

Terraprobe

*Consulting Geotechnical & Environmental Engineering
Construction Materials Inspection & Testing*

D-4 LANDFILL IMPACT ASSESSMENT 500 SALEM ROAD BARRIE, ONTARIO

Prepared for:

IPS Innovative Planning Solutions

647 Welham Road, Unit 9A.

Barrie, ON

L4N 0B7

Attention: Mr. Tyler Kawall

File No. 02306193.000

Date: October 16, 2023

©Terraprobe Inc.

Terraprobe Inc.

Greater Toronto

11 Indell Lane

Brampton, Ontario L6T 3Y3

(905) 796-2650 Fax: 796-2250

Hamilton – Niagara

903 Barton Street, Unit 22

Stoney Creek, Ontario L8E 5P5

(905) 643-7560 Fax: 643-7559

Central Ontario

220 Bayview Drive, Unit 25

Barrie, Ontario L4N 4Y8

(705) 739-8355 Fax: 739-8369

Northern Ontario

1012 Kelly Lake Rd., Unit 1

Sudbury, Ontario P3E 5P4

(705) 670-0460 Fax: 670-0558

www.terraprobe.ca

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1.0 EXECUTIVE SUMMARY

Terraprobe was retained by IPS Innovative Planning Solutions to carry out a D-4 Landfill Assessment for the new development located 60 m east of the intersection of County Road 27 and Salem Road in the City of Barrie, Ontario, hereafter referred to as “*The Property*.” The Property has a municipal address of 500 Salem Road, Barrie, Ontario.

The Property is a roughly rectangular-shaped parcel of approximately 8.20 acres (3.32 ha) in size and is currently developed with a two-storey residential building on the western portion of the Property. The Property is surrounded by naturally vegetated land to the north, Salem Road to the south, a landfill site (450 Salem Road) to the east, and residential dwellings to the west. It is understood that the proposed development of the Property intends to build six blocks (Blocks 1-6) for a total of 34 townhouse units and Street ‘A’ in the far eastern portion of the property. The development also includes the road widening along the northern edge of Salem Road.

The subject land is adjacent to and within a 500 m zone from a former Ministry of Transportation - MTO landfill site (known as Holly Site), number A252204.

The landfill, hereafter referred to as “Landfill Site” or “Holly Site,” was a Class A4 landfill that received roadside garbage and closed between 1992 and 2001. As such, the Property (500 Salem Road) under review falls within 500 meters of the waste disposal Site and is considered to be within a D-4 Assessment Area. According to the Ministry of the Environment, Conservation and Parks (MECP) D-4 Guideline Landfill Impact Assessment, the D-4 Assessment Area refers to the area considered to be potentially impacted by existing and previous waste disposal site operations. Terraprobe understands that the City of Barrie will require an assessment of the Property with respect to the MECP Guideline D-4 Impact Assessment to be completed for the proposed development in connection with the City’s Conformity Review Process. The D-4 Assessment Area refers to the area considered to be potentially impacted by existing and previous waste disposal operations. The assessment is required to characterize the local and regional geologic and hydrogeological conditions around the proposed development Site and to determine the likelihood of any adverse effect, particularly with respect to leachate generation and/or methane gas generation impacting the proposed works.

Based on available background information on the landfill site, and on-Site observation of the Property and the landfill Site, the following conclusions are summarized below:

Ground water contamination by leachate

Based on the review of the topography ([Interactive Map - County of Simcoe \(GIS\)](#)) of the Property and the landfill Site #A252204, the landfill is located on a relatively flat area with an average elevation of 310 masl. Localized low-lying areas of approximately 308 masl exist at the fill footprint. The north portion of the



landfill site slopes to the northwest from an elevation high of 310 masl to a low of 306 masl towards Bear Creek Valley, a tributary of Nottawasaga River Valley.

Based on the topography ([Interactive Map - County of Simcoe \(GIS\)](#)), the Property ground surface elevation is approximately 304 to 310 meters above mean sea level. The ground surface elevation of the landfill ranges from approximately 306 to 312 meters above mean sea level. Based on this topography, the landfill slopes down northwest towards Bear Creek Valley. It is expected that shallow groundwater and surface run-off from the landfill site will follow the topography and flow northwest from the non-operating closed waste disposal Site toward Bear Creek and ultimately to Georgian Bay. Based on information obtained from AMEC 2001 study (conducted to assess potential impacts on the Holly site and complete a remedial action program), groundwater elevations monitoring between 1999 to 2000 indicated that groundwater flow gradient is relatively flat beneath the former landfill footprint, with flow estimated to be to the northwest.

As such, the risk of the leachate impact is confined to the water-bearing sandy silts material close to the surface underneath the fill area and predominantly moving laterally to the north/ northwest drainage valley downgradient the landfill site towards the northwest corner of the landfill.

Based on DMC (1996), the borehole stratigraphy indicated the transition from the high-permeable surficial sandy silt soils to the underlying dense silty sand till. Groundwater monitoring on the limits of the landfill site and within the dense till below surficial sandy silt with gravel inferred perched condition with predominantly lateral flow above the transition zone between high-permeability sandy silt soils and low-permeability till. As such, vertical migration of groundwater is unlikely.

An MECP Memorandum (MECP, 2001) stated that after the remediation, the walls and floors of the landfill excavations were sampled and analyzed for Metals, VOC's and PAH's. Water samples from eight (8) onsite monitoring wells were collected and analyzed. All results were found to be below Table A criteria.

Based on the groundwater quality monitoring since 1994, the concentrations of leachate-related parameters (iron, nitrate, DOC, TKN) in the monitoring wells within the landfill footprint are lower than the Reasonable Use Guideline (RUG) values at or near the landfill site downgradient boundary. As such, no groundwater impacts were found at or near Holly landfill site boundaries with respect to the RUG at Holly sites (Trow, 1995). Since the non-operating waste disposal site is cross-gradient with respect to the Property and the shallow groundwater travels northwest away from the Property and flows towards Bear Creek, there is not likely any possibility of soil and water contamination to occur at the Property.

Surface Water Contamination By Leachate / Surface Run-off

The nearest surface water is Bear Creek, approximately 200 m west of the Property, which flows from south to north/ northwest. All of the landfill sites are located west of the Property, with grades falling toward Bear Creek Valley. Based on the 1995 operation and closure plan by Trow, there is no surface drainage within the Holly landfill, all surplus moisture infiltrates to the shallow water table aquifer. Minor ponding is



observed in localized low-lying areas after significant rainfall events. As such, no potential impacts are expected from the surface runoff from the landfill site.

Ground Settlement

The subject property is not located on the landfill material, and a vegetated 15-20 ft berm exists between the Property and the landfill site. Therefore, the proposed development is not prone to settlement issues associated with degradation of loose and/or organic fills. No waste was encountered at the Property during the site visit, and the potential for any future settlement is very low.

Visual Impact

The non-operating waste disposal Site is located east of the Property. A large 15-20 foot naturally vegetated berm exists between the landfill and the Property, which excluded any visual impact on the proposed development from the landfill because there was little to no line of sight to the landfill from the Property. There is also a small fence row to further visually distance the Property from the landfill site. Based on site inspection, currently, the landfill site periphery is also entirely fenced with dense and mature trees. Evidence of the non-operating waste disposal Site, such as wastes, fences, and access roads, were not observed during the site visit. In addition, no visible stressed vegetation was identified on the Property during the site visit or from a review of the aerial photos.

Soil Contamination and Hazardous Waste

No hazardous waste or soil contamination was observed at the Property during the site visit. Based on the anticipated direction of groundwater flow from the former landfill site to the northwest, it would not likely enter the subject property but rather flow past the furthest northeast corner of the subject property to the Bear Creek Valley. Therefore, there is no potential for hazardous waste or soil contamination at the landfill site to impact the groundwater, which would migrate toward the subject property.

Landfill Generated Gases (Methane)

Methane is a by-product of decomposing organic matter. Methane moves readily through porous, granular soils. This landfill has been closed for at least 30 years, with an estimated waste volume of approximately 50 tons per year placed at this Site during its operation from 1976 to 1992. However, the risk of methane gas from the non-operating waste disposal Site to the subject property depends on a number of factors, including the type and age of refuse, average depth and density of the waste as well as the annual average precipitation.

Based on the landfill Site Closure Plan by Trow (1994), it is estimated that approximately 11,500 m³ of refuse and waste materials have been disposed at the site during its operation from August 1976 to 1992. Sandy soil cover is variably present overlying the waste. Since the soils are granular in nature, methane gas probes were installed to monitor the methane generation rate or decay rate at the landfill Site. Gas vapour



monitoring was carried out by Trow using an MSA Model 60 (methane) and an HNU Photo Ionization Detector (non-methane), as reported in the Environmental Study, dated May 24, 1995.

Field methane and non-methane gas testing were carried out during the initial subsurface investigation work (test pits and boreholes) and in the gas monitoring probes (installed by Trow (1994) alongside the groundwater monitoring wells). No methane or non-methane vapour concentration was detected. Trow's "Operations and Closure Plan, Holly Site" has concluded that there is no potential impact on the surrounding areas. The results of Trow's gas testing are provided in Appendix G.

Moreover, based on the MECP Memorandum (2001), all waste deposited at the landfill site over the years of operation have been removed, and the site cleaned up. On the basis of a geophysical survey, 15 sited were excavated, and all waste and contaminated soils were removed. As such, it is Terraprobe's opinion that a non-operating waste disposal Site will not impact the proposed development.

Odour, Noise, Air Emission, Vehicle Traffic, Fires, or Vectors and Vermin

Odour, noise, air emission, vehicle traffic, fires, or vectors and vermin are potential concerns related to operating and/or recently closed landfills. However, there would be no concern to the proposed development from these elements since the downgradient landfill closed over 30 years ago. Site inspection within the scope of this study did not encounter unpleasant odour, noise, traffic or Vectors and Vermin related to a landfill operation. Therefore, these elements of the assessment are not a concern.



2.0 INTRODUCTION

Terraprobe was retained by IPS Innovative Planning Solutions to carry out a D-4 Landfill Assessment for the new development located 60 m east of the intersection of County Road 27 and Salem Road in the City of Barrie, Ontario, hereafter referred to as “*The Property*.” The Property has a municipal address of 500 Salem Road, Barrie, Ontario.

The Property is a roughly rectangular-shaped parcel of approximately 8.20 acres (3.32 ha) in size and is currently undeveloped with a two-storey residential building on the western portion of the Property. The Property is surrounded by naturally vegetated land to the north, Salem Road to the south, a landfill site (450 Salem Road) to the east, and residential dwellings to the west. It is understood that the proposed development of the Property intends to build six blocks (Blocks 1-6) for a total of 34 townhouse units and Street ‘A’ in the far eastern portion of the property. The development also includes the road widening along the northern edge of Salem Road.

Based on the proposed development plan provided (titled Conceptual Site Plan – 34 Street Townhouse Units 500 Salem Road, Barrie, ON) prepared by Innovative Planning Solutions dated March 14, 2023 (also provided in **Appendix H**), it is proposed to construct 34 new street townhouses in the eastern portion of the property, directly adjacent to the former Holly landfill site. It is understood that the proposed development will be fully serviced with municipal water and sewage.

Based on the City of Barrie Conformity Review Required Reports Checklist (Official Plan Amendment, Zoning By-law Amendment, Draft Plan of Condominium, Site Plan Control), a Landfill D-4 Assessment Study is required due to the historical land use of an adjacent property located at 450 Salem Road. It was reported that a non-operating closed waste disposal site identified with certificate number A252204 was located approximately 50 m west of the proposed development boundary. The Landfill, hereafter referred to as “Landfill Site” or “Holly Landfill Site” is classified as an A4 Potential Environmental Impact. As such, the Property under review falls within 500 meters of the waste disposal Site and is considered to be within a D-4 Assessment Area. According to the Ministry of the Environment, Conservation and Parks (MECP) D-4 Guideline Landfill Impact Assessment, the D-4 Assessment Area refers to the area considered to be potentially impacted by existing and previous waste disposal site operations. The D-4 Assessment is a direct application of Guideline D-1, “Land Use Compatibility”, which specifies restrictions and controls on land use that the MECP outlines for land use in the vicinity of operating or non-operating landfills or dumps.

Based on the City’s Conformity Review Reports Checklist, Terraprobe understands that the City of Barrie will require an assessment of the Property with respect to the MECP Guideline D-4 Assessment to be completed. The assessment is required to characterize the local and regional geologic and hydrogeological conditions around the proposed development site and to determine the likelihood of any adverse effect, particularly with respect to leachate generation and/or methane gas generation impacting the proposed works.



3.0 REVIEW OF THE BACKGROUND INFORMATION

The Property is located within the City of Barrie, in the County of Simcoe, Canada. The County of Simcoe requires that where development is proposed within 500 meters of a waste disposal site, a D-4 study be undertaken to evaluate the presence and impact of any adverse effects or risks to health and safety and any necessary remedial measures necessary for a proposed development in compliance with the Guideline D-4 including, but not limited to, ground and surface water (hydrogeology and hydrology), noise, odour, and dust, methane gas migration, traffic impact, land use compatibility, and other studies considered appropriate.

In reference to Section 4.1 of the D-4 Guideline entitled “Environmental Conditions,” the Holly landfill would be categorized as a “non-operating” Site. As such, the guideline suggests that it is important to consider impacts with respect to ground and surface water contamination by leachate, surface runoff, ground settlement, visual impact, soil contamination and hazardous waste and landfill-generated gases when assessing subject lands within 500m of non-operating Sites.

Waste Disposal Site Inventory produced by the MECP in June 1991 identifies the Holly landfill site with as class A4 Potential Environmental Impact. Holly landfill site was operated under Certificate of Approval Number A252204 issued by the Ontario Ministry of the Environment of Ontario (MOE – now known as MECP). MTO applied & received approval for a waste disposal site in 1972 to dispose of roadside garbage. The waste disposal site is 5 acres (2 hectare) of a 40 acres parcel. Based on the Operations and Closure Plan (May 1995), The entire Holly landfill site (including buffer) was 8.1 ha; 2.0 ha was used for waste disposal. The landfill was to operate 2 days per week and was used for waste disposal of roadside garbage (road wastes including street sweepings, concrete and culverts, catch basin cleanouts, sand, gravel, inert fill, asphalt, waste aggregate highway/picnic related refuse including wood, paper, glass and metal from Simcoe County). The estimated quantity of the waste was a total of 50 tonnes per year. The Holly site was formerly occupied by a portable HMA plant (hot-mix-asphalt), and an area in the western portion of the landfill site had been leased by the MTO for sand extraction. Based on a series of correspondence letters by the Ministry of Transportation and consultants (dated June 25, 2001; February 19, 1998; January 29, 1997, and November 1, 1996), Holly Site was acquired by the Ministry in August 1946, and the latest certificate of approval for a waste disposal Site received from the Ministry of Environment was on March 28, 1980. Based on AMEC’s letter of June 25, 2001, to the Ministry of Environment, most of the waste deposition occurred in the 1970s, and the last waste was deposited in 1992. The landfill site has been remediated, and all waste deposited has been removed. The waste material was removed by General Waste Inc. in 1997, and further remnant buried waste materials discovered by a detailed subsurface investigation of the site by AGRA in 1999 (approximately 6,000 tonnes) were removed in the fall of 2000. Subsequent sampling of groundwater and soils has confirmed that the site meets the Table A criteria for residential and parkland use as outlined in the *Guideline for Use at Contaminated Sites in Ontario*, and the source of potential future impacts (the waste) has been removed. The letters are provided in **Appendix G**.



With the removal of the waste and contaminated soil from the site and based on the analytical results of the soil and groundwater samples and the post-remediation geophysical study, the MOE Barrie District Office agreed on its letter of April 30, 2001, with the consultants' conclusions that the site meets the Table A criteria for residential and parkland use, as outlined in the Guideline for Use at Contaminated Sites in Ontario. Barrie District Office recommended replacement and control of the site entrance gate, with "No Trespassing" / "No Dumping" signs posted at the entrance gate and at 30-meter intervals along the south site perimeter, fronting on Salem Road. The MOE Barrie District Office letter is provided in **Appendix G**.



4.0 REVIEW OF PREVIOUS REPORTS

Previously, the following Environmental Impact Study Reports were completed for the Property, as summarized below:

4.1 Hydrogeological Study & Water Balance Analysis (September 2022)

Report Title	Hydrogeological Study and Water Balance Analysis Proposed Residential Townhome Subdivision 500 Salem Road, Town of Innisfil
Report Date	September 14, 2022
File No.	N/A
Prepared By	Ian D. Wilson Associates Ltd.
Prepared For	Mr. Adam Steeves and WMI & Associates Limited.

The study report presented the following results:

- The purpose of the report was to review the hydrogeological setting of the Site & to address the requirements of the June 2013 "Hydrogeological Assessment Submissions: Conservation Authority Guidelines for Development Applications" (the CA Guideline).
- The subject lands are currently mostly cleared and exhibit an overall slope to the northwest, with an overall relief of approximately 6 metres. The subject lands abut a wetland, which contains a tributary of Bear Creek, to the immediate west. Lands surrounding the site are mainly undeveloped open space and forest, with an industrial facility to the southeast.
- According to Ontario Geological Survey Map 2645, "Quaternary Geology of the Eastern Half of the Barrie and Elmvale Areas", the upper soils in the vicinity of the site consist of glaciofluvial ice-contact stratified sediments of sand to gravelly sand, with silty sand to sand glacial till mapped nearby to the west. According to Ontario Geological Survey Map P .3212, "Bedrock Topography of the Barrie Area", the overburden is approximately 200m deep. Local and regional well records indicate a typically granular, but stratified upper overburden (i.e. the upper 60m), underlain by a mainly fine-grained, stratified lower overburden. The upper overburden in the vicinity of the site is reported to consist of sand overlying silty sand till. The bedrock beneath the site consists of limestone and dolostone of the Simcoe Group.
- Shallow water table conditions are indicated on the subject lands. As part of the geotechnical investigation, SEL installed monitoring wells in the three boreholes completed within the subject lands for subsequent water table observations. The water levels were observed on July 8, 2022 to range between 1.5m and 2.6m below grade.
- The site is located within Well Head Protection Area WHPA-Q2, within a significant groundwater recharge area, and within a highly vulnerable aquifer area.



- Based on known site conditions (i.e. sand soils, rolling relief, cleared cover), an MECP infiltration factor of 0.7 is indicated for the site.
- Water budget analysis indicates that the development proposal of the site will reduce overall infiltration by about 61% from pre-development conditions.
- Due to the calculated loss in overall infiltration of the development proposal in comparison to pre-development conditions, infiltration enhancement measures must be adopted to infiltrate approximately 650/o of runoff from impervious rooftop surfaces. It is understood that the subdivision to the north (DiPoche) has accounted for the subject lands in terms of storm drainage and LIDs, as such it is planned to utilize these offsite controls. It is assumed that the LID facilities to the north will be able to accommodate annual infiltration of 848m³/year, in addition to that site's own infiltration requirements.

4.2 Phase One Environmental Impact Study (October 2022 – Revised January 2023)

Report Title	Environmental Impact Study, 500 Salem Road, Part of South Half of Lot 1, Concession 11, Geographic Township of Innisfil, Township of Innisfil, City of Barrie, County of Simcoe: Our File 2019
Report Date	October 2022 – Revised January 2023
File No.	2019
Prepared By	Cunningham Environmental Associates
Prepared For	Mr. Tim Gilman

- The purpose of the study was to identify, characterize, inventory, assess/evaluate and document the vegetation resources (vegetation communities, floristics), wildlife and wildlife habitat resources, flora and fauna Species at Risk (SAR), and aquatic resources on a mainly vacant parcel of land (“property”).

(West Parcel of Property)

- It is the intent of the Owner (LSR Salem Inc.) to sever the as-built portion of the West Parcel (Part A) through applications for Consent to Sever and Minor Variance. As requested by the City and NVCA to determine the extent and area of the wetland features for the purposes of their dedication to the City, the back portion of this portion of the property was staked in-situ with NVCA staff. The wetland boundary stakes were subsequently surveyed by an Ontario Land Surveyor (OLS) and overlaid onto Figure 4 (Severance Sketch), Figure 5 (Draft Plan of Subdivision) and Figure 6 (Draft Plan of Subdivision with an underlying FBS spring 2021 orthophoto). It was determined that the total area of the wetland features to be dedicated was 0.13 ha.
- Cunningham Environmental Associates’ professional opinion, supported by the reviewed and approved wetland features boundary staking exercise, that the dedication for the proposed severance has been addressed. The wetland features will remain intact and under public ownership,



and allow for the continued protection and enhancement of the natural features (wetlands) in the long-term. Given the required land dedication, the City should, therefore, approve the Consent to Sever and Minor Variance applications.

(East Parcel of Property)

- As stated previously, it is the intent of the Owner (LSR Salem Inc.) to build six blocks (Blocks 1-6) for a total of 34 townhouse units and Street 'A' in the far eastern portion of the property. The development also includes the road widening along the northern edge of Salem Road (Block 7, 0.24 ha).
- The wetland boundary stakes were subsequently surveyed by an OLS, and overlaid onto Figure 5 (Draft Plan of Subdivision) and Figure 6 (Draft Plan of Subdivision with an underlying FBS spring 2021 orthophoto). It was determined that the total area of the wetland features (part of the EPA designation) to be dedicated was 1.76 ha.
- It is Cunningham Environmental Associates' professional opinion, supported by the reviewed and approved wetland features boundary staking exercise, that the dedication wetland features in the EPA designation determined and the issue has been addressed. The entirety of the overall wetland mosaic will remain intact and under public ownership, and allow for the continued protection and enhancement of the natural features (wetlands) in the long-term. Given the land dedication, the City of Barrie should, therefore, approve the Zoning By-Law Amendment (ZBA) & Draft Plan of Subdivision applications, pending submission of a complete planning submission and a full and comprehensive review of the same under the Planning Act and public plan review process. It is also our professional opinion and, supported by the data collection and analysis, that the proposed townhome development area will protect the mosaic of wetland features to the west through the 20 m naturally vegetated wetland buffer and proposed BMPs, and therefore warrants approval of an Ontario Regulation 172/06 Permit from the NVCA.
- Most of the technical reports, as required in the Technical Meeting Required Reports (City of Barrie 2021b), have been prepared. However, there remain additional technical reports, as well as other plans and drawings during detailed design, which need to be prepared. In addition to the above-concluding remarks pertaining to the East Parcel (Part B), Cunningham Environmental Associates includes the following additional remark. Given the recently approved policy changes as outlined in Bill 23, the implications for any ecological offsetting/compensation are unknown at this time.

(TransCanada Pipeline (TCPL) on the Property)

- All of the TCPL easement (0.17 ha) and its inherent vegetation communities (WOD5-1, MEMM3/MEMM4, parts of MAMM1-12 and SWTM3-6 and MASM1-1), as shown on Figure 3, Figure 5 and Figure 6 will be dedicated to the City of Barrie.



4.3 Preliminary Geotechnical Investigation and Engineering Report

Report Title	Proposed Mixed-Use Development, 901 Essa Road and Brown Bear Street, Barrie, Ontario
Report Date	March 2022
File No.	3-22-0008-01
Prepared By	Terraprobe Inc.
Prepared For	Brown Bear Dev Ltd.

- The objective of a geotechnical investigation conducted for the property was to assess its geotechnical suitability for the intended re-development.
- The field investigation consisted of advancing a total of five (5) exploratory boreholes across the site.
- The geotechnical investigation determined the prevailing subsurface soil and groundwater conditions and provided geotechnical engineering recommendations for the design of proposed building foundations, basement floor-slab, earthquake and earth pressure design parameters, basement drainage, shoring design parameters, pipe bedding and installation of underground utilities. In addition, comments are also included on the pertinent project construction aspects, including excavation, backfill and groundwater control.

4.4 MOE Memorandum (April 2001)

Report Title	MOE Memorandum
Report Date	April 27, 2001
File No.	N/A
Prepared By	Ministry of Environment (now known as MECP)
Prepared For	Addressed to Barrie District Office, Ministry of Environment

- The MECP Memorandum confirmed a review of the Remediation Action Report, which shows that all waste deposited at this site over the years of operation has been removed and the site cleaned up to Table A criteria.
- Summarized remediation actions conducted on the basis of a geophysical survey, including excavation of 15 sites and removal of all waste and contaminated soils. After the remediation, the walls and floors of the excavations were sampled and analysed for metals, VOC's and PAH's. Water samples from eight (8) onsite monitoring wells were collected and analysed. All results were found to be below Table A criteria.
- Confirmed that a post-remedial geophysical survey was conducted. Some four (4) spots were identified as having anomalies. Test pits were dug at those four spots, but no further waste was found.



- Acknowledged the remediation report conclusion that all waste material has been removed from the site and that on the basis of samples taken from soils and groundwater and the geophysical survey conducted after the remediation, the site meets the Table A criteria for residential and parkland use.
- The Ministry of Environment concurred with the conclusion of the Remediation report and confirmed that it would have no objection to granting a revocation of the C of A for the MTO Holly landfill site.

4.5 Remediation Action Plan Report (March 2001)

Report Title	Remediation Action Plan
Report Date	March 30, 2001
File No.	N/A
Prepared By	AMEC Earth & Environment Ltd.
Prepared For	Ontario Ministry of Transportation

- The AMEC Earth & Environment Ltd. described a Remediation Action Plan completed on March 30, 2001, and submitted to the Ministry of Environment for review and comment prior to an application by the Ministry of Transportation MTO to revoke the Certificate of Approval (C of A) for the landfill site.
- Indicated that Seven (7) monitoring wells (OW-1 A/B to OW-6) n existed as of July 2000 on the site, including a replacement well installed by AGRA in May 1998 (observation wells location (Figure 3) is provided in **Appendix F**.
- Groundwater elevations in July 2000 were similar to the previous data (AGRA, 1999; Gartner Lee, 1997). The groundwater flow gradient is relatively flat beneath the former landfill footprint, with flow estimated to be to the northwest.
- The report indicated that no putrescible waste was deposited below the water table, and the remanent buried waste materials (approximately 6,000 tonnes) were removed in fall 2000 as part of the remedial action plan.
- The report concluded that the groundwater level and chemistry data from the sampling events within the fill footprint, upgradient and downgradient areas were generally consistent. No groundwater impacts were found at or near any of the property boundaries with respect to the Reasonable Use Guideline (RUG) at the Holly sites (Trow, 1995a,b) or the ODWO and/or PWQO for the Forest Home Site.
- AMEC requested that the provisional certificate of approval be revoked since the site is no longer a landfill; and recommended that no further monitoring be conducted on the landfill site, since the



soil and groundwater quality meet the Table A (Potable) criteria from the MOE Guideline for Use at Contaminated Sites in Ontario, and the source of potential future impacts (the waste) has been removed

- The Remediation report recommended that MTO apply to MOE for revocation of the C of A for this landfill site.

4.6 Groundwater monitoring program between 1994 and 2000 (Various Consultants)

Report Title	Monitoring Report for the Spring and Fall Sampling and Monitoring Program
Report Date	November 1996, December 1997, October 1998, 1999, March 2001
File No.	
Prepared By	• AMEC Earth & Environment Ltd. (March 2001), • AGRA Earth and Environment Limited, October 1998 (Spring Monitoring, 1998) • Gartner Lee Limited, December 1997 (Spring and Fall Sampling and Monitoring 1997) • Dames and Moore, Canada, November 1996, (Fall Monitoring Event, 1996)
Prepared For	Ontario Ministry of Transportation

- Some of the monitoring reports were not available for review during the writing of the above - report. However, the report stated that a letter dated February 1998 from the Ministry of Transportation to the Waste Approval Branch of the Ministry of Environment was reviewed. The letter stated that the results from the monitoring program showed only minimal salt contamination from the local service road.
- The Groundwater quality in the Holly landfill was monitored between 1994 and 2001. The monitoring program was originally comprised of six (6) observation wells installed in 1994, including OW1A/94, OW1B/94, OW2/94, OW3/94, OW4/94, OW5/94, and six (6) gas monitoring probes installed alongside the groundwater monitoring wells to characterize landfill leachate quality. Additional deep observation well OW6/96 (16.2 mbgs) was installed in 1996 to investigate the stratigraphy and groundwater quality in deeper formations underneath the site; and interpret vertical migration of groundwater. The map of monitoring locations at the closed landfill site prepared by AMEC (2001) is included in Appendix G.
- The monitoring program reports concluded that no significant impacts had been noted over these years. Based on the groundwater quality monitoring since 1994, no groundwater impacts was found at or near Holly landfill site boundaries with respect to the Reasonable Use Guideline (RUG). The concentrations of leachate-related parameters (iron, nitrate, DOC, TKN) in the monitoring wells within the landfill footprint indicated a minor localized impact on water quality as a result of landfilling operations (Trow, 1995a,b).



- It was reported that the soil and groundwater quality meet the Table A (Potable) criteria from the MOE Guideline for Use at Contaminated Sites in Ontario, and the source of potential future impacts (the waste) has been removed.
- Gartner Lee Limited, December 15, 1997, reported that groundwater quality remained similar to that observed in 1996 at the Holly site. Monitoring locations exhibited slightly elevated results in and below the former landfill footprint, as well as down-gradient. However, elevated nitrate concentrations observed at the Holly site may not be related to the landfill, as it was demonstrated in upgradient monitoring wells in 1996. It was, therefore, attributed to agricultural uses in the area and/or to naturally elevated nitrate.
- The increase in chloride appears to be directly related to road salt effects, which was illustrated in 1996 at the up-gradient monitoring location (OW4) close to the road. As such, chloride concentrations were not considered landfill-related. As there is no longer any waste to generate leachate, increased chloride could not be landfill-related.
- Considering low levels of leachate-related parameters (iron, nitrate, DOC, TKN and manganese) and the fact that high levels of chloride are attributed to road salt effects, the landfill was considered to be not contributing to any adverse effects on the surrounding groundwater regime. This was also demonstrated by the down-gradient monitoring location (OW5) and by the Reasonable Use Guideline concentrations calculated in Environmental Investigation – MTO Holly Pit Waste Disposal Site prepared by Trow Consulting Engineers Ltd., in May 1995.

4.7 Geophysical Survey Report (June 1999)

Report Title	Post remediation Geophysical Survey Report
Report Date	June 21, 1999
File No.	N/A
Prepared By	Hyd-Eng. Inc.
Prepared For	Ontario Ministry of Transportation

- The Geophysical survey report was not available for review during the writing of this report. However, findings were summarised in the various letters exchanged between the Ministry of Transportation, MECP and a previous D4 assessment by Terraprobe in 2010.

4.8 Installation of Observation Well No. 6 Holly Site (October 1996)

Report Title	Installation of Observation Well No. 6 Holly Pit
Report Date	October 1996
File No.	9630-7411-3049/ 24811-005
Prepared By	Dames & Moore, Canada (DMC)
Prepared For	The Ministry of Transportation (MTO)



- Excerpts of the Installation of Observation Well No. 6 report were available for review during the writing of this report; as well as a summary report letter addressed to the Ministry of Transportation (dated October 30, 1996) by Dames & Moore, Canada (DMC) was reviewed.
- The purpose of the deeper well installation was to investigate whether the highly permeable near-surface soils persisted to an extent where high vertical groundwater velocities may be carrying leachate down beyond the depth of the shallower monitors.
- This investigation was required in order to assess the stratigraphy and groundwater quality in deeper formations underneath the site, and explore if similar sand soils persisted at depth, and if there was potential for a high degree of vertical groundwater flow, which the shallow 1994 observation wells downgradient of the fill area (OW-2/94, OW-5/94) may not intercept.
- The report investigated Trow's 1994 interpreted potential for vertical migration of groundwater before it moves laterally off the site. The Ministry resolved to accept Trow's recommendation to drill a borehole and install an observation well in a deeper soil formation to investigate the concerns raised by Trow in their 1994 report (Operational and Site Closure Plan).
- The terms of reference for Project No. 9630-7411-3049 included the installation of a deep monitor near the northern (downgradient) property boundary of the site.
- The letter presented the results of the borehole drilling and subsequent installation of Observation Well 6/96 (OW-6/96) at MTO's former waste disposal site.
- The borehole drilling and well installation revealed the presence of dense tills at a depth just below where the shallow monitors were installed in 1994. As such, the borehole stratigraphy indicates that this is highly unlikely.
- The report showed that the bottom of the OW-5/94 monitor was likely at the transition from the high-permeable surficial soils to the underlying dense silty sand till. The hydraulic conductivity (K) of this till will be low and may vary from 10^{-7} to 10^{-5} cm/s based on density and clay content. This is in marked contrast to the measured hydraulic conductivity ($\sim .25 \times 10^{-2}$ cm/s) in the "sandy silt" within which the shallow monitors were installed. It is expected that groundwater descending through the granular surficial units will be greatly impeded upon reaching the low-K soils and will be largely migrating laterally along the "contact" zone between the high-K and low-K soils. The water-bearing "sandy silts" close to the surface at the landfill site may be considered to be under a "perched" condition locally and possibly seasonally.
- Leachate and shallow groundwater beneath the pit will be predominantly moving laterally to the north above the transition zone between the high-K and low-K soils. Dilution of any leachate will be relatively high due to the marked contrast (3 to 5 orders of magnitude) in hydraulic conductivity between the surficial sands and underlying till, which will promote the accumulation of infiltrating



water at the tile transition zone and lateral movement in the upper water-bearing sands. DMC does not consider it necessary to drill a well in a search for groundwater quality in deeper formations but to monitor OW-6/96 in the spring when groundwater levels recover and, if possible, obtain a sample at this time.

4.9 Operational and Site Closure Plan for the Holly Pit Waste Disposal Site (May 1995)

Report Title	Operational and Site Closure Plan for the Holly Pit Waste Disposal Site (Holly Site)
Report Date	May 24, 1995
File No.	BR-DB133-A/EA
Prepared By	Trow Consulting Engineers Ltd. (Trow)
Prepared For	The Ministry of Transportation (MTO)

- The purpose of the document is to detail an Operational and Closure Plan, which includes an evaluation of the possible use of catch basin material and road sweepings from Simcoe County as cover material. The measures described in the Closure Plan were implemented, and subsequent acceptance of the Plan by the MOEE.
- In conjunction with the Operational and Closure Plan, Trow conducted an Environmental Investigation of the Holly Site to identify existing and/or potential impacts as a result of previous landfilling operations. The findings indicated that there is no potential impact on the surrounding areas (agricultural and light industrial land use).
- Trow's investigation indicated that the shallow water-bearing soils beneath the surficial sand and gravel possessed a relatively high hydraulic conductivity ($\sim 2\text{-}3 \times 10^{-2}$ emfs); the vertical extent of these soils was not known.
- The results of the environmental investigation of the Holly site indicate that a minor localized impact on water quality is occurring as a result of landfilling operations. There is no evidence to suggest that groundwater migrating offsite exceeds any criteria under MECP Policy 15-08 ("Reasonable Use").
- Soil gases monitored by Trow (1994) within the landfill site in installed monitoring wells/gas probes indicated that measured gas vapour readings were nondetectable.
- Environmental Investigation of the Holly Site reviewed the site topographic survey completed May 4 & 5, 1994, and indicated that there is no surface drainage within the Holly site, all surplus moisture infiltrates to the shallow water table aquifer. Minor posing was observed in localized low-lying areas after significant rainfall events.
- There were various temporary on-site roads within the floor of the Holly site; and temporary roads for heavy vehicular traffic were constructed for land-filling operations.



5.0 ENVIRONMENTAL SETTINGS

5.1 Physiography, Surficial Geology and Bedrock

Geological mapping indicates that the subject property and the landfill are generally located within the area known as the Peterborough Drumlin Field. The bedrock on the Site is the Lindsay formation (fine- to coarse-grained, fossiliferous, commonly nodular, argillaceous limestone; the upper member (Collingwood) is black, organic-rich, fissile, very fine-grained limestone). The overburden consists of Till: Ice-contact stratified deposits of sand and gravel, minor silt and clay till. The geological maps are provided in **Appendix E**.

5.2 Topography

Based on the topographic information from the County of Simcoe web map, the Property ground surface elevation is approximately 304 to 310 meters above mean sea level. The ground surface elevation of the landfill ranges from approximately 306 to 312 meters above mean sea level. The landfill is located on a relatively flat area with an average elevation of 310 masl and localized low-lying areas of approximately 308 masl at the fill zone. The north portion of the landfill site slopes to the northwest from an elevation high of 312 masl to a low of 306 masl towards Bear Creek/ Nottawasaga River valley. The subject property is mainly located down-gradient of the landfill site and cross-gradient in a few sections with elevations at 308 masl. The topographical map is provided in **Appendix E**.

5.3 Soil Stratigraphy and Hydrogeology

The MECP well record database was reviewed for properties within 500m of the Property. A total of 51 wells were located within the 500 m radius, with depths ranging from 1.5 mbgs to 71 mbgs. The well records obtained is attached in **Appendix C**.

Stratigraphy (Property/ Study Area)	0 to 0.6 m – Topsoil 0.6 to 7.6 m – Sand, sandy silt and sand and gravel 7.6 to 48 m – Clayey silt glacial till
Depth to Water Table	Approximately 1.2 to 38.4 m, with seasonal fluctuations
Depth to Bedrock	Bedrock was not encountered in the MECP well record
Inferred Groundwater Flow Direction	The non-operating closed waste disposal Site # A252204 is located on the eastern side of the subject property boundary. Shallow groundwater and surface water are expected to follow the topography and flow to the northwest from the landfill site past and away from the subject property toward a stream along Bear Creek..



5.4 Access Environment

MECP's Access Environment was reviewed within a 500 m radius of the Property and a non-operating closed waste disposal Site (A252204). Record of Site Condition (RSC), Environmental Compliance Approval (ECA), Environmental Activity and Sector Registrations (EASR), and Permit to Take Water (PTTW) were searched using the database. The results indicated records with respect to RSCs, ECAs, EASRs, and PTTWs found on the Study Area. There were two records on the Property. They are described below:

- EASR record was identified at Lot No. 1, Concession No. 11 Innisfil. This is located approximately 300 m Northeast of the property. Pratt Development Inc. previously had this record for water taking for construction dewatering purposes in May of 2019, and it has a registration number of R-009-1111349140. This record has since been removed.
- ECA record was identified at 4165 Salem Road West, Innisfil, for Holcim (Canada) Inc. This record was approved and established in February of 2014.

The map showing the location of the applicable environmental approvals and registrations is provided in **Appendix A**.

5.5 Source Protection Atlas, Official Plan, and MNR

Terraprobe also reviewed the Municipal Official Plan the Ontario Ministry of Natural Resources and Forestry (MNR) Natural Heritage Information Centre for information specific to natural areas, such as locations of environmentally sensitive areas. The non-operating waste disposal Site and the Property were assessed as shown below.

- No Area of Natural and Scientific Interest (ANSI) were identified at the Property and the non-operating waste disposal Site.
- No Provincially significant wetlands were identified at the Property and the non-operating waste disposal Site.
- Non-operating closed waste disposal Site A252204 is located adjacent to the Property along the eastern border. The non-operating close waste disposal site is also located approximately 200 m east of Bear Creek, a water system travelling directly through the Property.

The map showing the location of the property and former close waste disposal site can be found in **Figures**.



6.0 AERIAL PHOTOGRAPHS

Aerial and satellite photographs dating 2004, 2006, 2011, 2014, 2021, & 2023 were reviewed. Satellite photos does not indicate any signs of developments or landfill operations in the subject property or the landfill sites. Upon the review of aerial and satellite photos, the east limit of the fill footprint within the non-operating closed waste disposal Site A252204 is located at 450 Salem Road, while the west limit of the former landfill lies adjacent to the subject property. The satellite photographs are provided in **Appendix D**.

7.0 ZONING BY-LAWS

According to the by-law no. 054-04 currently in place for the Corporation of the Town of Innisfil, the eastern portion of the Property (500 Salem) is currently zoned as agriculture General (AG), however is under review with the City of Barrie currently to have it changed to Neighbourhood Residential (R5) to permit the development of the lands into a subdivision. The middle of the property intersects with a large Natural Heritage System. Copies of the City of Barrie reports and zoning maps are provided in **Appendix A**.

8.0 SITE VISIT

Terraprobe visited the site on June 29, 2023 to perform a D-4 assessment. Access to the Property is from Salem Road. Visual inspection identified surrounding properties to be a mix of residential, industrial, and agricultural land use. During the visit, it was identified that the property could be separated into three distinct sections. The first is the west end of the property, where one 3.5-storey residence stands and a small shed structure was also identified in the most southwestern corner of the property. Access to this residence lies at the address of 500 Salem Road. This area is relatively flat in the front and middle sections of the property but gently slopes northeast into the surrounding wetland areas. Residential properties to the west, Salem Road to the south, and wetland areas to the north and east towards the remainder of the subject property. This distinct change in land type from the residence area to the wetland area is visible from the aerial photos included in Appendix D as well as the site inspection photos included in Appendix F. The residential building was not occupied at the time of inspection but was in the process of being renovated. The residence stands at 3.5 levels, with one level being the basement. The remainder of the residence property was occupied by grassed landscapes, mature trees, large patio areas and gazebo structures in the backyard, as well as maintained driveway areas. The septic system is located directly in front of the house's main door, located underneath the patio stones & grassed area of the front yard. One water supply well lies on the lawn just off the northwest corner of the dwelling. To the east of the residence lies a natural gas pipeline stretching through the property from south to north, which can also be viewed in the site inspection photos.



The second section lies in the middle of the property, where it is a large wetland area. During the site inspection, the client stated this area was to be rezoned and donated to municipal conservation authorities. This area was marked out by orange stakes during the site inspection and can be viewed in the site photos in Appendix F. A small creek travelling south to north was observed entering the property at Salem Road through the middle section of the site. This wetland area connects the east and west portions of the property. While the western portion (the first section) is to remain largely as it is, the eastern portion (the third section) of the property is to be re-zoned and developed for residential uses. This is discussed further below.

The third and final section of the property identified in the site visit was the eastern portion, of which is to be re-zoned for subdivision development. Access to this section of the property is via the 2nd driveway, which lies approximately 0.25 km east down Salem Road from the original property driveway (no municipal address yet). The eastern side of the property shares a boundary with the former closed waste disposal site. However, there is a large berm separating the subject property and the former waste site along the eastern property boundary. This berm was estimated to be approximately 15 to 20 ft in height and naturally vegetated with brush and mature trees. There were no signs of obvious settlement on the property. No waste was encountered at the Property and the landfill Site during the inspection. The visual inspection of the Property indicated that the landfill Site was at a lower elevation and sloped towards the northwest. No stains or evidence of impact was noted on the driveways; no stained soil or stressed vegetation was noted at the Property. Site inspection photographs are provided in **Appendix F**.

The landfill site is located east of the subject property and lies adjacent to the eastern property boundary for the subject property. The landfill lies cross and downgradient from the property site, separated by a large vegetated berm along the east property border. The landfill site is vegetated with long grass, bushes and trees scattered in the middle of the site; and was heavily treed on the perimeter. The site is fenced around the perimeter with a large, approximately 4.5 to 6 feet tall berm on the southwest corner for approximately 50 m. Three (3) monitoring wells/ gas probes were observed at the south end of the landfill, four (4) monitoring wells/ gas probes in the middle and four (4) on the north end of the landfill site. The landfill site is observed to be topographically downgradient from the subject property. The wind direction is observed to be from the south to the north. Site inspection photographs are provided in **Appendix F**.



9.0 DISCUSSION WITH RESPECT TO MECP D4 GUIDELINE (LAND USE ON OR NEAR LANDFILLS AND DUMPS)

In reference to Section 4, “Environmental Conditions” of MECP D-4 guideline, the landfill Site would be categorized as indicated in 4.2 as a “non-operating” Site. The guidelines suggest that the following factors should be considered for the D-4 Assessment:

Ground water contamination by leachate

Based on the review of the topography ([Interactive Map - County of Simcoe \(GIS\)](#)) of the Property and the landfill Site #A252204, the landfill is located on a relatively flat area with an average elevation of 310 masl. Localized low-lying areas of approximately 308 masl exist at the fill footprint. The north portion of the landfill site slopes to the northwest from an elevation high of 310 masl to a low of 306 masl towards Bear Creek Valley, a tributary of Nottawasaga River Valley.

Based on the topography ([Interactive Map - County of Simcoe \(GIS\)](#)), the Property ground surface elevation is approximately 304 to 310 meters above mean sea level. The ground surface elevation of the landfill ranges from approximately 306 to 312 meters above mean sea level. Based on this topography, the landfill slopes down northwest towards Bear Creek Valley. It is expected that shallow groundwater and surface run-off from the landfill site will follow the topography and flow northwest from the non-operating closed waste disposal Site toward Bear Creek. Based on information obtained from AMEC 2001 study (conducted to assess potential impacts on the Holly site and complete a remedial action program), groundwater elevations monitoring between 1999 to 2000 indicated that groundwater flow gradient is relatively flat beneath the former landfill footprint, with flow estimated to be to the northwest.

As such, the risk of the leachate impact is confined to the water-bearing sandy silts material close to the surface underneath the fill area and predominantly moving laterally to the north/ northwest drainage valley downgradient the landfill site towards the northwest corner of the landfill.

Based on DMC (1996), the borehole stratigraphy indicated the transition from the high-permeable surficial sandy silt soils to the underlying dense silty sand till. Groundwater monitoring on the limits of the landfill site and within the dense till below surficial sandy silt with gravel inferred perched condition with predominantly lateral flow above the transition zone between high-permeability sandy silt soils and low-permeability till. As such, vertical migration of groundwater is unlikely.

An MECP Memorandum (MECP, 2001) stated that after the remediation, the walls and floors of the landfill excavations were sampled and analyzed for Metals, VOC's and PAH's. Water samples from eight (8) onsite monitoring wells were collected and analyzed. All results were found to be below Table A criteria.



Based on the groundwater quality monitoring since 1994, the concentrations of leachate-related parameters (iron, nitrate, DOC, TKN) in the monitoring wells within the landfill footprint are lower than the Reasonable Use Guideline (RUG) values at or near the landfill site downgradient boundary. As such, no groundwater impacts were found at or near Holly landfill site boundaries with respect to the RUG at Holly sites (Trow, 1995). Since the non-operating waste disposal site is cross gradient with respect to the Property and the shallow groundwater travels northwest away from the Property and flows towards Bear Creek, there is not likely any possibility of soil and water contamination to occur at the Property.

Surface Water Contamination By Leachate / Surface Run-off

The nearest surface water is Bear Creek, approximately 200 m west of the Property, which flows from south to north/ northwest. All of the landfill sites are located west of the Property, with grades falling toward Bear Creek Valley. Based on the 1995 operation and closure plan by Trow, there is no surface drainage within the Holly landfill, all surplus moisture infiltrates to the shallow water table aquifer. Minor ponding is observed in localized low-lying areas after significant rainfall events. As such, no potential impacts are expected from the surface runoff from the landfill site.

Ground Settlement

The subject property is not located on the landfill material, and a vegetated 15-20 ft berm exists between the Property and the landfill site. Therefore, the proposed development is not prone to settlement issues associated with degradation of loose and/or organic fills. No waste was encountered at the Property during the site visit, and the potential for any future settlement is very low.

Visual Impact

The non-operating waste disposal Site is located east of the Property. A large 15-20 foot naturally vegetated berm exists between the landfill and the Property, which excluded any visual impact on the proposed development from the landfill because there was little to no line of sight to the landfill from the Property. There is also a small fence row to further visually distance the Property from the landfill site. Based on site inspection, currently, the landfill site periphery is also entirely fenced with dense and mature trees. Evidence of the non-operating waste disposal Site, such as wastes, fences, and access roads, were not observed during the site visit. In addition, no visible stressed vegetation was identified on the Property during the site visit or from a review of the aerial photos.

Soil Contamination and Hazardous Waste

No hazardous waste or soil contamination was observed at the Property during the site visit. Based on the anticipated direction of groundwater flow to from the former landfill site to the northwest, it would not likely enter the subject property but rather flow past the furthest northeast corner of the subject property.



Therefore, there is no potential for hazardous waste or soil contamination at the landfill site to impact the groundwater, which would migrate toward the subject property.

Landfill Generated Gases (Methane)

Methane is a by-product of decomposing organic matter. Methane moves readily through porous, granular soils. This landfill has been closed for at least 30 years, with an estimated waste volume of approximately 50 tons per year placed at this Site during its operation from 1976 to 1992. However, the risk of methane gas from the non-operating waste disposal Site to the subject property depends on a number of factors, including the type and age of refuse, average depth and density of the waste as well as the annual average precipitation.

Based on the landfill Site Closure Plan by Trow (1994), it is estimated that approximately 11,500 m³ of refuse and waste materials have been disposed of at the site during its operation from May 1972 to January 1980. Sandy soil cover is variably present overlying the waste. Since the soils are granular in nature, methane gas probes were installed to monitor the methane generation rate or decay rate at the landfill Site. Gas vapour monitoring was carried out by Trow using an MSA Model 60 (methane) and an HNU Photo Ionization Detector (non-methane), as reported in the Environmental Study, dated May 24, 1995.

Field methane and non-methane gas testing were carried out during the initial subsurface investigation work (test pits and boreholes) and in the gas monitoring probes (installed by Trow (1994) alongside the groundwater monitoring wells). No methane or non-methane vapour concentration was detected. Trow's "Operations and Closure Plan, Holly Site" has concluded that there is no potential impact on the surrounding areas. The results of Trow's gas testing are provided in Appendix G.

Moreover, based on the MECP Memorandum (2001), all waste deposited at the landfill site over the years of operation have been removed, and the site cleaned up. On the basis of a geophysical survey, 15 sites were excavated, and all waste and contaminated soils were removed. As such, it is Terraprobe's opinion that a non-operating waste disposal Site will not impact the proposed development.

Odour, Noise, Air Emission, Vehicle Traffic, Fires, or Vectors and Vermin

Odour, noise, air emission, vehicle traffic, fires, or vectors and vermin are potential concerns related to operating and/or recently closed landfills. However, there would be no concern to the proposed development from these elements since the downgradient landfill closed over 30 years ago. Site inspection within the scope of this study did not encounter unpleasant odour, noise, traffic or Vectors and Vermin related to a landfill operation. Therefore, these elements of the assessment are not a concern.



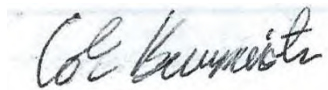
10.0 CONCLUSIONS AND RECOMMENDATIONS

In summary, it is Terraprobe's opinion that the risk of landfill leachate and landfill-generated gases to impact the subject property is low. This is based on the physical setting and hydrogeological conditions of the property, nature (roadside garbage), the age of waste buried at the landfill site being closed for at least 30 years, and well as the remediation cleanup and post-remediation geophysical results.

We trust that this report adequately summarizes our recent assessment of the potential impact of the landfill Site on the subject property. If you should have any questions or need further assistance, please do not hesitate to contact the undersigned.

Sincerely,

Terraprobe Inc.



Cole Burmeister, B.Sc.
Project Coordinator, Environmental Group



Samuel Oyedokun, P.Eng., PMP, QP_{ESA}
Associate, Environmental Engineering



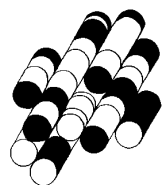
11.0 REFERENCES

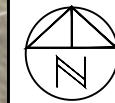
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2. [Ontario Landfills.xlsx \(live.com\)](#)
3. [Zoning - Town of Innisfil](#)
4. Oak Ridges Moraine Groundwater Program (ORMGP) mapping
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7. Terraprobe Inc. (2010), "Landfill Impact Assessment Proposed Residential Development Lot 1, Concession 11, Innisfil, (Northeast Corner Hwy 27 and Salem Road) Barrie Annex Land, Ontario" File No. 3-10-6080, dated October 12, 2010
8. Terraprobe Inc. 2022, Preliminary Hydrogeological Study Proposed Mixed-Use Development, 901 Essa Road and Brown Bear Street, Barrie, ON, Ontario, File No. 3-22-0008-41, April 7, 2022.
9. Terraprobe Inc. 2022, Phase One Phase One Environmental Site Assessment 901 Essa Road and Brown Bear Street, Barrie, ON, Ontario, File No. 3-22-0008-41, March 21, 2022
10. The Corporation of the Town of Elliot Lake, 1980, Elliot Lake Landfill Site Closure Plan, December, 1980
11. Trow Consulting Engineers, dated May 24, 1995, Environmental Investigation:
12. Trow Consulting Engineers, dated May 24, 1995, Operations and Closure Plan:
13. Dames & Moore Canada (DMC), dated October 30, 1996, Installation of Observation Well No. 6
14. Hyd-Eng. Inc. Geophysical Survey Report, dated June 21, 1999
15. Electromagnetic Survey: Geomar Geophysics Ltd., dated April 1994
16. Environmental Impact Study., Cunningham Environmental Associates., dated (revised) January 2023. (Provided by client)
17. Hydrogeological Study and Water Balance Analysis., Wilson Associates., dated September 14, 2022. (Provided by client)
18. Geotechnical Investigation., Soil Engineers Ltd., dated July 2022. (Provided by client)



FIGURES

TERRAPROBE INC.





Reference:

County of Simcoe
Interactive Maps

Notes:

Legend:

 Approximate Property Boundary

Project Title:

Hydrogeological Assessment

Site Location:

500 Salem Road, Barrie, Ontario

Figure Title:

Site Location Plan

Designed By: MS

MS

Drawn By: AA

AA

Reviewed By: MM

MM

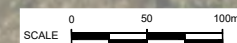
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Scale: As Shown

Figure No.:

1





**Terraprobe Inc.**
an Englobe Company



Reference:

County of Simcoe
Interactive Maps

Notes:

Legend:

Approximate Property Boundary

Approximate Landfill Location

500m Radius from Landfill

Project Title:

Hydrogeological Assessment

Site Location:

500 Salem Road, Barrie, Ontario

Figure Title:

Landfill Location Plan

Designed By: MS

Drawn By: AA

Reviewed By: MM

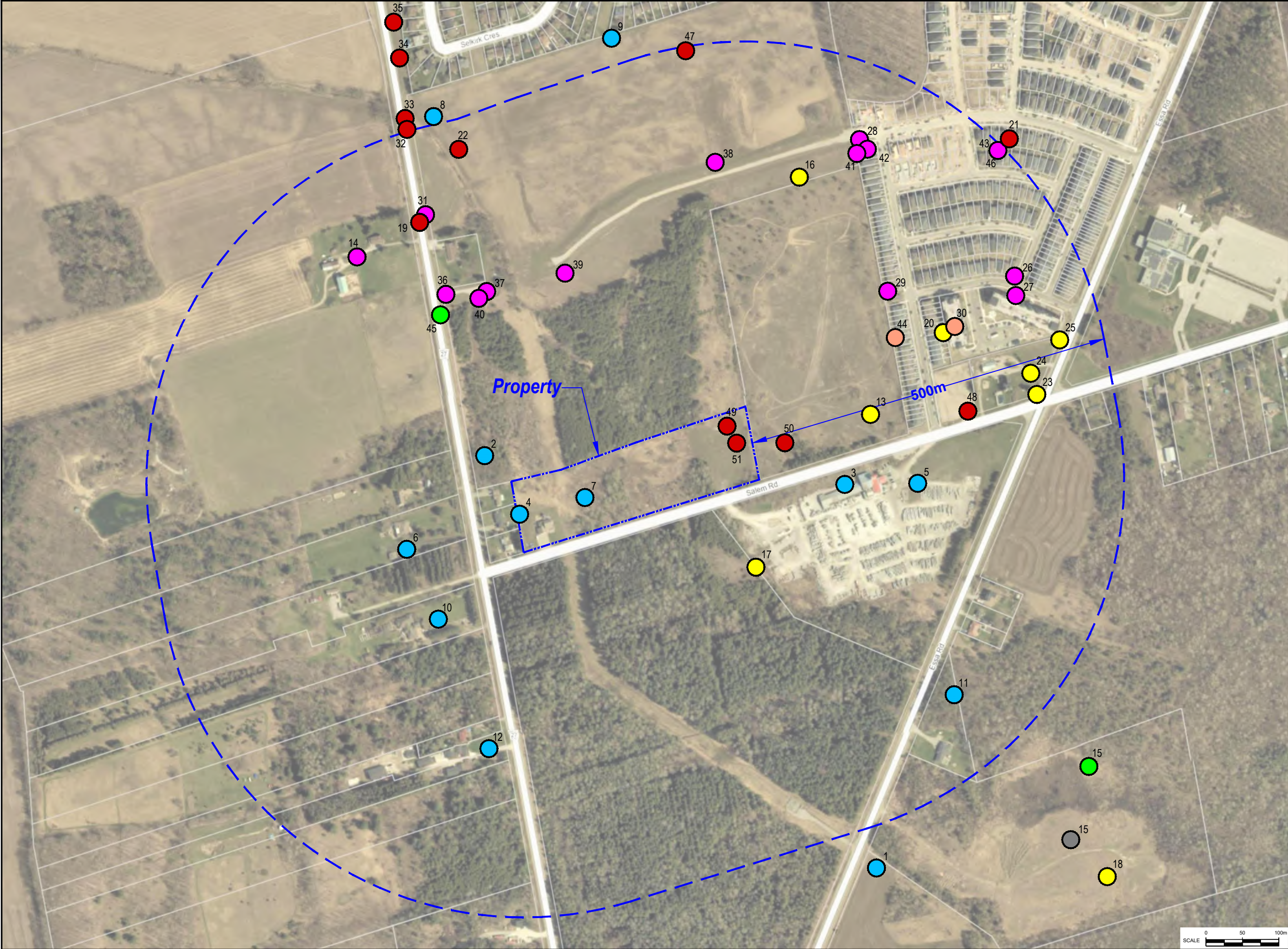
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Terraprobe Inc.
an Englobe Company



Reference:
County of Simcoe
Interactive Maps

Notes:

Legend:

Approximate Property Boundary

500m Study Area

Water Supply

Observation Wells

Abandoned-Other

Test Hole

Unknown

Other Status

Abandoned Monitoring Well and Test Hole

Project Title:
Hydrogeological Assessment

Site Location:
500 Salem Road, Barrie, Ontario

Figure Title:
MECP Well Location Map

Designed By: MS

Drawn By: AA

Reviewed By: MM

Date: July 2023

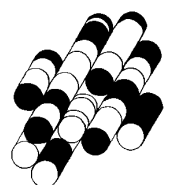
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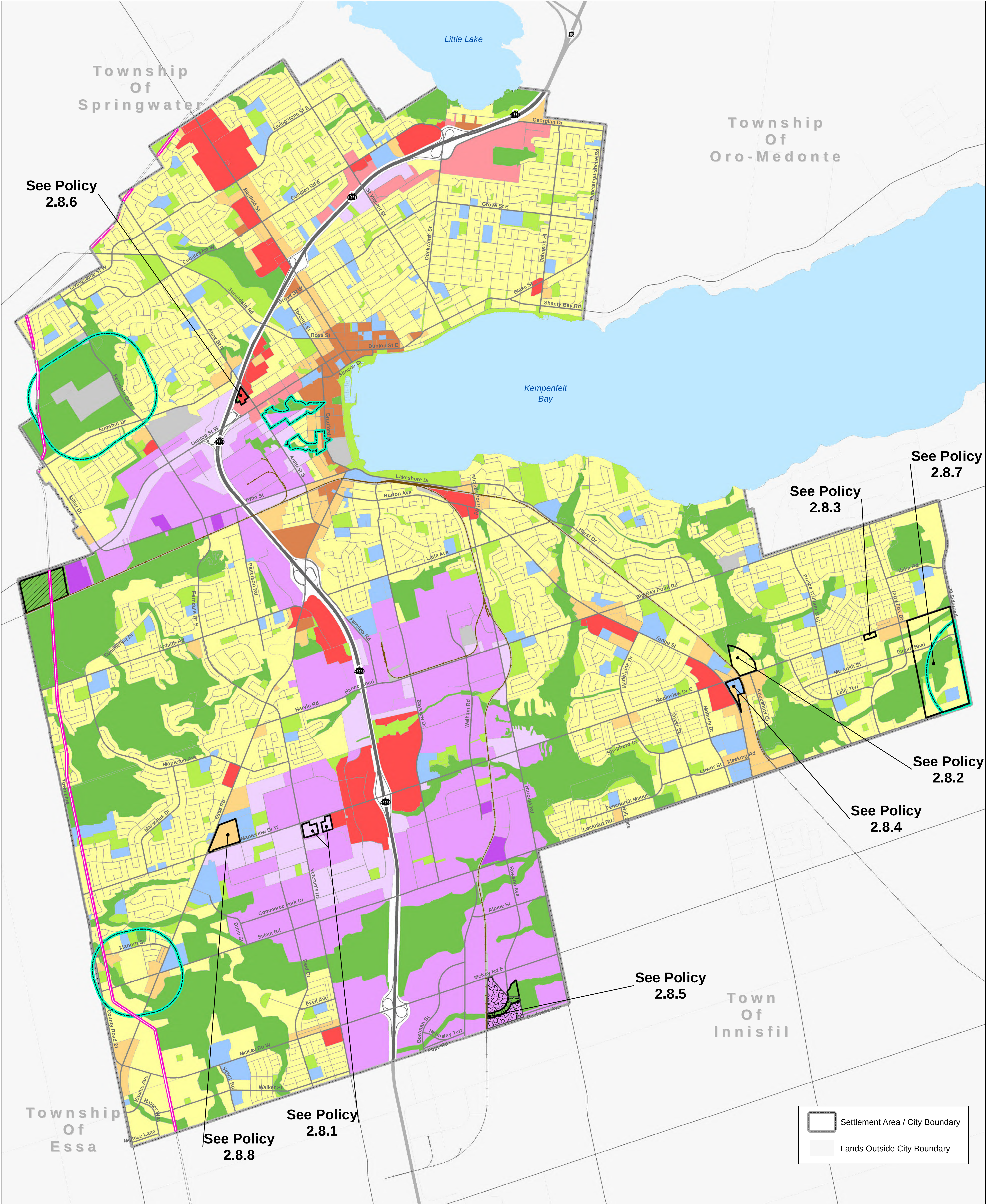
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Figure No.: 3

APPENDIX A

TERRAPROBE INC.



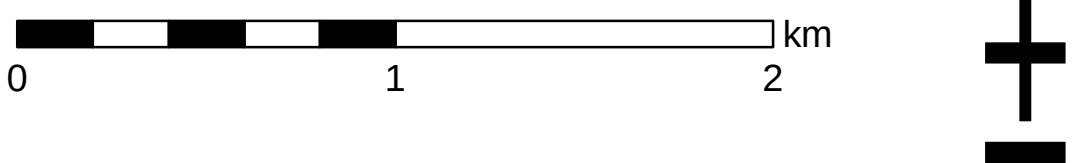


OFFICIAL PLAN
MAP 2
Land Use Designations

As Modified and Approved by
the Ministry of
Municipal Affairs and Housing
April 11, 2023

- | | | |
|---|--|--|
| Neighbourhood Area | Employment Area - Non Industrial | Waste Disposal Assessment |
| Medium Density | Employment Area - Industrial | Extractive Industrial |
| High Density | Employment Area - Restrictive Industrial | Defined Policy Area |
| Strategic Employment and Economic District (SEED) | Natural Heritage System | Application Before the Local Planning Appeal Tribunal (LPAT) |
| Commercial District | Greenspace | TransCanada Pipeline Right-of-way |
| Community Hub | Infrastructure and Utility | |

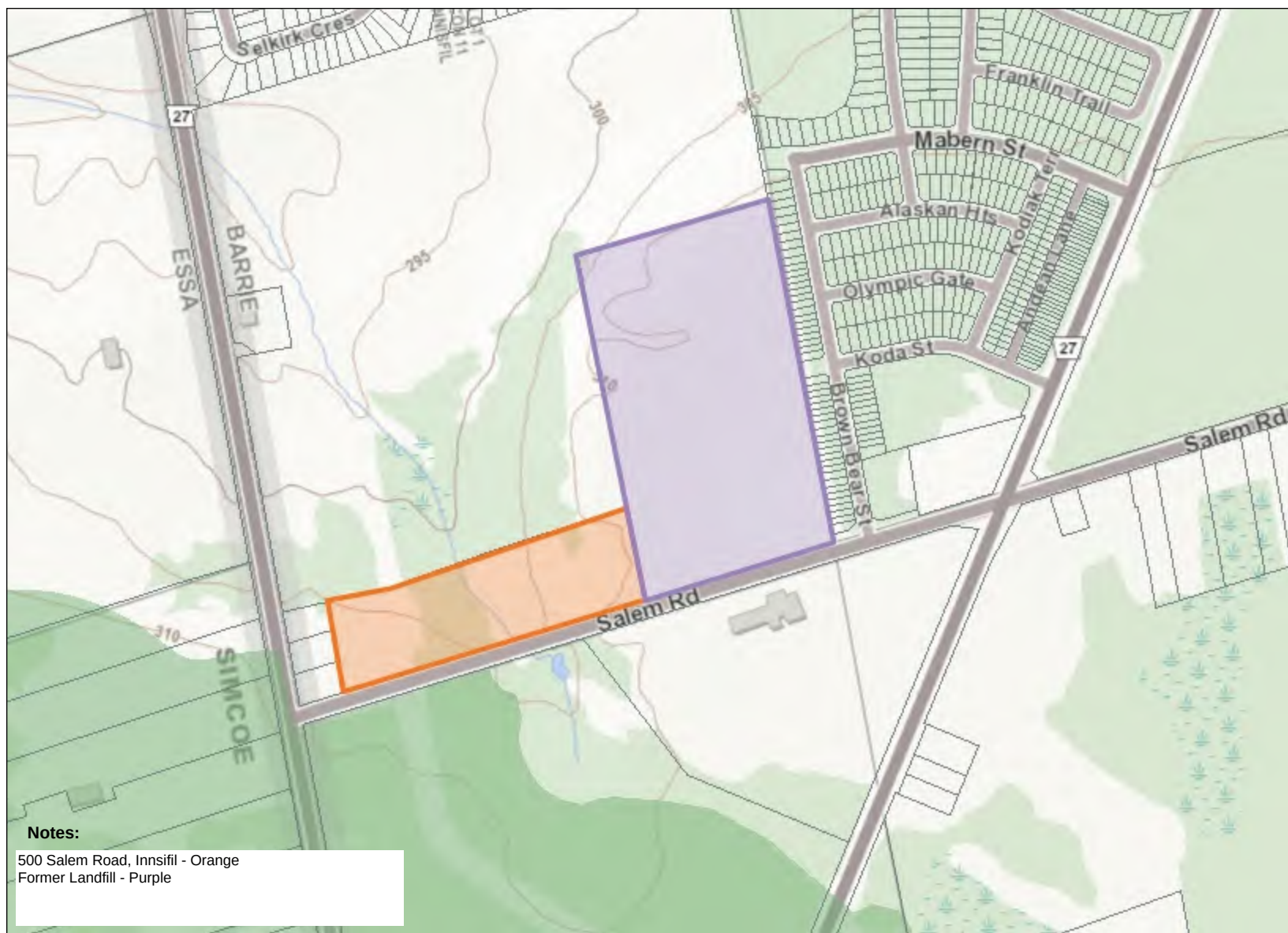
* All land use designations extend to the centre line of the right-of-way for streets. Land use designations, where applicable, extend to/terminate at the boundary of the right-of-way for provincial highways, rail corridors and utility corridors.
** Certain features like roads, parks and trails within the undeveloped designated greenfield area are conceptual and subject to change.



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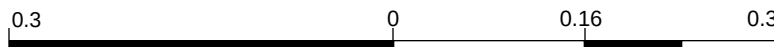
Natural Heritage Map

Map created: 8/15/2023



Notes:

500 Salem Road, Innsifil - Orange
Former Landfill - Purple



This map should not be relied on as a precise indicator of routes or locations, nor as a guide to navigation. The Ontario Ministry of Natural Resources and Forestry (OMNRF) shall not be liable in any way for the use of, or reliance upon, this map or any information on this map.

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Legend

-  Assessment Parcel
-  Earth Science Provincially Significant/sciences de la terre d'importance provinciale
-  Earth Science Regionally Significant/sciences de la terre d'importance régionale
-  Life Science Provincially Significant/sciences de la vie d'importance provinciale
-  Life Science Regionally Significant/sciences de la vie d'importance régionale
-  Provincially Significant/considérée d'importance provinciale
-  Non-Provincially Significant/non considérée d'importance provinciale
-  Natural Heritage System

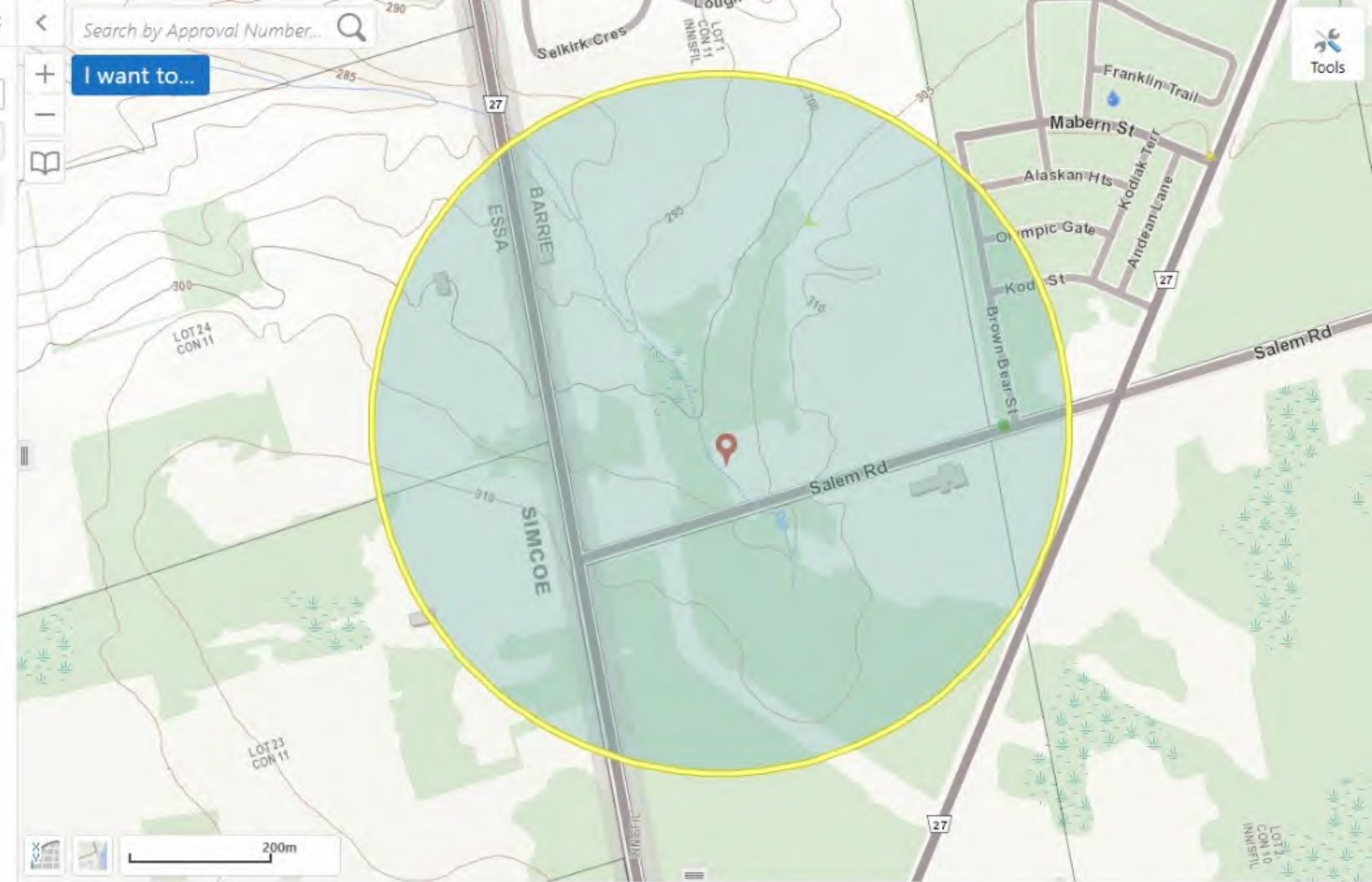


Find an Address or Place

Address, intersection, or place name:
500 salem road, barrie

Search Clear Cancel

Displaying location:
500 Salem Road, BARRIE, ONTARIO



Identify Results (1)

Drawings Environmental Compliance Approvals Environmental Activity and Sector Regist...

Name
Drawings 1



Ministry of the Environment, Conservation and Parks
Operations Division

Confirmation of Registration

Registration Number: R-009-1111349140

Version Number: 001

Date Registration Filed: May 28, 2019 14:34:24 PM

Dear Sir/Madam,

PRATT DEVELOPMENT INC.

27 Clapperton Street Suite 300
Barrie ON L4M 3E6

You have registered, in accordance with Section 20.21(1)(a) of the *Environmental Protection Act*, for the taking of water for dewatering a construction site, as prescribed in O. Reg. 63/16.

Lot No. 1, Concession No. 11, INNISFIL, The south half of Lot 1 Concession 11

Please note that the water taking for construction dewatering is subject to the applicable provisions of O.Reg 245/11 and O. Reg. 63/16.

The activity related information provided during the registration process is included as part of the confirmation of registration as schedule 'A'.

Dated on May 28, 2019

Director

Environmental Approvals Access and Service Integration Branch
Ministry of the Environment, Conservation and Parks
135 St. Clair Avenue West, 1st Floor
Toronto ON M4V 1P5

Any questions related to this registration and the Environmental Activity and the Sector Registry should be directed to:

Ministry of the Environment, Conservation and Parks

Customer Service Representative

Environmental Approvals Access and Service Integration Branch

Phone:(416) 314-8001

Toll free: 1-800-461-6290

Schedule 'A'

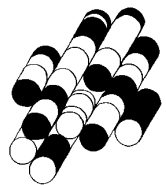
Part 3 — Activity Information

3.1 Registration Information

1. Will you be taking water for the dewatering of a construction site?	☒ Yes	☐ No
2. Will you be transferring water from one Great Lake water basin to another?	☐ Yes	☒ No
3. Will you be taking more than 50,000 litres per day on any day?	☒ Yes	☐ No
4. Will you be taking more than 400,000 litres per day on any day under normal conditions?	☐ Yes	☒ No
5. Will you be taking only storm water?	☐ Yes	☒ No
6. Will the taking of water be restricted from human consumption, agriculture use or in an industrial or manufacturing process?	☒ Yes	☐ No
7. Will you discharge directly to a water body?	☐ Yes	☒ No
8. Where will the water be discharged?		
Transfer to a waste management system.	☐	
Discharge to a sewage works.	☐	
Discharge to a municipal sanitary sewer or a storm sewer.	☐	
Discharge to land in accordance with a discharge plan.	☒	
9. What is the estimated first day that water will be taken?	2019-06-03	
10. What is the estimated last day that water will be taken?	2019-12-20	

APPENDIX B

TERRAPROBE INC.





D-4 GUIDELINE LANDFILL IMPACT ASSESSMENTS

Solid Waste Management



D-4

GUIDELINE LANDFILL IMPACT ASSESSMENT

1.0 BACKGROUND

This outline is intended as a best practices guide to provide Qualified Professionals preparing the study with the County's requirements and thereby improve the efficiency of the review process. This document is only applicable to D-4 Study applications submitted to the County for review.

The D-4 is a direct application of Guideline D-1, "Land Use Compatibility" (Guidelines), which specifies restrictions and controls on land use that the Ontario Ministry of Environment and Climate Change (Ministry, or MOECC) outlines for land use in the vicinity of landfills or dumps. The Simcoe County Official Plan requires the application of the D-4 Guideline and extends to proposals for land use changes on or near operating or non-operating landfills. The D-4 Assessment Area refers to the lands considered to be potentially impacted by waste disposal (landfill) site operations, generally within 500 metres of the waste disposal site.

Factors to be considered for land uses in the vicinity of non-operating landfill sites include: (i) ground and surface water contamination by leachate, (ii) surface runoff, (iii) landfill-generated gases, (iv) ground settlement, (v) visual impact and (vi) soil contamination and hazardous waste. The Guideline notes "particular attention shall be given to the production and migration of landfill gas".

Factors to be considered for land uses in the vicinity of operating landfill sites include: (i) ground and surface water contamination by leachate, (ii) surface runoff, (iii) landfill-generated gases, (iv) litter, (v) odour, (vi) contaminant discharges from associated vehicular traffic, (vii) dust, (viii) noise, (ix) other air emissions, (x) visual impact, (xi) fires, and (xii) vectors and vermin. The Guideline notes "particular attention shall be given to the production and migration of landfill gas".

If a landfill site is closed, but active operations / activities occur at the site (e.g., waste transfer station, household hazardous waste collection, recycling, composting, etc.), in addition to reviewing impacts of the non-operating landfill, the current activities shall be evaluated as per the criteria as per the Certificate of Approval / Environmental Compliance Approval (CofA / ECA) approved activities.

It is noted that, with respect to any proposed development in the vicinity of an operating landfill or waste transfer station, consideration be given not only to the zoning standards set out by the local municipality, but also to assess nuisance or health issues relating to the potential sensitive use of the proposed development. Sensitive use is defined in the D-4 Guideline and includes a permanent structure where a person sleeps or is present on a full-time basis. It is recommended that for uses not strictly outlined in the D-4 Guidelines, that the proponent discuss approved uses with the Municipality and the County prior to completion of a detailed D-4 Study. Additional studies may be required to address issues including but not limited to noise, air quality and traffic, which are beyond the standard review outlined herein.

The County will require that the D-4 Study include the following, outlined in more detail in Section 3:

- i. The proximity of the D-4 study site to the Waste Disposal Site and the potential for nuisance effects;
- ii. Recommendations by the County's peer review consultant that should be implemented; and
- iii. Any subsequent planning applications may require additional D-4 Study.

The County requires these three conditions to ensure that (i) the proximity to the Waste Disposal Site and potential nuisance effects associated with the location of the development are clearly outlined on the title of the property to inform future owners of the property (ii) to guarantee any remedial measures are complied with, and (iii) to ensure the property owners understand that a D-4 study for one development proposal may not apply to another.

2.0 EXPECTATIONS AND RESPONSIBILITIES

Client

- Identify that the site of a proposed development is located within the Assessment Area of an active or closed landfill site;
- Contract a Qualified Professional, either a licenced professional geoscientist or engineer with the requisite training and experience, to complete a D-4 Study to assess the potential impacts on the property; and,
- Ensure that appropriate control measures, as necessary, are implemented as per recommendations of the Qualified Professional involved in the D-4 Study process, as well as any related Planning approval requirements.

D-4 Consultant (Qualified Person)

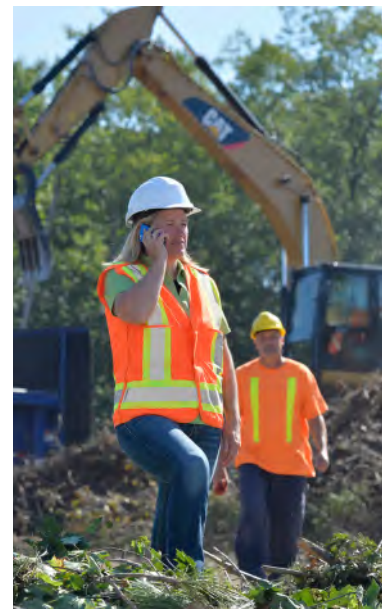
- Assess all factors listed above to evaluate the presence and impact of any adverse effects or risks to health and safety, nuisance impacts and degradation of the natural environment taking into consideration the proposed land use(s) and the uses permitted by local zoning bylaws;
- Communicate with the County and the Ministry to request documentation on the relevant landfill site and additional information as required. This could include monitoring reports, well record information, information about operations/activities on site, hours of operation, traffic patterns, dust/odour/noise/litter complaints regarding the landfill, etc.); and,
- Complete a report outlining environmental considerations and, where necessary, propose appropriate engineered remedial / control measure to prevent or minimize adverse effects.

County

- As operators and/or owners of operating and non-operating landfills, the County must comply with the Environmental Protection Act and O.Reg. 347 (Waste Management) requirements for the control of adverse effects caused by the landfill sites;
- Provide the Consultant completing the D-4 Study with recent monitoring reports, operations information and details requested to enable them to sufficiently complete the assessment;
- Ensure the D-4 Study is peer reviewed by a Qualified Professional experienced in landfill impact assessments; and,
- Following receipt of the peer review, the County will require registration on title with the relevant requirements outlined from the study and the peer review.

County's Reviewer

- Peer review the D-4 Study reports to ensure that the Qualified Professional who prepared the report takes into consideration all aspects required under the D-4 Guidelines; and,
- Provide comments and recommendations for follow up assessment, if required.



3.0 GENERAL INFORMATION TO BE PROVIDED IN A D-4 STUDY

- List of reference documentation used in the assessment;
- Discussion of the proposed development at the subject Site being reviewed, including:
 - ▶ Site zoning, intended land use on the Site, and planned/permitted land uses;
 - ▶ Description of topography on the Site, including grade elevations and noting major features such as ditches;
 - ▶ Provide a description of building(s) to be constructed, including uses, design, depths of excavation, height of building(s);
 - ▶ Discussion of current / proposed water and sanitary servicing on the site (e.g., municipal servicing for water and sewer). Note if a water supply well drilled as part of the project and, if so, indicate the proposed depth and the proposed hydrostratigraphic unit in which the well will be screened, commenting on the relevant regional known / inferred hydrostratigraphy;
 - ▶ For closed landfills, distance to the landfill site boundaries and waste footprint or fill area;
 - ▶ For active landfill areas or waste management facilities, as the size of the fill area can change over time, the distance to the property line should be used; and,
 - ▶ Provide a detailed Site Plan Drawing showing the location of all planned buildings and structures to be constructed, including septic systems, wells, stormwater management facilities, etc.
- Provide details about the landfill, including whether it is active or closed and a description of any other current operations / activities on the site (e.g., waste transfer station, recycling, composting, etc.)
 - ▶ Information of the known waste limits, depth and cover, buffer or perimeter area, presence of any Contaminant Attenuation Zones;
 - ▶ Types of waste disposed at the landfill;
 - ▶ Reference to active CofA / ECA related to operations / activities on the landfill site, including description of recent monitoring;
 - ▶ Description of the history of the landfill and any engineering controls (e.g., liners, leachate collection systems, drainage ditches, etc.);
 - ▶ Hours of landfill site operation;
 - ▶ Description of surrounding land use; and,



- ▶ Any noted complaint history (or lack thereof) based on information received from the County and the Ministry.
- Physiography, Topography and Hydrostratigraphy
 - ▶ A review of available information and summary of physiography, topography, surface water features, drainage and hydrogeological conditions in the area of the landfill site and subject development site; and,
 - ▶ Confirmation of assumptions or conclusions with respect to groundwater flow, depth to water, soil type, etc. using available information including reports, well records, etc. Where information is not from a report provided by the County, it shall be included in the D-4 Study.



4.0 LANDFILL IMPACTS

Groundwater Contamination By Leachate

- Determine the direction of groundwater flow in the shallowest aquifer under the landfill and subject property using existing referenced information or wells constructed for this purpose;
- Referenced information should provide sufficient details, (summarized as necessary), including water well records, hydraulic boundaries or other influences;
- Describe if the site is upgradient, cross-gradient or downgradient of the landfill;
- Discuss the extent, if known, of any existing groundwater impacts from the landfill;
- If a water supply well will be part of the development, note its potential influence on groundwater flow, the aquifer will likely be constructed into, etc. (as noted above); and,
- Indicate if dewatering will be required on the subject property during construction and discuss the potential for impact of contaminated water during this process.

Surface Water Contamination By Leachate / Surface Run-off

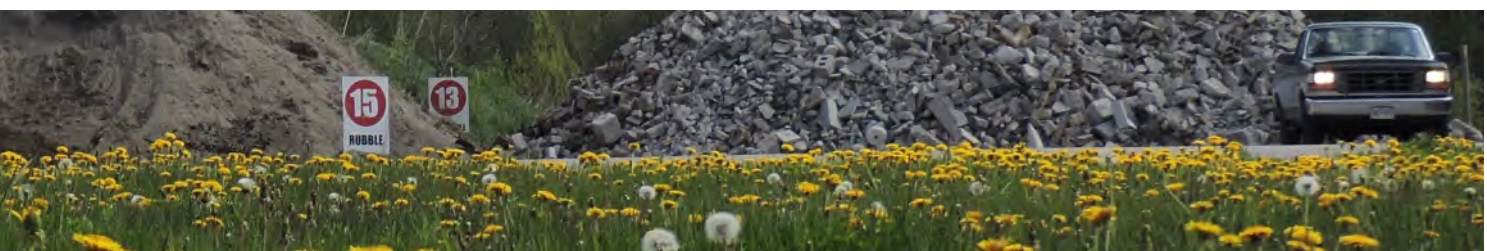
- Identify any surface water features on the landfill site and subject property, including streams, creeks, water bodies and wetlands;
- Describe surface water flow directions and drainage at the landfill and subject property using existing referenced information;
- Describe surface runoff from the landfill site, including description of ditching on the site, nature of surficial materials, extent of infiltration, etc. on the landfill site. If there are any hydraulic barriers or other influences they should be discussed;
- Describe if the subject site is upgradient, cross-gradient or downgradient, etc. of the landfill; and,
- Discuss the extent, if known, of any existing surface water impacts from the landfill.



Landfill Generated Gases

Landfill gas (LFG) generation and migration from a landfill to a subject development site is a primary consideration in the D-4 Guideline assessment process. Accordingly, the D-4 Study should focus on the available information including proven soil-gas concentrations (or the absence thereof) or if no information is available, use of existing historic, topographic, geological information, etc. shall be used to assess the potential likelihood for migration of landfill gas to the subject development. Assumptions shall be backed up with available information.

- Review available soil gas monitoring data from any gas probes constructed for this purpose at the landfill site/subject property;
- Describe the depth to the water table in the area of the landfill (i.e., the depth of the unsaturated zone);
- Review the gas probe construction and identify if they are reliable to determine potential combustible gas generation at the landfill;
- If gas probes are constructed between the landfill and the development site, they should be designed to assess migration to likely structures including basements;
- Monitoring of landfill gas concentrations should be undertaken and confirmed (i.e., two or three rounds) including one monitoring round under frozen ground conditions;
- The methods of monitoring including the means to purge and collect representative data provided, and confirmation of monitoring equipment and calibration noted;
- Discuss the extent, if known, of any existing soil gas impacts from the landfill or estimate the extent;
- Discuss the age of the landfill, thickness of the waste below grade, depth to the water table, type of soil at ground surface and the presence of any hydraulic barriers to estimate the potential for migration of landfill gases;
- Discuss if there is a potential for buildup of explosive concentrations of LFG in enclosed spaces; and,
- If there is a potential for landfill gas impacts, propose mitigation measures (e.g., on-site monitoring, building design and relevant codes (e.g., electrical) to address the potential presence of LFG in soil).



Ground Settlement

- Discuss whether or not the proposed development is in the footprint of the waste disposal area or located at a distance from the landfill; and,
- Discuss the age and heterogeneity of the waste and whether or not any settlement is anticipated.

Visual Impact

- Discuss the grade elevations at the landfill site relative to the grades on the development property, in addition to proposed heights of any new building(s);
- Discuss the vegetation/character or the completion of the closed landfill and whether or not any other current operations / activities exist at the landfill site; and,
- Discuss the presence and permanence of any vegetation, trees or other buffers between the landfill and the development; and,
- If the landfill site is operational, including other current operations/ activities on the site that will be visible, evaluate whether or not there are any sensitive land uses on the proposed development that could be impacted.

Soil Contamination and Hazardous Waste

- Describe any known soil contamination or hazardous waste at the landfill site and evaluate whether or not this could impact the proposed development based on the hydrogeological interpretations noted above.



5.0 ADDITIONAL CONSIDERATIONS FOR OPERATING LANDFILL AND WASTE MANAGEMENT FACILITIES

Litter

- Describe current litter control measures at the site, including fencing, covering practices, etc., which would control litter;
- Discuss prevailing wind direction in the vicinity of the landfill site relative to the proposed development in evaluation of potential impact of litter at the proposed development property; and,
- Discuss if the County or Ministry has received any litter complaints for the site operations.

Odour / Other air emissions

- Discuss prevailing wind direction in the vicinity of the landfill site relative to the proposed development in evaluation of potential impact of odour at the proposed development property;
- Discuss the presence of any buffers between the landfill site and the proposed development that could limit impacts from odour/other air emissions;
- Discuss if the County or Ministry has received any odour complaints at the landfill site; and,
- Indicate if there are any sensitive land uses on the proposed property that could be negatively impacted by odour. If so, proposed mitigation or engineering solutions, such as sealing of windows, locations of air intakes, climate control systems, etc., should be identified.

Traffic

- Discuss information from the County related to access routes and hours of operation of waste management vehicles to the active landfill (or other site operations) evaluate their impact on the proposed development; and,
- Discuss if the County or Ministry has received any traffic complaints related to the site.

Dust

- Discuss prevailing wind direction in the vicinity of the site relative to the proposed development in evaluation of potential impact of dust at the proposed development property;
- Discuss the presence of any buffers between the site and the proposed development that could limit impacts from dust;
- Discuss if the County or Ministry has received any dust complaints due to operations at the site; and,
- Indicate if there are any sensitive land uses on the proposed property that could be negatively impacted by dust. If so, discuss proposed mitigation or engineering solutions, such as sealing of windows, locations of air intakes, climate control systems, etc. in consultation with the municipality and County.

Noise

- Discuss operations/activities on site which generate noise at a level anticipated to be detectable off-site;
- Indicate hours of operation at the site;
- Discuss the presence of any buffers between the landfill site and the proposed development that could limit impacts from noise;
- Discuss if the County or Ministry has received any noise complaints due to operations at the landfill site; and,
- Indicate if there are any sensitive land uses on the proposed property that could be negatively impacted by noise. If so, discuss proposed mitigation / engineering solutions to limit the impact from noise.

Fires

- Discuss the potential for fires at the site and the potential impact on the proposed development relative to health and safety including air quality.

Vectors and Vermin

- Discuss the presence of any known vectors and/or vermin at the site and discuss current practices at the site to limit the presence of these vectors and/or vermin impact; and,
- Indicate if the County or Ministry has received any complaint about vectors/vermin at the site.

[illegible]



County of Simcoe

1110 Highway 26
Midhurst, Ontario
L0L 1X0

705-735-6901
simcoe.ca

D-4 Land Use On or Near Landfills and Dumps

A guide for land use planning authorities on how to decide what types of land uses are appropriate near landfilled waste.

Legislative Authority:

Environmental Protection Act, RSO 1990, Part V, Sections 27 and 46

O. Reg. 347, General -- Waste Management

Planning Act, RSO 1990, Sections 2(a)(b)(c)(f)(g)(h), 17(9), 22(3), 41(4) and 51(3)

Condominium Act, RSO 1990, Section 50(3)

Environmental Assessment Act, RSO 1990, Section 5(3)

Responsible Director:

Director, Environmental Planning Branch

Last Revision Date:

April, 1994

Synopsis

This guideline specifies restrictions and controls on land use that the Ministry wishes to see implemented in the vicinity of landfills and dumps, in order to protect the health, safety, convenience and welfare of residents near such facilities. It complements existing ministry abatement programs for landfills and dumps, and is a direct application of Guideline D-1: "Land Use Compatibility."

Application of the guideline extends to all proposals for land use on, or near, operating and non-operating landfills, (as defined in O. Reg. 347) and dumps which contain municipal solid waste, industrial solid waste and/or sewage sludges. The guideline applies to all such facilities regardless of ownership. It does not apply to lands certified as organic soil conditioning sites under O. Reg. 347.

Ministry staff shall use the guideline when they are reviewing land use proposals, including official plans and amendments, and plans of subdivision/condominium:

at the request of the responsible Ministry or the delegated approving authority, under the Planning Act or the Condominium Act;

for land use requests subject to Section 46 of the Environmental Protection Act; and

for undertakings subject to the Environmental Assessment Act.

Introduction

This guideline protects the health, safety, convenience and welfare of residents from the potential adverse effects of landfills and dumps, by restricting or controlling land use in their vicinity. It complements the Ministry's existing abatement programs, and Ministry staff shall refer to it when they review land use proposals.

The principles of Guideline D-4 shall also be considered when looking for locations to establish a landfill in Ontario.

Procedure D-1-1: "Land Use Compatibility: Procedure for Implementation" discusses various implementation approaches and tools. Procedure D-1-3: "Land Use Compatibility: Definitions" provides definitions of terms, in addition to those included in Section 2.0 of this guideline.

Definitions

Note: Additional definitions are provided in Procedure D-1-3: "Land Use Compatibility: Definitions".

Fill Area

The area of a waste disposal site set aside for landfilling or dumping (see Conceptual Diagram No. 1. below).

Land Use

Any existing or proposed activity, structure, service, facility, or natural feature, either at, above, or below grade, which conforms to an approved municipal plan.

Land Used for Waste Disposal Purposes

The land comprising the fill area, where landfilling or dumping has occurred, and the land which is being used or is to be used for the leachate buffer area and/or the gas buffer area; the land may be on- or off-site, (see Conceptual Diagram No. 1 below).

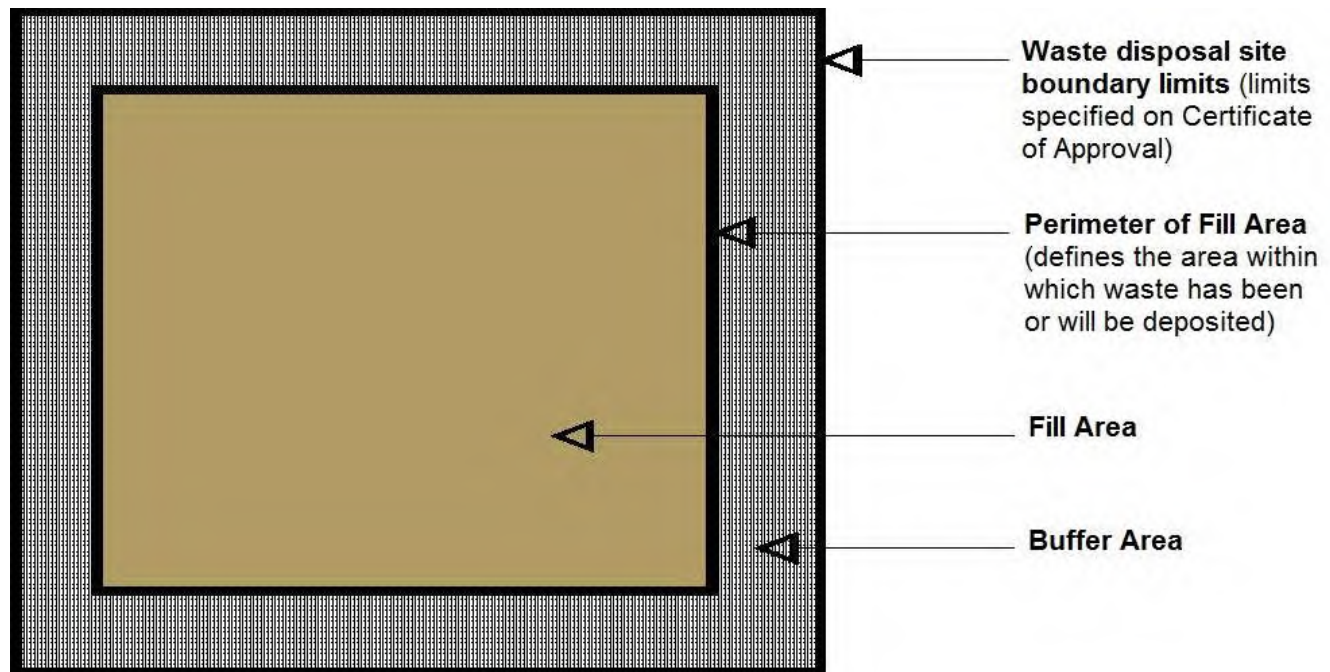
Peripheral Area

The area controlled by the site owner/operator between the boundary of the waste disposal site and the fill area; together, the peripheral area and the fill area make up the waste disposal site; the peripheral area will contain the buffer areas required to be on-site (see Conceptual Diagram No. 1 below).

Vectors and Vermin

Disease-carrying organisms, insects, rodents, birds (especially gulls) and other harmful creatures (e.g., bears).

Conceptual diagram no. 1 (plan view)



Application

3.1 General

This guideline applies to all proposals for land use on or near any landfill or dump which contains municipal solid waste, industrial solid waste and/or sewage sludges. It does not apply to lands certified as organic soil conditioning sites under O. Reg. 347.

3.2 Liquid industrial and hazardous waste

For proposals in the vicinity of landfills and dumps that have accepted liquid industrial, toxic or hazardous waste, the Ministry shall expect proponents to undertake further investigations and

provide a report to the approving authority. Where there is evidence of off-site migration of contaminants, the Ministry shall require abatement measures beyond those discussed in this guideline.

Environmental considerations

Environmental considerations shall be considered by all parties involved in the production, review and approval of a study/evaluation report.

4.1 Operating sites

Factors to be considered when land use is proposed near an operating site include: landfill-generated gases, ground and surface water contamination by leachate, odour, litter, contaminant discharges from associated vehicular traffic, visual impact, dust, noise, other air emissions, fires, surface runoff, and vectors and vermin. Particular attention shall be given to the production and migration of methane gas.

4.2 Non-operating sites

Factors to be considered when land use is proposed on or near a non-operating site include: ground and surface water contamination by leachate, surface runoff, ground settlement, visual impact, soil contamination and hazardous waste, and landfill-generated gases. Particular attention shall be given to the production and migration of methane gas.

4.3 Assessment

The adverse effects of the factors listed in Sections 4.1 and 4.2 of this guideline may create:

- a hazard or health/safety risk;
- a nuisance to man; and/or
- degradation of the natural environment.

The overall extent, number, degree and frequency of contaminant discharges and visual problems can vary with each site. Consideration must be given to the nature of proposed land use(s).

Reference should be made to Reference (a) (Section 7.0), if particular site conditions warrant obtaining further information with respect to methane gas.

4.4 Buffering techniques

One or a combination of buffers, as defined in GuidelineD-1: "Land Use Compatibility", may be employed in a given situation.

4.5 Hydrogeologic/engineering studies

4.5.1 Responsibility

Where the hydrogeologic and geologic setting of the proponent's property and the inter-relationship with gas and/or leachate from the fill area are unknown, Ministry staff shall recommend to the approving authority that the proponent engage a qualified hydrogeologist and/or engineer to determine the subsurface conditions and, where necessary, propose remedial measures.

4.5.2 Exceptions

The Ministry shall not normally recommend a formal site investigation, as recommended in Section 4.5.1, when its staff is satisfied that the evaluation of existing data indicates the absence of a problem.

4.6 Controls and monitoring for adverse effects

Where appropriate, Ministry staff shall recommend, as a condition of approval, that a proponent include controls to deal with adverse effects or risks to health or safety and that the approving authority monitor contaminant migration and carry out inspections of control facilities.

In the event that the approving authorities lack the expertise or resources to perform such inspections, they shall employ qualified consultants to do so.

4.7 Monitoring on private property

Where the approving authority requires monitoring and inspections on private property, Ministry staff shall recommend that a contract be executed between the proponent and the municipality, in the form of, or as part of an agreement that may be registered on title and run with the land. Documents which are able to be registered on title are identified in References (b) and (c) (see Section 7.0).

Land use considerations

5.1 Sensitive land use

The Ministry will normally recommend against proposals for sensitive land use (see Section 5.1.1. for details) adjacent to operating landfills, and on land used for waste disposal purposes where there are completed or partially completed fill areas.

Where land uses are proposed for approval on non operating landfills and dumps under Section 46 of the Environmental Protection Act, the Ministry normally shall not permit residential or other sensitive land use. Further details are provided in Reference (d) of Section 7.0.

5.1.1 Sensitive land uses for landfills currently in operation

Any existing or committed land use which includes:

- a permanent structure used in animal husbandry; or

- agricultural land used for pasturing livestock; or

- a permanent structure where:

 - a person sleeps, or

 - a person is present on a full time basis;

- but not including food or motor vehicle service facilities adjacent to a highway, utility operations, scrap yards, heavy industrial uses, gravel pits, quarries, mining or forestry activities; or

- cemeteries

5.1.2 Compatible land uses for landfills currently in operation

Compatible land uses may include:

utilities and above grade transportation routes except major highways;

fences;

wood harvesting and other forestry activities;

certain farming activities;

industrial uses, including incinerators permitted to operate under O. Reg. 347;

gravel pits and quarries, and other mining activities(provided the landfill water table is not affected); or

such land uses which would not be threatened by any hazard to public health or safety and would not be impaired by nuisance effects.

5.2 Land use within 30 metres of a fill area

5.2.1 Operating sites

No land use may take place within 30 metres of the perimeter of a fill area. This is a minimum distance.

Each operating landfill shall have an on-site operational/maintenance buffer area identified on the Certificate of Approval. This buffer shall be no less than 30 metres; it is normally 60-100 metres.

5.2.2 Non-operating sites

Where technical controls for leachate, or leachate and gas are required surrounding a fill area, no land use may take place within 30 metres of its perimeter. This distance maybe reduced to 20 metres in cases where only gas controls are necessary.

5.3 Land use within 500 metres of a fill area

The Ministry considers the most significant contaminant discharges and visual problems to be normally within 500 metres of the perimeter of a fill area. Accordingly, the Ministry recommends this distance be used as a study area for land use proposals. Ministry staff shall ensure that the proponent has evaluated the presence and impact of any adverse effects or risks to health and safety and that necessary remedial measures are taken when land use proposals are within this distance. This assessment shall be based on the nature and knowledge of the disposal site, and the nature of land use(s) proposed.

Actual influence areas for the considerations listed in Section 4.1 and 4.2 of this guideline will vary with the individual landfill or dump. Where the actual influence area of a site has been determined to be less than the 500 metre study area set out in this section, the study area for land use proposals can be reduced to coincide with the actual influence area.

5.4 Land use beyond 500 metres of a fill area

Where significant impacts are encountered at or beyond 500 metres, the study area within which an assessment for any change in land use is recommended, shall be extended beyond the 500 metre area set out in Section 5.3. Historical evidence in Ontario has shown that the maximum distance within which adverse effects could be experienced while a landfill is operating is up to 3 kilometres.

In exceptional hydrogeologic situations, such as areas of fractured rock or sand, where it is anticipated that leachate or gas from a non-operating landfill or dump could migrate beyond 500 metres and pose a problem, Ministry staff shall recommend that proponents carry out hydrogeologic and/or engineering studies for land use proposals beyond 500 metres of a fill area (see Section 4.5 for more details).

5.5 Significant impacts

The Ministry shall recommend against land use proposals where proponents have not incorporated feasible remedial measures to prevent or minimize adverse effects (as discussed in Section 4.3).

5.6 Sequential development

In considering long-range planning, the Ministry may recommend that proponents delay or phase certain types of land use to coincide with closure of sections of a landfill, or the

operation itself, as nuisance effects are reduced or eliminated. This approach shall only be permitted in cases where no risks to health or safety are present.

Responsibilities

6.1 Operators and/or owners of landfills or dumps

The Ministry shall require operators and/or owners of operating landfills and non operating landfills and dumps to comply with the Environmental Protection Act and O. Reg. 347 (Waste Management) requirements for the control of adverse effects caused by these facilities.

6.2 Proponents/consultants

Ministry staff shall recommend to the approving authority that the proponent provide a report on environmental considerations(see Section 4.0) and, where necessary, propose and implement appropriate control measures. These measures shall include design details and specifications for any control device or facility.

6.3 Municipalities

The local municipal authority is responsible for ensuring that proponents implement and monitor proper control measures associated with new, sensitive developments. It also shall ensure that periodic inspections of operating landfills and non-operating landfills and dumps for contaminant migration and potential hazards are carried out.

6.4 Ministry

With respect to its mandate for landfills and dumps, the Ministry shall exercise the following responsibilities:

6.4.1 Near land used or to be used for waste disposal purposes

Ministry staff will expect proponents and municipalities to fulfill their responsibility to protect public health and safety in areas of land use near a landfill or dump, and to prevent significant

impacts from difficult-to-control nuisance effects which may extend beyond the lands under the Certificate of Approval for an operating landfill.

6.4.2 On land used for waste disposal purposes

Where a proponent submits a land use proposal for approval under Section 46 of the Environmental Protection Act, the proponent must assure Ministry staff and the municipality that the proposal contains adequate measures for the protection of public health and safety, in order to facilitate the Minister making a decision on approval.

Where an approval under EPA Section 46 is not required from the Minister, Section 6.4.1 of this guideline applies.

Reference documents

Procedure D-4-1: "Assessing Methane Hazards from Landfill Sites"

Ministry of Consumer and Commercial Relations Bulletin No.91003: "Environmental Warnings/Restrictions"

Ministry of Consumer and Commercial Relations Bulletin No.80023: "Registration of Certificates & Provisional Certificates"

Guideline D-7: "Requests for Land Use Approval Under EPA, Section 46" (under development)

Procedure D-1-1: "Land Use Compatibility: Procedure for Implementation"

Procedure D-1-3: "Land Use Compatibility: Definitions"

Guideline D-1: "Land Use Compatibility"

WASTE DISPOSAL SITE INVENTORY

JUNE 1991



**Ministry
of the
Environment**

ISBN 0-7729-8409-3

WASTE DISPOSAL SITE INVENTORY

WASTE MANAGEMENT BRANCH
ONTARIO MINISTRY OF THE ENVIRONMENT

JUNE 1991



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n'est disponible qu'en anglais.

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PIBS 256

ACTIVE WASTE DISPOSAL SITE INVENTORY
LEGEND

Map ID NO

The identification number of a site shown on a location map in the back of the report. The sites in each "County" are numbered from "1" to whatever number of sites there are in that County. Therefore reference to a site on the map must name the "county" name and the "map id no", e.g. "Oxford County, site number 5".

SITE NO.

All sites that are approved for operation in the Province by the Ministry are assigned a Certificate of Approval number. The site number is the same as the Certificate of Approval number.

COUNTY

Name of the County, Regional Municipality, or District where the site is located.

MUNICIPALITY

Name of the city, town, village or other incorporated municipality where the site is located.

LOT NO.

The number or name of the lot in the concession where the site is located.

PT	=	part
SW1/2	=	southwestern half of....
LT	=	lot
PT14 N2/2	=	part 14 north half (north half of part lot 14), etc.
NAV	=	not available
UNSURVE	=	unsurveyed
NAME	=	A, A-B, Gore A, Range B & C, etc.
DIV	=	Division

CONCESS

The number or name of the concession where the site is located.
The following have been abbreviated:

EMR	=	East Mitchell Road
SWR	=	South West Range, etc.
UNSURVE	=	unsurveyed
NAV	=	not available
SEC	=	Section

NTS

The National Topographic System map number on which the site is located.

UTM COORDINATES

ZONE

EAST

NORTH

The Universal Transverse Mercator Grid System.

D

Domestic waste

C

Commercial waste

O

Other waste

H

Hazardous waste

L

Liquid waste

NH

Non-hazardous solid industrial waste

SS

Sewage sludge

Numbers under waste types are percentages of that particular waste received by the site.

ST

Site Status:

- 1 = active site; a site that is approved to receive and is receiving waste
- 3 = inactive site; a site that is approved to receive but at this time does not receive any waste

CL

Site classification indicates the potential health and/or environmental impact of the site according to the system indicated in Appendix A.

Appendix A

Waste Disposal Site Classification System

The classification system is based on the following assumptions:

1. Waste at all disposal sites have the potential to produce leachate; leachate can contaminate ground water, streams and lakes. Methane gas can also be produced and can pose an explosion hazard. However, because of natural dilution or the natural attenuation capacity of soils, or due to engineering facilities built into landfills, impacts on humans or the environment may not be detectable at a point of concern.
2. In general, industrial liquid/hazardous waste, because of the highly toxic nature of some of these wastes, are of greater concern than domestic/municipal wastes.
3. For domestic/municipal wastes, the date of closure of the site is important since the rate of leachate and gas production declines with the age of the landfill. For industrial liquid/hazardous waste, because of the high initial concentrations and often low solubilities, leachate and gas production can be maintained at levels of concern for a longer period of time.
4. Waste disposal sites in urban areas are of concern because of the high development density often found around the sites and, if this development doesn't exist, the high potential for future urban encroachment onto the adjacent lands. Waste disposal sites in rural areas are of concern due to the potential for contamination of domestic water supplies.
5. If a domestic/municipal landfill has been closed for at least ten years, and there have been no methane-related concerns, then it is assumed that, unless the site's environment is significantly changed by development, these concerns will not arise in the future.
6. If the material beneath and surrounding a landfill is highly permeable, ground water contamination is of concern; if the material below and surrounding the site is fairly impermeable, surface water contamination is of concern.

All known active or closed waste disposal sites in Ontario have been classified using the same basic criteria in which the waste type and site location determine the classification of a site. "Class A" sites are those that are deemed to have the potential to impact human health because of the proximity to human development; "Class B" sites are those that are deemed to have the potential to impact mainly the environment.

In order for a waste site to be classified, its location must be known. The precise locations of some very old sites are approximate. Once the location of the site is known, it can be determined whether any of the A criteria (accompanying the classification table) apply. From this it can be determined whether the site is a "Class A" or a "Class B" site.

TABLE I: ACTIVE WASTE DISPOSAL SITE CLASSIFICATION

	INDUSTRIAL LIQUID/ HAZARDOUS WASTES		MUNICIPAL/DOMESTIC WASTES	
	URBAN	RURAL	URBAN	RURAL
"CLASS A" CRITERIA (HUMANS)	A1	A2	A3	A4
"CLASS B" CRITERIA (ENVIRONMENT)	B1	B2	B3	B4

TABLE II: CLOSED WASTE DISPOSAL SITE CLASSIFICATION

INDUSTRIAL LIQUID/ HAZARDOUS WASTES			MUNICIPAL/DOMESTIC WASTES					
	URBAN	RURAL	URBAN			RURAL		
"CLASS A" CRITERIA (HUMANS)			YEARS CLOSED					
			<10	10-20	>20	<10	10-20	>20
			A3	A5	A7	A4	AB	AB
"CLASS B" CRITERIA (ENVIRONMENT)								
	B1	B2	B3	B5	B7	B4	B6	BB
N P	NO POTENTIAL FOR IMPACT ON HUMANS OR THE ENVIRONMENT							

(TO ACCOMPANY TABLES I & II)

"CLASS A" CRITERIA - HAZARD TO HUMANS

THESE CRITERIA, SINGLY OR IN COMBINATION WITH OTHERS, INDICATE THE HIGHEST HAZARD TO HUMANS; FURTHER INVESTIGATIONS MAY BE WARRANTED TO DEFINE PRECISELY THE HAZARD(S) AND TO DETERMINE ACTIONS NECESSARY IN THE FUTURE.

- . EXISTING DWELLING/STRUCTURE (WITH OR WITHOUT WELL) ON SITE
- . PRIVATE WELL 1000 m FROM SITE
- . MUNICIPAL WELL 1000 m FROM SITE
- . PERENNIAL STREAM ON SITE OR WITHIN 1000 m FROM SITE AND THERE IS KNOWN DOMESTIC CONSUMPTIVE OR IN-STREAM USE OF STREAM WATER WITHIN 5 km DOWNSTREAM
- . LIKELY FUTURE DEVELOPMENT OF LAND IN URBAN AREA OR IN DEVELOPED RURAL AREA
- . SIGNIFICANT AQUIFER AT SURFACE OR WITHIN 10 m OF SURFACE AND GROUND WATER MOVEMENT IS DOWNWARD
- . PAST PROBLEMS AT SITE

THE FOLLOWING SUPPLEMENT THE FOREGOING CRITERIA AND SHOULD BE NOTED FOR EACH SITE. THEY SHOULD NOT BE USED BY THEMSELVES TO CLASSIFY A SITE AS A "CLASS A" SITE.

- . EASY PUBLIC ACCESS TO WASTE OR SITE
- . EXISTING MONITORING FOR METHANE GAS, SURFACE OR GROUND WATER
- . LANDFILL AREA 1 ha

"CLASS B" CRITERIA - HAZARD TO ENVIRONMENT

A SITE THAT DOES NOT SATISFY ANY OF THE "CLASS A" SITE CRITERIA IS AUTOMATICALLY A "CLASS B" SITE. THIS CLASSIFICATION INDICATES GENERALLY A LOW POTENTIAL FOR IMPACT ON HUMANS AND FURTHER INVESTIGATIONS REGARDING THESE IMPACTS ARE NOT AS URGENT AT THESE SITES AS AT THE "A" CATEGORY SITES. HOWEVER, THE HAZARD TO THE ENVIRONMENT MAY STILL BE HIGH AND FURTHER INVESTIGATIONS MAY BE NECESSARY TO DEFINE THIS HAZARD.

REGIONAL INVENTORY OF CLOSED WASTE DISPOSAL SITES

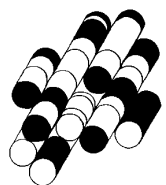
REGION : CENTRAL

HAP	SITE			lot		UTM COORDINATES	DATE CLOSED					
CD NO	NO	COUNTY	MUNICIPALITY	OR STREET NO	COMCESS	NTS	ZONE	EAST	NORTH	YEAR/ MON/ DAY	CLASS	
J1	X 4022	PETERBOROUGH	SMITH	PT 5 & 4; E, of Cowerville Road	Jim	17	711375	4913200	1957	# *	A5	
S?	X 4023	PETERBOROUGH	MONAGHAN, NORTH	6	8	31D01	17	710750	4900200	1965	4 *	A4
S3	X 4034	PETERBOROUGH	LAKEFIELD	Clementi Street		31008	17	716475	4922100	1951	A *	A5
34	X 4025	PETERBOROUGH	HAVELOCK	8	7	31COS	18	273750	4925225	1970	* T	A5
1	A 250403	SIMCOE	COLLINGWOOD	PT 44	9	41*09	17	561850	4927625	1974	7 30	*5
2	A 250701	SIMCOE	PENETANGUI SHENE	Mental Health Grounds		31013	17	585100	4961230	1974	9 30	84
3	A 2514Q1	SIMCOE	PORT MCNICOLI	PT 14 eve	5	31012	17	594360	4953975	1975	1 16	A5
4	A 251902	SIMCOE	ESSA	PT 28 UI/2	3	31D0S	17	589600	4906500	1974	12 31	04
5	A 251903	SIMCOE	ESSA	PT 26 WI/2	9	31005	17	597640	4907930	1974	11 15	84
6	A 252001	SIMCOE	ELMVALE	70 W 6 1/2	1	31012	17	593125	4940550	1974	0 31	A6
7	A 252032	SIMCOE	FLOS	42, PT 41	8	31D 12	17	599680	4930625	1976	6 9	A6
6	A 252203	SIMCOE	[NN] SF1L	PT 15 SV?	6	31005	17	610600	4903200	1980	9 1	A*
9	A 252204	SIMCOE	[NN] SF1L	PT 1 SI/2	11	31005	17	601500	4907400	1980	9 1	A4
10	A 252301	SIMCOE	MATCMEOASH	PT 14	1	31013	17	605880	4961590	1975	7 31	B4
11	A 252402	SIMCOE	MEOONTE	20	12	31012	17	638830	4950250	1975	5 31	B4
13	A 252502	SIMCOE	NOTTAWASAGA	PT 8	8	41A0B	17	567060	4906780	1982	5 1	A4
U	A 252503	SIMCOE	NOTTAWASAGA	6	1	41A08	17	577970	4907960	1974	5 31	04
15	A 252703	StMCDE	ORO	PT 16	14	31011	17	622940	4913660	1900	9 1	M
16	A 252801	SIMCOE	SUNNIDALE	PT 13	12	31D05	17	581300	4923625	1974	7 31	04
17	A 252902	StMCDE	TAV	PT 11 ET/4	9	31012	17	600760	4954190	1975	6 24	A6
18	A 253501	SIMCOE	NARA	PT 7 N1/2	4	31011	17	646220	4935790	1981	5 1	03
19	A 251502	SIMCOE	MARA	PT 26 51/2	11	31011	17	632600	4940525	1974	7 31	A6
23	X 4101	SIMCOE	BARRIE	Anne St. N, & Vespra St.		31005	17	603400	4914850	1956	* *	A5
24	K 4102	SIMCOE	BARRIE	Vespra A Innisfil St.		31D05	17	603500	4914800	1959	* *	AS
25	X 4103	SIMCOE	BARRIE	Vespra A Innisfil St.		31D05	17	603800	4915050	1960	* *	AS
26	X 4104	SIMCOE	BARRIE	Sanford & Brock St.		31DD5	17	603975	4914450	1961	* *	AS
27	X 4105	SIMCOE	BARRIE	Innisfil L Brock St.		31D05	17	603900	4914400	1962	* *	AS
28	X 4106	SIMCOE	BARRIE	John 1 Innisfil st.		51005	17	603600	4914450	1963	* *	AS
29	X 4137	SIMCOE	BARRIE	Vespra 4 Branford St.		31005	T7	603800	4915050	1964	* *	AS
30	X 4138	SIMCOE	ORILLIA	Atherly Road		31011	T7	626600	4940300	1958	* *	A5

* Year/month/day of closure unknown.

APPENDIX C

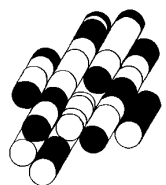
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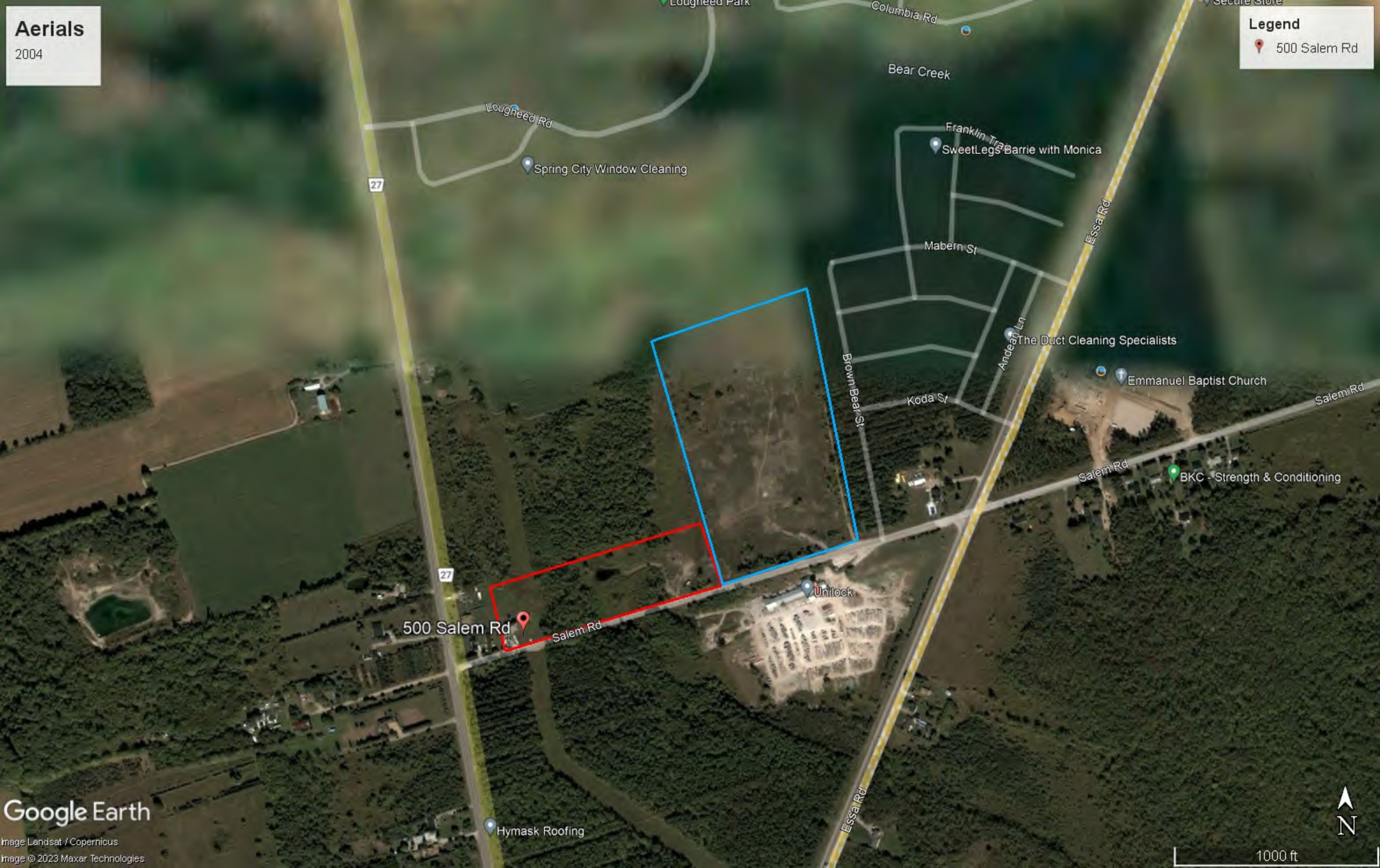


MECP Well Records Summary					
WELL ID	MECP* WWR ID	Construction Method	Well Depth (ft)**	Well Usage	Water Found (mbgs)**
				Final Status	
1	5701246	Boring	175.0	Water Supply	53.3
2	5708744	Other Method	49.0	Water Supply	14.9
3	5710487	Cable Tool	15.0	Water Supply	4.5
4	5715823	Cable Tool	8.0	Water Supply	2.4
5	5715880	Boring	130.0	Water Supply	39.6
6	5720021	Boring	144.0	Water Supply	43.8
7	5722089	Rotary (Convent.)	175.0	Water Supply	53.3
8	5723814	Cable Tool	234.0	Water Supply	71.3
9	5723994	Rotary (Convent.)	235.0	Water Supply	71.6
10	5732281	Rotary (Air)	143.0	Water Supply	43.5
11	5734437	Rotary (Air)	42.0	Water Supply	12.8
12	5737570	Rotary (Convent.)	159.0	Water Supply	48.4
13	7048667	Cable Tool		Observation Wells	
14	7053919	Cable Tool		Abandoned-Other	
15	7156200	Rotary (Convent.)		Test Hole	
16	7176146	Rotary (Convent.)	13.0	Observation Wells	3.9
17	7176147	Rotary (Convent.)	2.0	Observation Wells	0.6
18	7206938	Boring	1.5	Observation Wells	1.5
19	7303512				
20	7306468	Auger	15.0	Observation Wells	4.5
21	7308428				
22	7308429				
23	7319522	Rotary (Convent.)	8.0	Observation Wells	2.4
24	7319523	Rotary (Convent.)	8.0	Observation Wells	2.4
25	7319525	Rotary (Convent.)	12.0	Observation Wells	3.6
26	7319536			Abandoned-Other	
27	7319537			Abandoned-Other	
28	7319538			Abandoned-Other	
29	7319539			Abandoned-Other	
30	7333266			Other Status	
31	7339757		15.0	Abandoned-Other	4.5
32	7339758	Boring			
33	7339759				
34	7339760				
35	7339761				
36	7339763	Boring	2.0	Abandoned-Other	0.6
37	7339764		2.0	Abandoned-Other	0.6
38	7339765			Abandoned-Other	
39	7339766			Abandoned-Other	
40	7339767			Abandoned-Other	
41	7339768			Abandoned-Other	
42	7339770			Abandoned-Other	
43	7339771			Abandoned-Other	
44	7353251	Auger		Other Status	
45	7353252	Auger	Abandoned Monitoring and Test Hole		
46	7354623			Observation Wells	
47	7355064				
48	7415966				
49	7419457				
50	7419458				

APPENDIX D

TERRAPROBE INC.





Aerials

2006

Legend

500 Salem Rd

Google Earth

Image Landsat / Copernicus
Image © 2023 Maxar Technologies



1000 ft



Aerials

2011

Legend

 500 Salem Rd



Google Earth

Image Landsat Copernicus
Image © 2023 Maxar Technologies



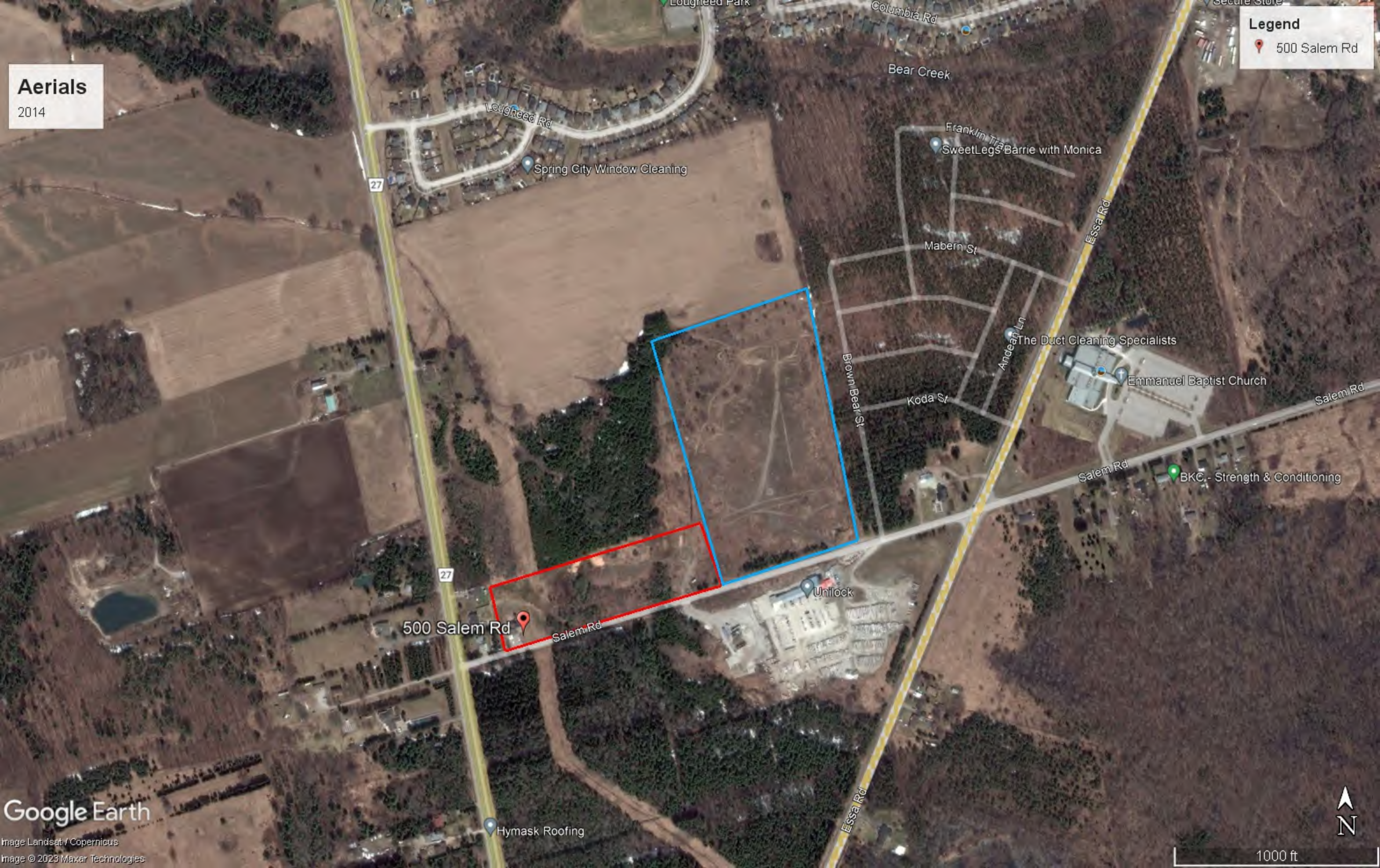
1000 ft

Aerials

2014

Legend

 500 Salem Rd



Google Earth

Image Landsat / Copernicus
Image © 2023 Maxar Technologies



1000 ft

Aerials
2021

Legend

 500 Salem Rd



Google Earth

Image Landsat / Copernicus
Image © 2023 Maxar Technologies



1000 ft

Aerials
2023

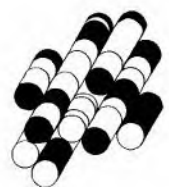
Legend

 500 Salem Rd

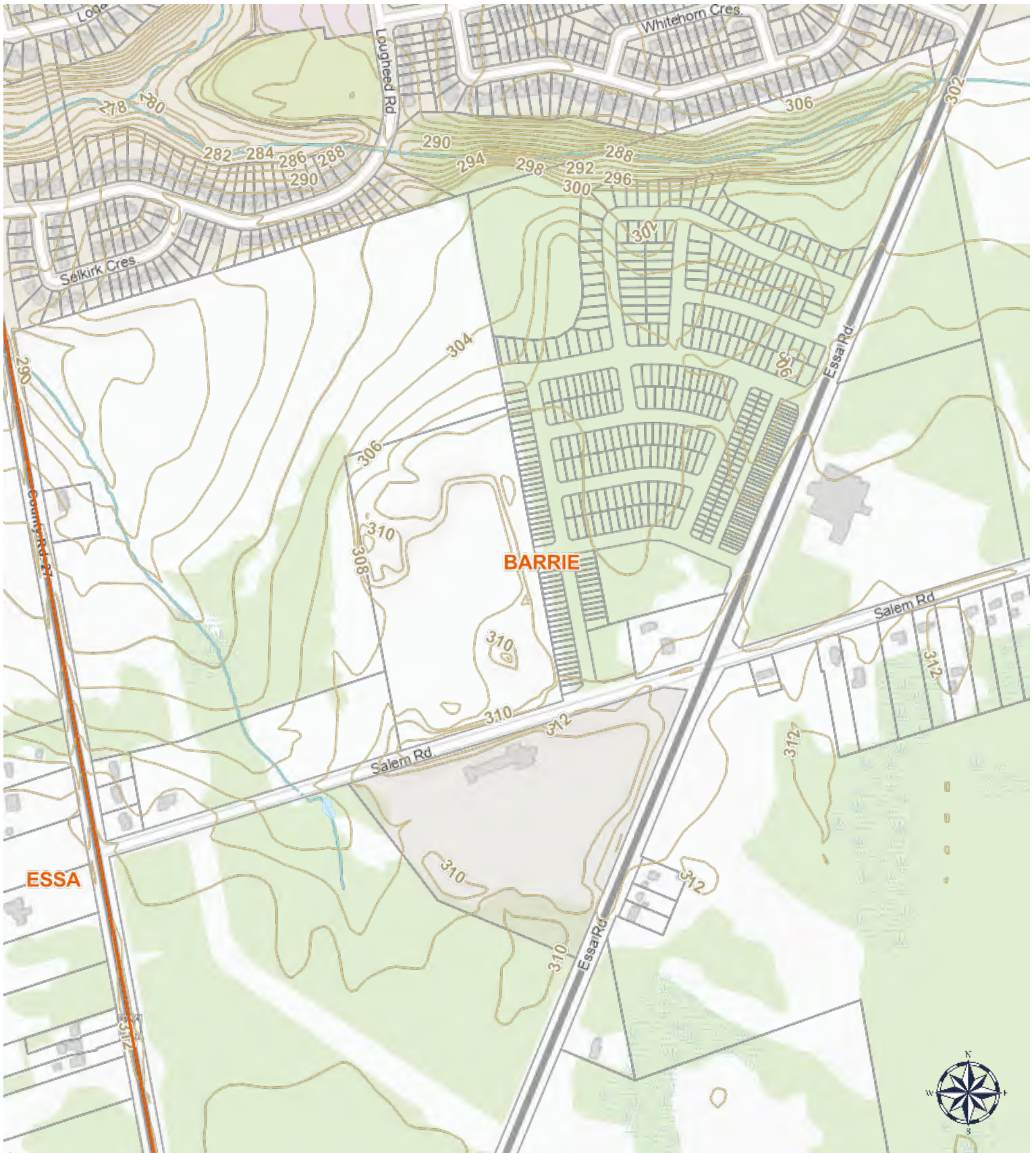


APPENDIX E

TERRAPROBE INC.



County of Simcoe - Web Map



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0 100 200 300m

1 : 9,028



Nov 2, 2022

Lindsay

Unit Name: Lindsay
Group: Simcoe Group
Formation: Lindsay
Lithology: limestone
Description: limestone; nodular to black laminated (Collingwood)

54a

Limestone, dolostone, shale,
arkose, sandstone
Ottawa Group; Simcoe Group;
Shadow Lake Formation

Drift Thickness (m)



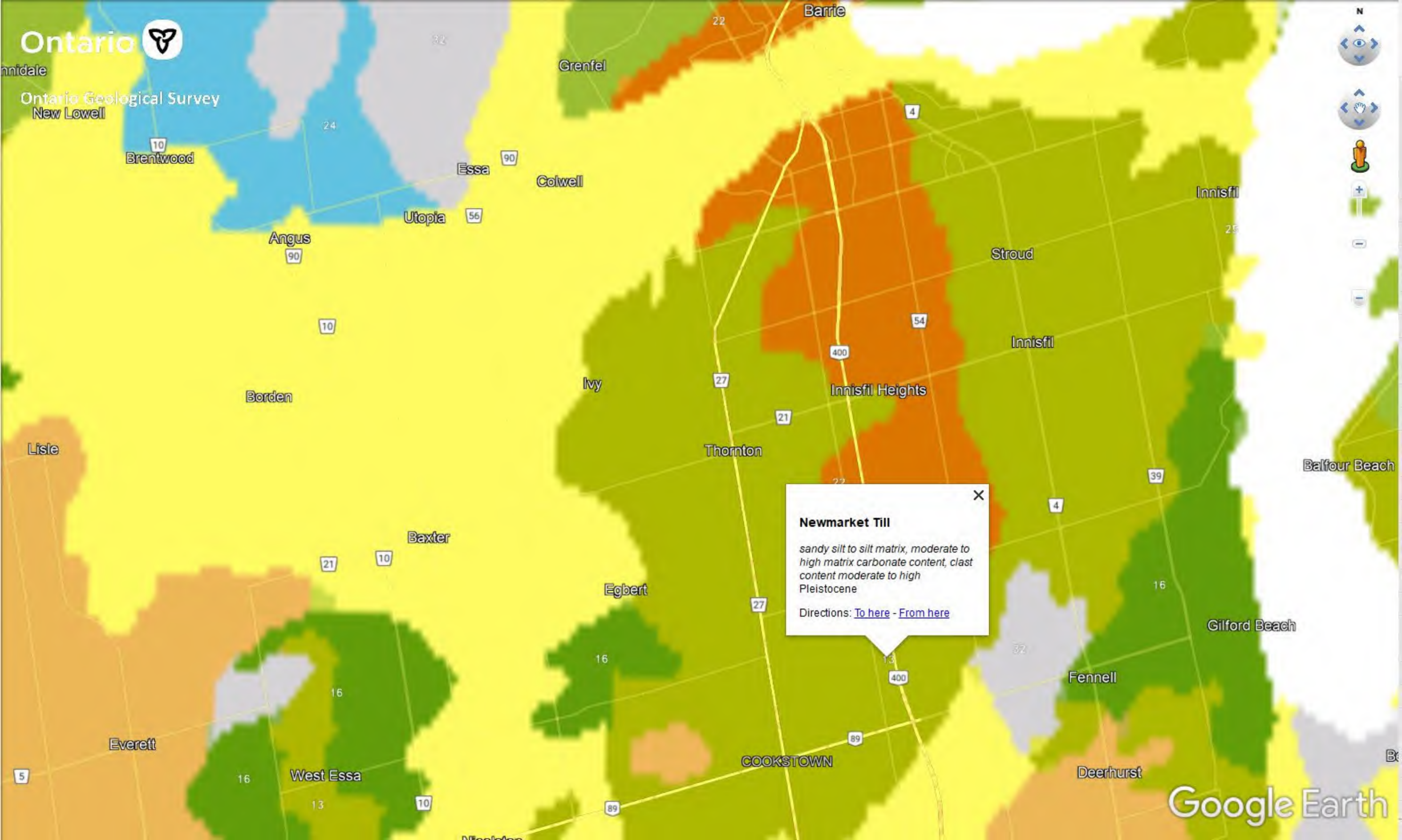
High : 262

Low : 0



**6 Till Plains
(Drumlinized)**
Till Plains (Drumlinized)

**31 Peterborough
Drumlin Field**
Peterborough Drumlin Field



Newmarket Till

sandy silt to silt matrix, moderate to high matrix carbonate content, clast content moderate to high Pleistocene

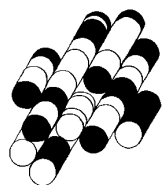
Directions: [To here](#) - [From here](#)

**6 Ice-contact stratified
deposits**
**ice-contact
stratified deposits**

*sand and gravel, minor silt,
clay and till*

APPENDIX F

TERRAPROBE INC.





Photograph 1

Location:	500 Salem Rd
Viewing:	Northwest
Description:	Residential home



Photograph 2

Location:	500 Salem
Viewing:	Southwest
Description:	Residential home backyard, standing just ahead of pipeline area behind where photo taken



Photograph 3

Location:	500 Salem
Viewing:	southeast
Description:	Water supply well outside home





Photograph 4

Location:	Property
Viewing:	n/a
Description:	First floor dwelling



Photograph 5

Location:	Property
Viewing:	n/a
Description:	Basement utilities



Photograph 6

Location:	Property
Viewing:	n/a
Description:	Basement septic pump





Photograph 7

Location:	Property
Viewing:	n/a
Description:	Main room in house, fireplace for propane tank



Photograph 8

Location:	Property
Viewing:	North
Description:	Propane tank outside, only AGST on property



Photograph 9

Location:	Property
Viewing:	South
Description:	Showing area of front yard septic bed, opening to tank located under cobblestone patio





Photograph 10

Location:	Property
Viewing:	East
Description:	Showing east view of property along Salem road. Also shows are where natural gas pipeline runs through property



Photograph 11

Location:	Property
Viewing:	North
Description:	Can see septic lines beside dwelling



Photograph 12

Location:	Property
Viewing:	n/a
Description:	Signage by pipeline





Photograph 13

Location:	Property
Viewing:	North
Description:	Wetland area behind house, separated from dwelling yard by stakes to be severed off for the City.



Photograph 14

Location:	Property
Viewing:	East
Description:	East side of house



Photograph 15

Location:	Property
Viewing:	West
Description:	View down salem road, can view driveway to dwelling as well as property shed to the west of dwelling





Photograph 16

Location:	Property
Viewing:	North
Description:	Can see mailbox, green number tag and sheds adjacent to dwelling (hidden behind tree)



Photograph 17

Location:	Salem road
Viewing:	East
Description:	View down the south east edge of property (wetland area) walking away from house and towards proposed development



Photograph 18

Location:	Salem road
Viewing:	North
Description:	Wetland area to be given to City located in center of property





Photograph 19

Location:	Salem road
Viewing:	Northeast
Description:	Stream/creek culvert under salem road that goes through wetland area flowing north



Photograph 20

Location:	Property (proposed development area)
Viewing:	Northwest
Description:	Entrance to proposed development area on east end of property, on the east side of wetland space



Photograph 21

Location:	Property (proposed development area)
Viewing:	North
Description:	Proposed development area, wetland area to the left of image





Photograph 22

Location:	Property (proposed development area)
Viewing:	North
Description:	Grassed area, landfill site to the right of image, different development ongoing to the north of property



Photograph 23

Location:	Property (proposed development area)
Viewing:	West
Description:	Viewing area to be developed and can see wetland area in background of image.



Photograph 24

Location:	Property
Viewing:	South
Description:	Can see berm separating landfill area to the left and property to the right



Landfill / "Holly Landfill" Site Photos



Photograph 25

Location:	Landfill site
Viewing:	North
Description:	Entrance from salem road



Photograph 26

Location:	Landfill site
Viewing:	North
Description:	Asphalt area where previous driveway located



Photograph 27

Location:	Landfill site
Viewing:	West
Description:	Monitoring well located in southwest corner of landfill site





Photograph 28

Location:	Landfill site
Viewing:	Northeast
Description:	Center, grassed area of landfill site. Property located to the left of image and Brown bear street located to the right



Photograph 29

Location:	Landfill site
Viewing:	north
Description:	West edge of landfill site, can see property and other development to the left of image



Photograph 30

Location:	Landfill site
Viewing:	East
Description:	Monitoring wells on west side of site





Photograph 31

Location:	Landfill site
Viewing:	Northwest
Description:	Viewing corner and northern edge of site, different development ongoing in background



Photograph 32

Location:	Landfill site
Viewing:	East
Description:	North side monitoring wells (1 & 2 of 4)



Photograph 33

Location:	Landfill site
Viewing:	East
Description:	North side monitoring wells (3 & 4 of 4)



	Photograph 34 <table border="1"> <tr> <td>Location:</td><td>Landfill site</td></tr> <tr> <td>Viewing:</td><td>South</td></tr> <tr> <td>Description:</td><td>East edge of landfill, Brown bear street to the left of image</td></tr> </table>	Location:	Landfill site	Viewing:	South	Description:	East edge of landfill, Brown bear street to the left of image
Location:	Landfill site						
Viewing:	South						
Description:	East edge of landfill, Brown bear street to the left of image						
	Photograph 35 <table border="1"> <tr> <td>Location:</td><td>Landfill site</td></tr> <tr> <td>Viewing:</td><td>Northeast</td></tr> <tr> <td>Description:</td><td>2/4 south end monitoring wells</td></tr> </table>	Location:	Landfill site	Viewing:	Northeast	Description:	2/4 south end monitoring wells
Location:	Landfill site						
Viewing:	Northeast						
Description:	2/4 south end monitoring wells						
	Photograph 36 <table border="1"> <tr> <td>Location:</td><td>Salem road</td></tr> <tr> <td>Viewing:</td><td>West</td></tr> <tr> <td>Description:</td><td>Adjacent Unilock Business located on south side of Salem road in front of both the landfill site and the property</td></tr> </table>	Location:	Salem road	Viewing:	West	Description:	Adjacent Unilock Business located on south side of Salem road in front of both the landfill site and the property
Location:	Salem road						
Viewing:	West						
Description:	Adjacent Unilock Business located on south side of Salem road in front of both the landfill site and the property						



APPENDIX G

TERRAPROBE INC.

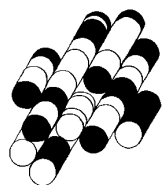




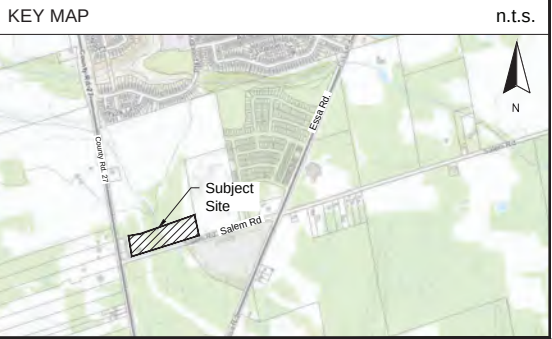
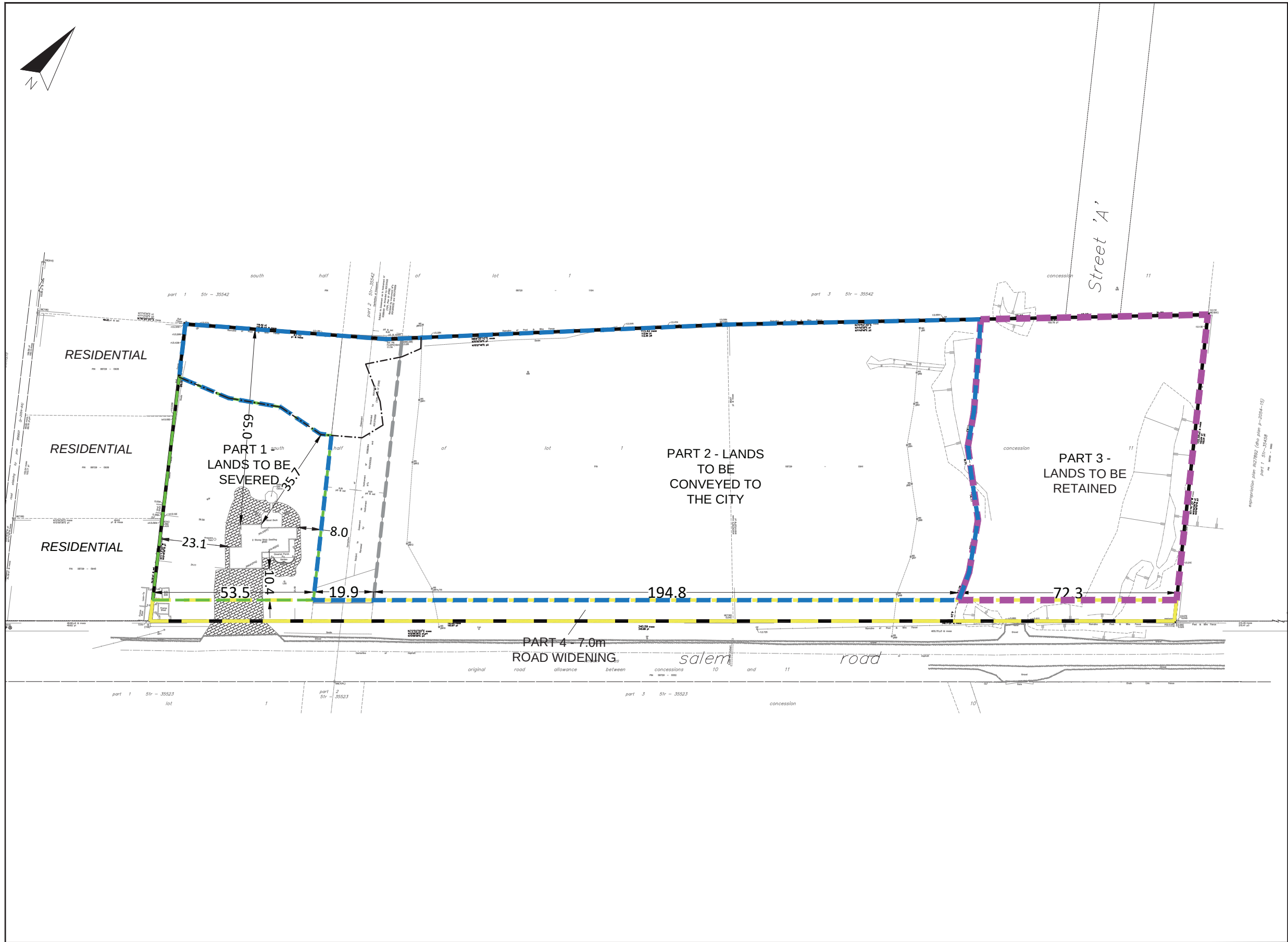
Figure 3. Ecological Land Classification Units (Vegetation Communities)

Scale 1: 1600 (approx.)

LSR Salem Road

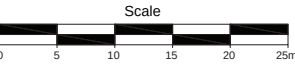
500 Salem Road
Part of South Half Lot 2, Concession 1
Geographic Township of Innisfil
Town of Innisfil
County of Simcoe





SEVERANCE SKETCH

PART OF SOUTH HALF OF LOT 1, CONCESSION 11,
GEOGRAPHIC TOWNSHIP OF INNISFIL,
TOWN OF INNISFIL,
COUNTY OF SIMCOE



LEGEND

- Subject Site 3.32ha
- Lands to be Severed - Part 1:
 - Lot Area: 0.34ha
 - Lot Frontage: 53.5m
- Lands to be Conveyed to the City - Part 2:
 - Lot Area (Pipeline): 0.17ha
 - Lot Frontage (Pipeline): 19.9m
 - Lot Area (Environmental): 1.89ha
 - Lot Frontage (Environmental): 194.8m
- Lands to be Retained - Part 3:
 - Lot Area: 0.68ha
 - Lot Frontage: 72.3m
- 7.0m Road Widening - Part 4:
 - Area: 0.24ha

AGRICULTURAL GENERAL (AG) ZONE

Provisions	Required	Part 1 - Lands to be Severed
Principal Use	Agriculture	Agriculture
Min. Lot Frontage	150.0m	53.5m
Min. Lot Area	40.0ha	0.34ha

Figure 4. Severance Sketch

Source: The Corporation of the Town of Innisfil Zoning By-Law No. 054-04
Note: Information shown is approximate and subject to change.

SEVERANCE SKETCH

500 SALEM RD, BARRIE

SCHEDULE OF REVISIONS			
No.	Date	Description	By

INNOVATIVE PLANNING SOLUTIONS
PLANNERS • PROJECT MANAGERS • LAND DEVELOPERS
647 WELHAM ROAD, UNIT 9, BARRIE, ON, L4N 0B7
tel: 705 • 812 • 3281 fax: 705 • 812 • 3438 e: info@ipsconsultinginc.com www.ipsconsultinginc.com

Date:	July 18, 2022	Drawn By:	A.S.
File:	20-992	Checked:	T.K.



DRAFT PLAN OF SUBDIVISION

PART OF SOUTH HALF OF LOT 1, CONCESSION 11,
GEOGRAPHIC TOWNSHIP OF INNISFIL,
TOWN OF INNISFIL,
COUNTY OF SIMCOE

- LEGEND**
- SUBJECT LANDS
 - AREA: 3.32ha
 - FRONTAGE: 340.5m (incl. develop. limit)
 - DEVELOPMENT LIMIT (AREA:0.68ha excluding road widening)
 - WETLAND BOUNDARY
 - WETLAND SETBACK
 - STREAM CORRIDOR / NATURAL LINKAGE AREA
 - ENVIRONMENTAL LANDS TO BE DEDICATED TO THE CITY OF BARRIE
 - OPEN SPACE LANDS TO BE DEDICATED TO THE CITY OF BARRIE

OWNER'S CERTIFICATE
I HEREBY AUTHORIZE INNOVATIVE PLANNING SOLUTIONS TO PREPARE THIS DRAFT PLAN OF SUBDIVISION AND SUBMIT THIS DRAFT PLAN OF SUBDIVISION FOR APPROVAL.

DATE: OWNER'S NAME:

SURVEYOR'S CERTIFICATE
I CERTIFY THAT THE BOUNDARIES OF THE LAND TO BE SUBDIVIDED AND THEIR RELATIONSHIP TO ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN.

DATE: NEIL A. LEGROW, O.L.S.

ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51(17) OF THE PLANNING ACT

- | | |
|------------------|-----------------------------|
| a) SHOWN ON PLAN | g) SHOWN ON PLAN |
| b) SHOWN ON PLAN | h) MUNICIPAL WATER |
| c) SEE KEY PLAN | i) SAND, SILT, CLAY |
| d) RESIDENTIAL | j) SHOWN ON PLAN |
| e) SHOWN ON PLAN | k) MUNICIPAL WATER & SEWAGE |
| f) SHOWN ON PLAN | l) NONE |

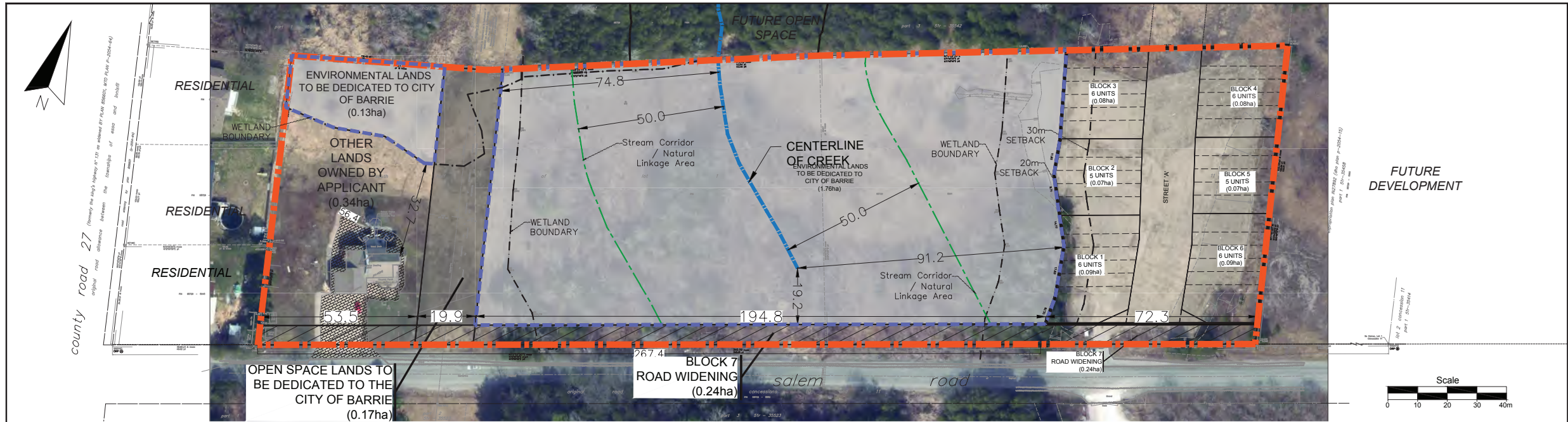
LAND USE STATISTICS			
LAND USE	LOT / BLK No.	UNITS	AREA (ha)
Residential - Townhouse	1 - 6	34	0.48
Street 'A'			0.20
TOTAL	7	34	0.68ha

Figure 5. Draft Plan of Subdivision

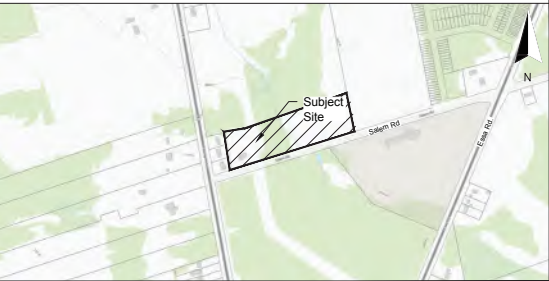


INNOVATIVE PLANNING SOLUTIONS
PLANNERS • PROJECT MANAGERS • LAND DEVELOPERS
647 WELHAM ROAD, UNIT 9, BARRIE, ON, L4N 0B7
tel: 705 • 812 • 3281 fax: 705 • 812 • 3438 e: info@ipsconsultinginc.com www.ipsconsultinginc.com

Date:	Sept. 9, 2022	Drawn By:	A.S.
File:	20-992	Checked:	T.K.



KEY MAP



DRAFT PLAN OF SUBDIVISION

PART OF SOUTH HALF OF LOT 1, CONCESSION 11,
GEOGRAPHIC TOWNSHIP OF INNISFIL,
TOWN OF INNISFIL,
COUNTY OF SIMCOE

LEGEND

- SUBJECT LANDS
 - AREA: 3.32ha
 - FRONTAGE: 340.5m (incl. develop. limit)
- DEVELOPMENT LIMIT (AREA: 0.68ha excluding road widening)
- WETLAND BOUNDARY
- WETLAND SETBACK
- STREAM CORRIDOR / NATURAL LINKAGE AREA
- ENVIRONMENTAL LANDS TO BE DEDICATED TO THE CITY OF BARRIE
- OPEN SPACE LANDS TO BE DEDICATED TO THE CITY OF BARRIE

OWNER'S CERTIFICATE

I HEREBY AUTHORIZE INNOVATIVE PLANNING SOLUTIONS TO PREPARE THIS DRAFT PLAN OF SUBDIVISION AND SUBMIT THIS DRAFT PLAN OF SUBDIVISION FOR APPROVAL.

DATE OWNER'S NAME:

SURVEYOR'S CERTIFICATE

I CERTIFY THAT THE BOUNDARIES OF THE LAND TO BE SUBDIVIDED AND THEIR RELATIONSHIP TO THE ADJACENT LANDS ARE CORRECTLY SHOWN.

DATE NEIL A. LEGROW, O.L.S.

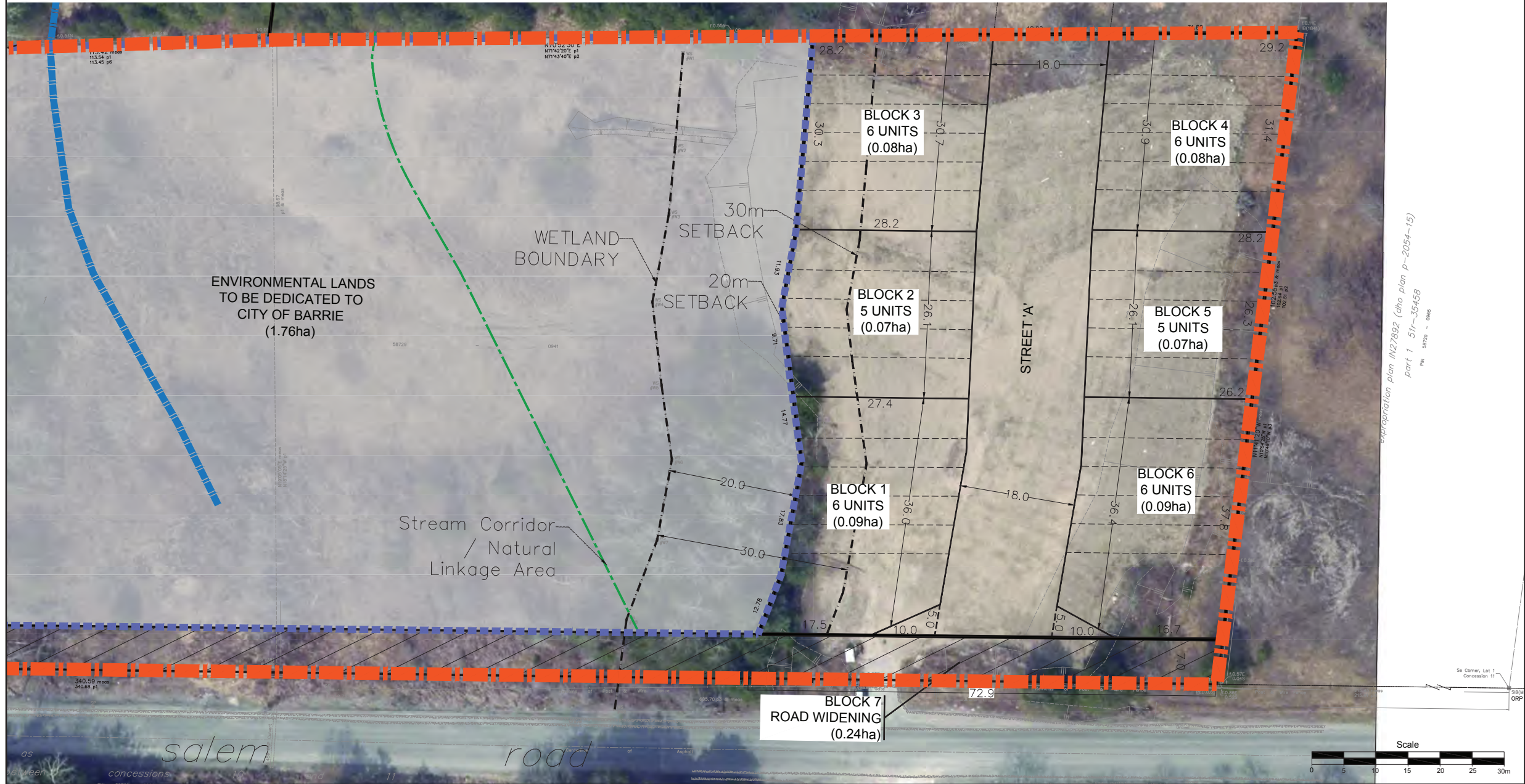
ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51(17) OF THE PLANNING ACT

- | | |
|------------------|-----------------------------|
| a) SHOWN ON PLAN | g) SHOWN ON PLAN |
| b) SHOWN ON PLAN | h) MUNICIPAL WATER |
| c) SEE KEY PLAN | i) SAND, SILT, CLAY |
| d) RESIDENTIAL | j) SHOWN ON PLAN |
| e) SHOWN ON PLAN | k) MUNICIPAL WATER & SEWAGE |
| f) SHOWN ON PLAN | l) NONE |

LAND USE STATISTICS

LAND USE	LOT / BLK No.	UNITS	AREA (ha)
Residential - Townhouse	1 - 6	34	0.48
Street 'A'			0.20
TOTAL	7	34	0.68ha

Figure 6. Draft Plan of Subdivision Overlay on FBS Spring 2021 Aerial



IPS INNOVATIVE PLANNING SOLUTIONS
PLANNERS • PROJECT MANAGERS • LAND DEVELOPERS
647 WELHAM ROAD, UNIT 9, BARRIE, ON, L4N 0B7
tel: 705 • 812 • 3281 fax: 705 • 812 • 3438 e: info@ipsconsultinginc.com www.ipsconsultinginc.com

Date:	Sept. 9, 2022	Drawn By:	A.S.
File:	20-992	Checked:	T.K.



Ontario Ministry of the Environment
Ministère de l'Environnement

Southwestern Region Région du Sud-Ouest
2nd Floor 2^e étage
659 Exeter Rd. 659, chemin Exeter
London ON N6E 1L3 London ON N6E 1V3
519-873-5000 519-873-5000

File No.

27 April 2001

MEMORANDUM

To: Chris Hyde
Barrie District Office

From: Theo Beukeboom
Groundwater Evaluator

Re: Remediation Report MTO Holly Landfill Site, 4165 salem Road,
Innisfil
prepared by AMEC, 30 March 2001

I have completed my review of the above report. It shows that all waste deposited at this site over the years of operation have been removed and the site cleaned up to Table A criteria.

On the basis of a geophysical survey, 15 sites were excavated and all waste and contaminated soils removed. After the remediation the walls and floors of the excavations were sampled and analysed for metals, VOC's and PAH's. Water samples from 8 onsite monitoring wells were collected and analysed. All results were found to be below Table A criteria.

Also a post remedial geophysical survey was conducted. Some 4 spots were identified having anomalies. Test pits were dug at those four spots but no further waste was found.

The report concludes that all waste material has been removed from the site and that on the basis of samples taken from soils and groundwater and the geophysical survey conducted after the remediation, the site meets the Table A criteria for residential and parkland use.

I concur with this conclusion.

The report recommends that MTO apply to MOE for revocation of the C of A for this site.

If MTO submits such an application, I would have no objection to granting this revocation.

Ministry of the
Environment

Ministère de
l'Environnement

54 Cedar Pointe Drive
Unit 1203
Barrie ON L4N 5R7
tel.: (705) 739-6427
fax: (705) 739-6440

54 Cedar Pointe Drive
Bureau 1203
Barrie ON L4N 5R7

April 30, 2001

Ministry of the Environment
Environmental Assessment and Approvals Branch
2 St. Clair Ave. West, Floor 12A
Toronto, Ontario
M4V 1L5

Attn: George Lai

RE: Ministry of Transportation, Holly Landfill Site
Provisional Certificate of Approval No. A252204
Part Lot 1, Concession 11, Town of Innisfil
Site Remediation Report Review
Our File: SI SI IN C11 610

The MOE Barrie District Office has completed its review of the "Remediation Report, Ministry of Transportation Holly Landfill Site, File 1-07-33, Innisfil, 4165 Salem Road, Lot 1 Concession 11 Township of Innisfil, Ontario", prepared by AMEC Earth & Environmental Ltd., dated March 30, 2001. The remediation report was submitted for review and comments, prior to an application by MTO to revoke the C of A for the landfill site.

With the removal of the waste and contaminated soil from the site and based on the analytical results of the soil and groundwater samples, and the post-remediation geophysical study, this office agrees with the consultants conclusions that the site meets the Table A criteria for residential and parkland use, as outlined in The Guideline for Use at Contaminated Sites in Ontario.

The following recommendations should be considered for implementation prior to the Provisional Certificate of Approval being revoked:

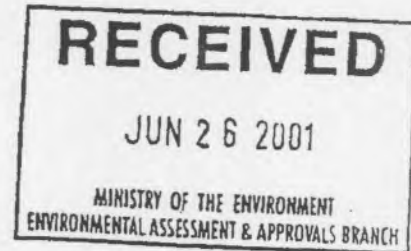
1. The site entrance gate should be replaced (recently damaged by trespassers) and access controlled by installing a heavy chain and lock.
2. "No Trespassing" signs should be posted at the entrance gate and at 30 metre intervals around the entire site perimeter.
3. "No Dumping" signs should be posted at the entrance gate and at 30 metre intervals along the South site perimeter, fronting on Salem Road.



June 25, 2001

TC85325

George Lai
Ministry of the Environment
Environmental Assessment and Approvals Branch
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5



Re: MTO Holly Landfill Site, Innisfil, Ontario; Provisional CofA # A252204

Dear Mr. Lai:

AMEC Earth & Environmental Limited (AMEC) was retained by the Ministry of Transportation of Ontario (MTO) to assess potential impacts on the above referenced site and complete a remedial action program. The MTO acquired the site in 1946, and the last waste was deposited in 1992, although most of the waste deposition occurred in the 1970s. As documented in the report discussed at our meeting in your offices on May 1, 2001, the remediation is now complete.

The groundwater quality in the landfill has been monitored since 1994 and no significant impacts have been noted over these years (reports attached). In addition, no putrescible wastes were deposited below the water table and the remnant buried waste materials (approximately 6,000 tonnes) were removed in the fall of 2000 as part of the remedial action plan.

Based on the above information, AMEC requests that the above referenced Provisional Certificate of Approval be revoked since the site is no longer a landfill. AMEC also recommends that no further monitoring be conducted on this site, since the soil and groundwater quality meet the Table A (potable) criteria from the MOE *Guideline for Use at Contaminated Sites in Ontario*, and the source of potential future impacts (the waste) has been removed.

Yours truly,

Donald Ford, B.Sc.
Head, Site Assessment and Remediation
Direct Tel.: 905-568-2929
Direct Fax: 905-568-1686
E-mail: Donald.ford@amec.com

CF/

AMEC Earth & Environmental Limited
Traders Blvd. East, Suite 110
Mississauga, Ontario
L4Z 3K7
+1 (905) 568-2929
+1 (905) 568-1686

www.amec.com

P:\DECOM\Projects\85325\Docs\MOE_revised_letter.doc

A0009147_169

s.N/R

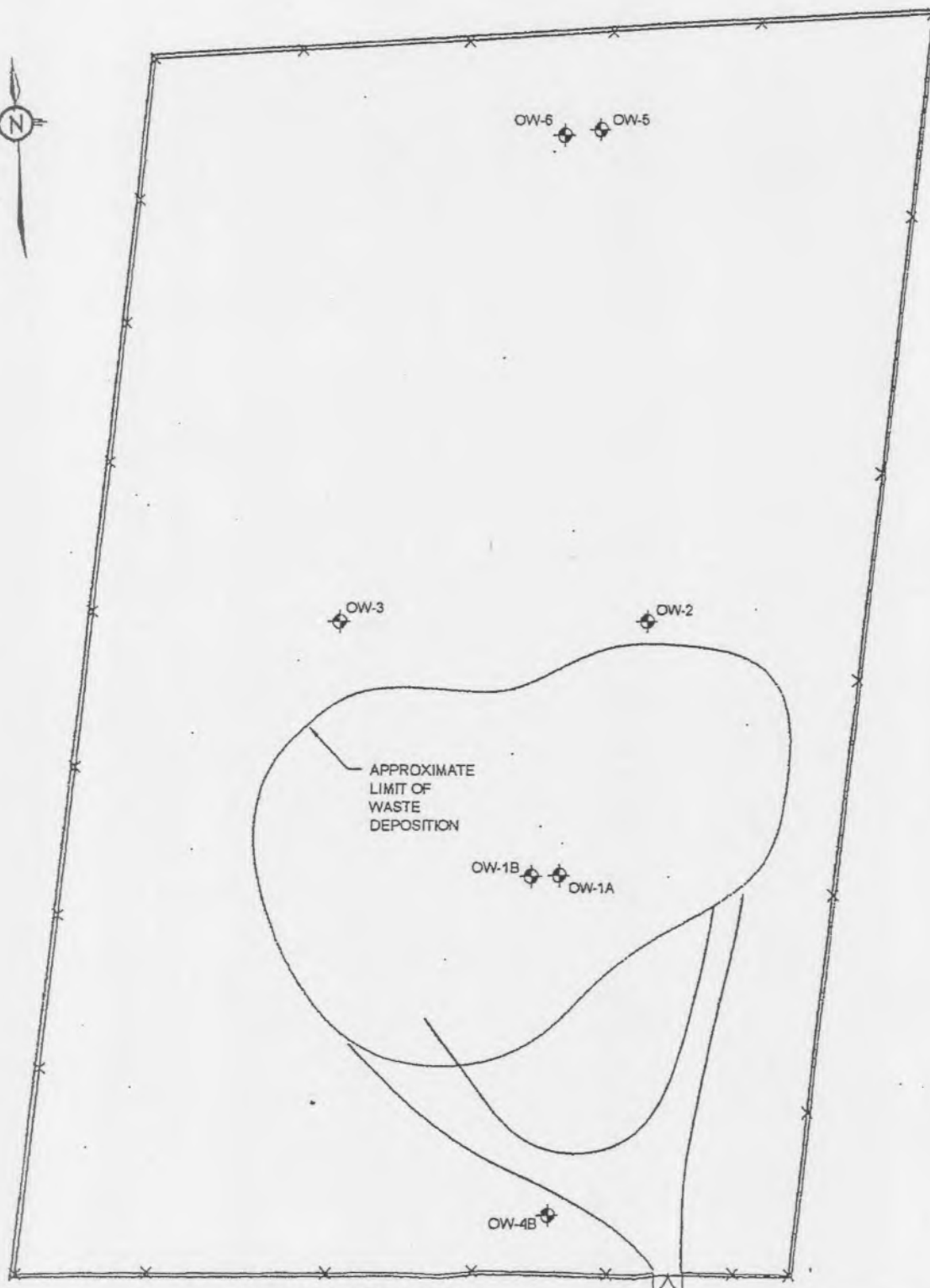
Holly Landfill Site

This landfill site is located in the south half of Lot 1, Concession 11 in the Town of Innisfil. Access via Concession 11, approximately 200 m west of the Former Highway 27 (now Simcoe County Road 27). This site was formerly used as an MTO landfill, but waste material was removed by General Waste Inc. in 1997. Some imported fill material was subsequently placed to the north of monitoring well OW-4. Further waste materials were discovered by AMEC in a detailed subsurface investigation of the site (AGRA, 1999). Seven monitoring wells (OW-1A/B to OW-6) existed as of July, 2000 on the site, including a replacement well installed by AGRA in May, 1998 (Figure 3).

Groundwater elevations in July, 2000 (Table 3) were similar to the previous data (AGRA, 1999; Gartner Lee, 1997). The groundwater flow gradient is relatively flat beneath the former landfill footprint, with flow estimated to be to the northwest.

The 2000 groundwater chemistry data are summarized in Table 4 and the Laboratory Certificates of Analysis are provided in Appendix C. The groundwater samples from monitoring well OW-2 in and below the former landfill exhibited elevated nitrate concentrations (3.2 mg/L) that are above the Reasonable Use Guideline. However, other landfill leachate indicator parameters such as chloride were present at low to moderate levels (0.8 mg/L). Therefore, the elevated nitrate concentrations observed at the Holly site may be attributed to agricultural uses in the area and/or to naturally elevated nitrates.

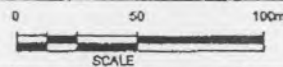
In summary, the concentrations of leachate-related parameters (i.e., iron, nitrate, DOC, TKN) in the monitoring wells within the landfill area are lower than the RUC values calculated by Trow (1995b), with the exception of DOC in OW-1A and OW-1B, and iron in OW-5. Iron concentrations in OW-5 exceeded Reasonable Use Guideline and DOC levels in OW-1A and OW-1B exceeded the respective ODWO and Reasonable Use Guideline. Sodium exceeded the RUC but was below the ODWO at OW-4B. However, none of the affected wells are at or near the downgradient property boundary.



TOWN OF INNISFIL CONCESSION 11

LEGEND

- OW-1  MONITORING WELL LOCATION
-  PROPERTY LINE
-  FENCE LINE



amec

ONTARIO MINISTRY OF
TRANSPORTATION
SIMCOE COUNTY LANDFILL SITES
HOLLY LANDFILL SITE

SITE PLAN
A0009147 176

FIGURE 2

s.N/R

Conclusions

The groundwater level and chemistry data from the July, 1999 sampling events at all three sites were generally consistent with previous data. No groundwater impacts were found at or near any of the property boundaries with respect to the RUC at the Innisfil and Holly sites (Trow, 1995a,b) or the ODWO and/or PWQO and for the Forest Home Site.

Recommendations

s.N/R

AMEC, on behalf of MTO, has completed the remediation of the Holly site, and if the C of A is revoked, the sampling program should be terminated. If the C of A has not been revoked by the spring of 2001, annual monitoring should continue.

References

AGRA Earth and Environmental Limited, 1998. *1998 Spring Monitoring, Three MTO Simcoe County Landfill Sites*. Prepared for the Ontario Ministry of Transportation, October 23, 1998.

Dames and Moore, Canada, 1996. *Fall Monitoring Event, Holly Pit Former Waste Disposal Yard*. Prepared for the Ontario Ministry of Transportation, November 1, 1996.

Gartner Lee Limited, 1997. *Monitoring Report for the Spring and Fall Sampling and Monitoring Program, Three MTO Simcoe County Landfill Sites*. Prepared for the Ontario Ministry of Transportation, December 15, 1997.

A0009147_172-000573

Ministry of
Transportation

Ministère des
Transports



Ontario

659 Exeter Road
London, Ontario
N6E 1L3 (519) 649-3119

873-4558

MAR 5 3 34 PM '98

February 19, 1998

Mr. Todd Fleet
Waste Approvals
Ministry of Environment
985 Adelaide Street South
London, Ontario
N6E 1V3

Dear Mr. Fleet:

Re: MTO Holly Site
Lot 1 Concession 11
Township of Innisfil
Certificate of Approval Number A 252204

The Ministry of Transportation is proposing the sale of the above mentioned property. It was acquired by the Ministry in August 1946. Our Ministry has completed the removal of all waste material in the site. This cleanup was done by General Waste Transport Inc. and was monitored by Mr. Bob Young of the Barrie office. A copy of the report is attached for your reference (Attachment A).

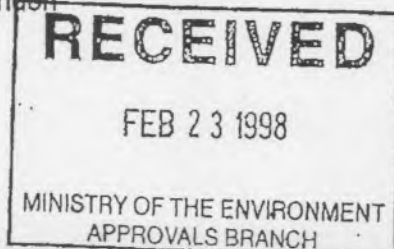
The latest Certificate of Approval for a Waste Disposal Site received from your Ministry (March 28, 1980) is also attached for your information (Attachment B). At this time, MTO would like to have the Certificate of Approval revoked. The waste on the site has been removed as cited above. We have no intention to use the site again and are proposing to sell it.

Since 1995, MTO has obtained various consultants to do groundwater monitoring at the Holly Site on an annual basis. The results from the monitoring program are attached for your reference (Attachment C). The results show only minimal salt contamination from the local service road.

Could you review the information provided and proceed with the revocation of the Certificate of Approval? If you require any further information, please contact me.

Yours truly,

Geoff Sutherland
Environmental Planner - Waste Management
Southwestern Region, London



FEB 23 1998

FEB 20 1 17 PM '98

FEB 23 1998



Groundwater quality has remained relatively similar to that observed in 1996 at the Holly site. Most monitoring locations, in and below the former landfill, still exhibit slightly elevated nitrates (2.33 to 3.75 mg/L) with low to moderate levels of the major ions parameter such as chloride (89.6 to 228 mg/L) and trace to below detectable limits of the heavy metals. The downgradient monitor OW5 still exhibits low levels of nitrate (0.5 mg/L) and low to very low levels of the major ions such as chloride (0.53 mg/L) and trace to below detectable limits for the heavy metals. However, iron (0.68 mg/L) and aluminum (0.749 mg/L) were found to be elevated from previous sampling events, during October 1997. This monitor is also very silty and the same filtration problems may have occurred similar to OW2 at the Innisfil site, and therefore, would not be considered landfill related.

The elevated nitrate observed at the Holly site may also be attributed to agricultural uses in the area and/or to the naturally elevated nitrates. This was demonstrated at the former upgradient monitor OW4, in 1996, which had the highest nitrate concentration. Therefore, elevated nitrate concentrations may not be totally related to the landfill. However, this should be verified using the parameter ammonia, during the next monitoring event.

During 1997, chloride concentrations have increased at all locations except the background monitor OW5. These increases from October 1996 to October 1997 are:

- OW1A.....129 to 228 mg/L
- OW1B.....63.5 to 214 mg/L
- OW2.....11.1 to 89.6 mg/L
- OW3.....32.4 to 91.2 mg/L

The increase in chloride appears to be directly related to road salt effects. This was best illustrated in 1996 at the upgradient monitoring location OW4, close to the road, which had a chloride concentration of 645 mg/L and to the fact that there is no longer any waste at this site. As there is no longer any waste to generate leachate, increasing chloride could not be landfill related. It should be noted that, as stated earlier, OW4 was destroyed during grading activities at the site, however, it is expected that high levels of chloride would still persist. Therefore, these increases in chloride concentrations are not considered landfill related.

Based on the low levels of leachate related parameters (iron, nitrate, DOC, TKN and manganese), and the fact that high levels of chloride are attributed to road salt effects, the landfill is not contributing any adverse effects on the surrounding groundwater regime based on the Reasonable Use Guideline concentrations calculate in the Environmental Investigation - MTO Holly Pit Waste Disposal Site, Trow Consulting Engineers Ltd., May 1995 (Appendix G). This is further demonstrated at the downgradient monitor OW5, which shows no leachate effects.

Based on the water quality observed and the low levels of the leachate parameters, it is recommended that the sample parameter list be reduced to only reflect leachate parameters and major ions as well as the addition of ammonia. These would include:

- a) chloride, sodium, calcium, magnesium, potassium and sulphate; and
- b) alkalinity, ammonia, nitrate, nitrite, DOC, TKN, iron and manganese.

From: Bob Young
To: TOR135STCLAIR.ENE2N07.HERLIHJE
Date: 11/29/97 11:09am*
Subject: Advice on closure & use of old MTO, WDS - Town of Innisfil

Jerry:

Attached find a draft letter to MTO [for background purposes]. I am advising them to apply to "close the site". I want to have a clear understanding of what they have to do to close the site and anything else they may have to do before the site can be used for another purpose before I finalize the letter.

Background:

- * MTO applied & received approval for a WDS in 1972 to dispose of roadside garbage
- * The C of A is registered on title
- * The WDS is 5 acres of a 40 acres parcel. The 35 remaining acres were used as a gravel pit.
- * The waste has been removed.
- * The WDS & the gravel pit have been rehabilitated to final elevations. Top soil has not yet been placed on the site.
- * MTO has written to the MOEE District Office for advice on their options for future use of the site (sale to others for use as WDS/ sale to others as a subdivision or building site etc.).
- * The District feels they should close the site

Unanswered questions/ Advice request:

- * When one applies to close the site what has to happen? Who do they apply to? What documents are involved?
- * Is the C of A rescinded by Approvals Branch (AB) and a letter drafted by AB for the Minister to authorize a future use of the site to comply with S46 of the EPA.
- * What has to happen at the registry office to de-register the C of A?
- * Any further advice or comments that you have to help me deal with this matter would be appreciated.

Thanks

Bob

CC: LAENGNMI, TOR250DAVISVILLE.ENE3N03.GASBARJO

REY file c:\u\mtoholly:em6]

29



DAMES & MOORE, CANADA

THE ENVIRONMENTAL PROFESSIONALS

7560 AIRPORT ROAD, MISSISSAUGA, ONTARIO L4T 2H5

TEL (905) 671-9921 FAX (905) 672-7784

Project: 24811-005

November 1, 1996

Ministry of Transportation
Southwestern Region
659 Exeter Road
London, Ontario
N6A 5H2

Attention: Mr. David Wake
Supervisor - Environmental Unit

Dear Sirs:

**Fall 1996 Monitoring Program
Simcoe County MTO Waste Disposal Yards
Project No. 9630-7411-3049**

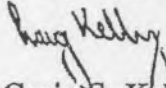
Enclosed are the results of the fall 1996 monitoring of the ^{s.N/R} Pit, and ^{s.N/R} Disposal Yards. ^{s.N/R} Holly

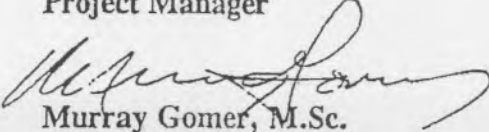
A review of the data indicates that local groundwater quality is not being adversely affected by waste disposal at these three sites. It is recommended that monitoring continue at the ^{s.N/R} site, as this site still periodically receives waste. It is also recommended that the Holly Pit site be monitored in 1997 following the completion of mining of the waste at this site, and that new monitor OW6 be checked in the spring of 1997 to see if there is any water in the well. The ^{s.N/R} observation wells should be sampled and analyzed at least one more time to verify that the nitrate levels recorded at OW4A in October 1996 were anomalous.

The covering letters pertaining to the analytical results are provided in draft form for your review. Should you have any comments or questions, please contact the undersigned.

Dames & Moore, Canada wishes to thank the MTO for the opportunity to undertake this project on behalf of the Ministry. We look forward to working with you on other projects in the near future.

Yours very truly,
DAMES & MOORE, CANADA


Craig S. Kelly, B.Sc.
Project Manager


Murray Gomer, M.Sc.
Principal-in-Charge

CSK/ja

OFFICES WORLDWIDE

A0009146 73-000000



DAMES & MOORE, CANADA

THE ENVIRONMENTAL PROFESSIONALS

7560 AIRPORT ROAD, MISSISSAUGA, ONTARIO L4T 2H5

TEL (905) 671-9921 FAX (905) 672-7784

Project: 24811-005

October 30, 1996

Ministry of Transportation of Ontario
Environmental Unit
659 Exeter Road
London, Ontario
N6A 5H2

RECEIVED

OCT 31 1996

PLANNING & DESIGN
LONDON

Attention: Mr. Geoff Sutherland
Environmental Planner

Dear Sirs:

Installation of Observation Well No. 6
Holly Pit
MTO 1996 Simcoe County Monitoring Program
MTO Project No. 9630-7411-3049

Dames & Moore, Canada (DMC) presents herein the results of the borehole drilling and subsequent installation of Observation Well 6/96 (OW-6/96) at MTO's former waste disposal yard at the Holly Pit, Township of Innisfil.

Due to the interpreted potential for vertical migration of groundwater before it moves laterally off the site, the terms of reference for Project No. 9630-7411-3049 included the installation of a deep monitor near the northern (downgradient) property boundary of the site. This investigation was required in order to assess the stratigraphy and groundwater quality in deeper formations underneath the site. Trow's 1994 investigation indicated that the shallow water-bearing soils beneath the surficial sand and gravel possessed a relatively high hydraulic conductivity ($\sim 2-3 \times 10^{-2}$ cm/s); the vertical extent of these soils was not known. If similar soils persisted at depth, there was potential for a high degree of vertical groundwater flow which the shallow 1994 observation wells downgradient of the fill area (OW-2/94, OW-5/94) may not intercept. The Ministry resolved to accept Trow's recommendation to drill a borehole and install an observation well in a deeper soil formation to investigate the concerns raised by Trow in their 1994 report.





The circumstances described above prevented DMC from obtaining a sample from this well at this time. The purpose of the deeper well installation was to investigate whether the highly permeable near-surface soils persisted to an extent where high vertical groundwater velocities may be carrying leachate down beyond the depth of the shallower monitors. The borehole stratigraphy indicates that this is highly unlikely. The bottom of the OW-5/94 monitor was likely at the transition from the high-permeable surficial soils to the underlying dense silty sand till. The hydraulic conductivity (K) of this till will be low, and may vary from 10^{-7} to 10^{-5} cm/s based on density and clay content. This is in marked contrast to the measured hydraulic conductivity ($\sim 2.5 \times 10^{-2}$ cm/s) in the "sandy silt" within which the shallow monitors were installed. It is expected that groundwater descending through the granular surficial units will be greatly impeded upon reaching the low-K soils, and will be largely migrating laterally along the "contact" zone between the high-K and low-K soils. The water-bearing "sandy silts" close to surface at the Holly Pit may be considered to be under a "perched" condition locally and possibly seasonally.

In summary, the borehole drilling and well installation revealed the presence of dense tills at a depth just below where the shallow monitors were installed in 1994. The tills can contain large (up to a few metres thick) bodies of granular materials (silts to sands). The groundwater in the tills appears to be under the influence of "unit hydraulic gradient", ostensibly caused by the presence of a significant groundwater drain at depth. Leachate and shallow groundwater beneath the pit will be predominantly moving laterally to the north above the transition zone between the high-K and low-K soils. Dilution of any leachate will be relatively high due to the marked contrast (3 to 5 orders of magnitude) in hydraulic conductivity between the surficial sands and underlying till, which will promote accumulation of infiltrating water at the transition zone and lateral movement in the upper water-bearing sands. DMC does not consider it necessary to drill a well in a search for groundwater quality in deeper formations but to monitor OW-6/96 in the spring when groundwater levels recover and, if possible, obtain a sample at this time.

1. Introduction

Trow Consulting Engineers Ltd. (Trow) has been retained by the Ministry of Transportation (MTO) to prepare an Operational and Site Closure Plan for the Holly Pit Waste Disposal Site (Holly Site) located on the north side of Concession Road 11, just west of Highway 27 in Innisfil, Ontario. Existing site conditions are presented in Drawing 1.

In conjunction with the Operational and Closure Plan, Trow conducted an Environmental Investigation of the Holly Site to identify existing and/or potential site impacts as a result of previous landfilling operations. Trow's findings indicated that there is no potential impact on the surrounding areas (agricultural and light industrial land-use). The Environmental Investigation is provided under separate cover.

1.1 Purpose

The purpose of this document is to detail an Operational and Closure Plan which includes an evaluation of the possible use of catch basin material and road sweepings from Simcoe County as cover material. Subsequent to acceptance of this Closure Plan by the MOEE, the measures described in this document will be implemented.

1.2 Background

The results of the environmental investigation of the Holly Pit site indicate that minor localized impact on water quality is occurring as a result of landfilling operations. There is no evidence to suggest that groundwater migrating offsite exceeds any criteria under MOEE Policy 15-08 ("Reasonable Use").

There is presently no surface drainage within the Holly Pit; all surplus moisture infiltrates to the shallow watertable aquifer. Minor ponding is observed in localized low lying areas after significant rainfall events.

4. Plan of Development and Operations

The following section outlines issues related to site preparations, engineering considerations and construction phasing as required for the Plan of Development and Operations.

4.1 Existing and Proposed Site Conditions

4.1.1 Site Survey

A topographic site survey was completed on May 4 & 5, 1994. Existing site conditions including existing site contours, the approximate aerial extent of waste disposal, the location of groundwater monitoring wells, and test pits are illustrated in Drawing No. 1.

The areal extent of deposited waste (four separate areas) is estimated to be approximately 16300 m² (0.8 acres) and falls within the boundaries of the former Holly Pit and the adjacent property to the west (see Drawing No. 1). Approximately 11500 m³ of refuse and waste materials have been disposed at the site. Sandy soil cover is variably present overlying the waste.

4.1.2 On-Site Roads

There are currently various temporary on-site roads within the floor of the Holly Pit (Dwg. #1). Temporary roads suitable for heavy vehicular traffic will be constructed as landfilling operations progress. Given the granular nature of the soils in the Holly Pit, this will not require significant effort; roads may be placed as required in most locations.

4.1.2.1 Access from Public Roads

Concession Road 11, which bounds the site to the south is the only public road leading to the landfill site. It is situated in an agricultural and light industrial area (tree farms, farms and a block plant to the south) and is occasionally traveled by heavy vehicles, farm machinery and local residential traffic. Concession Road 11 is a graveled surface secondary road which is maintained on a regular basis.

Increased traffic as a result of landfill operations will represent only a minor impact on other users of Concession Road 11 with respect to noise, dust and traffic.

The original access road to the site during landfill operations is located at the southeast corner of the site. A right-of-way along the east property line is also used for site access. Trow recommends that this intersection with Concession Road 11 be used again for site access as it is situated along a stretch that is clearly visible to traffic traveling in both directions. The location of the previous and proposed site access intersection is presented on Drawing No. 1.

5.0 CONCLUSIONS

The total volume of soil excavated was approximately 14,721 cubic metres. Material removed from the soil consisted of:

Recyclable material removed from site	120 tonnes
Non hazardous non registerable solid waste	95.72 tonnes
Registerable waste	7 drums

7. Landfill Gas Testing

Field methane and non-methane gas testing were carried out during the initial subsurface investigation work (test pits and boreholes) and in the gas monitoring probes (installed along side the groundwater monitoring wells) during our return visits. The results of Trow's gas testing are provided on the borehole (and test pit logs) and in Table 3 below.

Table 3: Gas Testing

Gas Monitoring Probe	Vapour Concentration (ppm)	
	Methane	Non-methane
OW-1A/94	<1	<1
OW-1B/94	<1	<1
OW-2/94	<1	<1
OW-3/94	<1	<1
OW-4/94	<1	<1
OW-5/94	<1	<1

* Readings taken May 24, 1994, using an MSA Model 60 (methane) and an HNU Photo-Ionization Detector (non-methane).

MINISTRY OF TRANSPORTATION
WASTE DISPOSAL SITE [WDS]

PROVISIONAL CERTIFICATE NO. A 252204

S 1/2 Lot 1, Concession 11 - Township of Innisfil
Now in the Town of Innisfil
Arrow shows 20 Ac WDS parcel (Roll No. 18-200)
Information assembled by R.E. Young June 28, 1996

BOUNDARY

18-190
70AC
C. FISHER

18-205
63AC
COUNTY OF SIMCOE

18-206
48 AC
TOMELL
INV. LTD.

18-213
15.05 AC
18-211
34 AC
W CHAPIN

18-216
100 AC
C & T WIGHT

18-192

18-200
20AC

18-209
25AC

18-195

18-198

18-196

18-197

18-210

18-214

18-215

18-186
71 AC
COUNTY OF
SIMCOE

18-187
11.95AC

18-180
18-182
18-181

18-174
18-173
18-172
18-171
18-170
18-169
18-168
18-167

18-176
40AC
G CAMPBELL

18-165
200 AC
L. J. GAUDETTE

18-163
50 AC
J & K REZINICEK

18-183

18-184

136 AC
J & G CAMPBELL

18-126
18-124

18-128

18-132
94.23 AC
QUIN-TIN HOLDINGS LTD

18-136
102.44 AC
P. S. Mc ALPINE

18-137
53.101 AC

18-134
18-135

A0009146_105

Soil and groundwater quality meet the Table A (potable) criteria from the MOE *Guideline for Use at Contaminated Sites in Ontario*, and the source of potential future impacts (the waste) has been removed. Based on these reports there is no basis to suggest that past or future contamination of the soil and/or groundwater by hazardous wastes is expected.

In summary, it is our opinion that this landfill site, due to its characterization, closure and remnant buried waste removal in 2000, will not impact the proposed residential development located at the landfills north boundary line.

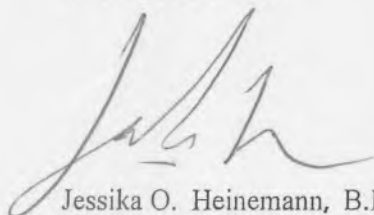
It is also important to indicate that this is a closed, remediated landfill. Therefore, further dumping or disposal will not be permitted. Thus, there is no concern with respect to the possible placement of additional landfill materials closer to the subject property at a later date.

We trust that this report adequately summarizes our recent assessment of the potential impact of this landfill site on the subject property and demonstrates that this site poses acceptable environmental risk for the proposed development of the subject lands with a residential addition. In accordance with the MOE Guideline D4 (Land Use on or Near Landfills and Dumps), we submit that no further investigation is required for the proposed development and that no control devices or facilities relating to the closed landfill site are required prior to development of the subject property.

If you should have any questions, or need further assistance, please do not hesitate to contact the undersigned.

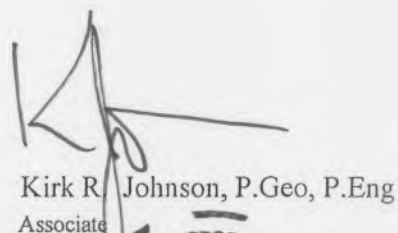
Sincerely,

Terraprobe Inc.



Jessika O. Heinemann, B.E.S

JOH/ct
Barrie Office



Kirk R. Johnson, P.Geo, P.Eng
Associate

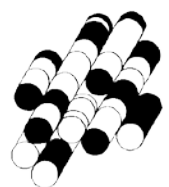


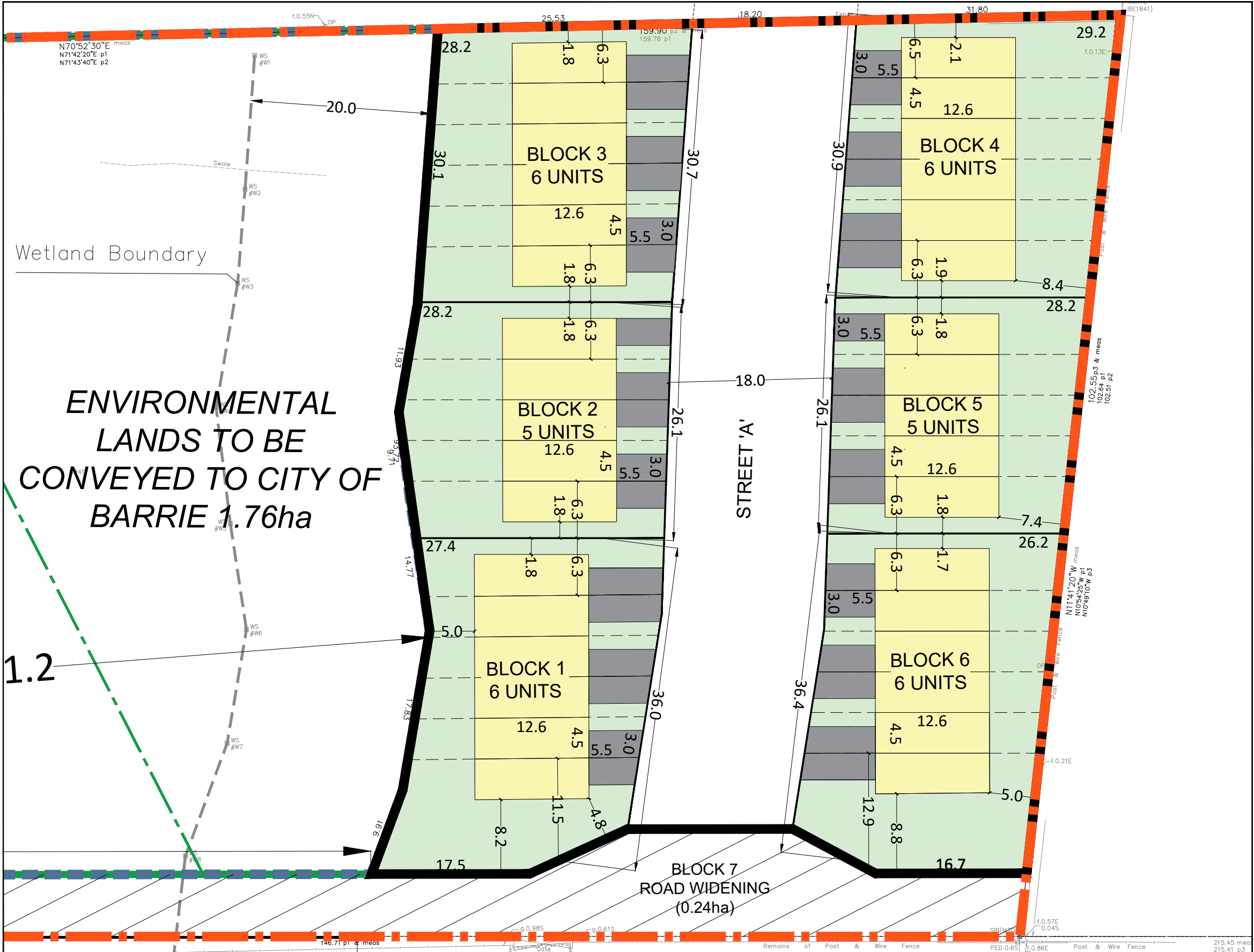
Terraprobe Inc.

Page 12

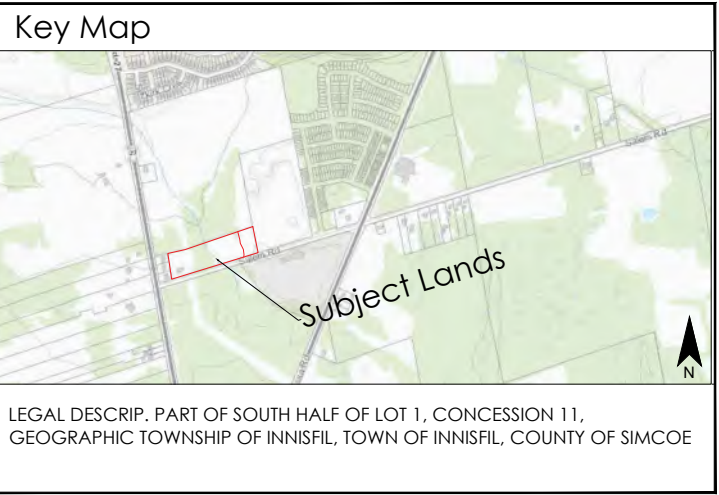
APPENDIX H

TERRAPROBE INC.





CONCEPTUAL SITE PLAN - 34 STREET TOWNHOUSE UNITS
500 SALEM ROAD, BARRIE, ON



LEGEND

- Subject Lands (3.32ha)
- Developable Area (0.67ha)
- 3-Storey Street Townhouse Units (G.F.A.: 150.9m² / 1,624.2ft² per unit)
- 7.0m Road Widening

NEIGHBOURHOOD RESIDENTIAL (R5) ZONE (SALEM AND HEWITT'S COMMUNITIES PROVISIONS)		
Provisions	Required	Provided
Lot Frontage (min.)	4.5m	4.5m
Front Yard Setback (min.)	3.0m (5.5m Driveway Length)	5.5m
Exterior Side Yard Setback (min.)	2.0m	4.8m
Interior Side Yard Setback (min.) one side	0.0m	0.0m
Interior Side Yard Setback (min.) Opposite Side	0.0m	0.0m
Rear Yard (min.)	5.0m	5.0m
End Unit Interior Side Yard Setback (min.)	1.2m	1.7m
Landscaped Open Space (min. % of lot area)	--	35%
Lot Coverage (max. % of lot area)	70%	49%
Dwelling Unit Floor Area (min.)	--	56.8m ²
Gross Floor Area (max. % of lot area)	--	148.1%
Maximum Height Number of Storeys	3 Storeys	3 Storeys
Maximum number of contiguous units in a row	8 Units	6 Units
Parking	1.5 Spaces per Dwelling Unit	2 Spaces per Dwelling Unit (1 Driveway Space & 1 Garage Space)

Note: This drawing is for discussion purposes only. The information shown is approximate and subject to change.

0 5 10 15 20m

Date: March 14, 2023 Drawn By: AS

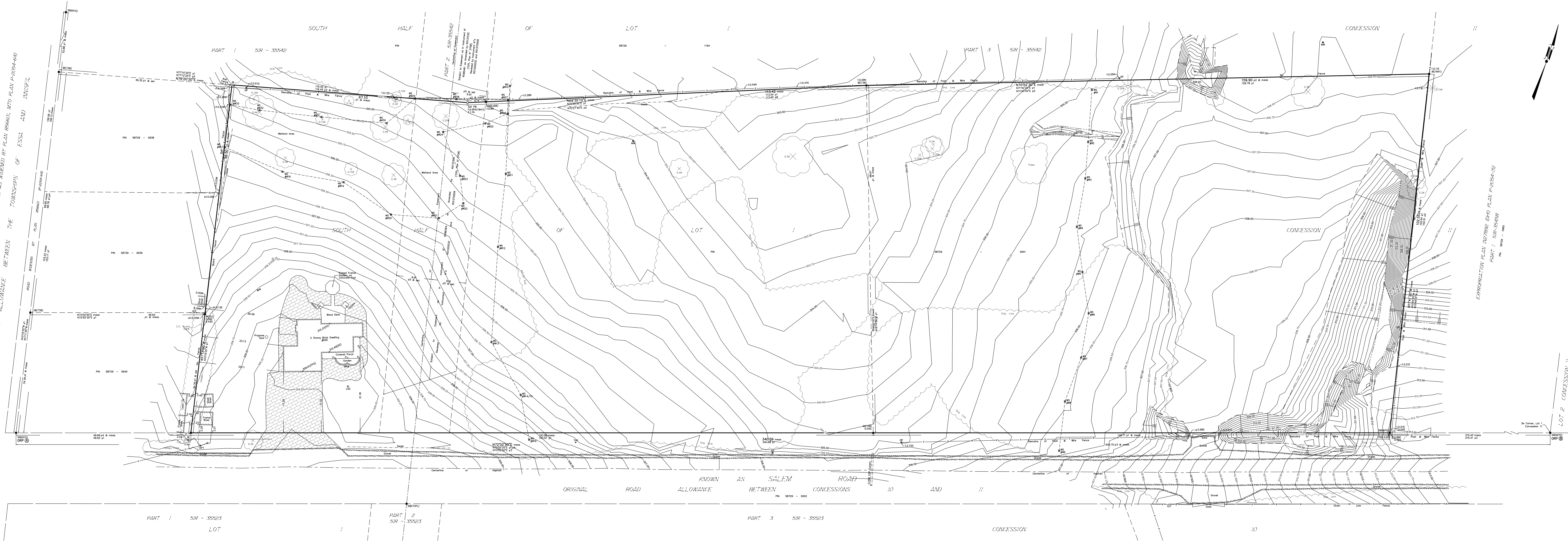
File: 20-992 Checked By: TK

IPS INNOVATIVE PLANNING SOLUTIONS
PLANNERS • PROJECT MANAGERS • LAND DEVELOPERS
647 WELHAM RD., UNIT 9, BARRIE, ONTARIO, L4N 0B7
tel: 705 • 812 • 3281 fax: 705 • 812 • 3434 e: info@ipsconsultinginc.com www.ipsconsultinginc.com

SCHEDULE OF REVISIONS			
No.	Date	Description	By

COUNTY ROAD 27

FORMERLY THE KING'S HIGHWAY NO. 13 AS WHENED BY PLAN B6602, MTO PLAN P-2054-44)
ORIGINAL ROAD ALLOWANCE BETWEEN THE TOWNSHIPS OF ESSA AND INNISFIL



**PLAN OF SURVEY WITH TOPOGRAPHY OF
PART OF SOUTH HALF OF LOT 1
CONCESSION 11
GEOGRAPHIC TOWNSHIP OF INNISFIL
TOWN OF INNISFIL
COUNTY OF SIMCOE**

SCALE 1:300
5 2.5 0 5 10 15 Metres

LLOYD & PURCELL A DIVISION OF SCHAFER DZADOV BENNETT LTD.

BENCH MARK
ELEVATIONS SHOWN HEREON ARE GEODETIC (CNO-1928/1978) AND ARE REFERRED TO COSINE 2nd ORDER VERTICAL BENCHMARK N° 0312010001 HAVING A PUBLISHED ELEVATION OF 312.514 METRES.

NOTES
DISTANCES, ELEVATIONS AND COORDINATES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.
DISTANCES SHOWN ON THIS PLAN ARE GROUND DISTANCES AND CAN BE CONVERTED TO GRID BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.999683.
BEARINGS SHOWN ON THIS PLAN ARE UTM GRID BEARINGS AND ARE DERIVED FROM OBSERVED REFERENCE POINTS A AND B, BY REAL TIME NETWORK (RTN) OBSERVATIONS, UTM ZONE 17, NAD 83 (CSRS 2010).

OBSERVED REFERENCE POINTS (ORP's): UTM ZONE 17, NAD 83 (CSRS 2010)		
POINT ID	NORTHING	EASTING
ORP A	4907553.874	601075.435
ORP B	4907540.524	601051.502

COORDINATES CANNOT, IN THEMSELVES, BE USED TO RE-ESTABLISH CORNERS OR BOUNDARIES SHOWN ON THIS PLAN.

LEGEND

U	OVERHEAD UTILITY	SM	SURVEY MONUMENT SET
OW	BOTTOM OF WALL	SSB	SHORT STANDARD IRON BAR
OP	TOP OF CONCRETE PAD	SB	STANDARD IRON BAR
OS	DOOR SILL	IB	IRON BAR
FF	FINISHED FLOOR	FB	FINISHED FLOOR (GARAGE)
IF	INVERT	SPK	SPIKE
TP	TOP OF PORCH	mess	MEASURED
D	DIAMETER	JOB	JOB
BP	BOARD FENCE	LO	LOD. BARNES LIMITED
BRW	BLOCK RETAINING WALL	CU	CROWN UNKNOWN
C/L	CENTERLINE	ORP	OBSERVED REFERENCE POINT
CLF	CHAIN LINK FENCE	TOP	TRANS-CANADA PIPELINES LIMITED
CSP	CORRUGATED STEEL PIPE	615	J.H. DIAMOND, O.L.S.
F	FENCE	738	R.C. KIRKPATRICK, O.L.S.
G	GATE	1841	RAIKES SURVEYING LTD.
HPT	HYDRO POLE & TRANSFORMER	p1	PLAN OF SURVEY BY R.C. KIRKPATRICK, DATED MAY 28, 1984 (JOB N° FK-322)
LS	SMALL LIGHT STANDARD	p2	PLAN 51R-35542
MW	MONITORING WELL	p3	PLAN 51R-35548
OP	OLD FENCE POST	p4	PLAN OF SURVEY BY RUDY MAK SURVEYING LTD., DATED FEBRUARY 18, 1988 (FILE N° S-1024-B)
P	PILLAR	p5	TRANS-CANADA PIPELINE PLAN PL3708 REGISTERED AS R0131532
PF	BELL PEDESTAL	p6	PLAN 51R-42040
R	RAIL FENCE		
SP	SON POST		
TVP	TELEVISION PEDESTAL		
W	WELL		
WS	WOOD STAKE		
AW	ANCHOR/GUY WIRE		
CT	CONIFEROUS TREE (SPREAD)		
DT	DECIDUOUS TREE (SPREAD)		
S	TOP OF SLOPE		
TS	TOE OF SLOPE		
AS	EDGE OF ASPHALT/GRAVEL		
ET	EDGE OF TREES		

NOTE
UNDERGROUND SERVICE/UTILITY LOCATIONS WERE NOT DETERMINED AND SHOULD BE LOCATED IN THE FIELD PRIOR TO CONSTRUCTION.
TOPOGRAPHIC OBSERVATIONS SHOWN HEREON COMPLETED ON DECEMBER 11, 2020.
ADDITIONAL TOPOGRAPHIC WETLAND OBSERVATIONS SHOWN HEREON COMPLETED ON OCTOBER 14, 2021.

SURVEYOR'S CERTIFICATE
I CERTIFY THAT:
1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEY ACT, THE SURVEYORS ACT AND THE REGULATIONS MADE UNDER THEM.
2. THE SURVEY WAS COMPLETED ON THE 11th DAY OF DECEMBER 2020.

JANUARY 26, 2021
MEL A. LERROW
ONTARIO LAND SURVEYOR

NO ONE MAY COPY, REPRODUCE, DISTRIBUTE OR ALTER THIS PLAN WITHOUT THE WRITTEN PERMISSION OF LLOYD & PURCELL A DIVISION OF SCHAFER DZADOV BENNETT LTD.

DESCRIPTION OF LAND: PART OF SOUTH HALF OF LOT 1, CONCESSION 11, GEOGRAPHIC TOWNSHIP OF INNISFIL, TOWN OF INNISFIL, COUNTY OF SIMCOE. ALL OF PIN 58729-0941.

REGISTERED EASEMENTS AND/OR RIGHTS OF WAY: SUBJECT TO EASEMENT AS IN INSTRUMENT N° R086364, AS AMENDED BY R0131532, RENEWED BY INSTRUMENT N° R01200032 AND R01370509.

BOUNDARY FEATURES: NOTE THAT FENCING IN SOME AREAS DEVIATES FROM THE PROPERTY LIMITS SIGNIFICANTLY. SEE PLAN FOR DETAILED DIMENSIONS.

COMPLIANCE WITH MUNICIPAL ZONING BY-LAWS: THIS PLAN DOES NOT CERTIFY ZONING COMPLIANCE OR IDENTIFY WHAT ZONING RESTRICTIONS ARE INVOLVED.

ADDITIONAL REMARKS: NONE.

THIS REPORT WAS PREPARED FOR LSR SALEM INC. AND THE UNDERSIGNED ACCEPTS NO RESPONSIBILITY FOR USE BY OTHER PARTIES.

LLOYD & PURCELL
A DIVISION OF SCHAFER DZADOV BENNETT LTD.
ONTARIO LAND SURVEYORS
1228 CORHAM STREET, UNIT 28, NEWMARKET, ONTARIO, L3Y 6Z1
(905) 895-6416 Fax (905) 853-5837 E-MAIL: l.p@ontariolandsurveyors.ca
TOLL FREE 1 (855) 779-6500
WWW.ONTARIOLANDSURVEYORS.CA

CAD: CD PC: RPS JOB: 21-039/21-461
CALC: JS/SR CHK'D: NAL FILE: 11-11-1

LLOYD & PURCELL