic	Y	0	0	0
GEN	Ontario Regulation 347 Waste Generators Summary	Y	2	13	15
GHG	Greenhouse Gas Emissions from Large Facilities	Y	0	0	0
HINC	TSSA Historic Incidents	Y	0	2	2

Database	Name	Searched	Project Property	Boundary to 0.25km	Total
IAFT	Indian & Northern Affairs Fuel Tanks	Y	0	0	0
INC	Fuel Oil Spills and Leaks	Y	0	0	0
LIMO	Landfill Inventory Management Ontario	Y	0	0	0
MINE	Canadian Mine Locations	Y	0	0	0
MNR	Mineral Occurrences	Y	0	0	0
NATE	National Analysis of Trends in Emergencies System (NATES)	Y	0	0	0
NCPL	Non-Compliance Reports	Y	0	0	0
NDFT	National Defense & Canadian Forces Fuel Tanks	Y	0	0	0
NDSP	National Defense & Canadian Forces Spills	Y	0	0	0
NDWD	National Defence & Canadian Forces Waste Disposal Sites	Y	0	0	0
NEBI	National Energy Board Pipeline Incidents	Y	0	0	0
NEBP	National Energy Board Wells	Y	0	0	0
NEES	National Environmental Emergencies System (NEES)	Y	0	0	0
NPCB	National PCB Inventory	Y	0	0	0
NPR2	National Pollutant Release Inventory 1993-2020	Y	0	0	0
NPRI	National Pollutant Release Inventory - Historic	Y	0	0	0
OGWE	Oil and Gas Wells	Y	0	0	0
OOGW	Ontario Oil and Gas Wells	Y	0	0	0
OPCB	Inventory of PCB Storage Sites	Y	0	0	0
ORD	Orders	Y	0	0	0
PAP	Canadian Pulp and Paper	Y	0	0	0
PCFT	Parks Canada Fuel Storage Tanks	Y	0	0	0
PES	Pesticide Register	Y	0	2	2
PFCH	NPRI Reporters - PFAS Substances	Y	0	0	0
PFHA	Potential PFAS Handers from NPRI	Y	0	0	0
PINC	Pipeline Incidents	Y	0	0	0
PRT	Private and Retail Fuel Storage Tanks	Y	0	0	0
PTTW	Permit to Take Water	Y	0	0	0
REC	Ontario Regulation 347 Waste Receivers Summary	Y	0	0	0
RSC	Record of Site Condition	Y	0	0	0
RST	Retail Fuel Storage Tanks	Y	0	0	0
SCT	Scott's Manufacturing Directory	Y	0	0	0
SPL	Ontario Spills	Y	0	1	1
SRDS	Wastewater Discharger Registration Database	Y	0	0	0
TANK	Anderson's Storage Tanks	Y	0	0	0
TCFT	Transport Canada Fuel Storage Tanks	Y	0	0	0
VAR	Variances for Abandonment of Underground Storage Tanks	Y	0	0	0
WDS	Waste Disposal Sites - MOE CA Inventory	Y	0	0	0
WDSH	Waste Disposal Sites - MOE 1991 Historical Approval Inventory	Y	0	0	0
WWIS	Water Well Information System	Y	1	12	13

Database	Name	Searched	Project Property	Boundary to 0.25km	Total
Total:			4	42	46

Executive Summary: Site Report Summary - Project Property

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev diff (m)	Page Number
1	GEN	City Of Ottawa	2170 Mer-Bleue Chemin De La Ottawa ON K4A 0G2	ESE/0.0	0.00	21
1	GEN	City Of Ottawa	2170 Mer-Bleue Chemin De La Ottawa ON K4A 0G2	ESE/0.0	0.00	22
2	WWIS		lot 1 con 3 ON ***Well ID:*** 1510719	E/0.0	-0.39	23
3	BORE		ON	E/0.0	-0.39	26

Executive Summary: Site Report Summary - Surrounding Properties

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev Diff (m)	Page Number
4	WWIS		lot 1 con 11 ON ***Well ID:*** 1512850	NNE/42.1	0.16	28
5	WWIS		lot 2 con 11 ON ***Well ID:*** 1512081	E/46.5	-0.07	30
6	WWIS		lot 2 con 11 ON ***Well ID:*** 1512853	E/51.3	0.03	34
7	BORE		ON	E/51.4	0.03	37
8	WWIS		lot 1 con 11 ON ***Well ID:*** 1517917	NE/68.3	-0.41	38
9	WWIS		lot 1 con 11 ON ***Well ID:*** 1511699	NNE/69.1	0.20	41
10	WWIS		lot 2 con 11 ON ***Well ID:*** 1512852	ESE/80.1	0.16	44
11	WWIS		lot 2 con 11 ON ***Well ID:*** 1513953	ESE/101.8	0.89	47
12	WWIS		lot 1 con 11 ON ***Well ID:*** 1511698	N/102.2	0.17	50
13	WWIS		lot 1 con 11 ON ***Well ID:*** 1512849	N/108.0	0.12	53
14	BORE		ON	N/108.2	0.12	56
15	WWIS		lot 1 con 3 ON	S/120.4	-0.51	57

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev Diff (m)	Page Number
			Well ID: 1519786			
16	WWIS		lot 1 con 11 ON ***Well ID:*** 1513909	N/121.4	0.17	60
17	EHS		Chemin Mer Bleue Ottawa ON	SSW/123.4	-0.22	63
18	ECA	Innes Shopping Centres Limited	Ottawa ON L4K 5X3	S/126.1	-0.51	63
18	ECA	Innes Shopping Centres Limited	Ottawa ON L4K 5X3	S/126.1	-0.51	64
19	CA	City of Ottawa	2107 Mer Bleue Rd Lot 1, Concession 3 Ottawa ON	N/135.5	0.23	64
19	ECA	City of Ottawa	2107 Mer Bleue Rd Lot 1, Concession 3 Ottawa ON K1P 1J1	N/135.5	0.23	64
20	WWIS		2215 MER BLEUE RD lot 2 con 11 ON ***Well ID:*** 7310118	ESE/138.8	0.71	64
21	SPL	Hydro One Inc.	2127 Mer-Bleue Road Ottawa ON	NE/145.6	-0.51	67
22	EHS		2215 Mer Bleue Ottawa ON	ESE/149.1	0.93	68
23	ECA	McGiac Realty Corporation	2035, 2045 and 2055 Mer Bleue Road Ottawa ON K1B 5P5	NNE/180.4	-0.39	68
23	EHS		2055 Mer Bleue Rd Ottawa ON K4A3T9	NNE/180.4	-0.39	68
24	EHS		2225 Mer Bleue Rd Ottawa ON K4A3T9	ESE/241.4	1.48	69
24	GEN	Hopital Montfort Hospital	2225 chemin Mer Bleue Orleans ON K4A 3T8	ESE/241.4	1.48	69

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev Diff (m)	Page Number
24	GEN	EllisDon Corporation	2225 Mer-Bleue Rd Ottawa ON K4A 3T9	ESE/241.4	1.48	69
25	GEN	Gestion Claude L'Heureux Inc.	3910 Innes Orléans ON K1W 1K9	NW/245.3	0.55	70
25	PES	GESTION CLAUDE L'HEUREUX INC/CANADIAN TIRE ORLEANS	3910 CHEMIN INNES ORLEANS ON K1W 1K9	NW/245.3	0.55	70
25	HINC		3910 INNES ROAD OTTAWA ON K1W 1K9	NW/245.3	0.55	71
25	GEN	Gestion Claude L'Heureux Inc.	3910 Innes OrlÚans ON K1W 1K9	NW/245.3	0.55	71
25	GEN	Gestion Claude L'Heureux Inc.	3910 Innes OrlÚans ON K1W 1K9	NW/245.3	0.55	72
25	GEN	Gestion Claude L'Heureux Inc.	3910 Innes OrlÚans ON K1W 1K9	NW/245.3	0.55	72
25	PES	GESTION CLAUDE L'HEUREUX INC/CANADIAN TIRE ORLEANS	3910 CHEMIN INNES ORLEANS ON K1W1K9	NW/245.3	0.55	73
25	GEN	Gestion Claude L'Heureux Inc.	3910 Innes OrlÚans ON K1W 1K9	NW/245.3	0.55	74
25	EHS		3910 INNES ROAD ORLEANS ON	NW/245.3	0.55	74
25	GEN	Gestion Claude L'Heureux Inc.	3910 Innes OrlÚans ON	NW/245.3	0.55	74
25	GEN	Gestion Claude L'Heureux Inc.	3910 Innes Orléans ON K1W 1K9	NW/245.3	0.55	75
25	GEN	Gestion Claude L'Heureux Inc.	3910 Innes OrlÚans ON K1W 1K9	NW/245.3	0.55	76

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev Diff (m)	Page Number
25	GEN	Gestion Claude L'Heureux Inc.	3910 Innes OrlÚans ON K1W 1K9	NW/245.3	0.55	76
25	GEN	Gestion Claude L'Heureux Inc.	3910 Innes Orléans ON K1W 1K9	NW/245.3	0.55	77
25	GEN	Gestion Claude L'Heureux Inc.	3910 Innes Orléans ON K1W 1K9	NW/245.3	0.55	78
26	HINC		2020 MER BLEUE ROAD ORLEANS ON K4A 0G2	NNW/246.9	-0.62	79

Executive Summary: Summary By Data Source

BORE - Borehole

A search of the BORE database, dated 1875-Jul 2018 has found that there are 3 BORE site(s) within approximately 0.25 kilometers of the project property.

Site	Address	Distance (m)	Map Key
	ON	0.0	3
	ON	51.4	7
	ON	108.2	14

CA - Certificates of Approval

A search of the CA database, dated 1985-Oct 30, 2011* has found that there are 1 CA site(s) within approximately 0.25 kilometers of the project property.

Site	Address	Distance (m)	Map Key
City of Ottawa	2107 Mer Bleue Rd Lot 1, Concession 3 Ottawa ON	135.5	19

ECA - Environmental Compliance Approval

A search of the ECA database, dated Oct 2011- Dec 31, 2023 has found that there are 4 ECA site(s) within approximately 0.25 kilometers of the project property.

Site	Address	Distance (m)	Map Key
Innes Shopping Centres Limited	Ottawa ON L4K 5X3	126.1	18
Innes Shopping Centres Limited	Ottawa ON L4K 5X3	126.1	18

Site	Address	Distance (m)	Map Key
City of Ottawa	2107 Mer Bleue Rd Lot 1, Concession 3 Ottawa ON K1P 1J1	135.5	19
McGiac Realty Corporation	2035, 2045 and 2055 Mer Bleue Road Ottawa ON K1B 5P5	180.4	23

EHS - ERIS Historical Searches

A search of the EHS database, dated 1999-Dec 31, 2023 has found that there are 5 EHS site(s) within approximately 0.25 kilometers of the project property.

Site	Address	Distance (m)	Map Key
	Chemin Mer Bleue Ottawa ON	123.4	17
	2215 Mer Bleue Ottawa ON	149.1	22
	2055 Mer Bleue Rd Ottawa ON K4A3T9	180.4	23
	2225 Mer Bleue Rd Ottawa ON K4A3T9	241.4	24
	3910 INNES ROAD ORLEANS ON	245.3	25

GEN - Ontario Regulation 347 Waste Generators Summary

A search of the GEN database, dated 1986-Oct 31, 2022 has found that there are 15 GEN site(s) within approximately 0.25 kilometers of the project property.

Site	Address	Distance (m)	Map Key
City Of Ottawa	2170 Mer-Bleue Chemin De La Ottawa ON K4A 0G2	0.0	1

Site	Address	Distance (m)	Map Key
City Of Ottawa	2170 Mer-Bleue Chemin De La Ottawa ON K4A 0G2	0.0	1
Hopital Montfort Hospital	2225 chemin Mer Bleue Orleans ON K4A 3T8	241.4	24
EllisDon Corporation	2225 Mer-Bleue Rd Ottawa ON K4A 3T9	241.4	24
Gestion Claude L'Heureux Inc.	3910 Innes Orléans ON K1W 1K9	245.3	25
Gestion Claude L'Heureux Inc.	3910 Innes Orléans ON K1W 1K9	245.3	25
Gestion Claude L'Heureux Inc.	3910 Innes OrlÚans ON K1W 1K9	245.3	25
Gestion Claude L'Heureux Inc.	3910 Innes OrlÚans ON K1W 1K9	245.3	25
Gestion Claude L'Heureux Inc.	3910 Innes Orléans ON K1W 1K9	245.3	25
Gestion Claude L'Heureux Inc.	3910 Innes OrlÚans ON	245.3	25
Gestion Claude L'Heureux Inc.	3910 Innes OrlÚans ON K1W 1K9	245.3	25
Gestion Claude L'Heureux Inc.	3910 Innes OrlÚans ON K1W 1K9	245.3	25

Site	Address	Distance (m)	Map Key
Gestion Claude L'Heureux Inc.	3910 Innes OrlÚans ON K1W 1K9	245.3	25
Gestion Claude L'Heureux Inc.	3910 Innes OrlÚans ON K1W 1K9	245.3	25
Gestion Claude L'Heureux Inc.	3910 Innes Orléans ON K1W 1K9	245.3	25

HINC - TSSA Historic Incidents

A search of the HINC database, dated 2006-June 2009* has found that there are 2 HINC site(s) within approximately 0.25 kilometers of the project property.

Site	Address	Distance (m)	Map Key
	3910 INNES ROAD OTTAWA ON K1W 1K9	245.3	25
	2020 MER BLEUE ROAD ORLEANS ON K4A 0G2	246.9	26

PES - Pesticide Register

A search of the PES database, dated Oct 2011- Dec 31, 2023 has found that there are 2 PES site(s) within approximately 0.25 kilometers of the project property.

Site	Address	Distance (m)	Map Key
GESTION CLAUDE L'HEUREUX INC/CANADIAN TIRE ORLEANS	3910 CHEMIN INNES ORLEANS ON K1W 1K9	245.3	25
GESTION CLAUDE L'HEUREUX INC/CANADIAN TIRE ORLEANS	3910 CHEMIN INNES ORLEANS ON K1W1K9	245.3	25

SPL - Ontario Spills

A search of the SPL database, dated 1988-Nov 2022; Jan 2023 has found that there are 1 SPL site(s) within approximately 0.25 kilometers of the project property.

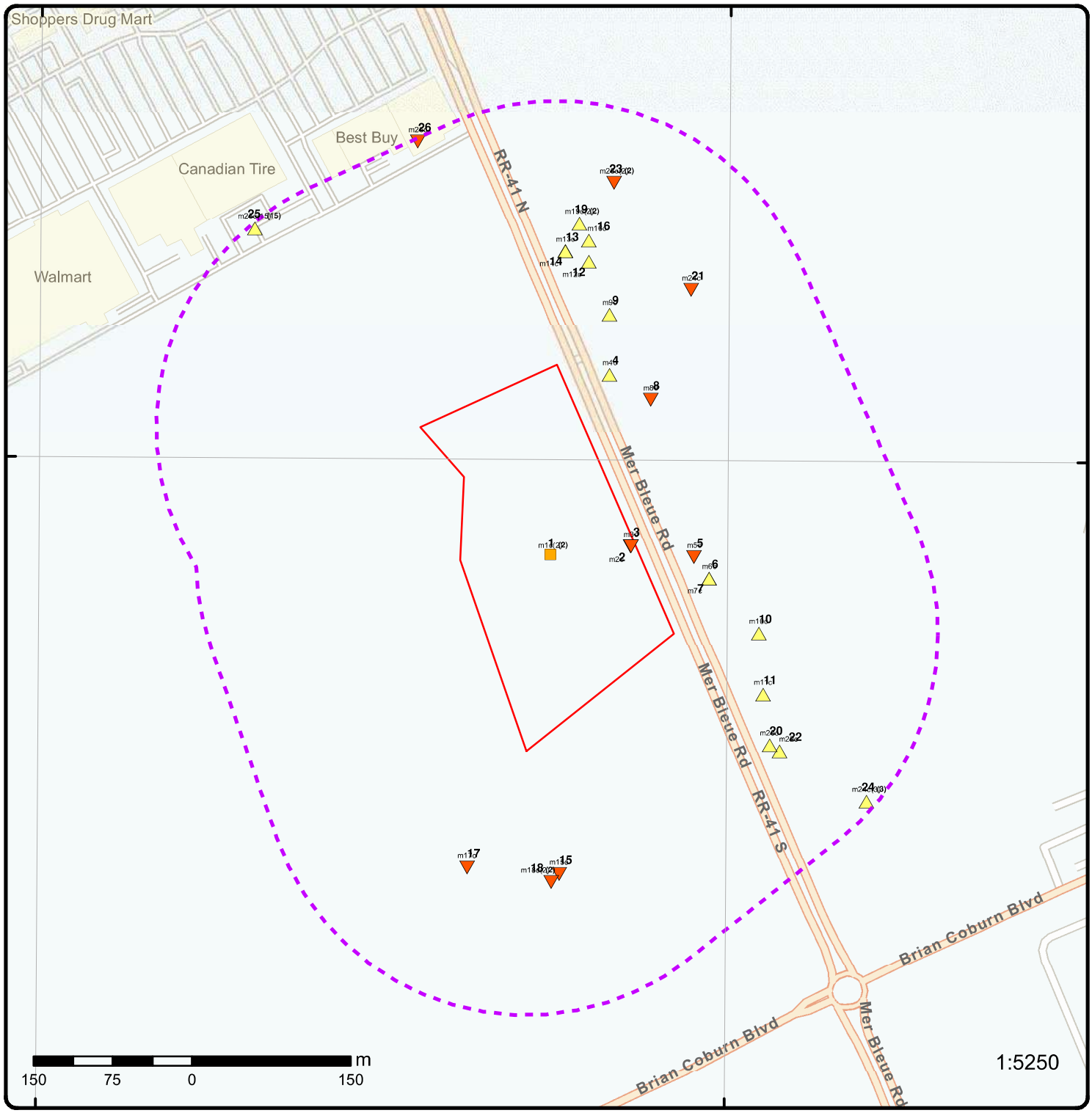
Site	Address	Distance (m)	Map Key
Hydro One Inc.	2127 Mer-Bleue Road Ottawa ON	145.6	21

WWIS - Water Well Information System

A search of the WWIS database, dated Mar 31 2023 has found that there are 13 WWIS site(s) within approximately 0.25 kilometers of the project property.

Site	Address	Distance (m)	Map Key
	lot 1 con 3 ON ***Well ID:*** 1510719	0.0	2
	lot 1 con 11 ON ***Well ID:*** 1512850	42.1	4
	lot 2 con 11 ON ***Well ID:*** 1512081	46.5	5
	lot 2 con 11 ON ***Well ID:*** 1512853	51.3	6
	lot 1 con 11 ON ***Well ID:*** 1517917	68.3	8
	lot 1 con 11 ON ***Well ID:*** 1511699	69.1	9
	lot 2 con 11 ON ***Well ID:*** 1512852	80.1	10
	lot 2 con 11 ON ***Well ID:*** 1513953	101.8	11

Site	Address	Distance (m)	Map Key
	lot 1 con 11 ON ***Well ID:*** 1511698	102.2	12
	lot 1 con 11 ON ***Well ID:*** 1512849	108.0	13
	lot 1 con 3 ON ***Well ID:*** 1519786	120.4	15
	lot 1 con 11 ON ***Well ID:*** 1513909	121.4	16
	2215 MER BLEUE RD lot 2 con 11 ON ***Well ID:*** 7310118	138.8	20



Map: 0.25 Kilometer Radius

Order Number: 24021300487

Address: 2170 Mer-Bleue Road, Ottawa, ON

- Project Property
- Buffer Outline
- Eris Sites with Higher Elevation
- Eris Sites with Same Elevation
- Eris Sites with Lower Elevation
- Eris Sites with Unknown Elevation
- Freeways; Highways
- Traffic Circle; Ramp
- Major Arterial; Minor Arterial
- Local Road
- Service Road; Traffic Circle; Ramp
- Rail
- Beach
- Airport
- Industrial Area
- Military Base
- Aircraft Roads
- Native Reservation
- Hospital
- Shopping & Sports Area
- University/College
- Cemetery; Golf Course
- Parkt (National)
- Park (City/County)

Source: © 2021 ESRI StreetMap Premium.

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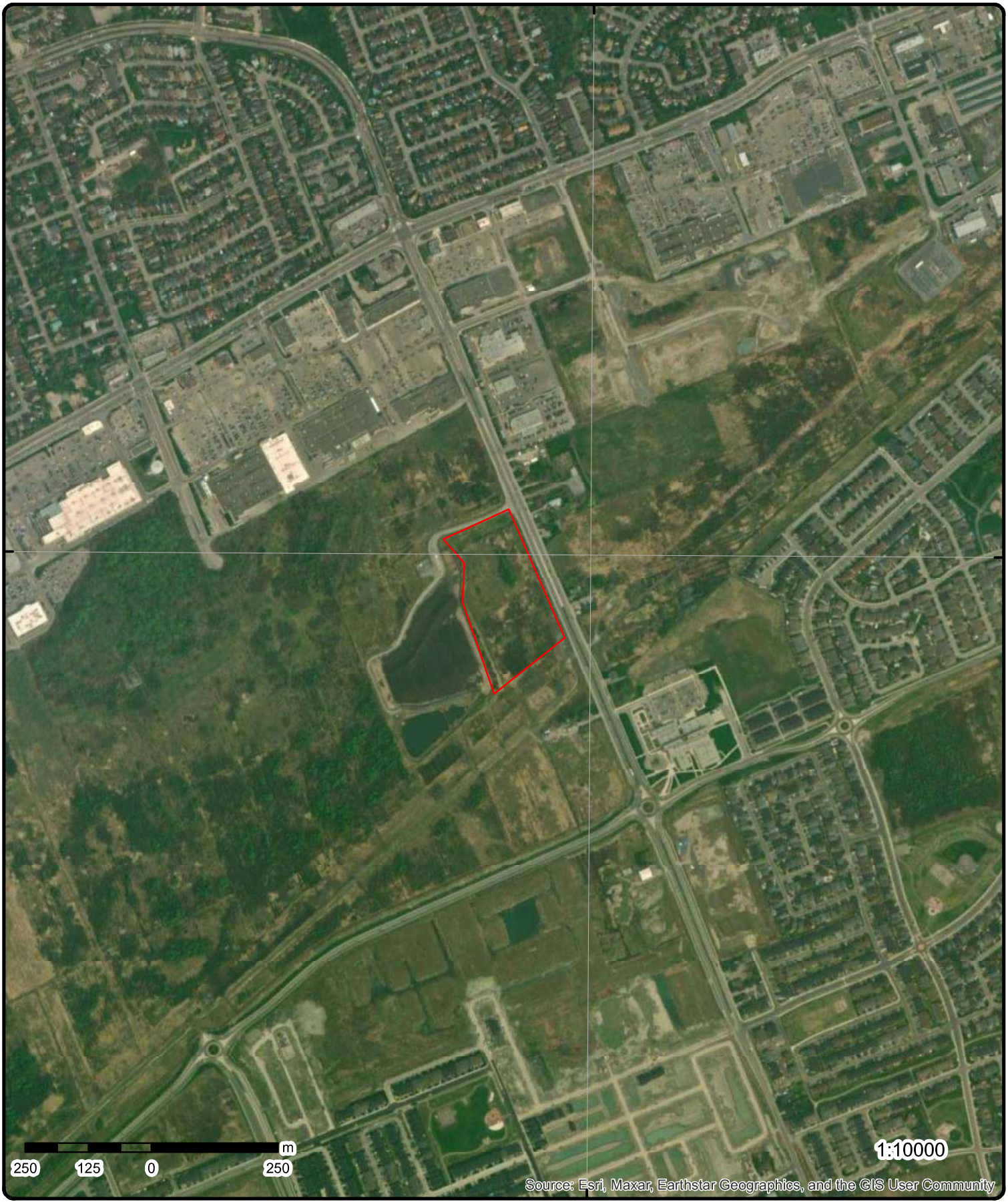
75°30'W

45°27'N



45°27'N

Aerial

Year: 2023

Order Number: 24021300487

Address: 2170 Mer-Bleue Road, Ottawa, ON

Source: ESRI World Imagery

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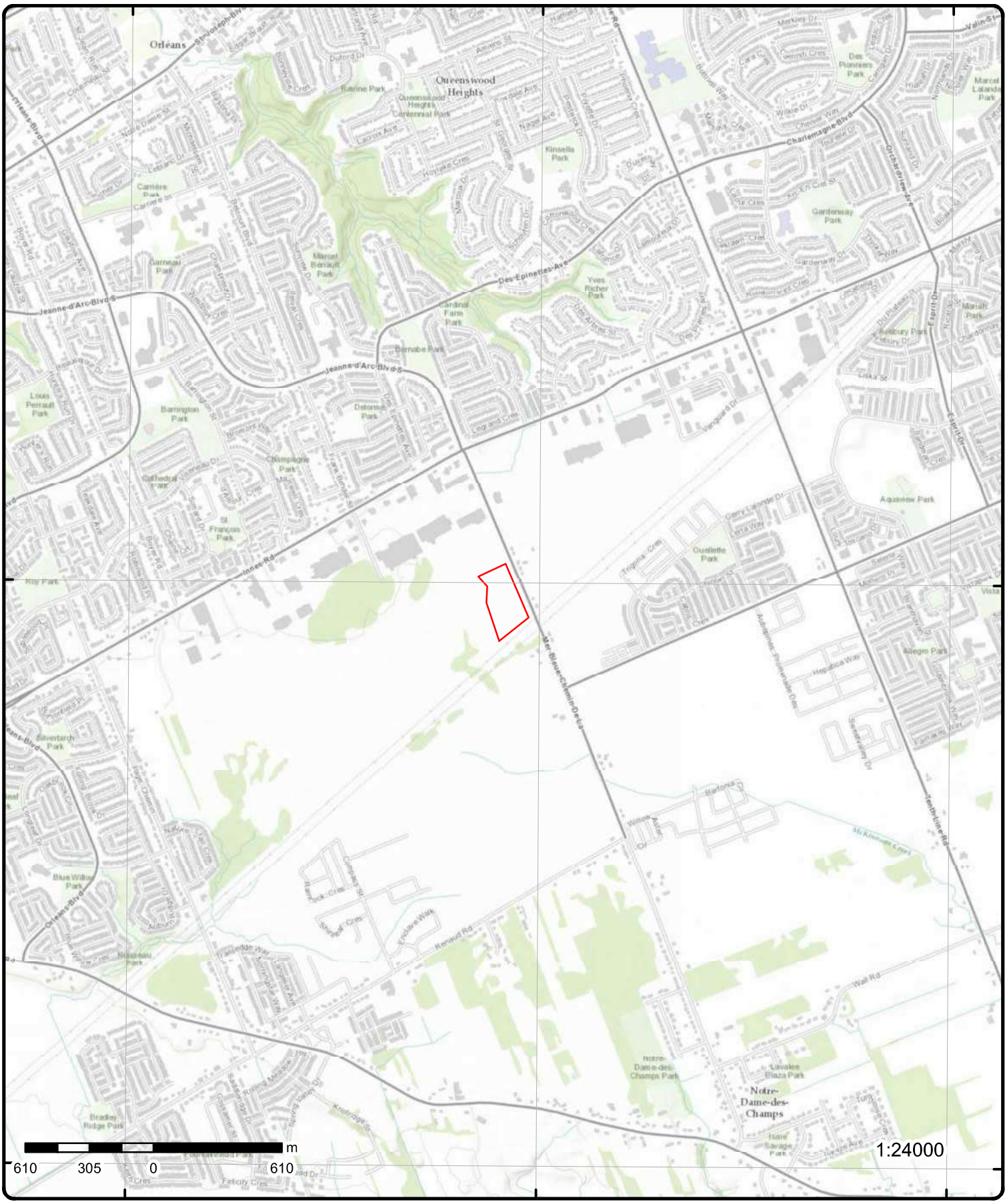

Topographic Map

Address: 2170 Mer-Bleue Road, ON

Source: ESRI World Topographic Map

Order Number: 24021300487

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Detail Report

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
1	1 of 2	ESE/0.0	87.4 / 0.00	City Of Ottawa 2170 Mer-Bleue Chemin De La Ottawa ON K4A 0G2	GEN

Generator No: ON4616329
SIC Code:
SIC Description:
Approval Years: As of Nov 2021
PO Box No:
Country: Canada
Status: Registered
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 312 P
Waste Class Name: Pathological wastes

Waste Class: 331 I
Waste Class Name: Waste compressed gases including cylinders

Waste Class: 147 I
Waste Class Name: Chemical fertilizer wastes

Waste Class: 145 I
Waste Class Name: Wastes from the use of pigments, coatings and paints

Waste Class: 331 R
Waste Class Name: Waste compressed gases including cylinders

Waste Class: 121 C
Waste Class Name: Alkaline slutions - containing heavy metals

Waste Class: 261 A
Waste Class Name: Pharmaceuticals

Waste Class: 212 L
Waste Class Name: Aliphatic solvents and residues

Waste Class: 252 L
Waste Class Name: Waste crankcase oils and lubricants

Waste Class: 146 T
Waste Class Name: Other specified inorganic sludges, slurries or solids

Waste Class: 221 I
Waste Class Name: Light fuels

Waste Class: 242 A
Waste Class Name: Halogenated pesticides and herbicides

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB

Waste Class: 263 I
Waste Class Name: Misc. waste organic chemicals

Waste Class: 148 C
Waste Class Name: Misc. wastes and inorganic chemicals

Waste Class: 112 C
Waste Class Name: Acid solutions - containing heavy metals

Waste Class: 148 I
Waste Class Name: Misc. wastes and inorganic chemicals

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
1	2 of 2	ESE/0.0	87.4 / 0.00	City Of Ottawa 2170 Mer-Bleue Chemin De La Ottawa ON K4A 0G2	GEN

Generator No: ON4616329
SIC Code:
SIC Description:
Approval Years: As of Oct 2022
PO Box No:
Country: Canada
Status: Registered
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 147 I
Waste Class Name: CHEMICAL FERTILIZER WASTES

Waste Class: 212 L
Waste Class Name: ALIPHATIC SOLVENTS

Waste Class: 242 A
Waste Class Name: HALOGENATED PESTICIDES

Waste Class: 112 C
Waste Class Name: ACID WASTE - HEAVY METALS

Waste Class: 331 R
Waste Class Name: WASTE COMPRESSED GASES

Waste Class: 252 L
Waste Class Name: WASTE OILS & LUBRICANTS

Waste Class: 121 C
Waste Class Name: ALKALINE WASTES - HEAVY METALS

Waste Class: 148 C
Waste Class Name: INORGANIC LABORATORY CHEMICALS

Waste Class: 221 I
Waste Class Name: LIGHT FUELS

Waste Class: 261 A
Waste Class Name: PHARMACEUTICALS

Waste Class: 331 I
Waste Class Name: WASTE COMPRESSED GASES

Waste Class:	145 I
Waste Class Name:	PAINT/PIGMENT/COATING RESIDUES
Waste Class:	263 I
Waste Class Name:	ORGANIC LABORATORY CHEMICALS
Waste Class:	148 I
Waste Class Name:	INORGANIC LABORATORY CHEMICALS
Waste Class:	312 P
Waste Class Name:	PATHOLOGICAL WASTES
Waste Class:	146 T
Waste Class Name:	OTHER SPECIFIED INORGANICS

2 | **1 of 1** | **E/0.0** | **87.0 / -0.39** | **lot 1 con 3 ON** | **WWIS**

Well ID:	1510719	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Domestic	**Data Entry Status:**	
Use 2nd:	0	**Data Src:**	1
Final Well Status:	Water Supply	**Date Received:**	02/23/1971
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:		**Contractor:**	1504
Tag:		**Form Version:**	1
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	OTTAWA-CARLETON
Elevatn Reliabilty:		**Lot:**	001
Depth to Bedrock:		**Concession:**	03
Well Depth:		**Concession Name:**	OF
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	GLOUCESTER TOWNSHIP		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/151\1510719.pdf

Additional Detail(s) (Map)

Well Completed Date:	12/18/1970
Year Completed:	1970
Depth (m):	29.5656
Latitude:	45.4492635676307
Longitude:	-75.501160377599
Path:	151\1510719.pdf

Bore Hole Information

Bore Hole ID:	10032736	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	18
Code OB:		**East83:**	460810.80
Code OB Desc:		**North83:**	5032982.00
Open Hole:		**Org CS:**	
Cluster Kind:		**UTMRC:**	4
Date Completed:	12/18/1970	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	p4
Loc Method Desc:	Original Pre1985 UTM Rel Code 4: margin of error : 30 m - 100 m		
Elevrc Desc:			

Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Overburden and Bedrock Materials Interval

Formation ID: 931015649
Layer: 2
Color: 3
General Color: BLUE
Mat1: 05
Most Common Material: CLAY
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 3.0
Formation End Depth: 90.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931015650
Layer: 3
Color: 6
General Color: BROWN
Mat1: 19
Most Common Material: SLATE
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 90.0
Formation End Depth: 97.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931015648
Layer: 1
Color: 5
General Color: YELLOW
Mat1: 09
Most Common Material: MEDIUM SAND
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 0.0
Formation End Depth: 3.0
Formation End Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 961510719
Method Construction Code: 7

Method Construction: Diamond
Other Method Construction:

Pipe Information

Pipe ID: 10581306
Casing No: 1
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 930058038
Layer: 1
Material: 2
Open Hole or Material: GALVANIZED
Depth From:
Depth To: 92.0
Casing Diameter: 2.0
Casing Diameter UOM: inch
Casing Depth UOM: ft

Construction Record - Casing

Casing ID: 930058039
Layer: 2
Material: 4
Open Hole or Material: OPEN HOLE
Depth From:
Depth To: 97.0
Casing Diameter:
Casing Diameter UOM: inch
Casing Depth UOM: ft

Results of Well Yield Testing

Pumping Test Method Desc: PUMP
Pump Test ID: 991510719
Pump Set At:
Static Level: 30.0
Final Level After Pumping: 50.0
Recommended Pump Depth: 60.0
Pumping Rate: 6.0
Flowing Rate:
Recommended Pump Rate: 6.0
Levels UOM: ft
Rate UOM: GPM
Water State After Test Code: 2
Water State After Test: CLOUDY
Pumping Test Method: 1
Pumping Duration HR: 2
Pumping Duration MIN: 0
Flowing: No

Draw Down & Recovery

Pump Test Detail ID: 934897990
Test Type: Draw Down
Test Duration: 60
Test Level: 50.0
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID:	934380045
Test Type:	Draw Down
Test Duration:	30
Test Level:	50.0
Test Level UOM:	ft

Draw Down & Recovery

Pump Test Detail ID:	934641622
Test Type:	Draw Down
Test Duration:	45
Test Level:	50.0
Test Level UOM:	ft

Draw Down & Recovery

Pump Test Detail ID:	934097310
Test Type:	Draw Down
Test Duration:	15
Test Level:	50.0
Test Level UOM:	ft

Water Details

Water ID:	933465752
Layer:	1
Kind Code:	3
Kind:	SULPHUR
Water Found Depth:	97.0
Water Found Depth UOM:	ft

Links

Bore Hole ID:	10032736	***Tag No:***	
Depth M:	29.5656	***Contractor:***	1504
Year Completed:	1970	***Latitude:***	45.4492635676307
Well Completed Dt:	12/18/1970	***Longitude:***	-75.501160377599
Audit No:		***Y:***	45.44926356090053
Path:	151\1510719.pdf	***X:***	-75.50116021560008

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
3	1 of 1	E/0.0	87.0 / -0.39	ON	BORE

Borehole ID:	616295	***Inclin FLG:***	No
OGF ID:	215517084	***SP Status:***	Initial Entry
Status:		***Surv Elev:***	No
Type:	Borehole	***Piezometer:***	No
Use:		***Primary Name:***	
Completion Date:	DEC-1970	***Municipality:***	
Static Water Level:		***Lot:***	
Primary Water Use:		***Township:***	
Sec. Water Use:		***Latitude DD:***	45.449265
Total Depth m:	29.6	***Longitude DD:***	-75.50116
Depth Ref:	Ground Surface	***UTM Zone:***	18
Depth Elev:		***Easting:***	460811
Drill Method:		***Northing:***	5032982
Orig Ground Elev m:	89.6	***Location Accuracy:***	
Elev Reliabil Note:		***Accuracy:***	Not Applicable
DEM Ground Elev m:	89.2		

Concession:
Location D:
Survey D:
Comments:

Borehole Geology Stratum

Geology Stratum ID: 218403591
Top Depth: 0
Bottom Depth: .9
Material Color: Yellow
Material 1: Sand
Material 2:
Material 3:
Material 4:
Gsc Material Description:
Stratum Description: SAND. YELLOW.

Mat Consistency:
Material Moisture:
Material Texture:
Non Geo Mat Type:
Geologic Formation:
Geologic Group:
Geologic Period:
Depositional Gen:

Geology Stratum ID: 218403593
Top Depth: 27.4
Bottom Depth: 29.6
Material Color: Brown
Material 1: Slate
Material 2:
Material 3:
Material 4:
Gsc Material Description:
Stratum Description: SLATE. BROWN. 00097SEISMIC VELOCITY = 5300. BEDROCK. SEISMIC VELOCITY = 19500. K. DARK,G
**Note: Many records provided by the department have a truncated [Stratum Description] field.

Mat Consistency:
Material Moisture:
Material Texture:
Non Geo Mat Type:
Geologic Formation:
Geologic Group:
Geologic Period:
Depositional Gen:

Geology Stratum ID: 218403592
Top Depth: .9
Bottom Depth: 27.4
Material Color: Blue
Material 1: Clay
Material 2:
Material 3:
Material 4:
Gsc Material Description:
Stratum Description: CLAY. BLUE.

Mat Consistency:
Material Moisture:
Material Texture:
Non Geo Mat Type:
Geologic Formation:
Geologic Group:
Geologic Period:
Depositional Gen:

Source

Source Type: Data Survey
Source Orig: Geological Survey of Canada
Source Date: 1956-1972
Confidence:
Observatio:
Source Name: Urban Geology Automated Information System (UGAIS)
Source Details: File: OTTAWA2.txt RecordID: 08803 NTS_Sheet:
Confiden 1:

Source Appl: Spatial/Tabular
Source Iden: 1
Scale or Res: Varies
Horizontal: NAD27
Verticalda: Mean Average Sea Level

Source List

Source Identifier: 1
Source Type: Data Survey
Source Date: 1956-1972
Scale or Resolution: Varies
Source Name: Urban Geology Automated Information System (UGAIS)
Source Originators: Geological Survey of Canada

Horizontal Datum: NAD27
Vertical Datum: Mean Average Sea Level
Projection Name: Universal Transverse Mercator

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
4	1 of 1	NNE/42.1	87.5 / 0.16	lot 1 con 11 ON	WWIS

Well ID:	1512850	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Domestic	**Data Entry Status:**	
Use 2nd:	0	**Data Src:**	1
Final Well Status:	Water Supply	**Date Received:**	09/18/1967
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:		**Contractor:**	1504
Tag:		**Form Version:**	1
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	OTTAWA-CARLETON
Elevatn Reliabilty:		**Lot:**	001
Depth to Bedrock:		**Concession:**	11
Well Depth:		**Concession Name:**	CON
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	CUMBERLAND TOWNSHIP		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/151\1512850.pdf

Additional Detail(s) (Map)

Well Completed Date:	04/28/1967
Year Completed:	1967
Depth (m):	10.3632
Latitude:	45.4507295869531
Longitude:	-75.5014291324364
Path:	151\1512850.pdf

Bore Hole Information

Bore Hole ID:	10034838	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	18
Code OB:		**East83:**	460790.80
Code OB Desc:		**North83:**	5033145.00
Open Hole:		**Org CS:**	
Cluster Kind:		**UTMRC:**	5
Date Completed:	04/28/1967	**UTMRC Desc:**	margin of error : 100 m - 300 m
Remarks:		**Location Method:**	p5
Loc Method Desc:	Original Pre1985 UTM Rel Code 5: margin of error : 100 m - 300 m		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	931021724
Layer:	2
Color:	2
General Color:	GREY
Mat1:	15
Most Common Material:	LIMESTONE

Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 22.0
Formation End Depth: 34.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931021723
Layer: 1
Color: 3
General Color: BLUE
Mat1: 05
Most Common Material: CLAY
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 0.0
Formation End Depth: 22.0
Formation End Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 961512850
Method Construction Code: 7
Method Construction: Diamond
Other Method Construction:

Pipe Information

Pipe ID: 10583408
Casing No: 1
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 930061708
Layer: 1
Material: 1
Open Hole or Material: STEEL
Depth From:
Depth To: 24.0
Casing Diameter: 2.0
Casing Diameter UOM: inch
Casing Depth UOM: ft

Construction Record - Casing

Casing ID: 930061709
Layer: 2
Material: 4
Open Hole or Material: OPEN HOLE
Depth From:
Depth To: 34.0
Casing Diameter: 2.0
Casing Diameter UOM: inch

Casing Depth UOM:	ft

Results of Well Yield Testing

Pumping Test Method Desc:	PUMP
Pump Test ID:	991512850
Pump Set At:	
Static Level:	4.0
Final Level After Pumping:	20.0
Recommended Pump Depth:	25.0
Pumping Rate:	8.0
Flowing Rate:	
Recommended Pump Rate:	6.0
Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	1
Water State After Test:	CLEAR
Pumping Test Method:	1
Pumping Duration HR:	2
Pumping Duration MIN:	0
Flowing:	No

Water Details

Water ID:	933468340
Layer:	1
Kind Code:	1
Kind:	FRESH
Water Found Depth:	34.0
Water Found Depth UOM:	ft

Links

Bore Hole ID:	10034838	***Tag No:***	
Depth M:	10.3632	***Contractor:***	1504
Year Completed:	1967	***Latitude:***	45.4507295869531
Well Completed Dt:	04/28/1967	***Longitude:***	-75.5014291324364
Audit No:		***Y:***	45.450729580102944
Path:	151\1512850.pdf	***X:***	-75.50142896976057

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5 ***1 of 1*** ***E/46.5*** ***87.3 / -0.07*** ***lot 2 con 11 ON*** ***WWIS***

Well ID:	1512081	***Flowing (Y/N):***	
Construction Date:		***Flow Rate:***	
Use 1st:	Livestock	***Data Entry Status:***	
Use 2nd:	0	***Data Src:***	1
Final Well Status:	Water Supply	***Date Received:***	04/07/1972
Water Type:		***Selected Flag:***	TRUE
Casing Material:		***Abandonment Rec:***	
Audit No:		***Contractor:***	1504
Tag:		***Form Version:***	1
Constructn Method:		***Owner:***	
Elevation (m):		***County:***	OTTAWA-CARLETON
Elevatn Reliabilty:		***Lot:***	002
Depth to Bedrock:		***Concession:***	11
Well Depth:		***Concession Name:***	CON
Overburden/Bedrock:		***Easting NAD83:***	
Pump Rate:		***Northing NAD83:***	
Static Water Level:		***Zone:***	
Clear/Cloudy:		***UTM Reliability:***	
Municipality:	CUMBERLAND TOWNSHIP		

Site Info:

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/151\1512081.pdf

Additional Detail(s) (Map)

Well Completed Date: 12/10/1971
Year Completed: 1971
Depth (m): 14.9352
Latitude: 45.4491769227248
Longitude: -75.5003923175649
Path: 151\1512081.pdf

Bore Hole Information

Bore Hole ID: 10034074
DP2BR:
Spatial Status:
Code OB:
Code OB Desc:
Open Hole:
Cluster Kind:
Date Completed: 12/10/1971
Remarks:
Loc Method Desc: Original Pre1985 UTM Rel Code 4: margin of error : 30 m - 100 m
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:
Elevation:
Elevrc:
Zone: 18
East83: 460870.80
North83: 5032972.00
Org CS:
UTMRC: 4
UTMRC Desc: margin of error : 30 m - 100 m
Location Method: p4

Overburden and Bedrock Materials Interval

Formation ID: 931019572
Layer: 3
Color: 2
General Color: GREY
Mat1: 15
Most Common Material: LIMESTONE
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 21.0
Formation End Depth: 49.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931019570
Layer: 1
Color: 3
General Color: BLUE
Mat1: 05
Most Common Material: CLAY
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:

Formation Top Depth:	0.0
Formation End Depth:	20.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	931019571
Layer:	2
Color:	2
General Color:	GREY
Mat1:	07
Most Common Material:	QUICKSAND
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	20.0
Formation End Depth:	21.0
Formation End Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	961512081
Method Construction Code:	1
Method Construction:	Cable Tool
Other Method Construction:	

Pipe Information

Pipe ID:	10582644
Casing No:	1
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	930060471
Layer:	2
Material:	4
Open Hole or Material:	OPEN HOLE
Depth From:	
Depth To:	49.0
Casing Diameter:	
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Casing

Casing ID:	930060470
Layer:	1
Material:	1
Open Hole or Material:	STEEL
Depth From:	
Depth To:	24.0
Casing Diameter:	6.0
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Results of Well Yield Testing

Pumping Test Method Desc: BAILER
Pump Test ID: 991512081
Pump Set At:
Static Level: 10.0
Final Level After Pumping: 10.0
Recommended Pump Depth: 20.0
Pumping Rate: 20.0
Flowing Rate:
Recommended Pump Rate: 6.0
Levels UOM: ft
Rate UOM: GPM
Water State After Test Code: 1
Water State After Test: CLEAR
Pumping Test Method: 2
Pumping Duration HR: 2
Pumping Duration MIN: 0
Flowing: No

Draw Down & Recovery

Pump Test Detail ID: 934376304
Test Type: Draw Down
Test Duration: 30
Test Level: 10.0
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934894796
Test Type: Draw Down
Test Duration: 60
Test Level: 10.0
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934098711
Test Type: Draw Down
Test Duration: 15
Test Level: 10.0
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934646639
Test Type: Draw Down
Test Duration: 45
Test Level: 10.0
Test Level UOM: ft

Water Details

Water ID: 933467423
Layer: 1
Kind Code: 1
Kind: FRESH
Water Found Depth: 49.0
Water Found Depth UOM: ft

Links

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB

Bore Hole ID:	10034074	**Tag No:**	
Depth M:	14.9352	**Contractor:**	1504
Year Completed:	1971	**Latitude:**	45.4491769227248
Well Completed Dt:	12/10/1971	**Longitude:**	-75.5003923175649
Audit No:		**Y:**	45.44917691588659
Path:	151\1512081.pdf	**X:**	-75.5003921553962

6 | **1 of 1** | **E/51.3** | **87.4 / 0.03** | **lot 2 con 11 ON** | **WWIS**

Well ID:	1512853	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Domestic	**Data Entry Status:**	
Use 2nd:	0	**Data Src:**	1
Final Well Status:	Water Supply	**Date Received:**	08/27/1963
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:		**Contractor:**	1504
Tag:		**Form Version:**	1
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	OTTAWA-CARLETON
Elevatn Reliabilty:		**Lot:**	002
Depth to Bedrock:		**Concession:**	11
Well Depth:		**Concession Name:**	CON
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	CUMBERLAND TOWNSHIP		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/151\1512853.pdf

Additional Detail(s) (Map)

Well Completed Date:	08/12/1963
Year Completed:	1963
Depth (m):	6.7056
Latitude:	45.4489976894179
Longitude:	-75.5002116983201
Path:	151\1512853.pdf

Bore Hole Information

Bore Hole ID:	10034841	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	18
Code OB:		**East83:**	460884.80
Code OB Desc:		**North83:**	5032952.00
Open Hole:		**Org CS:**	
Cluster Kind:		**UTMRC:**	5
Date Completed:	08/12/1963	**UTMRC Desc:**	margin of error : 100 m - 300 m
Remarks:		**Location Method:**	p5
Loc Method Desc:	Original Pre1985 UTM Rel Code 5: margin of error : 100 m - 300 m		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	931021731
Layer:	2
Color:	
General Color:	
Mat1:	10
Most Common Material:	COARSE SAND
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	8.0
Formation End Depth:	10.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	931021732
Layer:	3
Color:	2
General Color:	GREY
Mat1:	15
Most Common Material:	LIMESTONE
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	10.0
Formation End Depth:	22.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	931021730
Layer:	1
Color:	3
General Color:	BLUE
Mat1:	05
Most Common Material:	CLAY
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	0.0
Formation End Depth:	8.0
Formation End Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	961512853
Method Construction Code:	7
Method Construction:	Diamond
Other Method Construction:	

Pipe Information

Pipe ID:	10583411

Casing No: 1
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 930061713
Layer: 2
Material: 4
Open Hole or Material: OPEN HOLE
Depth From:
Depth To: 22.0
Casing Diameter: 2.0
Casing Diameter UOM: inch
Casing Depth UOM: ft

Construction Record - Casing

Casing ID: 930061712
Layer: 1
Material: 1
Open Hole or Material: STEEL
Depth From:
Depth To: 11.0
Casing Diameter: 2.0
Casing Diameter UOM: inch
Casing Depth UOM: ft

Results of Well Yield Testing

Pumping Test Method Desc: PUMP
Pump Test ID: 991512853
Pump Set At:
Static Level: 3.0
Final Level After Pumping: 10.0
Recommended Pump Depth: 20.0
Pumping Rate: 10.0
Flowing Rate:
Recommended Pump Rate: 5.0
Levels UOM: ft
Rate UOM: GPM
Water State After Test Code: 1
Water State After Test: CLEAR
Pumping Test Method: 1
Pumping Duration HR: 2
Pumping Duration MIN: 0
Flowing: No

Water Details

Water ID: 933468343
Layer: 1
Kind Code: 1
Kind: FRESH
Water Found Depth: 22.0
Water Found Depth UOM: ft

Links

Bore Hole ID: 10034841
Depth M: 6.7056
Year Completed: 1963
Tag No:
Contractor: 1504
Latitude: 45.4489976894179

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB

Well Completed Dt:	08/12/1963	**Longitude:**	-75.5002116983201
Audit No:		**Y:**	45.448997682030466
Path:	151\1512853.pdf	**X:**	-75.50021153570867

7 **1 of 1** **E/51.4** **87.4 / 0.03** **ON** **BORE**

Borehole ID:	616294	**Inclin FLG:**	No
OGF ID:	215517083	**SP Status:**	Initial Entry
Status:		**Surv Elev:**	No
Type:	Borehole	**Piezometer:**	No
Use:		**Primary Name:**	
Completion Date:	AUG-1963	**Municipality:**	
Static Water Level:		**Lot:**	
Primary Water Use:		**Township:**	
Sec. Water Use:		**Latitude DD:**	45.448999
Total Depth m:	6.7	**Longitude DD:**	-75.500211
Depth Ref:	Ground Surface	**UTM Zone:**	18
Depth Elev:		**Easting:**	460885
Drill Method:		**Northing:**	5032952
Orig Ground Elev m:	89.9	**Location Accuracy:**	
Elev Reliabil Note:		**Accuracy:**	Not Applicable
DEM Ground Elev m:	89.5		
Concession:			
Location D:			
Survey D:			
Comments:			

Borehole Geology Stratum

Geology Stratum ID:	218403588	**Mat Consistency:**	
Top Depth:	0	**Material Moisture:**	
Bottom Depth:	2.4	**Material Texture:**	
Material Color:	Blue	**Non Geo Mat Type:**	
Material 1:	Clay	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	CLAY. BLUE.		

Geology Stratum ID:	218403589	**Mat Consistency:**	
Top Depth:	2.4	**Material Moisture:**	
Bottom Depth:	3	**Material Texture:**	
Material Color:		**Non Geo Mat Type:**	
Material 1:	Sand	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	SAND.		

Geology Stratum ID:	218403590	**Mat Consistency:**	
Top Depth:	3	**Material Moisture:**	
Bottom Depth:	6.7	**Material Texture:**	
Material Color:	Grey	**Non Geo Mat Type:**	
Material 1:	Limestone	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	LIMESTONE. GREY. 00022ED. SEISMIC VELOCITY = 5300. BEDROCK. SEISMIC VELOCITY = 19500. K.		

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB

Source

Source Type:	Data Survey	***Source Appl:***	Spatial/Tabular
Source Orig:	Geological Survey of Canada	***Source Iden:***	1
Source Date:	1956-1972	***Scale or Res:***	Varies
Confidence:		***Horizontal:***	NAD27
Observatio:		***Verticalda:***	Mean Average Sea Level
Source Name:	Urban Geology Automated Information System (UGAIS)		
Source Details:	File: OTTAWA2.txt RecordID: 08802 NTS_Sheet:		
Confiden 1:			

Source List

Source Identifier:	1	***Horizontal Datum:***	NAD27
Source Type:	Data Survey	***Vertical Datum:***	Mean Average Sea Level
Source Date:	1956-1972	***Projection Name:***	Universal Transverse Mercator
Scale or Resolution:	Varies		
Source Name:	Urban Geology Automated Information System (UGAIS)		
Source Originators:	Geological Survey of Canada		

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8 ***1 of 1*** ***NE/68.3*** ***87.0 / -0.41*** ***lot 1 con 11 ON*** ***WWIS***

Well ID:	1517917	***Flowing (Y/N):***	
Construction Date:		***Flow Rate:***	
Use 1st:	Domestic	***Data Entry Status:***	
Use 2nd:	0	***Data Src:***	1
Final Well Status:	Water Supply	***Date Received:***	10/07/1982
Water Type:		***Selected Flag:***	TRUE
Casing Material:		***Abandonment Rec:***	
Audit No:		***Contractor:***	2351
Tag:		***Form Version:***	1
Constructn Method:		***Owner:***	
Elevation (m):		***County:***	OTTAWA-CARLETON
Elevatn Reliabilty:		***Lot:***	001
Depth to Bedrock:		***Concession:***	11
Well Depth:		***Concession Name:***	CON
Overburden/Bedrock:		***Easting NAD83:***	
Pump Rate:		***Northing NAD83:***	
Static Water Level:		***Zone:***	
Clear/Cloudy:		***UTM Reliability:***	
Municipality:	CUMBERLAND TOWNSHIP		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/151\1517917.pdf

Additional Detail(s) (Map)

Well Completed Date:	08/28/1982
Year Completed:	1982
Depth (m):	9.144
Latitude:	45.4505157543857
Longitude:	-75.50092848557
Path:	151\1517917.pdf

Bore Hole Information

Bore Hole ID:	10039788	***Elevation:***	
DP2BR:		***Elevrc:***	
Spatial Status:		***Zone:***	18
Code OB:		***East83:***	460829.80
Code OB Desc:		***North83:***	5033121.00

Open Hole:
Cluster Kind:
Date Completed: 08/28/1982
Remarks:
Loc Method Desc: Original Pre1985 UTM Rel Code 4: margin of error : 30 m - 100 m
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:
Org CS:
UTMRC: 4
UTMRC Desc: margin of error : 30 m - 100 m
Location Method: p4

Overburden and Bedrock Materials Interval

Formation ID: 931036739
Layer: 2
Color: 7
General Color: RED
Mat1: 05
Most Common Material: CLAY
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 7.0
Formation End Depth: 17.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931036738
Layer: 1
Color: 6
General Color: BROWN
Mat1: 02
Most Common Material: TOPSOIL
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 0.0
Formation End Depth: 7.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931036740
Layer: 3
Color: 8
General Color: BLACK
Mat1: 17
Most Common Material: SHALE
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 17.0
Formation End Depth: 30.0
Formation End Depth UOM: ft

Method of Construction & Well Use

Method Construction ID:	961517917
Method Construction Code:	1
Method Construction:	Cable Tool
Other Method Construction:	

Pipe Information

Pipe ID:	10588358
Casing No:	1
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	930069486
Layer:	1
Material:	1
Open Hole or Material:	STEEL
Depth From:	
Depth To:	17.0
Casing Diameter:	6.0
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Results of Well Yield Testing

Pumping Test Method Desc:	BAILER
Pump Test ID:	991517917
Pump Set At:	
Static Level:	13.0
Final Level After Pumping:	23.0
Recommended Pump Depth:	24.0
Pumping Rate:	15.0
Flowing Rate:	
Recommended Pump Rate:	10.0
Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	2
Water State After Test:	CLOUDY
Pumping Test Method:	2
Pumping Duration HR:	1
Pumping Duration MIN:	20
Flowing:	No

Draw Down & Recovery

Pump Test Detail ID:	934377157
Test Type:	Draw Down
Test Duration:	30
Test Level:	23.0
Test Level UOM:	ft

Draw Down & Recovery

Pump Test Detail ID:	934646992
Test Type:	Draw Down
Test Duration:	45
Test Level:	23.0

Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934103107
Test Type: Draw Down
Test Duration: 15
Test Level: 23.0
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934896684
Test Type: Draw Down
Test Duration: 60
Test Level: 23.0
Test Level UOM: ft

Water Details

Water ID: 933474512
Layer: 1
Kind Code: 1
Kind: FRESH
Water Found Depth: 28.0
Water Found Depth UOM: ft

Links

Bore Hole ID: 10039788
Depth M: 9.144
Year Completed: 1982
Well Completed Dt: 08/28/1982
Audit No:
Path: 151\1517917.pdf
Tag No:
Contractor: 2351
Latitude: 45.4505157543857
Longitude: -75.50092848557
Y: 45.45051574679122
X: -75.50092832356566

9	1 of 1	NNE/69.1	87.6 / 0.20	lot 1 con 11 ON	WWIS

Well ID: 1511699
Construction Date:
Use 1st: Domestic
Use 2nd: 0
Final Well Status: Water Supply
Water Type:
Casing Material:
Audit No:
Tag:
Constructn Method:
Elevation (m):
Elevatn Reliabilty:
Depth to Bedrock:
Well Depth:
Overburden/Bedrock:
Pump Rate:
Static Water Level:
Clear/Cloudy:
Municipality: CUMBERLAND TOWNSHIP
Site Info:
Flowing (Y/N):
Flow Rate:
Data Entry Status:
Data Src: 1
Date Received: 04/07/1972
Selected Flag: TRUE
Abandonment Rec:
Contractor: 1504
Form Version: 1
Owner:
County: OTTAWA-CARLETON
Lot: 001
Concession: 11
Concession Name: CON
Easting NAD83:
Northing NAD83:
Zone:
UTM Reliability:

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/151\1511699.pdf

Additional Detail(s) (Map)

Well Completed Date:	07/20/1971
Year Completed:	1971
Depth (m):	12.4968
Latitude:	45.4512426364285
Longitude:	-75.5014336787392
Path:	151\1511699.pdf

Bore Hole Information

Bore Hole ID:	10033693	***Elevation:***	
DP2BR:		***Elevrc:***	
Spatial Status:		***Zone:***	18
Code OB:		***East83:***	460790.80
Code OB Desc:		***North83:***	5033202.00
Open Hole:		***Org CS:***	
Cluster Kind:		***UTMRC:***	4
Date Completed:	07/20/1971	***UTMRC Desc:***	margin of error : 30 m - 100 m
Remarks:		***Location Method:***	p4
Loc Method Desc:	Original Pre1985 UTM Rel Code 4: margin of error : 30 m - 100 m		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	931018490
Layer:	1
Color:	3
General Color:	BLUE
Mat1:	05
Most Common Material:	CLAY
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	0.0
Formation End Depth:	27.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	931018491
Layer:	2
Color:	2
General Color:	GREY
Mat1:	15
Most Common Material:	LIMESTONE
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	27.0
Formation End Depth:	41.0
Formation End Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	961511699
Method Construction Code:	7
Method Construction:	Diamond
Other Method Construction:	

Pipe Information

Pipe ID:	10582263
Casing No:	1
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	930059857
Layer:	2
Material:	4
Open Hole or Material:	OPEN HOLE
Depth From:	
Depth To:	41.0
Casing Diameter:	
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Casing

Casing ID:	930059856
Layer:	1
Material:	2
Open Hole or Material:	GALVANIZED
Depth From:	
Depth To:	29.0
Casing Diameter:	2.0
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Results of Well Yield Testing

Pumping Test Method Desc:	PUMP
Pump Test ID:	991511699
Pump Set At:	
Static Level:	10.0
Final Level After Pumping:	25.0
Recommended Pump Depth:	30.0
Pumping Rate:	10.0
Flowing Rate:	
Recommended Pump Rate:	6.0
Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	1
Water State After Test:	CLEAR
Pumping Test Method:	1
Pumping Duration HR:	2
Pumping Duration MIN:	0
Flowing:	No

Draw Down & Recovery

Pump Test Detail ID:	934645026

Test Type:	Draw Down
Test Duration:	45
Test Level:	25.0
Test Level UOM:	ft

Draw Down & Recovery

Pump Test Detail ID:	934098350
Test Type:	Draw Down
Test Duration:	15
Test Level:	25.0
Test Level UOM:	ft

Draw Down & Recovery

Pump Test Detail ID:	934382892
Test Type:	Draw Down
Test Duration:	30
Test Level:	25.0
Test Level UOM:	ft

Draw Down & Recovery

Pump Test Detail ID:	934901944
Test Type:	Draw Down
Test Duration:	60
Test Level:	25.0
Test Level UOM:	ft

Water Details

Water ID:	933466933
Layer:	1
Kind Code:	1
Kind:	FRESH
Water Found Depth:	41.0
Water Found Depth UOM:	ft

Links

Bore Hole ID:	10033693	**Tag No:**	
Depth M:	12.4968	**Contractor:**	1504
Year Completed:	1971	**Latitude:**	45.4512426364285
Well Completed Dt:	07/20/1971	**Longitude:**	-75.5014336787392
Audit No:		**Y:**	45.45124262897867
Path:	151\1511699.pdf	**X:**	-75.50143351698775

10 | ***1 of 1*** | ***ESE/80.1*** | ***87.5 / 0.16*** | ***lot 2 con 11 ON*** | ***WWIS***

Well ID:	1512852	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Livestock	**Data Entry Status:**	
Use 2nd:	Domestic	**Data Src:**	1
Final Well Status:	Water Supply	**Date Received:**	12/07/1962
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:		**Contractor:**	1504
Tag:		**Form Version:**	1
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	OTTAWA-CARLETON

Elevatn Reliabilty:		**Lot:**	002
Depth to Bedrock:		**Concession:**	11
Well Depth:		**Concession Name:**	CON
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	CUMBERLAND TOWNSHIP		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/151\1512852.pdf

Additional Detail(s) (Map)

Well Completed Date:	09/06/1962
Year Completed:	1962
Depth (m):	13.716
Latitude:	45.4485322743926
Longitude:	-75.4996065453853
Path:	151\1512852.pdf

Bore Hole Information

Bore Hole ID:	10034840	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	18
Code OB:		**East83:**	460931.80
Code OB Desc:		**North83:**	5032900.00
Open Hole:		**Org CS:**	
Cluster Kind:		**UTMRC:**	5
Date Completed:	09/06/1962	**UTMRC Desc:**	margin of error : 100 m - 300 m
Remarks:		**Location Method:**	gis
Loc Method Desc:	from gis		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	931021729
Layer:	2
Color:	
General Color:	
Mat1:	11
Most Common Material:	GRAVEL
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	40.0
Formation End Depth:	45.0
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	931021728
Layer:	1

Color:	3
General Color:	BLUE
Mat1:	05
Most Common Material:	CLAY
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	0.0
Formation End Depth:	40.0
Formation End Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	961512852
Method Construction Code:	7
Method Construction:	Diamond
Other Method Construction:	

Pipe Information

Pipe ID:	10583410
Casing No:	1
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	930061711
Layer:	1
Material:	1
Open Hole or Material:	STEEL
Depth From:	
Depth To:	45.0
Casing Diameter:	2.0
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Results of Well Yield Testing

Pumping Test Method Desc:	PUMP
Pump Test ID:	991512852
Pump Set At:	
Static Level:	3.0
Final Level After Pumping:	15.0
Recommended Pump Depth:	15.0
Pumping Rate:	10.0
Flowing Rate:	
Recommended Pump Rate:	10.0
Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	1
Water State After Test:	CLEAR
Pumping Test Method:	1
Pumping Duration HR:	4
Pumping Duration MIN:	0
Flowing:	No

Water Details

Water ID:	933468342

Layer:	1
Kind Code:	1
Kind:	FRESH
Water Found Depth:	45.0
Water Found Depth UOM:	ft

Links

Bore Hole ID:	10034840	**Tag No:**	
Depth M:	13.716	**Contractor:**	1504
Year Completed:	1962	**Latitude:**	45.4485322743926
Well Completed Dt:	09/06/1962	**Longitude:**	-75.4996065453853
Audit No:		**Y:**	45.44853226688431
Path:	151\1512852.pdf	**X:**	-75.49960638226445

11 **1 of 1** **ESE/101.8** **88.3 / 0.89** **lot 2 con 11 ON** **WWIS**

Well ID:	1513953	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Domestic	**Data Entry Status:**	
Use 2nd:	0	**Data Src:**	1
Final Well Status:	Water Supply	**Date Received:**	03/18/1974
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:		**Contractor:**	1504
Tag:		**Form Version:**	1
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	OTTAWA-CARLETON
Elevatn Reliabilty:		**Lot:**	002
Depth to Bedrock:		**Concession:**	11
Well Depth:		**Concession Name:**	CON
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	CUMBERLAND TOWNSHIP		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/151\1513953.pdf

Additional Detail(s) (Map)

Well Completed Date:	06/08/1973
Year Completed:	1973
Depth (m):	16.1544
Latitude:	45.4480104473664
Longitude:	-75.4995507867977
Path:	151\1513953.pdf

Bore Hole Information

Bore Hole ID:	10035935	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	18
Code OB:		**East83:**	460935.80
Code OB Desc:		**North83:**	5032842.00
Open Hole:		**Org CS:**	
Cluster Kind:		**UTMRC:**	6
Date Completed:	06/08/1973	**UTMRC Desc:**	margin of error : 300 m - 1 km
Remarks:		**Location Method:**	p6
Loc Method Desc:	Original Pre1985 UTM Rel Code 6: margin of error : 300 m - 1 km		

Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Overburden and Bedrock Materials Interval

Formation ID: 931024894
Layer: 2
Color: 2
General Color: GREY
Mat1: 15
Most Common Material: LIMESTONE
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 37.0
Formation End Depth: 53.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931024893
Layer: 1
Color: 3
General Color: BLUE
Mat1: 05
Most Common Material: CLAY
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 0.0
Formation End Depth: 37.0
Formation End Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 961513953
Method Construction Code: 6
Method Construction: Boring
Other Method Construction:

Pipe Information

Pipe ID: 10584505
Casing No: 1
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 930063495
Layer: 1
Material: 1
Open Hole or Material: STEEL

Depth From:
Depth To: 44.0
Casing Diameter: 2.0
Casing Diameter UOM: inch
Casing Depth UOM: ft

Results of Well Yield Testing

Pumping Test Method Desc: PUMP
Pump Test ID: 991513953
Pump Set At:
Static Level: 4.0
Final Level After Pumping: 20.0
Recommended Pump Depth: 30.0
Pumping Rate: 6.0
Flowing Rate:
Recommended Pump Rate: 6.0
Levels UOM: ft
Rate UOM: GPM
Water State After Test Code: 1
Water State After Test: CLEAR
Pumping Test Method: 1
Pumping Duration HR: 2
Pumping Duration MIN: 0
Flowing: No

Draw Down & Recovery

Pump Test Detail ID: 934099725
Test Type: Recovery
Test Duration: 15
Test Level: 15.0
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934380799
Test Type: Recovery
Test Duration: 30
Test Level: 10.0
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934641792
Test Type: Recovery
Test Duration: 45
Test Level: 4.0
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934899262
Test Type: Recovery
Test Duration: 60
Test Level: 4.0
Test Level UOM: ft

Water Details

Water ID: 933469707

Layer:	1
Kind Code:	1
Kind:	FRESH
Water Found Depth:	53.0
Water Found Depth UOM:	ft

Links

Bore Hole ID:	10035935	**Tag No:**	
Depth M:	16.1544	**Contractor:**	1504
Year Completed:	1973	**Latitude:**	45.4480104473664
Well Completed Dt:	06/08/1973	**Longitude:**	-75.4995507867977
Audit No:		**Y:**	45.44801043961896
Path:	151\1513953.pdf	**X:**	-75.49955062479565

12 **1 of 1** **N/102.2** **87.6 / 0.17** **lot 1 con 11 ON** **WWIS**

Well ID:	1511698	**Flowing (Y/N):**	
Construction Date:		**Flow Rate:**	
Use 1st:	Domestic	**Data Entry Status:**	
Use 2nd:	0	**Data Src:**	1
Final Well Status:	Water Supply	**Date Received:**	04/07/1972
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	
Audit No:		**Contractor:**	1504
Tag:		**Form Version:**	1
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	OTTAWA-CARLETON
Elevatn Reliabilty:		**Lot:**	001
Depth to Bedrock:		**Concession:**	11
Well Depth:		**Concession Name:**	CON
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	CUMBERLAND TOWNSHIP		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/151\1511698.pdf

Additional Detail(s) (Map)

Well Completed Date:	07/19/1971
Year Completed:	1971
Depth (m):	12.192
Latitude:	45.4516915567051
Longitude:	-75.5016934324754
Path:	151\1511698.pdf

Bore Hole Information

Bore Hole ID:	10033692	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	18
Code OB:		**East83:**	460770.80
Code OB Desc:		**North83:**	5033252.00
Open Hole:		**Org CS:**	
Cluster Kind:		**UTMRC:**	4
Date Completed:	07/19/1971	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	p4
Loc Method Desc:	Original Pre1985 UTM Rel Code 4: margin of error : 30 m - 100 m		

Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Overburden and Bedrock Materials Interval

Formation ID: 931018488
Layer: 1
Color: 3
General Color: BLUE
Mat1: 05
Most Common Material: CLAY
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 0.0
Formation End Depth: 27.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931018489
Layer: 2
Color: 2
General Color: GREY
Mat1: 15
Most Common Material: LIMESTONE
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 27.0
Formation End Depth: 40.0
Formation End Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 961511698
Method Construction Code: 7
Method Construction: Diamond
Other Method Construction:

Pipe Information

Pipe ID: 10582262
Casing No: 1
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 930059855
Layer: 2
Material: 4
Open Hole or Material: OPEN HOLE

Depth From:
Depth To: 40.0
Casing Diameter:
Casing Diameter UOM: inch
Casing Depth UOM: ft

Construction Record - Casing

Casing ID: 930059854
Layer: 1
Material: 2
Open Hole or Material: GALVANIZED
Depth From:
Depth To: 29.0
Casing Diameter: 2.0
Casing Diameter UOM: inch
Casing Depth UOM: ft

Results of Well Yield Testing

Pumping Test Method Desc: PUMP
Pump Test ID: 991511698
Pump Set At:
Static Level: 10.0
Final Level After Pumping: 25.0
Recommended Pump Depth: 30.0
Pumping Rate: 10.0
Flowing Rate:
Recommended Pump Rate: 6.0
Levels UOM: ft
Rate UOM: GPM
Water State After Test Code: 1
Water State After Test: CLEAR
Pumping Test Method: 1
Pumping Duration HR: 2
Pumping Duration MIN: 0
Flowing: No

Draw Down & Recovery

Pump Test Detail ID: 934901943
Test Type: Draw Down
Test Duration: 60
Test Level: 25.0
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934645025
Test Type: Draw Down
Test Duration: 45
Test Level: 25.0
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934098349
Test Type: Draw Down
Test Duration: 15
Test Level: 25.0
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID:	934382891
Test Type:	Draw Down
Test Duration:	30
Test Level:	25.0
Test Level UOM:	ft

Water Details

Water ID:	933466932
Layer:	1
Kind Code:	1
Kind:	FRESH
Water Found Depth:	40.0
Water Found Depth UOM:	ft

Links

Bore Hole ID:	10033692	***Tag No:***	
Depth M:	12.192	***Contractor:***	1504
Year Completed:	1971	***Latitude:***	45.4516915567051
Well Completed Dt:	07/19/1971	***Longitude:***	-75.5016934324754
Audit No:		***Y:***	45.45169155017433
Path:	151\1511698.pdf	***X:***	-75.50169326921957

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13 ***1 of 1*** ***N/108.0*** ***87.5 / 0.12*** ***lot 1 con 11 ON*** ***WWIS***

Well ID:	1512849	***Flowing (Y/N):***	
Construction Date:		***Flow Rate:***	
Use 1st:	Domestic	***Data Entry Status:***	
Use 2nd:	0	***Data Src:***	1
Final Well Status:	Water Supply	***Date Received:***	01/19/1965
Water Type:		***Selected Flag:***	TRUE
Casing Material:		***Abandonment Rec:***	
Audit No:		***Contractor:***	1504
Tag:		***Form Version:***	1
Constructn Method:		***Owner:***	
Elevation (m):		***County:***	OTTAWA-CARLETON
Elevatn Reliabilty:		***Lot:***	001
Depth to Bedrock:		***Concession:***	11
Well Depth:		***Concession Name:***	CON
Overburden/Bedrock:		***Easting NAD83:***	
Pump Rate:		***Northing NAD83:***	
Static Water Level:		***Zone:***	
Clear/Cloudy:		***UTM Reliability:***	
Municipality:	CUMBERLAND TOWNSHIP		
Site Info:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/151\1512849.pdf

Additional Detail(s) (Map)

Well Completed Date:	07/29/1964
Year Completed:	1964
Depth (m):	14.9352
Latitude:	45.4517803293112
Longitude:	-75.5019755731562
Path:	151\1512849.pdf

Bore Hole Information

Bore Hole ID:	10034837	***Elevation:***	
DP2BR:		***Elevrc:***	
Spatial Status:		***Zone:***	18
Code OB:		***East83:***	460748.80
Code OB Desc:		***North83:***	5033262.00
Open Hole:		***Org CS:***	
Cluster Kind:		***UTMRC:***	5
Date Completed:	07/29/1964	***UTMRC Desc:***	margin of error : 100 m - 300 m
Remarks:		***Location Method:***	p5

Loc Method Desc: Original Pre1985 UTM Rel Code 5: margin of error : 100 m - 300 m
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Overburden and Bedrock Materials Interval

Formation ID: 931021721
Layer: 1
Color: 3
General Color: BLUE
Mat1: 05
Most Common Material: CLAY
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 0.0
Formation End Depth: 28.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931021722
Layer: 2
Color: 2
General Color: GREY
Mat1: 15
Most Common Material: LIMESTONE
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 28.0
Formation End Depth: 49.0
Formation End Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 961512849
Method Construction Code: 7
Method Construction: Diamond
Other Method Construction:

Pipe Information

Pipe ID: 10583407
Casing No: 1
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 930061707
Layer: 2
Material: 4
Open Hole or Material: OPEN HOLE
Depth From:
Depth To: 49.0
Casing Diameter: 2.0
Casing Diameter UOM: inch
Casing Depth UOM: ft

Construction Record - Casing

Casing ID: 930061706
Layer: 1
Material: 1
Open Hole or Material: STEEL
Depth From:
Depth To: 30.0
Casing Diameter: 2.0
Casing Diameter UOM: inch
Casing Depth UOM: ft

Results of Well Yield Testing

Pumping Test Method Desc: PUMP
Pump Test ID: 991512849
Pump Set At:
Static Level: 4.0
Final Level After Pumping: 25.0
Recommended Pump Depth: 25.0
Pumping Rate: 6.0
Flowing Rate:
Recommended Pump Rate: 5.0
Levels UOM: ft
Rate UOM: GPM
Water State After Test Code: 1
Water State After Test: CLEAR
Pumping Test Method: 1
Pumping Duration HR: 2
Pumping Duration MIN: 0
Flowing: No

Water Details

Water ID: 933468339
Layer: 1
Kind Code: 1
Kind: FRESH
Water Found Depth: 49.0
Water Found Depth UOM: ft

Links

Bore Hole ID: 10034837 ***Tag No:***

Depth M:	14.9352	**Contractor:**	1504
Year Completed:	1964	**Latitude:**	45.4517803293112
Well Completed Dt:	07/29/1964	**Longitude:**	-75.5019755731562
Audit No:		**Y:**	45.45178032193118
Path:	151\1512849.pdf	**X:**	-75.50197541108454

14 **1 of 1** **N/108.2** **87.5 / 0.12** **ON** **BORE**

Borehole ID:	616298	**Inclin FLG:**	No
OGF ID:	215517087	**SP Status:**	Initial Entry
Status:		**Surv Elev:**	No
Type:	Borehole	**Piezometer:**	No
Use:		**Primary Name:**	
Completion Date:	JUL-1964	**Municipality:**	
Static Water Level:		**Lot:**	
Primary Water Use:		**Township:**	
Sec. Water Use:		**Latitude DD:**	45.451782
Total Depth m:	14.9	**Longitude DD:**	-75.501975
Depth Ref:	Ground Surface	**UTM Zone:**	18
Depth Elev:		**Easting:**	460749
Drill Method:		**Northing:**	5033262
Orig Ground Elev m:	89.6	**Location Accuracy:**	
Elev Reliabil Note:		**Accuracy:**	Not Applicable
DEM Ground Elev m:	89.6		
Concession:			
Location D:			
Survey D:			
Comments:			

Borehole Geology Stratum

Geology Stratum ID:	218403601	**Mat Consistency:**	
Top Depth:	0	**Material Moisture:**	
Bottom Depth:	8.5	**Material Texture:**	
Material Color:	Blue	**Non Geo Mat Type:**	
Material 1:	Clay	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	CLAY. BLUE.		

Geology Stratum ID:	218403602	**Mat Consistency:**	
Top Depth:	8.5	**Material Moisture:**	
Bottom Depth:	14.9	**Material Texture:**	
Material Color:	Grey	**Non Geo Mat Type:**	
Material 1:	Limestone	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	LIMESTONE. GREY. 000495.0 FEET.BOULDERS. BEDROCK. GREY. ROCK. SEISMIC VELOCITY = 18000 **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Source

Source Type:	Data Survey	**Source Appl:**	Spatial/Tabular
Source Orig:	Geological Survey of Canada	**Source Iden:**	1
Source Date:	1956-1972	**Scale or Res:**	Varies
Confidence:		**Horizontal:**	NAD27
Observatio:		**Verticalda:**	Mean Average Sea Level
Source Name:	Urban Geology Automated Information System (UGAIS)		

Source Details: File: OTTAWA2.txt RecordID: 08806 NTS_Sheet:
Confiden 1:

Source List

Source Identifier: 1
Source Type: Data Survey
Source Date: 1956-1972
Scale or Resolution: Varies
Source Name: Urban Geology Automated Information System (UGAIS)
Source Originators: Geological Survey of Canada
Horizontal Datum: NAD27
Vertical Datum: Mean Average Sea Level
Projection Name: Universal Transverse Mercator

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15 | **1 of 1** | **S/120.4** | **86.9 / -0.51** | **lot 1 con 3 ON** | **WWIS**

Well ID: 1519786
Construction Date:
Use 1st: Domestic
Use 2nd: Commerical
Final Well Status: Water Supply
Water Type:
Casing Material:
Audit No:
Tag:
Constructn Method:
Elevation (m):
Elevatn Reliabilty:
Depth to Bedrock:
Well Depth:
Overburden/Bedrock:
Pump Rate:
Static Water Level:
Clear/Cloudy:
Municipality: GLOUCESTER TOWNSHIP
Site Info:
Flowing (Y/N):
Flow Rate:
Data Entry Status:
Data Src: 1
Date Received: 07/30/1985
Selected Flag: TRUE
Abandonment Rec:
Contractor: 2351
Form Version: 1
Owner:
County: OTTAWA-CARLETON
Lot: 001
Concession: 03
Concession Name: OF
Easting NAD83:
Northing NAD83:
Zone:
UTM Reliability:

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/151\1519786.pdf

Additional Detail(s) (Map)

Well Completed Date: 06/10/1985
Year Completed: 1985
Depth (m): 13.1064
Latitude: 45.4464694899573
Longitude: -75.5020026343215
Path: 151\1519786.pdf

Bore Hole Information

Bore Hole ID: 10041639
DP2BR:
Spatial Status:
Code OB:
Code OB Desc:
Open Hole:
Cluster Kind:
Date Completed: 06/10/1985
Remarks:
Loc Method Desc: Lot centroid
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Elevation:
Elevrc:
Zone: 18
East83: 460743.00
North83: 5032672.00
Org CS: N83
UTMRC: 8
UTMRC Desc: margin of error : 3 km - 10 km
Location Method: lot

Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Overburden and Bedrock Materials Interval

Formation ID: 931042725
Layer: 1
Color: 6
General Color: BROWN
Mat1: 05
Most Common Material: CLAY
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 0.0
Formation End Depth: 9.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931042726
Layer: 2
Color: 3
General Color: BLUE
Mat1: 05
Most Common Material: CLAY
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 9.0
Formation End Depth: 34.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931042727
Layer: 3
Color: 8
General Color: BLACK
Mat1: 17
Most Common Material: SHALE
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 34.0
Formation End Depth: 43.0
Formation End Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 961519786
Method Construction Code: 1
Method Construction: Cable Tool
Other Method Construction:

Pipe Information

Pipe ID:	10590209
Casing No:	1
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	930072710
Layer:	1
Material:	1
Open Hole or Material:	STEEL
Depth From:	
Depth To:	34.0
Casing Diameter:	6.0
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Results of Well Yield Testing

Pumping Test Method Desc:	BAILER
Pump Test ID:	991519786
Pump Set At:	
Static Level:	4.0
Final Level After Pumping:	28.0
Recommended Pump Depth:	40.0
Pumping Rate:	35.0
Flowing Rate:	
Recommended Pump Rate:	15.0
Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	2
Water State After Test:	CLOUDY
Pumping Test Method:	2
Pumping Duration HR:	1
Pumping Duration MIN:	10
Flowing:	No

Draw Down & Recovery

Pump Test Detail ID:	934109672
Test Type:	Draw Down
Test Duration:	15
Test Level:	34.0
Test Level UOM:	ft

Draw Down & Recovery

Pump Test Detail ID:	934894726
Test Type:	Draw Down
Test Duration:	60
Test Level:	34.0
Test Level UOM:	ft

Draw Down & Recovery

Pump Test Detail ID:	934654942
Test Type:	Draw Down
Test Duration:	45

Test Level: 34.0
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934384401
Test Type: Draw Down
Test Duration: 30
Test Level: 34.0
Test Level UOM: ft

Water Details

Water ID: 933476860
Layer: 1
Kind Code: 1
Kind: FRESH
Water Found Depth: 42.0
Water Found Depth UOM: ft

Links

Bore Hole ID: 10041639
Depth M: 13.1064
Year Completed: 1985
Well Completed Dt: 06/10/1985
Audit No:
Path: 151\1519786.pdf
Tag No:
Contractor: 2351
Latitude: 45.4464694899573
Longitude: -75.5020026343215
Y: 45.44646948295289
X: -75.50200247147505

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16 | 1 of 1 | N/121.4 | 87.6 / 0.17 | lot 1 con 11 ON | WWIS

Well ID: 1513909
Construction Date:
Use 1st: Domestic
Use 2nd: 0
Final Well Status: Water Supply
Water Type:
Casing Material:
Audit No:
Tag:
Constructn Method:
Elevation (m):
Elevatn Reliabilty:
Depth to Bedrock:
Well Depth:
Overburden/Bedrock:
Pump Rate:
Static Water Level:
Clear/Cloudy:
Municipality: CUMBERLAND TOWNSHIP
Site Info:
Flowing (Y/N):
Flow Rate:
Data Entry Status:
Data Src: 1
Date Received: 03/18/1974
Selected Flag: TRUE
Abandonment Rec:
Contractor: 1504
Form Version: 1
Owner:
County: OTTAWA-CARLETON
Lot: 001
Concession: 11
Concession Name: CON
Easting NAD83:
Northing NAD83:
Zone:
UTM Reliability:

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/151\1513909.pdf

Additional Detail(s) (Map)

Well Completed Date: 08/08/1973
Year Completed: 1973
Depth (m): 24.9936
Latitude: 45.4518715740324
Longitude: -75.5016950285498

Path: 151\1513909.pdf

Bore Hole Information

Bore Hole ID:	10035891	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	18
Code OB:		**East83:**	460770.80
Code OB Desc:		**North83:**	5033272.00
Open Hole:		**Org CS:**	
Cluster Kind:		**UTMRC:**	6
Date Completed:	08/08/1973	**UTMRC Desc:**	margin of error : 300 m - 1 km
Remarks:		**Location Method:**	p6

Loc Method Desc: Original Pre1985 UTM Rel Code 6: margin of error : 300 m - 1 km
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Overburden and Bedrock Materials Interval

Formation ID: 931024766
Layer: 2
Color: 2
General Color: GREY
Mat1: 15
Most Common Material: LIMESTONE
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 21.0
Formation End Depth: 82.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931024765
Layer: 1
Color: 3
General Color: BLUE
Mat1: 05
Most Common Material: CLAY
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 0.0
Formation End Depth: 21.0
Formation End Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 961513909
Method Construction Code: 6
Method Construction: Boring
Other Method Construction:

Pipe Information

Pipe ID:	10584461
Casing No:	1
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	930063446
Layer:	1
Material:	1
Open Hole or Material:	STEEL
Depth From:	
Depth To:	23.0
Casing Diameter:	2.0
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Results of Well Yield Testing

Pumping Test Method Desc:	PUMP
Pump Test ID:	991513909
Pump Set At:	
Static Level:	7.0
Final Level After Pumping:	40.0
Recommended Pump Depth:	50.0
Pumping Rate:	7.0
Flowing Rate:	
Recommended Pump Rate:	7.0
Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	1
Water State After Test:	CLEAR
Pumping Test Method:	1
Pumping Duration HR:	2
Pumping Duration MIN:	0
Flowing:	No

Draw Down & Recovery

Pump Test Detail ID:	934380755
Test Type:	Recovery
Test Duration:	30
Test Level:	20.0
Test Level UOM:	ft

Draw Down & Recovery

Pump Test Detail ID:	934641330
Test Type:	Recovery
Test Duration:	45
Test Level:	10.0
Test Level UOM:	ft

Draw Down & Recovery

Pump Test Detail ID:	934899218
Test Type:	Recovery
Test Duration:	60

Test Level: 7.0
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934099681
Test Type: Recovery
Test Duration: 15
Test Level: 30.0
Test Level UOM: ft

Water Details

Water ID: 933469663
Layer: 1
Kind Code: 1
Kind: FRESH
Water Found Depth: 82.0
Water Found Depth UOM: ft

Links

Bore Hole ID: 10035891
Depth M: 24.9936
Year Completed: 1973
Well Completed Dt: 08/08/1973
Audit No:
Path: 151\1513909.pdf
Tag No:
Contractor: 1504
Latitude: 45.4518715740324
Longitude: -75.5016950285498
Y: 45.45187156696278
X: -75.50169486640843

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17 | **1 of 1** | **SSW/123.4** | **87.2 / -0.22** | **Chemin Mer Bleue Ottawa ON** | **EHS**

Order No: 20060208025
Status: C
Report Type: Custom Report
Report Date: 2/14/2006
Date Received: 2/7/2006
Previous Site Name:
Lot/Building Size:
Additional Info Ordered: City Directory
Nearest Intersection:
Municipality:
Client Prov/State: ON
Search Radius (km): 0.25
X: -75.503118
Y: 45.446521

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18 | **1 of 2** | **S/126.1** | **86.9 / -0.51** | **Innes Shopping Centres Limited Ottawa ON L4K 5X3** | **ECA**

Approval No: 1719-6SJJ6X
Approval Date: 2006-08-16
Status: Approved
Record Type: ECA
Link Source: IDS
SWP Area Name: South Nation
Approval Type: ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS
Project Type: MUNICIPAL AND PRIVATE SEWAGE WORKS
Business Name: Innes Shopping Centres Limited
Address:
Full Address:
Full PDF Link: https://www.accessenvironment.ene.gov.on.ca/instruments/3055-6NSPDF-14.pdf
PDF Site Location:
MOE District: Ottawa
City:
Longitude: -75.5021
Latitude: 45.4464
Geometry X:
Geometry Y:

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
18	2 of 2	S/126.1	86.9 / -0.51	Innes Shopping Centres Limited Ottawa ON L4K 5X3	ECA

Approval No: 6167-79NM49
Approval Date: 2007-12-10
Status: Approved
Record Type: ECA
Link Source: IDS
SWP Area Name: South Nation
Approval Type: ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS
Project Type: MUNICIPAL AND PRIVATE SEWAGE WORKS
Business Name: Innes Shopping Centres Limited
Address:
Full Address:
Full PDF Link: https://www.accessenvironment.ene.gov.on.ca/instruments/3060-79LSM6-14.pdf
PDF Site Location:
MOE District: Ottawa
City:
Longitude: -75.5021
Latitude: 45.4464
Geometry X:
Geometry Y:

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
19	1 of 2	N/135.5	87.6 / 0.23	City of Ottawa 2107 Mer Bleue Rd Lot 1, Concession 3 Ottawa ON	CA

Certificate #: 2191-7MCT5Y
Application Year: 2009
Issue Date: 1/16/2009
Approval Type: Municipal and Private Sewage Works
Status: Approved
Application Type:
Client Name:
Client Address:
Client City:
Client Postal Code:
Project Description:
Contaminants:
Emission Control:

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
19	2 of 2	N/135.5	87.6 / 0.23	City of Ottawa 2107 Mer Bleue Rd Lot 1, Concession 3 Ottawa ON K1P 1J1	ECA

Approval No: 2191-7MCT5Y
Approval Date: 2009-01-16
Status: Approved
Record Type: ECA
Link Source: IDS
SWP Area Name: South Nation
Approval Type: ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS
Project Type: MUNICIPAL AND PRIVATE SEWAGE WORKS
Business Name: City of Ottawa
Address: 2107 Mer Bleue Rd Lot 1, Concession 3
Full Address:
Full PDF Link: https://www.accessenvironment.ene.gov.on.ca/instruments/4690-7JJK7W-14.pdf
PDF Site Location:
MOE District: Ottawa
City:
Longitude: -75.50185
Latitude: 45.452007
Geometry X:
Geometry Y:

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
20	1 of 1	ESE/138.8	88.1 / 0.71	2215 MER BLEUE RD lot 2 con 11 ON	WWIS

Well ID: 7310118
Construction Date:
Use 1st:
Use 2nd:
Flowing (Y/N):
Flow Rate:
Data Entry Status:
Data Src:

Final Well Status:	Abandoned-Other	**Date Received:**	04/24/2018
Water Type:		**Selected Flag:**	TRUE
Casing Material:		**Abandonment Rec:**	Yes
Audit No:	Z237206	**Contractor:**	1119
Tag:		**Form Version:**	7
Constructn Method:		**Owner:**	
Elevation (m):		**County:**	OTTAWA-CARLETON
Elevatn Reliabilty:		**Lot:**	002
Depth to Bedrock:		**Concession:**	11
Well Depth:		**Concession Name:**	CON
Overburden/Bedrock:		**Easting NAD83:**	
Pump Rate:		**Northing NAD83:**	
Static Water Level:		**Zone:**	
Clear/Cloudy:		**UTM Reliability:**	
Municipality:	CUMBERLAND TOWNSHIP		
Site Info:			

PDF URL (Map):

Additional Detail(s) (Map)

Well Completed Date:	01/04/2018
Year Completed:	2018
Depth (m):	
Latitude:	45.4475787520395
Longitude:	-75.4994676915159
Path:	

Bore Hole Information

Bore Hole ID:	1007031733	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	18
Code OB:		**East83:**	460942.00
Code OB Desc:		**North83:**	5032794.00
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	01/04/2018	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1007257591
Layer:	
Color:	
General Color:	
Mat1:	
Most Common Material:	
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	
Formation End Depth:	
Formation End Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1007257599
Layer:	2
Plug From:	5.0
Plug To:	0.0
Plug Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1007257598
Layer:	1
Plug From:	53.0
Plug To:	5.0
Plug Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1007257597
Layer:	1
Plug From:	0.0
Plug To:	53.0
Plug Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	1007257596
Method Construction Code:	
Method Construction:	
Other Method Construction:	

Pipe Information

Pipe ID:	1007257590
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1007257594
Layer:	
Material:	
Open Hole or Material:	
Depth From:	
Depth To:	
Casing Diameter:	
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	1007257595
Layer:	
Slot:	

Screen Top Depth:
Screen End Depth:
Screen Material:
Screen Depth UOM: ft
Screen Diameter UOM: inch
Screen Diameter:

Water Details

Water ID: 1007257593
Layer:
Kind Code:
Kind:
Water Found Depth:
Water Found Depth UOM: ft

Hole Diameter

Hole ID: 1007257592
Diameter:
Depth From:
Depth To:
Hole Depth UOM: ft
Hole Diameter UOM: inch

Links

Bore Hole ID: 1007031733
Depth M:
Year Completed: 2018
Well Completed Dt: 01/04/2018
Audit No: Z237206
Path: 731\7310118.pdf
Tag No:
Contractor: 1119
Latitude: 45.4475787520395
Longitude: -75.4994676915159
Y: 45.447578744646414
X: -75.49946752979757

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21 | ***1 of 1*** | ***NE/145.6*** | ***86.9 / -0.51*** | ***Hydro One Inc.***
2127 Mer-Bleue Road
Ottawa ON | ***SPL***

Ref No: 4886-9725RN
Year:
Incident Dt: 22-APR-13
Dt MOE Arvl on Scn:
MOE Reported Dt: 22-APR-13
Dt Document Closed:
Site No:
Facility Name:
MOE Response: No Field Response
Site County/District:
Site Geo Ref Meth:
Site District Office:
Nearest Watercourse:
Site Name: transformer<UNOFFICIAL>
Site Address: 2127 Mer-Bleue Road
Site Region:
Site Municipality: Ottawa
Site Lot:
Site Conc:
Site Geo Ref Accu:
Site Map Datum:
Northing:
Easting:
Incident Cause: Leak/Break
Municipality No:
Nature of Damage:
Discharger Report:
Material Group:
Health/Env Conseq:
Agency Involved:

Incident Event:	
Environment Impact:	Not Anticipated
Nature of Impact:	Vegetation Damage
Contaminant Qty:	10 L
System Facility Address:	
Client Name:	Hydro One Inc.
Client Type:	
Call Report Locatn Geodata:	
Contaminant Code:	26
Contaminant Name:	TRANSFORMER OIL (GT 50 PPM PCB)
Contaminant Limit 1:	
Contam Limit Freq 1:	
Contaminant UN No 1:	
Receiving Medium:	
Receiving Environment:	
Incident Reason:	Equipment Failure
Incident Summary:	Hydro One: PCB suspect trfmr oil to grd, clng ~10L
Activity Preceding Spill:	
Property 2nd Watershed:	
Property Tertiary Watershed:	
Sector Type:	Transformer
SAC Action Class:	Land Spills
Source Type:	

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22 | ***1 of 1*** | ***ESE/149.1*** | ***88.3 / 0.93*** | ***2215 Mer Bleue Ottawa ON*** | ***EHS***

Order No:	20160418041	**Nearest Intersection:**	
Status:	C	**Municipality:**	Ottawa
Report Type:	Standard Report	**Client Prov/State:**	ON
Report Date:	22-APR-16	**Search Radius (km):**	.25
Date Received:	18-APR-16	**X:**	-75.499348
Previous Site Name:	?	**Y:**	45.44753
Lot/Building Size:	0.43 Acres		
Additional Info Ordered:	Topographic Maps; City Directory; Aerial Photos		

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23 | ***1 of 2*** | ***NNE/180.4*** | ***87.0 / -0.39*** | ***McGiac Realty Corporation 2035, 2045 and 2055 Mer Bleue Road Ottawa ON K1B 5P5*** | ***ECA***

Approval No:	7413-9DWQJA	**MOE District:**	
Approval Date:	2013-12-09	**City:**	
Status:	Approved	**Longitude:**	
Record Type:	ECA	**Latitude:**	
Link Source:	IDS	**Geometry X:**	
SWP Area Name:		**Geometry Y:**	
Approval Type:	ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS		
Project Type:	MUNICIPAL AND PRIVATE SEWAGE WORKS		
Business Name:	McGiac Realty Corporation		
Address:	2035, 2045 and 2055 Mer Bleue Road		
Full Address:			
Full PDF Link:	https://www.accessenvironment.ene.gov.on.ca/instruments/1977-9DEK2X-14.pdf		
PDF Site Location:			

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23 | ***2 of 2*** | ***NNE/180.4*** | ***87.0 / -0.39*** | ***2055 Mer Bleue Rd Ottawa ON K4A3T9*** | ***EHS***

Order No:	20170908066	**Nearest Intersection:**	
Status:	C	**Municipality:**	
Report Type:	Standard Report	**Client Prov/State:**	ON

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB

Report Date:	15-SEP-17	**Search Radius (km):**	.25	
Date Received:	08-SEP-17	**X:**	-75.501392	
Previous Site Name:		**Y:**	45.452363	
Lot/Building Size:				
Additional Info Ordered:	City Directory			

---

24 **1 of 3** **ESE/241.4** **88.9 / 1.48** **2225 Mer Bleue Rd**
Ottawa ON K4A3T9 **EHS**

Order No:	20170517044	**Nearest Intersection:**	
Status:	C	**Municipality:**	
Report Type:	Custom Report	**Client Prov/State:**	ON
Report Date:	02-JUN-17	**Search Radius (km):**	.25
Date Received:	17-MAY-17	**X:**	-75.49679
Previous Site Name:		**Y:**	45.447446
Lot/Building Size:			
Additional Info Ordered:			

---

24 **2 of 3** **ESE/241.4** **88.9 / 1.48** **Hopital Montfort Hospital**
2225 chemin Mer Bleue
Orleans ON K4A 3T8 **GEN**

Generator No:	ON3529500
SIC Code:	
SIC Description:	
Approval Years:	As of Nov 2021
PO Box No:	
Country:	Canada
Status:	Registered
Co Admin:	
Choice of Contact:	
Phone No Admin:	
Contaminated Facility:	
MHSW Facility:	

Detail(s)

Waste Class:	261 A
Waste Class Name:	Pharmaceuticals
Waste Class:	312 P
Waste Class Name:	Pathological wastes

---

24 **3 of 3** **ESE/241.4** **88.9 / 1.48** **EllisDon Corporation**
2225 Mer-Bleue Rd
Ottawa ON K4A 3T9 **GEN**

Generator No:	ON7961801
SIC Code:	
SIC Description:	
Approval Years:	As of Nov 2021
PO Box No:	
Country:	Canada
Status:	Registered
Co Admin:	
Choice of Contact:	
Phone No Admin:	
Contaminated Facility:	
MHSW Facility:	

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB

Detail(s)

Waste Class: 252 L
Waste Class Name: Waste crankcase oils and lubricants

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25 *1 of 15* *NW/245.3* *87.9 / 0.55* ***Gestion Claude L'Heureux Inc.***
3910 Innes
Orléans ON K1W 1K9 ***GEN***

Generator No: ON2890821
SIC Code: 452991
SIC Description: Home and Auto Supplies Stores
Approval Years: 07,08
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 112
Waste Class Name: ACID WASTE - HEAVY METALS

Waste Class: 121
Waste Class Name: ALKALINE WASTES - HEAVY METALS

Waste Class: 145
Waste Class Name: PAINT/PIGMENT/COATING RESIDUES

Waste Class: 148
Waste Class Name: INORGANIC LABORATORY CHEMICALS

Waste Class: 222
Waste Class Name: HEAVY FUELS

Waste Class: 242
Waste Class Name: HALOGENATED PESTICIDES

Waste Class: 263
Waste Class Name: ORGANIC LABORATORY CHEMICALS

Waste Class: 331
Waste Class Name: WASTE COMPRESSED GASES

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25 *2 of 15* *NW/245.3* *87.9 / 0.55* ***GESTION CLAUDE L'HEUREUX INC/CANADIAN TIRE ORLEANS***
3910 CHEMIN INNES
ORLEANS ON K1W 1K9 ***PES***

Detail Licence No:
Licence No:
Status:
Approval Date:
Report Source:
Licence Type: Vendor
Licence Type Code:
Licence Class:
Licence Control:
Latitude:
Operator Box:
Operator Class:
Operator No:
Operator Type:
Oper Area Code:
Oper Phone No:
Operator Ext:
Operator Lot:
Oper Concession:
Operator Region:

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB

Longitude:
Lot:
Concession:
Region:
District:
County:
Trade Name:
PDF URL:

Operator District:
Operator County:
Op Municipality:
Post Office Box:
MOE District:
SWP Area Name:

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25 | 3 of 15 | NW/245.3 | 87.9 / 0.55 | **3910 INNES ROAD OTTAWA ON K1W 1K9** | HINC

External File Num: FS INC 0807-03856
Fuel Occurrence Type: Pipeline Strike
Date of Occurrence: 7/8/2008
Fuel Type Involved: Natural Gas
Status Desc: Completed - Causal Analysis(End)
Job Type Desc: Incident/Near-Miss Occurrence (FS)
Oper. Type Involved: Construction Site (pipeline strike)
Service Interruptions: Yes
Property Damage: No
Fuel Life Cycle Stage: Transmission, Distribution and Transportation
Root Cause: Root Cause: Equipment/Material/Component:No Procedures:Yes Maintenance:No Design:No Training:No Management:No Human Factors:No

Reported Details:
Fuel Category: Gaseous Fuel
Occurrence Type: Incident
Affiliation: Industry Stakeholder (Licensee/Registration/Certificate Holder, Facility Owner, etc.)
County Name: Ottawa
Approx. Quant. Rel:
Nearby body of water:
Enter Drainage Syst.:
Approx. Quant. Unit:
Environmental Impact:

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25 | 4 of 15 | NW/245.3 | 87.9 / 0.55 | **Gestion Claude L'Heureux Inc. 3910 Innes OrlÚans ON K1W 1K9** | GEN

Generator No: ON2890821
SIC Code: 452991
SIC Description: Home and Auto Supplies Stores
Approval Years: 2009
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 145
Waste Class Name: PAINT/PIGMENT/COATING RESIDUES

Waste Class: 148
Waste Class Name: INORGANIC LABORATORY CHEMICALS

Waste Class: 222

Waste Class Name: HEAVY FUELS

Waste Class: 242
Waste Class Name: HALOGENATED PESTICIDES

Waste Class: 263
Waste Class Name: ORGANIC LABORATORY CHEMICALS

Waste Class: 331
Waste Class Name: WASTE COMPRESSED GASES

Waste Class: 121
Waste Class Name: ALKALINE WASTES - HEAVY METALS

Waste Class: 112
Waste Class Name: ACID WASTE - HEAVY METALS

25	5 of 15	NW/245.3	87.9 / 0.55	**Gestion Claude L'Heureux Inc.** **3910 Innes** **OrlÚans ON K1W 1K9**	GEN

Generator No: ON2890821
SIC Code: 452991
SIC Description: Home and Auto Supplies Stores
Approval Years: 2010
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 331
Waste Class Name: WASTE COMPRESSED GASES

Waste Class: 145
Waste Class Name: PAINT/PIGMENT/COATING RESIDUES

Waste Class: 112
Waste Class Name: ACID WASTE - HEAVY METALS

Waste Class: 148
Waste Class Name: INORGANIC LABORATORY CHEMICALS

Waste Class: 121
Waste Class Name: ALKALINE WASTES - HEAVY METALS

Waste Class: 222
Waste Class Name: HEAVY FUELS

Waste Class: 263
Waste Class Name: ORGANIC LABORATORY CHEMICALS

Waste Class: 242
Waste Class Name: HALOGENATED PESTICIDES

25	6 of 15	NW/245.3	87.9 / 0.55	**Gestion Claude L'Heureux Inc.** **3910 Innes** **OrlÚans ON K1W 1K9**	GEN

Generator No: ON2890821
SIC Code: 452991
SIC Description: Home and Auto Supplies Stores
Approval Years: 2011
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 263
Waste Class Name: ORGANIC LABORATORY CHEMICALS

Waste Class: 222
Waste Class Name: HEAVY FUELS

Waste Class: 145
Waste Class Name: PAINT/PIGMENT/COATING RESIDUES

Waste Class: 112
Waste Class Name: ACID WASTE - HEAVY METALS

Waste Class: 242
Waste Class Name: HALOGENATED PESTICIDES

Waste Class: 121
Waste Class Name: ALKALINE WASTES - HEAVY METALS

Waste Class: 148
Waste Class Name: INORGANIC LABORATORY CHEMICALS

Waste Class: 331
Waste Class Name: WASTE COMPRESSED GASES

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25 | **7 of 15** | **NW/245.3** | **87.9 / 0.55** | **GESTION CLAUDE L'HEUREUX INC/CANADIAN TIRE ORLEANS**
3910 CHEMIN INNES
ORLEANS ON K1W1K9 | **PES**

Detail Licence No:
Licence No: 14426
Status:
Approval Date:
Report Source: Legacy Licenses (Excluding TS)
Licence Type: Limited Vendor
Licence Type Code: 23
Licence Class: 01
Licence Control:
Latitude:
Longitude:
Lot:
Concession:
Region:
District:
County:
Trade Name:
PDF URL:

Operator Box:
Operator Class:
Operator No:
Operator Type:
Oper Area Code: 613
Oper Phone No: 8307000
Operator Ext:
Operator Lot:
Oper Concession:
Operator Region:
Operator District:
Operator County:
Op Municipality:
Post Office Box:
MOE District:
SWP Area Name:

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
25	8 of 15	NW/245.3	87.9 / 0.55	Gestion Claude L'Heureux Inc. 3910 Innes OrlÚans ON K1W 1K9	GEN

Generator No: ON2890821
SIC Code: 452991
SIC Description: Home and Auto Supplies Stores
Approval Years: 2012
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 242
Waste Class Name: HALOGENATED PESTICIDES

Waste Class: 148
Waste Class Name: INORGANIC LABORATORY CHEMICALS

Waste Class: 222
Waste Class Name: HEAVY FUELS

Waste Class: 263
Waste Class Name: ORGANIC LABORATORY CHEMICALS

Waste Class: 112
Waste Class Name: ACID WASTE - HEAVY METALS

Waste Class: 121
Waste Class Name: ALKALINE WASTES - HEAVY METALS

Waste Class: 145
Waste Class Name: PAINT/PIGMENT/COATING RESIDUES

Waste Class: 331
Waste Class Name: WASTE COMPRESSED GASES

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
25	9 of 15	NW/245.3	87.9 / 0.55	3910 INNES ROAD ORLEANS ON	EHS

Order No: 20130605168
Status: C
Report Type: Custom Report
Report Date: 11-JUN-13
Date Received: 05-JUN-13
Previous Site Name:
Lot/Building Size:
Additional Info Ordered: Fire Insur. Maps and/or Site Plans; City Directory

Nearest Intersection:
Municipality:
Client Prov/State: ON
Search Radius (km): .25
X: -75.506524
Y: 45.452541

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
25	10 of 15	NW/245.3	87.9 / 0.55	Gestion Claude L'Heureux Inc. 3910 Innes OrlÚans ON	GEN

Generator No: ON2890821
SIC Code: 452991

SIC Description: HOME AND AUTO SUPPLIES STORES
Approval Years: 2013
PO Box No:
Country:
Status:
Co Admin:
Choice of Contact:
Phone No Admin:
Contaminated Facility:
MHSW Facility:

Detail(s)

Waste Class: 145
Waste Class Name: PAINT/PIGMENT/COATING RESIDUES

Waste Class: 148
Waste Class Name: INORGANIC LABORATORY CHEMICALS

Waste Class: 112
Waste Class Name: ACID WASTE - HEAVY METALS

Waste Class: 263
Waste Class Name: ORGANIC LABORATORY CHEMICALS

Waste Class: 222
Waste Class Name: HEAVY FUELS

Waste Class: 331
Waste Class Name: WASTE COMPRESSED GASES

Waste Class: 121
Waste Class Name: ALKALINE WASTES - HEAVY METALS

Waste Class: 242
Waste Class Name: HALOGENATED PESTICIDES

25	11 of 15	NW/245.3	87.9 / 0.55	Gestion Claude L'Heureux Inc. 3910 Innes Orléans ON K1W 1K9	GEN

Generator No: ON2890821
SIC Code: 452991
SIC Description: HOME AND AUTO SUPPLIES STORES
Approval Years: 2016
PO Box No:
Country: Canada
Status:
Co Admin: Matt Gunness
Choice of Contact: CO_ADMIN
Phone No Admin: 9057953339 Ext.
Contaminated Facility: No
MHSW Facility: No

Detail(s)

Waste Class: 263
Waste Class Name: ORGANIC LABORATORY CHEMICALS

Waste Class: 148
Waste Class Name: INORGANIC LABORATORY CHEMICALS

Waste Class: 242

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB

Waste Class Name: HALOGENATED PESTICIDES

Waste Class: 331
Waste Class Name: WASTE COMPRESSED GASES

Waste Class: 112
Waste Class Name: ACID WASTE - HEAVY METALS

Waste Class: 121
Waste Class Name: ALKALINE WASTES - HEAVY METALS

Waste Class: 222
Waste Class Name: HEAVY FUELS

Waste Class: 145
Waste Class Name: PAINT/PIGMENT/COATING RESIDUES

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
25	12 of 15	NW/245.3	87.9 / 0.55	Gestion Claude L'Heureux Inc. 3910 Innes OrlÚans ON K1W 1K9	GEN

Generator No: ON2890821
SIC Code: 452991
SIC Description: HOME AND AUTO SUPPLIES STORES
Approval Years: 2015
PO Box No:
Country: Canada
Status:
Co Admin: Matt Gunness
Choice of Contact: CO_ADMIN
Phone No Admin: 9057953339 Ext.
Contaminated Facility: No
MHSW Facility: No

Detail(s)

Waste Class: 263
Waste Class Name: ORGANIC LABORATORY CHEMICALS

Waste Class: 148
Waste Class Name: INORGANIC LABORATORY CHEMICALS

Waste Class: 331
Waste Class Name: WASTE COMPRESSED GASES

Waste Class: 121
Waste Class Name: ALKALINE WASTES - HEAVY METALS

Waste Class: 145
Waste Class Name: PAINT/PIGMENT/COATING RESIDUES

Waste Class: 222
Waste Class Name: HEAVY FUELS

Waste Class: 112
Waste Class Name: ACID WASTE - HEAVY METALS

Waste Class: 242
Waste Class Name: HALOGENATED PESTICIDES

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
25	13 of 15	NW/245.3	87.9 / 0.55	Gestion Claude L'Heureux Inc. 3910 Innes OrlÚans ON K1W 1K9	GEN

Generator No:	ON2890821
SIC Code:	452991
SIC Description:	HOME AND AUTO SUPPLIES STORES
Approval Years:	2014
PO Box No:	
Country:	Canada
Status:	
Co Admin:	Matt Gunness
Choice of Contact:	CO_ADMIN
Phone No Admin:	9057953339 Ext.
Contaminated Facility:	No
MHSW Facility:	No

Detail(s)

Waste Class:	263
Waste Class Name:	ORGANIC LABORATORY CHEMICALS
Waste Class:	242
Waste Class Name:	HALOGENATED PESTICIDES
Waste Class:	148
Waste Class Name:	INORGANIC LABORATORY CHEMICALS
Waste Class:	112
Waste Class Name:	ACID WASTE - HEAVY METALS
Waste Class:	145
Waste Class Name:	PAINT/PIGMENT/COATING RESIDUES
Waste Class:	121
Waste Class Name:	ALKALINE WASTES - HEAVY METALS
Waste Class:	331
Waste Class Name:	WASTE COMPRESSED GASES
Waste Class:	222
Waste Class Name:	HEAVY FUELS

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25 ***14 of 15*** ***NW/245.3*** ***87.9 / 0.55*** ***Gestion Claude L'Heureux Inc.***
3910 Innes
Orléans ON K1W 1K9 ***GEN***

Generator No:	ON2890821
SIC Code:	
SIC Description:	
Approval Years:	As of Dec 2018
PO Box No:	
Country:	Canada
Status:	Registered
Co Admin:	
Choice of Contact:	
Phone No Admin:	
Contaminated Facility:	
MHSW Facility:	

Detail(s)

Waste Class:	112 C
Waste Class Name:	Acid solutions - containing heavy metals
Waste Class:	121 C

Waste Class Name:	Alkaline slutions - containing heavy metals
Waste Class:	145 I
Waste Class Name:	Wastes from the use of pigments, coatings and paints
Waste Class:	145 L
Waste Class Name:	Wastes from the use of pigments, coatings and paints
Waste Class:	148 C
Waste Class Name:	Misc. wastes and inorganic chemicals
Waste Class:	148 I
Waste Class Name:	Misc. wastes and inorganic chemicals
Waste Class:	222 L
Waste Class Name:	Heavy fuels
Waste Class:	242 A
Waste Class Name:	Halogenated pesticides and herbicides
Waste Class:	263 I
Waste Class Name:	Misc. waste organic chemicals
Waste Class:	331 I
Waste Class Name:	Waste compressed gases including cylinders

25	***15 of 15***	***NW/245.3***	***87.9 / 0.55***	***Gestion Claude L'Heureux Inc.*** ***3910 Innes*** ***Orléans ON K1W 1K9***	***GEN***

Generator No:	ON2890821
SIC Code:	
SIC Description:	
Approval Years:	As of Jul 2020
PO Box No:	
Country:	Canada
Status:	Registered
Co Admin:	
Choice of Contact:	
Phone No Admin:	
Contaminated Facility:	
MHSW Facility:	

Detail(s)

Waste Class:	148 I
Waste Class Name:	Misc. wastes and inorganic chemicals
Waste Class:	222 L
Waste Class Name:	Heavy fuels
Waste Class:	145 I
Waste Class Name:	Wastes from the use of pigments, coatings and paints
Waste Class:	121 C
Waste Class Name:	Alkaline slutions - containing heavy metals
Waste Class:	242 A
Waste Class Name:	Halogenated pesticides and herbicides
Waste Class:	263 I
Waste Class Name:	Misc. waste organic chemicals
Waste Class:	331 I

Waste Class Name:	Waste compressed gases including cylinders
Waste Class:	112 C
Waste Class Name:	Acid solutions - containing heavy metals
Waste Class:	145 L
Waste Class Name:	Wastes from the use of pigments, coatings and paints
Waste Class:	148 C
Waste Class Name:	Misc. wastes and inorganic chemicals

26	***1 of 1***	***NNW/246.9***	***86.8 / -0.62***	***2020 MER BLEUE ROAD ORLEANS ON K4A 0G2***	***HINC***

External File Num:	FS INC 0811-06690
Fuel Occurrence Type:	Pipeline Strike
Date of Occurrence:	10/23/2008
Fuel Type Involved:	Natural Gas
Status Desc:	Completed - Causal Analysis(End)
Job Type Desc:	Incident/Near-Miss Occurrence (FS)
Oper. Type Involved:	Commercial (e.g. restaurant, business unit, etc)
Service Interruptions:	Yes
Property Damage:	Yes
Fuel Life Cycle Stage:	Utilization
Root Cause:	Root Cause: Equipment/Material/Component:No Procedures:Yes Maintenance:No Design:No Training: Yes Management:No Human Factors:No
Reported Details:	
Fuel Category:	Gaseous Fuel
Occurrence Type:	Incident
Affiliation:	Industry Stakeholder (Licensee/Registration/Certificate Holder, Facility Owner, etc.)
County Name:	Ottawa
Approx. Quant. Rel:	
Nearby body of water:	
Enter Drainage Syst.:	
Approx. Quant. Unit:	
Environmental Impact:	

Unplottable Summary

Total: 18 Unplottable sites

DB	Company Name/Site Name	Address	City	Postal
CA	Morgan's Grant Subdivision Booster Pumping Station	Lot 1, Concession 3	Ottawa ON	
CA	Innes Road and 10th Line	Part of Lot 1, Concession 11	Ottawa ON	
CA	Innes Shopping Centres Limited		Ottawa ON	
CA	City of Ottawa	Mer Bleue Rd (Innes Rd 700m south)	Ottawa ON	
CA	Innes Shopping Centres Limited		Ottawa ON	
CA	City of Ottawa	Mer Bleue Rd (Innes Rd 700m south)	Ottawa ON	
CA		East Half of Lot 1, Concession 11	Cumberland ON	
CA	SAFETY-KLEEN CANADA INC.	PART LOT 1, CONC. 11	CUMBERLAND TWP. ON	
ECA	SNC-Lavalin Constructors (Pacific) Inc., Dragados Canada, Inc., and EllisDon	Corporation	Ottawa ON	K1Z 1G3
ECA	McGiac Realty Corporation		Ottawa ON	K1B 5P5
ECA	Dragados Canada Inc., EllisDon Corporation, and SNC-Lavalin Constructors	(Pacific) Inc. East Portal Limits to Hurdmand East Transitway	Ottawa ON	K1Z 1G3
ECA	SNC-Lavalin Constructors (Pacific) Inc., Dragados Canada Inc., EllisDon	Corporation Hurdman East Overpass to Blair Station	Ottawa ON	K1Z 1G3
ECA	SNC-Lavalin Constructors (Pacific) Inc., Dragados Canada, Inc. and EllisDon	Corporation operating as OLRT Constructors Booth St	Ottawa ON	K1Z 1G3
GEN	SAFETY-KLEEN CANADA INC.	PART OF LOT 1, CONCESSION 11	CUMBERLAND TOWNSHIP ON	
WWIS		con 3	ON	
WWIS		lot 1 con 11	ON	

WWIS	con 11	ON
WWIS	con 3	ON

Unplottable Report

Site: ***Morgan's Grant Subdivision Booster Pumping Station***
Lot 1, Concession 3 Ottawa ON

Database: ***CA***

Certificate #:	0416-58ZLK5
Application Year:	02
Issue Date:	5/14/02
Approval Type:	Industrial air
Status:	Approved
Application Type:	New Certificate of Approval
Client Name:	Minto Developments Inc.
Client Address:	427 Laurier Avenue West, Suite 300
Client City:	Ottawa
Client Postal Code:	K1R 7Y2
Project Description:	This application is for approval of one (1) 100 kW emergency diesel generator used to power four (4) pumps at the proposed Morgan's Grant Booster Pumping Station in the event of a power failure.
Contaminants:	
Emission Control:	No Controls

Site: ***Innes Road and 10th Line***
Part of Lot 1, Concession 11 Ottawa ON

Database: ***CA***

Certificate #:	4234-4WTKNB
Application Year:	01
Issue Date:	6/20/01
Approval Type:	Industrial sewage
Status:	Approved
Application Type:	New Certificate of Approval
Client Name:	Petro- Canada
Client Address:	5140 Yonge Street, Suite 200
Client City:	Toronto
Client Postal Code:	M2N 6L6
Project Description:	On-site splii containment system to service a proposed 0.14 ha commercial development. The proposed system includes the installation is a stormceptor oil/water seperator at the oulet from the proposed internal storm system for the site.
Contaminants:	
Emission Control:	

Site: ***Innes Shopping Centres Limited***
Ottawa ON

Database: ***CA***

Certificate #:	1719-6SJJ6X
Application Year:	2006
Issue Date:	8/16/2006
Approval Type:	Municipal and Private Sewage Works
Status:	Approved
Application Type:	
Client Name:	
Client Address:	
Client City:	
Client Postal Code:	
Project Description:	
Contaminants:	
Emission Control:	

Site: ***City of Ottawa***

Database:

Mer Bleue Rd (Innes Rd 700m south) Ottawa ON

Database: ***CA***

Certificate #: 2501-6V7Q25
Application Year: 2006
Issue Date: 11/10/2006
Approval Type: Municipal and Private Sewage Works
Status: Approved
Application Type:
Client Name:
Client Address:
Client City:
Client Postal Code:
Project Description:
Contaminants:
Emission Control:

Site: ***Innes Shopping Centres Limited***
Ottawa ON

Database: ***CA***

Certificate #: 6167-79NM49
Application Year: 2007
Issue Date: 12/10/2007
Approval Type: Municipal and Private Sewage Works
Status: Approved
Application Type:
Client Name:
Client Address:
Client City:
Client Postal Code:
Project Description:
Contaminants:
Emission Control:

Site: ***City of Ottawa***
Mer Bleue Rd (Innes Rd 700m south) Ottawa ON

Database: ***CA***

Certificate #: 8790-6VKTPK
Application Year: 2007
Issue Date: 4/26/2007
Approval Type: Municipal and Private Sewage Works
Status: Approved
Application Type:
Client Name:
Client Address:
Client City:
Client Postal Code:
Project Description:
Contaminants:
Emission Control:

Site:
East Half of Lot 1, Concession 11 Cumberland ON

Database: ***CA***

Certificate #: 0152-5ACMXF
Application Year: 02
Issue Date: 5/30/02
Approval Type: Industrial sewage
Status: Approved
Application Type: New Certificate of Approval
Client Name: Oil Chargers Inc.
Client Address:
Client City: Cumberland
Client Postal Code:
Project Description: Stormwater Management for a vehicle servicing site

Contaminants:
Emission Control:

Site: ***SAFETY-KLEEN CANADA INC.***
PART LOT 1, CONC. 11 CUMBERLAND TWP. ON

Database: ***CA***

Certificate #: 8-4153-89-
Application Year: 89
Issue Date: 1/16/1990
Approval Type: Industrial air
Status: Approved in 1990
Application Type:
Client Name:
Client Address:
Client City:
Client Postal Code:
Project Description: TWO MINERAL SPIRIT TANKS WITH VENTS
Contaminants:
Emission Control:

Site: ***SNC-Lavalin Constructors (Pacific) Inc., Dragados Canada, Inc., and EllisDon Corporation Ottawa ON K1Z 1G3***

Database: ***ECA***

Approval No: 3474-99NHUQ
Approval Date: 2013-08-07
Status: Approved
Record Type: ECA
Link Source: IDS
SWP Area Name:
MOE District:
City:
Longitude:
Latitude:
Geometry X:
Geometry Y:
Approval Type: ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS
Project Type: MUNICIPAL AND PRIVATE SEWAGE WORKS
Business Name: SNC-Lavalin Constructors (Pacific) Inc., Dragados Canada, Inc., and EllisDon Corporation
Address:
Full Address:
Full PDF Link: https://www.accessenvironment.ene.gov.on.ca/instruments/2982-99JLHL-14.pdf
PDF Site Location:

Site: ***McGiac Realty Corporation***
Ottawa ON K1B 5P5

Database: ***ECA***

Approval No: 0547-9MSNYS
Approval Date: 2014-12-09
Status: Approved
Record Type: ECA
Link Source: IDS
SWP Area Name:
MOE District:
City:
Longitude:
Latitude:
Geometry X:
Geometry Y:
Approval Type: ECA-INDUSTRIAL SEWAGE WORKS
Project Type: INDUSTRIAL SEWAGE WORKS
Business Name: McGiac Realty Corporation
Address:
Full Address:
Full PDF Link: https://www.accessenvironment.ene.gov.on.ca/instruments/5727-9DEKZM-14.pdf
PDF Site Location:

Site: ***Dragados Canada Inc., EllisDon Corporation, and SNC-Lavalin Constructors (Pacific) Inc. East Portal Limits to Hurdmand East Transitway Ottawa ON K1Z 1G3***

Database: ***ECA***

Approval No: 1525-A9WGW3
Approval Date: 2016-05-24
Status: Approved
Record Type: ECA
Link Source: IDS
MOE District:
City:
Longitude:
Latitude:
Geometry X:

SWP Area Name:	***Geometry Y:***
Approval Type:	ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS
Project Type:	MUNICIPAL AND PRIVATE SEWAGE WORKS
Business Name:	Dragados Canada Inc., EllisDon Corporation, and SNC-Lavalin Constructors (Pacific) Inc.
Address:	East Portal Limits to Hurdmand East Transitway
Full Address:	
Full PDF Link:	https://www.accessenvironment.ene.gov.on.ca/instruments/5370-A8BHCF-14.pdf
PDF Site Location:	

Site: ***SNC-Lavalin Constructors (Pacific) Inc., Dragados Canada Inc., EllisDon Corporation Hurdman East Overpass to Blair Station Ottawa ON K1Z 1G3***

Database: ***ECA***

Approval No:	6366-A3GQ8M	***MOE District:***	
Approval Date:	2015-11-02	***City:***	
Status:	Approved	***Longitude:***	
Record Type:	ECA	***Latitude:***	
Link Source:	IDS	***Geometry X:***	
SWP Area Name:		***Geometry Y:***	
Approval Type:	ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS		
Project Type:	MUNICIPAL AND PRIVATE SEWAGE WORKS		
Business Name:	SNC-Lavalin Constructors (Pacific) Inc., Dragados Canada Inc., EllisDon Corporation		
Address:	Hurdman East Overpass to Blair Station		
Full Address:			
Full PDF Link:	https://www.accessenvironment.ene.gov.on.ca/instruments/1724-9X3PSK-14.pdf		
PDF Site Location:			

Site: ***SNC-Lavalin Constructors (Pacific) Inc., Dragados Canada, Inc. and EllisDon Corporation operating as OLRT Constructors Booth St Ottawa ON K1Z 1G3***

Database: ***ECA***

Approval No:	2119-A39JCV	***MOE District:***	
Approval Date:	2015-10-14	***City:***	
Status:	Approved	***Longitude:***	
Record Type:	ECA	***Latitude:***	
Link Source:	IDS	***Geometry X:***	
SWP Area Name:		***Geometry Y:***	
Approval Type:	ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS		
Project Type:	MUNICIPAL AND PRIVATE SEWAGE WORKS		
Business Name:	SNC-Lavalin Constructors (Pacific) Inc., Dragados Canada, Inc. and EllisDon Corporation operating as OLRT Constructors		
Address:	Booth St		
Full Address:			
Full PDF Link:	https://www.accessenvironment.ene.gov.on.ca/instruments/0563-A33SMJ-14.pdf		
PDF Site Location:			

Site: ***SAFETY-KLEEN CANADA INC. PART OF LOT 1, CONCESSION 11 CUMBERLAND TOWNSHIP ON***

Database: ***GEN***

Generator No:	ON0154009
SIC Code:	4999
SIC Description:	OTHER UTILITY IND.
Approval Years:	98
PO Box No:	
Country:	
Status:	
Co Admin:	
Choice of Contact:	
Phone No Admin:	
Contaminated Facility:	
MHSW Facility:	

Detail(s)

Waste Class:	145

Waste Class Name:	PAINT/PIGMENT/COATING RESIDUES
Waste Class:	211
Waste Class Name:	AROMATIC SOLVENTS
Waste Class:	251
Waste Class Name:	OIL SKIMMINGS & SLUDGES
Waste Class:	212
Waste Class Name:	ALIPHATIC SOLVENTS
Waste Class:	213
Waste Class Name:	PETROLEUM DISTILLATES
Waste Class:	221
Waste Class Name:	LIGHT FUELS
Waste Class:	222
Waste Class Name:	HEAVY FUELS
Waste Class:	241
Waste Class Name:	HALOGENATED SOLVENTS
Waste Class:	252
Waste Class Name:	WASTE OILS & LUBRICANTS
Waste Class:	253
Waste Class Name:	EMULSIFIED OILS
Waste Class:	254
Waste Class Name:	TRANSFER STATION OILS WASTES

Site:
con 3 ON

Database:
WWIS

Well ID:	1523548	***Flowing (Y/N):***	
Construction Date:		***Flow Rate:***	
Use 1st:	Domestic	***Data Entry Status:***	
Use 2nd:		***Data Src:***	1
Final Well Status:	Water Supply	***Date Received:***	07/21/1989
Water Type:		***Selected Flag:***	TRUE
Casing Material:		***Abandonment Rec:***	
Audit No:	29576	***Contractor:***	2348
Tag:		***Form Version:***	1
Constructn Method:		***Owner:***	
Elevation (m):		***County:***	OTTAWA-CARLETON
Elevatn Reliabilty:		***Lot:***	
Depth to Bedrock:		***Concession:***	03
Well Depth:		***Concession Name:***	RF
Overburden/Bedrock:		***Easting NAD83:***	
Pump Rate:		***Northing NAD83:***	
Static Water Level:		***Zone:***	
Clear/Cloudy:		***UTM Reliability:***	
Municipality:	GLOUCESTER TOWNSHIP		
Site Info:			

Bore Hole Information

Bore Hole ID:	10045322	***Elevation:***	
DP2BR:		***Elevrc:***	
Spatial Status:		***Zone:***	18
Code OB:		***East83:***	
Code OB Desc:		***North83:***	
Open Hole:		***Org CS:***	
Cluster Kind:		***UTMRC:***	9
Date Completed:		***UTMRC Desc:***	unknown UTM
Remarks:		***Location Method:***	na

Loc Method Desc: Not Applicable i.e. no UTM
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Overburden and Bedrock Materials Interval

Formation ID: 931055002
Layer: 2
Color:
General Color:
Mat1:
Most Common Material:
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 10.0
Formation End Depth: 22.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931055001
Layer: 1
Color:
General Color:
Mat1: 28
Most Common Material: SAND
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 0.0
Formation End Depth: 10.0
Formation End Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 961523548
Method Construction Code: 5
Method Construction: Air Percussion
Other Method Construction:

Pipe Information

Pipe ID: 10593892
Casing No: 1
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 930079298
Layer: 1
Material: 1
Open Hole or Material: STEEL
Depth From:
Depth To:

Casing Diameter: 6.0
Casing Diameter UOM: inch
Casing Depth UOM: ft

Results of Well Yield Testing

Pumping Test Method Desc:
Pump Test ID: 991523548
Pump Set At:
Static Level:
Final Level After Pumping:
Recommended Pump Depth: 40.0
Pumping Rate: 10.0
Flowing Rate:
Recommended Pump Rate: 10.0
Levels UOM: ft
Rate UOM: GPM
Water State After Test Code:
Water State After Test:
Pumping Test Method:
Pumping Duration HR:
Pumping Duration MIN:
Flowing: No

Water Details

Water ID: 933481846
Layer: 1
Kind Code: 1
Kind: FRESH
Water Found Depth: 32.0
Water Found Depth UOM: ft

Site:
lot 1 con 11 ON

Database: ***WWIS***

Well ID: 7414890
Construction Date:
Use 1st:
Use 2nd:
Final Well Status:
Water Type:
Casing Material:
Audit No: NA
Tag:
Constructn Method:
Elevation (m):
Elevatn Reliabilty:
Depth to Bedrock:
Well Depth:
Overburden/Bedrock:
Pump Rate:
Static Water Level:
Clear/Cloudy:
Municipality: CUMBERLAND TOWNSHIP
Site Info:

Flowing (Y/N):
Flow Rate:
Data Entry Status: Yes
Data Src:
Date Received: 04/07/1972
Selected Flag: TRUE
Abandonment Rec:
Contractor: 1504
Form Version: 1
Owner:
County: OTTAWA-CARLETON
Lot: 001
Concession: 11
Concession Name: CON
Easting NAD83:
Northing NAD83:
Zone:
UTM Reliability:

Bore Hole Information

Bore Hole ID: 1008994337
DP2BR:
Spatial Status:
Code OB:
Code OB Desc:
Open Hole:
Cluster Kind:

Elevation:
Elevrc:
Zone: 18
East83: 460787.35
North83: 5033193.05
Org CS: UTM83
UTMRC: 4

Date Completed:	04/12/1971	***UTMRC Desc:***	margin of error : 30 m - 100 m
Remarks:		***Location Method:***	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Site:
con 11 ON

Database: ***WWIS***

Well ID:	1528755	***Flowing (Y/N):***	
Construction Date:		***Flow Rate:***	
Use 1st:	Domestic	***Data Entry Status:***	
Use 2nd:		***Data Src:***	1
Final Well Status:	Water Supply	***Date Received:***	10/26/1995
Water Type:		***Selected Flag:***	TRUE
Casing Material:		***Abandonment Rec:***	
Audit No:	154668	***Contractor:***	6006
Tag:		***Form Version:***	1
Constructn Method:		***Owner:***	
Elevation (m):		***County:***	OTTAWA-CARLETON
Elevatn Reliabilty:		***Lot:***	
Depth to Bedrock:		***Concession:***	11
Well Depth:		***Concession Name:***	CON
Overburden/Bedrock:		***Easting NAD83:***	
Pump Rate:		***Northing NAD83:***	
Static Water Level:		***Zone:***	
Clear/Cloudy:		***UTM Reliability:***	
Municipality:	CUMBERLAND TOWNSHIP		
Site Info:			

Bore Hole Information

Bore Hole ID:	10050291	***Elevation:***	
DP2BR:		***Elevrc:***	
Spatial Status:		***Zone:***	18
Code OB:		***East83:***	
Code OB Desc:		***North83:***	
Open Hole:		***Org CS:***	
Cluster Kind:		***UTMRC:***	9
Date Completed:	02/12/1995	***UTMRC Desc:***	unknown UTM
Remarks:		***Location Method:***	na
Loc Method Desc:	Not Applicable i.e. no UTM		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	931070692
Layer:	2
Color:	2
General Color:	GREY
Mat1:	05
Most Common Material:	CLAY
Mat2:	85
Mat2 Desc:	SOFT
Mat3:	
Mat3 Desc:	

Formation Top Depth: 7.0
Formation End Depth: 60.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931070695
Layer: 5
Color: 6
General Color: BROWN
Mat1: 17
Most Common Material: SHALE
Mat2: 80
Mat2 Desc: POROUS
Mat3:
Mat3 Desc:
Formation Top Depth: 105.0
Formation End Depth: 106.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931070691
Layer: 1
Color: 6
General Color: BROWN
Mat1: 05
Most Common Material: CLAY
Mat2: 85
Mat2 Desc: SOFT
Mat3:
Mat3 Desc:
Formation Top Depth: 0.0
Formation End Depth: 7.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931070694
Layer: 4
Color: 8
General Color: BLACK
Mat1: 11
Most Common Material: GRAVEL
Mat2: 85
Mat2 Desc: SOFT
Mat3:
Mat3 Desc:
Formation Top Depth: 104.0
Formation End Depth: 105.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931070693
Layer: 3
Color: 3
General Color: BLUE
Mat1: 05
Most Common Material: CLAY
Mat2: 85

Mat2 Desc: SOFT
Mat3:
Mat3 Desc:
Formation Top Depth: 60.0
Formation End Depth: 104.0
Formation End Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 933113708
Layer: 1
Plug From: 0.0
Plug To: 20.0
Plug Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 961528755
Method Construction Code: 1
Method Construction: Cable Tool
Other Method Construction:

Pipe Information

Pipe ID: 10598861
Casing No: 1
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 930087885
Layer: 2
Material: 4
Open Hole or Material: OPEN HOLE
Depth From:
Depth To: 106.0
Casing Diameter: 6.0
Casing Diameter UOM: inch
Casing Depth UOM: ft

Construction Record - Casing

Casing ID: 930087884
Layer: 1
Material: 1
Open Hole or Material: STEEL
Depth From:
Depth To: 105.0
Casing Diameter: 7.0
Casing Diameter UOM: inch
Casing Depth UOM: ft

Results of Well Yield Testing

Pumping Test Method Desc: BAILER
Pump Test ID: 991528755
Pump Set At:
Static Level: 35.0
Final Level After Pumping: 80.0
Recommended Pump Depth: 95.0
Pumping Rate: 24.0

Flowing Rate:
Recommended Pump Rate: 10.0
Levels UOM: ft
Rate UOM: GPM
Water State After Test Code: 1
Water State After Test: CLEAR
Pumping Test Method: 2
Pumping Duration HR: 1
Pumping Duration MIN: 0
Flowing: No

Draw Down & Recovery

Pump Test Detail ID: 934906567
Test Type:
Test Duration: 60
Test Level: 80.0
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934388868
Test Type:
Test Duration: 30
Test Level: 80.0
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934105242
Test Type:
Test Duration: 15
Test Level: 80.0
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934649385
Test Type:
Test Duration: 45
Test Level: 80.0
Test Level UOM: ft

Water Details

Water ID: 933488582
Layer: 1
Kind Code: 3
Kind: SULPHUR
Water Found Depth: 105.0
Water Found Depth UOM: ft

Site:
con 3 ON

Database: ***WWIS***

Well ID: 1521570
Construction Date:
Use 1st: Domestic
Use 2nd:
Final Well Status: Water Supply
Water Type:
Casing Material:
Audit No: 12555
Tag:

Flowing (Y/N):
Flow Rate:
Data Entry Status:
Data Src: 1
Date Received: 08/17/1987
Selected Flag: TRUE
Abandonment Rec:
Contractor: 2351
Form Version: 1

Constructn Method:
Elevation (m):
Elevatn Reliabilty:
Depth to Bedrock:
Well Depth:
Overburden/Bedrock:
Pump Rate:
Static Water Level:
Clear/Cloudy:
Municipality: CUMBERLAND TOWNSHIP
Site Info:

Owner:
County: OTTAWA-CARLETON
Lot:
Concession: 03
Concession Name:
Easting NAD83:
Northing NAD83:
Zone:
UTM Reliability:

Bore Hole Information

Bore Hole ID: 10043392
DP2BR:
Spatial Status:
Code OB:
Code OB Desc:
Open Hole:
Cluster Kind:
Date Completed: 06/30/1987
Remarks:
Loc Method Desc: Not Applicable i.e. no UTM
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Elevation:
Elevrc:
Zone: 18
East83:
North83:
Org CS:
UTMRC: 9
UTMRC Desc: unknown UTM
Location Method: na

Overburden and Bedrock Materials Interval

Formation ID: 931048515
Layer: 3
Color: 8
General Color: BLACK
Mat1: 11
Most Common Material: GRAVEL
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 51.0
Formation End Depth: 57.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931048513
Layer: 1
Color: 7
General Color: RED
Mat1: 05
Most Common Material: CLAY
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 0.0
Formation End Depth: 22.0
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID:	931048514
Layer:	2
Color:	3
General Color:	BLUE
Mat1:	05
Most Common Material:	CLAY
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	22.0
Formation End Depth:	51.0
Formation End Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	961521570
Method Construction Code:	1
Method Construction:	Cable Tool
Other Method Construction:	

Pipe Information

Pipe ID:	10591962
Casing No:	1
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	930075800
Layer:	1
Material:	1
Open Hole or Material:	STEEL
Depth From:	
Depth To:	57.0
Casing Diameter:	6.0
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Results of Well Yield Testing

Pumping Test Method Desc:	BAILER
Pump Test ID:	991521570
Pump Set At:	
Static Level:	13.0
Final Level After Pumping:	44.0
Recommended Pump Depth:	51.0
Pumping Rate:	19.0
Flowing Rate:	
Recommended Pump Rate:	10.0
Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	2
Water State After Test:	CLOUDY
Pumping Test Method:	2
Pumping Duration HR:	1
Pumping Duration MIN:	0
Flowing:	No

Draw Down & Recovery

Pump Test Detail ID: 934107045
Test Type: Draw Down
Test Duration: 15
Test Level: 21.0
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934652288
Test Type: Draw Down
Test Duration: 45
Test Level: 44.0
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934390727
Test Type: Draw Down
Test Duration: 30
Test Level: 29.0
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934908960
Test Type: Draw Down
Test Duration: 60
Test Level: 44.0
Test Level UOM: ft

Water Details

Water ID: 933479193
Layer: 1
Kind Code: 1
Kind: FRESH
Water Found Depth: 57.0
Water Found Depth UOM: ft

Appendix: Database Descriptions

Environmental Risk Information Services (ERIS) can search the following databases. The extent of historical information varies with each database and current information is determined by what is publicly available to ERIS at the time of update. ***Note:*** *Databases denoted with " * " indicates that the database will no longer be updated. See the individual database description for more information.*

Abandoned Aggregate Inventory: Provincial AAGR

The MAAP Program maintains a database of abandoned pits and quarries. Please note that the database is only referenced by lot and concession and city/town location. The database provides information regarding the location, type, size, land use, status and general comments.*

Government Publication Date: Sept 2002*

Aggregate Inventory: Provincial AGR

This database of licensed and permitted pits and quarries is maintained by the Ontario Ministry of Natural Resources and Forestry (MNRF), as regulated under the Aggregate Resources Act, R.S.O. 1990. Aggregate site data has been divided into active and inactive sites. Active sites may be further subdivided into partial surrenders. In partial surrenders, defined areas of a site are inactive while the rest of the site remains active.

Government Publication Date: Up to Nov 2023

Abandoned Mine Information System: Provincial AMIS

The Abandoned Mines Information System contains data on known abandoned and inactive mines located on both Crown and privately held lands. The information was provided by the Ministry of Northern Development and Mines (MNDM), with the following disclaimer: "the database provided has been compiled from various sources, and the Ministry of Northern Development and Mines makes no representation and takes no responsibility that such information is accurate, current or complete". Reported information includes official mine name, status, background information, mine start/end date, primary commodity, mine features, hazards and remediation.

Government Publication Date: 1800-Mar 2022

Anderson's Waste Disposal Sites: Private ANDR

The information provided in this database was collected by examining various historical documents which aimed to characterize the likely position of former waste disposal sites from 1860 to present. The research initiative behind the creation of this database was to identify those sites that are missing from the Ontario MOE Waste Disposal Site Inventory, as well as to provide revisions and corrections to the positions and descriptions of sites currently listed in the MOE inventory. In addition to historic waste disposal facilities, the database also identifies certain auto wreckers and scrap yards that have been extrapolated from documentary sources. Please note that the data is not warranted to be complete, exhaustive or authoritative. The information was collected for research purposes only.

Government Publication Date: 1860s-Present

Aboveground Storage Tanks: Provincial AST

Historical listing of aboveground storage tanks made available by the Department of Natural Resources and Forestry. Includes tanks used to hold water or petroleum. This dataset has been retired as of September 25, 2014 and will no longer be updated.

Government Publication Date: May 31, 2014

Automobile Wrecking & Supplies: Private AUWR

This database provides an inventory of known locations that are involved in the scrap metal, automobile wrecking/recycling, and automobile parts & supplies industry. Information is provided on the company name, location and business type.

Government Publication Date: 1999-Oct 31, 2023

Borehole: Provincial BORE

A borehole is the generalized term for any narrow shaft drilled in the ground, either vertically or horizontally. The information here includes geotechnical investigations or environmental site assessments, mineral exploration, or as a pilot hole for installing piers or underground utilities. Information is from many sources such as the Ministry of Transportation (MTO) boreholes from engineering reports and projects from the 1950 to 1990's in Southern Ontario. Boreholes from the Ontario Geological Survey (OGS) including The Urban Geology Analysis Information System (UGAIS) and the York Peel Durham Toronto (YPDT) database of the Conservation Authority Moraine Coalition. This database will include fields such as location, stratigraphy, depth, elevation, year drilled, etc. For all water well data or oil and gas well data for Ontario please refer to WWIS and OOGW.

Government Publication Date: 1875-Jul 2018

Certificates of Approval: Provincial CA

This database contains the following types of approvals: Air & Noise, Industrial Sewage, Municipal & Private Sewage, Waste Management Systems and Renewable Energy Approvals. The MOE in Ontario states that any facility that releases emissions to the atmosphere, discharges contaminants to ground or surface water, provides potable water supplies, or stores, transports or disposes of waste, must have a Certificate of Approval before it can operate lawfully. Fields include approval number, business name, address, approval date, approval type and status. This database will no longer be updated, as CofA's have been replaced by either Environmental Activity and Sector Registry (EASR) or Environmental Compliance Approval (ECA). Please refer to those individual databases for any information after Oct.31, 2011.

Government Publication Date: 1985-Oct 30, 2011*

Dry Cleaning Facilities: Federal CDRY

List of dry cleaning facilities made available by Environment and Climate Change Canada. Environment and Climate Change Canada's Tetrachloroethylene (Use in Dry Cleaning and Reporting Requirements) Regulations (SOR/2003-79) are intended to reduce releases of tetrachloroethylene to the environment from dry cleaning facilities.

Government Publication Date: Jan 2004-Dec 2022

Commercial Fuel Oil Tanks: Provincial CFOT

Locations of commercial underground fuel oil tanks. This is not a comprehensive or complete inventory of commercial fuel tanks in the province; this listing is a copy of records of registered commercial underground fuel oil tanks obtained under Access to Public Information.
Note that the following types of tanks do not require registration: waste oil tanks in apartments, office buildings, residences, etc.; aboveground gas or diesel tanks. Records are not verified for accuracy or completeness.

Government Publication Date: Oct 2023

Chemical Manufacturers and Distributors: Private CHEM

This database includes information from both a one time study conducted in 1992 and private source and is a listing of facilities that manufacture or distribute chemicals. The production of these chemical substances may involve one or more chemical reactions and/or chemical separation processes (i.e. fractionation, solvent extraction, crystallization, etc.).

Government Publication Date: 1999-Jan 31, 2020

Chemical Register: Private CHM

This database includes a listing of locations of facilities within the Province or Territory that either manufacture and/or distributes chemicals.

Government Publication Date: 1999-Oct 31, 2023

Compressed Natural Gas Stations: Private CNG

Canada has a network of public access compressed natural gas (CNG) refuelling stations. These stations dispense natural gas in compressed form at 3,000 pounds per square inch (psi), the pressure which is allowed within the current Canadian codes and standards. The majority of natural gas refuelling is located at existing retail gasoline that have a separate refuelling island for natural gas. This list of stations is made available by the Canadian Natural Gas Vehicle Alliance.

Government Publication Date: Dec 2012 -Nov 2023

Inventory of Coal Gasification Plants and Coal Tar Sites: Provincial COAL

This inventory includes both the "Inventory of Coal Gasification Plant Waste Sites in Ontario-April 1987" and the Inventory of Industrial Sites Producing or Using Coal Tar and Related Tars in Ontario-November 1988) collected by the MOE. It identifies industrial sites that produced and continue to produce or use coal tar and other related tars. Detailed information is available and includes: facility type, size, land use, information on adjoining properties, soil condition, site operators/occupants, site description, potential environmental impacts and historic maps available. This was a one-time inventory.*

Government Publication Date: Apr 1987 and Nov 1988*

Compliance and Convictions: Provincial CONV

This database summarizes the fines and convictions handed down by the Ontario courts beginning in 1989. Companies and individuals named here have been found guilty of environmental offenses in Ontario courts of law.

Government Publication Date: 1989-Nov 2023

Certificates of Property Use: Provincial CPU

This is a subset taken from Ontario's Environmental Registry (EBR) database. It will include CPU's on the registry such as (EPA s. 168.6) - Certificate of Property Use.

Government Publication Date: 1994 - Dec 31, 2023

Drill Hole Database: Provincial DRL

The Ontario Drill Hole Database contains information on more than 113,000 percussion, overburden, sonic and diamond drill holes from assessment files on record with the department of Mines and Minerals. Please note that limited data is available for southern Ontario, as it was the last area to be completed. The database was created when surveys submitted to the Ministry were converted in the Assessment File Research Image Database (AFRI) project. However, the degree of accuracy (coordinates) as to the exact location of drill holes is dependent upon the source document submitted to the MNDM. Levels of accuracy used to locate holes are: centering on the mining claim; a sketch of the mining claim; a 1:50,000 map; a detailed company map; or from submitted a "Report of Work".

Government Publication Date: 1886 - Aug 2023

Delisted Fuel Tanks: Provincial DTNK

List of fuel storage tank sites that were once found in - and have since been removed from - the list of fuel storage tanks made available by the regulatory agency under Access to Public Information.

Government Publication Date: Oct 2023

Environmental Activity and Sector Registry: Provincial EASR

On October 31, 2011, a smarter, faster environmental approvals system came into effect in Ontario. The EASR allows businesses to register certain activities with the ministry, rather than apply for an approval. The registry is available for common systems and processes, to which preset rules of operation can be applied. The EASR is currently available for: heating systems, standby power systems and automotive refinishing. Businesses whose activities aren't subject to the EASR may apply for an ECA (Environmental Compliance Approval), Please see our ECA database.

Government Publication Date: Oct 2011-Dec 31, 2023

Environmental Registry: Provincial EBR

The Environmental Registry lists proposals, decisions and exceptions regarding policies, Acts, instruments, or regulations that could significantly affect the environment. Through the Registry, thirteen provincial ministries notify the public of upcoming proposals and invite their comments. For example, if a local business is requesting a permit, license, or certificate of approval to release substances into the air or water; these are notified on the registry. Data includes: Approval for discharge into the natural environment other than water (i.e. Air) - EPA s. 9, Approval for sewage works - OWRA s. 53(1), and EPA s. 27 - Approval for a waste disposal site. For information regarding Permit to Take Water (PTTW), Certificate of Property Use (CPU) and (ORD) Orders please refer to those individual databases.

Government Publication Date: 1994 - Dec 31, 2023

Environmental Compliance Approval: Provincial ECA

On October 31, 2011, a smarter, faster environmental approvals system came into effect in Ontario. In the past, a business had to apply for multiple approvals (known as certificates of approval) for individual processes and pieces of equipment. Today, a business either registers itself, or applies for a single approval, depending on the types of activities it conducts. Businesses whose activities aren't subject to the EASR may apply for an ECA. A single ECA addresses all of a business's emissions, discharges and wastes. Separate approvals for air, noise and waste are no longer required. This database will also include Renewable Energy Approvals. For certificates of approval prior to Nov 1st, 2011, please refer to the CA database. For all Waste Disposal Sites please refer to the WDS database.

Government Publication Date: Oct 2011- Dec 31, 2023

Environmental Effects Monitoring: Federal EEM

The Environmental Effects Monitoring program assesses the effects of effluent from industrial or other sources on fish, fish habitat and human usage of fisheries resources. Since 1992, pulp and paper mills have been required to conduct EEM studies under the Pulp and Paper Effluent Regulations. This database provides information on the mill name, geographical location and sub-lethal toxicity data.

Government Publication Date: 1992-2007*

ERIS Historical Searches: Private EHS

ERIS has compiled a database of all environmental risk reports completed since March 1999. Available fields for this database include: site location, date of report, type of report, and search radius. As per all other databases, the ERIS database can be referenced on both the map and "Statistical Profile" page.

Government Publication Date: 1999-Dec 31, 2023

Environmental Issues Inventory System: Federal EIIS

The Environmental Issues Inventory System was developed through the implementation of the Environmental Issues and Remediation Plan. This plan was established to determine the location and severity of contaminated sites on inhabited First Nation reserves, and where necessary, to remediate those that posed a risk to health and safety; and to prevent future environmental problems. The EIIS provides information on the reserve under investigation, inventory number, name of site, environmental issue, site action (Remediation, Site Assessment), and date investigation completed.

Government Publication Date: 1992-2001*

Emergency Management Historical Event: Provincial EMHE

List of locations of historical occurrences of emergency events, including those assigned to the Ministry of Natural Resources by Order-In-Council (OIC) under the Emergency Management and Civil Protection Act, as well as events where MNR provided requested emergency response assistance. Many of these events will have involved community evacuations, significant structural loss, and/or involvement of MNR emergency response staff. These events fall into one of ten (10) type categories: Dam Failure; Drought / Low Water; Erosion; Flood; Forest Fire; Soil and Bedrock Instability; Petroleum Resource Center Event, EMO Requested Assistance, Continuity of Operations Event, Other Requested Assistance. EMHE record details are reproduced by ERIS under License with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2017.

Government Publication Date: Apr 30, 2022

Environmental Penalty Annual Report: Provincial EPAR

This database contains data from Ontario's annual environmental penalty report published by the Ministry of the Environment and Climate Change. These reports provide information on environmental penalties for land or water violations issued to companies in one of the nine industrial sectors covered by the Municipal Industrial Strategy for Abatement (MISA) regulations.

Government Publication Date: Jan 1, 2011 - Dec 31, 2022

List of Expired Fuels Safety Facilities: Provincial EXP

List of facilities and tanks for which there was once a fuel registration. This is not a comprehensive or complete inventory of expired tanks/tank facilities in the province; this listing is a copy of previously registered tanks and facilities obtained under Access to Public Information. Includes private fuel outlets, bulk plants, fuel oil tanks, gasoline stations, marinas, propane filling stations, liquid fuel tanks, piping systems, etc; includes tanks which have been removed from the ground.
Notes: registration was not required for private fuel underground/aboveground storage tanks prior to January 1990, nor for furnace oil tanks prior to May 1, 2002; registration is not required for waste oil tanks in apartments, office buildings, residences, etc., or aboveground gas or diesel tanks. Records are not verified for accuracy or completeness.

Government Publication Date: Oct 2023

Federal Convictions: Federal FCON

Environment Canada maintains a database referred to as the "Environmental Registry" that details prosecutions under the Canadian Environmental Protection Act (CEPA) and the Fisheries Act (FA). Information is provided on the company name, location, charge date, offence and penalty.

Government Publication Date: 1988-Jun 2007*

Contaminated Sites on Federal Land: Federal FCS

The Federal Contaminated Sites Inventory includes information on known federal contaminated sites under the custodianship of departments, agencies and consolidated Crown corporations as well as those that are being or have been investigated to determine whether they have contamination arising from past use that could pose a risk to human health or the environment. The inventory also includes non-federal contaminated sites for which the Government of Canada has accepted some or all financial responsibility. It does not include sites where contamination has been caused by, and which are under the control of, enterprise Crown corporations, private individuals, firms or other levels of government. Includes fire training sites and sites at which Per- and Polyfluoroalkyl Substances (PFAS) are a concern.

Government Publication Date: Jun 2000-Oct 2023

Fisheries & Oceans Fuel Tanks: Federal FOFT

Fisheries & Oceans Canada maintains an inventory of aboveground & underground fuel storage tanks located on Fisheries & Oceans property or controlled by DFO. Our inventory provides information on the site name, location, tank owner, tank operator, facility type, storage tank location, tank contents & capacity, and date of tank installation.

Government Publication Date: 1964-Sep 2019

Federal Identification Registry for Storage Tank Systems (FIRSTS): Federal FRST

A list of federally regulated Storage tanks from the Federal Identification Registry for Storage Tank Systems (FIRSTS). FIRSTS is Environment and Climate Change Canada's database of storage tank systems subject to the Storage Tank for Petroleum Products and Allied Petroleum Products Regulations. The main objective of the Regulations is to prevent soil and groundwater contamination from storage tank systems located on federal and aboriginal lands. Storage tank systems that do not have a valid identification number displayed in a readily visible location on or near the storage tank system may be refused product delivery.

Government Publication Date: Oct 31, 2021

Fuel Storage Tank: Provincial FST

List of registered private and retail fuel storage tanks. This is not a comprehensive or complete inventory of private and retail fuel storage tanks in the province; this listing is a copy of registered private and retail fuel storage tanks, obtained under Access to Public Information.
Notes: registration was not required for private fuel underground/aboveground storage tanks prior to January 1990, nor for furnace oil tanks prior to May 1, 2002; registration is not required for waste oil tanks in apartments, office buildings, residences, etc., or aboveground gas or diesel tanks. Records are not verified for accuracy or completeness.

Government Publication Date: Oct 2023

Fuel Storage Tank - Historic: Provincial FSTH

The Fuels Safety Branch of the Ontario Ministry of Consumer and Commercial Relations maintained a database of all registered private fuel storage tanks. Public records of private fuel storage tanks are only available since the registration became effective in September 1989. This information is now collected by the Technical Standards and Safety Authority.

Government Publication Date: Pre-Jan 2010*

Ontario Regulation 347 Waste Generators Summary: Provincial GEN

Regulation 347 of the Ontario EPA defines a waste generation site as any site, equipment and/or operation involved in the production, collection, handling and/or storage of regulated wastes. A generator of regulated waste is required to register the waste generation site and each waste produced, collected, handled, or stored at the site. This database contains the registration number, company name and address of registered generators including the types of hazardous wastes generated. It includes data on waste generating facilities such as: drycleaners, waste treatment and disposal facilities, machine shops, electric power distribution etc. This information is a summary of all years from 1986 including the most currently available data. Some records may contain, within the company name, the phrase "See & Use..." followed by a series of letters and numbers. This occurs when one company is amalgamated with or taken over by another registered company. The number listed as "See & Use", refers to the new ownership and the other identification number refers to the original ownership. This phrase serves as a link between the 2 companies until operations have been fully transferred.

Government Publication Date: 1986-Oct 31, 2022

Greenhouse Gas Emissions from Large Facilities: Federal GHG

List of greenhouse gas emissions from large facilities made available by Environment Canada. Greenhouse gas emissions in kilotonnes of carbon dioxide equivalents (kt CO2 eq).

Government Publication Date: 2013-Dec 2020

TSSA Historic Incidents: Provincial HINC

List of historic incidences of spills and leaks of diesel, fuel oil, gasoline, natural gas, propane, and hydrogen recorded by the TSSA in their previous incident tracking system. The TSSA's Fuels Safety Program administers the Technical Standards & Safety Act 2000, providing fuel-related safety services associated with the safe transportation, storage, handling and use of fuels such as gasoline, diesel, propane, natural gas and hydrogen. Under this Act, the TSSA regulates fuel suppliers, storage facilities, transport trucks, pipelines, contractors and equipment or appliances that use fuels. Records are not verified for accuracy or completeness. This is not a comprehensive or complete inventory of historical fuel spills and leaks in the province. This listing is a copy of the data captured at one moment in time and is hence limited by the record date provided here.

Government Publication Date: 2006-June 2009*

Indian & Northern Affairs Fuel Tanks: Federal IAFT

The Department of Indian & Northern Affairs Canada (INAC) maintains an inventory of aboveground & underground fuel storage tanks located on both federal and crown land. Our inventory provides information on the reserve name, location, facility type, site/facility name, tank type, material & ID number, tank contents & capacity, and date of tank installation.

Government Publication Date: 1950-Aug 2003*

Fuel Oil Spills and Leaks: Provincial INC

Listing of spills and leaks of diesel, fuel oil, gasoline, natural gas, propane, and hydrogen reported to the Spills Action Centre (SAC). This is not a comprehensive or complete inventory of fuel-related leaks, spills, and incidents in the province; this listing in a copy of incidents reported to the SAC, obtained under Access to Public Information. Includes incidents from fuel-related hazards such as spills, fires, and explosions. Records are not verified for accuracy or completeness.

Government Publication Date: 31 Oct, 2023

Landfill Inventory Management Ontario: Provincial LIMO

The Landfill Inventory Management Ontario (LIMO) database is updated every year, as the Ministry of the Environment, Conservation and Parks compiles new and updated information. Includes small and large landfills currently operating as well as those which are closed and historic. Operators of larger landfills provide landfill information for the previous operating year to the ministry for LIMO including: estimated amount of total waste received, landfill capacity, estimated total remaining landfill capacity, fill rates, engineering designs, reporting and monitoring details, size of location, service area, approved waste types, leachate of site treatment, contaminant attenuation zone and more. The small landfills include information such as site owner, site location and certificate of approval # and status.

Government Publication Date: Mar 31, 2022

Canadian Mine Locations: Private MINE

This information is collected from the Canadian & American Mines Handbook. The Mines database is a national database that provides over 290 listings on mines (listed as public companies) dealing primarily with precious metals and hard rocks. Listed are mines that are currently in operation, closed, suspended, or are still being developed (advanced projects). Their locations are provided as geographic coordinates (x, y and/or longitude, latitude). As of 2002, data pertaining to Canadian smelters and refineries has been appended to this database.

Government Publication Date: 1998-2009*

Mineral Occurrences: Provincial MNR

In the early 70's, the Ministry of Northern Development and Mines created an inventory of approximately 19,000 mineral occurrences in Ontario, in regard to metallic and industrial minerals, as well as some information on building stones and aggregate deposits. Please note that the "Horizontal Positional Accuracy" is approximately +/- 200 m. Many reference elements for each record were derived from field sketches using pace or chain/tape measurements against claim posts or topographic features in the area. The primary limiting factor for the level of positional accuracy is the scale of the source material. The testing of horizontal accuracy of the source materials was accomplished by comparing the plan metric (X and Y) coordinates of that point with the coordinates of the same point as defined from a source of higher accuracy.

Government Publication Date: 1846-Feb 2023

National Analysis of Trends in Emergencies System (NATES): Federal NATE

In 1974 Environment Canada established the National Analysis of Trends in Emergencies System (NATES) database, for the voluntary reporting of significant spill incidents. The data was to be used to assist in directing the work of the emergencies program. NATES ran from 1974 to 1994. Extensive information is available within this database including company names, place where the spill occurred, date of spill, cause, reason and source of spill, damage incurred, and amount, concentration, and volume of materials released.

Government Publication Date: 1974-1994*

Non-Compliance Reports: Provincial NCPL

The Ministry of the Environment provides information about non-compliant discharges of contaminants to air and water that exceed legal allowable limits, from regulated industrial and municipal facilities. A reported non-compliance failure may be in regard to a Control Order, Certificate of Approval, Sectoral Regulation or specific regulation/act.

Government Publication Date: Dec 31, 2022

National Defense & Canadian Forces Fuel Tanks: Federal NDFT

The Department of National Defense and the Canadian Forces maintains an inventory of all aboveground & underground fuel storage tanks located on DND lands. Our inventory provides information on the base name, location, tank type & capacity, tank contents, tank class, date of tank installation, date tank last used, and status of tank as of May 2001. This database will no longer be updated due to the new National Security protocols which have prohibited any release of this database.

Government Publication Date: Up to May 2001*

National Defense & Canadian Forces Spills: Federal NDSP

The Department of National Defense and the Canadian Forces maintains an inventory of spills to land and water. All spill sites have been classified under the "Transportation of Dangerous Goods Act - 1992". Our inventory provides information on the facility name, location, spill ID #, spill date, type of spill, as well as the quantity of substance spilled & recovered.

Government Publication Date: Mar 1999-Oct 2022

National Defence & Canadian Forces Waste Disposal Sites: Federal NDWD

The Department of National Defence and the Canadian Forces maintains an inventory of waste disposal sites located on DND lands. Where available, our inventory provides information on the base name, location, type of waste received, area of site, depth of site, year site opened/closed and status.

Government Publication Date: 2001-Apr 2007*

National Energy Board Pipeline Incidents: Federal NEBI

Locations of pipeline incidents from 2008 to present, made available by the Canada Energy Regulator (CER) - previously the National Energy Board (NEB). Includes incidents reported under the Onshore Pipeline Regulations and the Processing Plant Regulations related to pipelines under federal jurisdiction, does not include incident data related to pipelines under provincial or territorial jurisdiction.

Government Publication Date: 2008-Jun 30, 2021

National Energy Board Wells: Federal NEBP

The NEBW database contains information on onshore & offshore oil and gas wells that are outside provincial jurisdiction(s) and are thereby regulated by the National Energy Board. Data is provided regarding the operator, well name, well ID No./UWI, status, classification, well depth, spud and release date.

Government Publication Date: 1920-Feb 2003*

National Environmental Emergencies System (NEES): Federal NEES

In 2000, the Emergencies program implemented NEES, a reporting system for spills of hazardous substances. For the most part, this system only captured data from the Atlantic Provinces, some from Quebec and Ontario and a portion from British Columbia. Data for Alberta, Saskatchewan, Manitoba and the Territories was not captured. However, NEES is also a repository for previous Environment Canada spill datasets. NEES is composed of the historic datasets ' or Trends ' which dates from approximately 1974 to present. NEES Trends is a compilation of historic databases, which were merged and includes data from NATES (National Analysis of Trends in Emergencies System), ARTS (Atlantic Regional Trends System), and NEES. In 2001, the Emergencies Program determined that variations in reporting regimes and requirements between federal and provincial agencies made national spill reporting and trend analysis difficult to achieve. As a consequence, the department has focused efforts on capturing data on spills of substances which fall under its legislative authority only (CEPA and FA). As such, the NEES database will be decommissioned in December 2004.

Government Publication Date: 1974-2003*

National PCB Inventory: Federal NPCB

Environment Canada's National PCB inventory includes information on in-use PCB containing equipment in Canada including federal, provincial and private facilities. Federal out-of-service PCB containing equipment and PCB waste owned by the federal government or by federally regulated industries such as airlines, railway companies, broadcasting companies, telephone and telecommunications companies, pipeline companies, etc. are also listed. Although it is not Environment Canada's mandate to collect data on non-federal PCB waste, the National PCB inventory includes some information on provincial and private PCB waste and storage sites. Some addresses provided may be Head Office addresses and are not necessarily the location of where the waste is being used or stored.

Government Publication Date: 1988-2008*

National Pollutant Release Inventory 1993-2020: Federal NPR2

The National Pollutant Release Inventory (NPRI) is Canada's public inventory of pollutant releases (to air, water and land), disposals, and transfers for recycling. The inventory, managed by Environment and Climate Change Canada, tracks over 300 substances. Under the authority of the Canadian Environmental Protection Act (CEPA), owners or operators of facilities that meet published reporting requirements are required to report to the NPRI.

Government Publication Date: Sep 2020

National Pollutant Release Inventory - Historic: Federal NPRI

Environment Canada has defined the National Pollutant Release Inventory ("NPRI") as a federal government initiative designed to collect comprehensive national data regarding releases to air, water, or land, and waste transfers for recycling for more than 300 listed substances. This data holds historic records; current records are found in NPR2.

Government Publication Date: 1993-May 2017

Oil and Gas Wells: Private OGWE

The Nickle's Energy Group (publisher of the Daily Oil Bulletin) collects information on drilling activity including operator and well statistics. The well information database includes name, location, class, status and depth. The main Nickle's database is updated on a daily basis, however, this database is updated on a monthly basis. More information is available at www.nickles.com.

Government Publication Date: 1988-Nov 30, 2023

Ontario Oil and Gas Wells: Provincial OOGW

In 1998, the MNR handed over to the Ontario Oil, Gas and Salt Resources Corporation, the responsibility of maintaining a database of oil and gas wells drilled in Ontario. The OGSR Library has over 20,000+ wells in their database. Information available for all wells in the ERIS database include well owner/operator, location, permit issue date, and well cap date, license No., status, depth and the primary target (rock unit) of the well being drilled. All geology/stratigraphy table information, plus all water table information is also provide for each well record.

Government Publication Date: 1800-Aug 2023

Inventory of PCB Storage Sites: Provincial OPCB

The Ontario Ministry of Environment, Waste Management Branch, maintains an inventory of PCB storage sites within the province. Ontario Regulation 11/82 (Waste Management - PCB) and Regulation 347 (Generator Waste Management) under the Ontario EPA requires the registration of inactive PCB storage equipment and/or disposal sites of PCB waste with the Ontario Ministry of Environment. This database contains information on: 1) waste quantities; 2) major and minor sites storing liquid or solid waste; and 3) a waste storage inventory.

Government Publication Date: 1987-Oct 2004; 2012-Dec 2013

Orders: Provincial ORD

This is a subset taken from Ontario's Environmental Registry (EBR) database. It will include Orders on the registry such as (EPA s. 17) - Order for remedial work, (EPA s. 18) - Order for preventative measures, (EPA s. 43) - Order for removal of waste and restoration of site, (EPA s. 44) - Order for conformity with Act for waste disposal sites, (EPA s. 136) - Order for performance of environmental measures.

Government Publication Date: 1994 - Dec 31, 2023

Canadian Pulp and Paper: Private PAP

This information is part of the Pulp and Paper Canada Directory. The Directory provides a comprehensive listing of the locations of pulp and paper mills and the products that they produce.

Government Publication Date: 1999, 2002, 2004, 2005, 2009-2014

Parks Canada Fuel Storage Tanks: Federal PCFT

Canadian Heritage maintains an inventory of known fuel storage tanks operated by Parks Canada, in both National Parks and at National Historic Sites. The database details information on site name, location, tank install/removal date, capacity, fuel type, facility type, tank design and owner/operator.

Government Publication Date: 1920-Jan 2005*

Pesticide Register: Provincial PES

The Ontario Ministry of the Environment and Climate Change maintains a database of licensed operators and vendors of registered pesticides.

Government Publication Date: Oct 2011- Dec 31, 2023

NPRI Reporters - PFAS Substances: Federal PFCH

The National Pollutant Release Inventory (NPRI) is Canada's public inventory of releases, disposals, and transfers, tracking over 320 pollutants. Per - and polyfluoroalkyl substances (PFAS) are a group of over 4,700 human-made substances for which adverse environmental and health effects have been observed. This listing of PFAS substance reporters includes those NPRI facilities that reported substances that are found in either: a) the Comprehensive Global Database of PFASs compiled by the Organisation for Economic Co-operation and Development (OECD), b) the US Environmental Protection Agency (US EPA) Master List of PFAS Substances, c) the US EPA list of PFAS chemicals without explicit structures, or d) the US EPA list of PFAS structures (encompassing the largest set of structures having sufficient levels of fluorination to potentially impart PFAS-type properties).

Government Publication Date: Sep 2020

Potential PFAS Handers from NPRI: Federal PFHA

The National Pollutant Release Inventory (NPRI) is Canada's public inventory of releases, disposals, and transfers, tracking over 320 pollutants. Per - and polyfluoroalkyl substances (PFAS) are a group of over 4,700 human-made substances for which adverse environmental and health effects have been observed. This list of potential PFAS handlers includes those NPRI facilities that reported business activity (NAICS code) included in the US Environmental Protection Agency (US EPA) list of Potential PFAS-Handling Industry Sectors, further described as operating in industry sectors where literature reviews indicate that PFAS may be handled and/or released. Inclusion of a facility in this listing does not indicate that PFAS are being manufactured, processed, used, or released by the facility - these are facilities that potentially handle PFAS based on their industrial profile.

Government Publication Date: Sep 2020

Pipeline Incidents: Provincial PINC

List of pipeline incidents (strikes, leaks, spills). This is not a comprehensive or complete inventory of pipeline incidents in the province; this listing in an historical copy of records previously obtained under Access to Public Information. Records are not verified for accuracy or completeness.

Government Publication Date: Feb 28, 2021

Private and Retail Fuel Storage Tanks: Provincial PRT

The Fuels Safety Branch of the Ontario Ministry of Consumer and Commercial Relations maintained a database of all registered private fuel storage tanks and licensed retail fuel outlets. This database includes an inventory of locations that have gasoline, oil, waste oil, natural gas and/or propane storage tanks on their property. The MCCR no longer collects this information. This information is now collected by the Technical Standards and Safety Authority (TSSA).

Government Publication Date: 1989-1996*

Permit to Take Water: Provincial PTTW

This is a subset taken from Ontario's Environmental Registry (EBR) database. It will include PTTW's on the registry such as OWRA s. 34 - Permit to take water.

Government Publication Date: 1994 - Dec 31, 2023

Ontario Regulation 347 Waste Receivers Summary: Provincial REC

Part V of the Ontario Environmental Protection Act ("EPA") regulates the disposal of regulated waste through an operating waste management system or a waste disposal site operated or used pursuant to the terms and conditions of a Certificate of Approval or a Provisional Certificate of Approval. Regulation 347 of the Ontario EPA defines a waste receiving site as any site or facility to which waste is transferred by a waste carrier. A receiver of regulated waste is required to register the waste receiving facility. This database represents registered receivers of regulated wastes, identified by registration number, company name and address, and includes receivers of waste such as: landfills, incinerators, transfer stations, PCB storage sites, sludge farms and water pollution control plants. This information is a summary of all years from 1986 including the most currently available data.

Government Publication Date: 1986-1990, 1992-2021

Record of Site Condition: Provincial RSC

The Record of Site Condition (RSC) is part of the Ministry of the Environment's Brownfields Environmental Site Registry. Protection from environmental cleanup orders for property owners is contingent upon documentation known as a record of site condition (RSC) being filed in the Environmental Site Registry. In order to file an RSC, the property must have been properly assessed and shown to meet the soil, sediment and groundwater standards appropriate for the use (such as residential) proposed to take place on the property. The Record of Site Condition Regulation (O. Reg. 153/04) details requirements related to site assessment and clean up.
RSCs filed after July 1, 2011 will also be included as part of the new (O.Reg. 511/09).

Government Publication Date: 1997-Sept 2001, Oct 2004-Nov 2023

Retail Fuel Storage Tanks: Private RST

This database includes an inventory of retail fuel outlet locations (including marinas) that have on their property gasoline, oil, waste oil, natural gas and / or propane storage tanks.

Government Publication Date: 1999-Oct 31, 2023

Scott's Manufacturing Directory: Private SCT

Scott's Directories is a data bank containing information on over 200,000 manufacturers across Canada. Even though Scott's listings are voluntary, it is the most comprehensive database of Canadian manufacturers available. Information concerning a company's address, plant size, and main products are included in this database.

Government Publication Date: 1992-Mar 2011*

Ontario Spills: Provincial SPL

List of spills and incidents made available by the Ministry of the Environment, Conservation and Parks. This database identifies information such as location (approximate), type and quantity of contaminant, date of spill, environmental impact, cause, nature of impact, etc. Information from 1988-2002 was part of the ORIS (Occurrence Reporting Information System). The SAC (Spills Action Centre) handles all spills reported in Ontario. Regulations for spills in Ontario are part of the MOE's Environmental Protection Act, Part X. The Ministry of the Environment, Conservation and Parks cites the coronavirus pandemic as an explanation for delays in releasing data pursuant to requests.

Government Publication Date: 1988-Nov 2022; Jan 2023

Wastewater Discharger Registration Database: Provincial SRDS

Facilities that report either municipal treated wastewater effluent or industrial wastewater discharges under the Effluent Monitoring and Effluent Limits (EMEL) and Municipal/Industrial Strategy for Abatement Regulations. The Municipal/Industrial Strategy for Abatement (MISA) division of the Ontario Ministry of Environment keeps record of direct dischargers of toxic pollutants within nine sectors including: Electric Power Generation, Mining, Petroleum Refining, Organic Chemicals, Inorganic Chemicals, Pulp & Paper, Metal Casting, Iron & Steel, and Quarries.

Government Publication Date: 1990-Dec 31, 2020

Anderson's Storage Tanks: Private TANK

The information provided in this database was collected by examining various historical documents, which identified the location of former storage tanks, containing substances such as fuel, water, gas, oil, and other various types of miscellaneous products. Information is available in regard to business operating at tank site, tank location, permit year, permit & installation type, no. of tanks installed & configuration and tank capacity. Data contained within this database pertains only to the city of Toronto and is not warranted to be complete, exhaustive or authoritative. The information was collected for research purposes only.

Government Publication Date: 1915-1953*

Transport Canada Fuel Storage Tanks: Federal TCFT

List of fuel storage tanks currently or previously owned or operated by Transport Canada. This inventory also includes tanks on The Pickering Lands, which refers to 7,530 hectares (18,600 acres) of land in Pickering, Markham, and Uxbridge owned by the Government of Canada since 1972; properties on this land has been leased by the government since 1975, and falls under the Site Management Policy of Transport Canada, but is administered by Public Works and Government Services Canada. This inventory provides information on the site name, location, tank age, capacity and fuel type.

Government Publication Date: 1970 - Apr 2023

Variances for Abandonment of Underground Storage Tanks: Provincial VAR

Listing of variances granted for storage tank abandonment. This is not a comprehensive or complete inventory of tank abandonment variances in the province; this listing is a copy of tank abandonment variance records previously obtained under Access to Public Information. In Ontario, registered underground storage tanks must be removed within two years of disuse; if removal of a tank is not feasible, an application may be sought for a variance from this code requirement.
Records are not verified for accuracy or completeness.

Government Publication Date: Feb 28, 2022

Waste Disposal Sites - MOE CA Inventory: Provincial WDS

The Ontario Ministry of Environment, Waste Management Branch, maintains an inventory of known open (active or inactive) and closed disposal sites in the Province of Ontario. Active sites maintain a Certificate of Approval, are approved to receive and are receiving waste. Inactive sites maintain Certificate(s) of Approval but are not receiving waste. Closed sites are not receiving waste. The data contained within this database was compiled from the MOE's Certificate of Approval database. Locations of these sites may be cross-referenced to the Anderson database described under ERIS's Private Source Database section, by the CA number. All new Environmental Compliance Approvals handed out after Oct 31, 2011 for Waste Disposal Sites will still be found in this database.

Government Publication Date: Oct 2011-Dec 31, 2023

Waste Disposal Sites - MOE 1991 Historical Approval Inventory: Provincial WDSH

In June 1991, the Ontario Ministry of Environment, Waste Management Branch, published the "June 1991 Waste Disposal Site Inventory", of all known active and closed waste disposal sites as of October 30st, 1990. For each "active" site as of October 31st 1990, information is provided on site location, site/CA number, waste type, site status and site classification. For each "closed" site as of October 31st 1990, information is provided on site location, site/CA number, closure date and site classification. Locations of these sites may be cross-referenced to the Anderson database described under ERIS's Private Source Database section, by the CA number.

Government Publication Date: Up to Oct 1990*

Water Well Information System: Provincial WWIS

This database describes locations and characteristics of water wells found within Ontario in accordance with Regulation 903. It includes such information as coordinates, construction date, well depth, primary and secondary use, pump rate, static water level, well status, etc. Also included are detailed stratigraphy information, approximate depth to bedrock and the approximate depth to the water table.

Government Publication Date: Mar 31 2023

Definitions

Database Descriptions: This section provides a detailed explanation for each database including: source, information available, time coverage, and acronyms used. They are listed in alphabetic order.

Detail Report: This is the section of the report which provides the most detail for each individual record. Records are summarized by location, starting with the project property followed by records in closest proximity.

Distance: The distance value is the distance between plotted points, not necessarily the distance between the sites' boundaries. All values are an approximation.

Direction: The direction value is the compass direction of the site in respect to the project property and/or center point of the report.

Elevation: The elevation value is taken from the location at which the records for the site address have been plotted. All values are an approximation. Source: Google Elevation API.

Executive Summary: This portion of the report is divided into 3 sections:

'Report Summary'- Displays a chart indicating how many records fall on the project property and, within the report search radii.

'Site Report Summary'-Project Property'- This section lists all the records which fall on the project property. For more details, see the 'Detail Report' section.

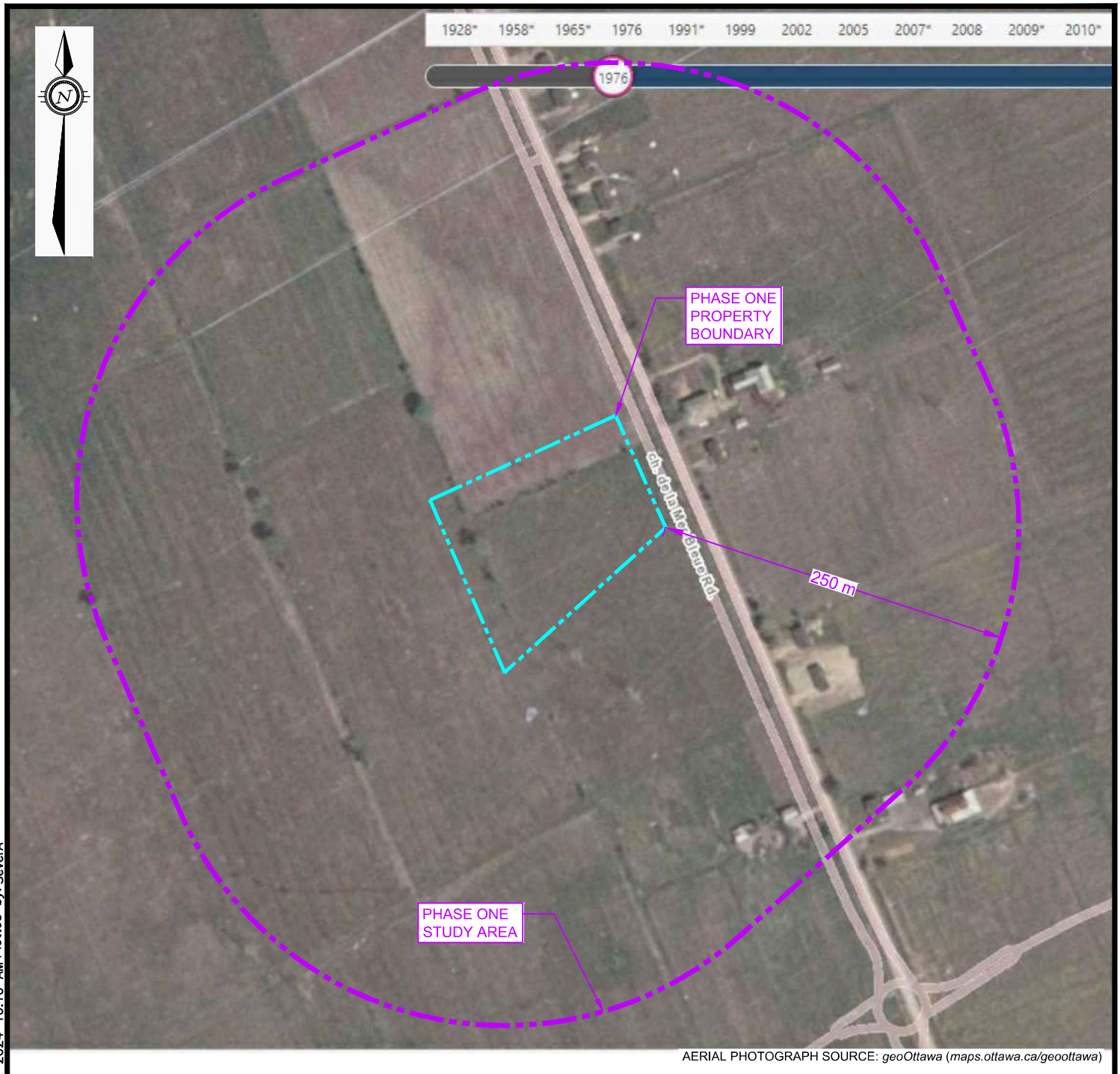
'Site Report Summary-Surrounding Properties'- This section summarizes all records on adjacent properties, listing them in order of proximity from the project property. For more details, see the 'Detail Report' section.

Map Key: The map key number is assigned according to closest proximity from the project property. Map Key numbers always start at #1. The project property will always have a map key of '1' if records are available. If there is a number in brackets beside the main number, this will indicate the number of records on that specific property. If there is no number in brackets, there is only one record for that property.

The symbol and colour used indicates 'elevation': the red inverted triangle will dictate 'ERIS Sites with Lower Elevation', the yellow triangle will dictate 'ERIS Sites with Higher Elevation' and the orange square will dictate 'ERIS Sites with Same Elevation.'

Unplottables: These are records that could not be mapped due to various reasons, including limited geographic information. These records may or may not be in your study area, and are included as reference.

Appendix E: Aerial Photographs



AERIAL PHOTOGRAPH SOURCE: *geoOttawa* (*maps.ottawa.ca/geoottawa*)

LEGEND

PROPERTY BOUNDARY

STUDY AREA (250m)

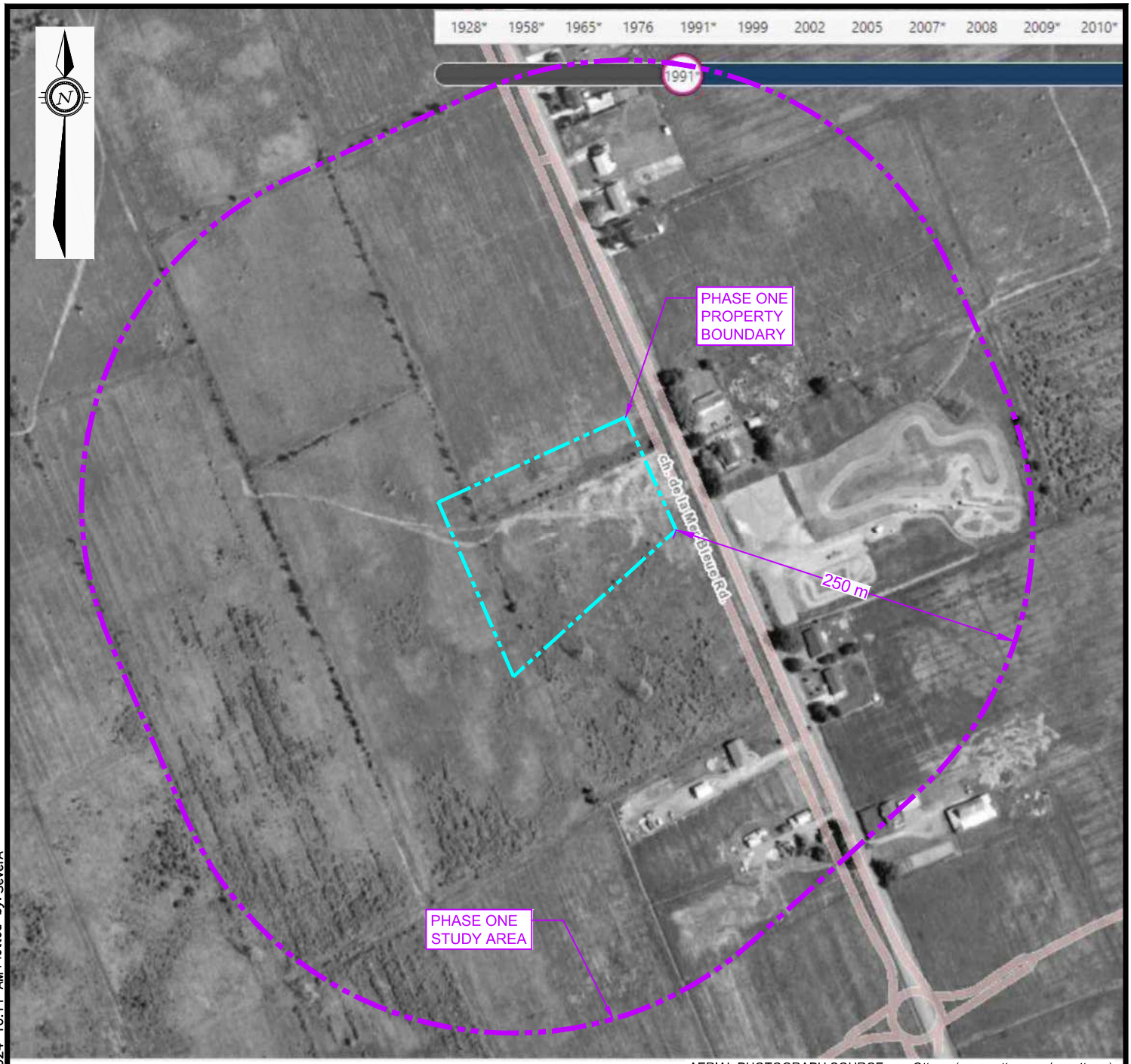
0 40m 80m 160m

HORIZONTAL 1:4,000

EXP Services Inc. **www.exp.com**
t: +1.613.688.1899 | f: +1.613.225.7337
2650 Queensview Drive, Suite 100
Ottawa, ON K2B 8H6, Canada

DATE: MAY 2024	PROPERTY ADDRESS: 2170 MER-BLEUE ROAD, OTTAWA, ONTARIO	project no.: OTT-23014068-A0
DESIGN: DC / CHECKED: SL	PROJECT: PHASE ONE ENVIRONMENTAL SITE ASSESSMENT	scale: 1:4,000
DRAWN BY: AS	TITLE: 1976 AERIAL PHOTOGRAPH	FIG F-1

Filename: E:\OTT\OTT-23010468-A0\60 Execution\65 Drawings\OTT-23014068-A0_Ph-1_2170-Mer-Bleue-Rd.dwg
Last Saved: May 30, 2024 10:09 AM Last Plotted: May 30, 2024 10:10 AM Plotted by: SeverA



AERIAL PHOTOGRAPH SOURCE: *geoOttawa* (*maps.ottawa.ca/geoottawa*)

LEGEND

PROPERTY BOUNDARY

STUDY AREA (250m)

0 40m 80m 160m

HORIZONTAL 1:4,000

EXP Services Inc. **www.exp.com**
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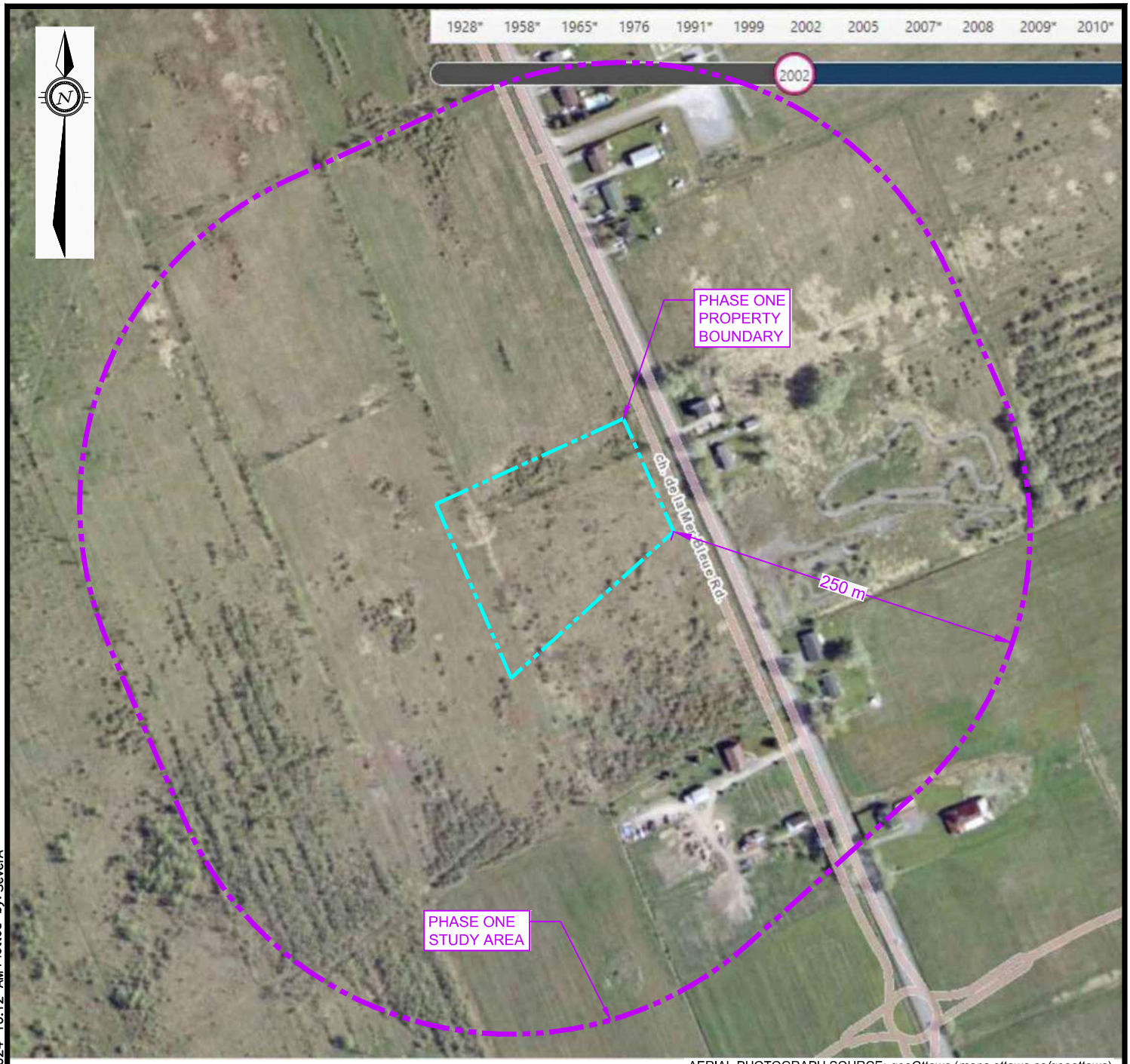
2650 Queensview Drive, Suite 100
Ottawa, ON K2B 8H6, Canada

DATE: MAY 2024	PROPERTY ADDRESS: 2170 MER-BLEUE ROAD, OTTAWA, ONTARIO	project no.: OTT-23014068-A0
DESIGN: DC / CHECKED: SL	PROJECT: PHASE ONE ENVIRONMENTAL SITE ASSESSMENT	scale: 1:4,000
DRAWN BY: AS	TITLE: 1991 AERIAL PHOTOGRAPH	FIG F-2

Filename: E:\OTT\OTT-23010468-A0\60 Execution\65 Drawings\OTT-23014068-A0_Ph-1_2170-Mer-Bleue-Rd.dwg
Last Saved: May 30, 2024 10:11 AM Last Plotted: May 30, 2024 10:11 AM Plotted by: SeverA



AERIAL PHOTOGRAPH SOURCE: *geoOttawa* (*maps.ottawa.ca/geoottawa*)

LEGEND

PROPERTY BOUNDARY

STUDY AREA (250m)

0 40m 80m 160m

HORIZONTAL 1:4,000

EXP Services Inc. **www.exp.com**
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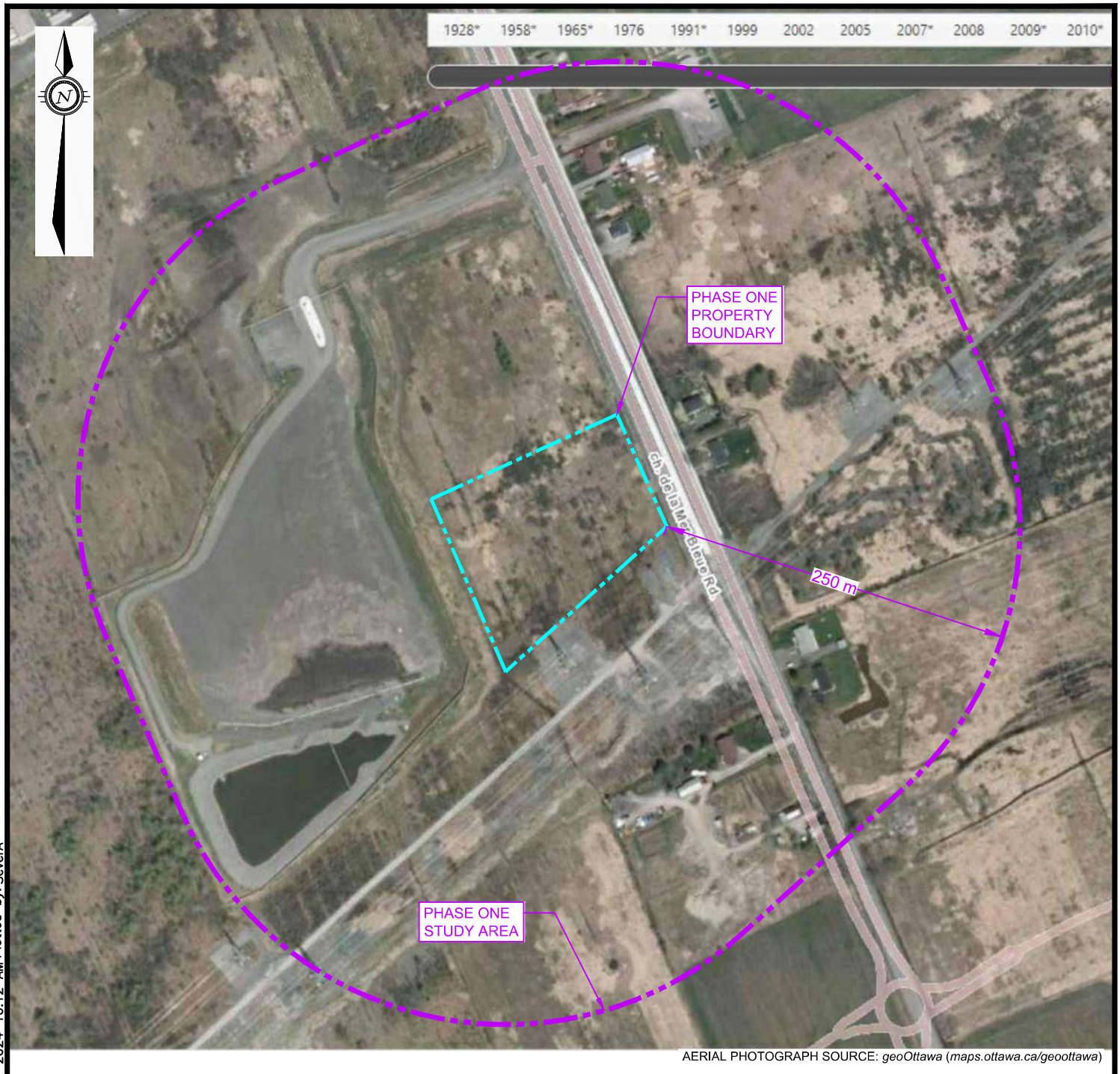
2650 Queensview Drive, Suite 100
Ottawa, ON K2B 8H6, Canada

DATE: MAY 2024	PROPERTY ADDRESS: 2170 MER-BLEUE ROAD, OTTAWA, ONTARIO	project no.: OTT-23014068-A0
DESIGN: DC / CHECKED: SL	PROJECT: PHASE ONE ENVIRONMENTAL SITE ASSESSMENT	scale: 1:4,000
DRAWN BY: AS	TITLE: 2002 AERIAL PHOTOGRAPH	FIG F-3

Filename: E:\OTT\OTT-23010468-A0\60 Execution\65 Drawings\OTT-23014068-A0_Ph-1_2170-Mer-Bleue-Rd.dwg
Last Saved: May 30, 2024 10:11 AM Last Plotted: May 30, 2024 10:12 AM Plotted by: SeverA



AERIAL PHOTOGRAPH SOURCE: *geoOttawa* (*maps.ottawa.ca/geoottawa*)

LEGEND

PROPERTY BOUNDARY

STUDY AREA (250m)

0 40m 80m 160m

HORIZONTAL 1:4,000

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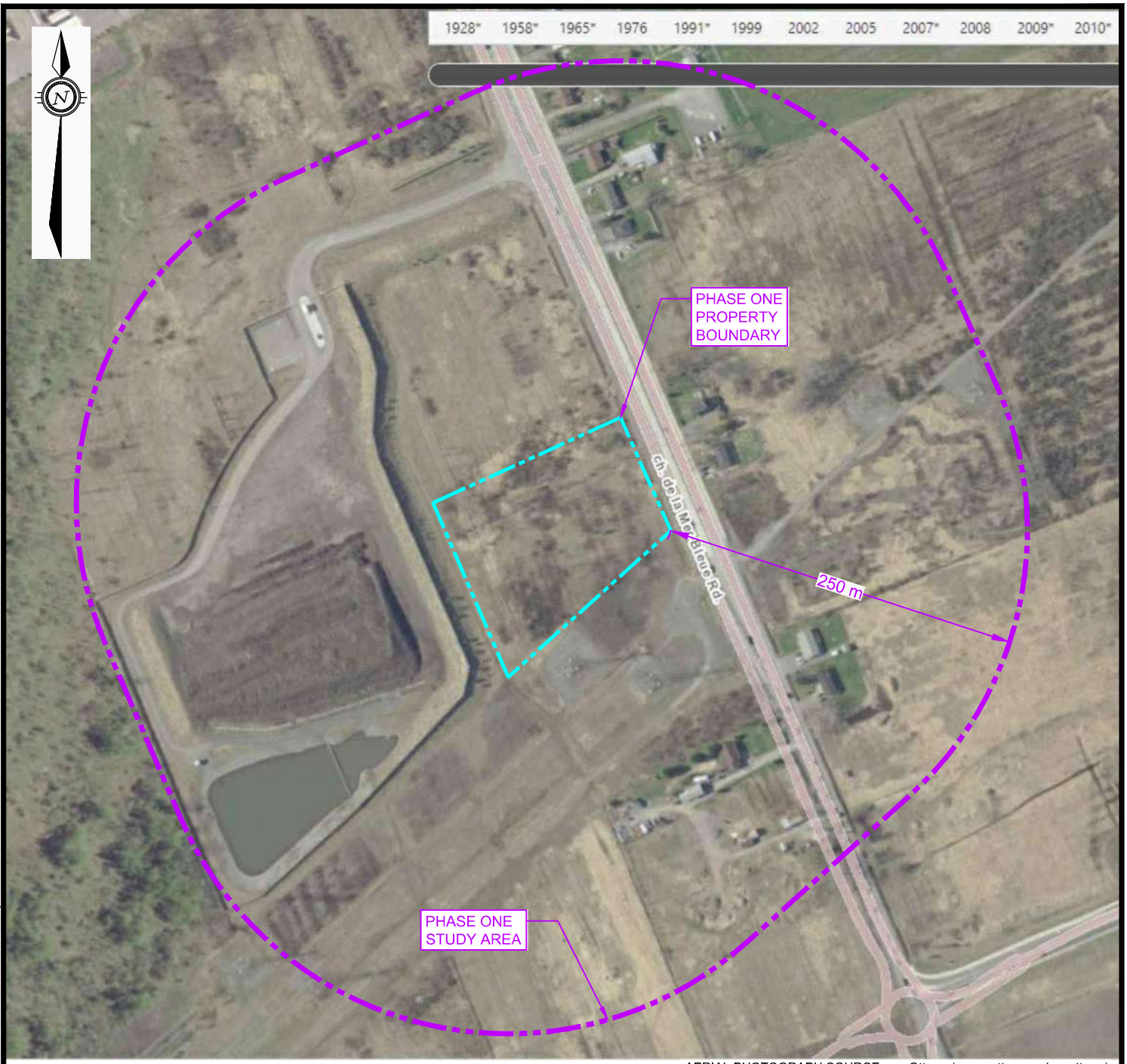
2650 Queensview Drive, Suite 100
Ottawa, ON K2B 8H6, Canada

DATE: MAY 2024	PROPERTY ADDRESS: 2170 MER-BLEUE ROAD, OTTAWA, ONTARIO	project no.: OTT-23014068-A0
DESIGN: DC / CHECKED: SL	PROJECT: PHASE ONE ENVIRONMENTAL SITE ASSESSMENT	scale: 1:4,000
DRAWN BY: AS	TITLE: 2011 AERIAL PHOTOGRAPH	FIG F-4

Filename: E:\OTT\OTT-23010468-A0\60 Execution\65 Drawings\OTT-23014068-A0_Ph-1_2170-Mer-Bleue-Rd.dwg
Last Saved: May 30, 2024 10:11 AM Last Plotted: May 30, 2024 10:12 AM Plotted by: SeverA



AERIAL PHOTOGRAPH SOURCE: *geoOttawa* (*maps.ottawa.ca/geoottawa*)

LEGEND

PROPERTY BOUNDARY

STUDY AREA (250m)

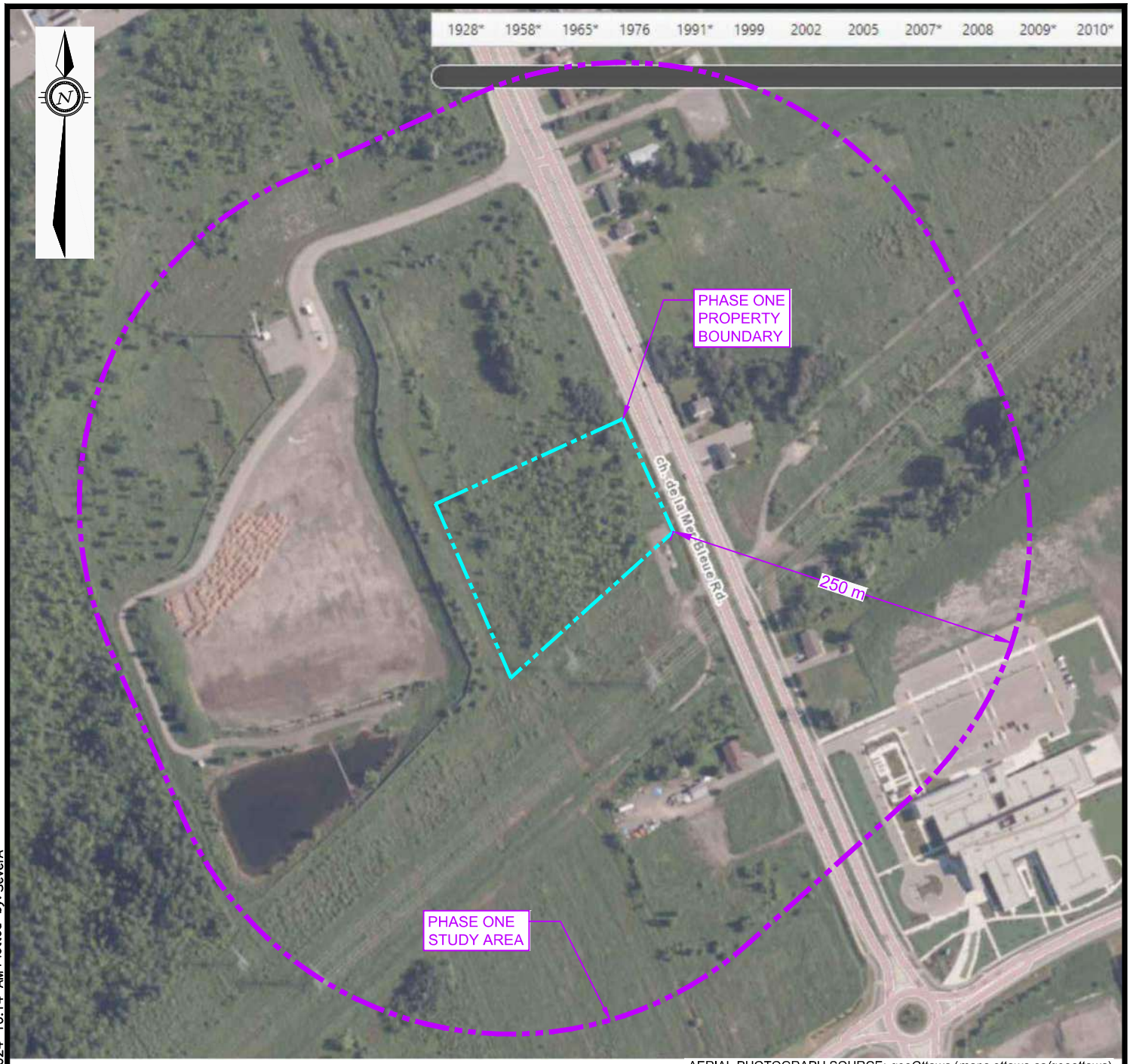
0 40m 80m 160m

HORIZONTAL 1:4,000

EXP Services Inc. **www.exp.com**
t: +1.613.688.1899 | f: +1.613.225.7337
2650 Queensview Drive, Suite 100
Ottawa, ON K2B 8H6, Canada

DATE: MAY 2024	PROPERTY ADDRESS: 2170 MER-BLEUE ROAD, OTTAWA, ONTARIO	project no.: OTT-23014068-A0
DESIGN: DC / CHECKED: SL	PROJECT: PHASE ONE ENVIRONMENTAL SITE ASSESSMENT	scale: 1:4,000
DRAWN BY: AS	TITLE: 2014 AERIAL PHOTOGRAPH	FIG F-5

Filename: E:\OTT\OTT-23010468-A0\60 Execution\65 Drawings\OTT-23014068-A0_Ph-1_2170-Mer-Bleue-Rd.dwg
Last Saved: May 30, 2024 10:11 AM Last Plotted: May 30, 2024 10:13 AM Plotted by: SeverA



AERIAL PHOTOGRAPH SOURCE: *geoOttawa* (*maps.ottawa.ca/geoottawa*)

LEGEND

PROPERTY BOUNDARY

STUDY AREA (250m)

0 40m 80m 160m

HORIZONTAL 1:4,000

EXP Services Inc. **www.exp.com**
t: +1.613.688.1899 | f: +1.613.225.7337
2650 Queensview Drive, Suite 100
Ottawa, ON K2B 8H6, Canada

DATE: MAY 2024	PROPERTY ADDRESS: 2170 MER-BLEUE ROAD, OTTAWA, ONTARIO	project no.: OTT-23014068-A0
DESIGN: DC / CHECKED: SL	PROJECT: PHASE ONE ENVIRONMENTAL SITE ASSESSMENT	scale: 1:4,000
DRAWN BY: AS	TITLE: 2022 AERIAL PHOTOGRAPH	FIG F-6

Filename: E:\OTT\OTT-23010468-A0\60 Execution\65 Drawings\OTT-23014068-A0_Ph-1_2170-Mer-Bleue-Rd.dwg
Last Saved: May 30, 2024 10:13 AM Last Plotted: May 30, 2024 10:14 AM Plotted by: SeverA

Appendix F: Site Photographs



Photograph No. 1
View of the Phase One property from Mer Bleue Road, looking northwest.



Photograph No. 2
View of the Phase One property and Mer Bleue Road, looking north.



Photograph No. 3

View of the typical ground cover of the Phase One property, looking northeast.



Photograph No. 4

View of the hydro corridor south of the Phase One property, facing south.



Photograph No. 5

View of fence surrounding the snow disposal facility immediately west of the Phase One property, looking west. Note the higher elevation of the snow disposal facility.



Photograph No. 6

View of the temporary surface water observed on the Phase One property.



Photograph No. 7

View of the adjacent undeveloped property to the north, looking north.



Photograph No. 8

Taken from the eastern Phase One property boundary, view of Mer Bleue Road followed by the hydro corridor, looking east.

Appendix G: Borehole Logs

Log of Borehole MW24-01

Project No: OTT-23010468-A0

Project: Phase Two ESA

Location: 2170 Mer-Bleue Rd, Ottawa, ON K4A 3T8

Figure No. 1

Page. 1 of 1

Date Drilled: 'August 2, 2024

Drill Type: CME 55 Truck Mounted Drill

Datum: Assumed Benchmark

Logged by: D.C Checked by: S.L

Split Spoon Sample ⊠ | Auger Sample ◧ | SPT (N) Value ○ | Dynamic Cone Test ——— | Shelby Tube ■ | Shear Strength by Vane Test +S

Combustible Vapour Reading □ | Natural Moisture Content × | Atterberg Limits ⊢○ | Undrained Triaxial at % Strain at Failure ⊕ | Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Assumed Benchmark m	Depth	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Wt. kN/m³
		TOPSOIL ~150 mm thick	100.025	0				
		SILTY CLAY Clay, trace sand and gravel, grey, damp becoming wet at 2.4 m, no odours, no stains, (soft to very stiff)	99.9		18	0 ppm	SS1	
				1	9	0 ppm	SS2	
					7	0 ppm	SS3	
			98.205	2	3	0 ppm	SS4	
					1, and Hammer Weight	0 ppm	SS5	
				3	4	15 ppm	SS6	
			96.4		1, and 50 for 100mm			
		GLACIAL TILL Sand and gravel, rock fragments, roots, brown, wet, no odours, no stains, (dense)	96.1			5 ppm	SS7	
		Borehole Terminated at 3.9 m Depth						

Note:

1) SS5 and duplicate samples submitted for environmental laboratory analyses.

LOG OF BOREHOLE 2170 MER BLEUE.GPJ TROW OTTAWA.GDT 8/15/24

NOTES:

1. Borehole data requires interpretation by EXP before use by others
2. A 50 mm diameter monitoring well installed as shown.
3. Field work supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report OTT-23010468-A0

WATER LEVEL RECORDS		
Date	Water Level (m)	Hole Open To (m)
'August 2, 2024	1.8	

CORE DRILLING RECORD			
Run No.	Depth (m)	% Rec.	RQD %

Log of Borehole MW24-02

Project No: OTT-23010468-A0

Project: Phase Two ESA

Location: 2170 Mer-Bleue Rd, Ottawa, ON K4A 3T8

Figure No. 2

Page. 1 of 1

Date Drilled: 'August 2, 2024

Drill Type: CME 55 Truck Mounted Drill

Datum: Assumed Benchmark

Logged by: D.C Checked by: S.L

Split Spoon Sample ⊠ | Auger Sample ◧ | SPT (N) Value ○ | Dynamic Cone Test —— | Shelby Tube ■ | Shear Strength by Vane Test +S

Combustible Vapour Reading □ | Natural Moisture Content ✕ | Atterberg Limits ⊢○ | Undrained Triaxial at % Strain at Failure ⊕ | Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Assumed Benchmark m	Depth	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Wt. kN/m³
		TOPSOIL ~200 mm thick	99.654	0				
		SILTY CLAY Silty clay, grey to brown, damp, no odours, some oxidation, (firm to very stiff)	99.5		17	0 ppm	SS1	
				1	8	0 ppm	SS2	
			98.124		9	0 ppm	SS3	
		CLAY Grey, wet, no odours, no stains, (very soft to soft)	97.9	2	16	0 ppm	SS4	
					5	0 ppm	SS5	
				3	3	0 ppm	SS6	
				4	2	0 ppm	SS7	
					Hammer Weight	10 ppm	SS8	
			94.8					

Borehole Terminated at 4.9 m Depth

Note:

1) SS6 sample submitted for environmental laboratory analyses.

NOTES:

1. Borehole data requires interpretation by EXP before use by others
2. A 50 mm diameter monitoring well installed as shown.
3. Field work supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report OTT-23010468-A0

WATER LEVEL RECORDS		
Date	Water Level (m)	Hole Open To (m)
'August 2, 2024	1.5	

CORE DRILLING RECORD			
Run No.	Depth (m)	% Rec.	RQD %

LOG OF BOREHOLE 2170 MER BLEUE.GPJ TROW OTTAWA.GDT 8/15/24

Log of Borehole MW24-03

Project No: OTT-23010468-A0

Project: Phase Two ESA

Location: 2170 Mer-Bleue Rd, Ottawa, ON K4A 3T8

Figure No. 3

Page. 1 of 1

Date Drilled: 'August 2, 2024

Drill Type: CME 55 Truck Mounted Drill

Datum: Assumed Benchmark

Logged by: D.C Checked by: S.L

Split Spoon Sample ⊠ | Auger Sample ◧ | SPT (N) Value ○ | Dynamic Cone Test ——— | Shelby Tube ■ | Shear Strength by Vane Test +S

Combustible Vapour Reading □ | Natural Moisture Content × | Atterberg Limits ⊢○ | Undrained Triaxial at % Strain at Failure ⊕ | Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Assumed Benchmark m	Depth	Standard Penetration Test N Value / Shear Strength kPa (20 40 60 80 / 50 100 150 200)	Combustible Vapour Reading (ppm) (250 500 750) / Natural Moisture Content % Atterberg Limits (% Dry Weight) (20 40 60)	SAMPLES	Natural Unit Wt. kN/m³
		TOPSOIL ~100 mm thick	100.079	0				
		100.0						
		SILTY CLAY Silty clay, grey, damp, no odours, no stains, (firm to stiff)			15	0 ppm	SS1	
				1	7	0 ppm	SS2	
		98.9						
		CLAY Some till , grey, damp to wet, no odours, no stains, (stiff to very soft)			11	0 ppm	SS3	
			98.159	2	8	0 ppm	SS4	
					3	0 ppm	SS5	
				3	1, and Hammer Weight	0 ppm	SS6	
				4	2	0 ppm	SS7	
					Hammer Weight	0 ppm	SS8	
		95.2						
		Borehole Terminated at 4.9 m Depth						
		Note: 1) SS7 sample submitted for environmental laboratory analyses.						

LOG OF BOREHOLE 2170 MER BLEUE.GPJ TROW OTTAWA.GDT 8/15/24

NOTES:

1. Borehole data requires interpretation by EXP before use by others
2. A 50 mm diameter monitoring well installed as shown.
3. Field work supervised by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report OTT-23010468-A0

WATER LEVEL RECORDS		
Date	Water Level (m)	Hole Open To (m)
'August 2, 2024	1.9	

CORE DRILLING RECORD			
Run No.	Depth (m)	% Rec.	RQD %

Appendix H: Analytical Summary Tables

L ANALYTICAL RESULTS
X and PHC
0 Mer Bleue Road, Ottawa

/g)	MECP Table 3[1]	MW24-2 SS6	MW24-1 SS5	MW24-3 SS7	DUP (duplicate of MW24-1 SS5)
d/m/y)	Industrial	02/08/24	02/08/24	02/08/24	02/08/24
(mbg)		3.0-3.6	2.4-3.0	3.6-4.2	2.4-3.0
	0.4	<0.02	<0.02	<0.02	<0.02
	19	<0.05	<0.05	<0.05	<0.05
	78	<0.05	<0.05	<0.05	<0.05
	30	<0.05	<0.05	<0.05	<0.05
$_{10}$)	65	<7	<7	<7	<7
C_{16})	250	<4	<4	<4	<4
C_{34})	2500	<8	<8	<8	<8
C_{50})	6600	<6	<6	<6	<6

P Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the EPA, April 2011,
3 non potable industrial standards, fine textured soil.
entration exceeds MECP Table 3 industrial soil quality standard.

TABLE 2 SOIL ANALYTICAL RESULTS
METALS
2170 Mer Bleue Road, Ottawa

Parameter (µg/g)	MECP Table 3[1]	MW24-2 SS6	MW24-1 SS5	MW24-3 SS7	DUP (duplicate of MW24-1 SS5)
Sample Date (d/m/y)	Industrial	02/08/24	02/08/24	02/08/24	02/08/24
Sample Depth (mbsg)		3.0-3.6	2.4-3.0	3.6-4.2	2.4-3.0
Antimony	50	<1.0	<1.0	<1.0	<1.0
Arsenic	18	3.8	3.2	3.4	3.6
Barium	670	269	332	294	310
Beryllium	10	0.8	0.8	0.8	0.8
Boron	120	7.0	5.6	5.3	7.5
Cadmium	1.9	<0.5	<0.5	<0.5	<0.5
Chromium (VI)	10	0.4	0.5	<0.2	0.5
Chromium	160	124	113	108	83.0
Cobalt	100	23.1	22.8	23.0	19.9
Copper	300	62.9	49.3	48.8	42.2
Lead	120	6.3	6.0	5.6	6.7
Mercury	20	<0.1	<0.1	<0.1	<0.1
Molybdenum	40.0	<1.0	<1.0	<1.0	<1.0
Nickel	340	65.9	62.6	61.0	47.7
Selenium	5.5	<1.0	<1.0	<1.0	<1.0
Silver	50	<0.3	<0.3	<0.3	<0.3
Sodium	NS	2500	2300	2560	1870
Thallium	3.3	<1.0	<1.0	<1.0	<1.0
Uranium	33	<1.0	<1.0	1.1	<1.0
Vanadium	86	111	105	108	90.2
Zinc	340	123	125	125	109

NOTES:

1	MECP Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the EPA, April 2011, Table 3 non potable industrial standards, fine textured soil.
Shaded	Concentration exceeds MECP Table 3 industrial soil quality standard.
NS	No standard available in Table 3

TABLE 3 SOIL ANALYTICAL RESULTS
GENERAL INORGANICS
2170 Mer Bleue Road, Ottawa

Parameter	MECP Table 3[1]	MW24-2 SS6	MW24-1 SS5	MW24-3 SS7	DUP (duplicate of MW24-1 SS5)
Sample Date (d/m/y)	Industrial	02/08/24	02/08/24	02/08/24	02/08/24
Sample Depth (mbsg)		3.0-3.6	2.4-3.0	3.6-4.2	2.4-3.0
Sodium Absorption Ratio (SAR)	12	0.78	0.46	0.67	0.57
Electrical Conductivity (EC, mS/cm)	1.4	0.154	0.12	0.189	0.131
Chloride (ug/g)	NA	<10	<10	<10	<10

NOTES:

1 MECP Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the EPA, April 2011, Table 3 non potable industrial standards, fine textured soil.

Shaded Concentration exceeds MECP Table 3 industrial soil quality standard.

TABLE 4 GROUNDWATER ANALYTICAL RESULTS
BTEX and PHC
2170 Mer Bleue Road, Ottawa

(µg/L)

Parameter	MECP Table 3[1]	MW24-1	MW24-2	MW24-3	DUP (duplicate of MW24-3)
Sample Date (d/m/y)		8/8/24	8/8/24	8/8/24	8/8/24
Benzene	430	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	2300	<0.5	<0.5	<0.5	<0.5
Toluene	18000	<0.5	<0.5	<0.5	<0.5
Xylenes	4200	<0.5	<0.5	<0.5	<0.5
PHC F_1 (C_6-C_{10})	750	<25	<25	<25	<25
PHC F_2 (>C_{10}-C_{16})	150	<100	<100	<100	<100
PHC F_3 (>C_{16}-C_{34})	500	<100	<100	<100	<100
PHC F_4 (>C_{34}-C_{50})	500	<100	<100	<100	<100

NOTES:

1 MECP Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the EPA, April 2011, Table 3 non potable standards, fine textured soil.

Shaded Concentration exceeds MECP Table 3 groundwater quality standard.

TABLE 5 GROUNDWATER ANALYTICAL RESULTS
METALS
2170 Mer Bleue Road, Ottawa

Parameter (µg/L)	MECP Table 3[1]	MW24-1	MW24-2	MW24-3	DUP (duplicate of MW24-3)
Sample Date (d/m/y)		08/08/24	08/08/24	08/08/24	08/08/24
Antimony	20000	<0.5	<0.5	<0.5	<0.5
Arsenic	1900	<1	1	1	1
Barium	29000	42	35	47	49
Beryllium	67	<0.5	<0.5	<0.5	<0.5
Boron	45000	25	136	80	81
Cadmium	2.7	<0.1	<0.1	<0.1	<0.1
Chromium (VI)	140	<10	<10	<10	<10
Chromium	810	<1	<1	<1	<1
Cobalt	66	<0.5	<0.5	<0.5	<0.5
Copper	87	<0.5	0.6	0.7	0.9
Lead	25	<0.1	<0.1	<0.1	<0.1
Mercury	2.8	<0.1	<0.1	<0.1	<0.1
Molybdenum	9200	4.5	4	2.2	2.1
Nickel	490	<1	<1	<1	<1
Selenium	63	<1	<1	<1	<1
Silver	1.5	<0.1	<0.1	<0.1	<0.1
Sodium	490000	30400	47900	40900	40700
Thallium	510	<0.1	<0.1	<0.1	<0.1
Uranium	420	2.2	2.9	2.8	2.8
Vanadium	250	1.1	2.5	1	1.1
Zinc	1100	<5	<5	<5	<5

NOTES:

1 MECP Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the EPA, April 2011, Table 3 non potable standards, fine textured soil.

Shaded Concentration exceeds MECP Table 3 groundwater quality standard.

TABLE 6 GROUNDWATER ANALYTICAL RESULTS
GENERAL ORGANICS
2170 Mer Bleue Road, Ottawa

Parameter	MECP Table 3[1]	MW24-1	MW24-2	MW24-3	DUP (duplicate of MW24-3)
Sample Date (d/m/y)		08/08/24	08/08/24	08/08/24	08/08/24
Sodium Absorption Ratio (SAR, ug/L))	NS	2.5	4.17	3.77	3.79
Electrical Conductivity (EC, mS/cm)	NS	599	610	538	538
Chloride (ug/L)	2300000	1	6	16	16

NOTES:

1	MECP Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the EPA, April 2011, Table 3 non potable industrial standards, fine textured soil.
Shaded	Concentration exceeds MECP Table 3 industrial soil quality standard.
NS	No standard available in Table 3

Appendix I: Laboratory Certificates of Analysis

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Certificate of Analysis

Inc. (Ottawa)
ensview Dr.
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uthier

Report Date
Order Dat

10468A0
762

Revised Report

Order #:

of Analysis contains analytical data applicable to the following samples as submitted:

Client ID
MW24-2-SS6
MW24-1-SS5
MW24-3-SS7
DUP

Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

CEL
LES LTD.

sis

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Order #: 2

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Order D

Project Description:

mary Table

	Method Reference/Description	Extraction Date
	EPA 300.1 - IC, water extraction	8-Aug-24
-MS	EPA 8260 - P&T GC-MS	6-Aug-24
alent - soil	MOE E3056 - Extraction, colourimetric	8-Aug-24
	MOE E3138 - probe @25 °C, water ext	8-Aug-24
	EPA 7471B - CVAA, digestion	7-Aug-24
	EPA 6020 - Digestion - ICP-MS	16-Aug-24
	CWS Tier 1 - P&T GC-FID	6-Aug-24
	CWS Tier 1 - GC-FID, extraction	6-Aug-24
by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	7-Aug-24
	Calculated	8-Aug-24
	CWS Tier 1 - Gravimetric	8-Aug-24

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Order D

Project Description:

	Client ID:	MW24-2-SS6	MW24-1-SS5	MW24-3-SS7	DUP	-
	Sample Date:	02-Aug-24 12:00	02-Aug-24 09:00	02-Aug-24 09:00	02-Aug-24 09:00	
	Sample ID:	2431558-01	2431558-02	2431558-03	2431558-04	
	Matrix:	Soil	Soil	Soil	Soil	
	MDL/Units					
eristics						
	0.1 % by Wt.	60.3	55.0	57.4	55.1	-
cs						
	0.01 N/A	0.78	0.46	0.67	0.57	-
	5 uS/cm	154	120	189	131	-
	10 ug/g	<10	<10	<10	<10	-
	1.0 ug/g	<1.0	<1.0	<1.0	<1.0	-
	1.0 ug/g	3.8	3.2	3.4	3.6	-
	1.0 ug/g	269	332	294	310	-
	0.5 ug/g	0.8	0.8	0.8	0.8	-
	5.0 ug/g	7.0	5.6	5.3	7.5	-
	0.5 ug/g	<0.5	<0.5	<0.5	<0.5	-
	0.2 ug/g	0.4	0.5	<0.2	0.5	-
	5.0 ug/g	124	113	108	83.0	-
	1.0 ug/g	23.1	22.8	23.0	19.9	-
	5.0 ug/g	62.9	49.3	48.8	42.2	-
	1.0 ug/g	6.3	6.0	5.6	6.7	-
	0.1 ug/g	<0.1	<0.1	<0.1	<0.1	-
	1.0 ug/g	<1.0	<1.0	<1.0	<1.0	-
	5.0 ug/g	65.9	62.6	61.0	47.7	-
	1.0 ug/g	<1.0	<1.0	<1.0	<1.0	-
	0.3 ug/g	<0.3	<0.3	<0.3	<0.3	-
	200 ug/g	2500	2300	2560	1870	-
	1.0 ug/g	<1.0	<1.0	<1.0	<1.0	-

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Order D

Project Description:

	Client ID:	MW24-2-SS6	MW24-1-SS5	MW24-3-SS7	DUP	-
	Sample Date:	02-Aug-24 12:00	02-Aug-24 09:00	02-Aug-24 09:00	02-Aug-24 09:00	
	Sample ID:	2431558-01	2431558-02	2431558-03	2431558-04	
	Matrix:	Soil	Soil	Soil	Soil	
	MDL/Units					
	1.0 ug/g	<1.0	<1.0	1.1	<1.0	-
	10.0 ug/g	111	105	108	90.2	-
	20.0 ug/g	123	125	125	109	-
	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-
	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-
	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-
	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-
	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-
	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-
	Surrogate	126%	131%	128%	129%	-
0)	7 ug/g	<7	<7	<7	<7	-
16)	4 ug/g	<4	<4	<4	<4	-
34)	8 ug/g	<8	<8	<8	<8	-
50)	6 ug/g	<6	<6	<6	<6	-

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Order D

Project Description:

y Control: Blank

	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
	ND	10	ug/g					
cs								
	ND	5	uS/cm					
	ND	7	ug/g					
6)	ND	4	ug/g					
-)	ND	8	ug/g					
0)	ND	6	ug/g					
	ND	1.0	ug/g					
	ND	1.0	ug/g					
	ND	1.0	ug/g					
	ND	0.5	ug/g					
	ND	5.0	ug/g					
	ND	0.5	ug/g					
	ND	0.2	ug/g					
	ND	5.0	ug/g					
	ND	1.0	ug/g					
	ND	5.0	ug/g					
	ND	1.0	ug/g					
	ND	0.1	ug/g					
	ND	1.0	ug/g					
	ND	5.0	ug/g					
	ND	1.0	ug/g					
	ND	0.3	ug/g					
	ND	200	ug/g					
	ND	1.0	ug/g					
	ND	1.0	ug/g					
	ND	10.0	ug/g					
	ND	20.0	ug/g					
	ND	0.02	ug/g					

Order #: 2

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Report Da

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Order D

Project Description:

y Control: Blank

	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
	ND	0.05	ug/g					
	ND	0.05	ug/g					
	ND	0.05	ug/g					
	ND	0.05	ug/g					
	ND	0.05	ug/g					
d8	*8.36*		*%*	*104*	*50-140*			

y Control: Duplicate

	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
	34.0	10	ug/g	34.4			1.3	35	
cs									
	0.79	0.01	N/A	0.78			1.3	30	
	155	5	uS/cm	154			0.6	5	
	ND	7	ug/g	ND			NC	40	
6)	ND	4	ug/g	ND			NC	30	
4)	ND	8	ug/g	ND			NC	30	
0)	ND	6	ug/g	ND			NC	30	
	ND	1.0	ug/g	ND			NC	30	
	3.5	1.0	ug/g	3.6			5.0	30	
	351	1.0	ug/g	310			12.3	30	
	0.8	0.5	ug/g	0.8			3.7	30	
	7.0	5.0	ug/g	7.5			6.8	30	
	ND	0.5	ug/g	ND			NC	30	
	ND	0.2	ug/g	0.2			NC	35	
	78.5	5.0	ug/g	83.0			5.5	30	
	18.6	1.0	ug/g	19.9			7.0	30	
	40.6	5.0	ug/g	42.2			3.9	30	
	7.9	1.0	ug/g	6.7			16.6	30	
	ND	0.1	ug/g	ND			NC	30	
	ND	1.0	ug/g	ND			NC	30	
	45.3	5.0	ug/g	47.7			5.1	30	
	ND	1.0	ug/g	ND			NC	30	
	ND	0.3	ug/g	ND			NC	30	
	2440	200	ug/g	2500			2.4	30	
	ND	1.0	ug/g	ND			NC	30	
	ND	1.0	ug/g	ND			NC	30	
	85.6	10.0	ug/g	90.2			5.3	30	

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Project Description:

y Control: Duplicate

	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
	104	20.0	ug/g	109			4.6	30	
teristics									
	84.0	0.1	% by Wt.	86.0			2.3	25	
	ND	0.02	ug/g	ND			NC	50	
	ND	0.05	ug/g	ND			NC	50	
	ND	0.05	ug/g	ND			NC	50	
	ND	0.05	ug/g	ND			NC	50	
	ND	0.05	ug/g	ND			NC	50	
-d8	*11.2*		*%*		*114*	*50-140*			

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Project Description:

y Control: Spike

	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
	130	10	ug/g	34.4	95.7	82-118			
	180	7	ug/g	ND	105	85-115			
6)	72	4	ug/g	ND	78.5	60-140			
4)	221	8	ug/g	ND	97.8	60-140			
0)	116	6	ug/g	ND	80.9	60-140			
	47.8	1.0	ug/g	1.5	92.7	70-130			
	176	1.0	ug/g	124	104	70-130			
	46.3	0.5	ug/g	ND	91.9	70-130			
	42.6	5.0	ug/g	ND	79.2	70-130			
	45.8	0.5	ug/g	ND	91.5	70-130			
	4.3	0.2	ug/g	0.2	71.0	70-130			
	82.3	5.0	ug/g	33.2	98.3	70-130			
	56.7	1.0	ug/g	8.0	97.4	70-130			
	61.4	5.0	ug/g	16.9	88.9	70-130			
	46.1	1.0	ug/g	2.7	86.8	70-130			
	1.46	0.1	ug/g	ND	97.4	70-130			
	48.4	1.0	ug/g	ND	96.6	70-130			
	66.6	5.0	ug/g	19.1	95.0	70-130			
	43.7	1.0	ug/g	ND	87.2	70-130			
	39.1	0.3	ug/g	ND	78.2	70-130			
	12200	200	ug/g	999	112	70-130			
	42.9	1.0	ug/g	ND	85.6	70-130			
	45.6	1.0	ug/g	ND	90.7	70-130			
	85.6	10.0	ug/g	36.1	99.1	70-130			
	85.2	20.0	ug/g	43.6	83.2	70-130			
	4.67	0.02	ug/g	ND	117	60-130			
	4.24	0.05	ug/g	ND	106	60-130			

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Order #: 2

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Order D

Project Description:

y Control: Spike

	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
	4.48	0.05	ug/g	ND	112	60-130			
	8.84	0.05	ug/g	ND	111	60-130			
	4.36	0.05	ug/g	ND	109	60-130			
-d8	*7.88*		*%*		*98.4*	*50-140*			

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Order D

Project Description:

ns:

s / Comments:

is report includes additional metals data (sodium) as per the chain of custody.

cable

cted

d Detection Limit

lt: Data used as source for matrix and duplicate samples

ent recovery.

e percent difference.

culated

reported on a dry weight basis unlesss otherwise noted.

s is reported, moisture loss includes the loss of volatile hydrocarbons.

dditional information:

or the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory. All prescribed quality criteria identified in the een met.

rected for BTEX.

es corrected for appropriate PAHs where available.

ric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.

here F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC criteria.

d, data for F4G has been processed using a silica gel cleanup.

results implies your agreement that our total liabilty in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents ny circumstances be liable to you in connection with this work.

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Paracel ID: 2431558

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2431558	№ 141762

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Clouthier / Scott Lessard
Queensview Ottawa
609-5966

Project Ref: OTT-23010468-A0
Quote #:
PO #:
E-mail: devin.clouthier@exp.com
scott.lessard@exp.com

Page 1 of 1

Turnaround Time
☐ 1 day ☐ 3 day
☐ 2 day ☒ Regular
Date Required:

EG 406/19: ☐ Med/Fine ☐ Coarse
Other Regulation: ☐ REG 558 ☐ PWQO ☐ CCME ☐ MISA ☐ SU - Sani ☐ SU - Storm
Mun:
☐ Other:

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

Required Analysis

ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	Inorganics	Hexavalent Chromium	Mercury		
1-2-SS6	S		2	02.08.2024	PM	X			X				X	X	X		
1-1-SS5	↓		↓	↓	AM	X			X				X	X	X		
4-3-SS7	↓		↓	↓	↓	X			X				X	X	X		
P	↓		↓	↓	↓	X			X				X	X	X		

...ndis chloride, SAR, EC metals - ICP metals, sodium

Method of Delivery: Walk

...	Received By Driver/Depot:	Received at Lab: CB 13:50	Verified By: SO
...n Clouthier	Date/Time:	Date/Time: Aug 2nd	Date/Time: Aug 2, 2024 2:28 pm
...024	Temperature: °C	Temperature: 16.7 °C	pH Verified: ☐ By:

Revision 4.0

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Report Date
Order Dat
10468
767
Order #:

of Analysis contains analytical data applicable to the following samples as submitted:

Client ID
MW24-1
MW24-2
MW24-3
DUP

Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

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Order #: 2

Report Da

Order D

Project Descriptio

mary Table

	Method Reference/Description	Extraction Date
	EPA 300.1 - IC	12-Aug-24
-MS	EPA 624 - P&T GC-MS	10-Aug-24
alent - water	MOE E3056 - colourimetric	9-Aug-24
	EPA 9050A- probe @25 °C	12-Aug-24
	EPA 245.2 - Cold Vapour AA	12-Aug-24
	EPA 200.8 - ICP-MS	12-Aug-24
	CWS Tier 1 - P&T GC-FID	9-Aug-24
	CWS Tier 1 - GC-FID, extraction	14-Aug-24
	Calculated	12-Aug-24

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Project Descriptio

	Client ID:	MW24-1	MW24-2	MW24-3	DUP	-
	Sample Date:	08-Aug-24 12:00	08-Aug-24 01:15	08-Aug-24 10:15	08-Aug-24 11:00	
	Sample ID:	2432380-01	2432380-02	2432380-03	2432380-04	
	Matrix:	Ground Water	Ground Water	Ground Water	Ground Water	
	MDL/Units					
cs						
	0.01	2.50	4.17	3.77	3.79	-
	5 uS/cm	599	610	538	538	-
	1 mg/L	1	6	16	16	-
	0.1 ug/L	<0.1	<0.1	<0.1	<0.1	-
	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-
	1 ug/L	<1	<1	1	1	-
	1 ug/L	42	35	47	49	-
	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-
	10 ug/L	25	136	80	81	-
	0.1 ug/L	<0.1	<0.1	<0.1	<0.1	-
	1 ug/L	<1	<1	<1	<1	-
	10 ug/L	<10	<10	<10	<10	-
	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-
	0.5 ug/L	<0.5	0.6	0.7	0.9	-
	0.1 ug/L	<0.1	<0.1	<0.1	<0.1	-
	0.5 ug/L	4.5	4.0	2.2	2.1	-
	1 ug/L	<1	<1	<1	<1	-
	1 ug/L	<1	<1	<1	<1	-
	0.1 ug/L	<0.1	<0.1	<0.1	<0.1	-
	200 ug/L	30400	47900	40900	40700	-
	0.1 ug/L	<0.1	<0.1	<0.1	<0.1	-
	0.1 ug/L	2.2	2.9	2.8	2.8	-
	0.5 ug/L	1.1	2.5	1.0	1.1	-

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Order #: 2

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Report Da

s Inc. (Ottawa)

Order D

Project Descriptio

	Client ID:	MW24-1	MW24-2	MW24-3	DUP	-
	Sample Date:	08-Aug-24 12:00	08-Aug-24 01:15	08-Aug-24 10:15	08-Aug-24 11:00	
	Sample ID:	2432380-01	2432380-02	2432380-03	2432380-04	
	Matrix:	Ground Water	Ground Water	Ground Water	Ground Water	
	MDL/Units					
	5 ug/L	<5	<5	<5	<5	-
	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-
	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-
	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-
	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-
	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-
	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-
	Surrogate	103%	102%	95.7%	102%	-
0)	25 ug/L	<25	<25	<25	<25	-
16)	100 ug/L	<100	<100	<100	<100	-
34)	100 ug/L	<100	<100	<100	<100	-
50)	100 ug/L	<100	<100	<100	<100	-

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Project Descriptio

y Control: Blank

	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
	ND	1	mg/L					
cs								
	ND	5	uS/cm					
	ND	25	ug/L					
6)	ND	100	ug/L					
-)	ND	100	ug/L					
9)	ND	100	ug/L					
	ND	0.1	ug/L					
	ND	0.5	ug/L					
	ND	1	ug/L					
	ND	1	ug/L					
	ND	0.5	ug/L					
	ND	10	ug/L					
	ND	0.1	ug/L					
	ND	10	ug/L					
	ND	1	ug/L					
	ND	0.5	ug/L					
	ND	0.5	ug/L					
	ND	0.1	ug/L					
	ND	0.5	ug/L					
	ND	1	ug/L					
	ND	1	ug/L					
	ND	0.1	ug/L					
	ND	200	ug/L					
	ND	0.1	ug/L					
	ND	0.1	ug/L					
	ND	0.5	ug/L					
	ND	5	ug/L					
	ND	0.5	ug/L					

y Control: Blank

	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
	ND	0.5	ug/L					
	ND	0.5	ug/L					
	ND	0.5	ug/L					
	ND	0.5	ug/L					
	ND	0.5	ug/L					
d8	*76.0*		*%*	*94.9*	*50-140*			

y Control: Duplicate

Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
17.2	1	mg/L	17.0			0.6	20	
ND	25	ug/L	ND			NC	30	
ND	0.1	ug/L	ND			NC	20	
0.69	0.5	ug/L	ND			NC	20	
2.0	1	ug/L	2.2			9.8	20	
87.4	1	ug/L	85.5			2.2	20	
ND	0.5	ug/L	ND			NC	20	
113	10	ug/L	118			4.3	20	
ND	0.1	ug/L	ND			NC	20	
ND	10	ug/L	ND			NC	20	
ND	1	ug/L	ND			NC	20	
0.62	0.5	ug/L	0.62			0.9	20	
1.20	0.5	ug/L	1.20			0.2	20	
0.89	0.1	ug/L	0.81			8.8	20	
20.5	0.5	ug/L	21.2			3.4	20	
1.6	1	ug/L	1.7			3.3	20	
4.0	1	ug/L	3.9			4.0	20	
ND	0.1	ug/L	ND			NC	20	
83400	200	ug/L	87700			5.0	20	
ND	0.1	ug/L	ND			NC	20	
3.4	0.1	ug/L	3.3			2.3	20	
1.10	0.5	ug/L	1.13			2.2	20	
ND	5	ug/L	ND			NC	20	
ND	0.5	ug/L	ND			NC	30	
ND	0.5	ug/L	ND			NC	30	
ND	0.5	ug/L	ND			NC	30	
ND	0.5	ug/L	ND			NC	30	

y Control: Duplicate

	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
	ND	0.5	ug/L	ND			NC	30	
-d8	*75.5*		*%*		*94.3*	*50-140*			

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Project Descriptio

y Control: Spike

	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
	26.2	1	mg/L	17.0	91.7	70-124			
	1950	25	ug/L	ND	97.4	85-115			
6)	1650	100	ug/L	ND	103	60-140			
4)	4120	100	ug/L	ND	105	60-140			
0)	2320	100	ug/L	ND	93.7	60-140			
	2.74	0.1	ug/L	ND	91.4	70-130			
	59.7	1	ug/L	2.2	115	80-120			
	139	1	ug/L	85.5	108	80-120			
	55.0	0.5	ug/L	ND	110	80-120			
	163	10	ug/L	118	89.0	80-120			
	50.9	0.1	ug/L	ND	102	80-120			
	176	10	ug/L	ND	88.0	70-130			
	58.2	1	ug/L	ND	116	80-120			
	54.4	0.5	ug/L	0.62	107	80-120			
	50.1	0.5	ug/L	1.20	97.8	80-120			
	50.0	0.1	ug/L	0.81	98.4	80-120			
	75.0	0.5	ug/L	21.2	108	80-120			
	53.1	1	ug/L	1.7	103	80-120			
	58.1	1	ug/L	3.9	109	80-120			
	49.9	0.1	ug/L	ND	99.7	80-120			
	10500	200	ug/L	ND	105	80-120			
	50.4	0.1	ug/L	ND	101	80-120			
	58.3	0.1	ug/L	3.3	110	80-120			
	60.3	0.5	ug/L	1.13	118	80-120			
	49	5	ug/L	ND	94.0	80-120			
	33.0	0.5	ug/L	ND	82.4	60-130			
	37.4	0.5	ug/L	ND	93.6	60-130			

y Control: Spike

	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
	37.1	0.5	ug/L	ND	92.8	60-130			
	78.5	0.5	ug/L	ND	98.1	60-130			
	39.3	0.5	ug/L	ND	98.3	60-130			
-d8	*67.3*		*%*		*84.2*	*50-140*			

CEL
LES LTD.

Order #: 2

sis

Report Da

s Inc. (Ottawa)

Order D

Project Descriptio

ns:

s / Comments:

cable

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d Detection Limit

lt: Data used as source for matrix and duplicate samples

ent recovery.

e percent difference.

culated

dditional information:

or the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory. All prescribed quality criteria identified in the een met.

rected for BTEX.

ges corrected for appropriate PAHs where available.

ric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.

here F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC criteria.

ed, data for F4G has been processed using a silica gel cleanup.

e results implies your agreement that our total liabilty in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents ny circumstances be liable to you in connection with this work.

RACEL
TORIES LTD

Paracel ID: 2432380

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2432380	№ 142767

Services Inc.
n Clouthier
Queensview Drive, Ottawa
-5966

Project Ref: OTT-23010468
Quote #:
PO #:
E-mail: devin.clouthier@exp.com
scott.lessard@exp.com

Page 1 of 1

Turnaround Time
☐ 1 day ☐ 3 day
☐ 2 day ☒ Regular
Date Required:

EG 406/19
☐ Med/Fine
☐ Coarse
No

Other Regulation
☐ REG 558 ☐ PWQO
☐ CCME ☐ MISA
☐ SU - Sani ☐ SU - Storm
Mun:
☐ Other:

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

Required Analysis

e ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	Hexavalent Chromium	Mercury	Inorganics		
v24-1	GW		8	08.08.2024	12:00	X			X				X	X	X		
v24-2	↓		↓	↓	1:15	X			X				X	X	X		
v24-3	↓		↓	↓	10:15	X			X				X	X	X		
UP	↓		↓	↓	11:00	X			X				X	X	X		

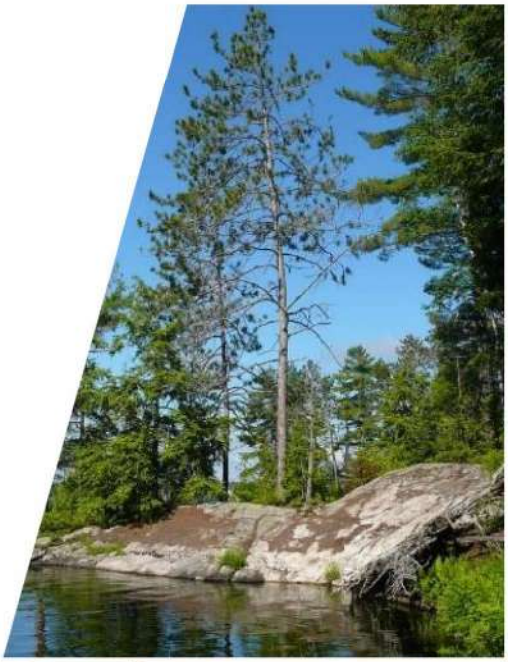
cluding chloride, SAR, EC Metals ICP including sodium

Method of Delivery: Walk

[signature]	Received By Driver/Depot: [signature] 2:31 pm	Received at Lab: [signature]	Verified By: SS
n Clouthier	Date/Time: Aug 08/24	Date/Time: Aug 8 2024 1603	Date/Time: 9 Aug 24 0946
4 2:30	Temperature: 15.6 °C	Temperature: 10.7 °C	pH Verified: ☒ By: SD

Revision 4.0

Appendix D4: Environmental Impact Study – Trails Edge Development North/Phase 5, GHD Limited



Environmental Impact Study

Trails Edge Development: North/Phase 5

Part Lots 1 & 2, Concession 3
City of Ottawa

Richcraft Group of Companies



Executive Summary

GHD Limited (GHD) was retained by Richcraft Group of Companies to complete an Environmental Impact Statement report for the proposed Trails Edge North development. The proposed development is located north of the hydro corridor. The property is bounded by the hydro corridor to the South, Mer Bleue Road to the east, commercial development to the north and Glenview's development to the west. The development also surrounds the City of Ottawa snow disposal facility.

GHD had completed an EIS for the East Urban Community concept plans for Richcraft and Minto, which included biological inventories on these lands in 2002. The development proposed at the time and since constructed is the Trails Edge West and Phases 2, 3 and 4.

A Natural Environment Existing Conditions Report was prepared by GHD for the East Urban Community (EUC) lands that fall within an area requiring a Community Design Plan (CDP) prior to development. Natural environmental surveys and background research were conducted by NEA (now GHD Limited) over multiple site assessments to inventory vegetation, birds, mammals, reptiles amphibians, fish and their habitat in 2012 and 2013. Additional surveys were conducted in 2017, 2018 and 2019 on bats, reptiles and butternut.

The study area was generally flat with mostly former agricultural fields that have regenerated in early successional species. A majority of the site was fields, with swamp and woodland pockets. A rock barren was identified south of Innes Park Woods.

The proposed development will not result in negative impacts on the identified natural heritage features or their functions, provided the measures described in Sections 5 and 7 are implemented.

GHD's recommendations have been made to address potential impacts to natural heritage features and/or their functions during site preparation, construction and post-construction periods. Additional dialogue with the MECP is required to ensure compliance with the Endangered Species Act. As well, discussions are required with the conservation authority regarding the wetlands. The extension of Frank Bender Street will also require especial construction to allow for snake passages under the roadway.

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1. Introduction

1.1 Background

GHD Limited (GHD) was retained by Richcraft Group of Companies to complete an Environmental Impact Statement report for the north portion of the proposed Trails Edge development. The proposed development is located north of the Phase 4 development. The property is bounded by Mer Bleue Road to the east and lands south of the commercial plaza on Innes Road, east of Glenview's development and north of the hydro corridor and future transit way.

GHD had completed an EIS for the Trail's Edge development for Richcraft and Minto, which included biological inventories on these lands in 2002. The development proposed at the time and since constructed is the Trails Edge West development. Another EIS had also been completed for Richcraft in August 2020 for the Trails Edge Phase 4 development, located south of the hydro corridor and Brian Coburn Boulevard.

A Natural Environment Existing Conditions Report was prepared by GHD for the East Urban Community (EUC) lands that fall within an area requiring a Community Design Plan (CDP) prior to development. Natural environmental surveys and background research were conducted by GHD Limited over multiple site assessments to inventory vegetation, birds, mammals, herptiles, fish and their habitat in 2012 and 2013, 2014, 2017, 2018, and 2019.

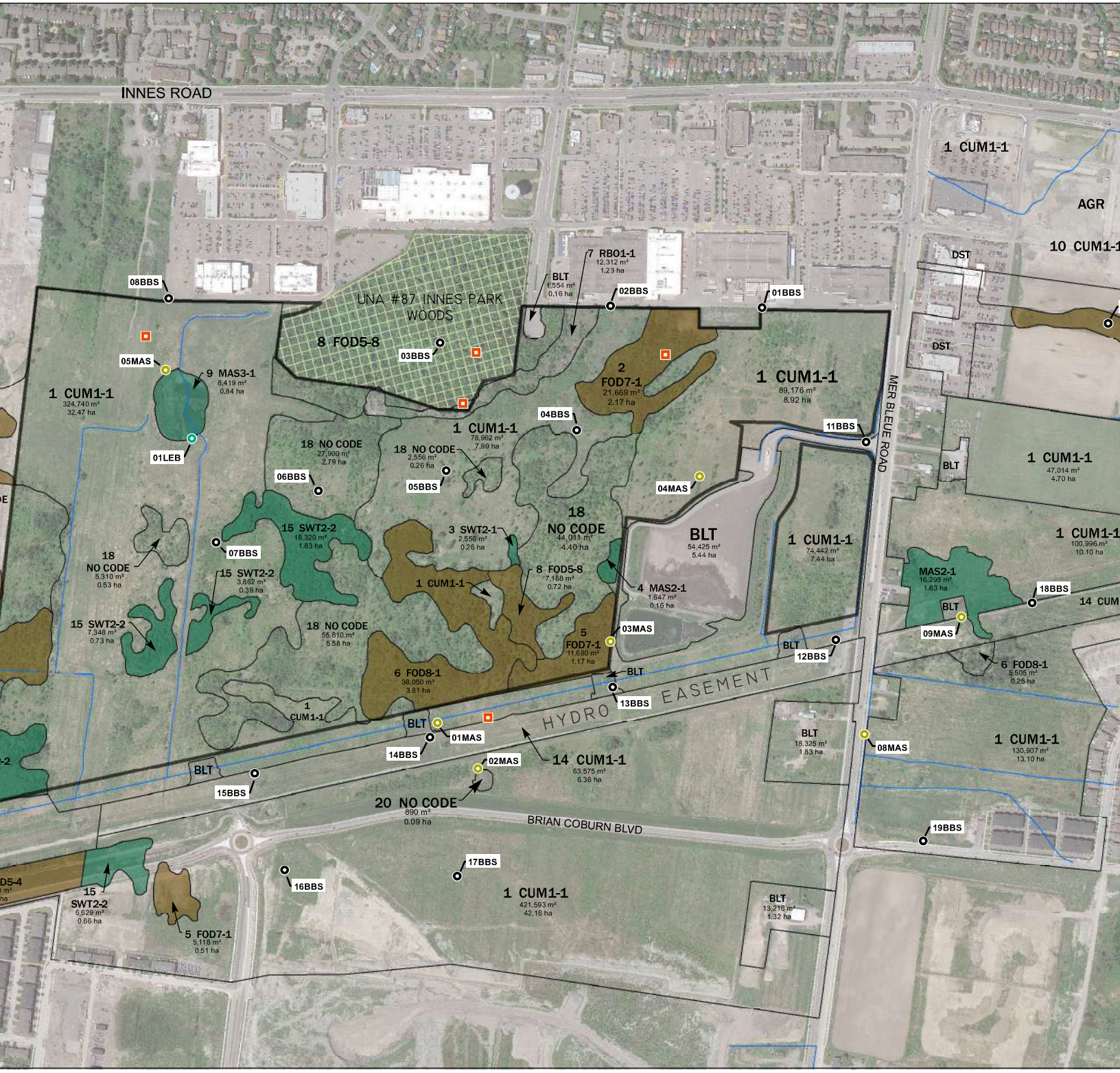
An Environmental Impact Statement was also completed for the Trails Edge East property as it contained a natural feature (watercourse) as identified in Schedule L1 in the City of Ottawa Official Plan (2003). Natural environmental surveys over multiple site assessments, background research including a review of GHD's existing report as mentioned above were reviewed.

1.2 Location and Study Area

The subject lands encompass approximately 100 ha. The study area includes the subject lands (as defined above) as well and all natural features within 120 meters. This includes any woodlots, wetlands and/or watercourses found in the adjacent lands.

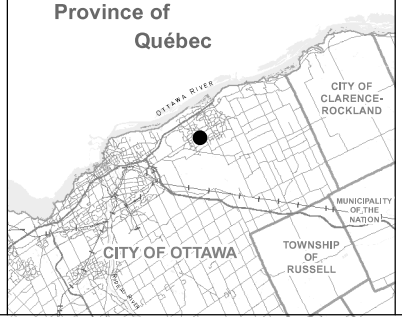
The study area consisted of a large area containing cultural meadows, numerous deciduous woodlots, wetlands and rock barrens.

Extensive works have and are occurring in the area including construction of Brian Coburn Parkway, widening of Mer Bleue Road, subdivision development to the east of Mer Bleue Road, commercial developments to the north and construction of Trails' Edge West development final phases and a new school on Renaud Road.



LABELS

1,045 m² 0.45 ha	Area (meters squared) Area (hecates)
01BBS	Breeding Bird Survey Label
01MAS	Marsh Monitoring Amphibian Survey Label
01LEB	Least Bittern Survey Label



REVISION & WORK HISTORY

REV	BY	DATE	DESCRIPTION	REQUEST
rev-0	W.P.	2017-04-17	Initial map creation.	K.R.
rev-1	W.P.	2020-10-27	Make current. Amendments to labeling, vegetation, symbology. New development boundary.	C.E.
rev-2	W.P.	2020-11-23	Phase 5 labeling.	C.E.

CONTACT: Will Pridham / GIS Specialist
EMAIL: will.pridham@ghd.com

PROJECT NO: CA-PET-11217236
PROJECT: Trail's Edge East - Phase 5
RECENT DATE: 2020-11-23
CLIENT: Richcraft Homes

MTM ZONE 9

ATTRIBUTION: Produced by GHD Limited under Licence with the Ontario Ministry of Natural Resources and Forestry© Queen's Printer for Ontario, 2020 (2020).

GHD LIMITED
NATURAL RESOURCES - SERVICES
www.ghd.com

1.3 Study Rationale

This section identifies federal, provincial and other regulatory legislation, policies, official plans (OP) and OP amendments that are applicable and relevant to the study area and the immediate vicinity. This includes policies that triggered the study. These documents may identify natural features, Species at Risk and other habitat as well as other features relevant to this study.

1.3.1 Federal Legislation

Migratory Birds Convention Act

The purpose of the Migratory Birds Convention Act (MBCA 1994) is to implement the Convention by protecting and conserving migratory birds, as populations and individual birds, and their nests.

No work is permitted to proceed that would result in the destruction of active nests (i.e., nests with eggs or young birds), or the wounding or killing of bird species protected under the MBCA and/or Regulations under that Act.

1.3.2 Provincial Legislation

Endangered Species Act, 2007

The purposes of the Ontario Endangered Species Act (ESA 2007) area:

- To identify species at risk based on the best available scientific information, including information obtained from community knowledge and aboriginal traditional knowledge.
- To protect species that are at risk and their habitats, and to promote the recovery of species that are at risk.
- To promote stewardship activities to assist in the protection and recovery of species that are at risk. 2007, c. 6, s.1. (Government of Ontario, 2019)

The ESA clearly defines the five classifications of species status as *extinct, extirpated, endangered, threatened*, or *special concern*, and provides guidelines on the process of species status determination.

Regulations made under this act include: Ontario Regulation 230/08 and 242/08.

Ontario Regulation 230/80 provides the list of Species at Risk (SAR) in Ontario, which is updated regularly. This list was most recently consolidated on August 1, 2018 (Government of Ontario, 2019b). Species status provided in the list is assessed by an independent body, the Committee on the Status of Species at Risk in Ontario (COSSARO), based on the best available science and Aboriginal Traditional Knowledge.

General habitat protection is afforded to all species listed as *endangered or threatened*. General habitat descriptions are technical, science-based documents that have been developed for some of the species that are most likely to be affected by human activity (Government of Ontario 2019c). Further information including a *Recovery Strategy* or *Management Plan* is required for each listed species, on a timeline dictated by the species status.

Ontario Regulation 242/80 explains possible exemptions of the ESA and details on how the purpose of the ESA is to be carried out.

Planning Act and Provincial Policy Statement

The Provincial Policy Statement, 2020 (PPS) is the statement of the Ontario government's policies on land use planning. It applies province wide (in the province of Ontario) and provides provincial policy direction on land use planning. Municipalities use the PPS to develop their official plans and to guide and inform decisions on other planning matters. The PPS is issued under section 3 of the Planning Act and all decisions affecting land use planning matters shall be consistent with the Provincial Policy Statement (Government of Ontario, 2014).

Portions of Sections 2.1.4.-2.1.8. of the Provincial Policy Statement (PPS 2014) apply to this project.

2.1.4. Development and site alteration shall not be permitted in:

a) significant wetlands in Ecoregions 5E, 6E, and 7E, and

2.1.5. Development and site alterations shall not be permitted in:

a) significant wetlands in the Canadian Shield north of Ecoregions 5E, 6E, and 7E;

d) significant wildlife habitat;

2.1.6. Development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements

2.1.7 Development and site alteration shall not be permitted in habitat of endangered species and threatened species, except in accordance with provincial and federal requirements

2.1.8. Development and site alteration shall not be permitted on adjacent lands to the natural heritage features and areas identified in policies 2.1.4., 2.1.5., and 2.1.6. unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions.

1.3.3 Local and Other Regulatory Bodies

City of Ottawa Official Plan (2003) Requirements

The property is adjacent to the Natural Heritage System, as identified in the City of Ottawa OP, Schedule L1.

Sections: 2.4.2, 4.7.3, 4.7.4, 4.7.8 of the City of Ottawa OP (City of Ottawa, 2003) apply.

2.4.2 Natural Features and Functions

1) The natural heritage system in Ottawa comprises the following significant features and the natural functions they perform:

a) Provincially significant wetlands as identified by the Ministry of Natural Resources

b) Significant habitat for endangered and threatened species, as approved by the Ministry of Natural Resources;

c) *Significant woodlands defined in the rural area as woodlands that combine all three features listed below in a contiguous, forested area:*

   i. *Mature stands of trees 80 years of age or older; and*

   ii. *Interior forest habitat located more than 100 m inside the edge of a forest patch; and*

   iii. *Woodland adjacent to a surface water feature such as a river, stream, drain, pond or wetland, or any groundwater feature including springs, seepage areas, or areas of groundwater upwelling;*

d) *Wetlands found in association with significant woodlands;*

e) *Significant valleylands defined as valleylands with slopes greater than 15% and a length of more than 50 m, with water present for some period of the year, excluding man-made features such as pits and quarries;*

f) *Significant wildlife habitat found on escarpments with slopes exceeding 75% and heights greater than 3 m; or within significant woodlands, wetlands, and valleylands; or that may be identified through sub watershed studies or site investigation;*

g) *Life Science Areas of Natural and Scientific Interest as identified by the Ministry of Natural Resources;*

h) *Earth Science Areas of Natural and Scientific Interest as identified by the Ministry of Natural Resources designated on Schedule K;*

i) *Urban Natural Features, consisting of remnant woodlands, wetlands and ravines within the urban area;*

j) *Forest remnants and natural corridors such as floodplains that create linkages among the significant features defined above, but that may not meet the criteria for significance;*

k) *Groundwater features, defined as water-related features in the earth's subsurface, including recharge/discharge areas, water tables, aquifers and unsaturated zones that can be defined by surface and subsurface hydrogeologic investigations;*

l) *Surface water features, defined as water-related features on the earth's surface, including headwaters, rivers, stream channels, drains, inland lakes, seepage areas, recharge/discharge areas, springs, and associated riparian lands that can be defined by their soil moisture, soil type, vegetation or topographic characteristics, including fish habitat.*

2. *The natural heritage system, as defined in policy 1, is protected by:*

   a) *Establishing watershed and subwater shed plans as the basis for land-use planning in Ottawa through policies in Section 2 of this Plan. These plans may use additional criteria to define significant features that reflect unique*

characteristics of the area or the presence or relative abundance of the feature within the subwater shed compared with other subwater sheds;

b) *Protecting the quality and quantity of groundwater through policies in Section 2;c. Designating most significant features as Significant Wetlands, Natural Environment Areas, and Rural Natural Features on schedules within the Plan and setting policies in Section 3 to ensure they are preserved;*

d) *Ensuring that land is developed in a manner that is environmentally-sensitive through the development review process in keeping with policies in Section 4 regarding such matters as design with nature, erosion protection and protection of surface water, protection of significant habitat for endangered and threatened species and requirements for Environmental Impact Statements.*

3. *Regardless of whether the features are designated in this Plan, an Environmental Impact Statement is required for development proposed within or adjacent to features described in Policy 1 above, with the exception of surface and groundwater features. Development and site alteration within or adjacent to these features will not be permitted unless it is demonstrated through an Environmental Impact Statement that there will be no negative impact on the feature or its ecological functions. The policies regarding Environmental Impact Statements and the definition of terms are contained in Section 4.7.8.*

Other guiding Policies of the OP which apply to this project included:

Section 4.7.3 of the OP contains policies on the identification of surface water features and aquatic habitat and development constraint/opportunity considerations relating to their presence.

Section 4.7.4 of the OP protects Endangered and Threatened species as listed under the Ontario Regulation 230/08 of the Endangered Species Act, 2007.

Section 4.7.8 of the OP outlines what should be included in an Environmental Impact Statement and in what cases one is required.

South Nation Conservation Authority Regulation 170/06

Establishes regulated areas where development may be subject to flooding, erosion or dynamic beaches; or where interference with wetlands and alterations to shorelines and watercourses might have an adverse effect on those environmental features. Any proposed development, interference or alteration within a Regulated Area requires a permit, including altering a river, stream or watercourse or interfering with a wetland.

1.4 Other Resources Referenced

Prior to field surveys, background information for the study area and surrounding lands from a variety of sources were reviewed to provide context for the setting and sensitivity of the site. Background information sources include:

1.4.1 Data Sources

- Aerial imagery
- OMNRF Land Information Ontario (LIO) database mapping and Natural Heritage Information Centre (NHIC) Make a Map tool (2018)
- Ontario Breeding Bird Atlas data (Bird Studies Canada, 2007)
- Species at Risk in Ottawa (May 2014)
- MNR natural heritage GIS database;

1.4.2 Literature and Resources

- Natural Heritage Reference Manual (MNRF, 2010)
- Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E. 45pp. (OMNRF, 2015)
- Trails Edge subdivision EIS (NEA, 2009);
- East Urban Community Mixed Use Centre CDP Natural Environment Existing Conditions Report (NEA, 2014)
- Trails Edge East Subdivision EIS (NEA, 2016)
- UNAEES (Muncaster and Brunton, 2005

1.5 Description of Development

The proposal is for a draft plan of subdivision including single-family dwellings and townhomes. The northern triangle is slotted for mixed use (Figure 1.1). The conceptual site plan for the North development is found in Appendix III.

1.6 Scope of Report

The Environmental Impact Statement documents the existing conditions of the terrestrial habitat, urban natural features, and wetlands. Significant natural features and linkages within the study area including Species at Risk and other Areas of Interest area identified. The potential impacts of existing and future land-use activities will also be outlined.

Specifically, the Environmental Impact Statement will:

a) Identify the location and extent of sensitive or significant natural heritage features within the Study area

b) Identify any lands to be preserved in their natural state;

c) Identify mitigating measures to address the negative effects of development on the natural heritage features and their ecological functions;

d) Determine the development limit setback from any natural heritage features

e) Identify the potential for restoration and/or creation of wildlife habitat on the remaining lands outside the development parcel; and in buffers/setbacks

f) Provide information on the natural features within the Study Area as suitable for input into the City of Ottawa's Natural Heritage Resource inventory.

g) Discuss Impacts on natural features or functions as a result of the proposed development.

2. Study Methods

2.1 General Approach

Our approach to preparation of this Environmental Impact Statement consisted of three distinct phases. In the first phase we collected and reviewed available information on the site including recent air photography, SNCA and RVCA regulated area and wetland mapping, key natural features GIS mapping, City of Ottawa Official Plan schedules, City of Ottawa guidelines and other correspondence or files.

The second phase consisted of site visits by GHD biologists on August 14, 2020 to confirm the data collected in the literature review. Vegetation boundaries were delineated and detailed inventories of the flora and fauna completed. The boundaries of the vegetation communities were confirmed in the field. The inventory included vegetation community mapping and determination of significant features on site.

The third phase consisted of preparing an EIS report based upon the information gathered from the literature review and any field surveys completed. The report has been designed to in accordance with applicable legislation and policies (as outlined in Section 1.3). Specific mitigation measures for protecting natural features and sensitive species in the study area are included. The report also contains a figure that illustrates the location of vegetation communities and any recommended buffers or setbacks.

2.2 Site Study Methodology

2.2.1 Physical Site Characteristics

Site characteristics were assessed during several visits to the study area. Documented characteristics included existing disturbances, current use of the site, age of vegetation cover, access lanes, trails, general topography and soils.

2.2.2 Biophysical Inventory

2.2.2.1 Vegetation

ELC Survey Method

All vegetation communities on and adjacent to the study lands were visited and species composition determined. Community type determination criterion followed that of MNRF's Ecological Land Classification for Southern Ontario (ELC) program (Lee et al., 1998) was done to the vegetation type level. The presence of rare species or significant communities was documented and locations mapped.

Photographs and/or specimens were taken of plants requiring verification of identification.

National, provincial and regional significance was determined from accepted status lists and published reference lists such as COSEWIC (2019), COSSARO (2018), ESA (2007), MNRF's Make-a-map (2020), Brunton (2005) and Cuddy (1991).

2.2.2.2 Birds

Breeding Bird Survey BBS Survey

Breeding Bird surveys were not conducted specifically in 2020 for the study area, however the surveys conducted in 2014 and 2016 for previous reports captured the study area for North. Breeding bird surveys were conducted on June 19, 2014 and June 12 and July 9, 2016 in the general area of the subject property during the peak breeding season (Figure 1.1.) Surveys were timed to coincide with the dawn chorus and within acceptable weather parameters. The surveys were a combination of point counts and area searches and covered all portions of the property. Specific effort was made to identify habitat for Species at Risk and presence-absence.

Marsh Monitoring Program – Bird Surveys

The wetland areas were surveyed using Bird Studies Canada's Marsh Monitoring Program (MMP) protocols (BSC, 2005). The protocol includes a combination of listening periods and playing of taped bird calls over a 13 minute survey period for each station. Birds were recorded on standard MMP data sheets within the 100 m circle and recording of individual birds for the primary or target species. All secondary birds were recorded on the standardized forms. Habitat forms were also prepared for each station using the standardized MMP forms. Surveys were conducted during the peak breeding bird season for the MMP Significance.

Area Searches

Incidental observations and area searches were also completed for the north portion area on August 14, 2020 to identify any additional birds using the property.

Significance on a national, provincial or regional level will be based on COSEWIC (2019), SARO (2018), ESA (2007), SARA (2016) and MNR (1993 and 2000 updates).

2.2.2.3 Amphibians

Targeted spring surveys for breeding amphibians were completed in the evenings to record any calling breeding frogs. Surveys covered all wetland and adjacent upland habitats, vernal pools and backwaters of any watercourses and wetlands. These stations were visited twice between April 1st and July 31st 2014 with a minimum of 15 days between visits. Two surveys were conducted instead of three as by the second survey the calls had slowed down and the species that call later were already identified in the second survey. It is for that reason a third visit was not conducted.

Surveys were completed at least 30 minutes after sunset and completed by midnight. Field conditions were recorded upon arrival (cloud cover, temperature, wind, precipitation). Observations at each station would sustain for 3 minutes where Call level codes were recorded. Protocol from Environment Canada's Marsh Monitoring Program (BSC, 2008) was utilized using associated call level codes:

Code 1: Calls not simultaneous, number of individuals can be accurately counted
Code 2: Some calls simultaneous, number of individuals can be reliably estimated
Code 3: Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated.

Whether the species were located within or outside of 100 meters of the survey station was recorded.

2.2.2.4 Reptiles

Incidental observations of turtles, turtle nests, snake hibernacula and snakes were also recorded. Reptile searches were active with brush piles, fencerows, stone piles, crevasses, woody debris, refuse and rock slopes checked for snakes and evidence of hibernacula. All reptiles encountered were located by GPS and number and size of individuals noted. Surveys for turtles were conducted by walking through and along the edge of suitable wetland habitat in the evening. Surveys were also timed to the peak nesting period for turtles and suitable nesting habitat checked for recent activity or predated nests.

2.2.2.5 Other Wildlife

Incidental observations of amphibians, turtles, turtle nests, snake hibernacula and snakes were also recorded. Reptile searches were active with brush piles, fencerows, stone piles, crevasses, woody debris, refuse and rock slopes checked for snakes and evidence of hibernacula.

Incidental observations of mammals were made during the site visit. Observations included direct sightings and indirect evidence such as calls, scat, browse, burrows, tracks, dens and nests. The occurrence of linkages and corridors within the area were assessed based on field work and existing literature.

Surveys were also conducted to identify potential bat maternity roosting trees.

Significance on a national, provincial or regional level was based on COSEWIC (2019), COSSARO (2018), SARA (2016) and MNRF (1993 and 2000).

2.2.2.6 Wetlands

The wetland boundary was delineated in two phases. The first phase involved reviewing aerial photographs and available wetland mapping and the presence of wetland habitats on the adjacent property and confirmation the wetland boundary was done by applying the methodologies of the Ontario Wetland Evaluation System, third edition, version 3.2, southern Ontario manual (2013) and CLOCA definitions. The entire property was walked and the plant species, soils and soil moisture checked. The boundary of the wetland was delineated in the field using a high accuracy GPS unit.

2.2.2.7 Significant Wildlife Habitat

The identification of Significant Wildlife Habitat is completed in several stages. As part of the background review, natural areas in the study area are examined along with aerial photography. A candidate list of SWH criteria/feature is determined. During the field visits searches for evidence of those identified candidate features are conducted and the features assessed.

After the field inventories, GHD biologists analyze the information collected and determine which SWH features were confirmed based on the habitats on site and on the Ecological Land Classification communities present on the subject property, using the criteria for Significant Wildlife Habitat in Ecoregion 6E (2015).

2.2.2.8 Species at Risk

A complete background literature review from MNR-NHIC, and the City of Ottawa was conducted to ensure the project met the strict policies of these Acts.

- Reviewed and analysed list of federal and/or provincially significant species found within the study area;
- Conducted detailed targeted inventories within the appropriate season to determine presence or absence of species that may find suitable habitat within the development area. Current target species included the barn swallow, common nighthawk, chimney swift, eastern wood-pewee, bank swallow, wood thrush, bobolink, eastern meadowlark, short-eared owl, whip-poor-will, black tern, loggerhead shrike and Canada warbler (as identified in the BBS 10km 10 km square containing the study area); large purple fringed-orchid and woodland pinedrops (as identified by NHIC using a 1km by 1km square containing the study area).

Bobolink and Eastern Meadowlark

Eastern meadowlark and bobolink surveys were conducted on June 14, 18 & 19, 2014. Walking transects were done through the grassland habitats on the property suitable for bobolink/meadowlark habitat (portions of Community 1). Surveys were conducted with no precipitation and calm winds. The temperature ranged between 14 °C and 22 °C. Transects were established and walked between breeding bird stations. Information was recorded and any sightings of bobolinks or meadowlarks were identified. Surveys were conducted between 5 and 9 am.

Whip-poor-will/Common Nighthawk Surveys

One survey was conducted on June 18, 2014 for whip-poor-will and common nighthawk using the established MNRF protocol (2012). Points were established throughout the property including the open portions of the site and near woodlands, in particular where possible foraging habitat may exist. All calling males were recorded including the direction and distance to each. As the property wasn't deemed ideal habitat for whip-poor only one survey was conducted (instead of 3).

2.2.3 Fisheries

2.2.3.1 Aquatic Habitat Assessment

Biophysical habitat characteristics and boundaries of the watercourses within the study area were assessed on June 5th 2014, July 21st 2014 and October 15th 2014 by GHD biologists using aerial photography, literature and confirmed by ground-truthing to determine the study area constraints and identify the presence of aquatic features and habitat to be fully assessed in an Environmental Impact Statement.

General aquatic habitat assessments were made using qualitative and quantitative studies. Existing aquatic habitat form and function, dominant substrate, riparian habitat, in-stream cover, average channel dimensions, flow, connectivity, sediment transportation, and unique features were recorded for all watercourses. Assessments were conducted using standardized provincial aquatic protocols and GHD's standardized habitat analysis techniques. Specifically, GHD implemented the Evaluation, Classification and Management of Headwater Drainage Features Guidelines (CVC and TRCA, 2014) and OSAP Section 4: Module 10, Assessing headwater drainage features.

2.2.3.2 Fish Habitat

Fish sampling was not a component of the initial project scope and is not required as per the “Rapid” survey type outline in the Evaluation, Classification and Management of Headwater Drainage Features Guidelines (CVC and TRCA, 2014). While GHD biologists were onsite assessing headwater drainage features, fish visual and presence/absence assessments were conducted only in watercourse classified as having a high potential of supporting fish.

3. Survey Results

The following section presents GHD site-specific survey data only. Supporting information, the background review or other sources will be presented and discussed in Section 4.0 – Discussions and Analysis.

3.1 Physical Site Characteristics

3.1.1 General Site Characteristics

The study area was generally flat with mostly former agricultural fields that have regenerating shrub and tree growth. In general, the regeneration was less than 15 years old and was patchy in nature depending on soil, disturbance and moisture conditions. The site is dominated by clay soils with the exception or limestone bedrock exposed at the south edge of the Innes Park Woods that creates a rock cut behind the commercial plaza. This same feature is also at surface just east of Mer Bleue Road. A hydro transmission corridor bisects the study area. This area was disturbed from recent construction activity and included a gravel road. The communities along the hydro corridor were primarily disturbed habitats, with pioneer communities, marshes, swampy areas and young forest communities.

3.2 Biological Inventories

3.2.1 Vegetation Communities

3.2.1.1 Level of Effort

The vegetation communities were delineated within the study by GHD biologists according to the methodologies outlined in Section 2. A summary of the level of effort and environmental conditions have been provided in Table 3.1.

Table 3.1 Vegetation Surveys – Level of Effort

Survey Date	Survey Type	Weather	Start Time	Effort (person hrs.)
September 25, 2013	ELC	N/A	N/A	N/A
May 13, 2014	ELC	N/A	N/A	N/A
Oct. 25, 2014	ELC	N/A	N/A	N/A
August 12, 2020	ELC	20°C, Beaufort wind scale: 1, no precipitation	09:30	2.0

The study area contained 20 vegetation communities including an old field meadow, ditch, meadow marsh and deciduous forest and rock barren. All plants observed were recorded within this area area. GHD identified 234 different plant species on site and 20 different communities (Appendix I-A).

Community 1 Old Field Meadow (ELC Code: CUM1-1)

This community comprises the majority of the property and was approximately 130 ha in size. This was likely once agricultural fields, and is now in an early successional stage containing a mixture of ages of regenerating meadow species. Some shrub cover was found scattered throughout, however was not dominant enough to be considered a thicket. Awnless brome grass (*Bromus inermis ssp inermis*), reed canary grass (*Phalaris arundinacea*), and rough hair grass (*Agrostis scabra*) dominated the meadow while some wool grass (*Scirpus cyperinus*) and timothy (*Phleum pratense*) existed also. An abundance of goldenrods, grasses, New England aster (Symphyotrichum novae-angliae) and calico aster (*Symphyotrichum lateriflorum var. lateriflorum*) was identified within the old field meadow, along with other typical meadow species including common milkweed (*Asclepias syriaca*), common ragweed (*Ambrosia artemisiifolia*), common yarrow (*Archillea millefolium*) and ox-eye daisy (*Chrysanthemum leucanthemum*).



Photo 1: Old Field Meadow facing west (September 25th, 2013)

Community 2 Fresh-Moist Elm Lowland Deciduous Forest (ELC Code: FOD7-1)

This community was identified just on the northern limits of the subject property south of the Canadian Tire parking lot and was approximately 5 ha in size. American elm (*Ulmus americana*) dominated this woodlot pocket and was quite young in nature. Green ash (*Fraxinus pennsylvanica var. subintegerrima*) was also found interspersed with the American elm however was less abundant. The ground species contained a lot of the same species as Community 1, additional species found included grass-leaved goldenrod (*Euthamia graminifolia*), heal-all (*Prunella vulgaris ssp. lanceolata*), poverty grass (*Aristida dichotoma*), purple-stemmed aster (*Symphyotrichum puniceum*), scotch thistle (*Onopordum acanthium*) and slender-leaved agalinis (*Agalinis tenuifolia*).

Community 3 Alder Mineral Deciduous Swamp (ELC Code: SWT2-1)

This small pocket was located on the northern edge of Community 5 covering approximately 0.06 ha. Some standing water was found and contained mostly emergent wetland species. Some of the species identified included American water-horehound (*Lycopus americanus*), Canada bluejoint grass (*Calamagrostis canadensis*), Canadian rush (*Juncus canadensis*), common cattail (*Typha latifolia*) and reed canary grass. Shrubs were also found in this wet pocket including mostly willow species (crack willow (*Salix fragilis*), pussy willow (*Salix discolor*) and slender willow (*Salix petiolaris*)), glossy buckthorn (*Rhamnus frangula*) and narrow-leaved meadowsweet (*Spiraea alba*).

Community 4 Cattail Mineral Shallow Marsh (ELC Code: MAS2-1)

Community 4 was also a very small wetland pocket located directly west of the snow disposal facility and was approximately 0.16 ha in size. This wetland may have been a result of pooling water, creating a depression from the adjacent facility. The majority of species were hydrophilic species, with the dominant being common cattail (*Typha latifolia*). Other species included bladder sedge (*Carex intumescens*), Canadian rush, needle spike-rush (*Eleocharis acicularis*), softstem bulrush (*Scirpus validus*) and wool-grass (*Scirpus cyperinus*).

Community 5 Fresh-Moist White Elm Lowland Deciduous Forest (ELC Code: FOD 7-1)

On the central portions of the property just north of the hydro cut (Community 14) a mid-aged white elm deciduous forest existed 2.2 ha in size. Several shrub species existed in the understory including species such as hawthorn (*Crataegus spp.)* and nannyberry (*Viburnum lentago*). Herbaceous species included calico aster, common milkweed, cow parsnip (*Heracleum lanatum*) and tall goldenrod (*Solidago altissima*).

Community 6 Fresh-Moist Poplar Deciduous Forest (ELC Code: FOD8-1)

Community 6 (6.7 ha in size) was identified adjacent Community 5 and was dominated by trembling aspen (*Populus tremuloides*), with some American elm and white ash (*Fraxinus americana*) interspersed. This woodlot was part of the fragmented Navan Rd at Pagé Rd UNA. This mid aged woodlot contained ground species such as tall buttercup (*Ranunculus acris*), upland white aster (*Solidago ptarmicoides*), Virginia creeper (*Parthenocissus inserta*) and yellow avens (*Geum aleppicum*).



Photo 2: Poplar deciduous forest (Photo date: May 29th, 2014)

Community 7 Dry Carbonate Open Rock Barren (ELC Code: RBO1-1)

The large woodlot community found in the northern portion of the property is part of the Urban Natural Area # 87 Innes Park Woods (Community 8) (designated UNF in the City of Ottawa OP). The southern limits of this woodlot contained an open rock barren approximately 1.3 ha in size. Some disturbance had occurred in this area and evidence of human use (i.e. a fire pit) existed. Most of this area was open rock however numerous plants were found growing in the cracks and crevices throughout the area. The rock barren community was not large (approximately 0.12 ha) and was located between the edge of the old field meadow to the south and the sugar maple/ash forest to the north. Species identified in the rock barren included American basswood (*Tilia americana*), snowberry (*Symphoricarpos albus*), staghorn sumac (*Rhus typhina*), Tartarian honeysuckle (*Lonicera tatarica*) and western poison-ivy (*Rhus rydbergii*). The herbaceous layer included bitter nightshade (*Solanum dulcamara*), bladder campion (*Silene vulgaris*) common dandelion (*Taraxacum officinale*), common milkweed and common mullein (*Verbascum thapsus*).




Photo 3 & 4: Rock Barren Community (Photo date: September 25th, 2013).

Community 8: Dry-Fresh Sugar Maple-White Ash Deciduous Forest (ELC Code: FOD5-8)

Community 8 (approximately 1.3 ha in size) was identified as UNA # 87 Innes Park Woods and is designated within the City of Ottawa Official Plan as an Urban Natural Feature. Different from the remainder of the property this community was situated on a slight incline. Rock underlay the southern portion of the woodlot connecting to the open rock barren (Community 7). This woodlot contained the most mature trees species in the study area dominated by sugar maple (*Acer saccharum*) and white ash. A large variety of other tree species were also present including American basswood, American elm, apple (*Malus domestica*), bitternut hickory (*Carya cordiformis*), black cherry (*Prunus serotina*) and bur oak (*Quercus macrocarpa*).

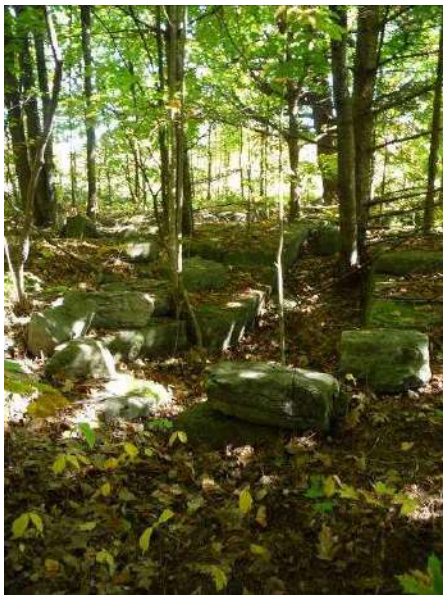



Photo 5 & 6: Sugar maple/ash woodlot (Photo date: September 25th, 2013).

Community 9 Cattail Organic Shallow Marsh (ELC Code: MAS3-1)

Community 9 (approximately 0.85 ha in size) was a man-made storm water pond, however was classified as a cattail marsh because of its abundance in cattails. Located on the western half of the subject lands, this pond contained a ditch inflow and outflow and likely received an abundance of its water from the adjacent commercial areas to the north. Rock walls bordered the ditch running into the pond containing cattail and a small amount of water. The pond in September was not full of water and contained some exposed rock surfaces. The areas of the pond with water contained a dense number of cattail, both narrow-leaved (*Typha angustifolia*) and common cattail. A good mixture of wetlands plants were located within and along the edges of the pond including bulbous water-hemlock (*Cicuta bulbifera*), common lake sedge (*Carex lacustris*), common water plantain (*Alisma plantago-aquatica*), frog's-bit (*Hydrocharus morsus-ranae*) and needle spikerush (*Eleocharis acicularis*).



Photo 7 & 8: Cattail filled temporary stormwater pond and inlet ditch (Photo date: September 25th, 2014).

Community 10 Old Field Meadow (ELC Code: CUM1-1)

Community 10 existed on the east side of Mer Bleue Road (approximately 4 ha in size) and was found to be quite disturbed. Grading and/or movement of earth had occurred in this area as exposed soils were evident. Species common to disturbed areas dominated these lands including black medick (*Medicago lupulina*), broad-leaved plantain (*Plantago major*), catnip (*Nepeta cataria*), common barnyard grass (*Echinocloa crusgalli*), common dandelion (*Taraxacum officinale*), common ragweed (*Ambrosia artemisiifolia*) and lady's thumb (*Polygonum persicaria*).

Community 11 Drainage Ditch (No ELC Code Applicable)

This community was identified on the most westerly boundary of the subject property and was oriented in a north-south direction, north of the stormwater pond. This was a linear feature and no area calculation was done for this community. Only a few species were identified in this ditch including common cattail, narrow-leaved cattail, common waterplantain (*Alisma plantago-aquatica*), foxtail millet (*Setaria italica*) and mossy stonecrop (*Sedum acre*).





Photo 9 & 10: Watercourse 1 drainage ditch facing north (Photo date: September 25th, 2014).

Community 12 Old Field Meadow (ELC Code: CUM1-1)

Community 12 was identified as a strip of old field meadow surrounding the drainage ditch. As this also was a linear feature no area was calculated for it. This community contained species characteristic of disturbed areas including calico aster, Canada goldenrod, Canada thistle, coltsfoot (*Tussilago farfara*), common dandelion and common ragweed.



Photo 11: Open field meadow surrounding Watercourse 2 drainage ditch (Photo date: September 25th, 2014).

Community 13 Dry-Fresh Oak Red Maple Deciduous Forest (ELC Code: FOD2-1)

This forest community (approximately 4.1 ha in size) straddled the western boundary of the subject lands and was part of the fragmented Navan Rd at Pagé Rd UNA (known as UNF in OP) was dominated by oak and red maple and was found on the western side of the drainage ditch. A variety of young and mid-aged tree species were observed in this woodlot including species such as American basswood, butternut, red maple (*Acer rubrum*), red oak (*Quercus rubra*), white ash and white spruce (*Picea glauca*). Shrubs identified under the canopy included beaked hazel (*Corylus cornuta*), dwarf raspberry (*Rubus pubescens*), glossy buckthorn (*Rhamnus frangula*) and narrow-leaved meadowsweet (*Spiraea alba*). Groundcover species observed included Canada enchanter's nightshade (*Circaea lutetiana L. ssp canadensis*), heart-leaved aster (*Symphyotrichum cordifolium*), marginal wood-fern (*Dryopteris marginalis*) and Pennsylvania sedge (*Carex pennsylvanica*).



Photo 12: Oak Maple forest (Photo date: May 29th, 2014).

Community 14 Hydro Corridor (ELC Code: CUM1-1)

The hydro corridor was found bisecting the subject lands in the southern portion of the property and was approximately 10 ha in size. This disturbed area contained exposed soils likely from the installation of the hydro towers and lines. This corridor is approximately 70 meters in width and is mowed regularly and was dominated by species typical of disturbed areas. Species included shrub such as Alleghany blackberry (*Rubus allegheniensis*) and narrow-leaved meadowsweet along the edges of the corridor. Herbaceous plants inhabiting the hydro cut included black-eyed Susan (*Rudbeckia hirta*), common milkweed, elecampane (*Inula helenium*), low hop clover (*Trifolium agrarium*), Queen-Anne's lace (*Daucus carota*), red clover (*Trifolium pratense*), tall buttercup (*Ranunculus acris*) and white clover (*Trifolium repens*).



Photo 13: Hydro corridor (Photo date: May 29th, 2014).

Community 15 Willow Mineral Thicket Swamp (ELC Code: SWT2-2)

This community was identified as small pockets throughout the old field meadow in the central portions of the study area and covered a total area of approximately 5.8 ha. Several of these thicket swamps were found north of the hydro cut. Dominated by willow species (Bebb's, slender and pussy willow) this community contained other shrubs growth including Alleghany blackberry, downy serviceberry (*Amelanchier arborea*), glossy buckthorn (*Rhamnus frangula*), narrow-leaved meadowsweet (*Spiraea alba*) and purple-flowering raspberry (*Rubus odoratus*). Some groundcover species identified within these communities included typical wetland species like, purple loosestrife (*Lythrum salicaria*), purple-stemmed aster (*Symphyotrichum puniceaum*), red clover (*Trifolium pratense*), reed canary grass (*Phalaris arundinacea*), rice-cut grass (*Leersia oryzoides*) and sensitive fern (*Onoclea sensibilis*).



Photo 14: Willow thicket swamp (Photo date: May 29th, 2014).

Community 16 Fresh-Moist Ash Lowland Deciduous Forest (ELC Code: FOD7-2)

This community was identified as a series of fingers found along the western edge of the study area boundary and covered an area of approximately 4.8 ha. These linear features were dominated by white ash and contained other deciduous tree species such as American elm, apple, green ash (*Fraxinus pennsylvanica var. subintegerrima*), Norway maple (*Acer platanoides*), red maple and trembling aspen. Shrubs identified in the understory included tartarian honeysuckle (*Lonicera tatarica*), choke cherry (*Prunus virginiana*), green alder (*Alnus veridis ssp. Crispa terrill*) and glossy buckthorn. The ground species were identified as awl-fruited sedge (*Carex stipata*), Canada bluejoint grass (*Calamagrostis canadensis*), cleavers (*Galium aparine*), common strawberry (*Fragaria virginiana*) and common yarrow (*Achillea millefolium*).



Photo 15: Ash Deciduous Forest (Photo date: May 29th, 2014).

Community 17 Regenerating Field (No ELC Code Applicable)

This community was identified between the fingers of Community 16 and covered a total area of approximately 5 ha. This regenerating field contained an equal amount of shrub cover and field meadow growth, and due to the amount of shrub growth was not considered field meadow. Shrub species identified included choke cherry, glossy buckthorn, narrow-leaved meadowsweet, red-osier dogwood (*Cornus stolonifera*) and slender willow. Ground cover included Canada bluejoint (*Calamagrostis canadensis*), common dandelion (*Taraxacum officinale*), drooping wood sedge (*Carex arctata Boott*), orange hawkweed (*Hieracium aurantiacum*) and tall buttercup (*Rananculus acris*).



Photo 16: Regenerating Field (Photo date: May 29th, 2014).

Community 18 Regenerating Elm (No ELC Code Applicable)

This community was identified in several locations throughout the property and covered an area of approximately 17 ha. No suitable ELC code was applicable as the community was comprised of regenerating American elm. The ground species contained similar composition of the field meadows including awnless brome grass (*Bromus inermis var inermis*), broad-leaved plantain (*Plantago major*), butter-and-eggs (*Linaria vulgaris*), Canada goldenrod (*Solidago canadensis*), cleavers (*Galium aparine*), early goldenrod (*Solidago juncea*) and large-leaved aster (*Eurybia macrophylla*).



Photo 17: Regenerating Elm (Photo date: May 29th, 2014).

Community 19 Dry-Fresh Sugar Maple-Ironwood Deciduous Forest (ELC Code: FOD5-4)

This community was identified on the south-western borders of the study area and was approximately 2.3 ha in size. This community was identified as the Navan Road at Pagé Road UNA #97 and was designated under the City of Ottawa Official Plan as an Urban Natural Feature. This community used to be a lot larger based on the boundary Evaluated in 2003. Now a long narrow remnant of the forest this community was dominated by mature sugar maple and ironwood. Shrub and herbaceous species identified in the understory included common juniper (*Juniperus communis*), prickly gooseberry (*Ribes cynosbati*), skunk currant (*Ribes glandulosum*), smooth gooseberry (*Ribes hirtellum*) and red currant (*Ribes rubrum*). Ground species included shinleaf (*Pyrola elliptica*), indian pipe (*Monotropa uniflora*), starflower (*Trientalis borealis*), ditch stonecrop (*Penthorum sedoides*) and foam flower (*Tiarella cordifolia*).



Photo 18: Sugar Maple, Ironwood Forest (Photo date: May 29th, 2014).

Community 20 Man-Made Pond (No ELC Code Applicable)

This pond was identified on the southern side of the hydro-cut and was approximately 0.089 ha in size. The vegetation found around the perimeter included common cattail, blue vervain (*Verbena hastata*) and slender willow (*Salix petiolaris*). Vegetation identified within the pond included common duckweed (*Lemna minor*), common floating pondweed (*Potamogeton natans*) and water celery (*Vallisneria americana*).



Photo 19: Man-made pond (Photo date: May 29th, 2014

3.3 Birds and Other Wildlife

3.3.1 Level of Effort

Surveys for breeding birds were conducted in the study area by GHD biologists according to the methodologies outlined in Section 2.2.2.2. A summary of the level of effort and environmental conditions have been provided in Table 3.2.

Table 3.2 Significant Wildlife Habitat Surveys – Level of Effort

Survey Date	Survey Type	Weather	Start Time	Effort (person hrs.)
June 19, 2014	Breeding Bird Survey	22°C, Beaufort wind scale: 1, no precipitation	N/A	N/A
June 12, 2016	Breeding Bird Survey	N/A	N/A	N/A
July 7, 2016	Breeding Bird Survey	Beaufort wind scale: 1, no precipitation	06:04	N/A
August 12, 2020	Incidental/Area searches for Birds and other wildlife	20°C, Beaufort wind scale: 1, no precipitation	09:30	2.0

A total of 72 bird species were identified in the study area (Appendix II). Species identified included a variety of open meadow and forest species. Open meadow species included eastern meadowlark (*Sturnella magna*), clay-coloured sparrow (*Spizella pallida*) and savannah sparrow (*Passerculus sandwichensis*).

Forest species identified included eastern wood-pewee (*Contopus virens*), red-eyed vireo (*Vireo olivaceus*), warbling vireo (*Vireo gilvus*), ovenbird (*Seiurus aurocapillus*) and great-crested flycatcher (*Myiarchus crinitus*).

Some marsh birds were also observed including red-winged blackbird (*Agelaius phoeniceus*), swamp sparrow (*Melospiza georgiana*), least bittern (*Ixobrychus exilis*), marsh wren (*Cistothorus palustris*), sora (*Porzana carolina*) and alder flycatcher (*Empidonax alnorum*).

3.3.1.1 Mammals

A total of six mammal species were observed during all field visits. Species included coyote (*Canis latrans*), eastern chipmunk (*Tamias striatus*), eastern gray squirrel (Gray and black Phase) (*Sciurus carolinensis*), red fox, (Vulpes vulpes), white-tailed deer (*Odocoileus virginianus*), pygmy shrew (*Sorex hoyi*) and common raccoon (*Procyon lotor*).

Bat maternity colony surveys found 10 potential maternity roost trees in the south west corner of the adjacent property in Communities 13 and 6. However no physical evidence of bats were identified.

3.3.1.2 Herpetozoa

A total of five amphibian species were observed during both incidental observations and spring amphibian marsh monitoring surveys. Species identified included green frog (*Lithobates clamitans*), gray treefrog (*Hyla versicolor*), northern leopard frog (*Lithobates pipiens*), spring peeper (*Pseudacris crucifer*) and American toad (*Anaxyrus americanus*). Spring peepers and gray treefrog were found in

the spring in the various ponded areas and stormwater ponds. Leopard frogs were common in the summer foraging in the adjacent fields.

Four snake species were observed during field surveys to assess confirmed snake hibernacula in the rock barren community, the common gartersnake (*Thamnophis sirtalis*) and northern redbelly snake (*Storeria occipitomaculata*), DeKay's brown snake (*Storeria dekayi)* and eastern milksnake (*Lampropeltis triangulum*).

3.3.1.3 Unevaluated Wetland

Four wetland communities were identified within the study area. These included marsh and swamp Communities 3, 4, 9 & 15.

3.3.1.4 Significant Wildlife Habitat

Seven candidate significant wildlife habitats were identified during field surveys and preliminary research. These included: Raptor Wintering Area, Reptile Hibernacula, Area Sensitive Bird Breeding Habitat, Amphibian Breeding Habitat (woodland), Open Country Bird Breeding Habitat, Bat Maternity colonies, Special Concern Species.

4. Discussion and Analysis

4.1 Species and Communities

4.1.1 Vegetation and ELC Communities

A review of the NHIC database found two (2) records of nationally or provincially significant vegetation species within the 1km by 1km squares containing the study lands, these included large purple fringed-orchid (*Platanthera grandiflora*) and woodland pinedrops (*Pterospora andromedea*).

The large purple-fringed orchid is considered an S1 species and was last observed in 1984. This species inhabits wet meadows, riparian areas and moist road-side banks. There is potential habitat for this species within the small wet meadows however the wet meadows were likely agricultural lands not too long ago. And it is unlikely the species would thrive in these areas especially since the last record was from 1984. This record is more likely from the Mer Bleue Swamp PSW.

Woodland pinedrops is designated as an S2 species and was last observed in 1982. This species inhabits conifer forest or mixed conifer-hardwood forest. No conifer forest or mixed conifer-hardwood forests were identified within the boundaries of the study area.

One provincially and federally endangered plant species, the butternut, was identified within the Urban Natural Areas Environmental Evaluation Study (Muncaster and Brunton, 2005).

Butternut is listed as an endangered species both provincially (COSSARO, 2017) and federally (COSEWIC, 2017). This species was observed within Innes Park Woods (Brunton, 2005) however was not observed during GHD surveys (2014). The location where this tree was identified by Muncaster and Brunton (2005) is protected by the UNF and is located outside the development limits. Surveys in 2017 located the tree and noted that it is affected by butternut canker disease, with 5 callous wounds. Subsequent analysis identified that the tree was class 2, retainable. The tree was identified well outside of the study area and on the northern edges of the woodlot.

Black ash is a threatened species as of November 2018 (COSEWIC, 2018) in Canada. This species was observed within Community 15.

A review of the plant list for the study area (Appendix I) found that 16 were considered regionally rare according to Muncaster and Brunton, (2005) and 14 species for Cuddy (1991) (Table 4.1). These species were based on GHD surveys (NEA, 2014), in addition to literature reviewed for the study area (Brunton, 2005 & NEA, 2009).

Table 4.1 Observed Regionally Rare Species Based on Brunton and Cuddy Lists and Their Location.

Species	Latin Name	Habitat	Community	Brunton (2005)	Cuddy (1991)
Witch Hazel	*Hamamelis virginiana*	Moist, shaded sites where it grows as an understory and the forest edge.	6		
Clearweed	*Pilea pumila*	Moist, open and shaded sites		X	
Kidney-leaved Violet	*Viola renifolia*	Cool moist woods and swamps	19	X	
Red Currant	*Ribes rubrum*	Well-drained soil and is shade tolerant	6,13,16		X
Slender Vetch	*Vicia tetrasperma*	Waste places and fields.	6,16,19	X	
Leafy Spurge	*Euphorbia esula*	Roadsides and waste places	9	X	X
Cow Parsnip	*Heracleum lanatum*	Moist rich ground	7	X	X
True Forget-me-not	*Myosotis scorpioides*	Muddy shores and springs	1,5,6,	X	X
Cleavers	*Galium aparine*	Woods, thickets and shores	13	X	X
Common Valerian	*Valeriana officinalis*	Roadsides and meadows	6,7,14,15,16 ,18,19		X
Palmate-leaf Sweet-coltsfoot	*Petasites frigidus*	Cool swamp and moist woodland	1	X	
Variable-leaved Pondweed	*Potamogeton gramineus*		13		X
Canadian rush	*Juncus canadensis*	Grows submerged in water along the edges of ponds and lakes in depth up to 8 feet.	9		X
Drooping Wood Sedge	*Carex arctata Boott*	Shorelines, and wetlands	1,3,4		X
Slender Sedge	*Carex lasiocarpa*	Woods, thickets, and openings	6,13,15, 16, 17, 18,		X
Drooping Sedge	*Carex prasina*	Wetlands like bogs, fens and shorelines	8		X
Broom Sedge	*Carex scoparia*		19	X	X
Pedicelled Bulrush	*Scirpus pedicellatus*	Shaded ravine bottom in deciduous and mixed forest	19		
Softstem Bulrush	*Scirpus validus*	Wetlands and wet places like irrigation ditches and meadows		X	
Bearded Shorthusk	*Brachyelytrum erectum*	Openings in swamps and meadows	19	X	
Foxtail Millet	*Setaria italica*	Moist and wet habitat, sometimes in shallow water	2,4,9		

Table 4.1 Observed Regionally Rare Species Based on Brunton and Cuddy Lists and Their Location.

Species	Latin Name	Habitat	Community	Brunton (2005)	Cuddy (1991)
Two-Flowered Solomon's seal	*Polygonatum biflorum*	Moist to dry undisturbed woodlots			
Painted Trillium	*Trillium undulatum*	Grows well in all soils and can be found in waste places and roadsides		X	
Little Blue-eyed Grass	*Sisyrinchium montanum*	Woods	19		

Table 4.2 Regionally Rare Species and Associated Literature Source.

Species	Muncaster & Brunton, 2005	GHD, 2014
Witch Hazel		X
Clearweed	X	
Kidney-leaved Violet		X
Red Currant		X
Slender Vetch		X
Leafy Spurge		X
Cow Parsnip		X
True Forget-me-not		X
Cleavers		X
Common Valerian		X
Palmate-leaf Sweet-coltsfoot		X
Variable-leaved Pondweed		X
Canadian Rush		X
Drooping Wood Sedge		X
Slender Sedge	X	
Drooping Sedge	X	
Broom Sedge	X	
Pedicelled Bulrush		X
Softstem Bulrush		X
Bearded Shorthusk	X	
Foxtail Millet		X
Two-Flowered Solomon's seal		X
Painted Trillium	X	
Little Blue-eyed Grass		X

4.1.2 Birds

A review of the list of breeding bird species recorded for the study area (Appendix II) found that seven were considered significant at a nationally or provincially level. These included eastern wood-pewee (*Contopus virens*), barn swallow (*Hirundo rustica*), wood thrush (*Hylocichla mustelina*), bobolink (*Dolichonyx oryzivorus*), bank swallow (*Riparia riparia*), least bittern (*Ixobrychus exilis*) and eastern meadowlark (*Sturnella magna*). The species listed above will be discussed in later paragraphs as they were all identified within the Ontario Breeding Bird Atlas squares as well, with the exception of the least bittern.

The least bittern is listed as a threatened species provincially and federally (COSSARO, 2019; COSEWIC, 2018). This species generally inhabits marshes. The least bittern was identified on the property within Community 9 (temporary stormwater pond south of the movie theatre) on June 14, 2014. Surveys should be conducted within this stormwater pond prior to removal of this temporary

pond. Discussions should be conducted with MECP SAR biologists if it is identified in future surveys. The requirements under the Ontario Endangered Species Act would need to be identified. It is recommended that the pond not be removed between April 15th and September 15th, as this is the time when least bitterns are on territory.

No regionally rare bird species were observed, however eight area sensitive species (AS) were recorded during field surveys. These included hairy woodpecker (*Picoides villosus*), least flycatcher (*Empidonax minimus*), veery (*Catharus fuscescens*), ovenbird (*Seiurus aurocapillus*), American redstart (*Setophaga ruticilla*), scarlet tanager (*Piranga olivacea*), least bittern (*Ixobrychus exilis*) and savannah sparrow (*Passerculus sandwichensis*). Area sensitive species are included as part of the Species of Conservation Concern criteria within the Significant Wildlife Habitat designation.

The study area is within a 10 x 10 km Ontario Breeding Bird Atlas squares (18VR63). The database includes a summary of results from the 1st atlas (1981-1985) and the current or second atlas (2001-2005). A list of significant species was generated for these squares. There were fourteen (14) species listed, specifically: black tern (*Chlidonias niger*), common nighthawk (*Chordeiles minor*), whip-poor-will (*Antrostomus vociferous*), loggerhead shrike (*Lanius ludovicianus*), barn swallow (*Hirundo rustica*), bank swallow (*Riparia riparia*), bobolink (*Dolichonyx oryzivorus*), eastern meadowlark (*Sturnella magna*), eastern wood-pewee (*Contopus virens*), wood thrush (*Hylocichla mustelina*), grasshopper sparrow (*Ammodramus savannarum*), chimney swift (*Chaetura pelagica*), short-eared owl (*Asio flammeus*) and Canada warbler (*Cardellina canadensis*).

The black tern is listed as a special concern provincially but not at risk nationally (COSSARO, 2016). This species nests in shallow marshes, especially cattails. This record is likely from the Mer Beue PSW south of the property and outside of the study area.

The common nighthawk is listed by COSEWIC as a threatened species (2016) and provincially is a special concern (COSSARO, 2019). The common nighthawk is typically found in open areas such as sand dunes, recently logged or burned over areas, pastures, open forest, gravel roads, rocky outcrops and rocky barrens, and even military base and airports). This species was not observed during GHD surveys. There is no nesting habitat for this species on the property.

The eastern whip-poor-will is listed as a threatened species nationally and provincially (COSEWIC, 2019; COSSARO, 2018). The whip-poor-will can be found in areas with a mix of open and forested areas within open woodlands or openings in more mature, deciduous, coniferous and mixed forests. It forages in these open areas and uses forested areas for roosting (resting and sleeping) and nesting. The property contains some young forested habitat but no nearby pine plantations, coniferous or mixed forest, that is preferred nesting habitat. GHD did not identify this species during surveys.

The loggerhead shrike is listed as an endangered species both provincially and nationally (COSSARO, 2019; COSEWIC, 2018). This species prefers a mixture of grasslands and pastures with low trees and shrubs. The study area contains some grasslands however low trees and shrubs area not found throughout. The property would not support the foraging or breeding habitat for the loggerhead shrike. The shrike range is currently restricted to central Ontario with a few historical records near Smith Falls.

The barn swallow is listed as a threatened species provincially and federally (COSSARO, 2019; COSEWIC, 2018). This species prefers open rural and urban areas where bridges, culverts and

buildings are found near rivers, lakes, marshes or ponds. This species was identified foraging over the property. A barn located outside of the study area to the south contained six nests identified (2 active, 4 inactive) during the August 2020 field surveys for Trails Edge Phase 4. However no nesting habitat was identified in the Trails Edge North study area.

The bobolink is listed as a provincially and federally threatened species (COSSARO, 2019; COSEWIC, 2018). Bobolink were heard in the field in May 2016 as well in August 2020. Two birds were calling in 2016. This field has been plowed and no longer provides habitat for this species.

The eastern meadowlark is listed as a provincially and federally threatened species (COSSARO, 2019; COSEWIC, 2018). This species prefers grassy meadows and pastures; also in some croplands, weedy fields, grassy roadsides and old orchards. The study area contains some old field meadows. Eastern meadowlark was observed as an incidental species during vegetation surveys in community 14, the hydro cut. This is outside of the Trails Edge North development area.

The eastern wood-pewee is listed federally as a threatened species (COSEWIC, 2018) and is listed as a special concern species provincially (COSSARO, 2019). This species breeds in all woodland types in partially cleared shrubby habitats and secondary forests. This species was heard as an incidental in community 6.

The wood thrush is listed as a federally threatened species (COSEWIC, 2018), and is listed as a special concern provincially (COSSARO, 2019). This species breeds in deciduous and mixed forests in areas with large trees, moderate understory abundant in leaf litter and shade present. The wood thrush was heard as an incidental observation from Community 7, the rock barren. The adjacent community 8 has appropriate breeding habitat for this species.

The grasshopper sparrow is listed federally as a special concern species (COSEWIC, 2018), however is not listed provincially (COSSARO, 2019). This species inhabits open grasslands and prairies with patches of bare ground. There is potential for this species to occur within the old field meadows (Community 1) however none were identified by GHD during surveys.

The chimney swift is listed federally and provincially as a threatened species (COSEWIC, 2018; COSSARO, 2019). The chimney swift is usually found within 1 km of a waterbody and, as its name implies, predominantly nests within old chimneys in urban and suburban areas. Prior to European settlement, chimney swifts nested in old growth forests. As an aerial forager, the species feeds on insects in urban areas. There is no suitable breeding habitat present for this species within the structures identified on the subject property.

The bank swallow is listed federally and provincially as a threatened species (COSEWIC, 2016; COSSARO, 2016). This species nests in colonies in streamside banks. An old storage pile of soil in the south portion of Trails Edge Phase 4 did have bank swallow nests and activity during the May 26 2016 site visit. By June the pile was being used by the contractors and no bank swallows were identified in the area. In 2020 bank swallows were not identified on site and no habitat existed since the removal of those piles.

The Canada warbler is listed as a special concern provincially (COSSARO, 2019) and is threatened on a national level (COSEWIC, 2018). The Canada warbler breeds in wet deciduous and coniferous forests with a thick shrub under-story. Nests are usually found on mossy logs or roots, along stream banks or hummocks (OMNR, 2009). There is no suitable habitat for this species on the property.

The short-eared owl is listed as a species of special concern both provincially and nationally (COSSARO, 2019; COSEWIC, 2018) and is found in open areas including grasslands, marshes and tundra. This species is found nesting on the ground and forages over fields. There was suitable foraging and nesting habitat within the open field meadows on the property historically, however none were observed during any GHD field visits. This species has significantly declined in the Ottawa area and was found in only a few isolated locations previously. The current condition of the field, would preclude use by short-eared owls.

4.1.3 Other Wildlife

No other wildlife was identified by GHD that is listed as significant. Potential cavity trees were identified in communities 6 and 13. Overall, outside of the main protected woodland, there are few trees older than 20 years on the site. No physical evidence of bats were identified during surveys.

4.1.4 Significant Wildlife Habitat

The Significant Wildlife Habitat Draft Ecoregional Schedule (MNRF, 2014) was used to screen whether the subject property contained potential Significant Wildlife Habitat (Candidate) using criteria laid out in the manual. Significant Wildlife Habitat which met the Candidate Criteria based on the Draft Significant Wildlife Habitat Ecoregion Criteria Schedule (MNR, 2012) included eight categories (Table 4.3).

Table 4.3 Potential Significant Wildlife Habitat Identified within the Study Area and GHD's Recommendations

Candidate SWH identified based on eco-regional criteria and ELC mapping	Results of Field Observations	Recommendation
Raptor Wintering	Most fields overgrown or in state of succession. Limited open country habitat.	None
Reptile Hibernacula	Habitat within rock barrens (community 7) two or more snake species identified.	Preserve rock barren habitat with a buffer around Innes Park Woods. Construct extension of Frank Bender Street with snake underpasses.
Area Sensitive Bird Breeding Habitat	Habitat identified for the 8 species of area sensitive birds recorded.	Minimum 10 m buffer around Innes Park Woods.
Amphibian Breeding Habitat (woodland)	Potential habitat was identified as wetland features (Community 3, 4, 9, 15) were found within 120m of a woodland (FOD). Breeding in stormwater pond (9) and possible in 3.	Habitat is limited in the study area. If compensation for wetlands is required, create with amphibian breeding pools.
Open Country Bird Breeding Habitat	Potential habitat, cultural meadows amount to >30 ha in size	Potential habitat exists, however target species were not identified within project boundaries.

Table 4.3 Potential Significant Wildlife Habitat Identified within the Study Area and GHD's Recommendations

Candidate SWH identified based on eco-regional criteria and ELC mapping	Results of Field Observations	Recommendation
Bat Maternity colonies	Potential Habitat, deciduous forests within study area (community 6, 8 and 13)	Potential habitat present in communities 6 and 13, which are outside of development envelope. Innes Park Woods protected with buffer.
Special Concern Species	The eastern wood pewee was identified within the study area, specifically in communities 8.	10 m buffer around protected Innes Park Woods

4.1.5 Fish and Aquatic Habitat

During GHD's literature review (NHIC database), no provincially and/or nationally rare species were documented within the study area (COSEWIC, 2017; COSSARO, 2017; SARA, 2017; OMNR, 2012; OMNRF, 2014). No critical habitat for aquatic Species at Risk (DFO, 2017) or sensitive spawning areas (OMNR, 2012) was found to occur within the study area. No aquatic Species at Risk were observed during field surveys.

Two watercourses were found to directly support fish, Watercourse 4 and 9. Fish and fish habitat are protected under the Federal Fisheries Act.

4.2 Natural Features

4.2.1 Wetlands

Three unevaluated wetlands were identified within the study area (communities 4, 9 and 15) The boundary of the wetland was confirmed in the field based on OWES guidelines, using a high accuracy GPS unit (Figure 1.1).

4.2.2 Ditches

One ditch were identified on the subject property. The ditch was located on the west side of the property adjacent to the agricultural fields. These features were dry and likely only conveyed water off the property during rainfall events with drainage into the stormwater ponds in the south. This feature would not be considered a water feature and GHD does not recommend protection for it.

4.2.3 Rock Barrens

Rock barrens were identified at community 8. This feature contained open rock with many deep crevasses. GHD confirmed that the area contains snake hibernacula. This was also observed by MNRF and City of Ottawa ecologists.

5. Impact Assessment and Recommendations

The following section provides a description of the predicted impacts that may result from the proposed development (Table 5.1). It also identifies mitigation measures to be implemented to avoid and/or minimize adverse effects to the natural environment features within or near the project. A full list of mitigation measures has been provided in Section 7 of this report.

5.1 Vegetation

The majority of the development area was former agricultural land, either with pasture or crops. Since that time the majority of the site has regenerated with young trees, small wetlands and overgrown fields. No rare ELC vegetation community types (Bakowsky, 1997) were identified on the study property.

The site is relatively diverse but the dominant successional habitats are dominated by Canada goldenrod with grasses and herbaceous plants. Small patches of regenerating trees have established, but unfortunately as they were mostly green ash, were set back due to Emerald ash borer infestations. Trembling aspen has established in other small patches. As limited mature vegetation occurs on site currently, no negative impacts on the overall diversity of the area are anticipated from the removal of most of the vegetation on this property and development of the mixed uses.

The mature Innes Park Woods is protected and is outside of the development area. A buffer will protect the mature trees, from negative impacts of this development. An open window on street A will provide green space north through the rock barren to the forest edge. Although this area is underlain by limestone, exposed over most of the buffer, there are patches of trees and shrubs throughout. The planting of additional trees and native species is recommended where soil depths allow and within any open space blocks and the buffer.

The six regionally rare species identified on site were now considered common since the rare species lists were generated (2005 and 2001). GHD does not recommend the retention of these species or transplanting.

A landscape plan should be developed to include a variety of native trees, shrubs and seed to be planted and incorporated into the subdivision plan. The landscape plan will improve the biodiversity within the area. Although the development includes industrial park, residential and mixed uses, the planting of a wide variety of native species is encouraged.

5.2 Breeding Birds

One provincially significant bird species was identified during GHD field surveys, least bittern in the temporary stormwater pond.

This species is rare in the Ottawa area and typically inhabits larger cattail marshes. The presence of a bird in this urbanizing area is unusual. As the habitat has not changed since the original surveys the potential for nesting is still possible. Prior to development of that area and moving the stormwater pond, it is recommended that an additional survey be conducted to determine presence/absence using the National Least Bittern Survey protocol (Environment Canada, 2013). As

with other marsh nesting birds, removal of the stormwater pond cannot occur in the peak breeding period of April 15th to September 15th. MECP should be consulted regarding the need for compliance with the Endangered Species Act.

One area sensitive bird species was identified during field surveys in the meadow habitat, savannah sparrow. This species was observed within Community 1. This community will be removed as a result of the proposed development. This species will continue to use the area for foraging and use the neighbouring properties for nesting.

Other area sensitive birds were found in the Innes Park Woods. Their habitat will not be impacted by the proposed development.

The development of the property will not have a significant impact on the bird species present. To protect the breeding birds cutting should be conducted outside of the breeding bird timing window (April 15th- August 15th) as per Environment Canada guidelines.

5.3 Wetlands

No Provincially Significant Wetlands were identified on the property. Three unevaluated wetlands were identified. The current status for this block of land is for mixed use. Due to the low diversity and early successional stages GHD does not recommend their retention. The highly developed area will contain new development on all stages. After build out it is highly unlikely the wetland will contain any significant value and the hydrology of the area will be altered and may even cut water sources to the area. The wetland surrounded by subdivision and directly adjacent to the busy roads would not provide any additional habitat to the area as all the wildlife connections will be altered. GHD recommends discussions with the Conservation Authority to provide compensation or other options for these wetland areas.

5.4 Wildlife Corridors / Connectivity

Limited connectivity across the landscape was identified in the general area. The hydro corridor and the current vegetation does provide habitat and some local connections. As development has proceeded to the south with new residential and roads, and to the east, these connections are being impacted on a regional scale. The surrounding area is developing rapidly, leaving a lack of connection across the landscape the hydro-corridor provides a narrow but continual corridor across the area. The hydro corridor was identified on the northern limits of the property moving north-east to south-west. The development of the property will impact on wildlife corridors but this is cumulative effect as the larger area south of Innes Road is urbanized. This will push wildlife populations south to the Greenbelt and the remaining rural properties..

5.5 Snake Hibernaculum

The presence of a snake hibernaculum and confirmation of 4 species and numerous individuals met the Significant Wildlife Habitat definition.

The hibernaculum's exact location is difficult to determine as numerous crevasses were present in the eastern part of the rock barren. Any one of which may be deep enough for the microclimate needed for snakes to overwinter.

The impact on the snakes in two fold. One a loss of the field habitat which is the main foraging area in the warmer months for the various grassland species present.

Secondly the impact on the rock barren and the snake hibernaculum or possible multiple hibernacula. The impacts can be from direct loss of habitat, impacts to staging areas, mortality as snakes move from the hibernacula in the spring out in the fields and when they return in the fall or from changes due to blasting, excavation or other construction related activities.

Allowing snakes to move from the remaining open space that will be present post build out to the hibernacula is critical to their continued presence and the SWH. Isolating the construction work from the retained open space lands and the rock barren can involve several mitigation measures. The hibernacula cannot be directly impacted during the overwintering period, which is from Oct. 1st to May 15th. The only construction proposed is the extension of Frank Bender Street and some commercial areas. However as snakes emerge in the spring, it is important to prevent mortality in the construction zone. Snake restrictive fencing may be required. This is similar to silt fence but needs to be installed to limit snakes going through, under or over the fencing. A plan should be prepared for the specifications required for a snake restrictive fence. The fencing must not include any kind of plastic netting as the backing, as this is shown to entangle snakes. Timing of the installation should not occur in the late summer when snakes are moving towards the hibernacula.

In addition the road extension is to be designed with several wildlife crossing tunnels designed specifically for passage by snakes.

Monitoring may also be required during site preparation and construction specifically to ensure snakes are not killed by heavy equipment or restricted access at critical periods. In addition mortality surveys and success of the wildlife underpass may also be required to show its effectiveness. Monitoring of the hibernaculum and the area adjacent may also be necessary to show that there are no impacts on the Significant Wildlife Habitat.

The Significant Wildlife Habitat Technical Guide and the SWH Mitigation Support Tool (2015) offer the following:

Urban Development

When hibernation sites are lost in an area, snakes and skinks are forced to select alternate sites. Many such sites will not provide sufficient protection from the extremes of winter weather or there may be no nearby suitable hibernacula. Reptiles which find themselves in marginal sites for the winter are at risk of winter mortality and susceptible to predation. If the majority of quality hibernacula are eliminated there can be serious impacts on reptile populations and their long-term persistence. Most species have little to no flexibility with respect to finding alternate sites. Some snake species, especially the larger ones (most of which are Species at Risk), are extremely faithful to one site, having used the same site for many generations. The loss of one such site could mean local extirpation of a population or sub-population or result in the loss of dozens of older breeding adults.

Development that affects the underground moisture regime has the potential to affect snake and skink hibernacula. Some species are sensitive to humidity levels and reduction in moisture may result in desiccation. Conversely, if the water table is increased, individuals may drown or there may be insufficient area between the water table and the frost line to support them through the winter.

Road Construction

Road construction activities near hibernacula present considerable risk to hibernating snakes and skinks. Excavation can easily destroy quality hibernacula by preventing access to subterranean resting sites. These activities may also permanently remove active sites from the area. Loss of these habitat features usually goes undetected since it is very difficult to recognize hibernacula using ground surface cues and since reptiles themselves tend to be secretive. Blasting road cuts through bedrock and the use of heavy equipment have the potential to affect hibernacula both at the construction site and adjacent to it by destroying underground structures that are important to wintering snakes. Additionally, roads that sever habitat linking summer range and hibernacula will prevent individuals from reaching traditional winter areas.

Roads that affect the underground moisture regime have the potential to affect snake and skink hibernacula. Some species are sensitive to humidity levels and reduction in moisture may result in desiccation. Conversely, if the water table is increased, individuals may drown or there may be insufficient area between the water table and the frost line to support them through the winter. Roads frequently act as a dam to surface water flow and shallow groundwater resulting in higher water levels on one side of the road and lower levels on the other.

The snake hibernacula is most likely located on the eastern part of the rock barren community 17, this is east of Frank Bender Street extension. Protection of the hibernacula and a 30 metre buffer are required to comply with SWH policies. The development plan includes protection of the rock barren and a buffer.

Table 5.1 Impact Assessment and Recommendation Summary

Feature or Function	Impact to Feature or Function	Mitigation	Residual Effect
Vegetation	Removal of sparsely vegetated area in most locations	-landscape plan to be developed to incorporate a diversity of native plant species	None
Species at Risk-least bittern	Removal of habitat	-An Endangered Species Act permit may be required from MECP prior to destruction of habitat	Compensation to be discussed re compliance with the ESA with MECP
Snake hibernaculum	Impact on SWH reptile hibernaculum (terrestrial)	-Design of eco passages under extension of Frank Bender Street. -Protection of rock barren community and buffer -Timing windows for construction. -Restrictive fencing solutions.	Measures to be finalized in consultation with City and MNRF.
Unevaluated Wetlands	No impact anticipated. Significant wetlands are located outside of the proposed development area.	Compensation for wetlands or other options	None

6. Policies and Legislative Compliance

The following section describes how the proposed development will be in conformance with the relevant federal, provincial and other regulatory legislation, policies, official plans and OP amendments that are applicable and relevant to the study area and the immediate vicinity.

6.1.1 Federal Legislation

Migratory Birds Convention Act

The core breeding period in Ontario for migratory birds under the MBCA for Bird Conservation Region 13 (i.e., the one the subject property lies within) extends from April 15th to August 15th (Environment and Climate Change Canada, 2014). As such clearing of trees and other vegetation for the development cannot occur during this timing window.

6.1.2 Provincial Legislation

Endangered Species Act

One provincially threatened bird species were identified on the subject property, least bittern. In order to be in compliance with the ESA, a permit may be required from MECP in order to destroy or

harm habitat for least bittern. Additionally, 2 threatened plant species, the butternut and black ash were identified, however the butternut was identified within an area slated for protection.

Provincial Policy Statement

In this EIS report, Section 5 and 7 of this report contain recommendations that would permit the proposed development to proceed in a manner consistent the applicable sections of the Provincial Policy Statement (PPS).

6.1.3 Local and Other Regulatory Bodies

City of Ottawa Official Plan (2013)

In this EIS report, Section 5 and 7 describe measures that would permit the proposed development application to proceed in a manner consistent the City of Ottawa Official Plan (2013). Provided these measures are followed, there should be no negative impacts on key natural heritage or hydrologic features or their functions. Further, connectivity between key natural heritage and hydrologic features would be maintained.

South Nation Conservation Authority Regulation 170/06

The proposed development will require the removal of the wetland pockets. Discussions with the Conservation Authority will be pursued in order to provide an adequate compensation for the wetland removal, if required.

7. Summary of Recommendations

The following section summarizes GHD's recommendations on how the proposed development can occur in compliance with applicable federal, provincial and other regulatory legislation, policies, official plans (OPs) and OP amendments.

7.1 General Recommendations

1. The construction envelopes must be clearly defined and delineated and a line staked and clearly marked in the field prior to any construction activities occurring on the site.
2. Phasing of the development area is recommended to limit loss of habitat.
3. Conservation Authority be consulted in order to determine the best option for the removal of the wetland on the future mixed use development lands.
4. Prior to any site preparation activities (e.g., grading, placement of fill) erosion and sediment control measures should be installed along all sides of construction envelope to ensure sediment laden runoff does not leave the site and interfere with adjacent natural features. The silt fence should be inspected and maintained throughout the construction phase and remain in place until the soils are stabilized and re-vegetated.
5. Any vegetation clearing required for site access prior to construction shall be completed outside the Breeding Bird timing window of April 15th to August 15th.
6. Obtain relevant permits from Conservation Authority.

7. MECP must be contacted in order to ensure compliance with the Endangered Species Act for the least bittern habitat.
8. A detailed mitigation plan be prepared for the snake hibernaculum and protection of this SWH feature. The plan is to include recommendations regarding monitoring programs.

7.2 Cumulative Impacts

Cumulative effects are changes to the environment that are caused by this project, in combination with other past, present and future initiatives. There is potential for future construction and maintenance works to occur within the same area. Potential adverse environmental effects associated with these types of projects are localized, short term and have a low likelihood of occurring provided mitigation measures are properly implemented. Given that each project is subject to its own specific EIS, and applicable environmental Guidelines, the possibility of cumulative effects is addressed for each respective development.

8. Conclusion

GHD Limited has prepared this Environmental Impact Study to address potential environmental issues associated with an application to develop Trails Edge North mixed use development. The proposed development will not result in negative impacts on the identified natural heritage features or their functions, provided the measures described in Sections 5 and 7 are implemented.

GHD's recommendations have been made to address potential impacts to natural heritage features and/or their functions during site preparation, construction and post-construction periods. Additional dialogue with the MECP and the conservation authority are required.

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All of which is Respectfully Submitted,

GHD



Chris Ellingwood
Sr. Terrestrial and Wetland Biologist



Candice Talbot
Terrestrial and Wetland Biologist

about GHD

GHD is one of the world's leading professional services companies operating in the global markets of water, energy and resources, environment, property and buildings, and transportation. We provide engineering, environmental, and construction services to private and public sector clients.

Chris Ellingwood
Chris.Ellingwood@ghd.com
705.878.9399 Ext. 201

Candice Talbot
Candice.Talbot@ghd.com
705.878.9399

www.ghd.com

Appendices

Appendix I-A
Plant Species by Community

PPENDIX I - A Plant Species by Community

milies and genera for the plant species found in this appendix are listed in taxonomic order. The species are listed habetically by scientific name within each genus.

ee standard reference works were used for the botanical nomenclature and taxonomy (Newmaster et. al., 1998; Gleason and nquist 1991; Voss 1980; 1985). Other published works for botanical names included; ferns (Cody and Britton 1989); grasses re and McNeill 1980); orchids (Whiting and Catling 1986); shrubs (Soper and Heimburger 1982) and trees (Farrar 1995).

Total: Number of communities where plant species was recorded
X : Plant species recorded

mmon Name	*Scientific Name*	Total	COMMUNITY NUMBER													
			1	2	3	4	5	6	7	8	9	10	11	12	13	14
ONEWORT FAMILY	*CHARACEAE*															
newort	*Chara spp.*	1									X					
RSETAIL FAMILY	*EQUISETACEAE*															
d horsetail	*Equisetum arvense*	4						X								X
adow horsetail	*Equisetum pratense*	2													X	
YAL FERN FAMILY	*OSMUNDACEAE*															
rrupted fern	*Osmunda claytoniana*	2						X							X	
ACKEN FERN FAMILY	*DENNSTAEDTIACEAE*															
tern bracken fern	*Pteridium aquilinum*	2						X							X	
ECH FERN FAMILY	*THELYPTERIDAE*															
w York fern	*Thelypteris noveboracensis*	1													X	

mmon Name	*Scientific Name*	Total	COMMUNITY NUMBER													
			1	2	3	4	5	6	7	8	9	10	11	12	13	14
OD FERN FAMILY	*DRYOPTERIDACEAE*															
ulose wood-fern	*Dryopteris carthusiana*	2						X							X	
rgreen wood-fern	*Dryopteris intermedia*	2													X	
rginal wood-fern	*Dryopteris marginalis*	1													X	
ich fern	*Matteuccia struthiopteris*	1						X								
sitive fern	*Onoclea sensibilis*	6						X						X	X	
E FAMILY	*PINACEAE*															
sam fir	*Abies balsamea*	1						X								
te spruce	*Picea glauca*	2						X							X	
tern white pine	*Pinus strobus*	4						X	X	X						
tern hemlock	*Tsuga canadensis*	1													X	
PRESS FAMILY	*CUPRESSACEAE*															
mmon juniper	*Juniperus communis var. depressa*	1														
tern white cedar	*Thuja occidentalis*	1														
TTERCUP FAMILY	*RANUNCULACEAE*															
te baneberry	*Actaea pachypoda*	1													X	
baneberry	*Actaea rubra*	1						X								
nbleweed	*Anemone virginiana*	4		X				X	X							
in's bower	*Clematis virginiana*	3						X								
rp-lobed hepatica	*Hepatica acutiloba*	1						X								
nd-lobed hepatica	*Hepatica americana*	1						X								
all-flowered buttercup	*Ranunculus abortivus*	4						X							X	
buttercup	*Ranunculus acris*	3						X								
TCH HAZEL FAMILY	*HAMAMELIDACEAE*															
h hazel	*Hamamelis virginiana*	1						X								
M FAMILY	*ULMACEAE*															
erican elm	*Ulmus americana*	12		X	X		X	X	X	X						X
TTLE FAMILY	*URTICACEAE*															
erican stinging nettle	*Urtica dioica ssp. Gracilis*	2	X	X												

mmon Name	*Scientific Name*	Total	COMMUNITY NUMBER													
			1	2	3	4	5	6	7	8	9	10	11	12	13	14
LNUT FAMILY	*JUGLANDACEAE*															
ernut hickory	*Carya cordiformis*	2						X								
ernut	*Juglans cinerea*	1													X	
ECH FAMILY	*FAGACEAE*															
erican beech	*Fagus grandifolia*	1													X	
oak	*Quercus rubra*	5						X	X	X					X	
CH FAMILY	*BETULACEAE*															
ckled alder	*Alnus rugosa*	2						X								
en alder	*Alnus viridis spp. Crispa Turrill*	3						X								
ow birch	*Betula alleghaniensis Britt.*	1													X	
te birch	*Betula papyrifera*	4						X		X					X	
ked hazel	*Corylus cornuta*	1													X	
wood	*Ostrya virginiana*	3						X	X							
K FAMILY	*CARYOPHYLLACEAE*															
dder campion	*Silene vulgaris*	1							X							
CKWHEAT FAMILY	*POLYGONACEAE*															
's thumb	*Polygonum persicaria*	1										X				
ep sorrel	*Rumex acetosella*	3						X							X	
ed dock	*Rumex crispus*	4		X	X						X					X
at water dock	*Rumex orbiculatus*	1														
DEN FAMILY	*TILIACEAE*															
erican basswood	*Tilia americana*	4						X	X						X	
LET FAMILY	*VIOLACEAE*															
ny yellow violet	*Viola pubescens*	1														
ey-leaved violet	*Viola renifolia*	3						X							X	
lly blue violet	*Viola sororia*	2						X								

mmon Name	*Scientific Name*	Total	COMMUNITY NUMBER												
			1	2	3	4	5	6	7	8	9	10	11	12	13	14
LLOW FAMILY	*SALICACEAE*															
e-toothed aspen	*Populus grandidentata*	1													X	
mbling aspen	*Populus tremuloides*	8						X	X						X	X
b's willow	*Salix bebbiana*	1														
sy willow	*Salix discolor*	6			X			X	X		X					X
ck willow	*Salix fragilis*	1			X											
nder willow	*Salix petiolaris*	7		X	X			X								X
STARD FAMILY	*BRASSICACEAE*															
ic mustard	*Alliaria petiolata*	1														
nsylvania bittercress	*Cardamine pensylvanica*	1									X					
mustard	*Sinapsis arvensis*	1							X							
ATH FAMILY	*ERICACEAE*															
bush blueberry	*Vaccinium angustifolium*	1								X						
MROSE FAMILY	*PRIMULACEAE*															
ged loosestrife	*Lysimachia ciliata*	3						X								X
flower	*Trientalis borealis*	1													X	
OSEBERRY FAMILY	*GROSSULARIACEAE*															
kly gooseberry	*Ribes cynosbati*	5						X		X				X		
currant	*Ribes rubrum*	3						X								
PINE FAMILY	*CRASSULACEAE*															
ssy stonecrop	*Sedum acre*	3							X		X		X			
XIFRAGE FAMILY	*SAXIFRAGACEAE*															
y saxifrage	*Saxifraga virginiensis*	1							X							

mmon Name	*Scientific Name*	Total	COMMUNITY NUMBER													
			1	2	3	4	5	6	7	8	9	10	11	12	13	14
SE FAMILY	*ROSACEAE*															
mony	*Agrimonia gryposepela*	2													X	
ny serviceberry	*Amelanchier arborea*	2						X								
thorn species	*Crataegus spp.*	3		X			X									
mmon strawberry	*Fragaria virginiana*	11		X				X	X	X				X		X
ow avens	*Geum aleppicum*	7		X	X			X						X		
le	*Malus domestica*	2								X						
erweed	*Potentilla anserina*	1														X
ery cinquefoil	*Potentilla argentea*	1							X							
ur cinquefoil	*Potentilla recta*	4	X						X							X
field cinquefoil	*Potentilla simplex*	1							X							
ada plum	*Prunus nigra*	1						X								
cherry	*Prunus pensylvanica*	3						X								X
k cherry	*Prunus serotina*	1													X	
ke cherry	*Prunus virginiana*	4		X				X								
ghany blackberry	*Rubus allegheniensis*	2						X								
hern dewberry	*Rubus flagellaris*	3						X								
red raspberry	*Rubus idaeus*	3							X	X				X		
le-flowering raspberry	*Rubus odoratus*	2							X							
rf raspberry	*Rubus pubescens*	2						X							X	
ow-leaved meadowsweet	*Spiraea alba*	8			X			X						X	X	X

mmon Name	*Scientific Name*	Total	COMMUNITY NUMBER												
			1	2	3	4	5	6	7	8	9	10	11	12	13	14
A FAMILY	*FABACEAE*															
's-foot trefoil	*Lotus corniculatus*	3	X	X												X
k medick	*Medicago lupulina*	3							X			X				X
te sweet-clover	*Melilotus alba*	1							X							
hop clover	*Trifolium agrarium*	2							X							X
clover	*Trifolium pratense*	9	X	X				X	X			X		X		X
te clover	*Trifolium repens*	3							X					X		X
vetch	*Vicia cracca*	8	X					X	X					X		
der vetch	*Vicia tetrasperma*	1									X					
OSESTRIFE FAMILY	*LYTHRACEAE*															
ole loosestrife	*Lythrum salicaria*	5		X				X			X					X
ENING PRIMROSE FAMILY	*ONAGRACEAE*															
rf enchanter's nightshade	*Circaea alpina*	1														
ada enchanter's nightshade	*Circaea lutetiana L. ssp.canadensis*	1													X	
mon evening primrose	*Oenothera biennis*	2							X							X
GWOOD FAMILY	*CORNACEAE*															
-osier dogwood	*Cornus stolonifera*	8		X	X			X								X
URGE FAMILY	*EUPHORBIACEAE*															
y spurge	*Euphorbia esula*	1							X							
CKTHORN FAMILY	*RHAMNACEAE*															
ssy buckthorn	*Rhamnus frangula*	11	X	X	X			X	X					X	X	X
APE FAMILY	*VITACEAE*															
ginia creeper	*Parthenocissus inserta*	7		X				X	X	X					X	
grape	*Vitis riparia*	3		X					X							

mmon Name	*Scientific Name*	Total	COMMUNITY NUMBER													
			1	2	3	4	5	6	7	8	9	10	11	12	13	14
PLE FAMILY	*ACERACEAE*															
ur maple	*Acer ginnala*	1	X													
nitoba maple	*Acer negundo*	1							X							
way maple	*Acer platanoides*	2						X								
maple	*Acer rubrum*	6						X						X	X	
ar maple	*Acer saccharum ssp.saccharum*	5						X	X	X					X	
eman's maple	*Acer x freemanii*	1						X								
SHEW FAMILY	*ANACARDIACEAE*															
tern poison-ivy	*Rhus rydbergii*	8		X			X	X	X							
ghorn sumac	*Rhus typhina*	1							X							
OD-SORREL FAMILY	*OXALIDACEAE*															
mmon yellow wood-sorrel	*Oxalis dillenii*	1														
opean wood-sorrel	*Oxalis stricta*	2		X						X						
RANIUM FAMILY	*GERANIACEAE*															
knell's crane's-bill	*Geranium bicknellii*	2						X	X							
UCH-ME-NOT FAMILY	*BALSAMINACEAE*															
tted jewelweed	*Impatiens capensis*	1									X					
NSENG FAMILY	*ARALIACEAE*															
sarsaparilla	*Aralia nudicaulis*	1													X	
kenard	*Aralia racemosa*	1													X	
RROT FAMILY	*APIACEAE*															
ous water-hemlock	*Cicuta bulbifera*	1									X					
een-Anne's lace	*Daucus carota*	7	X	X			X	X	X							X
parsnip	*Heracleum lanatum*	3	X				X	X								
parsnip	*Pastinaca sativa*	3		X												X
GBANE FAMILY	*APOCYNACEAE*															
eading dogbane	*Apocynum androsaemifolium*	2							X							

mmon Name	*Scientific Name*	Total	COMMUNITY NUMBER													
			1	2	3	4	5	6	7	8	9	10	11	12	13	14
KWEED FAMILY	*ASCLEPIADACEAE*															
mp milkweed	*Asclepias incarnata*	1														X
mmon milkweed	*Asclepias syriaca*	6	X	X			X		X							X
llow-wort	*Cynanchum rossicum*	1														X
GHTSHADE FAMILY	*SOLANACEAE*															
er nightshade	*Solanum dulcamara*	3		X					X	X						
RAGE FAMILY	*BORAGINACEAE*															
er's bugloss	*Echium vulgare*	1							X							
mmon gromwell	*Lithospermum officinale*	1							X							
forget-me-not	*Myosotis scorpioides*	1													X	
RVAIN FAMILY	*VERBENACEAE*															
e vervain	*Verbena hastata*	2														X
T FAMILY	*LAMIACEAE*															
und ivy	*Glechoma hederacea*	2						X			X					
erican water-horehound	*Lycopus americanus*	1			X											
mint	*Mentha arvensis*	1		X												
nip	*Nepeta cataria*	2							X			X				
l-all	*Prunella vulgaris ssp. Lanceolata*	3	X	X				X								
NTAIN FAMILY	*PLANTAGINACEAE*															
ad-leaved plantain	*Plantago major*	5						X	X		X	X				
VE FAMILY	*OLEACEAE*															
te ash	*Fraxinus americana*	4						X		X					X	
ck ash	*Fraxinus nigra*	2						X								
en ash	*Fraxinus pennsylvanica var. subinteg*	8		X	X			X	X					X		
c	*Syringa vulgaris*	1							X							
WORT FAMILY	*SCROPHULARIACEAE*															
nder-leaved agalinis	*Agalinis tenuifolia*	4	X	X	X						X					
er-and-eggs	*Linaria vulgaris*	4	X						X							X
mmon mullein	*Verbascum thapsus*	5						X	X							X

mmon Name	*Scientific Name*	Total	COMMUNITY NUMBER													
			1	2	3	4	5	6	7	8	9	10	11	12	13	14
DDER FAMILY	*RUBIACEAE*															
avers	*Galium aparine*	7						X	X							X
te bedstraw	*Galium mollugo*	2		X												
NEYSUCKLE FAMILY	*CAPRIFOLIACEAE*															
arian honeysuckle	*Lonicera tatarica*	7						X	X							
mmon elderberry	*Sambucus canadensis*	1							X							
-berried elderberry	*Sambucus racemosa*	2							X							
wberry	*Symphoricarpos albus*	1							X							
ple-leaved viburnum	*Viburnum acerifolium*	1														
nyberry	*Viburnum lentago*	4		X			X	X								
n bush cranberry	*Viburnum trilobium*	1						X								
LERIAN FAMILY	*VALERIANACEAE*															
mmon valerian	*Valeriana officinalis*	1	X													

mmon Name	*Scientific Name*	Total	COMMUNITY NUMBER												
			1	2	3	4	5	6	7	8	9	10	11	12	13	14
TER FAMILY	*ASTERACEAE*															
mmon yarrow	*Achillea millefolium*	6	X	X				X	X							
mmon ragweed	*Ambrosia artemisiifolia L.*	4	X	X								X		X		
mmon burdock	*Arctium minus*	6	X		X				X						X	X
rsh beggar-ticks	*Bidens frondosa*	1									X					
eye daisy	*Chrysanthemum leucanthemum*	4	X					X	X							
nada thistle	*Cirsium arvense*	1												X		
thistle	*Cirsium vulgare*	2							X							X
adelphia fleabane	*Erigeron philadelphicus ssp. philadel*	2	X													X
eset	*Eupatorium perfoliatum*	2	X													
e-leaved aster	*Eurybia macrophylla*	6						X	X						X	
ss-leaved goldenrod	*Euthamia graminifolia*	1		X												
nge hawkweed	*Hieracium aurantiacum*	3						X	X							
g devil hawkweed	*Hieracium x florbundum*	1							X							
campane	*Inula helenium*	1		X												
lettuce	*Lactuca canadensis*	3						X							X	
tch thistle	*Onopordum acanthium*	2	X	X												
mate-leaf sweet-coltsfoot	*Petasites frigidus*	1													X	
goldenrod	*Solidago altissima*	5	X	X			X									X
nada goldenrod	*Solidago canadensis*	6						X	X					X		X
y goldenrod	*Solidago juncea*	2						X								
y goldenrod	*Solidago nemoralis ssp. Nemoralis*	2	X	X												
and white aster	*Solidago ptarmicoides*	6		X			X	X		X				X	X	
d sow thistle	*Sonchus arvensis ssp.arvensis*	4		X	X			X								
y-leaved sow thistle	*Sonchus asper*	2	X											X		
rt-leaved aster	*Symphyotrichum cordifolium*	2		X											X	
icled aster	*Symphyotrichum lanceolatum ssp.he*	3				X		X						X		
co aster	*Symphyotrichum lateriflorum var.late*	5	X	X			X	X						X		
w England aster	*Symphyotrichum novae- angliae*	8	X	X	X		X	X	X		X					X

mmon Name	*Scientific Name*	Total	COMMUNITY NUMBER												
			1	2	3	4	5	6	7	8	9	10	11	12	13	14
ple-stemmed aster	*Symphyotrichum puniceum*	4		X												
sy	*Tanacetum vulgare*	4	X	X												
mmon dandelion	*Taraxacum officinale*	8						X	X			X		X		X
t's-beard	*Tragopogon dubius*	1							X							
sfoot	*Tussilago farfara*	3									X			X		X
TER-PLANTAIN FAMILY	*ALISMATACEAE*															
mmon waterplantain	*Alisma plantago-aquatica*	2									X		X			
OG'S-BIT FAMILY	*HYDROCHARITACEAE*															
's-bit	*Hydrocharis morsus-ranae*	1									X					
er celery	*Vallisneria americana*	1														
NDWEED FAMILY	*POTAMOGETONACEAE*															
able-leaved pondweed	*Potamogeton gramineus*	1									X					
mmon floating pondweed	*Potamogeton natans*	1														
UM FAMILY	*ARACEAE*															
k-in-the-pulpit	*Arisaema triphyllum*	2													X	
CKWEED FAMILY	*LEMNACEAE*															
mmon duckweed	*Lemna minor*	1														
SH FAMILY	*JUNCACEAE*															
adian rush	*Juncus canadensis*	3	X		X	X										
wn-fruited rush	*Juncus pelocarpus*	1	X													
n rush	*Juncus tenuis*	3	X		X						X					

mmon Name	*Scientific Name*	Total	COMMUNITY NUMBER													
			1	2	3	4	5	6	7	8	9	10	11	12	13	14
DGE FAMILY	*CYPERACEAE*															
pping wood sedge	*Carex arctata Boott*	6						X							X	
dder sedge	*Carex intumescens*	4				X		X							X	
mmon lake sedge	*Carex lacustris*	1									X					
-fruited sedge	*Carex oligocarpa*	3						X								
nsylvania sedge	*Carex pensylvanica*	2													X	
-fruited sedge	*Carex stipata*	4	X			X										
dle spike-rush	*Eleocharis acicularis*	2				X					X					
l-grass	*Scirpus cyperinus*	5	X	X	X	X					X					
stem bulrush	*Scirpus validus*	3		X		X					X					
ASS FAMILY	*POACEAE*															
op	*Agrostis gigantea*	2			X						X					
gh hair grass	*Agrostis scabra*	2	X			X										
erty grass	*Aristida dichotoma*	1		X												
less brome grass	*Bromus inermis ssp.inermis*	5	X	X					X							X
ada bluejoint grass	*Calamagrostis canadensis*	5			X											X
erty oatgrass	*Danthonia spicata*	1							X							
mmon barnyard grass	*Echinochloa crusgalli*	2									X	X				
thern manna grass	*Glyceria borealis*	1									X					
manna grass	*Glyceria grandis*	1									X					
cut grass	*Leersia oryzoides*	1														
minate panic grass	*Panicum acuminatum var.acuminatu*	1							X							
h grass	*Panicum capillare*	1									X					
d canary grass	*Phalaris arundinacea*	7	X	X	X									X		X
othy	*Phleum pratense*	4	X	X					X	X						
e melic grass	*Schizachne purpurascens (Torr.) Sw*	1													X	
ail millet	*Setaria italica*	3							X			X	X			
ow foxtail	*Setaria pumila*	1							X							

mmon Name	*Scientific Name*	Total	COMMUNITY NUMBER													
			1	2	3	4	5	6	7	8	9	10	11	12	13	14
TTAIL FAMILY	*TYPHACEAE*															
row-leaved cattail	*Typha angustifolia*	4		X							X		X			
mmon cattail	*Typha latifolia*	8			X	X		X			X		X			X
Y FAMILY	*LILIACEAE*															
ebead lily	*Clintonia borealis*	1													X	
t lily	*Erythronium americanum ssp. ameri*	3						X							X	
nada mayflower	*Maianthemum canadense*	5						X		X					X	
an cucumber-root	*Medeola virginiana*	1													X	
-flowered Solomon's seal	*Polygonatum biflorum*	2						X								
ry Solomon's seal	*Polygonatum pubescens*	1													X	
e Solomon's seal	*Smilacina racemosa*	1						X								
-flowered Solomon's seal	*Smilacina stellata*	1						X								
e-twisted stalk	*Streptopus roseus*	2													X	
ple trillium	*Trillium erectum*	1													X	
te trillium	*Trillium grandiflorum*	3						X							X	
S FAMILY	*IRIDACEAE*															
e blue-eyed grass	*Sisyrinchium montanum*	1														
CHID FAMILY	*ORCHIDACEAE*															
eborine	*Epipactis helleborine*	1								X						
al Number of Plant Species	234		36	49	22	9	11	92	68	18	30	9	5	22	56	42
			Number of Plant Species Per Comm													

PPENDIX I - A Communities 16 - 20

			COMMUNITY NUMBER				
mmon Name	*Scientific Name*	Total	16	17	18	19	20
ONEWORT FAMILY	*CHARACEAE*						
newort	*Chara spp.*	1					
RSETAIL FAMILY	*EQUISETACEAE*						
l horsetail	*Equisetum arvense*	4					X
adow horsetail	*Equisetum pratense*	2					
YAL FERN FAMILY	*OSMUNDACEAE*						
rrupted fern	*Osmunda claytoniana*	2					
ACKEN FERN FAMILY	*DENNSTAEDTIACEAE*						
tern bracken fern	*Pteridium aquilinum*	2					
ECH FERN FAMILY	*THELYPTERIDAE*						
v York fern	*Thelypteris noveboracensis*	1					
OD FERN FAMILY	*DRYOPTERIDACEAE*						
ulose wood-fern	*Dryopteris carthusiana*	2					
rgreen wood-fern	*Dryopteris intermedia*	2					
ginal wood-fern	*Dryopteris marginalis*	1					
ich fern	*Matteuccia struthiopteris*	1					
sitive fern	*Onoclea sensibilis*	6	X	X			
E FAMILY	*PINACEAE*						
sam fir	*Abies balsamea*	1					
e spruce	*Picea glauca*	2					
tern white pine	*Pinus strobus*	4				X	
tern hemlock	*Tsuga canadensis*	1					
PRESS FAMILY	*CUPRESSACEAE*						
mmon juniper	*Juniperus communis var. depressa*	1				X	

		COMMUNITY NUMBER					
mmon Name	*Scientific Name*	Total	16	17	18	19	20
tern white cedar	*Thuja occidentalis*	1					
TTERCUP FAMILY	*RANUNCULACEAE*						
e baneberry	*Actaea pachypoda*	1					
baneberry	*Actaea rubra*	1					
ableweed	*Anemone virginiana*	4		X			
in's bower	*Clematis virginiana*	3	X				
rp-lobed hepatica	*Hepatica acutiloba*	1					
nd-lobed hepatica	*Hepatica americana*	1					
all-flowered buttercup	*Ranunculus abortivus*	4	X				
buttercup	*Ranunculus acris*	3		X			
TCH HAZEL FAMILY	*HAMAMELIDACEAE*						
h hazel	*Hamamelis virginiana*	1					
M FAMILY	*ULMACEAE*						
erican elm	*Ulmus americana*	12	X	X	X	X	
TTLE FAMILY	*URTICACEAE*						
erican stinging nettle	*Urtica dioica ssp. Gracilis*	2					
LNUT FAMILY	*JUGLANDACEAE*						
ernut hickory	*Carya cordiformis*	2				X	
ernut	*Juglans cinerea*	1					
ECH FAMILY	*FAGACEAE*						
erican beech	*Fagus grandifolia*	1					
oak	*Quercus rubra*	5				X	
CH FAMILY	*BETULACEAE*						
ckled alder	*Alnus rugosa*	2					
en alder	*Alnus viridis spp. Crispa Turrill*	3	X		X		
ow birch	*Betula alleghaniensis Britt.*	1					
e birch	*Betula papyrifera*	4					
ked hazel	*Corylus cornuta*	1					
wood	*Ostrya virginiana*	3				X	

		COMMUNITY NUMBER					
mmon Name	*Scientific Name*	Total	16	17	18	19	20
K FAMILY	*CARYOPHYLLACEAE*						
lder campion	*Silene vulgaris*	1					
CKWHEAT FAMILY	*POLYGONACEAE*						
's thumb	*Polygonum persicaria*	1					
ep sorrel	*Rumex acetosella*	3				X	
ed dock	*Rumex crispus*	4					
at water dock	*Rumex orbiculatus*	1					
DEN FAMILY	*TILIACEAE*						
erican basswood	*Tilia americana*	4				X	
LET FAMILY	*VIOLACEAE*						
ny yellow violet	*Viola pubescens*	1				X	
ey-leaved violet	*Viola renifolia*	3	X				
lly blue violet	*Viola sororia*	2				X	
LOW FAMILY	*SALICACEAE*						
e-toothed aspen	*Populus grandidentata*	1					
mbling aspen	*Populus tremuloides*	8	X	X		X	
b's willow	*Salix bebbiana*	1					
sy willow	*Salix discolor*	6					
k willow	*Salix fragilis*	1					
der willow	*Salix petiolaris*	7		X			X
STARD FAMILY	*BRASSICACEAE*						
ic mustard	*Alliaria petiolata*	1			X		
nsylvania bittercress	*Cardamine pensylvanica*	1					
mustard	*Sinapsis arvensis*	1					
ATH FAMILY	*ERICACEAE*						
ush blueberry	*Vaccinium angustifolium*	1					
MROSE FAMILY	*PRIMULACEAE*						
ged loosestrife	*Lysimachia ciliata*	3					
flower	*Trientalis borealis*	1					

			COMMUNITY NUMBER				
mmon Name	*Scientific Name*	Total	16	17	18	19	20
OSEBERRY FAMILY	*GROSSULARIACEAE*						
kly gooseberry	*Ribes cynosbati*	5	X			X	
currant	*Ribes rubrum*	3	X			X	
PINE FAMILY	*CRASSULACEAE*						
ssy stonecrop	*Sedum acre*	3					
XIFRAGE FAMILY	*SAXIFRAGACEAE*						
y saxifrage	*Saxifraga virginiensis*	1					
SE FAMILY	*ROSACEAE*						
mony	*Agrimonia gryposepela*	2					
ny serviceberry	*Amelanchier arborea*	2					
thorn species	*Crataegus spp.*	3			X		
mon strawberry	*Fragaria virginiana*	11	X	X	X	X	
ow avens	*Geum aleppicum*	7	X	X			
le	*Malus domestica*	2	X				
erweed	*Potentilla anserina*	1					
ery cinquefoil	*Potentilla argentea*	1					
ur cinquefoil	*Potentilla recta*	4				X	
field cinquefoil	*Potentilla simplex*	1					
ada plum	*Prunus nigra*	1					
cherry	*Prunus pensylvanica*	3				X	
k cherry	*Prunus serotina*	1					
ke cherry	*Prunus virginiana*	4	X	X			
ghany blackberry	*Rubus allegheniensis*	2					
hern dewberry	*Rubus flagellaris*	3				X	
red raspberry	*Rubus idaeus*	3					
ole-flowering raspberry	*Rubus odoratus*	2					
rf raspberry	*Rubus pubescens*	2					
ow-leaved meadowsweet	*Spiraea alba*	8	X	X			
A FAMILY	*FABACEAE*						

			COMMUNITY NUMBER				
mmon Name	*Scientific Name*	Total	16	17	18	19	20
's-foot trefoil	*Lotus corniculatus*	3					
k medick	*Medicago lupulina*	3					
e sweet-clover	*Melilotus alba*	1					
hop clover	*Trifolium agrarium*	2					
clover	*Trifolium pratense*	9		X			
e clover	*Trifolium repens*	3					
vetch	*Vicia cracca*	8	X	X	X		
der vetch	*Vicia tetrasperma*	1					
OSESTRIFE FAMILY	*LYTHRACEAE*						
le loosestrife	*Lythrum salicaria*	5					
ENING PRIMROSE FAMILY	*ONAGRACEAE*						
rf enchanter's nightshade	*Circaea alpina*	1					
ada enchanter's nightshade	*Circaea lutetiana L. ssp.canadensi*	1					
mon evening primrose	*Oenothera biennis*	2					
GWOOD FAMILY	*CORNACEAE*						
osier dogwood	*Cornus stolonifera*	8	X	X	X		
URGE FAMILY	*EUPHORBIACEAE*						
y spurge	*Euphorbia esula*	1					
CKTHORN FAMILY	*RHAMNACEAE*						
ssy buckthorn	*Rhamnus frangula*	11	X	X			
APE FAMILY	*VITACEAE*						
inia creeper	*Parthenocissus inserta*	7			X		
grape	*Vitis riparia*	3	X				
PLE FAMILY	*ACERACEAE*						
ur maple	*Acer ginnala*	1					
nitoba maple	*Acer negundo*	1					
way maple	*Acer platanoides*	2	X				
maple	*Acer rubrum*	6	X	X			
ar maple	*Acer saccharum ssp.saccharum*	5				X	

			COMMUNITY NUMBER				
mmon Name	*Scientific Name*	Total	16	17	18	19	20
eman's maple	*Acer x freemanii*	1					
SHEW FAMILY	*ANACARDIACEAE*						
tern poison-ivy	*Rhus rydbergii*	8		X	X	X	
horn sumac	*Rhus typhina*	1					
OD-SORREL FAMILY	*OXALIDACEAE*						
mon yellow wood-sorrel	*Oxalis dillenii*	1					
opean wood-sorrel	*Oxalis stricta*	2					
RANIUM FAMILY	*GERANIACEAE*						
knell's crane's-bill	*Geranium bicknellii*	2					
UCH-ME-NOT FAMILY	*BALSAMINACEAE*						
tted jewelweed	*Impatiens capensis*	1					
SENG FAMILY	*ARALIACEAE*						
sarsaparilla	*Aralia nudicaulis*	1					
enard	*Aralia racemosa*	1					
RROT FAMILY	*APIACEAE*						
ous water-hemlock	*Cicuta bulbifera*	1					
een-Anne's lace	*Daucus carota*	7			X		
parsnip	*Heracleum lanatum*	3					
parsnip	*Pastinaca sativa*	3					
GBANE FAMILY	*APOCYNACEAE*						
eading dogbane	*Apocynum androsaemifolium*	2			X		
KWEED FAMILY	*ASCLEPIADACEAE*						
mp milkweed	*Asclepias incarnata*	1					
mon milkweed	*Asclepias syriaca*	6			X		
llow-wort	*Cynanchum rossicum*	1					
HTSHADE FAMILY	*SOLANACEAE*						
r nightshade	*Solanum dulcamara*	3					
RAGE FAMILY	*BORAGINACEAE*						
r's bugloss	*Echium vulgare*	1					

			COMMUNITY NUMBER				
mmon Name	*Scientific Name*	Total	16	17	18	19	20
mon gromwell	*Lithospermum officinale*	1					
forget-me-not	*Myosotis scorpioides*	1					
RVAIN FAMILY	*VERBENACEAE*						
vervain	*Verbena hastata*	2					X
T FAMILY	*LAMIACEAE*						
und ivy	*Glechoma hederacea*	2					
erican water-horehound	*Lycopus americanus*	1					
mint	*Mentha arvensis*	1					
ip	*Nepeta cataria*	2					
l-all	*Prunella vulgaris ssp. Lanceolata*	3					
NTAIN FAMILY	*PLANTAGINACEAE*						
ad-leaved plantain	*Plantago major*	5			X		
VE FAMILY	*OLEACEAE*						
e ash	*Fraxinus americana*	4				X	
k ash	*Fraxinus nigra*	2					
en ash	*Fraxinus pennsylvanica var. subint*	8	X	X			
	Syringa vulgaris	1					
WORT FAMILY	*SCROPHULARIACEAE*						
der-leaved agalinis	*Agalinis tenuifolia*	4					
er-and-eggs	*Linaria vulgaris*	4			X		
mon mullein	*Verbascum thapsus*	5			X		
DDER FAMILY	*RUBIACEAE*						
vers	*Galium aparine*	7	X		X	X	
e bedstraw	*Galium mollugo*	2	X				
NEYSUCKLE FAMILY	*CAPRIFOLIACEAE*						
arian honeysuckle	*Lonicera tatarica*	7	X	X	X	X	
mon elderberry	*Sambucus canadensis*	1					
berried elderberry	*Sambucus racemosa*	2				X	
wberry	*Symphoricarpos albus*	1					

			COMMUNITY NUMBER				
mmon Name	*Scientific Name*	Total	16	17	18	19	20
ole-leaved viburnum	*Viburnum acerifolium*	1	X				
nyberry	*Viburnum lentago*	4					
bush cranberry	*Viburnum trilobium*	1					
LERIAN FAMILY	*VALERIANACEAE*						
mon valerian	*Valeriana officinalis*	1					
TER FAMILY	*ASTERACEAE*						
mon yarrow	*Achillea millefolium*	6	X	X			
mon ragweed	*Ambrosia artemisiifolia L.*	4					
mon burdock	*Arctium minus*	6			X		
sh beggar-ticks	*Bidens frondosa*	1					
eye daisy	*Chrysanthemum leucanthemum*	4		X			
ada thistle	*Cirsium arvense*	1					
thistle	*Cirsium vulgare*	2					
adelphia fleabane	*Erigeron philadelphicus ssp. philad*	2					
eset	*Eupatorium perfoliatum*	2					
e-leaved aster	*Eurybia macrophylla*	6			X	X	
ss-leaved goldenrod	*Euthamia graminifolia*	1					
nge hawkweed	*Hieracium aurantiacum*	3		X			
devil hawkweed	*Hieracium x florbundum*	1					
campane	*Inula helenium*	1					
lettuce	*Lactuca canadensis*	3					
ch thistle	*Onopordum acanthium*	2					
mate-leaf sweet-coltsfoot	*Petasites frigidus*	1					
goldenrod	*Solidago altissima*	5			X		
ada goldenrod	*Solidago canadensis*	6			X		
y goldenrod	*Solidago juncea*	2			X		
y goldenrod	*Solidago nemoralis ssp. Nemoralis*	2					
nd white aster	*Solidago ptarmicoides*	6					
sow thistle	*Sonchus arvensis ssp.arvensis*	4					

			COMMUNITY NUMBER				
mmon Name	*Scientific Name*	Total	16	17	18	19	20
y-leaved sow thistle	*Sonchus asper*	2					
rt-leaved aster	*Symphyotrichum cordifolium*	2					
icled aster	*Symphyotrichum lanceolatum ssp.*	3					
co aster	*Symphyotrichum lateriflorum var.la*	5					
v England aster	*Symphyotrichum novae- angliae*	8					
ole-stemmed aster	*Symphyotrichum puniceum*	4		X	X		
sy	*Tanacetum vulgare*	4	X		X		
mmon dandelion	*Taraxacum officinale*	8		X	X	X	
t's-beard	*Tragopogon dubius*	1					
sfoot	*Tussilago farfara*	3					
TER-PLANTAIN FAMILY	*ALISMATACEAE*						
mmon waterplantain	*Alisma plantago-aquatica*	2					
OG'S-BIT FAMILY	*HYDROCHARITACEAE*						
's-bit	*Hydrocharis morsus-ranae*	1					
er celery	*Vallisneria americana*	1					X
NDWEED FAMILY	*POTAMOGETONACEAE*						
able-leaved pondweed	*Potamogeton gramineus*	1					
mmon floating pondweed	*Potamogeton natans*	1					X
UM FAMILY	*ARACEAE*						
k-in-the-pulpit	*Arisaema triphyllum*	2					
CKWEED FAMILY	*LEMNACEAE*						
mmon duckweed	*Lemna minor*	1					X
SH FAMILY	*JUNCACEAE*						
adian rush	*Juncus canadensis*	3					
wn-fruited rush	*Juncus pelocarpus*	1					
n rush	*Juncus tenuis*	3					
OGE FAMILY	*CYPERACEAE*						
oping wood sedge	*Carex arctata Boott*	6	X	X	X		
lder sedge	*Carex intumescens*	4					

			COMMUNITY NUMBER				
mmon Name	*Scientific Name*	Total	16	17	18	19	20
mon lake sedge	*Carex lacustris*	1					
-fruited sedge	*Carex oligocarpa*	3		X			
nsylvania sedge	*Carex pensylvanica*	2				X	
-fruited sedge	*Carex stipata*	4	X				
dle spike-rush	*Eleocharis acicularis*	2					
l-grass	*Scirpus cyperinus*	5					
stem bulrush	*Scirpus validus*	3					
ASS FAMILY	*POACEAE*						
op	*Agrostis gigantea*	2					
gh hair grass	*Agrostis scabra*	2					
erty grass	*Aristida dichotoma*	1					
less brome grass	*Bromus inermis ssp.inermis*	5			X		
ada bluejoint grass	*Calamagrostis canadensis*	5	X	X			
erty oatgrass	*Danthonia spicata*	1					
mon barnyard grass	*Echinochloa crusgalli*	2					
hern manna grass	*Glyceria borealis*	1					
manna grass	*Glyceria grandis*	1					
cut grass	*Leersia oryzoides*	1					
minate panic grass	*Panicum acuminatum var.acumina*	1					
h grass	*Panicum capillare*	1					
d canary grass	*Phalaris arundinacea*	7	X				
othy	*Phleum pratense*	4					
e melic grass	*Schizachne purpurascens (Torr.) S*	1					
ail millet	*Setaria italica*	3					
ow foxtail	*Setaria pumila*	1					
TTAIL FAMILY	*TYPHACEAE*						
ow-leaved cattail	*Typha angustifolia*	4					
mon cattail	*Typha latifolia*	8					X
Y FAMILY	*LILIACEAE*						

			COMMUNITY NUMBER				
mmon Name	*Scientific Name*	Total	16	17	18	19	20
ebead lily	*Clintonia borealis*	1					
t lily	*Erythronium americanum ssp. ame*	3				X	
ada mayflower	*Maianthemum canadense*	5				X	
an cucumber-root	*Medeola virginiana*	1					
-flowered Solomon's seal	*Polygonatum biflorum*	2				X	
y Solomon's seal	*Polygonatum pubescens*	1					
e Solomon's seal	*Smilacina racemosa*	1					
-flowered Solomon's seal	*Smilacina stellata*	1					
e-twisted stalk	*Streptopus roseus*	2				X	
ole trillium	*Trillium erectum*	1					
e trillium	*Trillium grandiflorum*	3				X	
S FAMILY	*IRIDACEAE*						
e blue-eyed grass	*Sisyrinchium montanum*	1					
CHID FAMILY	*ORCHIDACEAE*						
eborine	*Epipactis helleborine*	1					
al Number of Plant Species	234		31	26	27	31	7

Number of Plant Species Per Community

Appendix I-B
List of Significant Plant Species

NDIX I - B List of Significant Plant Species

es observed by NEA with significant status on national, provincial and relevant regional lists are listed with status codes and where the most current year of publication. Three standard reference works were used for the botanical nomenclature and taxonomy (Newmaster 3; Gleason and Cronquist 1991; Voss 1980; 1985). Other published works for botanical names included; ferns (Cody and Britton 1989); ore and McNeill 1980); orchids (Whiting and Catling 1986); shrubs (Soper and Heimburger 1982) and trees (Farrar 1995).

L RANKING **Committee on the Status of Endangered Wildlife in Canada (COSEWIC), Government of Canada**
Species at Risk Act (SARA), SCHEDULE 1 (Subsections 2(1), 42(2) and 68(2)), Government of Can

AL RANKING **Species at Risk in Ontario (COSSARO), Government of Ontario**
Provincial Rank (SRANK), Natural Heritage Information Center, Government of Ont

L RANKING

Brunton Ottawa	Brunton, 2005, Ottawa
Cuddy, Eastern 4	Region 4 (East), D.G.Cuddy, 1991

ODES

COSEWIC **COSSARO** **SARA**	**END *** **THR *** **SC ***	- Endangered Species - Threatened Species - Species of Concern	***Year of Status Publication included in Code**
SRANK	**S1** **S2** **S3**	- Extremely Rare - Very Rare - Rare to Uncommon	**Other national or provincial codes not listed**
Regional Lists	**R** **RS** **EXP**	- Rare native species -Regional significant - Extirpated native species	**Other Regional codes not listed**

		NATIONAL RANKINGS		PROVINCIAL RANKINGS		REGIONAL RANKIN			
ame	**Scientific Name**	**COSEWIC**	**SARA**	**COSSARO**	**SRank**	**Brunton Ottawa**	**Cuddy, Eastern**		
	Hamamelis virginiana					RS			
	Juglans cinerea	END Apr/14	END Mar/13	END Jun/14	S3?				
ed violet	Viola renifolia						R		
	Ribes rubrum					R			

ame	Scientific Name	COSEWIC	SARA	COSSARO	SRank	Brunton Ottawa	Cuddy, Eastern		
ch	Vicia tetrasperma					R	R		
e	Euphorbia esula					R	R		
	Heracleum lanatum					RS	R		
me-not	Myosotis scorpioides					R	R		
	Fraxinus nigra	THR Nov/18							
	Galium aparine						R		
lerian	Valeriana officinalis					R			
f sweet-coltsfoot	Petasites frigidus						R		
ved pondweed	Potamogeton gramineus						R		
ush	Juncus canadensis						R		
od sedge	Carex arctata Boott						R		
rush	Scirpus validus					RS			
	Setaria italica					R			
d Solomon's seal	Polygonatum biflorum					R			
ed grass	Sisyrinchium montanum					RS			
Ranking	**Total** 19 **Status List Total**	4	2	2		11	10	0	

Appendix II
Project Bird Status Report

DIX II - B Bird Status Report - Comprehensive

bserved by GHD are listed in the order followed the American Ornithologists' Union (AOU) Check-list of North American ion, 1999, 47th Supplement). Common and scientific nomenclature are based on those used by AOU. Breeding status and ence code are listed when observed. Any significant status for a species on national and provincial lists is displayed as well relevant regional lists.

END - endangered	A wildlife species facing imminent extirpation or extinction.
END-R -endangered regulated	A wildlife species facing imminent extirpation or extinction in Ontario which has been regulated under Ontario's Endangered Species Act (ESA).
THR - threatened	A wildlife species likely to become endangered if limiting factors are not reversed.
SC - special concern	A wildlife species that may become threatened or an endangered species because of a combination of biological characteristics and identified threats.
YES - Area Sensitive	A wildlife species that requires large areas of suitable habitat in order to sustain their population numbers.

*** Other status levels are not displayed**

COSEWIC	The Committee on the Status of Endangered Wildlife in Canada, May 2018.
COSSARO	The Committee on the Status of Species at Risk in Ontario, June 2018.
SARA	Species At Risk Act, Schedule 1, Government of Canada, 2018.
Area Sensitive	Significant Wildlife Technical Guide, Appendix C, OMNR, Oct. 2000
Region 6	Southern Ontario Wetland Evaluation Appendix 11B, Version 3.2, March 2013

tus:
NEA)

B -species observed in breeding season in suitable habitat with some evidence of breeding (confirmed, probable or possible as per Ontario Breeding Bird Atlas, 2002).
F -species observed in breeding season but no evidence of breeding or suitable nest sites available on the study site (includes flyovers, migrants and foraging colonial breeders).
M -species observed outside of breeding season for that species and in area outside of the known breeding range for that species.

dence Code: OBSERVED
y NEA) X -species observed in its breeding season (no evidence of breeding).

POSSIBLE BREEDING
H -species observed in its breeding season in suitable nesting habitat
S -singing male present, or breeding calls heard, in its breeding season in suitable nesting habitat

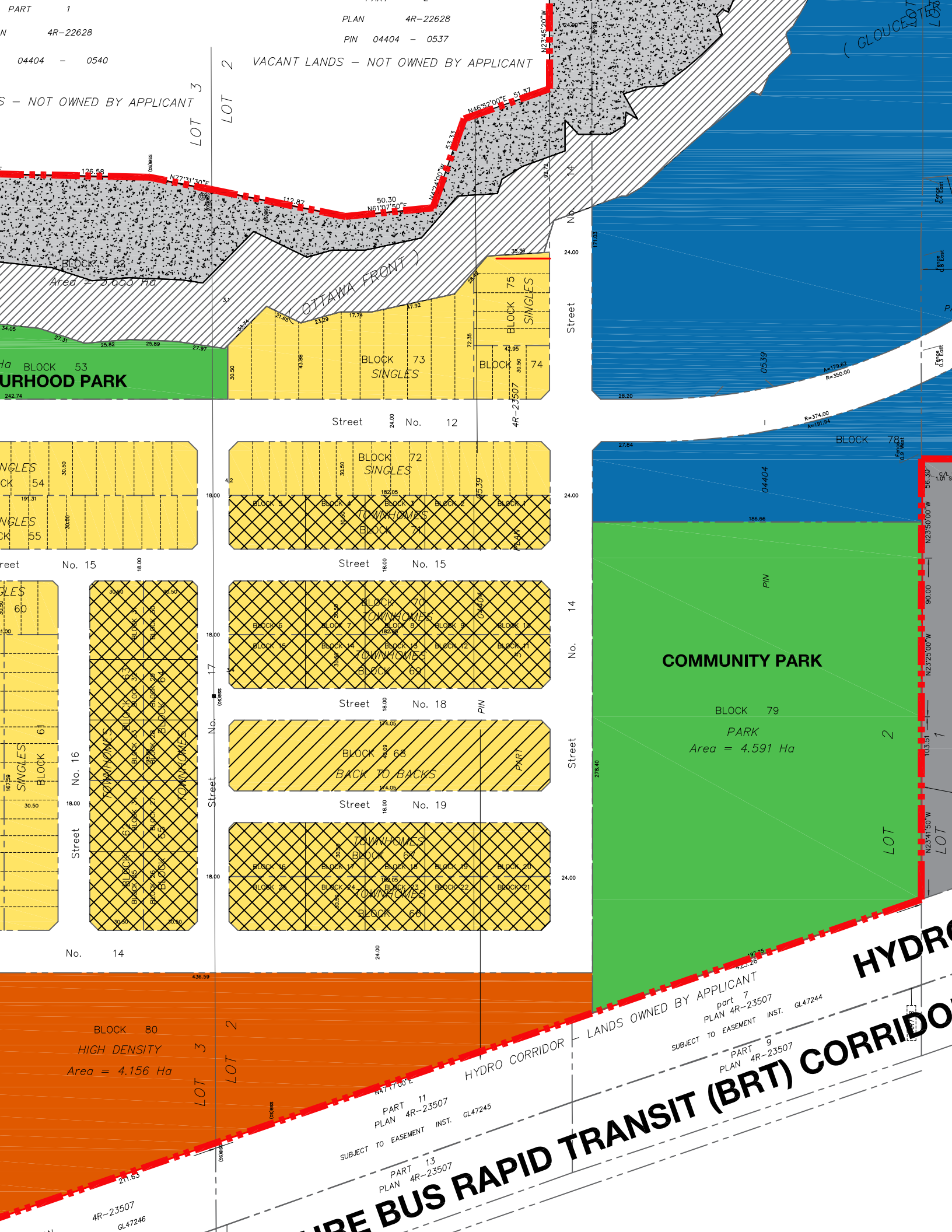
PROBABLE BREEDING
P -pair observed in their breeding season in suitable nesting habitat
T -permanent territory presumed through registration of territorial song on at least 2days, a week or more apart, at the same place
D -courtship or display between a male and a female or 2 males, including courtship feeding or copulation
V -visiting probable nest site
A -agitated behaviour or anxiety calls of an adult
B -brood patch on adult female or cloacal protuberance on adult male
N -nest-building or excavation of nest hole

CONFIRMED BREEDING
DD -distraction display or injury feigning
NU -used nest or egg shell found (occupied or laid within the period of study)
FY -recently fledged young or downy young, including young incapable of sustained flight
AE -adults leaving or entering nest site in circumstances indicating occupied nest
FS -adult carrying fecal sac
CF -adult carrying food for young
NE -nest containing eggs
NY -nest with young seen or heard SOURCE: Ontario Breeding Bird Atlas March 2001

mmon Name	Scientific Name	Observed Breeding Status	Breed Evidence Code	COSEWIC	COSSARO	SARA	Area Sensitive	Region 6		
ada Goose	*Branta canadensis*	B	None				No			
ard	*Anas platyrhynchos*	B	None				No			
at Blue Heron	*Ardea herodias*	B	None				No			
key Vulture	*Cathartes aura*	B	None				No			
-tailed Hawk	*Buteo jamaicensis*	B	None				No			
eer	*Charadrius vociferus*	B	None				No			
on's Snipe	*Gallinago delicata*	B	None				No			
g-billed Gull	*Larus delawarensis*	B	None				No			
k Pigeon	*Columbia livia*	B	None				No			
rning Dove	*Zenaida macroura*	B	None				No			
r Flycatcher	*Empidonax alnorum*	B	None				No			
ow Flycatcher	*Empidonax traillii*	B	None				No			
st Flycatcher	*Empidonax minimus*	B	None				No			
tern Kingbird	*Tyrannus tyrannus*	B	None				No			
bling Vireo	*Vireo gilvus*	B	None				No			
e Jay	*Cyanocitta cristata*	B	None				No			
erican Crow	*Corvus brachyrhynchos*	B	None				No			
e Swallow	*Tachycineta bicolor*	B	None				No			
k Swallow	*Riparia riparia*	B	None	THR	THR	THR	No			
n Swallow	*Hirundo rustica*	B	None	THR	THR	THR	No			
se Wren	*Troglodytes aedon*	B	None				No			
ry	*Catharus fuscescens*	B	None				Yes			
erican Robin	*Turdus migratorius*	B	None				No			
y Catbird	*Dumetella carolinensis*	B	None				No			
wn Thrasher	*Toxostoma rufum*	B	None				No			
opean Starling	*Sturnus vulgaris*	B	None				No			

ar Waxwing	*Bombycilla cedrorum*	B	None				No			
ow Warbler	*Dendroica petechia*	B	None				No			
mmon Yellowthroat	*Geothlypis trichas*	B	None				No			
ping Sparrow	*Spizella passerina*	B	None				No			
-colored Sparrow	*Spizella pallida*	B	None				No			
annah Sparrow	*Passerculus sandwichen*	B	None				No			
g Sparrow	*Melospiza melodia*	B	None				No			
mp Sparrow	*Melospiza georgiana*	B	None				No			
thern Cardinal	*Cardinalis cardinalis*	B	None				No			
e-breasted Grosbeak	*Pheucticus ludovicianus*	B	None				No			
olink	*Dolichonyx oryzivorus*	B	None	THR	THR	THR	No			
-winged Blackbird	*Agelaius phoeniceus*	B	None				No			
mmon Grackle	*Quiscalus quiscula*	B	None				No			
wn-headed Cowbird	*Molothrus ater*	B	None				No			
le Finch	*Carpodacus purpureus*	B	None				No			
erican Goldfinch	*Carduelis tristis*	B	None				No			
ES 42	**BREEDING SPECIES OBSERVED:**	**42**		**3**	**3**	**3**	**1**	**0**	**0**	

Appendix III
Conceptual Plan



PART 1
PLAN 4R-22628
PIN 04404 - 0537
VACANT LANDS - NOT OWNED BY APPLICANT
04404 - 0540
S - NOT OWNED BY APPLICANT
LOT 3
LOT 2
BLOCK 52
Area = 3.653 Ha
(OTTAWA FRONT)
BLOCK 53
URHOOD PARK
BLOCK 73
SINGLES
BLOCK 74
BLOCK 75
SINGLES
Street No. 12
BLOCK 72
SINGLES
TOWNHOMES
BLOCK 71
Street No. 15
BLOCK 70
TOWNHOMES
BLOCK 69
Street No. 18
BLOCK 68
BACK TO BACKS
Street No. 19
TOWNHOMES
BLOCK 67
TOWNHOMES
BLOCK 66
Street No. 14
Street No. 17
Street No. 16
SINGLES
BLOCK 61
BLOCK 60
BLOCK 63
BLOCK 64
BLOCK 62
BLOCK 65
COMMUNITY PARK
BLOCK 79
PARK
Area = 4.591 Ha
BLOCK 78
BLOCK 80
HIGH DENSITY
Area = 4.156 Ha
HYDRO CORRIDOR - LANDS OWNED BY APPLICANT
part 7
PLAN 4R-23507
SUBJECT TO EASEMENT INST. GL47244
PART 9
PLAN 4R-23507
PART 11
PLAN 4R-23507
SUBJECT TO EASEMENT INST. GL47245
PART 13
PLAN 4R-23507
4R-23507
GL47246
HYDRO
RE BUS RAPID TRANSIT (BRT) CORRIDO

Appendix D5: Species at Risk Screening Assessment – Proposed Sub-station North-west of Brian Coburn Boulevard and Mer Bleue Road, GEMTEC 2024

GEMTEC

www.gemtec.ca

Species at Risk Screening Assessment
Proposed Sub-station North-west of Brian Coburn Boulevard and Mer Bleue Road
City of Ottawa, Ontario

GEMTEC
www.gemtec.ca

Submitted to:

EXP
2650 Queensview Drive - Suite 100
Ottawa, Ontario
K2B 8H6

Species at Risk Screening Assessment
Proposed Sub-station North-west of Brian Coburn Boulevard and Mer Bleue Road
City of Ottawa, Ontario

November 15, 2024
Project: 102974.005

experience • knowledge • integrity

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1.0 INTRODUCTION

GEMTEC Consulting Engineers and Scientists Limited (GEMTEC) was retained by EXP to undertake a Species at Risk (SAR) Screening Assessment in support of the proposed sub-station located northwest of the Brian Coburn Boulevard and Mer Bleue Road intersection, in the City of Ottawa, Ontario.

It is understood that the assessment is required as part of the due diligence for completion of a Class EA to support the new sub-station. The sub-station will be located on the north side of the existing hydro corridor, just north-west of the Brian Coburn Boulevard and Mer Bleue Road intersection, in Ottawa, Ontario.

In accordance with the requirements of the MECP Class Environmental Assessment for Transmission Facilities, Hydro Ottawa has identified the need to complete a Species at Risk (SAR) Screening Assessment for the proposed project area.

1.1 Project Description

In 2021, GHD was retained by Richcraft Group of Companies to complete an Environmental Impact Statement (EIS) for Part of Lots 1 & 2, Concession 3, also known as the Trail's Edge North – Phase 5 Development. The area of the proposed sub-station development is located within Community 1, as described in the 2021 EIS. The scope of this SAR report has included a background review of information on the site, including the 2021 EIS (GHD), as well as a field investigation to confirm the presence or absence of species at risk or their potential habitat on-site.

The general project area is described as Community 1 from the 2021 EIS (GHD) located northwest of the Brian Coburn Boulevard and Mer Bleue Road intersection. The study area is identified as a 120 m radius around the project area. The general project area is illustrated on Figure A.1 in Appendix A. A detailed site layout is provided on Figure A.2.

1.2 Objective and Scope of Work

The objective of the SAR Screening Assessment presented herein is to identify the presence or potential presence of any SAR and their regulated habitat within the project area and to recommend established and effective avoidance and mitigation measures to ensure that the project is completed in accordance with the provincial *Endangered Species Act, 2007*, the federal *Species at Risk Act*, the federal *Fisheries Act,* and the *Conservation Authorities Act.*

To meet the objectives outlined above, the following scope of work was completed:

- Task 1 – Desktop Assessment
- Task 2 – Site Investigation
- Task 3 – Assessment and Reporting

2.0 METHODOLOGY

2.1 Desktop Review

A desktop review was completed to aid in the scoping of field investigations and to gather information relating to natural heritage features that may be present on the subject project or within 1 km of the subject property. An additional component of the desktop review was to assess the potential presence of SAR to occur on the subject site or within the study boundary based on a review of publicly accessible occurrence records and review of SAR habitat requirements and range maps.

Information regarding the potential presence of natural heritage features and SAR within the vicinity of the site was obtained from the following sources:

- Environmental Impact Study (GHD, 2021);
- Make a Map: Natural Heritage Areas (OMNRF, 2023);
- Land Information Ontario (OMNRF, 2011);
- Ontario Geological Survey (OGS, 2019);
- Breeding Bird Atlas of Ontario (Cadman, et al., 2007);
- eBird Canada Hotspots (eBird Canada, 2023);
- Atlas of Mammals of Ontario (Dobbyn, 1994);
- iNaturalist Explore Observations Map (iNaturalist, 2023);
- Ontario Reptile and Amphibian Atlas (Ontario Nature, 2020);
- City of Ottawa Official Plan (Ottawa, 2022);
- Species at Risk in Ottawa (Ottawa, 2024) and
- Geo Ottawa (Undated).

2.2 Field Investigation

A single field investigation was completed to describe in general, the natural and physical setting of the subject property with a focus on natural heritage features and to identify any potential SAR or their habitat that may exist at the subject property. Details of the field investigation completed in support of this SAR report is outlined in Table 2.1 below.

Table 2.1 Summary of Field Investigations

Date	Time	Weather
November 1, 2024	11:00 – 13:30	14°C, 50% cloud cover, no precipitation, Beaufort wind 4

The field investigation was completed by employing the random meander methodology while documenting dominant vegetation species, habitat conditions and the presence/absence of SAR

and their regulated habitat. Photographs of relevant site features taken during the field investigation are provided in Appendix B.

3.0 RESULTS

3.1 Desktop Screening Results

Results of the desktop screening exercise are summarized in Table 3.1 below. The desktop screening exercise identified three mammalian endangered SAR with a moderate potential to occur within the project area. Additionally, four species of special concern were identified as having a moderate potential to occur within the project area. These species are discussed in detail in subsection 3.5 below.

Bobolink	Threatened	Nests in dense tall grass fields and meadows, low tolerance for woody vegetation.	Low	NHIC data indicates bobolink to have occurred w 1km of project area; however this observation is l associated with fields within the study area whi may provide suitable habitat. Species not obser during investigation. Suitable habitat not present site.
ada Warbler	Special Concern	Prefers wet forests with dense shrub layers	Low	Site lacks suitable habitat for nesting.
ean Warbler	Threatened	Prefers mature deciduous forest habitat.	Low	Suitable forest habitat does not occur on-site. N historical occurrences for the species within th project area, nor was it observed during the sit investigation.
mney Swift	Threatened	Nests in traditional-style open brick chimneys.	Low	Suitable habitat does not occur on-site.
on Nighthawk	Special Concern	Nests in a variety of open sites: beaches, fields and gravel rooftops.	Low	Suitable habitat does not occur on-site.
n Meadowlark	Threatened	Nests and forages in dense tall grass fields and meadows, higher tolerance to woody vegetation.	Low	NHIC data indicates eastern meadowlark to ha occurred within 1km of project area; however th observation is likely associated with fields within study area which may provide suitable habitat Species not observed during investigation. Suita habitat not present on-site.
Whip-poor-will	Threatened	Nests on the ground in open deciduous or mixed woodlands with little underbrush, and bedrock outcrops.	Low	No suitable habitat may be present on-site or wit the study area.
Wood-Pewee	Special Concern	Woodland species, often found near clearings and edge habitat.	Moderate	NHIC data indicates eastern wood-pewee to ha occurred within 1km of project area. Species n observed during investigations. Suitable fores habitat may be present within the study area.
ng Grosbeak	Special Concern	Nests in trees or large shrubs, preference to large coniferous forests, will use deciduous. Overwinters in Ottawa.	Low	Suitable habitat does not occur on-site.
den Eagle	Endangered	Nests on remote, bedrock cliffs, overlooking large burns, lakes or tundra's	Low	Suitable nesting habitat does not occur on-site
den-winged Warbler	Special Concern	Ground nesting, edge species. Breeds in successional scrub habitats surrounded by forests.	Low	Suitable scrub habitat may be present on-site however, no historical occurrences for the spec are within the study area. Species not observed site.
opper Sparrow	Special Concern	Ground-nesting grassland species. Prefers fields with low sparse vegetation on sand, alvars or poor soils.	Low	Suitable nesting habitat does not occur on-site
ow's Sparrow	Endangered	Prefers open, moist, tallgrass fields.	Low	Suitable habitat does not occur on-site.
ast Bittern	Threatened	Prefers marshes, shrub swamps, usually near cattails	Low	Suitable habitat does not occur on-site.
rhead Shrike	Endangered	Prefers grazed pastures with short grass and scattered shrubs, especially hawthorn.	Low	Suitable habitat does not occur on-site.
ded Flycatcher	Special Concern	Forest edge species, forages in open areas from high vantage points in trees.	Low	Suitable habitat does not occur on-site.
grine Falcon	Special Concern	Nests on cliffs near water and on more anthropogenic structures such as tall buildings, bridges	Low	Suitable habitat does not occur on-site.

n small-footed Myotis	Endangered	abandoned mines. Summer habitats are poorly understood in Ontario, elsewhere prefers to roost in open, sunny rocky habitat and occasionally in buildings (Humphrey, 2017).	Moderate	bat maternity colony requirements however the s and surrounding area may provide foraging and r maternal roost habitat. Anthropogenic structure within the study area may provide suitable roost sites.
Brown Myotis	Endangered	Maternal colonies known to use buildings, may also roost in trees during summer. Affinity towards anthropogenic structures for summer roosting habitat and exhibit high site fidelity (Environment Canada, 2015).	Moderate	Available habitat within project area unlikely to m bat maternity colony requirements however the s and surrounding area may provide foraging and r maternal roost habitat. Anthropogenic structure within the study area may provide suitable roost sites.
hern myotis rn Long-eared Bat)	Endangered	Occurs throughout eastern North America in associated with Boreal forests. Roosts mainly in trees, occasionally anthropogenic structures during summer (Environment Canada, 2015). Overwinters in caves and abandoned mines.	Low	Species affinity is for Boreal forests and rarely ro in anthropogenic structures. Subject property occ at extreme southern end of species range and la preferred boreal forest habitat.
colored Bat	Endangered	Roosts in trees, rock crevices and occasionally buildings during summer. Overwinters in caves and mines.	Moderate	Available habitat within project area unlikely to m bat maternity colony requirements however the s and surrounding area may provide foraging and r maternal roost habitat. Anthropogenic structure within the study area may provide suitable roost sites.
eptilian				
ding's Turtle	Threatened	Inhabits quiet lakes, streams and wetlands with abundant emergent vegetation. Frequently occurs in adjacent upland forests.	Low	No suitable habitat within project area. Species observed on-site.
n Musk Turtle	Special Concern	Wetlands. Highly aquatic habitats.	Low	No suitable habitat within project area. Species observed on-site.
Ribbonsnake	Special Concern	Marshy edges of wetlands and watercourses.	Low	No suitable habitat within project area. Species observed on-site.
rn Map Turtle	Special Concern	Highly aquatic species, found only in lakes and large rivers.	Low	No suitable habitat within project area. Species observed on-site.
pping Turtle	Special Concern	Highly aquatic species, found in a wide variety of wetlands, water bodies and watercourses.	Low	The NHIC database indicates historical occurren within 2km of the project area. No suitable nesti habitat on-site. Species not observed on-site.
tted Turtle	Endangered	Secretive wetland species.	Low	No suitable habitat within project area. Species observed on-site.
ood Turtle	Endangered	Primarily terrestrial forest species. Associated with clear, gravelly streams.	Low	No suitable habitat within project area. Species observed on-site.
Plants				
can Ginseng	Endangered	Rich, moist, relatively mature deciduous forests.	Low	No suitable habitat within project area.
lack Ash	Endangered	Predominantly a wetland species, found in swamps, floodplains and fens.	Low	No suitable wetland or floodplain habitat within project area. Species not observed on-site.
utternut	Endangered	Inhabits a wide range of habitats including upland and lowland deciduous and mixed forests.	Low	The NHIC database indicates historical occurren within 1 km of the project area. Species not obse within the project area.
ichens				
bellied Frost Lichen	Endangered	Grows on the bark of hardwood trees such as white ash, black walnut, American elm and ironwood. Can also be found growing on fence posts and	Low	Species believed to be extirpated from the Otta area.

r Redhorse	Special Concern	Prefers fast-flowing, clear rivers over rocky substrate	Low	No suitable aquatic habitat within project area
er Lamprey	Special Concern	Larvae live 4-7 years in burrows, preference to soft substrate.	Low	No suitable aquatic habitat within project area
nsects				
n Bumble Bee	Special Concern	Nests at or above ground level, often in mats of long grass but also in other available shelters.	Moderate	Potentially suitable foraging habitat available fo American bumble bee within the study area.
an Buckmoth	Endangered	Preferred food plant is bog bean, present in a variety of wetlands including bogs, swamps and fens.	Low	Preferred wetland habitat is not present within pro area.
Cuckoo Bumble Bee	Endangered	Inhabits a wide range of habitats: open meadows, agricultural and urban areas, boreal forests and woodlands.	Low	Currently the only known population is in Piner Provincial Park.
rch Butterfly	Special Concern	Caterpillars require milkweed plants confined to meadow and open areas. Adult butterflies use more diverse habitat with a variety of wildflowers	Moderate	Potentially suitable foraging habitat available fo Monarch within the study area.
d Duskywing	Endangered	Larval food plant (New Jersey Tea) found in sandy areas and alvars.	Low	Sandy areas and alvars not present in the study a
spotted Lady Beetle	Endangered	Habitat generalist	Low	No recent occurrence reports in the area, though be locally extirpated
atched Bumble Bee	Endangered	Habitat generalist	Low	Currently the only known population is in Piner Provincial Park.
se Lady Beetle	Endangered	Habitat generalist	Low	No new records of Traverse Lady Beetle in Onta species thought to be absent in former habitats
Virginia White Butterfly	Special Concern	Requires mature moist deciduous woods with larval host plant toothwort.	Low	Necessary vegetation and toothwort plant not pre within study area.
banded Bumble Bee	Special Concern	Habitat generalist; mixed woodlands, variety of open habitat	Moderate	Potentially suitable foraging habitat available fo yellow-banded bumble bee within the study are

3.2 Vegetation Communities

The initial EIS prepared by GHD in 2021 identified the entire project area as a meadow community. However, since the 2021 EIS, the southern half of Community 1 has undergone early successional, increasing the cover of trees and shrubs in the immediate project area, resulting in two distinct communities in the area: a meadow in the north area of Community 1dominated by herbaceous vegetation, and a thicket in the south area of Community 1 dominated by a mix of young tree and shrub species.

The northern half of the property consists of a cultural meadow with sparse shrub and tree cover. Where present, tree and shrub species were comprised of willow (*Salix* sp.), green ash (*Fraxinus pennsylvanica*), American elm (*Ulmus americana*), trembling aspen (*Populus tremuloides*), Scots pine (*Pinus sylvestris*), red-osier dogwood (Cornus sericea), and common buckthorn (*Rhamnus cathartica*). Herbaceous vegetation was dominant and included reed canary grass (*Phalaris arundinacea*), common reed grass (*Phragmites australis*), white meadowsweet (*Spiraea alba*), purple loosestrife (*Lythrum salicaria*), goldenrod (*Solidago* sp.), common milkweed (*Asclepias syriaca*), aster (*Aster* sp.), wild parsnip (*Pastinaca sativa*), and wild carrot (*Daucus carota*) .

The southern half of the property consisted of a cultural thicket habitat. This community was comprised of the same species as the cultural meadow; but contained a higher proportion of tree and shrub coverage compared to the meadow community. Species in the herbaceous layer of the thicket was consistent with species observed in the meadow. Located within the cultural thicket is a young deciduous forest inclusion, dominated by trembling aspen. The sub canopy and ground cover were minimal, however consisted of common buckthorn, aster, goldenrod, honeysuckle (*Lonicera* sp.), and wild strawberry (*Fragaria vesca*).

No rare species or floral SAR were identified within the study area during the completed field investigation.

3.3 Wildlife

During the field investigation, all terrestrial wildlife, including calls and sign, observed within the project area were recorded. Due to the urban nature of the study area, it was anticipated that most wildlife species in the area are limited to those that tolerate humans and cultural landscapes. Further, due to the timing of the field investigation, many migrant species were not anticipated to be encountered. A higher diversity of wildlife would be anticipated to occur during the spring and summer active season. Three wildlife occurrences were documented during the time of the field investigation, American Goldfinch (*Carduelis tristis*), American tree sparrow (*Spizelloides arborea*), and common loon (*Gavia immer*), all of which have an S-Rank of S5B (breeding population is secure in Ontario).

3.4 Fish Habitat

Based on a review of GeoOttawa and the 2021 EIS (GHD, 2021), four surface water features were identified.

The field investigation confirmed that Watercourse #1, mapped as both a watercourse and ditch by GeoOttawa, is present on-site along the eastern property boundary. This feature is a roadside ditch for Mer Bleue Road and had intermittent water throughout, with patches of standing water and other areas surface damp.

Located along the northern property boundary is Watercourse #2, also mapped as a ditch by GeoOttawa. During the time of the field investigation, the feature was dry and had no defined channel or banks.

Two surface water features, Watercourse #3 and Watercourse #4 were identified by the 2021 EIS as occurring within the study area. Watercourse #3 discharges from the Mer Bleue roadside ditch and travels in a southwestern direction within the center of the hydro corridor. Watercourse #4 occurs along the western property boundary, and travels in a southern direction before it discharges into the watercourse located within the hydro corridor. Both features were dry and had no observable flow or defined banks during the field investigation.

No fish were observed within any of the surface water features on-site during the field investigation.

Given the lack of water depths and permanency, the watercourses within the project area is unlikely to provide direct fish habitat, however, may contribute to downstream fish habitat.

3.5 Species at Risk

As outlined in the *Endangered Species Act* (Ontario, 2007), only species listed as threatened or endangered and their general habitat receive automatic protection. When a species-specific recovery strategy is developed, a specific habitat regulation will be established, that eventually replaces the automatic habitat protection. Individual species of special concern receive protection, whereas their habitats do not receive protection under the ESA.

No species at risk were observed within the project area during the completed field investigation.

The field investigation identified potentially suitable habitats for eastern small-footed myotis, little brown myotis, tri-colored bat, eastern wood-pewee, American bumble bee, monarch butterfly, and yellow banded bumble bee within the surrounding study area. Impacts associated with the proposed project to potential SAR and their habitat are discussed in the subsections below.

3.5.1 Eastern Small-Footed Myotis, Little Brown Myotis, and Tri-Colored Bat

Potential roosting habitat for SAR bats is limited to tree cavities within the forested areas in the study area. Trees within the project area were young and representative of early successional growth; thus, unlikely to provide suitable potential cavities for roosting. Additionally, no cavities were observed during the field investigation. Given the scope of the project and lack of suitable cavity trees and structures within the project area, impacts to SAR bats are anticipated to be minimal and temporary. The project is likely to require the removal of trees, shrubs, and ground layer vegetation to accommodate the proposed sub-station, which has the potential to impact SAR bats. Potential indirect impacts to these species also include temporary increased disturbance due to human presence and elevated noise levels during construction, and habitat encroachment. Given the availability of surrounding wooded habitat, and the scope of the project, impacts to SAR bats are anticipated to be minimal and temporary.

Avoidance and mitigation measures to prevent harm to eastern small-footed myotis, little brown myotis, and tri-colored bat and associated habitat are provided in Section 4.

3.6 Species of Special Concern

3.6.1 Eastern Wood-Pewee

The eastern wood-pewee has been identified within NHIC occurrence data grids encompassing the study area. Habitat for eastern wood-pewee includes the surrounding wooded communities and the open field habitats within the study area. As discussed above, species of special concern do not receive habitat protection under the ESA, but individuals are protected. Furthermore, active nests are protected under the ESA and the Migratory Bird Convention Act (MBCA).

As the project is anticipated to require some vegetation clearing, direct impacts to avian species of special concern may include a minor loss of wooded/shrub habitat. Potential indirect impacts may include temporary increased disturbances due to human presence, elevated noise levels during construction, and habitat encroachment.

Avoidance and mitigation measures to prevent harm to eastern wood-pewee and their associated habitat are provided in Section 4.

3.6.2 American Bumble Bee, Monarch Butterfly, and Yellow-Banded Bumble Bee

The American bumble bee, monarch butterfly, and yellow-banded bumble bee have a moderate potential to use the project area and study area for foraging. No historical occurrences for the species have been provided by the NHIC for the area, nor were any of the species directly observed during the field investigation. Common milkweed, a crucial plant species for the lifecycle of the monarch butterfly were observed on-site, primarily within the cultural meadow. Potential habitat for the insect species of special concern includes the cultural meadow, grasses along the road, and nearby fields. However as discussed above, species of special concern do not receive habitat protection under the ESA, but individuals are protected.

As the project is anticipated to require some vegetation clearing, direct impacts to insect species of special concern may include a minor loss of herbaceous vegetation providing foraging habitat. However, given that the proposed development is to occur within the cultural thicket, herbaceous vegetation within the cultural meadow is anticipated to remain intact and available for foraging insect SAR. Potential indirect impacts may include temporary increased disturbances due to human presence, elevated noise levels during construction, and habitat encroachment.

Avoidance and mitigation measures to prevent harm to the American bumble bee, monarch butterfly, and yellow-banded bumble bee and their associated habitat are provided in Section 4.

4.0 AVOIDANCE AND MITIGATION MEASURES

The following avoidance and mitigation measures are recommended in order to minimize or avoid, to the greatest extent possible, the potential impacts from the sub-station development on the local environment, including potential SAR and their habitat:

- To protect wildlife during construction, construction should be completed in accordance with the best practices outlined in Protocols for Wildlife During Construction, from the City of Ottawa (Ottawa, 2022b), and Bird-Safe Design Guidelines from the City of Ottawa (Ottawa, 2022a)
- Vegetation removal should occur outside of March 15 to November 30 to avoid the key breeding bird period and bat summer active season. The timing windows provides protection of migratory birds and roosting bats and avoids contravention of the Migratory Bird Convention Act and Endangered Species Act. If vegetation clearing activities must take place during the timing window than a nest and acoustic survey shall be conducted by a qualified professional prior to any vegetation removal on-site.
- Active bird nests are protected under the ESA and the *Migratory Bird Convention Act* (MBCA). Active bird nests may not be disturbed, damaged or removed. Any disturbance, damage or removal of active bird nests must wait until after the active season, when they are no longer being used.
- Reduce potential wildlife and insect usage by mowing outside of the breeding season, and maintain any vegetated areas as mowed grass until on-site work begins.
- Post-construction plantings should consider using native plants that attract pollinator species and are beneficial to American bumble-bee, monarch butterfly and yellow-banded bumble-bee, including Canada goldenrod, wild bergamot, swamp milkweed, purple-stemmed aster and black-eyed Susan.
- To protect trees identified to be retained during construction, the Critical Root Zone (CRZ) should be identified and fenced. The CRZ is defined as 10 cm from the base of the tree for every centimetre in diameter of the tree trunk at breast height.
- Perform daily pre-work sweeps of the construction area to ensure no species at risk are present and to remove any wildlife from inside the construction area.
- Erosion and sediment control should be prepared by a qualified person and measures implemented prior to any construction works and be maintained until all disturbed ground has been permanently stabilized.
- During construction if any SAR are identified on-site all work should stop and a qualified professional and the MECP should be contacted for next steps.
- Should there be water present within the identified watercourse during construction, appropriate sediment fencing should be installed.
- Three additional bat species, eastern red bat, hoary bat, and silver-haired bat are anticipated to be added to the Endangered Species List in January of 2025. If tree clearing

and vegetation removal will continue into 2025, any new mitigation or habitat protection for these species will need to be considered and implemented.

5.0 CLOSURE

This Species at Risk Assessment was completed based on our understanding of the project at the time of writing. The investigation undertaken by GEMTEC with respect to this report and any conclusions or recommendations made in this report reflect the best judgements of GEMTEC based on the site conditions observed during the investigation undertaken at the date identified in the report and on the information available at the time the report was prepared.

This report has been prepared for the application noted and it is based, in part, on visual observations made at the site, all as described in the report. Unless otherwise stated, the findings contained in this report cannot be extrapolated or extended to previous or future site conditions or for portions of the site that were unavailable for direct investigation.

Should new information become available during future work or other studies, GEMTEC should be requested to review the information and, if necessary, re-assess the conclusions presented herein.

We trust this report provides sufficient information for your present purposes. If you have any questions concerning this report, please do not hesitate to contact our office.

Sincerely,



Emily Pentz, B.Sc.
Junior Biologist



Taylor Warrington, B.Sc.
Biologist

6.0 REFERENCES

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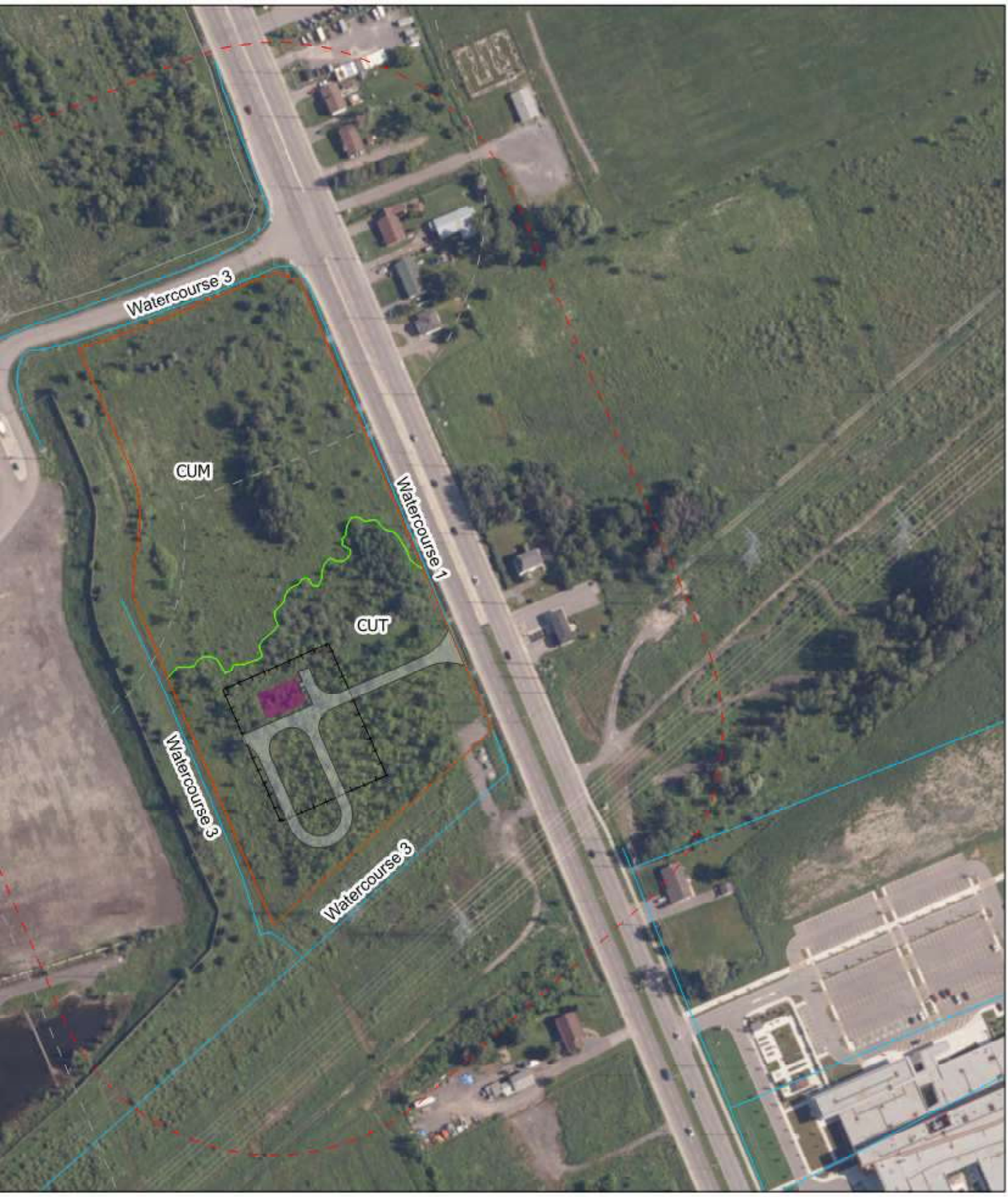
APPENDIX A

Report Figures
Figure A.1 – Site Location
Figure A.2 – Site Layout



Esri, TomTom, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, NRCan, Parks Canada


Watercourse 3
CUM
Watercourse 1
CUT
Watercourse 3
Watercourse 3

APPENDIX B

Site Visit Photographs



Site Photograph 1: Cultural Meadow (CUM).



Site Photograph 2: Deciduous forest inclusion on-site.

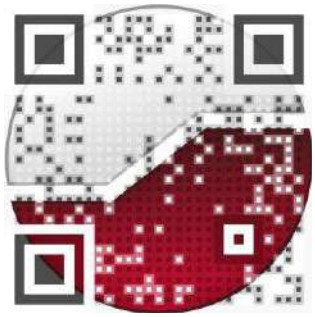


Site Photograph 3: Cultural Thicket (CUT).



Site Photograph 4: Watercourse 1, Mer Bleue roadside ditch.

experience • knowledge • integrity



civil	civil
geotechnical	géotechnique
environmental	environnementale
field services	surveillance de chantier
materials testing	service de laboratoire des matériaux

expérience • connaissance • intégrité

Appendix D6: Phase 1 – Environmental Site Assessment Update Trails Edge Phase 5 (North), Paterson Group 2020

patersongroup

Consulting Engineers

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

Geotechnical Engineering
Environmental Engineering
Hydrogeology
Geological Engineering
Materials Testing
Building Science
Archaeological Studies

www.patersongroup.ca

August 26, 2020
File: PE5000-LET.01

Richcraft Group of Companies
2280 St. Laurent Boulevard, Suite 201
Ottawa, Ontario
K1G 4K1

Attention: **Mr. Patrick Gaudreault**

Subject: **Phase I – Environmental Site Assessment Update**
Trails Edge – Phase 5 (North)
Ottawa, Ontario

Dear Sir,

Further to your request and authorization, Paterson Group (Paterson) conducted a Phase I – Environmental Site Assessment (Phase I ESA) Update for the aforementioned property. This report updates a previous Phase I ESA report, completed by Paterson in February 2015. This letter report is intended to meet the requirements for an updated Phase I ESA, as per Ontario Regulation 153/04, and is to be read in conjunction with the previous 2015 Phase I ESA report.

Site Information

The subject site is located on the west side of Mer Bleue Road, between Innes Road and Brian Coburn Boulevard, in the City of Ottawa, Ontario. The property currently consists of a combination of grassland, agricultural land, as well as light brush, and is situated within a municipal urban setting consisting of mixed residential and commercial land uses.

Previous Engineering Reports

The following report was reviewed prior to conducting this assessment:

- *"Phase I Environmental Site Assessment, East Urban Mixed-Use Community, Ottawa, Ontario"* prepared by Paterson Group and dated February 27, 2015.

According to the findings of the previous 2015 Phase I ESA, two (2) potentially contaminating activities (PCAs), resulting in areas of potential environmental concern (APECs), were identified on the subject site. These APECs include:

- An area of suspected fill material, situated within the northern portion of the subject site;

- A former snow disposal area, situated within the northwestern portion of the subject site.

Several other off-site PCAs were also identified by the Phase I ESA, however, based on their significant distances, recent date of construction, or their cross-gradient or down-gradient orientation, the use of these properties were not considered to pose an environmental concern to the subject site.

Based on the findings of the Phase I ESA, Paterson recommended that a Phase II ESA be completed for the subject site to investigate the above noted APECs.

Historical Records Review

Phase I ESA Study Area Determination

A radius of approximately 250 m was determined to be appropriate as a Phase I study area for this assignment. Properties located outside of this radius are not considered to have had the potential to impact the subject site, based on their significant separation distances.

First Developed Use Determination

Based on a review of available historical information, the subject site has never been formally developed.

National Pollutant Release Inventory

A search of the National Pollutant Release Inventory (NPRI) database did not identify any records of pollutant releases pertaining to the subject site or the neighbouring properties.

PCB Waste Storage Site Inventory

A search of the national PCB waste storage site inventory was conducted as part of this assessment. The search did not identify any current or former PCB waste storage sites situated within the Phase I study area.

MECP Coal Gasification Plant Inventory

The Ontario Ministry of Environment, Conservation and Parks document entitled, *"Municipal Coal Gasification Plant Site Inventory, 1991"* was reviewed as part of this assessment. This document provides a reference to the locations of former plants with respect to the subject site. A review of this document did not identify any former coal gasification plants located on the subject site or within the Phase I study area.

MECP Waste Disposal Site Inventory

The Ontario Ministry of Environment, Conservation and Parks document entitled, *"Waste Disposal Site Inventory in Ontario, 1991"* was reviewed as part of this assessment. This document includes all recorded active and closed waste disposal sites, industrial manufactured gas plants, and coal tar distillation plants situated in the Province of Ontario. A review of this document did not identify any relevant records pertaining to the subject site or for properties located within the Phase I study area.

MECP Brownfields Environmental Site Registry

A search of the MECP Brownfields Environmental Site Registry was conducted as part of this assessment. No Records of Site Condition (RSCs) were filed for the subject site or for any properties situated within the Phase I study area.

ERIS Database Report

A database report, prepared by ERIS (Environmental Risk Information Services) Ltd., dated August 19, 2020, was acquired and reviewed as part of this assessment. The complete ERIS report has been appended to this letter.

- *On-Site Records:*

The ERIS report identified six (6) environmental records pertaining to the subject site. A review of these records did not identify any environmental concerns associated with the subject site.

- *Off-Site Records:*

The ERIS report identified two hundred and one (201) environmental records pertaining to properties located within a 300 m radius of the subject site. The majority of these records pertain to groundwater wells drilled within the Phase I study area, and thus do not pose a concern to the subject site. The remainder of these off-site records are listed for properties which are situated at a significant distance away, or are situated in a down-gradient or cross-gradient orientation, with respect to the subject site, and thus are not considered to pose an environmental concern to the property.

City of Ottawa Historical Land Use Inventory (HLUI) Database

As part of this assessment, a requisition form was submitted to the City of Ottawa to request information from the City's Historical Land Use Inventory (HLUI 2005) database for any environmental records pertaining to the subject site as well as any properties situated within the Phase I study area.

A response from the City had not been received prior to the issuance of this report, but will be forwarded to the client should it contain any pertinent information.

City of Ottawa Former Landfill Sites

The document prepared by Golder Associates entitled, *"Old Landfill Management Strategy, Phase I - Identification of Sites, City of Ottawa"*, was reviewed as part of this assessment. No former landfill sites were identified on the subject site or within the Phase I study area.

Aerial Photographs

The most recent photograph reviewed in the 2015 Phase I ESA report was taken in 2011. For this update, more recent aerial photographs, taken in 2014 and 2018, were reviewed as part of our assessment. No significant changes were apparent to the subject site during the time period reviewed. A copy of the 2014 and 2018 aerial photographs have been appended to this letter.

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 mapping information from NRCAN, the bedrock within the area of the subject site consists of interbedded limestone and shale of the Lindsay Formation, whereas the surficial geology consists of offshore marine deposits (clay and silt) with an overburden thickness ranging from approximately 0 m to 5 m (northern portion) or 5 m to 25 m (southern portion).

Topographic Maps

A topographic map was reviewed from the Natural Resources Canada – The Atlas of Canada website as part of this assessment. The topographic map indicates that the general elevation of the subject site is approximately 90 m above sea level. The regional topography in the general area of the subject site slopes down towards the south, in the direction of Mer Bleue Bog. An illustration of the referenced topographic map is presented on Figure 2 – Topographic Map, appended to this letter.

Physiographic Maps

A physiographic map was reviewed from the Natural Resources Canada – The Atlas of Canada website, as a part of this assessment. According to the publication and mapping information, the subject site is situated within the St. Lawrence Lowlands. According to the description provided: *"The lowlands are plain-like areas that were affected by the Pleistocene glaciations and are therefore covered by surficial deposits and other features associated with the ice sheets."* The subject site is specifically located within the Central St. Lawrence Lowland area, which is rarely more than 150 m above sea level.

Water Bodies

No water bodies are present on the subject site or within the Phase I study area. The nearest named water body with respect to the subject site is Mer Bleue Bog, located approximately 2.75 km to the south.

MECP Water Well Records

A search of the MECPs website for all drilled well records within a 250 m radius of the subject site was conducted as part of this assessment. The search identified twenty-three (23) well records within the Phase I study area. These records pertain to wells installed between 1956 and 2018 and used for domestic household, agricultural, or groundwater observation purposes. It is likely that some of the residential properties adjacent to Mer Bleue Road still utilize private drinking water wells.

According to the well records, the overburden stratigraphy in the area of the subject site generally consists of a thin layer of clay and hardpan. Bedrock, consisting of either grey limestone or black shale, was typically encountered at depths ranging from approximately 0 m to 10 m below ground surface.

OMNRF Areas of Natural and Scientific Interest

A search for areas of natural and scientific interest situated within the Phase I study area was conducted electronically via the Ontario Ministry of Natural Resources and Forestry (OMNRF) website. The search did not identify any natural features of areas of natural significance within the Phase I study area.

Personal Interview

Mr. Patrick Gaudreault, a representative from Richcraft Homes, was contacted via email to respond to questions. According to Mr. Gaudreault, no significant changes have been made to the subject site since the time of the previous 2015 Phase I ESA. Mr. Gaudreault was unaware of any potential environmental concerns pertaining to the subject site.

Site Reconnaissance

A site inspection was conducted on August 17, 2020, between 10:00 AM and 11:00 AM, by personnel from Paterson's environmental department. In addition to the subject site, the present-day uses of the neighbouring properties within the Phase I study area were also assessed at the time of the site inspection.

Buildings and Structures

No buildings or structures are currently present on the subject site.

Site Description

The subject site is currently vacant and consists of a combination of vacant grassland, light brush, and agricultural land. A small temporary stormwater management pond is present within the northwestern portion of the subject site.

The subject site is considered to be at grade with the adjacent roads as well as the surrounding properties. The site topography is relatively flat, whereas the regional topography slopes very gently down towards the south, in the general direction of Mer Bleue Bog.

Water drainage on the subject site occurs primarily via infiltration throughout the property, as well as via surface run-off towards the stormwater management pond on-site or towards drainage ditches present along the neighbouring roads. No ponded water, stressed vegetation, or any other indications of potential sub-surface contamination were observed on-site at the time of the site inspection.

Potential Environmental Concerns

❒ **Fuels and Chemical Storage**

No chemical storage areas, above ground storage tanks (ASTs), or signs of underground storage tanks (USTs) were observed on the exterior of the subject site at the time of the site inspection.

No hazardous materials, unidentified chemicals, spills, stains, or abnormal odours were observed within the subject building at the time of the site inspection.

❒ **Waste Management**

No waste materials are current being generated on the subject site.

❒ **Fill Material**

It should be noted that during the site inspection conducted as part of this Phase I ESA Update, the area of suspected fill material previously identified in the northern portion of the subject site was determined to consist of a stockpile of blast rock, and as a result, does not pose an environmental concern to the subject site

❒ **Polychlorinated Biphenyls (PCBs)**

No sources of PCBs were observed on the exterior of the subject site at the time of the site inspection.

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 observed as follows:

- *North:* Multiple commercial retail buildings, followed by Innes Road;
- *East:* Mer Bleue Road, followed by three (3) automotive dealerships, residential dwellings, and a golf driving range;
- *West:* Vacant land, followed by residential dwellings;
- *South:* A City of Ottawa snow disposal site, followed by a hydro corridor and Brian Coburn Boulevard.

Based on their recent date of construction (c.2014-2015) the automotive dealerships to the east are not considered to have had the potential to impact the subject site.

One (1) of the commercial retail buildings to the north (Canadian Tire) was observed to contain an auto service garage. Based on its recent date of construction (c.2008-2009), as well as its separation distance (approximately 110 m), this potentially contaminating activity is not considered to have had the potential to impact the subject site.

A City of Ottawa snow disposal facility (2170 Mer Bleue Road) was identified adjacent to the southeastern property boundary of the subject site. Based on its recent establishment (c.2009), as well as the nature of the underlying clay soils in the general area of the subject site, the use of this property is not considered to pose an environmental concern to the subject site.

Current land use within the Phase I study area is illustrated on Drawing PE5000-2 Surrounding Land Use Plan, appended to this letter.

Review and Evaluation of Information

Land Use History

Based on a review of available historical information, the subject site has never been formally developed.

Potentially Contaminating Activities (PCAs)

One (1) potentially contaminating activity (PCA) was deemed to result in an APEC with respect to the subject site. This PCA includes: a former snow disposal area, located within the northwestern portion of the subject site.

Multiple off-site PCAs were also identified within the Phase I study area, however, based on either their separation distances, their recent dates of construction, or their down-gradient or cross-gradient orientation, these properties are not considered to pose an environmental concern to the subject site. No new PCAs were identified within the Phase I study area since the time of the previous 2015 Phase I ESA.

Areas of Potential Environmental Concern (APECs)

The area of potential environmental concern identified in this Phase I ESA Update is summarized below in Table 1:

Table 1
Areas of Potential Environmental Concern

APEC	Location of APEC	PCA	Location of PCA	Contaminants of Potential Concern	Media Potentially Impacted
APEC #1 Former Snow Disposal Site	Northeastern portion of subject site	*Snow Disposal*	On-Site	BTEX PHCs (F_1-F_4) Metals SAR EC Sodium Chloride	Soil and/or Groundwater

All PCAs and APECs identified within the Phase I study area are presented on Drawing PE5000-2 Surrounding Land Use Plan, appended to this letter.

Contaminants of Potential Concern (CPCs)

As noted in Table 1, the contaminants of potential concern (CPCs) associated with the aforementioned APEC is considered to be:

- ❒ BTEX (benzene, toluene, ethylbenzene, and xylenes);
- ❒ PHCs (petroleum hydrocarbons, fractions F_1-F_4);
- ❒ Metals (including Sodium, Mercury, and Hexavalent Chromium);
- ❒ SAR (Sodium Adsorption Ratio);
- ❒ EC (Electrical Conductivity);
- ❒ Inorganics (Chloride).

These CPCs have the potential to be present in the soil matrix and/or the groundwater present within the northwestern portion of the subject site.

Conceptual Site Model

Geological and Hydrogeological Setting

Based on the mapping information from NRCAN, the bedrock within the area of the subject site consists of interbedded limestone and shale of the Lindsay Formation, whereas the surficial geology consists of offshore marine deposits (clay and silt) with an overburden thickness ranging from approximately 0 m to 5 m (northern portion) or 5 m to 25 m (southern portion).

Based on the regional topography, the groundwater is interpreted to be moving in a southerly direction towards Mer Bleue Bog.

Existing Buildings and Structures

No buildings or structures are currently present on the subject site.

Water Bodies and Areas of Natural and Scientific Interest

No areas of natural and scientific interest are known to exist within the Phase I study area. The nearest named water body with respect to the subject site is Mer Bleue Bog, located approximately 2.75 km to the south.

Drinking Water Wells

Based on the available MECP water well records, it is likely that some of the residential properties adjacent to Mer Bleue Road may still utilize private drinking water wells.

Neighbouring Land Use

The neighbouring lands within the Phase I study area consist of residential and commercial properties or vacant land.

Potentially Contaminating Activities and Areas of Potential Environmental Concerns

Based on the findings of this Phase I ESA Update, one (1) potentially contaminating activity (PCAs, resulting in an area of potential environmental concern (APEC), was identified as pertaining to the subject site. This APEC includes:

- A former snow disposal area, located in the northwestern portion of the subject site.

Eight (8) off-site PCAs were identified within the Phase I study area, however, based on either their separation distances, recent date of construction, or their down-gradient or cross-gradient orientations, they are not considered to have had the potential to impact the subject site.

Contaminants of Potential Concern

The contaminants of potential concern (CPCs) associated with the aforementioned APEC is considered to be:

- ❒ BTEX (benzene, toluene, ethylbenzene, and xylenes);
- ❒ PHCs (petroleum hydrocarbons, fractions F_1-F_4);
- ❒ Metals (including Sodium, Mercury, and Hexavalent Chromium);
- ❒ SAR (Sodium Adsorption Ratio);
- ❒ EC (Electrical Conductivity);
- ❒ Inorganics (Chloride).

These CPCs have the potential to be present in the soil matrix and/or the groundwater present within the northwestern portion of 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 Update is considered to be sufficient to conclude that there are PCAs and APECs associated with the subject site. The presence of these PCAs were 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.

Conclusions and Recommendations

A review of more recent historical information, in combination with personal interviews and a site inspection, generally confirmed the findings presented in the previous 2015 Phase I ESA. The subject site has not changed significantly since the time of the previous 2015 Phase I ESA and no new environmental concerns were identified as part of this assessment. It is our opinion that **a Phase II ESA will be required for the subject site.**

Statement of Limitations

This Phase I - Environmental Site Assessment (Phase I ESA) Update report has been prepared in general accordance with Ontario Regulation 153/04, as amended, under the Environmental Protection Act. The conclusions presented herein are based on information gathered from a limited historical review and field inspection program. The findings of this Phase I ESA Update 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.

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 Homes Ltd. Permission and notification from Richcraft Homes Ltd. and Paterson Group will be required prior to the release of this report to any other party.

We trust that this submission satisfies your current requirements. Should you have any questions, please contact the undersigned.

Regards,

Paterson Group Inc.



Nick Sullivan, B.Sc.





Mark S. D'Arcy, P.Eng., QP$_{ESA}$

Report Distribution:

- ❑ Mr. Patrick Gaudreault
- ❑ Paterson Group

Figures:

- ❑ Figure 1 – Key Plan
- ❑ Figure 2 – Topographic Map
- ❑ Drawing PE5000-1 – Site Plan
- ❑ Drawing PE5000-2 – Surrounding Land Use Plan

Appendix:

- ❑ 2014 & 2018 Aerial Photographs
- ❑ ERIS Database Report

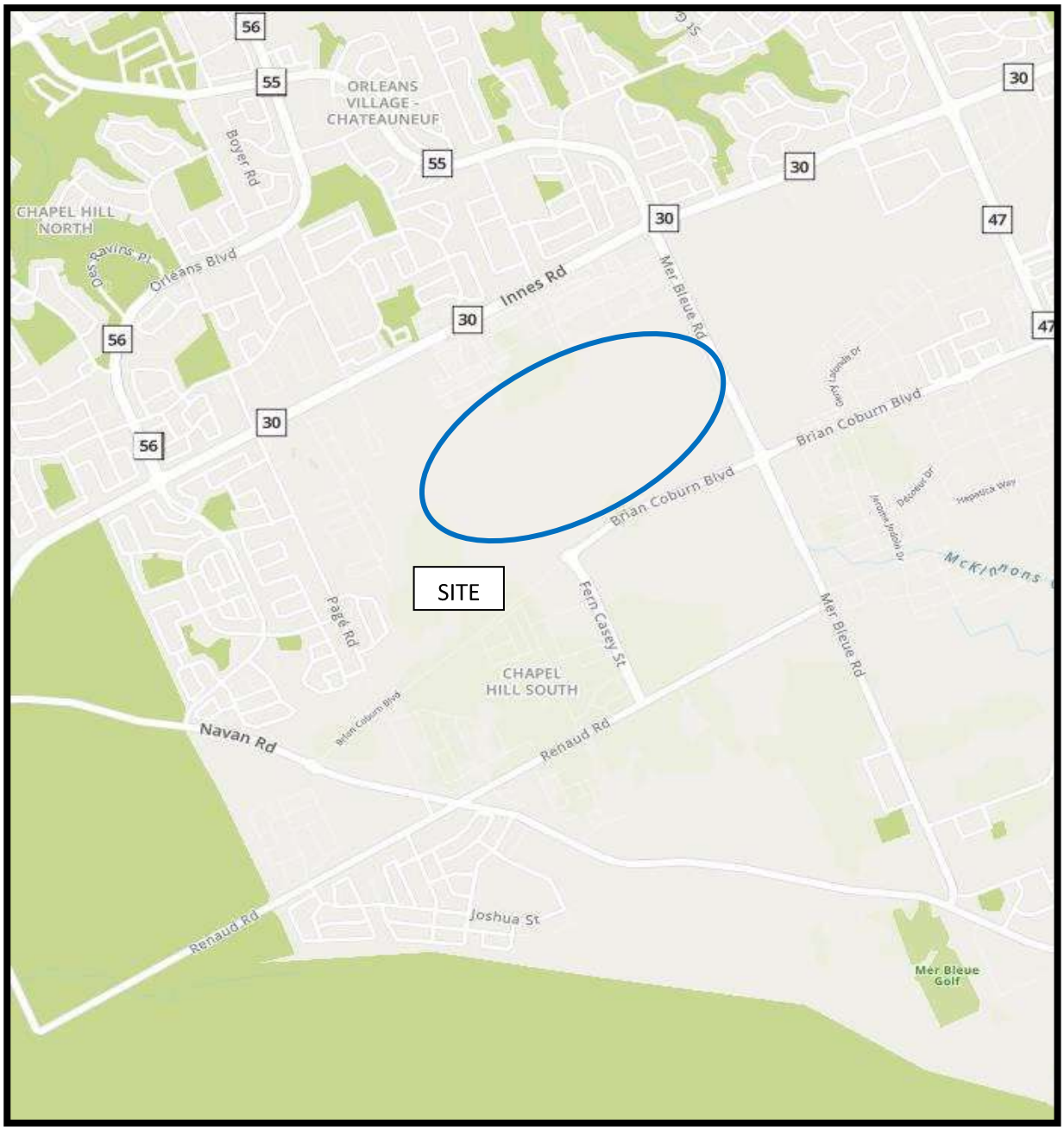


FIGURE 1

KEY PLAN

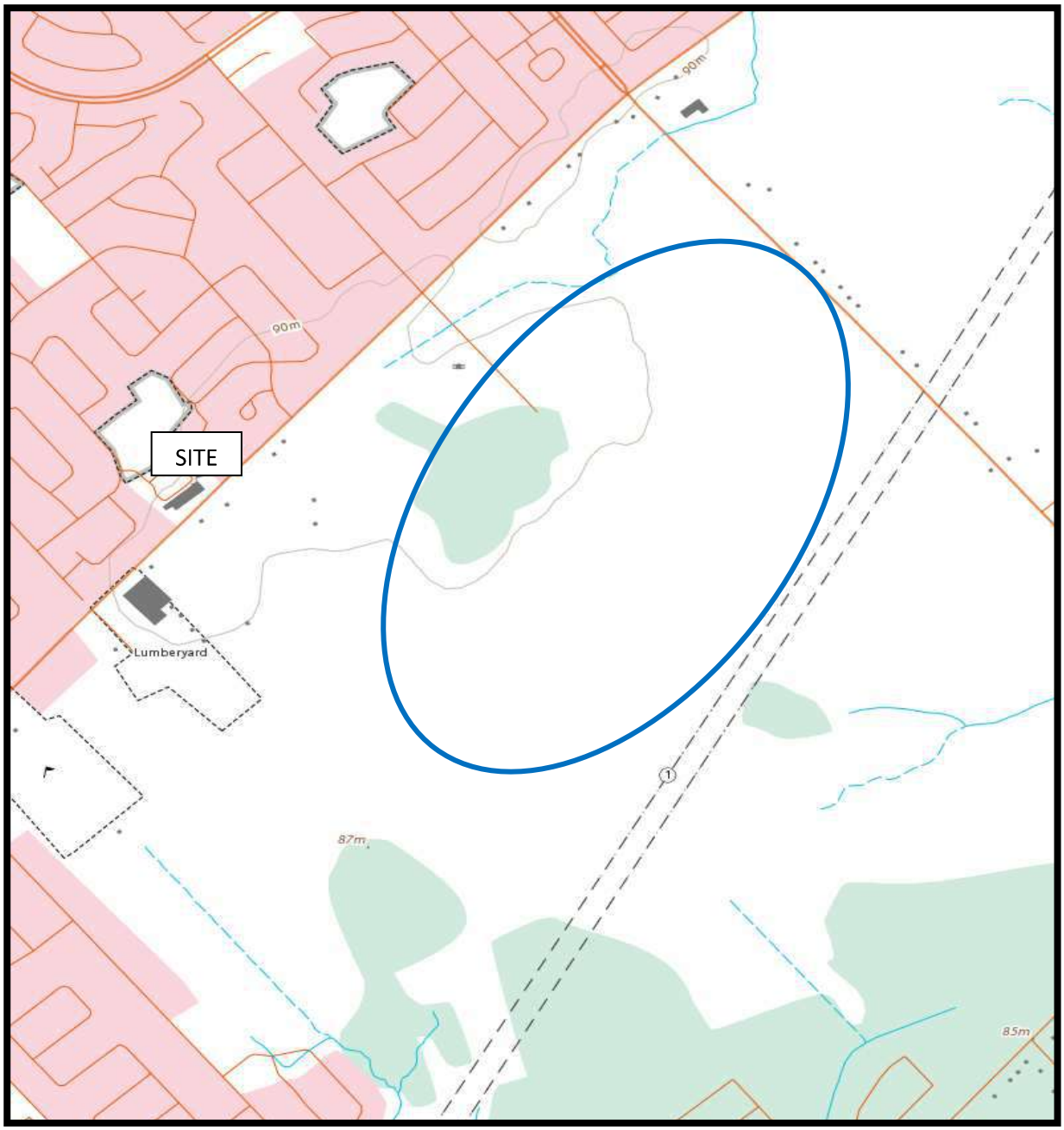
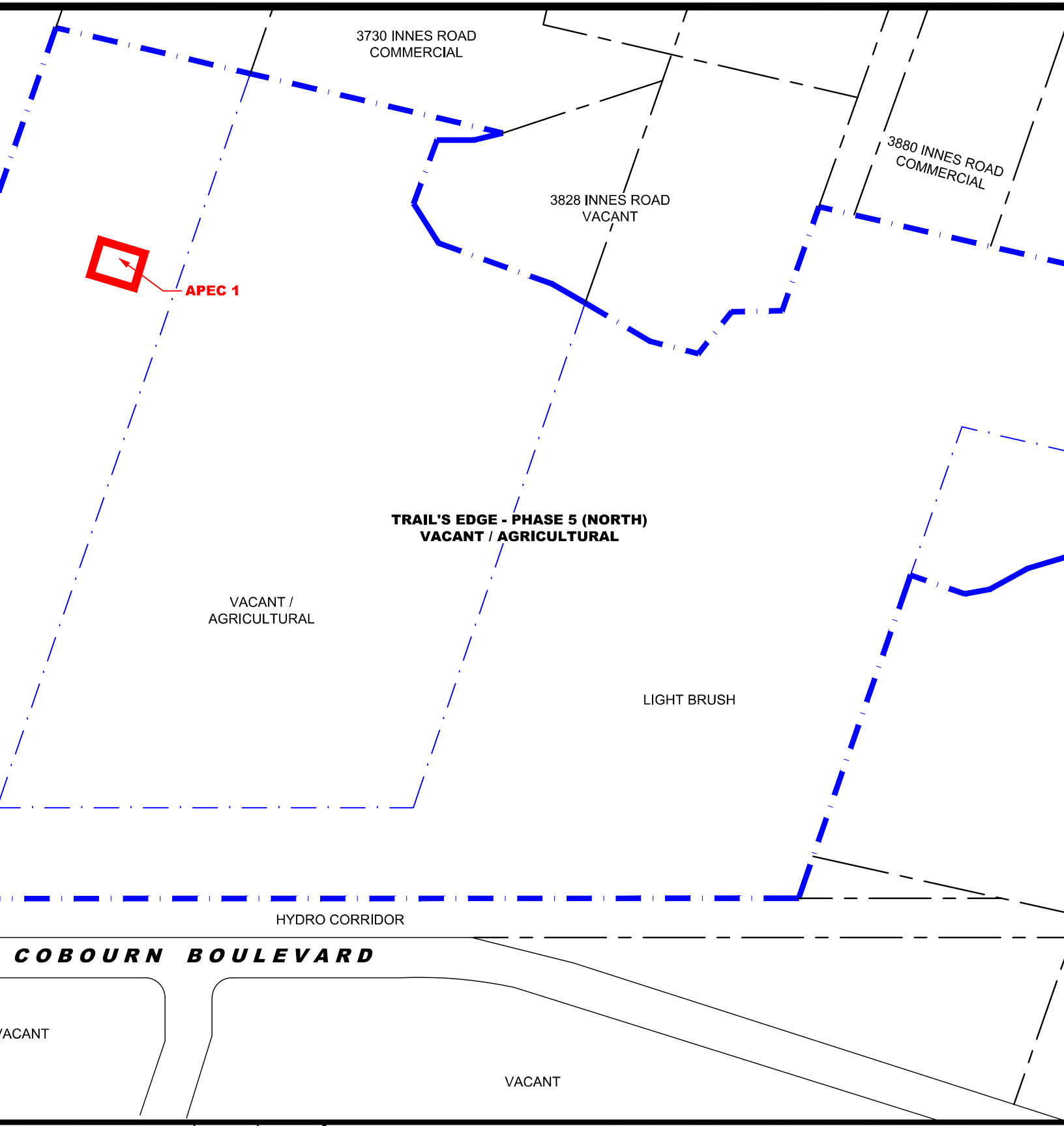


FIGURE 2
TOPOGRAPHIC MAP



REVISIONS	DATE	INITIAL

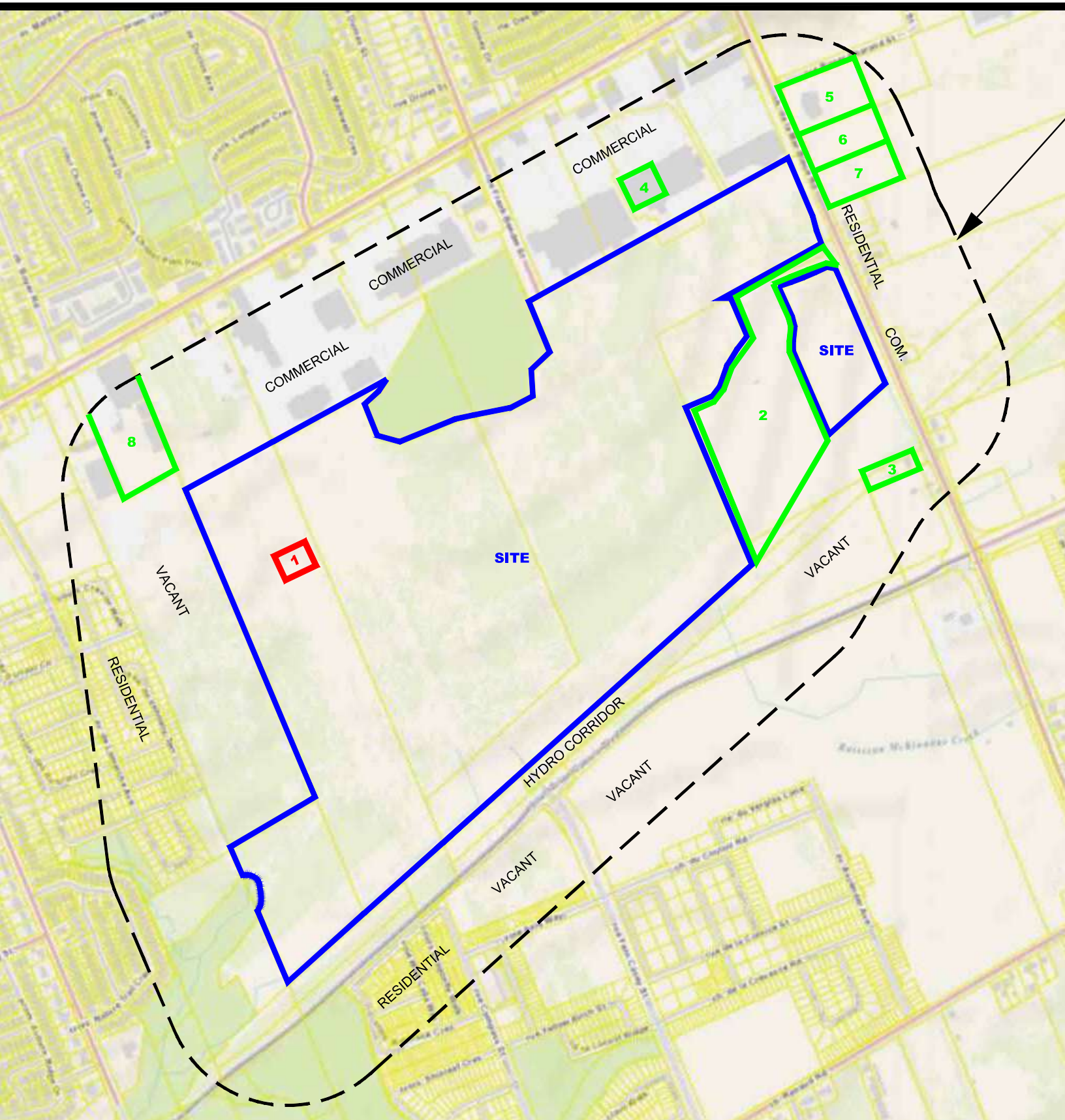
RICHCRAFT HOMES LTD.

PHASE I - ENVIRONMENTAL SITE ASSESSMENT UPDATE
TRAILS EDGE - PHASE 5 (NORTH)

OTTAWA,

Title:

SITE PLAN



REVISIONS	DATE	INITIAL

RICHCRAFT HOMES LTD.

PHASE I - ENVIRONMENTAL SITE ASSESSMENT UPDATE
TRAILS EDGE - PHASE 5 (NORTH)

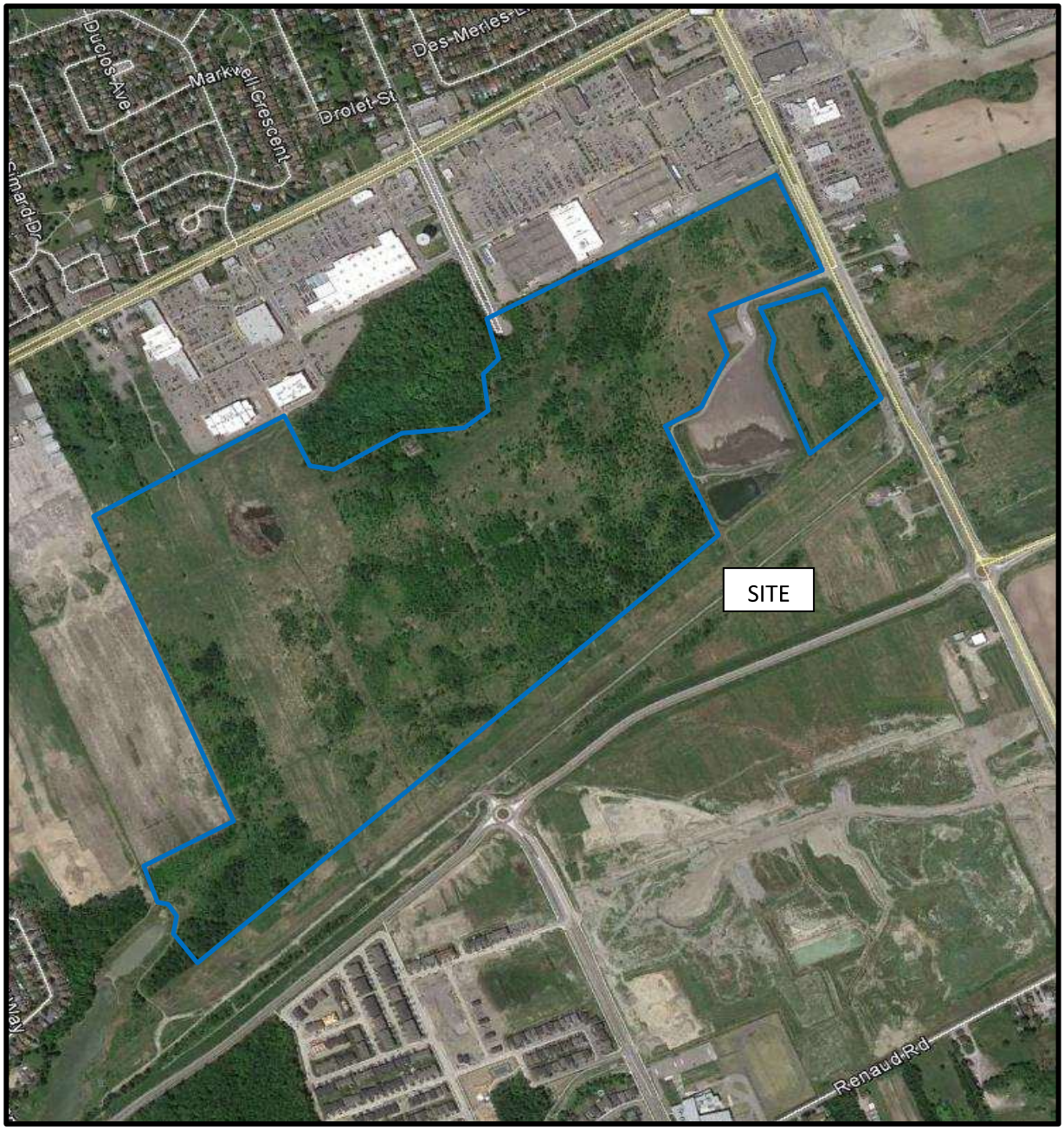
OTTAWA,

Title:

SURROUNDING LAND USE PLAN



AERIAL PHOTOGRAPH
2014



AERIAL PHOTOGRAPH
2018

ENVIRONMENTAL RISK INFORMATION SERVICES

DATABASE REPORT

Project Property:	*Phase I ESA* *Trails Edge - Phase 5 (North)* *Ottawa ON*
Project No:	*PE5000*
Report Type:	*RSC Report - Quote*
Order No:	*20200814020*
Requested by:	*Paterson Group Inc.*
Date Completed:	*August 18, 2020*

Environmental Risk Information Services
A division of Glacier Media Inc.
1.866.517.5204 | info@erisinfo.com | erisinfo.com

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Executive Summary

Property Information:

Project Property:	*Phase I ESA* *Trails Edge - Phase 5 (North) Ottawa ON*
Project No:	*PE5000*

Order Information:

Order No:	*20200814020*
Date Requested:	*August 14, 2020*
Requested by:	*Paterson Group Inc.*
Report Type:	*RSC Report - Quote*

Historical/Products:

Topographic Map	*RSC Maps*

Executive Summary: Report Summary

Database	Name	Searched	Project Property	Boundary to 0.30km	Total
AAGR	Abandoned Aggregate Inventory	Y	0	0	0
AGR	Aggregate Inventory	Y	0	0	0
AMIS	Abandoned Mine Information System	Y	0	0	0
ANDR	Anderson's Waste Disposal Sites	Y	0	0	0
AST	Aboveground Storage Tanks	Y	0	1	1
AUWR	Automobile Wrecking & Supplies	Y	0	0	0
BORE	Borehole	Y	1	9	10
CA	Certificates of Approval	Y	0	5	5
CDRY	Dry Cleaning Facilities	Y	0	0	0
CFOT	Commercial Fuel Oil Tanks	Y	0	0	0
CHEM	Chemical Register	Y	0	0	0
CNG	Compressed Natural Gas Stations	Y	0	0	0
COAL	Inventory of Coal Gasification Plants and Coal Tar Sites	Y	0	0	0
CONV	Compliance and Convictions	Y	0	0	0
CPU	Certificates of Property Use	Y	0	0	0
DRL	Drill Hole Database	Y	0	0	0
EASR	Environmental Activity and Sector Registry	Y	2	2	4
EBR	Environmental Registry	Y	0	0	0
ECA	Environmental Compliance Approval	Y	1	13	14
EEM	Environmental Effects Monitoring	Y	0	0	0
EHS	ERIS Historical Searches	Y	1	16	17
EIIS	Environmental Issues Inventory System	Y	0	0	0
EMHE	Emergency Management Historical Event	Y	0	0	0
EPAR	Environmental Penalty Annual Report	Y	0	0	0
EXP	List of Expired Fuels Safety Facilities	Y	0	14	14
FCON	Federal Convictions	Y	0	0	0
FCS	Contaminated Sites on Federal Land	Y	0	0	0
FOFT	Fisheries & Oceans Fuel Tanks	Y	0	0	0
FRST	Federal Identification Registry for Storage Tank Systems (FIRSTS)	Y	0	0	0
FST	Fuel Storage Tank	Y	0	8	8
FSTH	Fuel Storage Tank - Historic	Y	0	4	4
GEN	Ontario Regulation 347 Waste Generators Summary	Y	0	53	53
GHG	Greenhouse Gas Emissions from Large Facilities	Y	0	0	0
HINC	TSSA Historic Incidents	Y	0	3	3
IAFT	Indian & Northern Affairs Fuel Tanks	Y	0	0	0
INC	Fuel Oil Spills and Leaks	Y	0	1	1

Database	Name	Searched	Project Property	Boundary to 0.30km	Total
LIMO	Landfill Inventory Management Ontario	Y	0	0	0
MINE	Canadian Mine Locations	Y	0	0	0
MNR	Mineral Occurrences	Y	0	0	0
NATE	National Analysis of Trends in Emergencies System (NATES)	Y	0	0	0
NCPL	Non-Compliance Reports	Y	0	0	0
NDFT	National Defense & Canadian Forces Fuel Tanks	Y	0	0	0
NDSP	National Defense & Canadian Forces Spills	Y	0	0	0
NDWD	National Defence & Canadian Forces Waste Disposal Sites	Y	0	0	0
NEBI	National Energy Board Pipeline Incidents	Y	0	0	0
NEBP	National Energy Board Wells	Y	0	0	0
NEES	National Environmental Emergencies System (NEES)	Y	0	0	0
NPCB	National PCB Inventory	Y	0	0	0
NPRI	National Pollutant Release Inventory	Y	0	0	0
OGWE	Oil and Gas Wells	Y	0	0	0
OOGW	Ontario Oil and Gas Wells	Y	0	0	0
OPCB	Inventory of PCB Storage Sites	Y	0	0	0
ORD	Orders	Y	0	0	0
PAP	Canadian Pulp and Paper	Y	0	0	0
PCFT	Parks Canada Fuel Storage Tanks	Y	0	0	0
PES	Pesticide Register	Y	0	20	20
PINC	Pipeline Incidents	Y	0	0	0
PRT	Private and Retail Fuel Storage Tanks	Y	0	3	3
PTTW	Permit to Take Water	Y	0	0	0
REC	Ontario Regulation 347 Waste Receivers Summary	Y	0	0	0
RSC	Record of Site Condition	Y	0	0	0
RST	Retail Fuel Storage Tanks	Y	0	6	6
SCT	Scott's Manufacturing Directory	Y	0	2	2
SPL	Ontario Spills	Y	0	7	7
SRDS	Wastewater Discharger Registration Database	Y	0	0	0
TANK	Anderson's Storage Tanks	Y	0	0	0
TCFT	Transport Canada Fuel Storage Tanks	Y	0	0	0
VAR	Variances for Abandonment of Underground Storage Tanks	Y	0	0	0
WDS	Waste Disposal Sites - MOE CA Inventory	Y	0	0	0
WDSH	Waste Disposal Sites - MOE 1991 Historical Approval Inventory	Y	0	0	0
WWIS	Water Well Information System	Y	1	34	35
	Total:		6	201	207

Executive Summary: Site Report Summary - Project Property

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev diff (m)	Page Number
1	EHS		n/a Ottawa ON	WNW/0.0	0.00	47
2	ECA	Minto Communities Inc.	Ottawa ON K1P 0B6	S/0.0	-2.00	47
3	EASR	RICHCRAFT HOMES LTD/MAISONS RICHCRAFT LTEE	ON	SW/0.0	-4.00	47
3	EASR	GLENVIEW HOMES (RENAUD) LTD.	ON	SW/0.0	-4.00	47
4	WWIS		lot 1 con 3 ON ***Well ID:*** 1510719	ENE/0.0	-1.88	48
5	BORE		ON	ENE/0.0	-1.88	51

Executive Summary: Site Report Summary - Surrounding Properties

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev Diff (m)	Page Number
6	WWIS		OTTAWA ON **Well ID:** 7265307	W/23.4	-1.00	52
7	WWIS		lot 1 con 11 ON **Well ID:** 1512850	ENE/36.4	-1.34	55
8	WWIS		lot 2 con 11 ON **Well ID:** 1512081	ENE/41.7	-1.57	57
9	WWIS		lot 1 con 11 ON **Well ID:** 1512849	NE/43.9	-1.37	60
10	BORE		ON	NE/44.0	-1.37	63
11	WWIS		lot 2 con 11 ON **Well ID:** 1512853	ENE/46.7	-1.46	64
12	BORE		ON	ENE/46.8	-1.46	67
13	WWIS		OTTAWA ON **Well ID:** 7265308	W/51.5	-1.00	68
14	EHS		3772 Innes Road Ottawa ON	NW/52.5	1.00	71
14	GEN	MOVATI ATHLETIC ORLEANS	3772 Innes Road Orleans ON K1W 0C8	NW/52.5	1.00	71
15	WWIS		lot 1 con 11 ON **Well ID:** 1511699	ENE/58.8	-1.29	72
16	WWIS		lot 1 con 11 ON	ENE/60.2	-1.32	75

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev Diff (m)	Page Number
			Well ID: 1511698			
17	WWIS		lot 1 con 11 ON ***Well ID:*** 1517917	ENE/62.8	-1.90	77
18	EHS		3900 Innes Rd Orléans ON K1W 1K9	NNE/63.1	1.69	80
19	ECA	City of Ottawa	2107 Mer Bleue Rd Lot 1, Concession 3 Ottawa ON K1P 1J1	NE/63.3	-1.26	81
20	CA	City of Ottawa	2107 Mer Bleue Rd Lot 1, Concession 3 Ottawa ON	NE/66.3	-1.26	81
21	WWIS		lot 4 con 3 ON ***Well ID:*** 1501402	W/67.6	0.00	81
22	WWIS		lot 1 con 11 ON ***Well ID:*** 1513909	ENE/68.0	-1.32	83
23	EHS		3900 Innes Road Orleans, (Ottawa) ON K1W 1K9	NNE/71.2	2.03	86
23	PES	WALMART CANADA STORE# 3065	3900 INNES RD ORLEANS ON K1W 1K9	NNE/71.2	2.03	86
23	EHS		3900 Innes Road Ottawa ON K1W 1K9	NNE/71.2	2.03	86
23	GEN	WAL-MART CANADA CORP.	3900 INNES ROAD ORLEANS ON K1W 1K9	NNE/71.2	2.03	87
23	PES	WALMART CANADA CORP #3065	3900 INNES RD ORLEANS ON K1W 1K9	NNE/71.2	2.03	87
23	GEN	WAL-MART CANADA CORP.	3900 INNES ROAD #3065 ORLEANS ON K1W 1K9	NNE/71.2	2.03	88
23	GEN	WAL-MART CANADA CORP.	3900 INNES ROAD #3065 ORLEANS ON K1W 1K9	NNE/71.2	2.03	88

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev Diff (m)	Page Number
23	GEN	Walmart Canada Corp.	3900 INNES ROAD #3065 ORLEANS ON K1W 1K9	NNE/71.2	2.03	89
23	GEN	Walmart Canada Corp.	3900 INNES ROAD #3065 ORLEANS ON K1W 1K9	NNE/71.2	2.03	90
23	GEN	Walmart Canada Corp.	3900 INNES ROAD #3065 ORLEANS ON	NNE/71.2	2.03	90
23	GEN	Walmart Canada Corp.	3900 INNES ROAD #3065 ORLEANS ON K1C 1T1	NNE/71.2	2.03	91
23	GEN	Walmart Canada Corp.	3900 INNES ROAD #3065 ORLEANS ON K1C 1T1	NNE/71.2	2.03	92
23	GEN	Walmart Canada Corp.	3900 INNES ROAD #3065 ORLEANS ON K1C 1T1	NNE/71.2	2.03	92
23	GEN	Walmart Canada Corp.	3900 INNES ROAD #3065 ORLEANS ON K1C 1T1	NNE/71.2	2.03	93
23	SPL	Walmart Canada Corp.	3900 Innes Rd Ottawa ON	NNE/71.2	2.03	94
24	WWIS		lot 4 con 3 ON ***Well ID:*** 1501409	WNW/77.3	0.76	94
25	BORE		ON	WNW/77.5	0.76	96
26	WWIS		lot 2 con 11 ON ***Well ID:*** 1512852	ENE/78.1	-1.33	97
27	WWIS		lot 1 con 11 ON ***Well ID:*** 1533666	NE/81.6	-2.63	99
28	GEN	Gestion Claude L'Heureux Inc.	3910 Innes Orléans ON K1W 1K9	NNE/92.2	-1.00	100

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev Diff (m)	Page Number
28	PES	GESTION CLAUDE L'HEUREUX INC/CANADIAN TIRE ORLEANS	3910 CHEMIN INNES ORLEANS ON K1W 1K9	NNE/92.2	-1.00	101
28	HINC		3910 INNES ROAD OTTAWA ON K1W 1K9	NNE/92.2	-1.00	101
28	GEN	Gestion Claude L'Heureux Inc.	3910 Innes OrlÚans ON K1W 1K9	NNE/92.2	-1.00	102
28	GEN	Gestion Claude L'Heureux Inc.	3910 Innes OrlÚans ON K1W 1K9	NNE/92.2	-1.00	102
28	GEN	Gestion Claude L'Heureux Inc.	3910 Innes OrlÚans ON K1W 1K9	NNE/92.2	-1.00	103
28	PES	GESTION CLAUDE L'HEUREUX INC/CANADIAN TIRE ORLEANS	3910 CHEMIN INNES ORLEANS ON K1W1K9	NNE/92.2	-1.00	104
28	GEN	Gestion Claude L'Heureux Inc.	3910 Innes OrlÚans ON K1W 1K9	NNE/92.2	-1.00	104
28	EHS		3910 INNES ROAD ORLEANS ON	NNE/92.2	-1.00	105
28	GEN	Gestion Claude L'Heureux Inc.	3910 Innes OrlÚans ON	NNE/92.2	-1.00	105
28	GEN	Gestion Claude L'Heureux Inc.	3910 Innes Orléans ON K1W 1K9	NNE/92.2	-1.00	105
28	GEN	Gestion Claude L'Heureux Inc.	3910 Innes OrlÚans ON K1W 1K9	NNE/92.2	-1.00	106
28	GEN	Gestion Claude L'Heureux Inc.	3910 Innes OrlÚans ON K1W 1K9	NNE/92.2	-1.00	107
28	GEN	Gestion Claude L'Heureux Inc.	3910 Innes Orléans ON K1W 1K9	NNE/92.2	-1.00	107

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev Diff (m)	Page Number
28	GEN	Gestion Claude L'Heureux Inc.	3910 Innes Orléans ON K1W 1K9	NNE/92.2	-1.00	108
29	WWIS		lot 4 con 3 Orl?ans ON ***Well ID:*** 7272953	WNW/93.7	0.76	109
30	WWIS		lot 2 con 11 ON ***Well ID:*** 1513953	E/103.7	-0.61	111
31	EHS		2055 Mer Bleue Rd Ottawa ON K4A3T9	NE/111.6	-1.89	113
32	ECA	McGiac Realty Corporation	2035, 2045 and 2055 Mer Bleue Road Ottawa ON K1B 5P5	NE/111.6	-1.89	114
33	PES	WALMART CANADA CORP #3065	3900 INNES RD ORLEANS ON K1C1T1	NNE/119.4	1.69	114
33	EASR	WAL-MART CANADA CORP/LA COMPAGNIE WAL-MART DU CANADA	3900 INNES RD ORLEANS ON K1W 1K9	NNE/119.4	1.69	114
33	PES	WALMART CANADA CORP #3065	3900 INNES RD ORLEANS ON K1C1T1	NNE/119.4	1.69	114
33	GEN	Walmart Canada Corp.	3900 INNES ROAD #3065 ORLEANS ON K1C 1T1	NNE/119.4	1.69	115
34	WWIS		OTTAWA ON ***Well ID:*** 7265309	W/127.1	-0.75	116
35	WWIS		lot 1 con 3 ON ***Well ID:*** 1519786	E/129.6	-2.00	119
36	EHS		Chemin Mer Bleue Ottawa ON	E/129.7	-1.71	122
37	HINC		2020 MER BLEUE ROAD ORLEANS ON K4A 0G2	NE/135.0	-3.27	122

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev Diff (m)	Page Number
38	ECA	Innes Shopping Centres Limited	Ottawa ON L4K 5X3	E/136.0	-2.00	123
38	ECA	Innes Shopping Centres Limited	Ottawa ON L4K 5X3	E/136.0	-2.00	123
39	SPL		2035 Mer Bleue Rd Ottawa ON NA	NE/138.6	-3.10	123
40	WWIS		lot 2 con 11 ON ***Well ID:*** 7310118	E/142.1	-0.78	124
41	EHS		2215 Mer Bleue Ottawa ON	E/152.3	-0.56	126
42	EHS		3752 Innes Rd Ottawa ON K1W0C8	WNW/164.8	1.00	126
43	WWIS		lot 1 con 11 ON ***Well ID:*** 1517595	NE/169.8	-3.77	126
44	BORE		ON	NW/182.5	1.00	129
45	AST		ON	N/183.2	1.00	130
46	WWIS		lot 5 con 3 ON ***Well ID:*** 7317816	SW/188.2	-6.00	130
47	EHS		3636 Innes Rd Ottawa ON K1C1T1	W/190.9	1.00	132
48	EHS		3752 Innes Road Ottawa ON	NW/193.3	1.00	132
49	ECA	City of Ottawa	Ottawa ON K1P 1J1	SW/198.5	-6.00	133

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev Diff (m)	Page Number
49	ECA	Minto Communities Inc.	Part 3, RP 4R-7806, Ward (2), Orleans Ottawa ON K1P 0B6	SW/198.5	-6.00	133
49	ECA	City of Ottawa	Pt. of Lot 5, Concession 3 O.F., Plan 4R-7806 Ottawa ON	SW/198.5	-6.00	133
49	ECA	City of Ottawa	Page Rd Allowance bwt Lots 5 and 6 Ottawa ON K1P 1J1	SW/198.5	-6.00	133
50	WWIS		lot 5 con 3 ON ***Well ID:*** 1520610	SW/201.3	-6.00	134
50	WWIS		lot 5 con 3 ON ***Well ID:*** 1521470	SW/201.3	-6.00	137
50	WWIS		lot 5 con 3 ON ***Well ID:*** 1521471	SW/201.3	-6.00	140
51	WWIS		lot 4 con 3 ON ***Well ID:*** 1516929	WNW/203.8	1.00	144
52	PES	LOWE'S COMPANIES CANADA, ULC	3828 INNES ROAD OTTAWA ON K1W 0C8	NNW/219.8	1.00	147
52	CA	Lowe's Companies Canada, ULC	3828 Innes Rd Ottawa ON K1W 0C8	NNW/219.8	1.00	147
52	CA	Lowe's Companies Canada, ULC	3828 Innes Rd Ottawa ON K1W 0C8	NNW/219.8	1.00	148
52	GEN	Lowe's Home Centres(Canada), Inc.	3828 Innes Rd. Ottawa ON K1W 0C8	NNW/219.8	1.00	148
52	GEN	Lowe's Home Centres(Canada), Inc.	3828 Innes Rd. Ottawa ON K1W 0C8	NNW/219.8	1.00	148
52	GEN	Lowe's Home Centres(Canada), Inc.	3828 Innes Rd. Ottawa ON K1W 0C8	NNW/219.8	1.00	149

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev Diff (m)	Page Number
52	PES	LOWE'S COMPANIES CANADA, ULC	3828 INNES ROAD OTTAWA ON K1W 0C8	NNW/219.8	1.00	149
52	SPL	Lowes Companies Canada, ULC	3828 Innes Rd Ottawa ON	NNW/219.8	1.00	149
52	GEN	Lowe's Home Centres(Canada), Inc.	3828 Innes Rd. Ottawa ON K1W 0C8	NNW/219.8	1.00	150
52	GEN	Lowe's Home Centres(Canada), Inc.	3828 Innes Rd. Ottawa ON	NNW/219.8	1.00	150
52	GEN	Lowe's Home Centres(Canada), Inc.	3828 Innes Rd. Ottawa ON K1W 0C8	NNW/219.8	1.00	151
52	GEN	Lowe's Home Centres(Canada), Inc.	3828 Innes Rd. Ottawa ON K1W 0C8	NNW/219.8	1.00	152
52	GEN	Lowe's Home Centres(Canada), Inc.	3828 Innes Rd. Ottawa ON K1W 0C8	NNW/219.8	1.00	153
52	GEN	Lowe's Home Centres(Canada), Inc.	3828 Innes Rd. Ottawa ON K1W 0C8	NNW/219.8	1.00	153
52	PES	LOWE'S COMPANIES CANADA, ULC	3828 INNES RD OTTAWA ON K1W0C8	NNW/219.8	1.00	155
52	PES	LOWE'S COMPANIES CANADA, ULC	3828 INNES RD OTTAWA ON K1W0C8	NNW/219.8	1.00	155
52	GEN	Lowe's Home Centres(Canada), Inc.	3828 Innes Rd. Ottawa ON K1W 0C8	NNW/219.8	1.00	156
52	PES	LOWE'S COMPANIES CANADA, ULC	3828 INNES RD ORLEANS ON K1W 0C8	NNW/219.8	1.00	157
53	EASR	SMARTREIT (ORLEANS II) INC.	2025 MER BLEUE RD ORLEANS ON K4A 3T9	NE/224.3	-4.68	157

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev Diff (m)	Page Number
53	ECA	SmartREIT (Orleans II) Inc.	2025 Mer Bleue Rd Ottawa ON L4K 5X3	NE/224.3	-4.68	158
54	PES	METRO ONTARIO INC./ FOOD BASICS	3712 INNES RD ORLEANS ON K1W 0C8	WNW/229.2	1.00	158
54	PES	METRO ONTARIO INC./ FOOD BASICS	3712 INNES RD ORLEANS ON K1W 0C8	WNW/229.2	1.00	158
54	PES	METRO ONTARIO INC./ FOOD BASICS	3712 INNES RD ORLEANS ON K1W0C8	WNW/229.2	1.00	159
54	SPL		3712 Innis Road Ottawa ON K1W 0C8	WNW/229.2	1.00	159
55	WWIS		lot 3 con 3 ON ***Well ID:*** 1501403	NW/250.1	1.00	159
56	WWIS		lot 3 con 3 ON ***Well ID:*** 1514337	WNW/250.4	1.00	162
57	GEN	BUILDERS WAREHOUSE LECHANTIER	3636 INNES RD., ORLEANS GLOUCESTER ON K1C 1T1	WNW/257.4	1.00	163
57	GEN	BUILDERS WAREHOUSE INC., THE 06-237	3636 INNES RD., ORLEANS GLOUCESTER ON K1C 1T1	WNW/257.4	1.00	163
57	GEN	BUILDERS WAREHOUSE INC., THE	3636 INNES ROAD GLOUCESTER ON K1C 1T1	WNW/257.4	1.00	164
57	PES	THE BUILDERS WAREHOUSE INC	3636 INNES ROAD ORLEANS ON K1C 1T1	WNW/257.4	1.00	164
57	SCT	BMR/Builder's Warehouse	3636 Innes Rd Orléans ON K1C 1T1	WNW/257.4	1.00	164
57	PES	THE BUILDERS WAREHOUSE INC	3636 INNES ROAD ORLEANS ON K1C 1T1	WNW/257.4	1.00	165

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev Diff (m)	Page Number
57	PES	THE BUILDERS WAREHOUSE INC	3636 INNES ROAD ORLEANS ON K1C 1T1	WNW/257.4	1.00	165
57	GEN	The Builder's Warehouse inc	3636 Innes Rd. Orleans ON	WNW/257.4	1.00	165
57	PES	THE BUILDERS WAREHOUSE INC	3636 INNES ROAD ORLEANS ON K1C1T1	WNW/257.4	1.00	166
57	GEN	7577010 Can Inc	3636 Innes Rd Orleans ON K1C 1T1	WNW/257.4	1.00	166
57	GEN	7577010 Can Inc	3636 Innes Rd Orleans ON K1C 1T1	WNW/257.4	1.00	166
57	GEN	7577010 Can Inc	3636 Innes Rd Orleans ON K1C 1T1	WNW/257.4	1.00	167
57	GEN	The Builder's Warehouse inc	3636 Innes Rd. Orleans ON K1C-1T1	WNW/257.4	1.00	167
57	PES	GESTION BMR INC. O/A BUILDER'S WAREHOUSE/7577010 CANADA INC.	3636 INNES RD ORLEANS ON K1C1T1	WNW/257.4	1.00	167
57	PES	BUILDER'S WAREHOUSE	3636 INNES ROAD, . R. #2 ORLEANS ON K1C1T1	WNW/257.4	1.00	168
58	WWIS		Orl?ans ON ***Well ID:*** 7291135	E/260.3	-0.42	168
59	BORE		ON	E/269.5	-0.05	171
60	WWIS		lot 2 con 11 ON ***Well ID:*** 1512854	E/269.7	-0.05	172

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev Diff (m)	Page Number
61	GEN	Northcott/Bartos Dentistry	2002 Mer Bleue Rd Unit 2 Orleans ON K4A0G2	NNE/272.8	-1.34	175
61	GEN	Northcott/Bartos Dentistry	2002 Mer Bleue Rd Unit 2 Orleans ON K4A0G2	NNE/272.8	-1.34	175
61	GEN	Northcott/Bartos Dentistry	2002 Mer Bleue Rd Unit 2 Orleans ON K4A0G2	NNE/272.8	-1.34	175
61	GEN	Northcott/Bartos Dentistry	2002 Mer Bleue Rd Unit 2 Orleans ON K4A0G2	NNE/272.8	-1.34	176
61	GEN	PETM Canada Corporation	2002 Mer Bleue Road Orleans ON K4A0G2	NNE/272.8	-1.34	176
62	BORE		ON	SSE/275.8	-4.00	177
63	WWIS		lot 3 con 11 ON ***Well ID:*** 1512856	SSE/276.0	-4.00	178
64	GEN	J.W. Shaw Pharmacy Ltd.	3940 INNES ROAD ORLEANS ON K1W 1K9	NNE/277.2	-0.05	180
64	GEN	J.W. Shaw Pharmacy Ltd.	3940 INNES ROAD ORELANS ON K1W 1K9	NNE/277.2	-0.05	180
64	GEN	J.W. Shaw Pharmacy Ltd.	3940 INNES ROAD ORLEANS ON K1W 1K9	NNE/277.2	-0.05	180
64	GEN	J.W. Shaw Pharmacy Ltd.	3940 INNES ROAD ORLEANS ON K1W 1K9	NNE/277.2	-0.05	181
65	EHS		Mer Blue Rd & Navan Rd Ottawa ON	S/277.5	-4.00	181
66	WWIS		lot 1 con 3 ON ***Well ID:*** 1509939	NNE/278.4	-2.68	181

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev Diff (m)	Page Number
67	BORE		ON	NNE/278.5	-2.68	184
68	SPL		3880 Innes Rd, Orleans Ottawa ON K1W 1K9	N/283.5	0.00	185
69	PRT	MR GAS LIMITED ATTN LILIANNE LEVAC	4042 INNES RD GLOUCESTER ON K1C1T1	NNE/288.8	-2.16	186
69	CA		4042 Innes Road Gloucester ON K1C 1T1	NNE/288.8	-2.16	186
69	RST	MR GAS 031	4042 INNES RD OTTAWA ON K1C 1T1	NNE/288.8	-2.16	186
69	FSTH	MR GAS LIMITED ATTN LILIANNE LEVAC **	4042 INNES RD ORLEANS ON K1C 1T1	NNE/288.8	-2.16	186
69	RST	MR GAS 031	4042 INNES RD ORLEANS ON K1C 1T1	NNE/288.8	-2.16	187
69	FSTH	MR GAS LIMITED **	4042 INNES RD ORLEANS ON K1C 1T1	NNE/288.8	-2.16	187
69	HINC		4042 INNES ROAD ORLEANS ON K1C 1T1	NNE/288.8	-2.16	188
69	EXP	MR GAS LIMITED **	4042 INNES RD ORLEANS ON K1W 1A7	NNE/288.8	-2.16	188
69	EXP	MR GAS LIMITED ABDALLAH JEHA	4042 INNES RD ORLEANS ON	NNE/288.8	-2.16	188
69	EXP	MR GAS LIMITED **	4042 INNES RD ORLEANS ON K1W 1A7	NNE/288.8	-2.16	188
69	EXP	MR GAS LIMITED **	4042 INNES RD ORLEANS ON K1W 1A7	NNE/288.8	-2.16	189

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev Diff (m)	Page Number
69	EXP	MR GAS LIMITED **	4042 INNES RD ORLEANS ON K1W 1A7	NNE/288.8	-2.16	189
69	EXP	MR GAS LIMITED **	4042 INNES RD ORLEANS ON K1W 1A7	NNE/288.8	-2.16	189
69	EXP	MR GAS LIMITED **	4042 INNES RD ORLEANS ON	NNE/288.8	-2.16	189
69	EXP	MR GAS LIMITED **	4042 INNES RD ORLEANS ON	NNE/288.8	-2.16	190
69	EXP	MR GAS LIMITED **	4042 INNES RD ORLEANS ON	NNE/288.8	-2.16	190
69	EXP	MR GAS LIMITED **	4042 INNES RD ORLEANS ON	NNE/288.8	-2.16	190
69	FST	MR GAS LIMITED **	4042 INNES RD ORLEANS ON K1W 1A7	NNE/288.8	-2.16	190
69	FST	MR GAS LIMITED **	4042 INNES RD ORLEANS ON K1W 1A7	NNE/288.8	-2.16	191
69	FST	MR GAS LIMITED **	4042 INNES RD ORLEANS ON K1W 1A7	NNE/288.8	-2.16	191
69	FST	MR GAS LIMITED **	4042 INNES RD ORLEANS ON K1W 1A7	NNE/288.8	-2.16	191
69	RST	MR GAS 031	4042 INNES RD ORLEANS ON K1C1T1	NNE/288.8	-2.16	192
69	GEN	MR. GAS LIMITED	4042 INNES ROAD OTTAWA ON	NNE/288.8	-2.16	192
69	EXP	MR GAS LIMITED **	4042 INNES RD ORLEANS ON K1W 1A7	NNE/288.8	-2.16	192

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev Diff (m)	Page Number
69	EXP	MR GAS LIMITED **	4042 INNES RD ORLEANS ON K1W 1A7	NNE/288.8	-2.16	192
69	EXP	MR GAS LIMITED **	4042 INNES RD ORLEANS ON K1W 1A7	NNE/288.8	-2.16	193
69	EXP	MR GAS LIMITED **	4042 INNES RD ORLEANS ON K1W 1A7	NNE/288.8	-2.16	193
69	ECA	Marc Gagnon	4042 Innes Road Gloucester ON K1C 7B3	NNE/288.8	-2.16	193
69	GEN	MR. GAS LIMITED	4042 INNES ROAD OTTAWA ON K1C 1T1	NNE/288.8	-2.16	193
70	BORE		ON	NW/289.0	1.00	194
71	EHS		3604 Innes Road Orléans ON K1C 1T1	W/291.5	0.00	194
72	WWIS		lot 4 con 3 ON ***Well ID:*** 1515988	WNW/291.6	1.00	195
73	WWIS		lot 4 con 3 ON ***Well ID:*** 1510344	WNW/292.8	1.00	198
74	BORE		ON	WNW/293.0	1.00	200
75	EHS		Trailsedge - Blocks 193 & 194 Ottawa ON	SSE/293.1	-4.00	202
76	WWIS		lot 1 con 11 ON ***Well ID:*** 1512847	NE/293.8	-1.11	202
77	SPL	Enbridge Gas Distribution Inc.	2203 Noblewood Way Ottawa ON	SW/295.4	-5.00	204

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev Diff (m)	Page Number
78	PRT	TURBO PETRLEUMS INC DISCOUNT GAS	3934 INNES RD GLOUCESTER ON K1C1T1	NNE/297.3	1.00	205
78	PRT	TURBO PETROLEUMS INC	3934 INNES RD GLOUCESTER ON K1C1T1	NNE/297.3	1.00	205
78	RST	ECONO GAS	3934 INNES RD ORLEANS ON K1W 1K9	NNE/297.3	1.00	205
78	EHS		3930 Innes Rd Ottawa ON K1C 1T1	NNE/297.3	1.00	205
78	FSTH	ECONO GAS ATTN ABDALLAH JEHA	3934 INNES RD ORLEANS TWP ORLEANS ON K1W 1K9	NNE/297.3	1.00	205
78	FSTH	ECONO GAS ATTN ABDALLAH JEHA	3934 INNES RD ORLEANS ON K1W 1K9	NNE/297.3	1.00	206
78	RST	STINSON GAZ BAR	3934 INNES RD ORLEANS ON K1W 1K9	NNE/297.3	1.00	206
78	FST	1436675 ONTARIO INC O/A STINSON FUEL	3934 INNES RD OTTAWA ON K1W 1K9	NNE/297.3	1.00	207
78	FST	1436675 ONTARIO INC O/A STINSON FUEL	3934 INNES RD OTTAWA ON K1W 1K9	NNE/297.3	1.00	207
78	FST	1436675 ONTARIO INC O/A STINSON FUEL	3934 INNES RD OTTAWA ON K1W 1K9	NNE/297.3	1.00	207
78	FST	1436675 ONTARIO INC O/A STINSON FUEL	3934 INNES RD OTTAWA ON K1W 1K9	NNE/297.3	1.00	207
78	RST	STINSON GAZ BAR	3934 INNES RD ORLEANS ON K1C1T1	NNE/297.3	1.00	208
79	GEN	CREPIN CARTAGE	4100 INNES RD OTTAWA ON K4A 3W9	NE/299.5	-0.29	208

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev Diff (m)	Page Number
79	ECA	Innes Shopping Centres Limited	4100 Innes Rd Ottawa ON L4K 5X3	NE/299.5	-0.29	208
79	ECA	Innes Shopping Centres Limited	4100 Innes Rd Ottawa ON L4K 5X3	NE/299.5	-0.29	209
80	CA	Canadian Tire Real Estate Limited	3952 Innes Rd Ottawa ON K1W 1K9	NNE/299.9	1.00	209
80	ECA	Canadian Tire Real Estate Limited	3952 Innes Rd Ottawa ON M4P 2V8	NNE/299.9	1.00	209
81	SPL	Hydro One Inc.	2127 Mer-Bleue Road Ottawa ON	ENE/299.9	-0.92	209
82	SCT	PARISIEN PRECAST	3698 INNES RD ORLEANS ON K1C 1T1	WNW/299.9	1.00	210
82	INC		3698 INNES ROAD, OTTAWA ON K1C 1T1	WNW/299.9	1.00	210
82	EHS		3698 Innes Rd Ottawa ON K1C 1T1	WNW/299.9	1.00	211
83	SPL		221 Dragonfly Place, Navan Ottawa ON	S/300.2	-5.00	211

Executive Summary: Summary By Data Source

AST - Aboveground Storage Tanks

A search of the AST database, dated May 31, 2014 has found that there are 1 AST site(s) within approximately 0.30 kilometers of the project property.

Site	Address	Distance (m)	Map Key
	ON	183.2	45

BORE - Borehole

A search of the BORE database, dated 1875-Jul 2018 has found that there are 10 BORE site(s) within approximately 0.30 kilometers of the project property.

Site	Address	Distance (m)	Map Key
	ON	0.0	5
	ON	44.0	10
	ON	46.8	12
	ON	77.5	25
	ON	182.5	44
	ON	269.5	59
	ON	275.8	62

Site	Address	Distance (m)	Map Key
	ON	278.5	67
	ON	289.0	70
	ON	293.0	74

CA - Certificates of Approval

A search of the CA database, dated 1985-Oct 30, 2011* has found that there are 5 CA site(s) within approximately 0.30 kilometers of the project property.

Site	Address	Distance (m)	Map Key
City of Ottawa	2107 Mer Bleue Rd Lot 1, Concession 3 Ottawa ON	66.3	20
Lowe's Companies Canada, ULC	3828 Innes Rd Ottawa ON K1W 0C8	219.8	52
Lowe's Companies Canada, ULC	3828 Innes Rd Ottawa ON K1W 0C8	219.8	52
	4042 Innes Road Gloucester ON K1C 1T1	288.8	69
Canadian Tire Real Estate Limited	3952 Innes Rd Ottawa ON K1W 1K9	299.9	80

EASR - Environmental Activity and Sector Registry

A search of the EASR database, dated Oct 2011-Jul 31, 2020 has found that there are 4 EASR site(s) within approximately 0.30 kilometers of the project property.

Site	Address	Distance (m)	Map Key
RICHCRAFT HOMES LTD/MAISONS RICHCRAFT LTEE	ON	0.0	3
GLENVIEW HOMES (RENAUD) LTD.	ON	0.0	3
WAL-MART CANADA CORP/LA COMPAGNIE WAL-MART DU CANADA	3900 INNES RD ORLEANS ON K1W 1K9	119.4	33
SMARTREIT (ORLEANS II) INC.	2025 MER BLEUE RD ORLEANS ON K4A 3T9	224.3	53

ECA - Environmental Compliance Approval

A search of the ECA database, dated Oct 2011-Jul 31, 2020 has found that there are 14 ECA site(s) within approximately 0.30 kilometers of the project property.

Site	Address	Distance (m)	Map Key
Minto Communities Inc.	Ottawa ON K1P 0B6	0.0	2
City of Ottawa	2107 Mer Bleue Rd Lot 1, Concession 3 Ottawa ON K1P 1J1	63.3	19
McGiac Realty Corporation	2035, 2045 and 2055 Mer Bleue Road Ottawa ON K1B 5P5	111.6	32
Innes Shopping Centres Limited	Ottawa ON L4K 5X3	136.0	38
Innes Shopping Centres Limited	Ottawa ON L4K 5X3	136.0	38
City of Ottawa	Page Rd Allowance bwt Lots 5 and 6 Ottawa ON K1P 1J1	198.5	49

Site	Address	Distance (m)	Map Key
City of Ottawa	Pt. of Lot 5, Concession 3 O.F., Plan 4R-7806 Ottawa ON	198.5	49
Minto Communities Inc.	Part 3, RP 4R-7806, Ward (2), Orleans Ottawa ON K1P 0B6	198.5	49
City of Ottawa	Ottawa ON K1P 1J1	198.5	49
SmartREIT (Orleans II) Inc.	2025 Mer Bleue Rd Ottawa ON L4K 5X3	224.3	53
Marc Gagnon	4042 Innes Road Gloucester ON K1C 7B3	288.8	69
Innes Shopping Centres Limited	4100 Innes Rd Ottawa ON L4K 5X3	299.5	79
Innes Shopping Centres Limited	4100 Innes Rd Ottawa ON L4K 5X3	299.5	79
Canadian Tire Real Estate Limited	3952 Innes Rd Ottawa ON M4P 2V8	299.9	80

EHS - ERIS Historical Searches

A search of the EHS database, dated 1999-Apr 30, 2020 has found that there are 17 EHS site(s) within approximately 0.30 kilometers of the project property.

Site	Address	Distance (m)	Map Key
	n/a Ottawa ON	0.0	1

Site	Address	Distance (m)	Map Key
	3772 Innes Road Ottawa ON	52.5	14
	3900 Innes Rd Orléans ON K1W 1K9	63.1	18
	3900 Innes Road Orleans, (Ottawa) ON K1W 1K9	71.2	23
	3900 Innes Road Ottawa ON K1W 1K9	71.2	23
	3910 INNES ROAD ORLEANS ON	92.2	28
	2055 Mer Bleue Rd Ottawa ON K4A3T9	111.6	31
	Chemin Mer Bleue Ottawa ON	129.7	36
	2215 Mer Bleue Ottawa ON	152.3	41
	3752 Innes Rd Ottawa ON K1W0C8	164.8	42
	3636 Innes Rd Ottawa ON K1C1T1	190.9	47
	3752 Innes Road Ottawa ON	193.3	48
	Mer Blue Rd & Navan Rd Ottawa ON	277.5	65

Site	Address	Distance (m)	Map Key
	3604 Innes Road Orléans ON K1C 1T1	291.5	71
	Trailsedge - Blocks 193 & 194 Ottawa ON	293.1	75
	3930 Innes Rd Ottawa ON K1C 1T1	297.3	78
	3698 Innes Rd Ottawa ON K1C 1T1	299.9	82

EXP - List of Expired Fuels Safety Facilities

A search of the EXP database, dated Feb 28, 2017 has found that there are 14 EXP site(s) within approximately 0.30 kilometers of the project property.

Site	Address	Distance (m)	Map Key
MR GAS LIMITED **	4042 INNES RD ORLEANS ON	288.8	69
MR GAS LIMITED **	4042 INNES RD ORLEANS ON K1W 1A7	288.8	69
MR GAS LIMITED **	4042 INNES RD ORLEANS ON K1W 1A7	288.8	69
MR GAS LIMITED **	4042 INNES RD ORLEANS ON K1W 1A7	288.8	69
MR GAS LIMITED **	4042 INNES RD ORLEANS ON K1W 1A7	288.8	69

Site	Address	Distance (m)	Map Key
MR GAS LIMITED ABDALLAH JEHA	4042 INNES RD ORLEANS ON	288.8	69
MR GAS LIMITED **	4042 INNES RD ORLEANS ON K1W 1A7	288.8	69
MR GAS LIMITED **	4042 INNES RD ORLEANS ON K1W 1A7	288.8	69
MR GAS LIMITED **	4042 INNES RD ORLEANS ON K1W 1A7	288.8	69
MR GAS LIMITED **	4042 INNES RD ORLEANS ON	288.8	69
MR GAS LIMITED **	4042 INNES RD ORLEANS ON	288.8	69
MR GAS LIMITED **	4042 INNES RD ORLEANS ON	288.8	69
MR GAS LIMITED **	4042 INNES RD ORLEANS ON K1W 1A7	288.8	69
MR GAS LIMITED **	4042 INNES RD ORLEANS ON K1W 1A7	288.8	69

FST - Fuel Storage Tank

A search of the FST database, dated Feb 28, 2017 has found that there are 8 FST site(s) within approximately 0.30 kilometers of the project property.

Site	Address	Distance (m)	Map Key
MR GAS LIMITED **	4042 INNES RD ORLEANS ON K1W 1A7	288.8	69

Site	Address	Distance (m)	Map Key
MR GAS LIMITED **	4042 INNES RD ORLEANS ON K1W 1A7	288.8	69
MR GAS LIMITED **	4042 INNES RD ORLEANS ON K1W 1A7	288.8	69
MR GAS LIMITED **	4042 INNES RD ORLEANS ON K1W 1A7	288.8	69
1436675 ONTARIO INC O/A STINSON FUEL	3934 INNES RD OTTAWA ON K1W 1K9	297.3	78
1436675 ONTARIO INC O/A STINSON FUEL	3934 INNES RD OTTAWA ON K1W 1K9	297.3	78
1436675 ONTARIO INC O/A STINSON FUEL	3934 INNES RD OTTAWA ON K1W 1K9	297.3	78
1436675 ONTARIO INC O/A STINSON FUEL	3934 INNES RD OTTAWA ON K1W 1K9	297.3	78

FSTH - Fuel Storage Tank - Historic

A search of the FSTH database, dated Pre-Jan 2010* has found that there are 4 FSTH site(s) within approximately 0.30 kilometers of the project property.

Site	Address	Distance (m)	Map Key
MR GAS LIMITED **	4042 INNES RD ORLEANS ON K1C 1T1	288.8	69
MR GAS LIMITED ATTN LILIANNE LEVAC **	4042 INNES RD ORLEANS ON K1C 1T1	288.8	69

Site	Address	Distance (m)	Map Key
ECONO GAS ATTN ABDALLAH JEHA	3934 INNES RD ORLEANS ON K1W 1K9	297.3	78
ECONO GAS ATTN ABDALLAH JEHA	3934 INNES RD ORLEANS TWP ORLEANS ON K1W 1K9	297.3	78

GEN - Ontario Regulation 347 Waste Generators Summary

A search of the GEN database, dated 1986-Apr 30, 2020 has found that there are 53 GEN site(s) within approximately 0.30 kilometers of the project property.

Site	Address	Distance (m)	Map Key
MOVATI ATHLETIC ORLEANS	3772 Innes Road Orleans ON K1W 0C8	52.5	14
WAL-MART CANADA CORP.	3900 INNES ROAD ORLEANS ON K1W 1K9	71.2	23
WAL-MART CANADA CORP.	3900 INNES ROAD #3065 ORLEANS ON K1W 1K9	71.2	23
WAL-MART CANADA CORP.	3900 INNES ROAD #3065 ORLEANS ON K1W 1K9	71.2	23
Walmart Canada Corp.	3900 INNES ROAD #3065 ORLEANS ON K1W 1K9	71.2	23
Walmart Canada Corp.	3900 INNES ROAD #3065 ORLEANS ON K1W 1K9	71.2	23
Walmart Canada Corp.	3900 INNES ROAD #3065 ORLEANS ON	71.2	23
Walmart Canada Corp.	3900 INNES ROAD #3065 ORLEANS ON K1C 1T1	71.2	23

Site	Address	Distance (m)	Map Key
Walmart Canada Corp.	3900 INNES ROAD #3065 ORLEANS ON K1C 1T1	71.2	23
Walmart Canada Corp.	3900 INNES ROAD #3065 ORLEANS ON K1C 1T1	71.2	23
Walmart Canada Corp.	3900 INNES ROAD #3065 ORLEANS ON K1C 1T1	71.2	23
Gestion Claude L'Heureux Inc.	3910 Innes Orléans ON K1W 1K9	92.2	28
Gestion Claude L'Heureux Inc.	3910 Innes OrlÚans ON K1W 1K9	92.2	28
Gestion Claude L'Heureux Inc.	3910 Innes OrlÚans ON K1W 1K9	92.2	28
Gestion Claude L'Heureux Inc.	3910 Innes OrlÚans ON K1W 1K9	92.2	28
Gestion Claude L'Heureux Inc.	3910 Innes OrlÚans ON K1W 1K9	92.2	28
Gestion Claude L'Heureux Inc.	3910 Innes OrlÚans ON	92.2	28
Gestion Claude L'Heureux Inc.	3910 Innes Orléans ON K1W 1K9	92.2	28
Gestion Claude L'Heureux Inc.	3910 Innes OrlÚans ON K1W 1K9	92.2	28

Site	Address	Distance (m)	Map Key
Gestion Claude L'Heureux Inc.	3910 Innes OrlÚans ON K1W 1K9	92.2	28
Gestion Claude L'Heureux Inc.	3910 Innes Orléans ON K1W 1K9	92.2	28
Gestion Claude L'Heureux Inc.	3910 Innes Orléans ON K1W 1K9	92.2	28
Walmart Canada Corp.	3900 INNES ROAD #3065 ORLEANS ON K1C 1T1	119.4	33
Lowe's Home Centres(Canada),Inc.	3828 Innes Rd. Ottawa ON K1W 0C8	219.8	52
Lowe's Home Centres(Canada),Inc.	3828 Innes Rd. Ottawa ON K1W 0C8	219.8	52
Lowe's Home Centres(Canada),Inc.	3828 Innes Rd. Ottawa ON K1W 0C8	219.8	52
Lowe's Home Centres(Canada),Inc.	3828 Innes Rd. Ottawa ON K1W 0C8	219.8	52
Lowe's Home Centres(Canada),Inc.	3828 Innes Rd. Ottawa ON	219.8	52
Lowe's Home Centres(Canada),Inc.	3828 Innes Rd. Ottawa ON K1W 0C8	219.8	52
Lowe's Home Centres(Canada),Inc.	3828 Innes Rd. Ottawa ON K1W 0C8	219.8	52
Lowe's Home Centres(Canada),Inc.	3828 Innes Rd. Ottawa ON K1W 0C8	219.8	52

Site	Address	Distance (m)	Map Key
Lowe's Home Centres(Canada),Inc.	3828 Innes Rd. Ottawa ON K1W 0C8	219.8	52
Lowe's Home Centres(Canada),Inc.	3828 Innes Rd. Ottawa ON K1W 0C8	219.8	52
BUILDERS WAREHOUSE LECHANTIER	3636 INNES RD., ORLEANS GLOUCESTER ON K1C 1T1	257.4	57
BUILDERS WAREHOUSE INC., THE 06-237	3636 INNES RD., ORLEANS GLOUCESTER ON K1C 1T1	257.4	57
BUILDERS WAREHOUSE INC., THE	3636 INNES ROAD GLOUCESTER ON K1C 1T1	257.4	57
The Builder's Warehouse inc	3636 Innes Rd. Orleans ON	257.4	57
7577010 Can Inc	3636 Innes Rd Orleans ON K1C 1T1	257.4	57
7577010 Can Inc	3636 Innes Rd Orleans ON K1C 1T1	257.4	57
7577010 Can Inc	3636 Innes Rd Orleans ON K1C 1T1	257.4	57
The Builder's Warehouse inc	3636 Innes Rd. Orleans ON K1C-1T1	257.4	57
Northcott/Bartos Dentistry	2002 Mer Bleue Rd Unit 2 Orleans ON K4A0G2	272.8	61

Site	Address	Distance (m)	Map Key
Northcott/Bartos Dentistry	2002 Mer Bleue Rd Unit 2 Orleans ON K4A0G2	272.8	61
Northcott/Bartos Dentistry	2002 Mer Bleue Rd Unit 2 Orleans ON K4A0G2	272.8	61
Northcott/Bartos Dentistry	2002 Mer Bleue Rd Unit 2 Orleans ON K4A0G2	272.8	61
PETM Canada Corporation	2002 Mer Bleue Road Orleans ON K4A0G2	272.8	61
J.W. Shaw Pharmacy Ltd.	3940 INNES ROAD ORLEANS ON K1W 1K9	277.2	64
J.W. Shaw Pharmacy Ltd.	3940 INNES ROAD ORELANS ON K1W 1K9	277.2	64
J.W. Shaw Pharmacy Ltd.	3940 INNES ROAD ORLEANS ON K1W 1K9	277.2	64
J.W. Shaw Pharmacy Ltd.	3940 INNES ROAD ORLEANS ON K1W 1K9	277.2	64
MR. GAS LIMITED	4042 INNES ROAD OTTAWA ON	288.8	69
MR. GAS LIMITED	4042 INNES ROAD OTTAWA ON K1C 1T1	288.8	69
CREPIN CARTAGE	4100 INNES RD OTTAWA ON K4A 3W9	299.5	79

HINC - TSSA Historic Incidents

A search of the HINC database, dated 2006-June 2009* has found that there are 3 HINC site(s) within approximately 0.30 kilometers of the project property.

Site	Address	Distance (m)	Map Key
	3910 INNES ROAD OTTAWA ON K1W 1K9	92.2	28
	2020 MER BLEUE ROAD ORLEANS ON K4A 0G2	135.0	37
	4042 INNES ROAD ORLEANS ON K1C 1T1	288.8	69

INC - Fuel Oil Spills and Leaks

A search of the INC database, dated Feb 28, 2017 has found that there are 1 INC site(s) within approximately 0.30 kilometers of the project property.

Site	Address	Distance (m)	Map Key
	3698 INNES ROAD, OTTAWA ON K1C 1T1	299.9	82

PES - Pesticide Register

A search of the PES database, dated Oct 2011-Jul 31, 2020 has found that there are 20 PES site(s) within approximately 0.30 kilometers of the project property.

Site	Address	Distance (m)	Map Key
WALMART CANADA STORE# 3065	3900 INNES RD ORLEANS ON K1W 1K9	71.2	23
WALMART CANADA CORP #3065	3900 INNES RD ORLEANS ON K1W 1K9	71.2	23
GESTION CLAUDE L'HEUREUX INC/CANADIAN TIRE ORLEANS	3910 CHEMIN INNES ORLEANS ON K1W 1K9	92.2	28

Site	Address	Distance (m)	Map Key
GESTION CLAUDE L'HEUREUX INC/CANADIAN TIRE ORLEANS	3910 CHEMIN INNES ORLEANS ON K1W1K9	92.2	28
WALMART CANADA CORP #3065	3900 INNES RD ORLEANS ON K1C1T1	119.4	33
WALMART CANADA CORP #3065	3900 INNES RD ORLEANS ON K1C1T1	119.4	33
LOWE'S COMPANIES CANADA, ULC	3828 INNES ROAD OTTAWA ON K1W 0C8	219.8	52
LOWE'S COMPANIES CANADA, ULC	3828 INNES ROAD OTTAWA ON K1W 0C8	219.8	52
LOWE'S COMPANIES CANADA, ULC	3828 INNES RD OTTAWA ON K1W0C8	219.8	52
LOWE'S COMPANIES CANADA, ULC	3828 INNES RD OTTAWA ON K1W0C8	219.8	52
LOWE'S COMPANIES CANADA, ULC	3828 INNES RD ORLEANS ON K1W 0C8	219.8	52
METRO ONTARIO INC./ FOOD BASICS	3712 INNES RD ORLEANS ON K1W 0C8	229.2	54
METRO ONTARIO INC./ FOOD BASICS	3712 INNES RD ORLEANS ON K1W 0C8	229.2	54
METRO ONTARIO INC./ FOOD BASICS	3712 INNES RD ORLEANS ON K1W0C8	229.2	54
BUILDER'S WAREHOUSE	3636 INNES ROAD, . R. #2 ORLEANS ON K1C1T1	257.4	57

Site	Address	Distance (m)	Map Key
GESTION BMR INC. O/A BUILDER'S WAREHOUSE/7577010 CANADA INC.	3636 INNES RD ORLEANS ON K1C1T1	257.4	57
THE BUILDERS WAREHOUSE INC	3636 INNES ROAD ORLEANS ON K1C 1T1	257.4	57
THE BUILDERS WAREHOUSE INC	3636 INNES ROAD ORLEANS ON K1C 1T1	257.4	57
THE BUILDERS WAREHOUSE INC	3636 INNES ROAD ORLEANS ON K1C 1T1	257.4	57
THE BUILDERS WAREHOUSE INC	3636 INNES ROAD ORLEANS ON K1C1T1	257.4	57

PRT - Private and Retail Fuel Storage Tanks

A search of the PRT database, dated 1989-1996* has found that there are 3 PRT site(s) within approximately 0.30 kilometers of the project property.

Site	Address	Distance (m)	Map Key
MR GAS LIMITED ATTN LILIANNE LEVAC	4042 INNES RD GLOUCESTER ON K1C1T1	288.8	69
TURBO PETRLEUMS INC DISCOUNT GAS	3934 INNES RD GLOUCESTER ON K1C1T1	297.3	78
TURBO PETROLEUMS INC	3934 INNES RD GLOUCESTER ON K1C1T1	297.3	78

RST - Retail Fuel Storage Tanks

A search of the RST database, dated 1999-Jan 31, 2020 has found that there are 6 RST site(s) within approximately 0.30 kilometers of the project property.

Site	Address	Distance (m)	Map Key
MR GAS 031	4042 INNES RD OTTAWA ON K1C 1T1	288.8	69
MR GAS 031	4042 INNES RD ORLEANS ON K1C 1T1	288.8	69
MR GAS 031	4042 INNES RD ORLEANS ON K1C1T1	288.8	69
STINSON GAZ BAR	3934 INNES RD ORLEANS ON K1C1T1	297.3	78
ECONO GAS	3934 INNES RD ORLEANS ON K1W 1K9	297.3	78
STINSON GAZ BAR	3934 INNES RD ORLEANS ON K1W 1K9	297.3	78

SCT - Scott's Manufacturing Directory

A search of the SCT database, dated 1992-Mar 2011* has found that there are 2 SCT site(s) within approximately 0.30 kilometers of the project property.

Site	Address	Distance (m)	Map Key
BMR/Builder's Warehouse	3636 Innes Rd Orléans ON K1C 1T1	257.4	57
PARISIEN PRECAST	3698 INNES RD ORLEANS ON K1C 1T1	299.9	82

SPL - Ontario Spills

A search of the SPL database, dated 1988-Nov 2019 has found that there are 8 SPL site(s) within approximately 0.30 kilometers of the project property.

Site	Address	Distance (m)	Map Key
Walmart Canada Corp.	3900 Innes Rd Ottawa ON	71.2	23
	2035 Mer Bleue Rd Ottawa ON NA	138.6	39
Lowes Companies Canada, ULC	3828 Innes Rd Ottawa ON	219.8	52
	3712 Innis Road Ottawa ON K1W 0C8	229.2	54
	3880 Innes Rd, Orleans Ottawa ON K1W 1K9	283.5	68
Enbridge Gas Distribution Inc.	2203 Noblewood Way Ottawa ON	295.4	77
Hydro One Inc.	2127 Mer-Bleue Road Ottawa ON	299.9	81
	221 Dragonfly Place, Navan Ottawa ON	300.2	83

WWIS - Water Well Information System

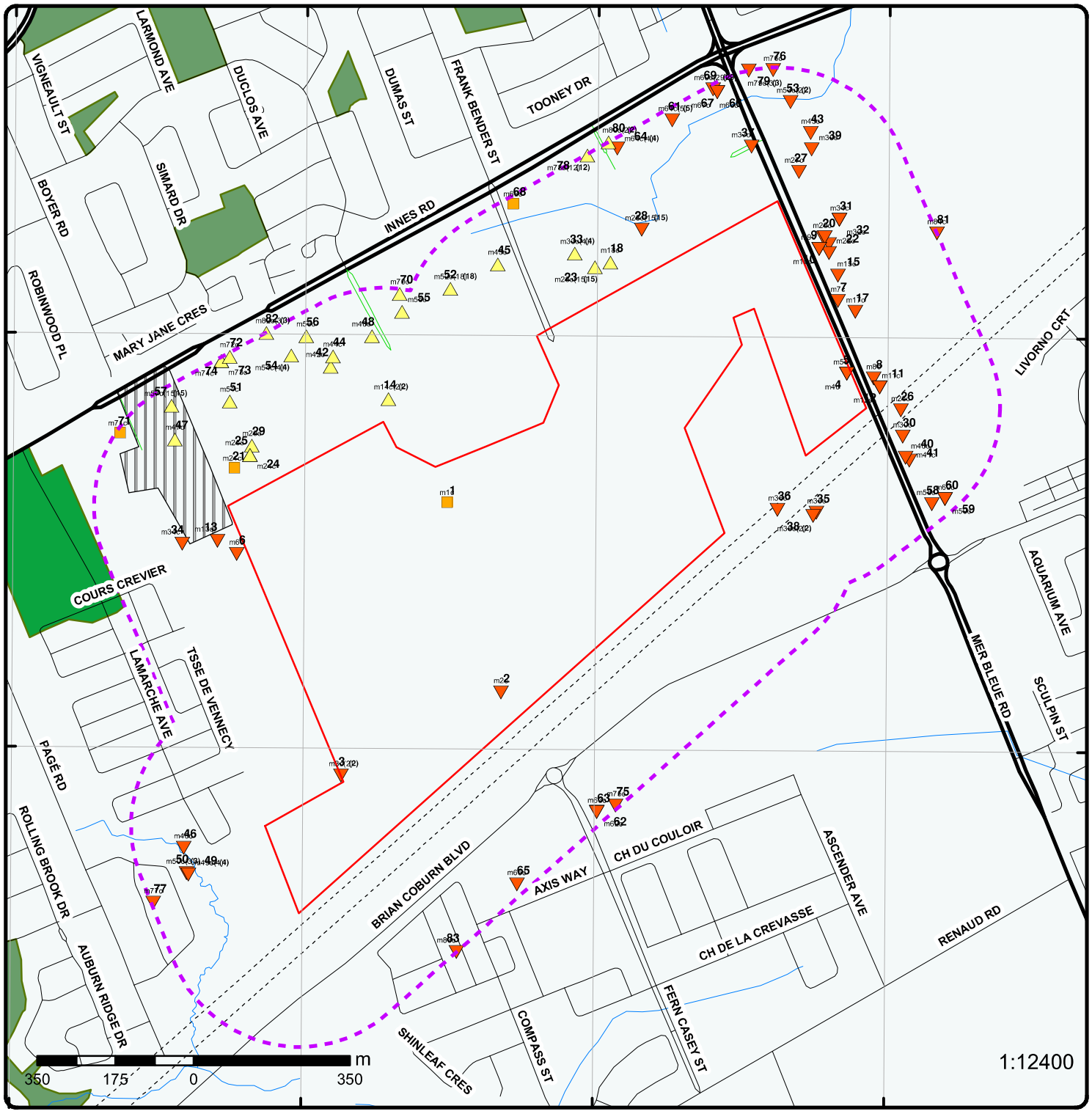
A search of the WWIS database, dated Apr 30, 2020 has found that there are 35 WWIS site(s) within approximately 0.30 kilometers of the project property.

Site	Address	Distance (m)	Map Key
	lot 1 con 3 ON ***Well ID:*** 1510719	0.0	4
	OTTAWA ON	23.4	6

Site	Address	Distance (m)	Map Key
	Well ID: 7265307		
	lot 1 con 11 ON	36.4	7
	Well ID: 1512850		
	lot 2 con 11 ON	41.7	8
	Well ID: 1512081		
	lot 1 con 11 ON	43.9	9
	Well ID: 1512849		
	lot 2 con 11 ON	46.7	11
	Well ID: 1512853		
	OTTAWA ON	51.5	13
	Well ID: 7265308		
	lot 1 con 11 ON	58.8	15
	Well ID: 1511699		
	lot 1 con 11 ON	60.2	16
	Well ID: 1511698		
	lot 1 con 11 ON	62.8	17
	Well ID: 1517917		
	lot 4 con 3 ON	67.6	21
	Well ID: 1501402		
	lot 1 con 11 ON	68.0	22
	Well ID: 1513909		
	lot 4 con 3 ON	77.3	24
	Well ID: 1501409		

Site	Address	Distance (m)	Map Key
	lot 2 con 11 ON ***Well ID:*** 1512852	78.1	26
	lot 1 con 11 ON ***Well ID:*** 1533666	81.6	27
	lot 4 con 3 Orl?ans ON ***Well ID:*** 7272953	93.7	29
	lot 2 con 11 ON ***Well ID:*** 1513953	103.7	30
	OTTAWA ON ***Well ID:*** 7265309	127.1	34
	lot 1 con 3 ON ***Well ID:*** 1519786	129.6	35
	lot 2 con 11 ON ***Well ID:*** 7310118	142.1	40
	lot 1 con 11 ON ***Well ID:*** 1517595	169.8	43
	lot 5 con 3 ON ***Well ID:*** 7317816	188.2	46
	lot 5 con 3 ON ***Well ID:*** 1520610	201.3	50
	lot 5 con 3 ON ***Well ID:*** 1521470	201.3	50
	lot 5 con 3 ON	201.3	50

Site	Address	Distance (m)	Map Key
	Well ID: 1521471		
	lot 4 con 3 ON ***Well ID:*** 1516929	203.8	51
	lot 3 con 3 ON ***Well ID:*** 1501403	250.1	55
	lot 3 con 3 ON ***Well ID:*** 1514337	250.4	56
	Orl?ans ON ***Well ID:*** 7291135	260.3	58
	lot 2 con 11 ON ***Well ID:*** 1512854	269.7	60
	lot 3 con 11 ON ***Well ID:*** 1512856	276.0	63
	lot 1 con 3 ON ***Well ID:*** 1509939	278.4	66
	lot 4 con 3 ON ***Well ID:*** 1515988	291.6	72
	lot 4 con 3 ON ***Well ID:*** 1510344	292.8	73
	lot 1 con 11 ON ***Well ID:*** 1512847	293.8	76



Map : 0.3 Kilometer Radius

Order Number: 20200814020

Address: Trails Edge - Phase 5 (North), Ottawa, ON

ENVIRONMENTAL RISK INFORMATION SERVICES

- Project Property
- Buffer Outline
- Eris Sites with Higher Elevation
- Eris Sites with Same Elevation
- Eris Sites with Lower Elevation
- Eris Sites with Unknown Elevation
- Expressway
- Principal Highway
- Secondary Highway
- Major Road
- Local road
- Trail
- Proposed Road
- Ferry Route/Ice Road
- Industrial and Resource - Regions
- Main Line
- Sidetrack
- Transit Line
- Abandoned Line
- National Park
- Provincial or Territorial Park
- Other Park
- Golf Course or Driving Range
- Park or Sports Field
- Other Recreation Area

Source: © 2015 DMTI Spatial Inc.

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75°30'W

45°27'N



45°27'N

Aerial

Year: 2019

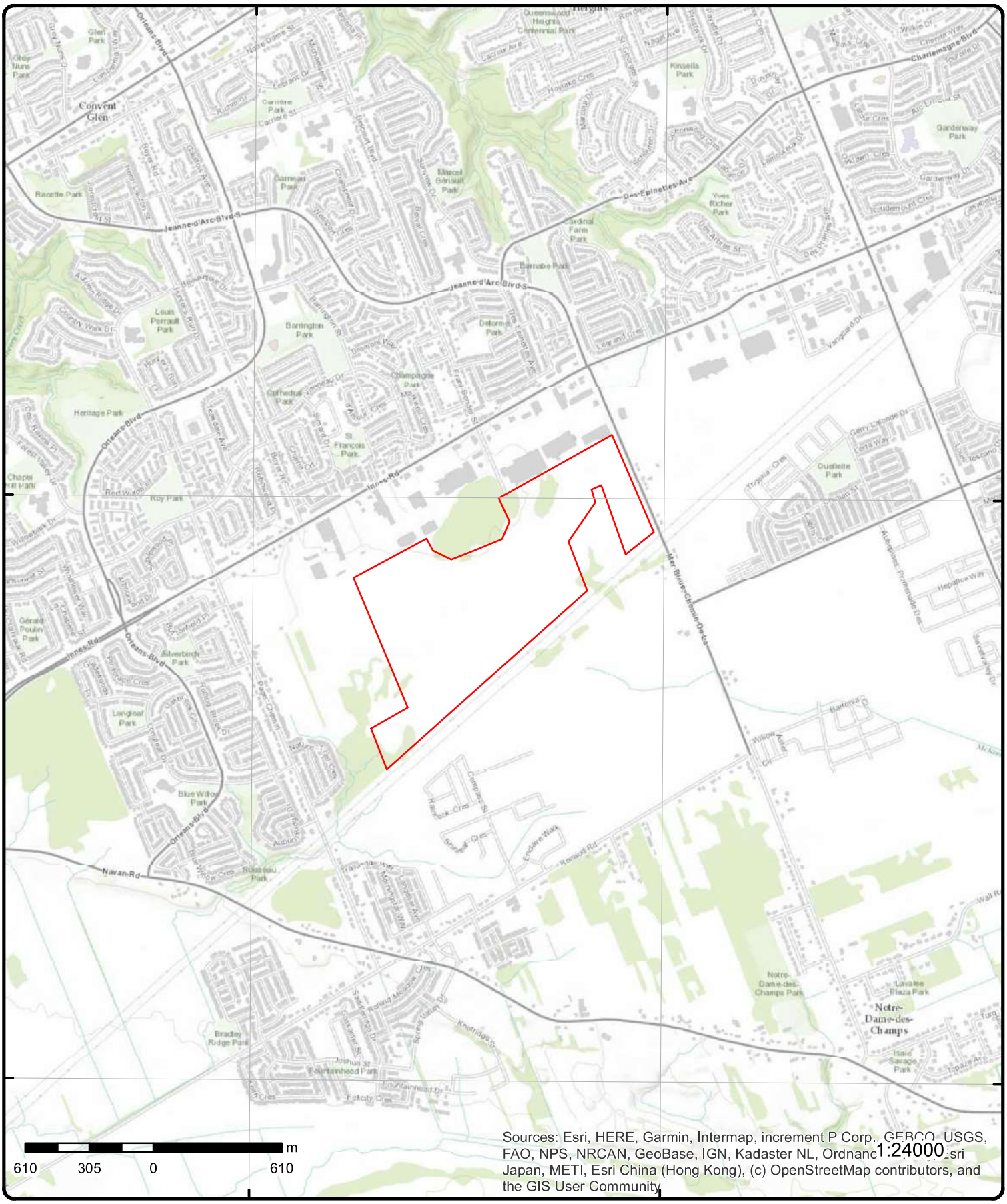
Order Number: 20200814020

Address: Trails Edge - Phase 5 (North), Ottawa, ON

Source: ESRI World Imagery

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

© ERIS Information Limited Partnership



Topographic Map

Address: Trails Edge - Phase 5 (North), ON

Source: ESRI World Topographic Map

Order Number: 20200814020

ERIS ENVIRONMENTAL RISK INFORMATION SERVICES

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Detail Report

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
1	1 of 1	WNW/0.0	88.9 / 0.00	n/a Ottawa ON	EHS

Order No:	20090401011	**Nearest Intersection:**	Innes Road and Page Road
Status:	C	**Municipality:**	
Report Type:	Custom Report	**Client Prov/State:**	ON
Report Date:	4/9/2009	**Search Radius (km):**	0.25
Date Received:	4/1/2009	**X:**	-75.512571
Previous Site Name:		**Y:**	45.446635
Lot/Building Size:	lot: 135 hecaters		
Additional Info Ordered:			

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
2	1 of 1	S/0.0	86.9 / -2.00	Minto Communities Inc. Ottawa ON K1P 0B6	ECA

Approval No:	2443-9UPNXE	**MOE District:**	Ottawa
Approval Date:	2015-03-17	**City:**	
Status:	Approved	**Longitude:**	-75.51100000000001
Record Type:	ECA	**Latitude:**	45.442800000000005
Link Source:	IDS	**Geometry X:**	
SWP Area Name:	Rideau Valley	**Geometry Y:**	
Approval Type:	ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS		
Project Type:	MUNICIPAL AND PRIVATE SEWAGE WORKS		
Address:			
Full Address:			
Full PDF Link:	https://www.accessenvironment.ene.gov.on.ca/instruments/0331-9UFPKR-14.pdf		

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
3	1 of 2	SW/0.0	84.9 / -4.00	RICHCRAFT HOMES LTD/MAISONS RICHCRAFT LTEE ON	EASR

Approval No:	R-009-3110290167	**SWP Area Name:**	Rideau Valley
Status:	REGISTERED	**MOE District:**	Ottawa
Date:	2017-11-23	**Municipality:**	
Record Type:	EASR	**Latitude:**	45.44111111
Link Source:	MOFA	**Longitude:**	-75.51555556
Project Type:	Water Taking - Construction Dewatering	**Geometry X:**	
Full Address:		**Geometry Y:**	
Approval Type:	EASR-Water Taking - Construction Dewatering		
Full PDF Link:	http://www.accessenvironment.ene.gov.on.ca/AEWeb/ae/ViewDocument.action?documentRefID=2047028		

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
3	2 of 2	SW/0.0	84.9 / -4.00	GLENVIEW HOMES (RENAUD) LTD. ON	EASR

Approval No:	R-009-8110381585	**SWP Area Name:**	Rideau Valley
Status:	REGISTERED	**MOE District:**	Ottawa
Date:	2018-03-13	**Municipality:**	

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB

Record Type:	EASR	**Latitude:**	45.44111111
Link Source:	MOFA	**Longitude:**	-75.51555556
Project Type:	Water Taking - Construction Dewatering	**Geometry X:**	
Full Address:		**Geometry Y:**	
Approval Type:	EASR-Water Taking - Construction Dewatering		
Full PDF Link:	http://www.accessenvironment.ene.gov.on.ca/AEWeb/ae/ViewDocument.action?documentRefID=2052266		

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4 | **1 of 1** | **ENE/0.0** | **87.0 / -1.88** | **lot 1 con 3 ON** | **WWIS**

Well ID:	1510719	**Data Entry Status:**	
Construction Date:		**Data Src:**	1
Primary Water Use:	Domestic	**Date Received:**	2/23/1971
Sec. Water Use:	0	**Selected Flag:**	Yes
Final Well Status:	Water Supply	**Abandonment Rec:**	
Water Type:		**Contractor:**	1504
Casing Material:		**Form Version:**	1
Audit No:		**Owner:**	
Tag:		**Street Name:**	
Construction Method:		**County:**	OTTAWA
Elevation (m):		**Municipality:**	GLOUCESTER TOWNSHIP
Elevation Reliability:		**Site Info:**	
Depth to Bedrock:		**Lot:**	001
Well Depth:		**Concession:**	03
Overburden/Bedrock:		**Concession Name:**	OF
Pump Rate:		**Easting NAD83:**	
Static Water Level:		**Northing NAD83:**	
Flowing (Y/N):		**Zone:**	
Flow Rate:		**UTM Reliability:**	
Clear/Cloudy:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/151\1510719.pdf

Bore Hole Information

Bore Hole ID:	10032736	**Elevation:**	89.220108
DP2BR:	90	**Elevrc:**	
Spatial Status:		**Zone:**	18
Code OB:	r	**East83:**	460810.8
Code OB Desc:	Bedrock	**North83:**	5032982
Open Hole:		**Org CS:**	
Cluster Kind:		**UTMRC:**	4
Date Completed:	12/18/1970	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	p4
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	931015650
Layer:	3
Color:	6
General Color:	BROWN
Mat1:	19
Most Common Material:	SLATE
Mat2:	

Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 90
Formation End Depth: 97
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931015648
Layer: 1
Color: 5
General Color: YELLOW
Mat1: 09
Most Common Material: MEDIUM SAND
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 0
Formation End Depth: 3
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931015649
Layer: 2
Color: 3
General Color: BLUE
Mat1: 05
Most Common Material: CLAY
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 3
Formation End Depth: 90
Formation End Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 961510719
Method Construction Code: 7
Method Construction: Diamond
Other Method Construction:

Pipe Information

Pipe ID: 10581306
Casing No: 1
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 930058039
Layer: 2
Material: 4
Open Hole or Material: OPEN HOLE

Depth From:
Depth To: 97
Casing Diameter:
Casing Diameter UOM: inch
Casing Depth UOM: ft

Construction Record - Casing

Casing ID: 930058038
Layer: 1
Material: 2
Open Hole or Material: GALVANIZED
Depth From:
Depth To: 92
Casing Diameter: 2
Casing Diameter UOM: inch
Casing Depth UOM: ft

Results of Well Yield Testing

Pump Test ID: 991510719
Pump Set At:
Static Level: 30
Final Level After Pumping: 50
Recommended Pump Depth: 60
Pumping Rate: 6
Flowing Rate:
Recommended Pump Rate: 6
Levels UOM: ft
Rate UOM: GPM
Water State After Test Code: 2
Water State After Test: CLOUDY
Pumping Test Method: 1
Pumping Duration HR: 2
Pumping Duration MIN: 0
Flowing: No

Draw Down & Recovery

Pump Test Detail ID: 934641622
Test Type: Draw Down
Test Duration: 45
Test Level: 50
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934897990
Test Type: Draw Down
Test Duration: 60
Test Level: 50
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934097310
Test Type: Draw Down
Test Duration: 15
Test Level: 50
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID:	934380045
Test Type:	Draw Down
Test Duration:	30
Test Level:	50
Test Level UOM:	ft

Water Details

Water ID:	933465752
Layer:	1
Kind Code:	3
Kind:	SULPHUR
Water Found Depth:	97
Water Found Depth UOM:	ft

---

5 ***1 of 1*** ***ENE/0.0*** ***87.0 / -1.88*** ***ON*** ***BORE***

Borehole ID:	616295	***Inclin FLG:***	No
OGF ID:	215517084	***SP Status:***	Initial Entry
Status:		***Surv Elev:***	No
Type:	Borehole	***Piezometer:***	No
Use:		***Primary Name:***	
Completion Date:	DEC-1970	***Municipality:***	
Static Water Level:		***Lot:***	
Primary Water Use:		***Township:***	
Sec. Water Use:		***Latitude DD:***	45.449265
Total Depth m:	29.6	***Longitude DD:***	-75.50116
Depth Ref:	Ground Surface	***UTM Zone:***	18
Depth Elev:		***Easting:***	460811
Drill Method:		***Northing:***	5032982
Orig Ground Elev m:	89.6	***Location Accuracy:***	
Elev Reliabil Note:		***Accuracy:***	Not Applicable
DEM Ground Elev m:	89.2		
Concession:			
Location D:			
Survey D:			
Comments:			

Borehole Geology Stratum

Geology Stratum ID:	218403591	***Mat Consistency:***	
Top Depth:	0	***Material Moisture:***	
Bottom Depth:	.9	***Material Texture:***	
Material Color:	Yellow	***Non Geo Mat Type:***	
Material 1:	Sand	***Geologic Formation:***	
Material 2:		***Geologic Group:***	
Material 3:		***Geologic Period:***	
Material 4:		***Depositional Gen:***	
Gsc Material Description:			
Stratum Description:	SAND. YELLOW.		

Geology Stratum ID:	218403593	***Mat Consistency:***	
Top Depth:	27.4	***Material Moisture:***	
Bottom Depth:	29.6	***Material Texture:***	
Material Color:	Brown	***Non Geo Mat Type:***	
Material 1:	Slate	***Geologic Formation:***	
Material 2:		***Geologic Group:***	
Material 3:		***Geologic Period:***	
Material 4:		***Depositional Gen:***	
Gsc Material Description:			

Stratum Description: SLATE. BROWN. 00097SEISMIC VELOCITY = 5300. BEDROCK. SEISMIC VELOCITY = 19500. K. DARK,G
**Note: Many records provided by the department have a truncated [Stratum Description] field.

Geology Stratum ID: 218403592
Top Depth: .9
Bottom Depth: 27.4
Material Color: Blue
Material 1: Clay
Material 2:
Material 3:
Material 4:
Gsc Material Description:
Stratum Description: CLAY. BLUE.

Mat Consistency:
Material Moisture:
Material Texture:
Non Geo Mat Type:
Geologic Formation:
Geologic Group:
Geologic Period:
Depositional Gen:

Source

Source Type: Data Survey
Source Orig: Geological Survey of Canada
Source Date: 1956-1972
Confidence:
Observatio:
Source Name: Urban Geology Automated Information System (UGAIS)
Source Details: File: OTTAWA2.txt RecordID: 08803 NTS_Sheet:
Confiden 1:

Source Appl: Spatial/Tabular
Source Iden: 1
Scale or Res: Varies
Horizontal: NAD27
Verticalda: Mean Average Sea Level

Source List

Source Identifier: 1
Source Type: Data Survey
Source Date: 1956-1972
Scale or Resolution: Varies
Source Name: Urban Geology Automated Information System (UGAIS)
Source Originators: Geological Survey of Canada

Horizontal Datum: NAD27
Vertical Datum: Mean Average Sea Level
Projection Name: Universal Transverse Mercator

---

6 **1 of 1** **W/23.4** **87.9 / -1.00** **OTTAWA ON** **WWIS**

Well ID: 7265307
Construction Date:
Primary Water Use: Monitoring and Test Hole
Sec. Water Use: 0
Final Well Status: Monitoring and Test Hole
Water Type:
Casing Material:
Audit No: Z229832
Tag: A178468
Construction Method:
Elevation (m):
Elevation Reliability:
Depth to Bedrock:
Well Depth:
Overburden/Bedrock:
Pump Rate:
Static Water Level:
Flowing (Y/N):
Flow Rate:
Clear/Cloudy:

Data Entry Status:
Data Src:
Date Received: 6/17/2016
Selected Flag: Yes
Abandonment Rec:
Contractor: 7241
Form Version: 7
Owner:
Street Name: 3636 INNES ROAD
County: OTTAWA
Municipality: GLOUCESTER TOWNSHIP
Site Info:
Lot:
Concession:
Concession Name:
Easting NAD83:
Northing NAD83:
Zone:
UTM Reliability:

PDF URL (Map):

Bore Hole Information

Bore Hole ID:	1006064837	**Elevation:**	89.183479
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	18
Code OB:		**East83:**	459446
Code OB Desc:		**North83:**	5032579
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	6/2/2016	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1006125314
Layer:	1
Color:	6
General Color:	BROWN
Mat1:	02
Most Common Material:	TOPSOIL
Mat2:	
Mat2 Desc:	
Mat3:	85
Mat3 Desc:	SOFT
Formation Top Depth:	0
Formation End Depth:	.31
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1006125316
Layer:	3
Color:	2
General Color:	GREY
Mat1:	05
Most Common Material:	CLAY
Mat2:	06
Mat2 Desc:	SILT
Mat3:	85
Mat3 Desc:	SOFT
Formation Top Depth:	1.22
Formation End Depth:	4.11
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1006125315
Layer:	2
Color:	6
General Color:	BROWN
Mat1:	05
Most Common Material:	CLAY
Mat2:	28
Mat2 Desc:	SAND
Mat3:	85
Mat3 Desc:	SOFT

Formation Top Depth: .31
Formation End Depth: 1.22
Formation End Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1006125324
Layer: 1
Plug From: 0
Plug To: 0.31
Plug Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1006125325
Layer: 2
Plug From: 0.31
Plug To: 0.91
Plug Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1006125326
Layer: 3
Plug From: 0.91
Plug To: 4.11
Plug Depth UOM: m

Method of Construction & Well Use

Method Construction ID: 1006125323
Method Construction Code: 5
Method Construction: Air Percussion
Other Method Construction:

Pipe Information

Pipe ID: 1006125313
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1006125319
Layer: 1
Material: 5
Open Hole or Material: PLASTIC
Depth From: 0
Depth To: 1.06
Casing Diameter: 4.03
Casing Diameter UOM: cm
Casing Depth UOM: m

Construction Record - Screen

Screen ID:	1006125320
Layer:	1
Slot:	10
Screen Top Depth:	1.06
Screen End Depth:	4.11
Screen Material:	5
Screen Depth UOM:	m
Screen Diameter UOM:	cm
Screen Diameter:	4.82

Water Details

Water ID:	1006125318
Layer:	
Kind Code:	
Kind:	
Water Found Depth:	
Water Found Depth UOM:	m

Hole Diameter

Hole ID:	1006125317
Diameter:	11.43
Depth From:	0
Depth To:	4.11
Hole Depth UOM:	m
Hole Diameter UOM:	cm

---

7 **1 of 1** **ENE/36.4** **87.5 / -1.34** **lot 1 con 11 ON** **WWIS**

Well ID:	1512850	**Data Entry Status:**	
Construction Date:		**Data Src:**	1
Primary Water Use:	Domestic	**Date Received:**	9/18/1967
Sec. Water Use:	0	**Selected Flag:**	Yes
Final Well Status:	Water Supply	**Abandonment Rec:**	
Water Type:		**Contractor:**	1504
Casing Material:		**Form Version:**	1
Audit No:		**Owner:**	
Tag:		**Street Name:**	
Construction Method:		**County:**	OTTAWA
Elevation (m):		**Municipality:**	CUMBERLAND TOWNSHIP
Elevation Reliability:		**Site Info:**	
Depth to Bedrock:		**Lot:**	001
Well Depth:		**Concession:**	11
Overburden/Bedrock:		**Concession Name:**	CON
Pump Rate:		**Easting NAD83:**	
Static Water Level:		**Northing NAD83:**	
Flowing (Y/N):		**Zone:**	
Flow Rate:		**UTM Reliability:**	
Clear/Cloudy:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/151\1512850.pdf

Bore Hole Information

Bore Hole ID:	10034838	**Elevation:**	89.579643
DP2BR:	22	**Elevrc:**	
Spatial Status:		**Zone:**	18
Code OB:	r	**East83:**	460790.8
Code OB Desc:	Bedrock	**North83:**	5033145
Open Hole:		**Org CS:**	

Cluster Kind:
Date Completed: 4/28/1967
Remarks:
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:
UTMRC: 5
UTMRC Desc: margin of error : 100 m - 300 m
Location Method: p5

Overburden and Bedrock Materials Interval

Formation ID: 931021724
Layer: 2
Color: 2
General Color: GREY
Mat1: 15
Most Common Material: LIMESTONE
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 22
Formation End Depth: 34
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931021723
Layer: 1
Color: 3
General Color: BLUE
Mat1: 05
Most Common Material: CLAY
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 0
Formation End Depth: 22
Formation End Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 961512850
Method Construction Code: 7
Method Construction: Diamond
Other Method Construction:

Pipe Information

Pipe ID: 10583408
Casing No: 1
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 930061708

Layer:	1
Material:	1
Open Hole or Material:	STEEL
Depth From:	
Depth To:	24
Casing Diameter:	2
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Casing

Casing ID:	930061709
Layer:	2
Material:	4
Open Hole or Material:	OPEN HOLE
Depth From:	
Depth To:	34
Casing Diameter:	2
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Results of Well Yield Testing

Pump Test ID:	991512850
Pump Set At:	
Static Level:	4
Final Level After Pumping:	20
Recommended Pump Depth:	25
Pumping Rate:	8
Flowing Rate:	
Recommended Pump Rate:	6
Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	1
Water State After Test:	CLEAR
Pumping Test Method:	1
Pumping Duration HR:	2
Pumping Duration MIN:	0
Flowing:	No

Water Details

Water ID:	933468340
Layer:	1
Kind Code:	1
Kind:	FRESH
Water Found Depth:	34
Water Found Depth UOM:	ft

---

8 | ***1 of 1*** | ***ENE/41.7*** | ***87.3 / -1.57*** | ***lot 2 con 11 ON*** | ***WWIS***

Well ID:	1512081	**Data Entry Status:**	
Construction Date:		**Data Src:**	1
Primary Water Use:	Livestock	**Date Received:**	4/7/1972
Sec. Water Use:	0	**Selected Flag:**	Yes
Final Well Status:	Water Supply	**Abandonment Rec:**	
Water Type:		**Contractor:**	1504
Casing Material:		**Form Version:**	1
Audit No:		**Owner:**	
Tag:		**Street Name:**	
Construction Method:		**County:**	OTTAWA

Elevation (m):		**Municipality:**	CUMBERLAND TOWNSHIP
Elevation Reliability:		**Site Info:**	
Depth to Bedrock:		**Lot:**	002
Well Depth:		**Concession:**	11
Overburden/Bedrock:		**Concession Name:**	CON
Pump Rate:		**Easting NAD83:**	
Static Water Level:		**Northing NAD83:**	
Flowing (Y/N):		**Zone:**	
Flow Rate:		**UTM Reliability:**	
Clear/Cloudy:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/151\1512081.pdf

Bore Hole Information

Bore Hole ID:	10034074	**Elevation:**	89.686996
DP2BR:	21	**Elevrc:**	
Spatial Status:		**Zone:**	18
Code OB:	r	**East83:**	460870.8
Code OB Desc:	Bedrock	**North83:**	5032972
Open Hole:		**Org CS:**	
Cluster Kind:		**UTMRC:**	4
Date Completed:	12/10/1971	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	p4
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	931019570
Layer:	1
Color:	3
General Color:	BLUE
Mat1:	05
Most Common Material:	CLAY
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	0
Formation End Depth:	20
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	931019571
Layer:	2
Color:	2
General Color:	GREY
Mat1:	07
Most Common Material:	QUICKSAND
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	20
Formation End Depth:	21

Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931019572
Layer: 3
Color: 2
General Color: GREY
Mat1: 15
Most Common Material: LIMESTONE
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 21
Formation End Depth: 49
Formation End Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 961512081
Method Construction Code: 1
Method Construction: Cable Tool
Other Method Construction:

Pipe Information

Pipe ID: 10582644
Casing No: 1
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 930060471
Layer: 2
Material: 4
Open Hole or Material: OPEN HOLE
Depth From:
Depth To: 49
Casing Diameter:
Casing Diameter UOM: inch
Casing Depth UOM: ft

Construction Record - Casing

Casing ID: 930060470
Layer: 1
Material: 1
Open Hole or Material: STEEL
Depth From:
Depth To: 24
Casing Diameter: 6
Casing Diameter UOM: inch
Casing Depth UOM: ft

Results of Well Yield Testing

Pump Test ID: 991512081

Pump Set At:	
Static Level:	10
Final Level After Pumping:	10
Recommended Pump Depth:	20
Pumping Rate:	20
Flowing Rate:	
Recommended Pump Rate:	6
Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	1
Water State After Test:	CLEAR
Pumping Test Method:	2
Pumping Duration HR:	2
Pumping Duration MIN:	0
Flowing:	No

Draw Down & Recovery

Pump Test Detail ID:	934098711
Test Type:	Draw Down
Test Duration:	15
Test Level:	10
Test Level UOM:	ft

Draw Down & Recovery

Pump Test Detail ID:	934376304
Test Type:	Draw Down
Test Duration:	30
Test Level:	10
Test Level UOM:	ft

Draw Down & Recovery

Pump Test Detail ID:	934894796
Test Type:	Draw Down
Test Duration:	60
Test Level:	10
Test Level UOM:	ft

Draw Down & Recovery

Pump Test Detail ID:	934646639
Test Type:	Draw Down
Test Duration:	45
Test Level:	10
Test Level UOM:	ft

Water Details

Water ID:	933467423
Layer:	1
Kind Code:	1
Kind:	FRESH
Water Found Depth:	49
Water Found Depth UOM:	ft

9	***1 of 1***	***NE/43.9***	***87.5 / -1.37***	***lot 1 con 11 ON***	***WWIS***

Well ID: 1512849 ***Data Entry Status:***

Construction Date:		**Data Src:**	1
Primary Water Use:	Domestic	**Date Received:**	1/19/1965
Sec. Water Use:	0	**Selected Flag:**	Yes
Final Well Status:	Water Supply	**Abandonment Rec:**	
Water Type:		**Contractor:**	1504
Casing Material:		**Form Version:**	1
Audit No:		**Owner:**	
Tag:		**Street Name:**	
Construction Method:		**County:**	OTTAWA
Elevation (m):		**Municipality:**	CUMBERLAND TOWNSHIP
Elevation Reliability:		**Site Info:**	
Depth to Bedrock:		**Lot:**	001
Well Depth:		**Concession:**	11
Overburden/Bedrock:		**Concession Name:**	CON
Pump Rate:		**Easting NAD83:**	
Static Water Level:		**Northing NAD83:**	
Flowing (Y/N):		**Zone:**	
Flow Rate:		**UTM Reliability:**	
Clear/Cloudy:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/151\1512849.pdf

Bore Hole Information

Bore Hole ID:	10034837	**Elevation:**	89.644538
DP2BR:	28	**Elevrc:**	
Spatial Status:		**Zone:**	18
Code OB:	r	**East83:**	460748.8
Code OB Desc:	Bedrock	**North83:**	5033262
Open Hole:		**Org CS:**	
Cluster Kind:		**UTMRC:**	5
Date Completed:	7/29/1964	**UTMRC Desc:**	margin of error : 100 m - 300 m
Remarks:		**Location Method:**	p5
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	931021721
Layer:	1
Color:	3
General Color:	BLUE
Mat1:	05
Most Common Material:	CLAY
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	0
Formation End Depth:	28
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	931021722
Layer:	2
Color:	2

General Color:	GREY
Mat1:	15
Most Common Material:	LIMESTONE
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	28
Formation End Depth:	49
Formation End Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	961512849
Method Construction Code:	7
Method Construction:	Diamond
Other Method Construction:	

Pipe Information

Pipe ID:	10583407
Casing No:	1
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	930061707
Layer:	2
Material:	4
Open Hole or Material:	OPEN HOLE
Depth From:	
Depth To:	49
Casing Diameter:	2
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Casing

Casing ID:	930061706
Layer:	1
Material:	1
Open Hole or Material:	STEEL
Depth From:	
Depth To:	30
Casing Diameter:	2
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Results of Well Yield Testing

Pump Test ID:	991512849
Pump Set At:	
Static Level:	4
Final Level After Pumping:	25
Recommended Pump Depth:	25
Pumping Rate:	6
Flowing Rate:	
Recommended Pump Rate:	5
Levels UOM:	ft
Rate UOM:	GPM

Water State After Test Code:	1
Water State After Test:	CLEAR
Pumping Test Method:	1
Pumping Duration HR:	2
Pumping Duration MIN:	0
Flowing:	No

Water Details

Water ID:	933468339
Layer:	1
Kind Code:	1
Kind:	FRESH
Water Found Depth:	49
Water Found Depth UOM:	ft

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10 | ***1 of 1*** | ***NE/44.0*** | ***87.5 / -1.37*** | ***ON*** | ***BORE***

Borehole ID:	616298	**Inclin FLG:**	No
OGF ID:	215517087	**SP Status:**	Initial Entry
Status:		**Surv Elev:**	No
Type:	Borehole	**Piezometer:**	No
Use:		**Primary Name:**	
Completion Date:	JUL-1964	**Municipality:**	
Static Water Level:		**Lot:**	
Primary Water Use:		**Township:**	
Sec. Water Use:		**Latitude DD:**	45.451782
Total Depth m:	14.9	**Longitude DD:**	-75.501975
Depth Ref:	Ground Surface	**UTM Zone:**	18
Depth Elev:		**Easting:**	460749
Drill Method:		**Northing:**	5033262
Orig Ground Elev m:	89.6	**Location Accuracy:**	
Elev Reliabil Note:		**Accuracy:**	Not Applicable
DEM Ground Elev m:	89.6		
Concession:			
Location D:			
Survey D:			
Comments:			

Borehole Geology Stratum

Geology Stratum ID:	218403601	**Mat Consistency:**	
Top Depth:	0	**Material Moisture:**	
Bottom Depth:	8.5	**Material Texture:**	
Material Color:	Blue	**Non Geo Mat Type:**	
Material 1:	Clay	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	CLAY. BLUE.		

Geology Stratum ID:	218403602	**Mat Consistency:**	
Top Depth:	8.5	**Material Moisture:**	
Bottom Depth:	14.9	**Material Texture:**	
Material Color:	Grey	**Non Geo Mat Type:**	
Material 1:	Limestone	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	LIMESTONE. GREY. 000495.0 FEET.BOULDERS. BEDROCK. GREY. ROCK. SEISMIC VELOCITY = 18000		

**Note: Many records provided by the department have a truncated [Stratum Description] field.

Source

Source Type:	Data Survey	***Source Appl:***	Spatial/Tabular
Source Orig:	Geological Survey of Canada	***Source Iden:***	1
Source Date:	1956-1972	***Scale or Res:***	Varies
Confidence:		***Horizontal:***	NAD27
Observatio:		***Verticalda:***	Mean Average Sea Level
Source Name:	Urban Geology Automated Information System (UGAIS)		
Source Details:	File: OTTAWA2.txt RecordID: 08806 NTS_Sheet:		
Confiden 1:			

Source List

Source Identifier:	1	***Horizontal Datum:***	NAD27
Source Type:	Data Survey	***Vertical Datum:***	Mean Average Sea Level
Source Date:	1956-1972	***Projection Name:***	Universal Transverse Mercator
Scale or Resolution:	Varies		
Source Name:	Urban Geology Automated Information System (UGAIS)		
Source Originators:	Geological Survey of Canada		

11	***1 of 1***	***ENE/46.7***	***87.4 / -1.46***	***lot 2 con 11 ON***	***WWIS***

Well ID:	1512853	***Data Entry Status:***	
Construction Date:		***Data Src:***	1
Primary Water Use:	Domestic	***Date Received:***	8/27/1963
Sec. Water Use:	0	***Selected Flag:***	Yes
Final Well Status:	Water Supply	***Abandonment Rec:***	
Water Type:		***Contractor:***	1504
Casing Material:		***Form Version:***	1
Audit No:		***Owner:***	
Tag:		***Street Name:***	
Construction Method:		***County:***	OTTAWA
Elevation (m):		***Municipality:***	CUMBERLAND TOWNSHIP
Elevation Reliability:		***Site Info:***	
Depth to Bedrock:		***Lot:***	002
Well Depth:		***Concession:***	11
Overburden/Bedrock:		***Concession Name:***	CON
Pump Rate:		***Easting NAD83:***	
Static Water Level:		***Northing NAD83:***	
Flowing (Y/N):		***Zone:***	
Flow Rate:		***UTM Reliability:***	
Clear/Cloudy:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/151\1512853.pdf

Bore Hole Information

Bore Hole ID:	10034841	***Elevation:***	89.459899
DP2BR:	10	***Elevrc:***	
Spatial Status:		***Zone:***	18
Code OB:	r	***East83:***	460884.8
Code OB Desc:	Bedrock	***North83:***	5032952
Open Hole:		***Org CS:***	
Cluster Kind:		***UTMRC:***	5
Date Completed:	8/12/1963	***UTMRC Desc:***	margin of error : 100 m - 300 m
Remarks:		***Location Method:***	p5
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			

Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Overburden and Bedrock Materials Interval

Formation ID: 931021731
Layer: 2
Color:
General Color:
Mat1: 10
Most Common Material: COARSE SAND
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 8
Formation End Depth: 10
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931021730
Layer: 1
Color: 3
General Color: BLUE
Mat1: 05
Most Common Material: CLAY
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 0
Formation End Depth: 8
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931021732
Layer: 3
Color: 2
General Color: GREY
Mat1: 15
Most Common Material: LIMESTONE
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 10
Formation End Depth: 22
Formation End Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 961512853
Method Construction Code: 7
Method Construction: Diamond
Other Method Construction:

Pipe Information

Pipe ID:	10583411
Casing No:	1
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	930061713
Layer:	2
Material:	4
Open Hole or Material:	OPEN HOLE
Depth From:	
Depth To:	22
Casing Diameter:	2
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Casing

Casing ID:	930061712
Layer:	1
Material:	1
Open Hole or Material:	STEEL
Depth From:	
Depth To:	11
Casing Diameter:	2
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Results of Well Yield Testing

Pump Test ID:	991512853
Pump Set At:	
Static Level:	3
Final Level After Pumping:	10
Recommended Pump Depth:	20
Pumping Rate:	10
Flowing Rate:	
Recommended Pump Rate:	5
Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	1
Water State After Test:	CLEAR
Pumping Test Method:	1
Pumping Duration HR:	2
Pumping Duration MIN:	0
Flowing:	No

Water Details

Water ID:	933468343
Layer:	1
Kind Code:	1
Kind:	FRESH
Water Found Depth:	22
Water Found Depth UOM:	ft

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
12	1 of 1	ENE/46.8	87.4 / -1.46	ON	BORE

Borehole ID:	616294	**Inclin FLG:**	No
OGF ID:	215517083	**SP Status:**	Initial Entry
Status:		**Surv Elev:**	No
Type:	Borehole	**Piezometer:**	No
Use:		**Primary Name:**	
Completion Date:	AUG-1963	**Municipality:**	
Static Water Level:		**Lot:**	
Primary Water Use:		**Township:**	
Sec. Water Use:		**Latitude DD:**	45.448999
Total Depth m:	6.7	**Longitude DD:**	-75.500211
Depth Ref:	Ground Surface	**UTM Zone:**	18
Depth Elev:		**Easting:**	460885
Drill Method:		**Northing:**	5032952
Orig Ground Elev m:	89.9	**Location Accuracy:**	
Elev Reliabil Note:		**Accuracy:**	Not Applicable
DEM Ground Elev m:	89.5		
Concession:			
Location D:			
Survey D:			
Comments:			

Borehole Geology Stratum

Geology Stratum ID:	218403588	**Mat Consistency:**	
Top Depth:	0	**Material Moisture:**	
Bottom Depth:	2.4	**Material Texture:**	
Material Color:	Blue	**Non Geo Mat Type:**	
Material 1:	Clay	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	CLAY. BLUE.		

Geology Stratum ID:	218403589	**Mat Consistency:**	
Top Depth:	2.4	**Material Moisture:**	
Bottom Depth:	3	**Material Texture:**	
Material Color:		**Non Geo Mat Type:**	
Material 1:	Sand	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	SAND.		

Geology Stratum ID:	218403590	**Mat Consistency:**	
Top Depth:	3	**Material Moisture:**	
Bottom Depth:	6.7	**Material Texture:**	
Material Color:	Grey	**Non Geo Mat Type:**	
Material 1:	Limestone	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	LIMESTONE. GREY. 00022ED. SEISMIC VELOCITY = 5300. BEDROCK. SEISMIC VELOCITY = 19500. K.		

Source

Source Type:	Data Survey	**Source Appl:**	Spatial/Tabular
Source Orig:	Geological Survey of Canada	**Source Iden:**	1
Source Date:	1956-1972	**Scale or Res:**	Varies

Confidence:		**Horizontal:**	NAD27
Observatio:		**Verticalda:**	Mean Average Sea Level
Source Name:	Urban Geology Automated Information System (UGAIS)		
Source Details:	File: OTTAWA2.txt RecordID: 08802 NTS_Sheet:		
Confiden 1:			

Source List

Source Identifier:	1	**Horizontal Datum:**	NAD27
Source Type:	Data Survey	**Vertical Datum:**	Mean Average Sea Level
Source Date:	1956-1972	**Projection Name:**	Universal Transverse Mercator
Scale or Resolution:	Varies		
Source Name:	Urban Geology Automated Information System (UGAIS)		
Source Originators:	Geological Survey of Canada		

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13 **1 of 1** **W/51.5** **87.9 / -1.00** **OTTAWA ON** **WWIS**

Well ID:	7265308	**Data Entry Status:**	
Construction Date:		**Data Src:**	
Primary Water Use:	Monitoring and Test Hole	**Date Received:**	6/17/2016
Sec. Water Use:	0	**Selected Flag:**	Yes
Final Well Status:	Monitoring and Test Hole	**Abandonment Rec:**	
Water Type:		**Contractor:**	7241
Casing Material:		**Form Version:**	7
Audit No:	Z222235	**Owner:**	
Tag:	A168724	**Street Name:**	3636 INNES ROAD
Construction Method:		**County:**	OTTAWA
Elevation (m):		**Municipality:**	GLOUCESTER TOWNSHIP
Elevation Reliability:		**Site Info:**	
Depth to Bedrock:		**Lot:**	
Well Depth:		**Concession:**	
Overburden/Bedrock:		**Concession Name:**	
Pump Rate:		**Easting NAD83:**	
Static Water Level:		**Northing NAD83:**	
Flowing (Y/N):		**Zone:**	
Flow Rate:		**UTM Reliability:**	
Clear/Cloudy:			

PDF URL (Map):

Bore Hole Information

Bore Hole ID:	1006064840	**Elevation:**	89.365386
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	18
Code OB:		**East83:**	459403
Code OB Desc:		**North83:**	5032609
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	6/2/2016	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1006125345
Layer:	4
Color:	2
General Color:	GREY
Mat1:	17
Most Common Material:	SHALE
Mat2:	
Mat2 Desc:	
Mat3:	92
Mat3 Desc:	WEATHERED
Formation Top Depth:	3.35
Formation End Depth:	4.57
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1006125342
Layer:	1
Color:	2
General Color:	GREY
Mat1:	11
Most Common Material:	GRAVEL
Mat2:	
Mat2 Desc:	
Mat3:	77
Mat3 Desc:	LOOSE
Formation Top Depth:	0
Formation End Depth:	.31
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1006125344
Layer:	3
Color:	2
General Color:	GREY
Mat1:	05
Most Common Material:	CLAY
Mat2:	06
Mat2 Desc:	SILT
Mat3:	85
Mat3 Desc:	SOFT
Formation Top Depth:	1.22
Formation End Depth:	3.35
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1006125343
Layer:	2
Color:	6
General Color:	BROWN
Mat1:	05
Most Common Material:	CLAY
Mat2:	11
Mat2 Desc:	GRAVEL
Mat3:	85
Mat3 Desc:	SOFT
Formation Top Depth:	.31
Formation End Depth:	1.22

Formation End Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1006125354
Layer: 1
Plug From: 0
Plug To: 0.31
Plug Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1006125355
Layer: 2
Plug From: 0.1
Plug To: 1.22
Plug Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 1006125356
Layer: 3
Plug From: 1.22
Plug To: 4.57
Plug Depth UOM: m

Method of Construction & Well Use

Method Construction ID: 1006125353
Method Construction Code: 5
Method Construction: Air Percussion
Other Method Construction:

Pipe Information

Pipe ID: 1006125341
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1006125349
Layer: 1
Material: 5
Open Hole or Material: PLASTIC
Depth From: 0
Depth To: 3.1
Casing Diameter: 4.03
Casing Diameter UOM: cm
Casing Depth UOM: m

Construction Record - Screen

Screen ID: 1006125350
Layer: 1

Slot:	10
Screen Top Depth:	3.1
Screen End Depth:	4.57
Screen Material:	5
Screen Depth UOM:	m
Screen Diameter UOM:	cm
Screen Diameter:	4.82

Water Details

Water ID:	1006125348
Layer:	
Kind Code:	
Kind:	
Water Found Depth:	
Water Found Depth UOM:	m

Hole Diameter

Hole ID:	1006125347
Diameter:	7.62
Depth From:	0.31
Depth To:	4.57
Hole Depth UOM:	m
Hole Diameter UOM:	cm

Hole Diameter

Hole ID:	1006125346
Diameter:	11.43
Depth From:	0
Depth To:	0.31
Hole Depth UOM:	m
Hole Diameter UOM:	cm

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14 | ***1 of 2*** | ***NW/52.5*** | ***89.9 / 1.00*** | ***3772 Innes Road Ottawa ON*** | ***EHS***

Order No:	20140605064	**Nearest Intersection:**	
Status:	C	**Municipality:**	City of Ottawa
Report Type:	Standard Report	**Client Prov/State:**	WI
Report Date:	12-JUN-14	**Search Radius (km):**	.318
Date Received:	05-JUN-14	**X:**	-75.514278
Previous Site Name:		**Y:**	45.448708
Lot/Building Size:			
Additional Info Ordered:	Topographic Maps; City Directory; Aerial Photos		

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14 | ***2 of 2*** | ***NW/52.5*** | ***89.9 / 1.00*** | ***MOVATI ATHLETIC ORLEANS 3772 Innes Road Orleans ON K1W 0C8*** | ***GEN***

Generator No:	ON6850294	**PO Box No:**	
Status:		**Country:**	Canada
Approval Years:	2016	**Choice of Contact:**	CO_OFFICIAL
Contam. Facility:	No	**Co Admin:**	
MHSW Facility:	No	**Phone No Admin:**	
SIC Code:	446199		
SIC Description:	ALL OTHER HEALTH AND PERSONAL CARE STORES		

Detail(s)

Waste Class: 145
Waste Class Desc: PAINT/PIGMENT/COATING RESIDUES

Waste Class: 212
Waste Class Desc: ALIPHATIC SOLVENTS

Waste Class: 112
Waste Class Desc: ACID WASTE - HEAVY METALS

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15 | 1 of 1 | ENE/58.8 | 87.6 / -1.29 | lot 1 con 11 ON | WWIS

Well ID: 1511699
Construction Date:
Primary Water Use: Domestic
Sec. Water Use: 0
Final Well Status: Water Supply
Water Type:
Casing Material:
Audit No:
Tag:
Construction Method:
Elevation (m):
Elevation Reliability:
Depth to Bedrock:
Well Depth:
Overburden/Bedrock:
Pump Rate:
Static Water Level:
Flowing (Y/N):
Flow Rate:
Clear/Cloudy:

Data Entry Status:
Data Src: 1
Date Received: 4/7/1972
Selected Flag: Yes
Abandonment Rec:
Contractor: 1504
Form Version: 1
Owner:
Street Name:
County: OTTAWA
Municipality: CUMBERLAND TOWNSHIP
Site Info:
Lot: 001
Concession: 11
Concession Name: CON
Easting NAD83:
Northing NAD83:
Zone:
UTM Reliability:

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/151\1511699.pdf

Bore Hole Information

Bore Hole ID: 10033693
DP2BR: 27
Spatial Status:
Code OB: r
Code OB Desc: Bedrock
Open Hole:
Cluster Kind:
Date Completed: 7/20/1971
Remarks:
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Elevation: 89.58155
Elevrc:
Zone: 18
East83: 460790.8
North83: 5033202
Org CS:
UTMRC: 4
UTMRC Desc: margin of error : 30 m - 100 m
Location Method: p4

Overburden and Bedrock Materials Interval

Formation ID: 931018490
Layer: 1
Color: 3
General Color: BLUE
Mat1: 05
Most Common Material: CLAY

Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 0
Formation End Depth: 27
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931018491
Layer: 2
Color: 2
General Color: GREY
Mat1: 15
Most Common Material: LIMESTONE
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 27
Formation End Depth: 41
Formation End Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 961511699
Method Construction Code: 7
Method Construction: Diamond
Other Method Construction:

Pipe Information

Pipe ID: 10582263
Casing No: 1
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 930059856
Layer: 1
Material: 2
Open Hole or Material: GALVANIZED
Depth From:
Depth To: 29
Casing Diameter: 2
Casing Diameter UOM: inch
Casing Depth UOM: ft

Construction Record - Casing

Casing ID: 930059857
Layer: 2
Material: 4
Open Hole or Material: OPEN HOLE
Depth From:
Depth To: 41
Casing Diameter:
Casing Diameter UOM: inch

Casing Depth UOM: ft

Results of Well Yield Testing

Pump Test ID: 991511699
Pump Set At:
Static Level: 10
Final Level After Pumping: 25
Recommended Pump Depth: 30
Pumping Rate: 10
Flowing Rate:
Recommended Pump Rate: 6
Levels UOM: ft
Rate UOM: GPM
Water State After Test Code: 1
Water State After Test: CLEAR
Pumping Test Method: 1
Pumping Duration HR: 2
Pumping Duration MIN: 0
Flowing: No

Draw Down & Recovery

Pump Test Detail ID: 934645026
Test Type: Draw Down
Test Duration: 45
Test Level: 25
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934901944
Test Type: Draw Down
Test Duration: 60
Test Level: 25
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934382892
Test Type: Draw Down
Test Duration: 30
Test Level: 25
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934098350
Test Type: Draw Down
Test Duration: 15
Test Level: 25
Test Level UOM: ft

Water Details

Water ID: 933466933
Layer: 1
Kind Code: 1
Kind: FRESH
Water Found Depth: 41
Water Found Depth UOM: ft

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
16	1 of 1	ENE/60.2	87.6 / -1.32	lot 1 con 11 ON	WWIS

Well ID:	1511698	**Data Entry Status:**	
Construction Date:		**Data Src:**	1
Primary Water Use:	Domestic	**Date Received:**	4/7/1972
Sec. Water Use:	0	**Selected Flag:**	Yes
Final Well Status:	Water Supply	**Abandonment Rec:**	
Water Type:		**Contractor:**	1504
Casing Material:		**Form Version:**	1
Audit No:		**Owner:**	
Tag:		**Street Name:**	
Construction Method:		**County:**	OTTAWA
Elevation (m):		**Municipality:**	CUMBERLAND TOWNSHIP
Elevation Reliability:		**Site Info:**	
Depth to Bedrock:		**Lot:**	001
Well Depth:		**Concession:**	11
Overburden/Bedrock:		**Concession Name:**	CON
Pump Rate:		**Easting NAD83:**	
Static Water Level:		**Northing NAD83:**	
Flowing (Y/N):		**Zone:**	
Flow Rate:		**UTM Reliability:**	
Clear/Cloudy:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/151\1511698.pdf

Bore Hole Information

Bore Hole ID:	10033692	**Elevation:**	89.721511
DP2BR:	27	**Elevrc:**	
Spatial Status:		**Zone:**	18
Code OB:	r	**East83:**	460770.8
Code OB Desc:	Bedrock	**North83:**	5033252
Open Hole:		**Org CS:**	
Cluster Kind:		**UTMRC:**	4
Date Completed:	7/19/1971	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	p4
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	931018489
Layer:	2
Color:	2
General Color:	GREY
Mat1:	15
Most Common Material:	LIMESTONE
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	27
Formation End Depth:	40
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	931018488
Layer:	1
Color:	3
General Color:	BLUE
Mat1:	05
Most Common Material:	CLAY
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	0
Formation End Depth:	27
Formation End Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	961511698
Method Construction Code:	7
Method Construction:	Diamond
Other Method Construction:	

Pipe Information

Pipe ID:	10582262
Casing No:	1
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	930059854
Layer:	1
Material:	2
Open Hole or Material:	GALVANIZED
Depth From:	
Depth To:	29
Casing Diameter:	2
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Casing

Casing ID:	930059855
Layer:	2
Material:	4
Open Hole or Material:	OPEN HOLE
Depth From:	
Depth To:	40
Casing Diameter:	
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Results of Well Yield Testing

Pump Test ID:	991511698
Pump Set At:	
Static Level:	10
Final Level After Pumping:	25

Recommended Pump Depth:	30
Pumping Rate:	10
Flowing Rate:	
Recommended Pump Rate:	6
Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	1
Water State After Test:	CLEAR
Pumping Test Method:	1
Pumping Duration HR:	2
Pumping Duration MIN:	0
Flowing:	No

Draw Down & Recovery

Pump Test Detail ID:	934645025
Test Type:	Draw Down
Test Duration:	45
Test Level:	25
Test Level UOM:	ft

Draw Down & Recovery

Pump Test Detail ID:	934901943
Test Type:	Draw Down
Test Duration:	60
Test Level:	25
Test Level UOM:	ft

Draw Down & Recovery

Pump Test Detail ID:	934382891
Test Type:	Draw Down
Test Duration:	30
Test Level:	25
Test Level UOM:	ft

Draw Down & Recovery

Pump Test Detail ID:	934098349
Test Type:	Draw Down
Test Duration:	15
Test Level:	25
Test Level UOM:	ft

Water Details

Water ID:	933466932
Layer:	1
Kind Code:	1
Kind:	FRESH
Water Found Depth:	40
Water Found Depth UOM:	ft

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
17	1 of 1	ENE/62.8	87.0 / -1.90	lot 1 con 11 ON	WWIS

Well ID:	1517917	***Data Entry Status:***	
Construction Date:		***Data Src:***	1
Primary Water Use:	Domestic	***Date Received:***	10/7/1982
Sec. Water Use:	0	***Selected Flag:***	Yes

Final Well Status:	Water Supply	**Abandonment Rec:**	
Water Type:		**Contractor:**	2351
Casing Material:		**Form Version:**	1
Audit No:		**Owner:**	
Tag:		**Street Name:**	
Construction Method:		**County:**	OTTAWA
Elevation (m):		**Municipality:**	CUMBERLAND TOWNSHIP
Elevation Reliability:		**Site Info:**	
Depth to Bedrock:		**Lot:**	001
Well Depth:		**Concession:**	11
Overburden/Bedrock:		**Concession Name:**	CON
Pump Rate:		**Easting NAD83:**	
Static Water Level:		**Northing NAD83:**	
Flowing (Y/N):		**Zone:**	
Flow Rate:		**UTM Reliability:**	
Clear/Cloudy:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/151\1517917.pdf

Bore Hole Information

Bore Hole ID:	10039788	**Elevation:**	89.931457
DP2BR:	17	**Elevrc:**	
Spatial Status:		**Zone:**	18
Code OB:	r	**East83:**	460829.8
Code OB Desc:	Bedrock	**North83:**	5033121
Open Hole:		**Org CS:**	
Cluster Kind:		**UTMRC:**	4
Date Completed:	8/28/1982	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	p4
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	931036739
Layer:	2
Color:	7
General Color:	RED
Mat1:	05
Most Common Material:	CLAY
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	7
Formation End Depth:	17
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	931036738
Layer:	1
Color:	6
General Color:	BROWN
Mat1:	02
Most Common Material:	TOPSOIL

Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 0
Formation End Depth: 7
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931036740
Layer: 3
Color: 8
General Color: BLACK
Mat1: 17
Most Common Material: SHALE
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 17
Formation End Depth: 30
Formation End Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 961517917
Method Construction Code: 1
Method Construction: Cable Tool
Other Method Construction:

Pipe Information

Pipe ID: 10588358
Casing No: 1
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 930069486
Layer: 1
Material: 1
Open Hole or Material: STEEL
Depth From:
Depth To: 17
Casing Diameter: 6
Casing Diameter UOM: inch
Casing Depth UOM: ft

Results of Well Yield Testing

Pump Test ID: 991517917
Pump Set At:
Static Level: 13
Final Level After Pumping: 23
Recommended Pump Depth: 24
Pumping Rate: 15
Flowing Rate:
Recommended Pump Rate: 10

Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	2
Water State After Test:	CLOUDY
Pumping Test Method:	2
Pumping Duration HR:	1
Pumping Duration MIN:	20
Flowing:	No

Draw Down & Recovery

Pump Test Detail ID:	934896684
Test Type:	Draw Down
Test Duration:	60
Test Level:	23
Test Level UOM:	ft

Draw Down & Recovery

Pump Test Detail ID:	934103107
Test Type:	Draw Down
Test Duration:	15
Test Level:	23
Test Level UOM:	ft

Draw Down & Recovery

Pump Test Detail ID:	934377157
Test Type:	Draw Down
Test Duration:	30
Test Level:	23
Test Level UOM:	ft

Draw Down & Recovery

Pump Test Detail ID:	934646992
Test Type:	Draw Down
Test Duration:	45
Test Level:	23
Test Level UOM:	ft

Water Details

Water ID:	933474512
Layer:	1
Kind Code:	1
Kind:	FRESH
Water Found Depth:	28
Water Found Depth UOM:	ft

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
18	1 of 1	NNE/63.1	90.6 / 1.69	3900 Innes Rd Orléans ON K1W 1K9	EHS

Order No:	20180725176	***Nearest Intersection:***	
Status:	C	***Municipality:***	
Report Type:	Standard Report	***Client Prov/State:***	ON
Report Date:	01-AUG-18	***Search Radius (km):***	.25
Date Received:	25-JUL-18	***X:***	-75.507951
Previous Site Name:		***Y:***	45.451485
Lot/Building Size:			
Additional Info Ordered:	Fire Insur. Maps and/or Site Plans; Aerial Photos		

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
19	1 of 1	NE/63.3	87.6 / -1.26	City of Ottawa 2107 Mer Bleue Rd Lot 1, Concession 3 Ottawa ON K1P 1J1	ECA

Approval No: 2191-7MCT5Y
Approval Date: 2009-01-16
Status: Approved
Record Type: ECA
Link Source: IDS
SWP Area Name: South Nation
MOE District: Ottawa
City:
Longitude: -75.50184999999999
Latitude: 45.452006999999995
Geometry X:
Geometry Y:
Approval Type: ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS
Project Type: MUNICIPAL AND PRIVATE SEWAGE WORKS
Address: 2107 Mer Bleue Rd Lot 1, Concession 3
Full Address:
Full PDF Link: https://www.accessenvironment.ene.gov.on.ca/instruments/4690-7JJK7W-14.pdf

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
20	1 of 1	NE/66.3	87.6 / -1.26	City of Ottawa 2107 Mer Bleue Rd Lot 1, Concession 3 Ottawa ON	CA

Certificate #: 2191-7MCT5Y
Application Year: 2009
Issue Date: 1/16/2009
Approval Type: Municipal and Private Sewage Works
Status: Approved
Application Type:
Client Name:
Client Address:
Client City:
Client Postal Code:
Project Description:
Contaminants:
Emission Control:

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
21	1 of 1	W/67.6	88.9 / 0.00	lot 4 con 3 ON	WWIS

Well ID: 1501402
Construction Date:
Primary Water Use: Domestic
Sec. Water Use: 0
Final Well Status: Water Supply
Water Type:
Casing Material:
Audit No:
Tag:
Construction Method:
Elevation (m):
Elevation Reliability:
Depth to Bedrock:
Well Depth:
Overburden/Bedrock:
Pump Rate:
Static Water Level:
Flowing (Y/N):
Flow Rate:
Clear/Cloudy:
Data Entry Status:
Data Src: 1
Date Received: 1/22/1957
Selected Flag: Yes
Abandonment Rec:
Contractor: 1632
Form Version: 1
Owner:
Street Name:
County: OTTAWA
Municipality: GLOUCESTER TOWNSHIP
Site Info:
Lot: 004
Concession: 03
Concession Name: OF
Easting NAD83:
Northing NAD83:
Zone:
UTM Reliability:

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/150\1501402.pdf

Bore Hole Information

Bore Hole ID:	10023445	***Elevation:***	90.416419
DP2BR:	0	***Elevrc:***	
Spatial Status:		***Zone:***	18
Code OB:	r	***East83:***	459440.8
Code OB Desc:	Bedrock	***North83:***	5032772
Open Hole:		***Org CS:***	
Cluster Kind:		***UTMRC:***	4
Date Completed:	11/8/1956	***UTMRC Desc:***	margin of error : 30 m - 100 m
Remarks:		***Location Method:***	p4
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	930991753
Layer:	1
Color:	
General Color:	
Mat1:	15
Most Common Material:	LIMESTONE
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	0
Formation End Depth:	105
Formation End Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	961501402
Method Construction Code:	1
Method Construction:	Cable Tool
Other Method Construction:	

Pipe Information

Pipe ID:	10572015
Casing No:	1
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	930039774
Layer:	1
Material:	1
Open Hole or Material:	STEEL
Depth From:	
Depth To:	12
Casing Diameter:	2
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Casing

Casing ID:	930039775
Layer:	2
Material:	4
Open Hole or Material:	OPEN HOLE
Depth From:	
Depth To:	105
Casing Diameter:	2
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Results of Well Yield Testing

Pump Test ID:	991501402
Pump Set At:	
Static Level:	15
Final Level After Pumping:	25
Recommended Pump Depth:	
Pumping Rate:	5
Flowing Rate:	
Recommended Pump Rate:	
Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	1
Water State After Test:	CLEAR
Pumping Test Method:	1
Pumping Duration HR:	0
Pumping Duration MIN:	30
Flowing:	No

Water Details

Water ID:	933454107
Layer:	1
Kind Code:	1
Kind:	FRESH
Water Found Depth:	105
Water Found Depth UOM:	ft

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22 ***1 of 1*** ***ENE/68.0*** ***87.6 / -1.32*** ***lot 1 con 11 ON*** ***WWIS***

Well ID:	1513909	***Data Entry Status:***	
Construction Date:		***Data Src:***	1
Primary Water Use:	Domestic	***Date Received:***	3/18/1974
Sec. Water Use:	0	***Selected Flag:***	Yes
Final Well Status:	Water Supply	***Abandonment Rec:***	
Water Type:		***Contractor:***	1504
Casing Material:		***Form Version:***	1
Audit No:		***Owner:***	
Tag:		***Street Name:***	
Construction Method:		***County:***	OTTAWA
Elevation (m):		***Municipality:***	CUMBERLAND TOWNSHIP
Elevation Reliability:		***Site Info:***	
Depth to Bedrock:		***Lot:***	001
Well Depth:		***Concession:***	11
Overburden/Bedrock:		***Concession Name:***	CON
Pump Rate:		***Easting NAD83:***	
Static Water Level:		***Northing NAD83:***	
Flowing (Y/N):		***Zone:***	

Flow Rate: ***UTM Reliability:***
Clear/Cloudy:

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/151\1513909.pdf

Bore Hole Information

Bore Hole ID:	10035891	***Elevation:***	89.690673
DP2BR:	21	***Elevrc:***	
Spatial Status:		***Zone:***	18
Code OB:	r	***East83:***	460770.8
Code OB Desc:	Bedrock	***North83:***	5033272
Open Hole:		***Org CS:***	
Cluster Kind:		***UTMRC:***	6
Date Completed:	8/8/1973	***UTMRC Desc:***	margin of error : 300 m - 1 km
Remarks:		***Location Method:***	p6
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	931024765
Layer:	1
Color:	3
General Color:	BLUE
Mat1:	05
Most Common Material:	CLAY
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	0
Formation End Depth:	21
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	931024766
Layer:	2
Color:	2
General Color:	GREY
Mat1:	15
Most Common Material:	LIMESTONE
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	21
Formation End Depth:	82
Formation End Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	961513909
Method Construction Code:	6

Method Construction: Boring
Other Method Construction:

Pipe Information

Pipe ID: 10584461
Casing No: 1
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 930063446
Layer: 1
Material: 1
Open Hole or Material: STEEL
Depth From:
Depth To: 23
Casing Diameter: 2
Casing Diameter UOM: inch
Casing Depth UOM: ft

Results of Well Yield Testing

Pump Test ID: 991513909
Pump Set At:
Static Level: 7
Final Level After Pumping: 40
Recommended Pump Depth: 50
Pumping Rate: 7
Flowing Rate:
Recommended Pump Rate: 7
Levels UOM: ft
Rate UOM: GPM
Water State After Test Code: 1
Water State After Test: CLEAR
Pumping Test Method: 1
Pumping Duration HR: 2
Pumping Duration MIN: 0
Flowing: No

Draw Down & Recovery

Pump Test Detail ID: 934099681
Test Type: Recovery
Test Duration: 15
Test Level: 30
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934380755
Test Type: Recovery
Test Duration: 30
Test Level: 20
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934899218
Test Type: Recovery

Test Duration:	60
Test Level:	7
Test Level UOM:	ft

Draw Down & Recovery

Pump Test Detail ID:	934641330
Test Type:	Recovery
Test Duration:	45
Test Level:	10
Test Level UOM:	ft

Water Details

Water ID:	933469663
Layer:	1
Kind Code:	1
Kind:	FRESH
Water Found Depth:	82
Water Found Depth UOM:	ft

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23 | ***1 of 15*** | ***NNE/71.2*** | ***90.9 / 2.03*** | ***3900 Innes Road Orleans, (Ottawa) ON K1W 1K9*** | ***EHS***

Order No:	20060619036	**Nearest Intersection:**	Innes Road and Mer Bleue Road
Status:	C	**Municipality:**	
Report Type:	Complete Report	**Client Prov/State:**	ON
Report Date:	6/28/2006	**Search Radius (km):**	0.25
Date Received:	6/19/2006	**X:**	-75.509839
Previous Site Name:		**Y:**	45.45258
Lot/Building Size:			
Additional Info Ordered:			

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23 | ***2 of 15*** | ***NNE/71.2*** | ***90.9 / 2.03*** | ***WALMART CANADA STORE# 3065 3900 INNES RD ORLEANS ON K1W 1K9*** | ***PES***

Detail Licence No:		**Operator Box:**	
Licence No:		**Operator Class:**	
Status:		**Operator No:**	
Approval Date:		**Operator Type:**	
Report Source:		**Oper Area Code:**	
Licence Type:	Limited Vendor	**Oper Phone No:**	
Licence Type Code:	23	**Operator Ext:**	
Licence Class:		**Operator Lot:**	
Licence Control:		**Oper Concession:**	
Latitude:		**Operator Region:**	
Longitude:		**Operator District:**	
Lot:		**Operator County:**	
Concession:		**Op Municipality:**	
Region:		**Post Office Box:**	
District:		**MOE District:**	
County:		**SWP Area Name:**	
Trade Name:			
PDF Link:			

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23 | ***3 of 15*** | ***NNE/71.2*** | ***90.9 / 2.03*** | ***3900 Innes Road Ottawa ON K1W 1K9*** | ***EHS***

Order No:	20070222028	**Nearest Intersection:**	Innes Road and Belcourt Boulevard

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB

Status:	C	**Municipality:**	Ottawa-Carleton
Report Type:	CAN - Complete Report	**Client Prov/State:**	
Report Date:	2/28/2007	**Search Radius (km):**	0.25
Date Received:	2/22/2007	**X:**	-75.51039
Previous Site Name:		**Y:**	45.452755
Lot/Building Size:	building floor area 130059 sf		
Additional Info Ordered:	Fire Insur. Maps And /or Site Plans		

23 **4 of 15** **NNE/71.2** **90.9 / 2.03** **WAL-MART CANADA CORP.**
3900 INNES ROAD
ORLEANS ON K1W 1K9
GEN

Generator No:	ON9019922	**PO Box No:**	
Status:		**Country:**	
Approval Years:	06,07,08	**Choice of Contact:**	
Contam. Facility:		**Co Admin:**	
MHSW Facility:		**Phone No Admin:**	
SIC Code:	453999		
SIC Description:	All Other Miscellaneous Store Retailers (except Be		

Detail(s)

Waste Class:	112
Waste Class Desc:	ACID WASTE - HEAVY METALS
Waste Class:	122
Waste Class Desc:	ALKALINE WASTES - OTHER METALS
Waste Class:	145
Waste Class Desc:	PAINT/PIGMENT/COATING RESIDUES
Waste Class:	147
Waste Class Desc:	CHEMICAL FERTILIZER WASTES
Waste Class:	148
Waste Class Desc:	INORGANIC LABORATORY CHEMICALS
Waste Class:	242
Waste Class Desc:	HALOGENATED PESTICIDES
Waste Class:	252
Waste Class Desc:	WASTE OILS & LUBRICANTS
Waste Class:	263
Waste Class Desc:	ORGANIC LABORATORY CHEMICALS
Waste Class:	331
Waste Class Desc:	WASTE COMPRESSED GASES

23 **5 of 15** **NNE/71.2** **90.9 / 2.03** **WALMART CANADA CORP #3065**
3900 INNES RD
ORLEANS ON K1W 1K9
PES

Detail Licence No:		**Operator Box:**	
Licence No:		**Operator Class:**	
Status:		**Operator No:**	
Approval Date:		**Operator Type:**	
Report Source:		**Oper Area Code:**	
Licence Type:	Vendor	**Oper Phone No:**	
Licence Type Code:		**Operator Ext:**	
Licence Class:		**Operator Lot:**	
Licence Control:		**Oper Concession:**	

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB

Latitude:		**Operator Region:**	
Longitude:		**Operator District:**	
Lot:		**Operator County:**	
Concession:		**Op Municipality:**	
Region:		**Post Office Box:**	
District:		**MOE District:**	
County:		**SWP Area Name:**	
Trade Name:			
PDF Link:			

---

23 **6 of 15** **NNE/71.2** **90.9 / 2.03** **WAL-MART CANADA CORP.**
3900 INNES ROAD #3065
ORLEANS ON K1W 1K9 **GEN**

Generator No:	ON9019922	**PO Box No:**	
Status:		**Country:**	
Approval Years:	2009	**Choice of Contact:**	
Contam. Facility:		**Co Admin:**	
MHSW Facility:		**Phone No Admin:**	
SIC Code:	453999		
SIC Description:	All Other Miscellaneous Store Retailers (except Beer and Wine-Making Supplies Stores)		

Detail(s)

Waste Class:	112
Waste Class Desc:	ACID WASTE - HEAVY METALS
Waste Class:	122
Waste Class Desc:	ALKALINE WASTES - OTHER METALS
Waste Class:	145
Waste Class Desc:	PAINT/PIGMENT/COATING RESIDUES
Waste Class:	147
Waste Class Desc:	CHEMICAL FERTILIZER WASTES
Waste Class:	148
Waste Class Desc:	INORGANIC LABORATORY CHEMICALS
Waste Class:	242
Waste Class Desc:	HALOGENATED PESTICIDES
Waste Class:	252
Waste Class Desc:	WASTE OILS & LUBRICANTS
Waste Class:	263
Waste Class Desc:	ORGANIC LABORATORY CHEMICALS
Waste Class:	331
Waste Class Desc:	WASTE COMPRESSED GASES

---

23 **7 of 15** **NNE/71.2** **90.9 / 2.03** **WAL-MART CANADA CORP.**
3900 INNES ROAD #3065
ORLEANS ON K1W 1K9 **GEN**

Generator No:	ON9019922	**PO Box No:**	
Status:		**Country:**	
Approval Years:	2010	**Choice of Contact:**	
Contam. Facility:		**Co Admin:**	
MHSW Facility:		**Phone No Admin:**	
SIC Code:	453999		
SIC Description:	All Other Miscellaneous Store Retailers (except Beer and Wine-Making Supplies Stores)		

Detail(s)

Waste Class: 148
Waste Class Desc: INORGANIC LABORATORY CHEMICALS

Waste Class: 112
Waste Class Desc: ACID WASTE - HEAVY METALS

Waste Class: 147
Waste Class Desc: CHEMICAL FERTILIZER WASTES

Waste Class: 122
Waste Class Desc: ALKALINE WASTES - OTHER METALS

Waste Class: 331
Waste Class Desc: WASTE COMPRESSED GASES

Waste Class: 145
Waste Class Desc: PAINT/PIGMENT/COATING RESIDUES

Waste Class: 263
Waste Class Desc: ORGANIC LABORATORY CHEMICALS

Waste Class: 242
Waste Class Desc: HALOGENATED PESTICIDES

Waste Class: 252
Waste Class Desc: WASTE OILS & LUBRICANTS

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23 ***8 of 15*** ***NNE/71.2*** ***90.9 / 2.03*** ***Walmart Canada Corp.***
3900 INNES ROAD #3065
ORLEANS ON K1W 1K9 ***GEN***

Generator No: ON9019922
Status:
Approval Years: 2011
Contam. Facility:
MHSW Facility:
SIC Code: 453999
SIC Description: All Other Miscellaneous Store Retailers (except Beer and Wine-Making Supplies Stores)

PO Box No:
Country:
Choice of Contact:
Co Admin:
Phone No Admin:

Detail(s)

Waste Class: 252
Waste Class Desc: WASTE OILS & LUBRICANTS

Waste Class: 148
Waste Class Desc: INORGANIC LABORATORY CHEMICALS

Waste Class: 242
Waste Class Desc: HALOGENATED PESTICIDES

Waste Class: 112
Waste Class Desc: ACID WASTE - HEAVY METALS

Waste Class: 263
Waste Class Desc: ORGANIC LABORATORY CHEMICALS

Waste Class: 145
Waste Class Desc: PAINT/PIGMENT/COATING RESIDUES

Waste Class: 331

Waste Class Desc: WASTE COMPRESSED GASES

Waste Class: 147
Waste Class Desc: CHEMICAL FERTILIZER WASTES

Waste Class: 122
Waste Class Desc: ALKALINE WASTES - OTHER METALS

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23 | ***9 of 15*** | ***NNE/71.2*** | ***90.9 / 2.03*** | ***Walmart Canada Corp.***
3900 INNES ROAD #3065
ORLEANS ON K1W 1K9 | ***GEN***

Generator No: ON9019922
Status:
Approval Years: 2012
Contam. Facility:
MHSW Facility:
SIC Code: 453999
SIC Description: All Other Miscellaneous Store Retailers (except Beer and Wine-Making Supplies Stores)

PO Box No:
Country:
Choice of Contact:
Co Admin:
Phone No Admin:

Detail(s)

Waste Class: 242
Waste Class Desc: HALOGENATED PESTICIDES

Waste Class: 147
Waste Class Desc: CHEMICAL FERTILIZER WASTES

Waste Class: 148
Waste Class Desc: INORGANIC LABORATORY CHEMICALS

Waste Class: 331
Waste Class Desc: WASTE COMPRESSED GASES

Waste Class: 122
Waste Class Desc: ALKALINE WASTES - OTHER METALS

Waste Class: 263
Waste Class Desc: ORGANIC LABORATORY CHEMICALS

Waste Class: 252
Waste Class Desc: WASTE OILS & LUBRICANTS

Waste Class: 145
Waste Class Desc: PAINT/PIGMENT/COATING RESIDUES

Waste Class: 112
Waste Class Desc: ACID WASTE - HEAVY METALS

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23 | ***10 of 15*** | ***NNE/71.2*** | ***90.9 / 2.03*** | ***Walmart Canada Corp.***
3900 INNES ROAD #3065
ORLEANS ON | ***GEN***

Generator No: ON9019922
Status:
Approval Years: 2013
Contam. Facility:
MHSW Facility:
SIC Code: 453999
SIC Description: ALL OTHER MISCELLANEOUS STORE RETAILERS (EXCEPT BEER AND WINE-MAKING SUPPLIES STORES)

PO Box No:
Country:
Choice of Contact:
Co Admin:
Phone No Admin:

Detail(s)

Waste Class: 148
Waste Class Desc: INORGANIC LABORATORY CHEMICALS

Waste Class: 252
Waste Class Desc: WASTE OILS & LUBRICANTS

Waste Class: 263
Waste Class Desc: ORGANIC LABORATORY CHEMICALS

Waste Class: 147
Waste Class Desc: CHEMICAL FERTILIZER WASTES

Waste Class: 112
Waste Class Desc: ACID WASTE - HEAVY METALS

Waste Class: 122
Waste Class Desc: ALKALINE WASTES - OTHER METALS

Waste Class: 145
Waste Class Desc: PAINT/PIGMENT/COATING RESIDUES

Waste Class: 242
Waste Class Desc: HALOGENATED PESTICIDES

Waste Class: 331
Waste Class Desc: WASTE COMPRESSED GASES

23	11 of 15	NNE/71.2	90.9 / 2.03	**Walmart Canada Corp.** **3900 INNES ROAD #3065** **ORLEANS ON K1C 1T1**	GEN

Generator No: ON9019922
Status:
Approval Years: 2016
Contam. Facility: No
MHSW Facility: No
SIC Code: 453999
SIC Description: ALL OTHER MISCELLANEOUS STORE RETAILERS (EXCEPT BEER AND WINE-MAKING SUPPLIES STORES)

PO Box No:
Country: Canada
Choice of Contact: CO_OFFICIAL
Co Admin: Jason Fries
Phone No Admin: 905-821-2111 Ext.75127

Detail(s)

Waste Class: 331
Waste Class Desc: WASTE COMPRESSED GASES

Waste Class: 148
Waste Class Desc: INORGANIC LABORATORY CHEMICALS

Waste Class: 252
Waste Class Desc: WASTE OILS & LUBRICANTS

Waste Class: 312
Waste Class Desc: PATHOLOGICAL WASTES

Waste Class: 242
Waste Class Desc: HALOGENATED PESTICIDES

Waste Class: 263
Waste Class Desc: ORGANIC LABORATORY CHEMICALS

Waste Class: 147
Waste Class Desc: CHEMICAL FERTILIZER WASTES

Waste Class: 122
Waste Class Desc: ALKALINE WASTES - OTHER METALS

Waste Class: 145
Waste Class Desc: PAINT/PIGMENT/COATING RESIDUES

Waste Class: 112
Waste Class Desc: ACID WASTE - HEAVY METALS

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23 **12 of 15** **NNE/71.2** **90.9 / 2.03** **Walmart Canada Corp.**
3900 INNES ROAD #3065
ORLEANS ON K1C 1T1 **GEN**

Generator No: ON9019922
Status:
Approval Years: 2015
Contam. Facility: No
MHSW Facility: No
SIC Code: 453999
SIC Description: ALL OTHER MISCELLANEOUS STORE RETAILERS (EXCEPT BEER AND WINE-MAKING SUPPLIES STORES)

PO Box No:
Country: Canada
Choice of Contact: CO_OFFICIAL
Co Admin: Vincent Feng
Phone No Admin: 905-821-2111 Ext.75212

Detail(s)

Waste Class: 242
Waste Class Desc: HALOGENATED PESTICIDES

Waste Class: 263
Waste Class Desc: ORGANIC LABORATORY CHEMICALS

Waste Class: 145
Waste Class Desc: PAINT/PIGMENT/COATING RESIDUES

Waste Class: 112
Waste Class Desc: ACID WASTE - HEAVY METALS

Waste Class: 252
Waste Class Desc: WASTE OILS & LUBRICANTS

Waste Class: 122
Waste Class Desc: ALKALINE WASTES - OTHER METALS

Waste Class: 147
Waste Class Desc: CHEMICAL FERTILIZER WASTES

Waste Class: 331
Waste Class Desc: WASTE COMPRESSED GASES

Waste Class: 148
Waste Class Desc: INORGANIC LABORATORY CHEMICALS

Waste Class: 312
Waste Class Desc: PATHOLOGICAL WASTES

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23 **13 of 15** **NNE/71.2** **90.9 / 2.03** **Walmart Canada Corp.**
3900 INNES ROAD #3065
ORLEANS ON K1C 1T1 **GEN**

Generator No: ON9019922
Status:
Approval Years: 2014
Contam. Facility: No
MHSW Facility: No
SIC Code: 453999
SIC Description: ALL OTHER MISCELLANEOUS STORE RETAILERS (EXCEPT BEER AND WINE-MAKING SUPPLIES STORES)

PO Box No:
Country: Canada
Choice of Contact: CO_ADMIN
Co Admin: Vincent Feng
Phone No Admin: 905-821-2111 Ext.75212

Detail(s)

Waste Class: 112
Waste Class Desc: ACID WASTE - HEAVY METALS

Waste Class: 242
Waste Class Desc: HALOGENATED PESTICIDES

Waste Class: 122
Waste Class Desc: ALKALINE WASTES - OTHER METALS

Waste Class: 147
Waste Class Desc: CHEMICAL FERTILIZER WASTES

Waste Class: 263
Waste Class Desc: ORGANIC LABORATORY CHEMICALS

Waste Class: 145
Waste Class Desc: PAINT/PIGMENT/COATING RESIDUES

Waste Class: 312
Waste Class Desc: PATHOLOGICAL WASTES

Waste Class: 331
Waste Class Desc: WASTE COMPRESSED GASES

Waste Class: 252
Waste Class Desc: WASTE OILS & LUBRICANTS

Waste Class: 148
Waste Class Desc: INORGANIC LABORATORY CHEMICALS

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23 | ***14 of 15*** | ***NNE/71.2*** | ***90.9 / 2.03*** | ***Walmart Canada Corp.***
3900 INNES ROAD #3065
ORLEANS ON K1C 1T1 | ***GEN***

Generator No: ON9019922
Status: Registered
Approval Years: As of Dec 2018
Contam. Facility:
MHSW Facility:
SIC Code:
SIC Description:

PO Box No:
Country: Canada
Choice of Contact:
Co Admin:
Phone No Admin:

Detail(s)

Waste Class: 148 C
Waste Class Desc: Misc. wastes and inorganic chemicals

Waste Class: 112 C
Waste Class Desc: Acid solutions - containing heavy metals

Waste Class: 122 C
Waste Class Desc: Alkaline slutions - containing other metals and non-metals (not cyanide)

Waste Class: 145 I
Waste Class Desc: Wastes from the use of pigments, coatings and paints

Waste Class: 148 I
Waste Class Desc: Misc. wastes and inorganic chemicals

Waste Class: 148 T
Waste Class Desc: Misc. wastes and inorganic chemicals

Waste Class:	242 A
Waste Class Desc:	Halogenated pesticides and herbicides
Waste Class:	252 L
Waste Class Desc:	Waste crankcase oils and lubricants
Waste Class:	263 I
Waste Class Desc:	Misc. waste organic chemicals
Waste Class:	312 P
Waste Class Desc:	Pathological wastes
Waste Class:	331 I
Waste Class Desc:	Waste compressed gases including cylinders

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23 | **15 of 15** | **NNE/71.2** | **90.9 / 2.03** | **Walmart Canada Corp.**
3900 Innes Rd
Ottawa ON | **SPL**

Ref No:	7306-B2JQZE	**Discharger Report:**	
Site No:	NA	**Material Group:**	
Incident Dt:	2018/07/10	**Health/Env Conseq:**	2 - Minor Environment
Year:		**Client Type:**	Corporation
Incident Cause:		**Sector Type:**	Unknown / N/A
Incident Event:	Unknown / N/A	**Agency Involved:**	
Contaminant Code:	99	**Nearest Watercourse:**	
Contaminant Name:	LEACHATE, TRASH CAN, COMPACTOR, ETC	**Site Address:**	3900 Innes Rd
Contaminant Limit 1:		**Site District Office:**	Ottawa
Contam Limit Freq 1:		**Site Postal Code:**	
Contaminant UN No 1:	n/a	**Site Region:**	Eastern
Environment Impact:		**Site Municipality:**	Ottawa
Nature of Impact:		**Site Lot:**	
Receiving Medium:		**Site Conc:**	
Receiving Env:	Surface Water	**Northing:**	5033443.99
MOE Response:	No	**Easting:**	460091.43
Dt MOE Arvl on Scn:		**Site Geo Ref Accu:**	
MOE Reported Dt:	2018/07/10	**Site Map Datum:**	
Dt Document Closed:		**SAC Action Class:**	Watercourse Spills
Incident Reason:	Unknown / N/A	**Source Type:**	Other
Site Name:	Walmart<UNOFFICIAL>		
Site County/District:			
Site Geo Ref Meth:			
Incident Summary:	Walmart: Dumpster run-off into private cb, contained		
Contaminant Qty:	5 L		

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24 | **1 of 1** | **WNW/77.3** | **89.6 / 0.76** | **lot 4 con 3**
ON | **WWIS**

Well ID:	1501409	**Data Entry Status:**	
Construction Date:		**Data Src:**	1
Primary Water Use:	Domestic	**Date Received:**	12/14/1966
Sec. Water Use:	0	**Selected Flag:**	Yes
Final Well Status:	Water Supply	**Abandonment Rec:**	
Water Type:		**Contractor:**	1801
Casing Material:		**Form Version:**	1
Audit No:		**Owner:**	
Tag:		**Street Name:**	
Construction Method:		**County:**	OTTAWA
Elevation (m):		**Municipality:**	GLOUCESTER TOWNSHIP
Elevation Reliability:		**Site Info:**	
Depth to Bedrock:		**Lot:**	004
Well Depth:		**Concession:**	03

Overburden/Bedrock:		**Concession Name:**	OF
Pump Rate:		**Easting NAD83:**	
Static Water Level:		**Northing NAD83:**	
Flowing (Y/N):		**Zone:**	
Flow Rate:		**UTM Reliability:**	
Clear/Cloudy:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/150\1501409.pdf

Bore Hole Information

Bore Hole ID:	10023452	**Elevation:**	90.509643
DP2BR:	0	**Elevrc:**	
Spatial Status:		**Zone:**	18
Code OB:	r	**East83:**	459475.8
Code OB Desc:	Bedrock	**North83:**	5032802
Open Hole:		**Org CS:**	
Cluster Kind:		**UTMRC:**	5
Date Completed:	12/7/1966	**UTMRC Desc:**	margin of error : 100 m - 300 m
Remarks:		**Location Method:**	p5
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	930991764
Layer:	1
Color:	
General Color:	
Mat1:	15
Most Common Material:	LIMESTONE
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	0
Formation End Depth:	30
Formation End Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	961501409
Method Construction Code:	7
Method Construction:	Diamond
Other Method Construction:	

Pipe Information

Pipe ID:	10572022
Casing No:	1
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	930039788

Layer:	1
Material:	1
Open Hole or Material:	STEEL
Depth From:	
Depth To:	8
Casing Diameter:	2
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Casing

Casing ID:	930039789
Layer:	2
Material:	4
Open Hole or Material:	OPEN HOLE
Depth From:	
Depth To:	30
Casing Diameter:	2
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Results of Well Yield Testing

Pump Test ID:	991501409
Pump Set At:	
Static Level:	4
Final Level After Pumping:	20
Recommended Pump Depth:	26
Pumping Rate:	7
Flowing Rate:	
Recommended Pump Rate:	7
Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	1
Water State After Test:	CLEAR
Pumping Test Method:	1
Pumping Duration HR:	1
Pumping Duration MIN:	0
Flowing:	No

Water Details

Water ID:	933454116
Layer:	1
Kind Code:	1
Kind:	FRESH
Water Found Depth:	30
Water Found Depth UOM:	ft

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25 ***1 of 1*** ***WNW/77.5*** ***89.6 / 0.76*** ***ON*** ***BORE***

Borehole ID:	615224	**Inclin FLG:**	No
OGF ID:	215516166	**SP Status:**	Initial Entry
Status:		**Surv Elev:**	No
Type:	Borehole	**Piezometer:**	No
Use:		**Primary Name:**	
Completion Date:	DEC-1966	**Municipality:**	
Static Water Level:	10.2	**Lot:**	
Primary Water Use:		**Township:**	
Sec. Water Use:		**Latitude DD:**	45.447569
Total Depth m:	9.1	**Longitude DD:**	-75.518218

Depth Ref:	Ground Surface	**UTM Zone:**	18
Depth Elev:		**Easting:**	459476
Drill Method:		**Northing:**	5032802
Orig Ground Elev m:	91.4	**Location Accuracy:**	
Elev Reliabil Note:		**Accuracy:**	Not Applicable
DEM Ground Elev m:	90.5		
Concession:			
Location D:			
Survey D:			
Comments:			

Borehole Geology Stratum

Geology Stratum ID:	218400865	**Mat Consistency:**	
Top Depth:	0	**Material Moisture:**	
Bottom Depth:	9.1	**Material Texture:**	
Material Color:	White	**Non Geo Mat Type:**	
Material 1:	Limestone	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			

Stratum Description: LIMESTONE. GRAVEL. BEDROCK. WHITE. 00060 BEDROCK. 10DROCK. BEDROCK. BEDRO **Note: Many records provided by the department have a truncated [Stratum Description] field.

Source

Source Type:	Data Survey	**Source Appl:**	Spatial/Tabular
Source Orig:	Geological Survey of Canada	**Source Iden:**	1
Source Date:	1956-1972	**Scale or Res:**	Varies
Confidence:		**Horizontal:**	NAD27
Observatio:		**Verticalda:**	Mean Average Sea Level
Source Name:	Urban Geology Automated Information System (UGAIS)		
Source Details:	File: OTTAWA2.txt RecordID: 07732 NTS_Sheet:		
Confiden 1:			

Source List

Source Identifier:	1	**Horizontal Datum:**	NAD27
Source Type:	Data Survey	**Vertical Datum:**	Mean Average Sea Level
Source Date:	1956-1972	**Projection Name:**	Universal Transverse Mercator
Scale or Resolution:	Varies		
Source Name:	Urban Geology Automated Information System (UGAIS)		
Source Originators:	Geological Survey of Canada		

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26 **1 of 1** **ENE/78.1** **87.5 / -1.33** **lot 2 con 11 ON** **WWIS**

Well ID:	1512852	**Data Entry Status:**	
Construction Date:		**Data Src:**	1
Primary Water Use:	Livestock	**Date Received:**	12/7/1962
Sec. Water Use:	Domestic	**Selected Flag:**	Yes
Final Well Status:	Water Supply	**Abandonment Rec:**	
Water Type:		**Contractor:**	1504
Casing Material:		**Form Version:**	1
Audit No:		**Owner:**	
Tag:		**Street Name:**	
Construction Method:		**County:**	OTTAWA
Elevation (m):		**Municipality:**	CUMBERLAND TOWNSHIP
Elevation Reliability:		**Site Info:**	
Depth to Bedrock:		**Lot:**	002
Well Depth:		**Concession:**	11

Overburden/Bedrock:		**Concession Name:**	CON
Pump Rate:		**Easting NAD83:**	
Static Water Level:		**Northing NAD83:**	
Flowing (Y/N):		**Zone:**	
Flow Rate:		**UTM Reliability:**	
Clear/Cloudy:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/151\1512852.pdf

Bore Hole Information

Bore Hole ID:	10034840	**Elevation:**	89.123374
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	18
Code OB:	o	**East83:**	460931.8
Code OB Desc:	Overburden	**North83:**	5032900
Open Hole:		**Org CS:**	
Cluster Kind:		**UTMRC:**	5
Date Completed:	9/6/1962	**UTMRC Desc:**	margin of error : 100 m - 300 m
Remarks:		**Location Method:**	gis
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	931021728
Layer:	1
Color:	3
General Color:	BLUE
Mat1:	05
Most Common Material:	CLAY
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	0
Formation End Depth:	40
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	931021729
Layer:	2
Color:	
General Color:	
Mat1:	11
Most Common Material:	GRAVEL
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	40
Formation End Depth:	45
Formation End Depth UOM:	ft

Method of Construction & Well

Use

Method Construction ID:	961512852
Method Construction Code:	7
Method Construction:	Diamond
Other Method Construction:	

Pipe Information

Pipe ID:	10583410
Casing No:	1
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	930061711
Layer:	1
Material:	1
Open Hole or Material:	STEEL
Depth From:	
Depth To:	45
Casing Diameter:	2
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Results of Well Yield Testing

Pump Test ID:	991512852
Pump Set At:	
Static Level:	3
Final Level After Pumping:	15
Recommended Pump Depth:	15
Pumping Rate:	10
Flowing Rate:	
Recommended Pump Rate:	10
Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	1
Water State After Test:	CLEAR
Pumping Test Method:	1
Pumping Duration HR:	4
Pumping Duration MIN:	0
Flowing:	No

Water Details

Water ID:	933468342
Layer:	1
Kind Code:	1
Kind:	FRESH
Water Found Depth:	45
Water Found Depth UOM:	ft

27	***1 of 1***	***NE/81.6***	***86.2 / -2.63***	***lot 1 con 11 ON***	***WWIS***

Well ID:	1533666	***Data Entry Status:***	
Construction Date:		***Data Src:***	1
Primary Water Use:		***Date Received:***	4/8/2003
Sec. Water Use:		***Selected Flag:***	Yes
Final Well Status:	Abandoned-Other	***Abandonment Rec:***	

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB

Water Type:		**Contractor:**	6907
Casing Material:		**Form Version:**	1
Audit No:	257721	**Owner:**	
Tag:		**Street Name:**	
Construction Method:		**County:**	OTTAWA
Elevation (m):		**Municipality:**	CUMBERLAND TOWNSHIP
Elevation Reliability:		**Site Info:**	
Depth to Bedrock:		**Lot:**	001
Well Depth:		**Concession:**	11
Overburden/Bedrock:		**Concession Name:**	CON
Pump Rate:		**Easting NAD83:**	
Static Water Level:		**Northing NAD83:**	
Flowing (Y/N):		**Zone:**	
Flow Rate:		**UTM Reliability:**	
Clear/Cloudy:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/153\1533666.pdf

Bore Hole Information

Bore Hole ID:	10537500	**Elevation:**	89.605506
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	18
Code OB:	_	**East83:**	460704
Code OB Desc:	No formation data	**North83:**	5033434
Open Hole:		**Org CS:**	NA
Cluster Kind:		**UTMRC:**	6
Date Completed:	11/15/2002	**UTMRC Desc:**	margin of error : 300 m - 1 km
Remarks:		**Location Method:**	gis
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Method of Construction & Well Use

Method Construction ID:	961533666
Method Construction Code:	B
Method Construction:	Other Method
Other Method Construction:	

Pipe Information

Pipe ID:	11086070
Casing No:	1
Comment:	
Alt Name:	

28	*1 of 15*	*NNE/92.2*	*87.9 / -1.00*	***Gestion Claude L'Heureux Inc.*** ***3910 Innes*** ***Orléans ON K1W 1K9***	***GEN***

Generator No:	ON2890821	**PO Box No:**	
Status:		**Country:**	
Approval Years:	07,08	**Choice of Contact:**	
Contam. Facility:		**Co Admin:**	
MHSW Facility:		**Phone No Admin:**	
SIC Code:	452991		
SIC Description:	Home and Auto Supplies Stores		

Detail(s)

Waste Class:	112
Waste Class Desc:	ACID WASTE - HEAVY METALS
Waste Class:	121
Waste Class Desc:	ALKALINE WASTES - HEAVY METALS
Waste Class:	145
Waste Class Desc:	PAINT/PIGMENT/COATING RESIDUES
Waste Class:	148
Waste Class Desc:	INORGANIC LABORATORY CHEMICALS
Waste Class:	222
Waste Class Desc:	HEAVY FUELS
Waste Class:	242
Waste Class Desc:	HALOGENATED PESTICIDES
Waste Class:	263
Waste Class Desc:	ORGANIC LABORATORY CHEMICALS
Waste Class:	331
Waste Class Desc:	WASTE COMPRESSED GASES

---

28 ***2 of 15*** ***NNE/92.2*** ***87.9 / -1.00*** ***GESTION CLAUDE L'HEUREUX INC/CANADIAN TIRE ORLEANS***
3910 CHEMIN INNES
ORLEANS ON K1W 1K9 ***PES***

Detail Licence No:		***Operator Box:***	
Licence No:		***Operator Class:***	
Status:		***Operator No:***	
Approval Date:		***Operator Type:***	
Report Source:		***Oper Area Code:***	
Licence Type:	Vendor	***Oper Phone No:***	
Licence Type Code:		***Operator Ext:***	
Licence Class:		***Operator Lot:***	
Licence Control:		***Oper Concession:***	
Latitude:		***Operator Region:***	
Longitude:		***Operator District:***	
Lot:		***Operator County:***	
Concession:		***Op Municipality:***	
Region:		***Post Office Box:***	
District:		***MOE District:***	
County:		***SWP Area Name:***	
Trade Name:			
PDF Link:			

---

28 ***3 of 15*** ***NNE/92.2*** ***87.9 / -1.00*** ***3910 INNES ROAD***
OTTAWA ON K1W 1K9 ***HINC***

External File Num:	FS INC 0807-03856
Fuel Occurrence Type:	Pipeline Strike
Date of Occurrence:	7/8/2008
Fuel Type Involved:	Natural Gas
Status Desc:	Completed - Causal Analysis(End)
Job Type Desc:	Incident/Near-Miss Occurrence (FS)
Oper. Type Involved:	Construction Site (pipeline strike)
Service Interruptions:	Yes

Property Damage:	No
Fuel Life Cycle Stage:	Transmission, Distribution and Transportation
Root Cause:	Root Cause: Equipment/Material/Component:No Procedures:Yes Maintenance:No Design:No Training:No Management:No Human Factors:No
Reported Details:	
Fuel Category:	Gaseous Fuel
Occurrence Type:	Incident
Affiliation:	Industry Stakeholder (Licensee/Registration/Certificate Holder, Facility Owner, etc.)
County Name:	Ottawa
Approx. Quant. Rel:	
Nearby body of water:	
Enter Drainage Syst.:	
Approx. Quant. Unit:	
Environmental Impact:	

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28 **4 of 15** **NNE/92.2** **87.9 / -1.00** **Gestion Claude L'Heureux Inc.** **GEN**
3910 Innes
OrlÚans ON K1W 1K9

Generator No:	ON2890821	**PO Box No:**	
Status:		**Country:**	
Approval Years:	2009	**Choice of Contact:**	
Contam. Facility:		**Co Admin:**	
MHSW Facility:		**Phone No Admin:**	
SIC Code:	452991		
SIC Description:	Home and Auto Supplies Stores		

Detail(s)

Waste Class:	145
Waste Class Desc:	PAINT/PIGMENT/COATING RESIDUES
Waste Class:	148
Waste Class Desc:	INORGANIC LABORATORY CHEMICALS
Waste Class:	222
Waste Class Desc:	HEAVY FUELS
Waste Class:	242
Waste Class Desc:	HALOGENATED PESTICIDES
Waste Class:	263
Waste Class Desc:	ORGANIC LABORATORY CHEMICALS
Waste Class:	331
Waste Class Desc:	WASTE COMPRESSED GASES
Waste Class:	121
Waste Class Desc:	ALKALINE WASTES - HEAVY METALS
Waste Class:	112
Waste Class Desc:	ACID WASTE - HEAVY METALS

---

28 **5 of 15** **NNE/92.2** **87.9 / -1.00** **Gestion Claude L'Heureux Inc.** **GEN**
3910 Innes
OrlÚans ON K1W 1K9

Generator No:	ON2890821	**PO Box No:**	
Status:		**Country:**	
Approval Years:	2010	**Choice of Contact:**	
Contam. Facility:		**Co Admin:**	
MHSW Facility:		**Phone No Admin:**	

SIC Code: 452991
SIC Description: Home and Auto Supplies Stores

Detail(s)

Waste Class: 331
Waste Class Desc: WASTE COMPRESSED GASES

Waste Class: 145
Waste Class Desc: PAINT/PIGMENT/COATING RESIDUES

Waste Class: 112
Waste Class Desc: ACID WASTE - HEAVY METALS

Waste Class: 148
Waste Class Desc: INORGANIC LABORATORY CHEMICALS

Waste Class: 121
Waste Class Desc: ALKALINE WASTES - HEAVY METALS

Waste Class: 222
Waste Class Desc: HEAVY FUELS

Waste Class: 263
Waste Class Desc: ORGANIC LABORATORY CHEMICALS

Waste Class: 242
Waste Class Desc: HALOGENATED PESTICIDES

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28 | 6 of 15 | NNE/92.2 | 87.9 / -1.00 | **Gestion Claude L'Heureux Inc.**
3910 Innes
OrlÚans ON K1W 1K9 | GEN

Generator No: ON2890821
Status:
Approval Years: 2011
Contam. Facility:
MHSW Facility:
SIC Code: 452991
SIC Description: Home and Auto Supplies Stores

PO Box No:
Country:
Choice of Contact:
Co Admin:
Phone No Admin:

Detail(s)

Waste Class: 263
Waste Class Desc: ORGANIC LABORATORY CHEMICALS

Waste Class: 222
Waste Class Desc: HEAVY FUELS

Waste Class: 145
Waste Class Desc: PAINT/PIGMENT/COATING RESIDUES

Waste Class: 112
Waste Class Desc: ACID WASTE - HEAVY METALS

Waste Class: 242
Waste Class Desc: HALOGENATED PESTICIDES

Waste Class: 121
Waste Class Desc: ALKALINE WASTES - HEAVY METALS

Waste Class: 148
Waste Class Desc: INORGANIC LABORATORY CHEMICALS

Waste Class: 331
Waste Class Desc: WASTE COMPRESSED GASES

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28 **7 of 15** **NNE/92.2** **87.9 / -1.00** **GESTION CLAUDE L'HEUREUX INC/CANADIAN TIRE ORLEANS**
3910 CHEMIN INNES
ORLEANS ON K1W1K9 **PES**

Detail Licence No:
Licence No: 14426
Status:
Approval Date:
Report Source: Legacy Licenses (Excluding TS)
Licence Type: Limited Vendor
Licence Type Code: 23
Licence Class: 01
Licence Control:
Latitude:
Longitude:
Lot:
Concession:
Region:
District:
County:
Trade Name:
PDF Link:

Operator Box:
Operator Class:
Operator No:
Operator Type:
Oper Area Code: 613
Oper Phone No: 8307000
Operator Ext:
Operator Lot:
Oper Concession:
Operator Region:
Operator District:
Operator County:
Op Municipality:
Post Office Box:
MOE District:
SWP Area Name:

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28 **8 of 15** **NNE/92.2** **87.9 / -1.00** **Gestion Claude L'Heureux Inc.**
3910 Innes
OrlÚans ON K1W 1K9 **GEN**

Generator No: ON2890821
Status:
Approval Years: 2012
Contam. Facility:
MHSW Facility:
SIC Code: 452991
SIC Description: Home and Auto Supplies Stores

PO Box No:
Country:
Choice of Contact:
Co Admin:
Phone No Admin:

Detail(s)

Waste Class: 242
Waste Class Desc: HALOGENATED PESTICIDES

Waste Class: 148
Waste Class Desc: INORGANIC LABORATORY CHEMICALS

Waste Class: 222
Waste Class Desc: HEAVY FUELS

Waste Class: 263
Waste Class Desc: ORGANIC LABORATORY CHEMICALS

Waste Class: 112
Waste Class Desc: ACID WASTE - HEAVY METALS

Waste Class: 121
Waste Class Desc: ALKALINE WASTES - HEAVY METALS

Waste Class: 145
Waste Class Desc: PAINT/PIGMENT/COATING RESIDUES

Waste Class: 331
Waste Class Desc: WASTE COMPRESSED GASES

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28 **9 of 15** **NNE/92.2** **87.9 / -1.00** **3910 INNES ROAD ORLEANS ON** **EHS**

Order No: 20130605168
Status: C
Report Type: Custom Report
Report Date: 11-JUN-13
Date Received: 05-JUN-13
Previous Site Name:
Lot/Building Size:
Additional Info Ordered: Fire Insur. Maps and/or Site Plans; City Directory
Nearest Intersection:
Municipality:
Client Prov/State: ON
Search Radius (km): .25
X: -75.506524
Y: 45.452541

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28 **10 of 15** **NNE/92.2** **87.9 / -1.00** **Gestion Claude L'Heureux Inc. 3910 Innes OrlÚans ON** **GEN**

Generator No: ON2890821
Status:
Approval Years: 2013
Contam. Facility:
MHSW Facility:
SIC Code: 452991
SIC Description: HOME AND AUTO SUPPLIES STORES
PO Box No:
Country:
Choice of Contact:
Co Admin:
Phone No Admin:

Detail(s)

Waste Class: 145
Waste Class Desc: PAINT/PIGMENT/COATING RESIDUES

Waste Class: 148
Waste Class Desc: INORGANIC LABORATORY CHEMICALS

Waste Class: 112
Waste Class Desc: ACID WASTE - HEAVY METALS

Waste Class: 263
Waste Class Desc: ORGANIC LABORATORY CHEMICALS

Waste Class: 222
Waste Class Desc: HEAVY FUELS

Waste Class: 331
Waste Class Desc: WASTE COMPRESSED GASES

Waste Class: 121
Waste Class Desc: ALKALINE WASTES - HEAVY METALS

Waste Class: 242
Waste Class Desc: HALOGENATED PESTICIDES

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28 **11 of 15** **NNE/92.2** **87.9 / -1.00** **Gestion Claude L'Heureux Inc. 3910 Innes Orléans ON K1W 1K9** **GEN**

Generator No: ON2890821
Status:
Approval Years: 2016
Contam. Facility: No
PO Box No:
Country: Canada
Choice of Contact: CO_ADMIN
Co Admin: Matt Gunness

MHSW Facility:	No	**Phone No Admin:**	9057953339 Ext.
SIC Code:	452991		
SIC Description:	HOME AND AUTO SUPPLIES STORES		

Detail(s)

Waste Class:	263
Waste Class Desc:	ORGANIC LABORATORY CHEMICALS
Waste Class:	148
Waste Class Desc:	INORGANIC LABORATORY CHEMICALS
Waste Class:	242
Waste Class Desc:	HALOGENATED PESTICIDES
Waste Class:	331
Waste Class Desc:	WASTE COMPRESSED GASES
Waste Class:	112
Waste Class Desc:	ACID WASTE - HEAVY METALS
Waste Class:	121
Waste Class Desc:	ALKALINE WASTES - HEAVY METALS
Waste Class:	222
Waste Class Desc:	HEAVY FUELS
Waste Class:	145
Waste Class Desc:	PAINT/PIGMENT/COATING RESIDUES

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28 **12 of 15** **NNE/92.2** **87.9 / -1.00** **Gestion Claude L'Heureux Inc.** **GEN**
3910 Innes
OrlÚans ON K1W 1K9

Generator No:	ON2890821	**PO Box No:**	
Status:		**Country:**	Canada
Approval Years:	2015	**Choice of Contact:**	CO_ADMIN
Contam. Facility:	No	**Co Admin:**	Matt Gunness
MHSW Facility:	No	**Phone No Admin:**	9057953339 Ext.
SIC Code:	452991		
SIC Description:	HOME AND AUTO SUPPLIES STORES		

Detail(s)

Waste Class:	263
Waste Class Desc:	ORGANIC LABORATORY CHEMICALS
Waste Class:	148
Waste Class Desc:	INORGANIC LABORATORY CHEMICALS
Waste Class:	331
Waste Class Desc:	WASTE COMPRESSED GASES
Waste Class:	121
Waste Class Desc:	ALKALINE WASTES - HEAVY METALS
Waste Class:	145
Waste Class Desc:	PAINT/PIGMENT/COATING RESIDUES
Waste Class:	222
Waste Class Desc:	HEAVY FUELS
Waste Class:	112

Waste Class Desc: ACID WASTE - HEAVY METALS

Waste Class: 242
Waste Class Desc: HALOGENATED PESTICIDES

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28 **13 of 15** **NNE/92.2** **87.9 / -1.00** **Gestion Claude L'Heureux Inc.** **GEN**
3910 Innes
OrlÚans ON K1W 1K9

Generator No: ON2890821
Status:
Approval Years: 2014
Contam. Facility: No
MHSW Facility: No
SIC Code: 452991
SIC Description: HOME AND AUTO SUPPLIES STORES

PO Box No:
Country: Canada
Choice of Contact: CO_ADMIN
Co Admin: Matt Gunness
Phone No Admin: 9057953339 Ext.

Detail(s)

Waste Class: 263
Waste Class Desc: ORGANIC LABORATORY CHEMICALS

Waste Class: 242
Waste Class Desc: HALOGENATED PESTICIDES

Waste Class: 148
Waste Class Desc: INORGANIC LABORATORY CHEMICALS

Waste Class: 112
Waste Class Desc: ACID WASTE - HEAVY METALS

Waste Class: 145
Waste Class Desc: PAINT/PIGMENT/COATING RESIDUES

Waste Class: 121
Waste Class Desc: ALKALINE WASTES - HEAVY METALS

Waste Class: 331
Waste Class Desc: WASTE COMPRESSED GASES

Waste Class: 222
Waste Class Desc: HEAVY FUELS

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28 **14 of 15** **NNE/92.2** **87.9 / -1.00** **Gestion Claude L'Heureux Inc.** **GEN**
3910 Innes
Orléans ON K1W 1K9

Generator No: ON2890821
Status: Registered
Approval Years: As of Dec 2018
Contam. Facility:
MHSW Facility:
SIC Code:
SIC Description:

PO Box No:
Country: Canada
Choice of Contact:
Co Admin:
Phone No Admin:

Detail(s)

Waste Class: 112 C
Waste Class Desc: Acid solutions - containing heavy metals

Waste Class: 121 C
Waste Class Desc: Alkaline slutions - containing heavy metals

Waste Class: 145 I
Waste Class Desc: Wastes from the use of pigments, coatings and paints

Waste Class: 145 L
Waste Class Desc: Wastes from the use of pigments, coatings and paints

Waste Class: 148 C
Waste Class Desc: Misc. wastes and inorganic chemicals

Waste Class: 148 I
Waste Class Desc: Misc. wastes and inorganic chemicals

Waste Class: 222 L
Waste Class Desc: Heavy fuels

Waste Class: 242 A
Waste Class Desc: Halogenated pesticides and herbicides

Waste Class: 263 I
Waste Class Desc: Misc. waste organic chemicals

Waste Class: 331 I
Waste Class Desc: Waste compressed gases including cylinders

28	15 of 15	NNE/92.2	87.9 / -1.00	**Gestion Claude L'Heureux Inc.** **3910 Innes** **Orléans ON K1W 1K9**	GEN

Generator No: ON2890821
Status: Registered
Approval Years: As of Apr 2020
Contam. Facility:
MHSW Facility:
SIC Code:
SIC Description:

PO Box No:
Country: Canada
Choice of Contact:
Co Admin:
Phone No Admin:

Detail(s)

Waste Class: 148 C
Waste Class Desc: Misc. wastes and inorganic chemicals

Waste Class: 145 L
Waste Class Desc: Wastes from the use of pigments, coatings and paints

Waste Class: 148 I
Waste Class Desc: Misc. wastes and inorganic chemicals

Waste Class: 222 L
Waste Class Desc: Heavy fuels

Waste Class: 242 A
Waste Class Desc: Halogenated pesticides and herbicides

Waste Class: 112 C
Waste Class Desc: Acid solutions - containing heavy metals

Waste Class: 121 C
Waste Class Desc: Alkaline slutions - containing heavy metals

Waste Class: 331 I
Waste Class Desc: Waste compressed gases including cylinders

Waste Class: 263 I
Waste Class Desc: Misc. waste organic chemicals

Waste Class: 145 I
Waste Class Desc: Wastes from the use of pigments, coatings and paints

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29 | 1 of 1 | WNW/93.7 | 89.6 / 0.76 | lot 4 con 3 Orl?ans ON | WWIS

Well ID: 7272953
Construction Date:
Primary Water Use:
Sec. Water Use:
Final Well Status: Abandoned-Other
Water Type:
Casing Material:
Audit No: Z237198
Tag:
Construction Method:
Elevation (m):
Elevation Reliability:
Depth to Bedrock:
Well Depth:
Overburden/Bedrock:
Pump Rate:
Static Water Level:
Flowing (Y/N):
Flow Rate:
Clear/Cloudy:

Data Entry Status:
Data Src:
Date Received: 10/11/2016
Selected Flag: Yes
Abandonment Rec: Yes
Contractor: 1119
Form Version: 7
Owner:
Street Name: 3672 INNES RD
County: OTTAWA
Municipality: GLOUCESTER TOWNSHIP
Site Info:
Lot: 004
Concession: 03
Concession Name: OF
Easting NAD83:
Northing NAD83:
Zone:
UTM Reliability:

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/727\7272953.pdf

Bore Hole Information

Bore Hole ID: 1006270669
DP2BR:
Spatial Status:
Code OB:
Code OB Desc:
Open Hole:
Cluster Kind:
Date Completed: 9/7/2016
Remarks:
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Elevation: 90.648773
Elevrc:
Zone: 18
East83: 459480
North83: 5032823
Org CS: UTM83
UTMRC: 4
UTMRC Desc: margin of error : 30 m - 100 m
Location Method: wwr

Annular Space/Abandonment Sealing Record

Plug ID: 1006695240
Layer: 1
Plug From: 0
Plug To: 41
Plug Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 1006403793
Layer: 2

Plug From:	4
Plug To:	41
Plug Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1006403792
Layer:	1
Plug From:	0
Plug To:	4
Plug Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	1006403791
Method Construction Code:	
Method Construction:	
Other Method Construction:	

Pipe Information

Pipe ID:	1006403785
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1006403789
Layer:	
Material:	
Open Hole or Material:	
Depth From:	
Depth To:	
Casing Diameter:	
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	1006403790
Layer:	
Slot:	
Screen Top Depth:	
Screen End Depth:	
Screen Material:	
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	

Water Details

Water ID:	1006403788
Layer:	
Kind Code:	
Kind:	
Water Found Depth:	
Water Found Depth UOM:	ft

Hole Diameter

Hole ID:	1006403787
Diameter:	
Depth From:	
Depth To:	
Hole Depth UOM:	ft
Hole Diameter UOM:	inch

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30 | *1 of 1* | *E/103.7* | *88.3 / -0.61* | *lot 2 con 11 ON* | *WWIS*

Well ID:	1513953	***Data Entry Status:***	
Construction Date:		***Data Src:***	1
Primary Water Use:	Domestic	***Date Received:***	3/18/1974
Sec. Water Use:	0	***Selected Flag:***	Yes
Final Well Status:	Water Supply	***Abandonment Rec:***	
Water Type:		***Contractor:***	1504
Casing Material:		***Form Version:***	1
Audit No:		***Owner:***	
Tag:		***Street Name:***	
Construction Method:		***County:***	OTTAWA
Elevation (m):		***Municipality:***	CUMBERLAND TOWNSHIP
Elevation Reliability:		***Site Info:***	
Depth to Bedrock:		***Lot:***	002
Well Depth:		***Concession:***	11
Overburden/Bedrock:		***Concession Name:***	CON
Pump Rate:		***Easting NAD83:***	
Static Water Level:		***Northing NAD83:***	
Flowing (Y/N):		***Zone:***	
Flow Rate:		***UTM Reliability:***	
Clear/Cloudy:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/151\1513953.pdf

Bore Hole Information

Bore Hole ID:	10035935	***Elevation:***	89.18576
DP2BR:	37	***Elevrc:***	
Spatial Status:		***Zone:***	18
Code OB:	r	***East83:***	460935.8
Code OB Desc:	Bedrock	***North83:***	5032842
Open Hole:		***Org CS:***	
Cluster Kind:		***UTMRC:***	6
Date Completed:	6/8/1973	***UTMRC Desc:***	margin of error : 300 m - 1 km
Remarks:		***Location Method:***	p6
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	931024894
Layer:	2
Color:	2
General Color:	GREY
Mat1:	15
Most Common Material:	LIMESTONE

Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 37
Formation End Depth: 53
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931024893
Layer: 1
Color: 3
General Color: BLUE
Mat1: 05
Most Common Material: CLAY
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 0
Formation End Depth: 37
Formation End Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 961513953
Method Construction Code: 6
Method Construction: Boring
Other Method Construction:

Pipe Information

Pipe ID: 10584505
Casing No: 1
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 930063495
Layer: 1
Material: 1
Open Hole or Material: STEEL
Depth From:
Depth To: 44
Casing Diameter: 2
Casing Diameter UOM: inch
Casing Depth UOM: ft

Results of Well Yield Testing

Pump Test ID: 991513953
Pump Set At:
Static Level: 4
Final Level After Pumping: 20
Recommended Pump Depth: 30
Pumping Rate: 6
Flowing Rate:
Recommended Pump Rate: 6

Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	1
Water State After Test:	CLEAR
Pumping Test Method:	1
Pumping Duration HR:	2
Pumping Duration MIN:	0
Flowing:	No

Draw Down & Recovery

Pump Test Detail ID:	934641792
Test Type:	Recovery
Test Duration:	45
Test Level:	4
Test Level UOM:	ft

Draw Down & Recovery

Pump Test Detail ID:	934099725
Test Type:	Recovery
Test Duration:	15
Test Level:	15
Test Level UOM:	ft

Draw Down & Recovery

Pump Test Detail ID:	934380799
Test Type:	Recovery
Test Duration:	30
Test Level:	10
Test Level UOM:	ft

Draw Down & Recovery

Pump Test Detail ID:	934899262
Test Type:	Recovery
Test Duration:	60
Test Level:	4
Test Level UOM:	ft

Water Details

Water ID:	933469707
Layer:	1
Kind Code:	1
Kind:	FRESH
Water Found Depth:	53
Water Found Depth UOM:	ft

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
31	1 of 1	NE/111.6	87.0 / -1.89	**2055 Mer Bleue Rd** **Ottawa ON K4A3T9**	EHS

Order No:	20170908066	**Nearest Intersection:**	
Status:	C	**Municipality:**	
Report Type:	Standard Report	**Client Prov/State:**	ON
Report Date:	15-SEP-17	**Search Radius (km):**	.25
Date Received:	08-SEP-17	**X:**	-75.501392
Previous Site Name:		**Y:**	45.452363
Lot/Building Size:			
Additional Info Ordered:	City Directory		

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
32	1 of 1	NE/111.6	87.0 / -1.89	McGiac Realty Corporation 2035, 2045 and 2055 Mer Bleue Road Ottawa ON K1B 5P5	ECA

Approval No:	7413-9DWQJA	**MOE District:**	
Approval Date:	2013-12-09	**City:**	
Status:	Approved	**Longitude:**	
Record Type:	ECA	**Latitude:**	
Link Source:	IDS	**Geometry X:**	
SWP Area Name:		**Geometry Y:**	
Approval Type:	ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS		
Project Type:	MUNICIPAL AND PRIVATE SEWAGE WORKS		
Address:	2035, 2045 and 2055 Mer Bleue Road		
Full Address:			
Full PDF Link:	https://www.accessenvironment.ene.gov.on.ca/instruments/1977-9DEK2X-14.pdf		

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
33	1 of 4	NNE/119.4	90.6 / 1.69	WALMART CANADA CORP #3065 3900 INNES RD ORLEANS ON K1C1T1	PES

Detail Licence No:		**Operator Box:**	
Licence No:	16444	**Operator Class:**	
Status:		**Operator No:**	
Approval Date:		**Operator Type:**	
Report Source:	Legacy Licenses (Excluding TS)	**Oper Area Code:**	613
Licence Type:	Limited Vendor	**Oper Phone No:**	8379399
Licence Type Code:	23	**Operator Ext:**	
Licence Class:	01	**Operator Lot:**	
Licence Control:		**Oper Concession:**	
Latitude:		**Operator Region:**	
Longitude:		**Operator District:**	
Lot:		**Operator County:**	
Concession:		**Op Municipality:**	
Region:		**Post Office Box:**	
District:		**MOE District:**	
County:		**SWP Area Name:**	
Trade Name:			
PDF Link:			

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
33	2 of 4	NNE/119.4	90.6 / 1.69	WAL-MART CANADA CORP/LA COMPAGNIE WAL-MART DU CANADA 3900 INNES RD ORLEANS ON K1W 1K9	EASR

Approval No:	R-003-1546415169	**SWP Area Name:**	Rideau Valley
Status:	REGISTERED	**MOE District:**	Ottawa
Date:	2015-11-27	**Municipality:**	ORLEANS
Record Type:	EASR	**Latitude:**	45.46694444
Link Source:	MOFA	**Longitude:**	-75.53222222
Project Type:	Heating System	**Geometry X:**	
Full Address:		**Geometry Y:**	
Approval Type:	EASR-Heating System		
Full PDF Link:	http://www.accessenvironment.ene.gov.on.ca/AEWeb/ae/ViewDocument.action?documentRefID=2018177		

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
33	3 of 4	NNE/119.4	90.6 / 1.69	WALMART CANADA CORP #3065 3900 INNES RD ORLEANS ON K1C1T1	PES

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB

Detail Licence No:	23-01-12414-0	**Operator Box:**	
Licence No:	12414	**Operator Class:**	
Status:		**Operator No:**	
Approval Date:		**Operator Type:**	
Report Source:	Legacy Licenses (Excluding TS)	**Oper Area Code:**	613
Licence Type:	Limited Vendor	**Oper Phone No:**	8379399
Licence Type Code:	23	**Operator Ext:**	
Licence Class:	01	**Operator Lot:**	
Licence Control:	0	**Oper Concession:**	
Latitude:		**Operator Region:**	4
Longitude:		**Operator District:**	
Lot:		**Operator County:**	15
Concession:		**Op Municipality:**	
Region:	4	**Post Office Box:**	
District:		**MOE District:**	
County:	15	**SWP Area Name:**	
Trade Name:			
PDF Link:			

33 **4 of 4** **NNE/119.4** **90.6 / 1.69** **Walmart Canada Corp.**
3900 INNES ROAD #3065
ORLEANS ON K1C 1T1 **GEN**

Generator No:	ON9019922	**PO Box No:**	
Status:	Registered	**Country:**	Canada
Approval Years:	As of Apr 2020	**Choice of Contact:**	
Contam. Facility:		**Co Admin:**	
MHSW Facility:		**Phone No Admin:**	
SIC Code:			
SIC Description:			

Detail(s)

Waste Class:	122 C
Waste Class Desc:	Alkaline slutions - containing other metals and non-metals (not cyanide)
Waste Class:	331 I
Waste Class Desc:	Waste compressed gases including cylinders
Waste Class:	145 I
Waste Class Desc:	Wastes from the use of pigments, coatings and paints
Waste Class:	112 C
Waste Class Desc:	Acid solutions - containing heavy metals
Waste Class:	261 L
Waste Class Desc:	Pharmaceuticals
Waste Class:	148 I
Waste Class Desc:	Misc. wastes and inorganic chemicals
Waste Class:	251 L
Waste Class Desc:	Waste oils/sludges (petroleum based)
Waste Class:	148 C
Waste Class Desc:	Misc. wastes and inorganic chemicals
Waste Class:	252 L
Waste Class Desc:	Waste crankcase oils and lubricants
Waste Class:	242 A
Waste Class Desc:	Halogenated pesticides and herbicides

Waste Class: 148 T
Waste Class Desc: Misc. wastes and inorganic chemicals

Waste Class: 261 A
Waste Class Desc: Pharmaceuticals

Waste Class: 312 P
Waste Class Desc: Pathological wastes

Waste Class: 263 I
Waste Class Desc: Misc. waste organic chemicals

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34 | 1 of 1 | W/127.1 | 88.1 / -0.75 | OTTAWA ON | WWIS

Well ID: 7265309
Construction Date:
Primary Water Use: Monitoring and Test Hole
Sec. Water Use: 0
Final Well Status: Monitoring and Test Hole
Water Type:
Casing Material:
Audit No: Z229831
Tag: A169779
Construction Method:
Elevation (m):
Elevation Reliability:
Depth to Bedrock:
Well Depth:
Overburden/Bedrock:
Pump Rate:
Static Water Level:
Flowing (Y/N):
Flow Rate:
Clear/Cloudy:

PDF URL (Map):

Data Entry Status:
Data Src:
Date Received: 6/17/2016
Selected Flag: Yes
Abandonment Rec:
Contractor: 7241
Form Version: 7
Owner:
Street Name: 3636 INNES ROAD
County: OTTAWA
Municipality: GLOUCESTER TOWNSHIP
Site Info:
Lot:
Concession:
Concession Name:
Easting NAD83:
Northing NAD83:
Zone:
UTM Reliability:

Bore Hole Information

Bore Hole ID: 1006064843
DP2BR:
Spatial Status:
Code OB:
Code OB Desc:
Open Hole:
Cluster Kind:
Date Completed: 5/2/2016
Remarks:
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Elevation: 89.298377
Elevrc:
Zone: 18
East83: 459324
North83: 5032602
Org CS: UTM83
UTMRC: 4
UTMRC Desc: margin of error : 30 m - 100 m
Location Method: wwr

Overburden and Bedrock Materials Interval

Formation ID: 1006125430
Layer: 4
Color: 2
General Color: GREY

Mat1:	17
Most Common Material:	SHALE
Mat2:	
Mat2 Desc:	
Mat3:	92
Mat3 Desc:	WEATHERED
Formation Top Depth:	3.1
Formation End Depth:	4.57
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1006125428
Layer:	2
Color:	6
General Color:	BROWN
Mat1:	05
Most Common Material:	CLAY
Mat2:	11
Mat2 Desc:	GRAVEL
Mat3:	85
Mat3 Desc:	SOFT
Formation Top Depth:	.31
Formation End Depth:	1.52
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1006125429
Layer:	3
Color:	2
General Color:	GREY
Mat1:	05
Most Common Material:	CLAY
Mat2:	
Mat2 Desc:	
Mat3:	85
Mat3 Desc:	SOFT
Formation Top Depth:	1.52
Formation End Depth:	3.1
Formation End Depth UOM:	m

Overburden and Bedrock Materials Interval

Formation ID:	1006125427
Layer:	1
Color:	2
General Color:	GREY
Mat1:	11
Most Common Material:	GRAVEL
Mat2:	
Mat2 Desc:	
Mat3:	77
Mat3 Desc:	LOOSE
Formation Top Depth:	0
Formation End Depth:	.31
Formation End Depth UOM:	m

Annular Space/Abandonment

Sealing Record

Plug ID:	1006125440
Layer:	2
Plug From:	0.31
Plug To:	1.22
Plug Depth UOM:	m

Annular Space/Abandonment Sealing Record

Plug ID:	1006125441
Layer:	3
Plug From:	1.22
Plug To:	4.57
Plug Depth UOM:	m

Annular Space/Abandonment Sealing Record

Plug ID:	1006125439
Layer:	1
Plug From:	0
Plug To:	0.31
Plug Depth UOM:	m

Method of Construction & Well Use

Method Construction ID:	1006125438
Method Construction Code:	5
Method Construction:	Air Percussion
Other Method Construction:	

Pipe Information

Pipe ID:	1006125426
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1006125434
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	0
Depth To:	1.52
Casing Diameter:	4.03
Casing Diameter UOM:	cm
Casing Depth UOM:	m

Construction Record - Screen

Screen ID:	1006125435
Layer:	1
Slot:	10
Screen Top Depth:	1.52
Screen End Depth:	4.57
Screen Material:	5

Screen Depth UOM:	m
Screen Diameter UOM:	cm
Screen Diameter:	4.82

Water Details

Water ID:	1006125433
Layer:	
Kind Code:	
Kind:	
Water Found Depth:	
Water Found Depth UOM:	m

Hole Diameter

Hole ID:	1006125431
Diameter:	11.43
Depth From:	0
Depth To:	3.1
Hole Depth UOM:	m
Hole Diameter UOM:	cm

Hole Diameter

Hole ID:	1006125432
Diameter:	7.62
Depth From:	3.1
Depth To:	4.57
Hole Depth UOM:	m
Hole Diameter UOM:	cm

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35 ***1 of 1*** ***E/129.6*** ***86.9 / -2.00*** ***lot 1 con 3 ON*** ***WWIS***

Well ID:	1519786	***Data Entry Status:***	
Construction Date:		***Data Src:***	1
Primary Water Use:	Domestic	***Date Received:***	7/30/1985
Sec. Water Use:	Commerical	***Selected Flag:***	Yes
Final Well Status:	Water Supply	***Abandonment Rec:***	
Water Type:		***Contractor:***	2351
Casing Material:		***Form Version:***	1
Audit No:		***Owner:***	
Tag:		***Street Name:***	
Construction Method:		***County:***	OTTAWA
Elevation (m):		***Municipality:***	GLOUCESTER TOWNSHIP
Elevation Reliability:		***Site Info:***	
Depth to Bedrock:		***Lot:***	001
Well Depth:		***Concession:***	03
Overburden/Bedrock:		***Concession Name:***	OF
Pump Rate:		***Easting NAD83:***	
Static Water Level:		***Northing NAD83:***	
Flowing (Y/N):		***Zone:***	
Flow Rate:		***UTM Reliability:***	
Clear/Cloudy:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/151\1519786.pdf

Bore Hole Information

Bore Hole ID:	10041639	***Elevation:***	89.256828
DP2BR:	34	***Elevrc:***	
Spatial Status:	Improved	***Zone:***	18

Code OB:	r	**East83:**	460743
Code OB Desc:	Bedrock	**North83:**	5032672
Open Hole:		**Org CS:**	N83
Cluster Kind:		**UTMRC:**	8
Date Completed:	6/10/1985	**UTMRC Desc:**	margin of error : 3 km - 10 km
Remarks:		**Location Method:**	lot
Elevrc Desc:			

Location Source Date: July 2001
Improvement Location Source: PWPF-SDG/PWPF-PRU Eastern Ontario 2000 GWS\E.Ontario GW Study - DigitalFiles\E.O.W.R.M.S\Water Well Record Database\arc-info coverage.well location.e00
Improvement Location Method: GIS10000
Source Revision Comment: Coordinate change in shapefile
Supplier Comment: no metadata on shp file, but seems ~4000 wells updated out of ~48000, (however nothing in report to describe these changes); diffeast:539287, diffnorth:4967549; original coordinates =9999...

Overburden and Bedrock Materials Interval

Formation ID: 931042727
Layer: 3
Color: 8
General Color: BLACK
Mat1: 17
Most Common Material: SHALE
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 34
Formation End Depth: 43
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931042726
Layer: 2
Color: 3
General Color: BLUE
Mat1: 05
Most Common Material: CLAY
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 9
Formation End Depth: 34
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931042725
Layer: 1
Color: 6
General Color: BROWN
Mat1: 05
Most Common Material: CLAY
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 0

Formation End Depth: 9
Formation End Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 961519786
Method Construction Code: 1
Method Construction: Cable Tool
Other Method Construction:

Pipe Information

Pipe ID: 10590209
Casing No: 1
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 930072710
Layer: 1
Material: 1
Open Hole or Material: STEEL
Depth From:
Depth To: 34
Casing Diameter: 6
Casing Diameter UOM: inch
Casing Depth UOM: ft

Results of Well Yield Testing

Pump Test ID: 991519786
Pump Set At:
Static Level: 4
Final Level After Pumping: 28
Recommended Pump Depth: 40
Pumping Rate: 35
Flowing Rate:
Recommended Pump Rate: 15
Levels UOM: ft
Rate UOM: GPM
Water State After Test Code: 2
Water State After Test: CLOUDY
Pumping Test Method: 2
Pumping Duration HR: 1
Pumping Duration MIN: 10
Flowing: No

Draw Down & Recovery

Pump Test Detail ID: 934654942
Test Type: Draw Down
Test Duration: 45
Test Level: 34
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934894726
Test Type: Draw Down

Test Duration:	60
Test Level:	34
Test Level UOM:	ft

Draw Down & Recovery

Pump Test Detail ID:	934109672
Test Type:	Draw Down
Test Duration:	15
Test Level:	34
Test Level UOM:	ft

Draw Down & Recovery

Pump Test Detail ID:	934384401
Test Type:	Draw Down
Test Duration:	30
Test Level:	34
Test Level UOM:	ft

Water Details

Water ID:	933476860
Layer:	1
Kind Code:	1
Kind:	FRESH
Water Found Depth:	42
Water Found Depth UOM:	ft

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36 **1 of 1** **E/129.7** **87.2 / -1.71** ***Chemin Mer Bleue Ottawa ON*** **EHS**

Order No:	20060208025	**Nearest Intersection:**	
Status:	C	**Municipality:**	
Report Type:	Custom Report	**Client Prov/State:**	ON
Report Date:	2/14/2006	**Search Radius (km):**	0.25
Date Received:	2/7/2006	**X:**	-75.503118
Previous Site Name:		**Y:**	45.446521
Lot/Building Size:			
Additional Info Ordered:	City Directory		

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37 **1 of 1** **NE/135.0** **85.6 / -3.27** ***2020 MER BLEUE ROAD ORLEANS ON K4A 0G2*** **HINC**

External File Num:	FS INC 0811-06690
Fuel Occurrence Type:	Pipeline Strike
Date of Occurrence:	10/23/2008
Fuel Type Involved:	Natural Gas
Status Desc:	Completed - Causal Analysis(End)
Job Type Desc:	Incident/Near-Miss Occurrence (FS)
Oper. Type Involved:	Commercial (e.g. restaurant, business unit, etc)
Service Interruptions:	Yes
Property Damage:	Yes
Fuel Life Cycle Stage:	Utilization
Root Cause:	Root Cause: Equipment/Material/Component:No Procedures:Yes Maintenance:No Design:No Training: Yes Management:No Human Factors:No
Reported Details:	
Fuel Category:	Gaseous Fuel
Occurrence Type:	Incident
Affiliation:	Industry Stakeholder (Licensee/Registration/Certificate Holder, Facility Owner, etc.)
County Name:	Ottawa

Approx. Quant. Rel:
Nearby body of water:
Enter Drainage Syst.:
Approx. Quant. Unit:
Environmental Impact:

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38 **1 of 2** **E/136.0** **86.9 / -2.00** **Innes Shopping Centres Limited** **ECA**

Ottawa ON L4K 5X3

Approval No:	1719-6SJJ6X	**MOE District:**	Ottawa
Approval Date:	2006-08-16	**City:**	
Status:	Approved	**Longitude:**	-75.5021
Record Type:	ECA	**Latitude:**	45.446400000000004
Link Source:	IDS	**Geometry X:**	
SWP Area Name:	South Nation	**Geometry Y:**	
Approval Type:	ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS		
Project Type:	MUNICIPAL AND PRIVATE SEWAGE WORKS		
Address:			
Full Address:			
Full PDF Link:	https://www.accessenvironment.ene.gov.on.ca/instruments/3055-6NSPDF-14.pdf		

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38 **2 of 2** **E/136.0** **86.9 / -2.00** **Innes Shopping Centres Limited** **ECA**

Ottawa ON L4K 5X3

Approval No:	6167-79NM49	**MOE District:**	Ottawa
Approval Date:	2007-12-10	**City:**	
Status:	Approved	**Longitude:**	-75.5021
Record Type:	ECA	**Latitude:**	45.446400000000004
Link Source:	IDS	**Geometry X:**	
SWP Area Name:	South Nation	**Geometry Y:**	
Approval Type:	ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS		
Project Type:	MUNICIPAL AND PRIVATE SEWAGE WORKS		
Address:			
Full Address:			
Full PDF Link:	https://www.accessenvironment.ene.gov.on.ca/instruments/3060-79LSM6-14.pdf		

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39 **1 of 1** **NE/138.6** **85.8 / -3.10** **2035 Mer Bleue Rd** **SPL**

Ottawa ON NA

Ref No:	6037-B9RW4K	**Discharger Report:**	
Site No:	5277-8UEHH8	**Material Group:**	
Incident Dt:	2/26/2019	**Health/Env Conseq:**	2 - Minor Environment
Year:		**Client Type:**	
Incident Cause:		**Sector Type:**	Miscellaneous Industrial
Incident Event:	Leak/Break	**Agency Involved:**	
Contaminant Code:	15	**Nearest Watercourse:**	
Contaminant Name:	Oily Water	**Site Address:**	2035 Mer Bleue Rd
Contaminant Limit 1:		**Site District Office:**	Ottawa
Contam Limit Freq 1:		**Site Postal Code:**	NA
Contaminant UN No 1:	n/a	**Site Region:**	Eastern
Environment Impact:		**Site Municipality:**	Ottawa
Nature of Impact:		**Site Lot:**	
Receiving Medium:		**Site Conc:**	NA
Receiving Env:	Land	**Northing:**	5033595
MOE Response:	No	**Easting:**	460980
Dt MOE Arvl on Scn:		**Site Geo Ref Accu:**	NA
MOE Reported Dt:	2/26/2019	**Site Map Datum:**	NA
Dt Document Closed:	3/5/2019	**SAC Action Class:**	Land Spills

Incident Reason:	Equipment Failure	**Source Type:**	Truck - Tanker
Site Name:	2035 Mer Bleue Road		
Site County/District:	NA		
Site Geo Ref Meth:	NA		
Incident Summary:	Tomlinson Env - 400L of Oily Water to Parking Lot		
Contaminant Qty:	400 L		

40 **1 of 1** **E/142.1** **88.1 / -0.78** **lot 2 con 11 ON** **WWIS**

Well ID:	7310118	**Data Entry Status:**	
Construction Date:		**Data Src:**	
Primary Water Use:		**Date Received:**	4/24/2018
Sec. Water Use:		**Selected Flag:**	Yes
Final Well Status:	Abandoned-Other	**Abandonment Rec:**	Yes
Water Type:		**Contractor:**	1119
Casing Material:		**Form Version:**	7
Audit No:	Z237206	**Owner:**	
Tag:		**Street Name:**	2215 MER BLEUE RD
Construction Method:		**County:**	OTTAWA
Elevation (m):		**Municipality:**	CUMBERLAND TOWNSHIP
Elevation Reliability:		**Site Info:**	
Depth to Bedrock:		**Lot:**	002
Well Depth:		**Concession:**	11
Overburden/Bedrock:		**Concession Name:**	CON
Pump Rate:		**Easting NAD83:**	
Static Water Level:		**Northing NAD83:**	
Flowing (Y/N):		**Zone:**	
Flow Rate:		**UTM Reliability:**	
Clear/Cloudy:			

PDF URL (Map):

Bore Hole Information

Bore Hole ID:	1007031733	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	18
Code OB:		**East83:**	460942
Code OB Desc:		**North83:**	5032794
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	1/4/2018	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Annular Space/Abandonment Sealing Record

Plug ID:	1007257597
Layer:	1
Plug From:	0
Plug To:	53
Plug Depth UOM:	ft

Annular Space/Abandonment

Sealing Record

Plug ID:	1007257598
Layer:	1
Plug From:	53
Plug To:	5
Plug Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	1007257599
Layer:	2
Plug From:	5
Plug To:	0
Plug Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	1007257596
Method Construction Code:	
Method Construction:	
Other Method Construction:	

Pipe Information

Pipe ID:	1007257590
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1007257594
Layer:	
Material:	
Open Hole or Material:	
Depth From:	
Depth To:	
Casing Diameter:	
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	1007257595
Layer:	
Slot:	
Screen Top Depth:	
Screen End Depth:	
Screen Material:	
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	

Water Details

Water ID:	1007257593
Layer:	
Kind Code:	

Kind:
Water Found Depth:
Water Found Depth UOM: ft

Hole Diameter

Hole ID: 1007257592
Diameter:
Depth From:
Depth To:
Hole Depth UOM: ft
Hole Diameter UOM: inch

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41 | ***1 of 1*** | ***E/152.3*** | ***88.3 / -0.56*** | ***2215 Mer Bleue Ottawa ON*** | ***EHS***

Order No: 20160418041
Status: C
Report Type: Standard Report
Report Date: 22-APR-16
Date Received: 18-APR-16
Previous Site Name: ?
Lot/Building Size: 0.43 Acres
Additional Info Ordered: Topographic Maps; City Directory; Aerial Photos

Nearest Intersection:
Municipality: Ottawa
Client Prov/State: ON
Search Radius (km): .25
X: -75.499348
Y: 45.44753

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42 | ***1 of 1*** | ***WNW/164.8*** | ***89.9 / 1.00*** | ***3752 Innes Rd Ottawa ON K1W0C8*** | ***EHS***

Order No: 20170824087
Status: C
Report Type: Standard Report
Report Date: 30-AUG-17
Date Received: 24-AUG-17
Previous Site Name:
Lot/Building Size:
Additional Info Ordered: Fire Insur. Maps and/or Site Plans

Nearest Intersection:
Municipality:
Client Prov/State: ON
Search Radius (km): .25
X: -75.515929
Y: 45.449356

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43 | ***1 of 1*** | ***NE/169.8*** | ***85.1 / -3.77*** | ***lot 1 con 11 ON*** | ***WWIS***

Well ID: 1517595
Construction Date:
Primary Water Use: Domestic
Sec. Water Use: 0
Final Well Status: Water Supply
Water Type:
Casing Material:
Audit No:
Tag:
Construction Method:
Elevation (m):
Elevation Reliability:
Depth to Bedrock:
Well Depth:
Overburden/Bedrock:
Pump Rate:
Static Water Level:
Flowing (Y/N):
Flow Rate:
Clear/Cloudy:

Data Entry Status:
Data Src: 1
Date Received: 9/1/1981
Selected Flag: Yes
Abandonment Rec:
Contractor: 2351
Form Version: 1
Owner:
Street Name:
County: OTTAWA
Municipality: CUMBERLAND TOWNSHIP
Site Info:
Lot: 001
Concession: 11
Concession Name: CON
Easting NAD83:
Northing NAD83:
Zone:
UTM Reliability:

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/151\1517595.pdf

Bore Hole Information

Bore Hole ID:	10039467	***Elevation:***	89.514472
DP2BR:	21	***Elevrc:***	
Spatial Status:		***Zone:***	18
Code OB:	r	***East83:***	460729.8
Code OB Desc:	Bedrock	***North83:***	5033521
Open Hole:		***Org CS:***	
Cluster Kind:		***UTMRC:***	4
Date Completed:	7/14/1981	***UTMRC Desc:***	margin of error : 30 m - 100 m
Remarks:		***Location Method:***	p4
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	931035678
Layer:	1
Color:	7
General Color:	RED
Mat1:	05
Most Common Material:	CLAY
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	0
Formation End Depth:	9
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	931035679
Layer:	2
Color:	6
General Color:	BROWN
Mat1:	14
Most Common Material:	HARDPAN
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	9
Formation End Depth:	21
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	931035680
Layer:	3
Color:	2
General Color:	GREY
Mat1:	15

Most Common Material:	LIMESTONE
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	21
Formation End Depth:	29
Formation End Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	961517595
Method Construction Code:	1
Method Construction:	Cable Tool
Other Method Construction:	

Pipe Information

Pipe ID:	10588037
Casing No:	1
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	930069006
Layer:	1
Material:	1
Open Hole or Material:	STEEL
Depth From:	
Depth To:	21
Casing Diameter:	6
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Results of Well Yield Testing

Pump Test ID:	991517595
Pump Set At:	
Static Level:	4
Final Level After Pumping:	10
Recommended Pump Depth:	22
Pumping Rate:	50
Flowing Rate:	
Recommended Pump Rate:	10
Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	2
Water State After Test:	CLOUDY
Pumping Test Method:	2
Pumping Duration HR:	1
Pumping Duration MIN:	40
Flowing:	No

Draw Down & Recovery

Pump Test Detail ID:	934376014
Test Type:	Draw Down
Test Duration:	30
Test Level:	10
Test Level UOM:	ft

Draw Down & Recovery

Pump Test Detail ID:	934645849
Test Type:	Draw Down
Test Duration:	45
Test Level:	10
Test Level UOM:	ft

Draw Down & Recovery

Pump Test Detail ID:	934895124
Test Type:	Draw Down
Test Duration:	60
Test Level:	10
Test Level UOM:	ft

Draw Down & Recovery

Pump Test Detail ID:	934102126
Test Type:	Draw Down
Test Duration:	15
Test Level:	10
Test Level UOM:	ft

Water Details

Water ID:	933474096
Layer:	1
Kind Code:	1
Kind:	FRESH
Water Found Depth:	28
Water Found Depth UOM:	ft

44 ***1 of 1*** ***NW/182.5*** ***89.9 / 1.00*** ***ON*** ***BORE***

Borehole ID:	615254	***Inclin FLG:***	No
OGF ID:	215516196	***SP Status:***	Initial Entry
Status:		***Surv Elev:***	No
Type:	Borehole	***Piezometer:***	No
Use:		***Primary Name:***	
Completion Date:		***Municipality:***	
Static Water Level:		***Lot:***	
Primary Water Use:		***Township:***	
Sec. Water Use:		***Latitude DD:***	45.44956
Total Depth m:	-999	***Longitude DD:***	-75.51587
Depth Ref:	Ground Surface	***UTM Zone:***	18
Depth Elev:		***Easting:***	459661
Drill Method:		***Northing:***	5033022
Orig Ground Elev m:	93	***Location Accuracy:***	
Elev Reliabil Note:		***Accuracy:***	Not Applicable
DEM Ground Elev m:	92.9		
Concession:			
Location D:			
Survey D:			
Comments:			

Borehole Geology Stratum

Geology Stratum ID:	218400944	***Mat Consistency:***	Soft

Top Depth:	0	**Material Moisture:**	
Bottom Depth:		**Material Texture:**	
Material Color:	Grey	**Non Geo Mat Type:**	
Material 1:	Bedrock	**Geologic Formation:**	
Material 2:	Limestone	**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	

Gsc Material Description:

Stratum Description: BEDROCK. LIMESTONE. GREY. 00027STONE. 00172STIFF, FISSURED. CLAY. GREY,SOFT,FISSURED
**Note: Many records provided by the department have a truncated [Stratum Description] field.

Source

Source Type:	Data Survey	**Source Appl:**	Spatial/Tabular
Source Orig:	Geological Survey of Canada	**Source Iden:**	1
Source Date:	1956-1972	**Scale or Res:**	Varies
Confidence:	M	**Horizontal:**	NAD27
Observatio:		**Verticalda:**	Mean Average Sea Level

Source Name: Urban Geology Automated Information System (UGAIS)
Source Details: File: OTTAWA2.txt RecordID: 077620 NTS_Sheet: 31G05H
Confiden 1: Reliable information but incomplete.

Source List

Source Identifier:	1	**Horizontal Datum:**	NAD27
Source Type:	Data Survey	**Vertical Datum:**	Mean Average Sea Level
Source Date:	1956-1972	**Projection Name:**	Universal Transverse Mercator
Scale or Resolution:	Varies		

Source Name: Urban Geology Automated Information System (UGAIS)
Source Originators: Geological Survey of Canada

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45 | ***1 of 1*** | ***N/183.2*** | ***89.9 / 1.00*** | ***ON*** | ***AST***

OGF ID:	250551908
Sub Type:	Water Tank
Sub Type No:	1331
Location Accuracy:	Within 10 metres
Sensitivity Class:	Non-Sensitive
Sensitivity Date:	20070106
Sensitivity Rationale:	No Restriction Needed
Verification Flag:	Verified
Verification Date:	19971023
Business Effective Dt Flag:	Estimated
Business Effective Dt:	19971023
Sys Calcu Area:	531.0
Sys Calcu Length:	0.0
User Calc Metric:	0.0
Effective Date/Time:	19971023

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46 | ***1 of 1*** | ***SW/188.2*** | ***82.9 / -6.00*** | ***lot 5 con 3 ON*** | ***WWIS***

Well ID:	7317816	**Data Entry Status:**	
Construction Date:		**Data Src:**	
Primary Water Use:		**Date Received:**	8/27/2018
Sec. Water Use:		**Selected Flag:**	Yes
Final Well Status:	Abandoned-Other	**Abandonment Rec:**	Yes
Water Type:		**Contractor:**	1558
Casing Material:		**Form Version:**	7
Audit No:	Z256807	**Owner:**	
Tag:		**Street Name:**	3490 INNIS RD

Construction Method:		**County:**	OTTAWA
Elevation (m):		**Municipality:**	GLOUCESTER TOWNSHIP
Elevation Reliability:		**Site Info:**	
Depth to Bedrock:		**Lot:**	005
Well Depth:		**Concession:**	03
Overburden/Bedrock:		**Concession Name:**	OF
Pump Rate:		**Easting NAD83:**	
Static Water Level:		**Northing NAD83:**	
Flowing (Y/N):		**Zone:**	
Flow Rate:		**UTM Reliability:**	
Clear/Cloudy:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/731\7317816.pdf

Bore Hole Information

Bore Hole ID:	1007274159	**Elevation:**	
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	18
Code OB:		**East83:**	459327
Code OB Desc:		**North83:**	5031922
Open Hole:		**Org CS:**	UTM83
Cluster Kind:		**UTMRC:**	4
Date Completed:	5/18/2018	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	wwr
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Annular Space/Abandonment Sealing Record

Plug ID:	1007452438
Layer:	1
Plug From:	0
Plug To:	35.05
Plug Depth UOM:	m

Method of Construction & Well Use

Method Construction ID:	1007452437
Method Construction Code:	
Method Construction:	
Other Method Construction:	

Pipe Information

Pipe ID:	1007452431
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1007452435
Layer:	
Material:	
Open Hole or Material:	

Depth From:
Depth To:
Casing Diameter:
Casing Diameter UOM: cm
Casing Depth UOM: m

Construction Record - Screen

Screen ID: 1007452436
Layer:
Slot:
Screen Top Depth:
Screen End Depth:
Screen Material:
Screen Depth UOM: m
Screen Diameter UOM: cm
Screen Diameter:

Water Details

Water ID: 1007452434
Layer:
Kind Code:
Kind:
Water Found Depth:
Water Found Depth UOM: m

Hole Diameter

Hole ID: 1007452433
Diameter:
Depth From:
Depth To:
Hole Depth UOM: m
Hole Diameter UOM: cm

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47 | ***1 of 1*** | ***W/190.9*** | ***89.9 / 1.00*** | ***3636 Innes Rd Ottawa ON K1C1T1*** | ***EHS***

Order No: 20170925050
Status: C
Report Type: Custom Report
Report Date: 06-OCT-17
Date Received: 25-SEP-17
Previous Site Name:
Lot/Building Size:
Additional Info Ordered:

Nearest Intersection:
Municipality:
Client Prov/State: ON
Search Radius (km): .25
X: -75.520375
Y: 45.447868

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48 | ***1 of 1*** | ***NW/193.3*** | ***89.9 / 1.00*** | ***3752 Innes Road Ottawa ON*** | ***EHS***

Order No: 20171018105
Status: C
Report Type: Custom Report
Report Date: 25-OCT-17
Date Received: 18-OCT-17
Previous Site Name:
Lot/Building Size:
Additional Info Ordered: Fire Insur. Maps and/or Site Plans

Nearest Intersection:
Municipality:
Client Prov/State: ON
Search Radius (km): .25
X: -75.514753
Y: 45.449971

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
49	1 of 4	SW/198.5	82.9 / -6.00	City of Ottawa Ottawa ON K1P 1J1	ECA

Approval No:	0489-9KPPEJ	**MOE District:**	Ottawa
Approval Date:	2014-08-20	**City:**	
Status:	Approved	**Longitude:**	-75.5199
Record Type:	ECA	**Latitude:**	45.4391
Link Source:	IDS	**Geometry X:**	
SWP Area Name:	Rideau Valley	**Geometry Y:**	
Approval Type:	ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS		
Project Type:	MUNICIPAL AND PRIVATE SEWAGE WORKS		
Address:			
Full Address:			
Full PDF Link:	https://www.accessenvironment.ene.gov.on.ca/instruments/2643-9J2JGF-14.pdf		

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
49	2 of 4	SW/198.5	82.9 / -6.00	Minto Communities Inc. Part 3, RP 4R-7806, Ward (2), Orleans Ottawa ON K1P 0B6	ECA

Approval No:	9811-856NNC	**MOE District:**	Ottawa
Approval Date:	2010-05-07	**City:**	
Status:	Approved	**Longitude:**	-75.5199
Record Type:	ECA	**Latitude:**	45.4391
Link Source:	IDS	**Geometry X:**	
SWP Area Name:	Rideau Valley	**Geometry Y:**	
Approval Type:	ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS		
Project Type:	MUNICIPAL AND PRIVATE SEWAGE WORKS		
Address:	Part 3, RP 4R-7806, Ward (2), Orleans		
Full Address:			
Full PDF Link:	https://www.accessenvironment.ene.gov.on.ca/instruments/3633-854KWB-14.pdf		

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
49	3 of 4	SW/198.5	82.9 / -6.00	City of Ottawa Pt. of Lot 5, Concession 3 O.F., Plan 4R-7806 Ottawa ON	ECA

Approval No:	3330-4SUM4R	**MOE District:**	Ottawa
Approval Date:	2001-03-07	**City:**	
Status:	Revoked and/or Replaced	**Longitude:**	-75.5199
Record Type:	ECA	**Latitude:**	45.4391
Link Source:	IDS	**Geometry X:**	
SWP Area Name:	Rideau Valley	**Geometry Y:**	
Approval Type:	ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS		
Project Type:	MUNICIPAL AND PRIVATE SEWAGE WORKS		
Address:	Pt. of Lot 5, Concession 3 O.F., Plan 4R-7806		
Full Address:			
Full PDF Link:	https://www.accessenvironment.ene.gov.on.ca/instruments/6772-4SLNV5-14.pdf		

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
49	4 of 4	SW/198.5	82.9 / -6.00	City of Ottawa Page Rd Allowance bwt Lots 5 and 6 Ottawa ON K1P 1J1	ECA

Approval No:	4785-4XFRCP	**MOE District:**	Ottawa
Approval Date:	2001-06-08	**City:**	
Status:	Approved	**Longitude:**	-75.5199
Record Type:	ECA	**Latitude:**	45.4391
Link Source:	IDS	**Geometry X:**	
SWP Area Name:	Rideau Valley	**Geometry Y:**	
Approval Type:	ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS		
Project Type:	MUNICIPAL AND PRIVATE SEWAGE WORKS		

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB

Address: Page Rd Allowance bwt Lots 5 and 6
Full Address:
Full PDF Link: https://www.accessenvironment.ene.gov.on.ca/instruments/7468-4X2Q4Q-14.pdf

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50 | 1 of 3 | SW/201.3 | 82.9 / -6.00 | lot 5 con 3 ON | WWIS

Well ID:	1520610	**Data Entry Status:**	
Construction Date:		**Data Src:**	1
Primary Water Use:	Domestic	**Date Received:**	8/8/1986
Sec. Water Use:		**Selected Flag:**	Yes
Final Well Status:	Water Supply	**Abandonment Rec:**	
Water Type:		**Contractor:**	1517
Casing Material:		**Form Version:**	1
Audit No:	NA	**Owner:**	
Tag:		**Street Name:**	
Construction Method:		**County:**	OTTAWA
Elevation (m):		**Municipality:**	GLOUCESTER TOWNSHIP
Elevation Reliability:		**Site Info:**	
Depth to Bedrock:		**Lot:**	005
Well Depth:		**Concession:**	03
Overburden/Bedrock:		**Concession Name:**	OF
Pump Rate:		**Easting NAD83:**	
Static Water Level:		**Northing NAD83:**	
Flowing (Y/N):		**Zone:**	
Flow Rate:		**UTM Reliability:**	
Clear/Cloudy:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/152\1520610.pdf

Bore Hole Information

Bore Hole ID:	10042452	**Elevation:**	84.485679
DP2BR:	33	**Elevrc:**	
Spatial Status:	Improved	**Zone:**	18
Code OB:	r	**East83:**	459334
Code OB Desc:	Bedrock	**North83:**	5031865
Open Hole:		**Org CS:**	N83
Cluster Kind:		**UTMRC:**	8
Date Completed:	5/30/1986	**UTMRC Desc:**	margin of error : 3 km - 10 km
Remarks:		**Location Method:**	lot
Elevrc Desc:			

Location Source Date: July 2001
Improvement Location Source: PWPF-SDG/PWPF-PRU Eastern Ontario 2000 GWS\E.Ontario GW Study - DigitalFiles\E.O.W.R.M.S\Water Well Record Database\arc-info coverage.well location.e00
Improvement Location Method: GIS10000
Source Revision Comment: Coordinate change in shapefile
Supplier Comment: no metadata on shp file, but seems ~4000 wells updated out of ~48000, (however nothing in report to describe these changes); diffeast:540696, diffnorth:4968356; original coordinates =9999...

Overburden and Bedrock Materials Interval

Formation ID: 931045309
Layer: 4
Color: 2
General Color: GREY
Mat1: 15
Most Common Material: LIMESTONE
Mat2:
Mat2 Desc:
Mat3:

Mat3 Desc:
Formation Top Depth: 33
Formation End Depth: 92
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931045308
Layer: 3
Color: 2
General Color: GREY
Mat1: 14
Most Common Material: HARDPAN
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 19
Formation End Depth: 33
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931045307
Layer: 2
Color: 2
General Color: GREY
Mat1: 05
Most Common Material: CLAY
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 3
Formation End Depth: 19
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931045306
Layer: 1
Color: 6
General Color: BROWN
Mat1: 02
Most Common Material: TOPSOIL
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 0
Formation End Depth: 3
Formation End Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 961520610
Method Construction Code: 1
Method Construction: Cable Tool

Other Method Construction:

Pipe Information

Pipe ID: 10591022
Casing No: 1
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 930074096
Layer: 1
Material: 1
Open Hole or Material: STEEL
Depth From:
Depth To: 34
Casing Diameter: 6
Casing Diameter UOM: inch
Casing Depth UOM: ft

Results of Well Yield Testing

Pump Test ID: 991520610
Pump Set At:
Static Level: 2
Final Level After Pumping: 65
Recommended Pump Depth: 82
Pumping Rate: 20
Flowing Rate:
Recommended Pump Rate: 10
Levels UOM: ft
Rate UOM: GPM
Water State After Test Code: 2
Water State After Test: CLOUDY
Pumping Test Method: 2
Pumping Duration HR: 1
Pumping Duration MIN: 30
Flowing: No

Draw Down & Recovery

Pump Test Detail ID: 934387359
Test Type:
Test Duration: 30
Test Level: 35
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934907143
Test Type:
Test Duration: 60
Test Level: 65
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934648382
Test Type:
Test Duration: 45

Test Level:	55
Test Level UOM:	ft

Draw Down & Recovery

Pump Test Detail ID:	934112496
Test Type:	
Test Duration:	15
Test Level:	20
Test Level UOM:	ft

Water Details

Water ID:	933477904
Layer:	1
Kind Code:	1
Kind:	FRESH
Water Found Depth:	60
Water Found Depth UOM:	ft

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50 **2 of 3** **SW/201.3** **82.9 / -6.00** **lot 5 con 3 ON** **WWIS**

Well ID:	1521470	**Data Entry Status:**	
Construction Date:		**Data Src:**	1
Primary Water Use:	Domestic	**Date Received:**	7/3/1987
Sec. Water Use:		**Selected Flag:**	Yes
Final Well Status:	Water Supply	**Abandonment Rec:**	
Water Type:		**Contractor:**	4006
Casing Material:		**Form Version:**	1
Audit No:	06399	**Owner:**	
Tag:		**Street Name:**	
Construction Method:		**County:**	OTTAWA
Elevation (m):		**Municipality:**	GLOUCESTER TOWNSHIP
Elevation Reliability:		**Site Info:**	
Depth to Bedrock:		**Lot:**	005
Well Depth:		**Concession:**	03
Overburden/Bedrock:		**Concession Name:**	OF
Pump Rate:		**Easting NAD83:**	
Static Water Level:		**Northing NAD83:**	
Flowing (Y/N):		**Zone:**	
Flow Rate:		**UTM Reliability:**	
Clear/Cloudy:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/152\1521470.pdf

Bore Hole Information

Bore Hole ID:	10043292	**Elevation:**	84.485679
DP2BR:	101	**Elevrc:**	
Spatial Status:	Improved	**Zone:**	18
Code OB:	r	**East83:**	459334
Code OB Desc:	Bedrock	**North83:**	5031865
Open Hole:		**Org CS:**	N83
Cluster Kind:		**UTMRC:**	8
Date Completed:	3/11/1987	**UTMRC Desc:**	margin of error : 3 km - 10 km
Remarks:		**Location Method:**	lot
Elevrc Desc:			
Location Source Date:	July 2001		
Improvement Location Source:	PWPF-SDG/PWPF-PRU Eastern Ontario 2000 GWS\E.Ontario GW Study - DigitalFiles\E.O.W.R.M.S\Water Well Record Database\arc-info coverage.well location.e00		
Improvement Location Method:	GIS10000		

Source Revision Comment:	Coordinate change in shapefile
Supplier Comment:	no metadata on shp file, but seems ~4000 wells updated out of ~48000, (however nothing in report to describe these changes); diffeast:540696, diffnorth:4968356; original coordinates =9999...

Overburden and Bedrock Materials Interval

Formation ID:	931048164
Layer:	2
Color:	2
General Color:	GREY
Mat1:	05
Most Common Material:	CLAY
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	8
Formation End Depth:	101
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	931048163
Layer:	1
Color:	6
General Color:	BROWN
Mat1:	05
Most Common Material:	CLAY
Mat2:	28
Mat2 Desc:	SAND
Mat3:	
Mat3 Desc:	
Formation Top Depth:	0
Formation End Depth:	8
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	931048165
Layer:	3
Color:	8
General Color:	BLACK
Mat1:	17
Most Common Material:	SHALE
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	101
Formation End Depth:	108
Formation End Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	933109476
Layer:	1
Plug From:	0
Plug To:	25

Plug Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 961521470
Method Construction Code: 4
Method Construction: Rotary (Air)
Other Method Construction:

Pipe Information

Pipe ID: 10591862
Casing No: 1
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 930075602
Layer: 2
Material: 1
Open Hole or Material: STEEL
Depth From:
Depth To: 105
Casing Diameter: 6
Casing Diameter UOM: inch
Casing Depth UOM: ft

Construction Record - Casing

Casing ID: 930075601
Layer: 1
Material: 4
Open Hole or Material: OPEN HOLE
Depth From:
Depth To: 101
Casing Diameter: 8
Casing Diameter UOM: inch
Casing Depth UOM: ft

Construction Record - Casing

Casing ID: 930075603
Layer: 3
Material: 4
Open Hole or Material: OPEN HOLE
Depth From:
Depth To: 108
Casing Diameter: 6
Casing Diameter UOM: inch
Casing Depth UOM: ft

Results of Well Yield Testing

Pump Test ID: 991521470
Pump Set At:
Static Level: 35
Final Level After Pumping: 36
Recommended Pump Depth: 60
Pumping Rate: 5

Flowing Rate:	
Recommended Pump Rate:	10
Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	1
Water State After Test:	CLEAR
Pumping Test Method:	1
Pumping Duration HR:	6
Pumping Duration MIN:	0
Flowing:	No

Draw Down & Recovery

Pump Test Detail ID:	934390636
Test Type:	
Test Duration:	30
Test Level:	36
Test Level UOM:	ft

Draw Down & Recovery

Pump Test Detail ID:	934651780
Test Type:	
Test Duration:	45
Test Level:	36
Test Level UOM:	ft

Draw Down & Recovery

Pump Test Detail ID:	934908871
Test Type:	
Test Duration:	60
Test Level:	36
Test Level UOM:	ft

Draw Down & Recovery

Pump Test Detail ID:	934106536
Test Type:	
Test Duration:	15
Test Level:	36
Test Level UOM:	ft

Water Details

Water ID:	933479046
Layer:	1
Kind Code:	1
Kind:	FRESH
Water Found Depth:	102
Water Found Depth UOM:	ft

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
50	*3 of 3*	*SW/201.3*	*82.9 / -6.00*	*lot 5 con 3 ON*	*WWIS*

Well ID:	1521471	***Data Entry Status:***	
Construction Date:		***Data Src:***	1
Primary Water Use:	Domestic	***Date Received:***	7/3/1987
Sec. Water Use:		***Selected Flag:***	Yes
Final Well Status:	Water Supply	***Abandonment Rec:***	
Water Type:		***Contractor:***	4006

Casing Material:		**Form Version:**	1
Audit No:	06398	**Owner:**	
Tag:		**Street Name:**	
Construction Method:		**County:**	OTTAWA
Elevation (m):		**Municipality:**	GLOUCESTER TOWNSHIP
Elevation Reliability:		**Site Info:**	
Depth to Bedrock:		**Lot:**	005
Well Depth:		**Concession:**	03
Overburden/Bedrock:		**Concession Name:**	OF
Pump Rate:		**Easting NAD83:**	
Static Water Level:		**Northing NAD83:**	
Flowing (Y/N):		**Zone:**	
Flow Rate:		**UTM Reliability:**	
Clear/Cloudy:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/152\1521471.pdf

Bore Hole Information

Bore Hole ID:	10043293	**Elevation:**	84.485679
DP2BR:	98	**Elevrc:**	
Spatial Status:	Improved	**Zone:**	18
Code OB:	r	**East83:**	459334
Code OB Desc:	Bedrock	**North83:**	5031865
Open Hole:		**Org CS:**	N83
Cluster Kind:		**UTMRC:**	8
Date Completed:	3/12/1987	**UTMRC Desc:**	margin of error : 3 km - 10 km
Remarks:		**Location Method:**	lot
Elevrc Desc:			

Location Source Date: July 2001
Improvement Location Source: PWPF-SDG/PWPF-PRU Eastern Ontario 2000 GWS\E.Ontario GW Study - DigitalFiles\E.O.W.R.M.S\Water Well Record Database\arc-info coverage.well location.e00
Improvement Location Method: GIS10000
Source Revision Comment: Coordinate change in shapefile
Supplier Comment: no metadata on shp file, but seems ~4000 wells updated out of ~48000, (however nothing in report to describe these changes); diffeast:540696, diffnorth:4968356; original coordinates =9999...

Overburden and Bedrock Materials Interval

Formation ID: 931048168
Layer: 3
Color: 8
General Color: BLACK
Mat1: 17
Most Common Material: SHALE
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 98
Formation End Depth: 105
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931048167
Layer: 2
Color: 2
General Color: GREY
Mat1: 05
Most Common Material: CLAY

Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 9
Formation End Depth: 98
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931048166
Layer: 1
Color: 6
General Color: BROWN
Mat1: 05
Most Common Material: CLAY
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 0
Formation End Depth: 9
Formation End Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 933109477
Layer: 1
Plug From: 0
Plug To: 25
Plug Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 961521471
Method Construction Code: 4
Method Construction: Rotary (Air)
Other Method Construction:

Pipe Information

Pipe ID: 10591863
Casing No: 1
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 930075605
Layer: 2
Material: 1
Open Hole or Material: STEEL
Depth From:
Depth To: 101
Casing Diameter: 6
Casing Diameter UOM: inch
Casing Depth UOM: ft

Construction Record - Casing

Casing ID:	930075606
Layer:	3
Material:	4
Open Hole or Material:	OPEN HOLE
Depth From:	
Depth To:	105
Casing Diameter:	6
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Casing

Casing ID:	930075604
Layer:	1
Material:	4
Open Hole or Material:	OPEN HOLE
Depth From:	
Depth To:	98
Casing Diameter:	8
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Results of Well Yield Testing

Pump Test ID:	991521471
Pump Set At:	
Static Level:	38
Final Level After Pumping:	48
Recommended Pump Depth:	60
Pumping Rate:	5
Flowing Rate:	
Recommended Pump Rate:	10
Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	1
Water State After Test:	CLEAR
Pumping Test Method:	1
Pumping Duration HR:	3
Pumping Duration MIN:	0
Flowing:	No

Draw Down & Recovery

Pump Test Detail ID:	934106537
Test Type:	
Test Duration:	15
Test Level:	45
Test Level UOM:	ft

Draw Down & Recovery

Pump Test Detail ID:	934908872
Test Type:	
Test Duration:	60
Test Level:	47
Test Level UOM:	ft

Draw Down & Recovery

Pump Test Detail ID:	934390637

Test Type:
Test Duration: 30
Test Level: 46
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934651781
Test Type:
Test Duration: 45
Test Level: 47
Test Level UOM: ft

Water Details

Water ID: 933479047
Layer: 1
Kind Code: 1
Kind: FRESH
Water Found Depth: 102
Water Found Depth UOM: ft

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51 | 1 of 1 | WNW/203.8 | 89.9 / 1.00 | lot 4 con 3 ON | WWIS

Well ID: 1516929
Construction Date:
Primary Water Use: Domestic
Sec. Water Use: 0
Final Well Status: Water Supply
Water Type:
Casing Material:
Audit No:
Tag:
Construction Method:
Elevation (m):
Elevation Reliability:
Depth to Bedrock:
Well Depth:
Overburden/Bedrock:
Pump Rate:
Static Water Level:
Flowing (Y/N):
Flow Rate:
Clear/Cloudy:

Data Entry Status:
Data Src: 1
Date Received: 2/28/1979
Selected Flag: Yes
Abandonment Rec:
Contractor: 1504
Form Version: 1
Owner:
Street Name:
County: OTTAWA
Municipality: GLOUCESTER TOWNSHIP
Site Info:
Lot: 004
Concession: 03
Concession Name: OF
Easting NAD83:
Northing NAD83:
Zone:
UTM Reliability:

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/151\1516929.pdf

Bore Hole Information

Bore Hole ID: 10038818
DP2BR: 4
Spatial Status:
Code OB: r
Code OB Desc: Bedrock
Open Hole:
Cluster Kind:
Date Completed: 6/24/1978
Remarks:
Elevrc Desc:
Location Source Date:
Improvement Location Source:

Elevation: 91.51612
Elevrc:
Zone: 18
East83: 459429.8
North83: 5032921
Org CS:
UTMRC: 4
UTMRC Desc: margin of error : 30 m - 100 m
Location Method: p4

Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Overburden and Bedrock Materials Interval

Formation ID: 931033636
Layer: 3
Color: 2
General Color: GREY
Mat1: 15
Most Common Material: LIMESTONE
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 110
Formation End Depth: 140
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931033634
Layer: 1
Color: 6
General Color: BROWN
Mat1: 14
Most Common Material: HARDPAN
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 0
Formation End Depth: 4
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931033635
Layer: 2
Color: 2
General Color: GREY
Mat1: 19
Most Common Material: SLATE
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 4
Formation End Depth: 110
Formation End Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 961516929
Method Construction Code: 4
Method Construction: Rotary (Air)
Other Method Construction:

Pipe Information

Pipe ID:	10587388
Casing No:	1
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	930068105
Layer:	1
Material:	1
Open Hole or Material:	STEEL
Depth From:	
Depth To:	22
Casing Diameter:	6
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Results of Well Yield Testing

Pump Test ID:	991516929
Pump Set At:	
Static Level:	11
Final Level After Pumping:	30
Recommended Pump Depth:	30
Pumping Rate:	30
Flowing Rate:	
Recommended Pump Rate:	10
Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	1
Water State After Test:	CLEAR
Pumping Test Method:	1
Pumping Duration HR:	1
Pumping Duration MIN:	30
Flowing:	No

Draw Down & Recovery

Pump Test Detail ID:	934102482
Test Type:	Recovery
Test Duration:	15
Test Level:	11
Test Level UOM:	ft

Draw Down & Recovery

Pump Test Detail ID:	934382061
Test Type:	Recovery
Test Duration:	30
Test Level:	11
Test Level UOM:	ft

Draw Down & Recovery

Pump Test Detail ID:	934901051
Test Type:	Recovery
Test Duration:	60
Test Level:	11

Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934643150
Test Type: Recovery
Test Duration: 45
Test Level: 11
Test Level UOM: ft

Water Details

Water ID: 933473313
Layer: 1
Kind Code: 1
Kind: FRESH
Water Found Depth: 140
Water Found Depth UOM: ft

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52 **1 of 18** **NNW/219.8** **89.9 / 1.00** ***LOWE'S COMPANIES CANADA, ULC***
3828 INNES ROAD
OTTAWA ON K1W 0C8 **PES**

Detail Licence No:
Licence No:
Status:
Approval Date:
Report Source:
Licence Type: Vendor
Licence Type Code:
Licence Class:
Licence Control:
Latitude:
Longitude:
Lot:
Concession:
Region:
District:
County:
Trade Name:
PDF Link:

Operator Box:
Operator Class:
Operator No:
Operator Type:
Oper Area Code:
Oper Phone No:
Operator Ext:
Operator Lot:
Oper Concession:
Operator Region:
Operator District:
Operator County:
Op Municipality:
Post Office Box:
MOE District:
SWP Area Name:

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52 **2 of 18** **NNW/219.8** **89.9 / 1.00** ***Lowe's Companies Canada, ULC***
3828 Innes Rd
Ottawa ON K1W 0C8 **CA**

Certificate #: 1139-7RZJQF
Application Year: 2009
Issue Date: 5/13/2009
Approval Type: Municipal and Private Sewage Works
Status: Approved
Application Type:
Client Name:
Client Address:
Client City:
Client Postal Code:
Project Description:
Contaminants:
Emission Control:

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
52	3 of 18	NNW/219.8	89.9 / 1.00	Lowe's Companies Canada, ULC 3828 Innes Rd Ottawa ON K1W 0C8	CA

Certificate #: 4757-839R6K
Application Year: 2010
Issue Date: 3/10/2010
Approval Type: Air
Status: Approved
Application Type:
Client Name:
Client Address:
Client City:
Client Postal Code:
Project Description:
Contaminants:
Emission Control:

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
52	4 of 18	NNW/219.8	89.9 / 1.00	Lowe's Home Centres(Canada),Inc. 3828 Innes Rd. Ottawa ON K1W 0C8	GEN

Generator No: ON8682034
Status:
Approval Years: 2009
Contam. Facility:
MHSW Facility:
SIC Code: 444110, 444190
SIC Description: Home Centres, Other Building Material Dealers

PO Box No:
Country:
Choice of Contact:
Co Admin:
Phone No Admin:

Detail(s)

Waste Class: 145
Waste Class Desc: PAINT/PIGMENT/COATING RESIDUES

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
52	5 of 18	NNW/219.8	89.9 / 1.00	Lowe's Home Centres(Canada),Inc. 3828 Innes Rd. Ottawa ON K1W 0C8	GEN

Generator No: ON8682034
Status:
Approval Years: 2010
Contam. Facility:
MHSW Facility:
SIC Code: 444110, 444190
SIC Description: Home Centres, Other Building Material Dealers

PO Box No:
Country:
Choice of Contact:
Co Admin:
Phone No Admin:

Detail(s)

Waste Class: 263
Waste Class Desc: ORGANIC LABORATORY CHEMICALS

Waste Class: 148
Waste Class Desc: INORGANIC LABORATORY CHEMICALS

Waste Class: 145
Waste Class Desc: PAINT/PIGMENT/COATING RESIDUES

Waste Class: 331
Waste Class Desc: WASTE COMPRESSED GASES

Waste Class: 242

Waste Class Desc: HALOGENATED PESTICIDES

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52 | 6 of 18 | NNW/219.8 | 89.9 / 1.00 | **Lowe's Home Centres(Canada),Inc.**
3828 Innes Rd.
Ottawa ON K1W 0C8 | GEN

Generator No: ON8682034
Status:
Approval Years: 2011
Contam. Facility:
MHSW Facility:
SIC Code: 444110, 444190
SIC Description: Home Centres, Other Building Material Dealers

PO Box No:
Country:
Choice of Contact:
Co Admin:
Phone No Admin:

Detail(s)

Waste Class: 148
Waste Class Desc: INORGANIC LABORATORY CHEMICALS

Waste Class: 145
Waste Class Desc: PAINT/PIGMENT/COATING RESIDUES

Waste Class: 242
Waste Class Desc: HALOGENATED PESTICIDES

Waste Class: 331
Waste Class Desc: WASTE COMPRESSED GASES

Waste Class: 263
Waste Class Desc: ORGANIC LABORATORY CHEMICALS

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52 | 7 of 18 | NNW/219.8 | 89.9 / 1.00 | **LOWE'S COMPANIES CANADA, ULC**
3828 INNES ROAD
OTTAWA ON K1W 0C8 | PES

Detail Licence No: 23-01-14907-0
Licence No:
Status:
Approval Date:
Report Source:
Licence Type: LIMITED
Licence Type Code:
Licence Class:
Licence Control:
Latitude:
Longitude:
Lot:
Concession:
Region:
District:
County:
Trade Name:
PDF Link:

Operator Box:
Operator Class:
Operator No:
Operator Type:
Oper Area Code:
Oper Phone No:
Operator Ext:
Operator Lot:
Oper Concession:
Operator Region:
Operator District:
Operator County:
Op Municipality:
Post Office Box:
MOE District:
SWP Area Name:

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52 | 8 of 18 | NNW/219.8 | 89.9 / 1.00 | **Lowes Companies Canada, ULC**
3828 Innes Rd
Ottawa ON | SPL

Ref No: 4207-8Y4RT9
Site No:
Incident Dt: 13-SEP-12
Year:

Discharger Report:
Material Group:
Health/Env Conseq:
Client Type:

Incident Cause:	Unknown / N/A	**Sector Type:**	Container/Drum/Tote
Incident Event:		**Agency Involved:**	
Contaminant Code:	27	**Nearest Watercourse:**	
Contaminant Name:	CONCRETE SEALER	**Site Address:**	3828 Innes Rd
Contaminant Limit 1:		**Site District Office:**	
Contam Limit Freq 1:		**Site Postal Code:**	
Contaminant UN No 1:		**Site Region:**	
Environment Impact:	Not Anticipated	**Site Municipality:**	Ottawa
Nature of Impact:	Surface Water Pollution	**Site Lot:**	
Receiving Medium:		**Site Conc:**	
Receiving Env:		**Northing:**	NA
MOE Response:	No Field Response	**Easting:**	NA
Dt MOE Arvl on Scn:		**Site Geo Ref Accu:**	NA
MOE Reported Dt:	13-SEP-12	**Site Map Datum:**	NA
Dt Document Closed:		**SAC Action Class:**	Watercourse Spills
Incident Reason:	Unknown / N/A	**Source Type:**	

Site Name: Lowe's Home Improvement Warehouse
Site County/District:
Site Geo Ref Meth: NA
Incident Summary: Lowes Warehouse - 32 L's of Concrete Sealer to pvmt and cb
Contaminant Qty: 32 L

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52 | *9 of 18* | *NNW/219.8* | *89.9 / 1.00* | ***Lowe's Home Centres(Canada),Inc.***
3828 Innes Rd.
Ottawa ON K1W 0C8 | ***GEN***

Generator No:	ON8682034	**PO Box No:**	
Status:		**Country:**	
Approval Years:	2012	**Choice of Contact:**	
Contam. Facility:		**Co Admin:**	
MHSW Facility:		**Phone No Admin:**	

SIC Code: 444110, 444190
SIC Description: Home Centres, Other Building Material Dealers

Detail(s)

Waste Class: 148
Waste Class Desc: INORGANIC LABORATORY CHEMICALS

Waste Class: 263
Waste Class Desc: ORGANIC LABORATORY CHEMICALS

Waste Class: 145
Waste Class Desc: PAINT/PIGMENT/COATING RESIDUES

Waste Class: 242
Waste Class Desc: HALOGENATED PESTICIDES

Waste Class: 331
Waste Class Desc: WASTE COMPRESSED GASES

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52 | *10 of 18* | *NNW/219.8* | *89.9 / 1.00* | ***Lowe's Home Centres(Canada),Inc.***
3828 Innes Rd.
Ottawa ON | ***GEN***

Generator No:	ON8682034	**PO Box No:**	
Status:		**Country:**	
Approval Years:	2013	**Choice of Contact:**	
Contam. Facility:		**Co Admin:**	
MHSW Facility:		**Phone No Admin:**	

SIC Code: 444110, 444190
SIC Description: HOME CENTRES, OTHER BUILDING MATERIAL DEALERS

Detail(s)

Waste Class: 148
Waste Class Desc: INORGANIC LABORATORY CHEMICALS

Waste Class: 252
Waste Class Desc: WASTE OILS & LUBRICANTS

Waste Class: 242
Waste Class Desc: HALOGENATED PESTICIDES

Waste Class: 221
Waste Class Desc: LIGHT FUELS

Waste Class: 263
Waste Class Desc: ORGANIC LABORATORY CHEMICALS

Waste Class: 145
Waste Class Desc: PAINT/PIGMENT/COATING RESIDUES

Waste Class: 331
Waste Class Desc: WASTE COMPRESSED GASES

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52 | ***11 of 18*** | ***NNW/219.8*** | ***89.9 / 1.00*** | ***Lowe's Home Centres(Canada),Inc.***
3828 Innes Rd.
Ottawa ON K1W 0C8 | ***GEN***

Generator No: ON8682034
Status:
Approval Years: 2016
Contam. Facility: No
MHSW Facility: No
SIC Code: 444110, 444190
SIC Description: HOME CENTRES, OTHER BUILDING MATERIAL DEALERS

PO Box No:
Country: Canada
Choice of Contact: CO_OFFICIAL
Co Admin:
Phone No Admin:

Detail(s)

Waste Class: 331
Waste Class Desc: WASTE COMPRESSED GASES

Waste Class: 262
Waste Class Desc: DETERGENTS/SOAPS

Waste Class: 252
Waste Class Desc: WASTE OILS & LUBRICANTS

Waste Class: 242
Waste Class Desc: HALOGENATED PESTICIDES

Waste Class: 213
Waste Class Desc: PETROLEUM DISTILLATES

Waste Class: 148
Waste Class Desc: INORGANIC LABORATORY CHEMICALS

Waste Class: 263
Waste Class Desc: ORGANIC LABORATORY CHEMICALS

Waste Class: 145
Waste Class Desc: PAINT/PIGMENT/COATING RESIDUES

Waste Class: 212

Waste Class Desc: ALIPHATIC SOLVENTS

Waste Class: 269
Waste Class Desc: NON-HALOGENATED PESTICIDES

Waste Class: 222
Waste Class Desc: HEAVY FUELS

Waste Class: 221
Waste Class Desc: LIGHT FUELS

Waste Class: 112
Waste Class Desc: ACID WASTE - HEAVY METALS

Waste Class: 122
Waste Class Desc: ALKALINE WASTES - OTHER METALS

Waste Class: 261
Waste Class Desc: PHARMACEUTICALS

Waste Class: 146
Waste Class Desc: OTHER SPECIFIED INORGANICS

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52 | 12 of 18 | NNW/219.8 | 89.9 / 1.00 | **Lowe's Home Centres(Canada),Inc.**
3828 Innes Rd.
Ottawa ON K1W 0C8 | GEN

Generator No: ON8682034
Status:
Approval Years: 2015
Contam. Facility: No
MHSW Facility: No
SIC Code: 444110, 444190
SIC Description: HOME CENTRES, OTHER BUILDING MATERIAL DEALERS

PO Box No:
Country: Canada
Choice of Contact: CO_OFFICIAL
Co Admin:
Phone No Admin:

Detail(s)

Waste Class: 261
Waste Class Desc: PHARMACEUTICALS

Waste Class: 262
Waste Class Desc: DETERGENTS/SOAPS

Waste Class: 252
Waste Class Desc: WASTE OILS & LUBRICANTS

Waste Class: 263
Waste Class Desc: ORGANIC LABORATORY CHEMICALS

Waste Class: 331
Waste Class Desc: WASTE COMPRESSED GASES

Waste Class: 145
Waste Class Desc: PAINT/PIGMENT/COATING RESIDUES

Waste Class: 146
Waste Class Desc: OTHER SPECIFIED INORGANICS

Waste Class: 213
Waste Class Desc: PETROLEUM DISTILLATES

Waste Class: 148
Waste Class Desc: INORGANIC LABORATORY CHEMICALS

Waste Class: 112
Waste Class Desc: ACID WASTE - HEAVY METALS

Waste Class: 122
Waste Class Desc: ALKALINE WASTES - OTHER METALS

Waste Class: 269
Waste Class Desc: NON-HALOGENATED PESTICIDES

Waste Class: 221
Waste Class Desc: LIGHT FUELS

Waste Class: 222
Waste Class Desc: HEAVY FUELS

Waste Class: 242
Waste Class Desc: HALOGENATED PESTICIDES

Waste Class: 212
Waste Class Desc: ALIPHATIC SOLVENTS

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52 **13 of 18** **NNW/219.8** **89.9 / 1.00** **Lowe's Home Centres(Canada),Inc.**
3828 Innes Rd.
Ottawa ON K1W 0C8
GEN

Generator No: ON8682034
Status:
Approval Years: 2014
Contam. Facility: No
MHSW Facility: No
SIC Code: 444110, 444190
SIC Description: HOME CENTRES, OTHER BUILDING MATERIAL DEALERS

PO Box No:
Country: Canada
Choice of Contact: CO_OFFICIAL
Co Admin:
Phone No Admin:

Detail(s)

Waste Class: 252
Waste Class Desc: WASTE OILS & LUBRICANTS

Waste Class: 222
Waste Class Desc: HEAVY FUELS

Waste Class: 263
Waste Class Desc: ORGANIC LABORATORY CHEMICALS

Waste Class: 331
Waste Class Desc: WASTE COMPRESSED GASES

Waste Class: 148
Waste Class Desc: INORGANIC LABORATORY CHEMICALS

Waste Class: 145
Waste Class Desc: PAINT/PIGMENT/COATING RESIDUES

Waste Class: 221
Waste Class Desc: LIGHT FUELS

Waste Class: 242
Waste Class Desc: HALOGENATED PESTICIDES

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52 **14 of 18** **NNW/219.8** **89.9 / 1.00** **Lowe's Home Centres(Canada),Inc.**
3828 Innes Rd.
Ottawa ON K1W 0C8
GEN

Generator No:	ON8682034	**PO Box No:**	
Status:	Registered	**Country:**	Canada
Approval Years:	As of Dec 2018	**Choice of Contact:**	
Contam. Facility:		**Co Admin:**	
MHSW Facility:		**Phone No Admin:**	
SIC Code:			
SIC Description:			

Detail(s)

Waste Class:	112 C
Waste Class Desc:	Acid solutions - containing heavy metals
Waste Class:	122 C
Waste Class Desc:	Alkaline slutions - containing other metals and non-metals (not cyanide)
Waste Class:	145 I
Waste Class Desc:	Wastes from the use of pigments, coatings and paints
Waste Class:	145 L
Waste Class Desc:	Wastes from the use of pigments, coatings and paints
Waste Class:	146 T
Waste Class Desc:	Other specified inorganic sludges, slurries or solids
Waste Class:	148 A
Waste Class Desc:	Misc. wastes and inorganic chemicals
Waste Class:	148 C
Waste Class Desc:	Misc. wastes and inorganic chemicals
Waste Class:	148 I
Waste Class Desc:	Misc. wastes and inorganic chemicals
Waste Class:	212 I
Waste Class Desc:	Aliphatic solvents and residues
Waste Class:	212 L
Waste Class Desc:	Aliphatic solvents and residues
Waste Class:	213 I
Waste Class Desc:	Petroleum distillates
Waste Class:	221 I
Waste Class Desc:	Light fuels
Waste Class:	331 I
Waste Class Desc:	Waste compressed gases including cylinders
Waste Class:	221 L
Waste Class Desc:	Light fuels
Waste Class:	222 L
Waste Class Desc:	Heavy fuels
Waste Class:	242 B
Waste Class Desc:	Halogenated pesticides and herbicides
Waste Class:	242 T
Waste Class Desc:	Halogenated pesticides and herbicides
Waste Class:	252 L
Waste Class Desc:	Waste crankcase oils and lubricants
Waste Class:	331 L

Waste Class Desc:	Waste compressed gases including cylinders
Waste Class:	261 L
Waste Class Desc:	Pharmaceuticals
Waste Class:	262 L
Waste Class Desc:	Detergents and soaps
Waste Class:	263 A
Waste Class Desc:	Misc. waste organic chemicals
Waste Class:	263 I
Waste Class Desc:	Misc. waste organic chemicals
Waste Class:	263 L
Waste Class Desc:	Misc. waste organic chemicals
Waste Class:	269 T
Waste Class Desc:	Organic non-halogenated pesticide and herbicide wastes

---

52 **15 of 18** **NNW/219.8** **89.9 / 1.00** **LOWE'S COMPANIES CANADA, ULC** **PES**
3828 INNES RD
OTTAWA ON K1W0C8

Detail Licence No:		**Operator Box:**	
Licence No:	16990	**Operator Class:**	
Status:		**Operator No:**	
Approval Date:		**Operator Type:**	
Report Source:	Legacy Licenses (Excluding TS)	**Oper Area Code:**	
Licence Type:	Limited Vendor	**Oper Phone No:**	
Licence Type Code:	23	**Operator Ext:**	
Licence Class:	01	**Operator Lot:**	
Licence Control:		**Oper Concession:**	
Latitude:		**Operator Region:**	
Longitude:		**Operator District:**	
Lot:		**Operator County:**	
Concession:		**Op Municipality:**	
Region:		**Post Office Box:**	
District:		**MOE District:**	
County:		**SWP Area Name:**	
Trade Name:			
PDF Link:			

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52 **16 of 18** **NNW/219.8** **89.9 / 1.00** **LOWE'S COMPANIES CANADA, ULC** **PES**
3828 INNES RD
OTTAWA ON K1W0C8

Detail Licence No:		**Operator Box:**	
Licence No:	14907	**Operator Class:**	
Status:		**Operator No:**	
Approval Date:		**Operator Type:**	
Report Source:	Legacy Licenses (Excluding TS)	**Oper Area Code:**	
Licence Type:	Limited Vendor	**Oper Phone No:**	
Licence Type Code:	23	**Operator Ext:**	
Licence Class:	01	**Operator Lot:**	
Licence Control:		**Oper Concession:**	
Latitude:		**Operator Region:**	
Longitude:		**Operator District:**	
Lot:		**Operator County:**	
Concession:		**Op Municipality:**	
Region:		**Post Office Box:**	
District:		**MOE District:**	
County:		**SWP Area Name:**	

Trade Name:
PDF Link:

52 | 17 of 18 | NNW/219.8 | 89.9 / 1.00 | **Lowe's Home Centres(Canada),Inc.**
3828 Innes Rd.
Ottawa ON K1W 0C8 | GEN

Generator No: ON8682034
Status: Registered
Approval Years: As of Apr 2020
Contam. Facility:
MHSW Facility:
SIC Code:
SIC Description:

PO Box No:
Country: Canada
Choice of Contact:
Co Admin:
Phone No Admin:

Detail(s)

Waste Class: 262 L
Waste Class Desc: Detergents and soaps

Waste Class: 252 L
Waste Class Desc: Waste crankcase oils and lubricants

Waste Class: 148 C
Waste Class Desc: Misc. wastes and inorganic chemicals

Waste Class: 263 A
Waste Class Desc: Misc. waste organic chemicals

Waste Class: 145 L
Waste Class Desc: Wastes from the use of pigments, coatings and paints

Waste Class: 213 I
Waste Class Desc: Petroleum distillates

Waste Class: 222 L
Waste Class Desc: Heavy fuels

Waste Class: 221 I
Waste Class Desc: Light fuels

Waste Class: 145 I
Waste Class Desc: Wastes from the use of pigments, coatings and paints

Waste Class: 221 L
Waste Class Desc: Light fuels

Waste Class: 331 L
Waste Class Desc: Waste compressed gases including cylinders

Waste Class: 269 T
Waste Class Desc: Organic non-halogenated pesticide and herbicide wastes

Waste Class: 212 I
Waste Class Desc: Aliphatic solvents and residues

Waste Class: 148 I
Waste Class Desc: Misc. wastes and inorganic chemicals

Waste Class: 261 L
Waste Class Desc: Pharmaceuticals

Waste Class: 242 B

Waste Class Desc:	Halogenated pesticides and herbicides
Waste Class:	263 I
Waste Class Desc:	Misc. waste organic chemicals
Waste Class:	263 L
Waste Class Desc:	Misc. waste organic chemicals
Waste Class:	146 T
Waste Class Desc:	Other specified inorganic sludges, slurries or solids
Waste Class:	212 L
Waste Class Desc:	Aliphatic solvents and residues
Waste Class:	112 C
Waste Class Desc:	Acid solutions - containing heavy metals
Waste Class:	242 T
Waste Class Desc:	Halogenated pesticides and herbicides
Waste Class:	331 I
Waste Class Desc:	Waste compressed gases including cylinders
Waste Class:	122 C
Waste Class Desc:	Alkaline slutions - containing other metals and non-metals (not cyanide)
Waste Class:	148 A
Waste Class Desc:	Misc. wastes and inorganic chemicals

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52 | **18 of 18** | **NNW/219.8** | **89.9 / 1.00** | **LOWE'S COMPANIES CANADA, ULC**
3828 INNES RD
ORLEANS ON K1W 0C8 | **PES**

Detail Licence No:		**Operator Box:**	
Licence No:	L-232-5066579100	**Operator Class:**	
Status:	Active	**Operator No:**	
Approval Date:	2019-10-22	**Operator Type:**	
Report Source:	PEST-Limited Vendor	**Oper Area Code:**	
Licence Type:	Limited Vendor	**Oper Phone No:**	
Licence Type Code:		**Operator Ext:**	
Licence Class:		**Operator Lot:**	
Licence Control:		**Oper Concession:**	
Latitude:	45.45083333	**Operator Region:**	
Longitude:	-75.51305556	**Operator District:**	
Lot:		**Operator County:**	
Concession:		**Op Municipality:**	
Region:		**Post Office Box:**	
District:		**MOE District:**	Ottawa
County:		**SWP Area Name:**	Rideau Valley
Trade Name:			
PDF Link:	http://www.accessenvironment.ene.gov.on.ca/AEWeb/ae/ViewDocument.action?documentRefID=2188403		

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53 | **1 of 2** | **NE/224.3** | **84.2 / -4.68** | **SMARTREIT (ORLEANS II) INC.**
2025 MER BLEUE RD
ORLEANS ON K4A 3T9 | **EASR**

Approval No:	R-009-1110141098	**SWP Area Name:**	Rideau Valley
Status:	REGISTERED	**MOE District:**	Ottawa
Date:	2017-05-25	**Municipality:**	ORLEANS
Record Type:	EASR	**Latitude:**	45.45527778
Link Source:	MOFA	**Longitude:**	-75.50444444
Project Type:	Water Taking - Construction Dewatering	**Geometry X:**	
Full Address:		**Geometry Y:**	

Approval Type: EASR-Water Taking - Construction Dewatering
Full PDF Link: http://www.accessenvironment.ene.gov.on.ca/AEWeb/ae/ViewDocument.action?documentRefID=2036488

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53 **2 of 2** **NE/224.3** **84.2 / -4.68** **SmartREIT (Orleans II) Inc.** **ECA**
2025 Mer Bleue Rd
Ottawa ON L4K 5X3

Approval No: 2850-APPHSQ
Approval Date: 2017-07-31
Status: Approved
Record Type: ECA
Link Source: IDS
SWP Area Name:
Approval Type: ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS
Project Type: MUNICIPAL AND PRIVATE SEWAGE WORKS
Address: 2025 Mer Bleue Rd
Full Address:
Full PDF Link: https://www.accessenvironment.ene.gov.on.ca/instruments/5919-ANYR4V-14.pdf
MOE District:
City:
Longitude:
Latitude:
Geometry X:
Geometry Y:

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54 **1 of 4** **WNW/229.2** **89.9 / 1.00** **METRO ONTARIO INC./ FOOD BASICS** **PES**
3712 INNES RD
ORLEANS ON K1W 0C8

Detail Licence No:
Licence No:
Status:
Approval Date:
Report Source:
Licence Type: Vendor
Licence Type Code:
Licence Class:
Licence Control:
Latitude:
Longitude:
Lot:
Concession:
Region:
District:
County:
Trade Name:
PDF Link:
Operator Box:
Operator Class:
Operator No:
Operator Type:
Oper Area Code:
Oper Phone No:
Operator Ext:
Operator Lot:
Oper Concession:
Operator Region:
Operator District:
Operator County:
Op Municipality:
Post Office Box:
MOE District:
SWP Area Name:

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54 **2 of 4** **WNW/229.2** **89.9 / 1.00** **METRO ONTARIO INC./ FOOD BASICS** **PES**
3712 INNES RD
ORLEANS ON K1W 0C8

Detail Licence No: 23-01-16010-0
Licence No:
Status:
Approval Date:
Report Source:
Licence Type: LIMITED
Licence Type Code:
Licence Class:
Licence Control:
Latitude:
Longitude:
Lot:
Concession:
Region:
Operator Box:
Operator Class:
Operator No:
Operator Type:
Oper Area Code:
Oper Phone No:
Operator Ext:
Operator Lot:
Oper Concession:
Operator Region:
Operator District:
Operator County:
Op Municipality:
Post Office Box:

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB

District:
County:
Trade Name:
PDF Link:
MOE District:
SWP Area Name:

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54 | 3 of 4 | WNW/229.2 | 89.9 / 1.00 | METRO ONTARIO INC./ FOOD BASICS
3712 INNES RD
ORLEANS ON K1W0C8 | PES

Detail Licence No:
Licence No: 16010
Status:
Approval Date:
Report Source: Legacy Licenses (Excluding TS)
Licence Type: Limited Vendor
Licence Type Code: 23
Licence Class: 01
Licence Control:
Latitude:
Longitude:
Lot:
Concession:
Region:
District:
County:
Trade Name:
PDF Link:
Operator Box:
Operator Class:
Operator No:
Operator Type:
Oper Area Code: 613
Oper Phone No: 8370650
Operator Ext:
Operator Lot:
Oper Concession:
Operator Region:
Operator District:
Operator County:
Op Municipality:
Post Office Box:
MOE District:
SWP Area Name:

---

54 | 4 of 4 | WNW/229.2 | 89.9 / 1.00 | 3712 Innis Road
Ottawa ON K1W 0C8 | SPL

Ref No: 5587-ADMQCH
Site No: NA
Incident Dt: 9/9/2016
Year:
Incident Cause:
Incident Event: Leak/Break
Contaminant Code: n/a
Contaminant Name: REFRIGERANT GAS R12
Contaminant Limit 1:
Contam Limit Freq 1:
Contaminant UN No 1:
Environment Impact:
Nature of Impact:
Receiving Medium:
Receiving Env: Air
MOE Response:
Dt MOE Arvl on Scn:
MOE Reported Dt: 9/9/2016
Dt Document Closed:
Incident Reason: Equipment Failure
Site Name: Orleans Food Basics<UNOFFICIAL>
Site County/District:
Site Geo Ref Meth:
Incident Summary: Parsons 300 lbs R507
Contaminant Qty: 300 lb
Discharger Report:
Material Group:
Health/Env Conseq:
Client Type:
Sector Type: Miscellaneous Industrial
Agency Involved:
Nearest Watercourse:
Site Address: 3712 Innis Road
Site District Office:
Site Postal Code: K1W 0C8
Site Region:
Site Municipality: Ottawa
Site Lot:
Site Conc:
Northing:
Easting:
Site Geo Ref Accu:
Site Map Datum:
SAC Action Class: Air Spills - Gases and Vapours
Source Type:

---

55 | 1 of 1 | NW/250.1 | 89.9 / 1.00 | lot 3 con 3
ON | WWIS

Well ID:	1501403	**Data Entry Status:**	
Construction Date:		**Data Src:**	1
Primary Water Use:	Livestock	**Date Received:**	3/23/1949
Sec. Water Use:	Domestic	**Selected Flag:**	Yes
Final Well Status:	Water Supply	**Abandonment Rec:**	
Water Type:		**Contractor:**	1107
Casing Material:		**Form Version:**	1
Audit No:		**Owner:**	
Tag:		**Street Name:**	
Construction Method:		**County:**	OTTAWA
Elevation (m):		**Municipality:**	GLOUCESTER TOWNSHIP
Elevation Reliability:		**Site Info:**	
Depth to Bedrock:		**Lot:**	003
Well Depth:		**Concession:**	03
Overburden/Bedrock:		**Concession Name:**	OF
Pump Rate:		**Easting NAD83:**	
Static Water Level:		**Northing NAD83:**	
Flowing (Y/N):		**Zone:**	
Flow Rate:		**UTM Reliability:**	
Clear/Cloudy:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/150\1501403.pdf

Bore Hole Information

Bore Hole ID:	10023446	**Elevation:**	92.039901
DP2BR:	0	**Elevrc:**	
Spatial Status:		**Zone:**	18
Code OB:	r	**East83:**	459815.8
Code OB Desc:	Bedrock	**North83:**	5033122
Open Hole:		**Org CS:**	
Cluster Kind:		**UTMRC:**	5
Date Completed:	12/21/1948	**UTMRC Desc:**	margin of error : 100 m - 300 m
Remarks:		**Location Method:**	p5
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	930991754
Layer:	1
Color:	
General Color:	
Mat1:	15
Most Common Material:	LIMESTONE
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	0
Formation End Depth:	68
Formation End Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	961501403
Method Construction Code:	1

Method Construction: Cable Tool
Other Method Construction:

Pipe Information

Pipe ID: 10572016
Casing No: 1
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 930039776
Layer: 1
Material: 1
Open Hole or Material: STEEL
Depth From:
Depth To: 13
Casing Diameter: 4
Casing Diameter UOM: inch
Casing Depth UOM: ft

Construction Record - Casing

Casing ID: 930039777
Layer: 2
Material: 4
Open Hole or Material: OPEN HOLE
Depth From:
Depth To: 68
Casing Diameter: 4
Casing Diameter UOM: inch
Casing Depth UOM: ft

Results of Well Yield Testing

Pump Test ID: 991501403
Pump Set At:
Static Level: 10
Final Level After Pumping: 25
Recommended Pump Depth:
Pumping Rate: 8
Flowing Rate:
Recommended Pump Rate: 8
Levels UOM: ft
Rate UOM: GPM
Water State After Test Code: 1
Water State After Test: CLEAR
Pumping Test Method: 1
Pumping Duration HR: 1
Pumping Duration MIN: 0
Flowing: No

Water Details

Water ID: 933454108
Layer: 1
Kind Code: 1
Kind: FRESH
Water Found Depth: 68
Water Found Depth UOM: ft

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
56	1 of 1	WNW/250.4	89.9 / 1.00	lot 3 con 3 ON	WWIS

Well ID:	1514337	**Data Entry Status:**	
Construction Date:		**Data Src:**	1
Primary Water Use:		**Date Received:**	10/23/1974
Sec. Water Use:		**Selected Flag:**	Yes
Final Well Status:	Abandoned-Supply	**Abandonment Rec:**	
Water Type:		**Contractor:**	1836
Casing Material:		**Form Version:**	1
Audit No:		**Owner:**	
Tag:		**Street Name:**	
Construction Method:		**County:**	OTTAWA
Elevation (m):		**Municipality:**	GLOUCESTER TOWNSHIP
Elevation Reliability:		**Site Info:**	
Depth to Bedrock:		**Lot:**	003
Well Depth:		**Concession:**	03
Overburden/Bedrock:		**Concession Name:**	OF
Pump Rate:		**Easting NAD83:**	
Static Water Level:		**Northing NAD83:**	
Flowing (Y/N):		**Zone:**	
Flow Rate:		**UTM Reliability:**	
Clear/Cloudy:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/151\1514337.pdf

Bore Hole Information

Bore Hole ID:	10036312	**Elevation:**	91.517066
DP2BR:	0	**Elevrc:**	
Spatial Status:		**Zone:**	18
Code OB:	r	**East83:**	459600.8
Code OB Desc:	Bedrock	**North83:**	5033067
Open Hole:		**Org CS:**	
Cluster Kind:		**UTMRC:**	4
Date Completed:	8/14/1974	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	p4
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	931025984
Layer:	1
Color:	
General Color:	
Mat1:	15
Most Common Material:	LIMESTONE
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	0
Formation End Depth:	140
Formation End Depth UOM:	ft

Method of Construction & Well

Use

Method Construction ID: 961514337
Method Construction Code: 1
Method Construction: Cable Tool
Other Method Construction:

Pipe Information

Pipe ID: 10584882
Casing No: 1
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 930064171
Layer: 1
Material: 2
Open Hole or Material: GALVANIZED
Depth From:
Depth To: 22
Casing Diameter: 2
Casing Diameter UOM: inch
Casing Depth UOM: ft

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57 *1 of 15* *WNW/257.4* *89.9 / 1.00* ***BUILDERS WAREHOUSE LECHANTIER***
3636 INNES RD., ORLEANS
GLOUCESTER ON K1C 1T1 ***GEN***

Generator No: ON0832300
Status:
Approval Years: 86,87,88,89,90
Contam. Facility:
MHSW Facility:
SIC Code: 4799
SIC Description: OTHER STOR./WARE.

PO Box No:
Country:
Choice of Contact:
Co Admin:
Phone No Admin:

Detail(s)

Waste Class: 252
Waste Class Desc: WASTE OILS & LUBRICANTS

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57 *2 of 15* *WNW/257.4* *89.9 / 1.00* ***BUILDERS WAREHOUSE INC., THE 06-237***
3636 INNES RD., ORLEANS
GLOUCESTER ON K1C 1T1 ***GEN***

Generator No: ON0832300
Status:
Approval Years: 92,93,94,95,96,97,98
Contam. Facility:
MHSW Facility:
SIC Code: 4799
SIC Description: OTHER STOR./WARE.

PO Box No:
Country:
Choice of Contact:
Co Admin:
Phone No Admin:

Detail(s)

Waste Class: 252
Waste Class Desc: WASTE OILS & LUBRICANTS

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
57	3 of 15	WNW/257.4	89.9 / 1.00	BUILDERS WAREHOUSE INC., THE 3636 INNES ROAD GLOUCESTER ON K1C 1T1	GEN

Generator No: ON0832300
Status:
Approval Years: 99,00,01,04,05,06
Contam. Facility:
MHSW Facility:
SIC Code: 4799
SIC Description: OTHER STOR./WARE.

PO Box No:
Country:
Choice of Contact:
Co Admin:
Phone No Admin:

Detail(s)

Waste Class: 252
Waste Class Desc: WASTE OILS & LUBRICANTS

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
57	4 of 15	WNW/257.4	89.9 / 1.00	THE BUILDERS WAREHOUSE INC 3636 INNES ROAD ORLEANS ON K1C 1T1	PES

Detail Licence No:
Licence No:
Status:
Approval Date:
Report Source:
Licence Type:
Licence Type Code:
Licence Class:
Licence Control:
Latitude:
Longitude:
Lot:
Concession:
Region:
District:
County:
Trade Name:
PDF Link:

Operator Box:
Operator Class:
Operator No:
Operator Type: Vendor
Oper Area Code:
Oper Phone No:
Operator Ext:
Operator Lot:
Oper Concession:
Operator Region:
Operator District:
Operator County:
Op Municipality:
Post Office Box:
MOE District:
SWP Area Name:

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
57	5 of 15	WNW/257.4	89.9 / 1.00	BMR/Builder's Warehouse 3636 Innes Rd Orléans ON K1C 1T1	SCT

Established: 01-SEP-62
Plant Size (ft²): 100000
Employment:

--Details--
Description: Lumber, Plywood and Millwork Wholesaler-Distributors
SIC/NAICS Code: 416320

Description: Other Home Furnishings Wholesaler-Distributors
SIC/NAICS Code: 414390

Description: Plumbing, Heating and Air-Conditioning Equipment and Supplies Wholesaler-Distributors
SIC/NAICS Code: 416120

Description: Lumber, Plywood and Millwork Wholesaler-Distributors
SIC/NAICS Code: 416320

Description: Hardware Wholesaler-Distributors

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB

SIC/NAICS Code: 416330

Description: Electrical Wiring and Construction Supplies Wholesaler-Distributors
SIC/NAICS Code: 416110

Description: Other Specialty-Line Building Supplies Wholesaler-Distributors
SIC/NAICS Code: 416390

Description: Paint, Glass and Wallpaper Wholesaler-Distributors
SIC/NAICS Code: 416340

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57 | ***6 of 15*** | ***WNW/257.4*** | ***89.9 / 1.00*** | ***THE BUILDERS WAREHOUSE INC***
3636 INNES ROAD
ORLEANS ON K1C 1T1 | ***PES***

Detail Licence No:
Licence No:
Status:
Approval Date:
Report Source:
Licence Type: Vendor
Licence Type Code:
Licence Class:
Licence Control:
Latitude:
Longitude:
Lot:
Concession:
Region:
District:
County:
Trade Name:
PDF Link:

Operator Box:
Operator Class:
Operator No:
Operator Type:
Oper Area Code:
Oper Phone No:
Operator Ext:
Operator Lot:
Oper Concession:
Operator Region:
Operator District:
Operator County:
Op Municipality:
Post Office Box:
MOE District:
SWP Area Name:

---

57 | ***7 of 15*** | ***WNW/257.4*** | ***89.9 / 1.00*** | ***THE BUILDERS WAREHOUSE INC***
3636 INNES ROAD
ORLEANS ON K1C 1T1 | ***PES***

Detail Licence No: 23-01-14557-0
Licence No:
Status:
Approval Date:
Report Source:
Licence Type: LIMITED
Licence Type Code:
Licence Class:
Licence Control:
Latitude:
Longitude:
Lot:
Concession:
Region:
District:
County:
Trade Name:
PDF Link:

Operator Box:
Operator Class:
Operator No:
Operator Type:
Oper Area Code:
Oper Phone No:
Operator Ext:
Operator Lot:
Oper Concession:
Operator Region:
Operator District:
Operator County:
Op Municipality:
Post Office Box:
MOE District:
SWP Area Name:

---

57 | ***8 of 15*** | ***WNW/257.4*** | ***89.9 / 1.00*** | ***The Builder's Warehouse inc***
3636 Innes Rd.
Orleans ON | ***GEN***

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB

Generator No: ON3164544
Status:
Approval Years: 2013
Contam. Facility:
MHSW Facility:
SIC Code: 416310
SIC Description: GENERAL-LINE BUILDING SUPPLIES WHOLESALER-DISTRIBUTORS
PO Box No:
Country:
Choice of Contact:
Co Admin:
Phone No Admin:

Detail(s)

Waste Class: 252
Waste Class Desc: WASTE OILS & LUBRICANTS

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57 | ***9 of 15*** | ***WNW/257.4*** | ***89.9 / 1.00*** | ***THE BUILDERS WAREHOUSE INC***
3636 INNES ROAD
ORLEANS ON K1C1T1 | ***PES***

Detail Licence No:
Licence No: 14557
Status:
Approval Date:
Report Source: Legacy Licenses (Excluding TS)
Licence Type: Limited Vendor
Licence Type Code: 23
Licence Class: 01
Licence Control:
Latitude:
Longitude:
Lot:
Concession:
Region:
District:
County:
Trade Name:
PDF Link:
Operator Box:
Operator Class:
Operator No:
Operator Type:
Oper Area Code: 613
Oper Phone No: 8242702
Operator Ext:
Operator Lot:
Oper Concession:
Operator Region:
Operator District:
Operator County:
Op Municipality:
Post Office Box:
MOE District:
SWP Area Name:

---

57 | ***10 of 15*** | ***WNW/257.4*** | ***89.9 / 1.00*** | ***7577010 Can Inc***
3636 Innes Rd
Orleans ON K1C 1T1 | ***GEN***

Generator No: ON8280399
Status:
Approval Years: 2016
Contam. Facility: No
MHSW Facility: No
SIC Code: 444110
SIC Description: HOME CENTRES
PO Box No:
Country: Canada
Choice of Contact: CO_ADMIN
Co Admin: Marie France Juteau
Phone No Admin: 4506554388 Ext.5840

Detail(s)

Waste Class: 252
Waste Class Desc: WASTE OILS & LUBRICANTS

Waste Class: 145
Waste Class Desc: PAINT/PIGMENT/COATING RESIDUES

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57 | ***11 of 15*** | ***WNW/257.4*** | ***89.9 / 1.00*** | ***7577010 Can Inc***
3636 Innes Rd
Orleans ON K1C 1T1 | ***GEN***

Generator No:	ON8280399	**PO Box No:**	
Status:		**Country:**	Canada
Approval Years:	2015	**Choice of Contact:**	CO_ADMIN
Contam. Facility:	No	**Co Admin:**	Marie France Juteau
MHSW Facility:	No	**Phone No Admin:**	4506554388 Ext.5840
SIC Code:	444110		
SIC Description:	HOME CENTRES		

Detail(s)

Waste Class:	145
Waste Class Desc:	PAINT/PIGMENT/COATING RESIDUES
Waste Class:	252
Waste Class Desc:	WASTE OILS & LUBRICANTS

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57 | ***12 of 15*** | ***WNW/257.4*** | ***89.9 / 1.00*** | ***7577010 Can Inc***
3636 Innes Rd
Orleans ON K1C 1T1 | ***GEN***

Generator No:	ON8280399	**PO Box No:**	
Status:		**Country:**	Canada
Approval Years:	2014	**Choice of Contact:**	CO_OFFICIAL
Contam. Facility:	No	**Co Admin:**	Jean-Christophe Belzile
MHSW Facility:	No	**Phone No Admin:**	450-655-6700 Ext.5838
SIC Code:	444110		
SIC Description:	HOME CENTRES		

Detail(s)

Waste Class:	145
Waste Class Desc:	PAINT/PIGMENT/COATING RESIDUES
Waste Class:	252
Waste Class Desc:	WASTE OILS & LUBRICANTS

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57 | ***13 of 15*** | ***WNW/257.4*** | ***89.9 / 1.00*** | ***The Builder's Warehouse inc***
3636 Innes Rd.
Orleans ON K1C-1T1 | ***GEN***

Generator No:	ON3164544	**PO Box No:**	
Status:		**Country:**	Canada
Approval Years:	2014	**Choice of Contact:**	CO_OFFICIAL
Contam. Facility:	No	**Co Admin:**	Allan D Schwarz
MHSW Facility:	No	**Phone No Admin:**	613-824-2702 Ext.327
SIC Code:	416310		
SIC Description:	GENERAL-LINE BUILDING SUPPLIES WHOLESALER-DISTRIBUTORS		

Detail(s)

Waste Class:	222
Waste Class Desc:	HEAVY FUELS
Waste Class:	252
Waste Class Desc:	WASTE OILS & LUBRICANTS
Waste Class:	145
Waste Class Desc:	PAINT/PIGMENT/COATING RESIDUES

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57 | ***14 of 15*** | ***WNW/257.4*** | ***89.9 / 1.00*** | ***GESTION BMR INC. O/A BUILDER'S WAREHOUSE/7577010 CANADA INC.*** | ***PES***

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
				3636 INNES RD ORLEANS ON K1C1T1	

Detail Licence No:		Operator Box:	
Licence No:	17044	Operator Class:	
Status:		Operator No:	
Approval Date:		Operator Type:	
Report Source:	Legacy Licenses (Excluding TS)	Oper Area Code:	613
Licence Type:	Limited Vendor	Oper Phone No:	8242488
Licence Type Code:	23	Operator Ext:	
Licence Class:	01	Operator Lot:	
Licence Control:		Oper Concession:	
Latitude:		Operator Region:	
Longitude:		Operator District:	
Lot:		Operator County:	
Concession:		Op Municipality:	
Region:		Post Office Box:	
District:		MOE District:	
County:		SWP Area Name:	
Trade Name:			
PDF Link:			

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
57	15 of 15	WNW/257.4	89.9 / 1.00	BUILDER'S WAREHOUSE 3636 INNES ROAD, . R. #2 ORLEANS ON K1C1T1	PES

Detail Licence No:		Operator Box:	130
Licence No:	10341	Operator Class:	
Status:		Operator No:	
Approval Date:		Operator Type:	
Report Source:	Legacy Licenses (Excluding TS)	Oper Area Code:	613
Licence Type:	Retail Vendor Class 03	Oper Phone No:	8242702
Licence Type Code:	21	Operator Ext:	
Licence Class:	03	Operator Lot:	
Licence Control:		Oper Concession:	
Latitude:		Operator Region:	
Longitude:		Operator District:	
Lot:		Operator County:	
Concession:		Op Municipality:	
Region:		Post Office Box:	
District:		MOE District:	
County:		SWP Area Name:	
Trade Name:			
PDF Link:			

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
58	1 of 1	E/260.3	88.5 / -0.42	Orl?ans ON	WWIS

Well ID:	7291135	Data Entry Status:	
Construction Date:		Data Src:	
Primary Water Use:	Test Hole	Date Received:	7/28/2017
Sec. Water Use:	Monitoring	Selected Flag:	Yes
Final Well Status:	Monitoring and Test Hole	Abandonment Rec:	
Water Type:		Contractor:	7241
Casing Material:		Form Version:	7
Audit No:	Z215089	Owner:	
Tag:	A190013	Street Name:	2225 MER BLEUE
Construction Method:		County:	OTTAWA
Elevation (m):		Municipality:	CUMBERLAND TOWNSHIP
Elevation Reliability:		Site Info:	
Depth to Bedrock:		Lot:	
Well Depth:		Concession:	

Overburden/Bedrock:
Pump Rate:
Static Water Level:
Flowing (Y/N):
Flow Rate:
Clear/Cloudy:

Concession Name:
Easting NAD83:
Northing NAD83:
Zone:
UTM Reliability:

PDF URL (Map):

Bore Hole Information

Bore Hole ID: 1006673061
DP2BR:
Spatial Status:
Code OB:
Code OB Desc:
Open Hole:
Cluster Kind:
Date Completed: 6/7/2017
Remarks:
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Elevation: 89.01918
Elevrc:
Zone: 18
East83: 461001
North83: 5032690
Org CS: UTM83
UTMRC: 4
UTMRC Desc: margin of error : 30 m - 100 m
Location Method: wwr

Overburden and Bedrock Materials Interval

Formation ID: 1006817734
Layer: 3
Color: 2
General Color: GREY
Mat1: 05
Most Common Material: CLAY
Mat2: 06
Mat2 Desc: SILT
Mat3: 85
Mat3 Desc: SOFT
Formation Top Depth: 2
Formation End Depth: 4.57
Formation End Depth UOM: m

Overburden and Bedrock Materials Interval

Formation ID: 1006817733
Layer: 2
Color: 2
General Color: GREY
Mat1: 05
Most Common Material: CLAY
Mat2: 06
Mat2 Desc: SILT
Mat3: 85
Mat3 Desc: SOFT
Formation Top Depth: 1
Formation End Depth: 2
Formation End Depth UOM: m

Overburden and Bedrock

Materials Interval

Formation ID:	1006817732
Layer:	1
Color:	2
General Color:	GREY
Mat1:	05
Most Common Material:	CLAY
Mat2:	02
Mat2 Desc:	TOPSOIL
Mat3:	66
Mat3 Desc:	DENSE
Formation Top Depth:	0
Formation End Depth:	1
Formation End Depth UOM:	m

Annular Space/Abandonment Sealing Record

Plug ID:	1006817742
Layer:	1
Plug From:	0
Plug To:	1.16
Plug Depth UOM:	m

Annular Space/Abandonment Sealing Record

Plug ID:	1006817743
Layer:	2
Plug From:	1.16
Plug To:	4.57
Plug Depth UOM:	m

Method of Construction & Well Use

Method Construction ID:	1006817741
Method Construction Code:	D
Method Construction:	Direct Push
Other Method Construction:	

Pipe Information

Pipe ID:	1006817731
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1006817737
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	0
Depth To:	1.47
Casing Diameter:	4.03
Casing Diameter UOM:	cm
Casing Depth UOM:	m

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB

Construction Record - Screen

Screen ID:	1006817738
Layer:	1
Slot:	10
Screen Top Depth:	1.47
Screen End Depth:	4.57
Screen Material:	5
Screen Depth UOM:	m
Screen Diameter UOM:	cm
Screen Diameter:	4.82

Water Details

Water ID:	1006817736
Layer:	
Kind Code:	
Kind:	
Water Found Depth:	
Water Found Depth UOM:	m

Hole Diameter

Hole ID:	1006817735
Diameter:	8.3
Depth From:	0
Depth To:	4.57
Hole Depth UOM:	m
Hole Diameter UOM:	cm

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59 ***1 of 1*** ***E/269.5*** ***88.8 / -0.05*** ***ON*** ***BORE***

Borehole ID:	616290	***Inclin FLG:***	No
OGF ID:	215517079	***SP Status:***	Initial Entry
Status:		***Surv Elev:***	No
Type:	Borehole	***Piezometer:***	No
Use:		***Primary Name:***	
Completion Date:	JUL-1969	***Municipality:***	
Static Water Level:		***Lot:***	
Primary Water Use:		***Township:***	
Sec. Water Use:		***Latitude DD:***	45.446757
Total Depth m:	14.6	***Longitude DD:***	-75.498325
Depth Ref:	Ground Surface	***UTM Zone:***	18
Depth Elev:		***Easting:***	461031
Drill Method:		***Northing:***	5032702
Orig Ground Elev m:	89.9	***Location Accuracy:***	
Elev Reliabil Note:		***Accuracy:***	Not Applicable
DEM Ground Elev m:	89		
Concession:			
Location D:			
Survey D:			
Comments:			

Borehole Geology Stratum

Geology Stratum ID:	218403576	***Mat Consistency:***	
Top Depth:	0	***Material Moisture:***	
Bottom Depth:	12.2	***Material Texture:***	
Material Color:	Blue	***Non Geo Mat Type:***	
Material 1:	Clay	***Geologic Formation:***	
Material 2:		***Geologic Group:***	

Material 3:
Material 4:
Gsc Material Description:
Stratum Description: CLAY. BLUE.

Geology Stratum ID: 218403577
Top Depth: 12.2
Bottom Depth: 14.6
Material Color: Grey
Material 1: Gravel
Material 2:
Material 3:
Material 4:
Gsc Material Description:
Stratum Description: GRAVEL. GREY. 00048 UNSPECIFIED. SEISMIC VELOCITY = 6300. BEDROCK. SEISMIC VELOCITY = 19500
**Note: Many records provided by the department have a truncated [Stratum Description] field.

Geologic Period:
Depositional Gen:
Mat Consistency:
Material Moisture:
Material Texture:
Non Geo Mat Type:
Geologic Formation:
Geologic Group:
Geologic Period:
Depositional Gen:

Source

Source Type: Data Survey
Source Orig: Geological Survey of Canada
Source Date: 1956-1972
Confidence:
Observatio:
Source Name: Urban Geology Automated Information System (UGAIS)
Source Details: File: OTTAWA2.txt RecordID: 08798 NTS_Sheet:
Confiden 1:

Source Appl: Spatial/Tabular
Source Iden: 1
Scale or Res: Varies
Horizontal: NAD27
Verticalda: Mean Average Sea Level

Source List

Source Identifier: 1
Source Type: Data Survey
Source Date: 1956-1972
Scale or Resolution: Varies
Source Name: Urban Geology Automated Information System (UGAIS)
Source Originators: Geological Survey of Canada

Horizontal Datum: NAD27
Vertical Datum: Mean Average Sea Level
Projection Name: Universal Transverse Mercator

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60 | 1 of 1 | E/269.7 | 88.8 / -0.05 | lot 2 con 11 ON | WWIS

Well ID: 1512854
Construction Date:
Primary Water Use: Livestock
Sec. Water Use: 0
Final Well Status: Water Supply
Water Type:
Casing Material:
Audit No:
Tag:
Construction Method:
Elevation (m):
Elevation Reliability:
Depth to Bedrock:
Well Depth:
Overburden/Bedrock:
Pump Rate:
Static Water Level:
Flowing (Y/N):
Flow Rate:
Clear/Cloudy:

Data Entry Status:
Data Src: 1
Date Received: 7/30/1970
Selected Flag: Yes
Abandonment Rec:
Contractor: 1504
Form Version: 1
Owner:
Street Name:
County: OTTAWA
Municipality: CUMBERLAND TOWNSHIP
Site Info:
Lot: 002
Concession: 11
Concession Name: CON
Easting NAD83:
Northing NAD83:
Zone:
UTM Reliability:

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/151\1512854.pdf

Bore Hole Information

Bore Hole ID:	10034842	***Elevation:***	89.029968
DP2BR:		***Elevrc:***	
Spatial Status:		***Zone:***	18
Code OB:	o	***East83:***	461030.8
Code OB Desc:	Overburden	***North83:***	5032702
Open Hole:		***Org CS:***	
Cluster Kind:		***UTMRC:***	4
Date Completed:	7/15/1969	***UTMRC Desc:***	margin of error : 30 m - 100 m
Remarks:		***Location Method:***	p4
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	931021733
Layer:	1
Color:	3
General Color:	BLUE
Mat1:	05
Most Common Material:	CLAY
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	0
Formation End Depth:	40
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	931021734
Layer:	2
Color:	2
General Color:	GREY
Mat1:	11
Most Common Material:	GRAVEL
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	40
Formation End Depth:	48
Formation End Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	961512854
Method Construction Code:	7
Method Construction:	Diamond
Other Method Construction:	

Pipe Information

Pipe ID: 10583412
Casing No: 1
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 930061714
Layer: 1
Material: 2
Open Hole or Material: GALVANIZED
Depth From:
Depth To: 48
Casing Diameter: 2
Casing Diameter UOM: inch
Casing Depth UOM: ft

Results of Well Yield Testing

Pump Test ID: 991512854
Pump Set At:
Static Level: 2
Final Level After Pumping: 20
Recommended Pump Depth: 25
Pumping Rate: 10
Flowing Rate:
Recommended Pump Rate: 6
Levels UOM: ft
Rate UOM: GPM
Water State After Test Code: 1
Water State After Test: CLEAR
Pumping Test Method: 1
Pumping Duration HR: 2
Pumping Duration MIN: 0
Flowing: No

Draw Down & Recovery

Pump Test Detail ID: 934896482
Test Type: Draw Down
Test Duration: 60
Test Level: 20
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934098889
Test Type: Draw Down
Test Duration: 15
Test Level: 20
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934639000
Test Type: Draw Down
Test Duration: 45
Test Level: 20
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934378002
Test Type: Draw Down
Test Duration: 30
Test Level: 20
Test Level UOM: ft

Water Details

Water ID: 933468344
Layer: 1
Kind Code: 1
Kind: FRESH
Water Found Depth: 48
Water Found Depth UOM: ft

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61 *1 of 5* *NNE/272.8* *87.5 / -1.34*

Northcott/Bartos Dentistry
2002 Mer Bleue Rd Unit 2
Orleans ON K4A0G2

GEN

Generator No: ON4272846
Status:
Approval Years: 2016
Contam. Facility: No
MHSW Facility: No
SIC Code: 621210
SIC Description: OFFICES OF DENTISTS

PO Box No:
Country: Canada
Choice of Contact: CO_OFFICIAL
Co Admin: Heather McIntosh
Phone No Admin: 6138303033 Ext.

Detail(s)

Waste Class: 312
Waste Class Desc: PATHOLOGICAL WASTES

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61 *2 of 5* *NNE/272.8* *87.5 / -1.34*

Northcott/Bartos Dentistry
2002 Mer Bleue Rd Unit 2
Orleans ON K4A0G2

GEN

Generator No: ON4272846
Status:
Approval Years: 2015
Contam. Facility: No
MHSW Facility: No
SIC Code: 621210
SIC Description: OFFICES OF DENTISTS

PO Box No:
Country: Canada
Choice of Contact: CO_OFFICIAL
Co Admin: Cindy Guenette
Phone No Admin: 6138303033 Ext.

Detail(s)

Waste Class: 312
Waste Class Desc: PATHOLOGICAL WASTES

---

61 *3 of 5* *NNE/272.8* *87.5 / -1.34*

Northcott/Bartos Dentistry
2002 Mer Bleue Rd Unit 2
Orleans ON K4A0G2

GEN

Generator No: ON4272846
Status: Registered
Approval Years: As of Dec 2018
Contam. Facility:
MHSW Facility:
SIC Code:
SIC Description:

PO Box No:
Country: Canada
Choice of Contact:
Co Admin:
Phone No Admin:

Detail(s)

Waste Class: 312 P
Waste Class Desc: Pathological wastes

---

61 ***4 of 5*** ***NNE/272.8*** ***87.5 / -1.34*** ***Northcott/Bartos Dentistry*** ***GEN***
2002 Mer Bleue Rd Unit 2
Orleans ON K4A0G2

Generator No: ON4272846
Status: Registered
Approval Years: As of Apr 2020
Contam. Facility:
MHSW Facility:
SIC Code:
SIC Description:

PO Box No:
Country: Canada
Choice of Contact:
Co Admin:
Phone No Admin:

Detail(s)

Waste Class: 312 P
Waste Class Desc: Pathological wastes

---

61 ***5 of 5*** ***NNE/272.8*** ***87.5 / -1.34*** ***PETM Canada Corporation*** ***GEN***
2002 Mer Bleue Road
Orleans ON K4A0G2

Generator No: ON5304692
Status: Registered
Approval Years: As of Apr 2020
Contam. Facility:
MHSW Facility:
SIC Code:
SIC Description:

PO Box No:
Country: Canada
Choice of Contact:
Co Admin:
Phone No Admin:

Detail(s)

Waste Class: 148 A
Waste Class Desc: Misc. wastes and inorganic chemicals

Waste Class: 269 T
Waste Class Desc: Organic non-halogenated pesticide and herbicide wastes

Waste Class: 331 I
Waste Class Desc: Waste compressed gases including cylinders

Waste Class: 263 L
Waste Class Desc: Misc. waste organic chemicals

Waste Class: 263 A
Waste Class Desc: Misc. waste organic chemicals

Waste Class: 212 L
Waste Class Desc: Aliphatic solvents and residues

Waste Class: 331 L
Waste Class Desc: Waste compressed gases including cylinders

Waste Class: 252 L
Waste Class Desc: Waste crankcase oils and lubricants

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
62	1 of 1	SSE/275.8	84.9 / -4.00	ON	BORE

Borehole ID:	616278	**Inclin FLG:**	No
OGF ID:	215517067	**SP Status:**	Initial Entry
Status:		**Surv Elev:**	No
Type:	Borehole	**Piezometer:**	No
Use:		**Primary Name:**	
Completion Date:	JUL-1964	**Municipality:**	
Static Water Level:		**Lot:**	
Primary Water Use:		**Township:**	
Sec. Water Use:		**Latitude DD:**	45.440413
Total Depth m:	24.7	**Longitude DD:**	-75.50823
Depth Ref:	Ground Surface	**UTM Zone:**	18
Depth Elev:		**Easting:**	460252
Drill Method:		**Northing:**	5032002
Orig Ground Elev m:	87.5	**Location Accuracy:**	
Elev Reliabil Note:		**Accuracy:**	Not Applicable
DEM Ground Elev m:	88		
Concession:			
Location D:			
Survey D:			
Comments:			

Borehole Geology Stratum

Geology Stratum ID:	218403541	**Mat Consistency:**	
Top Depth:	22.9	**Material Moisture:**	
Bottom Depth:	24.7	**Material Texture:**	
Material Color:		**Non Geo Mat Type:**	
Material 1:	Gravel	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	GRAVEL. 00081 1000. UNSPECIFIED. SEISMIC VELOCITY = 4900. BEDROCK. SEISMIC VELOCITY = 18000 **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Geology Stratum ID:	218403540	**Mat Consistency:**	
Top Depth:	0	**Material Moisture:**	
Bottom Depth:	22.9	**Material Texture:**	
Material Color:	Blue	**Non Geo Mat Type:**	
Material 1:	Clay	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	CLAY. BLUE.		

Source

Source Type:	Data Survey	**Source Appl:**	Spatial/Tabular
Source Orig:	Geological Survey of Canada	**Source Iden:**	1
Source Date:	1956-1972	**Scale or Res:**	Varies
Confidence:		**Horizontal:**	NAD27
Observatio:		**Verticalda:**	Mean Average Sea Level
Source Name:	Urban Geology Automated Information System (UGAIS)		
Source Details:	File: OTTAWA2.txt RecordID: 08786 NTS_Sheet:		
Confiden 1:			

Source List

Source Identifier:	1	**Horizontal Datum:**	NAD27

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB

Source Type:	Data Survey	**Vertical Datum:**	Mean Average Sea Level
Source Date:	1956-1972	**Projection Name:**	Universal Transverse Mercator
Scale or Resolution:	Varies		
Source Name:	Urban Geology Automated Information System (UGAIS)		
Source Originators:	Geological Survey of Canada		

63 **1 of 1** **SSE/276.0** **84.9 / -4.00** **lot 3 con 11 ON** **WWIS**

Well ID:	1512856	**Data Entry Status:**	
Construction Date:		**Data Src:**	1
Primary Water Use:	Domestic	**Date Received:**	1/19/1965
Sec. Water Use:	0	**Selected Flag:**	Yes
Final Well Status:	Water Supply	**Abandonment Rec:**	
Water Type:		**Contractor:**	1504
Casing Material:		**Form Version:**	1
Audit No:		**Owner:**	
Tag:		**Street Name:**	
Construction Method:		**County:**	OTTAWA
Elevation (m):		**Municipality:**	CUMBERLAND TOWNSHIP
Elevation Reliability:		**Site Info:**	
Depth to Bedrock:		**Lot:**	003
Well Depth:		**Concession:**	11
Overburden/Bedrock:		**Concession Name:**	CON
Pump Rate:		**Easting NAD83:**	
Static Water Level:		**Northing NAD83:**	
Flowing (Y/N):		**Zone:**	
Flow Rate:		**UTM Reliability:**	
Clear/Cloudy:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/151\1512856.pdf

Bore Hole Information

Bore Hole ID:	10034844	**Elevation:**	88.018615
DP2BR:		**Elevrc:**	
Spatial Status:		**Zone:**	18
Code OB:	o	**East83:**	460251.8
Code OB Desc:	Overburden	**North83:**	5032002
Open Hole:		**Org CS:**	
Cluster Kind:		**UTMRC:**	9
Date Completed:	7/30/1964	**UTMRC Desc:**	unknown UTM
Remarks:		**Location Method:**	p5
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	931021737
Layer:	1
Color:	3
General Color:	BLUE
Mat1:	05
Most Common Material:	CLAY
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	

Formation Top Depth:	0
Formation End Depth:	75
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	931021738
Layer:	2
Color:	
General Color:	
Mat1:	11
Most Common Material:	GRAVEL
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	75
Formation End Depth:	81
Formation End Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	961512856
Method Construction Code:	7
Method Construction:	Diamond
Other Method Construction:	

Pipe Information

Pipe ID:	10583414
Casing No:	1
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	930061716
Layer:	1
Material:	1
Open Hole or Material:	STEEL
Depth From:	
Depth To:	81
Casing Diameter:	2
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Results of Well Yield Testing

Pump Test ID:	991512856
Pump Set At:	
Static Level:	
Final Level After Pumping:	20
Recommended Pump Depth:	20
Pumping Rate:	6
Flowing Rate:	
Recommended Pump Rate:	6
Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	1
Water State After Test:	CLEAR

Pumping Test Method: 1
Pumping Duration HR: 3
Pumping Duration MIN: 0
Flowing: Yes

Water Details

Water ID: 933468346
Layer: 1
Kind Code: 1
Kind: FRESH
Water Found Depth: 81
Water Found Depth UOM: ft

---

64 *1 of 4* *NNE/277.2* *88.8 / -0.05* ***J.W. Shaw Pharmacy Ltd.***
3940 INNES ROAD
ORLEANS ON K1W 1K9 ***GEN***

Generator No: ON6552157
Status:
Approval Years: 2016
Contam. Facility: No
MHSW Facility: No
SIC Code: 446110
SIC Description: 446110

PO Box No:
Country: Canada
Choice of Contact: CO_ADMIN
Co Admin: NASTRAN NAJAFI-FARD
Phone No Admin: 4164931220 Ext.3218

Detail(s)

Waste Class: 261
Waste Class Desc: PHARMACEUTICALS

Waste Class: 312
Waste Class Desc: PATHOLOGICAL WASTES

---

64 *2 of 4* *NNE/277.2* *88.8 / -0.05* ***J.W. Shaw Pharmacy Ltd.***
3940 INNES ROAD
ORELANS ON K1W 1K9 ***GEN***

Generator No: ON6552157
Status:
Approval Years: 2015
Contam. Facility: No
MHSW Facility: No
SIC Code: 446110
SIC Description: 446110

PO Box No:
Country: Canada
Choice of Contact: CO_ADMIN
Co Admin: NASTRAN NAJAFI-FARD
Phone No Admin: 4164931220 Ext.3218

Detail(s)

Waste Class: 312
Waste Class Desc: PATHOLOGICAL WASTES

Waste Class: 261
Waste Class Desc: PHARMACEUTICALS

---

64 *3 of 4* *NNE/277.2* *88.8 / -0.05* ***J.W. Shaw Pharmacy Ltd.***
3940 INNES ROAD
ORLEANS ON K1W 1K9 ***GEN***

Generator No: ON6552157
Status: Registered
Approval Years: As of Dec 2018

PO Box No:
Country: Canada
Choice of Contact:

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB

Contam. Facility:
MHSW Facility:
SIC Code:
SIC Description:
Co Admin:
Phone No Admin:

Detail(s)

Waste Class: 261 A
Waste Class Desc: Pharmaceuticals

Waste Class: 312 P
Waste Class Desc: Pathological wastes

---

64 **4 of 4** **NNE/277.2** **88.8 / -0.05** **J.W. Shaw Pharmacy Ltd.**
3940 INNES ROAD
ORLEANS ON K1W 1K9
GEN

Generator No: ON6552157
Status: Registered
Approval Years: As of Apr 2020
Contam. Facility:
MHSW Facility:
SIC Code:
SIC Description:
PO Box No:
Country: Canada
Choice of Contact:
Co Admin:
Phone No Admin:

Detail(s)

Waste Class: 261 A
Waste Class Desc: Pharmaceuticals

Waste Class: 312 P
Waste Class Desc: Pathological wastes

---

65 **1 of 1** **S/277.5** **84.9 / -4.00** **Mer Blue Rd & Navan Rd**
Ottawa ON
EHS

Order No: 20130509006
Status: C
Report Type: Custom Report
Report Date: 01-AUG-13
Date Received: 09-MAY-13
Previous Site Name:
Lot/Building Size:
Additional Info Ordered:
Nearest Intersection:
Municipality:
Client Prov/State: ON
Search Radius (km): .25
X: -75.51051
Y: 45.43894

---

66 **1 of 1** **NNE/278.4** **86.2 / -2.68** **lot 1 con 3**
ON
WWIS

Well ID: 1509939
Construction Date:
Primary Water Use: Domestic
Sec. Water Use: 0
Final Well Status: Water Supply
Water Type:
Casing Material:
Audit No:
Tag:
Construction Method:
Elevation (m):
Elevation Reliability:
Depth to Bedrock:
Data Entry Status:
Data Src: 1
Date Received: 2/5/1969
Selected Flag: Yes
Abandonment Rec:
Contractor: 1504
Form Version: 1
Owner:
Street Name:
County: OTTAWA
Municipality: GLOUCESTER TOWNSHIP
Site Info:
Lot: 001

Well Depth:		**Concession:**	03
Overburden/Bedrock:		**Concession Name:**	OF
Pump Rate:		**Easting NAD83:**	
Static Water Level:		**Northing NAD83:**	
Flowing (Y/N):		**Zone:**	
Flow Rate:		**UTM Reliability:**	
Clear/Cloudy:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/150\1509939.pdf

Bore Hole Information

Bore Hole ID:	10031971	**Elevation:**	89.820137
DP2BR:	78	**Elevrc:**	
Spatial Status:		**Zone:**	18
Code OB:	r	**East83:**	460520.8
Code OB Desc:	Bedrock	**North83:**	5033612
Open Hole:		**Org CS:**	
Cluster Kind:		**UTMRC:**	4
Date Completed:	7/12/1968	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	p4
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	931013446
Layer:	2
Color:	3
General Color:	BLUE
Mat1:	05
Most Common Material:	CLAY
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	4
Formation End Depth:	78
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	931013445
Layer:	1
Color:	5
General Color:	YELLOW
Mat1:	09
Most Common Material:	MEDIUM SAND
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	0
Formation End Depth:	4
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	931013447
Layer:	3
Color:	2
General Color:	GREY
Mat1:	15
Most Common Material:	LIMESTONE
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	78
Formation End Depth:	106
Formation End Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	961509939
Method Construction Code:	1
Method Construction:	Cable Tool
Other Method Construction:	

Pipe Information

Pipe ID:	10580541
Casing No:	1
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	930056569
Layer:	2
Material:	4
Open Hole or Material:	OPEN HOLE
Depth From:	
Depth To:	106
Casing Diameter:	2
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Casing

Casing ID:	930056568
Layer:	1
Material:	1
Open Hole or Material:	STEEL
Depth From:	
Depth To:	80
Casing Diameter:	2
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Results of Well Yield Testing

Pump Test ID:	991509939
Pump Set At:	
Static Level:	21
Final Level After Pumping:	60

Recommended Pump Depth:	60
Pumping Rate:	5
Flowing Rate:	
Recommended Pump Rate:	5
Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	1
Water State After Test:	CLEAR
Pumping Test Method:	1
Pumping Duration HR:	3
Pumping Duration MIN:	0
Flowing:	No

Water Details

Water ID:	933464858
Layer:	1
Kind Code:	1
Kind:	FRESH
Water Found Depth:	106
Water Found Depth UOM:	ft

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67 **1 of 1** **NNE/278.5** **86.2 / -2.68** **ON** **BORE**

Borehole ID:	616305	**Inclin FLG:**	No
OGF ID:	215517094	**SP Status:**	Initial Entry
Status:		**Surv Elev:**	No
Type:	Borehole	**Piezometer:**	No
Use:		**Primary Name:**	
Completion Date:	JUL-1968	**Municipality:**	
Static Water Level:		**Lot:**	
Primary Water Use:		**Township:**	
Sec. Water Use:		**Latitude DD:**	45.454919
Total Depth m:	32.3	**Longitude DD:**	-75.504919
Depth Ref:	Ground Surface	**UTM Zone:**	18
Depth Elev:		**Easting:**	460521
Drill Method:		**Northing:**	5033612
Orig Ground Elev m:	89.6	**Location Accuracy:**	
Elev Reliabil Note:		**Accuracy:**	Not Applicable
DEM Ground Elev m:	89.8		
Concession:			
Location D:			
Survey D:			
Comments:			

Borehole Geology Stratum

Geology Stratum ID:	218403617	**Mat Consistency:**	
Top Depth:	1.2	**Material Moisture:**	
Bottom Depth:	23.8	**Material Texture:**	
Material Color:	Blue	**Non Geo Mat Type:**	
Material 1:	Clay	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	CLAY. BLUE.		

Geology Stratum ID:	218403618	**Mat Consistency:**	
Top Depth:	23.8	**Material Moisture:**	
Bottom Depth:	32.3	**Material Texture:**	
Material Color:	Dark	**Non Geo Mat Type:**	

Material 1:	Limestone	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	LIMESTONE. GREY. 00106RS. BEDROCK. GREY. ROCK. SEISMIC VELOCITY = 18000. K. DARK,G **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Geology Stratum ID:	218403616	**Mat Consistency:**	
Top Depth:	0	**Material Moisture:**	
Bottom Depth:	1.2	**Material Texture:**	
Material Color:	Yellow	**Non Geo Mat Type:**	
Material 1:	Sand	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	SAND. YELLOW.		

Source

Source Type:	Data Survey	**Source Appl:**	Spatial/Tabular
Source Orig:	Geological Survey of Canada	**Source Iden:**	1
Source Date:	1956-1972	**Scale or Res:**	Varies
Confidence:		**Horizontal:**	NAD27
Observatio:		**Verticalda:**	Mean Average Sea Level
Source Name:	Urban Geology Automated Information System (UGAIS)		
Source Details:	File: OTTAWA2.txt RecordID: 08813 NTS_Sheet:		
Confiden 1:			

Source List

Source Identifier:	1	**Horizontal Datum:**	NAD27
Source Type:	Data Survey	**Vertical Datum:**	Mean Average Sea Level
Source Date:	1956-1972	**Projection Name:**	Universal Transverse Mercator
Scale or Resolution:	Varies		
Source Name:	Urban Geology Automated Information System (UGAIS)		
Source Originators:	Geological Survey of Canada		

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68 | 1 of 1 | N/283.5 | 88.9 / 0.00 | 3880 Innes Rd, Orleans Ottawa ON K1W 1K9 | SPL

Ref No:	3758-9LCP3E	**Discharger Report:**	
Site No:	NA	**Material Group:**	
Incident Dt:	2014/06/23	**Health/Env Conseq:**	
Year:		**Client Type:**	
Incident Cause:	Unknown / N/A	**Sector Type:**	Other
Incident Event:		**Agency Involved:**	
Contaminant Code:	15	**Nearest Watercourse:**	
Contaminant Name:	OIL (PETROLEUM BASED, NOT SPECIFIED)	**Site Address:**	3880 Innes Rd, Orleans
Contaminant Limit 1:		**Site District Office:**	
Contam Limit Freq 1:		**Site Postal Code:**	K1W 1K9
Contaminant UN No 1:		**Site Region:**	
Environment Impact:	Not Anticipated	**Site Municipality:**	Ottawa
Nature of Impact:	Surface Water Pollution	**Site Lot:**	
Receiving Medium:		**Site Conc:**	
Receiving Env:		**Northing:**	
MOE Response:	No Field Response	**Easting:**	
Dt MOE Arvl on Scn:		**Site Geo Ref Accu:**	
MOE Reported Dt:	2014/06/23	**Site Map Datum:**	
Dt Document Closed:	2014/10/15	**SAC Action Class:**	Watercourse Spills
Incident Reason:	Unknown / N/A	**Source Type:**	
Site Name:	Catch Basin<UNOFFICIAL>		

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Site County/District:					
Site Geo Ref Meth:					
Incident Summary:		Oil in catch basin, cleaning			
Contaminant Qty:		10 L			

69	1 of 29	NNE/288.8	86.7 / -2.16	MR GAS LIMITED ATTN LILIANNE LEVAC 4042 INNES RD GLOUCESTER ON K1C1T1	PRT

Location ID:	10619
Type:	retail
Expiry Date:	1995-06-30
Capacity (L):	45300
Licence #:	0010002014

69	2 of 29	NNE/288.8	86.7 / -2.16	4042 Innes Road Gloucester ON K1C 1T1	CA

Certificate #:	3044-4JYKD9
Application Year:	00
Issue Date:	5/4/00
Approval Type:	Municipal & Private sewage
Status:	Approved
Application Type:	New Certificate of Approval
Client Name:	Marc Gagnon
Client Address:	1420 Youville Drive, Suite 1
Client City:	Orleans
Client Postal Code:	K1C 7B3
Project Description:	Sanitary sewer extension along Innes Road.
Contaminants:	
Emission Control:	

69	3 of 29	NNE/288.8	86.7 / -2.16	MR GAS 031 4042 INNES RD OTTAWA ON K1C 1T1	RST

Headcode:	1186800
Headcode Desc:	Service Stations-Gasoline, Oil & Natural Gas
Phone:	6138377652
List Name:	
Description:	

69	4 of 29	NNE/288.8	86.7 / -2.16	MR GAS LIMITED ATTN LILIANNE LEVAC ** 4042 INNES RD ORLEANS ON K1C 1T1	FSTH

License Issue Date:	9/27/2002
Tank Status:	Licensed
Tank Status As Of:	August 2007
Operation Type:	Retail Fuel Outlet
Facility Type:	Gasoline Station - Self Serve

--Details--

Status:	Active
Year of Installation:	2000
Corrosion Protection:	
Capacity:	35000
Tank Fuel Type:	Liquid Fuel Single Wall UST - Gasoline

Status: Active
Year of Installation: 2000
Corrosion Protection:
Capacity: 20000
Tank Fuel Type: Liquid Fuel Single Wall UST - Diesel

Status: Active
Year of Installation: 2000
Corrosion Protection:
Capacity: 35000
Tank Fuel Type: Liquid Fuel Single Wall UST - Gasoline

Status: Active
Year of Installation: 2000
Corrosion Protection:
Capacity: 35000
Tank Fuel Type: Liquid Fuel Single Wall UST - Gasoline

---

69 | ***5 of 29*** | ***NNE/288.8*** | ***86.7 / -2.16*** | ***MR GAS 031***
4042 INNES RD
ORLEANS ON K1C 1T1 | ***RST***

Headcode: 01186800
Headcode Desc: SERVICE STATIONS-GASOLINE, OIL & NATURAL GAS
Phone:
List Name:
Description:

---

69 | ***6 of 29*** | ***NNE/288.8*** | ***86.7 / -2.16*** | ***MR GAS LIMITED *****
4042 INNES RD
ORLEANS ON K1C 1T1 | ***FSTH***

License Issue Date: 9/27/2002
Tank Status: Licensed
Tank Status As Of: December 2008
Operation Type: Retail Fuel Outlet
Facility Type: Gasoline Station - Self Serve

--Details--
Status: Active
Year of Installation: 2000
Corrosion Protection:
Capacity: 35000
Tank Fuel Type: Liquid Fuel Single Wall UST - Gasoline

Status: Active
Year of Installation: 2000
Corrosion Protection:
Capacity: 35000
Tank Fuel Type: Liquid Fuel Single Wall UST - Gasoline

Status: Active
Year of Installation: 2000
Corrosion Protection:
Capacity: 35000
Tank Fuel Type: Liquid Fuel Single Wall UST - Gasoline

Status: Active
Year of Installation: 2000
Corrosion Protection:

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Capacity:		20000			
Tank Fuel Type:		Liquid Fuel Single Wall UST - Diesel			

69	7 of 29	NNE/288.8	86.7 / -2.16	**4042 INNES ROAD** **ORLEANS ON K1C 1T1**	HINC

External File Num:	FS INC 0801-00020
Fuel Occurrence Type:	Pipeline Strike
Date of Occurrence:	12/15/2007
Fuel Type Involved:	Natural Gas
Status Desc:	Completed - Causal Analysis(End)
Job Type Desc:	Incident/Near-Miss Occurrence (FS)
Oper. Type Involved:	Construction Site (pipeline strike)
Service Interruptions:	Yes
Property Damage:	Yes
Fuel Life Cycle Stage:	Transmission, Distribution and Transportation
Root Cause:	Root Cause: Equipment/Material/Component:No Procedures:Yes Maintenance:No Design:Yes Training: Yes Management:Yes Human Factors:Yes
Reported Details:	
Fuel Category:	Gaseous Fuel
Occurrence Type:	Incident
Affiliation:	Industry Stakeholder (Licensee/Registration/Certificate Holder, Facility Owner, etc.)
County Name:	Ottawa
Approx. Quant. Rel:	
Nearby body of water:	
Enter Drainage Syst.:	
Approx. Quant. Unit:	
Environmental Impact:	

69	8 of 29	NNE/288.8	86.7 / -2.16	**MR GAS LIMITED **** **4042 INNES RD** **ORLEANS ON K1W 1A7**	EXP

Instance No:	9454172
Instance ID:	
Instance Type:	FS Facility
Description:	
Status:	EXPIRED
TSSA Program Area:	
Maximum Hazard Rank:	
Facility Type:	
Expired Date:	6/2/2000

69	9 of 29	NNE/288.8	86.7 / -2.16	**MR GAS LIMITED ABDALLAH JEHA** **4042 INNES RD** **ORLEANS ON**	EXP

Instance No:	10150654
Instance ID:	12764
Instance Type:	FS Facility
Description:	FS Propane Cylr Handling Facility
Status:	EXPIRED
TSSA Program Area:	
Maximum Hazard Rank:	
Facility Type:	
Expired Date:	

69	10 of 29	NNE/288.8	86.7 / -2.16	**MR GAS LIMITED **** **4042 INNES RD**	EXP

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
				ORLEANS ON K1W 1A7	

Instance No: 11317410
Instance ID:
Instance Type: FS Liquid Fuel Tank
Description:
Status: EXPIRED
TSSA Program Area:
Maximum Hazard Rank:
Facility Type:
Expired Date: 6/2/2000

69	11 of 29	NNE/288.8	86.7 / -2.16	MR GAS LIMITED ** 4042 INNES RD ORLEANS ON K1W 1A7	EXP

Instance No: 10893503
Instance ID:
Instance Type: FS Liquid Fuel Tank
Description:
Status: EXPIRED
TSSA Program Area:
Maximum Hazard Rank:
Facility Type:
Expired Date: 6/2/2000

69	12 of 29	NNE/288.8	86.7 / -2.16	MR GAS LIMITED ** 4042 INNES RD ORLEANS ON K1W 1A7	EXP

Instance No: 10893488
Instance ID:
Instance Type: FS Liquid Fuel Tank
Description:
Status: EXPIRED
TSSA Program Area:
Maximum Hazard Rank:
Facility Type:
Expired Date: 6/2/2000

69	13 of 29	NNE/288.8	86.7 / -2.16	MR GAS LIMITED ** 4042 INNES RD ORLEANS ON K1W 1A7	EXP

Instance No: 10893521
Instance ID:
Instance Type: FS Liquid Fuel Tank
Description:
Status: EXPIRED
TSSA Program Area:
Maximum Hazard Rank:
Facility Type:
Expired Date: 6/2/2000

69	14 of 29	NNE/288.8	86.7 / -2.16	MR GAS LIMITED ** 4042 INNES RD ORLEANS ON	EXP

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Instance No:		11317431			
Instance ID:		77787			
Instance Type:		FS Piping			
Description:		FS Piping			
Status:		EXPIRED			
TSSA Program Area:					
Maximum Hazard Rank:					
Facility Type:					
Expired Date:					
69	15 of 29	NNE/288.8	86.7 / -2.16	MR GAS LIMITED ** 4042 INNES RD ORLEANS ON	EXP
Instance No:		10893527			
Instance ID:		49660			
Instance Type:		FS Piping			
Description:		FS Piping			
Status:		EXPIRED			
TSSA Program Area:					
Maximum Hazard Rank:					
Facility Type:					
Expired Date:					
69	16 of 29	NNE/288.8	86.7 / -2.16	MR GAS LIMITED ** 4042 INNES RD ORLEANS ON	EXP
Instance No:		10893512			
Instance ID:		50042			
Instance Type:		FS Piping			
Description:		FS Piping			
Status:		EXPIRED			
TSSA Program Area:					
Maximum Hazard Rank:					
Facility Type:					
Expired Date:					
69	17 of 29	NNE/288.8	86.7 / -2.16	MR GAS LIMITED ** 4042 INNES RD ORLEANS ON	EXP
Instance No:		10893497			
Instance ID:		50512			
Instance Type:		FS Piping			
Description:		FS Piping			
Status:		EXPIRED			
TSSA Program Area:					
Maximum Hazard Rank:					
Facility Type:					
Expired Date:					
69	18 of 29	NNE/288.8	86.7 / -2.16	MR GAS LIMITED ** 4042 INNES RD ORLEANS ON K1W 1A7	FST
Instance No:		11621388			
Cont Name:					
Instance Type:		FS Liquid Fuel Tank			

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB

Fuel Type:	Diesel
Status:	Active
Capacity:	20000
Tank Material:	Fiberglass (FRP)
Corrosion Protection:	Fiberglass
Tank Type:	Double Wall UST
Install Year:	2000
Parent Facility Type:	FS Gasoline Station - Self Serve
Facility Type:	FS Liquid Fuel Tank

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
69	19 of 29	NNE/288.8	86.7 / -2.16	MR GAS LIMITED ** 4042 INNES RD ORLEANS ON K1W 1A7	FST

Instance No:	11610901
Cont Name:	
Instance Type:	FS Liquid Fuel Tank
Fuel Type:	Gasoline
Status:	Active
Capacity:	35000
Tank Material:	Fiberglass (FRP)
Corrosion Protection:	Fiberglass
Tank Type:	Double Wall UST
Install Year:	2000
Parent Facility Type:	FS Gasoline Station - Self Serve
Facility Type:	FS Liquid Fuel Tank

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
69	20 of 29	NNE/288.8	86.7 / -2.16	MR GAS LIMITED ** 4042 INNES RD ORLEANS ON K1W 1A7	FST

Instance No:	11610885
Cont Name:	
Instance Type:	FS Liquid Fuel Tank
Fuel Type:	Gasoline
Status:	Active
Capacity:	35000
Tank Material:	Fiberglass (FRP)
Corrosion Protection:	Fiberglass
Tank Type:	Double Wall UST
Install Year:	2000
Parent Facility Type:	FS Gasoline Station - Self Serve
Facility Type:	FS Liquid Fuel Tank

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
69	21 of 29	NNE/288.8	86.7 / -2.16	MR GAS LIMITED ** 4042 INNES RD ORLEANS ON K1W 1A7	FST

Instance No:	11610869
Cont Name:	
Instance Type:	FS Liquid Fuel Tank
Fuel Type:	Gasoline
Status:	Active
Capacity:	35000
Tank Material:	Fiberglass (FRP)
Corrosion Protection:	Fiberglass
Tank Type:	Double Wall UST
Install Year:	2000
Parent Facility Type:	FS Gasoline Station - Self Serve
Facility Type:	FS Liquid Fuel Tank

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
69	22 of 29	NNE/288.8	86.7 / -2.16	MR GAS 031 4042 INNES RD ORLEANS ON K1C1T1	RST

Headcode: 01186800
Headcode Desc: SERVICE STATIONS GASOLINE OIL & NATURAL
Phone: 6138377652
List Name:
Description:

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
69	23 of 29	NNE/288.8	86.7 / -2.16	MR. GAS LIMITED 4042 INNES ROAD OTTAWA ON	GEN

Generator No: ON7422631
Status:
Approval Years: 2013
Contam. Facility:
MHSW Facility:
SIC Code: 447190
SIC Description:
PO Box No:
Country:
Choice of Contact:
Co Admin:
Phone No Admin:

Detail(s)

Waste Class: 221
Waste Class Desc: LIGHT FUELS

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
69	24 of 29	NNE/288.8	86.7 / -2.16	MR GAS LIMITED ** 4042 INNES RD ORLEANS ON K1W 1A7	EXP

Instance No: 11317410
Instance ID:
Instance Type: FS Liquid Fuel Tank
Description: FS Gasoline Station - Full Serve
Status: EXPIRED
TSSA Program Area:
Maximum Hazard Rank:
Facility Type: FS Liquid Fuel Tank
Expired Date: 6/2/2000

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
69	25 of 29	NNE/288.8	86.7 / -2.16	MR GAS LIMITED ** 4042 INNES RD ORLEANS ON K1W 1A7	EXP

Instance No: 10893503
Instance ID:
Instance Type: FS Liquid Fuel Tank
Description: FS Gasoline Station - Full Serve
Status: EXPIRED
TSSA Program Area:
Maximum Hazard Rank:
Facility Type: FS Liquid Fuel Tank
Expired Date: 6/2/2000

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
69	26 of 29	NNE/288.8	86.7 / -2.16	MR GAS LIMITED ** 4042 INNES RD ORLEANS ON K1W 1A7	EXP

Instance No: 10893488
Instance ID:
Instance Type: FS Liquid Fuel Tank
Description: FS Gasoline Station - Full Serve
Status: EXPIRED
TSSA Program Area:
Maximum Hazard Rank:
Facility Type: FS Liquid Fuel Tank
Expired Date: 6/2/2000

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
69	27 of 29	NNE/288.8	86.7 / -2.16	MR GAS LIMITED ** 4042 INNES RD ORLEANS ON K1W 1A7	EXP

Instance No: 10893521
Instance ID:
Instance Type: FS Liquid Fuel Tank
Description: FS Gasoline Station - Full Serve
Status: EXPIRED
TSSA Program Area:
Maximum Hazard Rank:
Facility Type: FS Liquid Fuel Tank
Expired Date: 6/2/2000

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
69	28 of 29	NNE/288.8	86.7 / -2.16	Marc Gagnon 4042 Innes Road Gloucester ON K1C 7B3	ECA

Approval No: 3044-4JYKD9
Approval Date: 2000-05-04
Status: Approved
Record Type: ECA
Link Source: IDS
SWP Area Name: Rideau Valley
MOE District: Ottawa
City:
Longitude: -75.505226
Latitude: 45.455073999999996
Geometry X:
Geometry Y:
Approval Type: ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS
Project Type: MUNICIPAL AND PRIVATE SEWAGE WORKS
Address: 4042 Innes Road
Full Address:
Full PDF Link: https://www.accessenvironment.ene.gov.on.ca/instruments/8054-4JHUQB-14.pdf

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Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
69	29 of 29	NNE/288.8	86.7 / -2.16	MR. GAS LIMITED 4042 INNES ROAD OTTAWA ON K1C 1T1	GEN

Generator No: ON7422631
Status:
Approval Years: 2014
Contam. Facility: No
MHSW Facility: No
SIC Code: 447190
SIC Description: 447190
PO Box No:
Country: Canada
Choice of Contact: CO_OFFICIAL
Co Admin:
Phone No Admin:

Detail(s)

Waste Class: 221
Waste Class Desc: LIGHT FUELS

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
70	1 of 1	NW/289.0	89.9 / 1.00	ON	BORE

Borehole ID:	615262	**Inclin FLG:**	No
OGF ID:	215516204	**SP Status:**	Initial Entry
Status:		**Surv Elev:**	No
Type:	Borehole	**Piezometer:**	No
Use:		**Primary Name:**	
Completion Date:		**Municipality:**	
Static Water Level:		**Lot:**	
Primary Water Use:		**Township:**	
Sec. Water Use:		**Latitude DD:**	45.450828
Total Depth m:	-999	**Longitude DD:**	-75.513963
Depth Ref:	Ground Surface	**UTM Zone:**	18
Depth Elev:		**Easting:**	459811
Drill Method:		**Northing:**	5033162
Orig Ground Elev m:	93	**Location Accuracy:**	
Elev Reliabil Note:		**Accuracy:**	Not Applicable
DEM Ground Elev m:	92.1		
Concession:			
Location D:			
Survey D:			
Comments:			

Borehole Geology Stratum

Geology Stratum ID:	218400961	**Mat Consistency:**	Soft
Top Depth:	0	**Material Moisture:**	
Bottom Depth:		**Material Texture:**	
Material Color:	Grey	**Non Geo Mat Type:**	
Material 1:	Bedrock	**Geologic Formation:**	
Material 2:	Limestone	**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			

Stratum Description: BEDROCK. STONE. . GREY. 00250OUND,STRATIFIED. ED. CLAY. GREY,SOFT,FISSURED **Note: Many records provided by the department have a truncated [Stratum Description] field.

Source

Source Type:	Data Survey	**Source Appl:**	Spatial/Tabular
Source Orig:	Geological Survey of Canada	**Source Iden:**	1
Source Date:	1956-1972	**Scale or Res:**	Varies
Confidence:	M	**Horizontal:**	NAD27
Observatio:		**Verticalda:**	Mean Average Sea Level

Source Name: Urban Geology Automated Information System (UGAIS)
Source Details: File: OTTAWA2.txt RecordID: 077700 NTS_Sheet: 31G05H
Confiden 1: Reliable information but incomplete.

Source List

Source Identifier:	1	**Horizontal Datum:**	NAD27
Source Type:	Data Survey	**Vertical Datum:**	Mean Average Sea Level
Source Date:	1956-1972	**Projection Name:**	Universal Transverse Mercator
Scale or Resolution:	Varies		

Source Name: Urban Geology Automated Information System (UGAIS)
Source Originators: Geological Survey of Canada

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
71	1 of 1	W/291.5	88.9 / 0.00	3604 Innes Road Orléans ON K1C 1T1	EHS

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB

Order No:	20181203178	**Nearest Intersection:**	
Status:	C	**Municipality:**	
Report Type:	RSC Report (Urban)	**Client Prov/State:**	ON
Report Date:	10-DEC-18	**Search Radius (km):**	.3
Date Received:	03-DEC-18	**X:**	-75.521937
Previous Site Name:		**Y:**	45.447993
Lot/Building Size:			
Additional Info Ordered:	Fire Insur. Maps and/or Site Plans; City Directory; Aerial Photos		

72 | 1 of 1 | WNW/291.6 | 89.9 / 1.00 | lot 4 con 3 ON | WWIS

Well ID:	1515988	**Data Entry Status:**	
Construction Date:		**Data Src:**	1
Primary Water Use:	Domestic	**Date Received:**	6/21/1977
Sec. Water Use:	0	**Selected Flag:**	Yes
Final Well Status:	Water Supply	**Abandonment Rec:**	
Water Type:		**Contractor:**	3658
Casing Material:		**Form Version:**	1
Audit No:		**Owner:**	
Tag:		**Street Name:**	
Construction Method:		**County:**	OTTAWA
Elevation (m):		**Municipality:**	GLOUCESTER TOWNSHIP
Elevation Reliability:		**Site Info:**	
Depth to Bedrock:		**Lot:**	004
Well Depth:		**Concession:**	03
Overburden/Bedrock:		**Concession Name:**	OF
Pump Rate:		**Easting NAD83:**	
Static Water Level:		**Northing NAD83:**	
Flowing (Y/N):		**Zone:**	
Flow Rate:		**UTM Reliability:**	
Clear/Cloudy:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/151\1515988.pdf

Bore Hole Information

Bore Hole ID:	10037927	**Elevation:**	92.218635
DP2BR:	10	**Elevrc:**	
Spatial Status:		**Zone:**	18
Code OB:	r	**East83:**	459429.8
Code OB Desc:	Bedrock	**North83:**	5033021
Open Hole:		**Org CS:**	
Cluster Kind:		**UTMRC:**	4
Date Completed:	9/15/1976	**UTMRC Desc:**	margin of error : 30 m - 100 m
Remarks:		**Location Method:**	p4
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	931030818
Layer:	2
Color:	2
General Color:	GREY
Mat1:	15
Most Common Material:	LIMESTONE

Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 10
Formation End Depth: 50
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931030817
Layer: 1
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 0
Formation End Depth: 10
Formation End Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 961515988
Method Construction Code: 5
Method Construction: Air Percussion
Other Method Construction:

Pipe Information

Pipe ID: 10586497
Casing No: 1
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 930066792
Layer: 1
Material: 1
Open Hole or Material: STEEL
Depth From:
Depth To: 25
Casing Diameter: 6
Casing Diameter UOM: inch
Casing Depth UOM: ft

Construction Record - Casing

Casing ID: 930066793
Layer: 2
Material: 4
Open Hole or Material: OPEN HOLE
Depth From:
Depth To: 50
Casing Diameter: 6
Casing Diameter UOM: inch

Casing Depth UOM: ft

Results of Well Yield Testing

Pump Test ID: 991515988
Pump Set At:
Static Level: 8
Final Level After Pumping: 20
Recommended Pump Depth: 25
Pumping Rate: 30
Flowing Rate:
Recommended Pump Rate: 5
Levels UOM: ft
Rate UOM: GPM
Water State After Test Code: 1
Water State After Test: CLEAR
Pumping Test Method: 1
Pumping Duration HR: 2
Pumping Duration MIN: 0
Flowing: No

Draw Down & Recovery

Pump Test Detail ID: 934101544
Test Type: Draw Down
Test Duration: 15
Test Level: 20
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934897739
Test Type: Draw Down
Test Duration: 60
Test Level: 20
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934378735
Test Type: Draw Down
Test Duration: 30
Test Level: 20
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934640254
Test Type: Draw Down
Test Duration: 45
Test Level: 20
Test Level UOM: ft

Water Details

Water ID: 933472201
Layer: 1
Kind Code: 1
Kind: FRESH
Water Found Depth: 48
Water Found Depth UOM: ft

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
73	1 of 1	WNW/292.8	89.9 / 1.00	lot 4 con 3 ON	WWIS

Well ID: 1510344
Construction Date:
Primary Water Use: Domestic
Sec. Water Use: 0
Final Well Status: Water Supply
Water Type:
Casing Material:
Audit No:
Tag:
Construction Method:
Elevation (m):
Elevation Reliability:
Depth to Bedrock:
Well Depth:
Overburden/Bedrock:
Pump Rate:
Static Water Level:
Flowing (Y/N):
Flow Rate:
Clear/Cloudy:

Data Entry Status:
Data Src: 1
Date Received: 12/1/1969
Selected Flag: Yes
Abandonment Rec:
Contractor: 1802
Form Version: 1
Owner:
Street Name:
County: OTTAWA
Municipality: GLOUCESTER TOWNSHIP
Site Info:
Lot: 004
Concession: 03
Concession Name: OF
Easting NAD83:
Northing NAD83:
Zone:
UTM Reliability:

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/151\1510344.pdf

Bore Hole Information

Bore Hole ID: 10032372
DP2BR: 6
Spatial Status:
Code OB: r
Code OB Desc: Bedrock
Open Hole:
Cluster Kind:
Date Completed: 11/21/1969
Remarks:
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Elevation: 92.349273
Elevrc:
Zone: 18
East83: 459410.8
North83: 5033012
Org CS:
UTMRC: 4
UTMRC Desc: margin of error : 30 m - 100 m
Location Method: p4

Overburden and Bedrock Materials Interval

Formation ID: 931014601
Layer: 2
Color: 2
General Color: GREY
Mat1: 15
Most Common Material: LIMESTONE
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 6
Formation End Depth: 45
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID:	931014600
Layer:	1
Color:	2
General Color:	GREY
Mat1:	05
Most Common Material:	CLAY
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	0
Formation End Depth:	6
Formation End Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	961510344
Method Construction Code:	4
Method Construction:	Rotary (Air)
Other Method Construction:	

Pipe Information

Pipe ID:	10580942
Casing No:	1
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	930057337
Layer:	1
Material:	1
Open Hole or Material:	STEEL
Depth From:	
Depth To:	20
Casing Diameter:	6
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Casing

Casing ID:	930057338
Layer:	2
Material:	4
Open Hole or Material:	OPEN HOLE
Depth From:	
Depth To:	45
Casing Diameter:	6
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Results of Well Yield Testing

Pump Test ID:	991510344
Pump Set At:	
Static Level:	4
Final Level After Pumping:	40

Recommended Pump Depth:	42
Pumping Rate:	3
Flowing Rate:	
Recommended Pump Rate:	2
Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	1
Water State After Test:	CLEAR
Pumping Test Method:	1
Pumping Duration HR:	1
Pumping Duration MIN:	0
Flowing:	No

Draw Down & Recovery

Pump Test Detail ID:	934640085
Test Type:	Draw Down
Test Duration:	45
Test Level:	40
Test Level UOM:	ft

Draw Down & Recovery

Pump Test Detail ID:	934378369
Test Type:	Draw Down
Test Duration:	30
Test Level:	38
Test Level UOM:	ft

Draw Down & Recovery

Pump Test Detail ID:	934897424
Test Type:	Draw Down
Test Duration:	60
Test Level:	40
Test Level UOM:	ft

Draw Down & Recovery

Pump Test Detail ID:	934096887
Test Type:	Draw Down
Test Duration:	15
Test Level:	22
Test Level UOM:	ft

Water Details

Water ID:	933465317
Layer:	1
Kind Code:	1
Kind:	FRESH
Water Found Depth:	27
Water Found Depth UOM:	ft

74 ***1 of 1*** ***WNW/293.0*** ***89.9 / 1.00*** ***ON*** ***BORE***

Borehole ID:	615253	***Inclin FLG:***	No
OGF ID:	215516195	***SP Status:***	Initial Entry
Status:		***Surv Elev:***	No
Type:	Borehole	***Piezometer:***	No

Use:		**Primary Name:**	
Completion Date:	NOV-1969	**Municipality:**	
Static Water Level:		**Lot:**	
Primary Water Use:		**Township:**	
Sec. Water Use:		**Latitude DD:**	45.449455
Total Depth m:	13.7	**Longitude DD:**	-75.519066
Depth Ref:	Ground Surface	**UTM Zone:**	18
Depth Elev:		**Easting:**	459411
Drill Method:		**Northing:**	5033012
Orig Ground Elev m:	93	**Location Accuracy:**	
Elev Reliabil Note:		**Accuracy:**	Not Applicable
DEM Ground Elev m:	92.4		
Concession:			
Location D:			
Survey D:			
Comments:			

Borehole Geology Stratum

Geology Stratum ID:	218400943	**Mat Consistency:**	Soft
Top Depth:	1.8	**Material Moisture:**	
Bottom Depth:	13.7	**Material Texture:**	
Material Color:	Grey	**Non Geo Mat Type:**	
Material 1:	Limestone	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	LIMESTONE. GREY. 00027STONE. 00172STIFF, FISSURED. CLAY. GREY,SOFT,FISSURED. CLAY. GREY **Note: Many records provided by the department have a truncated [Stratum Description] field.		

Geology Stratum ID:	218400942	**Mat Consistency:**	
Top Depth:	0	**Material Moisture:**	
Bottom Depth:	1.8	**Material Texture:**	
Material Color:	Grey	**Non Geo Mat Type:**	
Material 1:	Clay	**Geologic Formation:**	
Material 2:		**Geologic Group:**	
Material 3:		**Geologic Period:**	
Material 4:		**Depositional Gen:**	
Gsc Material Description:			
Stratum Description:	CLAY. GREY.		

Source

Source Type:	Data Survey	**Source Appl:**	Spatial/Tabular
Source Orig:	Geological Survey of Canada	**Source Iden:**	1
Source Date:	1956-1972	**Scale or Res:**	Varies
Confidence:		**Horizontal:**	NAD27
Observatio:		**Verticalda:**	Mean Average Sea Level
Source Name:	Urban Geology Automated Information System (UGAIS)		
Source Details:	File: OTTAWA2.txt RecordID: 07761 NTS_Sheet:		
Confiden 1:			

Source List

Source Identifier:	1	**Horizontal Datum:**	NAD27
Source Type:	Data Survey	**Vertical Datum:**	Mean Average Sea Level
Source Date:	1956-1972	**Projection Name:**	Universal Transverse Mercator
Scale or Resolution:	Varies		
Source Name:	Urban Geology Automated Information System (UGAIS)		
Source Originators:	Geological Survey of Canada		

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
75	1 of 1	SSE/293.1	84.9 / -4.00	Trailsedge - Blocks 193 & 194 Ottawa ON	EHS

Order No:	20200615176	**Nearest Intersection:**	
Status:	C	**Municipality:**	
Report Type:	Standard Report	**Client Prov/State:**	ON
Report Date:	18-JUN-20	**Search Radius (km):**	.25
Date Received:	15-JUN-20	**X:**	-75.50770436
Previous Site Name:		**Y:**	45.44053741
Lot/Building Size:			
Additional Info Ordered:			

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
76	1 of 1	NE/293.8	87.8 / -1.11	lot 1 con 11 ON	WWIS

Well ID:	1512847	**Data Entry Status:**	
Construction Date:		**Data Src:**	1
Primary Water Use:	Livestock	**Date Received:**	2/20/1962
Sec. Water Use:	Domestic	**Selected Flag:**	Yes
Final Well Status:	Water Supply	**Abandonment Rec:**	
Water Type:		**Contractor:**	1504
Casing Material:		**Form Version:**	1
Audit No:		**Owner:**	
Tag:		**Street Name:**	
Construction Method:		**County:**	OTTAWA
Elevation (m):		**Municipality:**	CUMBERLAND TOWNSHIP
Elevation Reliability:		**Site Info:**	
Depth to Bedrock:		**Lot:**	001
Well Depth:		**Concession:**	11
Overburden/Bedrock:		**Concession Name:**	CON
Pump Rate:		**Easting NAD83:**	
Static Water Level:		**Northing NAD83:**	
Flowing (Y/N):		**Zone:**	
Flow Rate:		**UTM Reliability:**	
Clear/Cloudy:			

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/151\1512847.pdf

Bore Hole Information

Bore Hole ID:	10034835	**Elevation:**	89.925949
DP2BR:	18	**Elevrc:**	
Spatial Status:		**Zone:**	18
Code OB:	r	**East83:**	460645.8
Code OB Desc:	Bedrock	**North83:**	5033662
Open Hole:		**Org CS:**	
Cluster Kind:		**UTMRC:**	5
Date Completed:	11/13/1961	**UTMRC Desc:**	margin of error : 100 m - 300 m
Remarks:		**Location Method:**	p5
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	931021717
Layer:	2
Color:	2

General Color: GREY
Mat1: 15
Most Common Material: LIMESTONE
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 18
Formation End Depth: 48
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931021716
Layer: 1
Color: 3
General Color: BLUE
Mat1: 05
Most Common Material: CLAY
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 0
Formation End Depth: 18
Formation End Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 961512847
Method Construction Code: 7
Method Construction: Diamond
Other Method Construction:

Pipe Information

Pipe ID: 10583405
Casing No: 1
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 930061702
Layer: 1
Material: 1
Open Hole or Material: STEEL
Depth From:
Depth To: 20
Casing Diameter: 2
Casing Diameter UOM: inch
Casing Depth UOM: ft

Construction Record - Casing

Casing ID: 930061703
Layer: 2
Material: 4
Open Hole or Material: OPEN HOLE
Depth From:

Depth To:	48
Casing Diameter:	2
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Results of Well Yield Testing

Pump Test ID:	991512847
Pump Set At:	
Static Level:	3
Final Level After Pumping:	20
Recommended Pump Depth:	20
Pumping Rate:	12
Flowing Rate:	
Recommended Pump Rate:	12
Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	1
Water State After Test:	CLEAR
Pumping Test Method:	1
Pumping Duration HR:	1
Pumping Duration MIN:	0
Flowing:	No

Water Details

Water ID:	933468337
Layer:	1
Kind Code:	1
Kind:	FRESH
Water Found Depth:	48
Water Found Depth UOM:	ft

---

77 | **1 of 1** | **SW/295.4** | **83.9 / -5.00** | ***Enbridge Gas Distribution Inc.***
2203 Noblewood Way
Ottawa ON | **SPL**

Ref No:	8008-AYYQBZ	**Discharger Report:**	
Site No:	NA	**Material Group:**	
Incident Dt:	2018/05/21	**Health/Env Conseq:**	2 - Minor Environment
Year:		**Client Type:**	Corporation
Incident Cause:		**Sector Type:**	Miscellaneous Industrial
Incident Event:	Leak/Break	**Agency Involved:**	
Contaminant Code:	35	**Nearest Watercourse:**	
Contaminant Name:	NATURAL GAS (METHANE)	**Site Address:**	2203 Noblewood Way
Contaminant Limit 1:		**Site District Office:**	Ottawa
Contam Limit Freq 1:		**Site Postal Code:**	
Contaminant UN No 1:	1075	**Site Region:**	Eastern
Environment Impact:		**Site Municipality:**	Ottawa
Nature of Impact:		**Site Lot:**	
Receiving Medium:		**Site Conc:**	
Receiving Env:	Air	**Northing:**	5031802.68
MOE Response:	No	**Easting:**	459238.05
Dt MOE Arvl on Scn:		**Site Geo Ref Accu:**	
MOE Reported Dt:	2018/05/21	**Site Map Datum:**	
Dt Document Closed:	2018/06/16	**SAC Action Class:**	TSSA - Fuel Safety Branch - Hydrocarbon Fuel Release/Spill
Incident Reason:	Operator/Human Error	**Source Type:**	Valve/Fitting/Piping
Site Name:	Site of line strike<UNOFFICIAL>		
Site County/District:			
Site Geo Ref Meth:			
Incident Summary:	TSSA FSB; ½" service pl IP dmgd; made safe		
Contaminant Qty:	0 other - see incident description		

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
78	1 of 12	NNE/297.3	89.9 / 1.00	TURBO PETRLEUMS INC DISCOUNT GAS 3934 INNES RD GLOUCESTER ON K1C1T1	PRT

Location ID: 5295
Type: retail
Expiry Date: 1994-10-31
Capacity (L): 29700
Licence #: 0076340207

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
78	2 of 12	NNE/297.3	89.9 / 1.00	TURBO PETROLEUMS INC 3934 INNES RD GLOUCESTER ON K1C1T1	PRT

Location ID: 5295
Type: retail
Expiry Date: 1994-06-30
Capacity (L): 2000
Licence #: 0076384130

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
78	3 of 12	NNE/297.3	89.9 / 1.00	ECONO GAS 3934 INNES RD ORLEANS ON K1W 1K9	RST

Headcode: 01186800
Headcode Desc: SERVICE STATIONS-GASOLINE, OIL & NATURAL GAS
Phone: 6138348178
List Name:
Description:

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
78	4 of 12	NNE/297.3	89.9 / 1.00	3930 Innes Rd Ottawa ON K1C 1T1	EHS

Order No: 20000901002
Status: C
Report Type: Site Report
Report Date: 9/5/00
Date Received: 9/1/00
Previous Site Name:
Lot/Building Size: part lot #1, con.c 3. Plan 5R12089
Additional Info Ordered:
Nearest Intersection: Innes Rd & St. Laurent Blvd.
Municipality:
Client Prov/State: ON
Search Radius (km): 0.25
X: -75.511136
Y: 45.453094

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
78	5 of 12	NNE/297.3	89.9 / 1.00	ECONO GAS ATTN ABDALLAH JEHA 3934 INNES RD ORLEANS TWP ORLEANS ON K1W 1K9	FSTH

License Issue Date: 9/27/2002
Tank Status: Licensed
Tank Status As Of: August 2007
Operation Type: Retail Fuel Outlet
Facility Type: Gasoline Station - Full Serve

--Details--
Status: Active
Year of Installation: 1988

Corrosion Protection:	
Capacity:	35000
Tank Fuel Type:	Liquid Fuel Single Wall UST - Gasoline
Status:	Active
Year of Installation:	1988
Corrosion Protection:	
Capacity:	25000
Tank Fuel Type:	Liquid Fuel Single Wall UST - Gasoline
Status:	Active
Year of Installation:	1988
Corrosion Protection:	
Capacity:	25000
Tank Fuel Type:	Liquid Fuel Single Wall UST - Gasoline
Status:	Active
Year of Installation:	1988
Corrosion Protection:	
Capacity:	25000
Tank Fuel Type:	Liquid Fuel Single Wall UST - Diesel

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78 ***6 of 12*** ***NNE/297.3*** ***89.9 / 1.00*** ***ECONO GAS ATTN ABDALLAH JEHA*** ***FSTH***
3934 INNES RD
ORLEANS ON K1W 1K9

License Issue Date:	9/27/2002
Tank Status:	Pending Renewal (Expired)
Tank Status As Of:	December 2008
Operation Type:	Retail Fuel Outlet
Facility Type:	Gasoline Station - Full Serve

--Details--

Status:	Active
Year of Installation:	1988
Corrosion Protection:	
Capacity:	35000
Tank Fuel Type:	Liquid Fuel Single Wall UST - Gasoline
Status:	Active
Year of Installation:	1988
Corrosion Protection:	
Capacity:	25000
Tank Fuel Type:	Liquid Fuel Single Wall UST - Gasoline
Status:	Active
Year of Installation:	1988
Corrosion Protection:	
Capacity:	25000
Tank Fuel Type:	Liquid Fuel Single Wall UST - Gasoline
Status:	Active
Year of Installation:	1988
Corrosion Protection:	
Capacity:	25000
Tank Fuel Type:	Liquid Fuel Single Wall UST - Diesel

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78 ***7 of 12*** ***NNE/297.3*** ***89.9 / 1.00*** ***STINSON GAZ BAR*** ***RST***
3934 INNES RD
ORLEANS ON K1W 1K9

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Headcode:		01070540			
Headcode Desc:		PROPANE GAS-TANKS & REFILLING			
Phone:					
List Name:					
Description:					

78	8 of 12	NNE/297.3	89.9 / 1.00	**1436675 ONTARIO INC O/A STINSON FUEL** **3934 INNES RD** **OTTAWA ON K1W 1K9**	FST

Instance No:	11317335
Cont Name:	
Instance Type:	FS Liquid Fuel Tank
Fuel Type:	Gasoline
Status:	Active
Capacity:	25000
Tank Material:	Steel
Corrosion Protection:	Sacrificial anode
Tank Type:	Single Wall UST
Install Year:	1988
Parent Facility Type:	FS Gasoline Station - Full Serve
Facility Type:	FS Liquid Fuel Tank

78	9 of 12	NNE/297.3	89.9 / 1.00	**1436675 ONTARIO INC O/A STINSON FUEL** **3934 INNES RD** **OTTAWA ON K1W 1K9**	FST

Instance No:	11317308
Cont Name:	
Instance Type:	FS Liquid Fuel Tank
Fuel Type:	Gasoline
Status:	Active
Capacity:	25000
Tank Material:	Steel
Corrosion Protection:	Sacrificial anode
Tank Type:	Single Wall UST
Install Year:	1988
Parent Facility Type:	FS Gasoline Station - Full Serve
Facility Type:	FS Liquid Fuel Tank

78	10 of 12	NNE/297.3	89.9 / 1.00	**1436675 ONTARIO INC O/A STINSON FUEL** **3934 INNES RD** **OTTAWA ON K1W 1K9**	FST

Instance No:	10762649
Cont Name:	
Instance Type:	FS Liquid Fuel Tank
Fuel Type:	Gasoline
Status:	Active
Capacity:	35000
Tank Material:	Steel
Corrosion Protection:	Sacrificial anode
Tank Type:	Single Wall UST
Install Year:	1988
Parent Facility Type:	FS Gasoline Station - Full Serve
Facility Type:	FS Liquid Fuel Tank

78	11 of 12	NNE/297.3	89.9 / 1.00	**1436675 ONTARIO INC O/A STINSON FUEL** **3934 INNES RD**	FST

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
				OTTAWA ON K1W 1K9	

Instance No: 11317354
Cont Name:
Instance Type: FS Liquid Fuel Tank
Fuel Type: Diesel
Status: Active
Capacity: 25000
Tank Material: Steel
Corrosion Protection: Sacrificial anode
Tank Type: Single Wall UST
Install Year: 1988
Parent Facility Type: FS Gasoline Station - Full Serve
Facility Type: FS Liquid Fuel Tank

78	12 of 12	NNE/297.3	89.9 / 1.00	STINSON GAZ BAR 3934 INNES RD ORLEANS ON K1C1T1	RST

Headcode: 01070540
Headcode Desc: PROPANE GAS TANKS & REFILLING
Phone: 6138348178
List Name:
Description:

79	1 of 3	NE/299.5	88.6 / -0.29	CREPIN CARTAGE 4100 INNES RD OTTAWA ON K4A 3W9	GEN

Generator No: ON5741023
Status:
Approval Years: 07,08
Contam. Facility:
MHSW Facility:
SIC Code: 238910
SIC Description: Site Preparation Contractors
PO Box No:
Country:
Choice of Contact:
Co Admin:
Phone No Admin:

Detail(s)

Waste Class: 252
Waste Class Desc: WASTE OILS & LUBRICANTS

79	2 of 3	NE/299.5	88.6 / -0.29	Innes Shopping Centres Limited 4100 Innes Rd Ottawa ON L4K 5X3	ECA

Approval No: 0395-8UMQFA
Approval Date: 2012-06-04
Status: Approved
Record Type: ECA
Link Source: IDS
SWP Area Name:
Approval Type: ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS
Project Type: MUNICIPAL AND PRIVATE SEWAGE WORKS
Address: 4100 Innes Rd
Full Address:
Full PDF Link: https://www.accessenvironment.ene.gov.on.ca/instruments/3139-8UDJ7R-14.pdf
MOE District:
City:
Longitude:
Latitude:
Geometry X:
Geometry Y:

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
79	3 of 3	NE/299.5	88.6 / -0.29	Innes Shopping Centres Limited 4100 Innes Rd Ottawa ON L4K 5X3	ECA

Approval No:	8074-92NUU2	**MOE District:**	
Approval Date:	2012-12-06	**City:**	
Status:	Revoked and/or Replaced	**Longitude:**	
Record Type:	ECA	**Latitude:**	
Link Source:	IDS	**Geometry X:**	
SWP Area Name:		**Geometry Y:**	
Approval Type:	ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS		
Project Type:	MUNICIPAL AND PRIVATE SEWAGE WORKS		
Address:	4100 Innes Rd		
Full Address:			
Full PDF Link:	https://www.accessenvironment.ene.gov.on.ca/instruments/1548-8V3MQJ-14.pdf		

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
80	1 of 2	NNE/299.9	89.9 / 1.00	Canadian Tire Real Estate Limited 3952 Innes Rd Ottawa ON K1W 1K9	CA

Certificate #:	1717-7F8NKE
Application Year:	2008
Issue Date:	6/9/2008
Approval Type:	Industrial Sewage Works
Status:	Approved
Application Type:	
Client Name:	
Client Address:	
Client City:	
Client Postal Code:	
Project Description:	
Contaminants:	
Emission Control:	

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
80	2 of 2	NNE/299.9	89.9 / 1.00	Canadian Tire Real Estate Limited 3952 Innes Rd Ottawa ON M4P 2V8	ECA

Approval No:	1717-7F8NKE	**MOE District:**	
Approval Date:	2008-06-09	**City:**	
Status:	Approved	**Longitude:**	
Record Type:	ECA	**Latitude:**	
Link Source:	IDS	**Geometry X:**	
SWP Area Name:		**Geometry Y:**	
Approval Type:	ECA-INDUSTRIAL SEWAGE WORKS		
Project Type:	INDUSTRIAL SEWAGE WORKS		
Address:	3952 Innes Rd		
Full Address:			
Full PDF Link:	https://www.accessenvironment.ene.gov.on.ca/instruments/5730-7AJRPP-14.pdf		

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
81	1 of 1	ENE/299.9	88.0 / -0.92	Hydro One Inc. 2127 Mer-Bleue Road Ottawa ON	SPL

Ref No:	4886-9725RN	**Discharger Report:**	
Site No:		**Material Group:**	
Incident Dt:	22-APR-13	**Health/Env Conseq:**	
Year:		**Client Type:**	
Incident Cause:	Leak/Break	**Sector Type:**	Transformer
Incident Event:		**Agency Involved:**	
Contaminant Code:	26	**Nearest Watercourse:**	

Contaminant Name:	TRANSFORMER OIL (GT 50 PPM PCB)	**Site Address:**	2127 Mer-Bleue Road
Contaminant Limit 1:		**Site District Office:**	
Contam Limit Freq 1:		**Site Postal Code:**	
Contaminant UN No 1:		**Site Region:**	
Environment Impact:	Not Anticipated	**Site Municipality:**	Ottawa
Nature of Impact:	Vegetation Damage	**Site Lot:**	
Receiving Medium:		**Site Conc:**	
Receiving Env:		**Northing:**	
MOE Response:	No Field Response	**Easting:**	
Dt MOE Arvl on Scn:		**Site Geo Ref Accu:**	
MOE Reported Dt:	22-APR-13	**Site Map Datum:**	
Dt Document Closed:		**SAC Action Class:**	Land Spills
Incident Reason:	Equipment Failure	**Source Type:**	
Site Name:	transformer<UNOFFICIAL>		
Site County/District:			
Site Geo Ref Meth:			
Incident Summary:	Hydro One: PCB suspect trfmr oil to grd, clng ~10L		
Contaminant Qty:	10 L		

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82 | 1 of 3 | WNW/299.9 | 89.9 / 1.00 | **PARISIEN PRECAST**
3698 INNES RD
ORLEANS ON K1C 1T1 | SCT

Established:	1958
Plant Size (ft²):	0
Employment:	4

--Details--

Description:	Concrete Pipe, Brick and Block Manufacturing
SIC/NAICS Code:	327330
Description:	Other Concrete Product Manufacturing
SIC/NAICS Code:	327390

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82 | 2 of 3 | WNW/299.9 | 89.9 / 1.00 | **3698 INNES ROAD, OTTAWA**
ON K1C 1T1 | INC

Incident No:	200012
Incident ID:	2350976
Attribute Category:	FS-Incident
Status Code:	Causal Analysis Complete
Incident Location:	3698 INNES ROAD, OTTAWA - PIPELINE HIT
Drainage System:	
Sub Surface Contam.:	
Aff. Prop. Use Water:	
Contam. Migrated:	
Contact Natural Env.:	
Near Body of Water:	
Approx. Quant. Rel.:	
Equipment Model:	
Serial No:	
Residential App. Type:	
Commercial App. Type:	
Industrial App. Type:	
Institutional App. Type:	
Venting Type:	
Vent Connector Mater:	
Vent Chimney Mater:	
Pipeline Type:	Main Distribution Pipeline
Pipeline Involved:	
Pipe Material:	Steel

Depth Ground Cover:	1.2
Regulator Location:	Outside
Regulator Type:	District Station Regulator (> 60 psi intake)
Operation Pressure:	470
Liquid Prop Make:	
Liquid Prop Model:	
Liquid Prop Serial No:	
Equipment Type:	
Cylinder Capacity:	
Cylinder Capac. Units:	
Cylinder Material Type:	
Tank Capacity:	
Fuels Occurence Type:	
Fuel Type Involved:	
Date of Occurence:	
Time of Occurence:	
Occur Insp Start Date:	
Any Health Impact:	
Any Environmental Impact:	
Was Service Interrupted:	
Was Property Damaged:	
Operation Type Involved:	
Enforcement Policy:	
Prc Escalation Required:	
Task No:	
Notes:	
Occurence Narrative:	8" Steel vital main.
Tank Material Type:	
Tank Storage Type:	
Tank Location Type:	
Pump Flow Rate Capac:	
Liquid Prop Notes:	

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82 | *3 of 3* | *WNW/299.9* | *89.9 / 1.00* | ***3698 Innes Rd Ottawa ON K1C 1T1*** | ***EHS***

Order No:	20130130004	**Nearest Intersection:**	
Status:	C	**Municipality:**	
Report Type:	Standard Select Report	**Client Prov/State:**	ON
Report Date:	07-FEB-13	**Search Radius (km):**	.25
Date Received:	30-JAN-13	**X:**	-75.517893
Previous Site Name:		**Y:**	45.45001
Lot/Building Size:	0.4 Acres		

Additional Info Ordered: Fire Insur. Maps and/or Site Plans; Title Searches; Topographic Maps; City Directory; Aerial Photos

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83 | *1 of 1* | *S/300.2* | *83.9 / -5.00* | ***221 Dragonfly Place, Navan Ottawa ON*** | ***SPL***

Ref No:	4576-ASYN52	**Discharger Report:**	
Site No:	NA	**Material Group:**	
Incident Dt:	2017/11/10	**Health/Env Conseq:**	2 - Minor Environment
Year:		**Client Type:**	
Incident Cause:		**Sector Type:**	Miscellaneous Industrial
Incident Event:	Leak/Break	**Agency Involved:**	
Contaminant Code:	35	**Nearest Watercourse:**	
Contaminant Name:	NATURAL GAS (METHANE)	**Site Address:**	221 Dragonfly Place, Navan
Contaminant Limit 1:		**Site District Office:**	Ottawa
Contam Limit Freq 1:		**Site Postal Code:**	
Contaminant UN No 1:	1075	**Site Region:**	Eastern
Environment Impact:		**Site Municipality:**	Ottawa
Nature of Impact:		**Site Lot:**	
Receiving Medium:		**Site Conc:**	

Receiving Env:	Air	**Northing:**	
MOE Response:	No	**Easting:**	
Dt MOE Arvl on Scn:		**Site Geo Ref Accu:**	
MOE Reported Dt:	2017/11/10	**Site Map Datum:**	
Dt Document Closed:	2017/12/16	**SAC Action Class:**	TSSA - Fuel Safety Branch - Hydrocarbon Fuel Release/Spill
Incident Reason:	Operator/Human Error	**Source Type:**	Pipeline/Components
Site Name:	Residential<UNOFFICIAL>		
Site County/District:			
Site Geo Ref Meth:			
Incident Summary:	TSSA FSB: 2" plastic gas main IP damage, made safe		
Contaminant Qty:	0 other - see incident description		

Unplottable Summary

Total: 80 Unplottable sites

DB	Company Name/Site Name	Address	City	Postal
CA	City of Ottawa	Mer Bleue Rd (Innes Rd 700m south)	Ottawa ON	
CA	Claridge Homes (Carson) Inc.		Ottawa ON	
CA	Riotrin Properties (Belcourt) Inc.	Ref. Plan 4R-19308	Ottawa ON	
CA	City of Ottawa	Part of Lots 1 to 5, Concession 3	Ottawa ON	
CA	Richcraft Homes Ltd.		Ottawa ON	
CA	Riotrin Properties (Belcourt) Inc.	Ref. Plan 4R-19308	Ottawa ON	
CA	Richcraft Homes Ltd.		Ottawa ON	
CA	Minto Communities Inc.		Ottawa ON	
CA	City of Ottawa	Mer Bleue Rd (Innes Rd 700m south)	Ottawa ON	
CA	Riotrin Properties (Belcourt) Inc.	Ref. Plan 4R-19308	Ottawa ON	
CA	Richcraft Homes Ltd.		Ottawa ON	
CA	Riotrin Properties (Belcourt) Inc.		Ottawa ON	
CA	Taggart Construction Limited	Mobile Facility	Ottawa ON	
CA	Page Road Pond No. 1	Pt. of Lot 5, Concession 3 O.F., Plan 4R-7806	Gloucester ON	
CA	LONGWOOD CORPORATION	NATURE TRAIL CRES./NOBLEWOOD	GLOUCESTER CITY ON	
CA	LONGWOOD CORPORATION	NATURE TRAIL CRES./NOBLEWOOD	GLOUCESTER CITY ON	
CA	Richcraft Homes Ltd.		Ottawa ON	
CA	Claridge Homes (Carson) Inc.		Ottawa ON	

CA	Rideau Forest Development Ltd.	Part of Lot 5, Concession 3, Geographic Township of Osgoode	Ottawa ON	
CA	Richcraft Homes Ltd.		Ottawa ON	
CA	LONGWOOD CORP. - PT.LOT 5, CONC. 3	NATURE TRAIL CRES./STM-WAT.MGT	GLOUCESTER CITY ON	
CA	MR. GAS PROPERTIES INC.-TAYLOR CREEK BUS	STORMWATER MANAGEMENT	CUMBERLAND TWP. ON	
CONV	Taggart Construction Limited		Ottawa ON	
EBR	Richcraft Homes Ltd.	Ottawa, ON Canada	ON	
EBR	Taggart Construction Limited	Mobile Facility Ottawa Ontario Ottawa	ON	
EBR	Minto Communities Inc.	Ottawa, Ontario CITY OF OTTAWA	ON	
EBR	Canadian Waste Services Inc.	Lots 2 and 3, Concession III CITY OF OTTAWA	ON	
ECA	Minto Communities Inc.		Ottawa ON	K1P 0B6
ECA	Minto Communities Inc.		Ottawa ON	K1P 0B6
ECA	Waste Management of Canada Corporation	Parts of Lots 2, 3 , 4 Concession 2 & Parts of Lots 3, 4, 5 Concession 3	Ottawa ON	K0A 1L0
ECA	City of Ottawa	Brian Coburn Blvd Navan Road	Ottawa ON	K2G 6J8
ECA	Minto Communities Inc.		Ottawa ON	K1P 0B6
ECA	Claridge Homes (Carson) Inc.		Ottawa ON	K2P 0Y6
ECA	Minto Communities Inc.		Ottawa ON	K1P 0B6
ECA	Minto Communities Inc.		Ottawa ON	K1P 0B6
ECA	Minto Communities Inc.		Ottawa ON	K1P 0B6
ECA	Richcraft Homes Ltd.		Ottawa ON	K1G 4K1
ECA	Richcraft Homes Ltd.		Ottawa ON	K1G 4K1
ECA	Taggart Construction Limited	Mobile Facility	Ottawa ON	K1V 8Y3
ECA	Riotrin Properties (Belcourt) Inc.		Ottawa ON	K2P 0R6
ECA	Riotrin Properties (Belcourt) Inc.	Ref. Plan 4R-19308	Ottawa ON	K2P 0R6

ECA	Minto Communities Inc.		Ottawa ON	K1P 0B6
ECA	Minto Communities Inc.		Ottawa ON	K1P 0B6
ECA	Richcraft Homes Ltd.		Ottawa ON	K1G 4K1
ECA	Minto Communities Inc.		Ottawa ON	K1P 0B6
ECA	City of Ottawa	Brian Coburn Boulevard	Ottawa ON	K2G 6J8
ECA	Richcraft Homes Ltd.		Ottawa ON	K1G 4K1
ECA	The Corporation of the City of Ottawa	Brian Coburn Boulevard	Ottawa ON	K2G 7E6
ECA	Minto Communities Inc.		Ottawa ON	K1P 0B6
ECA	WAL-MART CANADA CORP/LA COMPAGNIE WAL-MART DU CANADA		ON	
ECA	WAL-MART CANADA CORP/LA COMPAGNIE WAL-MART DU CANADA		ON	
ECA	McGiac Realty Corporation		Ottawa ON	K1B 5P5
ECA	Minto Communities Inc.		Ottawa ON	K1P 0B6
ECA	Minto Communities Inc.		Ottawa ON	K1P 0B6
ECA	Minto Communities Inc.		Ottawa ON	K1P 0B6
ECA	Minto Communities Inc.		Ottawa ON	K1P 0B6
ECA	Minto Communities Inc.		Ottawa ON	K1P 0B6
ECA	Tamarack (Mer Bleu) Corporation	Brian Coburn Boulevard	Ottawa ON	K1V 8Y3
ECA	Minto Communities Inc.		Ottawa ON	K1P 0B6
FCON	Mr. Gas		Orleans ON	
PTTW	Minto Communities Inc.		ON	
PTTW	Taggart Construction Limited	Tenth Line Road at Mer Bleue Road, Chaperal Subdivision Cumberland, Lot SE 1/2 of Lot 2, Concession 11, Cumberland, Ottawa City CITY OF OTTAWA	ON	

PTTW	Minto Communities Inc.		ON	
RSC	CLARIDGE HOMES (CARSON) INC.	No Municipal Address	Ottawa ON	
SPL	Taggart Construction Limited		Ottawa ON	
WDS	Waste Management of Canada Corporation	Parts of Lots 2, 3 , 4 Concession 2 & Parts of Lots 3, 4, 5 Concession 3	Ottawa ON	K0A 1L0
WDS	Waste Management of Canada Corporation	Parts of Lots 2, 3 , 4 Concession 2 & Parts of Lots 3, 4, 5 Concession 3	Ottawa ON	K0A 1L0
WDS	Waste Management of Canada Corporation	Parts of Lots 2, 3 , 4 Concession 2 & Parts of Lots 3, 4, 5 Concession 3	Ottawa ON	K0A 1L0
WDS	Waste Management of Canada Corporation	Parts of Lots 2, 3 , 4 Concession 2 & Parts of Lots 3, 4, 5 Concession 3	Ottawa ON	K0A 1L0
WWIS		lot 1 con 2	ON	
WWIS		lot 1 con 2	ON	
WWIS		lot 1 con 2	ON	
WWIS		lot 1 con 2	ON	
WWIS		lot 1 con 2	ON	
WWIS		lot 1 con 2	ON	
WWIS		lot 1 con 2	ON	
WWIS		lot 1 con 2	ON	
WWIS		lot 1 con 2	ON	
WWIS		lot 1 con 3	GLOUCESTER ON	
WWIS		lot 1 con 3	W.CARLETON ON	
WWIS		lot 1 con 3	DUNROBIN ON	

Unplottable Report

Site: ***City of Ottawa***
Mer Bleue Rd (Innes Rd 700m south) Ottawa ON

Database: ***CA***

Certificate #: 8790-6VKTPK
Application Year: 2007
Issue Date: 4/26/2007
Approval Type: Municipal and Private Sewage Works
Status: Approved
Application Type:
Client Name:
Client Address:
Client City:
Client Postal Code:
Project Description:
Contaminants:
Emission Control:

Site: ***Claridge Homes (Carson) Inc.***
Ottawa ON

Database: ***CA***

Certificate #: 8697-6Z5TCD
Application Year: 2007
Issue Date: 4/17/2007
Approval Type: Municipal and Private Sewage Works
Status: Approved
Application Type:
Client Name:
Client Address:
Client City:
Client Postal Code:
Project Description:
Contaminants:
Emission Control:

Site: ***Riotrin Properties (Belcourt) Inc.***
Ref. Plan 4R-19308 Ottawa ON

Database: ***CA***

Certificate #: 8040-7RZLSZ
Application Year: 2009
Issue Date: 5/15/2009
Approval Type: Municipal and Private Sewage Works
Status: Revoked and/or Replaced
Application Type:
Client Name:
Client Address:
Client City:
Client Postal Code:
Project Description:
Contaminants:
Emission Control:

Site: ***City of Ottawa***
Part of Lots 1 to 5, Concession 3 Ottawa ON

Database: ***CA***

Certificate #: 7940-5X6RQ2

Application Year: 2004
Issue Date: 6/16/2004
Approval Type: Municipal and Private Sewage Works
Status: Approved
Application Type:
Client Name:
Client Address:
Client City:
Client Postal Code:
Project Description:
Contaminants:
Emission Control:

Site: ***Richcraft Homes Ltd.***
Ottawa ON

Database: ***CA***

Certificate #: 7432-7UVKBU
Application Year: 2009
Issue Date: 8/13/2009
Approval Type: Municipal and Private Sewage Works
Status: Approved
Application Type:
Client Name:
Client Address:
Client City:
Client Postal Code:
Project Description:
Contaminants:
Emission Control:

Site: ***Riotrin Properties (Belcourt) Inc.***
Ref. Plan 4R-19308 Ottawa ON

Database: ***CA***

Certificate #: 6357-7UTGYM
Application Year: 2009
Issue Date: 8/12/2009
Approval Type: Municipal and Private Sewage Works
Status: Approved
Application Type:
Client Name:
Client Address:
Client City:
Client Postal Code:
Project Description:
Contaminants:
Emission Control:

Site: ***Richcraft Homes Ltd.***
Ottawa ON

Database: ***CA***

Certificate #: 3841-632P4R
Application Year: 2004
Issue Date: 7/20/2004
Approval Type: Municipal and Private Sewage Works
Status: Approved
Application Type:
Client Name:
Client Address:
Client City:
Client Postal Code:
Project Description:
Contaminants:
Emission Control:

Site: ***Minto Communities Inc.***
Ottawa ON

Database: ***CA***

Certificate #:	3058-7JZKTF
Application Year:	2008
Issue Date:	10/7/2008
Approval Type:	Municipal and Private Sewage Works
Status:	Approved
Application Type:	
Client Name:	
Client Address:	
Client City:	
Client Postal Code:	
Project Description:	
Contaminants:	
Emission Control:	

Site: ***City of Ottawa***
Mer Bleue Rd (Innes Rd 700m south) Ottawa ON

Database: ***CA***

Certificate #:	2501-6V7Q25
Application Year:	2006
Issue Date:	11/10/2006
Approval Type:	Municipal and Private Sewage Works
Status:	Approved
Application Type:	
Client Name:	
Client Address:	
Client City:	
Client Postal Code:	
Project Description:	
Contaminants:	
Emission Control:	

Site: ***Riotrin Properties (Belcourt) Inc.***
Ref. Plan 4R-19308 Ottawa ON

Database: ***CA***

Certificate #:	2283-7PYJDA
Application Year:	2009
Issue Date:	3/11/2009
Approval Type:	Municipal and Private Sewage Works
Status:	Revoked and/or Replaced
Application Type:	
Client Name:	
Client Address:	
Client City:	
Client Postal Code:	
Project Description:	
Contaminants:	
Emission Control:	

Site: ***Richcraft Homes Ltd.***
Ottawa ON

Database: ***CA***

Certificate #:	1207-5YPRH9
Application Year:	2004
Issue Date:	5/6/2004
Approval Type:	Municipal and Private Sewage Works
Status:	Approved
Application Type:	
Client Name:	
Client Address:	

Client City:
Client Postal Code:
Project Description:
Contaminants:
Emission Control:

Site: ***Riotrin Properties (Belcourt) Inc.***
Ottawa ON

Database: ***CA***

Certificate #: 0936-7UZSHM
Application Year: 2009
Issue Date: 8/25/2009
Approval Type: Municipal and Private Sewage Works
Status: Approved
Application Type:
Client Name:
Client Address:
Client City:
Client Postal Code:
Project Description:
Contaminants:
Emission Control:

Site: ***Taggart Construction Limited***
Mobile Facility Ottawa ON

Database: ***CA***

Certificate #: 0636-7KEL2F
Application Year: 2008
Issue Date: 11/19/2008
Approval Type: Air
Status: Approved
Application Type:
Client Name:
Client Address:
Client City:
Client Postal Code:
Project Description:
Contaminants:
Emission Control:

Site: ***Page Road Pond No. 1***
Pt. of Lot 5, Concession 3 O.F., Plan 4R-7806 Gloucester ON

Database: ***CA***

Certificate #: 3330-4SUM4R
Application Year: 01
Issue Date: 3/7/01
Approval Type: Municipal & Private sewage
Status: Approved
Application Type: New Certificate of Approval
Client Name: Corporation of the City of Ottawa
Client Address: 1595, Telesat Court
Client City: Gloucester
Client Postal Code: K1G 3V5
Project Description: This application is for the construction of a storm water management facility (Page Road Pond No. 1) designed for storm water quality and peak flow control serving the East Urba Community.
Contaminants:
Emission Control:

Site: ***LONGWOOD CORPORATION***
NATURE TRAIL CRES./NOBLEWOOD GLOUCESTER CITY ON

Database: ***CA***

Certificate #: 7-0828-94-

Application Year: 94
Issue Date: 8/26/1994
Approval Type: Municipal water
Status: Approved
Application Type:
Client Name:
Client Address:
Client City:
Client Postal Code:
Project Description:
Contaminants:
Emission Control:

Site: ***LONGWOOD CORPORATION***
NATURE TRAIL CRES./NOBLEWOOD GLOUCESTER CITY ON

Database: ***CA***

Certificate #: 3-1093-94-
Application Year: 94
Issue Date: 8/26/1994
Approval Type: Municipal sewage
Status: Approved
Application Type:
Client Name:
Client Address:
Client City:
Client Postal Code:
Project Description:
Contaminants:
Emission Control:

Site: ***Richcraft Homes Ltd.***
Ottawa ON

Database: ***CA***

Certificate #: 9080-5UYQRL
Application Year: 2004
Issue Date: 1/8/2004
Approval Type: Municipal and Private Sewage Works
Status: Approved
Application Type:
Client Name:
Client Address:
Client City:
Client Postal Code:
Project Description:
Contaminants:
Emission Control:

Site: ***Claridge Homes (Carson) Inc.***
Ottawa ON

Database: ***CA***

Certificate #: 9611-7PUSMB
Application Year: 2009
Issue Date: 3/9/2009
Approval Type: Municipal and Private Sewage Works
Status: Approved
Application Type:
Client Name:
Client Address:
Client City:
Client Postal Code:
Project Description:
Contaminants:
Emission Control:

Site: ***Rideau Forest Development Ltd.***
Part of Lot 5, Concession 3, Geographic Township of Osgoode Ottawa ON

Database: ***CA***

Certificate #:	9805-6HWMA9
Application Year:	2005
Issue Date:	11/16/2005
Approval Type:	Municipal and Private Sewage Works
Status:	Approved
Application Type:	
Client Name:	
Client Address:	
Client City:	
Client Postal Code:	
Project Description:	
Contaminants:	
Emission Control:	

Site: ***Richcraft Homes Ltd.***
Ottawa ON

Database: ***CA***

Certificate #:	9817-7WNR3C
Application Year:	2009
Issue Date:	10/15/2009
Approval Type:	Municipal and Private Sewage Works
Status:	Approved
Application Type:	
Client Name:	
Client Address:	
Client City:	
Client Postal Code:	
Project Description:	
Contaminants:	
Emission Control:	

Site: ***LONGWOOD CORP. - PT.LOT 5, CONC. 3***
NATURE TRAIL CRES./STM-WAT.MGT GLOUCESTER CITY ON

Database: ***CA***

Certificate #:	3-0982-92-
Application Year:	92
Issue Date:	9/4/1992
Approval Type:	Municipal sewage
Status:	Approved
Application Type:	
Client Name:	
Client Address:	
Client City:	
Client Postal Code:	
Project Description:	
Contaminants:	
Emission Control:	

Site: ***MR. GAS PROPERTIES INC.-TAYLOR CREEK BUS***
STORMWATER MANAGEMENT CUMBERLAND TWP. ON

Database: ***CA***

Certificate #:	3-1604-90-
Application Year:	90
Issue Date:	1/29/1991
Approval Type:	Municipal sewage
Status:	Approved in 1991
Application Type:	
Client Name:	
Client Address:	

Client City:
Client Postal Code:
Project Description:
Contaminants:
Emission Control:

Site: ***Taggart Construction Limited***
Ottawa ON

Database: ***CONV***

File No: 012802
Crown Brief No:
Court Location:
Publication City:
Publication Title:
Act:
Act(s):
First Matter:
Second Matter:
Investigation 1:
Investigation 2:
Penalty Imposed:
Location:
Region:
Ministry District:

Description: Taggart Construction Limited, Paterson Group Inc. and Robert Passmore have been fined $5,000 each, totalling $15,000 plus a victim fine surcharge, after pleading guilty on January 15, 2009 to violations under the Ontario Water Resources Act. Taggart Construction Limited and Paterson Group Inc. were convicted of failing to comply with a Provincial Officer Order by taking more than 50,000 litres of water per day, and Mr. Passmore was convicted of giving false or misleading information to the ministry. The parties were given six months to pay the fine. The Court heard that Taggart Construction Limited was contracted by a developer to install municipal services at a subdivision in Ottawa which required dewatering activities. After being issued a Provincial Officer Order to restrict water taking activities to below 50,000 litres per day until a permit had been obtained, Taggart hired Paterson Group Inc. to submit an application for the permit. Taggart then pumped over 50,000 litres of water based on information provided by Paterson Group employee, Mr. Passmore, that the go ahead to pump had been given when a permit had yet to be issued. In an interview with ministry investigators, Mr. Passmore denied giving Taggart verbal approval to pump in excess of 50,000 litres per day. Taggart Construction Limited, Paterson Group Inc. and Mr. Passmore were charged following an investigation by the Ministry of the Environment's Investigations and Enforcement Branch.

Background:
URL:

Additional Details

Publication Date:
Count: 1
Act: OWRA
Regulation:
Section:
Act/Regulation/Section: OWRA
Date of Offence:
Date of Conviction:
Date Charged: January 15, 2009
Charge Disposition: fine, victim fine surcharge
Fine: $5,000
Synopsis:

Site: ***Richcraft Homes Ltd.***
Ottawa, ON Canada ON

Database: ***EBR***

EBR Registry No: 019-1273
Ministry Ref No: KV-C-001-18
Notice Type: Instrument
Notice Stage: Proposal
Notice Date:
Proposal Date: February 27, 2020
Year: 2020
Decision Posted:
Exception Posted:
Section: Section 17 (2) (c)
Act 1: Endangered Species Act , R.S.O. 2007
Act 2: Endangered Species Act, 2007
Site Location Map:
Instrument Type: Permit for activities to achieve an overall benefit to a species
Off Instrument Name: Permit for activities with conditions to achieve overall benefit to the species (ESA s.17(2) (c))
Posted By: Ministry of the Environment, Conservation and Parks

Company Name:
Site Address: Ottawa,
ON
Canada
Location Other:
Proponent Name: Richcraft Homes Ltd.
Proponent Address: 2280 St. Laurent Boulevard
Unit 201
Ottawa,
ON
K1G4K1
Canada
Comment Period: February 27, 2020 - March 28, 2020 (30 days) Closed
URL: https://ero.ontario.ca/notice/019-1273

Site Location Details:

Part of Lot 8, Concession 1 in the Geographic Township of March, Ottawa.

Site: ***Taggart Construction Limited***
Mobile Facility Ottawa Ontario Ottawa ON

Database: ***EBR***

EBR Registry No: IA07E0165
Ministry Ref No: 8556-6XWUA3
Notice Type: Instrument Decision
Notice Stage: 803008003
Notice Date: December 09, 2008
Proposal Date: January 30, 2007
Year: 2007
Decision Posted:
Exception Posted:
Section:
Act 1:
Act 2:
Site Location Map:
Instrument Type: (EPA s. 9) - Approval for discharge into the natural environment other than water (i.e. Air)
Off Instrument Name:
Posted By:
Company Name: Taggart Construction Limited
Site Address:
Location Other:
Proponent Name:
Proponent Address: 3187 Albion Rd S, Ottawa Ontario, K1V 8Y3
Comment Period:
URL:

Site Location Details:

Mobile Facility Ottawa Ontario Ottawa

Site: ***Minto Communities Inc.***
Ottawa, Ontario CITY OF OTTAWA ON

Database: ***EBR***

EBR Registry No: 013-0315
Ministry Ref No: MNRF INST 30/17
Notice Type: Instrument Decision
Notice Stage: 860201441
Notice Date: September 28, 2017
Proposal Date: April 10, 2017
Year: 2017
Decision Posted:
Exception Posted:
Section:
Act 1:
Act 2:
Site Location Map:
Instrument Type: (ESA s.17(2) (c)) - Permit for activities with conditions to achieve overall benefit to the species
Off Instrument Name:
Posted By:
Company Name: Minto Communities Inc.
Site Address:
Location Other:
Proponent Name:
Proponent Address: 180 Kent Street , Suite 200, Ottawa Ontario, Canada K1P 0B6, Minto Communities Inc., 180 Kent Street , Suite 200, Ottawa Ontario, Canada K1P 0B6
Comment Period:

URL:

Site Location Details:

Ottawa, Ontario CITY OF OTTAWA

Site: ***Canadian Waste Services Inc.***
Lots 2 and 3, Concession III CITY OF OTTAWA ON

Database: ***EBR***

EBR Registry No:	IA9E0845	***Decision Posted:***	
Ministry Ref No:	A4610021	***Exception Posted:***	
Notice Type:	Instrument Decision	***Section:***	
Notice Stage:	800474493	***Act 1:***	
Notice Date:	December 29, 2008	***Act 2:***	
Proposal Date:	July 15, 1999	***Site Location Map:***	
Year:	1999		
Instrument Type:	(EPA s. 27) - Approval for a waste disposal site.		
Off Instrument Name:			
Posted By:			
Company Name:	Canadian Waste Services Inc.		
Site Address:			
Location Other:			
Proponent Name:			
Proponent Address:	2301 Carp Road, R.R. #2, Carp Ontario, K0A 1L0		
Comment Period:			
URL:			

Site Location Details:

Lots 2 and 3, Concession III CITY OF OTTAWA

Site: ***Minto Communities Inc.***
Ottawa ON K1P 0B6

Database: ***ECA***

Approval No:	0606-AHXJCH	***MOE District:***	
Approval Date:	2017-02-02	***City:***	
Status:	Approved	***Longitude:***	
Record Type:	ECA	***Latitude:***	
Link Source:	IDS	***Geometry X:***	
SWP Area Name:		***Geometry Y:***	
Approval Type:	ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS		
Project Type:	MUNICIPAL AND PRIVATE SEWAGE WORKS		
Address:			
Full Address:			
Full PDF Link:	https://www.accessenvironment.ene.gov.on.ca/instruments/4552-AHSJ74-14.pdf		

Site: ***Minto Communities Inc.***
Ottawa ON K1P 0B6

Database: ***ECA***

Approval No:	6142-BEJHCE	***MOE District:***	
Approval Date:	2019-08-01	***City:***	
Status:	Approved	***Longitude:***	
Record Type:	ECA	***Latitude:***	
Link Source:	IDS	***Geometry X:***	-8403007.4223
SWP Area Name:		***Geometry Y:***	5691058.511699997
Approval Type:	ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS		
Project Type:	MUNICIPAL AND PRIVATE SEWAGE WORKS		
Address:			
Full Address:			
Full PDF Link:	https://www.accessenvironment.ene.gov.on.ca/instruments/0892-BDSKVQ-14.pdf		

Site: ***Waste Management of Canada Corporation***
Parts of Lots 2, 3 , 4 Concession 2 & Parts of Lots 3, 4, 5 Concession 3 Ottawa ON K0A 1L0

Database: ***ECA***

Approval No:	A461002	***MOE District:***	Ottawa
Approval Date:	2017-03-30	***City:***	
Status:	Revoked and/or Replaced	***Longitude:***	
Record Type:	ECA	***Latitude:***	
Link Source:	IDS	***Geometry X:***	
SWP Area Name:	Mississippi Valley	***Geometry Y:***	
Approval Type:	ECA-WASTE MANAGEMENT SYSTEMS		
Project Type:	WASTE MANAGEMENT SYSTEMS		
Address:	Parts of Lots 2, 3 , 4 Concession 2 & Parts of Lots 3, 4, 5 Concession 3		
Full Address:			
Full PDF Link:			

Site: ***City of Ottawa***
Brian Coburn Blvd Navan Road Ottawa ON K2G 6J8

Database: ***ECA***

Approval No:	3536-AZPKY6	***MOE District:***	
Approval Date:	2018-06-29	***City:***	
Status:	Approved	***Longitude:***	
Record Type:	ECA	***Latitude:***	
Link Source:	IDS	***Geometry X:***	
SWP Area Name:		***Geometry Y:***	
Approval Type:	ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS		
Project Type:	MUNICIPAL AND PRIVATE SEWAGE WORKS		
Address:	Brian Coburn Blvd Navan Road		
Full Address:			
Full PDF Link:	https://www.accessenvironment.ene.gov.on.ca/instruments/9726-AZERBS-14.pdf		

Site: ***Minto Communities Inc.***
Ottawa ON K1P 0B6

Database: ***ECA***

Approval No:	8605-AYUHJG	***MOE District:***	
Approval Date:	2018-05-30	***City:***	
Status:	Approved	***Longitude:***	
Record Type:	ECA	***Latitude:***	
Link Source:	IDS	***Geometry X:***	
SWP Area Name:		***Geometry Y:***	
Approval Type:	ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS		
Project Type:	MUNICIPAL AND PRIVATE SEWAGE WORKS		
Address:			
Full Address:			
Full PDF Link:	https://www.accessenvironment.ene.gov.on.ca/instruments/7723-AYKNXD-14.pdf		

Site: ***Claridge Homes (Carson) Inc.***
Ottawa ON K2P 0Y6

Database: ***ECA***

Approval No:	8741-AU3KP5	***MOE District:***	
Approval Date:	2017-12-20	***City:***	
Status:	Approved	***Longitude:***	
Record Type:	ECA	***Latitude:***	
Link Source:	IDS	***Geometry X:***	
SWP Area Name:		***Geometry Y:***	
Approval Type:	ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS		
Project Type:	MUNICIPAL AND PRIVATE SEWAGE WORKS		
Address:			
Full Address:			
Full PDF Link:	https://www.accessenvironment.ene.gov.on.ca/instruments/1645-ATXMXA-14.pdf		

Site: ***Minto Communities Inc.***
Ottawa ON K1P 0B6

Database: ***ECA***

Approval No:	3128-AQGJ6T	***MOE District:***	
Approval Date:	2017-08-23	***City:***	
Status:	Approved	***Longitude:***	
Record Type:	ECA	***Latitude:***	
Link Source:	IDS	***Geometry X:***	
SWP Area Name:		***Geometry Y:***	
Approval Type:	ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS		
Project Type:	MUNICIPAL AND PRIVATE SEWAGE WORKS		
Address:			
Full Address:			
Full PDF Link:	https://www.accessenvironment.ene.gov.on.ca/instruments/4569-AQCRKJ-14.pdf		

Site: ***Minto Communities Inc.***
Ottawa ON K1P 0B6

Database: ***ECA***

Approval No:	1720-AKJGKQ	***MOE District:***	
Approval Date:	2017-03-24	***City:***	
Status:	Approved	***Longitude:***	
Record Type:	ECA	***Latitude:***	
Link Source:	IDS	***Geometry X:***	
SWP Area Name:		***Geometry Y:***	
Approval Type:	ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS		
Project Type:	MUNICIPAL AND PRIVATE SEWAGE WORKS		
Address:			
Full Address:			
Full PDF Link:	https://www.accessenvironment.ene.gov.on.ca/instruments/1769-AKEQQZ-14.pdf		

Site: ***Minto Communities Inc.***
Ottawa ON K1P 0B6

Database: ***ECA***

Approval No:	7598-94TRX3	***MOE District:***	
Approval Date:	2013-02-26	***City:***	
Status:	Approved	***Longitude:***	
Record Type:	ECA	***Latitude:***	
Link Source:	IDS	***Geometry X:***	
SWP Area Name:		***Geometry Y:***	
Approval Type:	ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS		
Project Type:	MUNICIPAL AND PRIVATE SEWAGE WORKS		
Address:			
Full Address:			
Full PDF Link:	https://www.accessenvironment.ene.gov.on.ca/instruments/2553-8VDQUF-14.pdf		

Site: ***Richcraft Homes Ltd.***
Ottawa ON K1G 4K1

Database: ***ECA***

Approval No:	5204-4RGRNN	***MOE District:***	
Approval Date:	2000-12-01	***City:***	
Status:	Approved	***Longitude:***	
Record Type:	ECA	***Latitude:***	
Link Source:	IDS	***Geometry X:***	
SWP Area Name:		***Geometry Y:***	
Approval Type:	ECA-Municipal and Private Water Works		
Project Type:	Municipal and Private Water Works		
Address:			
Full Address:			
Full PDF Link:			

Site: ***Richcraft Homes Ltd.***
Ottawa ON K1G 4K1

Database: ***ECA***

Approval No:	5800-5UYNQD	***MOE District:***	
Approval Date:	2004-01-08	***City:***	

Status:	Approved	***Longitude:***	
Record Type:	ECA	***Latitude:***	
Link Source:	IDS	***Geometry X:***	
SWP Area Name:		***Geometry Y:***	
Approval Type:	ECA-Municipal Drinking Water Systems		
Project Type:	Municipal Drinking Water Systems		
Address:			
Full Address:			
Full PDF Link:			

Site: ***Taggart Construction Limited***
Mobile Facility Ottawa ON K1V 8Y3

Database: ***ECA***

Approval No:	0636-7KEL2F	***MOE District:***	
Approval Date:	2008-11-19	***City:***	
Status:	Approved	***Longitude:***	
Record Type:	ECA	***Latitude:***	
Link Source:	IDS	***Geometry X:***	
SWP Area Name:		***Geometry Y:***	
Approval Type:	ECA-AIR		
Project Type:	AIR		
Address:	Mobile Facility		
Full Address:			
Full PDF Link:	https://www.accessenvironment.ene.gov.on.ca/instruments/8556-6XWUA3-14.pdf		

Site: ***Riotrin Properties (Belcourt) Inc.***
Ottawa ON K2P 0R6

Database: ***ECA***

Approval No:	0936-7UZSHM	***MOE District:***	
Approval Date:	2009-08-25	***City:***	
Status:	Approved	***Longitude:***	
Record Type:	ECA	***Latitude:***	
Link Source:	IDS	***Geometry X:***	
SWP Area Name:		***Geometry Y:***	
Approval Type:	ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS		
Project Type:	MUNICIPAL AND PRIVATE SEWAGE WORKS		
Address:			
Full Address:			
Full PDF Link:	https://www.accessenvironment.ene.gov.on.ca/instruments/3961-7U9RU3-14.pdf		

Site: ***Riotrin Properties (Belcourt) Inc.***
Ref. Plan 4R-19308 Ottawa ON K2P 0R6

Database: ***ECA***

Approval No:	8040-7RZLSZ	***MOE District:***	
Approval Date:	2009-05-15	***City:***	
Status:	Revoked and/or Replaced	***Longitude:***	
Record Type:	ECA	***Latitude:***	
Link Source:	IDS	***Geometry X:***	
SWP Area Name:		***Geometry Y:***	
Approval Type:	ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS		
Project Type:	MUNICIPAL AND PRIVATE SEWAGE WORKS		
Address:	Ref. Plan 4R-19308		
Full Address:			
Full PDF Link:	https://www.accessenvironment.ene.gov.on.ca/instruments/6770-7PUSDC-14.pdf		

Site: ***Minto Communities Inc.***
Ottawa ON K1P 0B6

Database: ***ECA***

Approval No:	8813-9WYQ2J	***MOE District:***	
Approval Date:	2015-06-08	***City:***	
Status:	Approved	***Longitude:***	
Record Type:	ECA	***Latitude:***	

Link Source:	IDS	***Geometry X:***	
SWP Area Name:		***Geometry Y:***	
Approval Type:	ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS		
Project Type:	MUNICIPAL AND PRIVATE SEWAGE WORKS		
Address:			
Full Address:			
Full PDF Link:	https://www.accessenvironment.ene.gov.on.ca/instruments/4625-9WXRTA-14.pdf		

Site: ***Minto Communities Inc.***
Ottawa ON K1P 0B6

Database: ***ECA***

Approval No:	2268-9WYR3F	***MOE District:***	
Approval Date:	2015-06-08	***City:***	
Status:	Approved	***Longitude:***	
Record Type:	ECA	***Latitude:***	
Link Source:	IDS	***Geometry X:***	
SWP Area Name:		***Geometry Y:***	
Approval Type:	ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS		
Project Type:	MUNICIPAL AND PRIVATE SEWAGE WORKS		
Address:			
Full Address:			
Full PDF Link:	https://www.accessenvironment.ene.gov.on.ca/instruments/3873-9WWLDY-14.pdf		

Site: ***Richcraft Homes Ltd.***
Ottawa ON K1G 4K1

Database: ***ECA***

Approval No:	9080-5UYQRL	***MOE District:***	
Approval Date:	2004-01-08	***City:***	
Status:	Approved	***Longitude:***	
Record Type:	ECA	***Latitude:***	
Link Source:	IDS	***Geometry X:***	
SWP Area Name:		***Geometry Y:***	
Approval Type:	ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS		
Project Type:	MUNICIPAL AND PRIVATE SEWAGE WORKS		
Address:			
Full Address:			
Full PDF Link:	https://www.accessenvironment.ene.gov.on.ca/instruments/5802-5UQM74-14.pdf		

Site: ***Minto Communities Inc.***
Ottawa ON K1P 0B6

Database: ***ECA***

Approval No:	7661-ABCKQL	***MOE District:***	
Approval Date:	2016-06-30	***City:***	
Status:	Approved	***Longitude:***	
Record Type:	ECA	***Latitude:***	
Link Source:	IDS	***Geometry X:***	
SWP Area Name:		***Geometry Y:***	
Approval Type:	ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS		
Project Type:	MUNICIPAL AND PRIVATE SEWAGE WORKS		
Address:			
Full Address:			
Full PDF Link:	https://www.accessenvironment.ene.gov.on.ca/instruments/5664-AB4KGV-14.pdf		

Site: ***City of Ottawa***
Brian Coburn Boulevard Ottawa ON K2G 6J8

Database: ***ECA***

Approval No:	7002-A9SLGL	***MOE District:***	
Approval Date:	2016-05-13	***City:***	
Status:	Revoked and/or Replaced	***Longitude:***	
Record Type:	ECA	***Latitude:***	
Link Source:	IDS	***Geometry X:***	
SWP Area Name:		***Geometry Y:***	

Approval Type: ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS
Project Type: MUNICIPAL AND PRIVATE SEWAGE WORKS
Address: Brian Coburn Boulevard
Full Address:
Full PDF Link: https://www.accessenvironment.ene.gov.on.ca/instruments/8723-A4CT6C-14.pdf

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Site: ***Richcraft Homes Ltd.***
Ottawa ON K1G 4K1

Database: ***ECA***

Approval No: 6566-A7AMSG
Approval Date: 2016-02-23
Status: Approved
Record Type: ECA
Link Source: IDS
SWP Area Name:
MOE District:
City:
Longitude:
Latitude:
Geometry X:
Geometry Y:
Approval Type: ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS
Project Type: MUNICIPAL AND PRIVATE SEWAGE WORKS
Address:
Full Address:
Full PDF Link: https://www.accessenvironment.ene.gov.on.ca/instruments/1204-A4KTW4-14.pdf

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Site: ***The Corporation of the City of Ottawa***
Brian Coburn Boulevard Ottawa ON K2G 7E6

Database: ***ECA***

Approval No: 1230-A4LPM6
Approval Date: 2015-12-02
Status: Approved
Record Type: ECA
Link Source: IDS
SWP Area Name:
MOE District:
City:
Longitude:
Latitude:
Geometry X:
Geometry Y:
Approval Type: ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS
Project Type: MUNICIPAL AND PRIVATE SEWAGE WORKS
Address: Brian Coburn Boulevard
Full Address:
Full PDF Link: https://www.accessenvironment.ene.gov.on.ca/instruments/2099-A48M46-14.pdf

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Site: ***Minto Communities Inc.***
Ottawa ON K1P 0B6

Database: ***ECA***

Approval No: 8270-A3ZLU2
Approval Date: 2015-11-10
Status: Approved
Record Type: ECA
Link Source: IDS
SWP Area Name:
MOE District:
City:
Longitude:
Latitude:
Geometry X:
Geometry Y:
Approval Type: ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS
Project Type: MUNICIPAL AND PRIVATE SEWAGE WORKS
Address:
Full Address:
Full PDF Link: https://www.accessenvironment.ene.gov.on.ca/instruments/8185-A3PRB5-14.pdf

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Site: ***WAL-MART CANADA CORP/LA COMPAGNIE WAL-MART DU CANADA***
ON

Database: ***ECA***

Approval No: R-003-3534187580
Approval Date: 2015-10-26
Status: Registered
Record Type:
Link Source:
SWP Area Name:
Approval Type:
Project Type: Heating System
MOE District:
City:
Longitude:
Latitude:
Geometry X:
Geometry Y:

Address: 2277 RIVERSIDE OTTAWA
Full Address:
Full PDF Link: http://www.accessenvironment.ene.gov.on.ca/AEWeb/ae/ViewDocument.action?documentRefID=2017482

Site: ***WAL-MART CANADA CORP/LA COMPAGNIE WAL-MART DU CANADA ON***
Database: ECA

Approval No: R-003-4538650974
Approval Date: 2015-11-12
Status: Registered
Record Type:
Link Source:
SWP Area Name:
Approval Type:
Project Type: Heating System
Address: 450 TERMINAL OTTAWA
Full Address:
Full PDF Link: http://www.accessenvironment.ene.gov.on.ca/AEWeb/ae/ViewDocument.action?documentRefID=2017799

MOE District:
City:
Longitude:
Latitude:
Geometry X:
Geometry Y:

Site: ***McGiac Realty Corporation Ottawa ON K1B 5P5***
Database: ECA

Approval No: 0547-9MSNYS
Approval Date: 2014-12-09
Status: Approved
Record Type: ECA
Link Source: IDS
SWP Area Name:
Approval Type: ECA-INDUSTRIAL SEWAGE WORKS
Project Type: INDUSTRIAL SEWAGE WORKS
Address:
Full Address:
Full PDF Link: https://www.accessenvironment.ene.gov.on.ca/instruments/5727-9DEKZM-14.pdf

MOE District:
City:
Longitude:
Latitude:
Geometry X:
Geometry Y:

Site: ***Minto Communities Inc. Ottawa ON K1P 0B6***
Database: ECA

Approval No: 7971-9EAST8
Approval Date: 2014-01-10
Status: Approved
Record Type: ECA
Link Source: IDS
SWP Area Name:
Approval Type: ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS
Project Type: MUNICIPAL AND PRIVATE SEWAGE WORKS
Address:
Full Address:
Full PDF Link: https://www.accessenvironment.ene.gov.on.ca/instruments/7322-9E4LGN-14.pdf

MOE District:
City:
Longitude:
Latitude:
Geometry X:
Geometry Y:

Site: ***Minto Communities Inc. Ottawa ON K1P 0B6***
Database: ECA

Approval No: 7202-97BLB4
Approval Date: 2013-05-23
Status: Revoked and/or Replaced
Record Type: ECA
Link Source: IDS
SWP Area Name:
Approval Type: ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS
Project Type: MUNICIPAL AND PRIVATE SEWAGE WORKS
Address:
Full Address:

MOE District:
City:
Longitude:
Latitude:
Geometry X:
Geometry Y:

Full PDF Link: https://www.accessenvironment.ene.gov.on.ca/instruments/4553-95ZKWJ-14.pdf

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Site: ***Minto Communities Inc.***
Ottawa ON K1P 0B6

Database: ***ECA***

Approval No: 0195-95LSVA
Approval Date: 2013-03-22
Status: Approved
Record Type: ECA
Link Source: IDS
SWP Area Name:
MOE District:
City:
Longitude:
Latitude:
Geometry X:
Geometry Y:
Approval Type: ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS
Project Type: MUNICIPAL AND PRIVATE SEWAGE WORKS
Address:
Full Address:
Full PDF Link: https://www.accessenvironment.ene.gov.on.ca/instruments/1964-8XNJA4-14.pdf

---

Site: ***Minto Communities Inc.***
Ottawa ON K1P 0B6

Database: ***ECA***

Approval No: 3053-8YJNWU
Approval Date: 2012-10-01
Status: Approved
Record Type: ECA
Link Source: IDS
SWP Area Name:
MOE District:
City:
Longitude:
Latitude:
Geometry X:
Geometry Y:
Approval Type: ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS
Project Type: MUNICIPAL AND PRIVATE SEWAGE WORKS
Address:
Full Address:
Full PDF Link: https://www.accessenvironment.ene.gov.on.ca/instruments/1397-8XNJGH-14.pdf

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Site: ***Minto Communities Inc.***
Ottawa ON K1P 0B6

Database: ***ECA***

Approval No: 1554-8Y2HZ6
Approval Date: 2012-09-14
Status: Revoked and/or Replaced
Record Type: ECA
Link Source: IDS
SWP Area Name:
MOE District:
City:
Longitude:
Latitude:
Geometry X:
Geometry Y:
Approval Type: ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS
Project Type: MUNICIPAL AND PRIVATE SEWAGE WORKS
Address:
Full Address:
Full PDF Link: https://www.accessenvironment.ene.gov.on.ca/instruments/1100-8WTMSY-14.pdf

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Site: ***Tamarack (Mer Bleu) Corporation***
Brian Coburn Boulevard Ottawa ON K1V 8Y3

Database: ***ECA***

Approval No: 3522-8S8JMQ
Approval Date: 2012-03-12
Status: Approved
Record Type: ECA
Link Source: IDS
SWP Area Name:
MOE District:
City:
Longitude:
Latitude:
Geometry X:
Geometry Y:
Approval Type: ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS
Project Type: MUNICIPAL AND PRIVATE SEWAGE WORKS
Address: Brian Coburn Boulevard
Full Address:
Full PDF Link: https://www.accessenvironment.ene.gov.on.ca/instruments/8059-8S6RZ6-14.pdf

Site: ***Minto Communities Inc.***
Ottawa ON K1P 0B6

Database: ***ECA***

Approval No:	3002-8PBSB4	***MOE District:***	
Approval Date:	2012-01-31	***City:***	
Status:	Revoked and/or Replaced	***Longitude:***	
Record Type:	ECA	***Latitude:***	
Link Source:	IDS	***Geometry X:***	
SWP Area Name:		***Geometry Y:***	
Approval Type:	ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS		
Project Type:	MUNICIPAL AND PRIVATE SEWAGE WORKS		
Address:			
Full Address:			
Full PDF Link:	https://www.accessenvironment.ene.gov.on.ca/instruments/6465-8NETCD-14.pdf		

Site: ***Mr. Gas***
Orleans ON

Database: ***FCON***

Mailing Address:	Orleans, ON
Offence Date:	89/07/09-89/07/13
Offence:	CEPA Gasoline Regulations 4 counts: High lead content
Status:	Concluded
Offence Location:	
Date Charged:	89/11/13
Court Date:	90/03/12
Penalty:	
Result:	Charges Withdrawn
Notes:	Lab used analyses method different from regulatory requirements

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Site: ***Minto Communities Inc.***
ON

Database: ***PTTW***

EBR Registry No:	011-4898	***Decision Posted:***	
Ministry Ref No:	3046-8MLKW5	***Exception Posted:***	
Notice Type:	Instrument Decision	***Section:***	
Notice Stage:		***Act 1:***	
Notice Date:	December 17, 2014	***Act 2:***	
Proposal Date:	November 04, 2011	***Site Location Map:***	
Year:	2011		
Instrument Type:	(OWRA s. 34) - Permit to Take Water		
Off Instrument Name:			
Posted By:			
Company Name:	Minto Communities Inc.		
Site Address:			
Location Other:			
Proponent Name:			
Proponent Address:	180 Kent Street , Suite 200, Ottawa Ontario, Canada K1P 0B6, Minto Communities Inc., 180 Kent Street , Suite 200, Ottawa Ontario, Canada K1P 0B6		
Comment Period:			
URL:			

Site Location Details:

Mahogany Community Development Address: Lot: Part of Lots 4 and 5, Concession: A (Broken Front), Ottawa, City District Office: Ottawa GeoReference: Map Datum: NAD83, Zone: 18, Accuracy Estimate: 1-10 metres eg. Good Quality GPS, UTM Easting: 446650, UTM Northing: 5007555, , LIO GeoReference: Zone: , UTM Easting: , UTM Northing: , Latitude: , Longitude: CITY OF OTTAWA

Site: ***Taggart Construction Limited***
Tenth Line Road at Mer Bleue Road, Chaperal Subdivision Cumberland, Lot SE 1/2 of Lot 2, Concession 11, Cumberland, Ottawa City CITY OF OTTAWA ON

Database: ***PTTW***

EBR Registry No:	010-5074	***Decision Posted:***	

Ministry Ref No: 2420-7KWNSZ
Notice Type: Instrument Decision
Notice Stage:
Notice Date: April 14, 2009
Proposal Date: November 07, 2008
Year: 2008
Instrument Type: (OWRA s. 34) - Permit to Take Water
Off Instrument Name:
Posted By:
Company Name: Taggart Construction Limited
Site Address:
Location Other:
Proponent Name:
Proponent Address: 3187 Albion Rd S, Ottawa Ontario, K1V 8Y3
Comment Period:
URL:

Exception Posted:
Section:
Act 1:
Act 2:
Site Location Map:

Site Location Details:

Tenth Line Road at Mer Bleue Road, Chaperal Subdivision Cumberland, Lot SE 1/2 of Lot 2, Concession 11, Cumberland, Ottawa City CITY OF OTTAWA

Site: ***Minto Communities Inc.***
ON

Database: ***PTTW***

EBR Registry No: 012-9800
Ministry Ref No: 5771-AJEJDR
Notice Type: Instrument Decision
Notice Stage:
Notice Date: October 06, 2017
Proposal Date: February 13, 2017
Year: 2017
Instrument Type: (OWRA s. 34) - Permit to Take Water
Off Instrument Name:
Posted By:
Company Name: Minto Communities Inc.
Site Address:
Location Other:
Proponent Name:
Proponent Address: 180 Kent Street , Suite 200, Ottawa Ontario, Canada K1P 0B6, Minto Communities Inc., 180 Kent Street , Suite 200, Ottawa Ontario, Canada K1P 0B6
Comment Period:
URL:

Decision Posted:
Exception Posted:
Section:
Act 1:
Act 2:
Site Location Map:

Site Location Details:

Avalon West Community Address: Lot: 3 & Part of Lot 4, Concession: 11, Geographic Township: CUMBERLAND, Ottawa, City District Office: Ottawa GeoReference: Zone: 18, UTM Easting: 461611, UTM Northing: 5032496, UTM Location Description: S1- Lot 3 Concession 11, Site #: 5712-AJEJLA CITY OF OTTAWA

Site: ***CLARIDGE HOMES (CARSON) INC.***
No Municipal Address Ottawa ON

Database: ***RSC***

RSC ID: 223098
RA No:
RSC Type: Phase 1 and 2 RSC
Curr Property Use: Agricultural/Other
Ministry District: Ottawa District Office
Filing Date: 2017/03/24
Date Ack:
Date Returned:
Restoration Type:
Soil Type:
Criteria:

Cert Date:
Cert Prop Use No:
Intended Prop Use: Residential
Qual Person Name: ADRIAN MENYHART
Stratified (Y/N):
Audit (Y/N):
Entire Leg Prop. (Y/N):
Accuracy Estimate:
Telephone:
Fax:
Email:

CPU Issued Sect 1686:
Asmt Roll No: 061460021514215
Prop ID No (PIN): 04352-2076 (LT),
04352-2077 (LT),
04352-2075 (LT)
Property Municipal Address: No Municipal Address
Mailing Address:
Latitude & Latitude:
UTM Coordinates:
Consultant:
Legal Desc:
Measurement Method:
Applicable Standards:
RSC PDF: https://www.lrcsde.lrc.gov.on.ca/BFISWebPublic/pub/viewDocument.action?attachmentId=76631&fileName=BROWNFIELDS-E.pdf

Document(s) Detail

Document Heading: Supporting Documents
Document Name: Table of Current and Past Uses.pdf
Document Type: Table of Current and Past Property Use
Document Link: https://www.lrcsde.lrc.gov.on.ca/BFISWebPublic/pub/viewDocument.action?attachmentId=76636&fileName=Table+of+Current+and+Past+Uses.pdf

Document Heading: Supporting Documents
Document Name: APECTable.pdf
Document Type: Area(s) of Potential Environmental Concern
Document Link: https://www.lrcsde.lrc.gov.on.ca/BFISWebPublic/pub/viewDocument.action?attachmentId=78676&fileName=APECTable.pdf

Document Heading: Supporting Documents
Document Name: Transfer.pdf
Document Type: Copy of any deed(s), transfer(s) or other document(s)
Document Link: https://www.lrcsde.lrc.gov.on.ca/BFISWebPublic/pub/viewDocument.action?attachmentId=78674&fileName=Transfer.pdf

Document Heading: Supporting Documents
Document Name: certificatestatus.pdf
Document Type: Certificate of Status
Document Link: https://www.lrcsde.lrc.gov.on.ca/BFISWebPublic/pub/viewDocument.action?attachmentId=76632&fileName=certificatestatus.pdf

Document Heading: Supporting Documents
Document Name: Plan of Survey - January 2017.pdf
Document Type: A Current plan of Survey
Document Link: https://www.lrcsde.lrc.gov.on.ca/BFISWebPublic/pub/viewDocument.action?attachmentId=76633&fileName=Plan+of+Survey+-+January+2017.pdf

Document Heading: Supporting Documents
Document Name: LawyersLetter.pdf
Document Type: Lawyer's letter consisting of a legal description of the property
Document Link: https://www.lrcsde.lrc.gov.on.ca/BFISWebPublic/pub/viewDocument.action?attachmentId=78675&fileName=LawyersLetter.pdf

Document Heading: Supporting Documents
Document Name: Phase II CSM Feb 2017.pdf
Document Type: Phase 2 Conceptual Site Model
Document Link: https://www.lrcsde.lrc.gov.on.ca/BFISWebPublic/pub/viewDocument.action?attachmentId=76638&fileName=Phase+II+CSM+Feb+2017.pdf

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Site: ***Taggart Construction Limited***
Ottawa ON

Database: ***SPL***

Ref No: 7584-BB3KRQ
Site No: NA
Incident Dt: 4/4/2019
Year:
Discharger Report:
Material Group:
Health/Env Conseq:
Client Type: Corporation

Incident Cause:		***Sector Type:***	
Incident Event:		***Agency Involved:***	
Contaminant Code:		***Nearest Watercourse:***	
Contaminant Name:		***Site Address:***	
Contaminant Limit 1:		***Site District Office:***	Ottawa
Contam Limit Freq 1:		***Site Postal Code:***	
Contaminant UN No 1:		***Site Region:***	Eastern
Environment Impact:		***Site Municipality:***	Ottawa
Nature of Impact:		***Site Lot:***	
Receiving Medium:		***Site Conc:***	
Receiving Env:		***Northing:***	
MOE Response:		***Easting:***	
Dt MOE Arvl on Scn:		***Site Geo Ref Accu:***	
MOE Reported Dt:	4/9/2019	***Site Map Datum:***	
Dt Document Closed:		***SAC Action Class:***	
Incident Reason:		***Source Type:***	
Site Name:	1896 John Quinn rd, Metcalfe<UNOFFICIAL>		
Site County/District:			
Site Geo Ref Meth:			
Incident Summary:	Mobile Crusher Relocation - 2019		
Contaminant Qty:			

Site: ***Waste Management of Canada Corporation***
Parts of Lots 2, 3 , 4 Concession 2 & Parts of Lots 3, 4, 5 Concession 3 Ottawa ON K0A 1L0

Database: ***WDS***

Approval No:	A461002	***Total Area (ha):***	
Mob Unit Cert No:		***Landfill Cap (m³):***	
EBR Registry No:		***Transfer Area (ha):***	
Status:	Revoked and/or Replaced	***Transfer Cap (m³):***	
Facility Type:		***Transfer Cert No:***	
Record Type:	ECA	***Inciner. Area (ha):***	
Link Source:	IDS	***Inciner. Cap (t):***	
Project Type:	WASTE DISPOSAL SITES	***Process Area (m³):***	
Application Status:		***Process Cap (m³/d):***	
Issue Date:	2017-04-24	***Process Vol (m³):***	
Input Date:		***Process Feed (m³):***	
Date Received:		***Site Concession:***	
Est Closure Date:		***Site Region/County:***	
Mobile Capacity:		***SWP Area Name:***	Mississippi Valley
Mobile Units:		***MOE District:***	Ottawa
Mobile Description:		***District Office:***	
Prop City:		***Latitude:***	
Prop Postal:		***Longitude:***	
Prop Phone:		***Geometry X:***	
Serial Link:		***Geometry Y:***	
Approval Type:	ECA-WASTE DISPOSAL SITES		
Proponent:			
Prop Address:			
Proponent County/District:			
Full Address:	Parts of Lots 2, 3 , 4 Concession 2 & Parts of Lots 3, 4, 5 Concession 3		
Site Lot:			
Waste Class Code:			
Waste Class:			
Waste Type:			
Waste Type Other:			
Waste Description:			
Landfill Monitoring:			
Landfill Ctrl Type:			
Site Closing Description:			
Project Description:			
Municipalities Served:			
Approval Description:			
Other Approvals/Permits:			
PDF URL:	https://www.accessenvironment.ene.gov.on.ca/instruments/2086-AKXGP6-14.pdf		

Site: ***Waste Management of Canada Corporation***
Parts of Lots 2, 3 , 4 Concession 2 & Parts of Lots 3, 4, 5 Concession 3 Ottawa ON K0A 1L0

Database: ***WDS***

Approval No:	A461002	***Total Area (ha):***	
Mob Unit Cert No:		***Landfill Cap (m³):***	
EBR Registry No:		***Transfer Area (ha):***	
Status:	Revoked and/or Replaced	***Transfer Cap (m³):***	
Facility Type:		***Transfer Cert No:***	
Record Type:	ECA	***Inciner. Area (ha):***	
Link Source:	IDS	***Inciner. Cap (t):***	
Project Type:	WASTE DISPOSAL SITES	***Process Area (m³):***	
Application Status:		***Process Cap (m³/d):***	
Issue Date:	2018-04-04	***Process Vol (m³):***	
Input Date:		***Process Feed (m³):***	
Date Received:		***Site Concession:***	
Est Closure Date:		***Site Region/County:***	
Mobile Capacity:		***SWP Area Name:***	Mississippi Valley
Mobile Units:		***MOE District:***	Ottawa
Mobile Description:		***District Office:***	
Prop City:		***Latitude:***	
Prop Postal:		***Longitude:***	
Prop Phone:		***Geometry X:***	
Serial Link:		***Geometry Y:***	

Approval Type: ECA-WASTE DISPOSAL SITES
Proponent:
Prop Address:
Proponent County/District:
Full Address: Parts of Lots 2, 3 , 4 Concession 2 & Parts of Lots 3, 4, 5 Concession 3
Site Lot:
Waste Class Code:
Waste Class:
Waste Type:
Waste Type Other:
Waste Description:
Landfill Monitoring:
Landfill Ctrl Type:
Site Closing Description:
Project Description:
Municipalities Served:
Approval Description:
Other Approvals/Permits:
PDF URL:

Site: ***Waste Management of Canada Corporation***
Parts of Lots 2, 3 , 4 Concession 2 & Parts of Lots 3, 4, 5 Concession 3 Ottawa ON K0A 1L0

Database: ***WDS***

Approval No:	A461002	***Total Area (ha):***	
Mob Unit Cert No:		***Landfill Cap (m³):***	
EBR Registry No:		***Transfer Area (ha):***	
Status:	Revoked and/or Replaced	***Transfer Cap (m³):***	
Facility Type:		***Transfer Cert No:***	
Record Type:	ECA	***Inciner. Area (ha):***	
Link Source:	IDS	***Inciner. Cap (t):***	
Project Type:	WASTE DISPOSAL SITES	***Process Area (m³):***	
Application Status:		***Process Cap (m³/d):***	
Issue Date:	2018-08-09	***Process Vol (m³):***	
Input Date:		***Process Feed (m³):***	
Date Received:		***Site Concession:***	
Est Closure Date:		***Site Region/County:***	
Mobile Capacity:		***SWP Area Name:***	Mississippi Valley
Mobile Units:		***MOE District:***	Ottawa
Mobile Description:		***District Office:***	
Prop City:		***Latitude:***	
Prop Postal:		***Longitude:***	
Prop Phone:		***Geometry X:***	
Serial Link:		***Geometry Y:***	

Approval Type: ECA-WASTE DISPOSAL SITES

Proponent:
Prop Address:
Proponent County/District:
Full Address: Parts of Lots 2, 3 , 4 Concession 2 & Parts of Lots 3, 4, 5 Concession 3
Site Lot:
Waste Class Code:
Waste Class:
Waste Type:
Waste Type Other:
Waste Description:
Landfill Monitoring:
Landfill Ctrl Type:
Site Closing Description:
Project Description:
Municipalities Served:
Approval Description:
Other Approvals/Permits:
PDF URL: https://www.accessenvironment.ene.gov.on.ca/instruments/9503-AX9LL3-14.pdf

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Site: ***Waste Management of Canada Corporation***
Parts of Lots 2, 3 , 4 Concession 2 & Parts of Lots 3, 4, 5 Concession 3 Ottawa ON K0A 1L0

Database: ***WDS***

Approval No: A461002
Mob Unit Cert No:
EBR Registry No:
Status: Revoked and/or Replaced
Facility Type:
Record Type: ECA
Link Source: IDS
Project Type: WASTE DISPOSAL SITES
Application Status:
Issue Date: 2017-03-01
Input Date:
Date Received:
Est Closure Date:
Mobile Capacity:
Mobile Units:
Mobile Description:
Prop City:
Prop Postal:
Prop Phone:
Serial Link:
Total Area (ha):
Landfill Cap (m³):
Transfer Area (ha):
Transfer Cap (m³):
Transfer Cert No:
Inciner. Area (ha):
Inciner. Cap (t):
Process Area (m³):
Process Cap (m³/d):
Process Vol (m³):
Process Feed (m³):
Site Concession:
Site Region/County:
SWP Area Name: Mississippi Valley
MOE District: Ottawa
District Office:
Latitude:
Longitude:
Geometry X:
Geometry Y:
Approval Type: ECA-WASTE DISPOSAL SITES
Proponent:
Prop Address:
Proponent County/District:
Full Address: Parts of Lots 2, 3 , 4 Concession 2 & Parts of Lots 3, 4, 5 Concession 3
Site Lot:
Waste Class Code:
Waste Class:
Waste Type:
Waste Type Other:
Waste Description:
Landfill Monitoring:
Landfill Ctrl Type:
Site Closing Description:
Project Description:
Municipalities Served:
Approval Description:
Other Approvals/Permits:
PDF URL: https://www.accessenvironment.ene.gov.on.ca/instruments/1829-AC4MA3-14.pdf

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Site:
lot 1 con 2 ON

Database: ***WWIS***

Well ID: 1526248
Data Entry Status:

Construction Date:		***Data Src:***	1
Primary Water Use:	Irrigation	***Date Received:***	6/5/1992
Sec. Water Use:		***Selected Flag:***	Yes
Final Well Status:	Water Supply	***Abandonment Rec:***	
Water Type:		***Contractor:***	2351
Casing Material:		***Form Version:***	1
Audit No:	116352	***Owner:***	
Tag:		***Street Name:***	
Construction Method:		***County:***	OTTAWA
Elevation (m):		***Municipality:***	CUMBERLAND TOWNSHIP
Elevation Reliability:		***Site Info:***	
Depth to Bedrock:		***Lot:***	001
Well Depth:		***Concession:***	02
Overburden/Bedrock:		***Concession Name:***	CON
Pump Rate:		***Easting NAD83:***	
Static Water Level:		***Northing NAD83:***	
Flowing (Y/N):		***Zone:***	
Flow Rate:		***UTM Reliability:***	
Clear/Cloudy:			

Bore Hole Information

Bore Hole ID:	10047966	***Elevation:***	
DP2BR:	99	***Elevrc:***	
Spatial Status:		***Zone:***	18
Code OB:	r	***East83:***	
Code OB Desc:	Bedrock	***North83:***	
Open Hole:		***Org CS:***	
Cluster Kind:		***UTMRC:***	9
Date Completed:	5/21/1992	***UTMRC Desc:***	unknown UTM
Remarks:		***Location Method:***	na
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	931063628
Layer:	5
Color:	2
General Color:	GREY
Mat1:	15
Most Common Material:	LIMESTONE
Mat2:	
Mat2 Desc:	
Mat3:	
Mat3 Desc:	
Formation Top Depth:	99
Formation End Depth:	101
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	931063625
Layer:	2
Color:	6
General Color:	BROWN
Mat1:	05
Most Common Material:	CLAY
Mat2:	
Mat2 Desc:	

Mat3:
Mat3 Desc:
Formation Top Depth: 3
Formation End Depth: 27
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931063624
Layer: 1
Color: 6
General Color: BROWN
Mat1: 02
Most Common Material: TOPSOIL
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 0
Formation End Depth: 3
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931063626
Layer: 3
Color: 3
General Color: BLUE
Mat1: 05
Most Common Material: CLAY
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 27
Formation End Depth: 93
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931063627
Layer: 4
Color: 2
General Color: GREY
Mat1: 14
Most Common Material: HARDPAN
Mat2: 13
Mat2 Desc: BOULDERS
Mat3:
Mat3 Desc:
Formation Top Depth: 93
Formation End Depth: 99
Formation End Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 961526248
Method Construction Code: 1
Method Construction: Cable Tool
Other Method Construction:

Pipe Information

Pipe ID: 10596536
Casing No: 1
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 930083961
Layer: 1
Material: 1
Open Hole or Material: STEEL
Depth From:
Depth To: 99
Casing Diameter: 6
Casing Diameter UOM: inch
Casing Depth UOM: ft

Results of Well Yield Testing

Pump Test ID: 991526248
Pump Set At:
Static Level: 41
Final Level After Pumping: 56
Recommended Pump Depth: 96
Pumping Rate: 34
Flowing Rate:
Recommended Pump Rate:
Levels UOM: ft
Rate UOM: GPM
Water State After Test Code: 2
Water State After Test: CLOUDY
Pumping Test Method: 2
Pumping Duration HR: 1
Pumping Duration MIN: 10
Flowing: No

Draw Down & Recovery

Pump Test Detail ID: 934390451
Test Type: Draw Down
Test Duration: 30
Test Level: 52
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934908590
Test Type: Draw Down
Test Duration: 60
Test Level: 56
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934106817
Test Type: Draw Down
Test Duration: 15
Test Level: 48
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934651392
Test Type: Draw Down
Test Duration: 45
Test Level: 56
Test Level UOM: ft

Water Details

Water ID: 933485484
Layer: 1
Kind Code: 1
Kind: FRESH
Water Found Depth: 99
Water Found Depth UOM: ft

Site:
lot 1 con 2 ON

Database: ***WWIS***

Well ID: 1526289
Construction Date:
Primary Water Use: Domestic
Sec. Water Use:
Final Well Status: Water Supply
Water Type:
Casing Material:
Audit No: 113983
Tag:
Construction Method:
Elevation (m):
Elevation Reliability:
Depth to Bedrock:
Well Depth:
Overburden/Bedrock:
Pump Rate:
Static Water Level:
Flowing (Y/N):
Flow Rate:
Clear/Cloudy:

Data Entry Status:
Data Src: 1
Date Received: 6/10/1992
Selected Flag: Yes
Abandonment Rec:
Contractor: 4006
Form Version: 1
Owner:
Street Name:
County: OTTAWA
Municipality: CUMBERLAND TOWNSHIP
Site Info:
Lot: 001
Concession: 02
Concession Name: CON
Easting NAD83:
Northing NAD83:
Zone:
UTM Reliability:

Bore Hole Information

Bore Hole ID: 10048004
DP2BR: 75
Spatial Status:
Code OB: h
Code OB Desc: Mixed in a Layer
Open Hole:
Cluster Kind:
Date Completed: 5/14/1992
Remarks:
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Elevation:
Elevrc:
Zone: 18
East83:
North83:
Org CS:
UTMRC: 9
UTMRC Desc: unknown UTM
Location Method: na

Overburden and Bedrock Materials Interval

Formation ID: 931063722
Layer: 1
Color: 2
General Color: GREY
Mat1: 05
Most Common Material: CLAY

Mat2: 05
Mat2 Desc: CLAY
Mat3:
Mat3 Desc:
Formation Top Depth: 0
Formation End Depth: 75
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931063723
Layer: 2
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2: 18
Mat2 Desc: SANDSTONE
Mat3:
Mat3 Desc:
Formation Top Depth: 75
Formation End Depth: 146
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931063724
Layer: 3
Color: 6
General Color: BROWN
Mat1: 15
Most Common Material: LIMESTONE
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 146
Formation End Depth: 200
Formation End Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 933111596
Layer: 1
Plug From: 140
Plug To: 176
Plug Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 961526289
Method Construction Code: 4
Method Construction: Rotary (Air)
Other Method Construction:

Pipe Information

Pipe ID: 10596574
Casing No: 1
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 930084027
Layer: 2
Material: 1
Open Hole or Material: STEEL
Depth From:
Depth To: 176
Casing Diameter: 6
Casing Diameter UOM: inch
Casing Depth UOM: ft

Construction Record - Casing

Casing ID: 930084028
Layer: 3
Material: 4
Open Hole or Material: OPEN HOLE
Depth From:
Depth To: 200
Casing Diameter: 6
Casing Diameter UOM: inch
Casing Depth UOM: ft

Construction Record - Casing

Casing ID: 930084026
Layer: 1
Material: 5
Open Hole or Material: PLASTIC
Depth From:
Depth To: 176
Casing Diameter: 10
Casing Diameter UOM: inch
Casing Depth UOM: ft

Results of Well Yield Testing

Pump Test ID: 991526289
Pump Set At:
Static Level: 7
Final Level After Pumping: 9
Recommended Pump Depth:
Pumping Rate: 5
Flowing Rate:
Recommended Pump Rate: 5
Levels UOM: ft
Rate UOM: GPM
Water State After Test Code:
Water State After Test:
Pumping Test Method: 1
Pumping Duration HR: 6
Pumping Duration MIN: 0
Flowing: No

Draw Down & Recovery

Pump Test Detail ID: 934651429
Test Type:
Test Duration: 45
Test Level: 8
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934107274
Test Type:
Test Duration: 15
Test Level: 8
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934908627
Test Type:
Test Duration: 60
Test Level: 8
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934390489
Test Type:
Test Duration: 30
Test Level: 8
Test Level UOM: ft

Water Details

Water ID: 933485542
Layer: 2
Kind Code: 1
Kind: FRESH
Water Found Depth: 193
Water Found Depth UOM: ft

Water Details

Water ID: 933485541
Layer: 1
Kind Code: 1
Kind: FRESH
Water Found Depth: 175
Water Found Depth UOM: ft

Site:
lot 1 con 2 ON

Database: ***WWIS***

Well ID: 1526468
Construction Date:
Primary Water Use: Municipal
Sec. Water Use:
Final Well Status:
Water Type:
Casing Material:
Audit No: 120780
Tag:
Construction Method:
Elevation (m):
Elevation Reliability:
Depth to Bedrock:
Well Depth:
Overburden/Bedrock:
Pump Rate:
Static Water Level:
Flowing (Y/N):
Flow Rate:
Clear/Cloudy:

Data Entry Status:
Data Src: 1
Date Received: 8/20/1992
Selected Flag: Yes
Abandonment Rec:
Contractor: 4006
Form Version: 1
Owner:
Street Name:
County: OTTAWA
Municipality: CUMBERLAND TOWNSHIP
Site Info:
Lot: 001
Concession: 02
Concession Name: CON
Easting NAD83:
Northing NAD83:
Zone:
UTM Reliability:

Bore Hole Information

Bore Hole ID: 10048174
DP2BR:
Spatial Status:
Code OB:
Code OB Desc: No formation data
Open Hole:
Cluster Kind:
Date Completed: 8/5/1992
Remarks:
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Elevation:
Elevrc:
Zone: 18
East83:
North83:
Org CS:
UTMRC: 9
UTMRC Desc: unknown UTM
Location Method: na

Annular Space/Abandonment Sealing Record

Plug ID: 933111719
Layer: 2
Plug From: 180
Plug To: 200
Plug Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 933111718
Layer: 1
Plug From: 60
Plug To: 180
Plug Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 961526468
Method Construction Code: 0
Method Construction: Not Known
Other Method Construction:

Pipe Information

Pipe ID: 10596744
Casing No: 1
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 930084345
Layer: 1
Material: 5
Open Hole or Material: PLASTIC
Depth From:
Depth To: 200
Casing Diameter: 2
Casing Diameter UOM: inch
Casing Depth UOM: ft

Construction Record - Screen

Screen ID:	933326402
Layer:	1
Slot:	010
Screen Top Depth:	190
Screen End Depth:	200
Screen Material:	
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	2

Site:
lot 1 con 2 ON

Database:
WWIS

Well ID:	1526469	***Data Entry Status:***	
Construction Date:		***Data Src:***	1
Primary Water Use:	Domestic	***Date Received:***	8/20/1992
Sec. Water Use:		***Selected Flag:***	Yes
Final Well Status:	Test Hole	***Abandonment Rec:***	
Water Type:		***Contractor:***	4006
Casing Material:		***Form Version:***	1
Audit No:	120781	***Owner:***	
Tag:		***Street Name:***	
Construction Method:		***County:***	OTTAWA
Elevation (m):		***Municipality:***	CUMBERLAND TOWNSHIP
Elevation Reliability:		***Site Info:***	
Depth to Bedrock:		***Lot:***	001
Well Depth:		***Concession:***	02
Overburden/Bedrock:		***Concession Name:***	CON
Pump Rate:		***Easting NAD83:***	
Static Water Level:		***Northing NAD83:***	
Flowing (Y/N):		***Zone:***	
Flow Rate:		***UTM Reliability:***	
Clear/Cloudy:			

Bore Hole Information

Bore Hole ID:	10048175	***Elevation:***	
DP2BR:	90	***Elevrc:***	
Spatial Status:		***Zone:***	18
Code OB:	r	***East83:***	
Code OB Desc:	Bedrock	***North83:***	
Open Hole:		***Org CS:***	
Cluster Kind:		***UTMRC:***	9
Date Completed:	7/30/1992	***UTMRC Desc:***	unknown UTM
Remarks:		***Location Method:***	na
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	931064252
Layer:	4
Color:	2
General Color:	GREY
Mat1:	15
Most Common Material:	LIMESTONE
Mat2:	78
Mat2 Desc:	MEDIUM-GRAINED
Mat3:	15

Mat3 Desc: LIMESTONE
Formation Top Depth: 110
Formation End Depth: 160
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931064249
Layer: 1
Color: 3
General Color: BLUE
Mat1: 05
Most Common Material: CLAY
Mat2: 05
Mat2 Desc: CLAY
Mat3: 12
Mat3 Desc: STONES
Formation Top Depth: 0
Formation End Depth: 80
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931064251
Layer: 3
Color: 2
General Color: GREY
Mat1: 15
Most Common Material: LIMESTONE
Mat2: 71
Mat2 Desc: FRACTURED
Mat3: 15
Mat3 Desc: LIMESTONE
Formation Top Depth: 90
Formation End Depth: 110
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931064250
Layer: 2
Color: 2
General Color: GREY
Mat1: 11
Most Common Material: GRAVEL
Mat2: 12
Mat2 Desc: STONES
Mat3: 13
Mat3 Desc: BOULDERS
Formation Top Depth: 80
Formation End Depth: 90
Formation End Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 933111720
Layer: 1
Plug From: 60
Plug To: 120
Plug Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 961526469
Method Construction Code: 4
Method Construction: Rotary (Air)
Other Method Construction:

Pipe Information

Pipe ID: 10596745
Casing No: 1
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 930084346
Layer: 1
Material:
Open Hole or Material:
Depth From:
Depth To: 120
Casing Diameter: 10
Casing Diameter UOM: inch
Casing Depth UOM: ft

Construction Record - Casing

Casing ID: 930084348
Layer: 3
Material: 4
Open Hole or Material: OPEN HOLE
Depth From:
Depth To: 160
Casing Diameter: 6
Casing Diameter UOM: inch
Casing Depth UOM: ft

Construction Record - Casing

Casing ID: 930084347
Layer: 2
Material: 1
Open Hole or Material: STEEL
Depth From:
Depth To: 120
Casing Diameter: 6
Casing Diameter UOM: inch
Casing Depth UOM: ft

Water Details

Water ID: 933485806
Layer: 1
Kind Code: 1
Kind: FRESH
Water Found Depth: 150
Water Found Depth UOM: ft

Water Details

Water ID: 933485807
Layer: 2

Kind Code:	1
Kind:	FRESH
Water Found Depth:	157
Water Found Depth UOM:	ft

Site:

lot 1 con 2 ON

Database: ***WWIS***

Well ID:	1530551	***Data Entry Status:***	
Construction Date:		***Data Src:***	1
Primary Water Use:	Domestic	***Date Received:***	6/30/1999
Sec. Water Use:		***Selected Flag:***	Yes
Final Well Status:	Water Supply	***Abandonment Rec:***	
Water Type:		***Contractor:***	1517
Casing Material:		***Form Version:***	1
Audit No:	191643	***Owner:***	
Tag:		***Street Name:***	
Construction Method:		***County:***	OTTAWA
Elevation (m):		***Municipality:***	CUMBERLAND TOWNSHIP
Elevation Reliability:		***Site Info:***	
Depth to Bedrock:		***Lot:***	001
Well Depth:		***Concession:***	02
Overburden/Bedrock:		***Concession Name:***	CON
Pump Rate:		***Easting NAD83:***	
Static Water Level:		***Northing NAD83:***	
Flowing (Y/N):		***Zone:***	
Flow Rate:		***UTM Reliability:***	
Clear/Cloudy:			

Bore Hole Information

Bore Hole ID:	10052086	***Elevation:***	
DP2BR:	28	***Elevrc:***	
Spatial Status:		***Zone:***	18
Code OB:	h	***East83:***	
Code OB Desc:	Mixed in a Layer	***North83:***	
Open Hole:		***Org CS:***	
Cluster Kind:		***UTMRC:***	9
Date Completed:	4/30/1999	***UTMRC Desc:***	unknown UTM
Remarks:		***Location Method:***	na
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	931075862
Layer:	5
Color:	2
General Color:	GREY
Mat1:	26
Most Common Material:	ROCK
Mat2:	17
Mat2 Desc:	SHALE
Mat3:	
Mat3 Desc:	
Formation Top Depth:	33
Formation End Depth:	38
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID: 931075863
Layer: 6
Color: 6
General Color: BROWN
Mat1: 15
Most Common Material: LIMESTONE
Mat2: 26
Mat2 Desc: ROCK
Mat3:
Mat3 Desc:
Formation Top Depth: 38
Formation End Depth: 160
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931075864
Layer: 7
Color: 2
General Color: GREY
Mat1: 15
Most Common Material: LIMESTONE
Mat2: 26
Mat2 Desc: ROCK
Mat3:
Mat3 Desc:
Formation Top Depth: 160
Formation End Depth: 206
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931075859
Layer: 2
Color: 6
General Color: BROWN
Mat1: 05
Most Common Material: CLAY
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 3
Formation End Depth: 8
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931075860
Layer: 3
Color: 2
General Color: GREY
Mat1: 05
Most Common Material: CLAY
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 8
Formation End Depth: 28
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931075858
Layer: 1
Color: 6
General Color: BROWN
Mat1: 02
Most Common Material: TOPSOIL
Mat2: 81
Mat2 Desc: SANDY
Mat3:
Mat3 Desc:
Formation Top Depth: 0
Formation End Depth: 3
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931075861
Layer: 4
Color: 2
General Color: GREY
Mat1: 28
Most Common Material: SAND
Mat2: 17
Mat2 Desc: SHALE
Mat3:
Mat3 Desc:
Formation Top Depth: 28
Formation End Depth: 33
Formation End Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 933115702
Layer: 1
Plug From: 5
Plug To: 22
Plug Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 961530551
Method Construction Code: 1
Method Construction: Cable Tool
Other Method Construction:

Pipe Information

Pipe ID: 10600656
Casing No: 1
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 930090855
Layer: 1
Material: 1
Open Hole or Material: STEEL

Depth From:
Depth To: 38
Casing Diameter: 6
Casing Diameter UOM: inch
Casing Depth UOM: ft

Results of Well Yield Testing

Pump Test ID: 991530551
Pump Set At:
Static Level: 36
Final Level After Pumping: 190
Recommended Pump Depth: 195
Pumping Rate: 2
Flowing Rate:
Recommended Pump Rate: 2
Levels UOM: ft
Rate UOM: GPM
Water State After Test Code: 2
Water State After Test: CLOUDY
Pumping Test Method: 2
Pumping Duration HR: 1
Pumping Duration MIN: 0
Flowing: No

Draw Down & Recovery

Pump Test Detail ID: 934902662
Test Type: Draw Down
Test Duration: 60
Test Level: 190
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934385108
Test Type: Draw Down
Test Duration: 30
Test Level: 160
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934663071
Test Type: Draw Down
Test Duration: 45
Test Level: 180
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934118932
Test Type: Draw Down
Test Duration: 15
Test Level: 140
Test Level UOM: ft

Water Details

Water ID: 933490721
Layer: 1
Kind Code: 1
Kind: FRESH
Water Found Depth: 160

Water Found Depth UOM: ft

Site:
lot 1 con 2 ON

Database: ***WWIS***

Well ID:	1530851	***Data Entry Status:***	
Construction Date:		***Data Src:***	1
Primary Water Use:	Domestic	***Date Received:***	10/8/1999
Sec. Water Use:		***Selected Flag:***	Yes
Final Well Status:	Water Supply	***Abandonment Rec:***	
Water Type:		***Contractor:***	1517
Casing Material:		***Form Version:***	1
Audit No:	184009	***Owner:***	
Tag:		***Street Name:***	
Construction Method:		***County:***	OTTAWA
Elevation (m):		***Municipality:***	CUMBERLAND TOWNSHIP
Elevation Reliability:		***Site Info:***	
Depth to Bedrock:		***Lot:***	001
Well Depth:		***Concession:***	02
Overburden/Bedrock:		***Concession Name:***	CON
Pump Rate:		***Easting NAD83:***	
Static Water Level:		***Northing NAD83:***	
Flowing (Y/N):		***Zone:***	
Flow Rate:		***UTM Reliability:***	
Clear/Cloudy:			

Bore Hole Information

Bore Hole ID:	10052385	***Elevation:***	
DP2BR:	30	***Elevrc:***	
Spatial Status:		***Zone:***	18
Code OB:	h	***East83:***	
Code OB Desc:	Mixed in a Layer	***North83:***	
Open Hole:		***Org CS:***	
Cluster Kind:		***UTMRC:***	9
Date Completed:	8/30/1999	***UTMRC Desc:***	unknown UTM
Remarks:		***Location Method:***	na
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	931076774
Layer:	2
Color:	2
General Color:	GREY
Mat1:	14
Most Common Material:	HARDPAN
Mat2:	17
Mat2 Desc:	SHALE
Mat3:	
Mat3 Desc:	
Formation Top Depth:	30
Formation End Depth:	50
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	931076773
Layer:	1

Color: 2
General Color: GREY
Mat1: 14
Most Common Material: HARDPAN
Mat2: 05
Mat2 Desc: CLAY
Mat3: 17
Mat3 Desc: SHALE
Formation Top Depth: 0
Formation End Depth: 30
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931076775
Layer: 3
Color: 2
General Color: GREY
Mat1: 15
Most Common Material: LIMESTONE
Mat2: 26
Mat2 Desc: ROCK
Mat3:
Mat3 Desc:
Formation Top Depth: 50
Formation End Depth: 85
Formation End Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 933116009
Layer: 1
Plug From: 0
Plug To: 30
Plug Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 961530851
Method Construction Code: 1
Method Construction: Cable Tool
Other Method Construction:

Pipe Information

Pipe ID: 10600955
Casing No: 1
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 930091484
Layer: 1
Material: 1
Open Hole or Material: STEEL
Depth From:
Depth To: 50
Casing Diameter: 6
Casing Diameter UOM: inch
Casing Depth UOM: ft

Results of Well Yield Testing

Pump Test ID:	991530851
Pump Set At:	
Static Level:	30
Final Level After Pumping:	60
Recommended Pump Depth:	75
Pumping Rate:	20
Flowing Rate:	
Recommended Pump Rate:	12
Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	2
Water State After Test:	CLOUDY
Pumping Test Method:	2
Pumping Duration HR:	1
Pumping Duration MIN:	
Flowing:	No

Draw Down & Recovery

Pump Test Detail ID:	934903349
Test Type:	Draw Down
Test Duration:	60
Test Level:	60
Test Level UOM:	ft

Draw Down & Recovery

Pump Test Detail ID:	934663617
Test Type:	Draw Down
Test Duration:	45
Test Level:	60
Test Level UOM:	ft

Draw Down & Recovery

Pump Test Detail ID:	934119478
Test Type:	Draw Down
Test Duration:	15
Test Level:	50
Test Level UOM:	ft

Draw Down & Recovery

Pump Test Detail ID:	934386217
Test Type:	Draw Down
Test Duration:	30
Test Level:	55
Test Level UOM:	ft

Water Details

Water ID:	933491127
Layer:	1
Kind Code:	1
Kind:	FRESH
Water Found Depth:	80
Water Found Depth UOM:	ft

Site:
lot 1 con 2 ON

Database:
WWIS

Well ID:	1531485	***Data Entry Status:***	
Construction Date:		***Data Src:***	1
Primary Water Use:	Domestic	***Date Received:***	10/12/2000
Sec. Water Use:		***Selected Flag:***	Yes
Final Well Status:	Water Supply	***Abandonment Rec:***	
Water Type:		***Contractor:***	6006
Casing Material:		***Form Version:***	1
Audit No:	221355	***Owner:***	
Tag:		***Street Name:***	
Construction Method:		***County:***	OTTAWA
Elevation (m):		***Municipality:***	CUMBERLAND TOWNSHIP
Elevation Reliability:		***Site Info:***	
Depth to Bedrock:		***Lot:***	001
Well Depth:		***Concession:***	02
Overburden/Bedrock:		***Concession Name:***	CON
Pump Rate:		***Easting NAD83:***	
Static Water Level:		***Northing NAD83:***	
Flowing (Y/N):		***Zone:***	
Flow Rate:		***UTM Reliability:***	
Clear/Cloudy:			

Bore Hole Information

Bore Hole ID:	10053019	***Elevation:***	
DP2BR:	55	***Elevrc:***	
Spatial Status:		***Zone:***	18
Code OB:	r	***East83:***	
Code OB Desc:	Bedrock	***North83:***	
Open Hole:		***Org CS:***	
Cluster Kind:		***UTMRC:***	9
Date Completed:	9/14/2000	***UTMRC Desc:***	unknown UTM
Remarks:		***Location Method:***	na
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	931078637
Layer:	3
Color:	8
General Color:	BLACK
Mat1:	05
Most Common Material:	CLAY
Mat2:	85
Mat2 Desc:	SOFT
Mat3:	
Mat3 Desc:	
Formation Top Depth:	30
Formation End Depth:	48
Formation End Depth UOM:	ft

Overburden and Bedrock Materials Interval

Formation ID:	931078636
Layer:	2
Color:	2
General Color:	GREY
Mat1:	05
Most Common Material:	CLAY
Mat2:	85

Mat2 Desc: SOFT
Mat3:
Mat3 Desc:
Formation Top Depth: 8
Formation End Depth: 30
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931078638
Layer: 4
Color: 2
General Color: GREY
Mat1: 11
Most Common Material: GRAVEL
Mat2: 85
Mat2 Desc: SOFT
Mat3:
Mat3 Desc:
Formation Top Depth: 48
Formation End Depth: 55
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931078635
Layer: 1
Color: 5
General Color: YELLOW
Mat1: 28
Most Common Material: SAND
Mat2: 85
Mat2 Desc: SOFT
Mat3:
Mat3 Desc:
Formation Top Depth: 0
Formation End Depth: 8
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 931078639
Layer: 5
Color: 2
General Color: GREY
Mat1: 15
Most Common Material: LIMESTONE
Mat2: 73
Mat2 Desc: HARD
Mat3:
Mat3 Desc:
Formation Top Depth: 55
Formation End Depth: 95
Formation End Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 933116657
Layer: 1
Plug From: 0
Plug To: 20

Plug Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 961531485
Method Construction Code: 4
Method Construction: Rotary (Air)
Other Method Construction:

Pipe Information

Pipe ID: 10601589
Casing No: 1
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 930092790
Layer: 1
Material: 1
Open Hole or Material: STEEL
Depth From:
Depth To:
Casing Diameter: 6
Casing Diameter UOM: inch
Casing Depth UOM: ft

Construction Record - Casing

Casing ID: 930092791
Layer: 2
Material: 4
Open Hole or Material: OPEN HOLE
Depth From:
Depth To:
Casing Diameter: 6
Casing Diameter UOM: inch
Casing Depth UOM: ft

Results of Well Yield Testing

Pump Test ID: 991531485
Pump Set At:
Static Level: 25
Final Level After Pumping: 55
Recommended Pump Depth: 85
Pumping Rate: 12
Flowing Rate:
Recommended Pump Rate: 10
Levels UOM: ft
Rate UOM: GPM
Water State After Test Code: 1
Water State After Test: CLEAR
Pumping Test Method: 1
Pumping Duration HR: 1
Pumping Duration MIN:
Flowing: No

Draw Down & Recovery

Pump Test Detail ID: 934112931
Test Type: Recovery

Test Duration: 15
Test Level: 55
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934914512
Test Type: Recovery
Test Duration: 60
Test Level: 25
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934657621
Test Type: Recovery
Test Duration: 45
Test Level: 25
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934397103
Test Type: Recovery
Test Duration: 30
Test Level: 25
Test Level UOM: ft

Water Details

Water ID: 933491958
Layer: 1
Kind Code: 1
Kind: FRESH
Water Found Depth: 85
Water Found Depth UOM: ft

Site:
lot 1 con 2 ON

Database: ***WWIS***

Well ID: 1534105
Construction Date:
Primary Water Use: Domestic
Sec. Water Use:
Final Well Status: Water Supply
Water Type:
Casing Material:
Audit No: 263148
Tag:
Construction Method:
Elevation (m):
Elevation Reliability:
Depth to Bedrock:
Well Depth:
Overburden/Bedrock:
Pump Rate:
Static Water Level:
Flowing (Y/N):
Flow Rate:
Clear/Cloudy:

Data Entry Status:
Data Src: 1
Date Received: 9/5/2003
Selected Flag: Yes
Abandonment Rec:
Contractor: 6006
Form Version: 1
Owner:
Street Name:
County: OTTAWA
Municipality: CUMBERLAND TOWNSHIP
Site Info:
Lot: 001
Concession: 02
Concession Name: CON
Easting NAD83:
Northing NAD83:
Zone:
UTM Reliability:

Bore Hole Information

Bore Hole ID: 10543220
Elevation:

DP2BR: 0
Spatial Status:
Code OB: h
Code OB Desc: Mixed in a Layer
Open Hole:
Cluster Kind:
Date Completed: 8/18/2003
Remarks:
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Elevrc:
Zone: 18
East83:
North83:
Org CS:
UTMRC: 9
UTMRC Desc: unknown UTM
Location Method: na

Overburden and Bedrock Materials Interval

Formation ID: 932925065
Layer: 1
Color: 6
General Color: BROWN
Mat1: 05
Most Common Material: CLAY
Mat2: 11
Mat2 Desc: GRAVEL
Mat3: 17
Mat3 Desc: SHALE
Formation Top Depth: 0
Formation End Depth: 4
Formation End Depth UOM: ft

Overburden and Bedrock Materials Interval

Formation ID: 932925066
Layer: 2
Color: 2
General Color: GREY
Mat1: 15
Most Common Material: LIMESTONE
Mat2: 73
Mat2 Desc: HARD
Mat3:
Mat3 Desc:
Formation Top Depth: 4
Formation End Depth: 200
Formation End Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 933240990
Layer: 1
Plug From: 0
Plug To: 20
Plug Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 961534105
Method Construction Code: 1
Method Construction: Cable Tool
Other Method Construction:

Pipe Information

Pipe ID: 11091790
Casing No: 1
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 930098268
Layer: 1
Material: 1
Open Hole or Material: STEEL
Depth From:
Depth To:
Casing Diameter: 6
Casing Diameter UOM: inch
Casing Depth UOM: ft

Construction Record - Casing

Casing ID: 930098269
Layer: 2
Material: 4
Open Hole or Material: OPEN HOLE
Depth From:
Depth To:
Casing Diameter: 6
Casing Diameter UOM: inch
Casing Depth UOM: ft

Results of Well Yield Testing

Pump Test ID: 991534105
Pump Set At:
Static Level: 20
Final Level After Pumping: 195
Recommended Pump Depth: 190
Pumping Rate: 4
Flowing Rate:
Recommended Pump Rate: 3
Levels UOM: ft
Rate UOM: GPM
Water State After Test Code: 1
Water State After Test: CLEAR
Pumping Test Method: 2
Pumping Duration HR: 1
Pumping Duration MIN: 0
Flowing: No

Draw Down & Recovery

Pump Test Detail ID: 934914653
Test Type: Recovery
Test Duration: 60
Test Level: 40
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934397246
Test Type: Recovery
Test Duration: 30

Test Level: 100
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934113632
Test Type: Recovery
Test Duration: 15
Test Level: 130
Test Level UOM: ft

Draw Down & Recovery

Pump Test Detail ID: 934657206
Test Type: Recovery
Test Duration: 45
Test Level: 60
Test Level UOM: ft

Water Details

Water ID: 934037028
Layer: 1
Kind Code: 1
Kind: FRESH
Water Found Depth: 145
Water Found Depth UOM: ft

Site:
lot 1 con 3 GLOUCESTER ON

Database: ***WWIS***

Well ID: 1535325
Construction Date:
Primary Water Use:
Sec. Water Use:
Final Well Status: Abandoned-Other
Water Type:
Casing Material:
Audit No: Z19173
Tag:
Construction Method:
Elevation (m):
Elevation Reliability:
Depth to Bedrock:
Well Depth:
Overburden/Bedrock:
Pump Rate:
Static Water Level:
Flowing (Y/N):
Flow Rate:
Clear/Cloudy:

Data Entry Status:
Data Src:
Date Received: 1/10/2005
Selected Flag: Yes
Abandonment Rec:
Contractor: 1119
Form Version: 3
Owner:
Street Name: 3952 INNES ROAD
County: OTTAWA
Municipality: GLOUCESTER TOWNSHIP
Site Info:
Lot: 001
Concession: 03
Concession Name:
Easting NAD83:
Northing NAD83:
Zone:
UTM Reliability:

Bore Hole Information

Bore Hole ID: 11328931
DP2BR:
Spatial Status:
Code OB: u
Code OB Desc: all layers are unknown type
Open Hole:
Cluster Kind:
Date Completed: 12/9/2004
Remarks:
Elevrc Desc:
Location Source Date:

Elevation:
Elevrc:
Zone:
East83:
North83:
Org CS:
UTMRC: 9
UTMRC Desc: unknown UTM
Location Method: na

Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Overburden and Bedrock Materials Interval

Formation ID: 932996107
Layer: 1
Color:
General Color:
Mat1:
Most Common Material:
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 0
Formation End Depth: 15.23
Formation End Depth UOM: m

Annular Space/Abandonment Sealing Record

Plug ID: 933284299
Layer: 1
Plug From: 15.23
Plug To: 0
Plug Depth UOM: m

Method of Construction & Well Use

Method Construction ID: 961535325
Method Construction Code:
Method Construction:
Other Method Construction:

Pipe Information

Pipe ID: 11343786
Casing No: 1
Comment:
Alt Name:

Site:
lot 1 con 3 W.CARLETON ON

Database: ***WWIS***

Well ID: 1535363
Construction Date:
Primary Water Use:
Sec. Water Use:
Final Well Status:
Water Type:
Casing Material:
Audit No: 265827
Tag:
Construction Method:
Elevation (m):
Elevation Reliability:
Depth to Bedrock:
Well Depth:
Overburden/Bedrock:
Pump Rate:

Data Entry Status:
Data Src:
Date Received: 1/6/2005
Selected Flag: Yes
Abandonment Rec:
Contractor: 6907
Form Version: 2
Owner:
Street Name: 2854 WOODKILTON DRIVE
County: OTTAWA
Municipality: TORBOLTON TOWNSHIP
Site Info:
Lot: 001
Concession: 03
Concession Name: CON
Easting NAD83:

Static Water Level:
Flowing (Y/N):
Flow Rate:
Clear/Cloudy:
Northing NAD83:
Zone:
UTM Reliability:

Bore Hole Information

Bore Hole ID: 11328811
DP2BR:
Spatial Status:
Code OB:
Code OB Desc: No formation data
Open Hole:
Cluster Kind:
Date Completed: 10/7/2004
Remarks:
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:
Elevation:
Elevrc:
Zone:
East83:
North83:
Org CS:
UTMRC: 9
UTMRC Desc: unknown UTM
Location Method: na

Method of Construction & Well Use

Method Construction ID: 961535363
Method Construction Code: B
Method Construction: Other Method
Other Method Construction:

Pipe Information

Pipe ID: 11343666
Casing No: 1
Comment:
Alt Name:

Results of Well Yield Testing

Pump Test ID: 11353623
Pump Set At: 55
Static Level:
Final Level After Pumping:
Recommended Pump Depth:
Pumping Rate:
Flowing Rate:
Recommended Pump Rate:
Levels UOM: m
Rate UOM: LPM
Water State After Test Code:
Water State After Test:
Pumping Test Method:
Pumping Duration HR:
Pumping Duration MIN:
Flowing:

Draw Down & Recovery

Pump Test Detail ID: 11516322
Test Type: Draw Down
Test Duration: 20
Test Level: 13
Test Level UOM: m

Site:

lot 1 con 3 DUNROBIN ON

Database: ***WWIS***

Well ID:	1535457	***Data Entry Status:***	
Construction Date:		***Data Src:***	
Primary Water Use:		***Date Received:***	5/18/2005
Sec. Water Use:		***Selected Flag:***	Yes
Final Well Status:	Abandoned-Quality	***Abandonment Rec:***	Yes
Water Type:		***Contractor:***	1558
Casing Material:		***Form Version:***	3
Audit No:	Z13765	***Owner:***	
Tag:		***Street Name:***	2885 WOOD KILTON ROAD
Construction Method:		***County:***	OTTAWA
Elevation (m):		***Municipality:***	TORBOLTON TOWNSHIP
Elevation Reliability:		***Site Info:***	
Depth to Bedrock:		***Lot:***	001
Well Depth:		***Concession:***	03
Overburden/Bedrock:		***Concession Name:***	CON
Pump Rate:		***Easting NAD83:***	
Static Water Level:		***Northing NAD83:***	
Flowing (Y/N):		***Zone:***	
Flow Rate:		***UTM Reliability:***	
Clear/Cloudy:			

Bore Hole Information

Bore Hole ID:	11315996	***Elevation:***	
DP2BR:		***Elevrc:***	
Spatial Status:		***Zone:***	
Code OB:	_	***East83:***	
Code OB Desc:	No formation data	***North83:***	
Open Hole:		***Org CS:***	
Cluster Kind:		***UTMRC:***	
Date Completed:	3/29/2005	***UTMRC Desc:***	
Remarks:		***Location Method:***	na
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Annular Space/Abandonment Sealing Record

Plug ID:	933268334
Layer:	1
Plug From:	17.06
Plug To:	1.82
Plug Depth UOM:	m

Method of Construction & Well Use

Method Construction ID:	961535457
Method Construction Code:	
Method Construction:	
Other Method Construction:	

Pipe Information

Pipe ID:	11330851
Casing No:	1
Comment:	
Alt Name:	

Appendix: Database Descriptions

Environmental Risk Information Services (ERIS) can search the following databases. The extent of historical information varies with each database and current information is determined by what is publicly available to ERIS at the time of update. ***Note:*** *Databases denoted with " * " indicates that the database will no longer be updated. See the individual database description for more information.*

Abandoned Aggregate Inventory: Provincial AAGR

The MAAP Program maintains a database of abandoned pits and quarries. Please note that the database is only referenced by lot and concession and city/town location. The database provides information regarding the location, type, size, land use, status and general comments.*

Government Publication Date: Sept 2002*

Aggregate Inventory: Provincial AGR

The Ontario Ministry of Natural Resources maintains a database of all active pits and quarries. The database provides information regarding the registered owner/operator, location name, operation type, approval type, and maximum annual tonnage.

Government Publication Date: Up to Sep 2019

Abandoned Mine Information System: Provincial AMIS

The Abandoned Mines Information System contains data on known abandoned and inactive mines located on both Crown and privately held lands. The information was provided by the Ministry of Northern Development and Mines (MNDM), with the following disclaimer: "the database provided has been compiled from various sources, and the Ministry of Northern Development and Mines makes no representation and takes no responsibility that such information is accurate, current or complete". Reported information includes official mine name, status, background information, mine start/end date, primary commodity, mine features, hazards and remediation.

Government Publication Date: 1800-Oct 2018

Anderson's Waste Disposal Sites: Private ANDR

The information provided in this database was collected by examining various historical documents which aimed to characterize the likely position of former waste disposal sites from 1860 to present. The research initiative behind the creation of this database was to identify those sites that are missing from the Ontario MOE Waste Disposal Site Inventory, as well as to provide revisions and corrections to the positions and descriptions of sites currently listed in the MOE inventory. In addition to historic waste disposal facilities, the database also identifies certain auto wreckers and scrap yards that have been extrapolated from documentary sources. Please note that the data is not warranted to be complete, exhaustive or authoritative. The information was collected for research purposes only.

Government Publication Date: 1860s-Present

Aboveground Storage Tanks: Provincial AST

Historical listing of aboveground storage tanks made available by the Department of Natural Resources and Forestry. Includes tanks used to hold water or petroleum. This dataset has been retired as of September 25, 2014 and will no longer be updated.

Government Publication Date: May 31, 2014

Automobile Wrecking & Supplies: Private AUWR

This database provides an inventory of known locations that are involved in the scrap metal, automobile wrecking/recycling, and automobile parts & supplies industry. Information is provided on the company name, location and business type.

Government Publication Date: 1999-Jan 31, 2020

Borehole: Provincial BORE

A borehole is the generalized term for any narrow shaft drilled in the ground, either vertically or horizontally. The information here includes geotechnical investigations or environmental site assessments, mineral exploration, or as a pilot hole for installing piers or underground utilities. Information is from many sources such as the Ministry of Transportation (MTO) boreholes from engineering reports and projects from the 1950 to 1990's in Southern Ontario. Boreholes from the Ontario Geological Survey (OGS) including The Urban Geology Analysis Information System (UGAIS) and the York Peel Durham Toronto (YPDT) database of the Conservation Authority Moraine Coalition. This database will include fields such as location, stratigraphy, depth, elevation, year drilled, etc. For all water well data or oil and gas well data for Ontario please refer to WWIS and OOGW.

Government Publication Date: 1875-Jul 2018

Certificates of Approval: Provincial CA

This database contains the following types of approvals: Air & Noise, Industrial Sewage, Municipal & Private Sewage, Waste Management Systems and Renewable Energy Approvals. The MOE in Ontario states that any facility that releases emissions to the atmosphere, discharges contaminants to ground or surface water, provides potable water supplies, or stores, transports or disposes of waste, must have a Certificate of Approval before it can operate lawfully. Fields include approval number, business name, address, approval date, approval type and status. This database will no longer be updated, as CofA's have been replaced by either Environmental Activity and Sector Registry (EASR) or Environmental Compliance Approval (ECA). Please refer to those individual databases for any information after Oct.31, 2011.

Government Publication Date: 1985-Oct 30, 2011*

Dry Cleaning Facilities: Federal CDRY

List of dry cleaning facilities made available by Environment and Climate Change Canada. Environment and Climate Change Canada's Tetrachloroethylene (Use in Dry Cleaning and Reporting Requirements) Regulations (SOR/2003-79) are intended to reduce releases of tetrachloroethylene to the environment from dry cleaning facilities.
Environment and Climate Change Canada cites the coronavirus pandemic as an explanation for delays in releasing data pursuant to requests.

Government Publication Date: Jan 2004-Dec 2017

Commercial Fuel Oil Tanks: Provincial CFOT

Locations of commercial underground fuel oil tanks. This is not a comprehensive or complete inventory of commercial fuel tanks in the province; this listing is a copy of records of registered commercial underground fuel oil tanks obtained under Access to Public Information.
Note that the following types of tanks do not require registration: waste oil tanks in apartments, office buildings, residences, etc.; aboveground gas or diesel tanks. Records are not verified for accuracy or completeness.
The coronavirus pandemic is cited by the agency responsible for tank regulations and data as an explanation for delays in releasing data pursuant to requests.

Government Publication Date: Feb 28, 2017

Chemical Register: Private CHEM

This database includes information from both a one time study conducted in 1992 and private source and is a listing of facilities that manufacture or distribute chemicals. The production of these chemical substances may involve one or more chemical reactions and/or chemical separation processes (i.e. fractionation, solvent extraction, crystallization, etc.).

Government Publication Date: 1999-Jan 31, 2020

Compressed Natural Gas Stations: Private CNG

Canada has a network of public access compressed natural gas (CNG) refuelling stations. These stations dispense natural gas in compressed form at 3,000 pounds per square inch (psi), the pressure which is allowed within the current Canadian codes and standards. The majority of natural gas refuelling is located at existing retail gasoline that have a separate refuelling island for natural gas. This list of stations is made available by the Canadian Natural Gas Vehicle Alliance.

Government Publication Date: Dec 2012 - Jun 2020

Inventory of Coal Gasification Plants and Coal Tar Sites: Provincial COAL

This inventory includes both the "Inventory of Coal Gasification Plant Waste Sites in Ontario-April 1987" and the Inventory of Industrial Sites Producing or Using Coal Tar and Related Tars in Ontario-November 1988) collected by the MOE. It identifies industrial sites that produced and continue to produce or use coal tar and other related tars. Detailed information is available and includes: facility type, size, land use, information on adjoining properties, soil condition, site operators/occupants, site description, potential environmental impacts and historic maps available. This was a one-time inventory.*

Government Publication Date: Apr 1987 and Nov 1988*

Compliance and Convictions: Provincial CONV

This database summarizes the fines and convictions handed down by the Ontario courts beginning in 1989. Companies and individuals named here have been found guilty of environmental offenses in Ontario courts of law.

Government Publication Date: 1989-Dec 2019

Certificates of Property Use: Provincial CPU

This is a subset taken from Ontario's Environmental Registry (EBR) database. It will include all CPU's on the registry such as (EPA s. 168.6) - Certificate of Property Use.

Government Publication Date: 1994-Jul 31, 2020

Drill Hole Database: Provincial DRL

The Ontario Drill Hole Database contains information on more than 113,000 percussion, overburden, sonic and diamond drill holes from assessment files on record with the department of Mines and Minerals. Please note that limited data is available for southern Ontario, as it was the last area to be completed. The database was created when surveys submitted to the Ministry were converted in the Assessment File Research Image Database (AFRI) project. However, the degree of accuracy (coordinates) as to the exact location of drill holes is dependent upon the source document submitted to the MNDM. Levels of accuracy used to locate holes are: centering on the mining claim; a sketch of the mining claim; a 1:50,000 map; a detailed company map; or from submitted a "Report of Work".

Government Publication Date: 1886 - Sep 2019

Environmental Activity and Sector Registry: Provincial EASR

On October 31, 2011, a smarter, faster environmental approvals system came into effect in Ontario. The EASR allows businesses to register certain activities with the ministry, rather than apply for an approval. The registry is available for common systems and processes, to which preset rules of operation can be applied. The EASR is currently available for: heating systems, standby power systems and automotive refinishing. Businesses whose activities aren't subject to the EASR may apply for an ECA (Environmental Compliance Approval), Please see our ECA database.

Government Publication Date: Oct 2011-Jul 31, 2020

Environmental Registry: Provincial EBR

The Environmental Registry lists proposals, decisions and exceptions regarding policies, Acts, instruments, or regulations that could significantly affect the environment. Through the Registry, thirteen provincial ministries notify the public of upcoming proposals and invite their comments. For example, if a local business is requesting a permit, license, or certificate of approval to release substances into the air or water; these are notified on the registry. Data includes: Approval for discharge into the natural environment other than water (i.e. Air) - EPA s. 9, Approval for sewage works - OWRA s. 53(1), and EPA s. 27 - Approval for a waste disposal site. For information regarding Permit to Take Water (PTTW), Certificate of Property Use (CPU) and (ORD) Orders please refer to those individual databases.

Government Publication Date: 1994-Jul 31, 2020

Environmental Compliance Approval: Provincial ECA

On October 31, 2011, a smarter, faster environmental approvals system came into effect in Ontario. In the past, a business had to apply for multiple approvals (known as certificates of approval) for individual processes and pieces of equipment. Today, a business either registers itself, or applies for a single approval, depending on the types of activities it conducts. Businesses whose activities aren't subject to the EASR may apply for an ECA. A single ECA addresses all of a business's emissions, discharges and wastes. Separate approvals for air, noise and waste are no longer required. This database will also include Renewable Energy Approvals. For certificates of approval prior to Nov 1st, 2011, please refer to the CA database. For all Waste Disposal Sites please refer to the WDS database.

Government Publication Date: Oct 2011-Jul 31, 2020

Environmental Effects Monitoring: Federal EEM

The Environmental Effects Monitoring program assesses the effects of effluent from industrial or other sources on fish, fish habitat and human usage of fisheries resources. Since 1992, pulp and paper mills have been required to conduct EEM studies under the Pulp and Paper Effluent Regulations. This database provides information on the mill name, geographical location and sub-lethal toxicity data.

Government Publication Date: 1992-2007*

ERIS Historical Searches: Private EHS

ERIS has compiled a database of all environmental risk reports completed since March 1999. Available fields for this database include: site location, date of report, type of report, and search radius. As per all other databases, the ERIS database can be referenced on both the map and "Statistical Profile" page.

Government Publication Date: 1999-Apr 30, 2020

Environmental Issues Inventory System: Federal EIIS

The Environmental Issues Inventory System was developed through the implementation of the Environmental Issues and Remediation Plan. This plan was established to determine the location and severity of contaminated sites on inhabited First Nation reserves, and where necessary, to remediate those that posed a risk to health and safety; and to prevent future environmental problems. The EIIS provides information on the reserve under investigation, inventory number, name of site, environmental issue, site action (Remediation, Site Assessment), and date investigation completed.

Government Publication Date: 1992-2001*

Emergency Management Historical Event: Provincial EMHE

List of locations of historical occurrences of emergency events, including those assigned to the Ministry of Natural Resources by Order-In-Council (OIC) under the Emergency Management and Civil Protection Act, as well as events where MNR provided requested emergency response assistance. Many of these events will have involved community evacuations, significant structural loss, and/or involvement of MNR emergency response staff. These events fall into one of ten (10) type categories: Dam Failure; Drought / Low Water; Erosion; Flood; Forest Fire; Soil and Bedrock Instability; Petroleum Resource Center Event, EMO Requested Assistance, Continuity of Operations Event, Other Requested Assistance. EMHE record details are reproduced by ERIS under License with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2017.

Government Publication Date: Dec 31, 2016

Environmental Penalty Annual Report: Provincial EPAR

This database contains data from Ontario's annual environmental penalty report published by the Ministry of the Environment and Climate Change. These reports provide information on environmental penalties for land or water violations issued to companies in one of the nine industrial sectors covered by the Municipal Industrial Strategy for Abatement (MISA) regulations.

Government Publication Date: Jan 1, 2011 - Dec 31, 2019

List of Expired Fuels Safety Facilities: Provincial EXP

List of facilities and tanks for which there was once a fuel registration. This is not a comprehensive or complete inventory of expired tanks/tank facilities in the province; this listing is a copy of previously registered tanks and facilities obtained under Access to Public Information. Includes private fuel outlets, bulk plants, fuel oil tanks, gasoline stations, marinas, propane filling stations, liquid fuel tanks, piping systems, etc; includes tanks which have been removed from the ground.
Notes: registration was not required for private fuel underground/aboveground storage tanks prior to January 1990, nor for furnace oil tanks prior to May 1, 2002; registration is not required for waste oil tanks in apartments, office buildings, residences, etc., or aboveground gas or diesel tanks. Records are not verified for accuracy or completeness.
The coronavirus pandemic is cited by the agency responsible for tank regulations and data as an explanation for delays in releasing data pursuant to requests.

Government Publication Date: Feb 28, 2017

Federal Convictions: Federal FCON

Environment Canada maintains a database referred to as the "Environmental Registry" that details prosecutions under the Canadian Environmental Protection Act (CEPA) and the Fisheries Act (FA). Information is provided on the company name, location, charge date, offence and penalty.

Government Publication Date: 1988-Jun 2007*

Contaminated Sites on Federal Land: Federal FCS

The Federal Contaminated Sites Inventory includes information on known federal contaminated sites under the custodianship of departments, agencies and consolidated Crown corporations as well as those that are being or have been investigated to determine whether they have contamination arising from past use that could pose a risk to human health or the environment. The inventory also includes non-federal contaminated sites for which the Government of Canada has accepted some or all financial responsibility. It does not include sites where contamination has been caused by, and which are under the control of, enterprise Crown corporations, private individuals, firms or other levels of government. Includes fire training sites and sites at which Per- and Polyfluoroalkyl Substances (PFAS) are a concern.

Government Publication Date: Jun 2000-Apr 2020

Fisheries & Oceans Fuel Tanks: Federal FOFT

Fisheries & Oceans Canada maintains an inventory of aboveground & underground fuel storage tanks located on Fisheries & Oceans property or controlled by DFO. Our inventory provides information on the site name, location, tank owner, tank operator, facility type, storage tank location, tank contents & capacity, and date of tank installation.

Government Publication Date: 1964-Sep 2019

Federal Identification Registry for Storage Tank Systems (FIRSTS): Federal FRST

A list of federally regulated Storage tanks from the Federal Identification Registry for Storage Tank Systems (FIRSTS). FIRSTS is Environment and Climate Change Canada's database of storage tank systems subject to the Storage Tank for Petroleum Products and Allied Petroleum Products Regulations. The main objective of the Regulations is to prevent soil and groundwater contamination from storage tank systems located on federal and aboriginal lands. Storage tank systems that do not have a valid identification number displayed in a readily visible location on or near the storage tank system may be refused product delivery.

Government Publication Date: May 31, 2018

Fuel Storage Tank: Provincial FST

List of registered private and retail fuel storage tanks. This is not a comprehensive or complete inventory of private and retail fuel storage tanks in the province; this listing is a copy of registered private and retail fuel storage tanks, obtained under Access to Public Information.
Notes: registration was not required for private fuel underground/aboveground storage tanks prior to January 1990, nor for furnace oil tanks prior to May 1, 2002; registration is not required for waste oil tanks in apartments, office buildings, residences, etc., or aboveground gas or diesel tanks. Records are not verified for accuracy or completeness.
The coronavirus pandemic is cited by the agency responsible for tank regulations and data as an explanation for delays in releasing data pursuant to requests.

Government Publication Date: Feb 28, 2017

Fuel Storage Tank - Historic: Provincial FSTH

The Fuels Safety Branch of the Ontario Ministry of Consumer and Commercial Relations maintained a database of all registered private fuel storage tanks. Public records of private fuel storage tanks are only available since the registration became effective in September 1989. This information is now collected by the Technical Standards and Safety Authority.

Government Publication Date: Pre-Jan 2010*

Ontario Regulation 347 Waste Generators Summary: Provincial GEN

Regulation 347 of the Ontario EPA defines a waste generation site as any site, equipment and/or operation involved in the production, collection, handling and/or storage of regulated wastes. A generator of regulated waste is required to register the waste generation site and each waste produced, collected, handled, or stored at the site. This database contains the registration number, company name and address of registered generators including the types of hazardous wastes generated. It includes data on waste generating facilities such as: drycleaners, waste treatment and disposal facilities, machine shops, electric power distribution etc. This information is a summary of all years from 1986 including the most currently available data. Some records may contain, within the company name, the phrase "See & Use..." followed by a series of letters and numbers. This occurs when one company is amalgamated with or taken over by another registered company. The number listed as "See & Use", refers to the new ownership and the other identification number refers to the original ownership. This phrase serves as a link between the 2 companies until operations have been fully transferred.

Government Publication Date: 1986-Apr 30, 2020

Greenhouse Gas Emissions from Large Facilities: Federal GHG

List of greenhouse gas emissions from large facilities made available by Environment Canada. Greenhouse gas emissions in kilotonnes of carbon dioxide equivalents (kt CO2 eq).

Government Publication Date: 2013-Dec 2017

TSSA Historic Incidents: Provincial HINC

List of historic incidences of spills and leaks of diesel, fuel oil, gasoline, natural gas, propane, and hydrogen recorded by the TSSA in their previous incident tracking system. The TSSA's Fuels Safety Program administers the Technical Standards & Safety Act 2000, providing fuel-related safety services associated with the safe transportation, storage, handling and use of fuels such as gasoline, diesel, propane, natural gas and hydrogen. Under this Act, the TSSA regulates fuel suppliers, storage facilities, transport trucks, pipelines, contractors and equipment or appliances that use fuels. Records are not verified for accuracy or completeness. This is not a comprehensive or complete inventory of historical fuel spills and leaks in the province. This listing is a copy of the data captured at one moment in time and is hence limited by the record date provided here.

Government Publication Date: 2006-June 2009*

Indian & Northern Affairs Fuel Tanks: Federal IAFT

The Department of Indian & Northern Affairs Canada (INAC) maintains an inventory of aboveground & underground fuel storage tanks located on both federal and crown land. Our inventory provides information on the reserve name, location, facility type, site/facility name, tank type, material & ID number, tank contents & capacity, and date of tank installation.

Government Publication Date: 1950-Aug 2003*

Fuel Oil Spills and Leaks: Provincial INC

Listing of spills and leaks of diesel, fuel oil, gasoline, natural gas, propane, and hydrogen reported to the Spills Action Centre (SAC). This is not a comprehensive or complete inventory of fuel-related leaks, spills, and incidents in the province; this listing in a copy of incidents reported to the SAC, obtained under Access to Public Information. Includes incidents from fuel-related hazards such as spills, fires, and explosions. Records are not verified for accuracy or completeness.
The coronavirus pandemic is cited by the agency responsible for tank regulations and data as an explanation for delays in releasing data pursuant to requests.

Government Publication Date: Feb 28, 2017

Landfill Inventory Management Ontario: Provincial LIMO

The Landfill Inventory Management Ontario (LIMO) database is updated every year, as the ministry compiles new and updated information. The inventory will include small and large landfills. Additionally, each year the ministry will request operators of the larger landfills complete a landfill data collection form that will be used to update LIMO and will include the following information from the previous operating year. This will include additional information such as estimated amount of total waste received, landfill capacity, estimated total remaining landfill capacity, fill rates, engineering designs, reporting and monitoring details, size of location, service area, approved waste types, leachate of site treatment, contaminant attenuation zone and more. The small landfills will include information such as site owner, site location and certificate of approval # and status.

Government Publication Date: Feb 28, 2019

Canadian Mine Locations: Private MINE

This information is collected from the Canadian & American Mines Handbook. The Mines database is a national database that provides over 290 listings on mines (listed as public companies) dealing primarily with precious metals and hard rocks. Listed are mines that are currently in operation, closed, suspended, or are still being developed (advanced projects). Their locations are provided as geographic coordinates (x, y and/or longitude, latitude). As of 2002, data pertaining to Canadian smelters and refineries has been appended to this database.

Government Publication Date: 1998-2009*

Mineral Occurrences: Provincial MNR

In the early 70's, the Ministry of Northern Development and Mines created an inventory of approximately 19,000 mineral occurrences in Ontario, in regard to metallic and industrial minerals, as well as some information on building stones and aggregate deposits. Please note that the "Horizontal Positional Accuracy" is approximately +/- 200 m. Many reference elements for each record were derived from field sketches using pace or chain/tape measurements against claim posts or topographic features in the area. The primary limiting factor for the level of positional accuracy is the scale of the source material. The testing of horizontal accuracy of the source materials was accomplished by comparing the plan metric (X and Y) coordinates of that point with the coordinates of the same point as defined from a source of higher accuracy.

Government Publication Date: 1846-Jan 2020

National Analysis of Trends in Emergencies System (NATES): Federal NATE

In 1974 Environment Canada established the National Analysis of Trends in Emergencies System (NATES) database, for the voluntary reporting of significant spill incidents. The data was to be used to assist in directing the work of the emergencies program. NATES ran from 1974 to 1994. Extensive information is available within this database including company names, place where the spill occurred, date of spill, cause, reason and source of spill, damage incurred, and amount, concentration, and volume of materials released.

Government Publication Date: 1974-1994*

Non-Compliance Reports: Provincial NCPL

The Ministry of the Environment provides information about non-compliant discharges of contaminants to air and water that exceed legal allowable limits, from regulated industrial and municipal facilities. A reported non-compliance failure may be in regard to a Control Order, Certificate of Approval, Sectoral Regulation or specific regulation/act.

Government Publication Date: Dec 31, 2018

National Defense & Canadian Forces Fuel Tanks: Federal NDFT

The Department of National Defense and the Canadian Forces maintains an inventory of all aboveground & underground fuel storage tanks located on DND lands. Our inventory provides information on the base name, location, tank type & capacity, tank contents, tank class, date of tank installation, date tank last used, and status of tank as of May 2001. This database will no longer be updated due to the new National Security protocols which have prohibited any release of this database.

Government Publication Date: Up to May 2001*

National Defense & Canadian Forces Spills: Federal NDSP

The Department of National Defense and the Canadian Forces maintains an inventory of spills to land and water. All spill sites have been classified under the "Transportation of Dangerous Goods Act - 1992". Our inventory provides information on the facility name, location, spill ID #, spill date, type of spill, as well as the quantity of substance spilled & recovered.

Government Publication Date: Mar 1999-Apr 2018

National Defence & Canadian Forces Waste Disposal Sites: Federal NDWD

The Department of National Defence and the Canadian Forces maintains an inventory of waste disposal sites located on DND lands. Where available, our inventory provides information on the base name, location, type of waste received, area of site, depth of site, year site opened/closed and status.

Government Publication Date: 2001-Apr 2007*

National Energy Board Pipeline Incidents: Federal NEBI

Locations of pipeline incidents from 2008 to present, made available by the Canada Energy Regulator (CER) - previously the National Energy Board (NEB). Includes incidents reported under the Onshore Pipeline Regulations and the Processing Plant Regulations related to pipelines under federal jurisdiction, does not include incident data related to pipelines under provincial or territorial jurisdiction.

Government Publication Date: 2008-Mar 31, 2020

National Energy Board Wells: Federal NEBP

The NEBW database contains information on onshore & offshore oil and gas wells that are outside provincial jurisdiction(s) and are thereby regulated by the National Energy Board. Data is provided regarding the operator, well name, well ID No./UWI, status, classification, well depth, spud and release date.

Government Publication Date: 1920-Feb 2003*

National Environmental Emergencies System (NEES): Federal NEES

In 2000, the Emergencies program implemented NEES, a reporting system for spills of hazardous substances. For the most part, this system only captured data from the Atlantic Provinces, some from Quebec and Ontario and a portion from British Columbia. Data for Alberta, Saskatchewan, Manitoba and the Territories was not captured. However, NEES is also a repository for previous Environment Canada spill datasets. NEES is composed of the historic datasets ' or Trends ' which dates from approximately 1974 to present. NEES Trends is a compilation of historic databases, which were merged and includes data from NATES (National Analysis of Trends in Emergencies System), ARTS (Atlantic Regional Trends System), and NEES. In 2001, the Emergencies Program determined that variations in reporting regimes and requirements between federal and provincial agencies made national spill reporting and trend analysis difficult to achieve. As a consequence, the department has focused efforts on capturing data on spills of substances which fall under its legislative authority only (CEPA and FA). As such, the NEES database will be decommissioned in December 2004.

Government Publication Date: 1974-2003*

National PCB Inventory: Federal NPCB

Environment Canada's National PCB inventory includes information on in-use PCB containing equipment in Canada including federal, provincial and private facilities. Federal out-of-service PCB containing equipment and PCB waste owned by the federal government or by federally regulated industries such as airlines, railway companies, broadcasting companies, telephone and telecommunications companies, pipeline companies, etc. are also listed. Although it is not Environment Canada's mandate to collect data on non-federal PCB waste, the National PCB inventory includes some information on provincial and private PCB waste and storage sites. Some addresses provided may be Head Office addresses and are not necessarily the location of where the waste is being used or stored.

Government Publication Date: 1988-2008*

National Pollutant Release Inventory: Federal NPRI

Environment Canada has defined the National Pollutant Release Inventory ("NPRI") as a federal government initiative designed to collect comprehensive national data regarding releases to air, water, or land, and waste transfers for recycling for more than 300 listed substances.

Government Publication Date: 1993-May 2017

Oil and Gas Wells: Private OGWE

The Nickle's Energy Group (publisher of the Daily Oil Bulletin) collects information on drilling activity including operator and well statistics. The well information database includes name, location, class, status and depth. The main Nickle's database is updated on a daily basis, however, this database is updated on a monthly basis. More information is available at www.nickles.com.

Government Publication Date: 1988-May 31, 2020

Ontario Oil and Gas Wells: Provincial OOGW

In 1998, the MNR handed over to the Ontario Oil, Gas and Salt Resources Corporation, the responsibility of maintaining a database of oil and gas wells drilled in Ontario. The OGSR Library has over 20,000+ wells in their database. Information available for all wells in the ERIS database include well owner/operator, location, permit issue date, and well cap date, license No., status, depth and the primary target (rock unit) of the well being drilled. All geology/stratigraphy table information, plus all water table information is also provide for each well record.

Government Publication Date: 1800-Jun 2019

Inventory of PCB Storage Sites: Provincial OPCB

The Ontario Ministry of Environment, Waste Management Branch, maintains an inventory of PCB storage sites within the province. Ontario Regulation 11/82 (Waste Management - PCB) and Regulation 347 (Generator Waste Management) under the Ontario EPA requires the registration of inactive PCB storage equipment and/or disposal sites of PCB waste with the Ontario Ministry of Environment. This database contains information on: 1) waste quantities; 2) major and minor sites storing liquid or solid waste; and 3) a waste storage inventory.

Government Publication Date: 1987-Oct 2004; 2012-Dec 2013

Orders: Provincial ORD

This is a subset taken from Ontario's Environmental Registry (EBR) database. It will include all Orders on the registry such as (EPA s. 17) - Order for remedial work, (EPA s. 18) - Order for preventative measures, (EPA s. 43) - Order for removal of waste and restoration of site, (EPA s. 44) - Order for conformity with Act for waste disposal sites, (EPA s. 136) - Order for performance of environmental measures.

Government Publication Date: 1994-Jul 31, 2020

Canadian Pulp and Paper: Private PAP

This information is part of the Pulp and Paper Canada Directory. The Directory provides a comprehensive listing of the locations of pulp and paper mills and the products that they produce.

Government Publication Date: 1999, 2002, 2004, 2005, 2009-2014

Parks Canada Fuel Storage Tanks: Federal PCFT

Canadian Heritage maintains an inventory of known fuel storage tanks operated by Parks Canada, in both National Parks and at National Historic Sites. The database details information on site name, location, tank install/removal date, capacity, fuel type, facility type, tank design and owner/operator.

Government Publication Date: 1920-Jan 2005*

Pesticide Register: Provincial PES

The Ontario Ministry of the Environment and Climate Change maintains a database of licensed operators and vendors of registered pesticides.

Government Publication Date: Oct 2011-Jul 31, 2020

Pipeline Incidents: Provincial PINC

List of pipeline incidents (strikes, leaks, spills). This is not a comprehensive or complete inventory of pipeline incidents in the province; this listing in an historical copy of records previously obtained under Access to Public Information. Records are not verified for accuracy or completeness.
The coronavirus pandemic is cited by the agency responsible for tank regulations and data as an explanation for delays in releasing data pursuant to requests.

Government Publication Date: Feb 28, 2017

Private and Retail Fuel Storage Tanks: Provincial PRT

The Fuels Safety Branch of the Ontario Ministry of Consumer and Commercial Relations maintained a database of all registered private fuel storage tanks and licensed retail fuel outlets. This database includes an inventory of locations that have gasoline, oil, waste oil, natural gas and/or propane storage tanks on their property. The MCCR no longer collects this information. This information is now collected by the Technical Standards and Safety Authority (TSSA).

Government Publication Date: 1989-1996*

Permit to Take Water: Provincial PTTW

This is a subset taken from Ontario's Environmental Registry (EBR) database. It will include all PTTW's on the registry such as OWRA s. 34 - Permit to take water.

Government Publication Date: 1994-Jul 31, 2020

Ontario Regulation 347 Waste Receivers Summary: Provincial REC

Part V of the Ontario Environmental Protection Act ("EPA") regulates the disposal of regulated waste through an operating waste management system or a waste disposal site operated or used pursuant to the terms and conditions of a Certificate of Approval or a Provisional Certificate of Approval. Regulation 347 of the Ontario EPA defines a waste receiving site as any site or facility to which waste is transferred by a waste carrier. A receiver of regulated waste is required to register the waste receiving facility. This database represents registered receivers of regulated wastes, identified by registration number, company name and address, and includes receivers of waste such as: landfills, incinerators, transfer stations, PCB storage sites, sludge farms and water pollution control plants. This information is a summary of all years from 1986 including the most currently available data.

Government Publication Date: 1986-2016

Record of Site Condition: Provincial RSC

The Record of Site Condition (RSC) is part of the Ministry of the Environment's Brownfields Environmental Site Registry. Protection from environmental cleanup orders for property owners is contingent upon documentation known as a record of site condition (RSC) being filed in the Environmental Site Registry. In order to file an RSC, the property must have been properly assessed and shown to meet the soil, sediment and groundwater standards appropriate for the use (such as residential) proposed to take place on the property. The Record of Site Condition Regulation (O. Reg. 153/04) details requirements related to site assessment and clean up.
RSCs filed after July 1, 2011 will also be included as part of the new (O.Reg. 511/09).

Government Publication Date: 1997-Sept 2001, Oct 2004-May 2020

Retail Fuel Storage Tanks: Private RST

This database includes an inventory of retail fuel outlet locations (including marinas) that have on their property gasoline, oil, waste oil, natural gas and / or propane storage tanks.

Government Publication Date: 1999-Jan 31, 2020

Scott's Manufacturing Directory: Private SCT

Scott's Directories is a data bank containing information on over 200,000 manufacturers across Canada. Even though Scott's listings are voluntary, it is the most comprehensive database of Canadian manufacturers available. Information concerning a company's address, plant size, and main products are included in this database.

Government Publication Date: 1992-Mar 2011*

Ontario Spills: Provincial SPL

List of spills and incidents made available the Ministry of the Environment, Conservation and Parks. This database identifies information such as location (approximate), type and quantity of contaminant, date of spill, environmental impact, cause, nature of impact, etc. Information from 1988-2002 was part of the ORIS (Occurrence Reporting Information System). The SAC (Spills Action Centre) handles all spills reported in Ontario. Regulations for spills in Ontario are part of the MOE's Environmental Protection Act, Part X.
The Ministry of the Environment, Conservation and Parks cites the coronavirus pandemic as an explanation for delays in releasing data pursuant to requests.

Government Publication Date: 1988-Nov 2019

Wastewater Discharger Registration Database: Provincial SRDS

Information under this heading is combination of the following 2 programs. The Municipal/Industrial Strategy for Abatement (MISA) division of the Ontario Ministry of Environment maintained a database of all direct dischargers of toxic pollutants within nine sectors including: Electric Power Generation; Mining; Petroleum Refining; Organic Chemicals; Inorganic Chemicals; Pulp & Paper; Metal Casting; Iron & Steel; and Quarries. All sampling information is now collected and stored within the Sample Result Data Store (SRDS).

Government Publication Date: 1990-Dec 31, 2017

Anderson's Storage Tanks: Private TANK

The information provided in this database was collected by examining various historical documents, which identified the location of former storage tanks, containing substances such as fuel, water, gas, oil, and other various types of miscellaneous products. Information is available in regard to business operating at tank site, tank location, permit year, permit & installation type, no. of tanks installed & configuration and tank capacity. Data contained within this database pertains only to the city of Toronto and is not warranted to be complete, exhaustive or authoritative. The information was collected for research purposes only.

Government Publication Date: 1915-1953*

Transport Canada Fuel Storage Tanks: Federal TCFT

List of fuel storage tanks currently or previously owned or operated by Transport Canada. This inventory also includes tanks on The Pickering Lands, which refers to 7,530 hectares (18,600 acres) of land in Pickering, Markham, and Uxbridge owned by the Government of Canada since 1972; properties on this land has been leased by the government since 1975, and falls under the Site Management Policy of Transport Canada, but is administered by Public Works and Government Services Canada. This inventory provides information on the site name, location, tank age, capacity and fuel type.

Government Publication Date: 1970-Aug 2018

Variances for Abandonment of Underground Storage Tanks: Provincial VAR

Listing of variances granted for storage tank abandonment. This is not a comprehensive or complete inventory of tank abandonment variances in the province; this listing is a copy of tank abandonment variance records previously obtained under Access to Public Information. In Ontario, registered underground storage tanks must be removed within two years of disuse; if removal of a tank is not feasible, an application may be sought for a variance from this code requirement.
Records are not verified for accuracy or completeness.
The coronavirus pandemic is cited by the agency responsible for tank regulations and data as an explanation for delays in releasing data pursuant to requests.

Government Publication Date: Feb 28, 2017

Waste Disposal Sites - MOE CA Inventory: Provincial WDS

The Ontario Ministry of Environment, Waste Management Branch, maintains an inventory of known open (active or inactive) and closed disposal sites in the Province of Ontario. Active sites maintain a Certificate of Approval, are approved to receive and are receiving waste. Inactive sites maintain Certificate(s) of Approval but are not receiving waste. Closed sites are not receiving waste. The data contained within this database was compiled from the MOE's Certificate of Approval database. Locations of these sites may be cross-referenced to the Anderson database described under ERIS's Private Source Database section, by the CA number. All new Environmental Compliance Approvals handed out after Oct 31, 2011 for Waste Disposal Sites will still be found in this database.

Government Publication Date: Oct 2011-JuL 31, 2020

Waste Disposal Sites - MOE 1991 Historical Approval Inventory: Provincial WDSH

In June 1991, the Ontario Ministry of Environment, Waste Management Branch, published the "June 1991 Waste Disposal Site Inventory", of all known active and closed waste disposal sites as of October 30st, 1990. For each "active" site as of October 31st 1990, information is provided on site location, site/CA number, waste type, site status and site classification. For each "closed" site as of October 31st 1990, information is provided on site location, site/CA number, closure date and site classification. Locations of these sites may be cross-referenced to the Anderson database described under ERIS's Private Source Database section, by the CA number.

Government Publication Date: Up to Oct 1990*

Water Well Information System: Provincial WWIS

This database describes locations and characteristics of water wells found within Ontario in accordance with Regulation 903. It includes such information as coordinates, construction date, well depth, primary and secondary use, pump rate, static water level, well status, etc. Also included are detailed stratigraphy information, approximate depth to bedrock and the approximate depth to the water table.

Government Publication Date: Apr 30, 2020

Definitions

Database Descriptions: This section provides a detailed explanation for each database including: source, information available, time coverage, and acronyms used. They are listed in alphabetic order.

Detail Report: This is the section of the report which provides the most detail for each individual record. Records are summarized by location, starting with the project property followed by records in closest proximity.

Distance: The distance value is the distance between plotted points, not necessarily the distance between the sites' boundaries. All values are an approximation.

Direction: The direction value is the compass direction of the site in respect to the project property and/or center point of the report.

Elevation: The elevation value is taken from the location at which the records for the site address have been plotted. All values are an approximation. Source: Google Elevation API.

Executive Summary: This portion of the report is divided into 3 sections:

'Report Summary'- Displays a chart indicating how many records fall on the project property and, within the report search radii.

'Site Report Summary'-Project Property'- This section lists all the records which fall on the project property. For more details, see the 'Detail Report' section.

'Site Report Summary-Surrounding Properties'- This section summarizes all records on adjacent properties, listing them in order of proximity from the project property. For more details, see the 'Detail Report' section.

Map Key: The map key number is assigned according to closest proximity from the project property. Map Key numbers always start at #1. The project property will always have a map key of '1' if records are available. If there is a number in brackets beside the main number, this will indicate the number of records on that specific property. If there is no number in brackets, there is only one record for that property.

The symbol and colour used indicates 'elevation': the red inverted triangle will dictate 'ERIS Sites with Lower Elevation', the yellow triangle will dictate 'ERIS Sites with Higher Elevation' and the orange square will dictate 'ERIS Sites with Same Elevation.'

Unplottables: These are records that could not be mapped due to various reasons, including limited geographic information. These records may or may not be in your study area, and are included as reference.

Appendix D7: Geotechnical Investigation – East Urban Community, PG3130-3 Revision 1, Paterson Group 2024

PATERSON GROUP

Geotechnical Investigation

East Urban Community

Mer Bleue Road
Ottawa, Ontario

Prepared for Richcraft Group of Companies

Report PG3130-3 Revision 1 dated February 7, 2024

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Appendices

Appendix 1 Soil Profile and Test Data Sheets
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Drawing PG3130-6 – Test Hole Location Plan
Drawing PG3130-7 – Permissible Grade Raise Plan
Drawing PG3130-8 – Bedrock Contour Plan

1.0 Introduction

Paterson Group (Paterson) was commissioned by Richcraft Group of Companies (Richcraft) to complete a geotechnical investigation for the proposed East Urban Community (EUC) development to be located along Mer Bleue Road, in the City of Ottawa (refer to Figure 1 – Key Plan presented in Appendix 2).

The objective of the study is:

- Determine the subsurface soil and groundwater conditions based on available subsoil information and supplemental borehole investigation.
- Provide geotechnical recommendations for the design of the proposed development including construction considerations which may affect the design.

The following report has been prepared specifically and solely for the aforementioned project which is described herein. It contains our findings and includes geotechnical recommendations pertaining to the design and construction of the subject development as they are understood at the time of writing this report.

Investigating the presence or potential presence of contamination on the subject property was not part of the scope of work of the present investigation. Therefore, the present report does not address environmental issues.

2.0 Proposed Development

Based on current plans, it is understood that the proposed development will consist of a series of residential and commercial buildings with associated driveways, access roads, landscaped areas and parking areas. The proposed development is also understood to be municipally serviced.

The subject site is located to the north of Renaud Road and to the south of Innes Road. Mer Bleue Road runs in a north-south direction through the east portion of the site and the existing Hydro corridor runs in roughly an east-west direction through the south portion of the site.

3.0 Method of Investigation

3.1 Field Investigation

Field Program

The field program for the current investigation was conducted between June 11 and June 26, 2018. At that time, a total of 45 boreholes were advanced to a maximum depth of 9.75 m or auger refusal. The historical geotechnical field investigations were completed by Paterson between March 2002 and September 2014. During that time, a total of 64 test holes, consisting of boreholes, test pits and hand auger holes, were extended to a maximum depth of 22 m. Previous geotechnical investigations were also completed by others within the area of the subject site. The results of the previous investigations by others are discussed in the present report. The locations of the test holes are shown on Drawing PG3130-6 – Test Hole Location Plan included in Appendix 2.

The boreholes were completed using a track-mounted auger drill rig operated by a two-person crew. The test pits were completed using a rubber tire backhoe. All fieldwork was conducted under the full-time supervision of personnel from our geotechnical division under the direction of a senior engineer. The testing procedure consisted of augering to the required depths and at the selected locations sampling the overburden.

Sampling and In Situ Testing

Soil samples were collected from the boreholes using a 50 mm diameter split-spoon (SS) sampler, using 73 mm diameter thin walled (TW) Shelby tubes in conjunction with a piston sampler, or from the auger flights. Soil samples were also recovered along the sidewalls of the test pits by hand during excavation.

All soil samples were visually inspected and initially classified on site. The split-spoon samples were placed in sealed plastic bags and the Shelby tubes were sealed at both ends on site. All samples were transported to our laboratory for examination and classification. The depths at which the split-spoon, Shelby tube, auger and grab samples were recovered from the test holes are shown as SS, TW, AU and G, respectively, on the Soil Profile and Test Data sheets presented in Appendix 1.

The Standard Penetration Test (SPT) was conducted in conjunction with the recovery of the split-spoon samples. The SPT results are recorded as “N” values on the Soil Profile and Test Data sheets. The “N” value is the number of blows required to drive the split-spoon sampler 300 mm into the soil after a 150 mm initial penetration using a 63.5 kg hammer falling from a height of 760 mm.

Undrained shear strength testing was carried out at regular depth intervals in cohesive soils. Undrained shear strength testing in test pits was completed using a handheld, portable vane apparatus (field inspection vane tester Roctest Model H-60).

All soil samples were classified on site, placed in sealed plastic bags and were transported to our laboratory for visual inspection.

Overburden thickness was evaluated during the course of the site investigations by dynamic cone penetration testing (DCPT) at several of the borehole locations. The DCPT consists of driving a steel drill rod, equipped with a 50 mm diameter cone at the tip, using a 63.5 kg hammer falling from a height of 760 mm. The number of blows required to drive the cone into the soil is recorded for each 300 mm increment.

The subsurface conditions observed at the borehole and test pits were recorded in detail in the field. The soil profiles are presented on the Soil Profile and Test Data sheets and Borehole Logs by Others in Appendix 1.

Groundwater

Flexible standpipes were installed in all boreholes to monitor the groundwater levels subsequent to the completion of the sampling program. Groundwater infiltration levels were noted at the time of excavation at the test pit locations.

The groundwater observations are discussed in Subsection 4.3 and presented in the Soil Profile and Test Data sheets in Appendix 1.

3.2 Field Survey

The borehole locations were determined by Paterson personnel taking into consideration the presence of underground and aboveground services. The location and ground surface elevation at each borehole location were provided by Stantec Geomatics. It is understood that the elevations were referenced to a geodetic datum. The test hole locations and ground surface elevations at the test hole locations are presented on Drawing PG3130-6 – Test Hole Location Plan in Appendix 2.

3.3 Laboratory Review

The soil samples recovered from the subject site were visually examined in our laboratory to review the results of the field logging.

A total of 19 Shelby tube samples were submitted for unidimensional consolidation during the current and the previous geotechnical investigations. The results of the consolidation and Atterberg testing are presented on the Consolidation Test sheets presented in Appendix 1 and are further discussed in Sections 4.

A total of 36 Atterberg limit tests were completed on selected soil samples. The results are presented under Subsection 4.2. In addition, 12 soil samples were submitted for grain size distribution and hydrometer analysis. The results of our testing are presented in Subsection 4.2 and on Grain Size Distribution sheets in Appendix 1.

Sample Storage

All samples will be stored in the laboratory for a period of one (1) month after issuance of this report. They will then be discarded unless directed otherwise.

3.4 Analytical Testing

Three (3) soil samples were submitted for analytical testing (2 from current investigation) to assess the corrosion potential for exposed ferrous metals and the potential of sulphate attacks against subsurface concrete structures. The samples were submitted to determine the concentration of sulphate and chloride, the resistivity and the pH of the samples. The results are presented in Appendix 1 and are discussed further in Subsection 6.7.

4.0 Observations

4.1 Surface Conditions

Currently, the subject site consists of agricultural lands and lands formerly used for agricultural purposes. A portion of the east side is occupied by an existing snow disposal facility. The site and regional topography are relatively flat with a slight downslope towards the west and south. The site is approximately at grade with neighboring properties and adjacent roadways. It should be noted that an existing Hydro corridor runs roughly in an east-west direction through the south portion of the site.

4.2 Subsurface Profile

Overburden

Generally, the subsurface profile encountered at the test hole locations varies between shallow bedrock and a deep silty clay deposit across the subject site. Shallow bedrock was encountered below a cultivated organic zone/topsoil followed by a silty sand, stiff silty clay and/or clayey silt layer within the north portion of the site. The remainder of the subject site was underlain by a sensitive silty clay deposit. Reference should be made to the Soil Profile and Test Data sheets in Appendix 1 for specific details of the soil profiles encountered at each test hole location.

Bedrock

Based on available geological mapping, the bedrock in this area mostly consists of interbedded limestone and dolomite of the Gull River formation with an overburden drift thickness of 0 to 30 m depth.

Atterberg Limit Tests

Atterberg limit testing of 36 samples was completed. The Plasticity Index of the underlying silty clay was measured to range from 24 to 51. The results of the Atterberg limit testing on select silty clay samples are presented in Appendix 1.

Grain Size Distribution Tests

Twelve (12) sieve analyses were completed to classify selected soil samples according to the Unified Soil Classification System (USCS). The results are presented in Appendix 1.

4.3 Groundwater

Generally, the groundwater levels recovered from the piezometers installed at the borehole locations varied between 0.2 and 7.3 m below existing ground surface. It is important to note that groundwater readings at piezometers can be influenced by surface water perched within the borehole backfill material. Long-term groundwater conditions can also be estimated based on the observed colour and consistency of the recovered soil samples. Based on these observations, it is estimated that long-term groundwater level can be expected between **2.5 to 3.5 m** depth. Groundwater levels are subject to seasonal fluctuations and therefore could vary during time of construction. The groundwater conditions observed at the borehole and test pits were recorded in detail in the field. Our groundwater observations are presented in the Soil Profile and Test Data sheets in Appendix 1.

5.0 Discussion

5.1 Geotechnical Assessment

From a geotechnical perspective, the subject site is adequate for the proposed development. Bedrock removal may require line drilling and blasting or hoe ramming depending on the depth of bedrock removal required. Due to the presence of the sensitive silty clay layer, residential buildings should be designed in accordance with Part 4 of the current Ontario Building Code (OBC). Also, due to the sensitive silty clay deposit, the proposed development will be subjected to grade raise restrictions.

Permissible grade raise recommendations have been designed for the subject site. The recommended permissible grade raise areas are presented in Drawing PG3130-7 – Permissible Grade Raise Plan in Appendix 2. If higher than permissible grade raises are required, preloading with or without a surcharge, lightweight fill and/or other measures should be investigated to reduce the risks of unacceptable long-term post construction total and differential settlements.

Municipal services are anticipated within the subject site and will generally be completed through OHSA Type 2 and 3 soils.

The above and other considerations are further discussed in the following sections.

5.2 Site Grading and Preparation

Stripping Depth

Topsoil and deleterious fill, such as those containing organic materials, should be stripped from under any buildings, paved areas, pipe bedding, and other settlement sensitive structures.

Due to the relatively shallow depth of the bedrock surface within the north portion of the site and the anticipated founding level for the proposed buildings, bedrock removal may be required.

Bedrock Removal

Bedrock removal can be accomplished by hoe ramming where only a small quantity of the bedrock needs to be removed. Sound bedrock may be removed by line drilling and controlled blasting and/or hoe ramming.

Prior to considering blasting operations, the blasting effects on the existing services, buildings and other structures should be addressed. A pre-blast or pre-construction survey of the existing structures located in proximity of the blasting operations should be completed prior to commencing site activities. The extent of the survey should be determined by the blasting consultant and should be sufficient to respond to any inquiries/claims related to the blasting operations.

As a general guideline, peak particle velocities (measured at the structures) should not exceed 25 mm/s during the blasting program to reduce the risks of damage to the existing structures.

The blasting operations should be planned and conducted under the supervision of a licensed professional engineer who is also an experienced blasting consultant.

Excavation side slopes in sound bedrock can be excavated almost vertical side walls. A minimum 1 m horizontal ledge should remain between the overburden excavation and the bedrock surface. The ledge will provide an area to allow for potential sloughing or a stable base for the overburden shoring system.

Vibration Considerations

Construction operations are the cause of vibrations, and possibly, sources of nuisance to the community. Therefore, means to reduce the vibration levels as much as possible should be incorporated in the construction operations to maintain, as much as possible, a cooperative environment with the residents.

The following construction equipments could be the source of vibrations: hoe ram, compactor, dozer, crane, truck traffic, etc. Vibrations, whether caused by blasting operations or by construction operations, could be the source of detrimental vibrations on the nearby buildings and structures. Therefore, all vibrations are recommended to be limited.

Two parameters are used to determine the permissible vibrations, namely, the maximum peak particle velocity and the frequency. For low frequency vibrations, the maximum allowable peak particle velocity is less than that for high frequency vibrations. As a guideline, the peak particle velocity should be less than 15 mm/s between frequencies of 4 to 12 Hz, and 50 mm/s above a frequency of 40 Hz (interpolate between 12 and 40 Hz). The guidelines are for current construction standards. Considering that these guidelines are above perceptible human level and, in some cases, could be very disturbing to some people, a pre-construction survey is recommended be completed to minimize the risks of claims during or following the construction of the proposed building.

Fill Placement

Fill used for grading beneath the building areas should consist, unless otherwise specified, of clean imported granular fill, such as Ontario Provincial Standard Specifications (OPSS) Granular A or Granular B Type II material. This material should be tested and approved prior to delivery to the site. The fill should be placed in lifts no greater than 300 mm thick and compacted using suitable compaction equipment for the lift thickness. Fill placed beneath the buildings should be compacted to at least 98% of its standard Proctor maximum dry density (SPMDD).

Non-specified existing fill along with site-excavated soil can be used as general landscaping fill where settlement of the ground surface is of minor concern. These materials should be spread in thin lifts and at least compacted by the tracks of the spreading equipment to minimize voids. If excavated stiff brown silty clay, free of organics and deleterious materials, is to be used to build up the subgrade level for areas to be paved, the silty clay, under dry conditions, should be compacted in thin lifts to a minimum density of 95% of their respective SPMDD. Non-specified existing fill and site-excavated soils are not suitable for use as backfill against foundation walls unless a composite drainage blanket connected to a perimeter drainage system is provided.

5.3 Foundation Design

Bearing Resistance Values

Conventional style shallow footings for buildings can be designed using the bearing resistance values presented in Table 1. A geotechnical resistance factor of 0.5 was applied to the bearing resistance values at ULS.

Table 1 – Bearing Resistance Values

Bearing Surface	Bearing Resistance Values at SLS (kPa)	Factored Bearing Resistance Value at ULS (kPa)
Undisturbed, Compact Sandy Silt	60	150
Undisturbed, Firm Clayey Silt/Silty Clay	60	150
Undisturbed, Stiff Silty Clay/Clayey Silt	100	180
Undisturbed, Compact Glacial Till	150	250
Clean, Surface Sounded Bedrock	-	500

Note: Pad footings, up to 3 m wide, and strip footings, up to 2 m wide, can be designed using the above noted bearing resistance values placed over an undisturbed, silty clay bearing surface.

The bearing resistance values are provided on the assumption that the footings will be placed on undisturbed soil bearing surfaces. An undisturbed soil bearing surface consists of one from which all topsoil and deleterious materials, such as loose, frozen or disturbed soil, whether in situ or not, have been removed, in the dry, prior to the placement of concrete for footings.

The bearing resistance values at SLS for shallow footing bearing on the above noted soils will be subjected to potential post-construction total and differential settlements of 25 and 15 mm, respectively.

A clean, surface-sounded bedrock bearing surface should be free of loose materials, and have no near surface seams, voids, fissures or open joints which can be detected from surface sounding with a rock hammer. Footings bearing on an acceptable bedrock bearing surface and designed using the bearing resistance values provided herein will be subjected to negligible potential post-construction total and differential settlements.

Where a building is founded partly on bedrock and partly on soil, it is recommended to decrease the soil bearing resistance value by 25% for the footings placed on soil bearing media to reduce the potential long term total and differential settlements. Also, at the soil/bedrock and bedrock/soil transitions, it is recommended that the upper 0.5 m of the bedrock be removed for a minimum length of 2 m (on the bedrock side) and replaced with nominally compacted OPSS Granular A or Granular B Type II material. The width of the subexcavation should be at least the proposed footing width plus 0.5 m. Steel reinforcement, extending at least 3 m on both sides of the 2 m long transition, should be placed in the top part of the footings and foundation walls.

Settlement/Grade Raise

During the current investigation, a total of 9 consolidation tests were completed within the subject site. Also, 10 consolidation tests were conducted as part of the previous investigations within the immediate area of the subject site. The results of the consolidation tests from the previous investigations are presented in Tables 2, 3, 4 and 5 and in Appendix 1.

The value for p'_c is the preconsolidation pressure and p'_o is the effective overburden pressure of the test sample. The difference between these values is the available preconsolidation. The increase in stress on the soil due to the cumulative effects of the fill surcharge, the footing pressures, the slab loadings and the lowering of the groundwater should not exceed the available preconsolidation if unacceptable settlements are to be avoided.

The values for C_{cr} and C_c are the recompression and compression indices, respectively. These soil parameters are a measure of the compressibility due to stress increases below and above the preconsolidation pressures. The higher values for the C_c, as compared to the C_{cr}, illustrate the increased settlement potential above, as compared to below, the preconsolidation pressure.

Table 2 – Summary of Consolidation Test Results (Current Investigation)

Borehole	Sample	Depth (m)	p'_c (kPa)	p'_o (kPa)	C_{cr}	C_c	Q*
BH 1-18	TW 3	3.53	98.5	41.2	0.039	1.868	G
BH 3-18	TW 4	4.27	92.9	45.8	0.018	0.961	A
BH 6-18	TW 4	4.22	100	48.4	0.031	2.756	A
BH 27-18	TW 4	5.05	145.9	66.9	0.023	3.182	G
BH 28-18	TW 5	4.98	121.7	66.43	0.028	4.375	A
BH 35-18	TW 4	4.29	94	54.1	0.026	1.989	A
BH 36-18	TW 4	4.98	104.7	60.1	0.035	3.182	A
BH 42-18	TW 4	5.05	132.2	66.9	0.022	3.777	A
BH 44-18	TW 4	5.03	85.8	66.8	0.027	1.823	P

* - Q – Quality assessment of sample – G: Good A: Acceptable P: Likely disturbed

Table 3 – Summary of Consolidation Test Results (Paterson Investigation PG2392)

Borehole	Sample	Depth (m)	p'c (kPa)	p'o (kPa)	Ccr	Cc	Q*
BH 7	TW 2	4.36	90	53	0.016	1.643	A
BH 9	TW 3	4.33	106	53	0.021	4.008	A
BH 11	TW 4	4.32	85	53	0.027	2.735	P

* - Q – Quality assessment of sample – G: Good A: Acceptable P: Likely disturbed

Table 4 – Summary of Consolidation Test Results (Paterson Investigation PG0861)

Borehole	Sample	Depth (m)	p'_c (kPa)	p'_o (kPa)	C_{cr}	C_c	Q*
BH 9-08	TW 2	4.8	126	55	0.026	3.260	A
BH 12-08	TW 4	9.4	109	68	0.031	3.080	A
BH 13-08	TW 2	3.42	142	43	0.025	1.334	A
BH 15-08	TW 2	4.91	87	50	0.029	1.890	A
BH 19-08	TW 3	4.9	99	43	0.025	3.100	A

* - Q – Quality assessment of sample – G: Good A: Acceptable P: Likely disturbed

Table 5 – Summary of Consolidation Test Results (Paterson Investigation G8533)

Borehole	Sample	Depth (m)	p'_c (kPa)	p'_o (kPa)	C_{cr}	C_c	Q*
BH 3	TW 5	6.53	103	64	0.043	2.967	A
BH 3	TW 7	9.6	175	82	0.028	3.046	A

* - Q – Quality assessment of sample – G: Good A: Acceptable P: Likely disturbed

The values of p'_c, p'_o, C_{cr} and C_c are determined using standard engineering testing procedures and are estimates only. Natural variations within the soil deposit will affect the results. The p'_o parameter is directly influenced by the groundwater level. Groundwater levels were measured during the site investigation. Groundwater levels vary seasonally which has an impact on the available preconsolidation. Lowering the groundwater level increases the p'_o and therefore reduces the available preconsolidation. Unacceptable settlements could be induced by a significant lowering of the groundwater level.

The p'_o values for the consolidation tests during the investigation are based on the long-term groundwater level being at 0.5 m below the existing groundwater table. The groundwater level is based on the colour and undrained shear strength profile of the silty clay.

The total and differential settlements will be dependent on characteristics of the proposed buildings. For design purposes, the total and differential settlements are estimated to be 25 and 20 mm, respectively. A post-development groundwater lowering of 0.5 m was assumed.

The potential post construction total and differential settlements are dependent on the position of the long-term groundwater level when building are situated over deposits of compressible silty clay. Efforts can be made to reduce the impacts of the proposed development on the long-term groundwater level by placing clay dykes in the service trenches, reducing the sizes of paved areas, leaving green spaces to allow for groundwater recharge or limiting planting of trees to areas away from the buildings. However, it is not economically possible to control the groundwater level.

To reduce potential long-term liabilities, consideration should be given to accounting for a larger groundwater lowering and to provide means to reduce long term groundwater lowering (e.g. clay dykes, restriction on planting around the dwellings, etc). Buildings on silty clay deposits increases the likelihood of movements and therefore of cracking. The use of steel reinforcement in foundations placed at key structural locations will tend to reduce foundation cracking compared to unreinforced foundations.

Based on the undrained shear strength testing results, consolidation testing and experience with the local silty clay deposit. **The recommended permissible grade raise areas for buildings are defined in Drawing PG3130-7 – Permissible Grade Raise Plan in Appendix 2.**

Where proposed grade raises exceed our permissible grade raise recommendations, several options could be considered for the foundation support of the proposed buildings:

Scenario A

Where the grade raise is close to, but below, the maximum permissible grade raise, consideration should be given to using more reinforcement in the design of the foundation (footings and walls) to reduce the risks of cracking in the concrete foundation. The use of control joints within the brick work between the garage and basement area should also be considered.

Scenario B

Where the grade raise cannot be accommodated with soil fill, the following options could be used alone or in combination.

Option 1 – Use of Lightweight Fill

Lightweight fill (LWF) can be used, consisting of EPS (expanded polystyrene) Type 19 or 22 blocks or other light weight materials which allow for raising the grade without adding a significant load to the underlying soils. However, these materials are expensive and, in the case of the EPS, are more difficult to use under the groundwater level, as they are buoyant, and must be protected against potential hydrocarbon spills. Use lightweight fill within the interior of the garage and porch areas to reduce the fill- related loads.

Option 2 – Preloading or Surcharging

It is possible to preload or surcharge the proposed site in localized areas provided sufficient time is available to achieve the desired settlements based on theoretical values from the settlement analysis. If this option is considered, a monitoring program using settlement plates will have to be implemented. This program will determine the amount of settlement in the preloaded or surcharged areas. Obviously, preloading to proposed finished grades will allow for consolidation of the underlying clays over a longer time period.

Surcharging the site with additional fill above the proposed finished grade will add additional load to the underlying clays accelerating the consolidation process and allowing for accelerated settlements. Once the desired settlements are achieved, the site can be unloaded and the f ill can be used elsewhere on site.

Once the required grade raises are established, the above options could be further discussed along with further recommendations on specific requirements.

5.4 Design for Earthquakes

The site class for seismic site response can be taken as **Class C** for the foundations bearing on a compact to dense glacial till and/or bedrock within the north portion of the subject site. A higher site class, such as Class A or B, is applicable for footings bearing on the bedrock surface. However, a site specific seismic shear wave test will be required to confirm the Class A or B seismic site classification. Also, based on the current subsoils information, a seismic site response **Class D** is applicable for design of the proposed buildings bearing over a stiff to firm silty clay deposit throughout the remainder of the site.

Soils underlying the subject site are not susceptible to liquefaction. Reference should be made to the latest revision of the 2012 Ontario Building Code for a full discussion of the earthquake design requirements.

5.5 Basement Floor Slab/Slab on Grade Construction

With the removal of all topsoil and fill, containing deleterious or organic materials, the native soil or existing granular fill approved by the geotechnical consultant at the time of excavation will be considered to be an acceptable subgrade surface on which to commence backfilling for basement floor slab or slab on grade construction. Any soft areas should be removed and backfilled with appropriate backfill material. OPSS Granular A or Granular B Type II, with a maximum particle size of 50 mm, are recommended for backfilling below the floor slab.

It is recommended that the upper 200 mm of sub-floor fill for basement slab construction consist of 19 mm clear crushed stone. It is also recommended that the upper 300 mm sub-floor fill below slab on grade construction consist of OPSS Granular A crushed stone. All backfill materials within the footprint of the proposed buildings should be placed in maximum 300 mm thick loose layers and compacted to at least 98% of its SPMDD.

5.6 Pavement Structure

For design purposes, the pavement structure presented in the following tables could be used for the design of car only parking areas and local roadways.

Table 6 – Recommended Pavement Structure – Car Only Parking Areas/Driveways

Thickness (mm)	Material Description
50	**Wear Course** – HL-3 or Superpave 12.5 Asphaltic Concrete
150	**BASE** – OPSS Granular A Crushed Stone
300	**SUBBASE** – OPSS Granular B Type II
SUBGRADE – Either in situ soil or OPSS Granular B Type I or II material placed over in situ soil.	

Table 7 – Recommended Pavement Structure – Local Roadways

Thickness (mm)	Material Description
40	**Wear Course** – HL-3 or Superpave 12.5 Asphaltic Concrete
50	**Binder Course** – HL-8 or Superpave 19.0 Asphaltic Concrete
150	**BASE** – OPSS Granular A Crushed Stone
450	**SUBBASE** – OPSS Granular B Type II
SUBGRADE – Either in situ soil or OPSS Granular B Type I or II material placed over in situ soil.	

Table 8 – Recommended Pavement Structure – Arterial Roadways with Bus Traffic

Thickness (mm)	Material Description
40	**Wear Course** – HL-3 or Superpave 12.5 Asphaltic Concrete
50	**Upper Binder Course** – HL-8 or Superpave 19.0 Asphaltic Concrete
50	**Lower Binder Course** – HL-8 or Superpave 19.0 Asphaltic Concrete
150	**BASE** – OPSS Granular A Crushed Stone
450	**SUBBASE** – OPSS Granular B Type II
SUBGRADE – Either in situ soil or OPSS Granular B Type I or II material placed over in situ soil.	

Minimum Performance Graded (PG) 58-34 asphalt cement should be used for this project.

If soft spots develop in the subgrade during compaction or due to construction traffic, the affected areas should be excavated and replaced with OPSS Granular B Type I or II material.

The pavement granular base and subbase should be placed in maximum 300 mm thick lifts and compacted to a minimum of 100% of the material's SPMDD using suitable vibratory equipment.

Pavement Structure Drainage

Satisfactory performance of the pavement structure is largely dependent on keeping the contact zone between the subgrade material and the base stone in a dry condition. Failure to provide adequate drainage under conditions of heavy wheel loading can result in the fine subgrade soil being pumped into the voids in the stone subbase, thereby reducing its load carrying capacity.

Due to the low permeability of the subgrade materials consideration should be given to installing subdrains during the pavement construction as per City of Ottawa standards. The subdrain inverts should be approximately 300 mm below subgrade level. The subgrade surface should be crowned to promote water flow to the drainage lines.

6.0 Design and Construction Precautions

6.1 Foundation Drainage and Backfill

It is recommended that a perimeter foundation drainage system be provided for the proposed structures. The system should consist of a 150 mm diameter perforated corrugated plastic pipe, surrounded on all sides by 150 mm of 10 mm clear crushed stone, placed at the footing level around the exterior perimeter of the structure. The pipe should have a positive outlet, such as a gravity connection to the storm sewer.

Backfill against the exterior sides of the foundation walls should consist of free-draining non frost susceptible granular materials. The greater part of the site excavated materials will be frost susceptible and, as such, are not recommended for re-use as backfill against the foundation walls, unless used in conjunction with a composite drainage system, such as Delta Drain 6000 or an approved equivalent. Imported granular materials, such as clean sand or OPSS Granular B Type I granular material, should otherwise be used for this purpose.

6.2 Protection of Footings Against Frost Action

Perimeter footings of heated structures are required to be insulated against the deleterious effect of frost action. A minimum of 1.5 m thick soil cover (or equivalent) should be provided in this regard.

Exterior unheated footings, such as those for isolated exterior piers, are more prone to deleterious movement associated with frost action than the exterior walls of the structure proper and require additional protection, such as soil cover of 2.1 m or a combination of soil cover and foundation insulation.

6.3 Excavation Side Slopes

The side slopes of excavations in the overburden materials should either be cut back at acceptable slopes or should be retained by shoring systems from the start of the excavation until the structure is backfilled. It is assumed that sufficient room will be available for the greater part of the excavations to be undertaken by open-cut methods (i.e. unsupported excavations).

The excavation side slopes above the groundwater level extending to a maximum depth of 3 m should be cut back at 1H:1V or flatter. The flatter slope is required for excavation below groundwater level. The subsoil at this site is considered to be mainly a Type 2 and 3 soil according to the Occupational Health and Safety Act and Regulations for Construction Projects.

Excavated soil should not be stockpiled directly at the top of excavations and heavy equipment should be kept away from the excavation sides.

Slopes in excess of 3 m in height should be periodically inspected by the geotechnical consultant in order to detect if the slopes are exhibiting signs of distress.

It is recommended that a trench box be used at all times to protect personnel working in trenches with steep or vertical sides. It is expected that services will be installed by "cut and cover" methods and excavations will not be left open for extended periods of time.

Excavation Base Stability

The base of supported excavations can fail by three (3) general modes:

- Shear failure within the ground caused by inadequate resistance to loads imposed by grade difference inside and outside of the excavation,
- Piping from water seepage through granular soils, and
- Heave of layered soils due to water pressures confined by intervening low permeability soils.

Shear failure of excavation bases is typically rare in granular soils if adequate lateral support is provided. Inadequate dewatering can cause instability in excavations made through granular or layered soils. The potential for base heave in cohesive soils should be determined for stability of flexible retaining systems.

The factor of safety with respect to base heave, FS_b, is:

$$FS_b = N_b s_u / \sigma_z$$

where:

N_b – stability factor dependent upon the geometry of the excavation and given in Figure 1 on the following page.
s_u – undrained shear strength of the soil below the base level.
σ_z – total overburden and surcharge pressures at the bottom of the excavation.

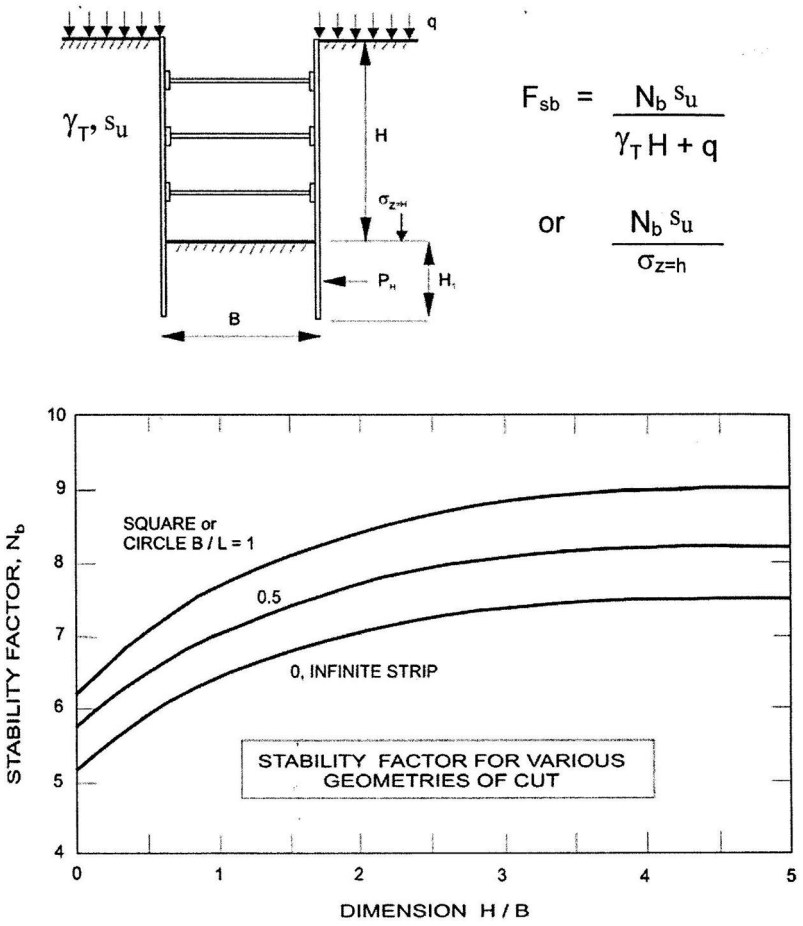


Figure 1 – Stability Factor for Various Geometries of Cut

In the case of soft to firm clays, a factor of safety of 2 is recommended for base stability.

6.4 Pipe Bedding and Backfill

Bedding and backfill materials should be in accordance with the most recent Material Specifications & Standard Detail Drawings from the Department of Public Works and Services, Infrastructure Services Branch of the City of Ottawa.

At least 150 mm of OPSS Granular A should be used for bedding for sewer and water pipes when placed on soil subgrade. The bedding should extend to the spring line of the pipe. Cover material, from the spring line to at least 300 mm above the obvert of the pipe should consist of OPSS Granular A (concrete or PSM PVC pipes) or sand (concrete pipe). The bedding and cover materials should be placed in maximum 225 mm thick lifts compacted to a minimum of 95% of the material's SPMDD.

Generally, it should be possible to re-use the moist, not wet, silty clay above the cover material if the excavation and filling operations are carried out in dry weather conditions. The wet silty clay should be given a sufficient drying period to decrease its moisture content to an acceptable level to make compaction possible prior to being re-used.

Where hard surface areas are considered above the trench backfill, the trench backfill material within the frost zone (about 1.8 m below finished grade) should match the soils exposed at the trench walls to minimize differential frost heaving. The trench backfill should be placed in maximum 300 mm thick loose lifts and compacted to a minimum of 95% of the material's SPMDD.

To reduce long-term lowering of the groundwater level at this site, clay seals should be provided in the service trenches. The seals should be at least 1.5 m long and should extend from trench wall to trench wall. Generally, the seals should extend from the frost line and fully penetrate the bedding, subbedding and cover material. The barriers should consist of relatively dry and compactable brown silty clay placed in maximum 225 mm thick loose layers and compacted to a minimum of 95% of the material's SPMDD. The clay seals should be placed at the site boundaries and at strategic locations at no more than 60 m intervals in the service trenches.

6.5 Groundwater Control

Groundwater Control for Building Construction

Due to the relatively impervious nature of the silty clay/clayey silt materials, it is anticipated that groundwater infiltration into the excavations should be low and controllable using open sumps. Pumping from open sumps should be sufficient to control the groundwater influx through the sides of shallow excavations. The contractor should be prepared to direct water away from all bearing surfaces and subgrades, regardless of the source, to prevent disturbance to the founding medium.

Permit to Take Water

A temporary Ministry of the Environment, Conservation and Parks (MECP) permit to take water (PTTW) may be required for this project if more than 400,000 L/day of ground and/or surface water is to be pumped during the construction phase. A minimum of 4 to 5 months should be allowed for completion of the PTTW application package and issuance of the permit by the MECP.

For typical ground or surface water volumes being pumped during the construction phase, typically between 50,000 to 400,000 L/day, it is required to register on the Environmental Activity and Sector Registry (EASR). A minimum of two to four weeks should be allotted for completion of the EASR registration and the Water Taking and Discharge Plan to be prepared by a Qualified Person as stipulated under O.Reg. 63/16. If a project qualifies for a PTTW based upon anticipated conditions, an EASR will not be allowed as a temporary dewatering measure while awaiting the MECP review of the PTTW application.

6.6 Winter Construction

Precautions must be taken if winter construction is considered for this project. The subsoil conditions at this site consist of frost susceptible materials. In the presence of water and freezing conditions, ice could form within the soil mass. Heaving and settlement upon thawing could occur.

In the event of construction during below zero temperatures, the founding stratum should be protected from freezing temperatures by the use of straw, propane heaters and tarpaulins or other suitable means. In this regard, the base of the excavations should be insulated from sub-zero temperatures immediately upon exposure and until such time as heat is adequately supplied to the building and the footings are protected with sufficient soil cover to prevent freezing at founding level.

Trench excavations and pavement construction are also difficult activities to complete during freezing conditions without introducing frost in the subgrade or in the excavation walls and bottoms. Precautions should be taken if such activities are to be carried out during freezing conditions.

6.7 Corrosion Potential and Sulphate

The results of analytical testing show that the sulphate content is less than 0.1%. These results are indicative that Type 10 Portland cement (normal cement) would be appropriate for this site. The results of the chloride content, pH and resistivity indicate the presence of a non-aggressive to slightly aggressive environment for exposed ferrous metals at this site.

6.8 Landscaping Consideration

Tree Planting Restrictions

In accordance with the City of Ottawa Tree Planting in Sensitive Marine Clay Soils (2017 Guidelines), Paterson completed the required soil testing to aid in determining the applicable tree planting setbacks. However, it should be noted that Paterson is also relying on our engineering expertise to determine the applicable tree planting setback for the subject site.

Atterberg limits testing was completed for recovered silty clay samples at selected locations throughout the subject site. Sieve analysis testing was also completed on selected soil samples. The above noted soil samples were recovered from elevations below the anticipated design underside of footing elevation and 3.5 m depth below anticipated finished grade. The results of our testing are presented in Appendix 1.

Based on the colouring and moisture levels of the recovered soil samples and the undrained shear strength values in close proximity to design underside of footing elevation, Paterson has determined that the following tree planting setbacks are recommended. Large trees (mature height over 14 m) can be planted within these areas provided a tree to foundation setback equal to the full mature height of the tree can be provided (e.g. in a park or other green space). Tree planting setback is 4.5 m for small (mature tree height up to 7.5m) and medium size trees (mature tree height 7.5 m to 14 m) provided that the conditions noted below are met.

- ❑ The underside of footing (USF) is 2.1 m or greater below the lowest finished grade must be satisfied for footings within 10 m from the tree, as measured from the centre of the tree trunk and verified by means of the Grading Plan as indicated procedural changes below.
- ❑ A small tree must be provided with a minimum of 25 m3 of available soil volume while a medium tree must be provided with a minimum of 30 m3 of available soil volume, as determined by the Landscape Architect. The developer is to ensure that the soil is generally un-compacted when backfilling in street tree planting locations.
- ❑ The tree species must be small (mature tree height up to 7.5 m) to medium size (mature tree height 7.5 m to 14 m) as confirmed by the Landscape Architect.
- ❑ The foundation walls are to be reinforced at least nominally (minimum of two upper and two lower 15M bars in the foundation wall).
- ❑ Grading surrounding the tree must promote drainage to the tree root zone (in such a manner as not to be detrimental to the tree), as noted on the subdivision Grading Plan.

Swimming Pools

The in-situ soils are considered to be acceptable for in-ground swimming pools. Above ground swimming pools must be placed at least 5 m away from the residence foundation and neighbouring foundations. Otherwise, pool construction is considered routine, and can be constructed in accordance with the manufacturer`s requirements.

Aboveground Hot Tubs

Additional grading around the hot tub should not exceed permissible grade raises. Otherwise, hot tub construction is considered routine, and can be constructed in accordance with the manufacturer's specifications.

Installation of Decks and Additions

Additional grading around proposed deck or addition should not exceed permissible grade raises. Otherwise, standard construction practices are considered acceptable.

7.0 Recommendations

It is recommended that the following be carried out by Paterson once preliminary and future details of the proposed development have been prepared:

- ❑ Review preliminary and detailed grading, servicing and landscaping plans from a geotechnical perspective.
- ❑ Review of the geotechnical aspects of the foundation drainage systems prior to construction, if applicable.

It is a requirement for the foundation design data provided herein to be applicable that a material testing and observation program be performed by the geotechnical consultant. The following aspects of the program should be performed by Paterson:

- ❑ Review and inspection of the installation of the foundation drainage systems.
- ❑ Observation of all bearing surfaces prior to the placement of concrete.
- ❑ Sampling and testing of the concrete and fill materials used.
- ❑ Periodic observation of the condition of unsupported excavation side slopes in excess of 3 m in height, if applicable.
- ❑ Observation of all subgrades prior to backfilling and field density tests to determine the level of compaction achieved.
- ❑ Sampling and testing of the bituminous concrete including mix design reviews.

A report confirming that these works have been conducted in general accordance with our recommendations could be issued, upon request, following the completion of a satisfactory materials testing and observation program by the geotechnical consultant.

All excess soil must be handled as per ***Ontario Regulation 406/19: On-Site and Excess Soil Management***.

8.0 Statement of Limitations

The recommendations made in this report are in accordance with Paterson's present understanding of the project. Paterson requests permission to review the grading plan once available. Paterson's recommendations should be reviewed when the drawings and specifications are complete.

The client should be aware that any information pertaining to soils and all test hole logs are furnished as a matter of general information only. Test hole descriptions or logs are not to be interpreted as descriptive of conditions at locations other than those of the test holes.

A soils investigation is a limited sampling of a site. Should any conditions at the site be encountered which differ from those at the test locations, Paterson requests to be notified immediately in order to permit reassessment of the recommendations.

The present report applies only to the project described in this document. Use of this report for purposes other than those described herein or by person(s) other than Richcraft Group of Companies or their agent(s) is not authorized without review by this firm for the applicability of our recommendations to the altered use of the report.

Paterson Group Inc.



Owen R. Canton, B.Eng.





Scott S. Dennis, P.Eng.

Report Distribution:

- ❑ Richcraft Group of Companies (Email Copy)
- ❑ Paterson Group (1 Copy)

APPENDIX 1

SOIL PROFILE AND TEST DATA SHEETS

BOREHOLES BY OTHERS

SYMBOLS AND TERMS

CONSOLIDATION TESTING RESULTS

ATTERBERG LIMITS TESTING RESULTS

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community (EUC) Mixed-Use CDP
Mer Bleue Road, Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Limited.

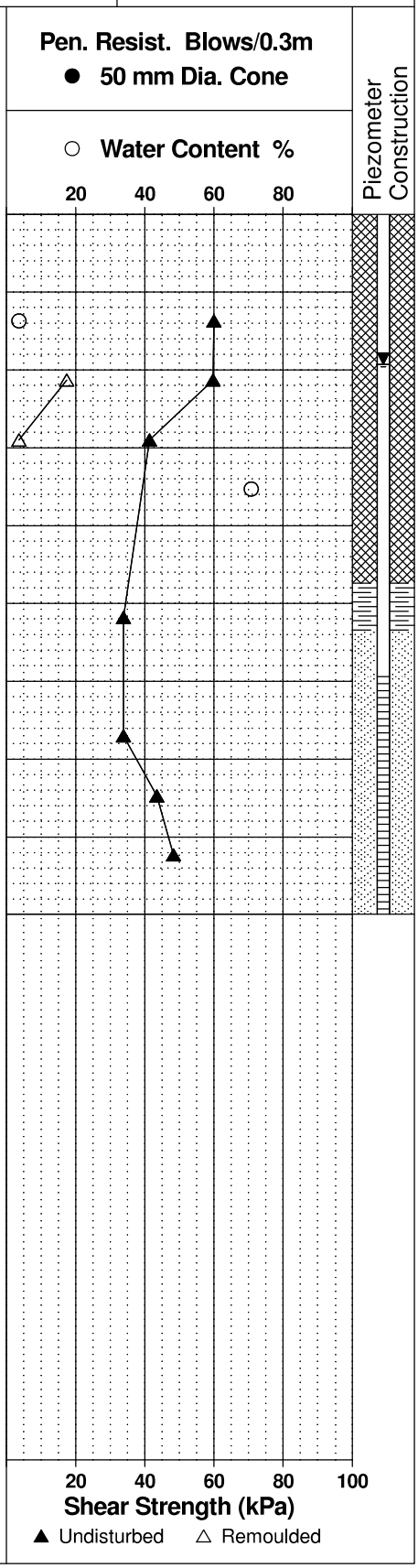
FILE NO. PG3130

REMARKS

HOLE NO. BH 1-18

BORINGS BY CME 55 Power Auger **DATE** June 11, 2018

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	87.67
Topsoil & organics 0.10		AU	1				
Brown **SILTY CLAY** with sand 0.69		SS	2	71	5	1	86.67
Very stiff to stiff, brown **SILTY CLAY**						2	85.67
- firm and grey by 2.5m depth		TW	3	92		3	84.67
						4	83.67
		SS	4	92	W	5	82.67
						6	81.67
						7	80.67
		SS	5	96	W	8	79.67
8.99 End of Borehole							
(GWL @ 1.93m - July 20, 2018)							



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154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community (EUC) Mixed-Use CDP
Mer Bleue Road, Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Limited.

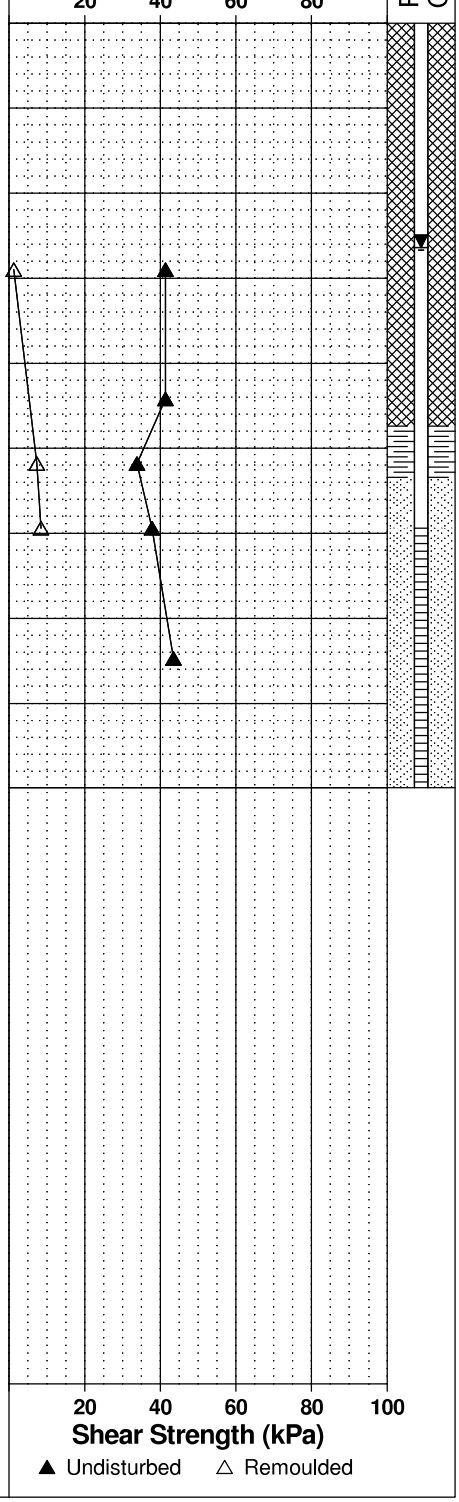
FILE NO. PG3130

REMARKS

HOLE NO. BH 2-18

BORINGS BY CME 55 Power Auger **DATE** June 11, 2018

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	87.64
Brown **SILTY CLAY** with organics, trace topsoil (0.15 / 0.69)		AU	1				
Brown **SILTY CLAY** with sand		SS	2	79	7	1	86.64
		SS	3	88	2	2	85.64
Very stiff to stiff, brown **SILTY CLAY**							
- firm and grey by 2.2m depth		TW	4	100		3	84.64
						4	83.64
						5	82.64
		SS	5	92	W	6	81.64
						7	80.64
						8	79.64
8.99		SS	6	96	W		
End of Borehole							
(GWL @ 2.64m - July 20, 2018)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community (EUC) Mixed-Use CDP
Mer Bleue Road, Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Limited.

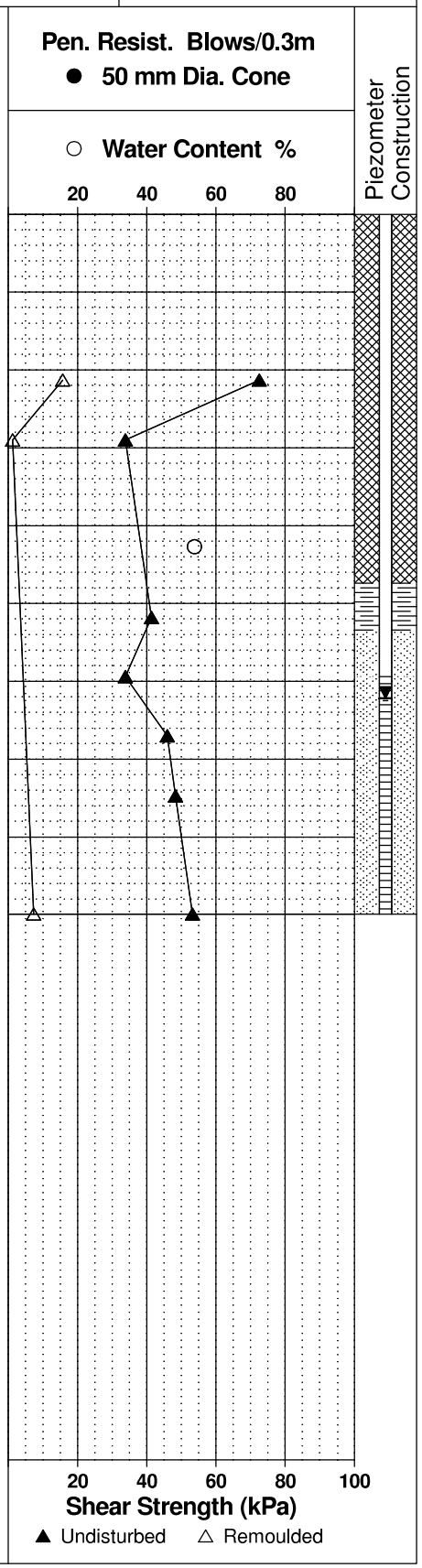
FILE NO. PG3130

REMARKS

HOLE NO. BH 3-18

BORINGS BY CME 55 Power Auger **DATE** June 11, 2018

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	87.47
FILL: Brown silty sand, some crushed stone, organics 0.18		AU	1				
		SS	2	71	8	1	86.47
Very stiff to stiff, brown **SILTY CLAY**						2	85.47
- firm and grey by 2.2m depth		TW	3	0		3	84.47
		TW	4	100		4	83.47
						5	82.47
						6	81.47
						7	80.47
		SS	5	96	W	8	79.47
8.99 End of Borehole							
(GWL @ 6.22m - July 20, 2018)							



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154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community (EUC) Mixed-Use CDP
Mer Bleue Road, Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Limited.

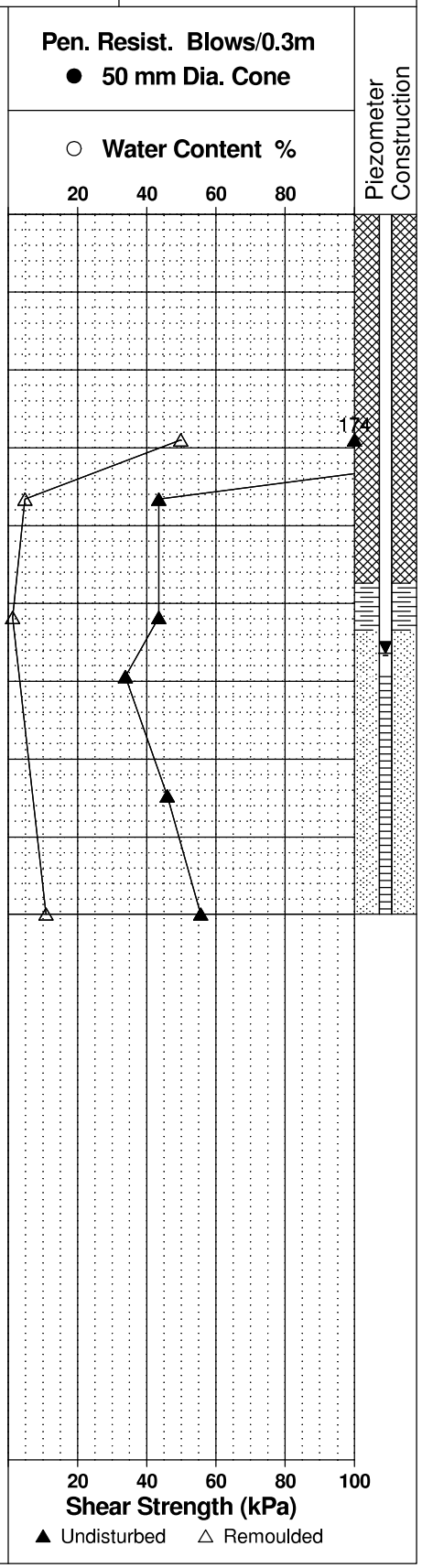
FILE NO. PG3130

REMARKS

HOLE NO. BH 4-18

BORINGS BY CME 55 Power Auger **DATE** June 12, 2018

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	87.36
Brown **SILTY CLAY** with organics, trace topsoil 0.15		AU	1				
		SS	2	92	7	1	86.36
		SS	3		3	2	85.36
Very stiff to stiff, brown **SILTY CLAY**							
- Firm and grey by 2.7m depth						3	84.36
		TW	4	92		4	83.36
						5	82.36
		SS	5	96	W	6	81.36
						7	80.36
		SS	6	96	W	8	79.36
8.99 End of Borehole							
(GWL @ 5.64m - July 20, 2018)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community (EUC) Mixed-Use CDP
Mer Bleue Road, Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Limited.

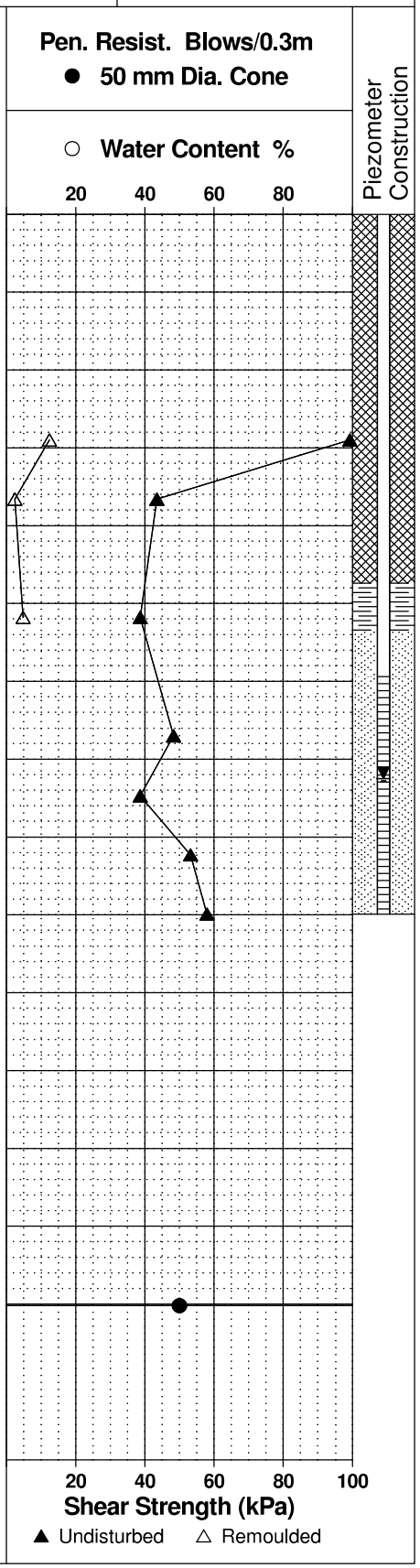
FILE NO. PG3130

REMARKS

HOLE NO. BH 5-18

BORINGS BY CME 55 Power Auger **DATE** June 12, 2018

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	87.34
Brown **SILTY CLAY** with organics &topsoil 0.18		AU	1				
		SS	2	75	10	1	86.34
		SS	3	88	4	2	85.34
Very stiff to stiff, brown **SILTY CLAY**							
- firm and grey by 2.7m depth						3	84.34
		TW	4	92		4	83.34
						5	82.34
		SS	5		W	6	81.34
						7	80.34
						8	79.34
8.99						9	78.34
Dynamic Cone Penetration Test commenced at 8.99m depth. cone pushed to 13.7m depth.						10	77.34
						11	76.34
						12	75.34
						13	74.34
14.02						14	73.34
End of Borehole							
Practical DCPT refusal at 14.02m depth							
(GWL @ 7.25m - July 20, 2018)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community (EUC) Mixed-Use CDP
Mer Bleue Road, Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Limited.

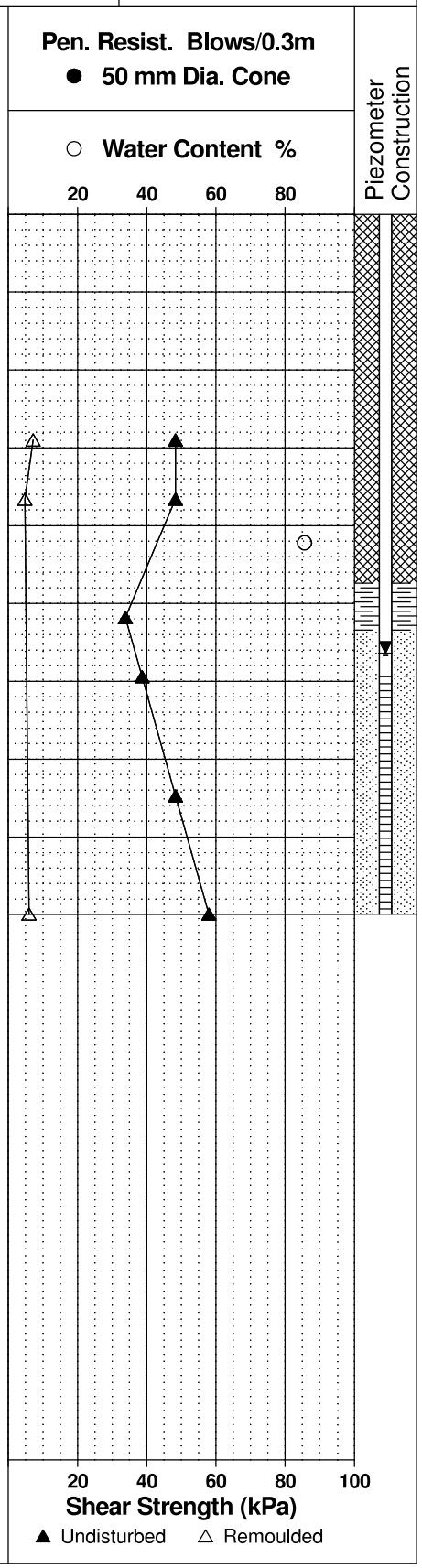
FILE NO. PG3130

REMARKS

HOLE NO. BH 6-18

BORINGS BY CME 55 Power Auger **DATE** June 12, 2018

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	87.79
FILL: Brown silty clay with sand, crushed stone and organics 0.28		AU	1				
		SS	2	21	8	1	86.79
		SS	3	38	8	2	85.79
Very stiff to stiff, brown **SILTY CLAY**							
- firm and grey by 2.2m depth						3	84.79
		TW	4	88		4	83.79
						5	82.79
		SS	5	96	W	6	81.79
						7	80.79
		SS	6	92	W	8	79.79
8.99 End of Borehole							
(GWL @ 5.64m - July 20, 2018)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community (EUC) Mixed-Use CDP
Mer Bleue Road, Ottawa, Ontario

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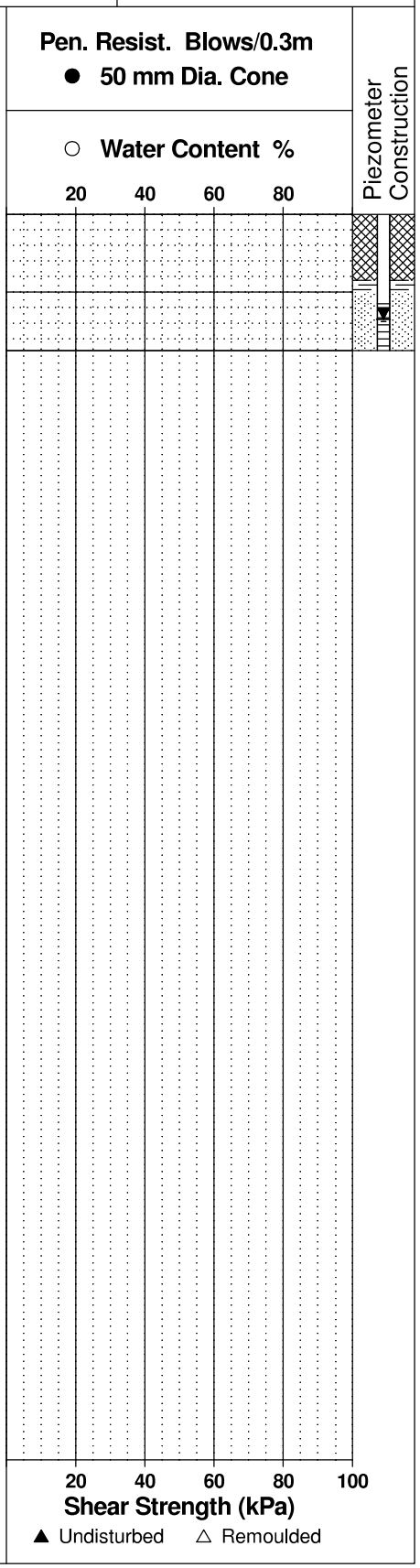
FILE NO. PG3130

REMARKS

HOLE NO. BH 7-18

BORINGS BY CME 55 Power Auger **DATE** June 13, 2018

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	88.68
Brown **SILTY CLAY** with organics, some topsoil 0.13		AU	1				
Very stiff, brown **SILTY CLAY**		SS	2	75	14	1	87.68
1.75		SS	3		50+		
End of Borehole							
Practical refusal to augering at 1.75m depth							
(GWL @ 1.35m - July 20, 2018)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community (EUC) Mixed-Use CDP
Mer Bleue Road, Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Limited.

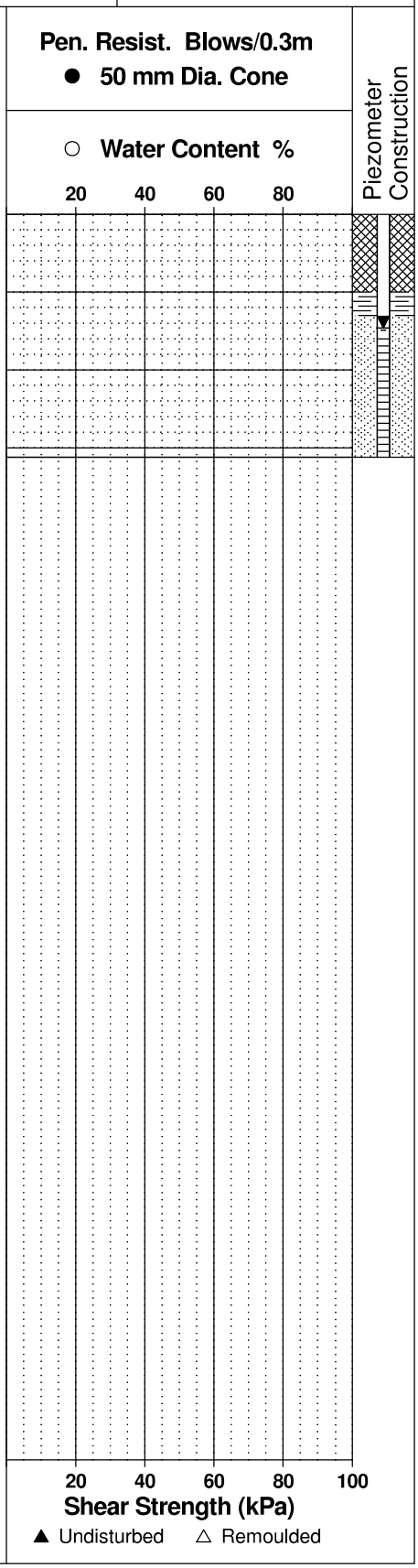
FILE NO. PG3130

REMARKS

HOLE NO. BH 8-18

BORINGS BY CME 55 Power Auger **DATE** June 13, 2018

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	88.80
Topsoil and organics with brown silty clay		AU	1				
0.10							
		SS	2	88	9	1	87.80
Very stiff to stiff, brown **SILTY CLAY**		SS	3	79	6	2	86.80
- firm by 2.2m depth		SS	4	17	1		
3.12		SS	5	0	50+	3	85.80
End of Borehole							
Practical refusal to augering at 3.12m depth							
(GWL @ 1.46m - July 20, 2018)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community (EUC) Mixed-Use CDP
Mer Bleue Road, Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Limited.

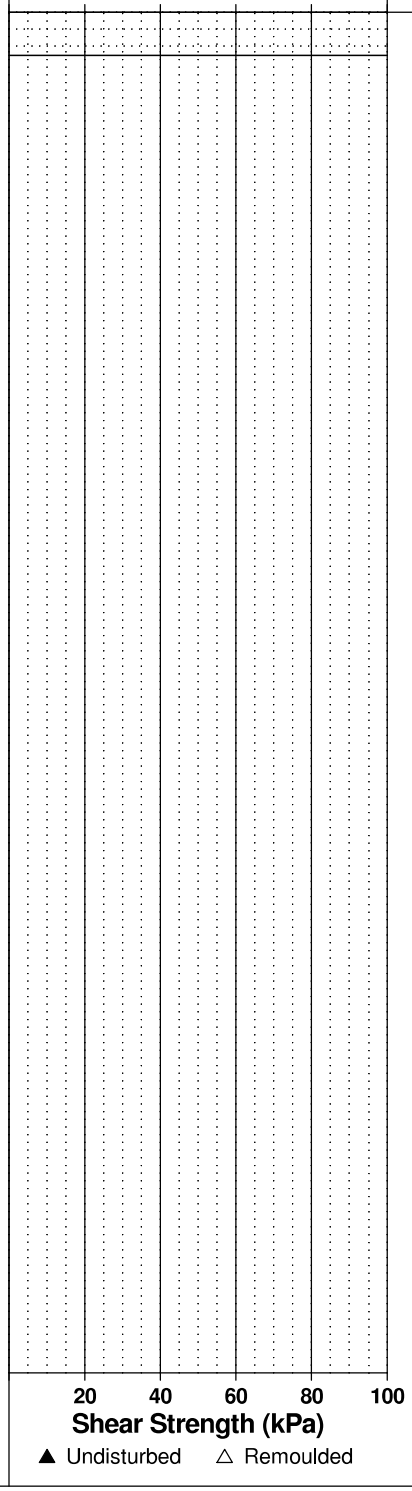
FILE NO. PG3130

REMARKS

HOLE NO. BH 9-18

BORINGS BY CME 55 Power Auger **DATE** June 13, 2018

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
Topsoil & organics with brown silty clay 0.15		AU	1			0	89.56		
Brown **SILTY CLAY** 0.51									
End of Borehole									
Practical refusal to augering at 0.51m depth									
(BH dry upon completion)									



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community (EUC) Mixed-Use CDP
Mer Bleue Road, Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Limited.

FILE NO. PG3130

REMARKS

HOLE NO. BH10-18

BORINGS BY CME 55 Power Auger **DATE** June 13, 2018

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	88.65
Brown **SILTY CLAY** wiht sand, some organics & topsoil 0.18		AU	1				
		SS	2	79	8	1	87.65
Brown **SILTY CLAY**							
2.13		SS	3	88	5	2	86.65
End of Borehole							
Practical refusal to augering at 2.13m depth							
(GWL @ 1.45m - July 20, 2018)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %
20 40 60 80

Piezometer Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community (EUC) Mixed-Use CDP
Mer Bleue Road, Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Limited.

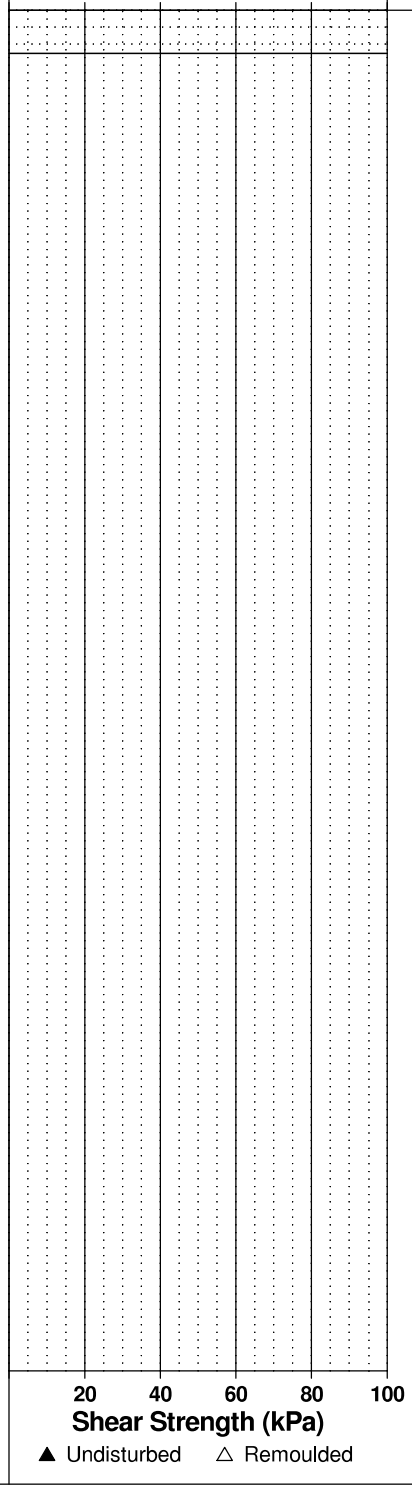
FILE NO. PG3130

REMARKS

HOLE NO. BH11-18

BORINGS BY CME 55 Power Auger **DATE** June 13, 2018

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
Topsoil & organics with brown silty clay 0.10		AU	1			0	89.38		
Brown **SILTY CLAY** 0.51									
End of Borehole									
Practical refusal to augering at 0.51m depth									
(BH dry upon completion)									



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community (EUC) Mixed-Use CDP
Mer Bleue Road, Ottawa, Ontario

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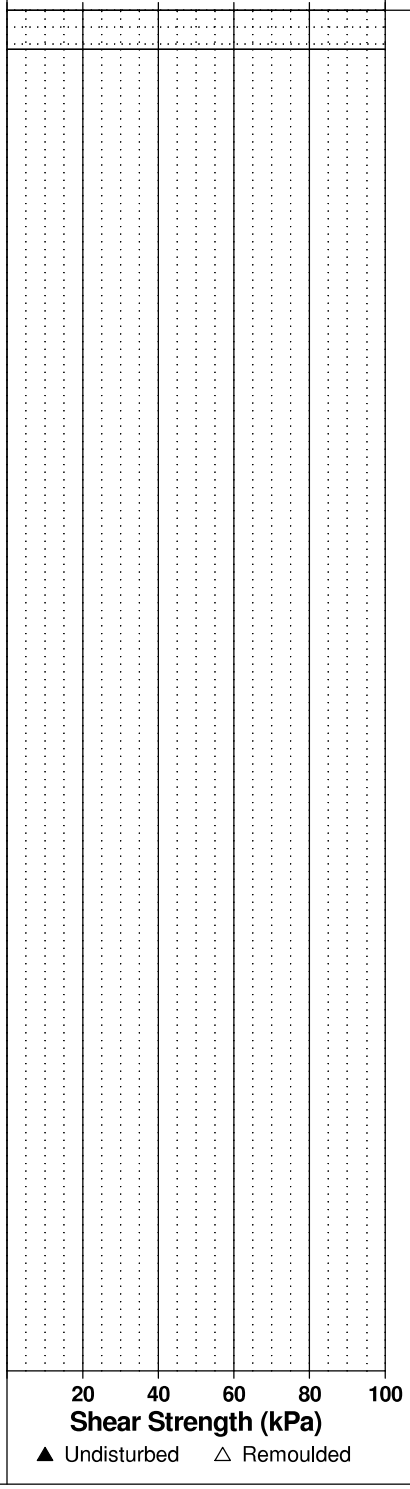
FILE NO. PG3130

REMARKS

HOLE NO. BH12-18

BORINGS BY CME 55 Power Auger **DATE** June 13, 2018

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	90.29		
Brown **SILTY SAND,** some topsoil & organics		AU	1						
0.13 / 0.46									
Brown **SILTY SAND,** some gravel, occ. cobbles									
End of Borehole									
Practical refusal to augering at 0.46m depth									
(BH dry upon completion)									



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community (EUC) Mixed-Use CDP
Mer Bleue Road, Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Limited.

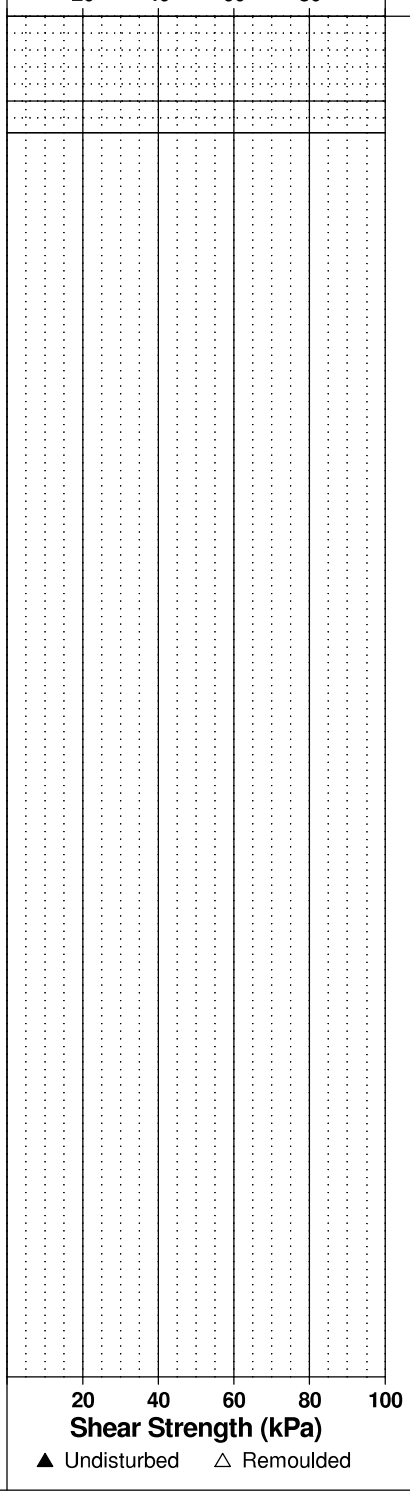
FILE NO. PG3130

REMARKS

HOLE NO. BH13-18

BORINGS BY CME 55 Power Auger **DATE** June 13, 2018

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
Brown **SILTY CLAY** with organics, some topsoil 0.08		AU	1			0	90.12		
Very stiff, brown **SILTY CLAY** 1.37		SS	2	83	13	1	89.12		
End of Borehole									
Practical refusal to augering at 1.37m depth									
(BH dry upon completion)									



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community (EUC) Mixed-Use CDP
Mer Bleue Road, Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Limited.

FILE NO. PG3130

REMARKS

HOLE NO. BH14-18

BORINGS BY CME 55 Power Auger **DATE** June 13, 2018

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	89.27
Brown **SILTY CLAY** with organics, some topsoil 0.18		AU	1				
		SS	2	75	13	1	88.27
Very stiff, brown **SILTY CLAY**		SS	3	88	5		
2.16						2	87.27
End of Borehole							
Practical refusal to augering at 2.16m depth							
(GWL @ 1.53m - July 20, 2018)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %
20 40 60 80

Piezometer Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

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154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community (EUC) Mixed-Use CDP
Mer Bleue Road, Ottawa, Ontario

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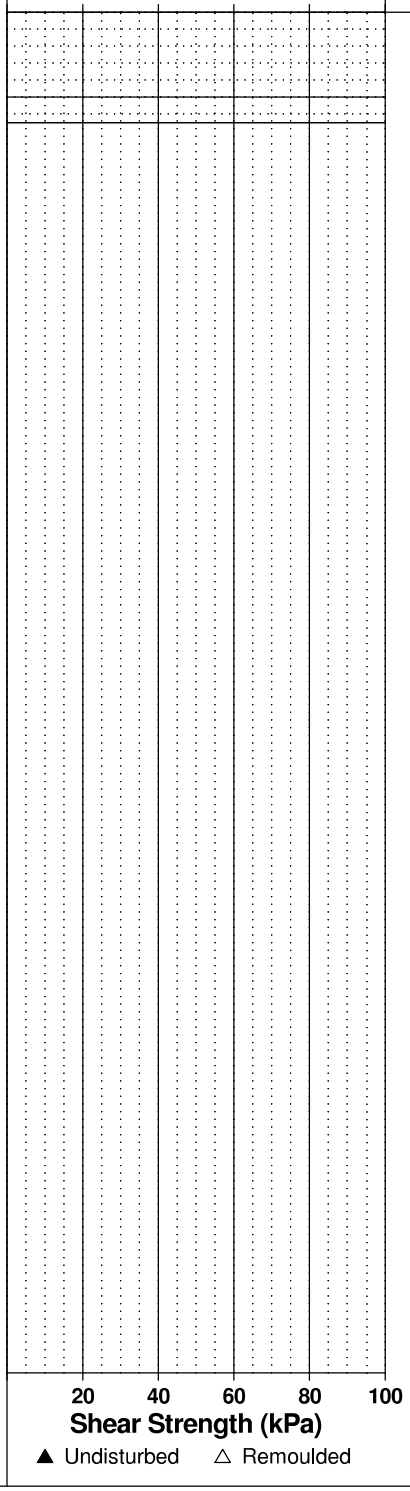
FILE NO. PG3130

REMARKS

HOLE NO. BH15-18

BORINGS BY CME 55 Power Auger **DATE** June 13, 2018

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
Brown **SILTY CLAY** with organics, some topsoil	0.13	AU	1			0	89.44		
Very stiff, brown **SILTY CLAY**	1.30	SS	2	90	11	1	88.44		
End of Borehole									
Practical refusal to augering at 1.30m depth									
(BH dry upon completion)									



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community (EUC) Mixed-Use CDP
Mer Bleue Road, Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Limited.

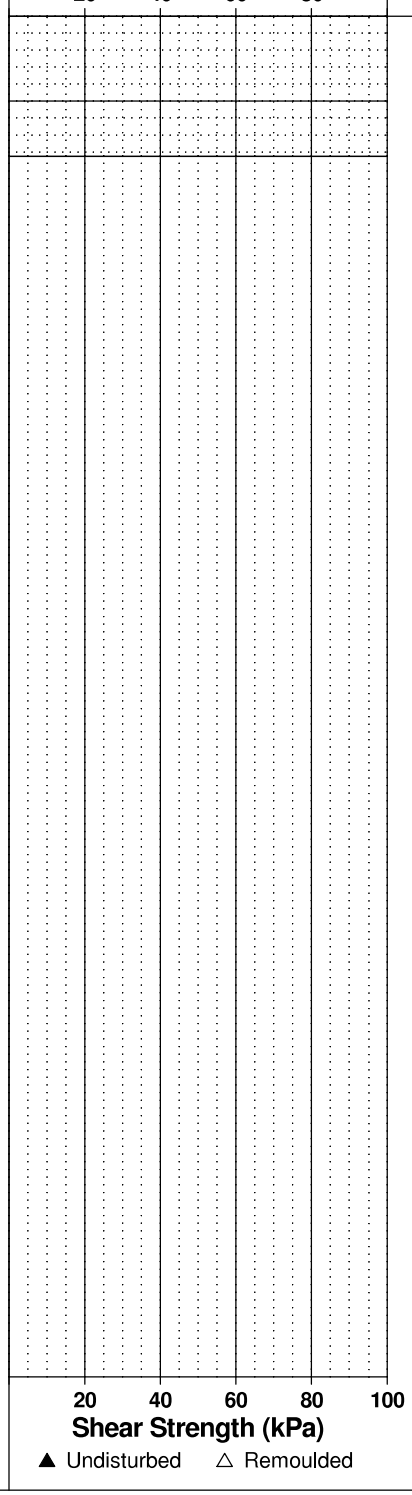
FILE NO. PG3130

REMARKS

HOLE NO. BH16-18

BORINGS BY CME 55 Power Auger **DATE** June 14, 2018

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
Brown **SILTY CLAY,** some organics, trace topsoil		AU	1			0	89.49		
0.10									
Very stiff, brown **SILTY CLAY**		SS	2		11	1	88.49		
1.65		SS	3		50+				
End of Borehole									
Practical refusal to augering at 1.65m depth									
(BH dry upon completion)									



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154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community (EUC) Mixed-Use CDP
Mer Bleue Road, Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Limited.

FILE NO. PG3130

REMARKS

HOLE NO. BH17-18

BORINGS BY CME 55 Power Auger **DATE** June 14, 2018

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
Brown **SILTY CLAY,** some organics, trace topsoil		AU	1			0	88.88		
0.10									
Very stiff, brown **SILTY CLAY**		SS	2	75	9	1	87.88		
- trace sand by 1.7m depth									
1.93		SS	3	88	7				
End of Borehole									
Practical refusal to augering at 1.93m depth									
(GWL @ 1.66m - July 20, 2018)									

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %
20 40 60 80

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

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154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community (EUC) Mixed-Use CDP
Mer Bleue Road, Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Limited.

FILE NO. PG3130

REMARKS

HOLE NO. BH18-18

BORINGS BY CME 55 Power Auger **DATE** June 14, 2018

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	88.82
Topsoil & organics, some silty clay 0.18		AU	1				
		SS	2	71	10	1	87.82
Very stiff, brown **SILTY CLAY**		SS	3	83	9		
2.74		SS	4	100	50+	2	86.82
End of Borehole							
Practical refusal to augering at 2.74m depth							
(GWL @ 1.57m - July 20, 2018)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %
20 40 60 80

Piezometer Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

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154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community (EUC) Mixed-Use CDP
Mer Bleue Road, Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Limited.

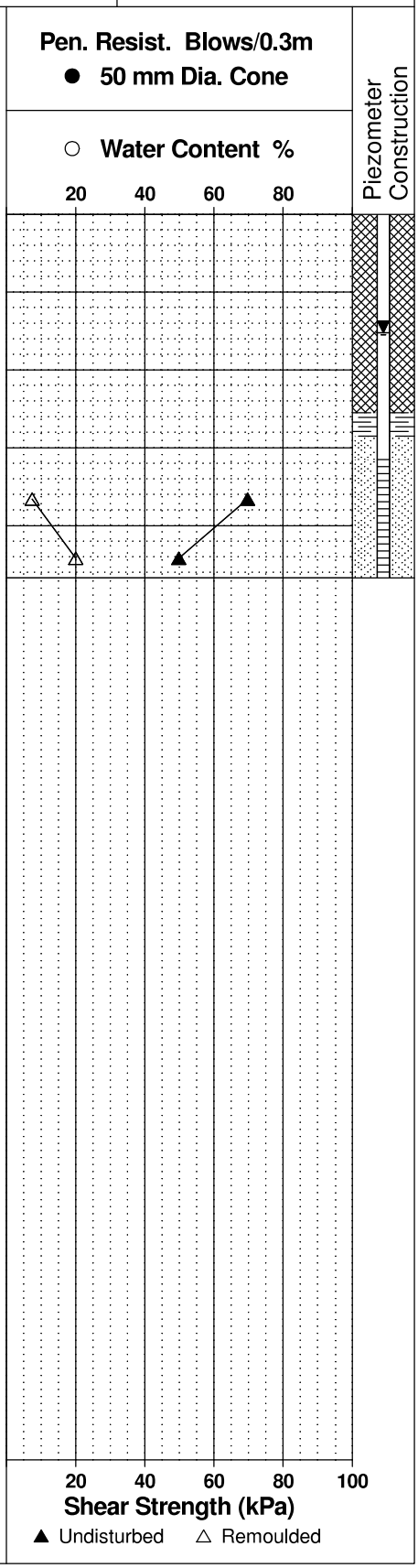
FILE NO. PG3130

REMARKS

HOLE NO. BH19-18

BORINGS BY CME 55 Power Auger **DATE** June 14, 2018

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	88.22
Brown **SILTY CLAY,** some organics, trace topsoil		AU	1				
0.10							
		SS	2	88	9	1	87.22
		SS	3	38	10	2	86.22
Very stiff to stiff, brown **SILTY CLAY**							
		SS	4	46	4	3	85.22
- stiff to firm and grey by 3.8m depth						4	84.22
4.67							
End of Borehole							
Practical refusal to augering at 4.67m depth							
(GWL @ 1.52m - July 20, 2018)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community (EUC) Mixed-Use CDP
Mer Bleue Road, Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Limited.

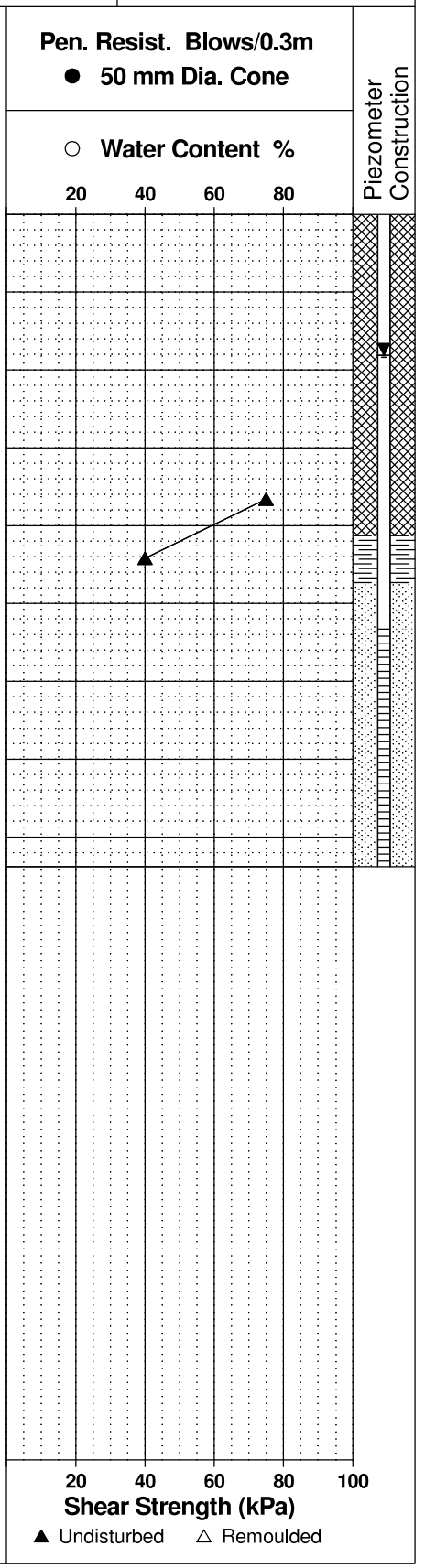
FILE NO. PG3130

REMARKS

HOLE NO. BH20-18

BORINGS BY CME 55 Power Auger **DATE** June 14, 2018

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	88.30
Brown **SILTY CLAY** with organics, trace topsoil 0.18		AU	1				
		SS	2	83	7	1	87.30
		SS	3	92	9	2	86.30
Very stiff to stiff, brown **SILTY CLAY**		SS	4	96	4		
						3	85.30
- stiff to firm and grey by 3.8m depth						4	84.30
		SS	5	96	W	5	83.30
		SS	6	96	1		
6.10						6	82.30
		SS	7		6		
GLACIAL TILL: Grey silty clay, some sand, trace gravel, cobbles, boulders						7	81.30
8.38						8	80.30
End of Borehole							
Practical refusal to augering at 8.38m depth							
(GWL @ 1.81m - July 20, 2018)							



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154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community (EUC) Mixed-Use CDP
Mer Bleue Road, Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Limited.

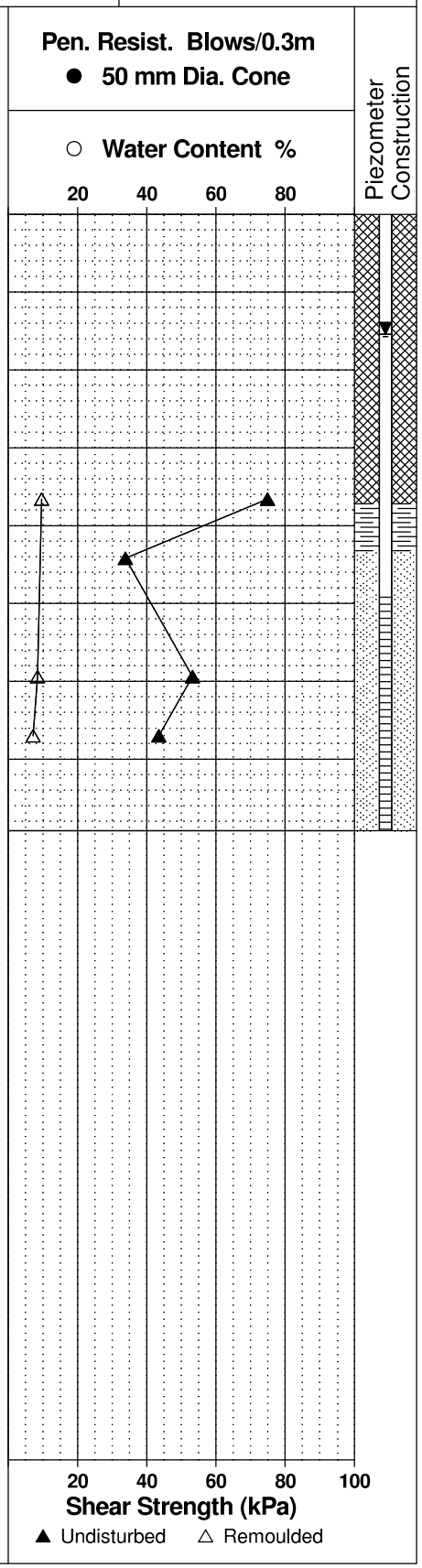
FILE NO. PG3130

REMARKS

HOLE NO. BH21-18

BORINGS BY CME 55 Power Auger **DATE** June 14, 2018

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	87.50
Brown **SILTY CLAY,** some organics, trace topsoil		AU	1				
0.10							
		SS	2	83	10	1	86.50
		SS	3	88	7	2	85.50
Very stiff to stiff, brown **SILTY CLAY**		SS	4		2		
						3	84.50
- firm and grey by 3.7m depth						4	83.50
		TW	5	83		5	82.50
						6	81.50
		SS	6	96	W	7	80.50
7.92		SS	7		50+		
End of Borehole							
Practical refusal to augering at 7.92m depth							
(GWL @ 1.54m - July 20, 2018)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community (EUC) Mixed-Use CDP
Mer Bleue Road, Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Limited.

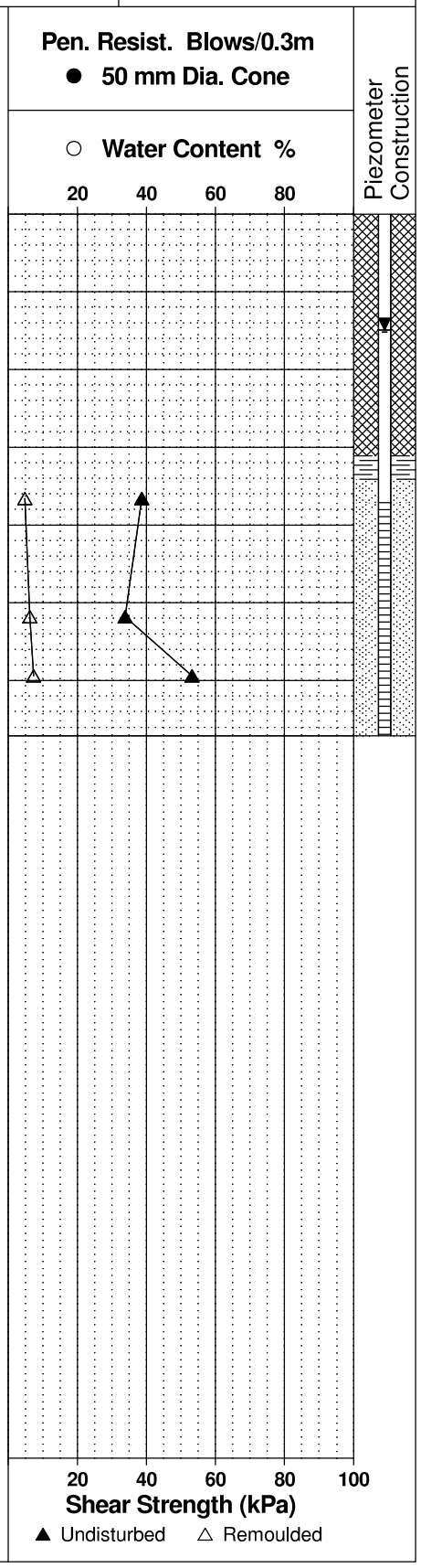
FILE NO. PG3130

REMARKS

HOLE NO. BH22-18

BORINGS BY CME 55 Power Auger **DATE** June 15, 2018

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	87.72
Brown **SILTY CLAY** with organics, trace topsoil 0.08		AU	1				
		SS	2	79	5	1	86.72
Very stiff to stiff, brown **SILTY CLAY**		SS	3	88	6	2	85.72
		SS	4	46	3		
- firm and grey by 3.0m depth						3	84.72
		TW	5	100		4	83.72
						5	82.72
6.20						6	81.72
GLACIAL TILL: Stiff, grey silty clay, trace sand and gravel 6.71		SS	6		11		
End of Borehole							
Practical refusal to augering at 6.71m depth							
(GWL @ 1.49m - July 20, 2018)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community (EUC) Mixed-Use CDP
Mer Bleue Road, Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Limited.

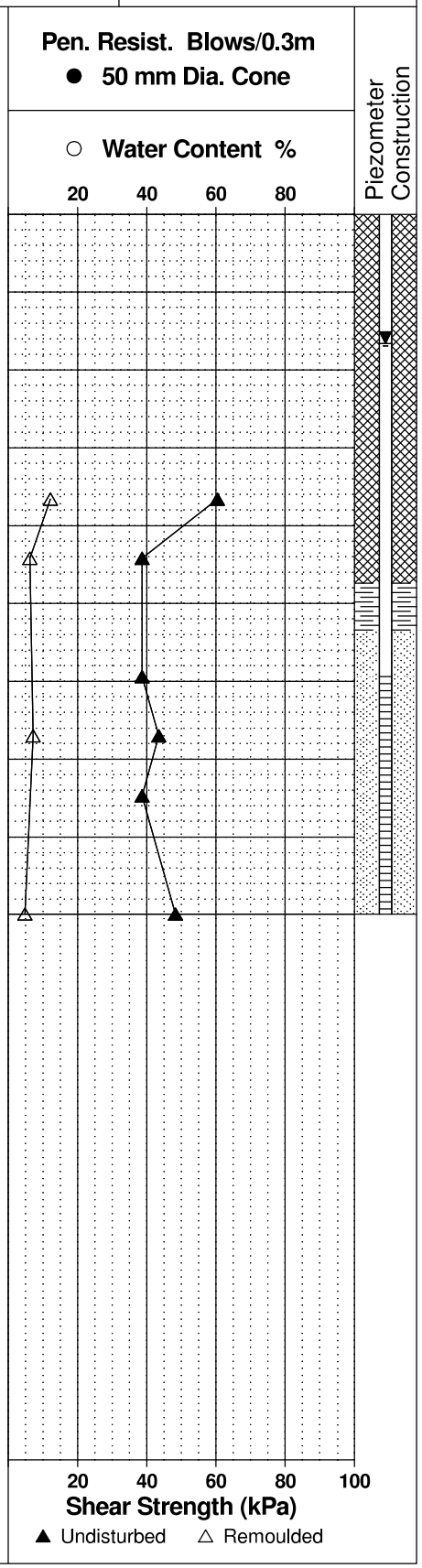
FILE NO. PG3130

REMARKS

HOLE NO. BH23-18

BORINGS BY CME 55 Power Auger **DATE** June 15, 2018

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	87.27
Brown **SILTY CLAY** with organics and topsoil 0.18		AU	1				
		SS	3	58	7	1	86.27
		SS	2	83	6		
		SS	4	96	3	2	85.27
Very stiff to stiff, brown **SILTY CLAY**						3	84.27
- firm and grey by 3.7m depth						4	83.27
		TW	5	98		5	82.27
						6	81.27
						7	80.27
		SS	6	100	W	8	79.27
8.99 End of Borehole							
(GWL @ 1.66m - July 20, 2018)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community (EUC) Mixed-Use CDP
Mer Bleue Road, Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Limited.

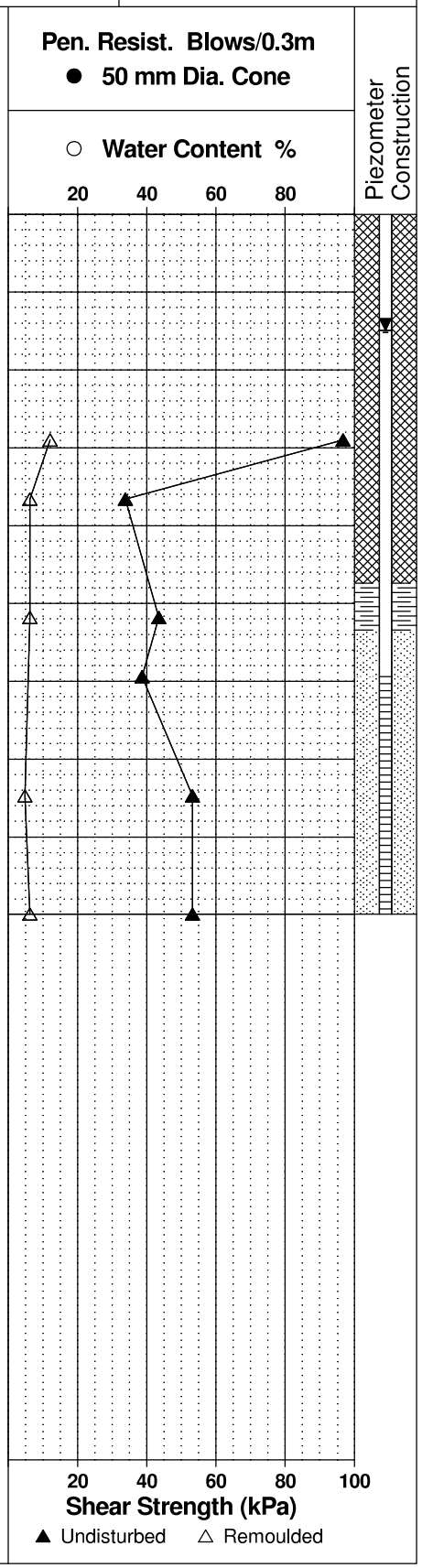
FILE NO. PG3130

REMARKS

HOLE NO. BH24-18

BORINGS BY CME 55 Power Auger **DATE** June 15, 2018

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	87.12
Brown **SILTY CLAY** with organics, trace topsoil 0.10		AU	1				
		SS	2	88	6	1	86.12
		SS	3	96	7	2	85.12
Very stiff to stiff, brown **SILTY CLAY**							
- firm and grey by 3.0m depth						3	84.12
		TW	4	100		4	83.12
						5	82.12
						6	81.12
		SS	5	96	W		
						7	80.12
		TW	6	96		8	79.12
8.99							
End of Borehole							
(GWL @ 1.49m - July 20, 2018)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community (EUC) Mixed-Use CDP
Mer Bleue Road, Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Limited.

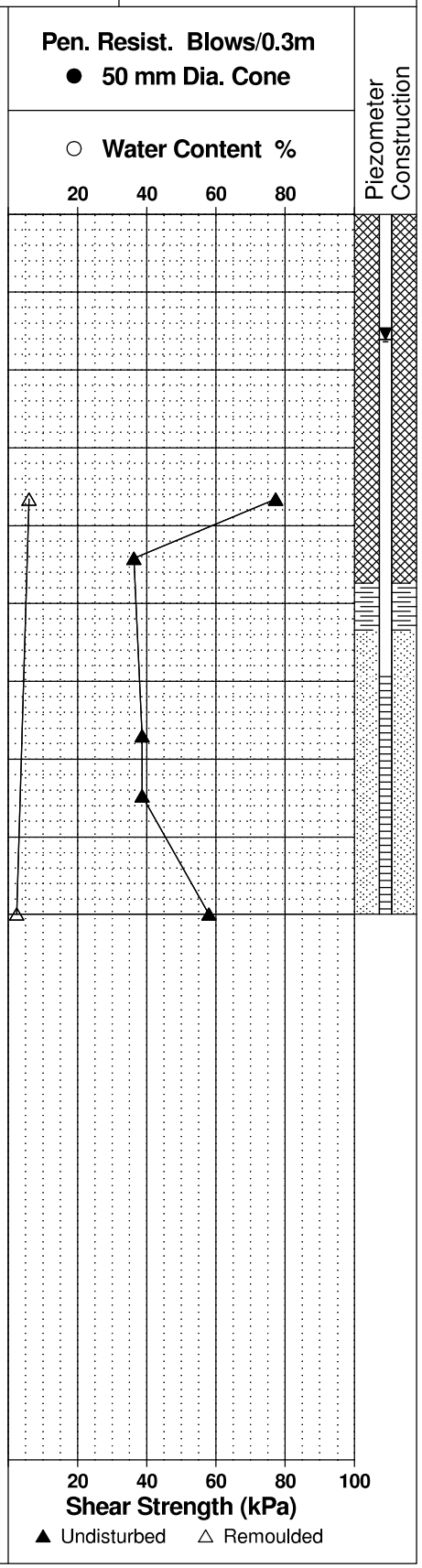
FILE NO. PG3130

REMARKS

HOLE NO. BH25-18

BORINGS BY CME 55 Power Auger **DATE** June 18, 2018

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	87.05
Brown **SILTY CLAY** with organics, trace topsoil (0.10)		AU	1				
		SS	2	79	8	1	86.05
		SS	3	92	10	2	85.05
		SS	4	92	3	3	84.05
Very stiff to stiff, brown **SILTY CLAY**							
- firm and grey by 3.7m depth						4	83.05
		TW	5	0		5	82.05
		TW	6	98		6	81.05
						7	80.05
		SS	7	92	W	8	79.05
(8.99) End of Borehole							
(GWL @ 1.61m - July 20, 2018)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community (EUC) Mixed-Use CDP
Mer Bleue Road, Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Limited.

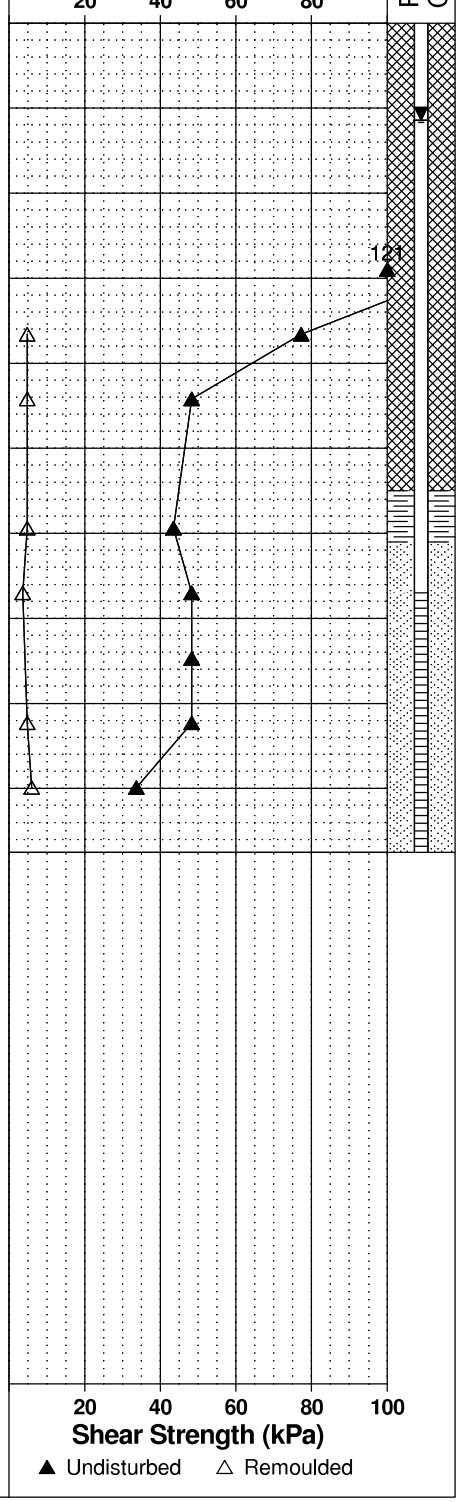
FILE NO. PG3130

REMARKS

HOLE NO. BH26-18

BORINGS BY CME 55 Power Auger **DATE** June 19, 2018

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	86.73
Brown **SILTY CLAY** with organics, some topsoil 0.10		AU	1				
		SS	2	83	6	1	85.73
		SS	3	96	6	2	84.73
Very stiff to stiff, brown **SILTY CLAY**						3	83.73
- firm and grey by 3.7m depth						4	82.73
		TW	4	92		5	81.73
						6	80.73
						7	79.73
						8	78.73
9.75		SS	5	29	W	9	77.73
End of Borehole							
(GWL @ 1.14m - July 20, 2018)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community (EUC) Mixed-Use CDP
Mer Bleue Road, Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Limited.

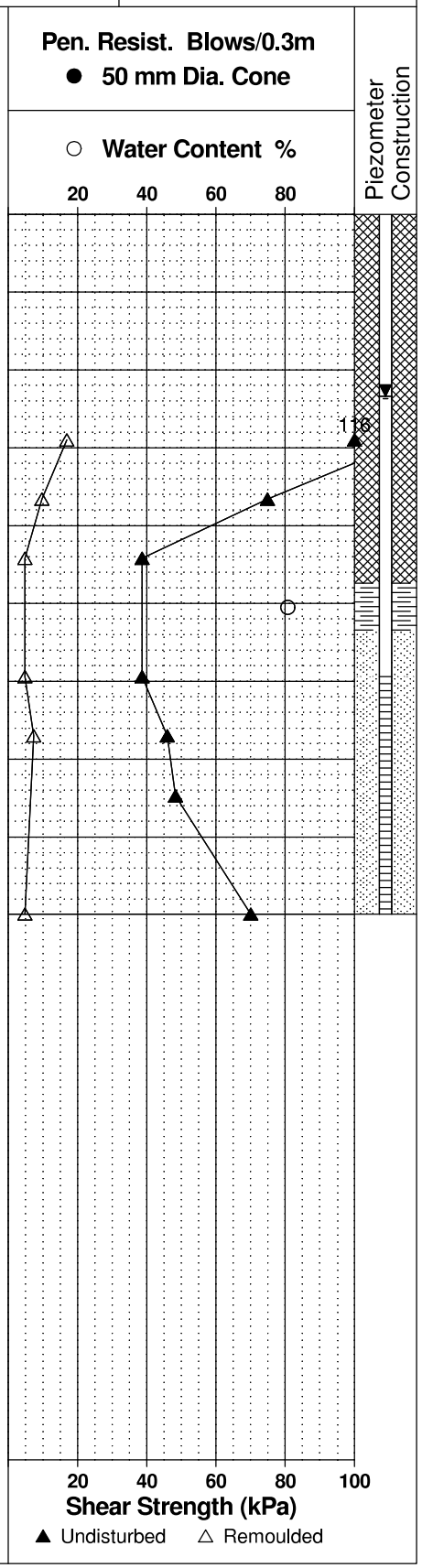
FILE NO. PG3130

REMARKS

HOLE NO. BH27-18

BORINGS BY CME 55 Power Auger **DATE** June 19, 2018

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	86.69
Brown **SILTY CLAY** with organics, trace topsoil 0.43		AU	1				
		SS	2	92	7	1	85.69
		SS	3	83	7	2	84.69
Very stiff to stiff, brown **SILTY CLAY**						3	83.69
- firm and grey by 3.7m depth						4	82.69
		TW	4	92		5	81.69
						6	80.69
						7	79.69
		SS	5	0	W	8	78.69
8.99 End of Borehole							
(GWL @ 2.34m - July 20, 2018)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community (EUC) Mixed-Use CDP
Mer Bleue Road, Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Limited.

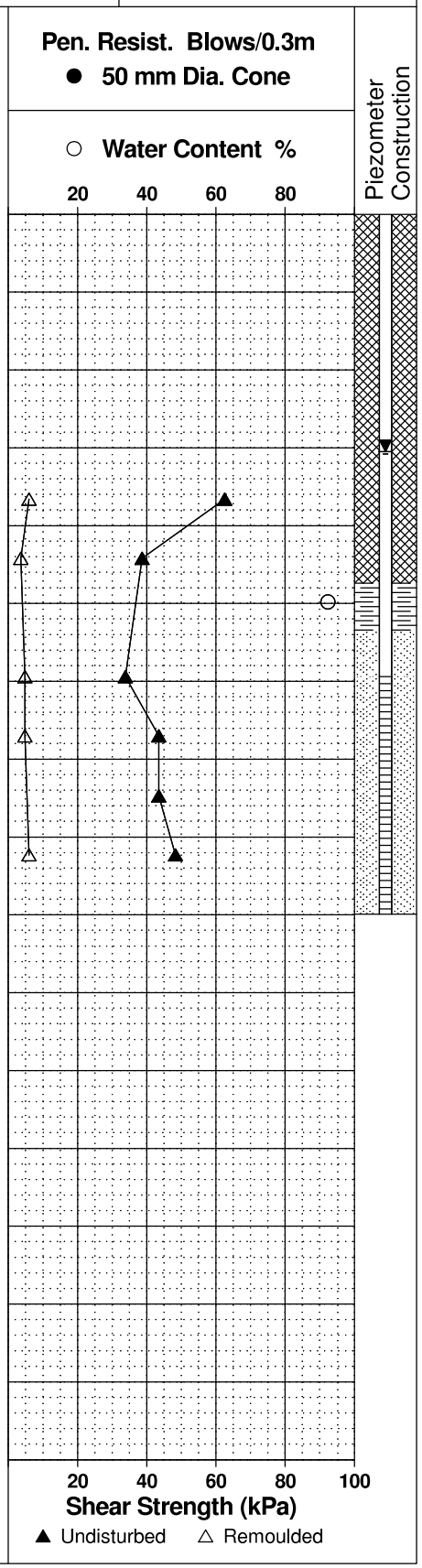
FILE NO. PG3130

REMARKS

HOLE NO. BH28-18

BORINGS BY CME 55 Power Auger **DATE** June 19, 2018

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	86.80
Brown **SILTY CLAY** with organics, trace topsoil 0.18		AU	1				
		SS	2	92	6	1	85.80
		SS	3	83	8	2	84.80
		SS	4	75	2	3	83.80
Very stiff to stiff, brown **SILTY CLAY**							
- firm and grey by 3.7m depth						4	82.80
		TW	5	100		5	81.80
						6	80.80
						7	79.80
						8	78.80
8.99		SS	6	92	W	9	77.80
Dynamic Cone Penetration Test commenced at 8.99m depth. Cone pushed to 21.6m depth.						10	76.80
						11	75.80
						12	74.80
						13	73.80
						14	72.80
						15	71.80
						16	70.80



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154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community (EUC) Mixed-Use CDP
Mer Bleue Road, Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Limited.

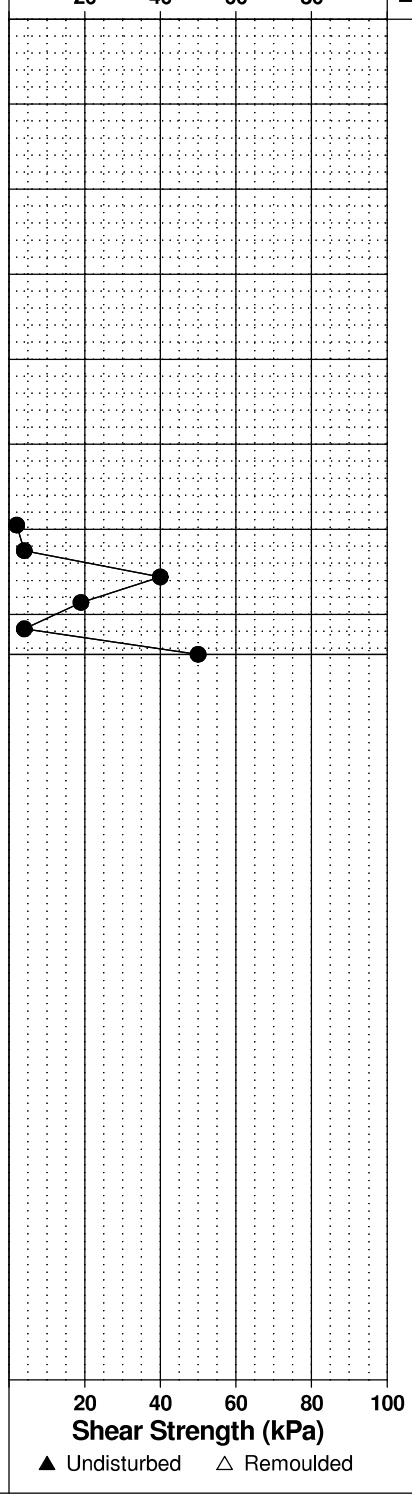
FILE NO. PG3130

REMARKS

HOLE NO. BH28-18

BORINGS BY CME 55 Power Auger **DATE** June 19, 2018

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
						16	70.80		
						17	69.80		
						18	68.80		
						19	67.80		
						20	66.80		
						21	65.80		
						22	64.80		
						23	63.80		
23.47									
End of Borehole Practical DCPT refusal at 23.47m depth. (GWL @ 3.05m - July 20, 2018)									



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community (EUC) Mixed-Use CDP
Mer Bleue Road, Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Limited.

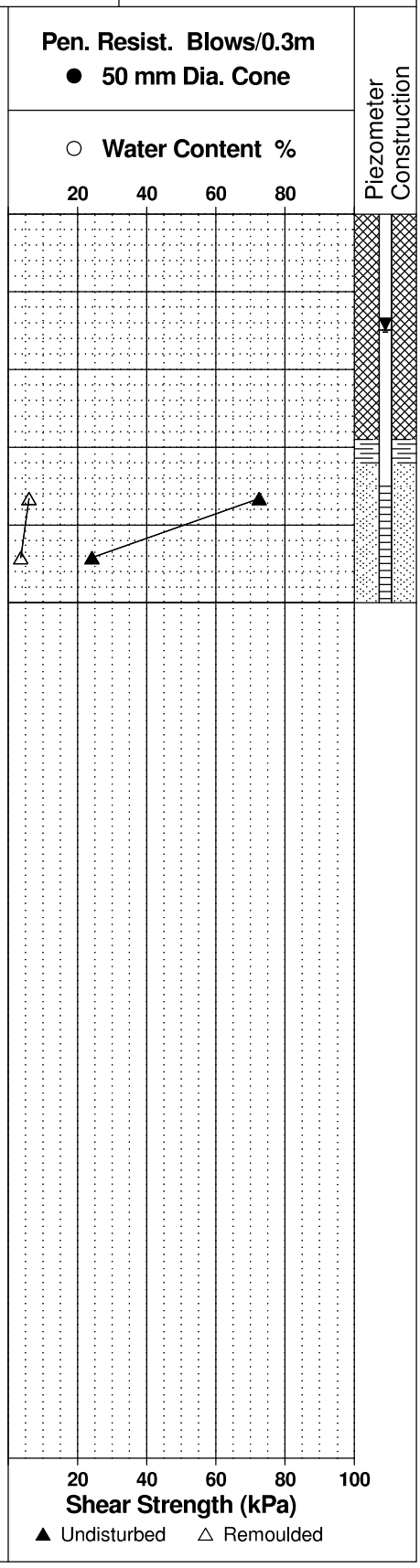
FILE NO. PG3130

REMARKS

HOLE NO. BH29-18

BORINGS BY CME 55 Power Auger **DATE** June 20, 2018

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	87.90
Brown **SILTY CLAY** with organics, trace topsoil 0.15		AU	1				
		SS	2	83	14	1	86.90
		SS	3	96	7	2	85.90
Very stiff to stiff, brown **SILTY CLAY**		SS	4	92	3		
- firm and grey by 3.7m depth						3	84.90
5.00		TW	5	29		4	83.90
End of Borehole						5	82.90
Practical refusal to augering at 5.00m depth							
(GWL @ 1.49m - July 20, 2018)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community (EUC) Mixed-Use CDP
Mer Bleue Road, Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Limited.

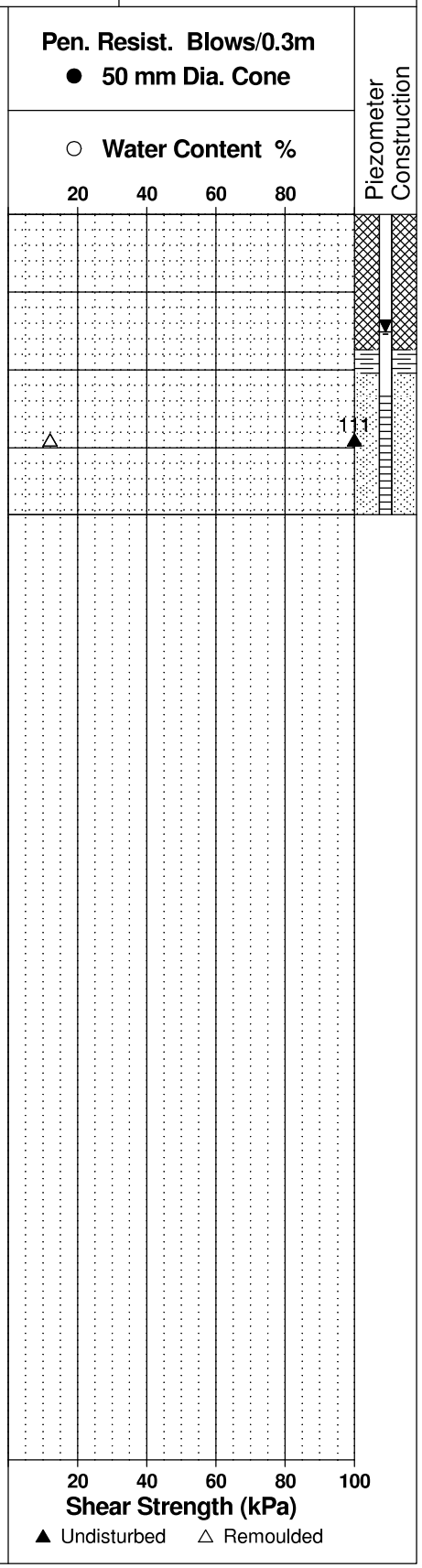
FILE NO. PG3130

REMARKS

HOLE NO. BH30-18

BORINGS BY CME 55 Power Auger **DATE** June 20, 2018

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	88.40
Topsoil & organics, trace silty clay 0.18		AU	1				
Very stiff to stiff, brown **SILTY CLAY**		SS	2	83	7	1	87.40
		SS	3	88	10	2	86.40
- stiff and grey by 3.0m depth							
		SS	4	96	3	3	85.40
3.86		SS	5	0	50+		
End of Borehole							
Practical refusal to augering at 3.86m depth							
(GWL @ 1.51m - July 20, 2018)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community (EUC) Mixed-Use CDP
Mer Bleue Road, Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Limited.

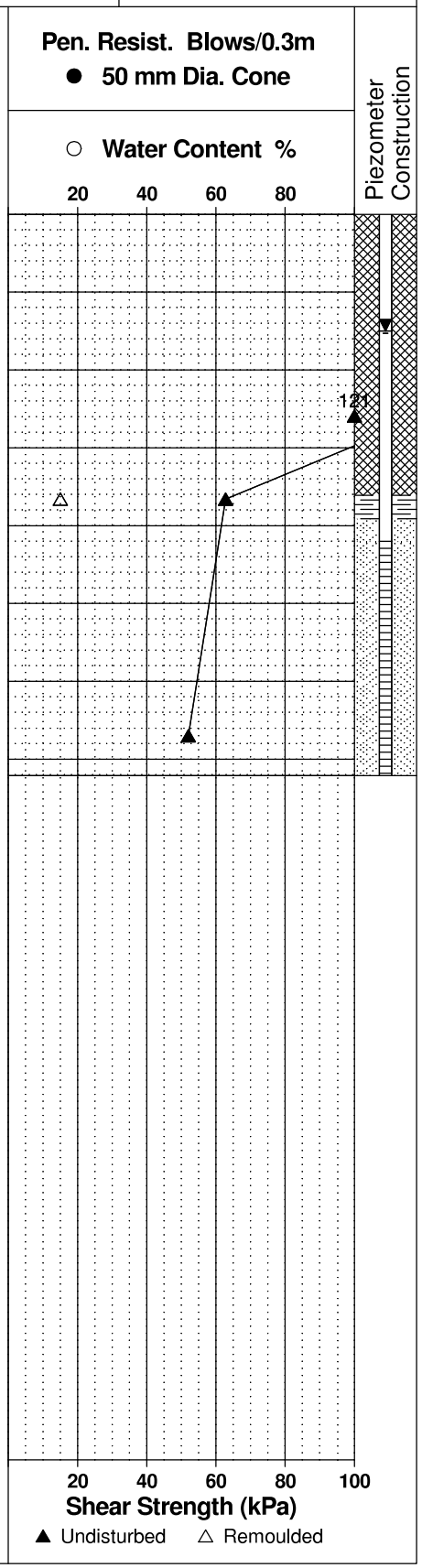
FILE NO. PG3130

REMARKS

HOLE NO. BH31-18

BORINGS BY CME 55 Power Auger **DATE** June 20, 2018

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	88.12
Brown **SILTY CLAY** with organics &topsoil		AU	1				
		SS	2	83	10	1	87.12
		SS	3	96	9	2	86.12
Very stiff to stiff, brown **SILTY CLAY**							
- firm and grey by 3.7m depth						3	85.12
		SS	4	0	W	4	84.12
		SS	5	96	1	5	83.12
		SS	6	100	W		
6.02						6	82.12
GLACIAL TILL: Stiff, grey silty clay, trace sand and gravel							
7.21						7	81.12
End of Borehole							
Practical refusal to augering at 7.21m depth							
(GWL @ 1.50m - July 20, 2018)							



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154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community (EUC) Mixed-Use CDP
Mer Bleue Road, Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Limited.

FILE NO. PG3130

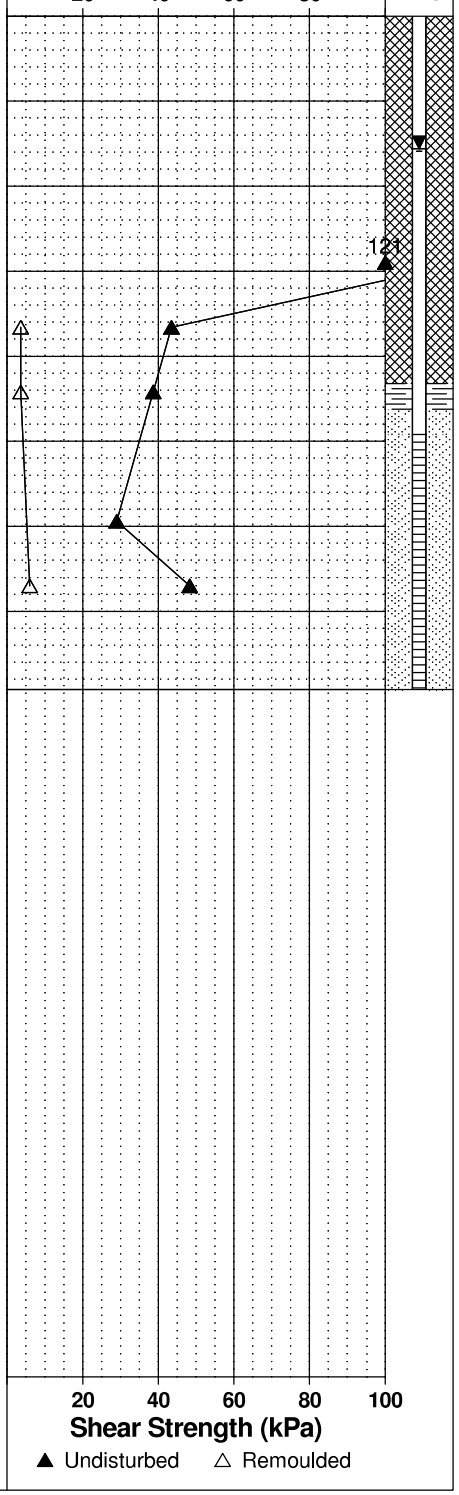
REMARKS

HOLE NO. BH32-18

BORINGS BY CME 55 Power Auger **DATE** June 20, 2018

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	87.85
Topsoil with organics, some silty clay 0.20		AU	1				
		SS	2	54	8	1	86.85
		SS	3	92	9	2	85.85
Very stiff to stiff, brown **SILTY CLAY**						3	84.85
- firm and grey by 3.7m depth						4	83.85
		TW	4	100		5	82.85
6.70						6	81.85
GLACIAL TILL: Grey silty clay, some gravel, cobbles and boulders		SS	5	83	W	7	80.85
7.92		SS	6	100	50+		
End of Borehole							
Practical refusal to augering at 7.92m depth							
(GWL @ 1.56m - July 20, 2018)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %



Piezometer Construction

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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community (EUC) Mixed-Use CDP
Mer Bleue Road, Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Limited.

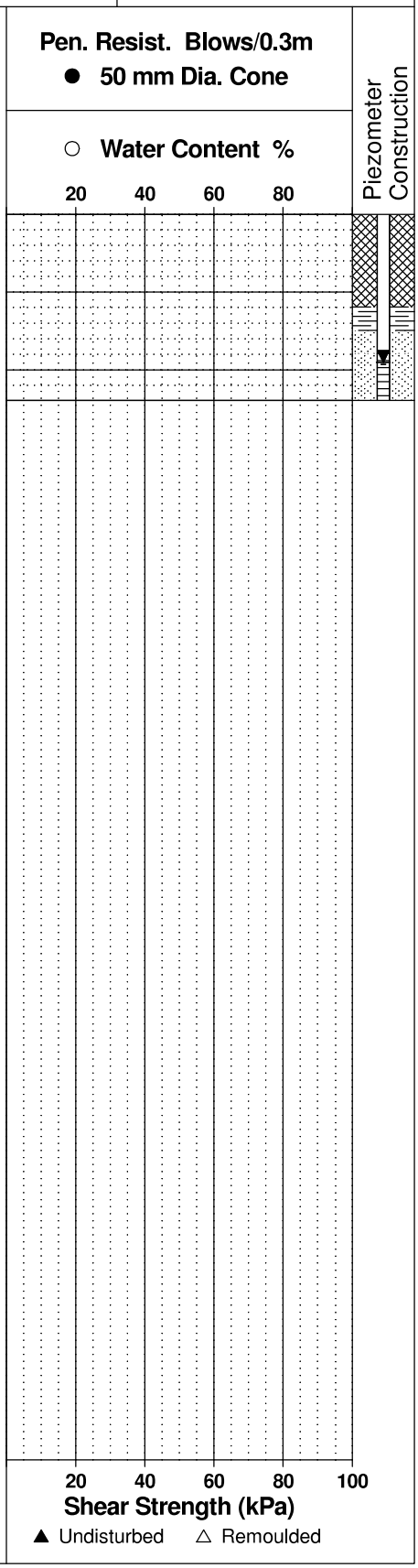
FILE NO. PG3130

REMARKS

HOLE NO. BH33-18

BORINGS BY CME 55 Power Auger **DATE** June 20, 2018

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	88.41
Topsoil & organics 0.30		AU	1				
		SS	2	79	10	1	87.41
Very stiff, brown **SILTY CLAY**		SS	3	96	8		
2.39		SS	4	36	50+	2	86.41
End of Borehole							
Practical refusal to augering at 2.39m depth							
(GWL @ 1.90m - July 20, 2018)							



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154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community (EUC) Mixed-Use CDP
Mer Bleue Road, Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Limited.

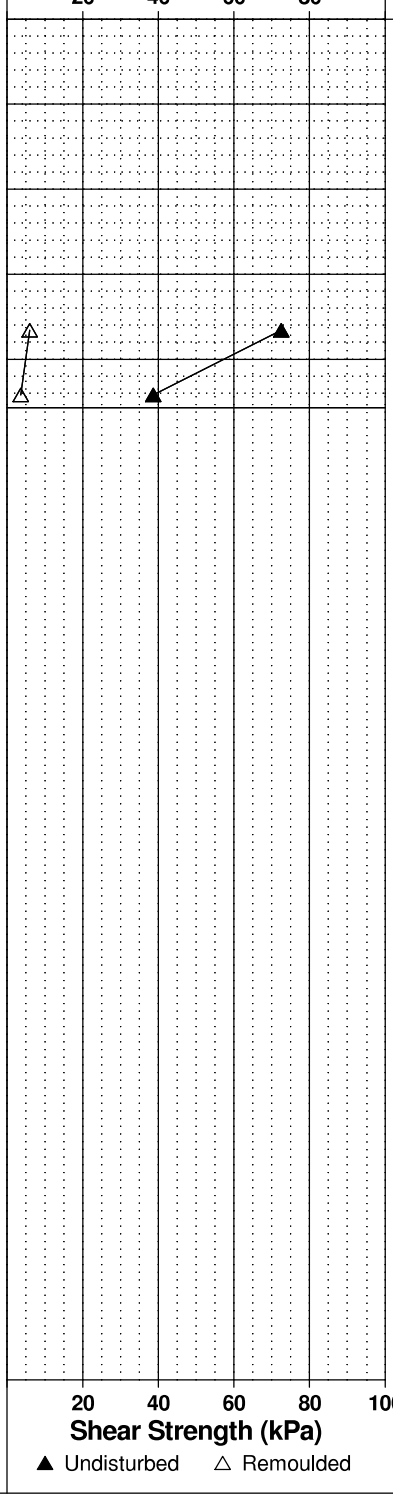
FILE NO. PG3130

REMARKS

HOLE NO. BH34-18

BORINGS BY CME 55 Power Auger **DATE** June 21, 2018

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	88.08		
Brown **SILTY CLAY** with organics & topsoil		AU	1						
		SS	2	83	12	1	87.08		
		SS	3	79	7	2	86.08		
Very stiff to stiff, brown **SILTY CLAY**		SS	4	92	3	3	85.08		
- firm and grey by 3.7m depth						4	84.08		
4.57									
End of Borehole									
Practical refusal to augering at 4.57m depth									
(GWL @ 1.52m - July 20, 2018)									



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community (EUC) Mixed-Use CDP
Mer Bleue Road, Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Limited.

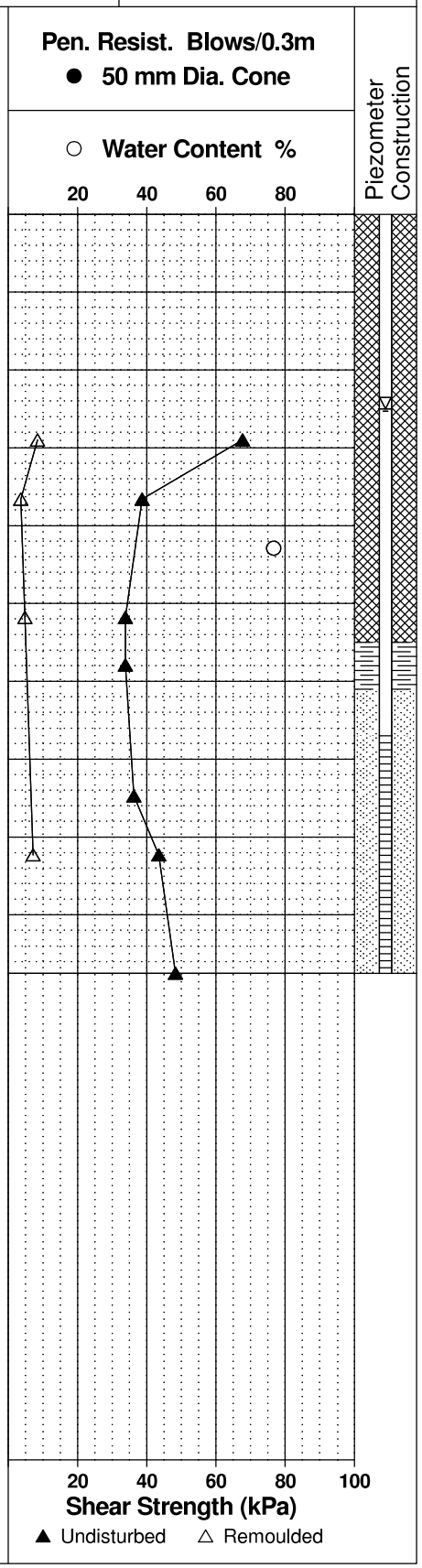
FILE NO. PG3130

REMARKS

HOLE NO. BH35-18

BORINGS BY CME 55 Power Auger **DATE** June 22, 2018

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	87.81
Brown **SILTY CLAY** with organics, some topsoil 0.30		AU	1				
		SS	2	71	10	1	86.81
		SS	3	88	7	2	85.81
Very stiff to stiff, brown **SILTY CLAY**						3	84.81
- firm and grey by 3.0m depth		TW	4	100		4	83.81
						5	82.81
		SS	5	96	W	6	81.81
						7	80.81
		SS	6	96	W	8	79.81
						9	78.81
9.75 End of Borehole							
(Piezometer dry - July 20, 2018)							
(GWL @ 2.5m depth based on field observations)							



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154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community (EUC) Mixed-Use CDP
Mer Bleue Road, Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Limited.

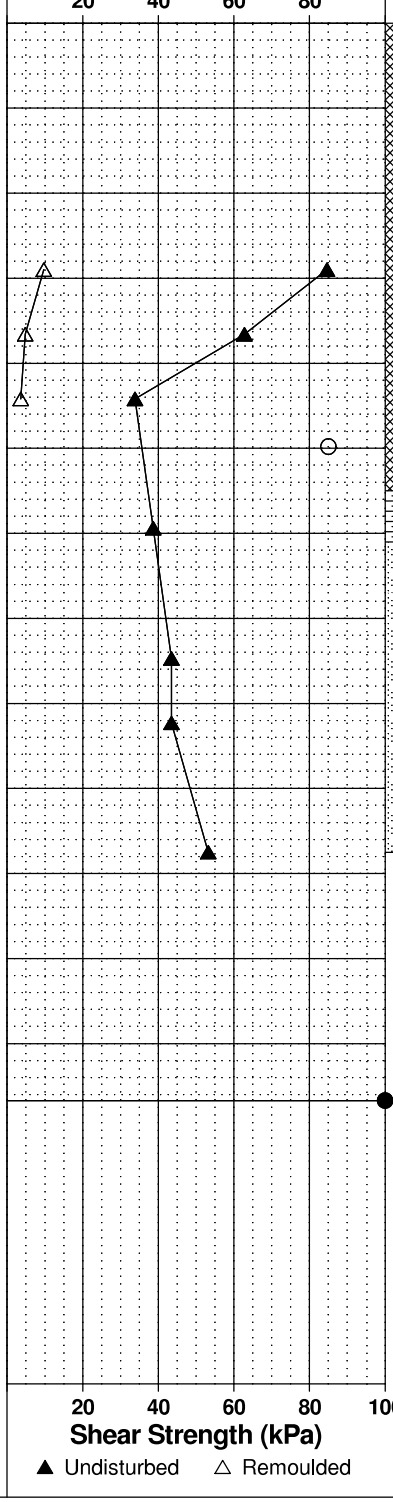
FILE NO. PG3130

REMARKS

HOLE NO. BH36-18

BORINGS BY CME 55 Power Auger **DATE** June 22, 2018

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	87.44
Brown **SILTY CLAY** with organics, some topsoil 0.23		AU	1				
		SS	2	75	9	1	86.44
		SS	3	96	7	2	85.44
Very stiff to stiff, brown **SILTY CLAY**						3	84.44
- firm and grey by 3.7m depth						4	83.44
		TW	4	100		5	82.44
		SS	5	92	W	6	81.44
						7	80.44
						8	79.44
		SS	6	96	W	9	78.44
9.75							
Dynamic Cone Penetration Test commenced at 9.75m depth. Cone pushed to 12.6m depth.						10	77.44
						11	76.44
						12	75.44
12.67							
End of Borehole							
Practical DCPT refusal at 12.67m depth							
(GWL @ 2.83m - July 20, 2018)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community (EUC) Mixed-Use CDP
Mer Bleue Road, Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Limited.

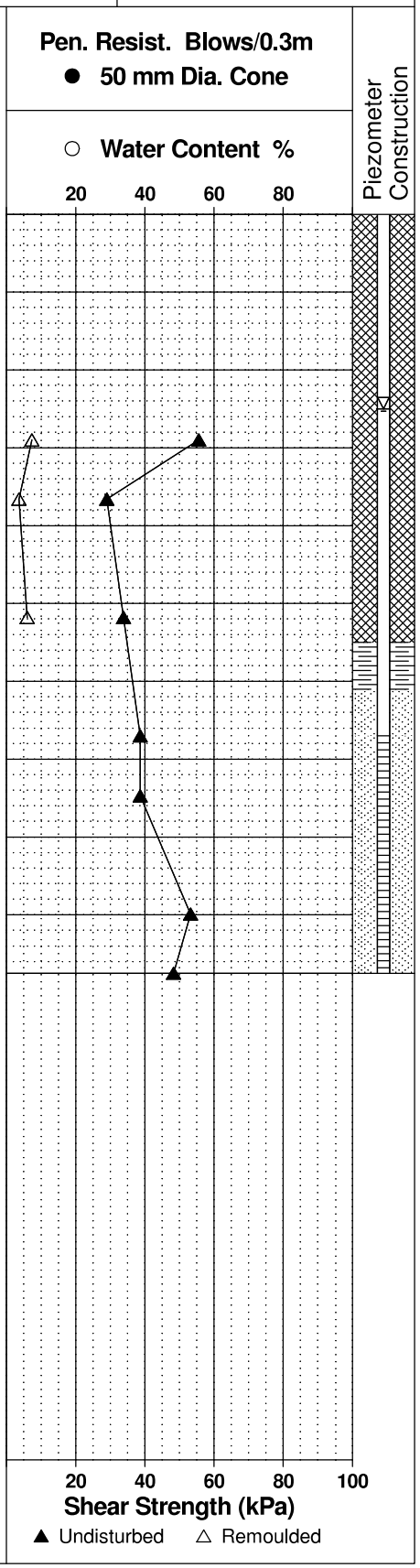
FILE NO. PG3130

REMARKS

HOLE NO. BH37-18

BORINGS BY CME 55 Power Auger **DATE** June 22, 2018

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	87.83
Brown **SILTY CLAY** with organics, some topsoil 0.43		AU	1				
		SS	2	83	7	1	86.83
		SS	3	96	2	2	85.83
Very stiff to stiff, brown **SILTY CLAY**							
- firm and grey by 2.7m depth						3	84.83
		TW	4	100		4	83.83
						5	82.83
		SS	5	96	W	6	81.83
						7	80.83
		SS	6	96	W	8	79.83
						9	78.83
9.75							
End of Borehole							
(Piezometer blocked at 2.78m depth - July 20, 2018)							
(GWL @ 2.5m depth based on field observations)							



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154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community (EUC) Mixed-Use CDP
Mer Bleue Road, Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Limited.

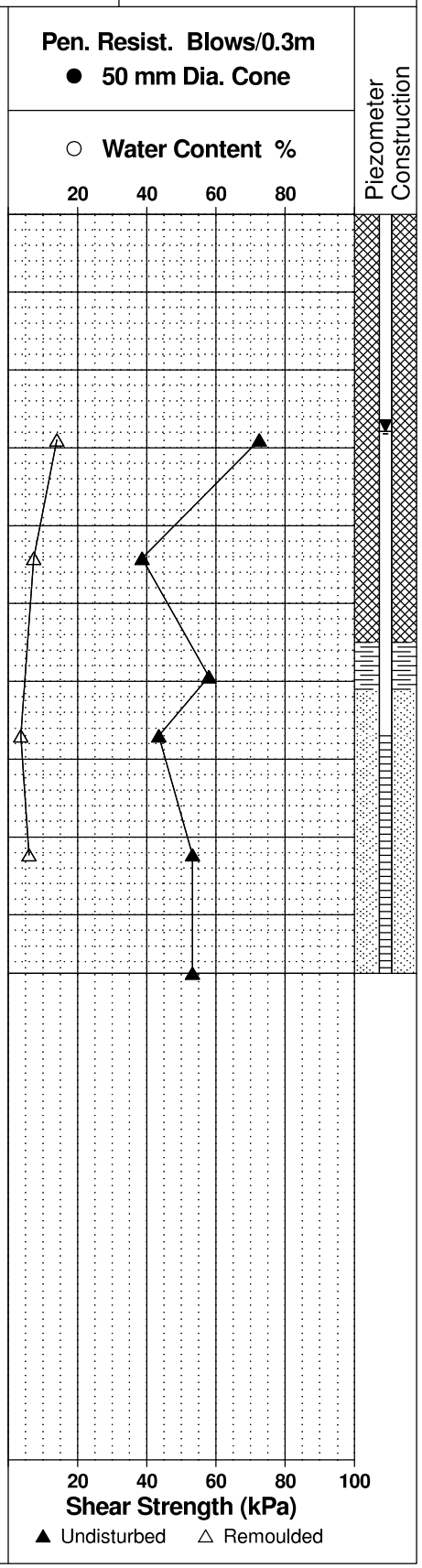
FILE NO. PG3130

REMARKS

HOLE NO. BH38-18

BORINGS BY CME 55 Power Auger **DATE** June 22, 2018

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	87.50
Topsoil & organics, some silty clay 0.30		AU	1				
		SS	2	96	7	1	86.50
		SS	3	96	5	2	85.50
Very stiff to stiff, brown **SILTY CLAY**							
- firm and grey by 3.0m depth		SS	4		W	3	84.50
						4	83.50
		TW	5	100		5	82.50
						6	81.50
		SS	6		W	7	80.50
						8	79.50
		SS	7	96	W	9	78.50
9.75							
End of Borehole							
(GWL @ 2.79m - July 20, 2018)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community (EUC) Mixed-Use CDP
Mer Bleue Road, Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Limited.

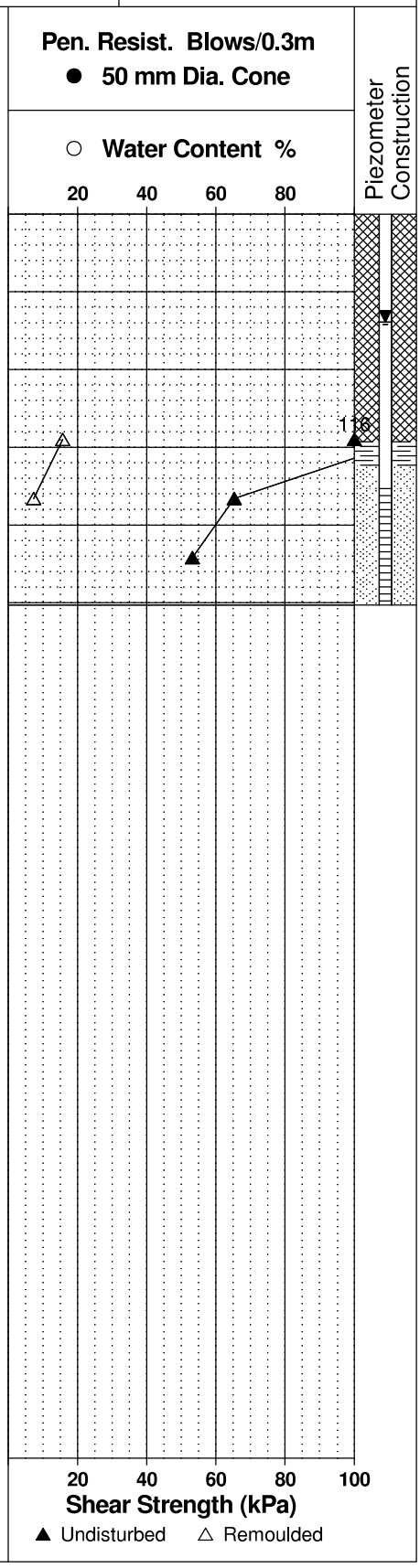
FILE NO. PG3130

REMARKS

HOLE NO. BH39-18

BORINGS BY CME 55 Power Auger **DATE** June 22, 2018

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	88.36
Topsoil & organics, some silty clay 0.30		AU	1				
		SS	2	71	9	1	87.36
		SS	3	88	9	2	86.36
Very stiff to stiff, brown **SILTY CLAY**							
- grey by 3.7m depth						3	85.36
4.50						4	84.36
GLACIAL TILL: Stiff, grey silty clay, trace sand, gravel, occ. cobbles & boulders 5.03		SS	4	78	50+	5	83.36
End of Borehole							
Practical refusal to augering at 5.03m depth							
(GWL @ 1.39m - July 20, 2018)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community (EUC) Mixed-Use CDP
Mer Bleue Road, Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Limited.

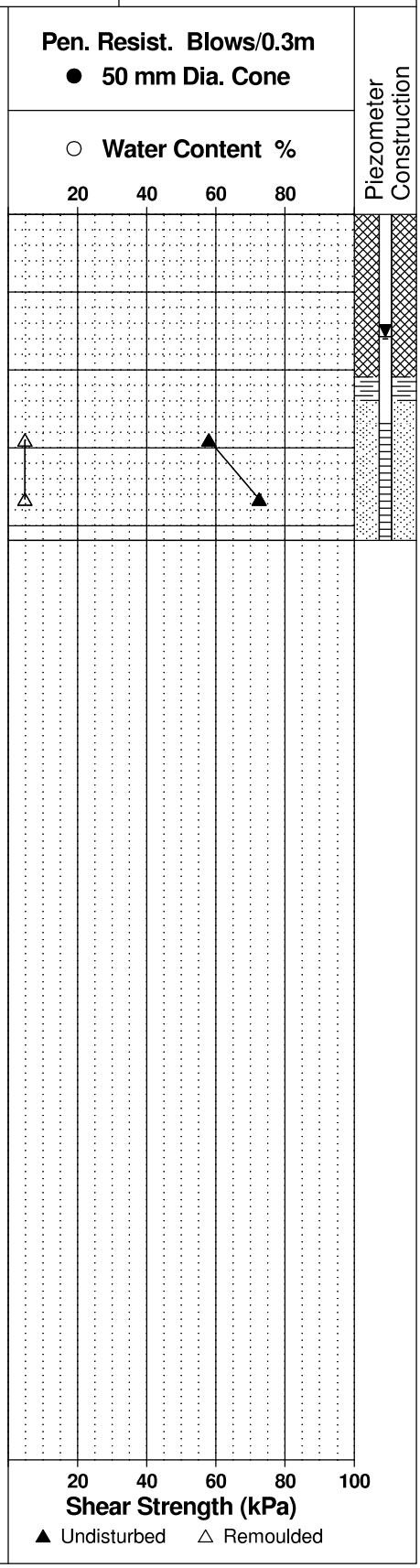
FILE NO. PG3130

REMARKS

HOLE NO. BH40-18

BORINGS BY CME 55 Power Auger **DATE** June 22, 2018

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	88.59
Brown **SILTY CLAY** with organics, some topsoil 0.28		AU	1				
		SS	2	88	8	1	87.59
Very stiff to stiff, brown **SILTY CLAY**		SS	3	92	7	2	86.59
						3	85.59
3.73							
GLACIAL TILL: Grey silty clay, some gravel, occ. cobbles, boulders 4.19		SS	4	53	50+	4	84.59
End of Borehole							
Practical refusal to augering at 4.19m depth							
(GWL @ 1.57m - July 20, 2018)							



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154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community (EUC) Mixed-Use CDP
Mer Bleue Road, Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Limited.

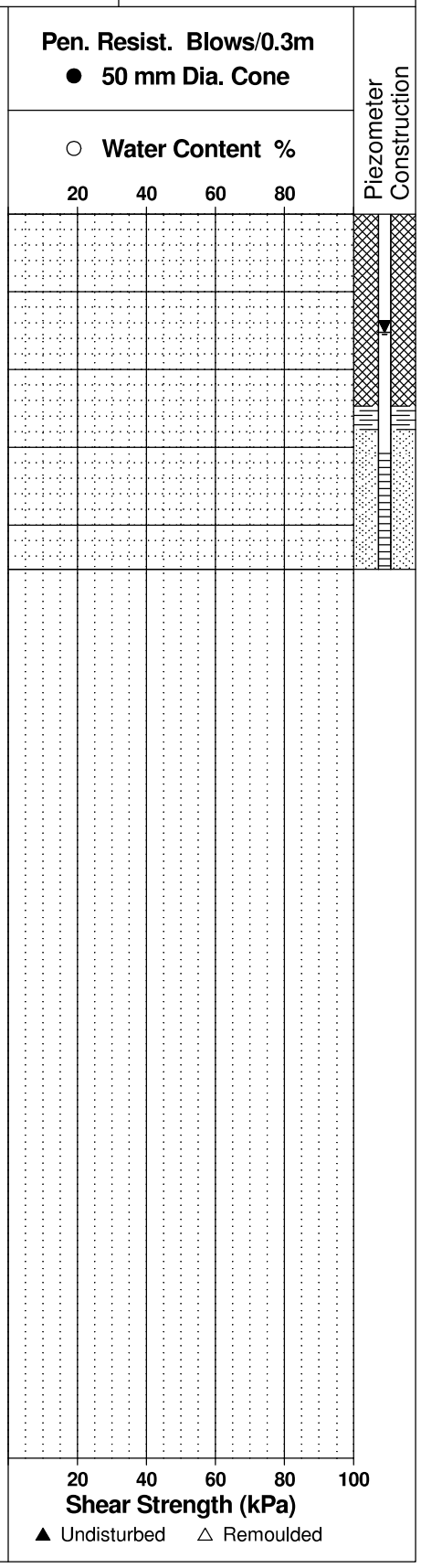
FILE NO. PG3130

REMARKS

HOLE NO. BH41-18

BORINGS BY CME 55 Power Auger **DATE** June 22, 2018

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	88.62
Brown **SILTY CLAY** with organics, some topsoil 0.33		AU	1				
Very stiff to stiff, brown **SILTY CLAY**		SS	2	58	12	1	87.62
		SS	3	88	5		
- stiff and grey by 2.2m depth						2	86.62
2.97		SS	4	33	2		
		SS	5	29	6	3	85.62
GLACIAL TILL: Grey silty clay, some gravel, cobbles, boulders		SS	6	54	13		
4.57						4	84.62
End of Borehole							
Practical refusal to augering at 4.57m depth							
(GWL @ 1.52m - July 20, 2018)							



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154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community (EUC) Mixed-Use CDP
Mer Bleue Road, Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Limited.

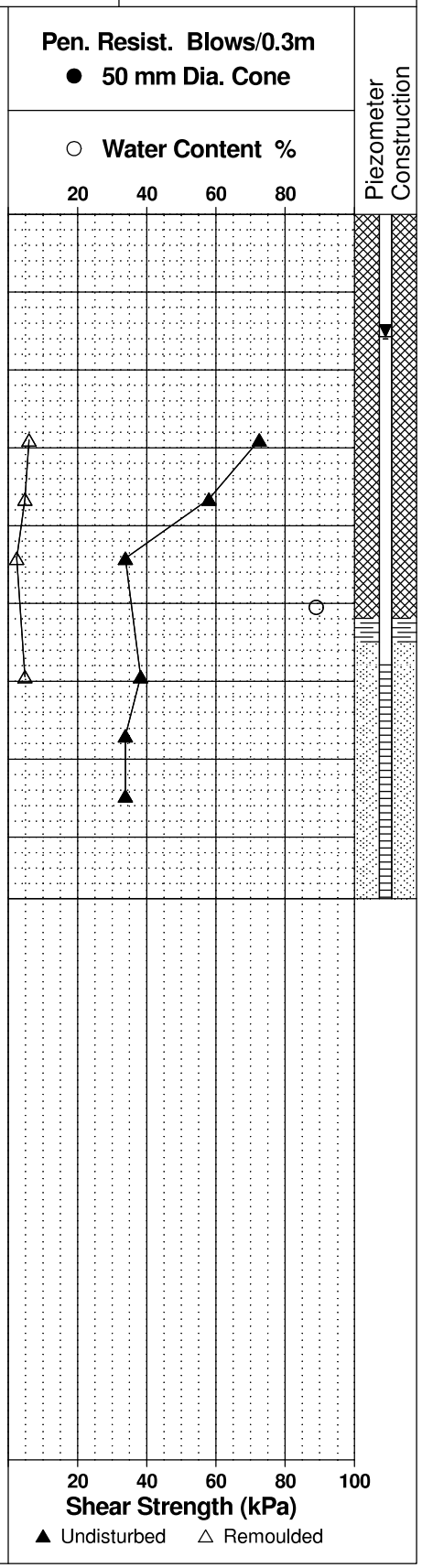
FILE NO. PG3130

REMARKS

HOLE NO. BH42-18

BORINGS BY CME 55 Power Auger **DATE** June 22, 2018

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	87.96
Topsoil & organics, some silty clay 0.30		AU	1				
		SS	2	54	10	1	86.96
		SS	3	92	6	2	85.96
Very stiff to stiff, brown **SILTY CLAY**						3	84.96
- firm and grey by 3.7m depth						4	83.96
		TW	4	100		5	82.96
						6	81.96
						7	80.96
		SS	5	96	W	8	79.96
8.46							
GLACIAL TILL: Grey silty clay, some sand, gravel, cobbles, boulders 8.79		SS	6	50	50+		
End of Borehole							
Practical refusal to augering at 8.79m depth							
(GWL @ 1.57m - July 20, 2018)							



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154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community (EUC) Mixed-Use CDP
Mer Bleue Road, Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Limited.

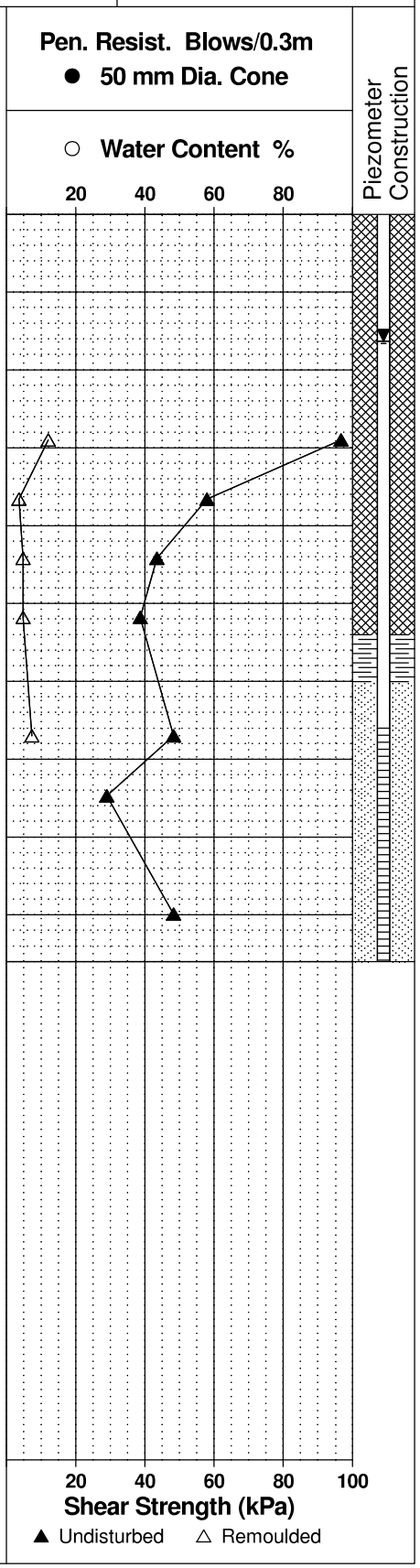
FILE NO. PG3130

REMARKS

HOLE NO. BH43-18

BORINGS BY CME 55 Power Auger **DATE** June 26, 2018

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	87.92
Brown **SILTY CLAY** with organics, some topsoil 0.30		AU	1				
		SS	2	67	12	1	86.92
		SS	3	17	10	2	85.92
Very stiff to stiff, brown **SILTY CLAY**						3	84.92
- firm and grey by 3.7m depth						4	83.92
		TW	4	100		5	82.92
						6	81.92
						7	80.92
		SS	5	96	W	8	79.92
9.14						9	78.92
GLACIAL TILL: Stiff, grey silty clay, trace gravel, occ. cobbles, boulders 9.60		SS	6	51	5		
End of Borehole							
Practical refusal to augering at 9.60m depth							
(GWL @ 1.63m - July 20, 2018)							



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154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community (EUC) Mixed-Use CDP
Mer Bleue Road, Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Limited.

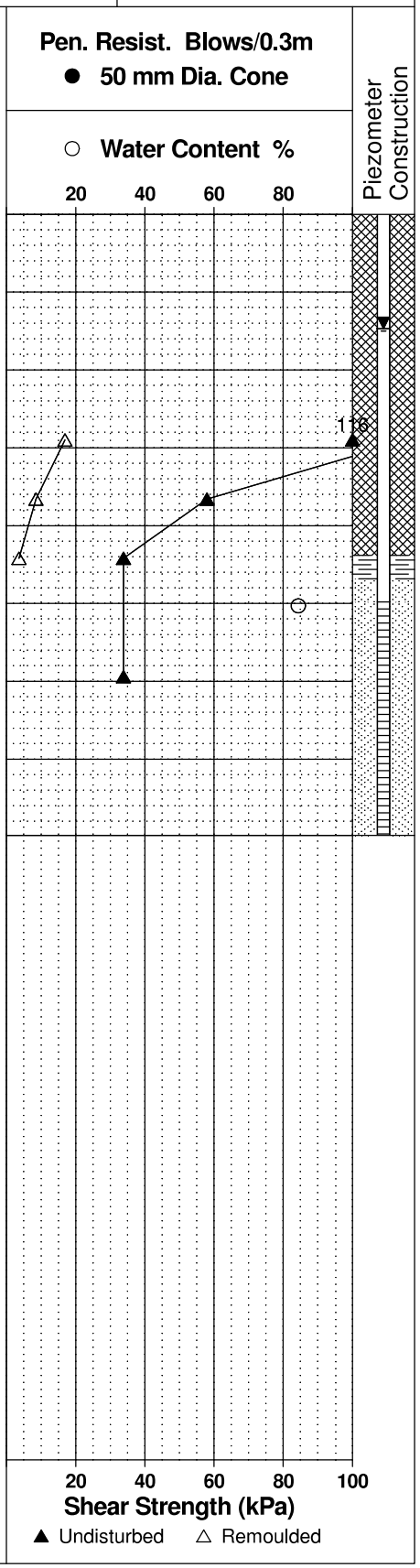
FILE NO. PG3130

REMARKS

HOLE NO. BH44-18

BORINGS BY CME 55 Power Auger **DATE** June 26, 2018

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	88.02
Brown **SILTY CLAY,** some topsoil, organics 0.13		AU	1				
		SS	2	79	6	1	87.02
		SS	3	88	4	2	86.02
Very stiff to stiff, brown **SILTY CLAY**						3	85.02
- firm and grey by 3.7m depth						4	84.02
		TW	4	100		5	83.02
6.02						6	82.02
GLACIAL TILL: Hard, grey silty clay, some sand, gravel, occasional cobbles, boulders		SS	5	67	56		
		SS	6	71	6	7	81.02
7.98		SS	7	44	50+		
End of Borehole							
Practical refusal to augering at 7.98m depth							
(GWL @ 1.47m - July 20, 2018)							



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154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community (EUC) Mixed-Use CDP
Mer Bleue Road, Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Limited.

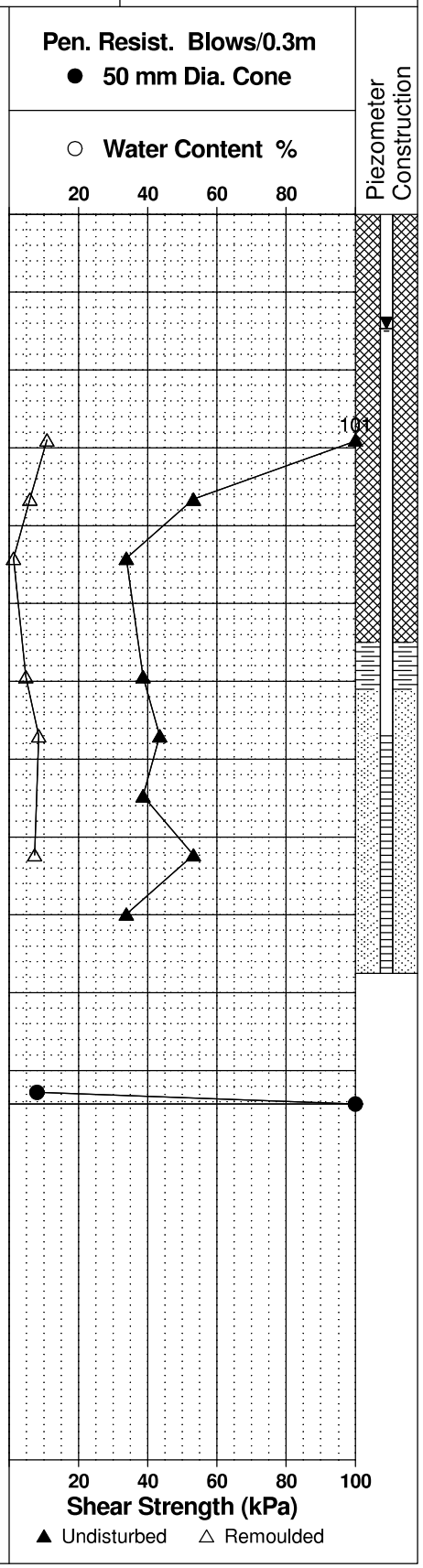
FILE NO. PG3130

REMARKS

HOLE NO. BH45-18

BORINGS BY CME 55 Power Auger **DATE** June 26, 2018

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	87.95
FILL: Crushed stone 0.15		AU	1				
Brown **SILTY CLAY** with organics, trace topsoil 0.33		SS	2	71	10	1	86.95
		SS	3	58	10	2	85.95
Very stiff to stiff, brown **SILTY CLAY**						3	84.95
- firm and grey by 3.7m depth						4	83.95
		TW	4	100		5	82.95
						6	81.95
						7	80.95
						8	79.95
						9	78.95
9.75		SS	5	96	W		
Dynamic Cone Penetration Test commenced at 9.75m depth. Cone pushed to 11.0m depth.						10	77.95
						11	76.95
11.43							
End of Borehole							
Practical DCPT refusal at 11.43m depth.							
(GWL @ 1.47m - July 20, 2018)							



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154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community - Navan Road
Ottawa, Ontario

DATUM Ground surface elevations provided by Annis, O'Sullivan, Vollebekk Limited.

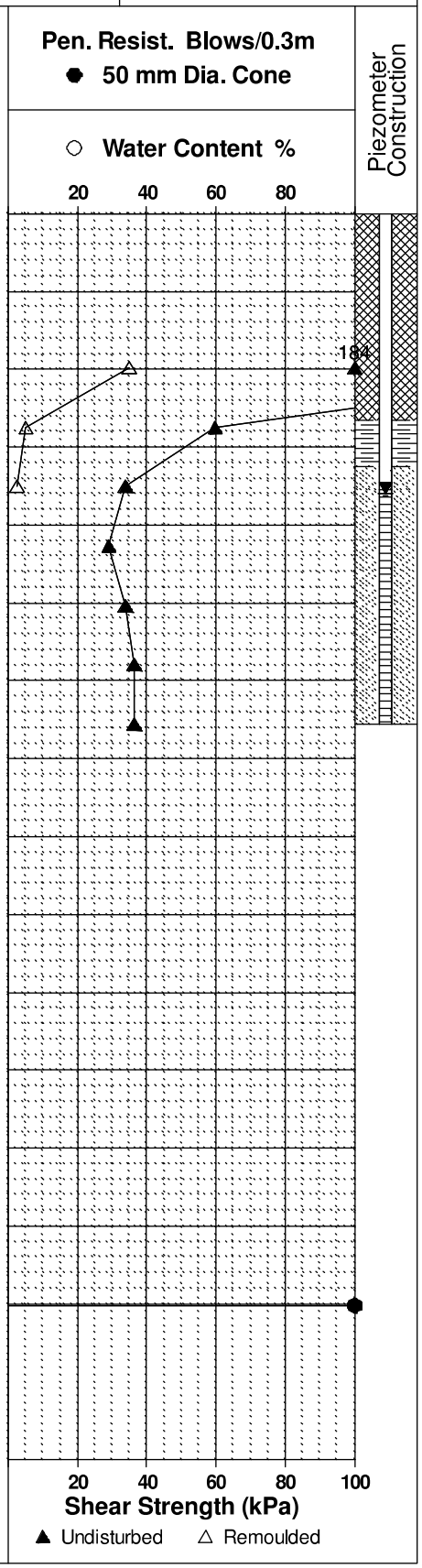
FILE NO. PG3130

REMARKS

HOLE NO. BH 1-14

BORINGS BY CME 55 Power Auger **DATE** September 12, 2014

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	87.68
TOPSOIL 0.28		AU	1				
		SS	2	83	9	1	86.68
Very stiff to stiff, brown **SILTY CLAY**						2	85.68
- firm and grey by 2.9m depth						3	84.68
						4	83.68
						5	82.68
						6	81.68
6.55							
Dynamic Cone Penetration Test commenced at 6.55m depth. Cone pushed to 14.0m depth.						7	80.68
						8	79.68
						9	78.68
						10	77.68
						11	76.68
						12	75.68
						13	74.68
14.02						14	73.68
End of Borehole							
Practical DCPT refusal at 14.02m depth.							
(GWL @ 3.60m-Sept. 24, 2014)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community - Navan Road
Ottawa, Ontario

DATUM Ground surface elevations provided by Annis, O'Sullivan, Vollebekk Limited.

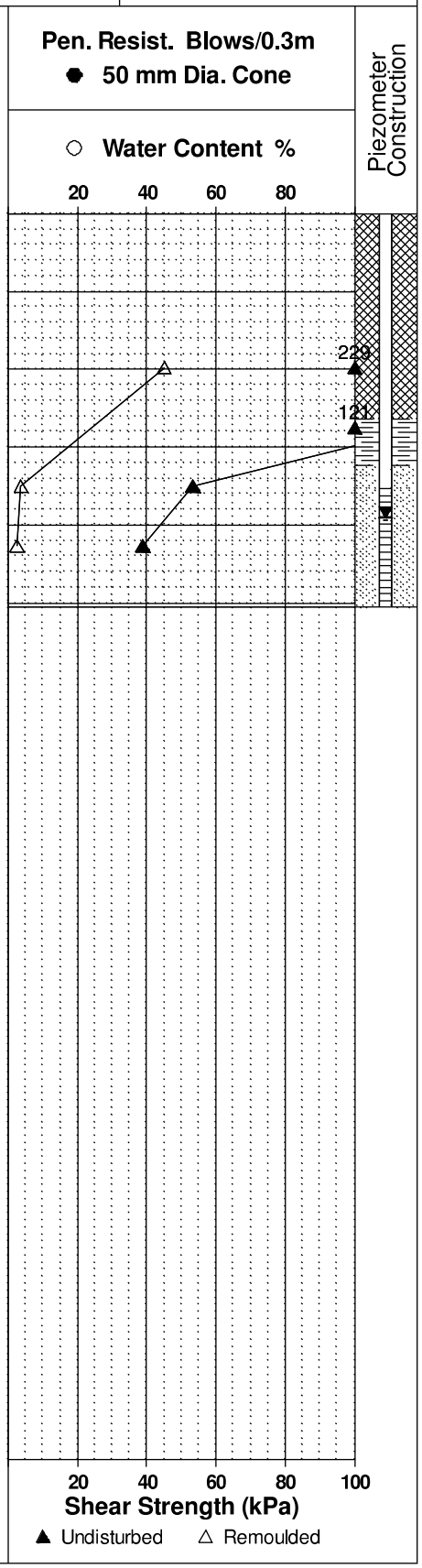
FILE NO. PG3130

REMARKS

HOLE NO. BH 2-14

BORINGS BY CME 55 Power Auger **DATE** September 12, 2014

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	88.13
TOPSOIL 0.33		AU	1				
		SS	2	83	12	1	87.13
Hard to very stiff, brown **SILTY CLAY**						2	86.13
- stiff to firm and grey by 2.9m depth						3	85.13
4.42						4	84.13
GLACIAL TILL: Grey-brown silty clay with sand, gravel, cobbles, boulders 5.05		SS	3		50+	5	83.13
End of Borehole							
Practical refusal to augering at 5.05m depth							
(GWL @ 3.91m-Sept. 24, 2014)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community - Navan Road
Ottawa, Ontario

DATUM Ground surface elevations provided by Annis, O'Sullivan, Vollebekk Limited.

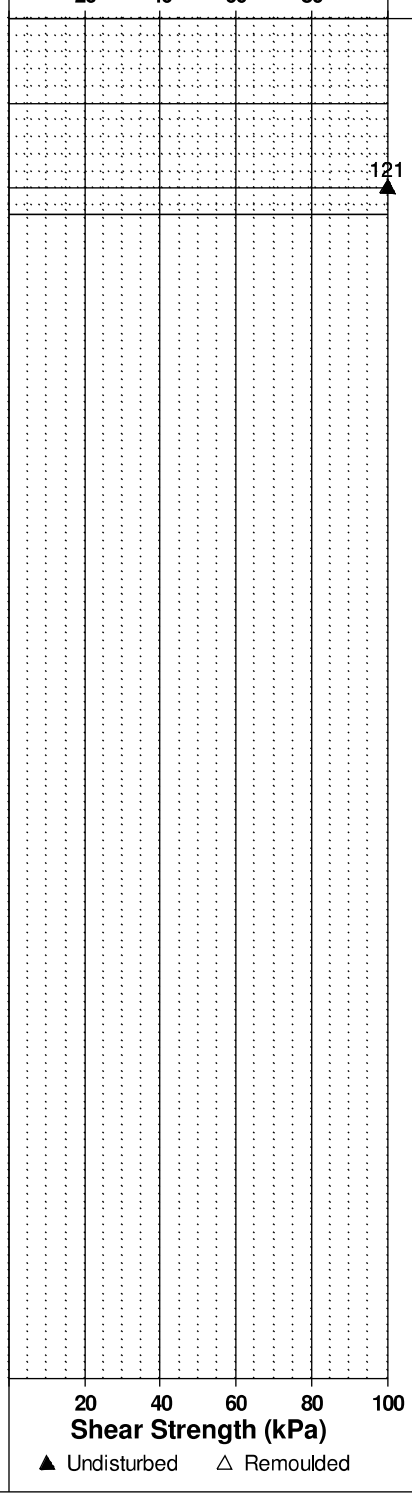
FILE NO. PG3130

REMARKS

HOLE NO. BH 3-14

BORINGS BY CME 55 Power Auger **DATE** September 12, 2014

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone / ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	88.74		
TOPSOIL 0.28		AU	1						
Very stiff, brown **SILTY CLAY**		SS	2		11	1	87.74		
2.13						2	86.74		
GLACIAL TILL: Brown silty clay with sand, gravel, cobbles and boulders 2.31		SS	3	0	50+				
End of Borehole									
Practical refusal to augering at 2.31m depth									
(BH dry upon completion)									



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community - Navan Road
Ottawa, Ontario

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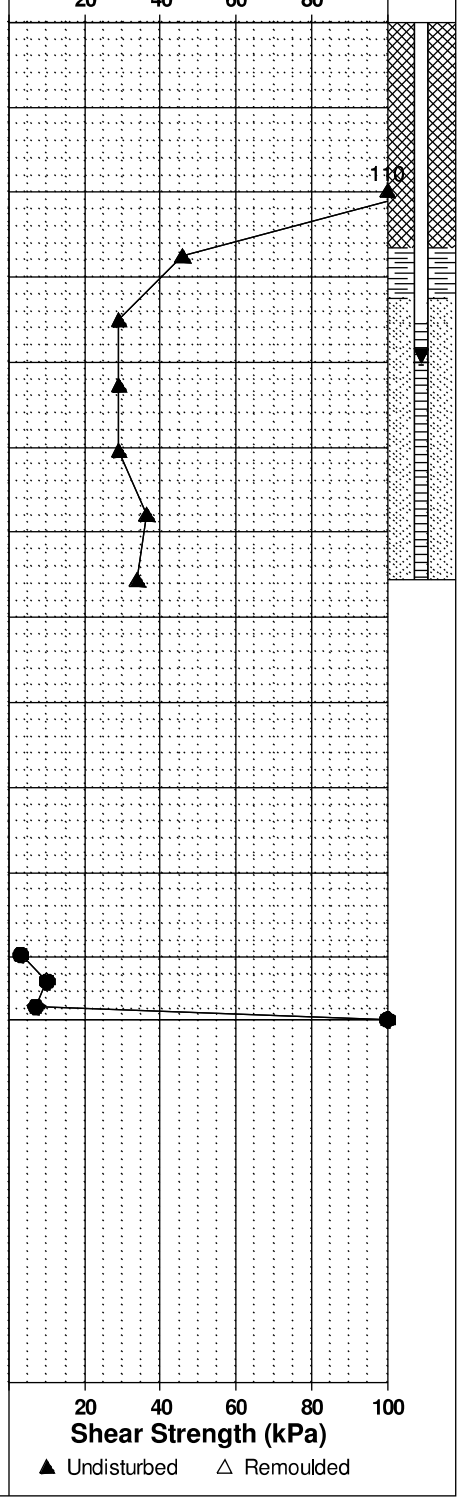
FILE NO. PG3130

REMARKS

HOLE NO. BH 4-14

BORINGS BY CME 55 Power Auger **DATE** September 12, 2014

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	88.15
TOPSOIL 0.28							
		SS	1	83	6	1	87.15
Very stiff to stiff, brown **SILTY CLAY**						2	86.15
						3	85.15
- firm and grey by 2.9m depth						4	84.15
						5	83.15
						6	82.15
6.55							
Dynamic Cone Penetration Test commenced at 6.55m depth. Cone pushed to 10.7m depth.						7	81.15
						8	80.15
						9	79.15
						10	78.15
						11	77.15
11.73							
End of Borehole							
Practical DCPT refusal at 11.73m depth							
(GWL @ 4.00m-Sept. 24, 2014)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community - Navan Road
Ottawa, Ontario

DATUM Ground surface elevations provided by Annis, O'Sullivan, Vollebekk Limited.

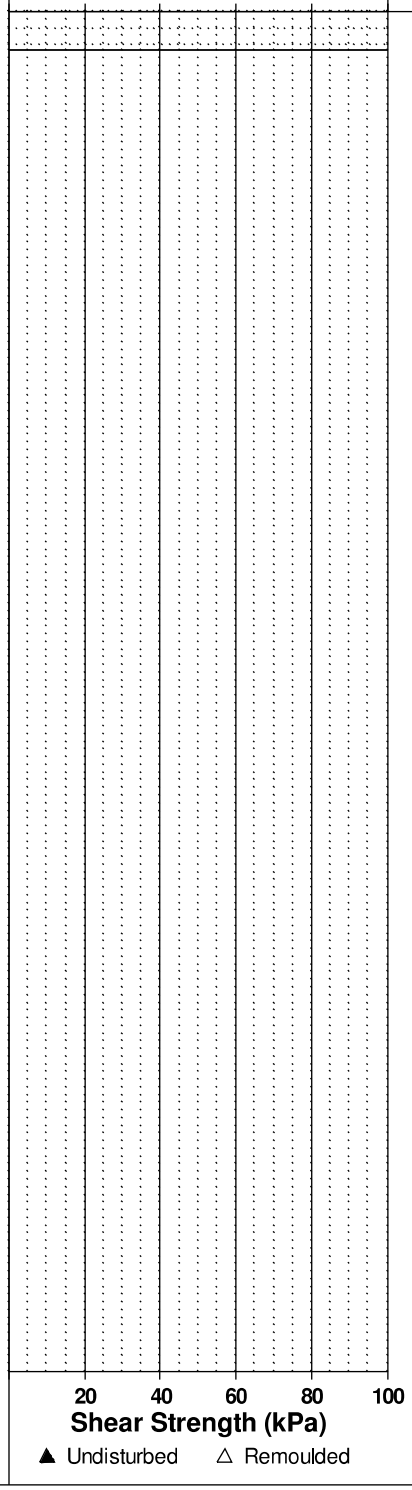
FILE NO. PG3130

REMARKS

HOLE NO. BH 5-14

BORINGS BY CME 55 Power Auger **DATE** September 15, 2014

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone / ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	90.54		
TOPSOIL 0.13									
GLACIAL TILL: Brown silty clay with sand, gravel and cobbles 0.46									
End of Borehole									
Practical refusal to augering at 0.46m depth									
(BH dry upon completion)									



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community - Navan Road
Ottawa, Ontario

DATUM Ground surface elevations provided by Annis, O'Sullivan, Vollebekk Limited.

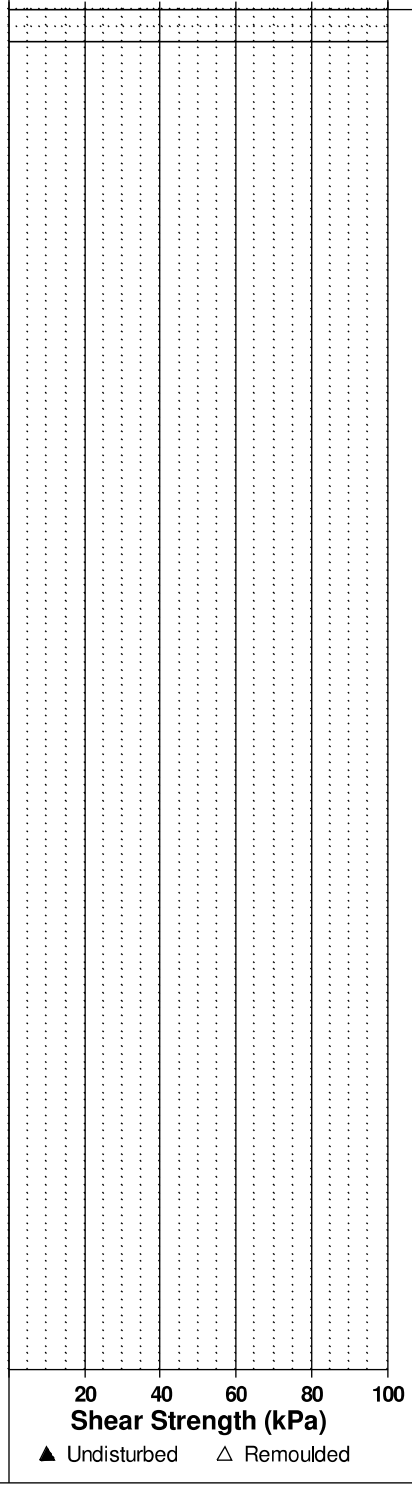
FILE NO. PG3130

REMARKS

HOLE NO. BH 6-14

BORINGS BY CME 55 Power Auger **DATE** September 15, 2014

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone / ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	89.34		
TOPSOIL 0.20		AU	1						
Brown **SILTY CLAY,** trace sand 0.38									
End of Borehole									
Practical refusal to augering at 0.38m depth									
(BH dry upon completion)									



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community - Navan Road
Ottawa, Ontario

DATUM Ground surface elevations provided by Annis, O'Sullivan, Vollebekk Limited.

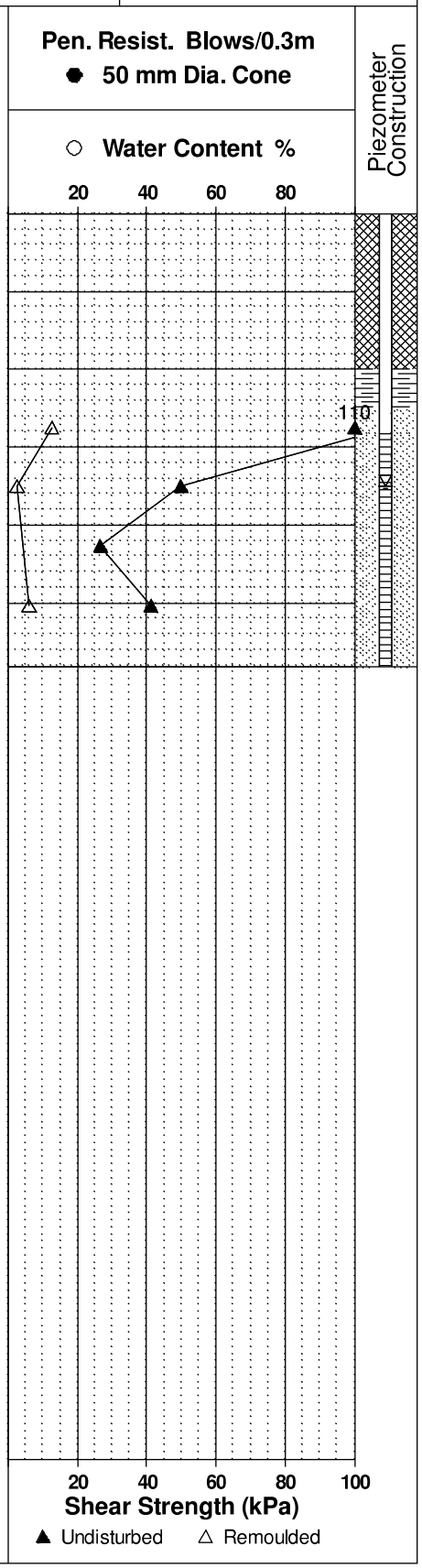
FILE NO. PG3130

REMARKS

HOLE NO. BH 7-14

BORINGS BY CME 55 Power Auger **DATE** September 15, 2014

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	87.99
TOPSOIL 0.23		AU	1				
		SS	2	100		1	86.99
		SS	3	100	5	2	85.99
Very stiff to stiff, brown **SILTY CLAY**							
- firm and grey by 2.9m depth						3	84.99
						4	83.99
5.18						5	82.99
GLACIAL TILL: Grey-brown silty clay with sand, gravel, cobbles and boulders 5.82		SS	4	100	12		
End of Borehole							
Practical refusal to augering at 5.82m depth							
(GWL @ 3.5m depth based on field observations)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community - Navan Road
Ottawa, Ontario

DATUM Ground surface elevations provided by Annis, O'Sullivan, Vollebekk Limited.

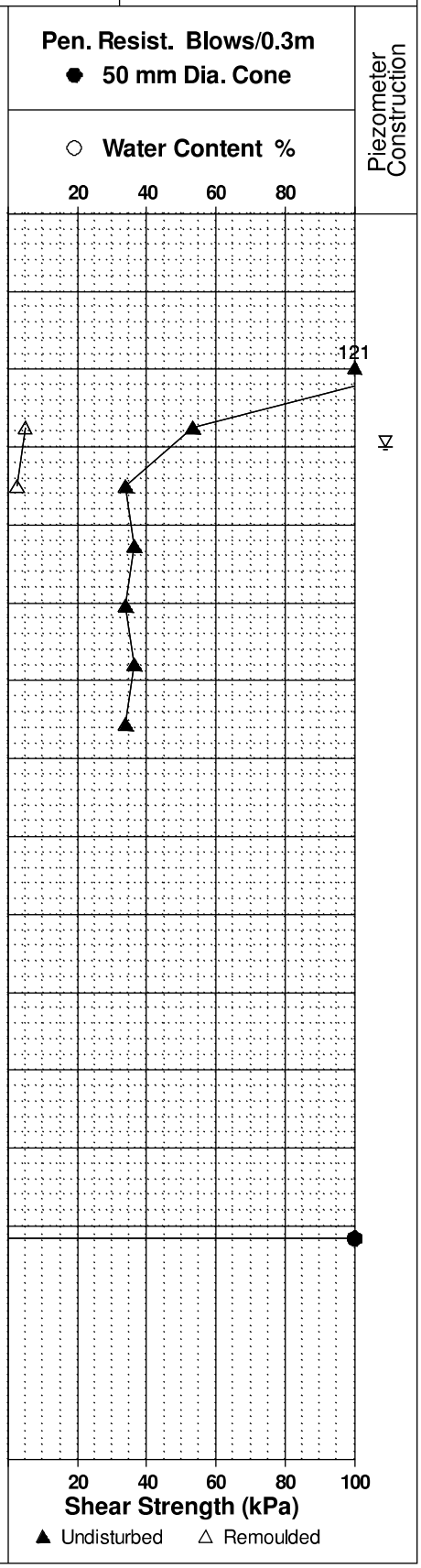
FILE NO. PG3130

REMARKS

HOLE NO. BH 8-14

BORINGS BY CME 55 Power Auger **DATE** September 15, 2014

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	87.46
TOPSOIL 0.25		AU	1				
		SS	2	100	3	1	86.46
Very stiff to stiff, brown **SILTY CLAY**						2	85.46
- firm and grey by 2.9m depth						3	84.46
						4	83.46
						5	82.46
						6	81.46
6.55							
Dynamic Cone Penetration Test commenced at 6.55m depth. Cone pushed to 13.1m depth.						7	80.46
						8	79.46
						9	78.46
						10	77.46
						11	76.46
						12	75.46
						13	74.46
13.16							
End of Borehole							
Practical DCPT refusal at 13.16m depth							
(GWL @ 3.0m depth based on field observations)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community - Navan Road
Ottawa, Ontario

DATUM Ground surface elevations provided by Annis, O'Sullivan, Vollebekk Limited.

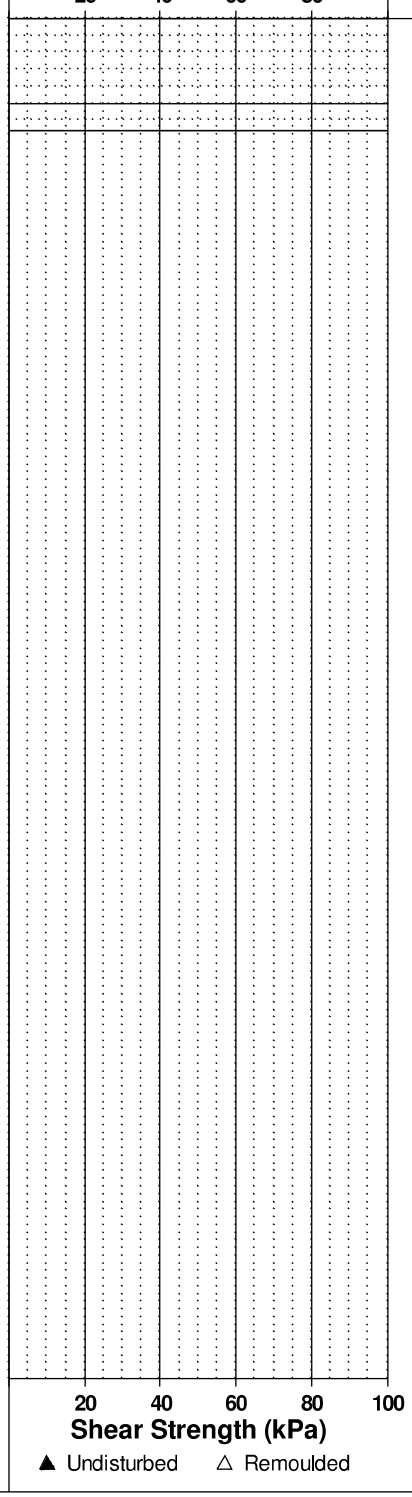
FILE NO. PG3130

REMARKS

HOLE NO. BH 9-14

BORINGS BY CME 55 Power Auger **DATE** September 15, 2014

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.20		AU	1			0	89.97		
Very stiff, brown **SILTY CLAY**		SS	2		14	1	88.97		
1.32									
End of Borehole									
Practical refusal to augering at 1.32m depth									
(BH dry upon completion)									



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
East Urban Community - Navan Road
Ottawa, Ontario

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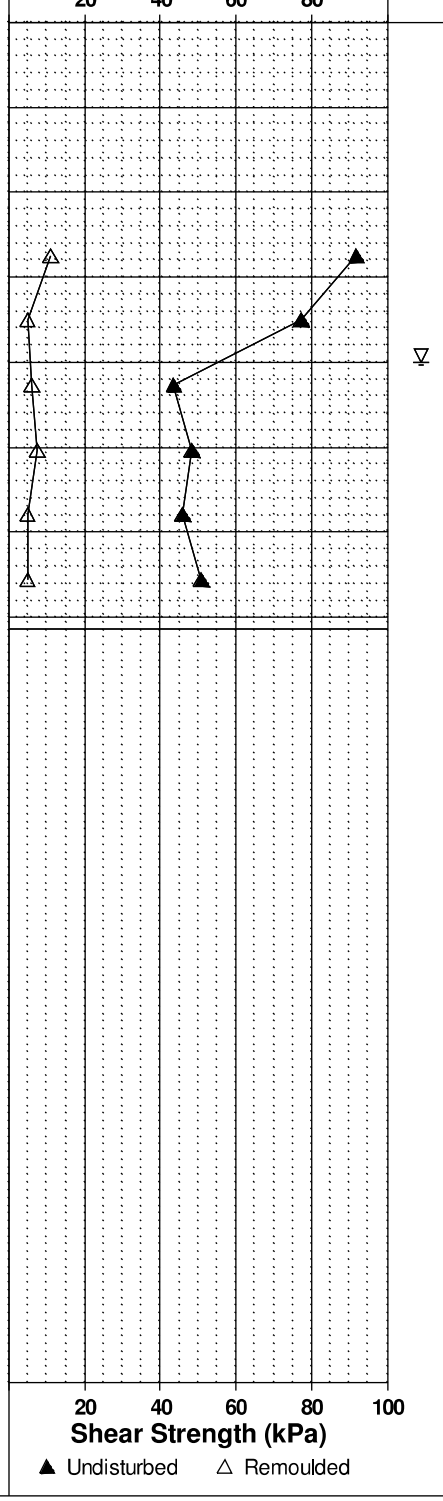
FILE NO. PG3130

REMARKS

HOLE NO. BH10-14

BORINGS BY CME 55 Power Auger **DATE** September 15, 2014

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	88.44
TOPSOIL 0.28		AU	1				
		SS	2	83	9	1	87.44
		SS	3	83	5	2	86.44
Very stiff to stiff, brown **SILTY CLAY**						3	85.44
- firm and grey by 3.7m depth						4	84.44
						5	83.44
						6	82.44
7.14						7	81.44
End of Borehole							
Practical refusal to augering at 7.14m depth							
(GWL @ 4.0m depth based on field observations)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Prop. Residential Development-Trails Edge Phase 2
Ottawa, Ontario

DATUM Ground surface provided by Annis, O'Sullivan, Vollebekk Limited.

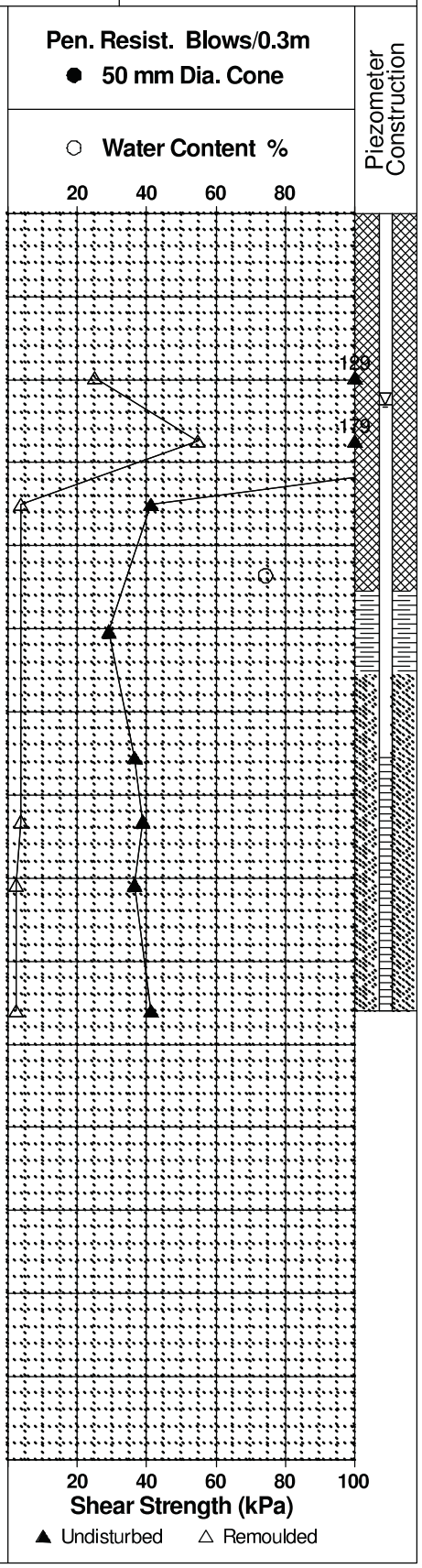
FILE NO. PG2392

REMARKS

HOLE NO. BH 7

BORINGS BY CME 55 Power Auger **DATE** 17 August 2011

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	87.15
TOPSOIL 0.20							
Loose, brown **SILTY SAND** 0.30		SS	1	67	7	1	86.15
Very stiff to stiff, brown **SILTY CLAY**						2	85.15
3.30						3	84.15
		TW	2	100		4	83.15
		TW	3	100		5	82.15
Firm, grey **SILTY CLAY**						6	81.15
						7	80.15
						8	79.15
		TW	4	100		9	78.15
9.60							
Dynamic Cone Penetration Test commenced @ 9.60m depth. Cone pushed to 23.5m depth.						10	77.15
						11	76.15
						12	75.15
						13	74.15
						14	73.15
						15	72.15



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Prop. Residential Development-Trails Edge Phase 2
Ottawa, Ontario

DATUM Ground surface provided by Annis, O'Sullivan, Vollebekk Limited.

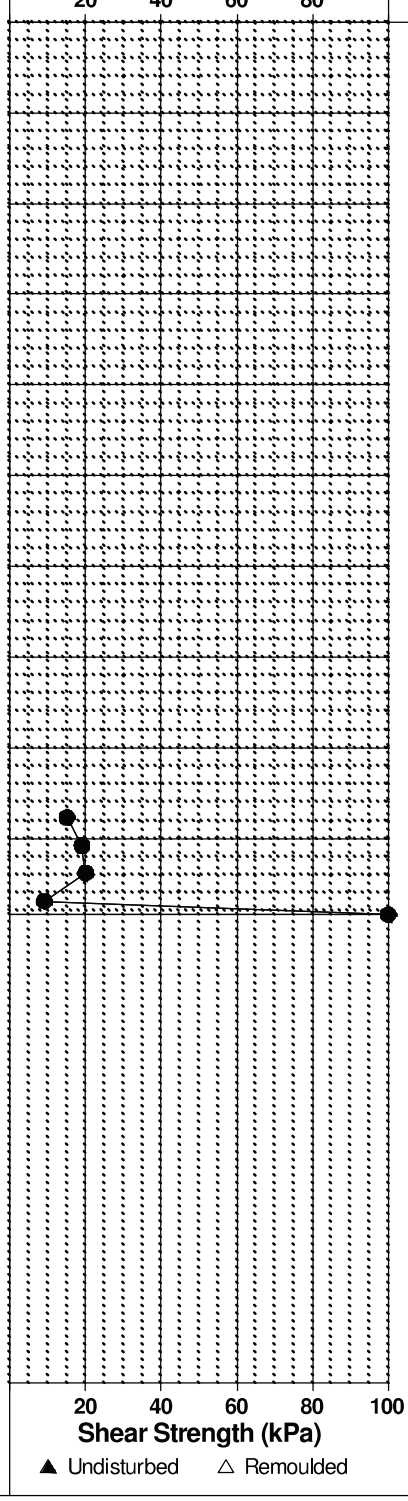
FILE NO. PG2392

REMARKS

HOLE NO. BH 7

BORINGS BY CME 55 Power Auger **DATE** 17 August 2011

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						15	72.15		
						16	71.15		
						17	70.15		
						18	69.15		
						19	68.15		
						20	67.15		
						21	66.15		
						22	65.15		
						23	64.15		
						24	63.15		
24.84									
End of Borehole Practical cone refusal @ 24.84m depth (GWL @ 2.3m depth based on field observations)									



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Prop. Residential Development-Trails Edge Phase 2
Ottawa, Ontario

DATUM Ground surface provided by Annis, O'Sullivan, Vollebekk Limited.

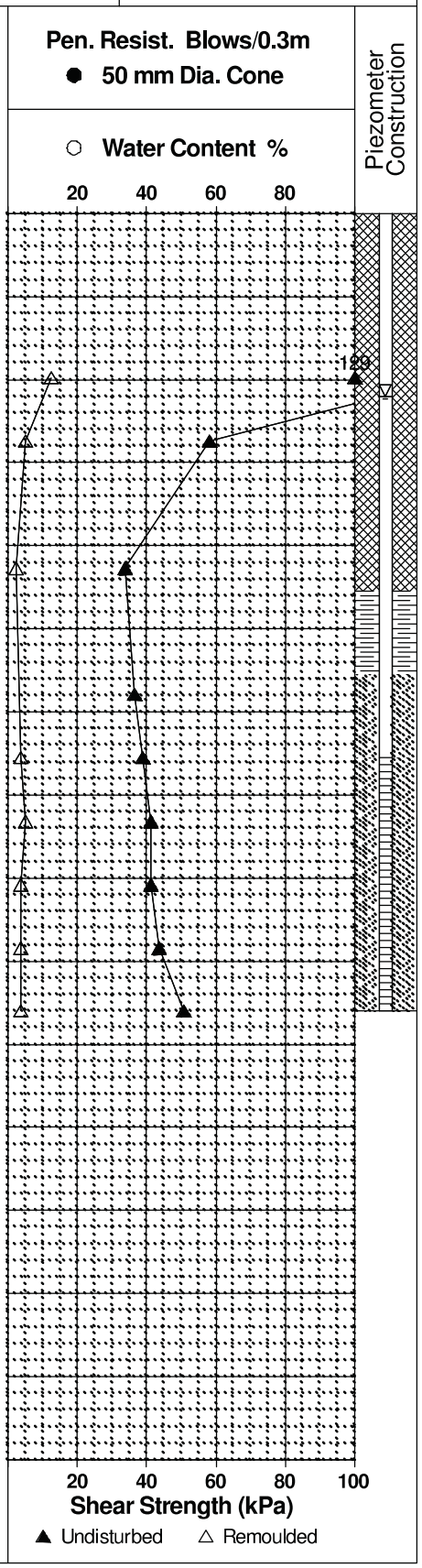
FILE NO. PG2392

REMARKS

HOLE NO. BH 8

BORINGS BY CME 55 Power Auger **DATE** 9 February 2012

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	86.93
TOPSOIL 0.25		AU	1				
		SS	2		8	1	85.93
Very stiff to stiff, brown **SILTY CLAY**						2	84.93
2.90						3	83.93
		TW	3	83		4	82.93
		TW	4	100		5	81.93
Firm, grey **SILTY CLAY**						6	80.93
						7	79.93
						8	78.93
						9	77.93
9.60							
Dynamic Cone Penetration Test commenced @ 9.60m depth. Cone pushed to 19.8m depth.						10	76.93
						11	75.93
						12	74.93
						13	73.93
						14	72.93
						15	71.93



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Prop. Residential Development-Trails Edge Phase 2
Ottawa, Ontario

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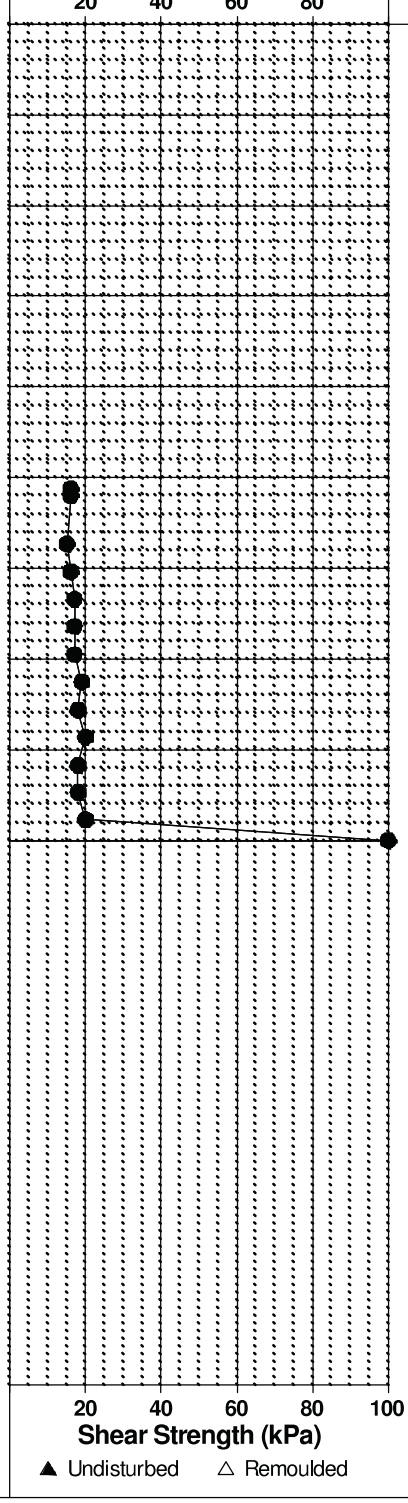
FILE NO. PG2392

REMARKS

HOLE NO. BH 8

BORINGS BY CME 55 Power Auger **DATE** 9 February 2012

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone / ○ Water Content %	Piezometer Construction
GROUND SURFACE						15	71.93		
						16	70.93		
						17	69.93		
						18	68.93		
						19	67.93		
						20	66.93		
						21	65.93		
						22	64.93		
						23	63.93		
24.00						24	62.93		
End of Borehole Practical DCPT refusal @ 24.00m depth. (GWL @ 2.2m depth based on field observations)									



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Prop. Residential Development-Trails Edge Phase 2
Ottawa, Ontario

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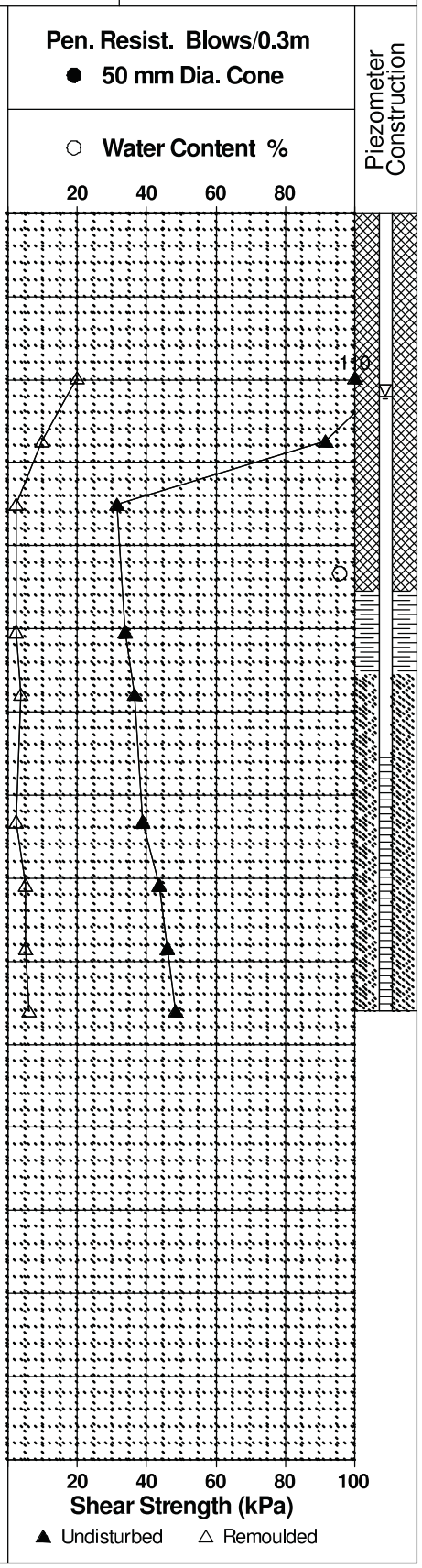
FILE NO. PG2392

REMARKS

HOLE NO. BH 9

BORINGS BY CME 55 Power Auger **DATE** 10 February 2012

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	86.96
TOPSOIL 0.23		AU	1				
		SS	2	100	8	1	85.96
Very stiff to stiff, brown **SILTY CLAY**						2	84.96
2.90						3	83.96
		TW	3	100		4	82.96
Firm, grey **SILTY CLAY**						5	81.96
		TW	4	100		6	80.96
						7	79.96
						8	78.96
						9	77.96
9.60						10	76.96
Dynamic Cone Penetration Test commenced at 9.60m depth. Cone pushed to 19.8m depth.						11	75.96
						12	74.96
						13	73.96
						14	72.96
						15	71.96



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
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REMARKS

HOLE NO. BH 9

BORINGS BY CME 55 Power Auger **DATE** 10 February 2012

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						15	71.96	20 40 60 80	
						16	70.96		
						17	69.96		
						18	68.96		
						19	67.96		
						20	66.96		
						21	65.96		
						22	64.96		
						23	63.96		
						24	62.96		
						25	61.96		
26.16						26	60.96		
End of Borehole Practical DCPT refusal @ 26.16m depth. (GWL @ 2.2m depth based on field observations)								20 40 60 80 100 Shear Strength (kPa) ▲ Undisturbed △ Remoulded	

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SOIL PROFILE AND TEST DATA

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Prop. Residential Development-Trails Edge Phase 2
Ottawa, Ontario

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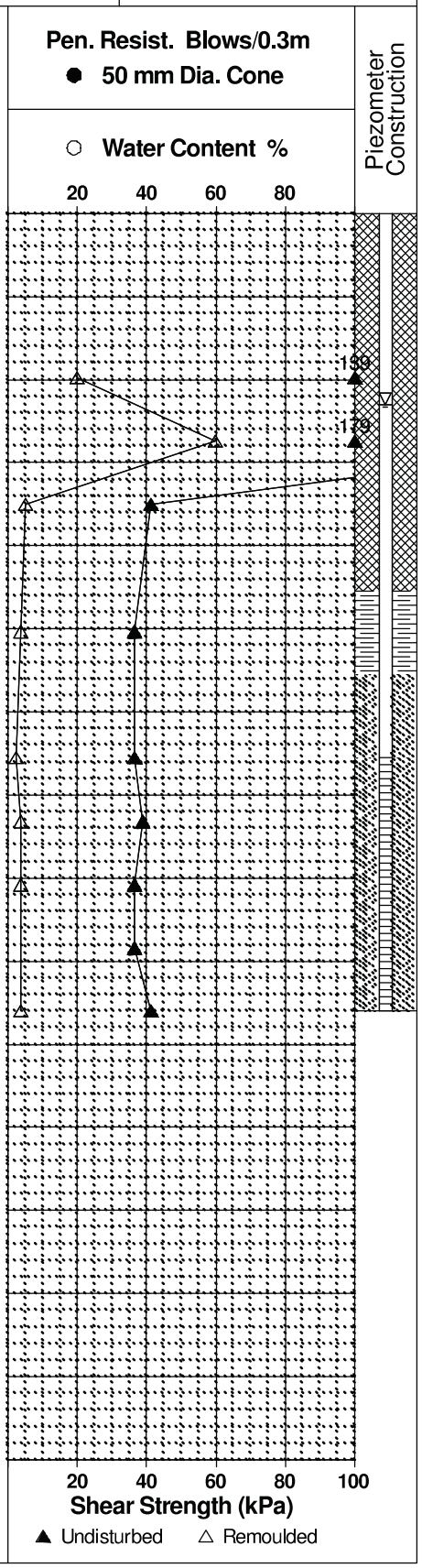
FILE NO. PG2392

REMARKS

HOLE NO. BH10

BORINGS BY CME 55 Power Auger **DATE** 17 August 2011

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	86.97
TOPSOIL 0.20		AU	1				
Brown **SILTY CLAY** with sand, trace gravel 0.69		SS	2	92	7	1	85.97
						2	84.97
Very stiff to stiff, brown **SILTY CLAY**						3	83.97
3.30		TW	2			4	82.97
		TW	3			5	81.97
						6	80.97
Firm, grey **SILTY CLAY**						7	79.97
						8	78.97
						9	77.97
9.60							
Dynamic Cone Penetration Test commenced @ 25.27m depth. Cone pushed to 22.7m depth.						10	76.97
						11	75.97
						12	74.97
						13	73.97
						14	72.97
						15	71.97



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Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Prop. Residential Development-Trails Edge Phase 2
Ottawa, Ontario

DATUM Ground surface provided by Annis, O'Sullivan, Vollebekk Limited.

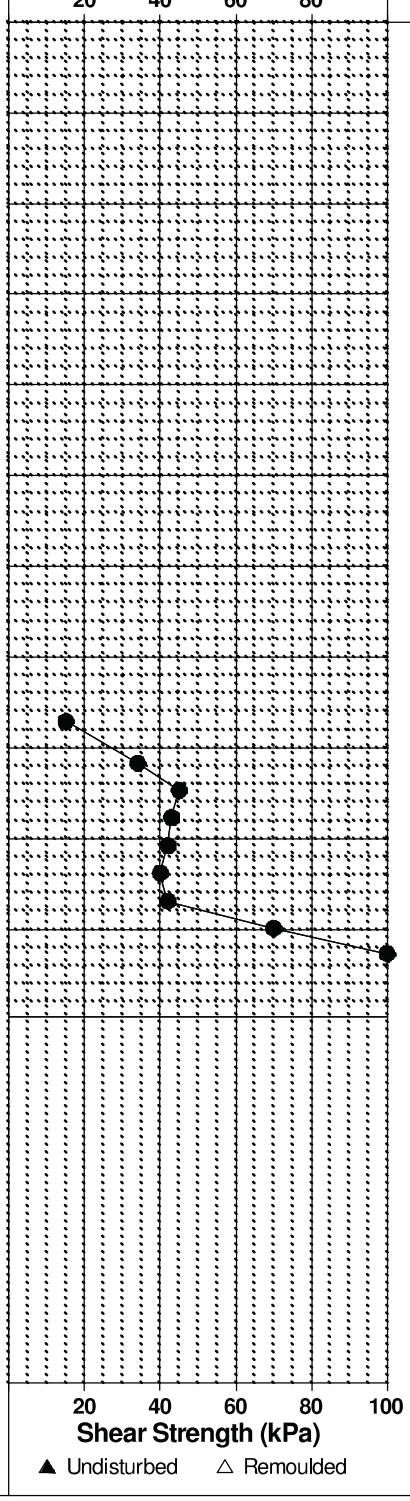
FILE NO. PG2392

REMARKS

HOLE NO. BH10

BORINGS BY CME 55 Power Auger **DATE** 17 August 2011

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone / ○ Water Content %	Piezometer Construction
GROUND SURFACE						15	71.97		
						16	70.97		
						17	69.97		
						18	68.97		
						19	67.97		
						20	66.97		
						21	65.97		
						22	64.97		
						23	63.97		
						24	62.97		
						25	61.97		
25.27									
End of Borehole Practical cone refusal @ 25.27m depth (GWL @ 2.3m depth based on field observations)									



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Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Prop. Residential Development-Trails Edge Phase 2
Ottawa, Ontario

DATUM Ground surface provided by Annis, O'Sullivan, Vollebekk Limited.

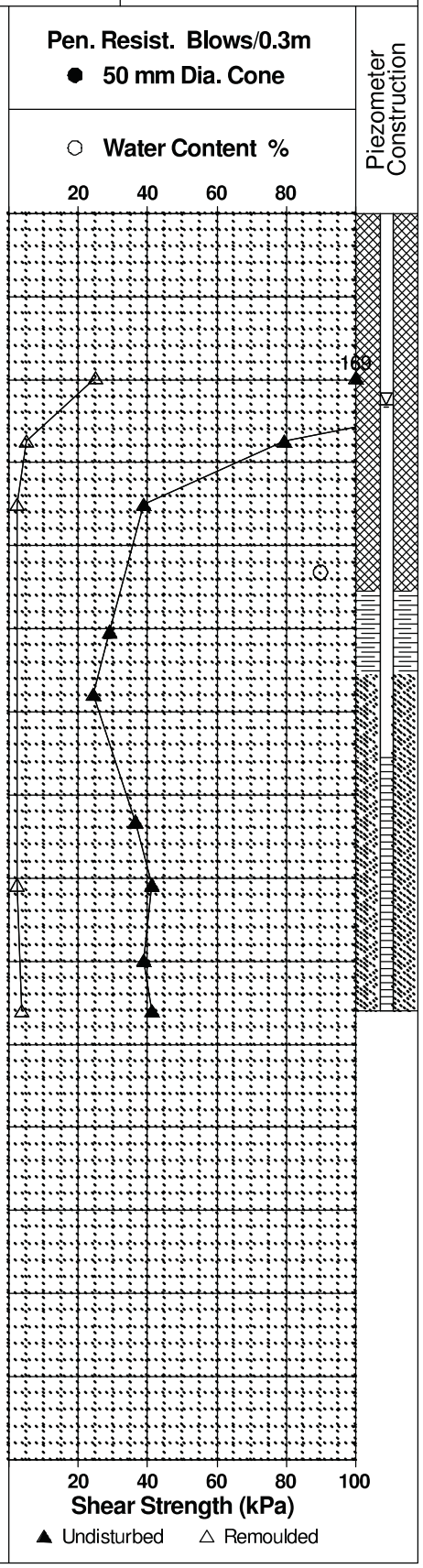
FILE NO. PG2392

REMARKS

HOLE NO. BH11

BORINGS BY CME 55 Power Auger **DATE** 9 February 2012

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	87.17
TOPSOIL 0.25		AU	1				
		AU	2				
Very stiff to stiff, brown **SILTY CLAY**		SS	3	83	12	1	86.17
						2	85.17
2.90						3	84.17
		TW	4	100		4	83.17
						5	82.17
Firm, grey **SILTY CLAY**						6	81.17
		TW	5	100		7	80.17
						8	79.17
						9	78.17
9.60							
Dynamic Cone Penetration Test commenced @ 9.60m depth. Cone pushed to 20.4m depth.						10	77.17
						11	76.17
						12	75.17
						13	74.17
						14	73.17
						15	72.17



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154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Prop. Residential Development-Trails Edge Phase 2
Ottawa, Ontario

DATUM Ground surface provided by Annis, O'Sullivan, Vollebekk Limited.

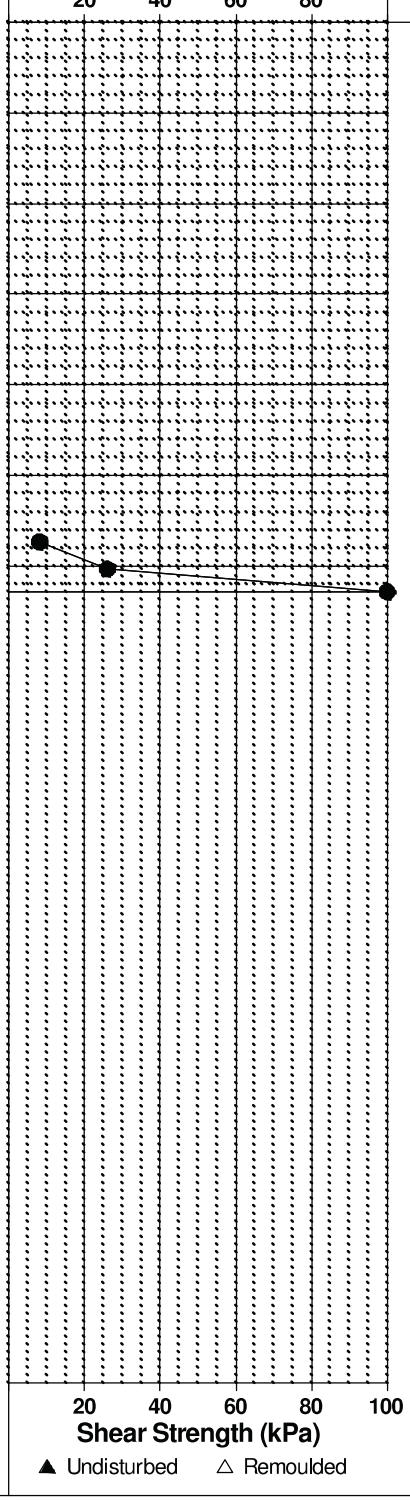
FILE NO. PG2392

REMARKS

HOLE NO. BH11

BORINGS BY CME 55 Power Auger **DATE** 9 February 2012

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						15	72.17		
						16	71.17		
						17	70.17		
						18	69.17		
						19	68.17		
						20	67.17		
						21	66.17		
21.28									
End of Borehole Practical DCPT refusal @ 21.28m depth. (GWL @ 2.3m depth based on field observations)									



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Consulting Engineers

28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Residential Development - Eden Park East Portion
Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Ltd.

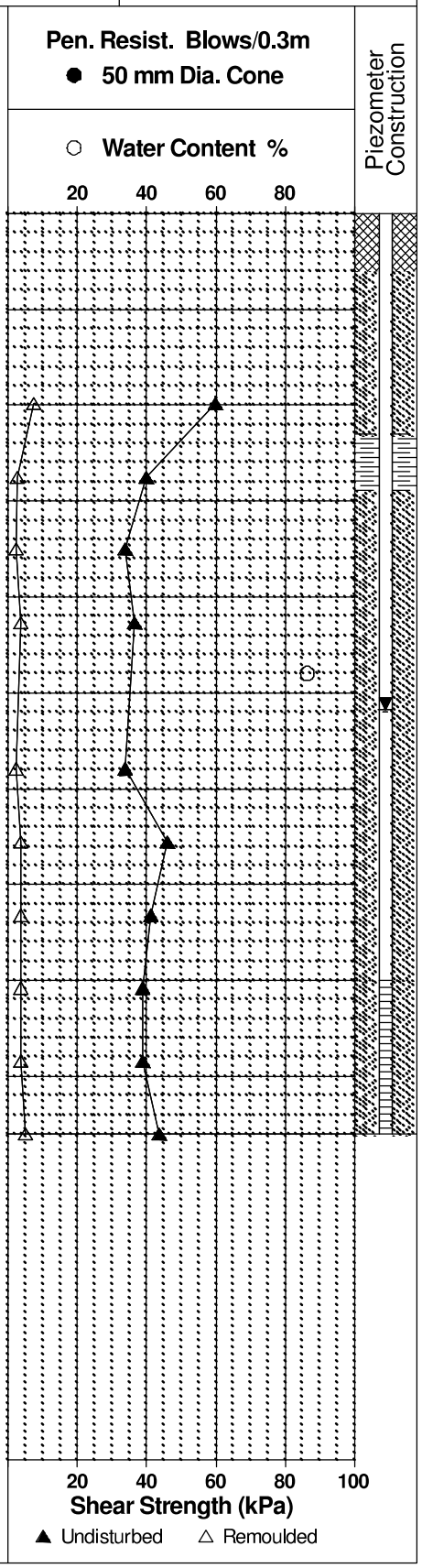
FILE NO. PG0861

REMARKS

HOLE NO. BH 9-08

BORINGS BY CME 55 Power Auger **DATE** 7 August 2008

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	86.92
TOPSOIL 0.40							
Loose, light brown **SILTY SAND** 0.75		SS	1	67	7	1	85.92
Very stiff to stiff, brown **SILTY CLAY**						2	84.92
						3	83.92
- firm and grey by 2.7m depth						4	82.92
		TW	2	100		5	81.92
						6	80.92
						7	79.92
						8	78.92
						9	77.92
9.60							
End of Borehole							
(GWL @ 5.17m-Aug. 28/08)							



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Consulting Engineers

28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Residential Development - Eden Park East Portion
Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Ltd.

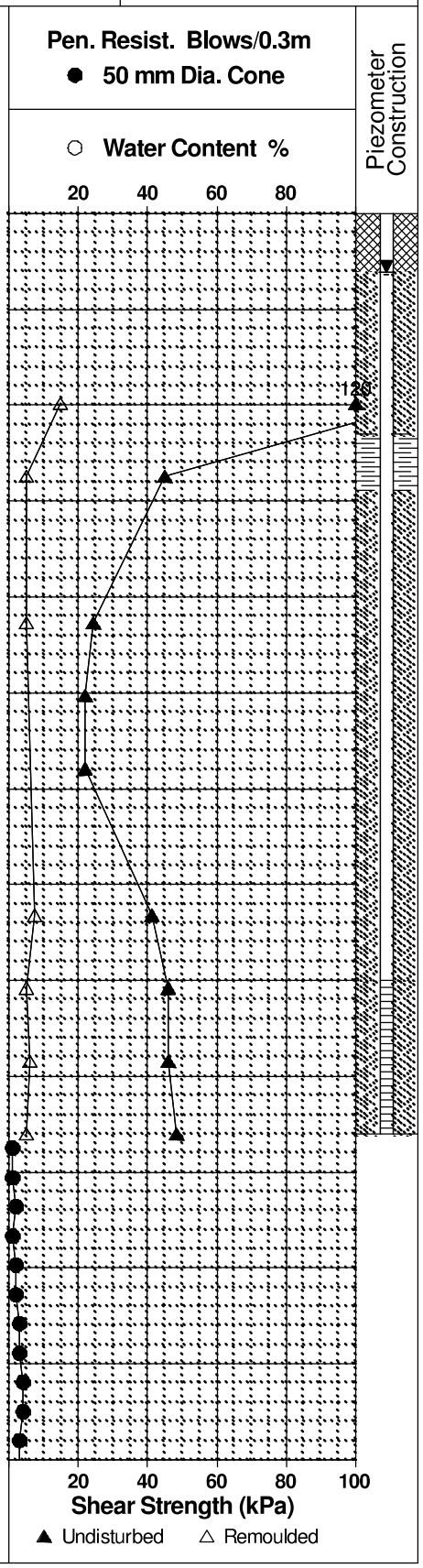
FILE NO. PG0861

REMARKS

HOLE NO. BH11-08

BORINGS BY CME 55 Power Auger **DATE** 7 August 2008

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	87.14
TOPSOIL 0.20							
		SS	1		9	1	86.14
Very stiff to stiff, brown **SILTY CLAY**						2	85.14
- firm and grey by 2.9m depth		TW	2	88		3	84.14
						4	83.14
						5	82.14
		TW	3	100		6	81.14
						7	80.14
						8	79.14
						9	78.14
9.60							
Dynamic Cone Penetration Test commenced @ 9.60m depth						10	77.14
Inferred **SILTY CLAY**						11	76.14
						12	75.14
						13	74.14



Piezometer Construction

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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Residential Development - Eden Park East Portion
Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Ltd.

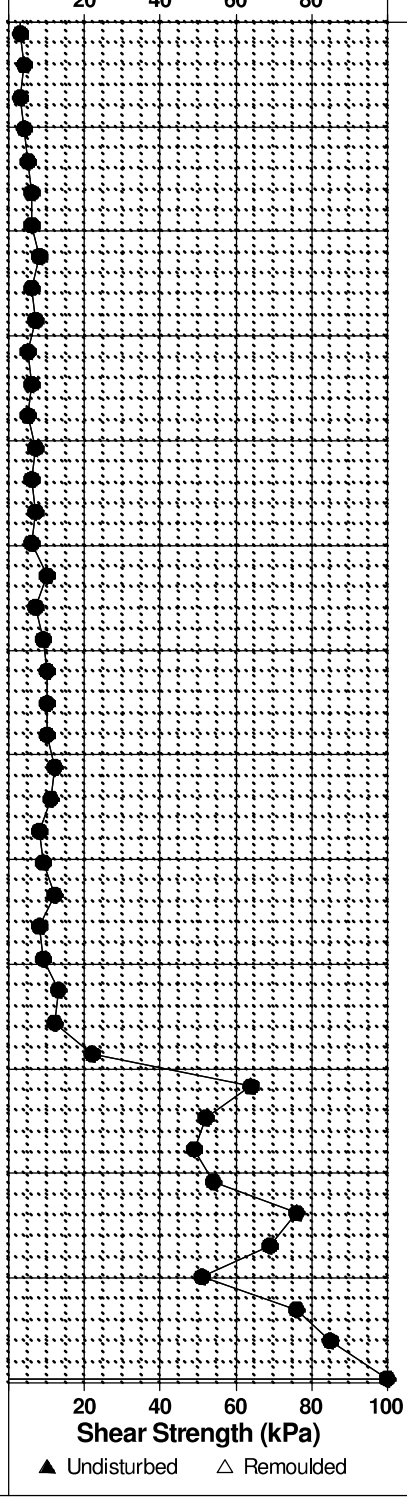
FILE NO. PG0861

REMARKS

HOLE NO. BH11-08

BORINGS BY CME 55 Power Auger **DATE** 7 August 2008

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						13	74.14		
						14	73.14		
						15	72.14		
Inferred **SILTY CLAY**						16	71.14		
						17	70.14		
						18	69.14		
						19	68.14		
						20	67.14		
						21	66.14		
						22	65.14		
Inferred **SILTY CLAY**						23	64.14		
22.90									
						24	63.14		
Inferred **GLACIAL TILL**						25	62.14		
25.96									



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Residential Development - Eden Park East Portion
Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Ltd.

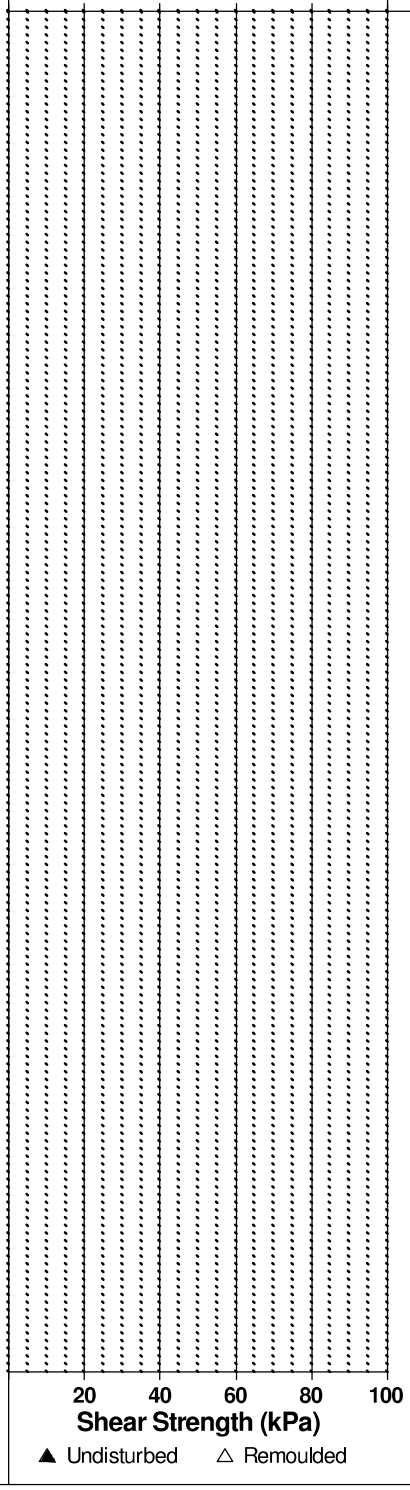
FILE NO. PG0861

REMARKS

HOLE NO. BH11-08

BORINGS BY CME 55 Power Auger **DATE** 7 August 2008

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone / ○ Water Content %	Piezometer Construction
GROUND SURFACE									
End of Borehole Practical DCPT refusal @ 25.96m depth (GWL @ 0.61m-Aug. 28/08)									



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28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Residential Development - Eden Park East Portion
Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Ltd.

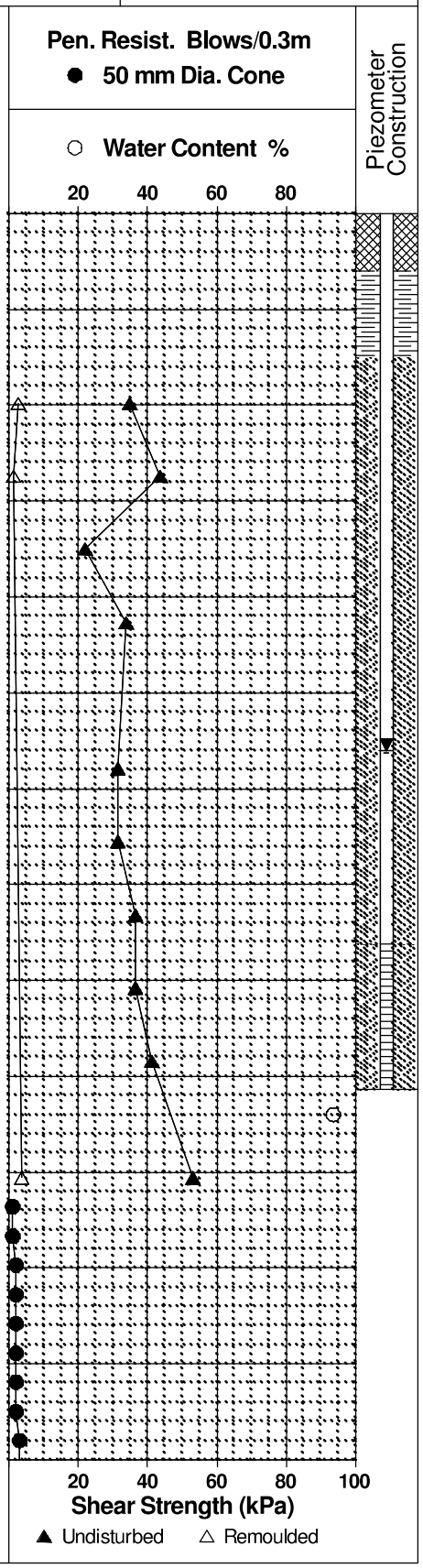
FILE NO. PG0861

REMARKS

HOLE NO. BH12-08

BORINGS BY CME 75 Power Auger **DATE** 16 October 2008

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	87.62
TOPSOIL 0.20		AU	1				
Stiff to firm, brown **SILTY CLAY**		SS	2	58	5	1	86.62
- grey by 1.3m depth						2	85.62
						3	84.62
						4	83.62
		TW	3	100		5	82.62
						6	81.62
						7	80.62
						8	79.62
						9	78.62
		TW	4			10	77.62
10.06							
Dynamic Cone Penetration Test commenced @ 10.06m depth						11	76.62
Inferred **SILTY CLAY**						12	75.62
						13	74.62



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Residential Development - Eden Park East Portion
Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Ltd.

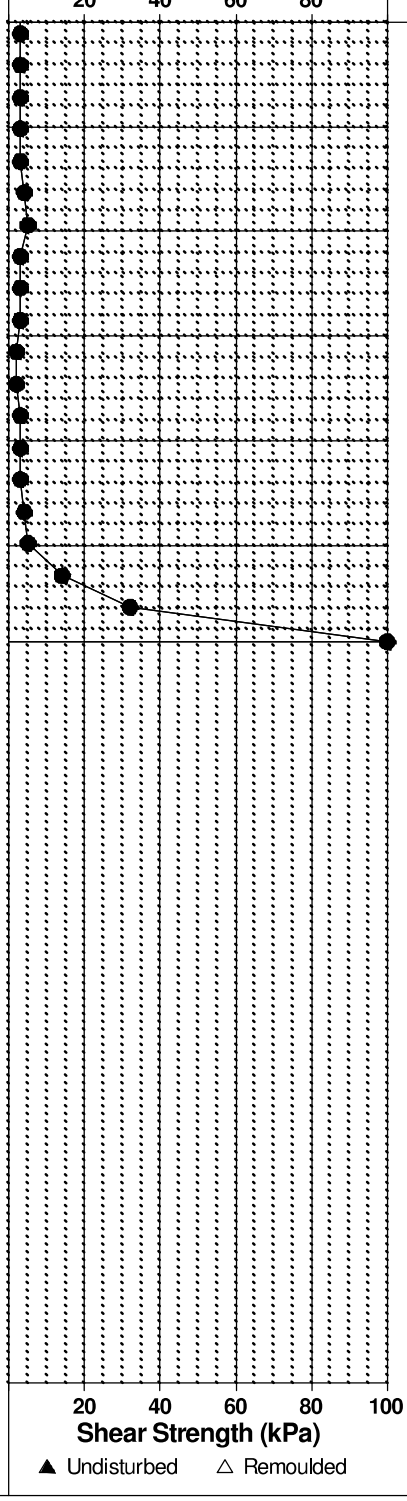
FILE NO. PG0861

REMARKS

HOLE NO. BH12-08

BORINGS BY CME 75 Power Auger **DATE** 16 October 2008

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
Inferred **SILTY CLAY**						13	74.62		
						14	73.62		
						15	72.62		
						16	71.62		
						17	70.62		
						18	69.62		
18.00									
Inferred **GLACIAL TILL**									
18.92									
End of Borehole									
Practical DCPT refusal @ 18.92m depth									
(GWL @ 5.60m-Oct. 23/08)									



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28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Residential Development - Eden Park East Portion
Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Ltd.

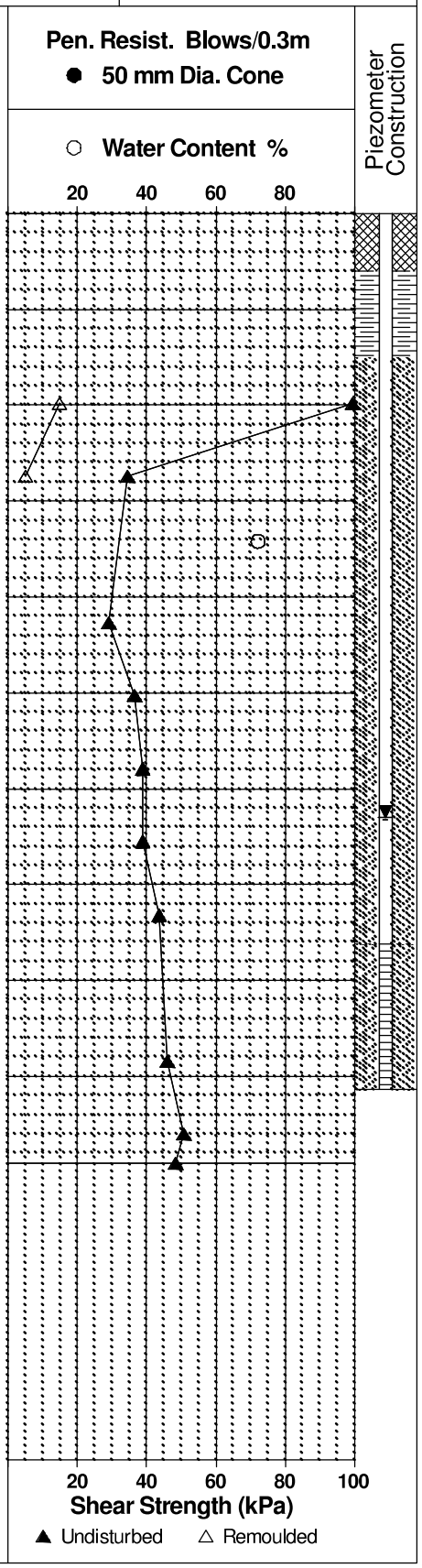
FILE NO. PG0861

REMARKS

HOLE NO. BH13-08

BORINGS BY CME 75 Power Auger **DATE** 16 October 2008

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	87.38
TOPSOIL 0.20							
		SS	1			1	86.38
Stiff to firm, brown **SILTY CLAY**						2	85.38
						3	84.38
- grey by 2.5m depth		TW	2	88			
						4	83.38
						5	82.38
						6	81.38
		SS	3	100			
						7	80.38
		TW	4	100		8	79.38
						9	78.38
		SS	5	100			
9.91							
End of Borehole							
(GWL @ 6.30m-Oct. 23/08)							



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28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Residential Development - Eden Park East Portion
Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Ltd.

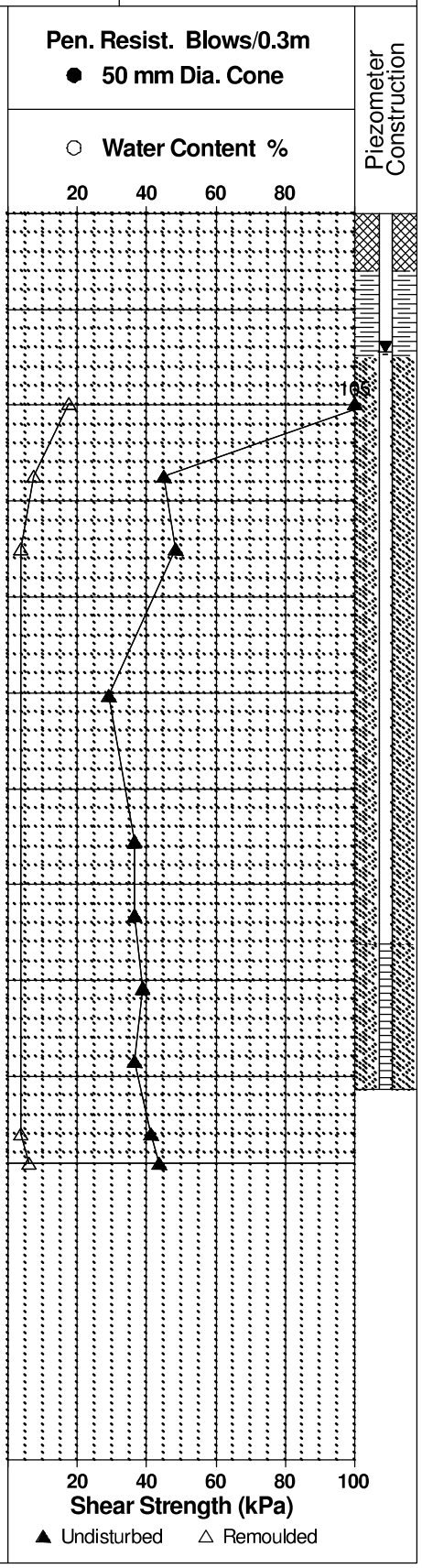
FILE NO. PG0861

REMARKS

HOLE NO. BH14-08

BORINGS BY CME 75 Power Auger **DATE** 15 October 2008

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	87.03
TOPSOIL 0.20		AU	1				
		SS	2	75	9	1	86.03
Very stiff to stiff, brown **SILTY CLAY**						2	85.03
- firm and grey by 2.0m depth						3	84.03
		TW	3	100		4	83.03
						5	82.03
		TW	4	100		6	81.03
						7	80.03
						8	79.03
						9	78.03
9.91 End of Borehole							
(GWL @ 1.45m-Oct. 23/08)							



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28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Residential Development - Eden Park East Portion
Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Ltd.

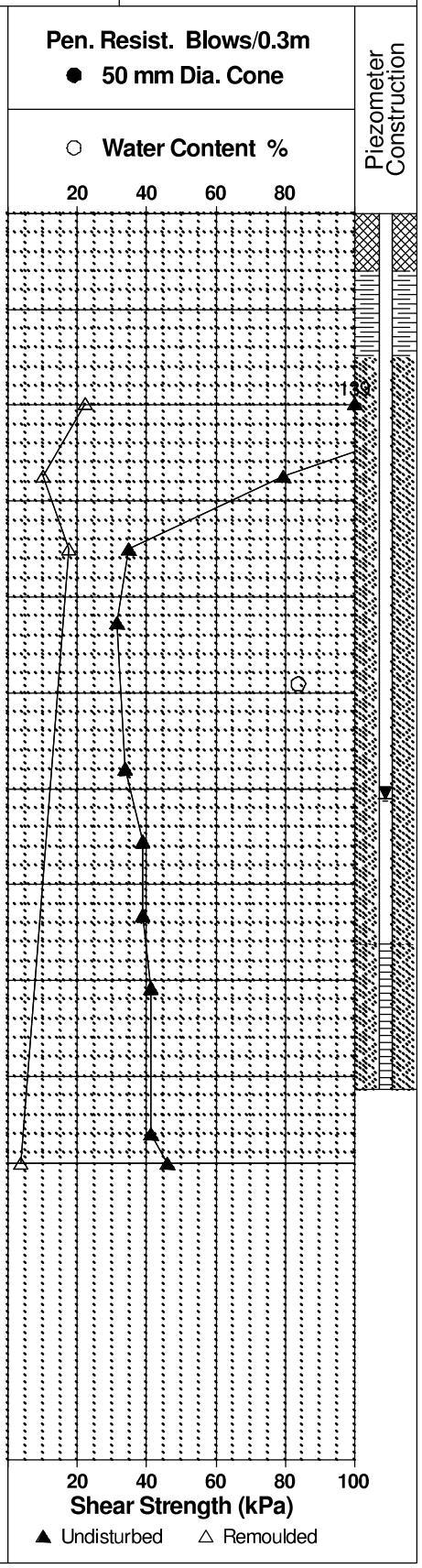
FILE NO. PG0861

REMARKS

HOLE NO. BH15-08

BORINGS BY CME 75 Power Auger **DATE** 16 October 2008

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	87.24
TOPSOIL 0.20							
		SS	1	67	11	1	86.24
Very stiff to stiff, brown **SILTY CLAY**						2	85.24
- stiff to firm and grey by 2.5m depth						3	84.24
						4	83.24
		TW	2	100		5	82.24
						6	81.24
						7	80.24
		SS	3	100		8	79.24
		AU	5				
		TW	4	100		9	78.24
9.91							
End of Borehole							
(GWL @ 6.10m-Oct. 23/08)							



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Consulting Engineers

28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7

SOIL PROFILE AND TEST DATA

Preliminary Geotechnical Investigation
Pharand Lands - Innes Road at Mer Bleeu Road
Ottawa, Ontario

DATUM Geodetic, as provided by Stantec Consulting Ltd.

FILE NO. PG0811

REMARKS

HOLE NO. BH 3

BORINGS BY CME 75 Power Auger **DATE** 5 Apr 06

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	89.00
TOPSOIL 0.23							
Very stiff, brown **SILTY CLAY** 0.76							
GLACIAL TILL: Dense, brown silty sand with clay, gravel, cobbles and boulders 1.19		SS	1	67	50+	1	88.00
End of Borehole							
Practical refusal to augering @ 1.19m depth							
(GWL @ 0.45m-Apr. 12/06)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %
20 40 60 80

Piezometer Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

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28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7

SOIL PROFILE AND TEST DATA

Preliminary Geotechnical Investigation
Pharand Lands - Innes Road at Mer Bleeu Road
Ottawa, Ontario

DATUM Geodetic, as provided by Stantec Consulting Ltd.

FILE NO. PG0811

REMARKS

HOLE NO. BH 4

BORINGS BY CME 75 Power Auger **DATE** 5 Apr 06

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	88.38
TOPSOIL 0.23							
Very stiff to stiff, brown **SILTY CLAY**		SS	1	62	12	1	87.38
		SS	2	100	8	2	86.38
- stiff to firm and grey by 2.6m depth		SS	3	100	1	3	85.38
		SS	4	100	1	4	84.38
4.72 End of Borehole							
(GWL @ 0.40m-Apr. 12/06)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %
20 40 60 80

Piezometer Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

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28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7

SOIL PROFILE AND TEST DATA

Preliminary Geotechnical Investigation
Pharand Lands - Innes Road at Mer Bleeu Road
Ottawa, Ontario

DATUM Geodetic, as provided by Stantec Consulting Ltd.

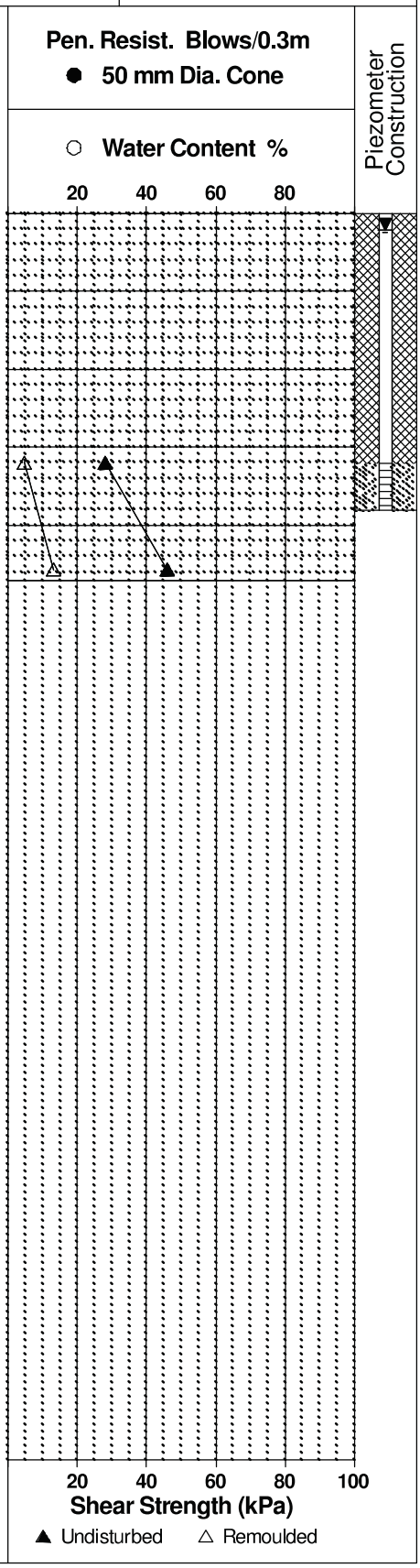
FILE NO. PG0811

REMARKS

HOLE NO. BH 5

BORINGS BY CME 75 Power Auger **DATE** 5 Apr 06

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	88.46
TOPSOIL 0.10							
Brown **CLAYEY SILT**, trace sand 0.60		SS	1	75	12	1	87.46
		SS	2	83	7	2	86.46
Stiff, brown **SILTY CLAY**		SS	3	100	4	3	85.46
- firm and grey by 2.9m depth							
		SS	4	100	1	4	84.46
4.72							
End of Borehole							
(GWL @ 0.21m-Apr. 12/06)							



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SOIL PROFILE AND TEST DATA

Preliminary Geotechnical Investigation
Pharand Lands - Innes Road at Mer Bleeu Road
Ottawa, Ontario

DATUM Geodetic, as provided by Stantec Consulting Ltd.

FILE NO. PG0811

REMARKS

HOLE NO. BH 6

BORINGS BY CME 75 Power Auger **DATE** 5 Apr 06

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	89.47
TOPSOIL 0.25		AU	1				
Brown **SILTY CLAY**, trace sand 0.76							
End of Borehole							
Practical refusal to augering @ 0.76m depth							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %
20 40 60 80

Piezometer Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

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28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7

SOIL PROFILE AND TEST DATA

Preliminary Geotechnical Investigation
Pharand Lands - Innes Road at Mer Bleeu Road
Ottawa, Ontario

DATUM Geodetic, as provided by Stantec Consulting Ltd.

FILE NO. PG0811

REMARKS

HOLE NO. BH 7

BORINGS BY CME 75 Power Auger **DATE** 5 Apr 06

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	88.20
TOPSOIL 0.23							
Very stiff to stiff, red-brown **SILTY CLAY**, trace sand		SS	1	75	9	1	87.20
		SS	2	100	4	2	86.20
- firm and brown by 2.1m depth		SS	3	100	3		
- grey by 2.7m depth						3	85.20
		SS	4	100	1	4	84.20
4.72							
End of Borehole							
(GWL @ ground surface - April 12/06)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %
20 40 60 80

Piezometer Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

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28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7

SOIL PROFILE AND TEST DATA

Preliminary Geotechnical Investigation
Pharand Lands - Innes Road at Mer Bleeu Road
Ottawa, Ontario

DATUM Geodetic, as provided by Stantec Consulting Ltd.

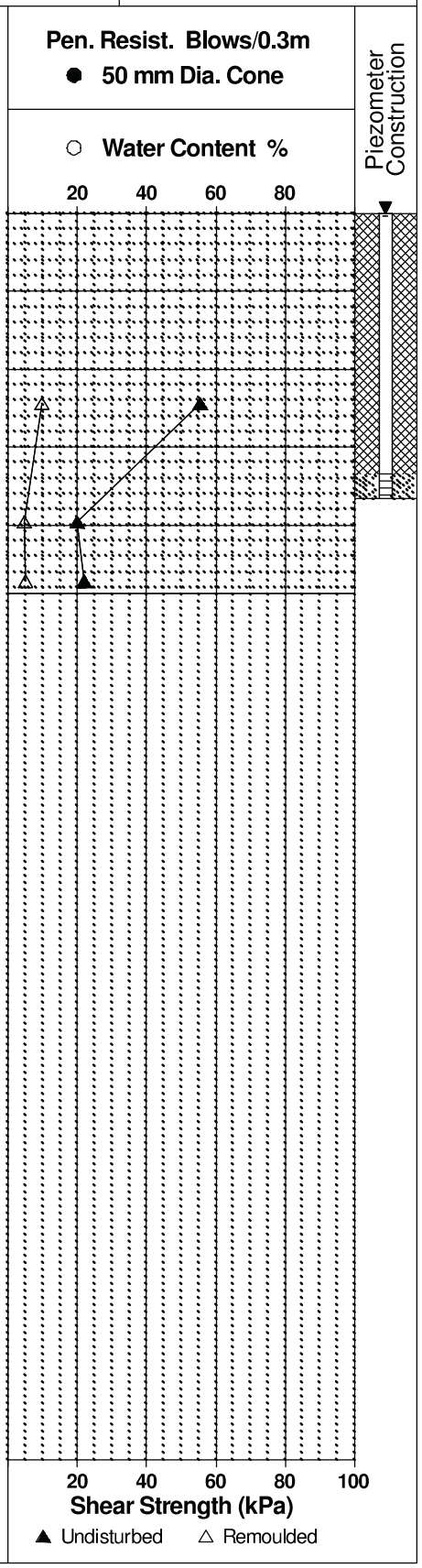
FILE NO. PG0811

REMARKS

HOLE NO. BH 8

BORINGS BY CME 75 Power Auger **DATE** 5 Apr 06

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	88.28
TOPSOIL 0.19							
Very stiff to stiff, brown to red-brown **SILTY CLAY**		SS	1	50	11	1	87.28
		SS	2	75	7	2	86.28
- firm to soft and grey by 2.6m depth		SS	3	100	1	3	85.28
						4	84.28
4.88							
End of Borehole							
(GWL @ ground surface - April 12/06)							



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Consulting Engineers

28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Proposed Residential Subdivision, 4th Line Road
Ottawa, Ontario

DATUM Approximate geodetic, based on base plan provided by Webster and Simmonds Surveying Ltd.

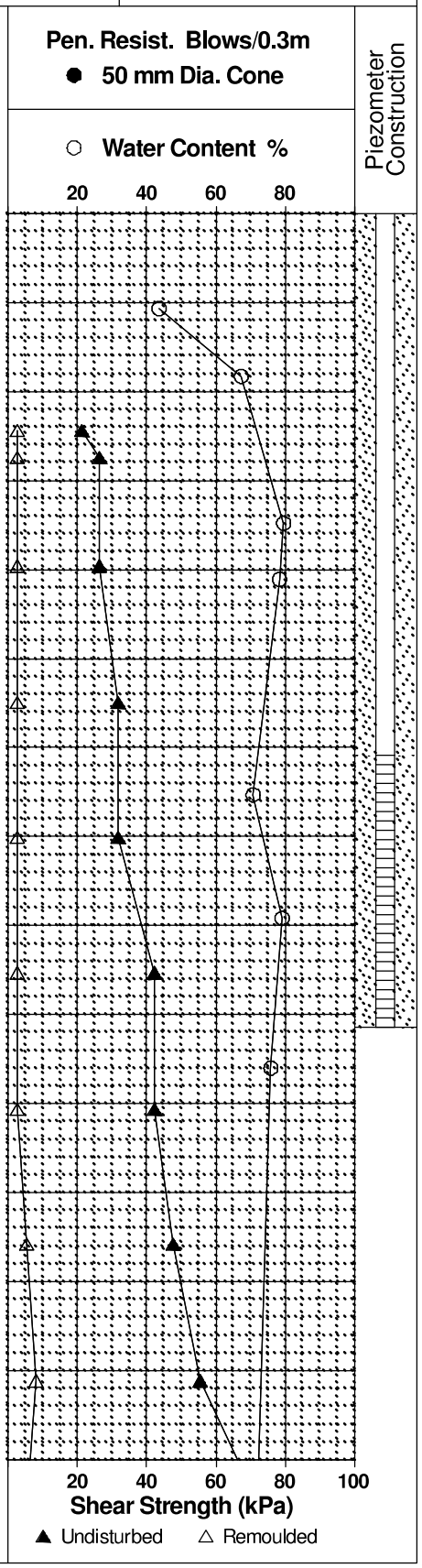
FILE NO. G8533

REMARKS

HOLE NO. BH 3

BORINGS BY CME 55 Power Auger **DATE** 12 Mar 02

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	87.50
TOPSOIL 0.15							
Stiff to very stiff, grey-brown **SILTY CLAY**		SS	1	62	5	1	86.50
		SS	2	58	3	2	85.50
- firm by 2.4m depth							
- grey by 3.0m depth		TW	3			3	84.50
		SS	4	100	1	4	83.50
		TW	5			5	82.50
		SS	6	100	1	6	81.50
		TW	7			7	80.50
		SS	8	100	1	8	79.50
		SS	9	100	1	9	78.50
						10	77.50
						11	76.50
						12	75.50
						13	74.50
14.00						14	73.50



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Consulting Engineers

28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Proposed Residential Subdivision, 4th Line Road
Ottawa, Ontario

DATUM Approximate geodetic, based on base plan provided by Webster and Simmonds Surveying Ltd.

FILE NO. G8533

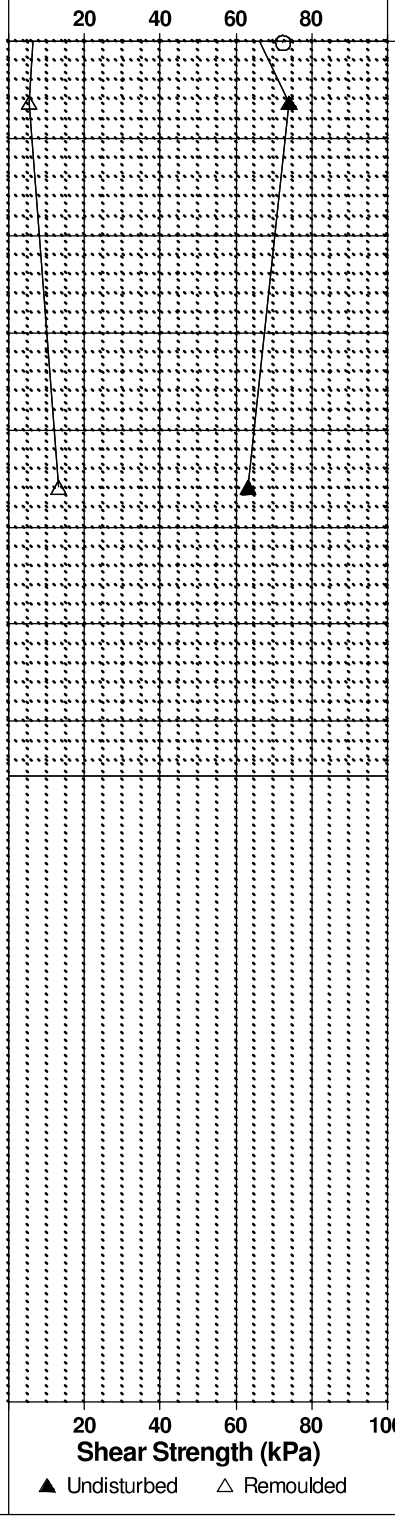
REMARKS

HOLE NO. BH 3

BORINGS BY CME 55 Power Auger **DATE** 12 Mar 02

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
		SS	10	100	1	14	73.50
		TW	11			15	72.50
Stiff, grey **SILTY CLAY**						16	71.50
						17	70.50
						18	69.50
						19	68.50
						20	67.50
20.73							
GLACIAL TILL: Dense, grey silty sand and gravel						21	66.50
21.56		SS	12		50+		
End of Borehole							
(Standpipe damaged - March 26/02)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %



Piezometer Construction

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Consulting Engineers

28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Proposed Residential Subdivision, 4th Line Road
Ottawa, Ontario

DATUM Approximate geodetic, based on base plan provided by Webster and Simmonds Surveying Ltd.

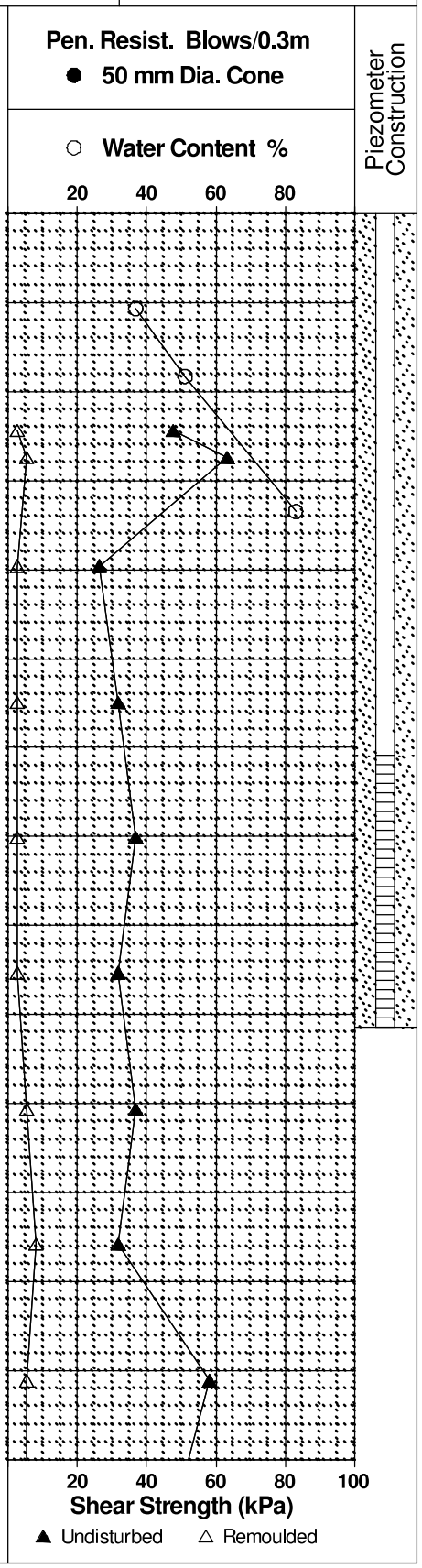
REMARKS

BORINGS BY CME 55 Power Auger **DATE** 12 Mar 02

FILE NO. G8533

HOLE NO. BH 4

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	87.40
TOPSOIL 0.15							
Very stiff to stiff, brown-grey **SILTY CLAY**		SS	1	50	9	1	86.40
		SS	2	67	6	2	85.40
- firm and grey by 3.0m depth		SS	3	100	1	3	84.40
		SS	4	100	1	4	83.40
		SS	5	100	1	5	82.40
		SS	6	100	1	6	81.40
		SS	7	100	1	7	80.40
		SS	8	100	1	8	79.40
		SS	9	100	1	9	78.40
						10	77.40
						11	76.40
						12	75.40
						13	74.40
14.00						14	73.40



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Consulting Engineers

28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Proposed Residential Subdivision, 4th Line Road
Ottawa, Ontario

DATUM Approximate geodetic, based on base plan provided by Webster and Simmonds Surveying Ltd.

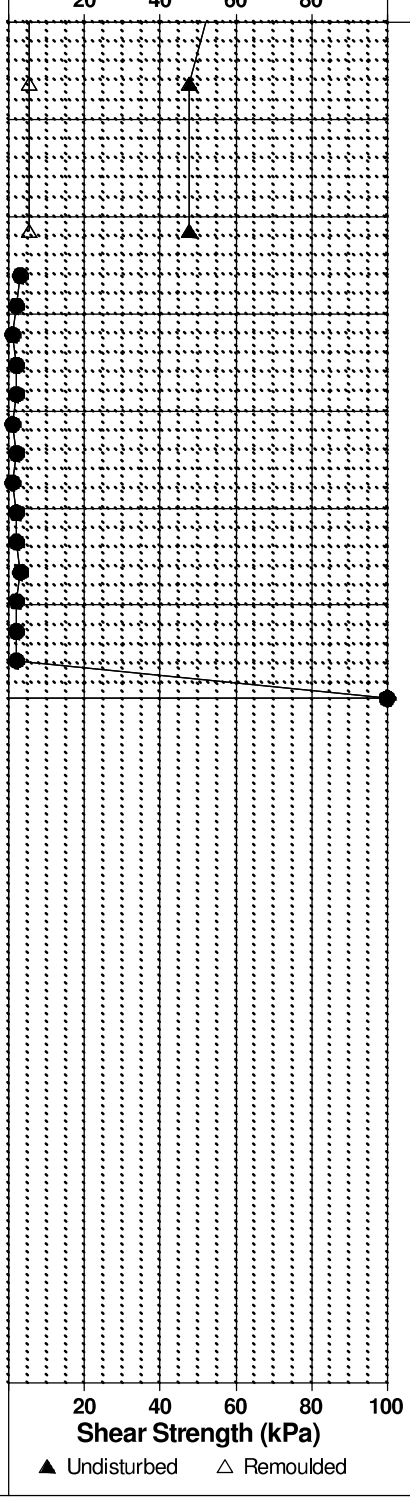
FILE NO. G8533

REMARKS

HOLE NO. BH 4

BORINGS BY CME 55 Power Auger **DATE** 12 Mar 02

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
Firm to stiff, grey **SILTY CLAY**		SS	10	100	1	14	73.40
		SS	11	100	1	15	72.40
						16	71.40
16.46							
Dynamic Cone Penetration test commenced @ 16.46m depth						17	70.40
						18	69.40
						19	68.40
						20	67.40
20.96							
End of Borehole Cone refusal @ 20.96m depth (Standpipe damaged - March 26/02)							



Piezometer Construction

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Consulting Engineers

28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Proposed Residential Subdivision, 4th Line Road
Ottawa, Ontario

DATUM Approximate geodetic, based on base plan provided by Webster and Simmonds Surveying Ltd.

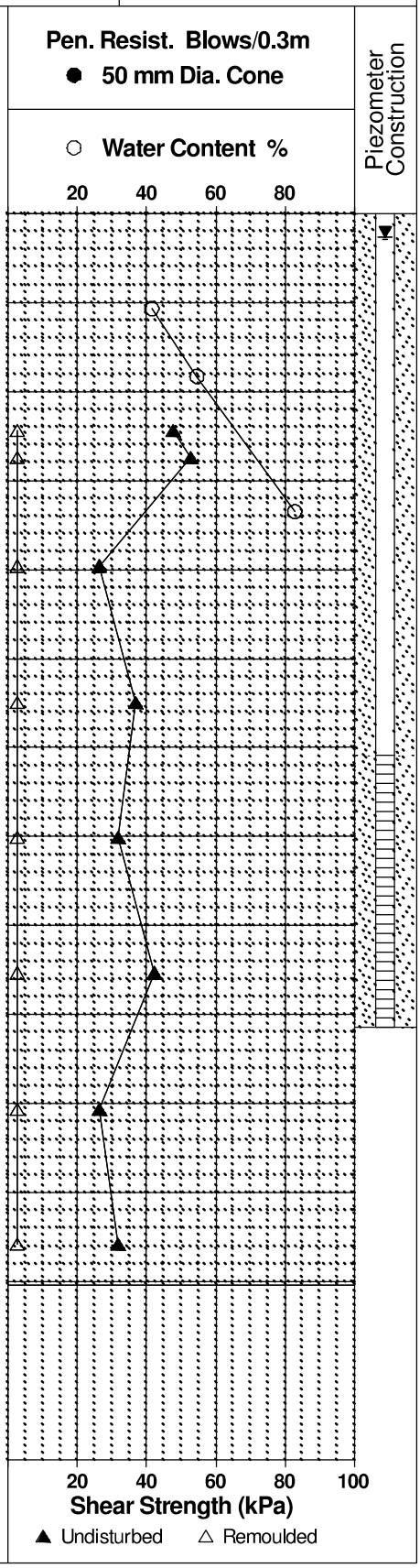
REMARKS

BORINGS BY CME 55 Power Auger **DATE** 13 Mar 02

FILE NO. G8533

HOLE NO. BH 5

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	87.70
TOPSOIL 0.18							
Stiff to very stiff, brown-grey **SILTY CLAY**		SS	1	75	7	1	86.70
- firm to stiff by 1.5m depth		SS	2	79	2	2	85.70
- firm and grey by 3.0m depth		SS	3	100	1	3	84.70
		SS	4	100	1	4	83.70
		TW	5			5	82.70
		SS	6	100	1	6	81.70
		SS	7	100	1	7	80.70
		SS	8	100	1	8	79.70
						9	78.70
						10	77.70
						11	76.70
12.04						12	75.70
End of Borehole							
Practical refusal to augering @ 12.04m depth							
(GWL @ 0.27m-March 26/02)							



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Consulting Engineers

28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Proposed Residential Subdivision, 4th Line Road
Ottawa, Ontario

DATUM Approximate geodetic, based on base plan provided by Webster and Simmonds Surveying Ltd.

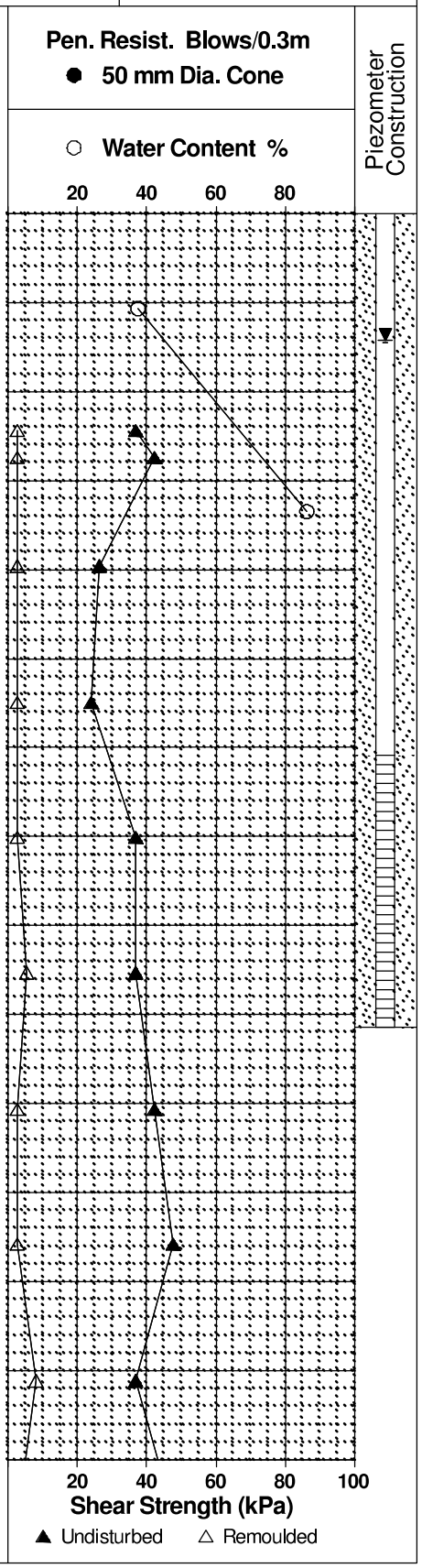
FILE NO. G8533

REMARKS

HOLE NO. BH 6

BORINGS BY CME 55 Power Auger **DATE** 13 Mar 02

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	87.30
TOPSOIL 0.15							
Stiff to very stiff, brown-grey **SILTY CLAY**		SS	1	67	11	1	86.30
- firm by 1.5m depth		SS	2	79	2	2	85.30
- grey by 3.0m depth		SS	3	29	1	3	84.30
		TW	4			4	83.30
		SS	5	100	1	5	82.30
		SS	6	100	1	6	81.30
		SS	7	100	1	7	80.30
		SS	8	100	1	8	79.30
		SS	9	100	1	9	78.30
						10	77.30
						11	76.30
						12	75.30
						13	74.30
14.00						14	73.30



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Consulting Engineers

28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Proposed Residential Subdivision, 4th Line Road
Ottawa, Ontario

DATUM Approximate geodetic, based on base plan provided by Webster and Simmonds Surveying Ltd.

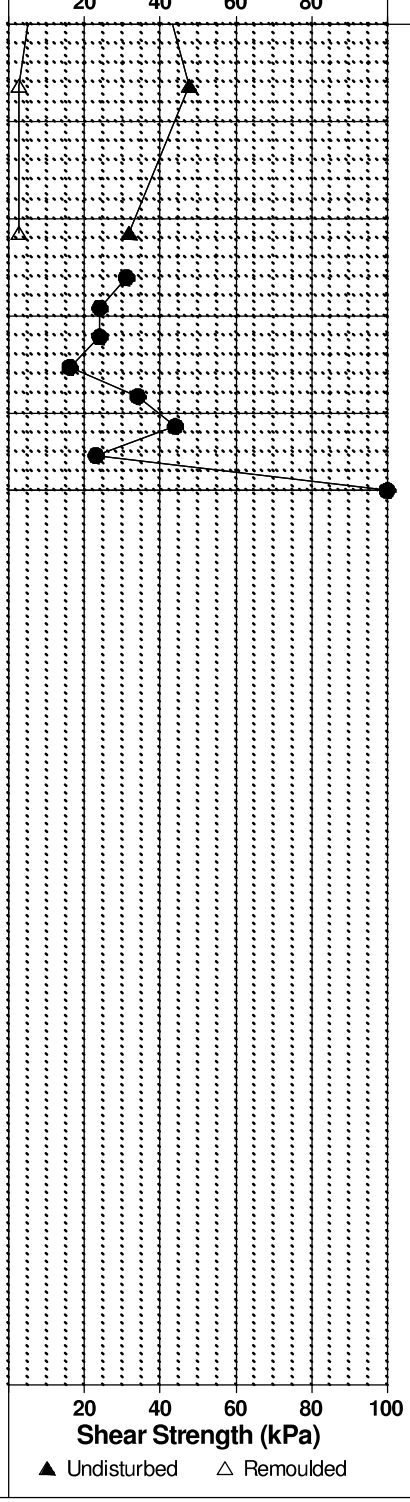
FILE NO. G8533

REMARKS

HOLE NO. BH 6

BORINGS BY CME 55 Power Auger **DATE** 13 Mar 02

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
Firm, grey **SILTY CLAY**		SS	10	100	1	14	73.30
		SS	11	100	1	15	72.30
						16	71.30
16.46						17	70.30
Dynamic Cone Penetration test commenced @ 16.46m depth						18	69.30
18.80							
End of Borehole Cone refusal @ 18.80m depth (GWL @ 1.42m-March 26/02)							



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Consulting Engineers

28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Proposed Residential Subdivision, 4th Line Road
Ottawa, Ontario

DATUM Approximate geodetic, based on base plan provided by Webster and Simmonds Surveying Ltd.

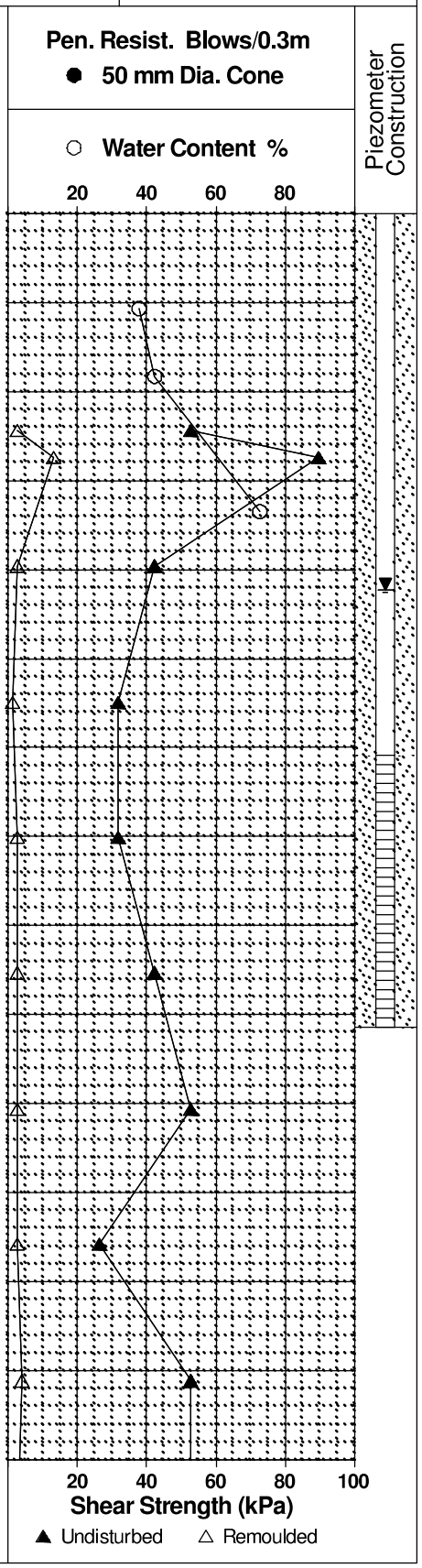
FILE NO. G8533

REMARKS

HOLE NO. BH 7

BORINGS BY CME 55 Power Auger **DATE** 14 Mar 02

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	86.80
TOPSOIL 0.18							
Very stiff to stiff, brown-grey **SILTY CLAY**		SS	1	58	10	1	85.80
		SS	2	67	7	2	84.80
- firm and grey by 3.0m depth		SS	3	71	2	3	83.80
		SS	4	100	1	4	82.80
		SS	5	100	1	5	81.80
		SS	6	100	1	6	80.80
		SS	7	100	1	7	79.80
- stiff to firm by 10.0m depth		SS	8	100	1	8	78.80
		SS	9	100	1	9	77.80
						10	76.80
						11	75.80
						12	74.80
						13	73.80
14.00						14	72.80



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Consulting Engineers

28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Proposed Residential Subdivision, 4th Line Road
Ottawa, Ontario

DATUM Approximate geodetic, based on base plan provided by Webster and Simmonds Surveying Ltd.

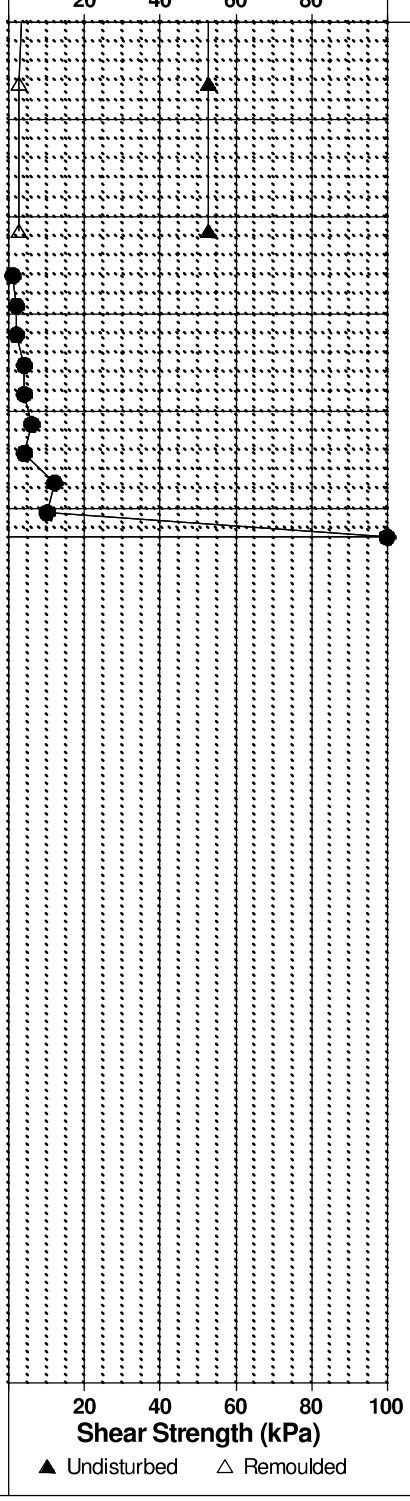
FILE NO. G8533

REMARKS

HOLE NO. BH 7

BORINGS BY CME 55 Power Auger **DATE** 14 Mar 02

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
Stiff, grey **SILTY CLAY**		SS	10	100	1	14	72.80		
		SS	11	100	1	15	71.80		
						16	70.80		
16.46						17	69.80		
Dynamic Cone Penetration test commenced @ 16.46m depth						18	68.80		
19.30						19	67.80		
End of Borehole Cone refusal @ 19.30m depth (GWL @ 4.23m-March 26/02)									



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Consulting Engineers

28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Residential Development - Eden Park East Portion
Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Ltd.

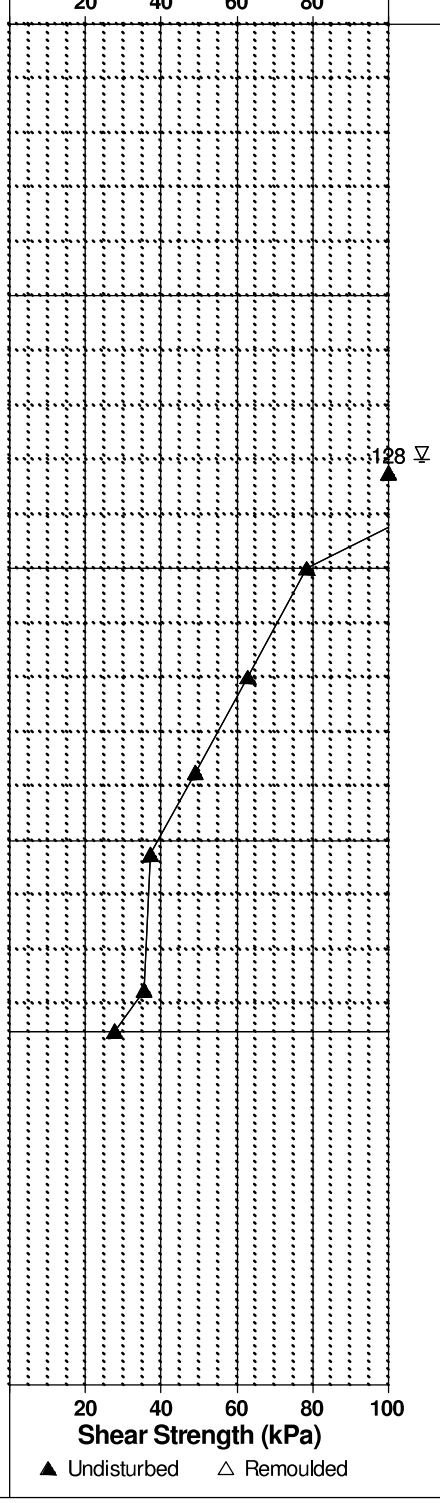
FILE NO. PG0861

REMARKS

HOLE NO. TP 9-08

BORINGS BY Hydraulic Shovel **DATE** 28 August 2008

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone / ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	86.92		
TOPSOIL 0.15									
Loose, light brown **SILTY SAND** 0.75						1	85.92		
Very stiff to stiff, brown **SILTY CLAY**						2	84.92		
- firm and grey by 2.7m depth						3	83.92		
3.70									
End of Test Pit									
(GWL @ 1.6m-Aug. 28/08)									



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Consulting Engineers

28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Residential Development - Eden Park East Portion
Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Ltd.

FILE NO. PG0861

REMARKS

HOLE NO. TP11-08

BORINGS BY Hydraulic Shovel **DATE** 28 August 2008

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone / ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	87.14		
TOPSOIL 0.20									
Very stiff to stiff, brown **SILTY CLAY**						1	86.14	128 128 128 128	▽
- stiff to firm and grey by 2.9m depth						2	85.14		
3.70						3	84.14		
End of Test Pit									
(GWL @ 1.0m-Aug. 28/08)									

Pen. Resist. Blows/0.3m: 20 40 60 80

Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

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Consulting Engineers

28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Residential Development - Eden Park East Portion
Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Ltd.

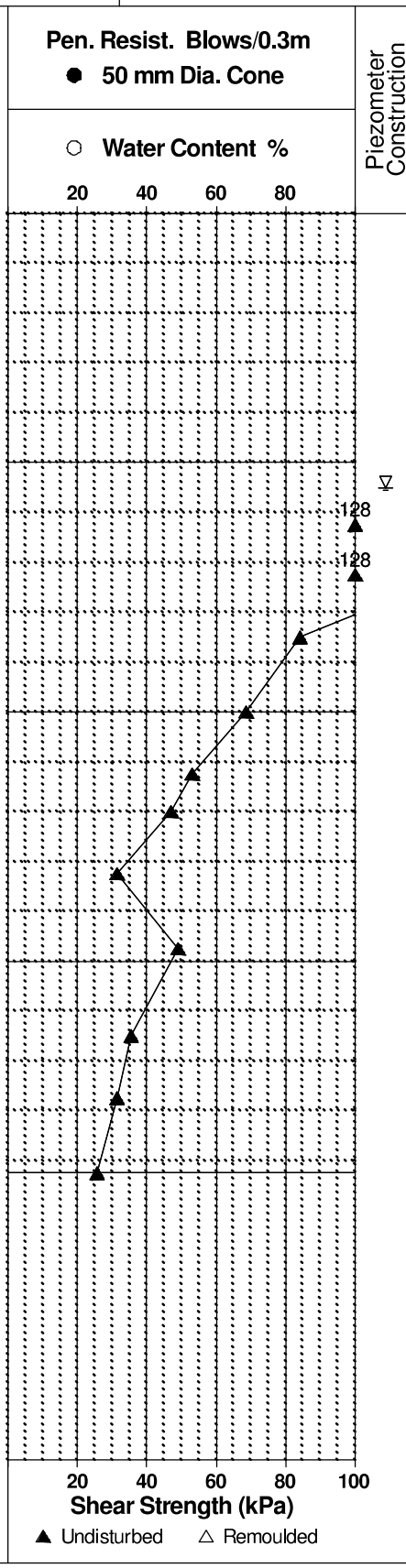
FILE NO. PG0861

REMARKS

HOLE NO. TP16-08

BORINGS BY Hydraulic Shovel **DATE** 28 August 2008

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone / ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	86.81		
TOPSOIL									
0.20									
Very stiff to stiff, brown **SILTY CLAY**						1	85.81		
- firm and grey by 2.3m depth						2	84.81		
						3	83.81		
3.85									
End of Test Pit									
(GWL @ 1.1m-Aug. 28/08)									



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Consulting Engineers

28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Residential Development - Eden Park East Portion
Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Ltd.

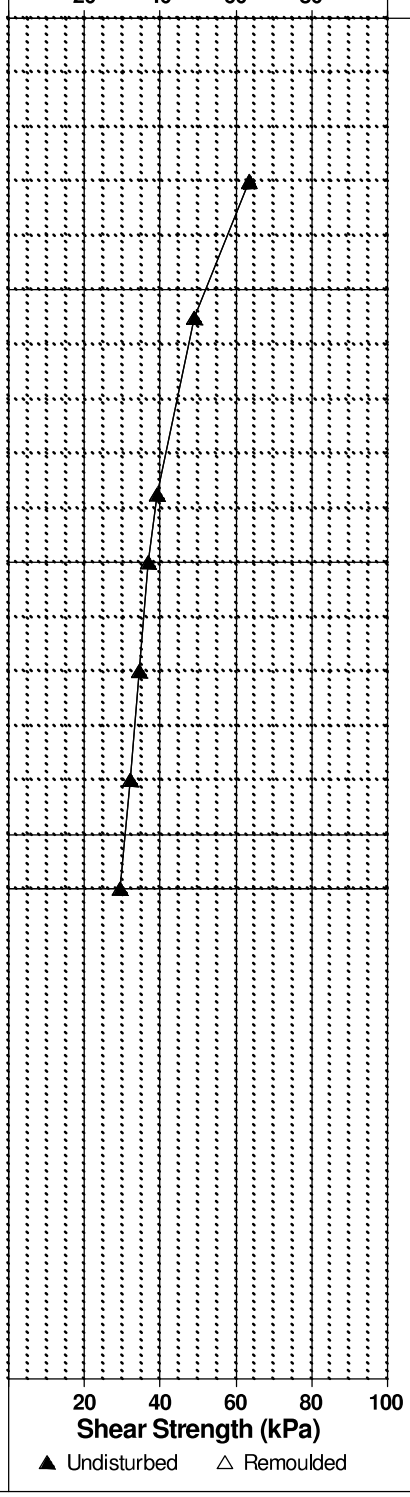
FILE NO. PG0861

REMARKS

HOLE NO. TP17-08

BORINGS BY Backhoe **DATE** 24 October 2008

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.15						0	87.62		
Stiff to firm, brown **SILTY CLAY**						1	86.62		
- firm and grey by 1.3m depth						2	85.62		
3.20						3	84.62		
End of Test Pit (TP dry upon completion)									



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Consulting Engineers

28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Residential Development - Eden Park East Portion
Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Ltd.

FILE NO. PG0861

REMARKS

HOLE NO. TP18-08

BORINGS BY Backhoe **DATE** 24 October 2008

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone / ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	87.38		
TOPSOIL 0.15									
Stiff, brown **SILTY CLAY**						1	86.38		
- firm and grey by 2.5m depth						2	85.38		
3.10						3	84.38		
End of Test Pit (Groundwater infiltration @ 1.5m depth)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %

Water Content %: 20, 40, 60, 80

Shear Strength (kPa): 20, 40, 60, 80, 100

▲ Undisturbed △ Remoulded

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Consulting Engineers

28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Residential Development - Eden Park East Portion
Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Ltd.

FILE NO. PG0861

REMARKS

HOLE NO. TP19-08

BORINGS BY Backhoe **DATE** 24 October 2008

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone / ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	87.03		
TOPSOIL 0.15									
Stiff, brown **SILTY CLAY**						1	86.03		▽
- stiff to firm and grey by 2.3m depth						2	85.03		
						3	84.03		
3.35 End of Test Pit									
(Groundwater infiltration @ 1.6m depth)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %; 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100; ▲ Undisturbed △ Remoulded

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Consulting Engineers

28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Residential Development - Eden Park East Portion
Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Ltd.

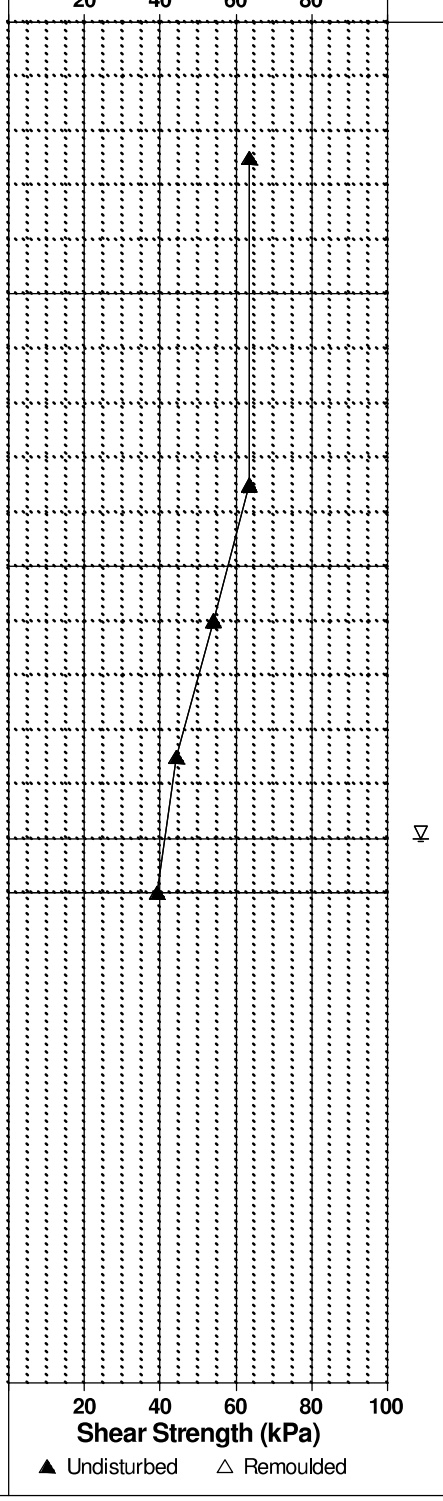
FILE NO. PG0861

REMARKS

HOLE NO. TP20-08

BORINGS BY Backhoe **DATE** 24 October 2008

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone / ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	87.24		
TOPSOIL 0.30									
Stiff, brown **SILTY CLAY**						1	86.24		
						2	85.24		
- firm and grey by 2.5m depth						3	84.24		▽
3.20 End of Test Pit (Groundwater infiltration @ 3.0m depth)									



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28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7

SOIL PROFILE AND TEST DATA

Preliminary Geotechnical Investigation
Pharand Lands - Innes Road at Mer Bleeu Road
Ottawa, Ontario

DATUM Geodetic, as provided by Stantec Consulting Ltd.

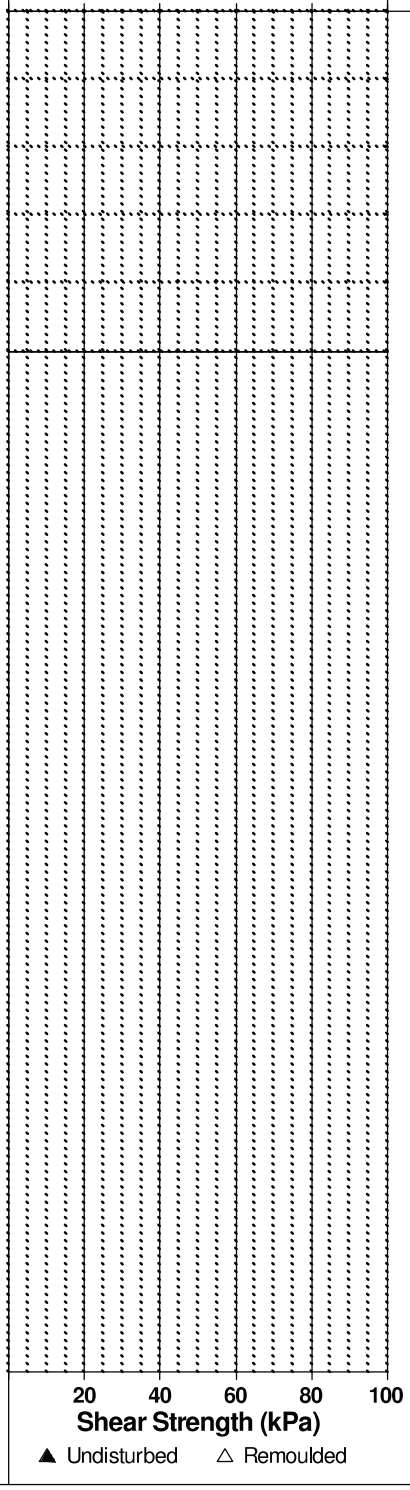
FILE NO. PG0811

REMARKS

HOLE NO. TP14

BORINGS BY Backhoe **DATE** 12 Apr 06

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	89.06		
TOPSOIL 0.30									
Stiff, brown **SILTY CLAY**									
1.00						1	88.06		
End of Test Pit TP terminated on bedrock surface @ 1.00m depth (TP dry upon completion)									



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SOIL PROFILE AND TEST DATA

Preliminary Geotechnical Investigation
Pharand Lands - Innes Road at Mer Bleeu Road
Ottawa, Ontario

DATUM Geodetic, as provided by Stantec Consulting Ltd.

FILE NO. PG0811

REMARKS

HOLE NO. TP15

BORINGS BY Backhoe **DATE** 12 Apr 06

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone / ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.15						0	88.63		
Very stiff, grey-brown **SILTY CLAY**		G	1						
1.10						1	87.63		▽
End of Test Pit TP terminated on bedrock surface @ 1.10m depth (Open hole GWL @ 1.0m depth)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %
20 40 60 80

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

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SOIL PROFILE AND TEST DATA

Preliminary Geotechnical Investigation
Pharand Lands - Innes Road at Mer Bleeu Road
Ottawa, Ontario

DATUM Geodetic, as provided by Stantec Consulting Ltd.

FILE NO. PG0811

REMARKS

HOLE NO. TP16

BORINGS BY Backhoe **DATE** 12 Apr 06

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone / ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	88.48	20 40 60 80	
TOPSOIL 0.15									
Very stiff to stiff, grey-brown **SILTY CLAY**						1	87.48		▽
						2	86.48		
3.10						3	85.48		
End of Test Pit (Open hole GWL @ 1.8m depth)								20 40 60 80 100 Shear Strength (kPa) ▲ Undisturbed △ Remoulded	

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SOIL PROFILE AND TEST DATA

Preliminary Geotechnical Investigation
Pharand Lands - Innes Road at Mer Bleeu Road
Ottawa, Ontario

DATUM Geodetic, as provided by Stantec Consulting Ltd.

FILE NO. PG0811

REMARKS

HOLE NO. TP17

BORINGS BY Backhoe **DATE** 12 Apr 06

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	88.47	20 40 60 80	
TOPSOIL									
0.30									
Stiff, grey-brown **SILTY CLAY**						1	87.47		▽
						2	86.47		
						3	85.47		
3.20									
End of Test Pit (Open hole GWL @ 1.0m depth)								20 40 60 80 100 **Shear Strength (kPa)** ▲ Undisturbed △ Remoulded	

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SOIL PROFILE AND TEST DATA

Preliminary Geotechnical Investigation
Pharand Lands - Innes Road at Mer Bleeu Road
Ottawa, Ontario

DATUM Geodetic, as provided by Stantec Consulting Ltd.

FILE NO. PG0811

REMARKS

HOLE NO. TP18

BORINGS BY Backhoe **DATE** 12 Apr 06

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	89.14		
TOPSOIL 0.30									
Stiff, brown to grey-brown **SILTY CLAY**						1	88.14		
1.10									
End of Test Pit TP terminated on bedrock surface @ 1.10m depth (Open hole GWL @ 1.1m depth)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %
20 40 60 80

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

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SOIL PROFILE AND TEST DATA

Preliminary Geotechnical Investigation
Pharand Lands - Innes Road at Mer Bleeu Road
Ottawa, Ontario

DATUM Geodetic, as provided by Stantec Consulting Ltd.

FILE NO. PG0811

REMARKS

HOLE NO. TP19

BORINGS BY Backhoe **DATE** 12 Apr 06

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	89.26		
TOPSOIL 0.30									
Brown **SILTY CLAY** 0.60									
End of Test Pit TP terminated on bedrock surface @ 0.60m depth									

20 40 60 80

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

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28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7

SOIL PROFILE AND TEST DATA

Preliminary Geotechnical Investigation
Pharand Lands - Innes Road at Mer Bleeu Road
Ottawa, Ontario

DATUM Geodetic, as provided by Stantec Consulting Ltd.

FILE NO. PG0811

REMARKS

HOLE NO. TP20

BORINGS BY Backhoe **DATE** 12 Apr 06

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone / ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	88.94		
TOPSOIL									
0.30									
Stiff, brown **SILTY CLAY**									
1.00						1	87.94		
End of Test Pit									
TP terminated on bedrock surface @ 1.00m depth									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: 20 40 60 80

Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

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28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7

SOIL PROFILE AND TEST DATA

Preliminary Geotechnical Investigation
Pharand Lands - Innes Road at Mer Bleeu Road
Ottawa, Ontario

DATUM Geodetic, as provided by Stantec Consulting Ltd.

FILE NO. PG0811

REMARKS

HOLE NO. TP21

BORINGS BY Backhoe **DATE** 12 Apr 06

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone / ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	88.53		
TOPSOIL 0.30									
Stiff, grey-brown **SILTY CLAY**						1	87.53		
1.70									
End of Test Pit TP terminated on bedrock surface @ 1.70m depth (TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %

20 40 60 80

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

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28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7

SOIL PROFILE AND TEST DATA

Preliminary Geotechnical Investigation
Pharand Lands - Innes Road at Mer Bleeu Road
Ottawa, Ontario

DATUM Geodetic, as provided by Stantec Consulting Ltd.

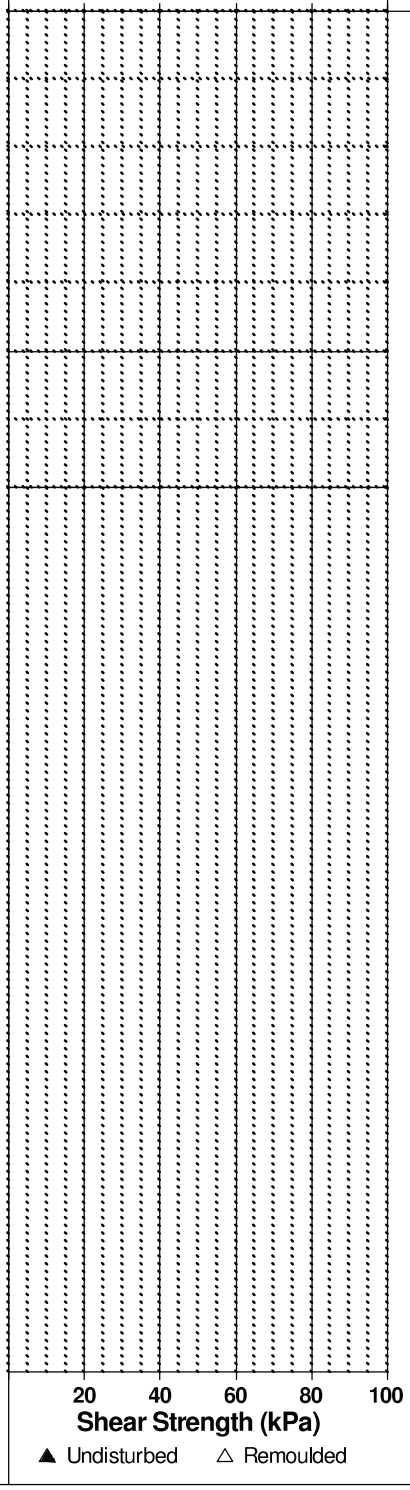
FILE NO. PG0811

REMARKS

HOLE NO. TP22

BORINGS BY Backhoe **DATE** 12 Apr 06

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone / ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	88.78		
TOPSOIL									
0.30									
Stiff, grey-brown **SILTY CLAY**						1	87.78		
1.40									
End of Test Pit									
TP terminated on bedrock surface @ 1.40m depth									
(TP dry upon completion)									



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28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7

SOIL PROFILE AND TEST DATA

Preliminary Geotechnical Investigation
Pharand Lands - Innes Road at Mer Bleeu Road
Ottawa, Ontario

DATUM Geodetic, as provided by Stantec Consulting Ltd.

FILE NO. PG0811

REMARKS

HOLE NO. TP23

BORINGS BY Backhoe **DATE** 12 Apr 06

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	88.49	20 40 60 80	
TOPSOIL									
0.30									
Stiff, brown to grey-brown **SILTY CLAY**						1	87.49		
						2	86.49		▽
						3	85.49		
3.30									
End of Test Pit (Open hole GWL @ 2.0m depth)								20 40 60 80 100 **Shear Strength (kPa)** ▲ Undisturbed △ Remoulded	

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SOIL PROFILE AND TEST DATA

Preliminary Geotechnical Investigation
Pharand Lands - Innes Road at Mer Bleeu Road
Ottawa, Ontario

DATUM Geodetic, as provided by Stantec Consulting Ltd.

FILE NO. PG0811

REMARKS

HOLE NO. TP24

BORINGS BY Backhoe **DATE** 12 Apr 06

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	88.71	20 40 60 80	
TOPSOIL									
0.30									
Stiff, grey-brown **SILTY CLAY**						1	87.71		▽
						2	86.71		
						3	85.71		
3.30									
End of Test Pit									
(Open hole GWL @ 1.4m depth)									

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

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SOIL PROFILE AND TEST DATA

Preliminary Geotechnical Investigation
Pharand Lands - Innes Road at Mer Bleeu Road
Ottawa, Ontario

DATUM Geodetic, as provided by Stantec Consulting Ltd.

FILE NO. PG0811

REMARKS

HOLE NO. TP25

BORINGS BY Backhoe **DATE** 12 Apr 06

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone / ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	88.82		
TOPSOIL									
0.40									
Stiff, grey-brown **SILTY CLAY**						1	87.82		▽
						2	86.82		
2.40									
End of Test Pit TP terminated on bedrock surface @ 2.40m depth (Open hole GWL @ 1.6m depth)									

Water Content % scale: 20 40 60 80

Shear Strength (kPa) scale: 20 40 60 80 100

▲ Undisturbed △ Remoulded

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SOIL PROFILE AND TEST DATA

Preliminary Geotechnical Investigation
Pharand Lands - Innes Road at Mer Bleeu Road
Ottawa, Ontario

DATUM Geodetic, as provided by Stantec Consulting Ltd.

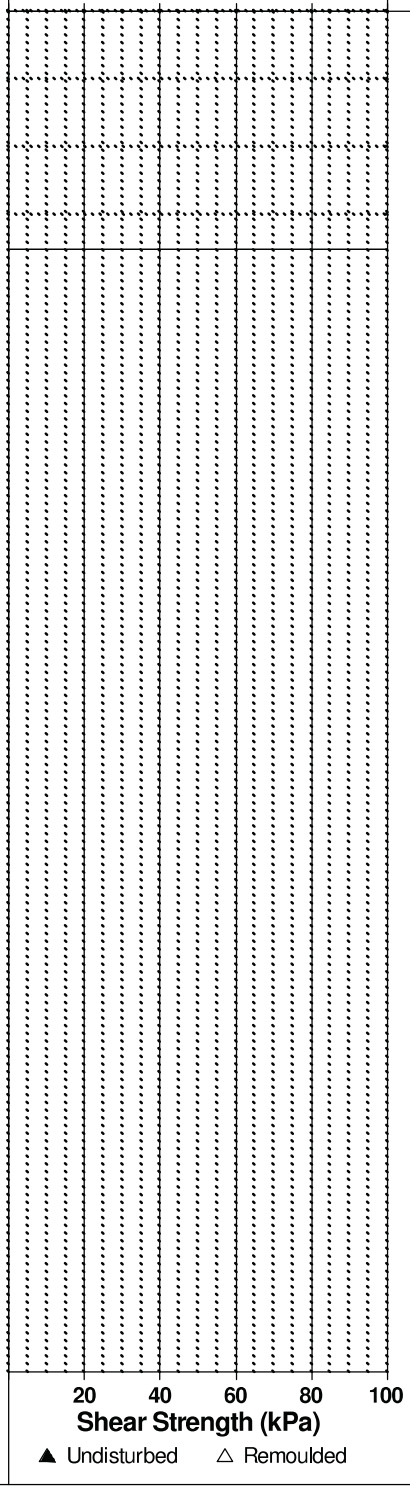
FILE NO. PG0811

REMARKS

HOLE NO. TP26

BORINGS BY Backhoe **DATE** 12 Apr 06

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	89.48		
TOPSOIL 0.30									
Stiff, brown **SILTY CLAY** 0.70									
End of Test Pit TP terminated on bedrock surface @ 0.70m depth (TP dry upon completion)									



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28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7

SOIL PROFILE AND TEST DATA

Preliminary Geotechnical Investigation
Pharand Lands - Innes Road at Mer Bleeu Road
Ottawa, Ontario

DATUM Geodetic, as provided by Stantec Consulting Ltd.

FILE NO. PG0811

REMARKS

HOLE NO. TP27

BORINGS BY Backhoe **DATE** 12 Apr 06

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone / ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	88.54	20 40 60 80	
TOPSOIL									
0.30									
Stiff, grey-brown **SILTY CLAY**						1	87.54		▽
						2	86.54		
2.30									
End of Test Pit TP terminated on bedrock surface @ 2.30m depth (Open hole GWL @ 1.2m depth)									

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

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28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7

SOIL PROFILE AND TEST DATA

Preliminary Geotechnical Investigation
Pharand Lands - Innes Road at Mer Bleeu Road
Ottawa, Ontario

DATUM Geodetic, as provided by Stantec Consulting Ltd.

FILE NO. PG0811

REMARKS

HOLE NO. TP28

BORINGS BY Backhoe **DATE** 12 Apr 06

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone / ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	88.15	20 40 60 80	
TOPSOIL									
0.30									
Stiff, grey-brown **SILTY CLAY**						1	87.15		
						2	86.15		
2.40									
End of Test Pit TP terminated on bedrock surface @ 2.40m depth (Open hole GWL @ 1.3m depth)									

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

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28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7

SOIL PROFILE AND TEST DATA

Preliminary Geotechnical Investigation
Pharand Lands - Innes Road at Mer Bleeu Road
Ottawa, Ontario

DATUM Geodetic, as provided by Stantec Consulting Ltd.

FILE NO. PG0811

REMARKS

HOLE NO. TP29

BORINGS BY Backhoe **DATE** 12 Apr 06

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	88.12		
TOPSOIL									
0.30									
Stiff, grey-brown **SILTY CLAY**		G	1			1	87.12		
- grey by 1.8m depth						2	86.12		
						3	85.12		
3.20									
End of Test Pit									
(TP dry upon completion)									

20 40 60 80

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

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28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7

SOIL PROFILE AND TEST DATA

Preliminary Geotechnical Investigation
Pharand Lands - Innes Road at Mer Bleeu Road
Ottawa, Ontario

DATUM Geodetic, as provided by Stantec Consulting Ltd.

FILE NO. PG0811

REMARKS

HOLE NO. TP30

BORINGS BY Backhoe **DATE** 12 Apr 06

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	89.09		
TOPSOIL 0.20									
Stiff, brown **SILTY CLAY**						1	88.09		
1.10									
End of Test Pit TP terminated on bedrock surface @ 1.10m depth (TP dry upon completion)									

20 40 60 80

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

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SOIL PROFILE AND TEST DATA

Preliminary Geotechnical Investigation
Pharand Lands - Innes Road at Mer Bleeu Road
Ottawa, Ontario

DATUM Geodetic, as provided by Stantec Consulting Ltd.

FILE NO. PG0811

REMARKS

HOLE NO. TP31

BORINGS BY Backhoe **DATE** 12 Apr 06

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	88.63	20 40 60 80	
TOPSOIL									
0.30									
Stiff, grey-brown **SILTY CLAY**						1	87.63		
						2	86.63		
2.50									
End of Test Pit TP terminated on bedrock surface @ 2.50m depth (TP dry upon completion)									

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

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28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7

SOIL PROFILE AND TEST DATA

Preliminary Geotechnical Investigation
Pharand Lands - Innes Road at Mer Bleeu Road
Ottawa, Ontario

DATUM Geodetic, as provided by Stantec Consulting Ltd.

FILE NO. PG0811

REMARKS

HOLE NO. TP32

BORINGS BY Backhoe **DATE** 12 Apr 06

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	89.18		
TOPSOIL 0.30									
Stiff, brown **SILTY CLAY** 0.80									
End of Test Pit TP terminated on bedrock surface @ 0.80m depth (TP dry upon completion)									

Pen. Resist. Blows/0.3m: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

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Consulting Engineers

28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7

SOIL PROFILE AND TEST DATA

Preliminary Geotechnical Investigation
Pharand Lands - Innes Road at Mer Bleeu Road
Ottawa, Ontario

DATUM Geodetic, as provided by Stantec Consulting Ltd.

FILE NO. PG0811

REMARKS

HOLE NO. TP33

BORINGS BY Backhoe **DATE** 12 Apr 06

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	88.99		
TOPSOIL									
0.30									
Stiff, grey-brown **SILTY CLAY**						1	87.99		
- some boulders by 1.2m depth									
1.40									
End of Test Pit									
TP terminated on bedrock surface @ 1.40m depth									
(TP dry upon completion)									

20 40 60 80

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

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28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7

SOIL PROFILE AND TEST DATA

Preliminary Geotechnical Investigation
Pharand Lands - Innes Road at Mer Bleeu Road
Ottawa, Ontario

DATUM Geodetic, as provided by Stantec Consulting Ltd.

FILE NO. PG0811

REMARKS

HOLE NO. TP34

BORINGS BY Backhoe **DATE** 12 Apr 06

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	88.49	20 40 60 80	
TOPSOIL									
0.30									
Stiff, grey-brown **SILTY CLAY**						1	87.49		
						2	86.49		
2.30									
End of Test Pit TP terminated on bedrock surface @ 2.30m depth (TP dry upon completion)									

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

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Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Proposed Residential Development-Renaud Road
Ottawa, Ontario

DATUM

REMARKS

BORINGS BY Hand Auger

DATE 11 May 2009

FILE NO. PG1605

HOLE NO. HA 3-09

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0			
TOPSOIL									
0.25									
Very stiff, brown SILTY CLAY						1		128	
1.60								128	
End of Hand Auger Hole									

Pen. Resist. Blows/0.3m: 20 40 60 80

Water Content %: 20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

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154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Proposed Residential Development-Renaud Road
Ottawa, Ontario

DATUM

REMARKS

BORINGS BY Hand Auger

DATE 11 May 2009

FILE NO. PG1605

HOLE NO. HA 4-09

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0		20 40 60 80	
TOPSOIL									
0.25									
Brown SILTY fine SAND									
0.35									
Very stiff, brown SILTY CLAY						1		128	
								128	
1.56									
End of Hand Auger Hole								20 40 60 80 100 Shear Strength (kPa) ▲ Undisturbed △ Remoulded	

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Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Proposed Residential Development-Renaud Road
Ottawa, Ontario

DATUM

REMARKS

BORINGS BY Hand Auger DATE 11 May 2009

FILE NO. PG1605

HOLE NO. HA 5-09

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0		20 40 60 80	
TOPSOIL									
0.30									
Very stiff, brown SILTY CLAY						1		128	
								128	
1.60									
End of Hand Auger Hole									

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

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Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Proposed Residential Development-Renaud Road
Ottawa, Ontario

DATUM

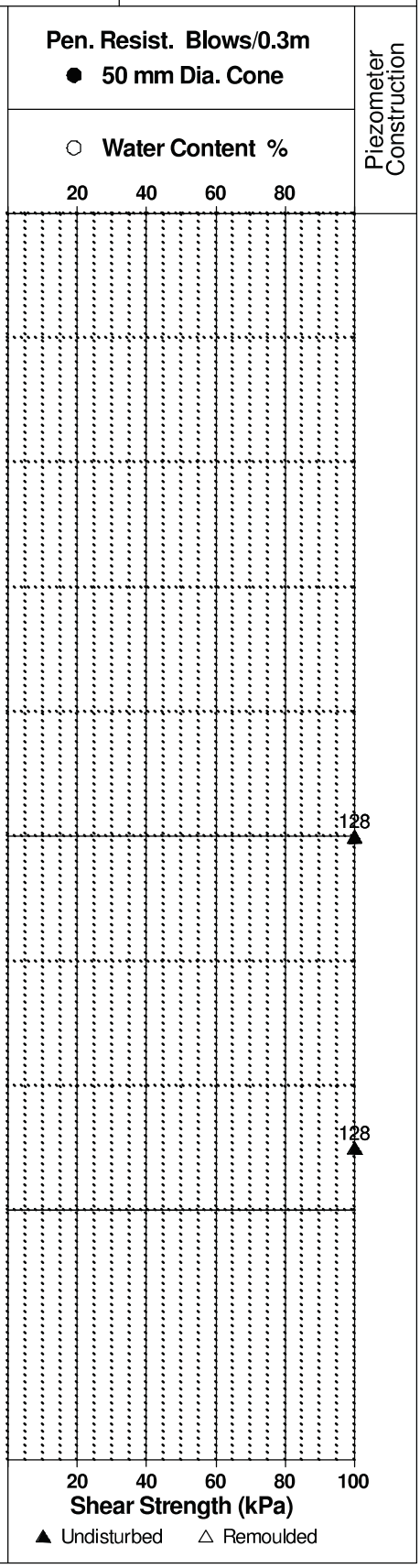
REMARKS

BORINGS BY Hand Auger **DATE** 11 May 2009

FILE NO. PG1605

HOLE NO. HA 6-09

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone / ○ Water Content %	Piezometer Construction
GROUND SURFACE						0			
TOPSOIL									
0.30									
Brown **SILTY CLAY** with sand									
0.50									
Very stiff, brown **SILTY CLAY**						1		128	
								128	
1.60									
End of Hand Auger Hole									



PROJECT: 05-1120-163

RECORD OF BOREHOLE: 05-1

SHEET 1 OF 1

LOCATION: See Site Plan

BORING DATE: Oct. 26, 2005

DATUM:

SAMPLER HAMMER, 64kg; DROP, 760mm

PENETRATION TEST HAMMER, 64kg; DROP, 760mm

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80)	SHEAR STRENGTH Cu, kPa (nat V. + Q - ● rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-4} 10^{-3} 10^{-2} 10^{-1})	WATER CONTENT PERCENT Wp W Wl (20 40 60 80)	ADDITIONAL LAB TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
0		GROUND SURFACE											
0	Power Auger 200mm Diam. (Hollow Stem)	TOPSOIL		0.00									
		Stiff grey brown SILTY CLAY, slight black organic mottling (Weathered Crust)		0.78	1	SS	6						
1													
2					2	SS	8						
		Loose brown SILTY SAND, some gravel, trace clay, occasional boulder (GLACIAL TILL)		2.29	3	SS	>100						
3		End of Borehole Sampler Refusal		2.72									
4													
5													
6													
7													
8													
9													
10													

BOREHOLE 05-1120-163.GPJ GLDR_CAN.GDT 12/9/05

DEPTH SCALE
1 : 50

Golder Associates

LOGGED: R.I.
CHECKED: M.I.C.

PROJECT: 05-1120-163

RECORD OF BOREHOLE: 05-2

SHEET 1 OF 1

LOCATION: See Site Plan

BORING DATE: Oct. 26, 2005

DATUM:

SAMPLER HAMMER, 64kg; DROP, 760mm

PENETRATION TEST HAMMER, 64kg; DROP, 760mm

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80); SHEAR STRENGTH Cu, kPa (nat V. + Q - ● rem V. ⊕ U - O) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}); WATER CONTENT PERCENT (Wp ⊢—O W—⊣ Wl) (20 40 60 80)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE									
0	Power Auger 200mm Diam. (Hollow Stem)	TOPSOIL		0.09							
		Stiff grey brown and red brown SILTY CLAY, slight black organic mottling (Weathered Crust)		0.25							
1					1	50 DO	10				
					2	50 DO	7				
2		Compact brown SILTY SAND, some gravel, trace clay (GLACIAL TILL)		2.13	3	50 DO	100				
		End of Borehole Sampler Refusal		2.36							
3											
4											
5											
6											
7											
8											
9											
10											

DEPTH SCALE

1 : 50

Golder Associates

LOGGED: R.I.

CHECKED: M.I.C.

BOREHOLE 05-1120-163.GPJ GLDR_CAN.GDT 12/5/05

PROJECT: 05-1120-163

RECORD OF BOREHOLE: 05-3

SHEET 1 OF 1

LOCATION: See Site Plan

BORING DATE: Oct. 21, 2005

DATUM:

SAMPLER HAMMER, 64kg; DROP, 760mm

PENETRATION TEST HAMMER, 64kg; DROP, 760mm

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80)	SHEAR STRENGTH Cu, kPa (20 40 60 80); nat V. + Q - ●; rem V. ⊕ U - ○	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3})	WATER CONTENT PERCENT (20 40 60 80); Wp, W, Wl	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
0		GROUND SURFACE											
		TOPSOIL		0.00									
	Power Auger 200mm Diam. (Hollow Stem)	Very stiff to stiff with depth grey brown and red brown SILTY CLAY (Weathered Crust)		0.22	1	SS	10						
1					2	SS	6						
2					3	SS	2						Native Backfill
3		Firm grey SILTY CLAY		3.20	4	SS	WH						
4													Bentonite Seal
					5	SS	1						Silica Sand
5		Probably Glacial Till		5.03									Standpipe
		End of Borehole Auger Refusal		5.33									Water level at 0.39m depth below ground surface on Nov. 8, 2005
6													
7													
8													
9													
10													

DEPTH SCALE
1 : 50

Golder Associates

LOGGED: P.A.H.
CHECKED: M.J.C.

BOREHOLE 05-1120-163.GPJ GLDR_CAN.GDT 12/5/05

PROJECT: 05-1120-163

RECORD OF BOREHOLE: 05-4

SHEET 1 OF 1

LOCATION: See Site Plan

BORING DATE: Oct. 26, 2005

DATUM:

SAMPLER HAMMER, 64kg; DROP, 760mm

PENETRATION TEST HAMMER, 64kg, DROP, 760mm

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80)	SHEAR STRENGTH Cu, kPa (20 40 60 80); nat V. +, rem V. ⊕; Ω - ●, U - ○	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-4} 10^{-5} 10^{-6} 10^{-7})	WATER CONTENT PERCENT (20 40 60 80); Wp, W, Wl	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE											
0	Power Auger 200mm Diam. (Hollow Stem)	TOPSOIL		0.00									
		Stiff grey brown and red brown SILTY CLAY, slight organic mottling (Weathered Crust)		0.30	1	SS DO	9						
1					2	SS DO	7						
2					3	SS DO	2						
3													
4													
5		Soft to firm grey SILTY CLAY		4.42	4	SS DO	WH						
6													
7		End of Borehole		7.32									
8													
9													
10													

BOREHOLE: 05-1120-163.GPJ GLDR_CAN.GDT 12/5/05

DEPTH SCALE

1 : 50

Golder Associates

LOGGED: R.I.

CHECKED: M.I.C.

PROJECT: 05-1120-163

RECORD OF BOREHOLE: 05-5

SHEET 1 OF 1

LOCATION: See Site Plan

BORING DATE: Oct. 27, 2005

DATUM:

SAMPLER HAMMER, 64kg; DROP, 760mm

PENETRATION TEST HAMMER, 64kg; DROP, 760mm

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80); SHEAR STRENGTH Cu, kPa (nat V. + Q - ●; rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}); WATER CONTENT PERCENT (Wp — W — Wl) (20 40 60 80)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
0	Power Auger 200mm Diam. (Hollow Stem)	GROUND SURFACE									
		TOPSOIL		0.00							Silica Sand
		Firm to stiff grey brown SILTY CLAY (Weathered Crust)		0.00	1	SS DO	10				
1					2	SS DO	4				
2											Native Backfill
					3	SS DO	WH				
3		Firm grey SILTY CLAY		3.05							
4											
											Bentonite Seal
5											Silica Sand
											Standpipe
6											
											Water level in standpipe at 2.0m depth below ground surface on Nov. 8, 2005
		End of Borehole		6.71							
7											
8											
9											
10											

BOREHOLE 05-1120-163.GPJ GLDR_CAN.GDT 12/5/05

DEPTH SCALE
1 : 50

Golder Associates

LOGGED: H.E.C.
CHECKED: M.J.C.

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

CLIENT McNeely Engineering Consultants Ltd. BOREHOLE No. 95-1

LOCATION Orleans South Feedermain, Orleans, Ontario PROJECT No. 10629

DATES: BORING 95-05-15 WATER LEVEL 95-05-19 DATUM Local

DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION	STRATA PLOT	WATER LEVEL	SAMPLES TYPE	NUMBER	RECOVERY mm	N-VALUE OR RQD
0	98.37							
		Compact, brown and grey, SANDY SILT, trace clay						
1	97.3				SS	1	560	13
		Very stiff to stiff, greyish-brown, SILTY CLAY			SS	2	610	7
2					SS	3	610	4
3	95.3				SS	4	610	4
		Firm to stiff, grey, SILTY CLAY						
6				▽	SS	5	610	2
9	88.6				SS	6	610	2
10		End of Borehole Standpipe installed						
11								

UNDRAINED SHEAR STRENGTH - kPa
50 100 150 200

WATER CONTENT & ATTERBERG LIMITS w_P w w_L

DYNAMIC PENETRATION TEST, BLOWS/0.3m *

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90

▽ Proposed Pipe Invert

□ Field Vane Test, kPa
□ Remolded Vane Test, kPa
△ Pocket Penetrometer Test, kPa

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

CLIENT McNeely Engineering Consultants Ltd. BOREHOLE No. 95-2

LOCATION Orleans South Feedermain, Orleans, Ontario PROJECT No. 10629

DATES: BORING 95-05-15 WATER LEVEL 95-05-19 DATUM Local

DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION	STRATA PLOT	WATER LEVEL	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY mm	SAMPLES N-VALUE OR RQD
0	99.60	Stiff to very stiff, greyish-brown, SILTY CLAY						
1					SS	1	560	9
2					SS	2	610	2
3	96.6	Firm to stiff, grey, SILTY CLAY						
4					SS	3	610	1
5								
6					SS	4	610	2
7	92.9	End of Borehole Standpipe installed						
8								
9								
10								
11								

UNDRAINED SHEAR STRENGTH - kPa
50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC PENETRATION TEST, BLOWS/0.3m *

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90

30

Proposed Pipe Invert

□ Field Vane Test, kPa
□ Remoulded Vane Test, kPa
△ Pocket Penetrometer Test, kPa

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

CLIENT McNeely Engineering Consultants Ltd. BOREHOLE No. 95-3

LOCATION Orleans South Feedermain, Orleans, Ontario PROJECT No. 10629

DATES: BORING 95-05-15 WATER LEVEL 95-05-19 DATUM Local

DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION	STRATA PLOT	WATER LEVEL	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY mm	SAMPLES N-VALUE OR RQD
0	99.54	Firm to very stiff, greyish-brown, SILTY CLAY		▽				
1					SS	1	610	12
2	97.2							
					SS	2	610	2
3								
4					SS	3	610	2
5		Firm, grey, SILTY CLAY						
6								
	92.8				SS	4	610	1
7		End of Borehole Standpipe installed						
8								
9								
10								
11								

UNDRAINED SHEAR STRENGTH - kPa

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC PENETRATION TEST, BLOWS/0.3m ★

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90

▽ Proposed Pipe Invert

□ Field Vane Test, kPa

□ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

CLIENT McNeely Engineering Consultants Ltd. BOREHOLE No. 95-4

LOCATION Orleans South Feedermain, Orleans, Ontario PROJECT No. 10629

DATES: BORING 95-05-15 WATER LEVEL 95-05-19 DATUM Local

DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION	STRATA PLOT	WATER LEVEL	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY mm	SAMPLES N-VALUE OR RQD
0	99.69	Stiff to very stiff, grey-brown, SILTY CLAY						
1					SS	1	610	17
2					SS	2	610	3
3	96.6	Firm, grey, SILTY CLAY						
4					SS	3	610	2
5								
6					SS	4	610	1
7	93.0	End of Borehole Standpipe installed						
8								
9								
10								
11								

UNDRAINED SHEAR STRENGTH - kPa

50 100 150 200

WATER CONTENT & ATTERBERG LIMITS W_P W W_L

DYNAMIC PENETRATION TEST, BLOWS/0.3m +

STANDARD PENETRATION TEST, BLOWS/0.3m ●

10 20 30 40 50 60 70 80 90

Proposed Pipe Invert

□ Field Vane Test, kPa

□ Remoulded Vane Test, kPa

△ Pocket Penetrometer Test, kPa

JACQUES WHITFORD LIMITED

BOREHOLE RECORD

CLIENT McNeely Engineering Consultants Ltd.
LOCATION Orleans South Feedermain, Orleans, Ontario
DATES: BORING 95-05-16 WATER LEVEL 95-05-19

BOREHOLE No. 95-5
PROJECT No. 10629
DATUM Local

DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION	STRATA PLOT	WATER LEVEL	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES N-VALUE OR RQD
0	99.91	Loose, gravel fill at surface					mm	
1		Stiff to very stiff, grey-brown, SILTY CLAY			SS	1	500	10
2								
3	96.9				SS	2	530	4
4		Firm, grey, SILTY CLAY			SS	3	610	1
5								
6	93.2				SS	4	610	1
7		End of Borehole Standpipe installed						
8								
9								
10								
11								

UNDRAINED SHEAR STRENGTH - kPa
50 100 150 200
WATER CONTENT & ATTERBERG LIMITS W_P W W_L
DYNAMIC PENETRATION TEST, BLOWS/0.3m *
STANDARD PENETRATION TEST, BLOWS/0.3m ●
10 20 30 40 50 60 70 80 90

Proposed Pipe Invert

■ Field Vane Test, kPa
□ Remoulded Vane Test, kPa
△ Pocket Penetrometer Test, kPa

SYMBOLS AND TERMS

SOIL DESCRIPTION

Behavioural properties, such as structure and strength, take precedence over particle gradation in describing soils. Terminology describing soil structure are as follows:

Desiccated	-	having visible signs of weathering by oxidation of clay minerals, shrinkage cracks, etc.
Fissured	-	having cracks, and hence a blocky structure.
Varved	-	composed of regular alternating layers of silt and clay.
Stratified	-	composed of alternating layers of different soil types, e.g. silt and sand or silt and clay.
Well-Graded	-	Having wide range in grain sizes and substantial amounts of all intermediate particle sizes (see Grain Size Distribution).
Uniformly-Graded	-	Predominantly of one grain size (see Grain Size Distribution).

The standard terminology to describe the strength of cohesionless soils is the relative density, usually inferred from the results of the Standard Penetration Test (SPT) 'N' value. The SPT N value is the number of blows of a 63.5 kg hammer, falling 760 mm, required to drive a 51 mm O.D. split spoon sampler 300 mm into the soil after an initial penetration of 150 mm.

Relative Density	'N' Value	Relative Density %
Very Loose	<4	<15
Loose	4-10	15-35
Compact	10-30	35-65
Dense	30-50	65-85
Very Dense	>50	>85

The standard terminology to describe the strength of cohesive soils is the consistency, which is based on the undisturbed undrained shear strength as measured by the in situ or laboratory vane tests, penetrometer tests, unconfined compression tests, or occasionally by Standard Penetration Tests.

Consistency	Undrained Shear Strength (kPa)	'N' Value
Very Soft	<12	<2
Soft	12-25	2-4
Firm	25-50	4-8
Stiff	50-100	8-15
Very Stiff	100-200	15-30
Hard	>200	>30

SYMBOLS AND TERMS (continued)

SOIL DESCRIPTION (continued)

Cohesive soils can also be classified according to their “sensitivity”. The sensitivity is the ratio between the undisturbed undrained shear strength and the remoulded undrained shear strength of the soil.

Terminology used for describing soil strata based upon texture, or the proportion of individual particle sizes present is provided on the Textural Soil Classification Chart at the end of this information package.

ROCK DESCRIPTION

The structural description of the bedrock mass is based on the Rock Quality Designation (RQD).

The RQD classification is based on a modified core recovery percentage in which all pieces of sound core over 100 mm long are counted as recovery. The smaller pieces are considered to be a result of closely-spaced discontinuities (resulting from shearing, jointing, faulting, or weathering) in the rock mass and are not counted. RQD is ideally determined from NXL size core. However, it can be used on smaller core sizes, such as BX, if the bulk of the fractures caused by drilling stresses (called “mechanical breaks”) are easily distinguishable from the normal in situ fractures.

RQD %	ROCK QUALITY
90-100	Excellent, intact, very sound
75-90	Good, massive, moderately jointed or sound
50-75	Fair, blocky and seamy, fractured
25-50	Poor, shattered and very seamy or blocky, severely fractured
0-25	Very poor, crushed, very severely fractured

SAMPLE TYPES

SS	-	Split spoon sample (obtained in conjunction with the performing of the Standard Penetration Test (SPT))
TW	-	Thin wall tube or Shelby tube
PS	-	Piston sample
AU	-	Auger sample or bulk sample
WS	-	Wash sample
RC	-	Rock core sample (Core bit size AXT, BXL, etc.). Rock core samples are obtained with the use of standard diamond drilling bits.

SYMBOLS AND TERMS (continued)

GRAIN SIZE DISTRIBUTION

MC%	-	Natural moisture content or water content of sample, %
LL	-	Liquid Limit, % (water content above which soil behaves as a liquid)
PL	-	Plastic limit, % (water content above which soil behaves plastically)
PI	-	Plasticity index, % (difference between LL and PL)
Dxx	-	Grain size which xx% of the soil, by weight, is of finer grain sizes These grain size descriptions are not used below 0.075 mm grain size
D10	-	Grain size at which 10% of the soil is finer (effective grain size)
D60	-	Grain size at which 60% of the soil is finer
Cc	-	Concavity coefficient = $(D30)^2 / (D10 \times D60)$
Cu	-	Uniformity coefficient = D60 / D10

Cc and Cu are used to assess the grading of sands and gravels:
Well-graded gravels have: $1 < Cc < 3$ and $Cu > 4$
Well-graded sands have: $1 < Cc < 3$ and $Cu > 6$
Sands and gravels not meeting the above requirements are poorly-graded or uniformly-graded.
Cc and Cu are not applicable for the description of soils with more than 10% silt and clay (more than 10% finer than 0.075 mm or the #200 sieve)

CONSOLIDATION TEST

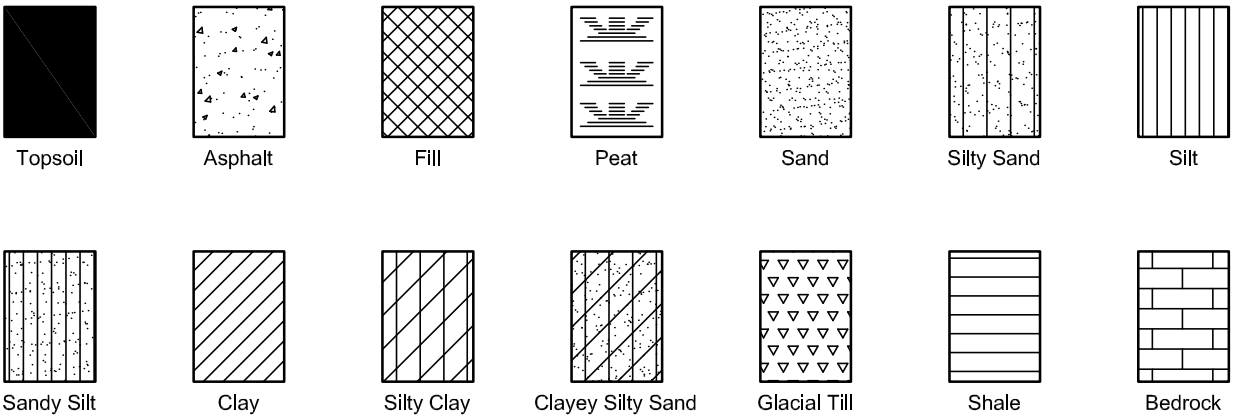
p'_o	-	Present effective overburden pressure at sample depth
p'_c	-	Preconsolidation pressure of (maximum past pressure on) sample
Ccr	-	Recompression index (in effect at pressures below p'_c)
Cc	-	Compression index (in effect at pressures above p'_c)
OC Ratio		Overconsolidaton ratio = p'_c / p'_o
Void Ratio		Initial sample void ratio = volume of voids / volume of solids
Wo	-	Initial water content (at start of consolidation test)

PERMEABILITY TEST

k	-	Coefficient of permeability or hydraulic conductivity is a measure of the ability of water to flow through the sample. The value of k is measured at a specified unit weight for (remoulded) cohesionless soil samples, because its value will vary with the unit weight or density of the sample during the test.

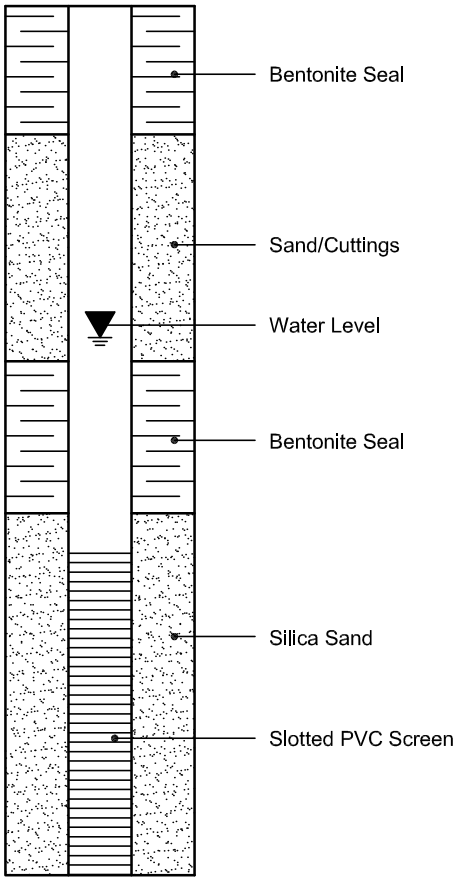
SYMBOLS AND TERMS (continued)

STRATA PLOT

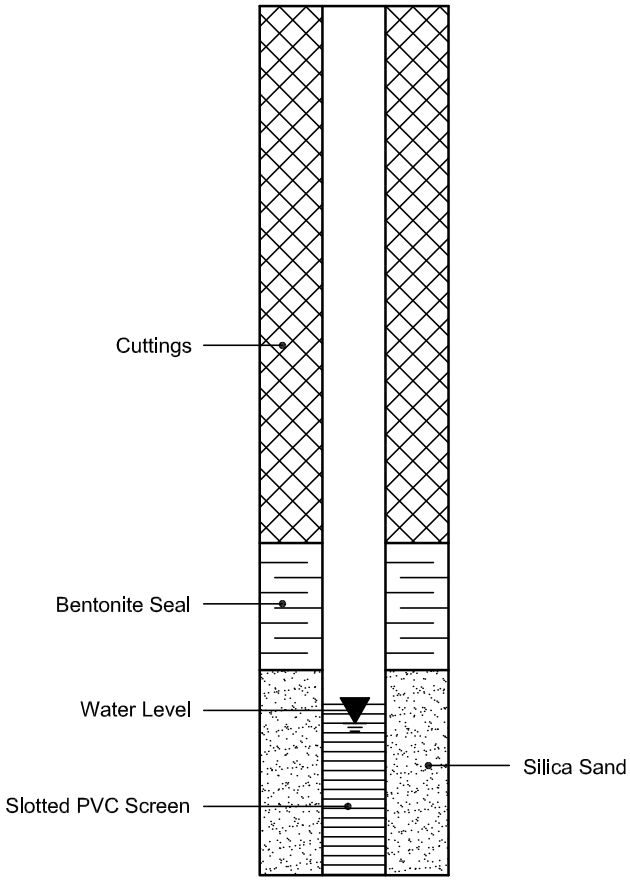


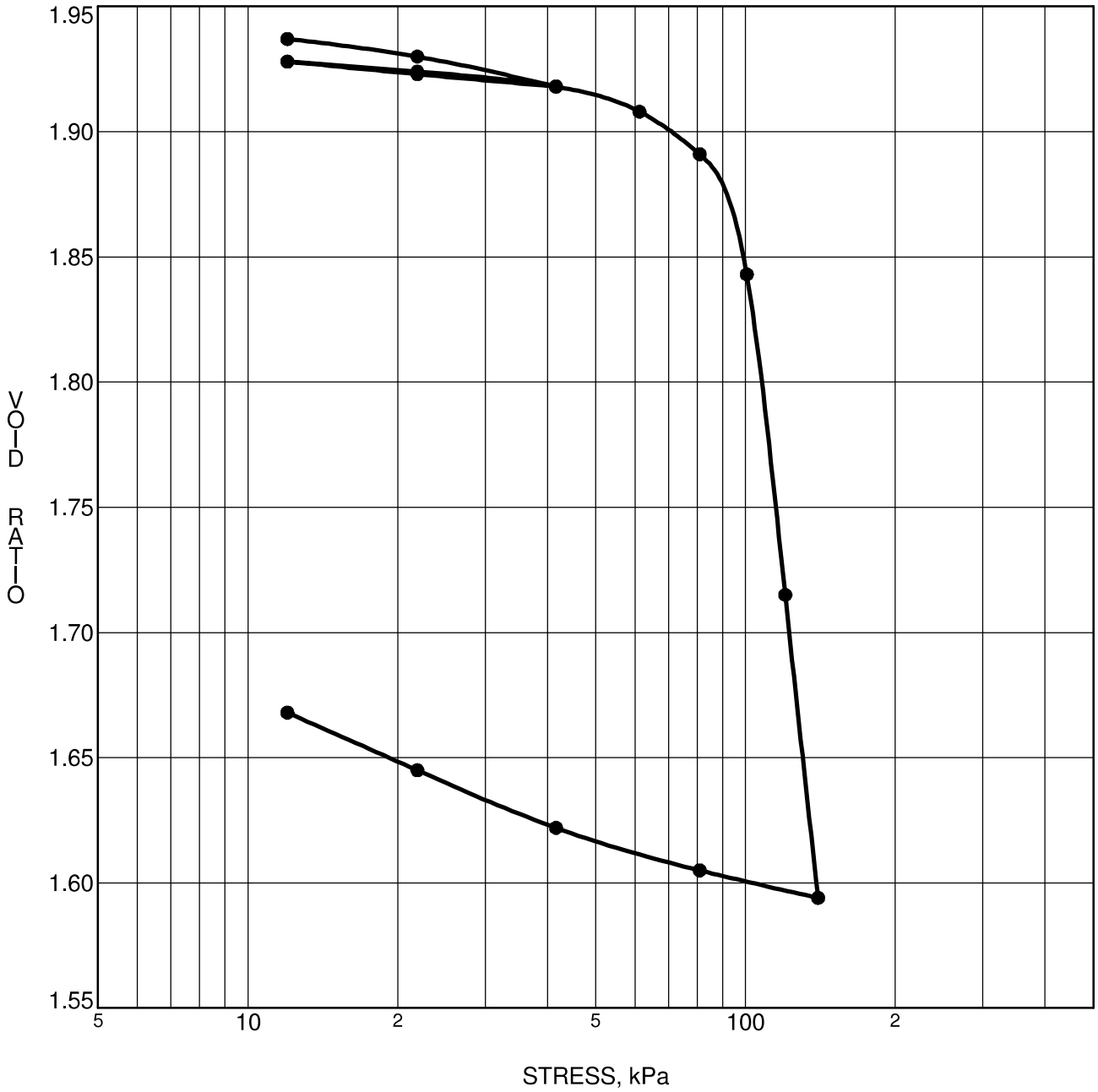
MONITORING WELL AND PIEZOMETER CONSTRUCTION

MONITORING WELL CONSTRUCTION



PIEZOMETER CONSTRUCTION



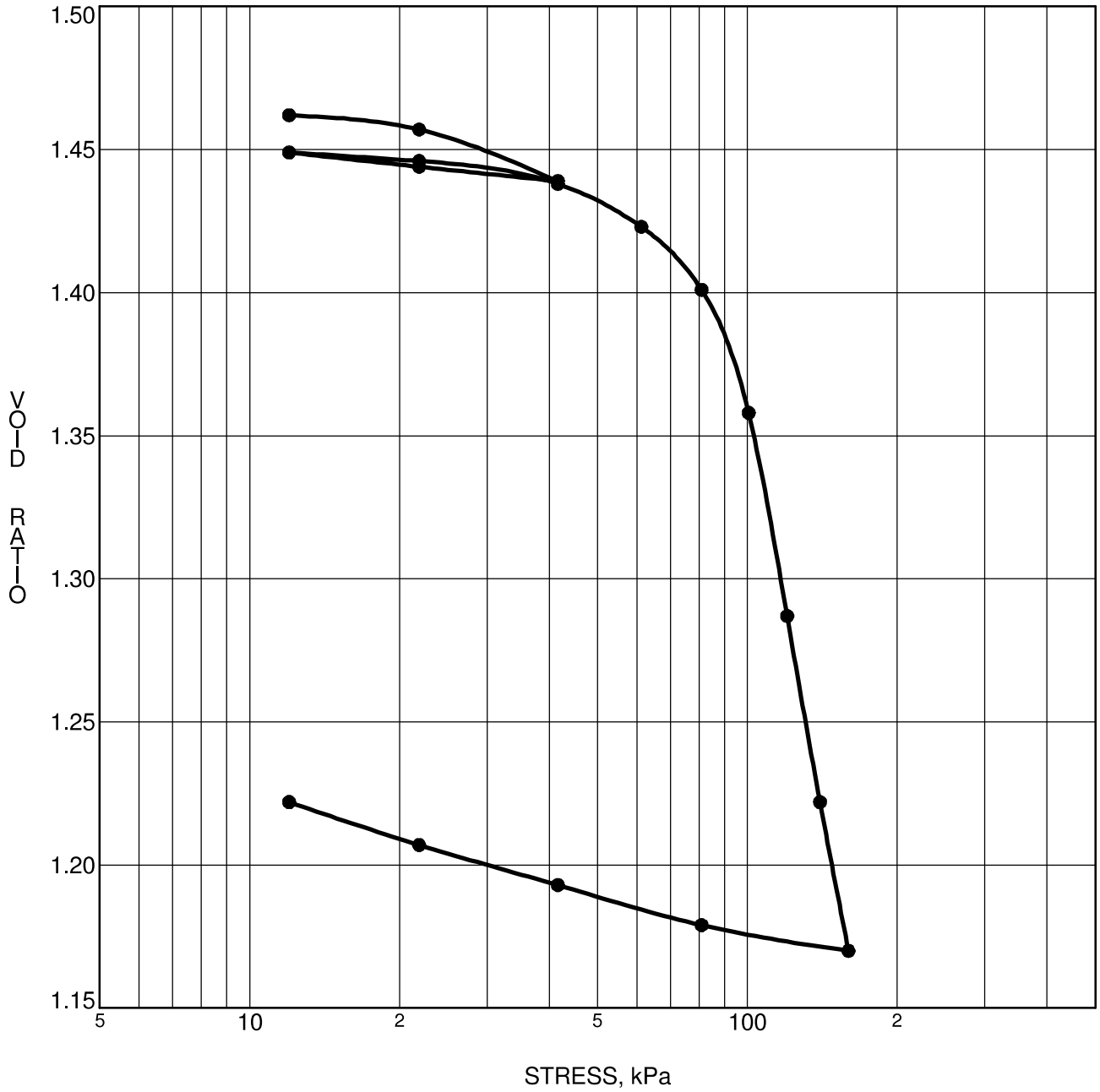


CONSOLIDATION TEST DATA SUMMARY					
Borehole No.	**BH 1-18**	p'_o	**41.23** kPa	Ccr	**0.039**
Sample No.	**TW 3**	p'_c	**98.48** kPa	Cc	**1.868**
Sample Depth	**3.53** m	OC Ratio	**2.4**	Wo	**70.8** %
Sample Elev.	**84.14** m	Void Ratio	**1.947**	Unit Wt.	**15.6** kN/m ^{3}

CLIENT	**Richcraft Group of Companies**	FILE NO.	**PG3130**
PROJECT	**Geotechnical Investigation - East Urban Community (EUC) Mixed-Use CDP**	DATE	**03/07/2018**

patersongroup Consulting Engineers
154 Colonnade Road South, Ottawa, Ontario K2E 7J5

CONSOLIDATION TEST

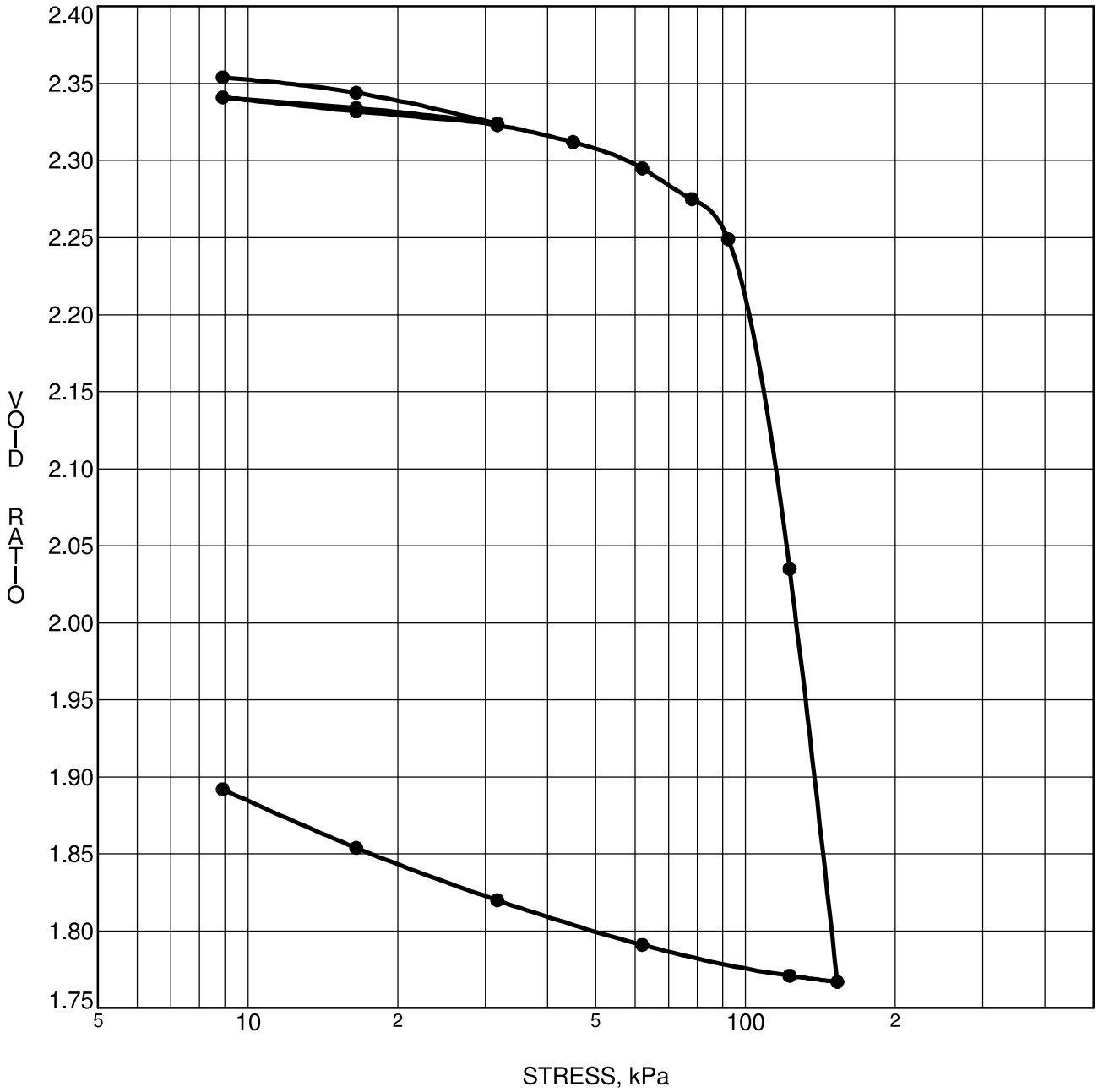


CONSOLIDATION TEST DATA SUMMARY					
Borehole No.	**BH 3-18**	p'_o	**45.79** kPa	Ccr	**0.018**
Sample No.	**TW 4**	p'_c	**92.9** kPa	Cc	**0.961**
Sample Depth	**4.27** m	OC Ratio	**2.0**	Wo	**53.8** %
Sample Elev.	**83.20** m	Void Ratio	**1.479**	Unit Wt.	**16.7** kN/m ^{3}

CLIENT	**Richcraft Group of Companies**	FILE NO.	**PG3130**
PROJECT	**Geotechnical Investigation - East Urban Community (EUC) Mixed-Use CDP**	DATE	**30/07/2018**

patersongroup Consulting Engineers
154 Colonnade Road South, Ottawa, Ontario K2E 7J5

CONSOLIDATION TEST



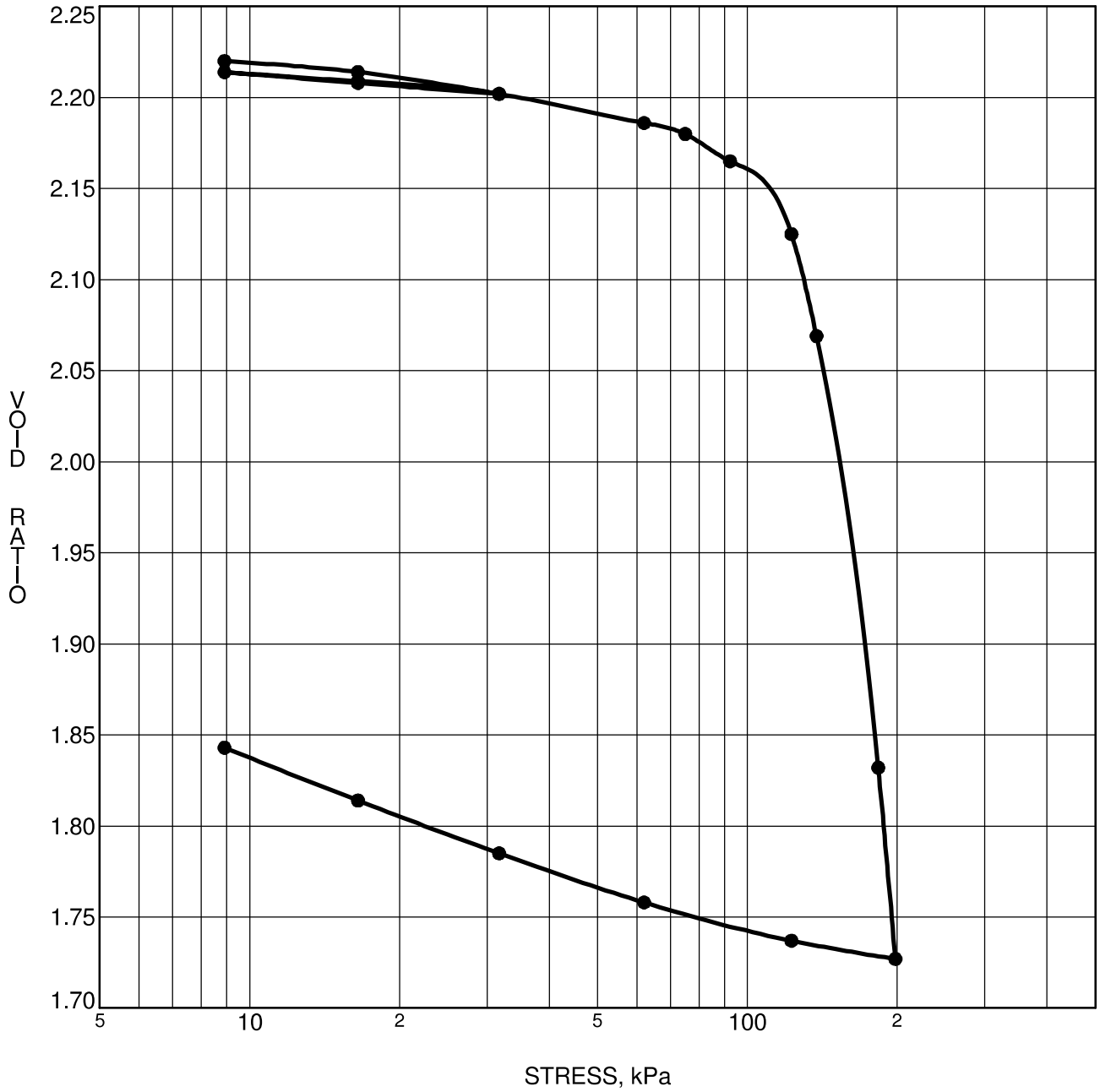
CONSOLIDATION TEST DATA SUMMARY					
Borehole No.	**BH 6-18**	p'_o	**48.42** kPa	Ccr	**2.756**
Sample No.	**TW 4**	p'_c	**100** kPa	Cc	**0.031**
Sample Depth	**4.22** m	OC Ratio	**2.1**	Wo	**85.6** %
Sample Elev.	**83.57** m	Void Ratio	**2.354**	Unit Wt.	**14.9** kN/m ^{3}

CLIENT **Richcraft Group of Companies** FILE NO. **PG3130**

PROJECT **Geotechnical Investigation - East Urban Community (EUC) Mixed-Use CDP** DATE **30/07/2018**

patersongroup Consulting Engineers
154 Colonnade Road South, Ottawa, Ontario K2E 7J5

CONSOLIDATION TEST



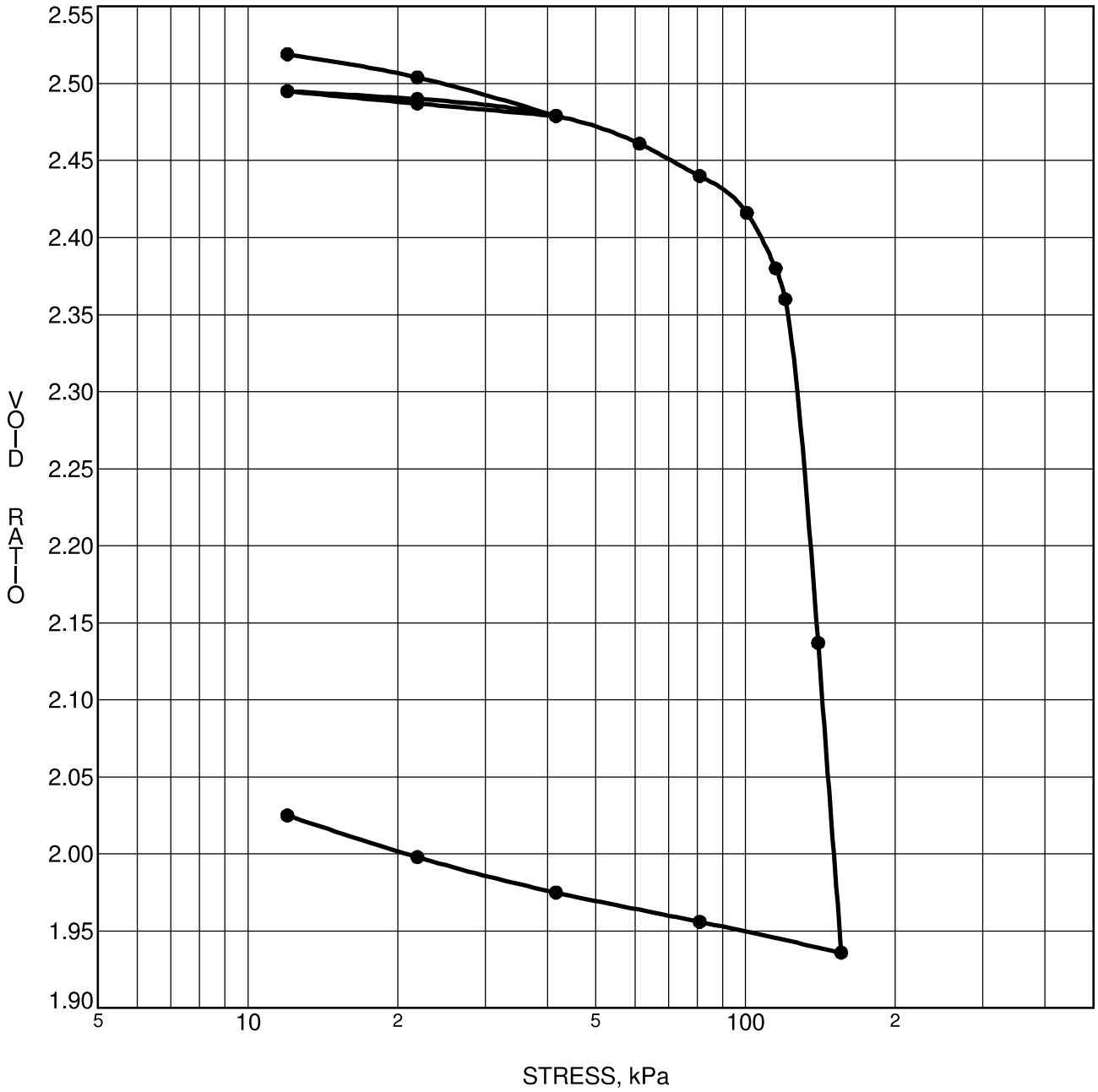
CONSOLIDATION TEST DATA SUMMARY					
Borehole No.	**BH27-18**	p'_o	**66.9** kPa	Ccr	**3.182**
Sample No.	**TW 4**	p'_c	**145.9** kPa	Cc	**0.023**
Sample Depth	**5.05** m	OC Ratio	**2.2**	Wo	**80.8** %
Sample Elev.	**81.64** m	Void Ratio	**2.221**	Unit Wt.	**15.1** kN/m ^{3}

CLIENT **Richcraft Group of Companies** FILE NO. **PG3130**

PROJECT **Geotechnical Investigation - East Urban Community (EUC) Mixed-Use CDP** DATE **17/07/2018**

patersongroup Consulting Engineers
154 Colonnade Road South, Ottawa, Ontario K2E 7J5

CONSOLIDATION TEST

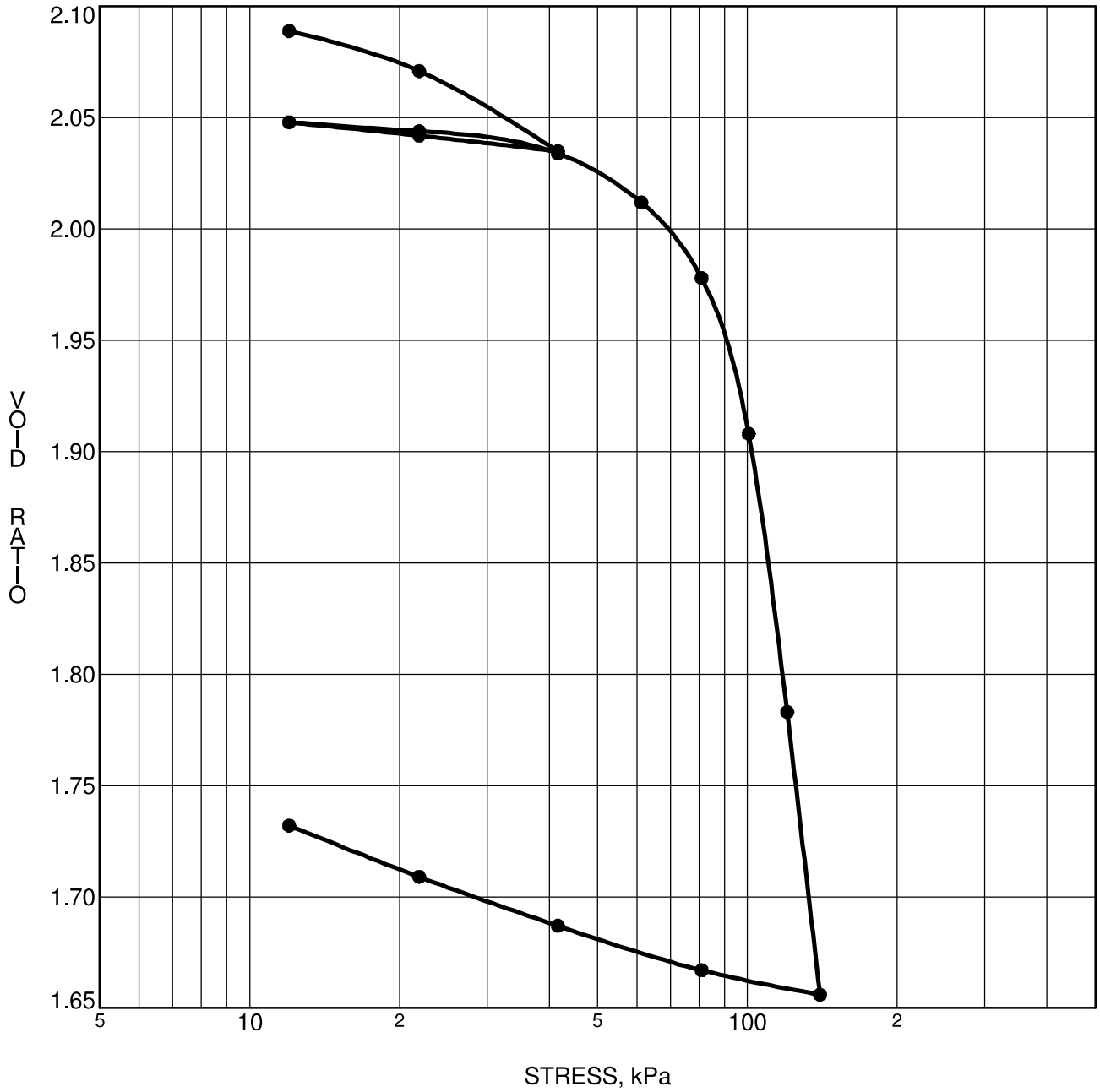


CONSOLIDATION TEST DATA SUMMARY					
Borehole No.	**BH28-18**	p'_o	**66.43** kPa	Ccr	**0.028**
Sample No.	**TW 5**	p'_c	**121.7** kPa	Cc	**4.375**
Sample Depth	**4.98** m	OC Ratio	**1.8**	Wo	**92.4** %
Sample Elev.	**81.82** m	Void Ratio	**2.54**	Unit Wt.	**14.7** kN/m ^{3}

CLIENT	**Richcraft Group of Companies**	FILE NO.	**PG3130**
PROJECT	**Geotechnical Investigation - East Urban Community (EUC) Mixed-Use CDP**	DATE	**03/07/2018**

patersongroup Consulting Engineers
154 Colonnade Road South, Ottawa, Ontario K2E 7J5

CONSOLIDATION TEST

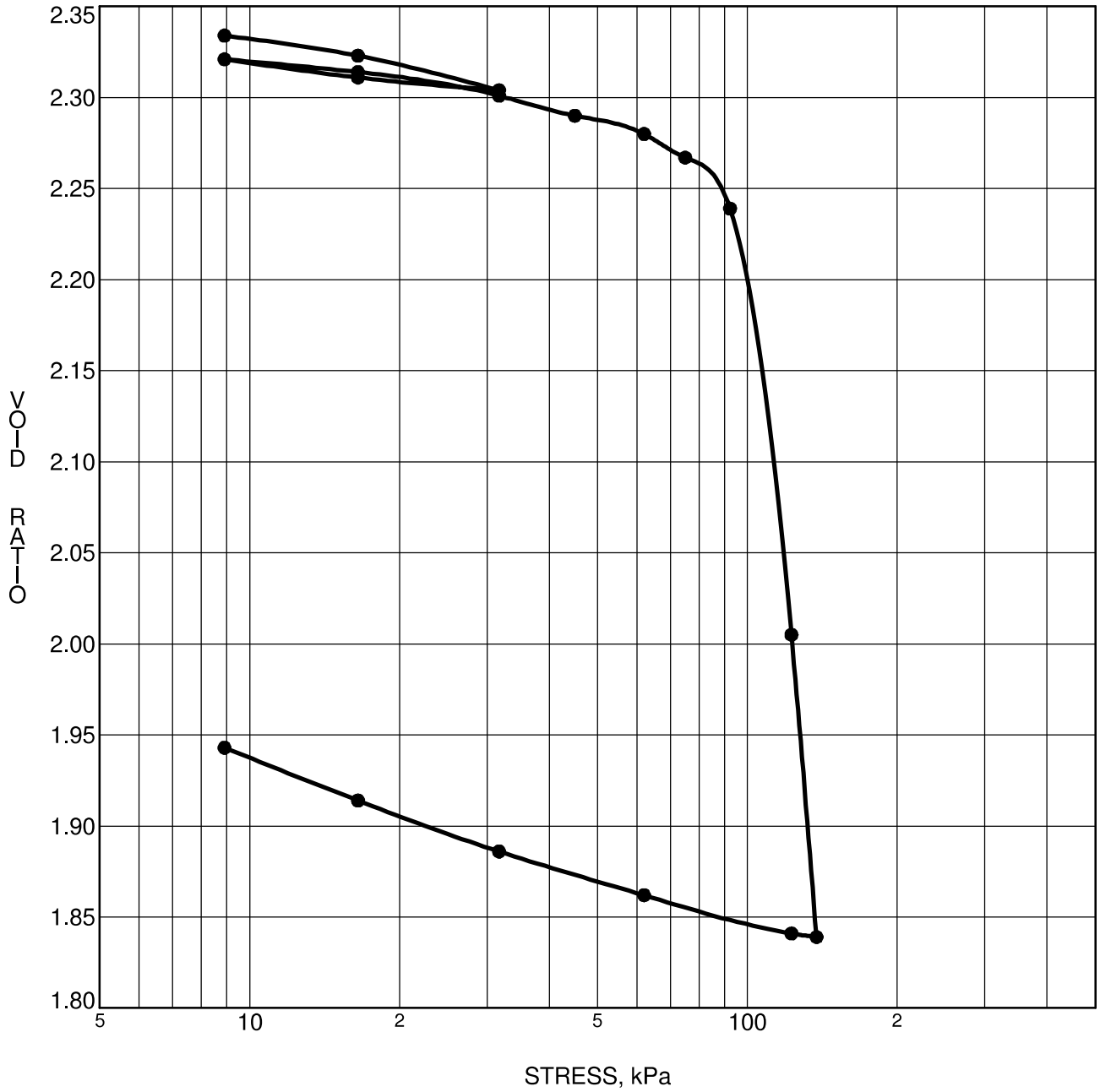


CONSOLIDATION TEST DATA SUMMARY					
Borehole No.	**BH35-18**	p'_o	**54.07** kPa	Ccr	**1.989**
Sample No.	**TW 4**	p'_c	**94.04** kPa	Cc	**0.026**
Sample Depth	**4.29** m	OC Ratio	**1.7**	Wo	**76.7** %
Sample Elev.	**83.52** m	Void Ratio	**2.109**	Unit Wt.	**15.3** kN/m ^{3}

CLIENT	**Richcraft Group of Companies**	FILE NO.	**PG3130**
PROJECT	**Geotechnical Investigation - East Urban Community (EUC) Mixed-Use CDP**	DATE	**13/07/2018**

patersongroup Consulting Engineers
154 Colonnade Road South, Ottawa, Ontario K2E 7J5

CONSOLIDATION TEST



CONSOLIDATION TEST DATA SUMMARY					
Borehole No.	**BH36-18**	p'o	**60.06** kPa	Ccr	**0.035**
Sample No.	**TW 4**	p'c	**104.71** kPa	Cc	**3.182**
Sample Depth	**4.98** m	OC Ratio	**1.7**	Wo	**85.0** %
Sample Elev.	**82.46** m	Void Ratio	**2.337**	Unit Wt.	**15.0** kN/m ^{3}

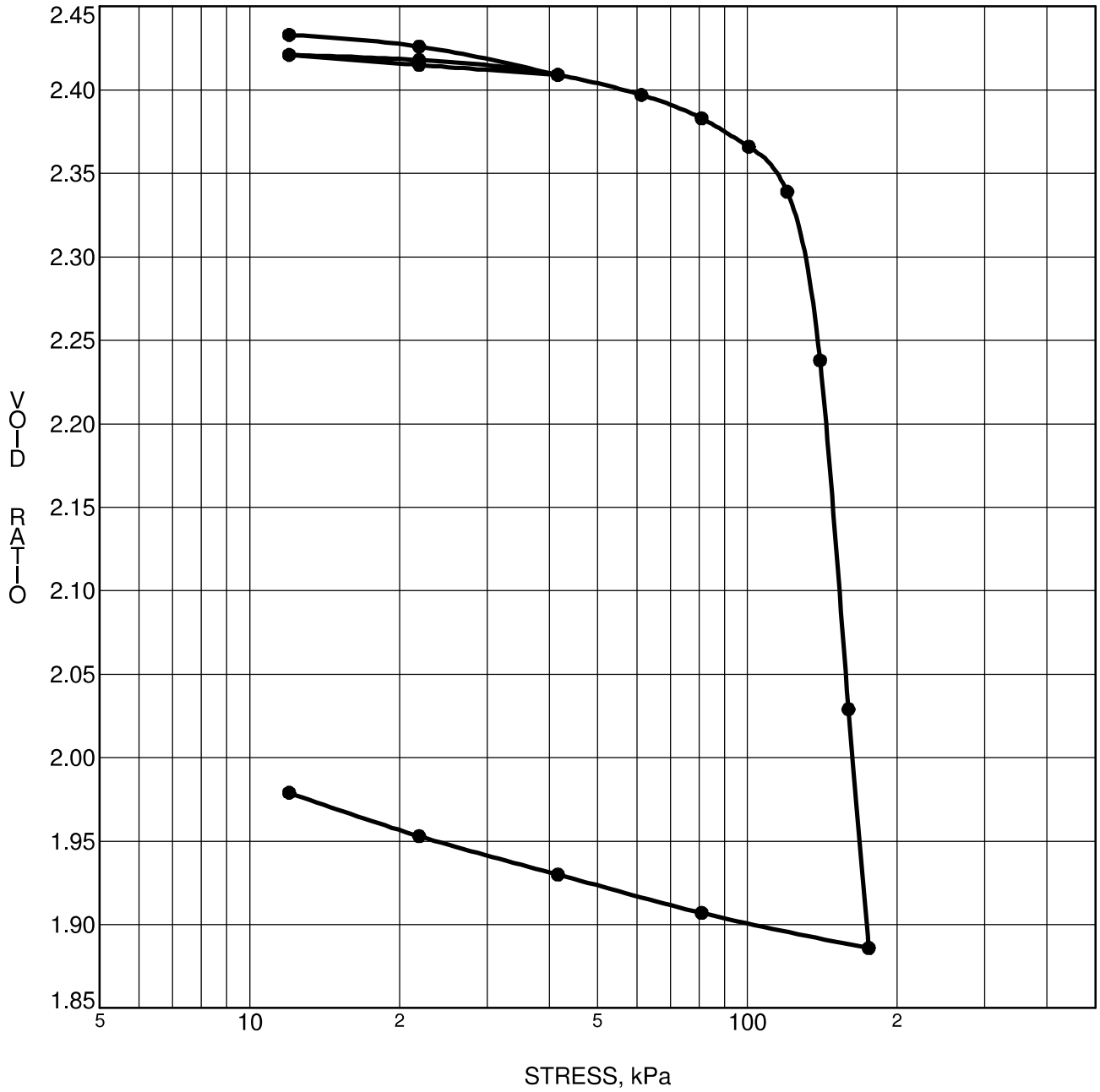
CLIENT **Richcraft Group of Companies** FILE NO. **PG3130**

PROJECT **Geotechnical Investigation - East Urban Community (EUC) Mixed-Use CDP** DATE **03/07/2018**

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

CONSOLIDATION TEST

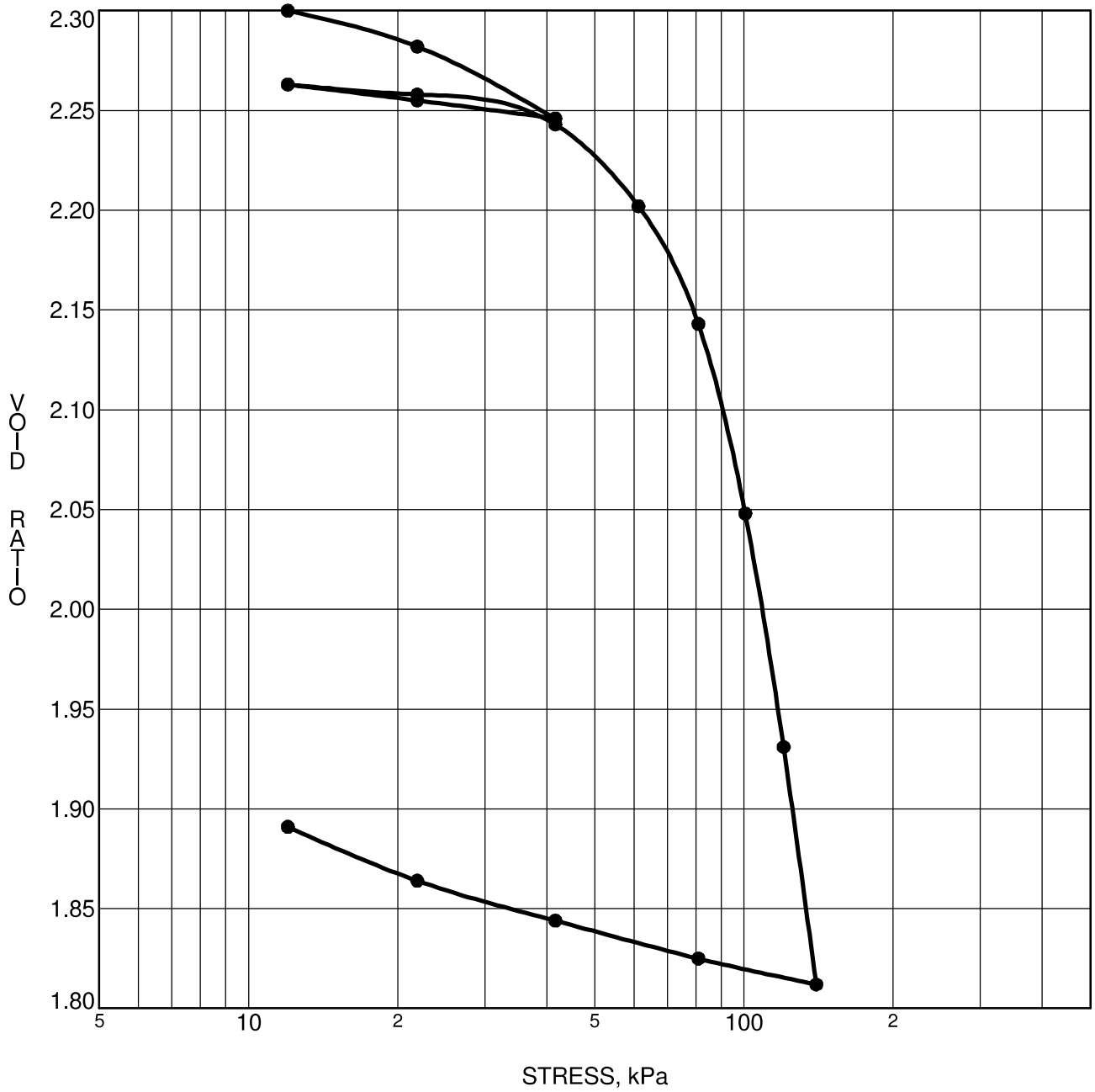


CONSOLIDATION TEST DATA SUMMARY					
Borehole No.	**BH42-18**	p'_o	**66.9** kPa	Ccr	**0.022**
Sample No.	**TW 4**	p'_c	**132.23** kPa	Cc	**3.777**
Sample Depth	**5.05** m	OC Ratio	**2.0**	Wo	**89.0** %
Sample Elev.	**82.91** m	Void Ratio	**2.447**	Unit Wt.	**14.8** kN/m ^{3}

CLIENT	**Richcraft Group of Companies**	FILE NO.	**PG3130**
PROJECT	**Geotechnical Investigation - East Urban Community (EUC) Mixed-Use CDP**	DATE	**27/07/2018**

patersongroup Consulting Engineers
154 Colonnade Road South, Ottawa, Ontario K2E 7J5

CONSOLIDATION TEST



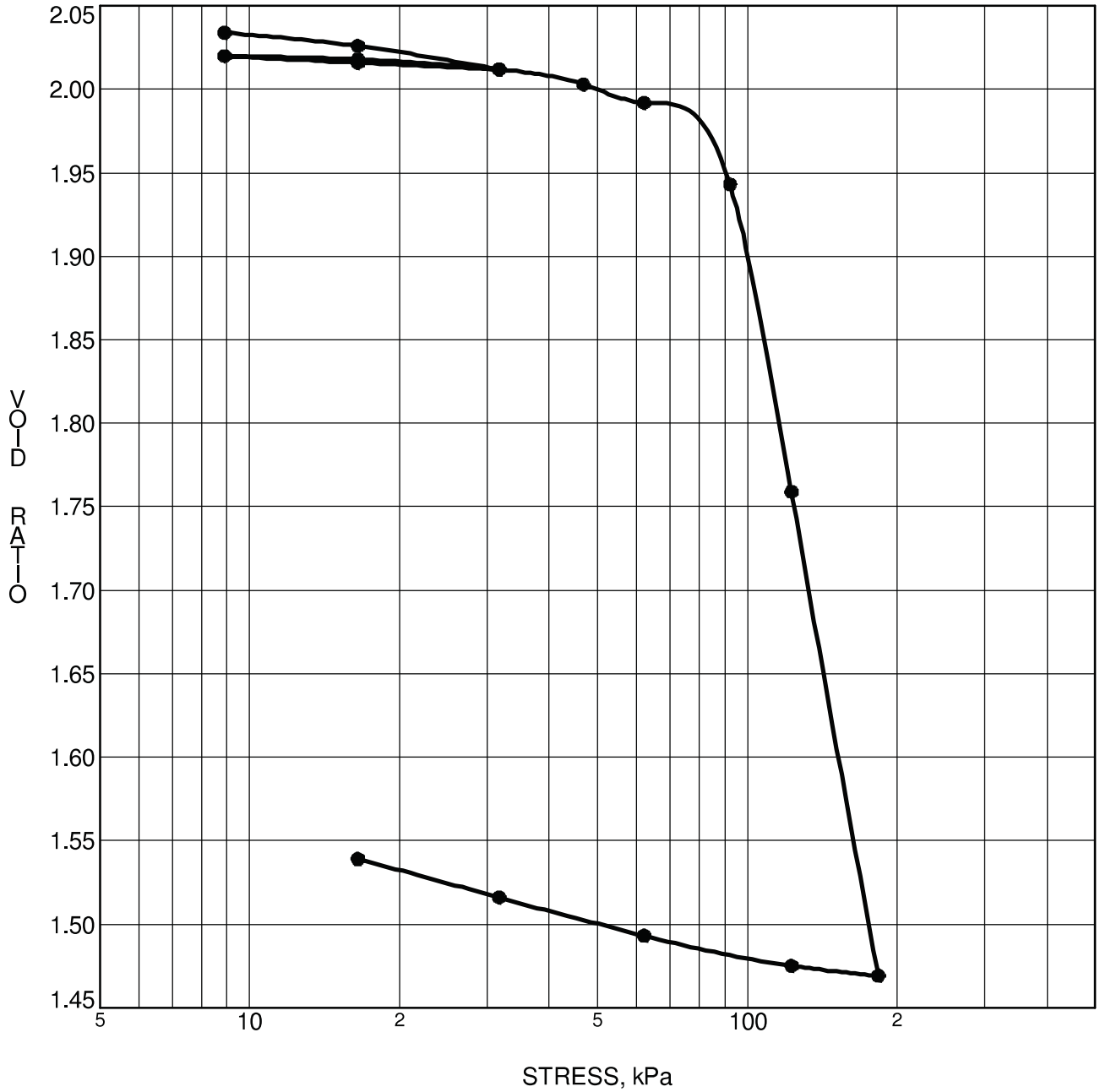
CONSOLIDATION TEST DATA SUMMARY					
Borehole No.	**BH44-18**	p'_o	**66.75** kPa	Ccr	**1.823**
Sample No.	**TW 4**	p'_c	**85.77** kPa	Cc	**0.027**
Sample Depth	**5.03** m	OC Ratio	**1.3**	Wo	**84.4** %
Sample Elev.	**82.99** m	Void Ratio	**2.32**	Unit Wt.	**15.0** kN/m ^{3}

CLIENT **Richcraft Group of Companies** FILE NO. **PG3130**

PROJECT **Geotechnical Investigation - East Urban Community (EUC) Mixed-Use CDP** DATE **15/07/2018**

patersongroup Consulting Engineers
154 Colonnade Road South, Ottawa, Ontario K2E 7J5

CONSOLIDATION TEST



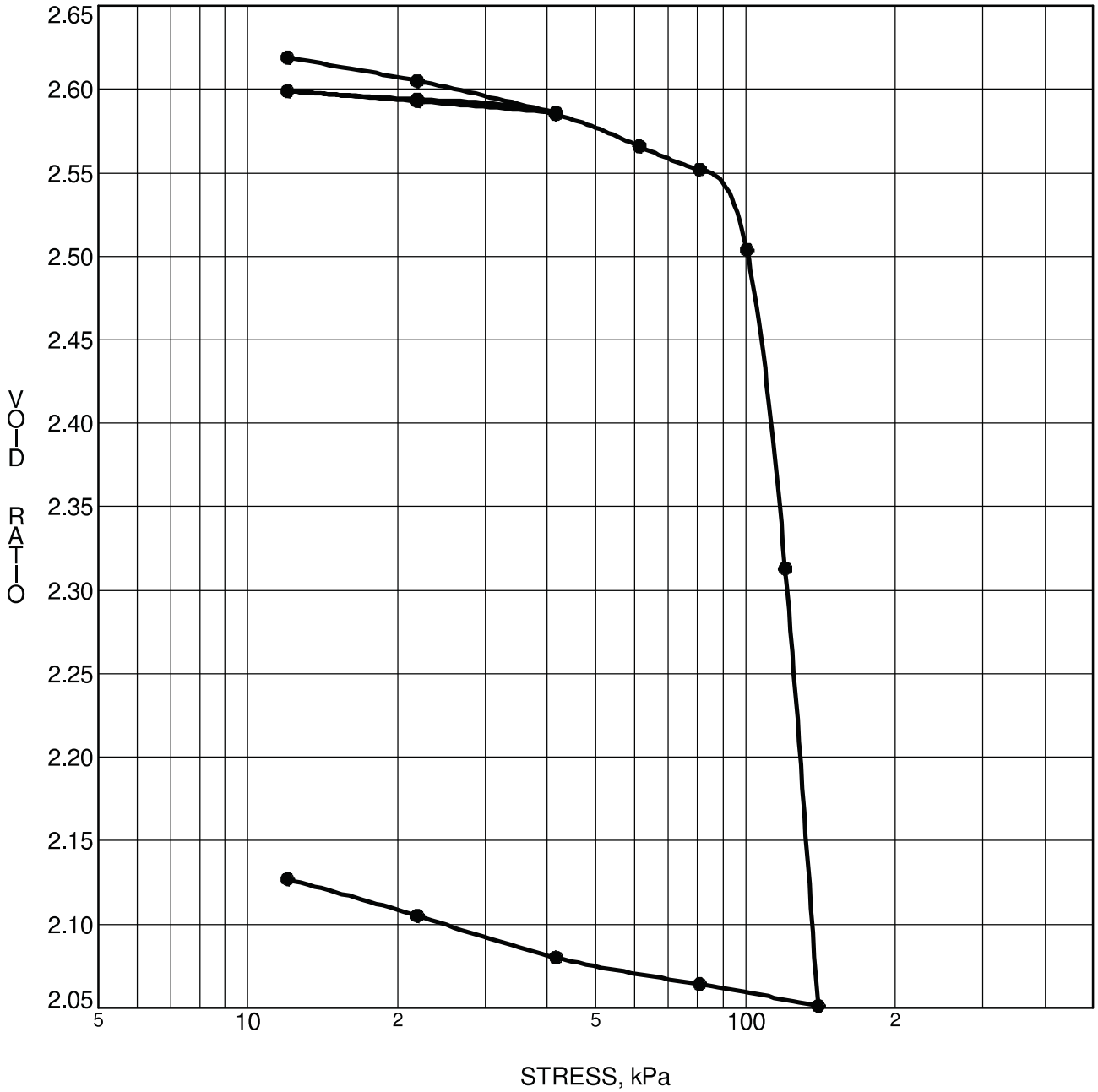
CONSOLIDATION TEST DATA SUMMARY					
Borehole No.	**BH 7**	p'_o	**53** kPa	Ccr	**0.016**
Sample No.	**TW 2**	p'_c	**90** kPa	Cc	**1.643**
Sample Depth	**4.36** m	OC Ratio	**1.7**	Wo	**74.3** %
Sample Elev.	**82.79** m	Void Ratio	**2.043**	Unit Wt.	**15.7** kN/m ^{3}

CLIENT **Minto Communities Inc.** FILE NO. **PG2392**

PROJECT **Geotechnical Investigation - Prop. Residential Development-Trails Edge Phase 2** DATE **08/23/2011**

patersongroup Consulting Engineers
154 Colonnade Road South, Ottawa, Ontario K2E 7J5

CONSOLIDATION TEST

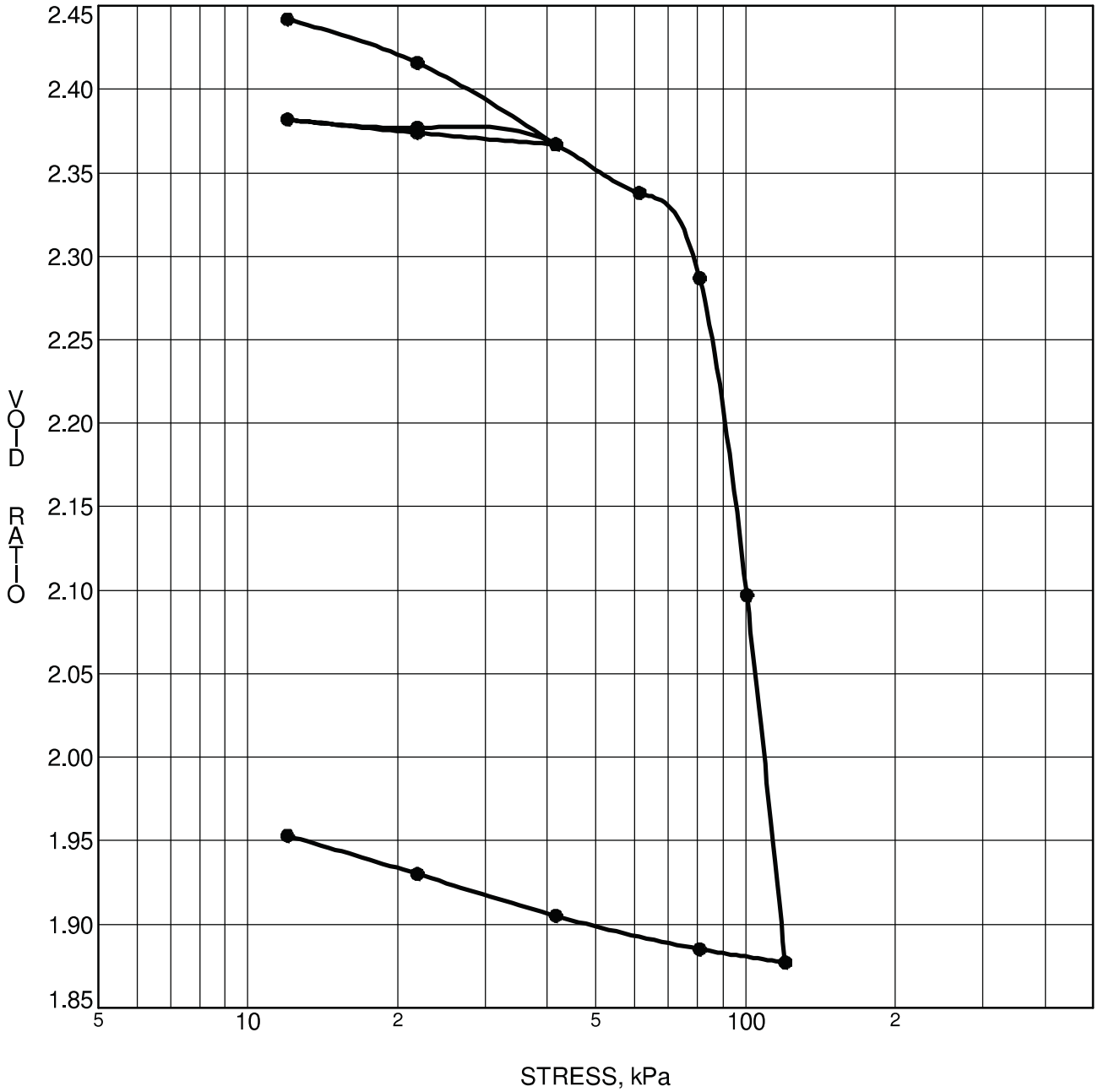


CONSOLIDATION TEST DATA SUMMARY					
Borehole No.	**BH 9**	p'_o	**53** kPa	Ccr	**0.021**
Sample No.	**TW 3**	p'_c	**106** kPa	Cc	**4.008**
Sample Depth	**4.33** m	OC Ratio	**2.0**	Wo	**95.8** %
Sample Elev.	**82.63** m	Void Ratio	**2.634**	Unit Wt.	**15.0** kN/m ^{3}

CLIENT	**Minto Communities Inc.**	FILE NO.	**PG2392**
PROJECT	**Geotechnical Investigation - Prop. Residential Development-Trails Edge Phase 2**	DATE	**02/19/2012**

patersongroup Consulting Engineers
154 Colonnade Road South, Ottawa, Ontario K2E 7J5

CONSOLIDATION TEST

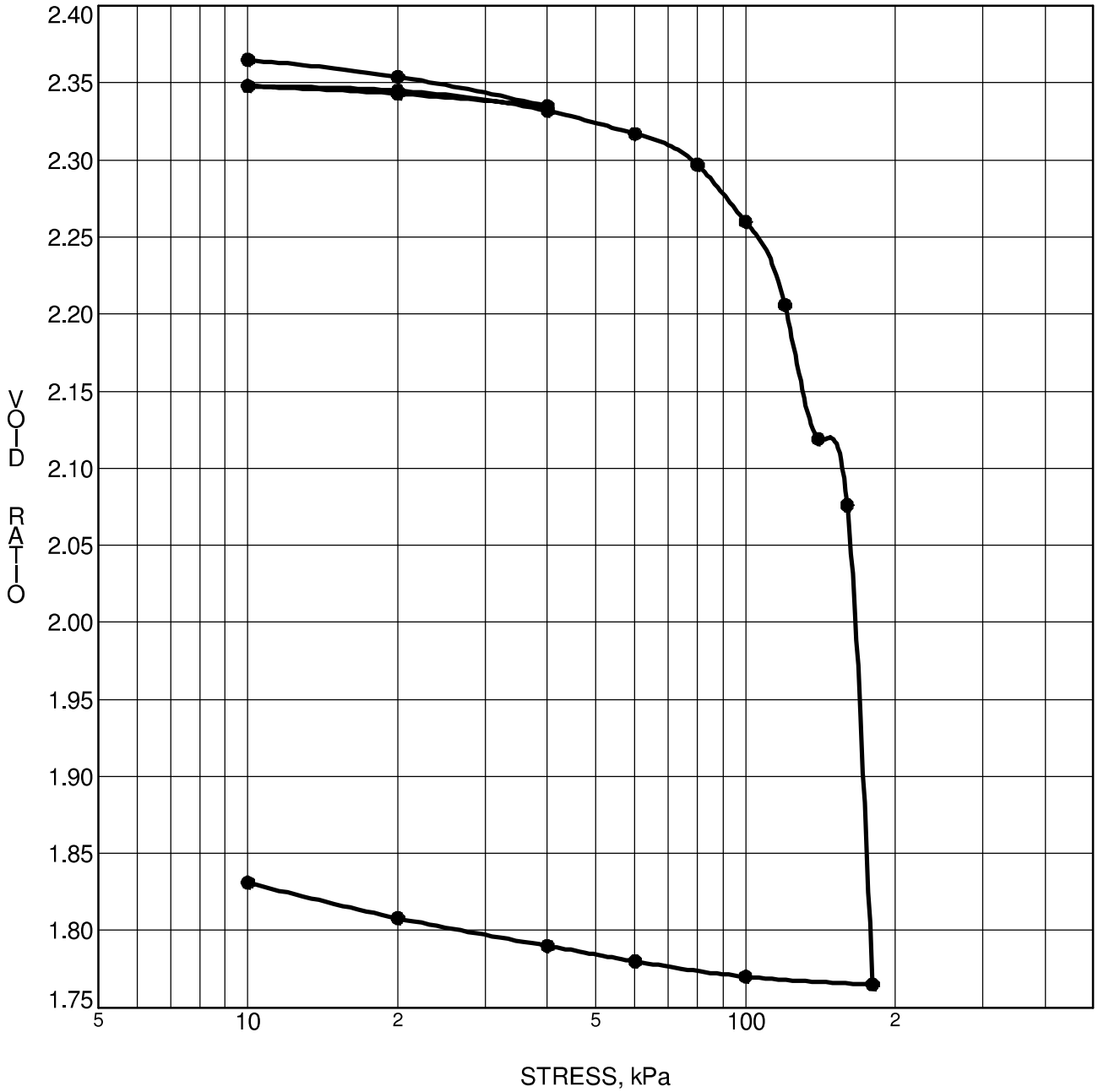


CONSOLIDATION TEST DATA SUMMARY					
Borehole No.	**BH11**	p'_o	**53** kPa	Ccr	**0.027**
Sample No.	**TW 4**	p'_c	**85** kPa	Cc	**2.735**
Sample Depth	**4.32** m	OC Ratio	**1.6**	Wo	**89.9** %
Sample Elev.	**82.85** m	Void Ratio	**2.472**	Unit Wt.	**15.1** kN/m ^{3}

CLIENT	**Minto Communities Inc.**	FILE NO.	**PG2392**
PROJECT	**Geotechnical Investigation - Prop. Residential Development-Trails Edge Phase 2**	DATE	**02/17/2012**

patersongroup Consulting Engineers
154 Colonnade Road South, Ottawa, Ontario K2E 7J5

CONSOLIDATION TEST



CONSOLIDATION TEST DATA SUMMARY					
Borehole No.	**BH 9-08**	p'_o	**55** kPa	Ccr	**0.026**
Sample No.	**TW 2**	p'_c	**126** kPa	Cc	**3.260**
Sample Depth	**4.80** m	OC Ratio	**2.3**	Wo	**86.4** %
Sample Elev.	**82.12** m	Void Ratio	**2.376**	Unit Wt.	**16.2** kN/m ^{3}

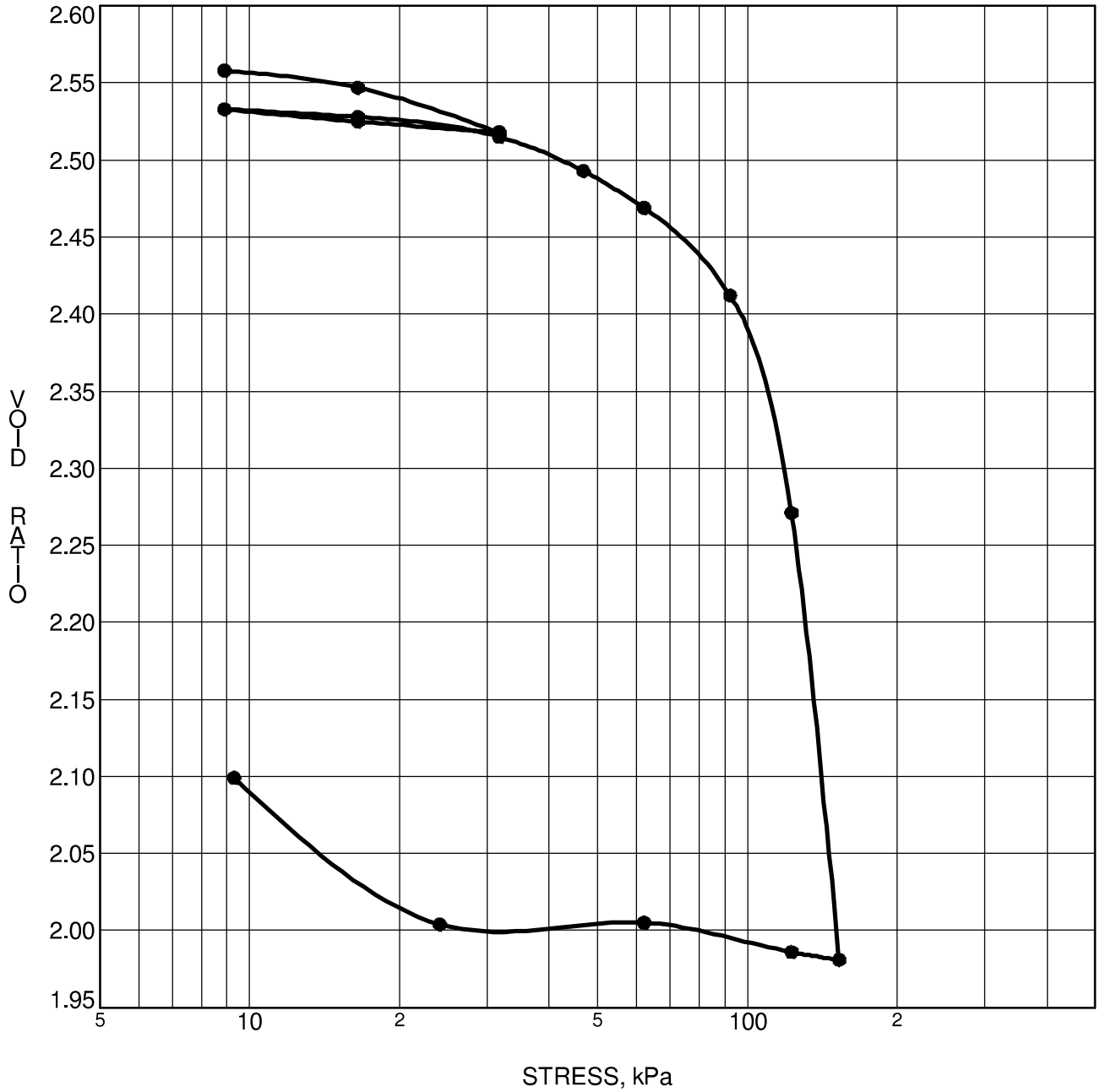
CLIENT **Richcraft Homes** FILE NO. **PG0861**

PROJECT **Geotechnical Investigation - Residential Development - Eden Park East Portion** DATE **08/12/08**

patersongroup Consulting Engineers

28 Concouse Gate, Unit 1, Ottawa, Ontario K2E 7T7

CONSOLIDATION TEST



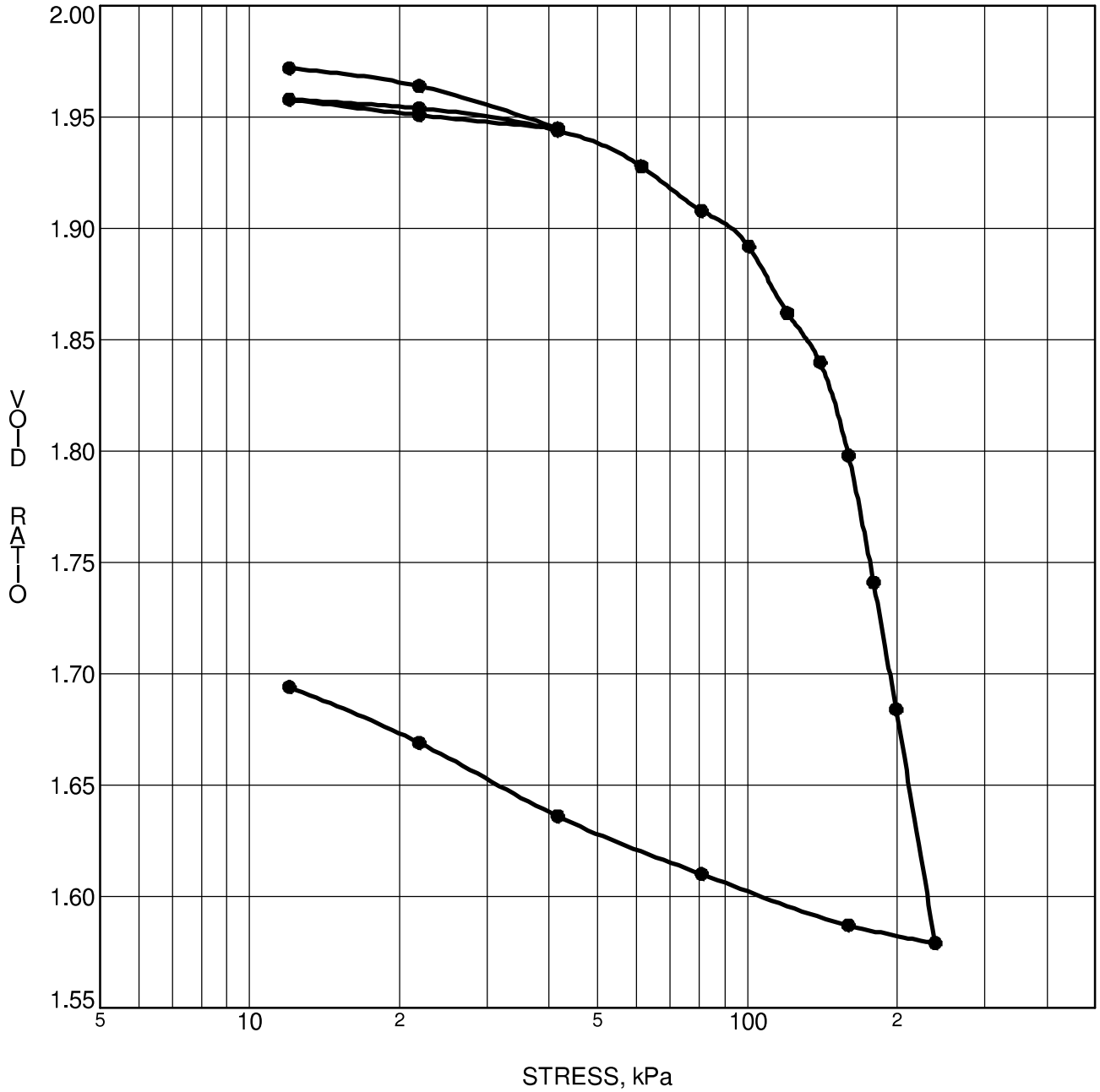
CONSOLIDATION TEST DATA SUMMARY					
Borehole No.	**BH12-08**	p'_o	**68** kPa	Ccr	**0.031**
Sample No.	**TW 4**	p'_c	**109** kPa	Cc	**3.080**
Sample Depth	**9.40** m	OC Ratio	**1.6**	Wo	**93.6** %
Sample Elev.	**78.22** m	Void Ratio	**2.575**	Unit Wt.	**16.0** kN/m ^{3}

CLIENT **Richcraft Homes** FILE NO. **PG0861**

PROJECT **Geotechnical Investigation - Residential Development - Eden Park East Portion** DATE **10/27/08**

patersongroup Consulting Engineers
28 Concouse Gate, Unit 1, Ottawa, Ontario K2E 7T7

CONSOLIDATION TEST

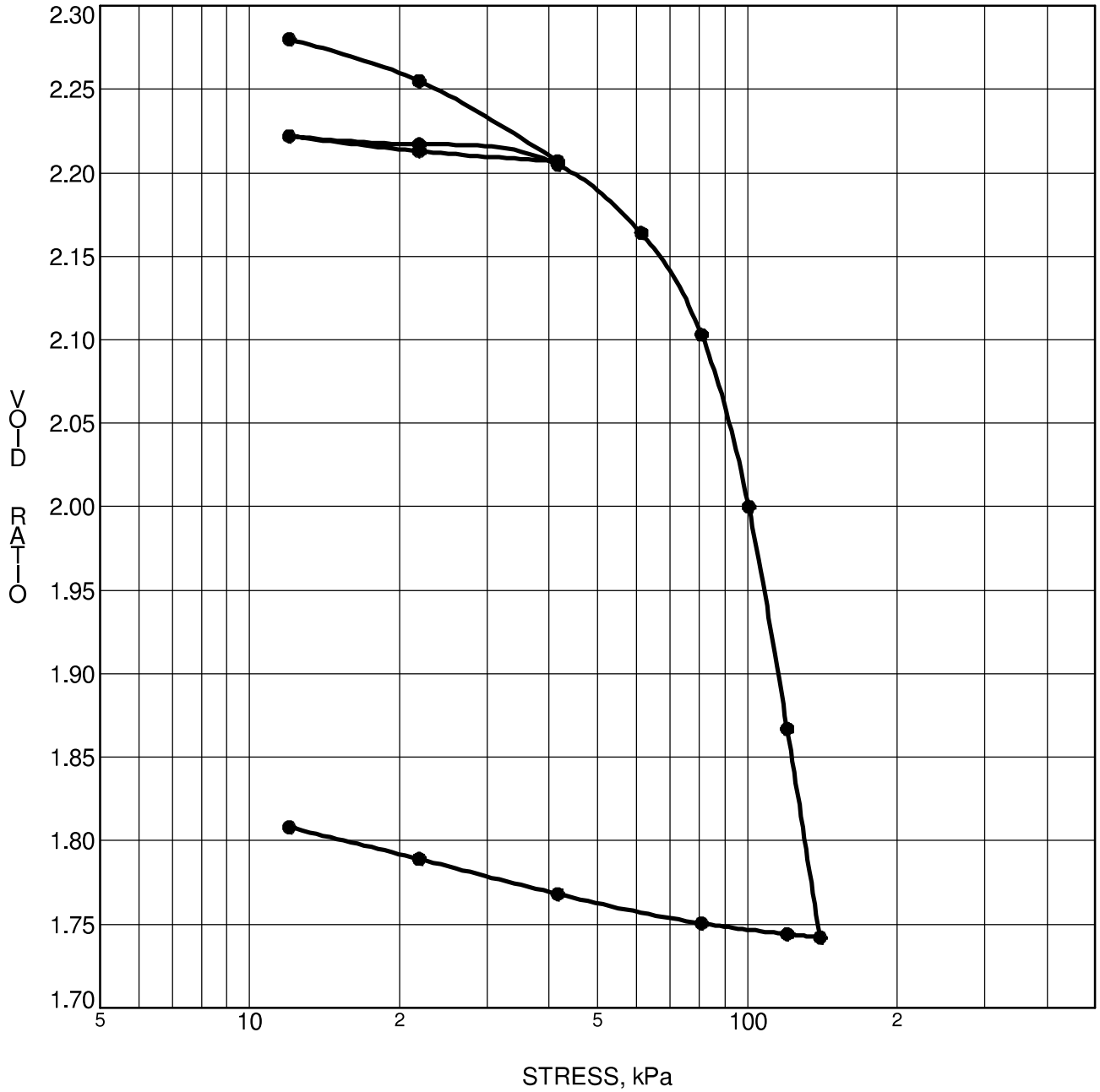


CONSOLIDATION TEST DATA SUMMARY					
Borehole No.	**BH13-08**	p'_o	**43** kPa	Ccr	**0.025**
Sample No.	**TW 2**	p'_c	**142** kPa	Cc	**1.334**
Sample Depth	**3.42** m	OC Ratio	**3.3**	Wo	**72.2** %
Sample Elev.	**83.96** m	Void Ratio	**1.985**	Unit Wt.	**16.5** kN/m ^{3}

CLIENT	**Richcraft Homes**	FILE NO.	**PG0861**
PROJECT	**Geotechnical Investigation - Residential Development - Eden Park East Portion**	DATE	**10/28/08**

patersongroup Consulting Engineers
28 Concouse Gate, Unit 1, Ottawa, Ontario K2E 7T7

CONSOLIDATION TEST

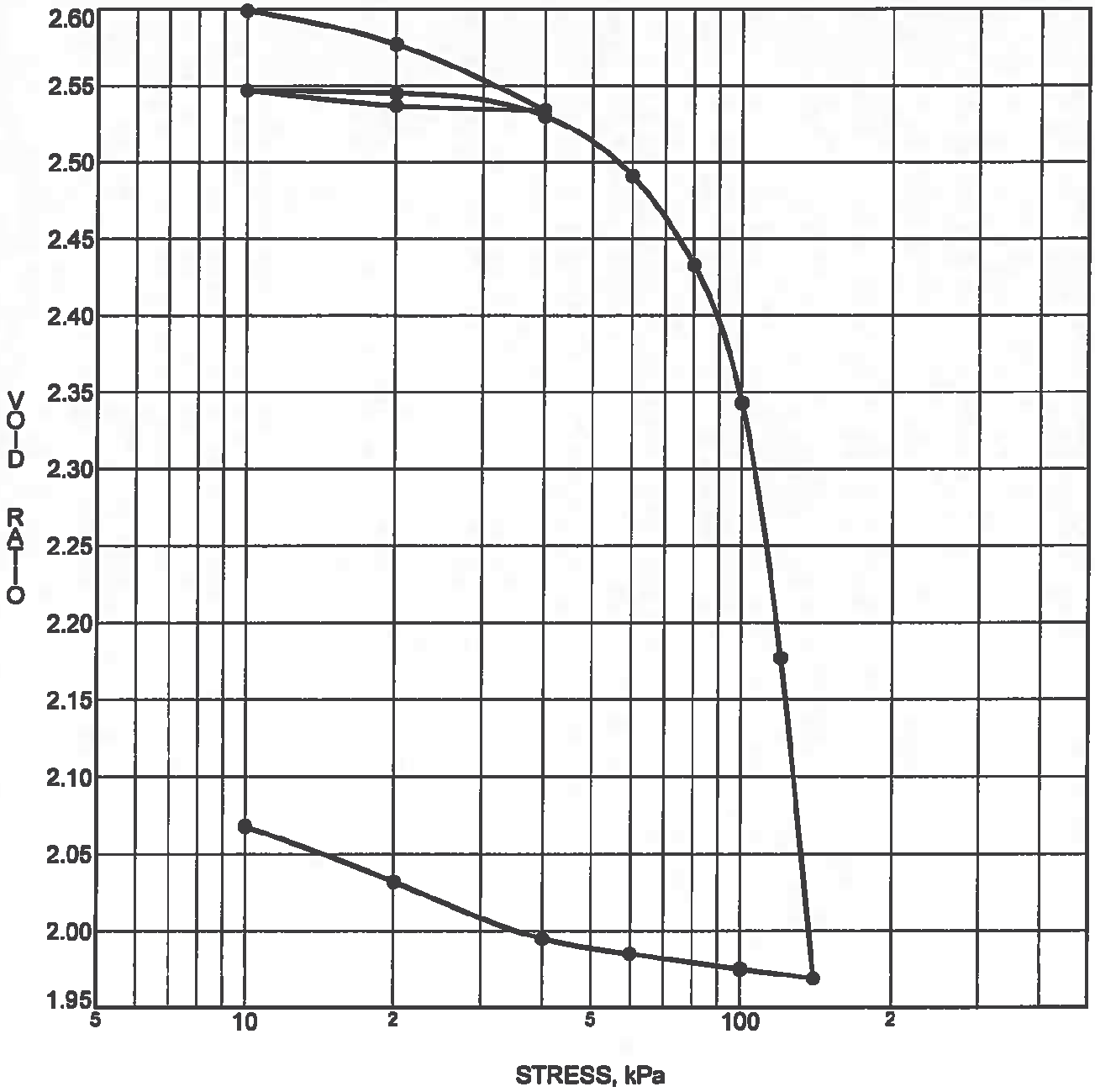


CONSOLIDATION TEST DATA SUMMARY					
Borehole No.	**BH15-08**	p'_o	**50** kPa	Ccr	**0.029**
Sample No.	**TW 2**	p'_c	**87** kPa	Cc	**1.890**
Sample Depth	**4.91** m	OC Ratio	**1.7**	Wo	**83.8** %
Sample Elev.	**82.33** m	Void Ratio	**2.303**	Unit Wt.	**16.0** kN/m ^{3}

CLIENT	**Richcraft Homes**	FILE NO.	**PG0861**
PROJECT	**Geotechnical Investigation - Residential Development - Eden Park East Portion**	DATE	**10/27/08**

patersongroup Consulting Engineers
28 Concouse Gate, Unit 1, Ottawa, Ontario K2E 7T7

CONSOLIDATION TEST



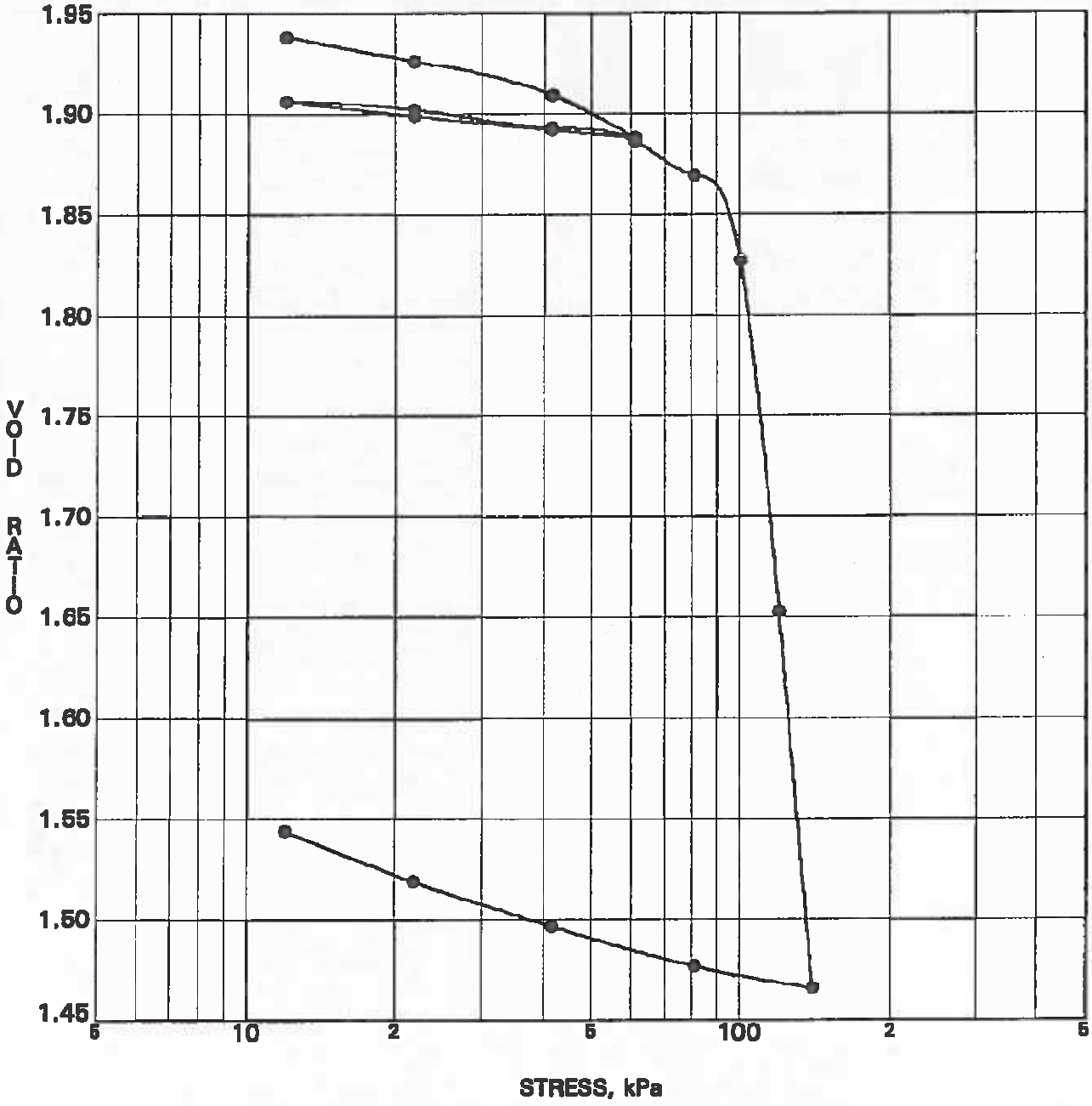
CONSOLIDATION TEST DATA SUMMARY					
Borehole No.	BH19-08	p'_o	43 kPa	Ccr	0.025
Sample No.	TW 3	p'_c	99 kPa	Cc	3.100
Sample Depth	4.9 m	OC Ratio	2.3	Wo	95.1 %
Sample Elev.	81.9 m	Void Ratio	2.615	Unit Wt.	16.0 kN/m^3

CLIENT Richcraft Homes — FILE NO. PG0861

PROJECT Geotechnical Investigation - Residential Development - Eden Park East Portion — DATE 10/21/08

patersongroup Consulting Engineers
28 Concouse Gate, Unit 1, Ottawa, Ontario K2E 7T7

CONSOLIDATION TEST



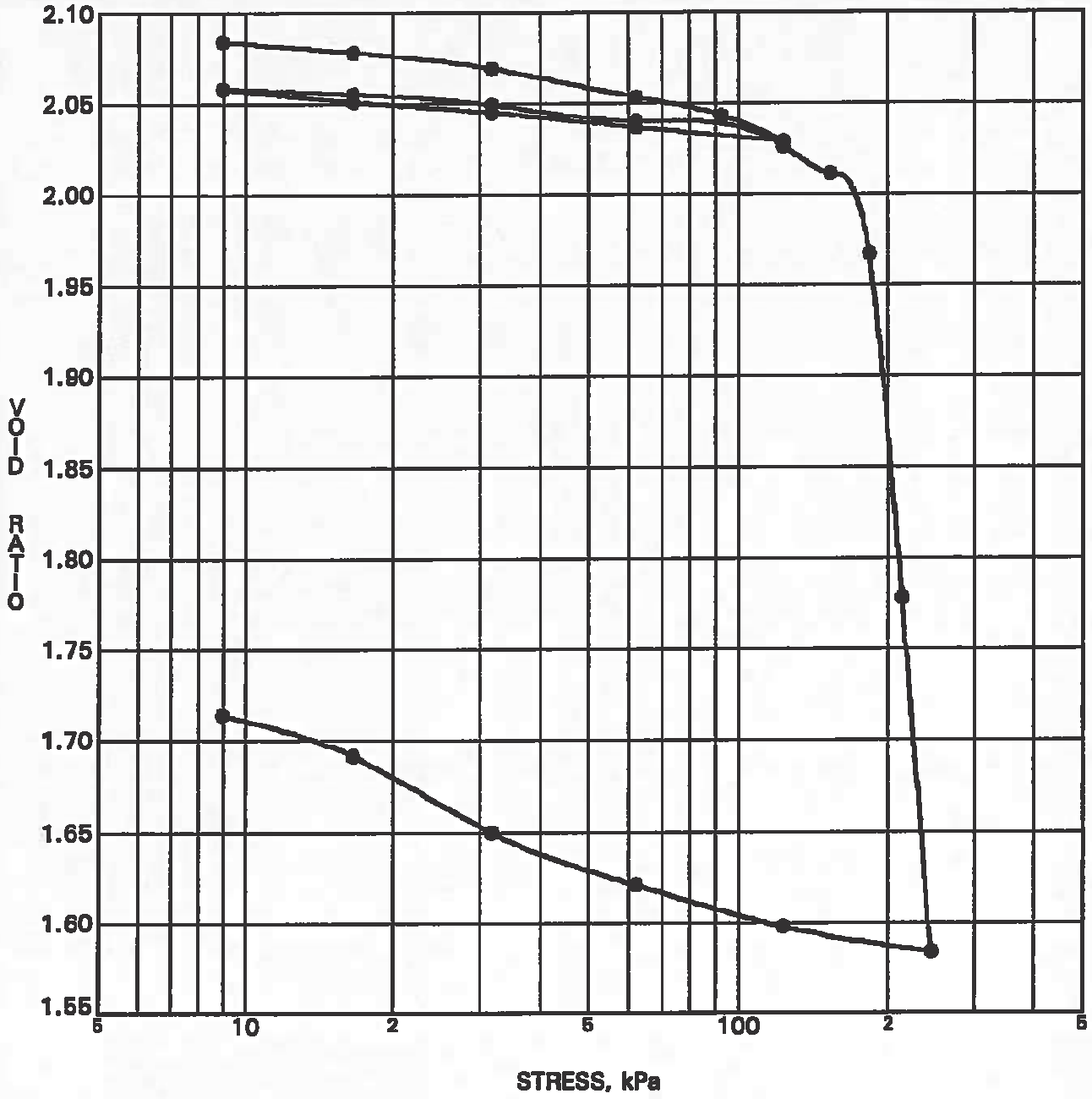
CONSOLIDATION TEST DATA SUMMARY					
Borehole No.	BH 3	p'o	64 kPa	Ccr	0.043
Sample No.	TW 5	p'c	103 kPa	Cc	2.967
Sample Depth	6.53 m	OC Ratio	1.6	Wo	70.8 %
Sample Elev.	80.97 m	Void Ratio	1.951	Unit Wt.	14.9 kN/m^3

CLIENT	Richcraft Homes	FILE NO.	G8533
PROJECT	Geotechnical Investigation - Proposed Residential Subdivision, 4th Line Road	DATE	20/03/02

CONSOLIDATION TEST

JOHN D. PATERSON & ASSOCIATES LTD.

Unit 1, 28 Concourse Gate, Nepean, Ontario K2E 7T7

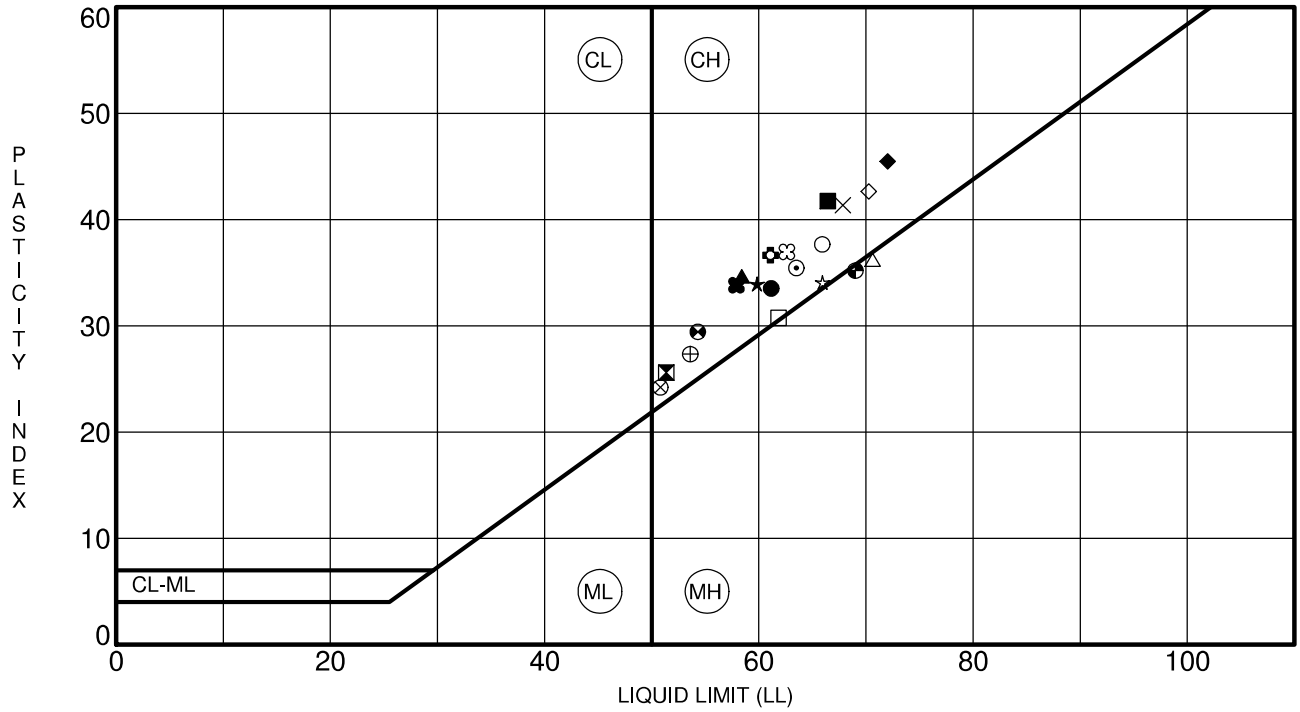


CONSOLIDATION TEST DATA SUMMARY					
Borehole No.	BH 3	p'_o	82 kPa	Ccr	0.028
Sample No.	TW 7	p'_c	175 kPa	Cc	3.046
Sample Depth	9.60 m	OC Ratio	2.1	Wo	75.9 %
Sample Elev.	77.90 m	Void Ratio	2.084	Unit Wt.	15.4 kN/m^3

CLIENT	Richcraft Homes	FILE NO.	G8533
PROJECT	Geotechnical Investigation - Proposed Residential Subdivision, 4th Line Road	DATE	20/03/02

CONSOLIDATION TEST

JOHN D. PATERSON & ASSOCIATES LTD.
Unit 1, 28 Concourse Gate, Nepean, Ontario K2E 7T7



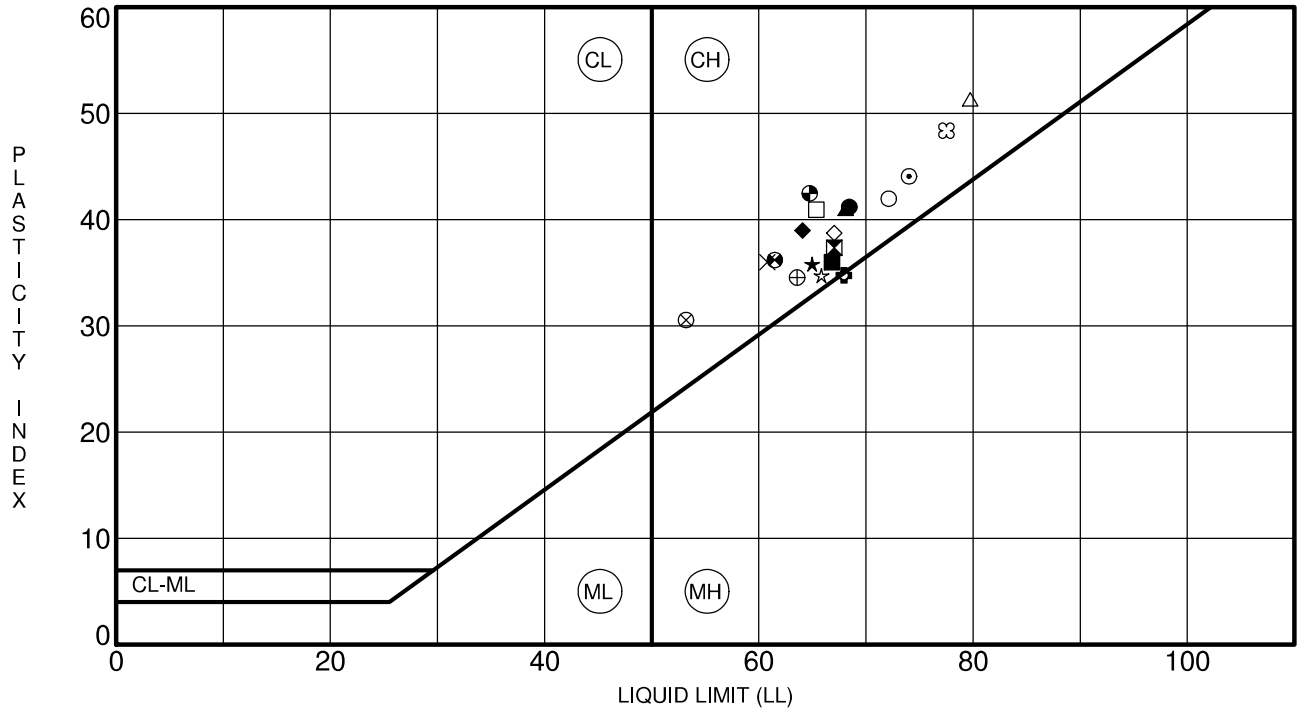
Specimen Identification			LL	PL	PI	Fines	Classification
●	BH 1-18	SS2	61	28	34		CH - Inorganic clays of high plasticity
⊠	BH 2-18	SS3	51	26	26		CH - Inorganic clays of high plasticity
▲	BH 3-18	SS2	58	24	35		CH - Inorganic clays of high plasticity
★	BH 4-18	SS3	60	26	34		CH - Inorganic clays of high plasticity
⊙	BH 5-18	SS2	64	28	35		CH - Inorganic clays of high plasticity
✿	BH 6-18	SS3	61	24	37		CH - Inorganic clays of high plasticity
○	BH 7-18	SS2	66	28	38		CH - Inorganic clays of high plasticity
△	BH 8-18	SS2	71	34	36		CH - Inorganic clays of high plasticity
⊗	BH10-18	SS3	51	27	24		CH - Inorganic clays of high plasticity
⊕	BH13-18	SS2	54	26	27		CH - Inorganic clays of high plasticity
□	BH14-18	SS3	62	31	31		CH - Inorganic clays of high plasticity
⊜	BH17-18	SS3	54	25	29		CH - Inorganic clays of high plasticity
◕	BH18-18	SS4	69	34	35		CH - Inorganic clays of high plasticity
☆	BH19-18	SS3	66	32	34		CH - Inorganic clays of high plasticity
⊠	BH20-18	SS4	63	26	37		CH - Inorganic clays of high plasticity
■	BH21-18	SS3	66	25	42		CH - Inorganic clays of high plasticity
◆	BH22-18	SS4	72	27	45		CH - Inorganic clays of high plasticity
◇	BH23-18	SS3	70	28	43		CH - Inorganic clays of high plasticity

CLIENT **Richcraft Group of Companies** FILE NO. **PG3130**

PROJECT **Geotechnical Investigation - East Urban Community (EUC) Mixed-Use CDP** DATE **18 Jun 18**

patersongroup Consulting Engineers
154 Colonnade Road South, Ottawa, Ontario K2E 7J5

ATTERBERG LIMITS' RESULTS



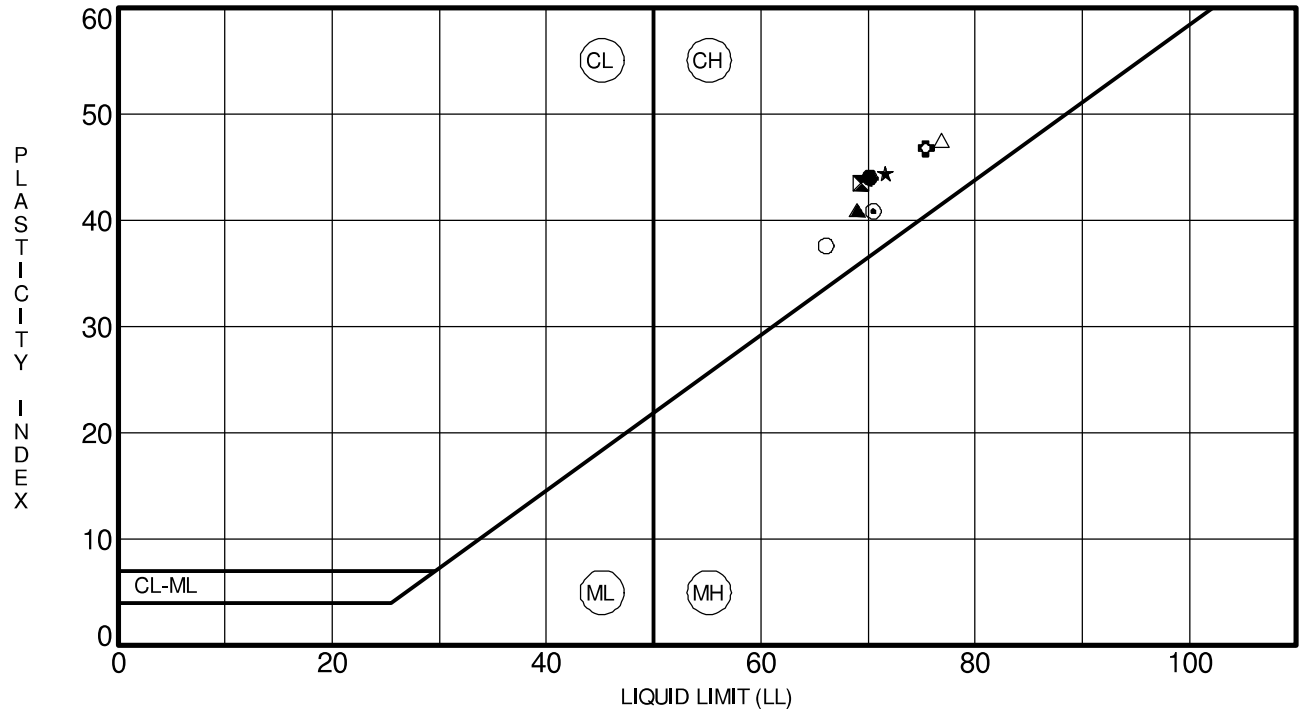
Specimen Identification			LL	PL	PI	Fines	Classification
●	BH26-18	SS3	68	27	41		CH - Inorganic clays of high plasticity
⊠	BH27-18	SS2	67	30	37		CH - Inorganic clays of high plasticity
▲	BH28-18	SS4	68	27	41		CH - Inorganic clays of high plasticity
★	BH29-18	SS3	65	29	36		CH - Inorganic clays of high plasticity
⊙	BH30-18	SS2	74	30	44		CH - Inorganic clays of high plasticity
✿	BH31-18	SS2	68	33	35		CH - Inorganic clays of high plasticity
○	BH32-18	SS2	72	30	42		CH - Inorganic clays of high plasticity
△	BH34-18	SS4	80	28	51		CH - Inorganic clays of high plasticity
⊗	BH35-18	SS2	53	23	31		CH - Inorganic clays of high plasticity
⊕	BH36-18	SS3	64	29	35		CH - Inorganic clays of high plasticity
□	BH37-18	SS2	65	24	41		CH - Inorganic clays of high plasticity
⊖	BH38-18	SS2	61	25	36		CH - Inorganic clays of high plasticity
◔	BH39-18	SS3	65	22	42		CH - Inorganic clays of high plasticity
☆	BH40-18	SS2	66	31	35		CH - Inorganic clays of high plasticity
⊠	BH41-18	SS3	78	29	48		CH - Inorganic clays of high plasticity
■	BH42-18	SS2	67	31	36		CH - Inorganic clays of high plasticity
◆	BH43-18	SS2	64	25	39		CH - Inorganic clays of high plasticity
◇	BH44-18	SS3	67	28	39		CH - Inorganic clays of high plasticity

CLIENT **Richcraft Group of Companies** FILE NO. **PG3130**

PROJECT **Geotechnical Investigation - East Urban Community (EUC) Mixed-Use CDP** DATE **26 Jun 18**

patersongroup Consulting Engineers
154 Colonnade Road South, Ottawa, Ontario K2E 7J5

ATTERBERG LIMITS' RESULTS



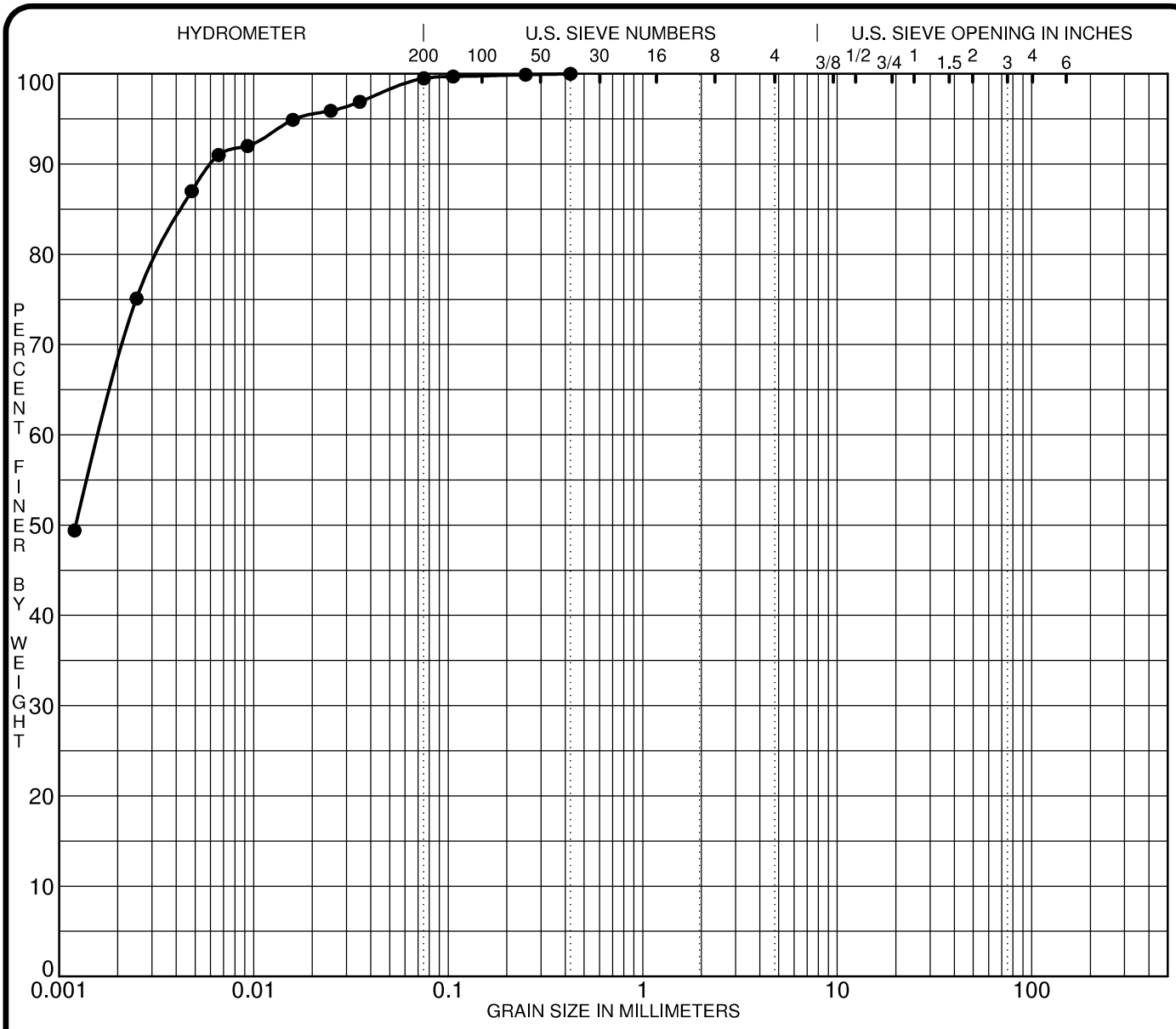
	Specimen Identification	LL	PL	PI	Fines	Classification
●	**BH 1-08**	**70**	**26**	**44**		**CH - Clay with high plasticity (TW 5)**
⊠	**BH 3-08**	**69**	**26**	**44**		**CH - Clay with high plasticity (TW 3)**
▲	**BH 5-08**	**69**	**28**	**41**		**CH - Clay with high plasticity (TW 5)**
★	**BH 6-08**	**72**	**27**	**44**		**CH - Clay with high plasticity (TW 3)**
⊙	**BH 9-08**	**70**	**30**	**41**		**CH - Clay with high plasticity (TW 2)**
✿	**BH10-08**	**75**	**29**	**47**		**CH - Clay with high plasticity (TW 3)**
○	**BH15-08**	**66**	**28**	**38**		**CH-Inorganic Clays of High Plasticity (TW2)**
△	**BH17-08**	**77**	**29**	**48**		**CH-Inorganic Clays of High Plasticity (TW3)**

CLIENT **Richcraft Homes** FILE NO. **PG0861**

PROJECT **Geotechnical Investigation - Residential Development - Eden Park East Portion** DATE **15 Oct 08**

patersongroup Consulting Engineers
28 Concouse Gate, Unit 1, Ottawa, Ontario K2E 7T7

ATTERBERG LIMITS' RESULTS



SILT OR CLAY	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
● **BH 2-18 SS2**	**CH - Inorganic clays of high plasticity**						

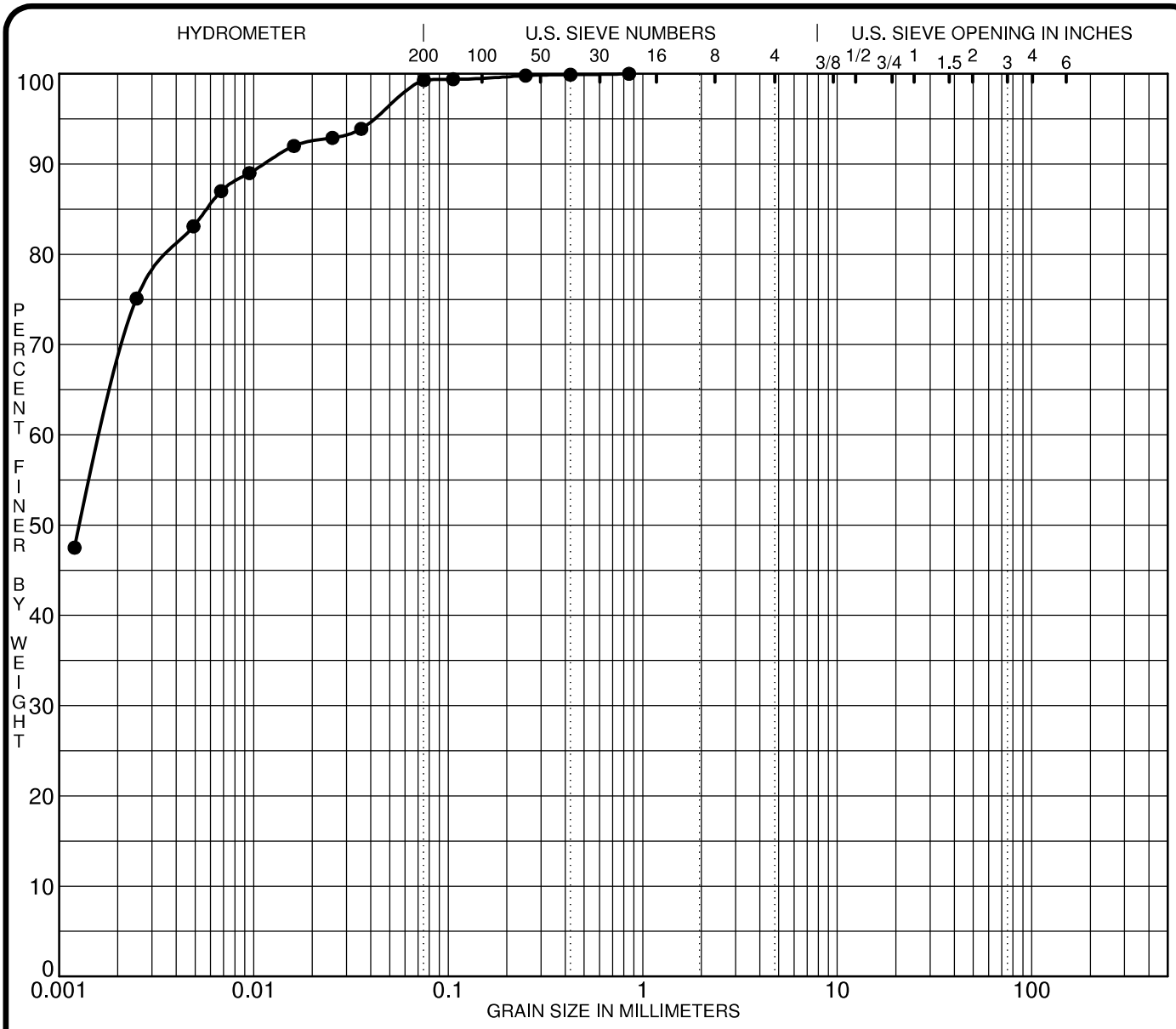
Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● **BH 2-18 SS2**	**0.43**	**0.00**			**0.0**	**0.5**	**99.5**	

CLIENT **Richcraft Group of Companies** FILE NO. **PG3130**

PROJECT **Geotechnical Investigation - East Urban Community (EUC) Mixed-Use CDP** DATE **11 Jun 18**

patersongroup Consulting Engineers
154 Colonnade Road South, Ottawa, Ontario K2E 7J5

GRAIN SIZE DISTRIBUTION



SILT OR CLAY	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

	Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
●	**BH 4-18 SS2**	**CH - Inorganic clays of high plasticity**						

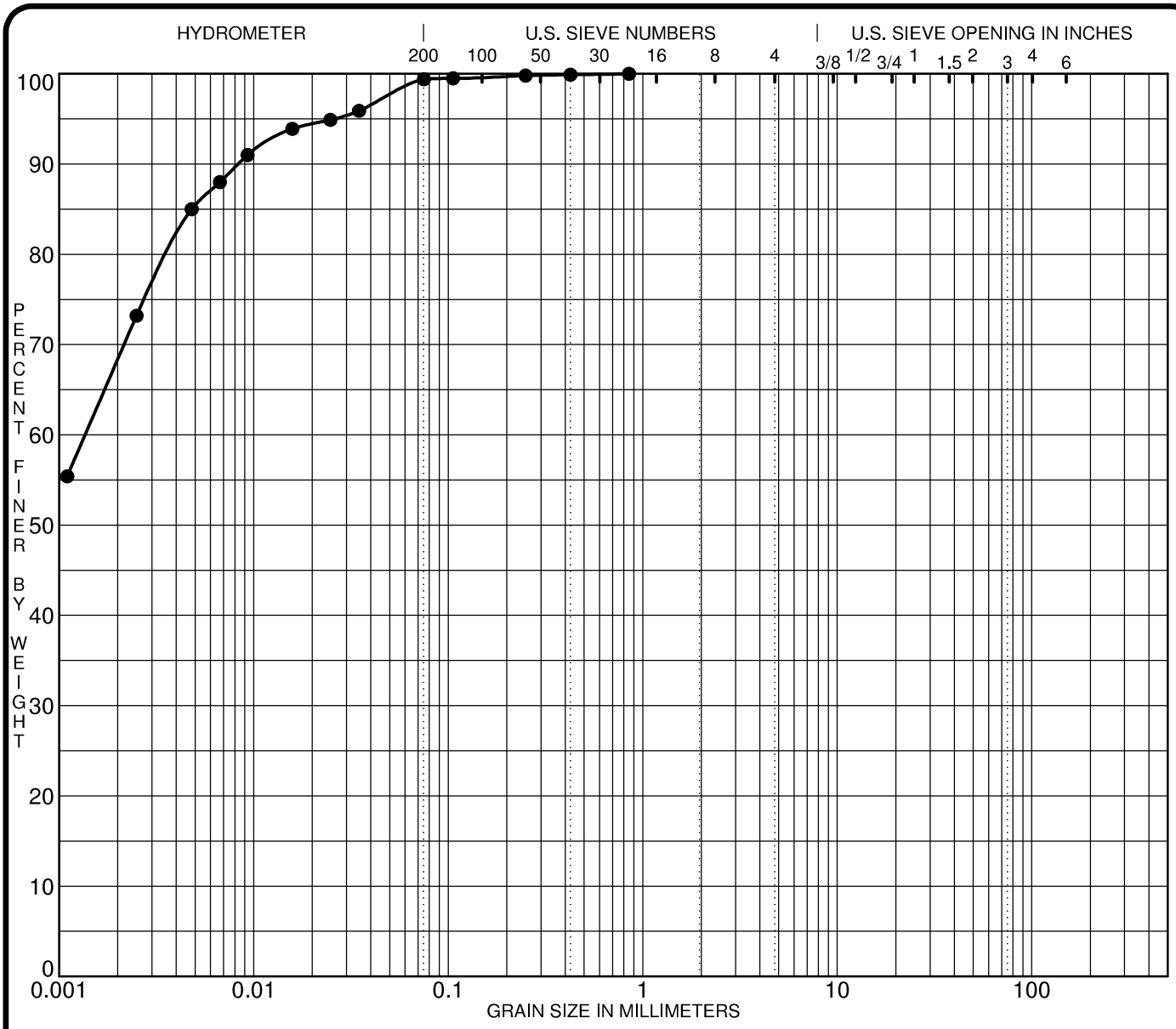
	Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**BH 4-18 SS2**	**0.85**	**0.00**			**0.0**	**0.7**	**99.3**	

CLIENT **Richcraft Group of Companies** FILE NO. **PG3130**

PROJECT **Geotechnical Investigation - East Urban Community (EUC) Mixed-Use CDP** DATE **12 Jun 18**

patersongroup Consulting Engineers
154 Colonnade Road South, Ottawa, Ontario K2E 7J5

GRAIN SIZE DISTRIBUTION



SILT OR CLAY	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
● **BH10-18 SS2**	**CH - Inorganic clays of high plasticity**						

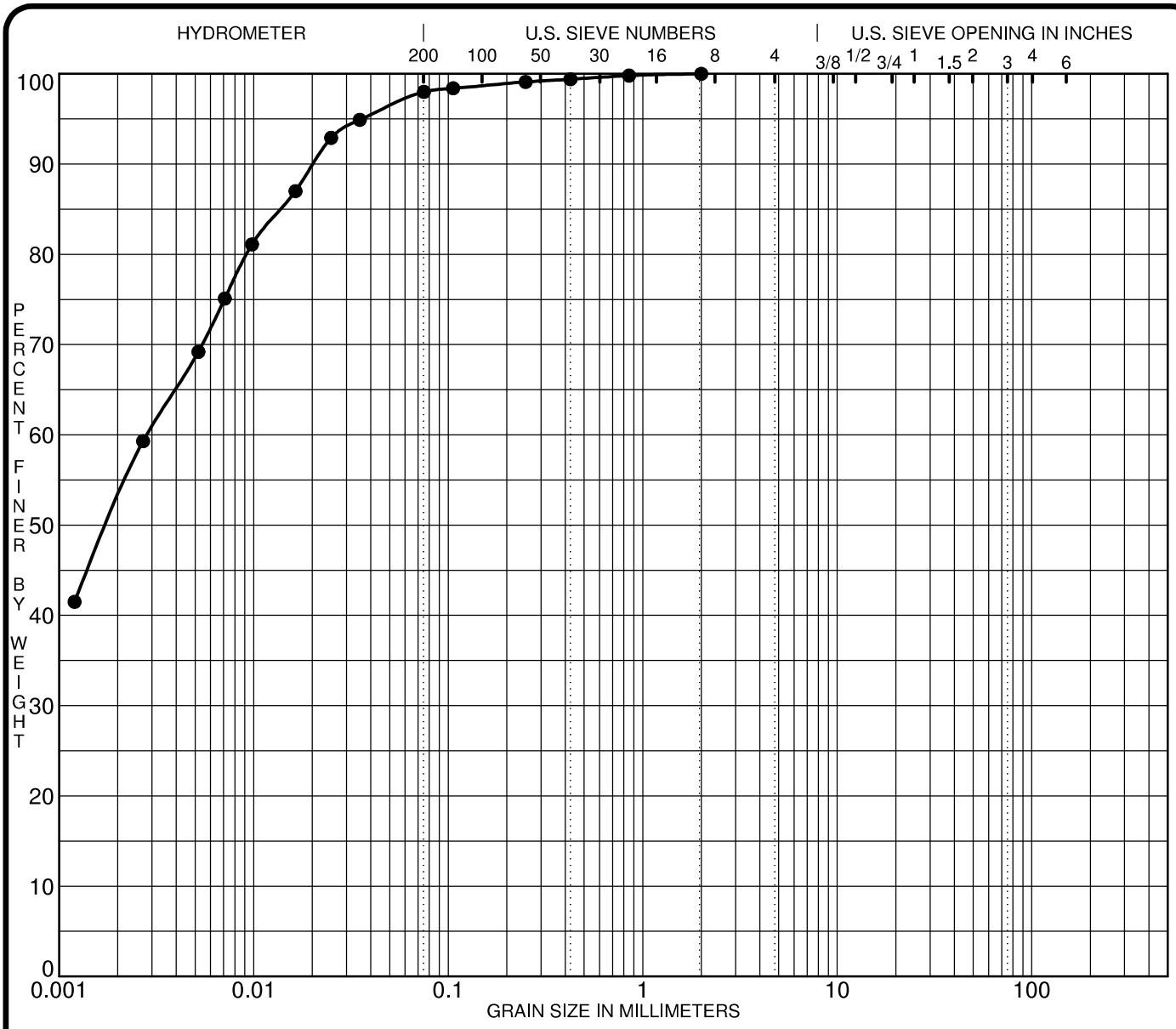
Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● **BH10-18 SS2**	**0.85**	**0.00**			**0.0**	**0.6**	**99.4**	

CLIENT **Richcraft Group of Companies** FILE NO. **PG3130**

PROJECT **Geotechnical Investigation - East Urban Community (EUC) Mixed-Use CDP** DATE **13 Jun 18**

patersongroup Consulting Engineers
154 Colonnade Road South, Ottawa, Ontario K2E 7J5

GRAIN SIZE DISTRIBUTION



SILT OR CLAY	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
● BH15-18 SS2	CH - Inorganic clays of high plasticity						

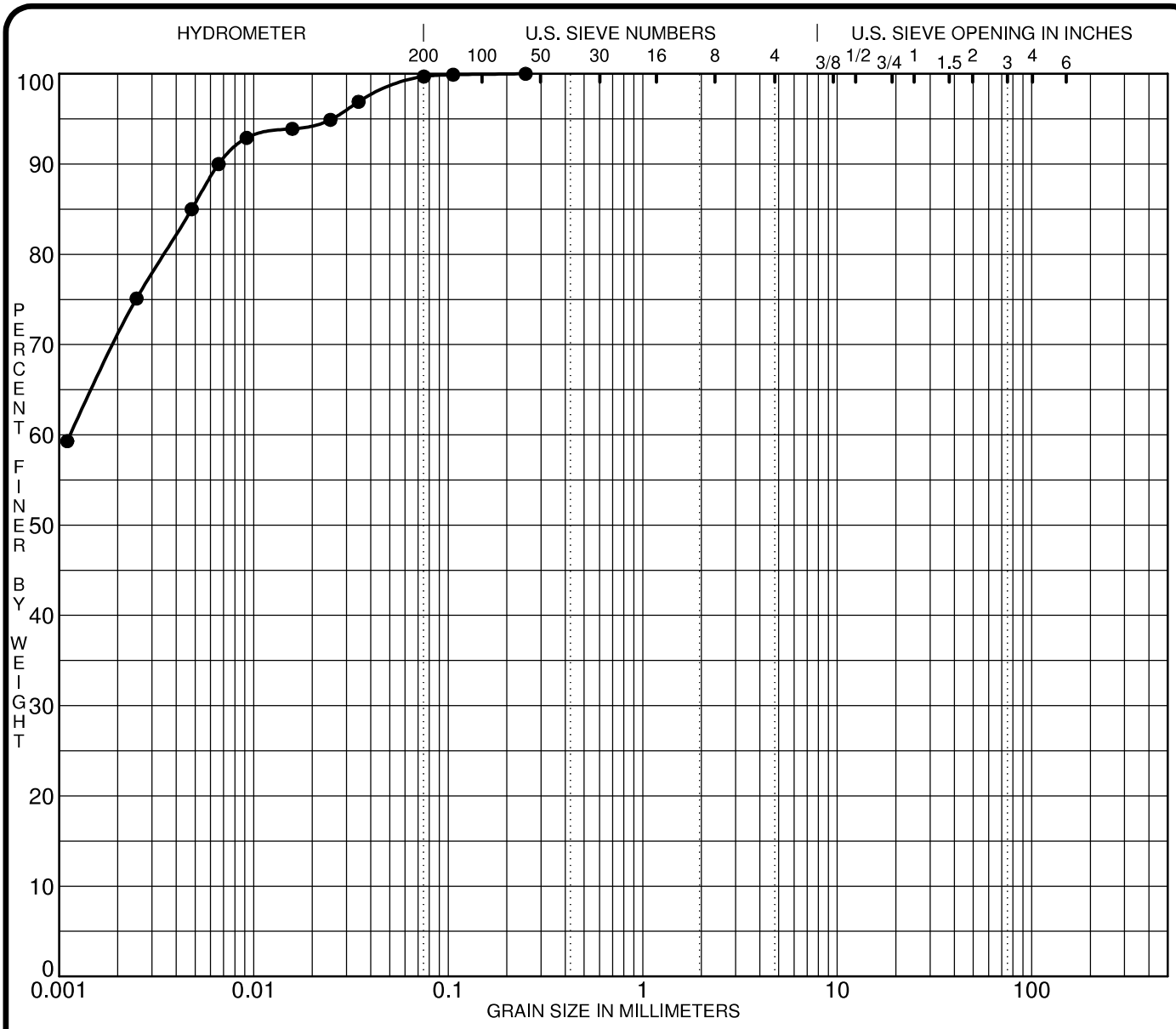
Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● BH15-18 SS2	2.00	0.00			0.0	2.0	98.0	

CLIENT **Richcraft Group of Companies** FILE NO. **PG3130**

PROJECT **Geotechnical Investigation - East Urban Community (EUC) Mixed-Use CDP** DATE **13 Jun 18**

patersongroup Consulting Engineers
154 Colonnade Road South, Ottawa, Ontario K2E 7J5

GRAIN SIZE DISTRIBUTION



SILT OR CLAY	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

	Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
●	**BH20-18 SS3**	**CH - Inorganic clays of high plasticity**						

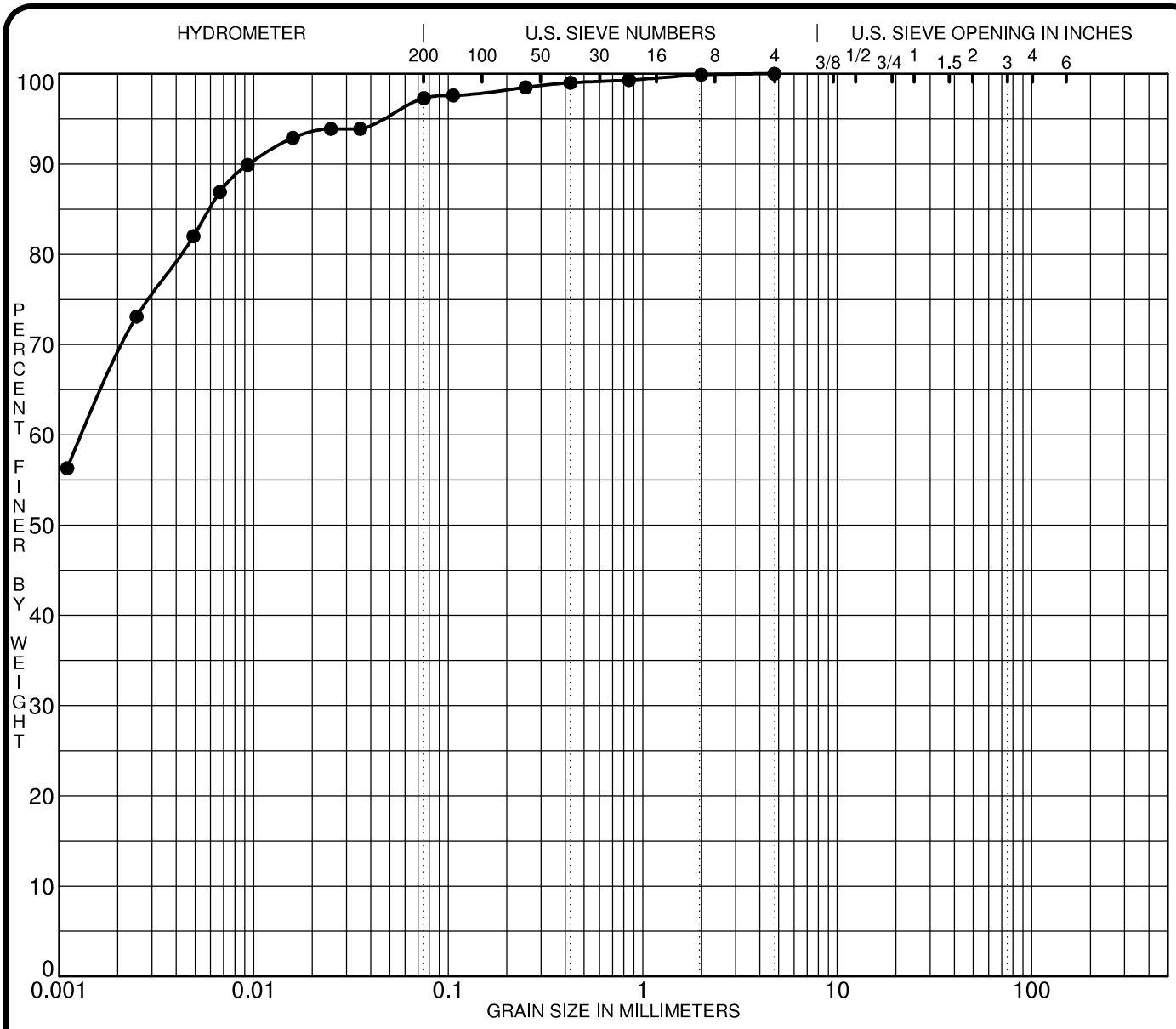
	Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**BH20-18 SS3**	**0.25**	**0.00**			**0.0**	**0.3**	**99.7**	

CLIENT **Richcraft Group of Companies** FILE NO. **PG3130**

PROJECT **Geotechnical Investigation - East Urban Community (EUC) Mixed-Use CDP** DATE **14 Jun 18**

patersongroup Consulting Engineers
154 Colonnade Road South, Ottawa, Ontario K2E 7J5

GRAIN SIZE DISTRIBUTION



SILT OR CLAY	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

	Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
●	**BH23-18 SS2**	**CH - Inorganic clays of high plasticity**						

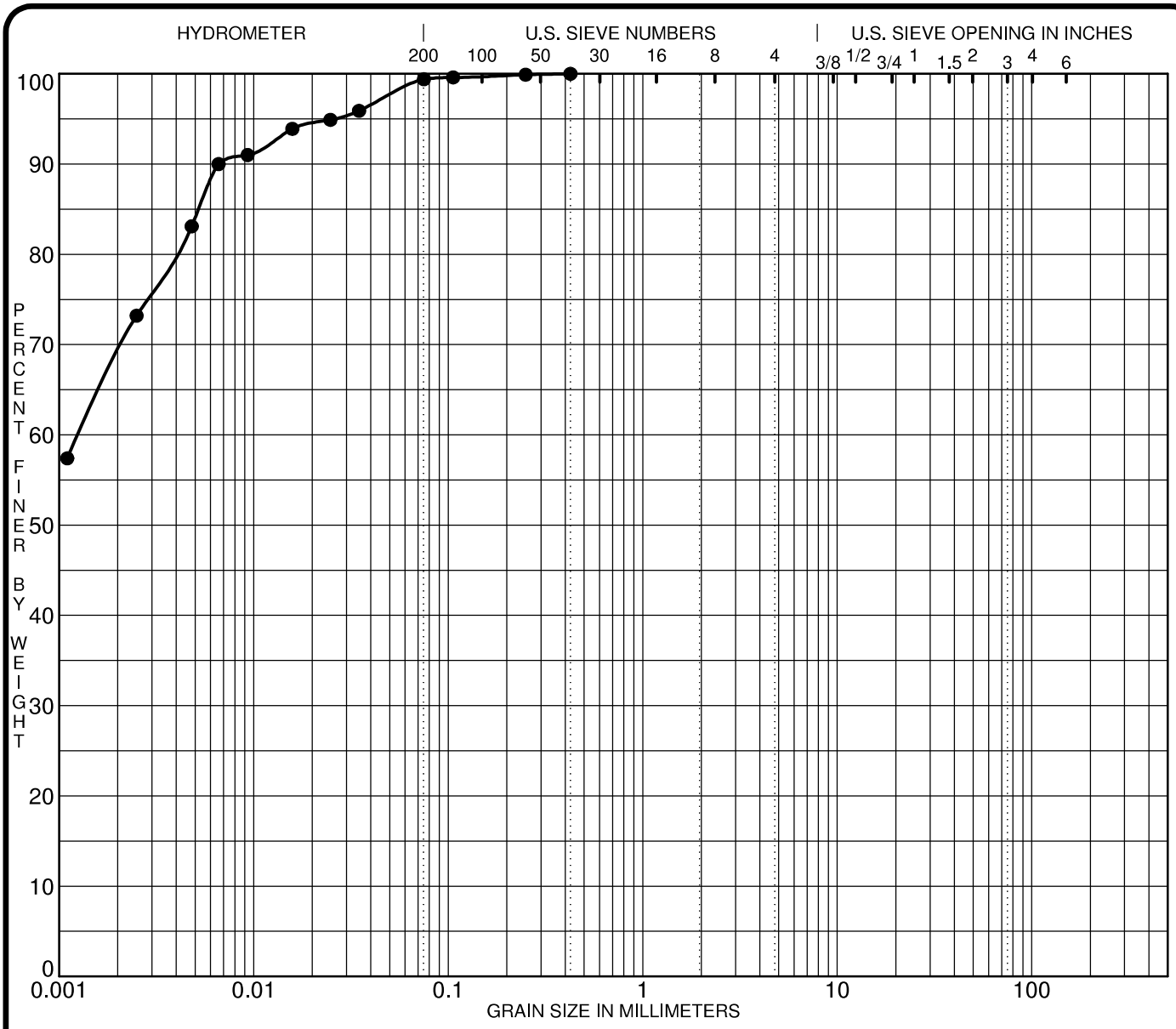
	Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**BH23-18 SS2**	**4.75**	**0.00**			**0.0**	**2.7**	**97.3**	

CLIENT **Richcraft Group of Companies** FILE NO. **PG3130**

PROJECT **Geotechnical Investigation - East Urban Community (EUC) Mixed-Use CDP** DATE **15 Jun 18**

patersongroup Consulting Engineers
154 Colonnade Road South, Ottawa, Ontario K2E 7J5

GRAIN SIZE DISTRIBUTION



SILT OR CLAY	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
● BH28-18 SS3	CH - Inorganic clays of high plasticity						

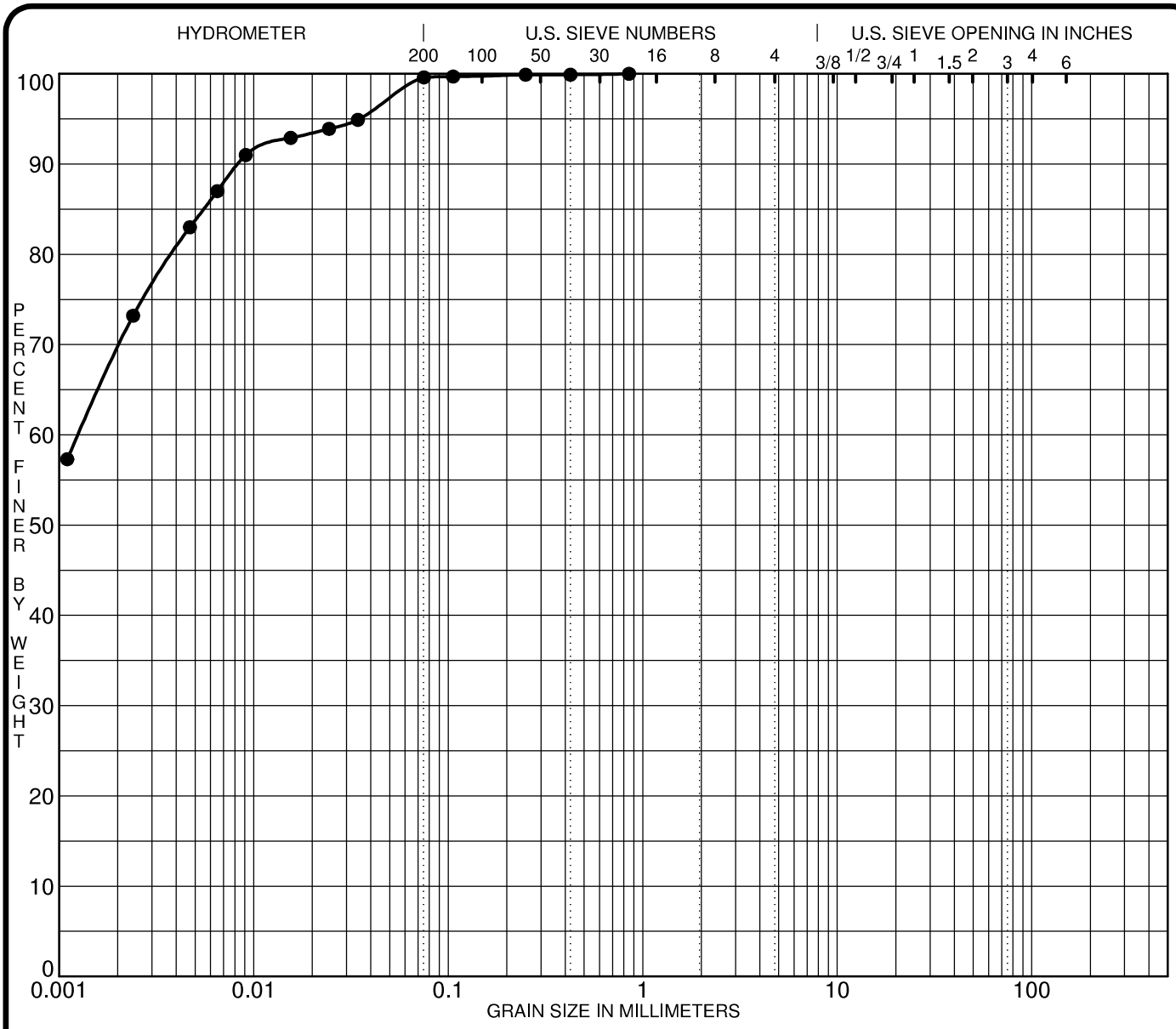
Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● BH28-18 SS3	0.43	0.00			0.0	0.6	99.4	

CLIENT **Richcraft Group of Companies** FILE NO. **PG3130**

PROJECT **Geotechnical Investigation - East Urban Community (EUC) Mixed-Use CDP** DATE **19 Jun 18**

patersongroup Consulting Engineers
154 Colonnade Road South, Ottawa, Ontario K2E 7J5

GRAIN SIZE DISTRIBUTION



SILT OR CLAY	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
● BH30-18 SS3	CH - Inorganic clays of high plasticity						

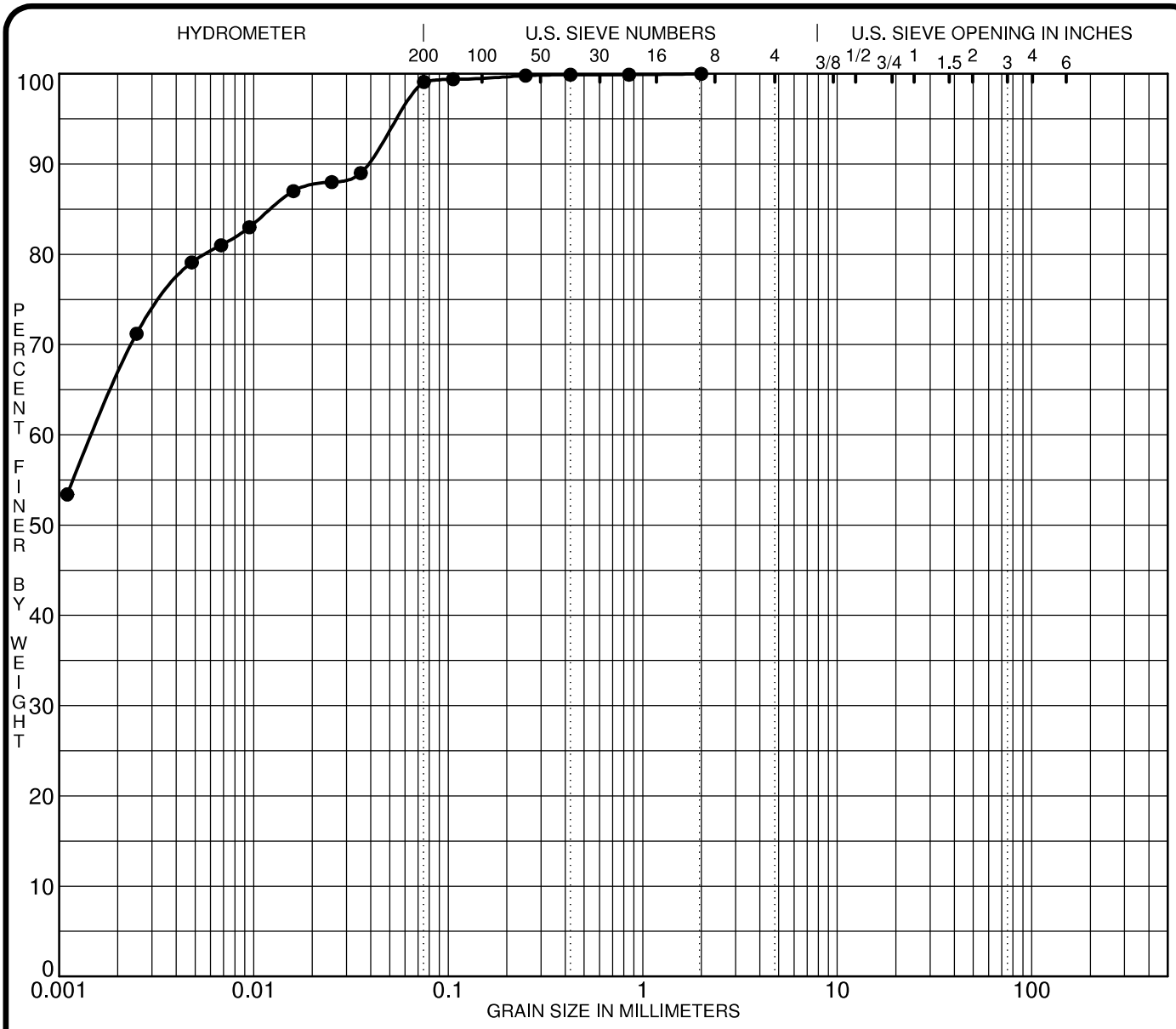
Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● BH30-18 SS3	0.85	0.00			0.0	0.4	99.6	

CLIENT **Richcraft Group of Companies** FILE NO. **PG3130**

PROJECT **Geotechnical Investigation - East Urban Community (EUC) Mixed-Use CDP** DATE **20 Jun 18**

patersongroup Consulting Engineers
154 Colonnade Road South, Ottawa, Ontario K2E 7J5

GRAIN SIZE DISTRIBUTION



SILT OR CLAY	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
● BH33-18 SS3	CH - Inorganic clays of high plasticity						

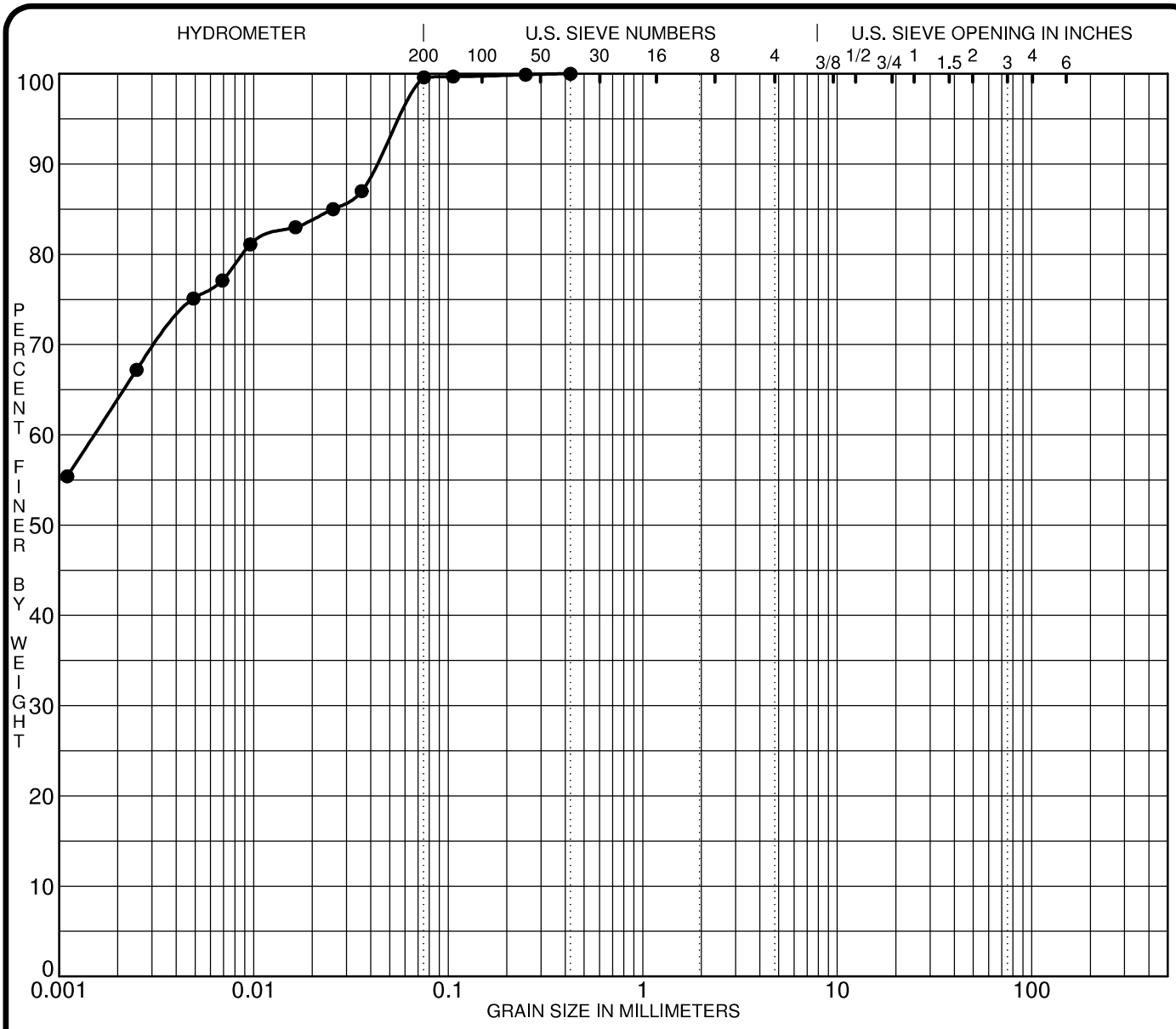
Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● BH33-18 SS3	2.00	0.00			0.0	0.9	99.1	

CLIENT **Richcraft Group of Companies** FILE NO. **PG3130**

PROJECT **Geotechnical Investigation - East Urban Community (EUC) Mixed-Use CDP** DATE **20 Jun 18**

patersongroup Consulting Engineers
154 Colonnade Road South, Ottawa, Ontario K2E 7J5

GRAIN SIZE DISTRIBUTION



SILT OR CLAY	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
● BH38-18 SS3	CH - Inorganic clays of high plasticity						

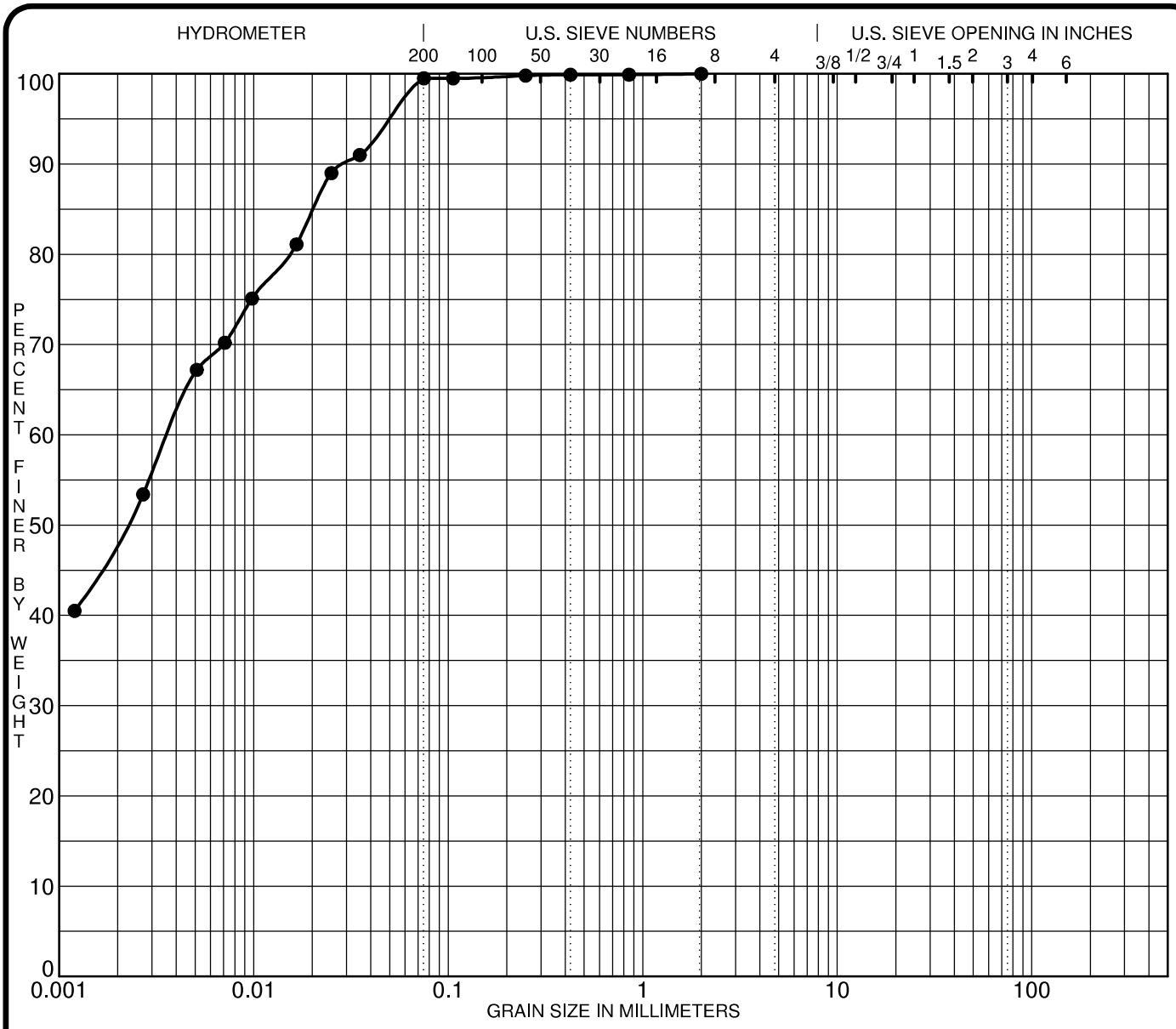
Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● BH38-18 SS3	0.43	0.00			0.0	0.4	99.6	

CLIENT **Richcraft Group of Companies** FILE NO. **PG3130**

PROJECT **Geotechnical Investigation - East Urban Community (EUC) Mixed-Use CDP** DATE **22 Jun 18**

patersongroup Consulting Engineers
154 Colonnade Road South, Ottawa, Ontario K2E 7J5

GRAIN SIZE DISTRIBUTION



SILT OR CLAY	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
● BH41-18 SS4	CH - Inorganic clays of high plasticity						

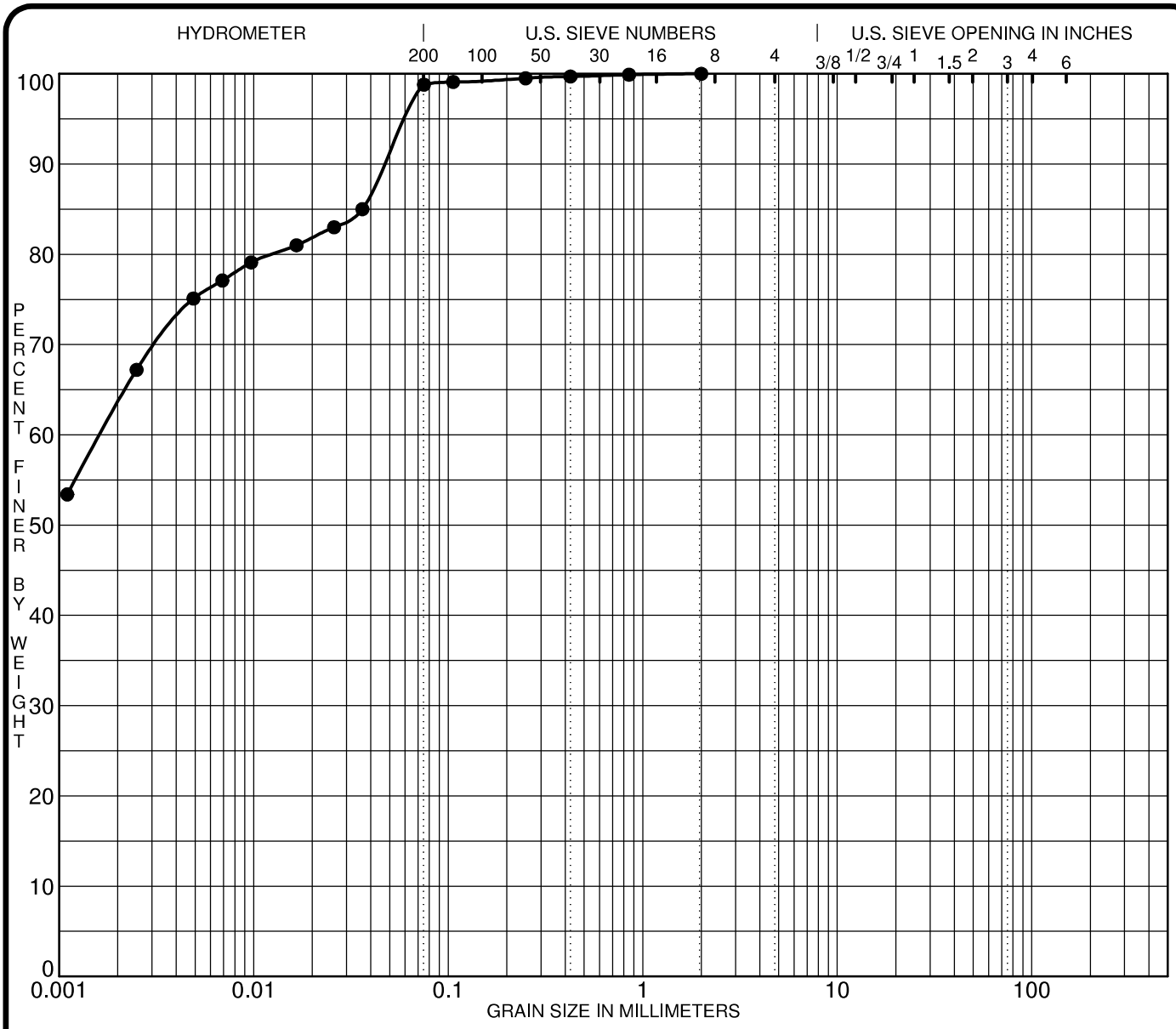
Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● BH41-18 SS4	2.00	0.00			0.0	0.5	99.5	

CLIENT **Richcraft Group of Companies** FILE NO. **PG3130**

PROJECT **Geotechnical Investigation - East Urban Community (EUC) Mixed-Use CDP** DATE **22 Jun 18**

patersongroup Consulting Engineers
154 Colonnade Road South, Ottawa, Ontario K2E 7J5

GRAIN SIZE DISTRIBUTION



SILT OR CLAY	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
● **BH42-18 SS3**	**CH - Inorganic clays of high plasticity**						

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● **BH42-18 SS3**	**2.00**	**0.00**			**0.0**	**1.2**	**98.8**	

CLIENT **Richcraft Group of Companies** FILE NO. **PG3130**

PROJECT **Geotechnical Investigation - East Urban Community (EUC) Mixed-Use CDP** DATE **22 Jun 18**

patersongroup Consulting Engineers
154 Colonnade Road South, Ottawa, Ontario K2E 7J5

GRAIN SIZE DISTRIBUTION

Certificate of Analysis

Report Date: 22-Sep-2014
Order Date:16-Sep-2014

Client: **Paterson Group Consulting Engineers**
Client PO: 16408

Project Description: PG3130

	Client ID:	BH7-SS3	-	-	-
	Sample Date:	15-Sep-14	-	-	-
	Sample ID:	1438144-01	-	-	-
	MDL/Units	Soil	-	-	-
Physical Characteristics					
% Solids	0.1 % by Wt.	64.4	-	-	-
General Inorganics					
pH	0.05 pH Units	7.29	-	-	-
Resistivity	0.10 Ohm.m	52.2	-	-	-
Anions					
Chloride	5 ug/g dry	<5	-	-	-
Sulphate	5 ug/g dry	14	-	-	-

Certificate of Analysis

Client: Paterson Group Consulting Engineers

Client PO: 24172

Report Date: 26-Jun-2018

Order Date: 21-Jun-2018

Project Description: PG3130

	Client ID:	BH29-18-SS2	-	-	-
	Sample Date:	06/20/2018 00:00	-	-	-
	Sample ID:	1825617-01	-	-	-
	MDL/Units	Soil	-	-	-
Physical Characteristics					
% Solids	0.1 % by Wt.	75.0	-	-	-
General Inorganics					
pH	0.05 pH Units	7.20	-	-	-
Resistivity	0.10 Ohm.m	80.1	-	-	-
Anions					
Chloride	5 ug/g dry	42	-	-	-
Sulphate	5 ug/g dry	34	-	-	-

Certificate of Analysis

Client: Paterson Group Consulting Engineers

Client PO: 24178

Report Date: 29-Jun-2018

Order Date: 26-Jun-2018

Project Description: PG3130

	Client ID:	BH37-18-SS3	-	-	-
	Sample Date:	06/22/2018 09:00	-	-	-
	Sample ID:	1826207-01	-	-	-
	MDL/Units	Soil	-	-	-
Physical Characteristics					
% Solids	0.1 % by Wt.	68.3	-	-	-
General Inorganics					
pH	0.05 pH Units	7.86	-	-	-
Resistivity	0.10 Ohm.m	62.6	-	-	-
Anions					
Chloride	5 ug/g dry	8	-	-	-
Sulphate	5 ug/g dry	19	-	-	-

APPENDIX 2

FIGURE 1 – KEY PLAN

DRAWING PG3130-6 – TEST HOLE LOCATION PLAN

DRAWING PG3130-7 – PERMISSIBLE GRADE RAISE PLAN

DRAWING PG3130-8 – BEDROCK CONTOUR PLAN

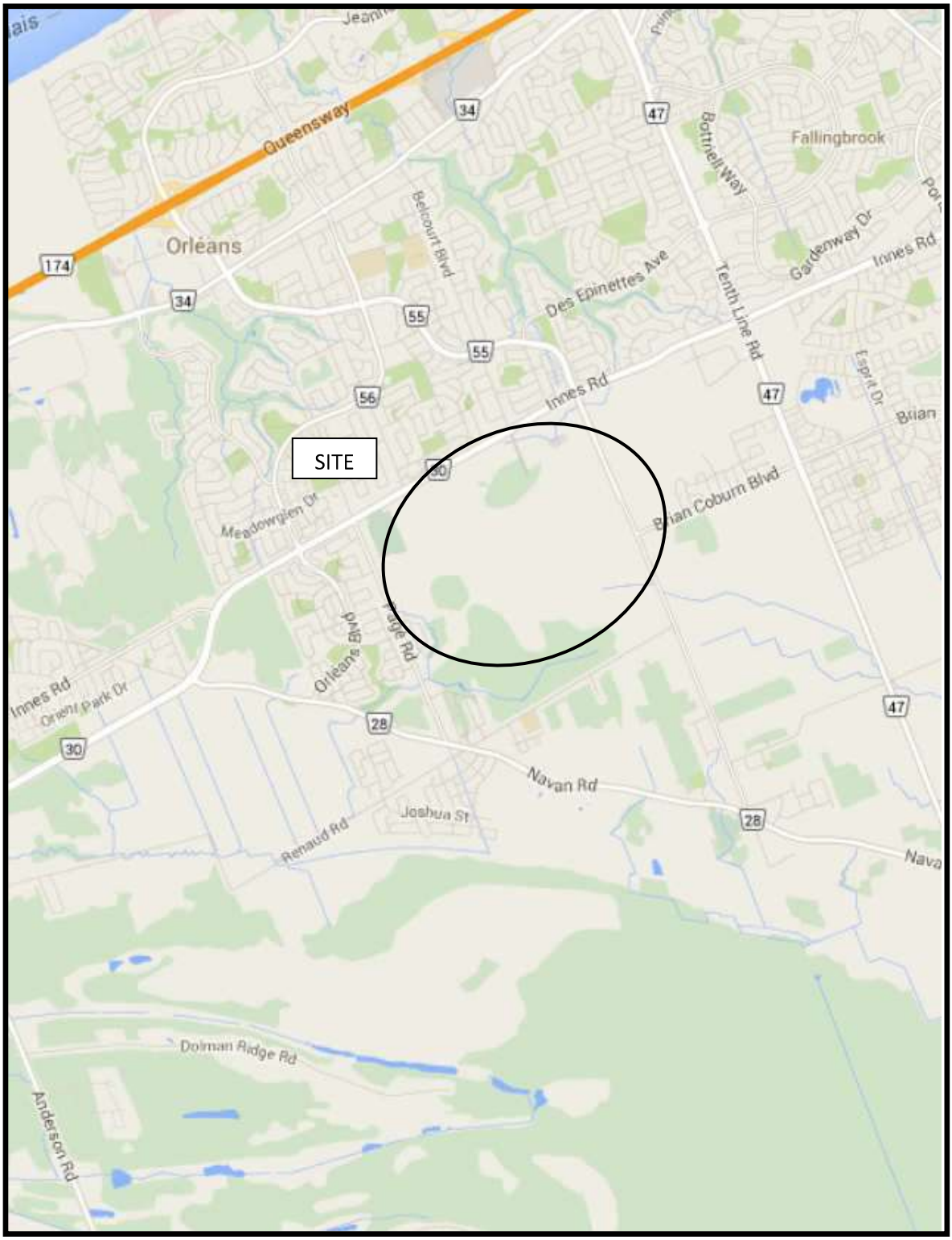
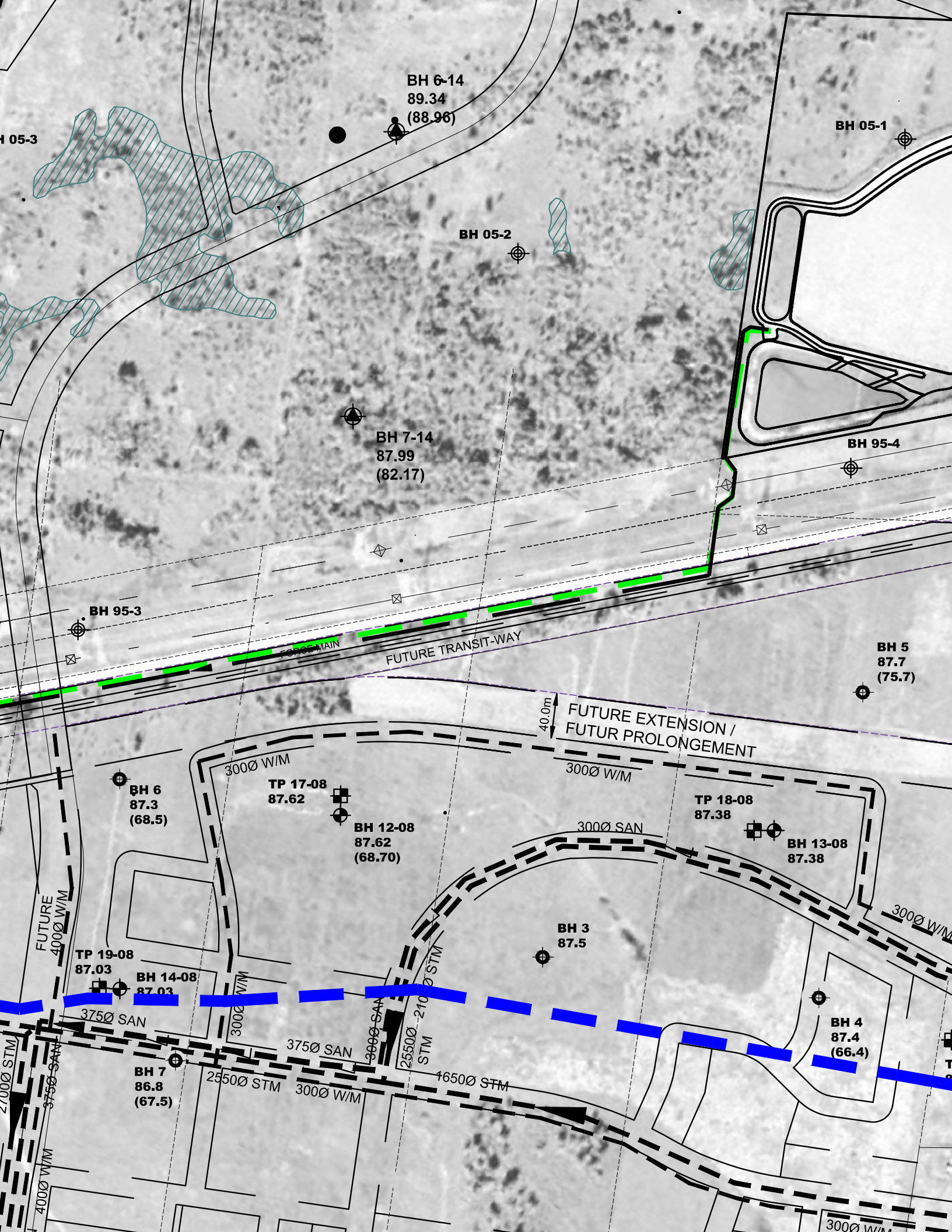


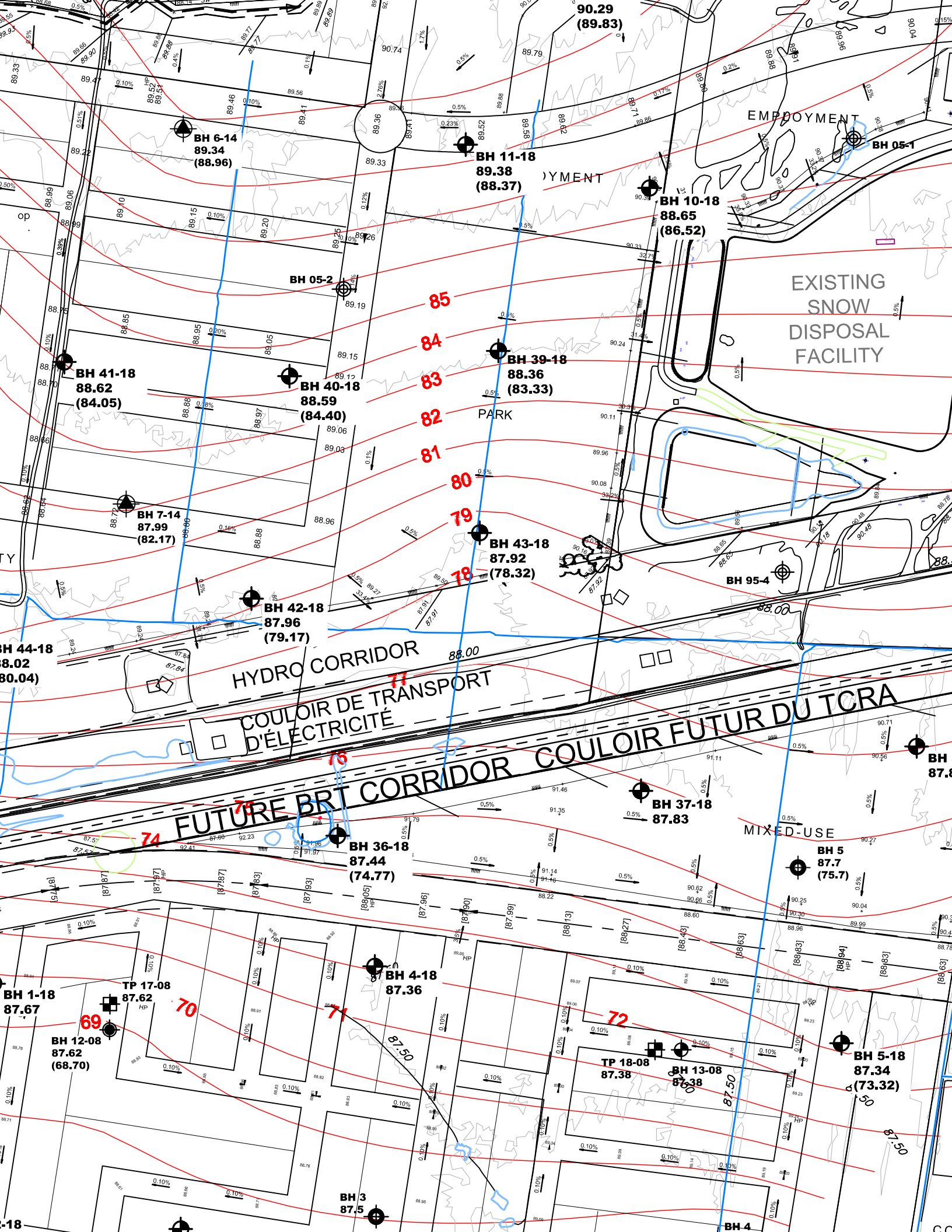
FIGURE 1

KEY PLAN

PATERSON GROUP


BH 6-14
89.34
(88.96)
BH 05-1
BH 05-2
BH 7-14
87.99
(82.17)
BH 95-4
BH 95-3
FORCE MAIN
FUTURE TRANSIT-WAY
BH 5
87.7
(75.7)
40.0m
FUTURE EXTENSION /
FUTUR PROLONGEMENT
300Ø W/M
300Ø W/M
BH 6
87.3
(68.5)
TP 17-08
87.62
BH 12-08
87.62
(68.70)
TP 18-08
87.38
300Ø SAN
BH 13-08
87.38
300Ø W/M
FUTURE
400Ø W/M
BH 3
87.5
TP 19-08
87.03
BH 14-08
87.03
375Ø SAN
300Ø W/M
375Ø SAN
300Ø SAN
2550Ø STM
BH 4
87.4
(66.4)
BH 7
86.8
(67.5)
2550Ø STM
300Ø W/M
1650Ø STM
2700Ø STM
375Ø SAN
400Ø W/M
300Ø W/M


BH 6-14
89.34
(88.96)
BH 05-1
BH 05-2
BH 7-14
87.99
(82.17)
BH 95-4
BH 95-3
FORCE MAIN
FUTURE TRANSIT-WAY
BH 5
87.7
(75.7)
10.0m
FUTURE EXTENSION /
FUTUR PROLONGEMENT
300Ø W/M
300Ø W/M
BH 6
87.3
(68.5)
TP 17-08
87.62
BH 12-08
87.62
(68.70)
TP 18-08
87.38
300Ø SAN
BH 13-08
87.38
300Ø W/M
FUTURE
400Ø W/M
BH 3
87.5
TP 19-08
87.03
BH 14-08
87.03
375Ø SAN
300Ø W/M
300Ø SAN
2550Ø STM
375Ø SAN
BH 4
87.4
(66.4)
BH 7
86.8
(67.5)
2550Ø STM
300Ø W/M
1650Ø STM
2700Ø STM
375Ø SAN
400Ø W/M
300Ø W/M


BH 6-14
89.34
(88.96)
BH 11-18
89.38
(88.37)
BH 10-18
88.65
(86.52)
BH 05-1
BH 05-2
BH 41-18
88.62
(84.05)
BH 40-18
88.59
(84.40)
BH 39-18
88.36
(83.33)
BH 7-14
87.99
(82.17)
BH 43-18
87.92
(78.32)
BH 95-4
BH 42-18
87.96
(79.17)
BH 44-18
88.02
(80.04)
BH 37-18
87.83
BH 36-18
87.44
(74.77)
BH 5
87.7
(75.7)
BH 1-18
87.67
TP 17-08
87.62
BH 12-08
87.62
(68.70)
BH 4-18
87.36
TP 18-08
87.38
BH 13-08
87.38
BH 5-18
87.34
(73.32)
BH 3
87.5
EXISTING SNOW DISPOSAL FACILITY
PARK
MIXED-USE
HYDRO CORRIDOR
COULOIR DE TRANSPORT D'ÉLECTRICITÉ
FUTURE BRT CORRIDOR COULOIR FUTUR DU TCRA
EMPLOYMENT
85
84
83
82
81
80
79
78
77
76
75
74
72
71
70
69
88.00
87.50

Appendix D8: Tree Conservation Report for Proposed Development at Properties 3730 and 3828 Innes Road, Kilgour & Associates Ltd. 2017

Tree Conservation Report for proposed development at properties 3730 and 3828 Innes Road

October 17, 2017

Submitted To:

Fairouz Wahab
RICHCRAFT
2280 St. Laurent Blvd. Suite 201
Ottawa, Ontario
K1G 4K1

KILGOUR & ASSOCIATES LTD.
2285C St. Laurent Blvd. Unit 16
Ottawa, Ontario,
K1G 4Z6
Canada
613-260-5555
www.kilgourassociates.com
Project Number: Rich 686

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Table 1: Individual and notable trees observed on the site. 2

1.0 INTRODUCTION

Kilgour & Associates Ltd. (KAL) was retained by Richcraft Homes to prepare a Tree Conservation Report (TCR) for the properties at 3730 and 3828 Innes Road in the east end of Ottawa. This report contains the results of the tree survey, with special attention paid to notable trees (i.e. greater than 40 cm diameter at breast height [DBH]), and corresponding figure defining habitat patches on the site. This TCR provides an up-to-date inventory of trees on site and a description of their ecological significance to both the site and the surrounding area following City of Ottawa TCR guidelines.

2.0 ROPERTY INFORMATION

The subject properties are located at 3730 (GLOUCESTER; CON 3 OF PT LOTS, 1 TO 3; PINS 044040541 and 044040493) and 3828 (GLOUCESTER: CON 3 OF PT LOTS, 2 AND 3; PINS 044040540, 044040537, 044040539, 044040542, and 0440440543) Innes Road in the east end of Ottawa. The total area of the site is approximately 95 ha.

The area is currently zoned for light industrial (IL2[1624]H(21)-h) and heavy industrial (IH[1624]H(21)-h) usage (Ottawa, 2015), though zoning for some portions of the site is planned to be revised to residential. The light industrial zone allows for a range of light industrial uses as well as office and office-type uses in a campus-like industrial park setting. This zone also allows for a variety of recreational, health and fitness, and commercial services. The heavy industrial zone allows for heavy industrial uses, including those that generate noise, fumes, and odors that may be hazardous or obnoxious. This zone also allows for recreational, health and fitness, commercial services.

3.0 SITE TREES AND ENVIRONMENT

3.1 Site Trees

3.1.1 Current Site Trees

All trees on site were reviewed by KAL biologists Terry Hams and Robert Hallett during site investigations on September 6 and 8, 2017. The site is mainly composed mostly of open, shrubland and young woodland habitats (Figure 1). Two mature wooded areas however, occur near the north edge of the site: a larger one just off the site and a smaller one on site, in an area flagged for development as employment lands. The shrubland and woodlands features are composed of small diameter trees and shrubs that are common species in Ontario. The two mature forest patches in the north, however, can be classified as significant woodlands under the City's new Significant Woodland Policy. Table 1 identifies individual trees and notable trees observed on and adjacent to the property. No Butternut trees were observed on site during the field visits.

Table 1: Individual and notable trees observed on the site.

Tree Number	Tree Species	Quantity	Diameter at Breast Height	Comments
1	Bur Oak	1 (MS)	19, 20, 24	
2	American Elm	2	14, 16	
3	American Elm	1	28	
4	American Elm	1	25	
5	American Elm	1	16	
6	American Elm	1 (DS)	19, 29	much dieback
7	Green Ash	1	N/A	snag
8	American Elm	1 (DS)	29, 38	
9	Apple species	1 (MS)	<10	
10	American Elm	1	23	
11	Manitoba Maple	1 (MS)	15 - 20	
12	American Elm	1	17	
13	Red Oak*	1	122	
14	Sugar Maple*	1	79	
15	Sugar Maple*	1	76	
15	White Pine*	1	70	

* Potential specimen tree (i.e. greater than 50 cm DBH and in good health)
DS = Double stem
MS = Multiple stem

3.1.2 Ecological Significance of Trees on the Site

The ecological significance of trees on site was reviewed within the EIS by NEA (2015) for the CDP for the property and the broader area around it. Trees within the larger significant woodland area off the north side of the site are part of Urban Natural Feature 87 (Innes Park Woods). The identification of the smaller woodland in this report as being potentially significant is as per the City's new Significant Woodland Policy. It had not flagged for preservation within any of the supporting studies for the CDP as these studies all predate that policy.

For the majority of the site no species at risk (SAR) habitat was observed. The habitats in Patches 1 through 5, 7, and 9 through 12 were unlikely to contain SAR or SAR habitat; although wildlife surveys should be performed during appropriate seasonal windows. The mature forests in patches 6 and 8 have the potential to provide SAR habitat for bird and bat species as well as potential significant wildlife habitat such as snake hibernaculum.

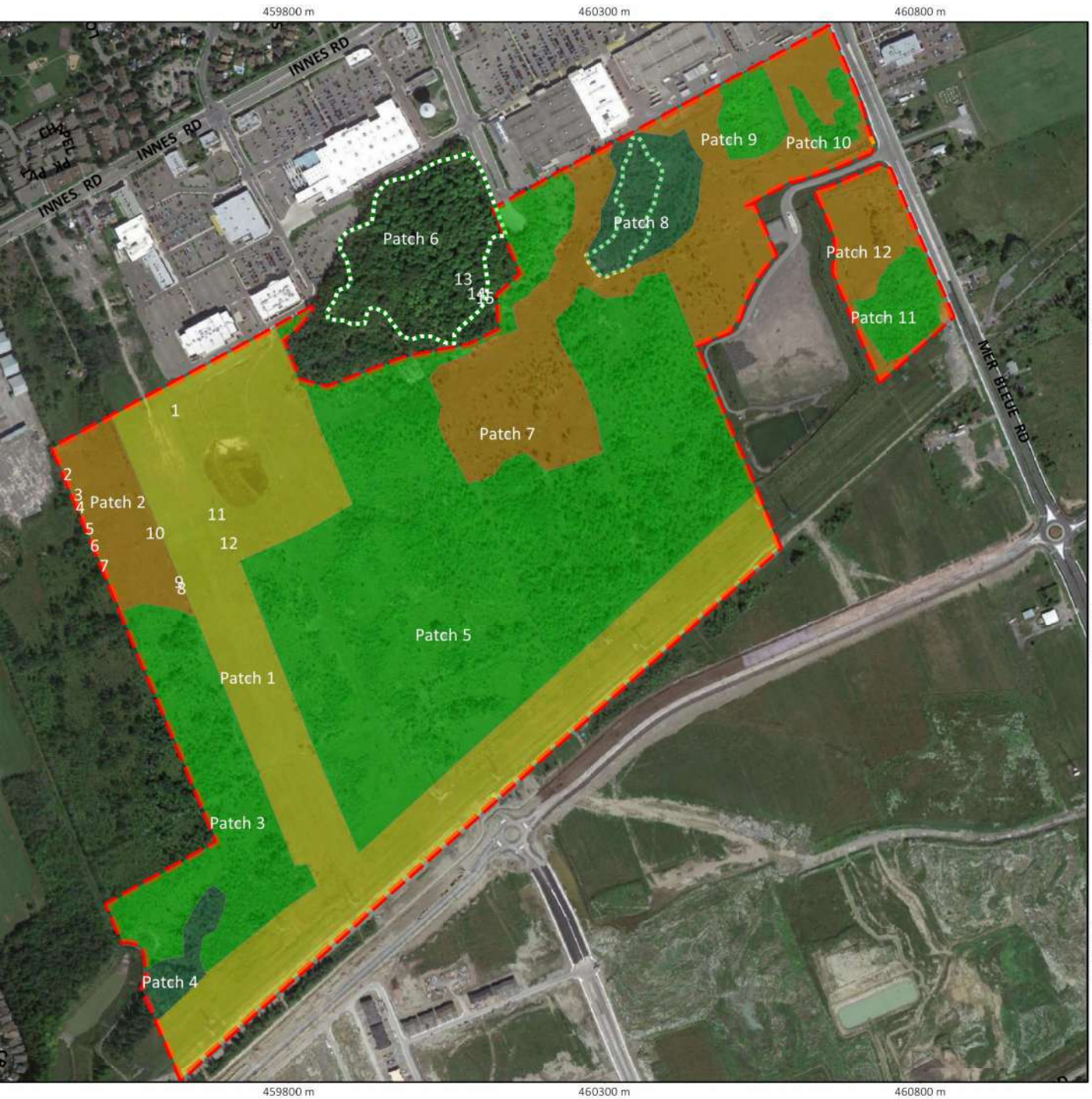

Figure 1 Results o
inventory arranged
habitat patches.

Legend

Habitat P

Grassland

Mature Fo

Shrubland

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3.2 Vegetation and Land Cover

The site is a mosaic of open grassland, young and mature forests, in both lowland and upland habitats. An ecological land classification has previous been prepared for the site (NEA, 2015). For this report we present an assessment of the trees present on site arranged by large habitat patches (Figure 1). Within each patch the vegetation and tree communities were observed to be fairly uniform in species composition and trees sizes.

Patch 1 is composed of upland and lowland grassland habitat with scattered individual trees present. This area contained mostly grass species with cattail (Typha latafolia) and sedge species (*Carex* spp.) and common old field forb species such as Cow Vetch (*Vicia cracca*), Wild Carrot (*Daucus carota*), Common Milkweed (*Asclepias syriaca*), goldenrod species (*Solidago* spp.), aster species (*Asteraceae* spp.), Viper's Bugloss (*Echium vulgare*), willow shrubs (*Salix* spp.), Common Mullein (*Verbascum thapsus*), Narrowleaf Meadowsweet (*Spiraea alba*), buckthorn species (*Rhamnus* spp.), Common Raspberry (*Rubus idaeus*), Foxtail Barely (*Hordeum jubatum*), Bladder Campion (*Silene vulgaris*), Purple Loosestrife (*Lythrum salicaria*), and others.

Patch 2 is a combination of grassland and shrubland with individual trees present. This area is composed of many of the same species as Patch 1 with River Grape (*Vitis riparia*), Virginia Creeper (*Parthenocissus quinquefolia*), Chicory (*Cichorium intybus*), dock species (*Rumex* spp.), Apple trees (*Malus pumila*), Common Burdock (*Arctium minus*), currant species (*Ribes* spp.), Poison Ivy (*Toxicodendron radicans*), Russian Olive (*Elaeagnus angustifolia*), Staghorn Sumac (*Rhus typhina*), and clover species (*Melilotus* spp.).

Patches 3, 5, 9, 10, and 11 were all composed of young regenerating forest. These patches were primarily composed of American Elm (*Ulmus americana*) from sapling size (less than 10 cm) to approximately 30 cm DBH. Subordinate trees species found in these patches include Trembling Aspen (*Populus tremuloides*), Green Ash (*Fraxinus pennsylvanica*), White Birch (*Betula papyrifera*), and the occasional White Pine (*Pinus strobus*). These tree also ranged in size from saplings to approximately 30 cm. Shrub species are also common in these patches and include willow species (*Salix* spp.), buckthorn species (*Rhamnus* spp.), and Red Osier Dogwood (*Cornus sericea*).

Patches 7 and 12 were compose of shrubland habitats interspersed with small individual trees. These patches contain the same species trees and shrub species as Patches 2, 3, 5, 9, 10, and 11, except the trees were mostly saplings and less than 10 cm DBH.

Patch 6 is composed of a mature Sugar Maple (*Acer saccharum*) forest with many saplings and trees ranging from 40 to 60 cm. There were a few large snags in this forest that are greater than 60 cm. Other species observed include Red Oak (*Quercus rubra*), Basswood (*Tilia americana*), Green Ash, and White Pine. The center portion of this patch is potently classified as significant woodland, but is outside of the site boundaries and is thus not subject to tree clearing.

Patch 8 is a small upland mature forest patch. Tree species observed in this patch include Basswood, Trembling Aspen, Red Maple (*Acer rubrum*), American Elm, White Pine, and apple species. Trees ranged in size from 10 to 40 cm. This the oldest portion of this area is also potential significant woodland.

Patch 4 is also a mature forest patch in the far southwest of the site just to the south of a stormwater pond. This area was primarily composed of Trembling Aspen, Red Maple, and Green Ash with subordinate

species of White Birch (*Betula papyrifera*), White Spruce (*Pinus strobus*), White Pine, and Bur Oak. Trees in this patch ranged from 10 cm to approximately 40 cm.

3.3 Site Environmental Features

3.3.1 Wildlife

Wildlife species observed during the tree survey include Wild Turkey (*Meleagris gallopavo*), Common Yellowthroat (*Geothlypis trichas*), House Wren (*Troglodytes aedon*), Gray Catbird (*Dumetella carolinensis*), Blue Jay (*Cyanocitta cristata*), Song Sparrow (*Melospiza melodia*), Gray Treefrog (*Hyla versicolor*), Northern Leopard Frog (*Lithobates pipiens*), White-tailed Deer (*Odocoileus virginianus*), American Crow (*Corvus brachyrhynchos*), American Robin (*Turdus migratorius*), and Green Frog (*Rana clamitans*). These are all common wildlife species in the Ottawa region.

3.3.2 Species at Risk

No SAR were observed on site during the tree surveys, but this was outside the active season for wildlife. The forests in Patches 6 and 8 have the potential to provide habitat for SAR bats and birds. Additionally, there is fractured limestone around and within Patches 6 and 8 that has potential to provide hibernaculum to snakes.

3.3.3 Other Natural Heritage Features

A storm water management wetland pond occurs on site along with many small drainage channels. Many of these drainage channels were dry during the tree survey, but likely contain water during the spring freshet. The previous EIS for the site provides details on these features (NEA, 2015).

UNF 97 exists along the southwest edge of the site. This eastern edge of the UNF however have been modified and reduced by previous developments, and no portion of the original vegetation of the feature remains directly adjacent to the subject site.

4.0 PROJECT DESCRIPTION

The specific property here and the broader area around it have been studied through an EIS (NEA 2015) supporting the City's East Urban Community CDP. Figure 2 provides an overview of the planned development for this site. The proposed community here is not yet draft plan approved and, as such, the final block plan may yet be modified slightly. The CDP however, does call for full development of the area with residential and commercial blocks covering the entire site. Servicing these lands will require full site re-grading and surcharging (as per the GeoTech Report [ref]), which precludes the retention of trees. This includes within proposed parks, as City Parks staff have indicated their requirement for fully serviced and programmable spaces for these areas. As such, any subsequent minor adjustments to the community layout cannot be anticipated to reduce the need for full site clearing, regrading, and surcharging.

This work has been fully supported by the EIS by NEA (2015). The only change with respect to trees or treed areas on site is the evaluation of the smaller mature tree patch on the north side as potentially significant woodland. This evaluation is as per the City's new Significant Woodland Policy, which was updated in December of 2016 (i.e. well after the NEA [2015] EIS). The proposed work addressed by this

TCR is thus the removal of all trees on site, except for within the employment block containing the small significant woodland area, and within the hydro corridor. The area to be cleared is indicated in Figure 2 . Tree removal within the employment block will not proceed until such time as Richcraft has reached an agreement with the City as to ultimate fate of the potentially significant woodland area. The hydro corridor will not be altered regardless, and tree maintenance there is the responsibility of Ontario Hydro.

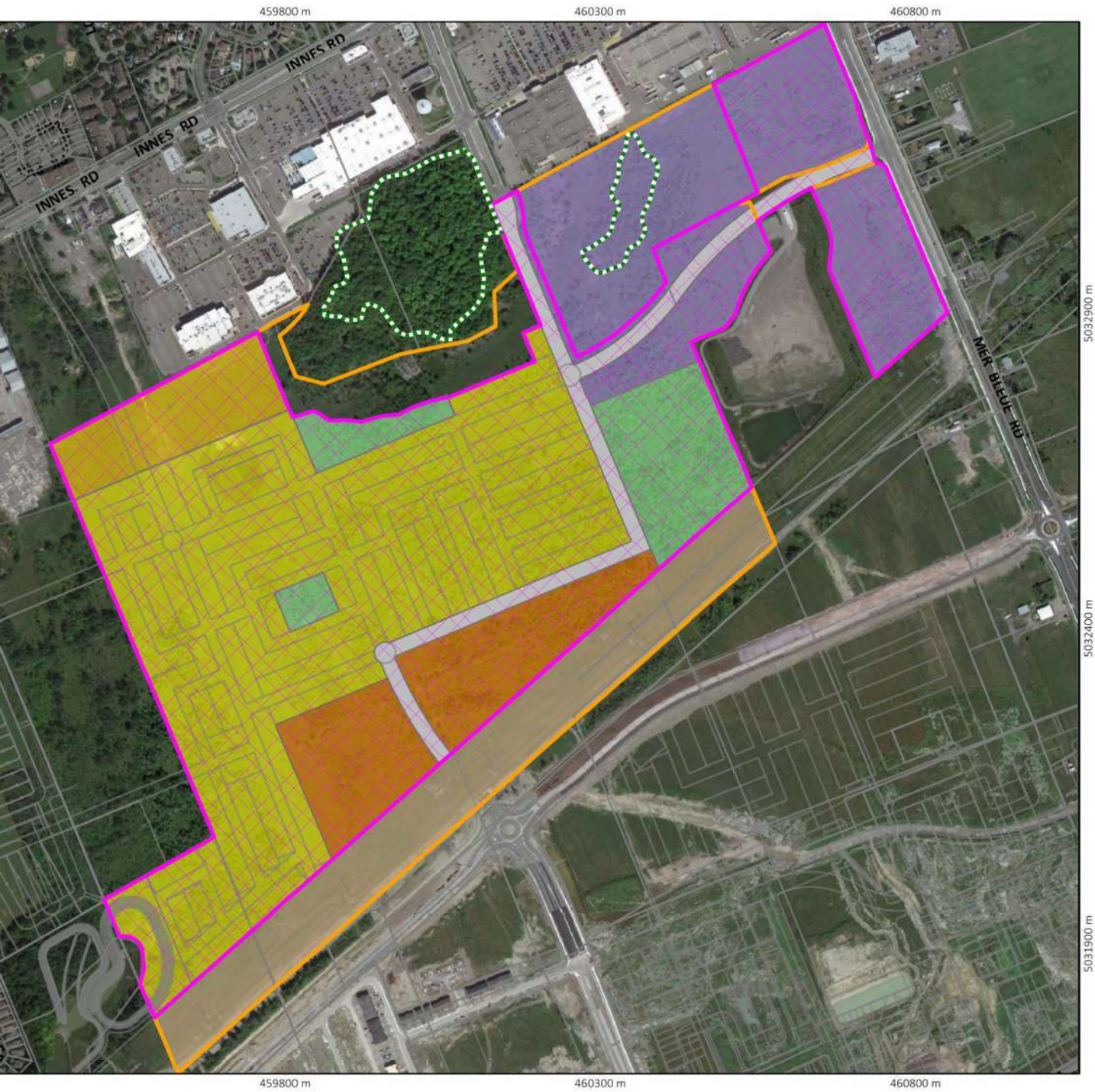

Figure 2 CDP and
area of tree clearin

Legend

Property Li

(Potentially
Woodland

Tree Remo

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Hydro Corr
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Park
Residential

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Project: RICH686
Created By: TH
Checked By:AF
Universal Transverse Mer
Printed on: 2017-10-17

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5.0 MITIGATIONS

5.1 Mitigations for Trees

To minimize impact to the remaining trees and to trees on neighbouring properties, the following protection measures will be required during construction:

- Erect a fence at the CRZ of trees. The fence should highly visible (e.g., orange construction fence) and paired with erosion control fencing. Pruning of branches is recommended in areas of potential conflict with construction equipment;
- Do not place any material or equipment within the CRZ of the tree;
- Do not attach any signs, notices or posters to any tree;
- Do not raise or lower the existing grade within the CRZ without approval;
- Tunnel or bore when digging within the CRZ of a tree;
- Do not damage the root system, trunk or branches of any tree; and,
- Ensure that exhaust fumes from all equipment are NOT directed towards any tree's canopy.

As per standard due diligence, no clearing of vegetation should occur between April 1 and August 15, without first determining the absence of active nests or dens prior to clearing.

Trees to be planted in compensation for the removed trees will be included as part of the overall landscape for Richcraft's development. Specific trees to be planted will be identified within the landscape plan for that development. Tree species identified in this plan however must be non-invasive and should be native to the Ottawa area. No trees will be planted however until surcharging activities and subsequent development have been completed.

5.2 Mitigations for Wildlife

General measures to protect wildlife must be implemented. Contractors must:

- Avoid vegetation clearing during sensitive times of the year for local wildlife, such as spring and early summer (when many animals bear their young);
- Conduct vegetation clearing such that existing connections to adjacent areas of natural habitat are maintained until the final stage of clearing so that wildlife can use these connections to leave the site;
- Ensure that perimeter fencing, if used, does not prevent wildlife from leaving the site during vegetation clearing. Once the work area has been cleared, it can be securely fenced to keep

wildlife from returning. Silt fencing may be useful to keep small animals such as reptiles and amphibians out of the work area;

- Contractors and other on-site workers should be briefed on appropriate measures to reduce human-wildlife conflict during the work (e.g., waste management, no feeding wildlife, no deliberate harm to wildlife, safe relocation techniques to get wildlife to leave the site). Provide contact numbers for large animal removal, rehabilitation of injured or orphaned wildlife, and species at risk reporting; and

- As per standard due diligence, no clearing of vegetation should occur between April 1 and August 15, without first determining the absence of active nests or dens prior to clearing.

6.0 SUMMARY AND RECOMMENDATIONS

Tree species composition and age of forest on site should not present any issues to tree clearing. Two mature forest areas in the north section of the site are potential significant woodlands and also have a potential to contain species at risk and their habitat. The smaller of these areas, located on the property, must be preserved until an agreement has been reached with the City to define its ultimate fate. The larger of these areas is located beyond the current property line and is will be preserved under the CDP. These forest patches should be exempt for tree clearing and any clearing activities within 120 m should be assessed with an environmental impact study.

Regards,
KILGOUR & ASSOCIATES LTD.

Terry Hams, MSc.	Anthony Francis, PhD.
Ecologist	Senior Ecologist/Project Director

7.0 REFERENCES

Niblett Environmental Associates Inc (NEA). 2015. East Urban Community Mixed Use Centre CDP Part Lots 8 & 9, Concession1 City of Ottawa. Natural Environmental Existing Conditions Report.

Ottawa, City of. 2015. City of Ottawa Official Plan; Amendment # 150. Available at: http://ottawa.ca/en/city-hall/planning-and-development/official-plan-and-master-plans/official-plan

Appendix D9: Acoustic Assessment Report – Mer Bleue MTS, EXP Services Inc. 2025

Mer-Bleue Municipal Transformer Substation

Acoustic Assessment Report

Client:
HydroOttawa, 2711 Hunt Club Road, Ottawa, ON

Attention: Michael Campbell, P.Eng.

Type of Document:
Final

Project Name:
Hydro Ottawa – Mer-Bleue MTS, Ottawa, ON

Project Number:
OTT-23010468-A0

EXP Services Inc.
1595 Clark Boulevard
Brampton, ON, L6T 4V1
t: 905.793.9800
f: 905.793.0641

Date Submitted:
2025-02-04

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2 Site and Surrounding Area 2
3 Critical Points of Reception 2
4 Stationary Noise Sources 2
5 Noise Criteria 3
6 Predicted Sound Levels 3
7 Noise Mitigation Recommendations 4
7.1 Noise Barriers 5
8 Conclusions 5
9 General Limitations 5
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Appendix B – Zoning Map
Appendix C – Manufacturer's Sound Data
Appendix D - CadnaA Calculation Output

1 Introduction

EXP Services Inc. (EXP) was retained by Hydro Ottawa ("Client") to complete an Acoustic Assessment Report (AAR) for a new Municipal Transformer Substation (MTS) located at 2170 Mer-Bleue Road in Ottawa, Ontario (hereinafter referred to as the "Site"). This AAR is an assessment of noise impact from the proposed sub-station to nearby noise-sensitive developments in accordance with the Ministry of Environment, Conservation of Park (MECP) Publication NPC-300 in order to satisfy the requirements of the Class Environmental Assessment (EA).

2 Site and Surrounding Area

The proposed sub-station consists of 2 transformers and a 6 m high Switchgear Building. A site plan is provided in Appendix A. The sub-station may operate 24 hours a day.

The Site is located on the west side of Mer-Bleue Road between Brian Cobum Boulevard and Innes Road. The land surrounding the Site is zoned for industrial land use. However, there are existing commercial and residential properties along the east side of Mer-Bleue Road. Immediately to the west is the Innes Snow Disposal Facility. Further south is a residential property. An aerial image of the area is shown in Figure 1 and a zoning map is provided in Appendix B.

3 Critical Points of Reception

The critical Points of Reception (POR), where the noise impact is expected to be the greatest, occurs at the nearest noise sensitive land use such as residential properties and health care facilities. The nearest residential property is a 2-storey house at 2171 Mer-Bleue Road which has a blank wall facing Mer-Bleue Road. The nearest noise sensitive institutional land use is a 2-storey building that houses two clinics. The PORs are listed in Table 1 and their locations are shown in Figure 1.

Table 1. Critical Noise Receptors for Stationary Noise Sources

Receptor ID	Receptor Location	Receptor Height (m)
POR1	South façade of the residential building at 2171 Mer-Bleue Road	4.5
OLA1	Backyard of POR1	1.5
POR2	Clinic at 2179 Mer-Bleue Road	4.5

4 Stationary Noise Sources

Significant stationary noise sources associated with the sub-station are the two transformers, as listed in Table 2 and shown in the site plan in Appendix A. Manufacturer's sound data are provided in Appendix C. The sound level of each transformer, measured in accordance with ANSI Standard C57.12.90, is 69 dBA. The calculated sound power level is 92 dBA. EXP understands that only one out of the two transformers operates at a time. It is assumed, based on section drawing, that the transformers will be installed with 1.3 m clearance from the ground; and the top of the transformer will be 4.2 m above ground. As noise from transformers is often tonal, a tonal penalty of 5 dB is added to the sound power level.

Table 2. Significant Stationary Noise Sources

Source ID	Source Description	Sound Power Level (dBA)	Source Location	Sound Attributes	Noise Control
transformer_1	PTI Transformer 60/80/100 MVA	97*	Outdoor	Tonal	None
tramsformer_2	PTI Transformer 60/80/100 MVA	97*	Outdoor	Tonal	None

*Tonal penalty of 5 dB has been added.

5 Noise Criteria

The guidelines for assessing the noise impact of noise generating facilities on noise sensitive land uses in Ontario are given in MECP Publication NPC-300, Environmental Noise Guideline, Stationary and Transportation Sources – Approval and Planning. It states that:

> "For sound from a stationary source…, the sound level limit at a point of reception, expressed in terms of the One Hour Equivalent Sound Level (Leq) is the higher of the applicable exclusion limit value given in Table 3, or the background sound level for that point of reception."

The area is considered by EXP to be a Class 2 (Suburban) Area due to its proximity to Mer-Bleue Road. With 24 hours operation, the exclusionary sound level limits of 50 dBA for daytime; and 45 dBA for evening and night-time are used to assess compliance in this study. As POR2 opens during daytime only, only the daytime sound level limit is applicable.

Table 3. Exclusionary Limit Values of One-Hour Equivalent Sound Level for Class 2 (Suburban) Area

Time Period	Plane of Window Point of Reception Leq(1hr) (dBA)	Outdoor Points of Reception Leq (1hr) (dBA)
Daytime (07:00 – 19:00)	50	50
Evening (19:00 – 23:00)	50	45
Night-time (23:00 – 07:00)	45	-

6 Predicted Sound Levels

Sound levels at the PORs due to the sub-station were calculated using the software CadnaA in accordance with the methods described in ISO-9613-2 and the sound power levels listed in Table 2. The ground absorption is assumed to be 1.0 except for roads and the Site with gravel on the ground where the ground absorption is taken to be 0.1 and 0.3 respectively. The worst-case scenario is assumed in the acoustic model, which is when one transformer operates for a full hour during evening and night-time periods. The calculated unmitigated sound levels are summarised in Table 4. The Acoustic Assessment Summary for unmitigated sound levels is provided in Table 5. As only one transformer operates at a time, the higher sound levels resulted from one of the two transformers at each receptor are listed in Table 5. The calculated unmitigated sound levels meet the exclusionary daytime sound level limit at all receptors but exceed the evening and night limits at POR1 and OLA1. Therefore, noise control is required.

Table 4. Point of Reception Noise Impact Table (Unmitigated)

Source ID	POR1		OLA1		POR2	
	Distance (m)	Sound Level (dBA)	Distance (m)	Sound Level (dBA)	Distance (m)	Sound Level (dBA)
transformer_1	117	47	122	47	111	47
tramsformer_2	144	46	147	45	138	45

Table 5. Unmitigated Acoustic Assessment Summary

Receptor ID	Calculated Unmitigated Sound Level (dBA)			Verified by Acoustic Audit	Performance Limit (dBA)			Compliance? Yes/No
	Day	Evening	Night		Day	Evening	Night	
POR1	47	47	47	No	50	50	45	No
OLA1	47	47	-	No	50	45	-	No
POR2	47	-	-	No	50	-	-	Yes

7 Noise Mitigation Recommendations

The recommended noise control measures are outlined Section 7.1. The calculated unmitigated sound levels are summarised in Table 6. The Acoustic Assessment Summary for mitigated sound levels is provided in Table 7. CadnaA calculation output is provided in Appendix D. The exclusionary sound level limits are met at all receptors with the recommended noise control measures.

Table 6. Point of Reception Noise Impact Table (Mitigated)

Source ID	POR1		OLA1		POR2	
	Distance (m)	Sound Level (dBA)	Distance (m)	Sound Level (dBA)	Distance (m)	Sound Level (dBA)
transformer_1	117	45	122	44	111	44
tramsformer_2	144	45	147	44	138	44

Table 7. Mitigated Acoustic Assessment Summary

Receptor ID	Calculated Unmitigated Sound Level (dBA)			Verified by Acoustic Audit	Performance Limit (dBA)			Compliance? (Yes/No)
	Day	Evening	Night		Day	Evening	Night	
POR1	45	45	45	No	50	50	45	Yes
OLA1	44	44	44	No	50	45	-	Yes
POR2	44	44	44	No	50	-	-	Yes

7.1 Noise Barriers

Two 3 m high noise barriers around transformer_1 are recommended to mitigate noise from the transformers. Their locations are shown in Figure 2 and described as follows:

- Along the perimeter of the gravel access path, from the northeast corner of transformer_1 running west for a length of 9 m. The noise barrier will be approximately 12 m from the centre of the transformer and minimum 1 m clearance from the curb.
- Along the perimeter of the gravel access path, from the northeast corner of transformer_1 running south for a length of 19 m. The noise barrier will be approximately 10 m from the centre of the transformer and minimum 1 m clearance from the curb.

All noise barriers should have a minimum surface density of 20 kg/sq. m. There should be no hole or gap on the surface of the noise barriers. The gap at the bottom of the noise barrier for water drainage should be minimized.

8 Conclusions

A noise assessment was conducted for the Hydro Ottawa Mer-Bleue MTS at 2170 Mer-Beue Road in Ottawa. The stationary noise sources associated with the sub-station are two transformers which do not run simultaneously. The sound level limits can be met with the implementation of noise barriers outlined in Section 7.

9 General Limitations

The information and conclusions in this report are considered to be privileged and confidential and have been prepared exclusively for Hydro Ottawa. The purpose of this report is to provide Hydro Ottawa with an assessment of the potential noise impacts from the Hydro Ottawa Mer-Bleue MTS to noise sensitive land use surrounding the Site.

The information presented in this report is based on information provided by others and visual observations as identified herein. Achieving the objectives stated in this report has required us to arrive at conclusions based upon the best information presently known to us. No investigative method can completely eliminate the possibility of obtaining partially imprecise or incomplete information; it can only reduce the possibility to an acceptable level. Professional judgment was exercised in gathering and analyzing the information obtained and in the formulation of the conclusions. Like all professional persons rendering advice, we do not act as absolute insurers of the conclusions we reach, but we commit ourselves to care and competence in reaching those conclusions.

Any use which a third party makes of this report, or any part thereof, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. EXP accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

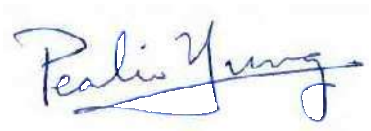
Noise levels at various times may differ from those assessed. In addition, any changes to the proposed design or introduction of new processes and/or sources may render the conclusions of this report inaccurate or invalid. In the event of any such changes, EXP should be contacted to re-evaluate the conditions within the assessed areas and make appropriate revisions to the original conclusions of this report.

10 Closure

We trust this report is satisfactory for your purposes. Should you have any questions, please do not hesitate to contact this office.

Yours truly,

EXP Services Inc.



Pearlie Yung, M.Sc., P.Eng.
Senior Acoustic Engineer

Alam Ansari, M.Sc., P.Eng.
Director of Operations, Eastern Ontario

11 References

- MECP Publication NPC-300. 2013. Environmental Noise Guideline, Stationary and Transportation Sources – Approval and Planning.
- ANSI Standard C57.12.90. 1987. Standard Test Code for Liquid-Immersed Distribution, Power, and Regulating Transformers and Guide for Short-circuit Testing of Distribution and Power Transformers.
- ISO-9613-2:1996. Acoustics – Attenuation of Sound During Propagation Outdoors – Part 2: General Method of Calculation.

Figures

Figure 1 – Aerial Image and Locations of Noise Receptors

Figure 2 – Locations of Noise Barriers

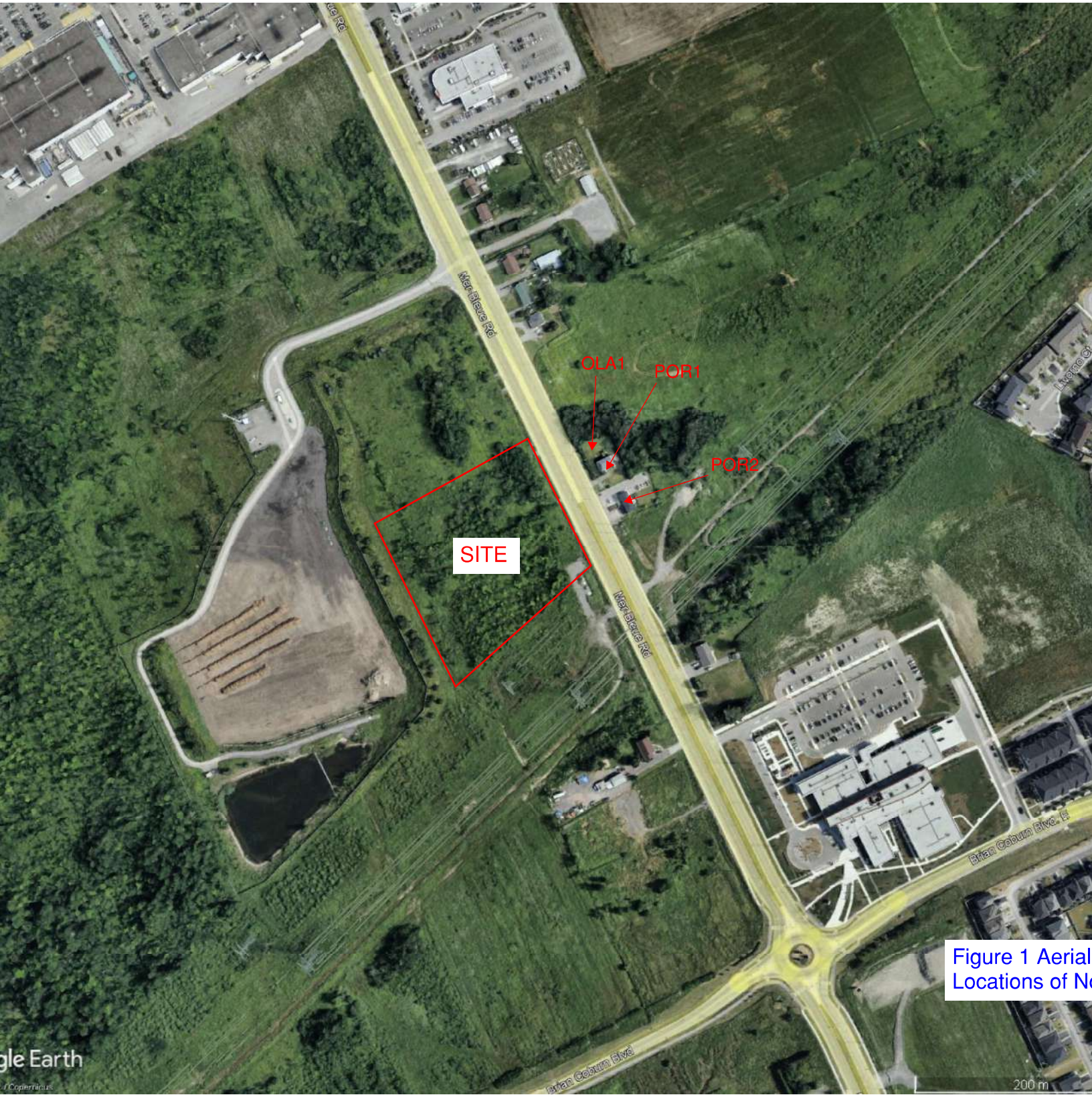
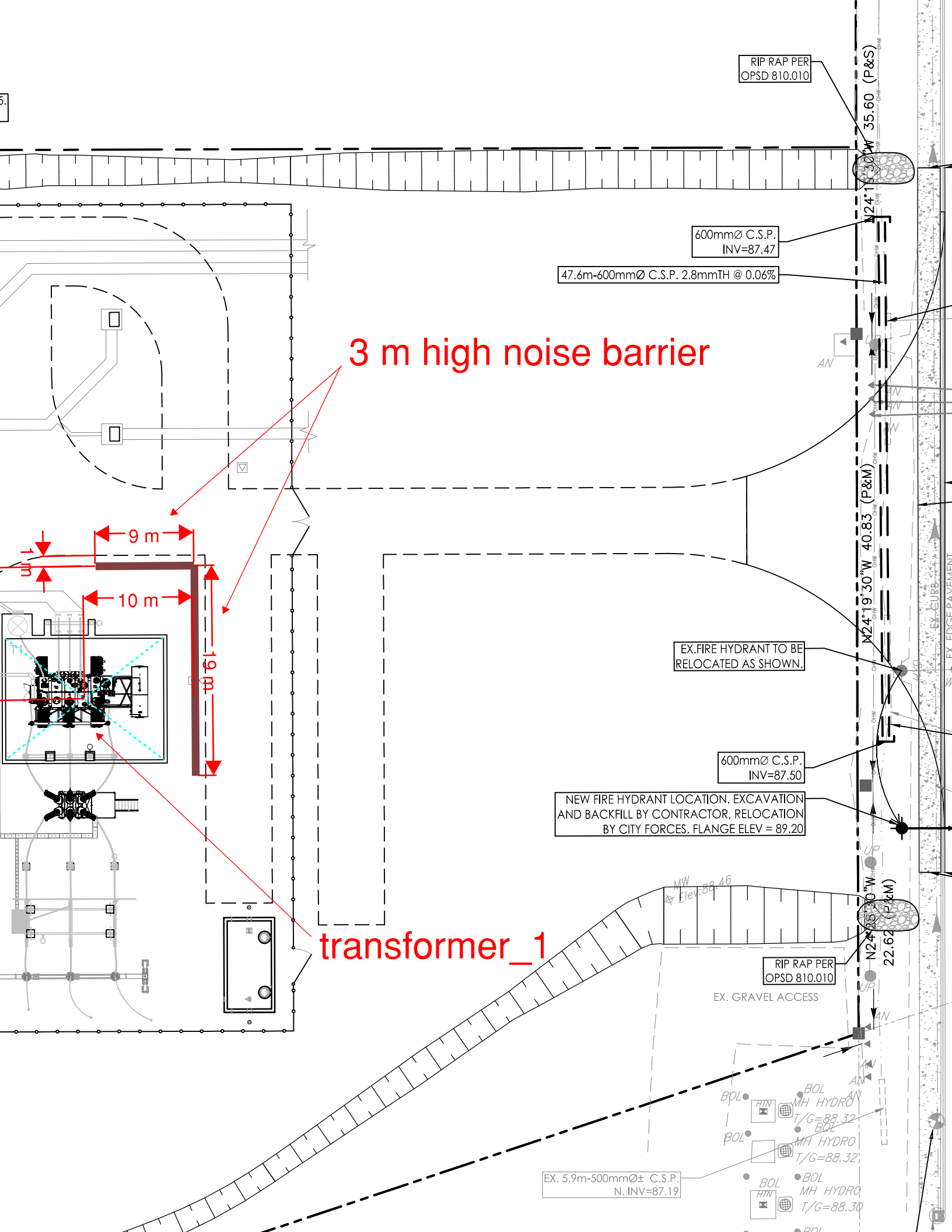
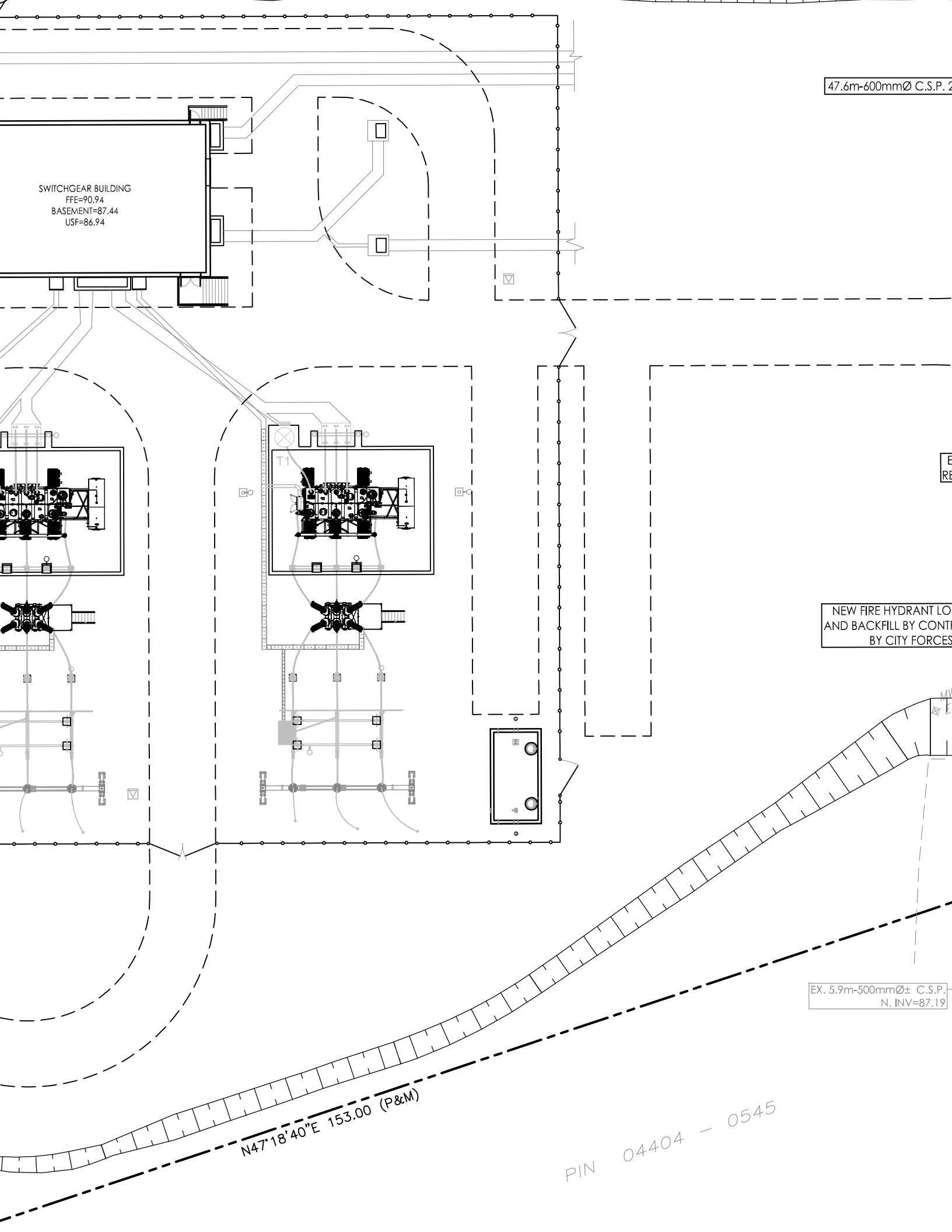
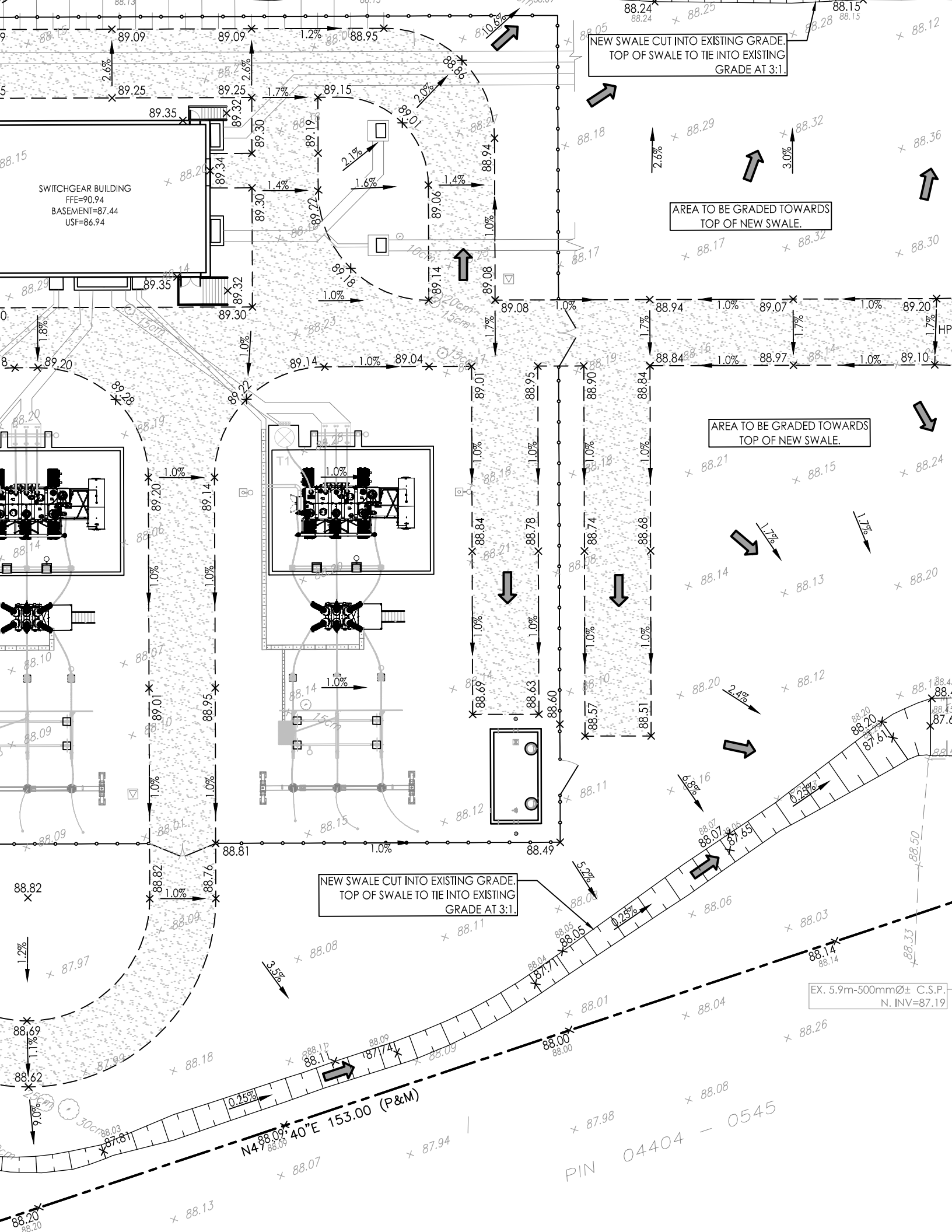


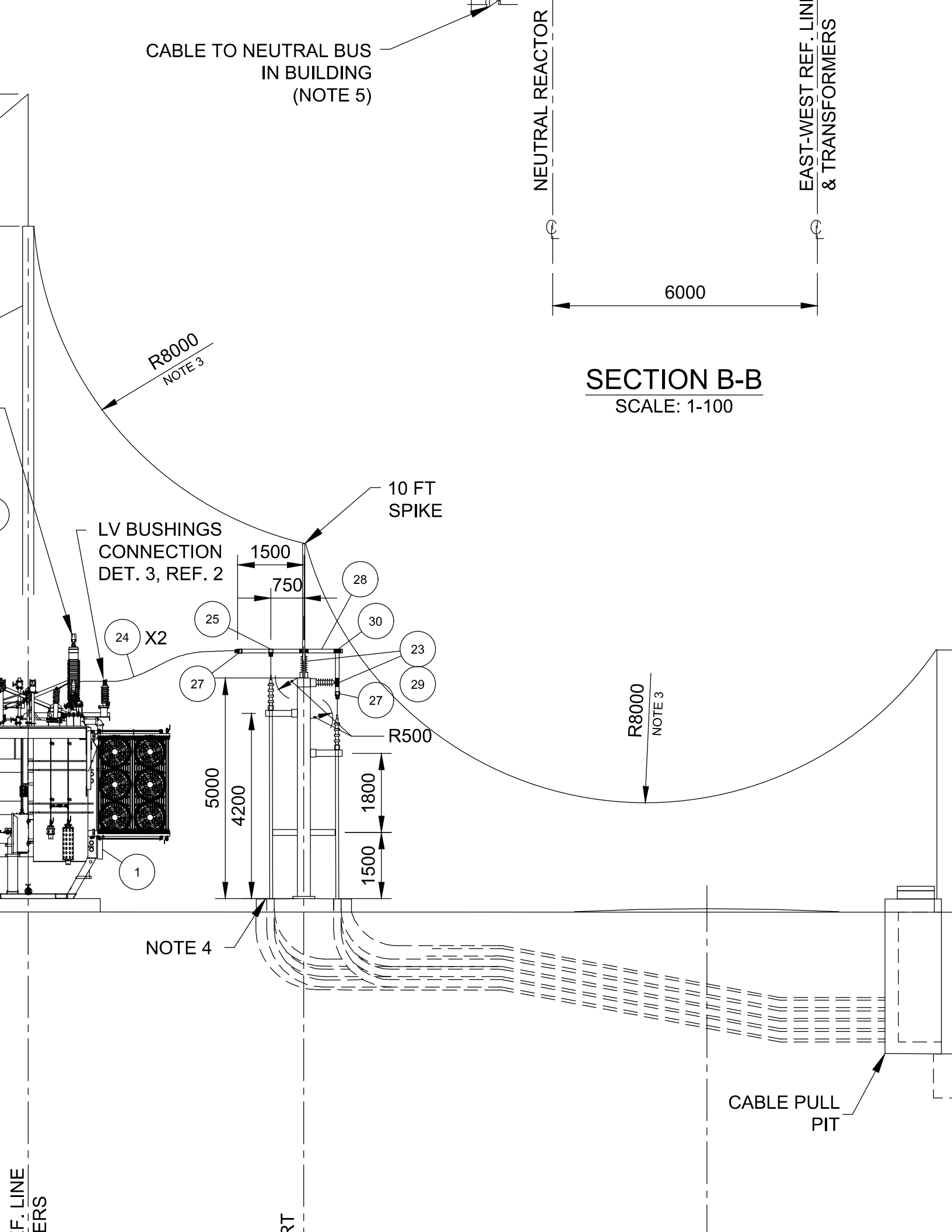
Figure 1 Aerial
Locations of No


RIP RAP PER OPSD 810.010
600mmØ C.S.P. INV=87.47
47.6m-600mmØ C.S.P. 2.8mmTH @ 0.06%
3 m high noise barrier
9 m
1 m
10 m
19 m
EX.FIRE HYDRANT TO BE RELOCATED AS SHOWN.
600mmØ C.S.P. INV=87.50
NEW FIRE HYDRANT LOCATION. EXCAVATION AND BACKFILL BY CONTRACTOR, RELOCATION BY CITY FORCES. FLANGE ELEV = 89.20
transformer_1
RIP RAP PER OPSD 810.010
EX. GRAVEL ACCESS
EX. 5.9m-500mmØ± C.S.P. N. INV=87.19
N24°19'30"W 35.60 (P&S)
N24°19'30"W 40.83 (P&M)
N24°19'30"W 22.62 (P&M)
EX. CURB
EX. EDGE PAVEMENT

Appendix A – Drawings


47.6m-600mmØ C.S.P. 2
SWITCHGEAR BUILDING
FFE=90.94
BASEMENT=87.44
USF=86.94
T1
NEW FIRE HYDRANT LO
AND BACKFILL BY CONT
BY CITY FORCES
EX. 5.9m-500mmØ± C.S.P.
N. INV=87.19
N47°18'40"E 153.00 (P&M)
PIN 04404 - 0545

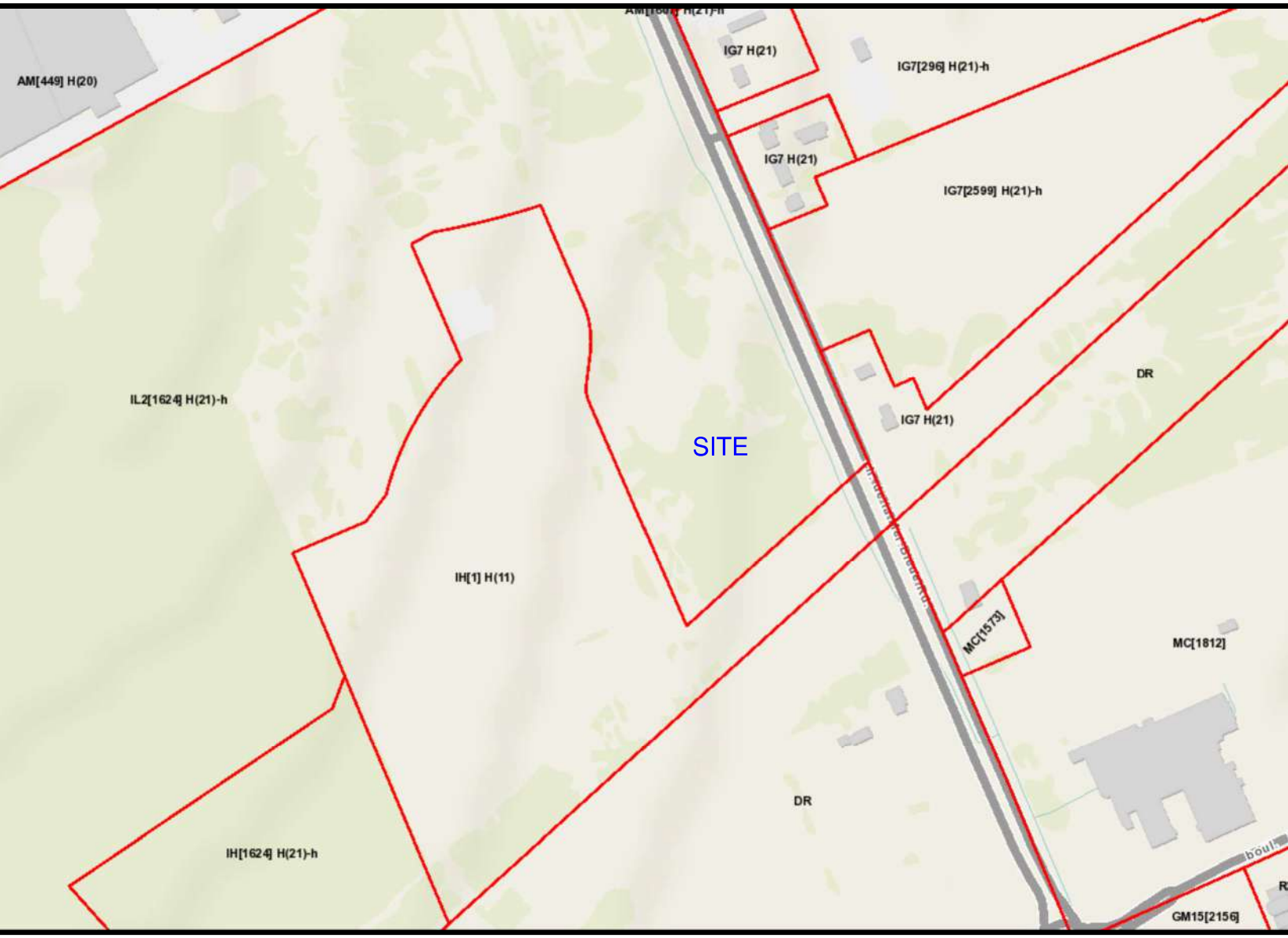

SWITCHGEAR BUILDING
FFE=90.94
BASEMENT=87.44
USF=86.94
NEW SWALE CUT INTO EXISTING GRADE. TOP OF SWALE TO TIE INTO EXISTING GRADE AT 3:1.
AREA TO BE GRADED TOWARDS TOP OF NEW SWALE.
AREA TO BE GRADED TOWARDS TOP OF NEW SWALE.
NEW SWALE CUT INTO EXISTING GRADE. TOP OF SWALE TO TIE INTO EXISTING GRADE AT 3:1.
EX. 5.9m-500mmØ± C.S.P.
N. INV=87.19
N47°08'40"E 153.00 (P&M)
PIN 04404 – 0545



SECTION B-B

SCALE: 1-100

Appendix B – Zoning Map


AM[449] H(20)
IG7 H(21)
IG7[296] H(21)-h
IG7 H(21)
IG7[2599] H(21)-h
IL2[1624] H(21)-h
SITE
IG7 H(21)
DR
IH[1] H(11)
MC[1573]
MC[1812]
DR
IH[1624] H(21)-h
GM15[2156]

Appendix C – Manufacturer's Sound Data

PTI Transformers LP
Registered Office & Plant:
101 Rockman Street, Winnipeg, Manitoba R3T 0L7, Canada
T: +1 204 452 7446 F: +1 204 453 8644
W: www.partnertechnologies.net

TRANSFORMER TEST SUMMARY

CUSTOMER: Ottawa Hydro
P O No: 112588
SERIAL No: RA19.0674
RATING: 60 /80 / 100 MVA
HV: 230 kV 'Y' ; LV: 27.6 kV 'z'
TAPS: HV LTC for LV variation of +/- 10%

LTC SERIAL No: 2201925

		TESTED VALUES		GUARANTEED VALUES	
OPEN CIRCUIT TEST	MVA	60		60	
	TAP	17		17	
100% VOLTAGE % I ex		0.05			
100% VOLTAGE KILOWATTS		27.3		28.0	
110% VOLTAGE % I ex		0.06			
110% VOLTAGE KILOWATTS		35.6			
CORE LOSS CYCLE RECORDINGS		O.K			
LOAD LOSS TEST	MVA	60		60	
	TAP	17		17	
KILOWATTS	@ 85°C	159.7		169.0	
% IZ	@ 85°C	13.96		14.00	
LOADLOSS CYCLE RECORDINGS		O.K			
TOTAL LOSS 100% VOLTAGE		187.0		197.0	
		ONAN	ONAF	ONAN	ONAF
TEMPERATURE RISE	MVA	60	100	60	100
TOP OIL RISE	K	37.8	51.6	65.0	65.0
HV WINDING RISE	K	36.6	49.2	65.0	65.0
LV WINDING RISE	K	39.5	51.1	65.0	65.0
		ONAN	ONAF		ONAF
SOUND LEVEL (LTC # 33)	dB_A	65.5	68.0		69.0

DIELECTRIC TESTS (kV)

IMPULSE TEST (LIL) HV 900 LV 200
HVN 350 LVN 200
APPLIED POTENTIAL TEST HV 140 LV 70

INDUCED POTENTIAL TEST AT 1.7 TIMES NORMAL FOR 7200 CYCLES
PARTIAL DISCHARGE TEST AT 1.5 TIMES NORMAL FOR 60 MINUTES

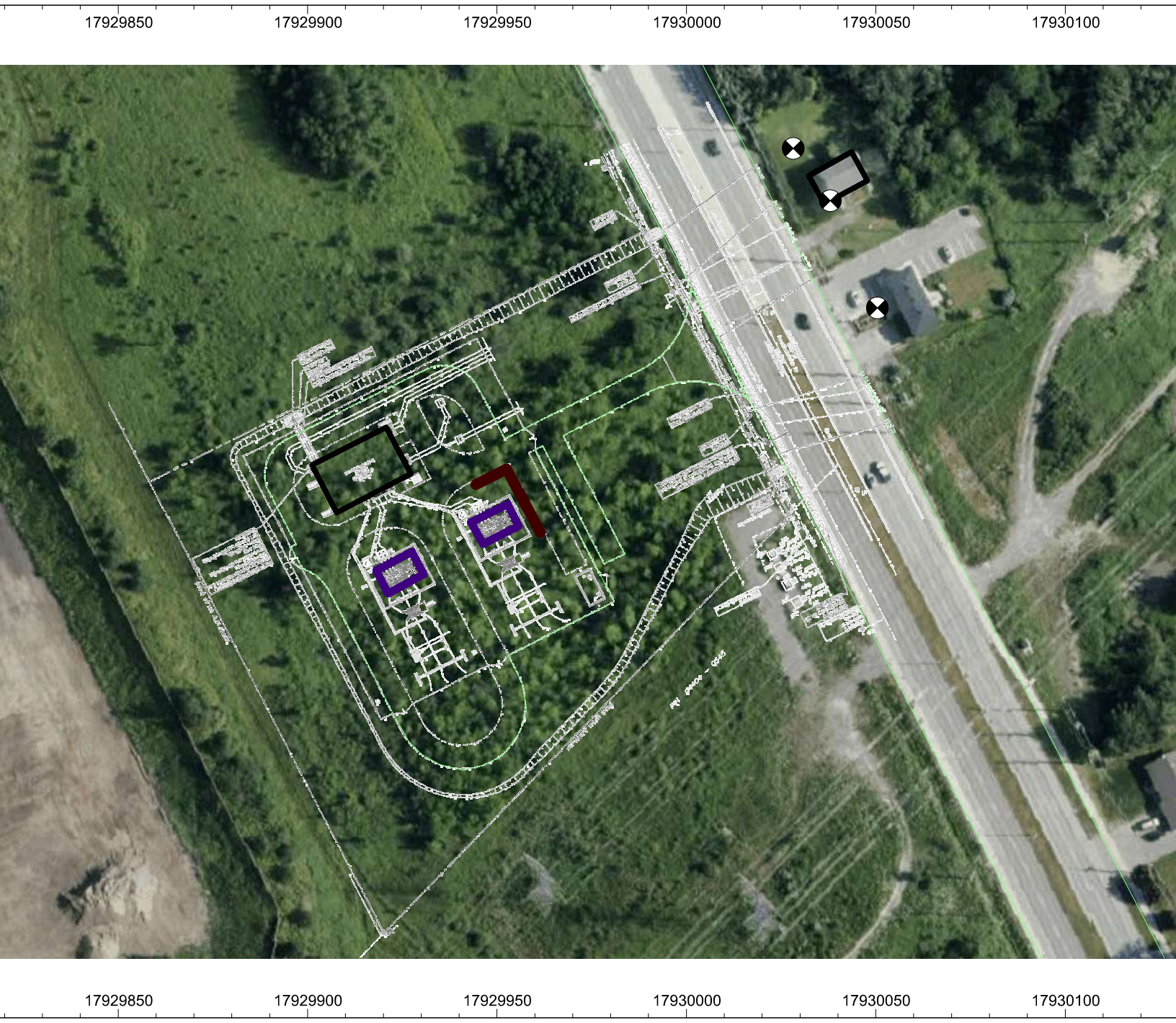
I hereby certify this is a true report based on factory tests made in accordance with the current applicable standards, and that each transformer withstood the above insulation tests.

Approved by: Sachin Tade 2020-12-14 Date: 29-Sep-20

PTI Transformers LP / Test Department / RA19.0674 /R0

CANADA'S BEST MANAGED COMPANIES Platinum member

Appendix D - CadnaA Calculation Output


17929850
17929900
17929950
17930000
17930050
17930100
17929850
17929900
17929950
17930000
17930050
17930100

Receiver
Name: POR1
ID: POR1
X: 17930038.02 m
Y: 5047592.66 m
Z: 15.80 m

vert. Area Source, ISO 9613, Name: "Transformer 1", ID: "transformer_1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
1	17929948.00	5047510.15	13.96	0	DEN	32	38.6	10.3	0.0	3.0	0.0	52.7	0.0	-3.0	0.0	0.0	7.8	0.0	0.0	-5.6
1	17929948.00	5047510.15	13.96	0	DEN	63	59.8	10.3	0.0	3.0	0.0	52.7	0.0	-3.0	0.0	0.0	7.8	0.0	0.0	15.6
1	17929948.00	5047510.15	13.96	0	DEN	125	73.9	10.3	0.0	3.0	0.0	52.7	0.1	-0.2	0.0	0.0	5.0	0.0	0.0	29.6
1	17929948.00	5047510.15	13.96	0	DEN	250	65.4	10.3	0.0	3.0	0.0	52.7	0.1	0.2	0.0	0.0	4.5	0.0	0.0	21.1
1	17929948.00	5047510.15	13.96	0	DEN	500	66.8	10.3	0.0	3.0	0.0	52.7	0.2	-1.7	0.0	0.0	6.4	0.0	0.0	22.4
1	17929948.00	5047510.15	13.96	0	DEN	1000	68.0	10.3	0.0	3.0	0.0	52.7	0.4	-1.8	0.0	0.0	6.6	0.0	0.0	23.3
1	17929948.00	5047510.15	13.96	0	DEN	2000	66.2	10.3	0.0	3.0	0.0	52.7	1.2	-1.8	0.0	0.0	6.6	0.0	0.0	20.8
1	17929948.00	5047510.15	13.96	0	DEN	4000	68.0	10.3	0.0	3.0	0.0	52.7	4.0	-1.8	0.0	0.0	6.7	0.0	0.0	19.8
1	17929948.00	5047510.15	13.96	0	DEN	8000	48.9	10.3	0.0	3.0	0.0	52.7	14.3	-1.8	0.0	0.0	6.7	0.0	0.0	-9.7
2	17929948.00	5047510.15	14.96	0	DEN	32	38.6	10.3	0.0	3.0	0.0	52.7	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	2.2
2	17929948.00	5047510.15	14.96	0	DEN	63	59.8	10.3	0.0	3.0	0.0	52.7	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	23.4
2	17929948.00	5047510.15	14.96	0	DEN	125	73.9	10.3	0.0	3.0	0.0	52.7	0.1	-0.2	0.0	0.0	0.0	0.0	0.0	34.6
2	17929948.00	5047510.15	14.96	0	DEN	250	65.4	10.3	0.0	3.0	0.0	52.7	0.1	-0.7	0.0	0.0	0.0	0.0	0.0	26.5
2	17929948.00	5047510.15	14.96	0	DEN	500	66.8	10.3	0.0	3.0	0.0	52.7	0.2	-1.9	0.0	0.0	0.0	0.0	0.0	29.1
2	17929948.00	5047510.15	14.96	0	DEN	1000	68.0	10.3	0.0	3.0	0.0	52.7	0.4	-1.9	0.0	0.0	0.0	0.0	0.0	30.1
2	17929948.00	5047510.15	14.96	0	DEN	2000	66.2	10.3	0.0	3.0	0.0	52.7	1.2	-1.9	0.0	0.0	0.0	0.0	0.0	27.5
2	17929948.00	5047510.15	14.96	0	DEN	4000	68.0	10.3	0.0	3.0	0.0	52.7	4.0	-1.9	0.0	0.0	0.0	0.0	0.0	26.5
2	17929948.00	5047510.15	14.96	0	DEN	8000	48.9	10.3	0.0	3.0	0.0	52.7	14.3	-1.9	0.0	0.0	0.0	0.0	0.0	-2.9
3	17929951.01	5047504.39	13.96	0	DEN	32	38.6	10.2	0.0	3.0	0.0	52.9	0.0	-3.0	0.0	0.0	7.8	0.0	0.0	-5.9
3	17929951.01	5047504.39	13.96	0	DEN	63	59.8	10.2	0.0	3.0	0.0	52.9	0.0	-3.0	0.0	0.0	7.8	0.0	0.0	15.3
3	17929951.01	5047504.39	13.96	0	DEN	125	73.9	10.2	0.0	3.0	0.0	52.9	0.1	0.5	0.0	0.0	4.2	0.0	0.0	29.4
3	17929951.01	5047504.39	13.96	0	DEN	250	65.4	10.2	0.0	3.0	0.0	52.9	0.1	1.2	0.0	0.0	3.6	0.0	0.0	20.8
3	17929951.01	5047504.39	13.96	0	DEN	500	66.8	10.2	0.0	3.0	0.0	52.9	0.2	-1.3	0.0	0.0	6.1	0.0	0.0	22.1
3	17929951.01	5047504.39	13.96	0	DEN	1000	68.0	10.2	0.0	3.0	0.0	52.9	0.5	-1.5	0.0	0.0	6.3	0.0	0.0	23.1
3	17929951.01	5047504.39	13.96	0	DEN	2000	66.2	10.2	0.0	3.0	0.0	52.9	1.2	-1.5	0.0	0.0	6.3	0.0	0.0	20.5
3	17929951.01	5047504.39	13.96	0	DEN	4000	68.0	10.2	0.0	3.0	0.0	52.9	4.1	-1.5	0.0	0.0	6.3	0.0	0.0	19.4
3	17929951.01	5047504.39	13.96	0	DEN	8000	48.9	10.2	0.0	3.0	0.0	52.9	14.5	-1.5	0.0	0.0	6.4	0.0	0.0	-10.1
4	17929951.01	5047504.39	14.96	0	DEN	32	38.6	10.2	0.0	3.0	0.0	52.9	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	1.9
4	17929951.01	5047504.39	14.96	0	DEN	63	59.8	10.2	0.0	3.0	0.0	52.9	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	23.1
4	17929951.01	5047504.39	14.96	0	DEN	125	73.9	10.2	0.0	3.0	0.0	52.9	0.1	0.5	0.0	0.0	0.0	0.0	0.0	33.7
4	17929951.01	5047504.39	14.96	0	DEN	250	65.4	10.2	0.0	3.0	0.0	52.9	0.1	-0.2	0.0	0.0	0.0	0.0	0.0	25.7
4	17929951.01	5047504.39	14.96	0	DEN	500	66.8	10.2	0.0	3.0	0.0	52.9	0.2	-1.7	0.0	0.0	0.0	0.0	0.0	28.6
4	17929951.01	5047504.39	14.96	0	DEN	1000	68.0	10.2	0.0	3.0	0.0	52.9	0.5	-1.7	0.0	0.0	0.0	0.0	0.0	29.6
4	17929951.01	5047504.39	14.96	0	DEN	2000	66.2	10.2	0.0	3.0	0.0	52.9	1.2	-1.7	0.0	0.0	0.0	0.0	0.0	27.0
4	17929951.01	5047504.39	14.96	0	DEN	4000	68.0	10.2	0.0	3.0	0.0	52.9	4.1	-1.7	0.0	0.0	0.0	0.0	0.0	25.9
4	17929951.01	5047504.39	14.96	0	DEN	8000	48.9	10.2	0.0	3.0	0.0	52.9	14.5	-1.7	0.0	0.0	0.0	0.0	0.0	-3.6
47	17929948.00	5047510.15	13.01	0	DEN	32	38.6	9.9	0.0	3.0	0.0	52.7	0.0	-3.0	0.0	0.0	4.7	0.0	0.0	-2.9
47	17929948.00	5047510.15	13.01	0	DEN	63	59.8	9.9	0.0	3.0	0.0	52.7	0.0	-3.0	0.0	0.0	5.5	0.0	0.0	17.4
47	17929948.00	5047510.15	13.01	0	DEN	125	73.9	9.9	0.0	3.0	0.0	52.7	0.1	-0.3	0.0	0.0	4.5	0.0	0.0	29.9
47	17929948.00	5047510.15	13.01	0	DEN	250	65.4	9.9	0.0	3.0	0.0	52.7	0.1	1.3	0.0	0.0	3.7	0.0	0.0	20.4
47	17929948.00	5047510.15	13.01	0	DEN	500	66.8	9.9	0.0	3.0	0.0	52.7	0.2	-0.3	0.0	0.0	6.1	0.0	0.0	21.0
47	17929948.00	5047510.15	13.01	0	DEN	1000	68.0	9.9	0.0	3.0	0.0	52.7	0.4	-1.6	0.0	0.0	8.4	0.0	0.0	20.9
47	17929948.00	5047510.15	13.01	0	DEN	2000	66.2	9.9	0.0	3.0	0.0	52.7	1.2	-1.8	0.0	0.0	10.2	0.0	0.0	16.7
47	17929948.00	5047510.15	13.01	0	DEN	4000	68.0	9.9	0.0	3.0	0.0	52.7	4.0	-1.8	0.0	0.0	12.3	0.0	0.0	13.6
47	17929948.00	5047510.15	13.01	0	DEN	8000	48.9	9.9	0.0	3.0	0.0	52.7	14.3	-1.8	0.0	0.0	14.7	0.0	0.0	-18.2
48	17929951.01	5047504.39	13.00	0	DEN	32	38.6	9.8	0.0	3.0	0.0	52.9	0.0	-3.0	0.0	0.0	5.5	0.0	0.0	-4.0
48	17929951.01	5047504.39	13.00	0	DEN	63	59.8	9.8	0.0	3.0	0.0	52.9	0.0	-3.0	0.0	0.0	6.3	0.0	0.0	16.4
48	17929951.01	5047504.39	13.00	0	DEN	125	73.9	9.8	0.0	3.0	0.0	52.9	0.1	0.5	0.0	0.0	4.1	0.0	0.0	29.1
48	17929951.01	5047504.39	13.00	0	DEN	250	65.4	9.8	0.0	3.0	0.0	52.9	0.1	3.1	0.0	0.0	2.2	0.0	0.0	19.8
48	17929951.01	5047504.39	13.00	0	DEN	500	66.8	9.8	0.0	3.0	0.0	52.9	0.2	0.8	0.0	0.0	5.1	0.0	0.0	20.5
48	17929951.01	5047504.39	13.00	0	DEN	1000	68.0	9.8	0.0	3.0	0.0	52.9	0.5	-1.1	0.0	0.0	8.1	0.0	0.0	20.5
48	17929951.01	5047504.39	13.00	0	DEN	2000	66.2	9.8	0.0	3.0	0.0	52.9	1.2	-1.3	0.0	0.0	9.8	0.0	0.0	16.4

vert. Area Source, ISO 9613, Name: "Transformer 1", ID: "transformer_1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
48	17929951.01	5047504.39	13.00	0	DEN	4000	68.0	9.8	0.0	3.0	0.0	52.9	4.1	-1.3	0.0	0.0	11.9	0.0	0.0	13.3
48	17929951.01	5047504.39	13.00	0	DEN	8000	48.9	9.8	0.0	3.0	0.0	52.9	14.5	-1.3	0.0	0.0	14.3	0.0	0.0	-18.6
60	17929954.27	5047509.65	13.96	0	DEN	32	38.6	8.1	0.0	3.0	0.0	52.4	0.0	-3.0	0.0	0.0	7.8	0.0	0.0	-7.5
60	17929954.27	5047509.65	13.96	0	DEN	63	59.8	8.1	0.0	3.0	0.0	52.4	0.0	-3.0	0.0	0.0	7.8	0.0	0.0	13.6
60	17929954.27	5047509.65	13.96	0	DEN	125	73.9	8.1	0.0	3.0	0.0	52.4	0.0	0.3	0.0	0.0	4.5	0.0	0.0	27.7
60	17929954.27	5047509.65	13.96	0	DEN	250	65.4	8.1	0.0	3.0	0.0	52.4	0.1	0.9	0.0	0.0	4.0	0.0	0.0	19.1
60	17929954.27	5047509.65	13.96	0	DEN	500	66.8	8.1	0.0	3.0	0.0	52.4	0.2	-1.4	0.0	0.0	6.3	0.0	0.0	20.3
60	17929954.27	5047509.65	13.96	0	DEN	1000	68.0	8.1	0.0	3.0	0.0	52.4	0.4	-1.6	0.0	0.0	6.7	0.0	0.0	21.1
60	17929954.27	5047509.65	13.96	0	DEN	2000	66.2	8.1	0.0	3.0	0.0	52.4	1.1	-1.6	0.0	0.0	6.9	0.0	0.0	18.4
60	17929954.27	5047509.65	13.96	0	DEN	4000	68.0	8.1	0.0	3.0	0.0	52.4	3.9	-1.6	0.0	0.0	7.4	0.0	0.0	16.9
60	17929954.27	5047509.65	13.96	0	DEN	8000	48.9	8.1	0.0	3.0	0.0	52.4	13.8	-1.6	0.0	0.0	8.3	0.0	0.0	-12.9
61	17929954.27	5047509.65	14.96	0	DEN	32	38.6	8.1	0.0	3.0	0.0	52.4	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	0.2
61	17929954.27	5047509.65	14.96	0	DEN	63	59.8	8.1	0.0	3.0	0.0	52.4	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	21.4
61	17929954.27	5047509.65	14.96	0	DEN	125	73.9	8.1	0.0	3.0	0.0	52.4	0.0	0.5	0.0	0.0	0.0	0.0	0.0	32.0
61	17929954.27	5047509.65	14.96	0	DEN	250	65.4	8.1	0.0	3.0	0.0	52.4	0.1	-0.1	0.0	0.0	0.0	0.0	0.0	24.1
61	17929954.27	5047509.65	14.96	0	DEN	500	66.8	8.1	0.0	3.0	0.0	52.4	0.2	-1.7	0.0	0.0	0.0	0.0	0.0	26.9
61	17929954.27	5047509.65	14.96	0	DEN	1000	68.0	8.1	0.0	3.0	0.0	52.4	0.4	-1.7	0.0	0.0	0.0	0.0	0.0	27.9
61	17929954.27	5047509.65	14.96	0	DEN	2000	66.2	8.1	0.0	3.0	0.0	52.4	1.1	-1.7	0.0	0.0	0.0	0.0	0.0	25.4
61	17929954.27	5047509.65	14.96	0	DEN	4000	68.0	8.1	0.0	3.0	0.0	52.4	3.9	-1.7	0.0	0.0	0.0	0.0	0.0	24.5
61	17929954.27	5047509.65	14.96	0	DEN	8000	48.9	8.1	0.0	3.0	0.0	52.4	13.8	-1.7	0.0	0.0	0.0	0.0	0.0	-4.6
65	17929954.27	5047509.65	13.00	0	DEN	32	38.6	7.7	0.0	3.0	0.0	52.4	0.0	-3.0	0.0	0.0	6.6	0.0	0.0	-6.8
65	17929954.27	5047509.65	13.00	0	DEN	63	59.8	7.7	0.0	3.0	0.0	52.4	0.0	-3.0	0.0	0.0	7.5	0.0	0.0	13.5
65	17929954.27	5047509.65	13.00	0	DEN	125	73.9	7.7	0.0	3.0	0.0	52.4	0.0	0.3	0.0	0.0	5.4	0.0	0.0	26.4
65	17929954.27	5047509.65	13.00	0	DEN	250	65.4	7.7	0.0	3.0	0.0	52.4	0.1	2.7	0.0	0.0	4.2	0.0	0.0	16.7
65	17929954.27	5047509.65	13.00	0	DEN	500	66.8	7.7	0.0	3.0	0.0	52.4	0.2	0.5	0.0	0.0	7.7	0.0	0.0	16.5
65	17929954.27	5047509.65	13.00	0	DEN	1000	68.0	7.7	0.0	3.0	0.0	52.4	0.4	-1.2	0.0	0.0	11.4	0.0	0.0	15.6
65	17929954.27	5047509.65	13.00	0	DEN	2000	66.2	7.7	0.0	3.0	0.0	52.4	1.1	-1.4	0.0	0.0	14.0	0.0	0.0	10.7
65	17929954.27	5047509.65	13.00	0	DEN	4000	68.0	7.7	0.0	3.0	0.0	52.4	3.9	-1.4	0.0	0.0	16.7	0.0	0.0	7.1
65	17929954.27	5047509.65	13.00	0	DEN	8000	48.9	7.7	0.0	3.0	0.0	52.4	13.8	-1.4	0.0	0.0	19.5	0.0	0.0	-24.7
66	17929944.73	5047504.89	14.96	0	DEN	32	38.6	8.2	0.0	3.0	0.0	53.2	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	-0.4
66	17929944.73	5047504.89	14.96	0	DEN	63	59.8	8.2	0.0	3.0	0.0	53.2	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	20.7
66	17929944.73	5047504.89	14.96	0	DEN	125	73.9	8.2	0.0	3.0	0.0	53.2	0.1	-0.0	0.0	0.0	0.0	0.0	0.0	31.8
66	17929944.73	5047504.89	14.96	0	DEN	250	65.4	8.2	0.0	3.0	0.0	53.2	0.1	-0.6	0.0	0.0	0.0	0.0	0.0	23.8
66	17929944.73	5047504.89	14.96	0	DEN	500	66.8	8.2	0.0	3.0	0.0	53.2	0.2	-1.9	0.0	0.0	0.0	0.0	0.0	26.4
66	17929944.73	5047504.89	14.96	0	DEN	1000	68.0	8.2	0.0	3.0	0.0	53.2	0.5	-1.9	0.0	0.0	0.0	0.0	0.0	27.4
66	17929944.73	5047504.89	14.96	0	DEN	2000	66.2	8.2	0.0	3.0	0.0	53.2	1.2	-1.9	0.0	0.0	0.0	0.0	0.0	24.8
66	17929944.73	5047504.89	14.96	0	DEN	4000	68.0	8.2	0.0	3.0	0.0	53.2	4.2	-1.9	0.0	0.0	0.0	0.0	0.0	23.7
66	17929944.73	5047504.89	14.96	0	DEN	8000	48.9	8.2	0.0	3.0	0.0	53.2	15.0	-1.9	0.0	0.0	0.0	0.0	0.0	-6.2
67	17929944.73	5047504.89	13.96	0	DEN	32	38.6	8.2	0.0	3.0	0.0	53.2	0.0	-3.0	0.0	0.0	7.8	0.0	0.0	-8.2
67	17929944.73	5047504.89	13.96	0	DEN	63	59.8	8.2	0.0	3.0	0.0	53.2	0.0	-3.0	0.0	0.0	7.8	0.0	0.0	13.0
67	17929944.73	5047504.89	13.96	0	DEN	125	73.9	8.2	0.0	3.0	0.0	53.2	0.1	-0.0	0.0	0.0	4.8	0.0	0.0	27.0
67	17929944.73	5047504.89	13.96	0	DEN	250	65.4	8.2	0.0	3.0	0.0	53.2	0.1	0.5	0.0	0.0	4.3	0.0	0.0	18.5
67	17929944.73	5047504.89	13.96	0	DEN	500	66.8	8.2	0.0	3.0	0.0	53.2	0.2	-1.6	0.0	0.0	6.3	0.0	0.0	19.7
67	17929944.73	5047504.89	13.96	0	DEN	1000	68.0	8.2	0.0	3.0	0.0	53.2	0.5	-1.8	0.0	0.0	6.5	0.0	0.0	20.7
67	17929944.73	5047504.89	13.96	0	DEN	2000	66.2	8.2	0.0	3.0	0.0	53.2	1.2	-1.8	0.0	0.0	6.5	0.0	0.0	18.2
67	17929944.73	5047504.89	13.96	0	DEN	4000	68.0	8.2	0.0	3.0	0.0	53.2	4.2	-1.8	0.0	0.0	6.5	0.0	0.0	17.0
67	17929944.73	5047504.89	13.96	0	DEN	8000	48.9	8.2	0.0	3.0	0.0	53.2	15.0	-1.8	0.0	0.0	6.5	0.0	0.0	-12.9
69	17929944.73	5047504.89	13.00	0	DEN	32	38.6	7.7	0.0	3.0	0.0	53.2	0.0	-3.0	0.0	0.0	4.8	0.0	0.0	-5.6
69	17929944.73	5047504.89	13.00	0	DEN	63	59.8	7.7	0.0	3.0	0.0	53.2	0.0	-3.0	0.0	0.0	5.6	0.0	0.0	14.8
69	17929944.73	5047504.89	13.00	0	DEN	125	73.9	7.7	0.0	3.0	0.0	53.2	0.1	-0.1	0.0	0.0	4.2	0.0	0.0	27.3
69	17929944.73	5047504.89	13.00	0	DEN	250	65.4	7.7	0.0	3.0	0.0	53.2	0.1	1.8	0.0	0.0	2.9	0.0	0.0	18.1
69	17929944.73	5047504.89	13.00	0	DEN	500	66.8	7.7	0.0	3.0	0.0	53.2	0.2	-0.0	0.0	0.0	5.0	0.0	0.0	19.1
69	17929944.73	5047504.89	13.00	0	DEN	1000	68.0	7.7	0.0	3.0	0.0	53.2	0.5	-1.5	0.0	0.0	7.1	0.0	0.0	19.5
69	17929944.73	5047504.89	13.00	0	DEN	2000	66.2	7.7	0.0	3.0	0.0	53.2	1.2	-1.7	0.0	0.0	8.1	0.0	0.0	16.0
69	17929944.73	5047504.89	13.00	0	DEN	4000	68.0	7.7	0.0	3.0	0.0	53.2	4.2	-1.7	0.0	0.0	9.5	0.0	0.0	13.5
69	17929944.73	5047504.89	13.00	0	DEN	8000	48.9	7.7	0.0	3.0	0.0	53.2	15.0	-1.7	0.0	0.0	11.3	0.0	0.0	-18.2

vert. Area Source, ISO 9613, Name: "Transformer 2", ID: "transformer_2"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
50	17929920.94	5047496.45	13.96	0	DEN	32	38.5	8.0	0.0	3.0	0.0	54.6	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	-2.1
50	17929920.94	5047496.45	13.96	0	DEN	63	59.7	8.0	0.0	3.0	0.0	54.6	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	19.1
50	17929920.94	5047496.45	13.96	0	DEN	125	73.8	8.0	0.0	3.0	0.0	54.6	0.1	0.2	0.0	0.0	0.0	0.0	0.0	29.9

vert. Area Source, ISO 9613, Name: "Transformer 2", ID: "transformer_2"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
50	17929920.94	5047496.45	13.96	0	DEN	250	65.3	8.0	0.0	3.0	0.0	54.6	0.2	0.5	0.0	0.0	0.0	0.0	0.0	21.0
50	17929920.94	5047496.45	13.96	0	DEN	500	66.7	8.0	0.0	3.0	0.0	54.6	0.3	-1.5	0.0	0.0	0.0	0.0	0.0	24.3
50	17929920.94	5047496.45	13.96	0	DEN	1000	67.9	8.0	0.0	3.0	0.0	54.6	0.6	-1.7	0.0	0.0	0.0	0.0	0.0	25.4
50	17929920.94	5047496.45	13.96	0	DEN	2000	66.1	8.0	0.0	3.0	0.0	54.6	1.5	-1.7	0.0	0.0	0.0	0.0	0.0	22.7
50	17929920.94	5047496.45	13.96	0	DEN	4000	67.9	8.0	0.0	3.0	0.0	54.6	5.0	-1.7	0.0	0.0	0.0	0.0	0.0	21.0
50	17929920.94	5047496.45	13.96	0	DEN	8000	48.8	8.0	0.0	3.0	0.0	54.6	17.7	-1.7	0.0	0.0	0.0	0.0	0.0	-10.8
54	17929925.60	5047498.93	13.96	0	DEN	32	38.5	6.4	0.0	3.0	0.0	54.3	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	-3.4
54	17929925.60	5047498.93	13.96	0	DEN	63	59.7	6.4	0.0	3.0	0.0	54.3	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	17.7
54	17929925.60	5047498.93	13.96	0	DEN	125	73.8	6.4	0.0	3.0	0.0	54.3	0.1	0.2	0.0	0.0	0.0	0.0	0.0	28.6
54	17929925.60	5047498.93	13.96	0	DEN	250	65.3	6.4	0.0	3.0	0.0	54.3	0.2	0.6	0.0	0.0	0.0	0.0	0.0	19.6
54	17929925.60	5047498.93	13.96	0	DEN	500	66.7	6.4	0.0	3.0	0.0	54.3	0.3	-1.5	0.0	0.0	0.0	0.0	0.0	23.0
54	17929925.60	5047498.93	13.96	0	DEN	1000	67.9	6.4	0.0	3.0	0.0	54.3	0.5	-1.7	0.0	0.0	0.0	0.0	0.0	24.1
54	17929925.60	5047498.93	13.96	0	DEN	2000	66.1	6.4	0.0	3.0	0.0	54.3	1.4	-1.7	0.0	0.0	0.0	0.0	0.0	21.5
54	17929925.60	5047498.93	13.96	0	DEN	4000	67.9	6.4	0.0	3.0	0.0	54.3	4.8	-1.7	0.0	0.0	0.0	0.0	0.0	19.9
54	17929925.60	5047498.93	13.96	0	DEN	8000	48.8	6.4	0.0	3.0	0.0	54.3	17.1	-1.7	0.0	0.0	0.0	0.0	0.0	-11.5
56	17929920.94	5047496.45	14.96	0	DEN	32	38.5	8.0	0.0	3.0	0.0	54.6	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	-2.1
56	17929920.94	5047496.45	14.96	0	DEN	63	59.7	8.0	0.0	3.0	0.0	54.6	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	19.1
56	17929920.94	5047496.45	14.96	0	DEN	125	73.8	8.0	0.0	3.0	0.0	54.6	0.1	1.0	0.0	0.0	0.0	0.0	0.0	29.2
56	17929920.94	5047496.45	14.96	0	DEN	250	65.3	8.0	0.0	3.0	0.0	54.6	0.2	0.3	0.0	0.0	0.0	0.0	0.0	21.3
56	17929920.94	5047496.45	14.96	0	DEN	500	66.7	8.0	0.0	3.0	0.0	54.6	0.3	-1.5	0.0	0.0	0.0	0.0	0.0	24.3
56	17929920.94	5047496.45	14.96	0	DEN	1000	67.9	8.0	0.0	3.0	0.0	54.6	0.6	-1.6	0.0	0.0	0.0	0.0	0.0	25.3
56	17929920.94	5047496.45	14.96	0	DEN	2000	66.1	8.0	0.0	3.0	0.0	54.6	1.5	-1.6	0.0	0.0	0.0	0.0	0.0	22.6
56	17929920.94	5047496.45	14.96	0	DEN	4000	67.9	8.0	0.0	3.0	0.0	54.6	5.0	-1.6	0.0	0.0	0.0	0.0	0.0	20.9
56	17929920.94	5047496.45	14.96	0	DEN	8000	48.8	8.0	0.0	3.0	0.0	54.6	17.7	-1.6	0.0	0.0	0.0	0.0	0.0	-11.0
57	17929925.60	5047498.93	14.96	0	DEN	32	38.5	6.4	0.0	3.0	0.0	54.3	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	-3.4
57	17929925.60	5047498.93	14.96	0	DEN	63	59.7	6.4	0.0	3.0	0.0	54.3	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	17.7
57	17929925.60	5047498.93	14.96	0	DEN	125	73.8	6.4	0.0	3.0	0.0	54.3	0.1	0.7	0.0	0.0	0.0	0.0	0.0	28.1
57	17929925.60	5047498.93	14.96	0	DEN	250	65.3	6.4	0.0	3.0	0.0	54.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	20.1
57	17929925.60	5047498.93	14.96	0	DEN	500	66.7	6.4	0.0	3.0	0.0	54.3	0.3	-1.6	0.0	0.0	0.0	0.0	0.0	23.1
57	17929925.60	5047498.93	14.96	0	DEN	1000	67.9	6.4	0.0	3.0	0.0	54.3	0.5	-1.6	0.0	0.0	0.0	0.0	0.0	24.1
57	17929925.60	5047498.93	14.96	0	DEN	2000	66.1	6.4	0.0	3.0	0.0	54.3	1.4	-1.6	0.0	0.0	0.0	0.0	0.0	21.4
57	17929925.60	5047498.93	14.96	0	DEN	4000	67.9	6.4	0.0	3.0	0.0	54.3	4.8	-1.6	0.0	0.0	0.0	0.0	0.0	19.8
57	17929925.60	5047498.93	14.96	0	DEN	8000	48.8	6.4	0.0	3.0	0.0	54.3	17.1	-1.6	0.0	0.0	0.0	0.0	0.0	-11.6
58	17929925.93	5047491.48	13.96	0	DEN	32	38.5	10.3	0.0	3.0	0.0	54.6	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	0.2
58	17929925.93	5047491.48	13.96	0	DEN	63	59.7	10.3	0.0	3.0	0.0	54.6	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	21.4
58	17929925.93	5047491.48	13.96	0	DEN	125	73.8	10.3	0.0	3.0	0.0	54.6	0.1	-0.1	0.0	0.0	0.0	0.0	0.0	32.5
58	17929925.93	5047491.48	13.96	0	DEN	250	65.3	10.3	0.0	3.0	0.0	54.6	0.2	0.3	0.0	0.0	0.0	0.0	0.0	23.6
58	17929925.93	5047491.48	13.96	0	DEN	500	66.7	10.3	0.0	3.0	0.0	54.6	0.3	-1.7	0.0	0.0	0.0	0.0	0.0	26.8
58	17929925.93	5047491.48	13.96	0	DEN	1000	67.9	10.3	0.0	3.0	0.0	54.6	0.6	-1.8	0.0	0.0	0.0	0.0	0.0	27.9
58	17929925.93	5047491.48	13.96	0	DEN	2000	66.1	10.3	0.0	3.0	0.0	54.6	1.5	-1.8	0.0	0.0	0.0	0.0	0.0	25.2
58	17929925.93	5047491.48	13.96	0	DEN	4000	67.9	10.3	0.0	3.0	0.0	54.6	4.9	-1.8	0.0	0.0	0.0	0.0	0.0	23.5
58	17929925.93	5047491.48	13.96	0	DEN	8000	48.8	10.3	0.0	3.0	0.0	54.6	17.7	-1.8	0.0	0.0	0.0	0.0	0.0	-8.3
59	17929925.93	5047491.48	14.96	0	DEN	32	38.5	10.3	0.0	3.0	0.0	54.6	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	0.2
59	17929925.93	5047491.48	14.96	0	DEN	63	59.7	10.3	0.0	3.0	0.0	54.6	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	21.4
59	17929925.93	5047491.48	14.96	0	DEN	125	73.8	10.3	0.0	3.0	0.0	54.6	0.1	0.3	0.0	0.0	0.0	0.0	0.0	32.1
59	17929925.93	5047491.48	14.96	0	DEN	250	65.3	10.3	0.0	3.0	0.0	54.6	0.2	-0.3	0.0	0.0	0.0	0.0	0.0	24.1
59	17929925.93	5047491.48	14.96	0	DEN	500	66.7	10.3	0.0	3.0	0.0	54.6	0.3	-1.8	0.0	0.0	0.0	0.0	0.0	26.9
59	17929925.93	5047491.48	14.96	0	DEN	1000	67.9	10.3	0.0	3.0	0.0	54.6	0.6	-1.8	0.0	0.0	0.0	0.0	0.0	27.9
59	17929925.93	5047491.48	14.96	0	DEN	2000	66.1	10.3	0.0	3.0	0.0	54.6	1.5	-1.8	0.0	0.0	0.0	0.0	0.0	25.1
59	17929925.93	5047491.48	14.96	0	DEN	4000	67.9	10.3	0.0	3.0	0.0	54.6	4.9	-1.8	0.0	0.0	0.0	0.0	0.0	23.5
59	17929925.93	5047491.48	14.96	0	DEN	8000	48.8	10.3	0.0	3.0	0.0	54.6	17.6	-1.8	0.0	0.0	0.0	0.0	0.0	-8.3
62	17929920.94	5047496.45	13.01	0	DEN	32	38.5	7.6	0.0	3.0	0.0	54.6	0.0	-3.0	0.0	0.0	3.1	0.0	0.0	-5.6
62	17929920.94	5047496.45	13.01	0	DEN	63	59.7	7.6	0.0	3.0	0.0	54.6	0.0	-3.0	0.0	0.0	3.2	0.0	0.0	15.5
62	17929920.94	5047496.45	13.01	0	DEN	125	73.8	7.6	0.0	3.0	0.0	54.6	0.1	-0.2	0.0	0.0	2.1	0.0	0.0	27.8
62	17929920.94	5047496.45	13.01	0	DEN	250	65.3	7.6	0.0	3.0	0.0	54.6	0.2	0.7	0.0	0.0	1.8	0.0	0.0	18.6
62	17929920.94	5047496.45	13.01	0	DEN	500	66.7	7.6	0.0	3.0	0.0	54.6	0.3	-0.8	0.0	0.0	2.9	0.0	0.0	20.2
62	17929920.94	5047496.45	13.01	0	DEN	1000	67.9	7.6	0.0	3.0	0.0	54.6	0.6	-1.7	0.0	0.0	4.0	0.0	0.0	21.0
62	17929920.94	5047496.45	13.01	0	DEN	2000	66.1	7.6	0.0	3.0	0.0	54.6	1.5	-1.8	0.0	0.0	4.7	0.0	0.0	17.7
62	17929920.94	5047496.45	13.01	0	DEN	4000	67.9	7.6	0.0	3.0	0.0	54.6	5.0	-1.8	0.0	0.0	5.4	0.0	0.0	15.3
62	17929920.94	5047496.45	13.01	0	DEN	8000	48.8	7.6	0.0	3.0	0.0	54.6	17.7	-1.8	0.0	0.0	5.9	0.0	0.0	-17.1
63	17929925.60	5047498.93	13.01	0	DEN	32	38.5	5.9	0.0	3.0	0.0	54.3	0.0	-3.0	0.0	0.0	3.0	0.0	0.0	-6.9
63	17929925.60	5047498.93	13.01	0	DEN	63	59.7	5.9	0.0	3.0	0.0	54.3	0.0	-3.0	0.0	0.0	3.0	0.0	0.0	14.3
63	17929925.60	5047498.93	13.01	0	DEN	125	73.8	5.9	0.0	3.0	0.0	54.3	0.1	-0.3	0.0	0.0	1.9	0.0	0.0	26.7

vert. Area Source, ISO 9613, Name: "Transformer 2", ID: "transformer_2"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
63	17929925.60	5047498.93	13.01	0	DEN	250	65.3	5.9	0.0	3.0	0.0	54.3	0.2	0.6	0.0	0.0	1.5	0.0	0.0	17.7
63	17929925.60	5047498.93	13.01	0	DEN	500	66.7	5.9	0.0	3.0	0.0	54.3	0.3	-0.8	0.0	0.0	2.2	0.0	0.0	19.7
63	17929925.60	5047498.93	13.01	0	DEN	1000	67.9	5.9	0.0	3.0	0.0	54.3	0.5	-1.8	0.0	0.0	2.7	0.0	0.0	21.1
63	17929925.60	5047498.93	13.01	0	DEN	2000	66.1	5.9	0.0	3.0	0.0	54.3	1.4	-1.9	0.0	0.0	2.8	0.0	0.0	18.4
63	17929925.60	5047498.93	13.01	0	DEN	4000	67.9	5.9	0.0	3.0	0.0	54.3	4.8	-1.9	0.0	0.0	3.0	0.0	0.0	16.6
63	17929925.60	5047498.93	13.01	0	DEN	8000	48.8	5.9	0.0	3.0	0.0	54.3	17.1	-1.9	0.0	0.0	3.4	0.0	0.0	-15.2
64	17929925.93	5047491.48	13.01	0	DEN	32	38.5	9.9	0.0	3.0	0.0	54.6	0.0	-3.0	0.0	0.0	7.8	0.0	0.0	-8.0
64	17929925.93	5047491.48	13.01	0	DEN	63	59.7	9.9	0.0	3.0	0.0	54.6	0.0	-3.0	0.0	0.0	7.8	0.0	0.0	13.2
64	17929925.93	5047491.48	13.01	0	DEN	125	73.8	9.9	0.0	3.0	0.0	54.6	0.1	-0.4	0.0	0.0	5.2	0.0	0.0	27.3
64	17929925.93	5047491.48	13.01	0	DEN	250	65.3	9.9	0.0	3.0	0.0	54.6	0.2	0.7	0.0	0.0	4.0	0.0	0.0	18.7
64	17929925.93	5047491.48	13.01	0	DEN	500	66.7	9.9	0.0	3.0	0.0	54.6	0.3	-0.7	0.0	0.0	5.5	0.0	0.0	19.9
64	17929925.93	5047491.48	13.01	0	DEN	1000	67.9	9.9	0.0	3.0	0.0	54.6	0.6	-1.8	0.0	0.0	6.6	0.0	0.0	20.9
64	17929925.93	5047491.48	13.01	0	DEN	2000	66.1	9.9	0.0	3.0	0.0	54.6	1.5	-1.9	0.0	0.0	6.7	0.0	0.0	18.2
64	17929925.93	5047491.48	13.01	0	DEN	4000	67.9	9.9	0.0	3.0	0.0	54.6	4.9	-1.9	0.0	0.0	6.7	0.0	0.0	16.4
64	17929925.93	5047491.48	13.01	0	DEN	8000	48.8	9.9	0.0	3.0	0.0	54.6	17.7	-1.9	0.0	0.0	6.7	0.0	0.0	-15.4
71	17929929.06	5047496.99	14.96	0	DEN	32	38.5	8.2	0.0	3.0	0.0	54.2	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	-1.5
71	17929929.06	5047496.99	14.96	0	DEN	63	59.7	8.2	0.0	3.0	0.0	54.2	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	19.7
71	17929929.06	5047496.99	14.96	0	DEN	125	73.8	8.2	0.0	3.0	0.0	54.2	0.1	0.3	0.0	0.0	0.0	0.0	0.0	30.4
71	17929929.06	5047496.99	14.96	0	DEN	250	65.3	8.2	0.0	3.0	0.0	54.2	0.2	-0.3	0.0	0.0	0.0	0.0	0.0	22.4
71	17929929.06	5047496.99	14.96	0	DEN	500	66.7	8.2	0.0	3.0	0.0	54.2	0.3	-1.8	0.0	0.0	0.0	0.0	0.0	25.2
71	17929929.06	5047496.99	14.96	0	DEN	1000	67.9	8.2	0.0	3.0	0.0	54.2	0.5	-1.8	0.0	0.0	0.0	0.0	0.0	26.2
71	17929929.06	5047496.99	14.96	0	DEN	2000	66.1	8.2	0.0	3.0	0.0	54.2	1.4	-1.8	0.0	0.0	0.0	0.0	0.0	23.5
71	17929929.06	5047496.99	14.96	0	DEN	4000	67.9	8.2	0.0	3.0	0.0	54.2	4.8	-1.8	0.0	0.0	0.0	0.0	0.0	22.0
71	17929929.06	5047496.99	14.96	0	DEN	8000	48.8	8.2	0.0	3.0	0.0	54.2	16.9	-1.8	0.0	0.0	0.0	0.0	0.0	-9.3
73	17929929.06	5047496.99	13.96	0	DEN	32	38.5	8.2	0.0	3.0	0.0	54.2	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	-1.5
73	17929929.06	5047496.99	13.96	0	DEN	63	59.7	8.2	0.0	3.0	0.0	54.2	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	19.7
73	17929929.06	5047496.99	13.96	0	DEN	125	73.8	8.2	0.0	3.0	0.0	54.2	0.1	-0.1	0.0	0.0	0.0	0.0	0.0	30.8
73	17929929.06	5047496.99	13.96	0	DEN	250	65.3	8.2	0.0	3.0	0.0	54.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	21.9
73	17929929.06	5047496.99	13.96	0	DEN	500	66.7	8.2	0.0	3.0	0.0	54.2	0.3	-1.7	0.0	0.0	0.0	0.0	0.0	25.1
73	17929929.06	5047496.99	13.96	0	DEN	1000	67.9	8.2	0.0	3.0	0.0	54.2	0.5	-1.8	0.0	0.0	0.0	0.0	0.0	26.2
73	17929929.06	5047496.99	13.96	0	DEN	2000	66.1	8.2	0.0	3.0	0.0	54.2	1.4	-1.8	0.0	0.0	0.0	0.0	0.0	23.6
73	17929929.06	5047496.99	13.96	0	DEN	4000	67.9	8.2	0.0	3.0	0.0	54.2	4.8	-1.8	0.0	0.0	0.0	0.0	0.0	22.0
73	17929929.06	5047496.99	13.96	0	DEN	8000	48.8	8.2	0.0	3.0	0.0	54.2	16.9	-1.8	0.0	0.0	0.0	0.0	0.0	-9.3
74	17929929.06	5047496.99	13.01	0	DEN	32	38.5	7.8	0.0	3.0	0.0	54.2	0.0	-3.0	0.0	0.0	3.3	0.0	0.0	-5.2
74	17929929.06	5047496.99	13.01	0	DEN	63	59.7	7.8	0.0	3.0	0.0	54.2	0.0	-3.0	0.0	0.0	3.6	0.0	0.0	15.7
74	17929929.06	5047496.99	13.01	0	DEN	125	73.8	7.8	0.0	3.0	0.0	54.2	0.1	-0.4	0.0	0.0	2.7	0.0	0.0	28.0
74	17929929.06	5047496.99	13.01	0	DEN	250	65.3	7.8	0.0	3.0	0.0	54.2	0.2	0.7	0.0	0.0	2.5	0.0	0.0	18.6
74	17929929.06	5047496.99	13.01	0	DEN	500	66.7	7.8	0.0	3.0	0.0	54.2	0.3	-0.7	0.0	0.0	4.0	0.0	0.0	19.7
74	17929929.06	5047496.99	13.01	0	DEN	1000	67.9	7.8	0.0	3.0	0.0	54.2	0.5	-1.8	0.0	0.0	5.4	0.0	0.0	20.4
74	17929929.06	5047496.99	13.01	0	DEN	2000	66.1	7.8	0.0	3.0	0.0	54.2	1.4	-1.9	0.0	0.0	6.0	0.0	0.0	17.2
74	17929929.06	5047496.99	13.01	0	DEN	4000	67.9	7.8	0.0	3.0	0.0	54.2	4.8	-1.9	0.0	0.0	6.4	0.0	0.0	15.2
74	17929929.06	5047496.99	13.01	0	DEN	8000	48.8	7.8	0.0	3.0	0.0	54.2	17.0	-1.9	0.0	0.0	6.7	0.0	0.0	-16.4
75	17929920.00	5047491.36	13.96	0	DEN	32	38.5	7.4	0.0	3.0	0.0	54.8	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	-2.9
75	17929920.00	5047491.36	13.96	0	DEN	63	59.7	7.4	0.0	3.0	0.0	54.8	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	18.3
75	17929920.00	5047491.36	13.96	0	DEN	125	73.8	7.4	0.0	3.0	0.0	54.8	0.1	-0.1	0.0	0.0	0.0	0.0	0.0	29.4
75	17929920.00	5047491.36	13.96	0	DEN	250	65.3	7.4	0.0	3.0	0.0	54.8	0.2	0.1	0.0	0.0	0.0	0.0	0.0	20.6
75	17929920.00	5047491.36	13.96	0	DEN	500	66.7	7.4	0.0	3.0	0.0	54.8	0.3	-1.7	0.0	0.0	0.0	0.0	0.0	23.7
75	17929920.00	5047491.36	13.96	0	DEN	1000	67.9	7.4	0.0	3.0	0.0	54.8	0.6	-1.9	0.0	0.0	0.0	0.0	0.0	24.8
75	17929920.00	5047491.36	13.96	0	DEN	2000	66.1	7.4	0.0	3.0	0.0	54.8	1.5	-1.9	0.0	0.0	0.0	0.0	0.0	22.0
75	17929920.00	5047491.36	13.96	0	DEN	4000	67.9	7.4	0.0	3.0	0.0	54.8	5.1	-1.9	0.0	0.0	0.0	0.0	0.0	20.2
75	17929920.00	5047491.36	13.96	0	DEN	8000	48.8	7.4	0.0	3.0	0.0	54.8	18.2	-1.9	0.0	0.0	0.0	0.0	0.0	-11.9
76	17929918.45	5047494.36	13.96	0	DEN	32	38.5	1.0	0.0	3.0	0.0	54.8	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	-9.3
76	17929918.45	5047494.36	13.96	0	DEN	63	59.7	1.0	0.0	3.0	0.0	54.8	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	11.9
76	17929918.45	5047494.36	13.96	0	DEN	125	73.8	1.0	0.0	3.0	0.0	54.8	0.1	0.1	0.0	0.0	0.0	0.0	0.0	22.8
76	17929918.45	5047494.36	13.96	0	DEN	250	65.3	1.0	0.0	3.0	0.0	54.8	0.2	0.3	0.0	0.0	0.0	0.0	0.0	14.1
76	17929918.45	5047494.36	13.96	0	DEN	500	66.7	1.0	0.0	3.0	0.0	54.8	0.3	-1.6	0.0	0.0	0.0	0.0	0.0	17.3
76	17929918.45	5047494.36	13.96	0	DEN	1000	67.9	1.0	0.0	3.0	0.0	54.8	0.6	-1.8	0.0	0.0	0.0	0.0	0.0	18.4
76	17929918.45	5047494.36	13.96	0	DEN	2000	66.1	1.0	0.0	3.0	0.0	54.8	1.5	-1.8	0.0	0.0	0.0	0.0	0.0	15.6
76	17929918.45	5047494.36	13.96	0	DEN	4000	67.9	1.0	0.0	3.0	0.0	54.8	5.1	-1.8	0.0	0.0	0.0	0.0	0.0	13.9
76	17929918.45	5047494.36	13.96	0	DEN	8000	48.8	1.0	0.0	3.0	0.0	54.8	18.1	-1.8	0.0	0.0	0.0	0.0	0.0	-18.3
77	17929920.00	5047491.36	14.96	0	DEN	32	38.5	7.4	0.0	3.0	0.0	54.8	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	-2.9
77	17929920.00	5047491.36	14.96	0	DEN	63	59.7	7.4	0.0	3.0	0.0	54.8	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	18.3
77	17929920.00	5047491.36	14.96	0	DEN	125	73.8	7.4	0.0	3.0	0.0	54.8	0.1	0.7	0.0	0.0	0.0	0.0	0.0	28.7

vert. Area Source, ISO 9613, Name: "Transformer 2", ID: "transformer_2"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
77	17929920.00	5047491.36	14.96	0	DEN	250	65.3	7.4	0.0	3.0	0.0	54.8	0.2	0.0	0.0	0.0	0.0	0.0	0.0	20.7
77	17929920.00	5047491.36	14.96	0	DEN	500	66.7	7.4	0.0	3.0	0.0	54.8	0.3	-1.7	0.0	0.0	0.0	0.0	0.0	23.6
77	17929920.00	5047491.36	14.96	0	DEN	1000	67.9	7.4	0.0	3.0	0.0	54.8	0.6	-1.7	0.0	0.0	0.0	0.0	0.0	24.6
77	17929920.00	5047491.36	14.96	0	DEN	2000	66.1	7.4	0.0	3.0	0.0	54.8	1.5	-1.7	0.0	0.0	0.0	0.0	0.0	21.8
77	17929920.00	5047491.36	14.96	0	DEN	4000	67.9	7.4	0.0	3.0	0.0	54.8	5.1	-1.7	0.0	0.0	0.0	0.0	0.0	20.1
77	17929920.00	5047491.36	14.96	0	DEN	8000	48.8	7.4	0.0	3.0	0.0	54.8	18.2	-1.7	0.0	0.0	0.0	0.0	0.0	-12.1
78	17929918.45	5047494.36	14.96	0	DEN	32	38.5	1.0	0.0	3.0	0.0	54.8	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	-9.3
78	17929918.45	5047494.36	14.96	0	DEN	63	59.7	1.0	0.0	3.0	0.0	54.8	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	11.9
78	17929918.45	5047494.36	14.96	0	DEN	125	73.8	1.0	0.0	3.0	0.0	54.8	0.1	1.0	0.0	0.0	0.0	0.0	0.0	22.0
78	17929918.45	5047494.36	14.96	0	DEN	250	65.3	1.0	0.0	3.0	0.0	54.8	0.2	0.3	0.0	0.0	0.0	0.0	0.0	14.1
78	17929918.45	5047494.36	14.96	0	DEN	500	66.7	1.0	0.0	3.0	0.0	54.8	0.3	-1.5	0.0	0.0	0.0	0.0	0.0	17.2
78	17929918.45	5047494.36	14.96	0	DEN	1000	67.9	1.0	0.0	3.0	0.0	54.8	0.6	-1.6	0.0	0.0	0.0	0.0	0.0	18.1
78	17929918.45	5047494.36	14.96	0	DEN	2000	66.1	1.0	0.0	3.0	0.0	54.8	1.5	-1.6	0.0	0.0	0.0	0.0	0.0	15.4
78	17929918.45	5047494.36	14.96	0	DEN	4000	67.9	1.0	0.0	3.0	0.0	54.8	5.1	-1.6	0.0	0.0	0.0	0.0	0.0	13.6
78	17929918.45	5047494.36	14.96	0	DEN	8000	48.8	1.0	0.0	3.0	0.0	54.8	18.1	-1.6	0.0	0.0	0.0	0.0	0.0	-18.5
79	17929920.00	5047491.36	13.01	0	DEN	32	38.5	7.0	0.0	3.0	0.0	54.8	0.0	-3.0	0.0	0.0	3.1	0.0	0.0	-6.4
79	17929920.00	5047491.36	13.01	0	DEN	63	59.7	7.0	0.0	3.0	0.0	54.8	0.0	-3.0	0.0	0.0	3.2	0.0	0.0	14.6
79	17929920.00	5047491.36	13.01	0	DEN	125	73.8	7.0	0.0	3.0	0.0	54.8	0.1	-0.3	0.0	0.0	2.2	0.0	0.0	27.0
79	17929920.00	5047491.36	13.01	0	DEN	250	65.3	7.0	0.0	3.0	0.0	54.8	0.2	0.6	0.0	0.0	1.9	0.0	0.0	17.8
79	17929920.00	5047491.36	13.01	0	DEN	500	66.7	7.0	0.0	3.0	0.0	54.8	0.3	-0.8	0.0	0.0	3.1	0.0	0.0	19.3
79	17929920.00	5047491.36	13.01	0	DEN	1000	67.9	7.0	0.0	3.0	0.0	54.8	0.6	-1.8	0.0	0.0	4.2	0.0	0.0	20.1
79	17929920.00	5047491.36	13.01	0	DEN	2000	66.1	7.0	0.0	3.0	0.0	54.8	1.5	-1.9	0.0	0.0	5.0	0.0	0.0	16.7
79	17929920.00	5047491.36	13.01	0	DEN	4000	67.9	7.0	0.0	3.0	0.0	54.8	5.1	-1.9	0.0	0.0	5.6	0.0	0.0	14.3
79	17929920.00	5047491.36	13.01	0	DEN	8000	48.8	7.0	0.0	3.0	0.0	54.8	18.2	-1.9	0.0	0.0	6.1	0.0	0.0	-18.4
80	17929918.45	5047494.36	13.01	0	DEN	32	38.5	0.6	0.0	3.0	0.0	54.8	0.0	-3.0	0.0	0.0	3.1	0.0	0.0	-12.7
80	17929918.45	5047494.36	13.01	0	DEN	63	59.7	0.6	0.0	3.0	0.0	54.8	0.0	-3.0	0.0	0.0	3.2	0.0	0.0	8.4
80	17929918.45	5047494.36	13.01	0	DEN	125	73.8	0.6	0.0	3.0	0.0	54.8	0.1	-0.2	0.0	0.0	2.1	0.0	0.0	20.7
80	17929918.45	5047494.36	13.01	0	DEN	250	65.3	0.6	0.0	3.0	0.0	54.8	0.2	0.7	0.0	0.0	1.8	0.0	0.0	11.5
80	17929918.45	5047494.36	13.01	0	DEN	500	66.7	0.6	0.0	3.0	0.0	54.8	0.3	-0.8	0.0	0.0	2.9	0.0	0.0	13.1
80	17929918.45	5047494.36	13.01	0	DEN	1000	67.9	0.6	0.0	3.0	0.0	54.8	0.6	-1.7	0.0	0.0	3.9	0.0	0.0	14.0
80	17929918.45	5047494.36	13.01	0	DEN	2000	66.1	0.6	0.0	3.0	0.0	54.8	1.5	-1.8	0.0	0.0	4.7	0.0	0.0	10.6
80	17929918.45	5047494.36	13.01	0	DEN	4000	67.9	0.6	0.0	3.0	0.0	54.8	5.1	-1.8	0.0	0.0	5.3	0.0	0.0	8.2
80	17929918.45	5047494.36	13.01	0	DEN	8000	48.8	0.6	0.0	3.0	0.0	54.8	18.1	-1.8	0.0	0.0	5.9	0.0	0.0	-24.5

Receiver
Name: POR2
ID: POR2
X: 17930050.44 m
Y: 5047564.34 m
Z: 15.80 m

vert. Area Source, ISO 9613, Name: "Transformer 1", ID: "transformer_1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
11	17929948.00	5047510.15	13.96	0	DEN	32	38.6	10.3	0.0	3.0	0.0	52.3	0.0	-3.0	0.0	0.0	7.8	0.0	0.0	-5.2
11	17929948.00	5047510.15	13.96	0	DEN	63	59.8	10.3	0.0	3.0	0.0	52.3	0.0	-3.0	0.0	0.0	7.8	0.0	0.0	16.0
11	17929948.00	5047510.15	13.96	0	DEN	125	73.9	10.3	0.0	3.0	0.0	52.3	0.0	1.6	0.0	0.0	3.2	0.0	0.0	30.1
11	17929948.00	5047510.15	13.96	0	DEN	250	65.4	10.3	0.0	3.0	0.0	52.3	0.1	2.5	0.0	0.0	2.3	0.0	0.0	21.5
11	17929948.00	5047510.15	13.96	0	DEN	500	66.8	10.3	0.0	3.0	0.0	52.3	0.2	-0.7	0.0	0.0	5.5	0.0	0.0	22.8
11	17929948.00	5047510.15	13.96	0	DEN	1000	68.0	10.3	0.0	3.0	0.0	52.3	0.4	-1.1	0.0	0.0	5.8	0.0	0.0	23.8
11	17929948.00	5047510.15	13.96	0	DEN	2000	66.2	10.3	0.0	3.0	0.0	52.3	1.1	-1.1	0.0	0.0	5.9	0.0	0.0	21.3
11	17929948.00	5047510.15	13.96	0	DEN	4000	68.0	10.3	0.0	3.0	0.0	52.3	3.8	-1.1	0.0	0.0	5.9	0.0	0.0	20.4
11	17929948.00	5047510.15	13.96	0	DEN	8000	48.9	10.3	0.0	3.0	0.0	52.3	13.5	-1.1	0.0	0.0	5.9	0.0	0.0	-8.5
13	17929948.00	5047510.15	14.96	0	DEN	32	38.6	10.3	0.0	3.0	0.0	52.3	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	2.6
13	17929948.00	5047510.15	14.96	0	DEN	63	59.8	10.3	0.0	3.0	0.0	52.3	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	23.8
13	17929948.00	5047510.15	14.96	0	DEN	125	73.9	10.3	0.0	3.0	0.0	52.3	0.0	1.6	0.0	0.0	0.0	0.0	0.0	33.2
13	17929948.00	5047510.15	14.96	0	DEN	250	65.4	10.3	0.0	3.0	0.0	52.3	0.1	0.8	0.0	0.0	0.0	0.0	0.0	25.5
13	17929948.00	5047510.15	14.96	0	DEN	500	66.8	10.3	0.0	3.0	0.0	52.3	0.2	-1.2	0.0	0.0	0.0	0.0	0.0	28.8
13	17929948.00	5047510.15	14.96	0	DEN	1000	68.0	10.3	0.0	3.0	0.0	52.3	0.4	-1.2	0.0	0.0	0.0	0.0	0.0	29.8
13	17929948.00	5047510.15	14.96	0	DEN	2000	66.2	10.3	0.0	3.0	0.0	52.3	1.1	-1.2	0.0	0.0	0.0	0.0	0.0	27.3
13	17929948.00	5047510.15	14.96	0	DEN	4000	68.0	10.3	0.0	3.0	0.0	52.3	3.8	-1.2	0.0	0.0	0.0	0.0	0.0	26.5
13	17929948.00	5047510.15	14.96	0	DEN	8000	48.9	10.3	0.0	3.0	0.0	52.3	13.5	-1.2	0.0	0.0	0.0	0.0	0.0	-2.4
15	17929951.01	5047504.39	13.96	0	DEN	32	38.6	10.2	0.0	3.0	0.0	52.3	0.0	-3.0	0.0	0.0	7.8	0.0	0.0	-5.3
15	17929951.01	5047504.39	13.96	0	DEN	63	59.8	10.2	0.0	3.0	0.0	52.3	0.0	-3.0	0.0	0.0	7.8	0.0	0.0	15.9
15	17929951.01	5047504.39	13.96	0	DEN	125	73.9	10.2	0.0	3.0	0.0	52.3	0.0	1.7	0.0	0.0	3.1	0.0	0.0	30.0
15	17929951.01	5047504.39	13.96	0	DEN	250	65.4	10.2	0.0	3.0	0.0	52.3	0.1	2.7	0.0	0.0	2.1	0.0	0.0	21.4
15	17929951.01	5047504.39	13.96	0	DEN	500	66.8	10.2	0.0	3.0	0.0	52.3	0.2	-0.7	0.0	0.0	5.4	0.0	0.0	22.7
15	17929951.01	5047504.39	13.96	0	DEN	1000	68.0	10.2	0.0	3.0	0.0	52.3	0.4	-1.0	0.0	0.0	5.8	0.0	0.0	23.7
15	17929951.01	5047504.39	13.96	0	DEN	2000	66.2	10.2	0.0	3.0	0.0	52.3	1.1	-1.0	0.0	0.0	5.8	0.0	0.0	21.2
15	17929951.01	5047504.39	13.96	0	DEN	4000	68.0	10.2	0.0	3.0	0.0	52.3	3.8	-1.0	0.0	0.0	5.8	0.0	0.0	20.2
15	17929951.01	5047504.39	13.96	0	DEN	8000	48.9	10.2	0.0	3.0	0.0	52.3	13.6	-1.0	0.0	0.0	5.9	0.0	0.0	-8.7
16	17929951.01	5047504.39	14.96	0	DEN	32	38.6	10.2	0.0	3.0	0.0	52.3	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	2.5
16	17929951.01	5047504.39	14.96	0	DEN	63	59.8	10.2	0.0	3.0	0.0	52.3	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	23.7
16	17929951.01	5047504.39	14.96	0	DEN	125	73.9	10.2	0.0	3.0	0.0	52.3	0.0	1.7	0.0	0.0	0.0	0.0	0.0	33.0
16	17929951.01	5047504.39	14.96	0	DEN	250	65.4	10.2	0.0	3.0	0.0	52.3	0.1	0.9	0.0	0.0	0.0	0.0	0.0	25.2
16	17929951.01	5047504.39	14.96	0	DEN	500	66.8	10.2	0.0	3.0	0.0	52.3	0.2	-1.2	0.0	0.0	0.0	0.0	0.0	28.6
16	17929951.01	5047504.39	14.96	0	DEN	1000	68.0	10.2	0.0	3.0	0.0	52.3	0.4	-1.2	0.0	0.0	0.0	0.0	0.0	29.7
16	17929951.01	5047504.39	14.96	0	DEN	2000	66.2	10.2	0.0	3.0	0.0	52.3	1.1	-1.2	0.0	0.0	0.0	0.0	0.0	27.2
16	17929951.01	5047504.39	14.96	0	DEN	4000	68.0	10.2	0.0	3.0	0.0	52.3	3.8	-1.2	0.0	0.0	0.0	0.0	0.0	26.3
16	17929951.01	5047504.39	14.96	0	DEN	8000	48.9	10.2	0.0	3.0	0.0	52.3	13.6	-1.2	0.0	0.0	0.0	0.0	0.0	-2.6
18	17929948.00	5047510.15	13.01	0	DEN	32	38.6	9.9	0.0	3.0	0.0	52.3	0.0	-3.0	0.0	0.0	5.7	0.0	0.0	-3.5
18	17929948.00	5047510.15	13.01	0	DEN	63	59.8	9.9	0.0	3.0	0.0	52.3	0.0	-3.0	0.0	0.0	6.5	0.0	0.0	16.9
18	17929948.00	5047510.15	13.01	0	DEN	125	73.9	9.9	0.0	3.0	0.0	52.3	0.0	1.1	0.0	0.0	3.7	0.0	0.0	29.7
18	17929948.00	5047510.15	13.01	0	DEN	250	65.4	9.9	0.0	3.0	0.0	52.3	0.1	3.6	0.0	0.0	1.8	0.0	0.0	20.5
18	17929948.00	5047510.15	13.01	0	DEN	500	66.8	9.9	0.0	3.0	0.0	52.3	0.2	1.1	0.0	0.0	5.0	0.0	0.0	21.1
18	17929948.00	5047510.15	13.01	0	DEN	1000	68.0	9.9	0.0	3.0	0.0	52.3	0.4	-0.9	0.0	0.0	8.1	0.0	0.0	21.0
18	17929948.00	5047510.15	13.01	0	DEN	2000	66.2	9.9	0.0	3.0	0.0	52.3	1.1	-1.1	0.0	0.0	9.9	0.0	0.0	16.9
18	17929948.00	5047510.15	13.01	0	DEN	4000	68.0	9.9	0.0	3.0	0.0	52.3	3.8	-1.1	0.0	0.0	12.0	0.0	0.0	13.9
18	17929948.00	5047510.15	13.01	0	DEN	8000	48.9	9.9	0.0	3.0	0.0	52.3	13.5	-1.1	0.0	0.0	14.4	0.0	0.0	-17.4
20	17929951.01	5047504.39	13.00	0	DEN	32	38.6	9.8	0.0	3.0	0.0	52.3	0.0	-3.0	0.0	0.0	4.6	0.0	0.0	-2.5
20	17929951.01	5047504.39	13.00	0	DEN	63	59.8	9.8	0.0	3.0	0.0	52.3	0.0	-3.0	0.0	0.0	5.4	0.0	0.0	17.8
20	17929951.01	5047504.39	13.00	0	DEN	125	73.9	9.8	0.0	3.0	0.0	52.3	0.0	1.1	0.0	0.0	3.2	0.0	0.0	29.9
20	17929951.01	5047504.39	13.00	0	DEN	250	65.4	9.8	0.0	3.0	0.0	52.3	0.1	3.6	0.0	0.0	1.6	0.0	0.0	20.5
20	17929951.01	5047504.39	13.00	0	DEN	500	66.8	9.8	0.0	3.0	0.0	52.3	0.2	1.1	0.0	0.0	4.8	0.0	0.0	21.2
20	17929951.01	5047504.39	13.00	0	DEN	1000	68.0	9.8	0.0	3.0	0.0	52.3	0.4	-0.9	0.0	0.0	7.8	0.0	0.0	21.1
20	17929951.01	5047504.39	13.00	0	DEN	2000	66.2	9.8	0.0	3.0	0.0	52.3	1.1	-1.1	0.0	0.0	9.7	0.0	0.0	17.0

vert. Area Source, ISO 9613, Name: "Transformer 1", ID: "transformer_1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
20	17929951.01	5047504.39	13.00	0	DEN	4000	68.0	9.8	0.0	3.0	0.0	52.3	3.8	-1.1	0.0	0.0	11.8	0.0	0.0	14.0
20	17929951.01	5047504.39	13.00	0	DEN	8000	48.9	9.8	0.0	3.0	0.0	52.3	13.6	-1.1	0.0	0.0	14.3	0.0	0.0	-17.4
30	17929954.27	5047509.65	13.96	0	DEN	32	38.6	8.1	0.0	3.0	0.0	51.9	0.0	-3.0	0.0	0.0	7.8	0.0	0.0	-7.0
30	17929954.27	5047509.65	13.96	0	DEN	63	59.8	8.1	0.0	3.0	0.0	51.9	0.0	-3.0	0.0	0.0	7.8	0.0	0.0	14.2
30	17929954.27	5047509.65	13.96	0	DEN	125	73.9	8.1	0.0	3.0	0.0	51.9	0.0	1.6	0.0	0.0	3.2	0.0	0.0	28.2
30	17929954.27	5047509.65	13.96	0	DEN	250	65.4	8.1	0.0	3.0	0.0	51.9	0.1	2.5	0.0	0.0	2.3	0.0	0.0	19.6
30	17929954.27	5047509.65	13.96	0	DEN	500	66.8	8.1	0.0	3.0	0.0	51.9	0.2	-0.7	0.0	0.0	5.6	0.0	0.0	20.8
30	17929954.27	5047509.65	13.96	0	DEN	1000	68.0	8.1	0.0	3.0	0.0	51.9	0.4	-1.0	0.0	0.0	6.1	0.0	0.0	21.7
30	17929954.27	5047509.65	13.96	0	DEN	2000	66.2	8.1	0.0	3.0	0.0	51.9	1.1	-1.0	0.0	0.0	6.4	0.0	0.0	18.9
30	17929954.27	5047509.65	13.96	0	DEN	4000	68.0	8.1	0.0	3.0	0.0	51.9	3.6	-1.0	0.0	0.0	7.0	0.0	0.0	17.6
30	17929954.27	5047509.65	13.96	0	DEN	8000	48.9	8.1	0.0	3.0	0.0	51.9	12.9	-1.0	0.0	0.0	7.9	0.0	0.0	-11.7
33	17929954.27	5047509.65	14.96	0	DEN	32	38.6	8.1	0.0	3.0	0.0	51.9	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	0.8
33	17929954.27	5047509.65	14.96	0	DEN	63	59.8	8.1	0.0	3.0	0.0	51.9	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	22.0
33	17929954.27	5047509.65	14.96	0	DEN	125	73.9	8.1	0.0	3.0	0.0	51.9	0.0	1.8	0.0	0.0	0.0	0.0	0.0	31.2
33	17929954.27	5047509.65	14.96	0	DEN	250	65.4	8.1	0.0	3.0	0.0	51.9	0.1	1.0	0.0	0.0	0.0	0.0	0.0	23.4
33	17929954.27	5047509.65	14.96	0	DEN	500	66.8	8.1	0.0	3.0	0.0	51.9	0.2	-1.1	0.0	0.0	0.0	0.0	0.0	26.9
33	17929954.27	5047509.65	14.96	0	DEN	1000	68.0	8.1	0.0	3.0	0.0	51.9	0.4	-1.1	0.0	0.0	0.0	0.0	0.0	27.9
33	17929954.27	5047509.65	14.96	0	DEN	2000	66.2	8.1	0.0	3.0	0.0	51.9	1.1	-1.1	0.0	0.0	0.0	0.0	0.0	25.5
33	17929954.27	5047509.65	14.96	0	DEN	4000	68.0	8.1	0.0	3.0	0.0	51.9	3.6	-1.1	0.0	0.0	0.0	0.0	0.0	24.7
33	17929954.27	5047509.65	14.96	0	DEN	8000	48.9	8.1	0.0	3.0	0.0	51.9	12.9	-1.1	0.0	0.0	0.0	0.0	0.0	-3.7
37	17929954.27	5047509.65	13.00	0	DEN	32	38.6	7.7	0.0	3.0	0.0	51.9	0.0	-3.0	0.0	0.0	6.2	0.0	0.0	-5.9
37	17929954.27	5047509.65	13.00	0	DEN	63	59.8	7.7	0.0	3.0	0.0	51.9	0.0	-3.0	0.0	0.0	7.2	0.0	0.0	14.4
37	17929954.27	5047509.65	13.00	0	DEN	125	73.9	7.7	0.0	3.0	0.0	51.9	0.0	1.3	0.0	0.0	4.4	0.0	0.0	26.9
37	17929954.27	5047509.65	13.00	0	DEN	250	65.4	7.7	0.0	3.0	0.0	51.9	0.1	4.1	0.0	0.0	2.8	0.0	0.0	17.1
37	17929954.27	5047509.65	13.00	0	DEN	500	66.8	7.7	0.0	3.0	0.0	51.9	0.2	1.4	0.0	0.0	6.9	0.0	0.0	17.0
37	17929954.27	5047509.65	13.00	0	DEN	1000	68.0	7.7	0.0	3.0	0.0	51.9	0.4	-0.7	0.0	0.0	11.1	0.0	0.0	16.0
37	17929954.27	5047509.65	13.00	0	DEN	2000	66.2	7.7	0.0	3.0	0.0	51.9	1.1	-1.0	0.0	0.0	13.7	0.0	0.0	11.2
37	17929954.27	5047509.65	13.00	0	DEN	4000	68.0	7.7	0.0	3.0	0.0	51.9	3.6	-1.0	0.0	0.0	16.4	0.0	0.0	7.7
37	17929954.27	5047509.65	13.00	0	DEN	8000	48.9	7.7	0.0	3.0	0.0	51.9	12.9	-1.0	0.0	0.0	19.2	0.0	0.0	-23.5
38	17929944.73	5047504.89	14.96	0	DEN	32	38.6	8.2	0.0	3.0	0.0	52.7	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	0.0
38	17929944.73	5047504.89	14.96	0	DEN	63	59.8	8.2	0.0	3.0	0.0	52.7	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	21.2
38	17929944.73	5047504.89	14.96	0	DEN	125	73.9	8.2	0.0	3.0	0.0	52.7	0.0	1.5	0.0	0.0	0.0	0.0	0.0	30.8
38	17929944.73	5047504.89	14.96	0	DEN	250	65.4	8.2	0.0	3.0	0.0	52.7	0.1	0.7	0.0	0.0	0.0	0.0	0.0	23.0
38	17929944.73	5047504.89	14.96	0	DEN	500	66.8	8.2	0.0	3.0	0.0	52.7	0.2	-1.3	0.0	0.0	0.0	0.0	0.0	26.3
38	17929944.73	5047504.89	14.96	0	DEN	1000	68.0	8.2	0.0	3.0	0.0	52.7	0.4	-1.3	0.0	0.0	0.0	0.0	0.0	27.3
38	17929944.73	5047504.89	14.96	0	DEN	2000	66.2	8.2	0.0	3.0	0.0	52.7	1.2	-1.3	0.0	0.0	0.0	0.0	0.0	24.8
38	17929944.73	5047504.89	14.96	0	DEN	4000	68.0	8.2	0.0	3.0	0.0	52.7	4.0	-1.3	0.0	0.0	0.0	0.0	0.0	23.8
38	17929944.73	5047504.89	14.96	0	DEN	8000	48.9	8.2	0.0	3.0	0.0	52.7	14.2	-1.3	0.0	0.0	0.0	0.0	0.0	-5.5
39	17929944.73	5047504.89	13.96	0	DEN	32	38.6	8.2	0.0	3.0	0.0	52.7	0.0	-3.0	0.0	0.0	7.8	0.0	0.0	-7.7
39	17929944.73	5047504.89	13.96	0	DEN	63	59.8	8.2	0.0	3.0	0.0	52.7	0.0	-3.0	0.0	0.0	7.8	0.0	0.0	13.5
39	17929944.73	5047504.89	13.96	0	DEN	125	73.9	8.2	0.0	3.0	0.0	52.7	0.0	1.6	0.0	0.0	3.1	0.0	0.0	27.5
39	17929944.73	5047504.89	13.96	0	DEN	250	65.4	8.2	0.0	3.0	0.0	52.7	0.1	2.7	0.0	0.0	2.1	0.0	0.0	18.9
39	17929944.73	5047504.89	13.96	0	DEN	500	66.8	8.2	0.0	3.0	0.0	52.7	0.2	-0.7	0.0	0.0	5.5	0.0	0.0	20.2
39	17929944.73	5047504.89	13.96	0	DEN	1000	68.0	8.2	0.0	3.0	0.0	52.7	0.4	-1.0	0.0	0.0	5.8	0.0	0.0	21.2
39	17929944.73	5047504.89	13.96	0	DEN	2000	66.2	8.2	0.0	3.0	0.0	52.7	1.2	-1.0	0.0	0.0	5.8	0.0	0.0	18.7
39	17929944.73	5047504.89	13.96	0	DEN	4000	68.0	8.2	0.0	3.0	0.0	52.7	4.0	-1.0	0.0	0.0	5.8	0.0	0.0	17.7
39	17929944.73	5047504.89	13.96	0	DEN	8000	48.9	8.2	0.0	3.0	0.0	52.7	14.2	-1.0	0.0	0.0	5.8	0.0	0.0	-11.6
41	17929944.73	5047504.89	13.00	0	DEN	32	38.6	7.7	0.0	3.0	0.0	52.7	0.0	-3.0	0.0	0.0	7.8	0.0	0.0	-8.2
41	17929944.73	5047504.89	13.00	0	DEN	63	59.8	7.7	0.0	3.0	0.0	52.7	0.0	-3.0	0.0	0.0	7.9	0.0	0.0	13.0
41	17929944.73	5047504.89	13.00	0	DEN	125	73.9	7.7	0.0	3.0	0.0	52.7	0.0	0.9	0.0	0.0	4.0	0.0	0.0	26.9
41	17929944.73	5047504.89	13.00	0	DEN	250	65.4	7.7	0.0	3.0	0.0	52.7	0.1	3.1	0.0	0.0	2.0	0.0	0.0	18.2
41	17929944.73	5047504.89	13.00	0	DEN	500	66.8	7.7	0.0	3.0	0.0	52.7	0.2	0.7	0.0	0.0	4.6	0.0	0.0	19.2
41	17929944.73	5047504.89	13.00	0	DEN	1000	68.0	7.7	0.0	3.0	0.0	52.7	0.4	-1.0	0.0	0.0	6.9	0.0	0.0	19.7
41	17929944.73	5047504.89	13.00	0	DEN	2000	66.2	7.7	0.0	3.0	0.0	52.7	1.2	-1.2	0.0	0.0	8.0	0.0	0.0	16.3
41	17929944.73	5047504.89	13.00	0	DEN	4000	68.0	7.7	0.0	3.0	0.0	52.7	4.0	-1.2	0.0	0.0	9.4	0.0	0.0	13.9
41	17929944.73	5047504.89	13.00	0	DEN	8000	48.9	7.7	0.0	3.0	0.0	52.7	14.2	-1.2	0.0	0.0	11.3	0.0	0.0	-17.3

vert. Area Source, ISO 9613, Name: "Transformer 2", ID: "transformer_2"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
22	17929925.93	5047491.48	13.96	0	DEN	32	38.5	10.3	0.0	3.0	0.0	54.2	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	0.6
22	17929925.93	5047491.48	13.96	0	DEN	63	59.7	10.3	0.0	3.0	0.0	54.2	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	21.8
22	17929925.93	5047491.48	13.96	0	DEN	125	73.8	10.3	0.0	3.0	0.0	54.2	0.1	1.1	0.0	0.0	0.0	0.0	0.0	31.7

vert. Area Source, ISO 9613, Name: "Transformer 2", ID: "transformer_2"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
22	17929925.93	5047491.48	13.96	0	DEN	250	65.3	10.3	0.0	3.0	0.0	54.2	0.2	1.7	0.0	0.0	0.0	0.0	0.0	22.6
22	17929925.93	5047491.48	13.96	0	DEN	500	66.7	10.3	0.0	3.0	0.0	54.2	0.3	-1.1	0.0	0.0	0.0	0.0	0.0	26.6
22	17929925.93	5047491.48	13.96	0	DEN	1000	67.9	10.3	0.0	3.0	0.0	54.2	0.5	-1.3	0.0	0.0	0.0	0.0	0.0	27.8
22	17929925.93	5047491.48	13.96	0	DEN	2000	66.1	10.3	0.0	3.0	0.0	54.2	1.4	-1.4	0.0	0.0	0.0	0.0	0.0	25.2
22	17929925.93	5047491.48	13.96	0	DEN	4000	67.9	10.3	0.0	3.0	0.0	54.2	4.7	-1.4	0.0	0.0	0.0	0.0	0.0	23.6
22	17929925.93	5047491.48	13.96	0	DEN	8000	48.8	10.3	0.0	3.0	0.0	54.2	16.9	-1.4	0.0	0.0	0.0	0.0	0.0	-7.6
24	17929925.93	5047491.48	14.96	0	DEN	32	38.5	10.3	0.0	3.0	0.0	54.2	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	0.6
24	17929925.93	5047491.48	14.96	0	DEN	63	59.7	10.3	0.0	3.0	0.0	54.2	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	21.8
24	17929925.93	5047491.48	14.96	0	DEN	125	73.8	10.3	0.0	3.0	0.0	54.2	0.1	1.7	0.0	0.0	0.0	0.0	0.0	31.1
24	17929925.93	5047491.48	14.96	0	DEN	250	65.3	10.3	0.0	3.0	0.0	54.2	0.2	0.9	0.0	0.0	0.0	0.0	0.0	23.3
24	17929925.93	5047491.48	14.96	0	DEN	500	66.7	10.3	0.0	3.0	0.0	54.2	0.3	-1.2	0.0	0.0	0.0	0.0	0.0	26.8
24	17929925.93	5047491.48	14.96	0	DEN	1000	67.9	10.3	0.0	3.0	0.0	54.2	0.5	-1.3	0.0	0.0	0.0	0.0	0.0	27.8
24	17929925.93	5047491.48	14.96	0	DEN	2000	66.1	10.3	0.0	3.0	0.0	54.2	1.4	-1.3	0.0	0.0	0.0	0.0	0.0	25.1
24	17929925.93	5047491.48	14.96	0	DEN	4000	67.9	10.3	0.0	3.0	0.0	54.2	4.7	-1.3	0.0	0.0	0.0	0.0	0.0	23.6
24	17929925.93	5047491.48	14.96	0	DEN	8000	48.8	10.3	0.0	3.0	0.0	54.2	16.9	-1.3	0.0	0.0	0.0	0.0	0.0	-7.7
26	17929922.84	5047497.46	13.96	0	DEN	32	38.5	10.2	0.0	3.0	0.0	54.2	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	0.6
26	17929922.84	5047497.46	13.96	0	DEN	63	59.7	10.2	0.0	3.0	0.0	54.2	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	21.8
26	17929922.84	5047497.46	13.96	0	DEN	125	73.8	10.2	0.0	3.0	0.0	54.2	0.1	1.1	0.0	0.0	0.0	0.0	0.0	31.8
26	17929922.84	5047497.46	13.96	0	DEN	250	65.3	10.2	0.0	3.0	0.0	54.2	0.2	1.7	0.0	0.0	0.0	0.0	0.0	22.6
26	17929922.84	5047497.46	13.96	0	DEN	500	66.7	10.2	0.0	3.0	0.0	54.2	0.3	-1.1	0.0	0.0	0.0	0.0	0.0	26.6
26	17929922.84	5047497.46	13.96	0	DEN	1000	67.9	10.2	0.0	3.0	0.0	54.2	0.5	-1.4	0.0	0.0	0.0	0.0	0.0	27.8
26	17929922.84	5047497.46	13.96	0	DEN	2000	66.1	10.2	0.0	3.0	0.0	54.2	1.4	-1.4	0.0	0.0	0.0	0.0	0.0	25.2
26	17929922.84	5047497.46	13.96	0	DEN	4000	67.9	10.2	0.0	3.0	0.0	54.2	4.7	-1.4	0.0	0.0	0.0	0.0	0.0	23.6
26	17929922.84	5047497.46	13.96	0	DEN	8000	48.8	10.2	0.0	3.0	0.0	54.2	16.8	-1.4	0.0	0.0	0.0	0.0	0.0	-7.6
28	17929922.84	5047497.46	14.96	0	DEN	32	38.5	10.2	0.0	3.0	0.0	54.2	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	0.6
28	17929922.84	5047497.46	14.96	0	DEN	63	59.7	10.2	0.0	3.0	0.0	54.2	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	21.8
28	17929922.84	5047497.46	14.96	0	DEN	125	73.8	10.2	0.0	3.0	0.0	54.2	0.1	1.6	0.0	0.0	0.0	0.0	0.0	31.2
28	17929922.84	5047497.46	14.96	0	DEN	250	65.3	10.2	0.0	3.0	0.0	54.2	0.2	0.8	0.0	0.0	0.0	0.0	0.0	23.4
28	17929922.84	5047497.46	14.96	0	DEN	500	66.7	10.2	0.0	3.0	0.0	54.2	0.3	-1.3	0.0	0.0	0.0	0.0	0.0	26.8
28	17929922.84	5047497.46	14.96	0	DEN	1000	67.9	10.2	0.0	3.0	0.0	54.2	0.5	-1.3	0.0	0.0	0.0	0.0	0.0	27.8
28	17929922.84	5047497.46	14.96	0	DEN	2000	66.1	10.2	0.0	3.0	0.0	54.2	1.4	-1.3	0.0	0.0	0.0	0.0	0.0	25.1
28	17929922.84	5047497.46	14.96	0	DEN	4000	67.9	10.2	0.0	3.0	0.0	54.2	4.7	-1.3	0.0	0.0	0.0	0.0	0.0	23.6
28	17929922.84	5047497.46	14.96	0	DEN	8000	48.8	10.2	0.0	3.0	0.0	54.2	16.8	-1.3	0.0	0.0	0.0	0.0	0.0	-7.7
35	17929925.93	5047491.48	13.01	0	DEN	32	38.5	9.9	0.0	3.0	0.0	54.2	0.0	-3.0	0.0	0.0	7.8	0.0	0.0	-7.6
35	17929925.93	5047491.48	13.01	0	DEN	63	59.7	9.9	0.0	3.0	0.0	54.2	0.0	-3.0	0.0	0.0	7.8	0.0	0.0	13.6
35	17929925.93	5047491.48	13.01	0	DEN	125	73.8	9.9	0.0	3.0	0.0	54.2	0.1	0.3	0.0	0.0	4.5	0.0	0.0	27.7
35	17929925.93	5047491.48	13.01	0	DEN	250	65.3	9.9	0.0	3.0	0.0	54.2	0.2	1.1	0.0	0.0	3.6	0.0	0.0	19.1
35	17929925.93	5047491.48	13.01	0	DEN	500	66.7	9.9	0.0	3.0	0.0	54.2	0.3	-0.5	0.0	0.0	5.3	0.0	0.0	20.3
35	17929925.93	5047491.48	13.01	0	DEN	1000	67.9	9.9	0.0	3.0	0.0	54.2	0.5	-1.5	0.0	0.0	6.3	0.0	0.0	21.3
35	17929925.93	5047491.48	13.01	0	DEN	2000	66.1	9.9	0.0	3.0	0.0	54.2	1.4	-1.7	0.0	0.0	6.5	0.0	0.0	18.6
35	17929925.93	5047491.48	13.01	0	DEN	4000	67.9	9.9	0.0	3.0	0.0	54.2	4.7	-1.7	0.0	0.0	6.5	0.0	0.0	17.0
35	17929925.93	5047491.48	13.01	0	DEN	8000	48.8	9.9	0.0	3.0	0.0	54.2	16.9	-1.7	0.0	0.0	6.5	0.0	0.0	-14.2
36	17929922.84	5047497.46	13.01	0	DEN	32	38.5	9.8	0.0	3.0	0.0	54.2	0.0	-3.0	0.0	0.0	7.8	0.0	0.0	-7.6
36	17929922.84	5047497.46	13.01	0	DEN	63	59.7	9.8	0.0	3.0	0.0	54.2	0.0	-3.0	0.0	0.0	7.8	0.0	0.0	13.6
36	17929922.84	5047497.46	13.01	0	DEN	125	73.8	9.8	0.0	3.0	0.0	54.2	0.1	0.2	0.0	0.0	4.6	0.0	0.0	27.6
36	17929922.84	5047497.46	13.01	0	DEN	250	65.3	9.8	0.0	3.0	0.0	54.2	0.2	1.1	0.0	0.0	3.7	0.0	0.0	19.1
36	17929922.84	5047497.46	13.01	0	DEN	500	66.7	9.8	0.0	3.0	0.0	54.2	0.3	-0.5	0.0	0.0	5.3	0.0	0.0	20.3
36	17929922.84	5047497.46	13.01	0	DEN	1000	67.9	9.8	0.0	3.0	0.0	54.2	0.5	-1.6	0.0	0.0	6.3	0.0	0.0	21.3
36	17929922.84	5047497.46	13.01	0	DEN	2000	66.1	9.8	0.0	3.0	0.0	54.2	1.4	-1.7	0.0	0.0	6.5	0.0	0.0	18.6
36	17929922.84	5047497.46	13.01	0	DEN	4000	67.9	9.8	0.0	3.0	0.0	54.2	4.7	-1.7	0.0	0.0	6.5	0.0	0.0	17.0
36	17929922.84	5047497.46	13.01	0	DEN	8000	48.8	9.8	0.0	3.0	0.0	54.2	16.8	-1.7	0.0	0.0	6.6	0.0	0.0	-14.2
43	17929929.06	5047496.99	14.96	0	DEN	32	38.5	8.2	0.0	3.0	0.0	53.8	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	-1.1
43	17929929.06	5047496.99	14.96	0	DEN	63	59.7	8.2	0.0	3.0	0.0	53.8	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	20.1
43	17929929.06	5047496.99	14.96	0	DEN	125	73.8	8.2	0.0	3.0	0.0	53.8	0.1	1.6	0.0	0.0	0.0	0.0	0.0	29.5
43	17929929.06	5047496.99	14.96	0	DEN	250	65.3	8.2	0.0	3.0	0.0	53.8	0.1	0.8	0.0	0.0	0.0	0.0	0.0	21.7
43	17929929.06	5047496.99	14.96	0	DEN	500	66.7	8.2	0.0	3.0	0.0	53.8	0.3	-1.3	0.0	0.0	0.0	0.0	0.0	25.1
43	17929929.06	5047496.99	14.96	0	DEN	1000	67.9	8.2	0.0	3.0	0.0	53.8	0.5	-1.3	0.0	0.0	0.0	0.0	0.0	26.1
43	17929929.06	5047496.99	14.96	0	DEN	2000	66.1	8.2	0.0	3.0	0.0	53.8	1.3	-1.3	0.0	0.0	0.0	0.0	0.0	23.5
43	17929929.06	5047496.99	14.96	0	DEN	4000	67.9	8.2	0.0	3.0	0.0	53.8	4.5	-1.3	0.0	0.0	0.0	0.0	0.0	22.1
43	17929929.06	5047496.99	14.96	0	DEN	8000	48.8	8.2	0.0	3.0	0.0	53.8	16.2	-1.3	0.0	0.0	0.0	0.0	0.0	-8.7
45	17929929.06	5047496.99	13.96	0	DEN	32	38.5	8.2	0.0	3.0	0.0	53.8	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	-1.1
45	17929929.06	5047496.99	13.96	0	DEN	63	59.7	8.2	0.0	3.0	0.0	53.8	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	20.1
45	17929929.06	5047496.99	13.96	0	DEN	125	73.8	8.2	0.0	3.0	0.0	53.8	0.1	1.2	0.0	0.0	0.0	0.0	0.0	29.9

vert. Area Source, ISO 9613, Name: "Transformer 2", ID: "transformer_2"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
45	17929929.06	5047496.99	13.96	0	DEN	250	65.3	8.2	0.0	3.0	0.0	53.8	0.1	1.9	0.0	0.0	0.0	0.0	0.0	20.6
45	17929929.06	5047496.99	13.96	0	DEN	500	66.7	8.2	0.0	3.0	0.0	53.8	0.3	-1.0	0.0	0.0	0.0	0.0	0.0	24.8
45	17929929.06	5047496.99	13.96	0	DEN	1000	67.9	8.2	0.0	3.0	0.0	53.8	0.5	-1.3	0.0	0.0	0.0	0.0	0.0	26.1
45	17929929.06	5047496.99	13.96	0	DEN	2000	66.1	8.2	0.0	3.0	0.0	53.8	1.3	-1.3	0.0	0.0	0.0	0.0	0.0	23.5
45	17929929.06	5047496.99	13.96	0	DEN	4000	67.9	8.2	0.0	3.0	0.0	53.8	4.5	-1.3	0.0	0.0	0.0	0.0	0.0	22.0
45	17929929.06	5047496.99	13.96	0	DEN	8000	48.8	8.2	0.0	3.0	0.0	53.8	16.2	-1.3	0.0	0.0	0.0	0.0	0.0	-8.7
49	17929929.06	5047496.99	13.01	0	DEN	32	38.5	7.8	0.0	3.0	0.0	53.9	0.0	-3.0	0.0	0.0	7.8	0.0	0.0	-9.3
49	17929929.06	5047496.99	13.01	0	DEN	63	59.7	7.8	0.0	3.0	0.0	53.9	0.0	-3.0	0.0	0.0	7.8	0.0	0.0	11.9
49	17929929.06	5047496.99	13.01	0	DEN	125	73.8	7.8	0.0	3.0	0.0	53.9	0.1	0.3	0.0	0.0	4.5	0.0	0.0	26.0
49	17929929.06	5047496.99	13.01	0	DEN	250	65.3	7.8	0.0	3.0	0.0	53.9	0.1	1.3	0.0	0.0	3.5	0.0	0.0	17.4
49	17929929.06	5047496.99	13.01	0	DEN	500	66.7	7.8	0.0	3.0	0.0	53.9	0.3	-0.4	0.0	0.0	5.2	0.0	0.0	18.6
49	17929929.06	5047496.99	13.01	0	DEN	1000	67.9	7.8	0.0	3.0	0.0	53.9	0.5	-1.5	0.0	0.0	6.3	0.0	0.0	19.6
49	17929929.06	5047496.99	13.01	0	DEN	2000	66.1	7.8	0.0	3.0	0.0	53.9	1.3	-1.6	0.0	0.0	6.5	0.0	0.0	16.9
49	17929929.06	5047496.99	13.01	0	DEN	4000	67.9	7.8	0.0	3.0	0.0	53.9	4.5	-1.6	0.0	0.0	6.6	0.0	0.0	15.4
49	17929929.06	5047496.99	13.01	0	DEN	8000	48.8	7.8	0.0	3.0	0.0	53.9	16.2	-1.6	0.0	0.0	6.8	0.0	0.0	-15.6
51	17929919.71	5047491.92	13.96	0	DEN	32	38.5	8.3	0.0	3.0	0.0	54.5	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	-1.7
51	17929919.71	5047491.92	13.96	0	DEN	63	59.7	8.3	0.0	3.0	0.0	54.5	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	19.5
51	17929919.71	5047491.92	13.96	0	DEN	125	73.8	8.3	0.0	3.0	0.0	54.5	0.1	1.0	0.0	0.0	0.0	0.0	0.0	29.6
51	17929919.71	5047491.92	13.96	0	DEN	250	65.3	8.3	0.0	3.0	0.0	54.5	0.2	1.4	0.0	0.0	0.0	0.0	0.0	20.5
51	17929919.71	5047491.92	13.96	0	DEN	500	66.7	8.3	0.0	3.0	0.0	54.5	0.3	-1.2	0.0	0.0	0.0	0.0	0.0	24.4
51	17929919.71	5047491.92	13.96	0	DEN	1000	67.9	8.3	0.0	3.0	0.0	54.5	0.5	-1.4	0.0	0.0	0.0	0.0	0.0	25.6
51	17929919.71	5047491.92	13.96	0	DEN	2000	66.1	8.3	0.0	3.0	0.0	54.5	1.4	-1.4	0.0	0.0	0.0	0.0	0.0	22.9
51	17929919.71	5047491.92	13.96	0	DEN	4000	67.9	8.3	0.0	3.0	0.0	54.5	4.9	-1.4	0.0	0.0	0.0	0.0	0.0	21.3
51	17929919.71	5047491.92	13.96	0	DEN	8000	48.8	8.3	0.0	3.0	0.0	54.5	17.5	-1.4	0.0	0.0	0.0	0.0	0.0	-10.4
53	17929919.71	5047491.92	14.96	0	DEN	32	38.5	8.3	0.0	3.0	0.0	54.5	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	-1.7
53	17929919.71	5047491.92	14.96	0	DEN	63	59.7	8.3	0.0	3.0	0.0	54.5	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	19.5
53	17929919.71	5047491.92	14.96	0	DEN	125	73.8	8.3	0.0	3.0	0.0	54.5	0.1	1.7	0.0	0.0	0.0	0.0	0.0	28.8
53	17929919.71	5047491.92	14.96	0	DEN	250	65.3	8.3	0.0	3.0	0.0	54.5	0.2	0.9	0.0	0.0	0.0	0.0	0.0	21.0
53	17929919.71	5047491.92	14.96	0	DEN	500	66.7	8.3	0.0	3.0	0.0	54.5	0.3	-1.2	0.0	0.0	0.0	0.0	0.0	24.5
53	17929919.71	5047491.92	14.96	0	DEN	1000	67.9	8.3	0.0	3.0	0.0	54.5	0.5	-1.3	0.0	0.0	0.0	0.0	0.0	25.4
53	17929919.71	5047491.92	14.96	0	DEN	2000	66.1	8.3	0.0	3.0	0.0	54.5	1.4	-1.3	0.0	0.0	0.0	0.0	0.0	22.8
53	17929919.71	5047491.92	14.96	0	DEN	4000	67.9	8.3	0.0	3.0	0.0	54.5	4.9	-1.3	0.0	0.0	0.0	0.0	0.0	21.1
53	17929919.71	5047491.92	14.96	0	DEN	8000	48.8	8.3	0.0	3.0	0.0	54.5	17.5	-1.3	0.0	0.0	0.0	0.0	0.0	-10.6
55	17929919.71	5047491.92	13.01	0	DEN	32	38.5	7.9	0.0	3.0	0.0	54.5	0.0	-3.0	0.0	0.0	7.8	0.0	0.0	-9.9
55	17929919.71	5047491.92	13.01	0	DEN	63	59.7	7.9	0.0	3.0	0.0	54.5	0.0	-3.0	0.0	0.0	7.8	0.0	0.0	11.3
55	17929919.71	5047491.92	13.01	0	DEN	125	73.8	7.9	0.0	3.0	0.0	54.5	0.1	0.2	0.0	0.0	4.6	0.0	0.0	25.4
55	17929919.71	5047491.92	13.01	0	DEN	250	65.3	7.9	0.0	3.0	0.0	54.5	0.2	0.9	0.0	0.0	3.9	0.0	0.0	16.8
55	17929919.71	5047491.92	13.01	0	DEN	500	66.7	7.9	0.0	3.0	0.0	54.5	0.3	-0.7	0.0	0.0	5.4	0.0	0.0	18.1
55	17929919.71	5047491.92	13.01	0	DEN	1000	67.9	7.9	0.0	3.0	0.0	54.5	0.5	-1.6	0.0	0.0	6.4	0.0	0.0	19.0
55	17929919.71	5047491.92	13.01	0	DEN	2000	66.1	7.9	0.0	3.0	0.0	54.5	1.4	-1.7	0.0	0.0	6.5	0.0	0.0	16.3
55	17929919.71	5047491.92	13.01	0	DEN	4000	67.9	7.9	0.0	3.0	0.0	54.5	4.9	-1.7	0.0	0.0	6.5	0.0	0.0	14.6
55	17929919.71	5047491.92	13.01	0	DEN	8000	48.8	7.9	0.0	3.0	0.0	54.5	17.5	-1.7	0.0	0.0	6.5	0.0	0.0	-17.0

Receiver
Name: OLA1
ID: OLA1
X: 17930028.20 m
Y: 5047606.48 m
Z: 12.80 m

vert. Area Source, ISO 9613, Name: "Transformer 1", ID: "transformer_1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5	17929948.00	5047510.15	13.96	0	DEN	32	38.6	10.3	0.0	3.0	0.0	53.0	0.0	-3.0	0.0	0.0	7.8	0.0	0.0	-5.8
5	17929948.00	5047510.15	13.96	0	DEN	63	59.8	10.3	0.0	3.0	0.0	53.0	0.0	-3.0	0.0	0.0	7.8	0.0	0.0	15.3
5	17929948.00	5047510.15	13.96	0	DEN	125	73.9	10.3	0.0	3.0	0.0	53.0	0.1	-0.1	0.0	0.0	4.9	0.0	0.0	29.4
5	17929948.00	5047510.15	13.96	0	DEN	250	65.4	10.3	0.0	3.0	0.0	53.0	0.1	3.6	0.0	0.0	1.2	0.0	0.0	20.8
5	17929948.00	5047510.15	13.96	0	DEN	500	66.8	10.3	0.0	3.0	0.0	53.0	0.2	0.5	0.0	0.0	4.4	0.0	0.0	22.0
5	17929948.00	5047510.15	13.96	0	DEN	1000	68.0	10.3	0.0	3.0	0.0	53.0	0.5	-1.2	0.0	0.0	6.2	0.0	0.0	22.9
5	17929948.00	5047510.15	13.96	0	DEN	2000	66.2	10.3	0.0	3.0	0.0	53.0	1.2	-1.5	0.0	0.0	6.6	0.0	0.0	20.1
5	17929948.00	5047510.15	13.96	0	DEN	4000	68.0	10.3	0.0	3.0	0.0	53.0	4.1	-1.5	0.0	0.0	7.0	0.0	0.0	18.7
5	17929948.00	5047510.15	13.96	0	DEN	8000	48.9	10.3	0.0	3.0	0.0	53.0	14.7	-1.5	0.0	0.0	7.7	0.0	0.0	-11.7
6	17929948.00	5047510.15	14.96	0	DEN	32	38.6	10.3	0.0	3.0	0.0	53.0	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	1.9
6	17929948.00	5047510.15	14.96	0	DEN	63	59.8	10.3	0.0	3.0	0.0	53.0	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	23.1
6	17929948.00	5047510.15	14.96	0	DEN	125	73.9	10.3	0.0	3.0	0.0	53.0	0.1	-0.2	0.0	0.0	0.0	0.0	0.0	34.4
6	17929948.00	5047510.15	14.96	0	DEN	250	65.4	10.3	0.0	3.0	0.0	53.0	0.1	1.9	0.0	0.0	0.0	0.0	0.0	23.8
6	17929948.00	5047510.15	14.96	0	DEN	500	66.8	10.3	0.0	3.0	0.0	53.0	0.2	-0.0	0.0	0.0	0.0	0.0	0.0	26.9
6	17929948.00	5047510.15	14.96	0	DEN	1000	68.0	10.3	0.0	3.0	0.0	53.0	0.5	-1.5	0.0	0.0	0.0	0.0	0.0	29.3
6	17929948.00	5047510.15	14.96	0	DEN	2000	66.2	10.3	0.0	3.0	0.0	53.0	1.2	-1.7	0.0	0.0	0.0	0.0	0.0	27.0
6	17929948.00	5047510.15	14.96	0	DEN	4000	68.0	10.3	0.0	3.0	0.0	53.0	4.1	-1.7	0.0	0.0	0.0	0.0	0.0	25.9
6	17929948.00	5047510.15	14.96	0	DEN	8000	48.9	10.3	0.0	3.0	0.0	53.0	14.7	-1.7	0.0	0.0	0.0	0.0	0.0	-3.7
7	17929951.01	5047504.39	13.96	0	DEN	32	38.6	10.2	0.0	3.0	0.0	53.1	0.0	-3.1	0.0	0.0	7.9	0.0	0.0	-6.2
7	17929951.01	5047504.39	13.96	0	DEN	63	59.8	10.2	0.0	3.0	0.0	53.1	0.0	-3.1	0.0	0.0	7.9	0.0	0.0	15.0
7	17929951.01	5047504.39	13.96	0	DEN	125	73.9	10.2	0.0	3.0	0.0	53.1	0.1	-0.2	0.0	0.0	5.0	0.0	0.0	29.1
7	17929951.01	5047504.39	13.96	0	DEN	250	65.4	10.2	0.0	3.0	0.0	53.1	0.1	3.4	0.0	0.0	1.4	0.0	0.0	20.5
7	17929951.01	5047504.39	13.96	0	DEN	500	66.8	10.2	0.0	3.0	0.0	53.1	0.2	0.4	0.0	0.0	4.5	0.0	0.0	21.7
7	17929951.01	5047504.39	13.96	0	DEN	1000	68.0	10.2	0.0	3.0	0.0	53.1	0.5	-1.3	0.0	0.0	6.3	0.0	0.0	22.6
7	17929951.01	5047504.39	13.96	0	DEN	2000	66.2	10.2	0.0	3.0	0.0	53.1	1.2	-1.5	0.0	0.0	6.7	0.0	0.0	19.8
7	17929951.01	5047504.39	13.96	0	DEN	4000	68.0	10.2	0.0	3.0	0.0	53.1	4.2	-1.5	0.0	0.0	7.0	0.0	0.0	18.3
7	17929951.01	5047504.39	13.96	0	DEN	8000	48.9	10.2	0.0	3.0	0.0	53.1	15.0	-1.5	0.0	0.0	7.7	0.0	0.0	-12.2
8	17929951.01	5047504.39	14.96	0	DEN	32	38.6	10.2	0.0	3.0	0.0	53.1	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	1.6
8	17929951.01	5047504.39	14.96	0	DEN	63	59.8	10.2	0.0	3.0	0.0	53.1	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	22.8
8	17929951.01	5047504.39	14.96	0	DEN	125	73.9	10.2	0.0	3.0	0.0	53.1	0.1	-0.2	0.0	0.0	0.0	0.0	0.0	34.1
8	17929951.01	5047504.39	14.96	0	DEN	250	65.4	10.2	0.0	3.0	0.0	53.1	0.1	1.8	0.0	0.0	0.0	0.0	0.0	23.5
8	17929951.01	5047504.39	14.96	0	DEN	500	66.8	10.2	0.0	3.0	0.0	53.1	0.2	-0.1	0.0	0.0	0.0	0.0	0.0	26.7
8	17929951.01	5047504.39	14.96	0	DEN	1000	68.0	10.2	0.0	3.0	0.0	53.1	0.5	-1.5	0.0	0.0	0.0	0.0	0.0	29.1
8	17929951.01	5047504.39	14.96	0	DEN	2000	66.2	10.2	0.0	3.0	0.0	53.1	1.2	-1.7	0.0	0.0	0.0	0.0	0.0	26.7
8	17929951.01	5047504.39	14.96	0	DEN	4000	68.0	10.2	0.0	3.0	0.0	53.1	4.2	-1.7	0.0	0.0	0.0	0.0	0.0	25.5
8	17929951.01	5047504.39	14.96	0	DEN	8000	48.9	10.2	0.0	3.0	0.0	53.1	15.0	-1.7	0.0	0.0	0.0	0.0	0.0	-4.3
9	17929948.00	5047510.15	13.01	0	DEN	32	38.6	9.9	0.0	3.0	0.0	53.0	0.0	-3.7	0.0	0.0	4.3	0.0	0.0	-2.1
9	17929948.00	5047510.15	13.01	0	DEN	63	59.8	9.9	0.0	3.0	0.0	53.0	0.0	-3.7	0.0	0.0	5.1	0.0	0.0	18.3
9	17929948.00	5047510.15	13.01	0	DEN	125	73.9	9.9	0.0	3.0	0.0	53.0	0.1	-1.0	0.0	0.0	4.5	0.0	0.0	30.2
9	17929948.00	5047510.15	13.01	0	DEN	250	65.4	9.9	0.0	3.0	0.0	53.0	0.1	3.5	0.0	0.0	1.8	0.0	0.0	19.9
9	17929948.00	5047510.15	13.01	0	DEN	500	66.8	9.9	0.0	3.0	0.0	53.0	0.2	1.5	0.0	0.0	4.6	0.0	0.0	20.3
9	17929948.00	5047510.15	13.01	0	DEN	1000	68.0	9.9	0.0	3.0	0.0	53.0	0.5	-1.4	0.0	0.0	8.7	0.0	0.0	20.2
9	17929948.00	5047510.15	13.01	0	DEN	2000	66.2	9.9	0.0	3.0	0.0	53.0	1.2	-1.7	0.0	0.0	11.0	0.0	0.0	15.7
9	17929948.00	5047510.15	13.01	0	DEN	4000	68.0	9.9	0.0	3.0	0.0	53.0	4.1	-1.7	0.0	0.0	13.4	0.0	0.0	12.2
9	17929948.00	5047510.15	13.01	0	DEN	8000	48.9	9.9	0.0	3.0	0.0	53.0	14.7	-1.7	0.0	0.0	16.0	0.0	0.0	-20.1
10	17929951.01	5047504.39	13.00	0	DEN	32	38.6	9.8	0.0	3.0	0.0	53.1	0.0	-3.7	0.0	0.0	4.6	0.0	0.0	-2.6
10	17929951.01	5047504.39	13.00	0	DEN	63	59.8	9.8	0.0	3.0	0.0	53.1	0.0	-3.7	0.0	0.0	5.9	0.0	0.0	17.3
10	17929951.01	5047504.39	13.00	0	DEN	125	73.9	9.8	0.0	3.0	0.0	53.1	0.1	-1.1	0.0	0.0	5.3	0.0	0.0	29.3
10	17929951.01	5047504.39	13.00	0	DEN	250	65.4	9.8	0.0	3.0	0.0	53.1	0.1	3.1	0.0	0.0	2.5	0.0	0.0	19.4
10	17929951.01	5047504.39	13.00	0	DEN	500	66.8	9.8	0.0	3.0	0.0	53.1	0.2	1.2	0.0	0.0	5.1	0.0	0.0	19.8
10	17929951.01	5047504.39	13.00	0	DEN	1000	68.0	9.8	0.0	3.0	0.0	53.1	0.5	-1.5	0.0	0.0	9.1	0.0	0.0	19.5
10	17929951.01	5047504.39	13.00	0	DEN	2000	66.2	9.8	0.0	3.0	0.0	53.1	1.2	-1.8	0.0	0.0	11.3	0.0	0.0	15.1

vert. Area Source, ISO 9613, Name: "Transformer 1", ID: "transformer_1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
10	17929951.01	5047504.39	13.00	0	DEN	4000	68.0	9.8	0.0	3.0	0.0	53.1	4.2	-1.8	0.0	0.0	13.6	0.0	0.0	11.6
10	17929951.01	5047504.39	13.00	0	DEN	8000	48.9	9.8	0.0	3.0	0.0	53.1	15.0	-1.8	0.0	0.0	16.2	0.0	0.0	-20.8
25	17929954.27	5047509.65	13.96	0	DEN	32	38.6	8.1	0.0	3.0	0.0	52.7	0.0	-3.0	0.0	0.0	7.8	0.0	0.0	-7.8
25	17929954.27	5047509.65	13.96	0	DEN	63	59.8	8.1	0.0	3.0	0.0	52.7	0.0	-3.0	0.0	0.0	7.8	0.0	0.0	13.3
25	17929954.27	5047509.65	13.96	0	DEN	125	73.9	8.1	0.0	3.0	0.0	52.7	0.1	-0.2	0.0	0.0	5.1	0.0	0.0	27.3
25	17929954.27	5047509.65	13.96	0	DEN	250	65.4	8.1	0.0	3.0	0.0	52.7	0.1	3.4	0.0	0.0	1.5	0.0	0.0	18.7
25	17929954.27	5047509.65	13.96	0	DEN	500	66.8	8.1	0.0	3.0	0.0	52.7	0.2	0.4	0.0	0.0	4.7	0.0	0.0	19.8
25	17929954.27	5047509.65	13.96	0	DEN	1000	68.0	8.1	0.0	3.0	0.0	52.7	0.4	-1.3	0.0	0.0	6.7	0.0	0.0	20.5
25	17929954.27	5047509.65	13.96	0	DEN	2000	66.2	8.1	0.0	3.0	0.0	52.7	1.2	-1.5	0.0	0.0	7.5	0.0	0.0	17.4
25	17929954.27	5047509.65	13.96	0	DEN	4000	68.0	8.1	0.0	3.0	0.0	52.7	4.0	-1.5	0.0	0.0	8.4	0.0	0.0	15.4
25	17929954.27	5047509.65	13.96	0	DEN	8000	48.9	8.1	0.0	3.0	0.0	52.7	14.2	-1.5	0.0	0.0	9.9	0.0	0.0	-15.4
27	17929954.27	5047509.65	14.96	0	DEN	32	38.6	8.1	0.0	3.0	0.0	52.7	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	-0.1
27	17929954.27	5047509.65	14.96	0	DEN	63	59.8	8.1	0.0	3.0	0.0	52.7	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	21.1
27	17929954.27	5047509.65	14.96	0	DEN	125	73.9	8.1	0.0	3.0	0.0	52.7	0.1	-0.3	0.0	0.0	0.0	0.0	0.0	32.5
27	17929954.27	5047509.65	14.96	0	DEN	250	65.4	8.1	0.0	3.0	0.0	52.7	0.1	1.7	0.0	0.0	0.0	0.0	0.0	21.9
27	17929954.27	5047509.65	14.96	0	DEN	500	66.8	8.1	0.0	3.0	0.0	52.7	0.2	-0.1	0.0	0.0	0.0	0.0	0.0	25.1
27	17929954.27	5047509.65	14.96	0	DEN	1000	68.0	8.1	0.0	3.0	0.0	52.7	0.4	-1.5	0.0	0.0	0.0	0.0	0.0	27.4
27	17929954.27	5047509.65	14.96	0	DEN	2000	66.2	8.1	0.0	3.0	0.0	52.7	1.2	-1.7	0.0	0.0	0.0	0.0	0.0	25.1
27	17929954.27	5047509.65	14.96	0	DEN	4000	68.0	8.1	0.0	3.0	0.0	52.7	4.0	-1.7	0.0	0.0	0.0	0.0	0.0	24.1
27	17929954.27	5047509.65	14.96	0	DEN	8000	48.9	8.1	0.0	3.0	0.0	52.7	14.2	-1.7	0.0	0.0	0.0	0.0	0.0	-5.3
34	17929954.27	5047509.65	13.00	0	DEN	32	38.6	7.7	0.0	3.0	0.0	52.7	0.0	-3.6	0.0	0.0	5.5	0.0	0.0	-5.3
34	17929954.27	5047509.65	13.00	0	DEN	63	59.8	7.7	0.0	3.0	0.0	52.7	0.0	-3.6	0.0	0.0	6.8	0.0	0.0	14.5
34	17929954.27	5047509.65	13.00	0	DEN	125	73.9	7.7	0.0	3.0	0.0	52.7	0.1	-1.0	0.0	0.0	6.2	0.0	0.0	26.6
34	17929954.27	5047509.65	13.00	0	DEN	250	65.4	7.7	0.0	3.0	0.0	52.7	0.1	3.6	0.0	0.0	3.4	0.0	0.0	16.3
34	17929954.27	5047509.65	13.00	0	DEN	500	66.8	7.7	0.0	3.0	0.0	52.7	0.2	1.6	0.0	0.0	6.9	0.0	0.0	16.0
34	17929954.27	5047509.65	13.00	0	DEN	1000	68.0	7.7	0.0	3.0	0.0	52.7	0.4	-1.3	0.0	0.0	11.7	0.0	0.0	15.1
34	17929954.27	5047509.65	13.00	0	DEN	2000	66.2	7.7	0.0	3.0	0.0	52.7	1.2	-1.7	0.0	0.0	14.5	0.0	0.0	10.2
34	17929954.27	5047509.65	13.00	0	DEN	4000	68.0	7.7	0.0	3.0	0.0	52.7	4.0	-1.7	0.0	0.0	17.2	0.0	0.0	6.4
34	17929954.27	5047509.65	13.00	0	DEN	8000	48.9	7.7	0.0	3.0	0.0	52.7	14.2	-1.7	0.0	0.0	20.1	0.0	0.0	-25.8
40	17929944.73	5047504.89	14.96	0	DEN	32	38.6	8.2	0.0	3.0	0.0	53.4	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	-0.7
40	17929944.73	5047504.89	14.96	0	DEN	63	59.8	8.2	0.0	3.0	0.0	53.4	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	20.5
40	17929944.73	5047504.89	14.96	0	DEN	125	73.9	8.2	0.0	3.0	0.0	53.4	0.1	-0.1	0.0	0.0	0.0	0.0	0.0	31.7
40	17929944.73	5047504.89	14.96	0	DEN	250	65.4	8.2	0.0	3.0	0.0	53.4	0.1	1.9	0.0	0.0	0.0	0.0	0.0	21.1
40	17929944.73	5047504.89	14.96	0	DEN	500	66.8	8.2	0.0	3.0	0.0	53.4	0.3	-0.0	0.0	0.0	0.0	0.0	0.0	24.3
40	17929944.73	5047504.89	14.96	0	DEN	1000	68.0	8.2	0.0	3.0	0.0	53.4	0.5	-1.5	0.0	0.0	0.0	0.0	0.0	26.7
40	17929944.73	5047504.89	14.96	0	DEN	2000	66.2	8.2	0.0	3.0	0.0	53.4	1.3	-1.7	0.0	0.0	0.0	0.0	0.0	24.3
40	17929944.73	5047504.89	14.96	0	DEN	4000	68.0	8.2	0.0	3.0	0.0	53.4	4.3	-1.7	0.0	0.0	0.0	0.0	0.0	23.1
40	17929944.73	5047504.89	14.96	0	DEN	8000	48.9	8.2	0.0	3.0	0.0	53.4	15.4	-1.7	0.0	0.0	0.0	0.0	0.0	-7.1
42	17929944.73	5047504.89	13.96	0	DEN	32	38.6	8.2	0.0	3.0	0.0	53.4	0.0	-3.2	0.0	0.0	7.9	0.0	0.0	-8.4
42	17929944.73	5047504.89	13.96	0	DEN	63	59.8	8.2	0.0	3.0	0.0	53.4	0.0	-3.2	0.0	0.0	7.9	0.0	0.0	12.7
42	17929944.73	5047504.89	13.96	0	DEN	125	73.9	8.2	0.0	3.0	0.0	53.4	0.1	-0.3	0.0	0.0	5.1	0.0	0.0	26.8
42	17929944.73	5047504.89	13.96	0	DEN	250	65.4	8.2	0.0	3.0	0.0	53.4	0.1	3.3	0.0	0.0	1.5	0.0	0.0	18.2
42	17929944.73	5047504.89	13.96	0	DEN	500	66.8	8.2	0.0	3.0	0.0	53.4	0.3	0.4	0.0	0.0	4.4	0.0	0.0	19.5
42	17929944.73	5047504.89	13.96	0	DEN	1000	68.0	8.2	0.0	3.0	0.0	53.4	0.5	-1.3	0.0	0.0	6.2	0.0	0.0	20.4
42	17929944.73	5047504.89	13.96	0	DEN	2000	66.2	8.2	0.0	3.0	0.0	53.4	1.3	-1.6	0.0	0.0	6.5	0.0	0.0	17.7
42	17929944.73	5047504.89	13.96	0	DEN	4000	68.0	8.2	0.0	3.0	0.0	53.4	4.3	-1.6	0.0	0.0	6.7	0.0	0.0	16.3
42	17929944.73	5047504.89	13.96	0	DEN	8000	48.9	8.2	0.0	3.0	0.0	53.4	15.4	-1.6	0.0	0.0	7.1	0.0	0.0	-14.3
44	17929944.73	5047504.89	13.00	0	DEN	32	38.6	7.7	0.0	3.0	0.0	53.4	0.0	-3.8	0.0	0.0	4.3	0.0	0.0	-4.6
44	17929944.73	5047504.89	13.00	0	DEN	63	59.8	7.7	0.0	3.0	0.0	53.4	0.0	-3.8	0.0	0.0	5.1	0.0	0.0	15.9
44	17929944.73	5047504.89	13.00	0	DEN	125	73.9	7.7	0.0	3.0	0.0	53.4	0.1	-1.2	0.0	0.0	4.5	0.0	0.0	27.9
44	17929944.73	5047504.89	13.00	0	DEN	250	65.4	7.7	0.0	3.0	0.0	53.4	0.1	2.8	0.0	0.0	2.0	0.0	0.0	17.8
44	17929944.73	5047504.89	13.00	0	DEN	500	66.8	7.7	0.0	3.0	0.0	53.4	0.3	1.1	0.0	0.0	4.3	0.0	0.0	18.5
44	17929944.73	5047504.89	13.00	0	DEN	1000	68.0	7.7	0.0	3.0	0.0	53.4	0.5	-1.5	0.0	0.0	7.7	0.0	0.0	18.7
44	17929944.73	5047504.89	13.00	0	DEN	2000	66.2	7.7	0.0	3.0	0.0	53.4	1.3	-1.9	0.0	0.0	9.6	0.0	0.0	14.6
44	17929944.73	5047504.89	13.00	0	DEN	4000	68.0	7.7	0.0	3.0	0.0	53.4	4.3	-1.9	0.0	0.0	11.6	0.0	0.0	11.3
44	17929944.73	5047504.89	13.00	0	DEN	8000	48.9	7.7	0.0	3.0	0.0	53.4	15.4	-1.9	0.0	0.0	13.9	0.0	0.0	-21.2

vert. Area Source, ISO 9613, Name: "Transformer 2", ID: "transformer_2"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
12	17929922.84	5047497.46	13.96	0	DEN	32	38.5	10.2	0.0	3.0	0.0	54.6	0.0	-3.5	0.0	0.0	0.0	0.0	0.0	0.7
12	17929922.84	5047497.46	13.96	0	DEN	63	59.7	10.2	0.0	3.0	0.0	54.6	0.0	-3.5	0.0	0.0	0.0	0.0	0.0	21.9
12	17929922.84	5047497.46	13.96	0	DEN	125	73.8	10.2	0.0	3.0	0.0	54.6	0.1	-0.3	0.0	0.0	0.0	0.0	0.0	32.6

vert. Area Source, ISO 9613, Name: "Transformer 2", ID: "transformer_2"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
12	17929922.84	5047497.46	13.96	0	DEN	250	65.3	10.2	0.0	3.0	0.0	54.6	0.2	3.4	0.0	0.0	0.0	0.0	0.0	20.4
12	17929922.84	5047497.46	13.96	0	DEN	500	66.7	10.2	0.0	3.0	0.0	54.6	0.3	0.5	0.0	0.0	0.0	0.0	0.0	24.6
12	17929922.84	5047497.46	13.96	0	DEN	1000	67.9	10.2	0.0	3.0	0.0	54.6	0.6	-1.3	0.0	0.0	0.0	0.0	0.0	27.3
12	17929922.84	5047497.46	13.96	0	DEN	2000	66.1	10.2	0.0	3.0	0.0	54.6	1.5	-1.6	0.0	0.0	0.0	0.0	0.0	24.9
12	17929922.84	5047497.46	13.96	0	DEN	4000	67.9	10.2	0.0	3.0	0.0	54.6	5.0	-1.6	0.0	0.0	0.0	0.0	0.0	23.2
12	17929922.84	5047497.46	13.96	0	DEN	8000	48.8	10.2	0.0	3.0	0.0	54.6	17.7	-1.6	0.0	0.0	0.0	0.0	0.0	-8.7
14	17929922.84	5047497.46	14.96	0	DEN	32	38.5	10.2	0.0	3.0	0.0	54.6	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	0.1
14	17929922.84	5047497.46	14.96	0	DEN	63	59.7	10.2	0.0	3.0	0.0	54.6	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	21.3
14	17929922.84	5047497.46	14.96	0	DEN	125	73.8	10.2	0.0	3.0	0.0	54.6	0.1	0.6	0.0	0.0	0.0	0.0	0.0	31.8
14	17929922.84	5047497.46	14.96	0	DEN	250	65.3	10.2	0.0	3.0	0.0	54.6	0.2	2.7	0.0	0.0	0.0	0.0	0.0	21.0
14	17929922.84	5047497.46	14.96	0	DEN	500	66.7	10.2	0.0	3.0	0.0	54.6	0.3	0.4	0.0	0.0	0.0	0.0	0.0	24.7
14	17929922.84	5047497.46	14.96	0	DEN	1000	67.9	10.2	0.0	3.0	0.0	54.6	0.6	-1.2	0.0	0.0	0.0	0.0	0.0	27.2
14	17929922.84	5047497.46	14.96	0	DEN	2000	66.1	10.2	0.0	3.0	0.0	54.6	1.5	-1.4	0.0	0.0	0.0	0.0	0.0	24.7
14	17929922.84	5047497.46	14.96	0	DEN	4000	67.9	10.2	0.0	3.0	0.0	54.6	5.0	-1.4	0.0	0.0	0.0	0.0	0.0	23.0
14	17929922.84	5047497.46	14.96	0	DEN	8000	48.8	10.2	0.0	3.0	0.0	54.6	17.7	-1.4	0.0	0.0	0.0	0.0	0.0	-8.9
17	17929927.77	5047492.49	13.96	0	DEN	32	38.5	8.1	0.0	3.0	0.0	54.6	0.0	-3.5	0.0	0.0	3.5	0.0	0.0	-5.0
17	17929927.77	5047492.49	13.96	0	DEN	63	59.7	8.1	0.0	3.0	0.0	54.6	0.0	-3.5	0.0	0.0	3.5	0.0	0.0	16.2
17	17929927.77	5047492.49	13.96	0	DEN	125	73.8	8.1	0.0	3.0	0.0	54.6	0.1	-0.6	0.0	0.0	2.1	0.0	0.0	28.7
17	17929927.77	5047492.49	13.96	0	DEN	250	65.3	8.1	0.0	3.0	0.0	54.6	0.2	2.7	0.0	0.0	0.3	0.0	0.0	18.6
17	17929927.77	5047492.49	13.96	0	DEN	500	66.7	8.1	0.0	3.0	0.0	54.6	0.3	0.2	0.0	0.0	1.9	0.0	0.0	20.8
17	17929927.77	5047492.49	13.96	0	DEN	1000	67.9	8.1	0.0	3.0	0.0	54.6	0.6	-1.5	0.0	0.0	3.0	0.0	0.0	22.4
17	17929927.77	5047492.49	13.96	0	DEN	2000	66.1	8.1	0.0	3.0	0.0	54.6	1.5	-1.8	0.0	0.0	3.5	0.0	0.0	19.4
17	17929927.77	5047492.49	13.96	0	DEN	4000	67.9	8.1	0.0	3.0	0.0	54.6	5.0	-1.8	0.0	0.0	4.0	0.0	0.0	17.1
17	17929927.77	5047492.49	13.96	0	DEN	8000	48.8	8.1	0.0	3.0	0.0	54.6	17.8	-1.8	0.0	0.0	4.7	0.0	0.0	-15.5
19	17929923.10	5047489.93	13.96	0	DEN	32	38.5	6.2	0.0	3.0	0.0	54.9	0.0	-3.6	0.0	0.0	3.6	0.0	0.0	-7.2
19	17929923.10	5047489.93	13.96	0	DEN	63	59.7	6.2	0.0	3.0	0.0	54.9	0.0	-3.6	0.0	0.0	3.7	0.0	0.0	14.0
19	17929923.10	5047489.93	13.96	0	DEN	125	73.8	6.2	0.0	3.0	0.0	54.9	0.1	-0.7	0.0	0.0	2.7	0.0	0.0	26.0
19	17929923.10	5047489.93	13.96	0	DEN	250	65.3	6.2	0.0	3.0	0.0	54.9	0.2	2.6	0.0	0.0	0.9	0.0	0.0	15.9
19	17929923.10	5047489.93	13.96	0	DEN	500	66.7	6.2	0.0	3.0	0.0	54.9	0.3	0.2	0.0	0.0	3.1	0.0	0.0	17.4
19	17929923.10	5047489.93	13.96	0	DEN	1000	67.9	6.2	0.0	3.0	0.0	54.9	0.6	-1.5	0.0	0.0	4.9	0.0	0.0	18.3
19	17929923.10	5047489.93	13.96	0	DEN	2000	66.1	6.2	0.0	3.0	0.0	54.9	1.5	-1.8	0.0	0.0	5.7	0.0	0.0	15.0
19	17929923.10	5047489.93	13.96	0	DEN	4000	67.9	6.2	0.0	3.0	0.0	54.9	5.1	-1.8	0.0	0.0	6.1	0.0	0.0	12.8
19	17929923.10	5047489.93	13.96	0	DEN	8000	48.8	6.2	0.0	3.0	0.0	54.9	18.3	-1.8	0.0	0.0	6.4	0.0	0.0	-19.8
21	17929927.77	5047492.49	14.96	0	DEN	32	38.5	8.1	0.0	3.0	0.0	54.6	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	-2.0
21	17929927.77	5047492.49	14.96	0	DEN	63	59.7	8.1	0.0	3.0	0.0	54.6	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	19.2
21	17929927.77	5047492.49	14.96	0	DEN	125	73.8	8.1	0.0	3.0	0.0	54.6	0.1	0.2	0.0	0.0	0.0	0.0	0.0	30.0
21	17929927.77	5047492.49	14.96	0	DEN	250	65.3	8.1	0.0	3.0	0.0	54.6	0.2	2.3	0.0	0.0	0.0	0.0	0.0	19.3
21	17929927.77	5047492.49	14.96	0	DEN	500	66.7	8.1	0.0	3.0	0.0	54.6	0.3	0.2	0.0	0.0	0.0	0.0	0.0	22.7
21	17929927.77	5047492.49	14.96	0	DEN	1000	67.9	8.1	0.0	3.0	0.0	54.6	0.6	-1.3	0.0	0.0	0.0	0.0	0.0	25.2
21	17929927.77	5047492.49	14.96	0	DEN	2000	66.1	8.1	0.0	3.0	0.0	54.6	1.5	-1.6	0.0	0.0	0.0	0.0	0.0	22.7
21	17929927.77	5047492.49	14.96	0	DEN	4000	67.9	8.1	0.0	3.0	0.0	54.6	5.0	-1.6	0.0	0.0	0.0	0.0	0.0	21.0
21	17929927.77	5047492.49	14.96	0	DEN	8000	48.8	8.1	0.0	3.0	0.0	54.6	17.8	-1.6	0.0	0.0	0.0	0.0	0.0	-10.9
23	17929923.10	5047489.93	14.96	0	DEN	32	38.5	6.2	0.0	3.0	0.0	54.9	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	-4.1
23	17929923.10	5047489.93	14.96	0	DEN	63	59.7	6.2	0.0	3.0	0.0	54.9	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	17.1
23	17929923.10	5047489.93	14.96	0	DEN	125	73.8	6.2	0.0	3.0	0.0	54.9	0.1	0.3	0.0	0.0	0.0	0.0	0.0	27.8
23	17929923.10	5047489.93	14.96	0	DEN	250	65.3	6.2	0.0	3.0	0.0	54.9	0.2	2.4	0.0	0.0	0.0	0.0	0.0	17.1
23	17929923.10	5047489.93	14.96	0	DEN	500	66.7	6.2	0.0	3.0	0.0	54.9	0.3	0.2	0.0	0.0	0.0	0.0	0.0	20.5
23	17929923.10	5047489.93	14.96	0	DEN	1000	67.9	6.2	0.0	3.0	0.0	54.9	0.6	-1.3	0.0	0.0	0.0	0.0	0.0	23.0
23	17929923.10	5047489.93	14.96	0	DEN	2000	66.1	6.2	0.0	3.0	0.0	54.9	1.5	-1.6	0.0	0.0	0.0	0.0	0.0	20.5
23	17929923.10	5047489.93	14.96	0	DEN	4000	67.9	6.2	0.0	3.0	0.0	54.9	5.1	-1.6	0.0	0.0	0.0	0.0	0.0	18.7
23	17929923.10	5047489.93	14.96	0	DEN	8000	48.8	6.2	0.0	3.0	0.0	54.9	18.3	-1.6	0.0	0.0	0.0	0.0	0.0	-13.6
29	17929922.84	5047497.46	13.01	0	DEN	32	38.5	9.8	0.0	3.0	0.0	54.6	0.0	-4.1	0.0	0.0	0.0	0.0	0.0	0.8
29	17929922.84	5047497.46	13.01	0	DEN	63	59.7	9.8	0.0	3.0	0.0	54.6	0.0	-4.1	0.0	0.0	0.0	0.0	0.0	22.0
29	17929922.84	5047497.46	13.01	0	DEN	125	73.8	9.8	0.0	3.0	0.0	54.6	0.1	-1.2	0.0	0.0	0.0	0.0	0.0	33.2
29	17929922.84	5047497.46	13.01	0	DEN	250	65.3	9.8	0.0	3.0	0.0	54.6	0.2	2.7	0.0	0.0	0.0	0.0	0.0	20.7
29	17929922.84	5047497.46	13.01	0	DEN	500	66.7	9.8	0.0	3.0	0.0	54.6	0.3	1.0	0.0	0.0	0.0	0.0	0.0	23.6
29	17929922.84	5047497.46	13.01	0	DEN	1000	67.9	9.8	0.0	3.0	0.0	54.6	0.6	-1.6	0.0	0.0	0.0	0.0	0.0	27.2
29	17929922.84	5047497.46	13.01	0	DEN	2000	66.1	9.8	0.0	3.0	0.0	54.6	1.5	-1.9	0.0	0.0	0.0	0.0	0.0	24.8
29	17929922.84	5047497.46	13.01	0	DEN	4000	67.9	9.8	0.0	3.0	0.0	54.6	5.0	-1.9	0.0	0.0	0.0	0.0	0.0	23.1
29	17929922.84	5047497.46	13.01	0	DEN	8000	48.8	9.8	0.0	3.0	0.0	54.6	17.7	-1.9	0.0	0.0	0.0	0.0	0.0	-8.8
31	17929927.77	5047492.49	13.01	0	DEN	32	38.5	7.7	0.0	3.0	0.0	54.6	0.0	-4.1	0.0	0.0	4.1	0.0	0.0	-5.4
31	17929927.77	5047492.49	13.01	0	DEN	63	59.7	7.7	0.0	3.0	0.0	54.6	0.0	-4.1	0.0	0.0	4.1	0.0	0.0	15.8
31	17929927.77	5047492.49	13.01	0	DEN	125	73.8	7.7	0.0	3.0	0.0	54.6	0.1	-1.5	0.0	0.0	2.5	0.0	0.0	28.8

vert. Area Source, ISO 9613, Name: "Transformer 2", ID: "transformer_2"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
31	17929927.77	5047492.49	13.01	0	DEN	250	65.3	7.7	0.0	3.0	0.0	54.6	0.2	2.2	0.0	0.0	0.7	0.0	0.0	18.3
31	17929927.77	5047492.49	13.01	0	DEN	500	66.7	7.7	0.0	3.0	0.0	54.6	0.3	0.6	0.0	0.0	1.8	0.0	0.0	20.1
31	17929927.77	5047492.49	13.01	0	DEN	1000	67.9	7.7	0.0	3.0	0.0	54.6	0.6	-1.8	0.0	0.0	3.3	0.0	0.0	21.9
31	17929927.77	5047492.49	13.01	0	DEN	2000	66.1	7.7	0.0	3.0	0.0	54.6	1.5	-2.1	0.0	0.0	4.0	0.0	0.0	18.8
31	17929927.77	5047492.49	13.01	0	DEN	4000	67.9	7.7	0.0	3.0	0.0	54.6	5.0	-2.1	0.0	0.0	5.0	0.0	0.0	16.1
31	17929927.77	5047492.49	13.01	0	DEN	8000	48.8	7.7	0.0	3.0	0.0	54.6	17.8	-2.1	0.0	0.0	6.5	0.0	0.0	-17.3
32	17929923.10	5047489.93	13.01	0	DEN	32	38.5	5.8	0.0	3.0	0.0	54.9	0.0	-4.2	0.0	0.0	4.2	0.0	0.0	-7.6
32	17929923.10	5047489.93	13.01	0	DEN	63	59.7	5.8	0.0	3.0	0.0	54.9	0.0	-4.2	0.0	0.0	4.2	0.0	0.0	13.6
32	17929923.10	5047489.93	13.01	0	DEN	125	73.8	5.8	0.0	3.0	0.0	54.9	0.1	-1.5	0.0	0.0	3.2	0.0	0.0	26.0
32	17929923.10	5047489.93	13.01	0	DEN	250	65.3	5.8	0.0	3.0	0.0	54.9	0.2	2.2	0.0	0.0	1.3	0.0	0.0	15.6
32	17929923.10	5047489.93	13.01	0	DEN	500	66.7	5.8	0.0	3.0	0.0	54.9	0.3	0.6	0.0	0.0	2.9	0.0	0.0	16.8
32	17929923.10	5047489.93	13.01	0	DEN	1000	67.9	5.8	0.0	3.0	0.0	54.9	0.6	-1.8	0.0	0.0	5.4	0.0	0.0	17.7
32	17929923.10	5047489.93	13.01	0	DEN	2000	66.1	5.8	0.0	3.0	0.0	54.9	1.5	-2.2	0.0	0.0	6.5	0.0	0.0	14.1
32	17929923.10	5047489.93	13.01	0	DEN	4000	67.9	5.8	0.0	3.0	0.0	54.9	5.1	-2.2	0.0	0.0	7.6	0.0	0.0	11.3
32	17929923.10	5047489.93	13.01	0	DEN	8000	48.8	5.8	0.0	3.0	0.0	54.9	18.3	-2.2	0.0	0.0	8.9	0.0	0.0	-22.3
46	17929928.52	5047498.01	14.96	0	DEN	32	38.5	6.4	0.0	3.0	0.0	54.4	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	-3.5
46	17929928.52	5047498.01	14.96	0	DEN	63	59.7	6.4	0.0	3.0	0.0	54.4	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	17.7
46	17929928.52	5047498.01	14.96	0	DEN	125	73.8	6.4	0.0	3.0	0.0	54.4	0.1	0.3	0.0	0.0	0.0	0.0	0.0	28.4
46	17929928.52	5047498.01	14.96	0	DEN	250	65.3	6.4	0.0	3.0	0.0	54.4	0.2	2.5	0.0	0.0	0.0	0.0	0.0	17.7
46	17929928.52	5047498.01	14.96	0	DEN	500	66.7	6.4	0.0	3.0	0.0	54.4	0.3	0.2	0.0	0.0	0.0	0.0	0.0	21.2
46	17929928.52	5047498.01	14.96	0	DEN	1000	67.9	6.4	0.0	3.0	0.0	54.4	0.5	-1.3	0.0	0.0	0.0	0.0	0.0	23.7
46	17929928.52	5047498.01	14.96	0	DEN	2000	66.1	6.4	0.0	3.0	0.0	54.4	1.4	-1.5	0.0	0.0	0.0	0.0	0.0	21.2
46	17929928.52	5047498.01	14.96	0	DEN	4000	67.9	6.4	0.0	3.0	0.0	54.4	4.8	-1.5	0.0	0.0	0.0	0.0	0.0	19.6
46	17929928.52	5047498.01	14.96	0	DEN	8000	48.8	6.4	0.0	3.0	0.0	54.4	17.2	-1.5	0.0	0.0	0.0	0.0	0.0	-11.9
52	17929930.07	5047495.06	14.96	0	DEN	32	38.5	3.6	0.0	3.0	0.0	54.4	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	-6.3
52	17929930.07	5047495.06	14.96	0	DEN	63	59.7	3.6	0.0	3.0	0.0	54.4	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	14.9
52	17929930.07	5047495.06	14.96	0	DEN	125	73.8	3.6	0.0	3.0	0.0	54.4	0.1	0.2	0.0	0.0	0.0	0.0	0.0	25.8
52	17929930.07	5047495.06	14.96	0	DEN	250	65.3	3.6	0.0	3.0	0.0	54.4	0.2	2.3	0.0	0.0	0.0	0.0	0.0	15.1
52	17929930.07	5047495.06	14.96	0	DEN	500	66.7	3.6	0.0	3.0	0.0	54.4	0.3	0.2	0.0	0.0	0.0	0.0	0.0	18.5
52	17929930.07	5047495.06	14.96	0	DEN	1000	67.9	3.6	0.0	3.0	0.0	54.4	0.5	-1.3	0.0	0.0	0.0	0.0	0.0	20.9
52	17929930.07	5047495.06	14.96	0	DEN	2000	66.1	3.6	0.0	3.0	0.0	54.4	1.4	-1.6	0.0	0.0	0.0	0.0	0.0	18.4
52	17929930.07	5047495.06	14.96	0	DEN	4000	67.9	3.6	0.0	3.0	0.0	54.4	4.9	-1.6	0.0	0.0	0.0	0.0	0.0	16.8
52	17929930.07	5047495.06	14.96	0	DEN	8000	48.8	3.6	0.0	3.0	0.0	54.4	17.4	-1.6	0.0	0.0	0.0	0.0	0.0	-14.8
68	17929928.52	5047498.01	13.96	0	DEN	32	38.5	6.4	0.0	3.0	0.0	54.4	0.0	-3.5	0.0	0.0	3.5	0.0	0.0	-6.5
68	17929928.52	5047498.01	13.96	0	DEN	63	59.7	6.4	0.0	3.0	0.0	54.4	0.0	-3.5	0.0	0.0	3.5	0.0	0.0	14.7
68	17929928.52	5047498.01	13.96	0	DEN	125	73.8	6.4	0.0	3.0	0.0	54.4	0.1	-0.4	0.0	0.0	2.2	0.0	0.0	26.9
68	17929928.52	5047498.01	13.96	0	DEN	250	65.3	6.4	0.0	3.0	0.0	54.4	0.2	3.2	0.0	0.0	0.2	0.0	0.0	16.8
68	17929928.52	5047498.01	13.96	0	DEN	500	66.7	6.4	0.0	3.0	0.0	54.4	0.3	0.4	0.0	0.0	2.4	0.0	0.0	18.6
68	17929928.52	5047498.01	13.96	0	DEN	1000	67.9	6.4	0.0	3.0	0.0	54.4	0.5	-1.4	0.0	0.0	4.1	0.0	0.0	19.7
68	17929928.52	5047498.01	13.96	0	DEN	2000	66.1	6.4	0.0	3.0	0.0	54.4	1.4	-1.6	0.0	0.0	4.9	0.0	0.0	16.4
68	17929928.52	5047498.01	13.96	0	DEN	4000	67.9	6.4	0.0	3.0	0.0	54.4	4.8	-1.6	0.0	0.0	5.5	0.0	0.0	14.2
68	17929928.52	5047498.01	13.96	0	DEN	8000	48.8	6.4	0.0	3.0	0.0	54.4	17.2	-1.6	0.0	0.0	6.0	0.0	0.0	-17.8
70	17929930.07	5047495.06	13.96	0	DEN	32	38.5	3.6	0.0	3.0	0.0	54.4	0.0	-3.5	0.0	0.0	3.5	0.0	0.0	-9.3
70	17929930.07	5047495.06	13.96	0	DEN	63	59.7	3.6	0.0	3.0	0.0	54.4	0.0	-3.5	0.0	0.0	3.5	0.0	0.0	11.9
70	17929930.07	5047495.06	13.96	0	DEN	125	73.8	3.6	0.0	3.0	0.0	54.4	0.1	-0.5	0.0	0.0	2.1	0.0	0.0	24.4
70	17929930.07	5047495.06	13.96	0	DEN	250	65.3	3.6	0.0	3.0	0.0	54.4	0.2	2.9	0.0	0.0	0.2	0.0	0.0	14.3
70	17929930.07	5047495.06	13.96	0	DEN	500	66.7	3.6	0.0	3.0	0.0	54.4	0.3	0.3	0.0	0.0	1.9	0.0	0.0	16.5
70	17929930.07	5047495.06	13.96	0	DEN	1000	67.9	3.6	0.0	3.0	0.0	54.4	0.5	-1.5	0.0	0.0	3.0	0.0	0.0	18.1
70	17929930.07	5047495.06	13.96	0	DEN	2000	66.1	3.6	0.0	3.0	0.0	54.4	1.4	-1.7	0.0	0.0	3.5	0.0	0.0	15.1
70	17929930.07	5047495.06	13.96	0	DEN	4000	67.9	3.6	0.0	3.0	0.0	54.4	4.9	-1.7	0.0	0.0	4.1	0.0	0.0	12.8
70	17929930.07	5047495.06	13.96	0	DEN	8000	48.8	3.6	0.0	3.0	0.0	54.4	17.4	-1.7	0.0	0.0	4.8	0.0	0.0	-19.5
72	17929928.52	5047498.01	13.01	0	DEN	32	38.5	6.0	0.0	3.0	0.0	54.4	0.0	-4.0	0.0	0.0	4.0	0.0	0.0	-6.9
72	17929928.52	5047498.01	13.01	0	DEN	63	59.7	6.0	0.0	3.0	0.0	54.4	0.0	-4.0	0.0	0.0	4.0	0.0	0.0	14.3
72	17929928.52	5047498.01	13.01	0	DEN	125	73.8	6.0	0.0	3.0	0.0	54.4	0.1	-1.3	0.0	0.0	2.8	0.0	0.0	26.9
72	17929928.52	5047498.01	13.01	0	DEN	250	65.3	6.0	0.0	3.0	0.0	54.4	0.2	2.4	0.0	0.0	0.9	0.0	0.0	16.5
72	17929928.52	5047498.01	13.01	0	DEN	500	66.7	6.0	0.0	3.0	0.0	54.4	0.3	0.8	0.0	0.0	2.4	0.0	0.0	17.8
72	17929928.52	5047498.01	13.01	0	DEN	1000	67.9	6.0	0.0	3.0	0.0	54.4	0.5	-1.7	0.0	0.0	4.7	0.0	0.0	19.0
72	17929928.52	5047498.01	13.01	0	DEN	2000	66.1	6.0	0.0	3.0	0.0	54.4	1.4	-2.0	0.0	0.0	6.1	0.0	0.0	15.2
72	17929928.52	5047498.01	13.01	0	DEN	4000	67.9	6.0	0.0	3.0	0.0	54.4	4.8	-2.0	0.0	0.0	7.6	0.0	0.0	12.1
72	17929928.52	5047498.01	13.01	0	DEN	8000	48.8	6.0	0.0	3.0	0.0	54.4	17.2	-2.0	0.0	0.0	9.5	0.0	0.0	-21.3
81	17929930.07	5047495.06	13.01	0	DEN	32	38.5	3.2	0.0	3.0	0.0	54.4	0.0	-4.1	0.0	0.0	4.1	0.0	0.0	-9.7
81	17929930.07	5047495.06	13.01	0	DEN	63	59.7	3.2	0.0	3.0	0.0	54.4	0.0	-4.1	0.0	0.0	4.1	0.0	0.0	11.5
81	17929930.07	5047495.06	13.01	0	DEN	125	73.8	3.2	0.0	3.0	0.0	54.4	0.1	-1.4	0.0	0.0	2.5	0.0	0.0	24.5

vert. Area Source, ISO 9613, Name: "Transformer 2", ID: "transformer_2"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
81	17929930.07	5047495.06	13.01	0	DEN	250	65.3	3.2	0.0	3.0	0.0	54.4	0.2	2.2	0.0	0.0	0.7	0.0	0.0	14.0
81	17929930.07	5047495.06	13.01	0	DEN	500	66.7	3.2	0.0	3.0	0.0	54.4	0.3	0.7	0.0	0.0	1.8	0.0	0.0	15.7
81	17929930.07	5047495.06	13.01	0	DEN	1000	67.9	3.2	0.0	3.0	0.0	54.4	0.5	-1.8	0.0	0.0	3.4	0.0	0.0	17.6
81	17929930.07	5047495.06	13.01	0	DEN	2000	66.1	3.2	0.0	3.0	0.0	54.4	1.4	-2.1	0.0	0.0	4.2	0.0	0.0	14.4
81	17929930.07	5047495.06	13.01	0	DEN	4000	67.9	3.2	0.0	3.0	0.0	54.4	4.9	-2.1	0.0	0.0	5.3	0.0	0.0	11.6
81	17929930.07	5047495.06	13.01	0	DEN	8000	48.8	3.2	0.0	3.0	0.0	54.4	17.4	-2.1	0.0	0.0	6.9	0.0	0.0	-21.5
82	17929920.55	5047490.28	13.96	0	DEN	32	38.5	4.9	0.0	3.0	0.0	55.0	0.0	-3.6	0.0	0.0	3.6	0.0	0.0	-8.6
82	17929920.55	5047490.28	13.96	0	DEN	63	59.7	4.9	0.0	3.0	0.0	55.0	0.0	-3.6	0.0	0.0	3.6	0.0	0.0	12.6
82	17929920.55	5047490.28	13.96	0	DEN	125	73.8	4.9	0.0	3.0	0.0	55.0	0.1	-0.6	0.0	0.0	2.2	0.0	0.0	25.1
82	17929920.55	5047490.28	13.96	0	DEN	250	65.3	4.9	0.0	3.0	0.0	55.0	0.2	2.8	0.0	0.0	0.3	0.0	0.0	15.0
82	17929920.55	5047490.28	13.96	0	DEN	500	66.7	4.9	0.0	3.0	0.0	55.0	0.3	0.2	0.0	0.0	2.0	0.0	0.0	17.0
82	17929920.55	5047490.28	13.96	0	DEN	1000	67.9	4.9	0.0	3.0	0.0	55.0	0.6	-1.5	0.0	0.0	3.3	0.0	0.0	18.4
82	17929920.55	5047490.28	13.96	0	DEN	2000	66.1	4.9	0.0	3.0	0.0	55.0	1.5	-1.7	0.0	0.0	4.0	0.0	0.0	15.2
82	17929920.55	5047490.28	13.96	0	DEN	4000	67.9	4.9	0.0	3.0	0.0	55.0	5.2	-1.7	0.0	0.0	4.7	0.0	0.0	12.7
82	17929920.55	5047490.28	13.96	0	DEN	8000	48.8	4.9	0.0	3.0	0.0	55.0	18.5	-1.7	0.0	0.0	5.4	0.0	0.0	-20.4
83	17929919.00	5047493.29	13.96	0	DEN	32	38.5	5.7	0.0	3.0	0.0	54.9	0.0	-3.6	0.0	0.0	0.0	0.0	0.0	-4.1
83	17929919.00	5047493.29	13.96	0	DEN	63	59.7	5.7	0.0	3.0	0.0	54.9	0.0	-3.6	0.0	0.0	0.0	0.0	0.0	17.0
83	17929919.00	5047493.29	13.96	0	DEN	125	73.8	5.7	0.0	3.0	0.0	54.9	0.1	-0.4	0.0	0.0	0.0	0.0	0.0	27.9
83	17929919.00	5047493.29	13.96	0	DEN	250	65.3	5.7	0.0	3.0	0.0	54.9	0.2	3.1	0.0	0.0	0.0	0.0	0.0	15.7
83	17929919.00	5047493.29	13.96	0	DEN	500	66.7	5.7	0.0	3.0	0.0	54.9	0.3	0.4	0.0	0.0	0.0	0.0	0.0	19.8
83	17929919.00	5047493.29	13.96	0	DEN	1000	67.9	5.7	0.0	3.0	0.0	54.9	0.6	-1.4	0.0	0.0	0.0	0.0	0.0	22.5
83	17929919.00	5047493.29	13.96	0	DEN	2000	66.1	5.7	0.0	3.0	0.0	54.9	1.5	-1.7	0.0	0.0	0.0	0.0	0.0	20.0
83	17929919.00	5047493.29	13.96	0	DEN	4000	67.9	5.7	0.0	3.0	0.0	54.9	5.2	-1.7	0.0	0.0	0.0	0.0	0.0	18.1
83	17929919.00	5047493.29	13.96	0	DEN	8000	48.8	5.7	0.0	3.0	0.0	54.9	18.4	-1.7	0.0	0.0	0.0	0.0	0.0	-14.2
84	17929920.55	5047490.28	14.96	0	DEN	32	38.5	4.9	0.0	3.0	0.0	55.0	0.0	-3.1	0.0	0.0	0.0	0.0	0.0	-5.5
84	17929920.55	5047490.28	14.96	0	DEN	63	59.7	4.9	0.0	3.0	0.0	55.0	0.0	-3.1	0.0	0.0	0.0	0.0	0.0	15.7
84	17929920.55	5047490.28	14.96	0	DEN	125	73.8	4.9	0.0	3.0	0.0	55.0	0.1	0.3	0.0	0.0	0.0	0.0	0.0	26.3
84	17929920.55	5047490.28	14.96	0	DEN	250	65.3	4.9	0.0	3.0	0.0	55.0	0.2	2.5	0.0	0.0	0.0	0.0	0.0	15.6
84	17929920.55	5047490.28	14.96	0	DEN	500	66.7	4.9	0.0	3.0	0.0	55.0	0.3	0.2	0.0	0.0	0.0	0.0	0.0	19.1
84	17929920.55	5047490.28	14.96	0	DEN	1000	67.9	4.9	0.0	3.0	0.0	55.0	0.6	-1.3	0.0	0.0	0.0	0.0	0.0	21.5
84	17929920.55	5047490.28	14.96	0	DEN	2000	66.1	4.9	0.0	3.0	0.0	55.0	1.5	-1.5	0.0	0.0	0.0	0.0	0.0	19.0
84	17929920.55	5047490.28	14.96	0	DEN	4000	67.9	4.9	0.0	3.0	0.0	55.0	5.2	-1.5	0.0	0.0	0.0	0.0	0.0	17.1
84	17929920.55	5047490.28	14.96	0	DEN	8000	48.8	4.9	0.0	3.0	0.0	55.0	18.5	-1.5	0.0	0.0	0.0	0.0	0.0	-15.3
85	17929919.00	5047493.29	14.96	0	DEN	32	38.5	5.7	0.0	3.0	0.0	54.9	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	-4.7
85	17929919.00	5047493.29	14.96	0	DEN	63	59.7	5.7	0.0	3.0	0.0	54.9	0.0	-3.0	0.0	0.0	0.0	0.0	0.0	16.5
85	17929919.00	5047493.29	14.96	0	DEN	125	73.8	5.7	0.0	3.0	0.0	54.9	0.1	0.5	0.0	0.0	0.0	0.0	0.0	27.0
85	17929919.00	5047493.29	14.96	0	DEN	250	65.3	5.7	0.0	3.0	0.0	54.9	0.2	2.7	0.0	0.0	0.0	0.0	0.0	16.2
85	17929919.00	5047493.29	14.96	0	DEN	500	66.7	5.7	0.0	3.0	0.0	54.9	0.3	0.3	0.0	0.0	0.0	0.0	0.0	19.8
85	17929919.00	5047493.29	14.96	0	DEN	1000	67.9	5.7	0.0	3.0	0.0	54.9	0.6	-1.2	0.0	0.0	0.0	0.0	0.0	22.3
85	17929919.00	5047493.29	14.96	0	DEN	2000	66.1	5.7	0.0	3.0	0.0	54.9	1.5	-1.5	0.0	0.0	0.0	0.0	0.0	19.8
85	17929919.00	5047493.29	14.96	0	DEN	4000	67.9	5.7	0.0	3.0	0.0	54.9	5.2	-1.5	0.0	0.0	0.0	0.0	0.0	18.0
85	17929919.00	5047493.29	14.96	0	DEN	8000	48.8	5.7	0.0	3.0	0.0	54.9	18.4	-1.5	0.0	0.0	0.0	0.0	0.0	-14.4
86	17929920.55	5047490.28	13.01	0	DEN	32	38.5	4.5	0.0	3.0	0.0	55.0	0.0	-4.2	0.0	0.0	4.2	0.0	0.0	-9.0
86	17929920.55	5047490.28	13.01	0	DEN	63	59.7	4.5	0.0	3.0	0.0	55.0	0.0	-4.2	0.0	0.0	4.2	0.0	0.0	12.2
86	17929920.55	5047490.28	13.01	0	DEN	125	73.8	4.5	0.0	3.0	0.0	55.0	0.1	-1.4	0.0	0.0	2.6	0.0	0.0	25.1
86	17929920.55	5047490.28	13.01	0	DEN	250	65.3	4.5	0.0	3.0	0.0	55.0	0.2	2.3	0.0	0.0	0.7	0.0	0.0	14.7
86	17929920.55	5047490.28	13.01	0	DEN	500	66.7	4.5	0.0	3.0	0.0	55.0	0.3	0.7	0.0	0.0	1.9	0.0	0.0	16.3
86	17929920.55	5047490.28	13.01	0	DEN	1000	67.9	4.5	0.0	3.0	0.0	55.0	0.6	-1.8	0.0	0.0	3.6	0.0	0.0	18.0
86	17929920.55	5047490.28	13.01	0	DEN	2000	66.1	4.5	0.0	3.0	0.0	55.0	1.5	-2.1	0.0	0.0	4.6	0.0	0.0	14.6
86	17929920.55	5047490.28	13.01	0	DEN	4000	67.9	4.5	0.0	3.0	0.0	55.0	5.2	-2.1	0.0	0.0	5.8	0.0	0.0	11.6
86	17929920.55	5047490.28	13.01	0	DEN	8000	48.8	4.5	0.0	3.0	0.0	55.0	18.5	-2.1	0.0	0.0	7.3	0.0	0.0	-22.4
87	17929919.00	5047493.29	13.01	0	DEN	32	38.5	5.3	0.0	3.0	0.0	54.9	0.0	-4.2	0.0	0.0	0.0	0.0	0.0	-4.0
87	17929919.00	5047493.29	13.01	0	DEN	63	59.7	5.3	0.0	3.0	0.0	54.9	0.0	-4.2	0.0	0.0	0.0	0.0	0.0	17.2
87	17929919.00	5047493.29	13.01	0	DEN	125	73.8	5.3	0.0	3.0	0.0	54.9	0.1	-1.3	0.0	0.0	0.0	0.0	0.0	28.4
87	17929919.00	5047493.29	13.01	0	DEN	250	65.3	5.3	0.0	3.0	0.0	54.9	0.2	2.4	0.0	0.0	0.0	0.0	0.0	16.1
87	17929919.00	5047493.29	13.01	0	DEN	500	66.7	5.3	0.0	3.0	0.0	54.9	0.3	0.8	0.0	0.0	0.0	0.0	0.0	18.9
87	17929919.00	5047493.29	13.01	0	DEN	1000	67.9	5.3	0.0	3.0	0.0	54.9	0.6	-1.7	0.0	0.0	0.0	0.0	0.0	22.4
87	17929919.00	5047493.29	13.01	0	DEN	2000	66.1	5.3	0.0	3.0	0.0	54.9	1.5	-2.0	0.0	0.0	0.0	0.0	0.0	19.9
87	17929919.00	5047493.29	13.01	0	DEN	4000	67.9	5.3	0.0	3.0	0.0	54.9	5.2	-2.0	0.0	0.0	0.0	0.0	0.0	18.1
87	17929919.00	5047493.29	13.01	0	DEN	8000	48.8	5.3	0.0	3.0	0.0	54.9	18.4	-2.0	0.0	0.0	0.0	0.0	0.0	-14.2

Appendix E: Health Canada – Electric Magnetic Field Fact Sheet

Health Canada Santé Canada

Your health and safety… our priority. *Votre santé et votre sécurité… notre priorité.*

Electric and Magnetic Fields

Updated: November 2012

Original: November 2001

IT'S YOUR HEALTH



Electric and Magnetic Fields from Power Lines and Electrical Appliances

THE ISSUE

Some people are concerned that daily exposure to electric and magnetic fields (EMFs) may cause health problems.



ELECTRICITY AND ELECTRIC AND MAGNETIC FIELDS (EMFS)

Electricity delivered through power lines is important in today's society. It is used to light homes, prepare food, run computers and operate other household appliances, such as TVs and radios. In Canada, appliances that plug into a wall socket use electric power that flows back and forth at a frequency of 60 cycles per second (60 hertz). The frequency used with the distribution of electricity from power lines and electrical appliances is different than the frequencies used for Wi-Fi, cell phones, and smart meters.

Every time you use electricity and electrical appliances, you are exposed to electric and magnetic fields (EMFs) at extremely low frequencies (ELFs). The term "extremely low" is described as any frequency below 300 hertz. EMFs produced by the transmission and use of electricity belong to this category.

EMFs are invisible forces that surround electrical equipment, power cords, and wires that carry electricity, including outdoor power lines.

- *Electric Fields:* These are formed whenever a wire is plugged into an outlet, even when the appliance is not turned on. The higher the voltage, the stronger the electric field.
- *Magnetic Fields:* These are formed when electric current is flowing within a device or wire. The greater the current, the stronger the magnetic field.

EMFs can occur separately or together. For example, when you plug the power cord for a lamp into a wall socket, it creates an electric field along the cord. When you turn the lamp on, the flow of current through the cord creates a magnetic field. Meanwhile, the electric field is still present.

Canada

POWER LINES AND YOUR HOME

EMFs are strongest when close to their source. As you move away from the source, the strength of the fields fades rapidly. This means you are exposed to stronger EMFs when standing close to a source (e.g., right beside a transformer box or under a high voltage power line), and you are exposed to weaker fields as you move away.

When you are inside your home, the magnetic fields from high voltage power lines and transformer boxes are often weaker than those from household electrical appliances.

Electric fields can be shielded using materials such as metal. Things like buildings and trees—and even the ground when power lines are buried—can block electric fields.

CANADIANS EXPOSURE TO EMFS AT EXTREMELY LOW FREQUENCIES (ELFS)

On a daily basis, most Canadians are exposed to EMFs generated by household wiring, lighting, and any electrical appliance that plugs into the wall, including hair dryers, vacuum cleaners and toasters. In the workplace, common sources of EMFs include computers, air purifiers, photocopiers, fax machines, fluorescent lights, electric heaters, and electric tools in machine shops, such as drills, power saws, lathes and welding machines.

EXPOSURE IN CANADIAN HOMES, SCHOOLS AND OFFICES PRESENT NO KNOWN HEALTH RISKS

There have been many studies on the possible health effects from exposure to EMFs at ELFs. While it is known that EMFs can cause weak electric currents to flow through the human body, the



intensity of these currents is too low to cause any known health effects. Some studies have suggested a possible link between exposure to ELF magnetic fields and certain types of childhood cancer, but at present this association is not established.

The International Agency for Research on Cancer (IARC) has classified ELF magnetic fields as “possibly carcinogenic to humans”. The IARC classification of ELF magnetic fields reflects the fact that some limited evidence exists that ELF magnetic fields might be a risk factor for childhood leukemia . However, the vast majority of scientific research to date does not support a link between ELF magnetic field exposure and human cancers. At present, the evidence of a possible link between ELF magnetic field exposure and cancer risk is far from conclusive and more research is needed to clarify this “possible” link.

Health Canada is in agreement with both the World Health Organization and IARC that additional research in this area is warranted.

REDUCE YOUR RISK

Health Canada does not consider that any precautionary measures are needed regarding daily exposures to EMFs at ELFs. There is no conclusive evidence of any harm caused by exposures at levels found in Canadian homes and schools, including those located just outside the boundaries of power line corridors.

THE GOVERNMENT OF CANADA’S ROLE

Health Canada, along with the World Health Organization, monitors scientific research on EMFs and human health as part of its mission to help Canadians maintain and improve their health.

International exposure guidelines for exposure to EMFs at ELFs have been established by the International Commission on Non-Ionizing Radiation Protection (ICNIRP). These guidelines are not based on a consideration of risks related to cancer. Rather, the point of the guidelines is to make sure that exposures to EMFs do not cause electric currents or fields in the body that are stronger than the ones produced naturally by the brain, nerves and heart. EMF exposures in Canadian homes, schools and offices are far below these guidelines.

FOR MORE INFORMATION

- Health Canada’s Electric and magnetic fields at: www.hc-sc.gc.ca/ewh-semt/radiation/cons/electri-magnet/index-eng.php
- The World Health Organization – Electromagnetic fields and public health:
  - Exposure to extremely low frequency fields at: www.who.int/mediacentre/factsheets/fs322/en/index.html
  - Extremely low frequency at: www.who.int/docstore/peh-mf/publications/facts_press/efact/efs205.html
  - Extremely low frequency fields and cancer at: www.who.int/docstore/peh-emf/publications/facts_press/efact/efs263.html

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FOR INDUSTRY AND PROFESSIONALS

- The International Agency for Research on Cancer (IARC) Volume 80 – Non-Ionizing Radiation, Part 1: Static and Extremely Low-Frequency (ELF) Electric and Magnetic Fields at: http://monographs.iarc.fr/ENG/Monographs/vol80/volume80.pdf
- IARC Carcinogen classifications at: http://monographs.iarc.fr/ENG/Classification/index.php

RELATED RESOURCES

- Health Canada, *It's Your Health*:
  - Safety of Wi-Fi Equipment at: www.hc-sc.gc.ca/hl-vs/iyh-vsv/prod/wifi-eng.php
  - Safety of Cell Phones and Cell Phone Towers at: www.hc-sc.gc.ca/hl-vs/iyh-vsv/prod/cell-eng.php
- For safety information about food, health and consumer products, visit the Healthy Canadians website at: www.healthycanadians.gc.ca
- For more articles on health and safety issues go to the *It's Your Health* web section at: www.health.gc.ca/iyh

You can also call toll free at 1-866-225-0709 or TTY at 1-800-267-1245*

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