

**Stage 1 Archaeological Assessment
(Background Study and Property Inspection)**

**Midtown Oakville Transportation Network and
Municipal Storm Water
Municipal Class Environmental Assessment Study**

**Former Township of Trafalgar, Halton County
Town of Oakville, Ontario**

Prepared for:

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EXECUTIVE SUMMARY

Archaeological Services Inc (ASI) was contracted by Cole Engineering Group Ltd. to conduct a Stage 1 Background Study and Property Inspection as part of the Midtown Oakville Transportation Network and Municipal Storm Water Class Environmental Assessment (EA) in the Town of Oakville. The purpose of the study is to further develop the details for the transportation and storm drainage network infrastructure components necessary to support the Midtown Oakville planning area.

The Stage 1 background study determined that no previously registered archaeological sites are located within 1 km of the study area. A review of the geography and history of the study area suggested that the study area has potential for the identification of Aboriginal and Euro-Canadian archaeological resources.

The Stage 1 property inspection determined that the majority of the study area has been disturbed by previous construction activity of the urban development surrounding the study area or of the existing ROWs. However, sections of the study area do possess archaeological potential.

In light of these results, ASI makes the following recommendations:

1. Archaeological potential exists in parts of the study area. These lands require Stage 2 archaeological assessment by a combination of test-pit survey at 5 m intervals. This should be completed prior to any land disturbance and may be done so as part of the detailed design process;
2. Due to extensive and deep land alterations that have severely damaged the integrity of any potential archaeological resources, the remainder of the study area does not retain archaeological potential and does not require further archaeological assessment;
3. Should the proposed work extend beyond the current study area then further Stage 1 assessment must be conducted to determine the archaeological potential of the surrounding lands.

Notwithstanding the results and recommendations presented in this study, ASI notes that no archaeological assessment, no matter how thorough or carefully completed, can necessarily predict, account for, or identify every form of isolated or deeply buried archaeological deposit. In the event that archaeological remains are found during subsequent construction activities, the consultant archaeologist, approval authority, and the Cultural Programs Unit of the Ministry of Tourism, Culture and Sport should be immediately notified.



**ARCHAEOLOGICAL SERVICES INC.
ENVIRONMENTAL ASSESSMENT DIVISION**

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1.0 PROJECT CONTEXT

Archaeological Services Inc (ASI) was contracted by Cole Engineering Group Ltd. to conduct a Stage 1 Background Study and Property Inspection as part of the Midtown Oakville Transportation Network and Municipal Storm Water Class Environmental Assessment (EA) in the Town of Oakville. The study area was refined as of January 9, 2014 to the current extent (Figure 1). The purpose of the study is to further develop the details for the transportation and storm drainage network infrastructure components necessary to support the Midtown Oakville planning area.

This assessment was conducted under the project direction and project management of Paul David Ritchie (PIF# P392-0030-2013) and the senior project management of Lisa Merritt (P094), both of ASI.

Section 1 of the Ministry of Tourism and Culture's 2011 document *Standards and Guidelines for Consultant Archaeologists (S & G)*, administered by the Ministry of Tourism, Culture and Sport (MTCS) discusses the objectives of a Stage 1 archaeological assessment as follows:

- To provide information about the geography, history, previous archaeological fieldwork and current land condition of the study area;
- To evaluate in detail the archaeological potential of the study area which can be used, if necessary, to support recommendations for Stage 2 archaeological assessment for all or parts of the property; and,
- To recommend appropriate strategies for Stage 2 archaeological assessment, if necessary.

This report describes the Stage 1 archaeological assessment that was conducted for this project and is organized as follows: Section 1.0 summarizes the background study that was conducted to provide the archaeological and historical context for the project study area; Section 2.0 addresses the field methods used for the property inspection that was undertaken to document its general environment, current land use history and conditions of the study area; Section 3.0 analyses the characteristics of the project study area and evaluates its archaeological potential; Section 4.0 provides recommendations for the next assessment steps; and the remaining sections contain other report information that is required by the *S & G*, e.g., advice on compliance with legislation, works cited, mapping and photo-documentation.

1.1 Development Context

All work has been undertaken as required by the *Environmental Assessment Act*, RSO (1990) and regulations made under the Act, and are therefore subject to all associated legislation. This project is being conducted under the Municipal Class EA process.

All activities carried out during this assessment were completed in accordance with the Municipal Engineers' Association document *Municipal Class Environmental Assessment* (2000, as amended in 2007 and 2011), the Ministry of the Environment document *Code of Practice: Preparing*,



Reviewing and Using Class Environmental Assessments in Ontario (2009), the *Ontario Heritage Act* (2005), and the *S & G*.

Authorization to carry out the activities necessary for the completion of the Stage 1 archaeological assessment was granted to ASI by Cole Engineering Group Ltd. on July 27, 2011.

1.2 Historical Context

The purpose of this section, according to Section 7.5.7 (1) of the *S & G*, is to describe the past and present land use and the settlement history and any other relevant historical information gathered through the Stage 1 background research. First, a summary is presented of the current understanding of the Aboriginal land use of the study area. This is followed by a review of the historical Euro-Canadian settlement history.

1.2.1 Aboriginal Land Use and Settlement

Southern Ontario has been occupied by human populations, if only seasonally, since the retreat of the Laurentide glacier during what is known as the Paleo-Indian period, approximately 11,000 BP (Ellis and Deller 1990: 39-43). Populations at this time would have been highly mobile, inhabiting a boreal-parkland more similar to the modern sub-arctic. By the end of the 11th millennium BP the environment had progressively warmed (see Section 1.3.2) and populations now occupied less extensive territories (Ellis and Deller 1990: 62-63).

From the 10th to the first half of the 6th millennia BP the Great Lakes' basins experienced low-water levels and so it is likely that many sites which would have been located on those former shorelines are now submerged beneath Lake Ontario. This period produces the earliest evidence of heavy wood working tools and is indicative of greater investment of labour in felling trees for fuel, to build shelter, or to produce crafts and is ultimately indicative of prolonged seasonal residency at sites. By the 8th millennium BP evidence exists for polished stone implements and worked native copper. The latter's source from the north shore of Lake Superior is evidence of extensive exchange networks. By the middle of the 5th millennium BP, during the Late Archaic (4500 BP-3000 BP) period the earliest evidence exists at this time of fish weirs and cemeteries, indicative of increased social organization and investment of labour into social infrastructure, increased procurement of food, and establishing territories (Brown 1995: 13; Ellis *et al.* 1990; Ellis *et al.* 2009; *cf.* Sauer 1952).

The settlement and subsistence systems of the Early Woodland (1000 BC-400 BC) period are not entirely clear. Populations continued a semi-permanent existence and exploited seasonally available resources, and the harvesting of spawning fish continued to be an important part of their subsistence. Evidence still exists for extensive and complex exchange networks (Spence *et al.* 1990: 136, 138). By the second millennium BP in the Middle Woodland (400 BC-AD 1000) period evidence exists for *macro-band* camps, focussing on the seasonal exploitation of resources such as spawning fish and wild rice (Spence *et al.* 1990: 155, 164). It is also during this period that maize was first introduced into southern Ontario, though it would have only supplemented Middle Woodland people's diet (Birch and Williamson 2013: 13-15). Bands likely retreated to interior camps during the winter.



The advent of Iroquoian culture occurs during the Late Woodland (AD 1000-AD 1649) period though full expression of Iroquoian culture is not recognised archaeologically until the fourteenth century AD. During the Early Iroquoian (AD 1000-AD 1300) phase, the communal site is replaced by the village focussed on horticulture. Seasonal disintegration of the community for the exploitation of a wider territory and more varied resource base was still practised (Williamson 1990: 317). By the second quarter of the first millennium BP, during the Middle Iroquoian (AD 1300-AD 1450) phase, this episodic community disintegration was no longer practised and populations now communally occupied sites throughout the year (Dodd *et al.* 1990: 343). In the Late Iroquoian (AD 1450-AD 1649) phase this process continued with the coalescence of these small villages into larger communities (Birch and Williamson 2013). Through this process, the socio-political organization of the First Nations, as described historically by the French and English explorers who first visited southern Ontario, was developed.

The first record of a European visit to southern Ontario was made in 1615 by Samuel de Champlain, who reported that a group of Iroquoian-speaking people situated between the New York Iroquois and the Huron-Wendat were at peace and remained “la nation neutre”. In subsequent years the French visited and traded among the Neutral, but the first documented visit was not until 1626, when the Recollet missionary Joseph de la Roche Daillon recorded his visit to the villages of the Attiwandaron, whose name in the Huron-Wendat language meant “those who speak a slightly different tongue” (the Neutral apparently referred to the Huron-Wendat by the same term). Like the Huron-Wendat, Petun and New York Iroquois, the Neutral people were settled village agriculturalists. The Neutral territory included discrete settlement clusters in the lower Grand River, Fairchild-Big Creek, Upper Twenty Mile Creek, Spencer-Bronte Creek drainages, Milton, Grimsby, Eastern Niagara Escarpment and Onondaga Escarpment areas. The study area is situated near the lower drainage of Sixteen Mile Creek however located in the upper drainage of Sixteen Mile Creek is the documented Milton settlement cluster (Lennox and Fitzgerald 1990: Figure 13.3). The Milton settlement cluster has documented occupation from the Glass Bead 1 period (AD 1580-AD 1600) (e.g. McClellahan site: Reid and Conway 1976) until the Glass Bead 3 Period (AD 1650-AD 1680) (e.g. McCarthy site: Reid and Conway 1976).

Between 1647 and 1651, the Neutral were decimated by epidemics and ultimately dispersed by the New York Iroquois, who subsequently settled along strategic trade routes on the north shore of Lake Ontario for a brief period during the mid seventeenth-century. One French explorer who is known to have entered the Burlington Bay area during this period was Rene-Robert Cavalier de La Salle, who left Montreal with a flotilla of nine canoes and eventually reached the head of Lake Ontario in September of 1669. After landing, de La Salle’s group travelled to the Seneca village of Tinaouataoua, the exact location of which is open to speculation (ASI 2005:13-14).

Compared to settlements of the New York Iroquois the “Iroquois du Nord” occupation of the landscape was less intensive. Only seven villages are identified by the early historic cartographers on the north shore and they are documented as considerably smaller than those in New York State. The populations were agriculturalists, growing maize, pumpkins and squash. These settlements also played the important alternate role of serving as stopovers and bases for New York Iroquois travelling to the north shore for the annual beaver hunt (Konrad 1974).

The first Europeans to arrive in the area were transient merchants and traders from France and England, who followed Aboriginal pathways and set up trading posts at strategic locations along the well-traveled river routes. All of these occupations occurred at sites that afforded both natural



landfalls for Great Lakes traffic and convenient access, by means of the various waterways and overland trails, into the hinterlands. Early transportation routes followed existing Aboriginal trails, both along the lakeshore and adjacent to various creeks and rivers (ASI 2006). Beginning in the mid-late seventeenth century, the Mississaugas began to replace the Seneca as the controlling Aboriginal group along the north shore of Lake Ontario since the Iroquois confederacy had overstretched their territory between the 1650s and 1670s (Williamson 2008). The Iroquois could not hold the region and agreed to form an alliance with the Mississauga peoples and share hunting territories with them (Williamson 2008). The Mississaugas traded with both the British and the French in order to have wider access to European materials at better prices, and used their strategic position on the Humber to act as trade intermediaries between the British and tribes in the north. By 1805, the lands from Burlington Bay to the Etobicoke River north of Eglinton Avenue were known as the 'Mississague Tract' (Boulton 1805: 48; Heritage Mississauga 2012: 18). The Mississaugas were also granted one mile (approximately 1.6 km) on either side of the Credit River, Twelve Mile Creek and Sixteen Mile Creek. In 1818, the remainder of the Mississauga Tract was acquired by the Crown excluding the lands tracts flanking the Credit River, Twelve Mile Creek and Sixteen Mile Creek. In 1820, the remainder of Mississauga land was surrendered except approximately 81 hectares (ha) along the Credit River (Heritage Mississauga 2012: 18).

The First Nations occupation in the study area undoubtedly overlapped with the influx of Euro-Canadian settlers. In 1825-26 the Credit Indian Village was established as an agricultural community and Methodist mission near present day Port Credit (Heritage Mississauga 2009a; MNCFN n.d.). By 1840 the village was under significant pressure from Euro-Canadian settlement that plans began to relocate the settlement. In 1847 the Credit Mississaugas were made a land offer by the Six Nations Iroquois Council to relocate at Grand River. In 1847, 266 Mississaugas settled at New Credit, approximately 23 km southwest of Brantford. In 1848 a mission of the Methodist Church was established there by Rev. William Ryerson (WICEC 1985). Although the majority of the former 'Mississague Tract' had been surrendered from the Mississauga by 1856 (Gould 1981), this does not exclude the likelihood that the Mississaugas continued to utilise the landscape at large during travel (Ambrose 1982) and for resource extraction.

1.2.2 Historic Euro-Canadian Land Use: Township Survey and Settlement

Historically, the study area is located in the Former Township of Trafalgar, County of Halton in part of Lots 7-13, Concession 2 South of Dundas Street and in part of Lots 7-15, Concession 3 South of Dundas Street, and partially within the historic Town of Oakville.

The *S & G* stipulates that areas of early Euro-Canadian settlement (pioneer homesteads, isolated cabins, farmstead complexes), early wharf or dock complexes, pioneer churches and early cemeteries, are considered to have archaeological potential. Early historical transportation routes (trails, passes, roads, railways, portage routes), properties listed on a municipal register or designated under the *Ontario Heritage Act* or a federal, provincial, or municipal historic landmark or site are also considered to have archaeological potential.

For the Euro-Canadian period, the majority of early nineteenth century farmsteads (i.e., those which are arguably the most potentially significant resources and whose locations are rarely recorded on nineteenth century maps) are likely to be located in proximity to water. The development of the network of concession roads and railroads through the course of the



nineteenth century frequently influenced the siting of farmsteads and businesses. Accordingly, undisturbed lands within 100 m of an early settlement road are also considered to have potential for the presence of Euro-Canadian archaeological sites.

Trafalgar Township

The land within Trafalgar Township was acquired by the British from the Mississaugas in 1795. In 1806, Samuel Wilmot surveyed the townships of Nelson, Trafalgar and Toronto from land obtained in this purchase, using Dundas Street (Highway 5) as a baseline from which to survey two concessions north and four concessions south. Dundas Street had been surveyed in 1793 as a military road.

Early settlement was often influenced by the presence of watercourses. The development of the network of concession roads and railroads through the course of the nineteenth century also frequently influenced the siting of farmsteads and early industries.

Dundas Street, the baseline survey road in Trafalgar Township had been surveyed in 1793 as a military road connecting Lake Ontario, Lake Erie, Lake St. Clair and Lake Huron, as well as a road to aid Loyalist settlement and deter expansionist claims in Upper Canada. After the two concessions south of Dundas St. were opened up, two new east-west concession line access roads, the Upper Middle Road and the Lower Middle Road, were surveyed. These early east-west roads were later complemented in 1832 by the Lakeshore Road, which was constructed nearby and parallel to an aboriginal pathway skirting Lake Ontario. The concession roads of the 1806 survey, and the line roads running perpendicular, blocked out the township in areas a mile and quarter square (approximately 324 ha) with five 200-acre (approximately 81 ha) lots to a square. Between every five lots ran a line road (Mathews 1953: 45).

Trafalgar Township was first named “Grant Township” in honour of Alexander Grant, who was the administrator of Upper Canada. In 1806, it was renamed in honour of the victory by Horatio Viscount Nelson at Cabo Trafalgar in Spain the previous year. Nelson was initially settled by the children of Loyalists, soldiers who served during the War of 1812, and by immigrants from England, Scotland and Ireland. By the 1840s, the township was noted for its well cultivated farms (Armstrong 1985:148; Rayburn 1997:348; Smith 1846:197).

The earliest families to settle within the township included those of Sovereign, Proudfoot, Kating, Freeman, Post, Biggar, Mulholland, Kenney, Chalmer, Albertson, Chisholms, Sproat, Brown and Hagar. According to the 1877 atlas, it contained 548 inhabitants with one grist mill and four saw mills in 1817.

Town of Oakville

This “flourishing” post office town was situated on part Lots 12-16 Concession 3 South of Dundas Street and on part Lots 11-17 in the Broken Front Concession, Trafalgar Township. It was developed as a town site in 1827 by merchant-miller William Chisholm. The place was originally named Sixteen Mile Creek, but the name was changed to “Oakville” at the suggestion of Robert Baldwin Sullivan, on account of the large numbers of white oak that grew in the area. Two wharves extended into Lake Ontario at the mouth of the Sixteen Mile Creek which formed a protective harbour, and Oakville was therefore a port of entry. Registered plans of subdivision for this village date from 1837-1861. This town was also served by the Hamilton and Toronto Branch



of the Great Western Railroad (now part of the CNR). The original depot was located in the vicinity of the present Oakville GO Station. In 1877, the town contained a square reserved for a market and town hall. It contained five churches, stores, hotels, mills and factories, ship building yards, two telegraph offices and a weekly newspaper. The population was about 1,684 (Crossby 1873: 232; Mathews 1971; Rayburn 1997: 252; Scott 1997: 165; Winearls 1991: 757-758; Young 1957).

Great Western Railway

The Great Western Railway Co. began construction in 1847 and by 1854 its first line connected between Hamilton, Niagara, and Windsor. In 1855 the railway connected a line from Hamilton to Toronto. The Great Western Railway was taken over by the Grand Trunk Railway in 1882. In 1923, Canadian National Railways took over the line following Grand Trunk Railway's bankruptcy. Today the line is primarily used by both the Toronto Transit Commission and GO Transit (Heritage Mississauga 2009b).

1.2.3 Historic Map Review

The 1858 *Tremaine's Map of the County of Halton* and the 1877 *Illustrated Historical Atlas of the County of Halton* were reviewed to determine the potential for the presence of historic archaeological resources within the study area during the nineteenth century (Figures 2-4). It should be noted, however, that not all features of interest were mapped systematically in the Ontario series of historical atlases, given that they were financed by subscription, and subscribers were given preference with regard to the level of detail provided on the maps. Moreover, not every feature of interest would have been within the scope of the atlases.

Historically, the study area is located in the Former Township of Trafalgar, County of Halton in part of Lots 7-13, Concession 2 South of Dundas Street and in part of Lots 7-15, Concession 3 South of Dundas Street, and partially within the historic Town of Oakville. Details of nineteenth century property owners are provided in Tables 1 and 2.

The 1878 historic maps of the southern part of Trafalgar Township and of Oakville demonstrate that a number of historic features are located within the proposed project alignments. It also shows that Trafalgar Road, Chartwell Road/8th Line, and Royal Windsor Drive and the alignment of the Queen Elizabeth Way (formerly Lower Middle Road: Dept. of Militia and Defence 1909) are all historic transportation routes. Twentieth century mapping indicates that the study area remained a rural landscape until at least 1931 (Dept. of Militia and Defence 1909; Dept. of National Defence 1931).



Table 1: Nineteenth-century property owners and historical features
 1858 *Tremaine's Map of County of Halton*

Lot #	Concession	Property Owner	Historical Feature(s)
7	2 South of Dundas Street	Levi Lewis	
8	2 South of Dundas Street	Wm. Coot Chas. Coot	
9	2 South of Dundas Street	Edmond W. Odell	
10	2 South of Dundas Street	Rodk McNeil	
11	2 South of Dundas Street	Jas. Robertson	
12	2 South of Dundas Street	J Mulholland	
13	2 South of Dundas Street	J.P. Anderson	
7	3 South of Dundas Street	Levi Lewis	
8	3 South of Dundas Street	Richard Coats	
9	3 South of Dundas Street	Owen Murphy J. Williams	
10	3 South of Dundas Street	Robt. McNeil	
11	3 South of Dundas Street	John Foreman	
12	3 South of Dundas Street	J.B. Anderson	
13	3 South of Dundas Street	John Chisholm Robt. K. Chisholm	
14	3 South of Dundas Street	Robt. K. Chisholm	
15	3 South of Dundas Street	Robt. K. Chisholm	

Table 2: Nineteenth-century property owners and historical features
 1877 *Illustrated Historical Atlas of County Halton*

Lot #	Concession	Property Owner	Historical Feature(s)
7	2 South of Dundas Street	Geo. Lewis (N.R.)	
8	2 South of Dundas Street	Wm. Cootes	
9	2 South of Dundas Street	Wm. H. Spencer	Orchard
10	2 South of Dundas Street	R. McNeil	
11	2 South of Dundas Street	Mrs. Jas. Robertson	
12	2 South of Dundas Street	Jno. Cross Jun	Orchard; farmhouse
13	2 South of Dundas Street	Cyrus W. Anderson	
7	3 South of Dundas Street	Wm. Cootes	
8	3 South of Dundas Street	Wm. Cootes	Farmhouse
9	3 South of Dundas Street	R. McNiel [sic] J.W. Williams	
10	3 South of Dundas Street	R. McNeil	Farmhouse; orchard
11	3 South of Dundas Street	T. Reynolds & C. Slattery	
12	3 South of Dundas Street	OAKVILLE	
13	3 South of Dundas Street	OAKVILLE	
14	3 South of Dundas Street	OAKVILLE	
15	3 South of Dundas Street	OAKVILLE	

1.2.4 Summary of Historical Context

The background research and historic mapping demonstrates that the study area contains a number of historic features and historic transportation routes. The study area also includes the historic town limits of Oakville.



Further, the background research demonstrated that the study area retains potential for the recovery of Aboriginal archaeological resources. The study area lands may have been part of the extended territory of the Neutral Nation and was subsequently used by the Seneca for resource extraction as well as settled by Mississauga people.

1.3 Archaeological Context

This section provides background research pertaining to previous archaeological fieldwork conducted within and in the vicinity of the study area, its environmental characteristics (including drainage, soils or surficial geology and topography, etc.), and current land use and field conditions. Three sources of information were consulted to provide information about previous archaeological research in the study area; the site record forms for registered sites housed at the MTCS; published and unpublished documentary sources; and the files of ASI.

1.3.1 *Current Land Use and Field Conditions*

The study area is located in the sprawling residential suburbs of Oakville, to the northeast of its downtown centre. North of Highway QEW is dominated by residential and commercial land use. South of the Highway QEW is dominated by industrial and commercial land use. The study area is situated adjacent to the prominent features of the Oakville GO Station and the Oakville GM plant. The project is largely confined to existing ROWs.

1.3.2 *Geography*

In addition to the known archaeological sites and historic features, the state of the natural environment is an important indicator of archaeological potential. Accordingly, a description of the study area geography, physiography and soils is provided below.

Section 1.3.1 of the *S & G* stipulates that primary water sources (lakes, rivers, streams, creeks, etc.), secondary water sources (intermittent streams and creeks, springs, marshes, swamps, etc.), ancient water sources (glacial lake shorelines indicated by the presence of raised sand or gravel beach ridges, relic river or stream channels indicated by clear dip or swale in the topography, shorelines of drained lakes or marshes, cobble beaches, etc.), as well as accessible or inaccessible shorelines (high bluffs, swamp or marsh fields by the edge of a lake, sandbars stretching into marsh, etc.) are characteristics that indicate archaeological potential.

Water has been identified as the major determinant of site selection and the presence of potable water is the single most important resource necessary for any extended human occupation or settlement. Since water sources have remained relatively stable in Ontario since 5,000 BP (Karrow and Warner 1990: Figure 2.16), proximity to water can be regarded as a useful index for the evaluation of archaeological site potential. Indeed, distance from water has been one of the most commonly used variables for predictive modeling of site location.

Section 1.3.1 of the *S & G* also lists other geographic characteristics that can indicate archaeological potential including: elevated topography (eskers, drumlins, large knolls, plateaux), pockets of well-drained sandy soil, especially near areas of heavy soil or rocky ground, distinctive land formations that might have been special or spiritual places, such as waterfalls, rock outcrops,



caverns, mounds, and promontories and their bases. Physical indicators of use may be present, such as burials, structures, offerings, rock paintings or carvings. Resource areas, including; food or medicinal plants (migratory routes, spawning areas) are also considered characteristics that indicate archaeological potential.

The study area is situated within the Iroquois Plain physiographic region of southern Ontario, which is a lowland region bordering Lake Ontario. This region is characteristically flat and formed by lacustrine deposits laid down by the inundation of Lake Iroquois, a body of water that existed during the late Pleistocene. This region extends from the Trent River, around the western part of Lake Ontario, to the Niagara River, spanning a distance of approximately 300 km (Chapman and Putnam 1984:190). The old shorelines of Lake Iroquois include cliffs, bars, beaches and boulder pavements. It should be noted that the original Lake Ontario shoreline runs through the northern portion of the study area.

Glacial Lake Iroquois came into existence by about 12,000 before present (BP) as the Ontario lobe of the Wisconsin glacier retreated from the Lake Ontario basin. Isostatic uplift and the blockage of subsequent lower outlets by glacial ice produced a water plain substantially higher than modern Lake Ontario. Beginning around 12,000 BP, water levels started to drop during the next few centuries in response to sill elevations at the changing outlet. By about 11,500 BP, when the St. Lawrence River outlet became established, the initial phase of Lake Ontario began and this low water phase appears to have lasted until at least 10,500 BP. During this period the waters stood as much as 100 m below current levels. At this time isostatic uplift had started to raise the outlet around Kingston so that by 10,000 BP the water level had risen to about 80 m below present. Uplift has continued to tilt Lake Ontario upward to the northeast, propagating a gradual and transgressive expansion throughout the basin (Anderson and Lewis 1985; Karrow 1967:49; Karrow and Warner 1990).

The old sandbars in this region are good aquifers that supply water to farms and villages. The gravel bars are quarried for road and building material, while the clays of the old lake bed have been used for the manufacture of bricks (Chapman and Putnam 1984:196). This narrow strip is the most densely inhabited area because of its proximity to Lake Ontario and its climatic influences, as well as its favourable soil conditions.

Surficial geology information is presented in Figure 5 and soil drainage information is presented in Figure 6. The study area is underlain by areas of Paleozoic bedrock and sand. The study area includes lands of good, imperfect and poor drainage as well as urban areas.

Soils in the study area consist of disturbed soils, Chinguacousy clay loam (rocky phase), Oneida clay loam and Oneida clay loam (rocky phase), and Jeddo clay loam. Chinguacousy clay loam (rocky phase) is an imperfectly drained soil that has developed in glacial drifts and shale outcrops are frequent. This soil has a typically gently sloping topography. The soil is friable and is typically dark grayish brown in colour (Gillespie *et al.* 1971: 32-33).

Oneida clay loam and Oneida clay loam (rocky phase) is a moderately well-drained soil that has developed on fine textured glacial till. The topography ranges from moderately sloping to nearly level. The soil is rather acidic in pH and brown in colour (Gillespie *et al.* 1971: 46).



Jeddo clay loam is a poorly drained soil that occupies depressional areas. The soil is developed from slightly stony calcareous clay till. This soil is very dark brown in colour and has a medium organic content (Gillespie *et al.* 1971: 43).

The study area is located in proximity to Sixteen Mile Creek (CRAA n.d.: Fig.1). Sixteen Mile Creek is one of three major watersheds in Halton Region and covers 35,700 ha (Conservation Halton n.d.). It originates at the Niagara Escarpment and transits the South Slope and Peel Plain physiographic regions meeting its confluence with Lake Ontario in the Iroquois Plain physiographic region at Oakville.

1.3.3 Previous Archaeological Research

In Ontario, information concerning archaeological sites is stored in the Ontario Archaeological Sites Database (OASD) maintained by the MTCS. This database contains archaeological sites registered within the Borden system. Under the Borden system, Canada has been divided into grid blocks based on latitude and longitude. A Borden block is approximately 13 km east to west, and approximately 18.5 km north to south. Each Borden block is referenced by a four-letter designator, and sites within a block are numbered sequentially as they are found. The study area under review is located in Borden blocks *AiGw* and *AiGv*.

According to the OASD (MTCS 2013), no previously registered archaeological sites are located within 1 km of the study area.

According to the background research, three previous archaeological assessment has been conducted within 50 m of the study area (AMICK 2007; Archeoworks Inc. 2010; ASI 2005). Due to access constraints, only the ASI (2005) assessment was reviewed for this assessment. This assessment is reviewed below.

ASI (2005) conducted a Stage 1 and 2 archaeological assessment of the Queen Elizabeth Way from Third Line to Trafalgar Road, and a Stage 3 archaeological assessment of St. Mary's Cemetery in the Town of Oakville, Regional Municipality of Halton under the project direction of Martin Cooper (MTCR CIF# 2000-116-014; 2001-020-094). The Stage 1 archaeological assessment determined that the study area possessed archaeological potential. The Stage 2 archaeological assessment was conducted on July 27, 2001 by test-pit survey at 5 m intervals. The Stage 2 archaeological assessment identified two archaeological findspots. The context in which these findspots were discovered, however, was documented to have been extensively disturbed and therefore these findspots were not deemed to require further investigation. The Stage 3 archaeological assessment of St. Mary's Cemetery was conducted on October 10, 2000 by the mechanical excavation of a 7 m wide, 40 m long trench in the southwest corner of the cemetery. The Stage 3 archaeological assessment identified one grave shaft. The trench was backfilled. The Stage 1-3 archaeological assessment recommended impact to St. Mary's Cemetery should be avoided by the project however the remainder of the study are should be considered free of further archaeological concern.

1.3.4 Summary of Archaeological Context

The background research and historic mapping demonstrates that the study area is located in the Former Township of Trafalgar, County of Halton in part of Lots 7-13, Concession 2 South of



Dundas Street and in part of Lots 7-15, Concession 3 South of Dundas Street, and partially within the historic Town of Oakville. The 1877 *Illustrated Historical Atlas of the County of Halton* indicates that the study area impacts on the locations of a number of historic features. It also shows that Trafalgar Road, Chartwell Road, and Royal Windsor Drive and the alignment of the Queen Elizabeth Way (formerly Lower Middle Road). These criteria indicate that the study area possesses potential for the recovery of Euro-Canadian archaeological resources.

Further, the background research demonstrates that the study area is located near the lower drainage of Sixteen Mile Creek and that the upper drainage of Sixteen Mile Creek is part of the documented Milton settlement cluster of the Neutral Nation. The region of the study area was subsequently utilised by the Seneca and the Mississauga for resource extraction. Therefore, the study area also has potential for the recovery of Aboriginal archaeological resources.

2.0 FIELD METHODS (PROPERTY INSPECTION)

The Stage 1 property inspection was conducted Paul David Ritchie (P392) of ASI, on November 12, 2013, in order to gain first-hand knowledge of the geography, topography, and current conditions and to evaluate and map archaeological potential of the study area. It was a visual inspection only and did not include excavation or collection of archaeological resources.

Weather conditions for the inspection were a mix of sun and cloud with a light breeze with temperature of approximately -1°C. Previously identified features of archaeological potential were examined, additional features of archaeological potential not visible on mapping were identified and documented as well as any features that could affect assessment strategies. Field observations are compiled onto the maps of the study area in Section 7.0 (Figures 8-10) and associated photography is presented in Section 8.0 (Plates 1-25).

3.0 ANALYSIS AND CONCLUSIONS

The historical and archaeological contexts were analyzed to help determine the archaeological potential of the study area. A summary of the archaeological potential of the study area is presented in Section 3.1 of this report and an evaluation of the property inspection results is presented in Section 3.2.

3.1 Analysis of Archaeological Potential

Section 1.3.1 of the *S&G* lists characteristics that indicate where archaeological resources are most likely to be found, and archaeological potential is confirmed when one or more features of archaeological potential are present. Accordingly, the study area meets the following criteria used for determining archaeological potential:

- Water source: primary, secondary, or past water source (e.g. Sixteen Mile Creek)
- Early historical transportation routes (e.g. Trafalgar Road)
- Areas of early Euro-Canadian settlement (e.g. Oakville)



These criteria characterize the study area as having potential for the identification of Aboriginal and Euro-Canadian archaeological resources, depending on the degree to which the natural topography and soils in the study area have been disturbed by historic and modern development.

3.2 Analysis of Property Inspection Results

The majority of the study area has been disturbed by previous construction activities relating to the urbanization of the area including commercial, residential and right-of-way (ROW) construction. Typically, a ROW can be divided into two areas: the disturbed ROW, and ROW lands beyond the disturbed ROW. The typically disturbed ROW extends outwards from either side of the centerline of the traveled lanes, and it includes the traveled lanes and shoulders and extends to the toe of the fill slope, the top of the cut slope, or the outside edge of the drainage ditch, whichever is furthest from the centerline. Subsurface disturbance within these lands may be considered extreme and pervasive, thereby negating any archaeological potential for such lands.

ROW construction disturbance may be found to extend beyond the typical disturbed ROW area, and this generally includes additional grading, cutting and filling, additional drainage ditching, watercourse alteration or channelization, servicing, removals, intensive landscaping, and heavy construction traffic. Areas beyond the typically disturbed ROW generally require archaeological assessment in order to determine archaeological potential relative to the type or scale of disturbances that may have occurred in these zones. These lands have been subject to extensive and deep land alterations that have severely damaged the integrity of any archaeological resources. These areas do not retain archaeological potential and do not require further work (Figures 8-10: areas marked in yellow).

Small sections of the study area do possess archaeological potential and are predominantly wooded areas or grass covered areas which do not appear to be heavily disturbed by landscaping. These lands will require Stage 2 archaeological assessment by a combination of test-pit survey at 5 m intervals should they be impacted by the proposed work (Figures 8-10: areas marked in magenta). This work may be conducted as part of the detailed design process.

3.3 Conclusions

The background study determined that no previously registered archaeological sites are located within 1 km of the study area. A review of the geography and history of the study area suggested that the study area has potential for the identification of Aboriginal and Euro-Canadian archaeological resources. The property inspection determined that the majority of the study area has been disturbed by previous construction activity of the urban development surrounding the study area or of the existing ROWs. However, sections of the study area which may have retained their original soils do possess archaeological potential.



4.0 RECOMMENDATIONS

In light of the results of this assessment, ASI makes the following recommendations:

1. Archaeological potential exists in parts of the study area. These lands require Stage 2 archaeological assessment by a combination of test-pit survey at 5 m intervals (Figures 8-10: areas marked in magenta). This should be completed prior to any land disturbance and may be done so as part of the detailed design process;
2. Due to extensive and deep land alterations that have severely damaged the integrity of any potential archaeological resources, the remainder of the study area does not retain archaeological potential and does not require further archaeological assessment (Figure 8-10: areas marked in yellow);
3. Should the proposed work extend beyond the current study area then further Stage 1 assessment must be conducted to determine the archaeological potential of the surrounding lands.

Notwithstanding the results and recommendations presented in this study, ASI notes that no archaeological assessment, no matter how thorough or carefully completed, can necessarily predict, account for, or identify every form of isolated or deeply buried archaeological deposit. In the event that archaeological remains are found during subsequent construction activities, the consultant archaeologist, approval authority, and the Cultural Programs Unit of the MTCS should be immediately notified.



5.0 ADVICE ON COMPLIANCE WITH LEGISLATION

ASI advises compliance with the following legislation:

- This report is submitted to the Minister of Tourism, Culture and Sport as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c 0.18. The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the MTCS, a letter will be issued by the ministry stating that there are no further concerns with regard to alterations to archaeological sites by the proposed development;
- It is an offence under Sections 48 and 69 of the *Ontario Heritage Act* for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed archaeological fieldwork on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeology Reports referred to in Section 65.1 of the *Ontario Heritage Act*.
- Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48 (1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with sec. 48 (1) of the *Ontario Heritage Act*; and
- The *Cemeteries Act*, R.S.O. 1990 c. C.4 (as amended in 2012) and the *Funeral, Burial and Cremation Services Act*, 2002, S.O. 2002, c.33 (when proclaimed in force) require that any person discovering human remains must notify the police or coroner.



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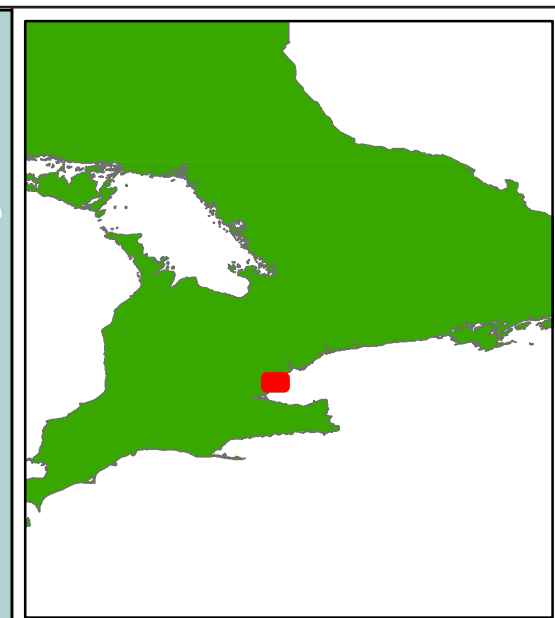
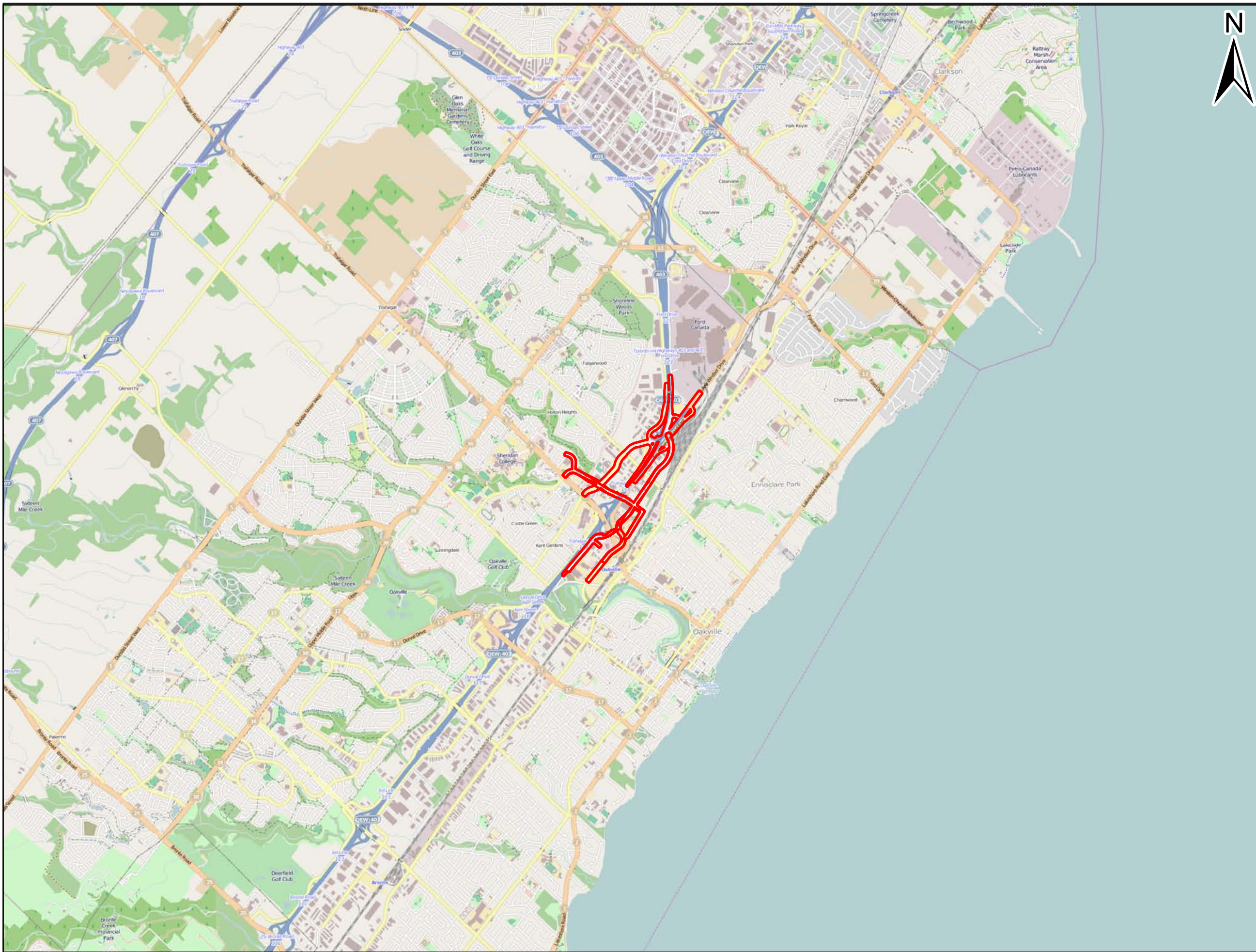
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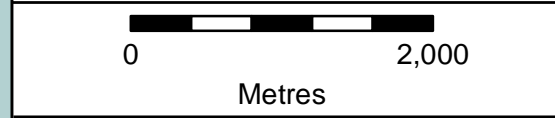
7.0 MAPS






Study Area

BASE: OpenStreetMap (OSM)
 OpenStreetMap and contributors,
 Creative Commons-Share Alike License (CC-BY-SA)
 2013



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 DATE: 12 Feb 2014

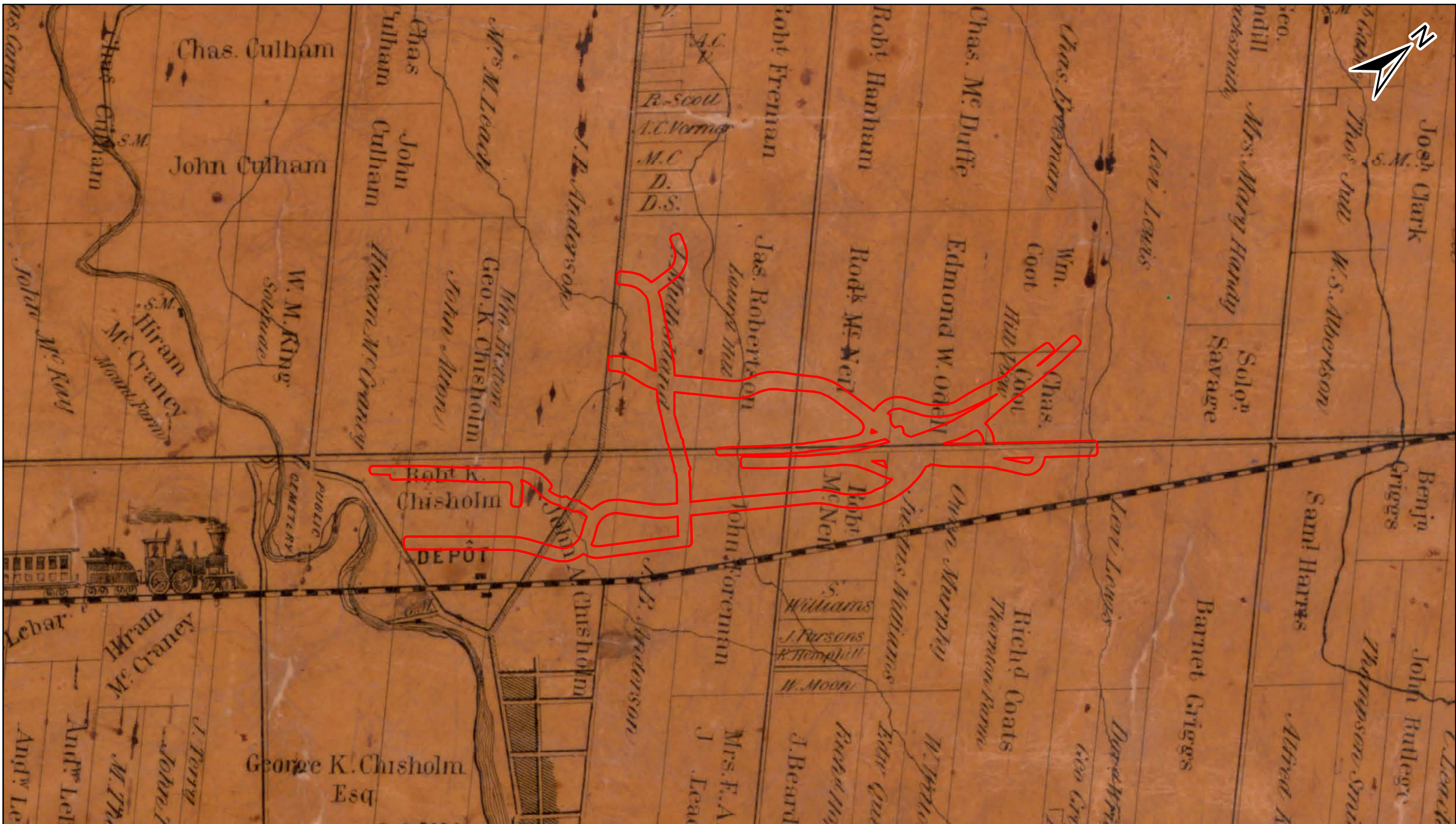
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 528 Bathurst St.
 Toronto, Ontario
 Canada, M5S 2P9

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 F 416-966-9723
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Figure 1: Subject property illustrated on 1:50,000 map




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 info@iasi.to/www.iasi.to

 **Study Area**

BASE:
 Tremaine Maps Historical Maps (1858-1862)


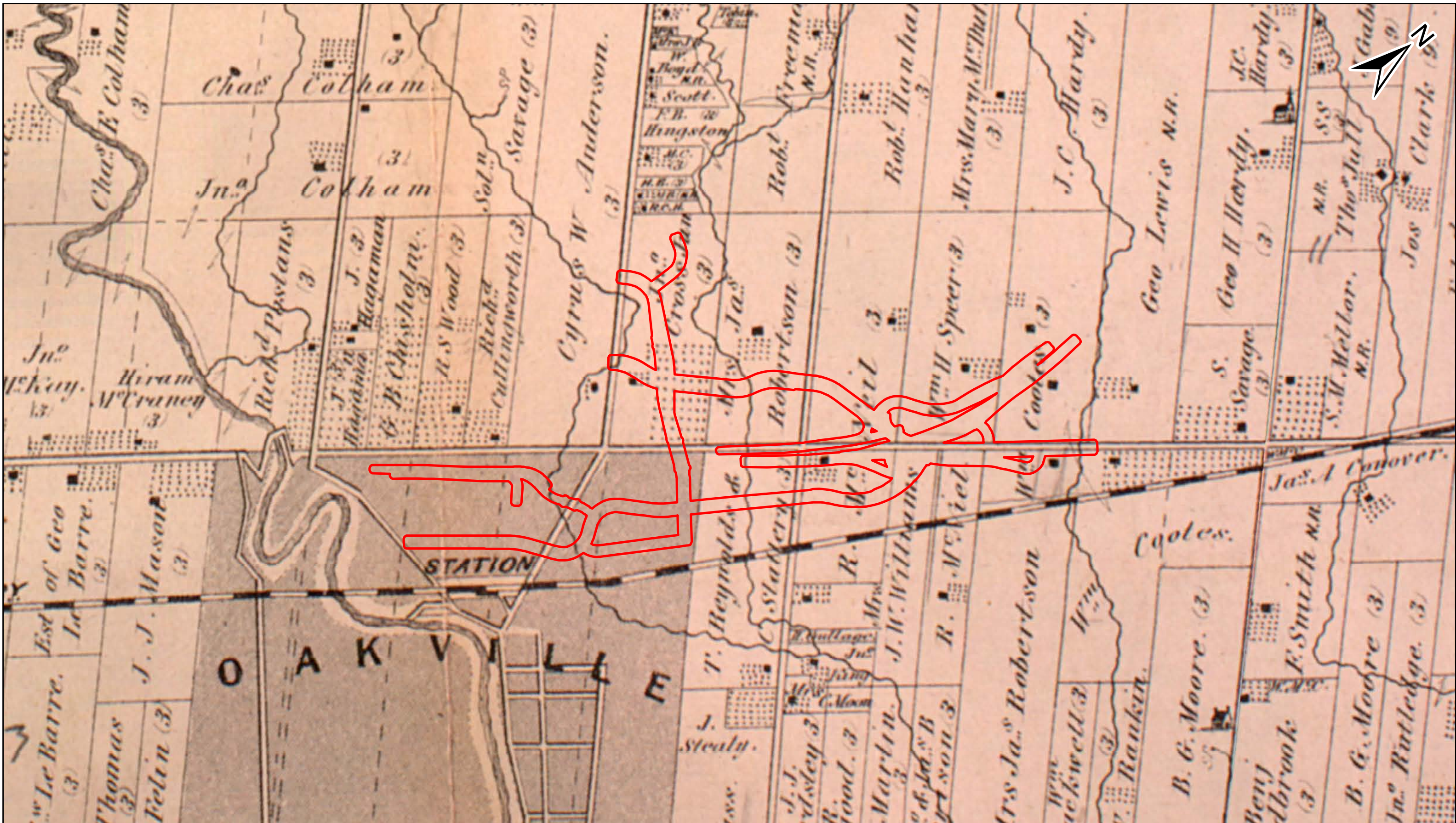


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Figure 2: Midtown Oakville Transportation Network and Municipal Storm Water Study Area overlaid on 1858 map of County of Halton




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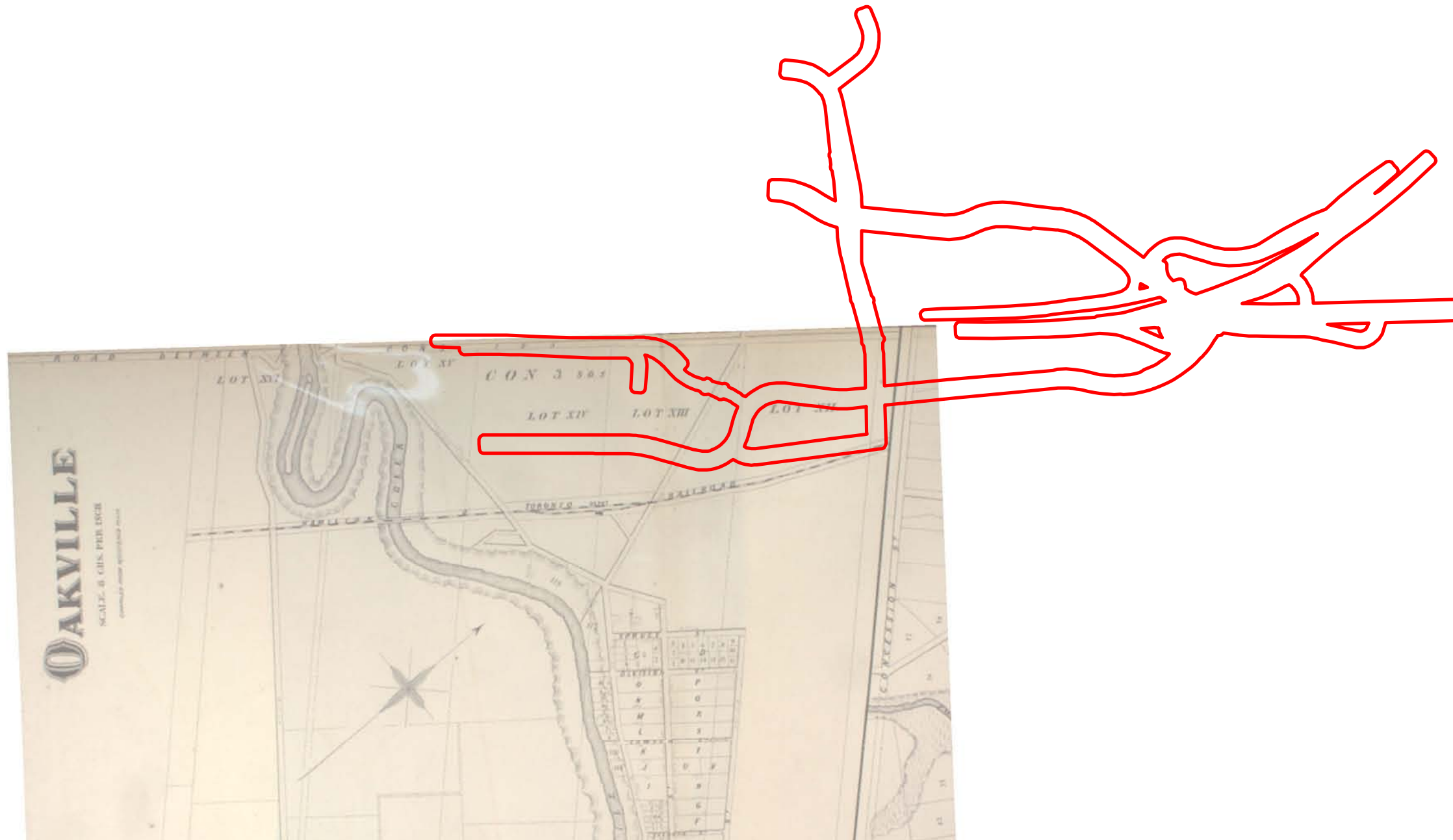
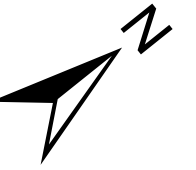
 **Study Area**

BASE:
 Tremaine Maps Historical Maps (1858-1862)


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Figure 3: Midtown Oakville Transportation Network and Municipal Storm Water Study Area overlaid on 1877 map of Southern Part of Trafalgar Township



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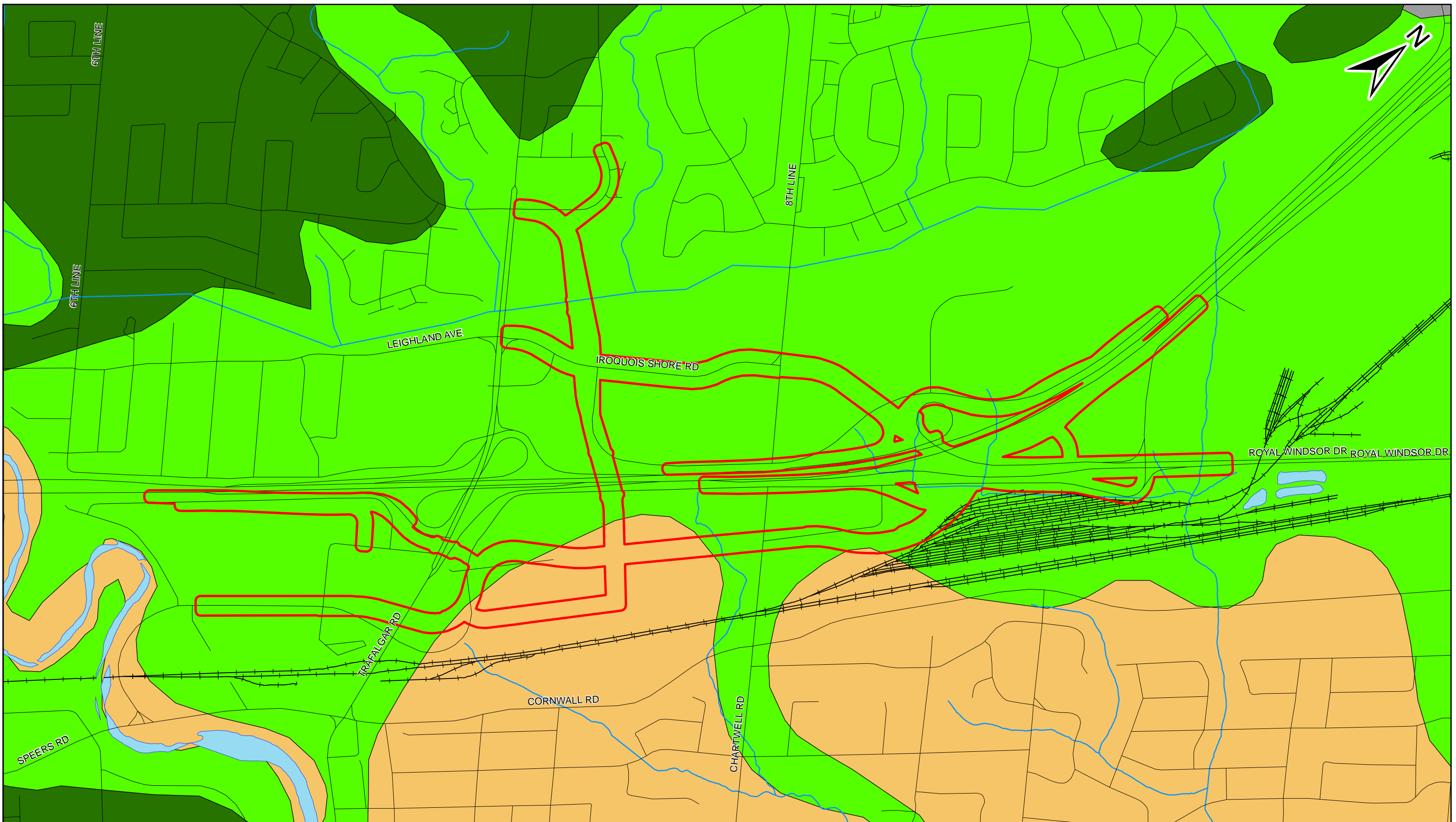
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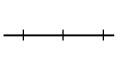
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DATE: 12 Feb 2014 FILE: 11EA133_Fig4_1877

Figure 4: Midtown Oakville Transportation Network and Municipal Storm Water Study Area overlaid on 1877 map of Oakville




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 Study Area	 Paleozoic Bedrock	 Diamicton	 Gravel	 Roads
 Diamicton	 Sand	 Rail		

BASE:
 Tremaine Maps Historical Maps (1858-1862)


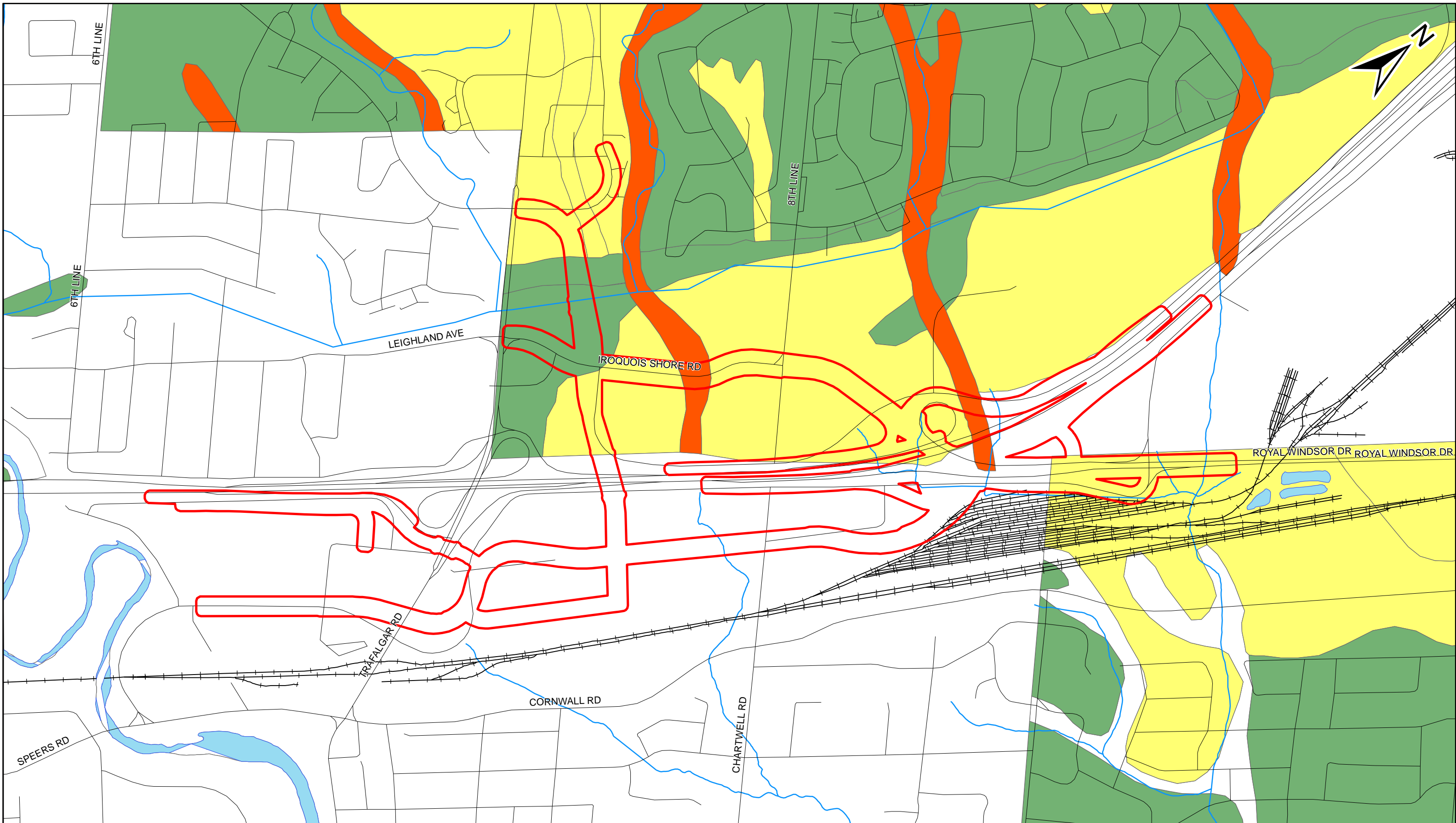

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Figure 5: Midtown Oakville Transportation Network and Municipal Storm Water - Surficial Geology




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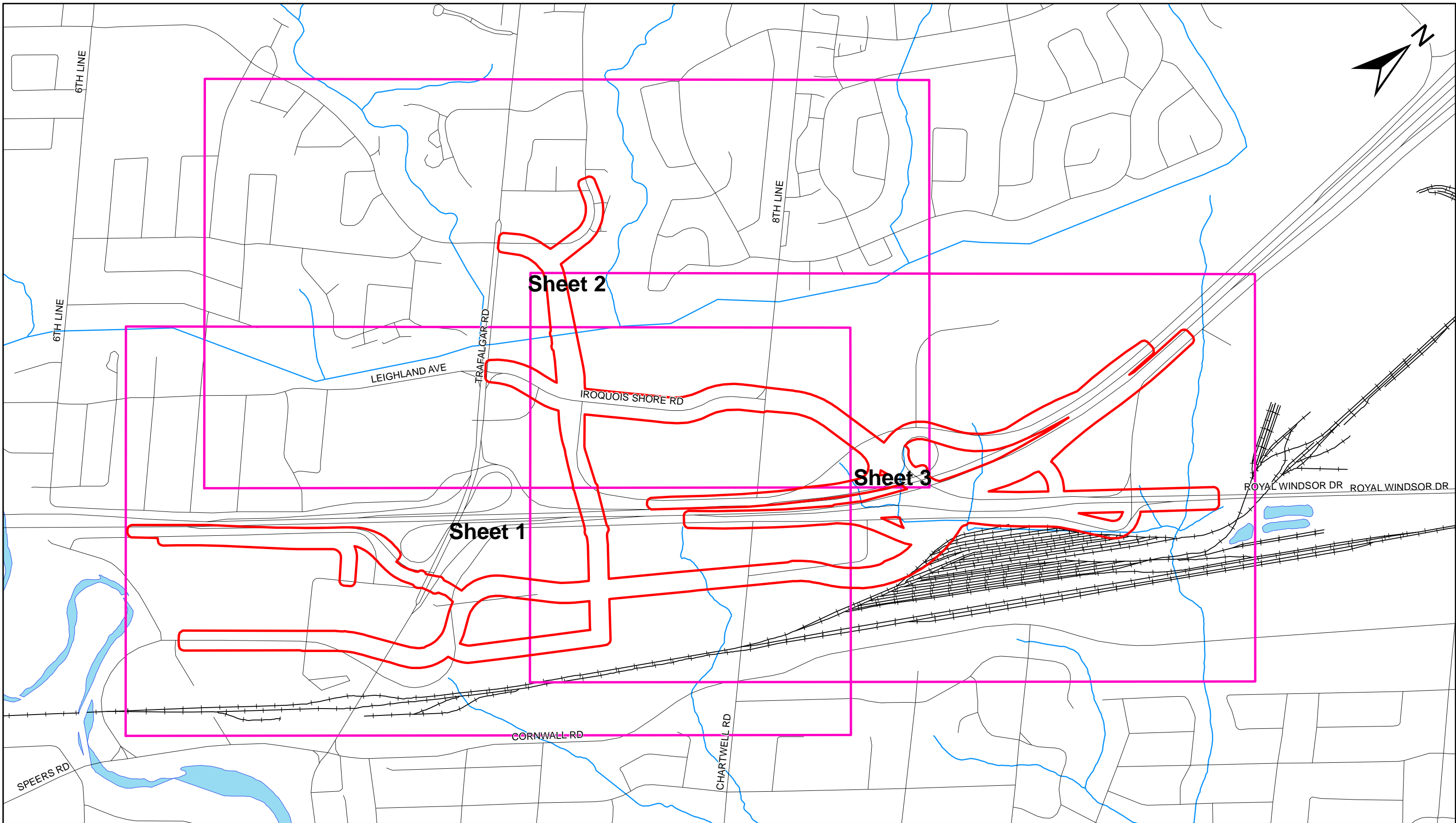
 Study Area	 No Data - "Urban Land"	 Imperfectly Drained	 Roads
 Poorly Drained	 Well Drained	 Rail	

BASE:
 Tremaine Maps Historical Maps (1858-1862)

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Meters

ASI PROJECT NO.: 11EA-133/134 DRAWN BY: BW
 DATE: 12 Feb 2014 FILE: 11EA133_Fig6_Drain

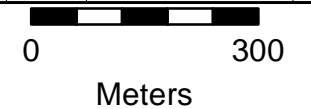
Figure 6: Midtown Oakville Transportation Network and Municipal Storm Water - Soil Drainage



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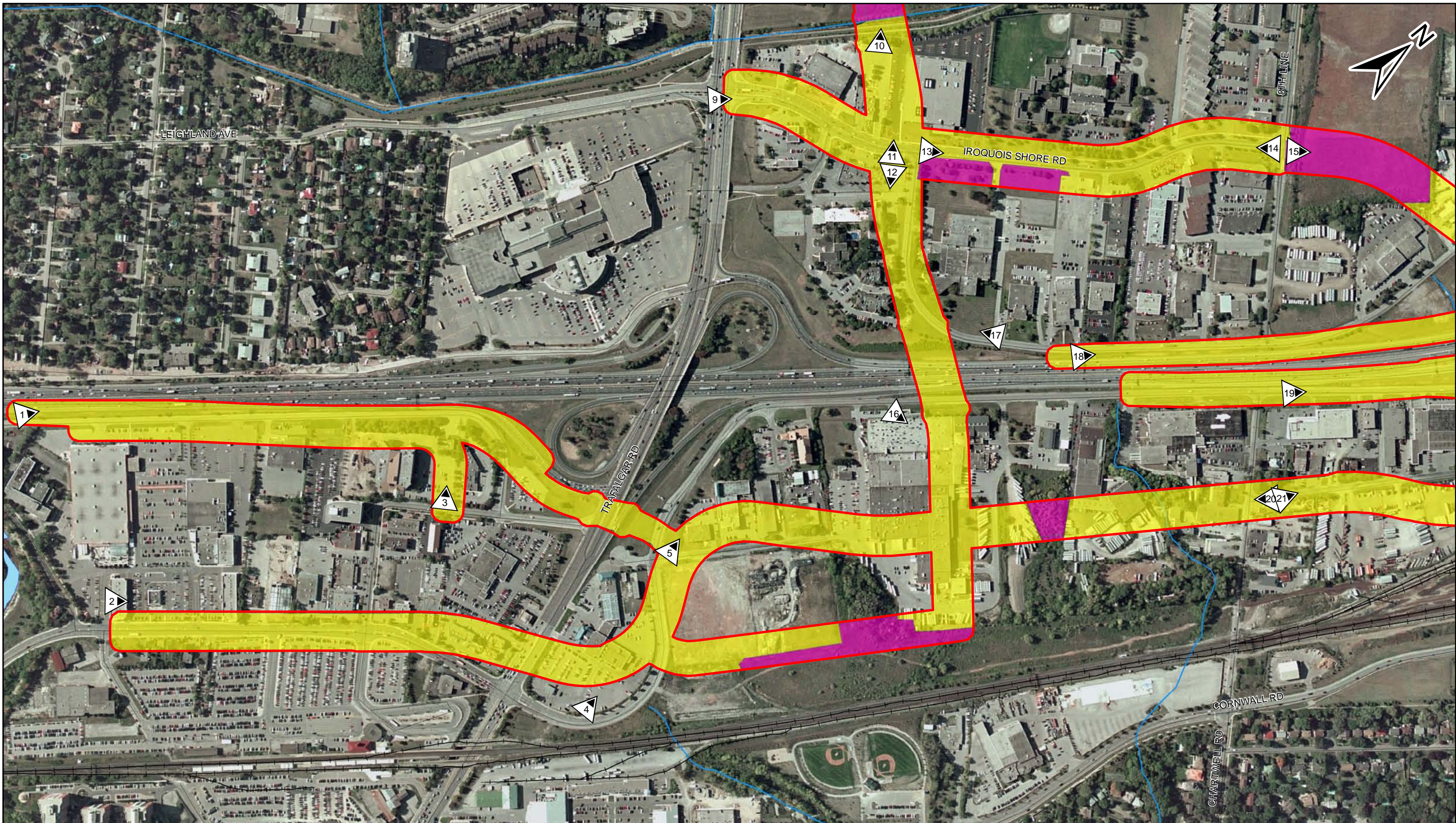
- Study Area
- Roads
- Key Plan Sheet
- Rail

BASE:
 Tremaine Maps Historical Maps (1858-1862)









ASI PROJECT NO.: 11EA-133/134 DRAWN BY: BW
 DATE: 12 Feb 2014 FILE: 11EA133_Fig7_KP

Figure 7: Midtown Oakville Transportation Network and Municipal Storm Water - Property Inspection Results (Key Map)




Archaeological Services Inc.
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 info@iasi.to/www.iasi.to

 Study Area	 Potential: Test Pit Survey Required	 Roads
 No Potential: Disturbed	 Photo Location	 Rail

BASE:
 Tremaine Maps Historical Maps (1858-1862)


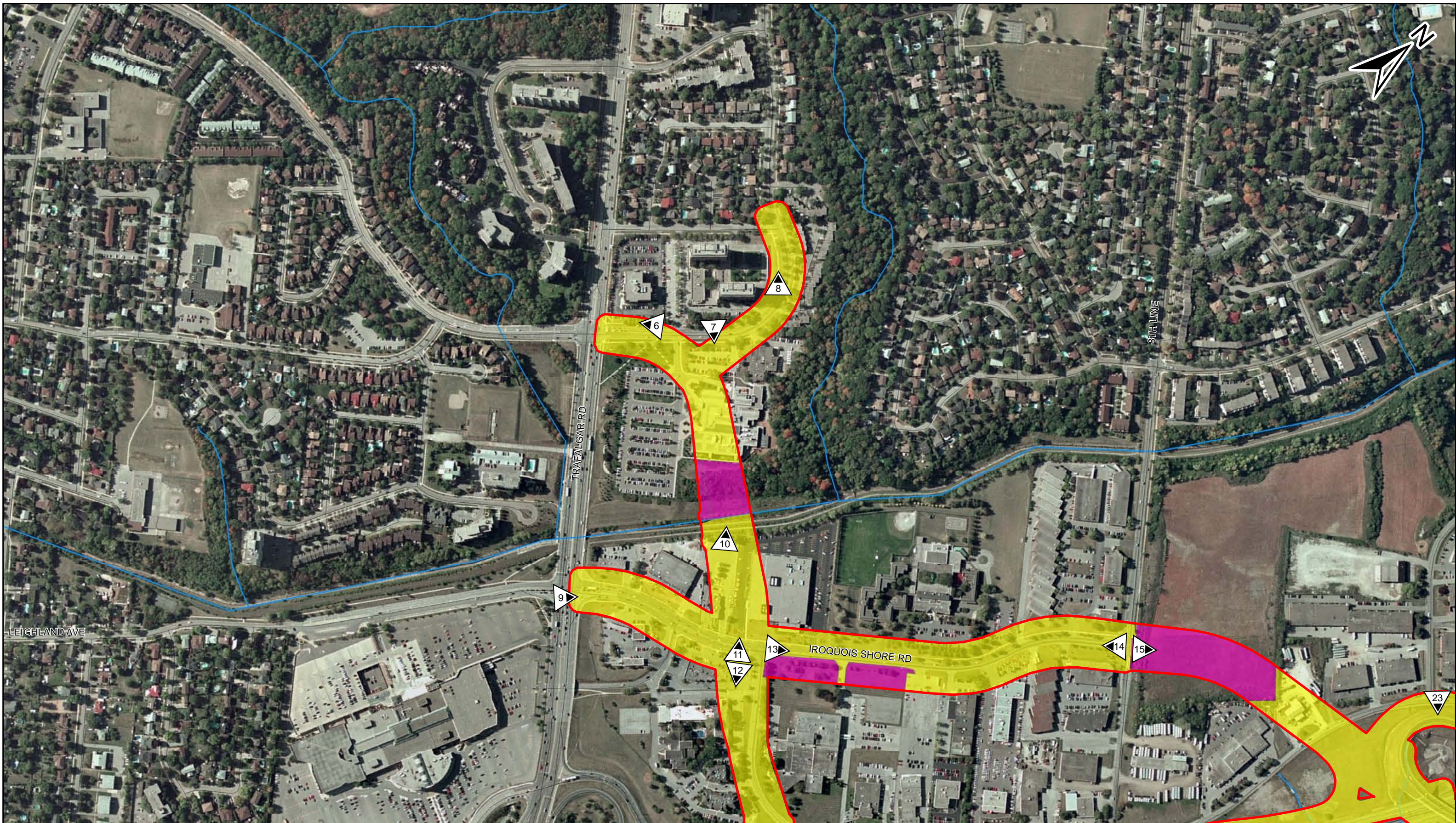
 0 Meters 150	
ASI PROJECT NO.: 11EA-133/134 DATE: 12 Feb 2014	DRAWN BY: BW FILE: 11EA133_Fig8_S1

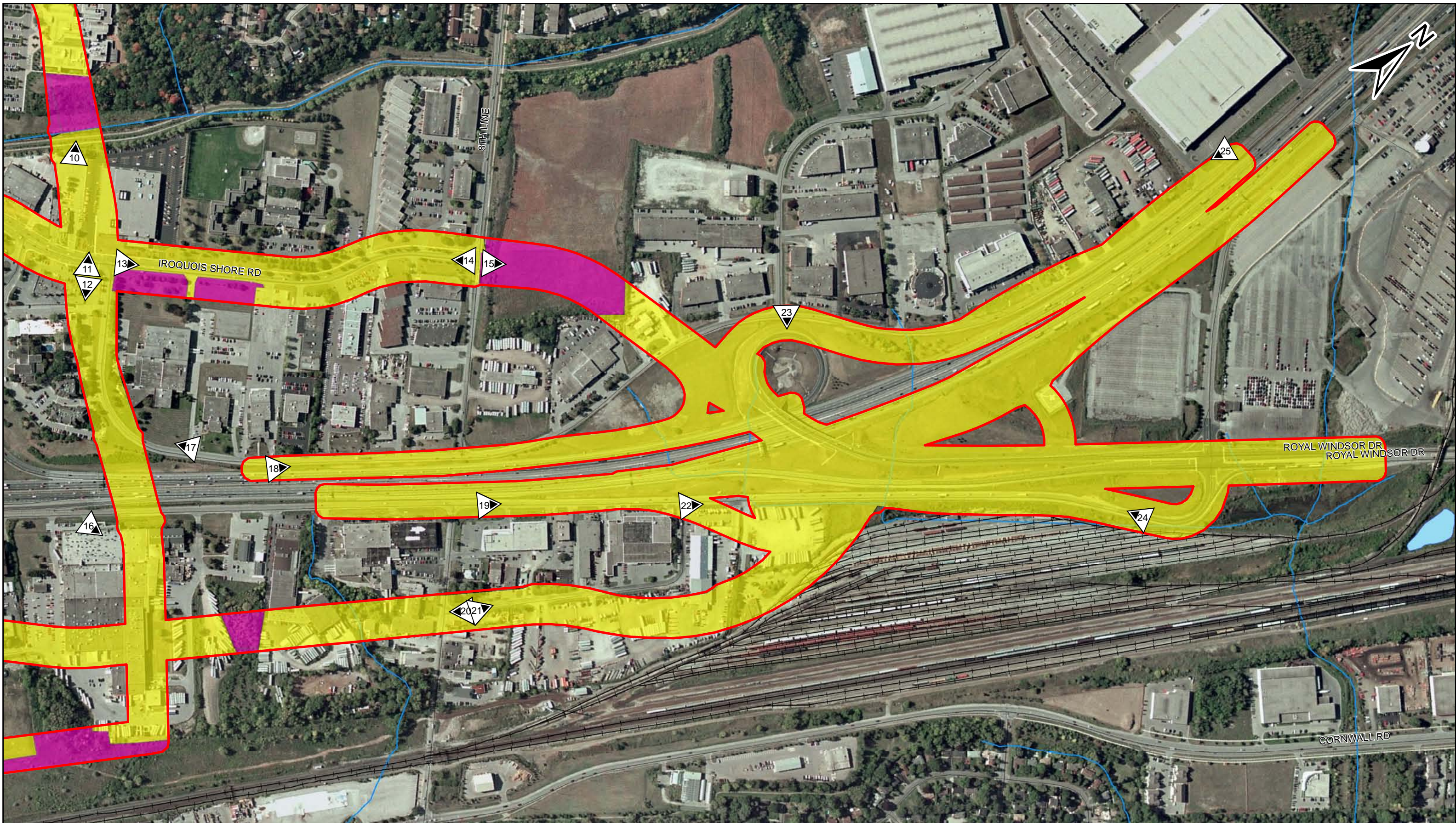
Figure 8: Midtown Oakville Transportation Network and Municipal Storm Water - Property Inspection Results (Sheet 1)

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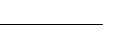


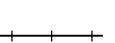


<p>Archaeological Services Inc. 528 Bathurst St. Toronto, Ontario Canada, M5S 2P9 T 416-966-1069 F 416-966-9723 info@iasl.to/www.iasl.to</p>	Study Area	Potential: Test Pit Survey Required	Roads	<p>BASE: Tremaine Maps Historical Maps (1858-1862)</p>	<p>0 150 Meters</p>
	No Potential: Disturbed	Photo Location	Rail		

Figure 9: Midtown Oakville Transportation Network and Municipal Storm Water - Property Inspection Results (Sheet 2)




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 Study Area	 Potential: Test Pit Survey Required	 Roads
 No Potential: Disturbed	 Photo Location	 Rail

BASE:
 Tremaine Maps Historical Maps (1858-1862)


 0 Meters 150	
ASI PROJECT NO.: 11EA-133/134 DATE: 12 Feb 2014	DRAWN BY: BW FILE: 11EA133_Fig10_S3

Figure 10: Midtown Oakville Transportation Network and Municipal Storm Water - Property Inspection Results (Sheet 3)

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8.0 IMAGES



Plate 1: View northeast of South Service Road ROW. ROW and adjacent lands are disturbed. No potential.



Plate 2: View northeast of Cross Avenue ROW. ROW and adjacent lands are disturbed. No potential.



Plate 3: View northwest of proposed ROW. Lands are disturbed. No potential.

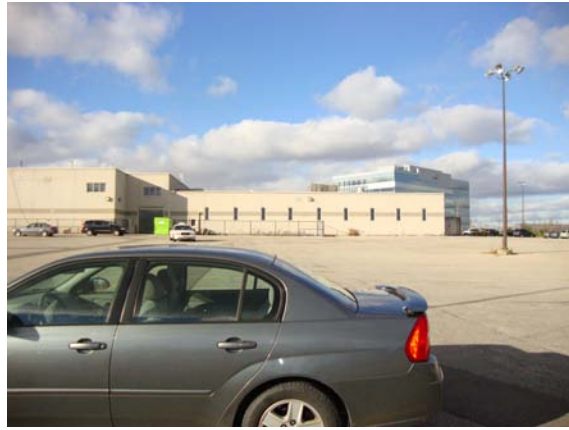


Plate 4: View NNW of proposed ROW. Lands are disturbed. No potential.



Plate 5: View north of proposed ROW. ROW and adjacent lands are disturbed. No potential.



Plate 6: View SSW of White Oaks Boulevard proposed ROW. ROW and adjacent lands are disturbed. No potential.





Plate 7: View ESE of proposed ROW. Lands are disturbed. No potential.



Plate 8: View WNW of White Oaks Boulevard ROW. ROW is disturbed. No potential.



Plate 9: View northeast of Iroquois Shore Road ROW. ROW and lands beyond ROW are disturbed. No potential.



Plate 10: View WNW of proposed ROW. Lands are disturbed. No potential. Lands beyond have potential. Require Stage 2 test-pit survey.



Plate 11: View WNW of proposed ROW. Lands are disturbed. No potential.



Plate 12: View ESE of proposed ROW. Lands are disturbed. No potential.





Plate 13: View northeast of Iroquois Shore Road. ROW is disturbed. No potential. Lands beyond have potential. Req. Stage 2 test-pit survey.



Plate 14: View southwest of Iroquois Shore Road. ROW is disturbed. Lands adjacent are graded. No potential.



Plate 15: View northeast of proposed ROW. Lands have potential. Req. Stage 2 test-pit survey.



Plate 16: View ENE of propose ROW. Lands are disturbed. No potential.



Plate 17: View SSW of proposed ROW. Existing North Service Road East ROW is disturbed. Lands adjacent are graded. No potential.



Plate 18: View northeast of North Service Road East ROW. ROW and lands beyond ROW are disturbed. No potential.





Plate 19: View northeast of South Service Road East ROW. ROW is disturbed. Adjacent lands are graded. No potential.



Plate 20: View southwest of Industry Street ROW. ROW and adjacent lands are disturbed. No potential.



Plate 21: View northeast of Industry Street ROW. ROW and adjacent lands are disturbed. No potential.



Plate 22: View northeast of South Service Road East ROW. ROW lands are disturbed. Adjacent lands are graded. No potential.



Plate 23: View ESE of Highway QEW ROW. ROW is disturbed. No potential.



Plate 24: View SSW of South Service Road East ROW. ROW is disturbed. No potential.





Plate 25: View south of North Service Road East
ROW. ROW is disturbed. No potential.

