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STAGE 1 ARCHAEOLOGICAL ASSESSMENT

**Class EA Study for Oakville Water
Purification Plant Re-rating, Halton Region
Project #W-2989A, Part of Lot 15, Broken
Front Concession, Township of Trafalgar
South, Halton County, now 21 Kerr Street,
Oakville, Ontario**

ORIGINAL REPORT

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Executive Summary

A Stage 1 archaeological assessment was conducted on behalf of exp Services Inc., by Golder Associates Ltd. (Golder), for the proposed development of a property in the Town of Oakville, Ontario. The Stage 1 archaeological assessment study area is approximately 3.4 hectares in size and is located on part of Lot 15, Broken Front Concession, Geographic Township of Trafalgar South, Halton County, now the Town of Oakville, Ontario (Map 1). The Stage 1 assessment was conducted at the request of exp Services Inc. as part of a Class Environmental Assessment ahead of a proposed updates to existing infrastructure at the Oakville Water Purification Plant at 21 Kerr Street, Oakville.

The objective of the Stage 1 assessment was to compile all available information about the known and potential archaeological resources within the study area and to provide direction for the protection, management and/or recovery of these resources, consistent with Ministry of Tourism, Culture and Sport (MTCS) guidelines (MTCS 2011). The Stage 1 background study found potential to exist within portions of the study area for the recovery of pre- and post-contact Aboriginal and historical Euro-Canadian archaeological resources (Map 7).

The MTCS is asked to review the results and recommendations presented herein and accept this report into the Provincial Register of Archaeological Reports.

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



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1.0 PROJECT CONTEXT

1.1 Development Context

A Stage 1 archaeological assessment was conducted on behalf of exp Services Inc., by Golder Associates Ltd. (Golder), for the proposed development of a property in the Town of Oakville, Ontario. The study area is approximately 3.4 hectares in size and is located on part of Lot 15, Broken Front Concession, Geographic Township of Trafalgar South, Halton County, now the Town of Oakville, Ontario (Map 1). The Stage 1 assessment was conducted at the request of exp Services Inc. as part of a Class Environmental Assessment ahead of a proposed updates to existing infrastructure at the Oakville Water Purification Plant at 21 Kerr Street, Oakville.

The objective of the Stage 1 archaeological assessment was to compile available information about the known and potential archaeological resources within the study area and to determine if a field survey (Stage 2) is required, as well as the recommended Stage 2 strategy. In compliance with the provincial standards and guidelines set out in the *Standards and Guidelines for Consultant Archaeologists* (MTCS 2011), the objectives of the Stage 1 archaeological assessment are as follows:

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

To meet these objectives Golder archaeologists employed the following research strategies:

- A review of relevant archaeological, historic and environmental literature pertaining to the study area;
- A review of the land use history, including pertinent historic maps;
- An examination of the Ontario Archaeological Sites Database (OASD) to determine the presence of known archaeological sites in and around the project area; and
- An inquiry with the MTCS to determine previous archaeological assessments conducted in close proximity to the study area.

The Stage 1 assessment was conducted under professional archaeological licence P1056, issued to Jamie Lemon of Golder by the MTCS (PIF P1056-0023-2015). Permission for Golder staff to enter the property for the purposes of the Stage 1 property survey was provided by Jean-Louis Gaudet (exp Services Inc.) in consultation with Laura Kalika (Oakville Water Purification Plant).



2.0 HISTORICAL CONTEXT

2.1 Post-Contact Aboriginal Occupation of Southern Ontario

The post-contact Aboriginal occupation of southern Ontario was heavily influenced by the dispersal of various Iroquoian-speaking peoples by the New York State Iroquois and the subsequent arrival of Algonkian-speaking groups from northern Ontario at the end of the 17th century and beginning of the 18th century (Schmalz 1991).

Following the introduction of Europeans to North America, the nature of First Nations settlement size, population distribution, and material culture shifted as settlers began to colonize the land. Despite this shift in First Nations life ways, “written accounts of material life and livelihood, the correlation of historically recorded villages to their archaeological manifestations, and the similarities of those sites to more ancient sites have revealed an antiquity to documented cultural expressions that confirms a deep historical continuity to Iroquoian systems of ideology and thought” (Ferris 2009:114). As a result, First Nation peoples of southern Ontario have left behind archaeologically significant resources throughout southern Ontario which show continuity with past peoples, even if this connection has not been recorded in historical Euro-Canadian documentation.

The study area is situated within the Geographic Township of Trafalgar South, Halton County, now the Town of Oakville, Ontario. The study area is within lands that were part of Treaty Number 23, made between the Mississaugas and the Crown on February 28, 1820. As detailed in the below passage, Treaty Number 23 includes:

...the Principal Chiefs, Warriors and People of the Mississauga Nation, transferred to His Majesty George the Third for the sum of 50 pounds, parts of those tracts of land at Credit River, Sixteen Mile Creek, and Twelve Mile Creek, formerly reserved in 13A of the 2nd of April, 1805.

Morris 1943:25

Although no Aboriginal engagement was conducted as part of the Stage 1 assessment, should any Stage 2 archaeological assessment result in the identification of sites with an Aboriginal component that are recommended for Stage 3 assessment, Aboriginal engagement measures consistent with MTCS standards will need to be undertaken.

2.2 Euro-Canadian Settlement

The study area is located on part of Lot 15, Broken Front Concession, Old Survey, south of Dundas Street, in the township of Trafalgar South. The 1858 Tremaine *Map of the County of Halton* illustrates that this lot was included in the town plan for Oakville and the surrounding land was owned by George K. Chisolm (Map 4). The study area falls within the southern portion of the lot. The 1877 map in the Walker and Miles *Illustrated Historical Atlas of Halton County, Ontario* provides greater detail as to how the town lots were divided. The study area incorporates town block 74, and properties marked as “C”, “D”, and part of “B” (Map 5). The town was not laid out to follow all of the surveyed concession roads, as such one can see the originally planned-for road between Lots 15 and 16 illustrated with a dashed line through property “B”. Town lot 74 is subdivided into 16 properties. Although no owner is listed on the 1877 map, in 1837 a James Hopkirk is noted living on property “D”; no other names are listed on any available maps (Maps 2-5).

The County of Halton was named for William Halton who was engaged as the secretary of Francis Gore, whom acted as the Lieutenant-Governor of Upper Canada (Halton Region 2015). The County was originally a part of the Gore District but in 1816 the Gore district became its own entity separate from the united counties of Halton



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and Wentworth. In 1853 the two counties separated and in 1857 the Towns of Oakville and Milton were added to County Council (Walker and Miles 1877). The County of Halton included the townships of Esquesing, Nassagaweya, Nelson, and Trafalgar. Surveys of Halton County were undertaken in 1806 and 1819, after First Nation land purchases. In the early maps of Halton County there was an area of 960 acres that was listed as First Nations land. This land was ceded to the Crown by the Mississauga's and immediately surveyed and made available for sale. On August 16, 1867 the entire 960 acres were purchased by Colonel William Chisolm; his first undertaking was to begin the three year construction on what would become Oakville Harbour (Walker and Miles 1877). The harbour was crucial in the logging trade for shipping to Quebec. William Chisolm's integral role in founding the harbour and town, as well as establishing trade economy was commemorated when the town was named "Oakville" (a nod to Chisolm's nickname: "White Oak"). In the early history of Oakville several members of the Chisolm family held important roles in the community: town council, mayor, and Master Mason for example. By 1846 Oakville was a busy port town with a population of 550 residents which supported a wide selection of trades and merchants including two grist mills, one saw mill, a distillery, five blacksmiths, three taverns, and a dozen shoemakers (Smith 1846). The eastern side of the port seems to have been settled prior to the western town lots; early census documents include listings for Navy and Colborne (now Lakeshore) Streets. One of the most important houses on Navy Street belonged to Robert Kerr Chisolm (son of William) who completed the home now known as 'Erchless Estate' in 1858 (Image 48), it currently operates as museum for the Town of Oakville (Town of Oakville 2015c).



3.0 ARCHAEOLOGICAL CONTEXT

3.1 The Natural Environment

The study area is situated within the “Peel Plain” physiographic region (Chapman and Putnam 1984: 174-176):

The Peel plain is a level-to-undulating tract of clay soils (Photo 70) covering 300 square miles across the central portions of the Regional Municipalities of York, Peel, and Halton. The general elevation is from 500 to 750 feet a.s.l. and there is a gradual and fairly uniform slope toward Lake Ontario. Across this plain the Credit, Humber, Don, and Rouge Rivers have cut deep valleys, as have other streams such as the Bronte, Oakville, and Etobicoke Creeks.

Chapman and Putnam, 1984:174

The study area is primarily within a sand plain. The closest water sources to the study area are Lake Ontario (study area extends to the lake) and Sixteen Mile Creek, which was traditionally used as a fishing location by the Mississauga First Nation (Map 1).

3.2 General Overview of the Pre-Contact Period in Southern Ontario

The culture history of southern Ontario, based on Ellis and Ferris (1990), is summarised in Table 1.

Table 1: Pre-contact cultural chronology for south-central Ontario

Period	Characteristics	Time Period	Comments
Early Paleo-Indian	Fluted Projectiles	9000 - 8400 B.C.	spruce parkland/caribou hunters
Late Paleo-Indian	Hi-Lo Projectiles	8400 - 8000B.C.	smaller but more numerous sites
Early Archaic	Kirk and Bifurcate Base Points	8000 - 6000 B.C.	slow population growth
Middle Archaic	Brewerton-like points	6000 - 2500 B.C.	environment similar to present
Late Archaic	Lamoka (narrow points)	2000 - 1800 B.C.	increasing site size
	Broadpoints	1800 - 1500 B.C.	large chipped lithic tools
	Small Points	1500 - 1100B.C.	introduction of bow hunting
Terminal Archaic	Hind Points	1100 - 950 B.C.	emergence of true cemeteries
Early Woodland	Meadowood Points	950 - 400 B.C.	introduction of pottery
Middle Woodland	Dentate/Pseudo-Scallop Pottery	400 B.C. - A.D.500	increased sedentism
	Princess Point	A.D. 550 - 900	introduction of corn
Late Woodland	Early Ontario Iroquoian	A.D. 900 - 1300	emergence of agricultural villages
	Middle Ontario Iroquoian	A.D. 1300 - 1400	long longhouses (100m +)
	Late Ontario Iroquoian	A.D. 1400 - 1650	tribal warfare and displacement
Contact Aboriginal	Various Algonkian Groups	A.D. 1700 - 1875	early written records and treaties
Late Historic	Euro-Canadian	A.D. 1796 - present	European settlement

3.2.1 Paleo-Indian Period

The first human occupation of south-central Ontario begins just after the end of the Wisconsin Glacial Period. Although there were a complex series of ice retreats and advances which played a large role in shaping the local topography, south-central Ontario was finally ice free by 12,500 years ago.



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The first human settlement can be traced back 11,000 years, when this area was settled by Native groups that had been living south of the Great Lakes. The period of these early Native inhabitants is known as the Paleo-Indian Period (Ellis and Deller 1990).

Our current understanding of settlement patterns of Early Paleo-Indian peoples suggests that small bands, consisting of probably no more than 25-35 individuals, followed a pattern of seasonal mobility extending over large territories. One of the most thoroughly studied of these groups followed a seasonal round that extended from as far south as Chatham to the Horseshoe Valley north of Barrie. Early Paleo-Indian sites tend to be located in elevated locations on well-drained loamy soils. Many of the known sites were located on former beach ridges associated with glacial lakes. There are a few extremely large Early Paleo-Indian sites, such as one located close to Parkhill, Ontario, which covered as much as six hectares. It appears that these sites were formed when the same general locations were occupied for short periods of time over the course of many years. Given their placement in locations conducive to the interception of migratory mammals such as caribou, it has been suggested that they may represent communal hunting camps. There are also smaller Early Paleo-Indian camps scattered throughout the interior of southwestern and south-central Ontario, usually situated adjacent to wetlands.

The most recent research suggests that population densities were very low during the Early Paleo-Indian Period (Ellis and Deller 1990:54). Archaeological examples of Early Paleo-Indian sites are rare.

The Late Paleo-Indian Period (8400-8000 B.C.) has been less well researched, and is consequently more poorly understood. By this time the environment of south-central Ontario was coming to be dominated by closed coniferous forests with some minor deciduous elements. It seems that many of the large game species that had been hunted in the early part of the Paleo-Indian Period had either moved further north, or as in the case of the mastodons and mammoths, become extinct.

Like the early Paleo-Indian peoples, late Paleo-Indian peoples covered large territories as they moved about in response to seasonal resource fluctuations. On a province wide basis Late Paleo-Indian projectile points are far more common than Early Paleo-Indian materials, suggesting a relative increase in population.

The end of the Late Paleo-Indian Period was heralded by numerous technological and cultural innovations that appeared throughout the Archaic Period. These innovations may be best explained in relation to the dynamic nature of the post-glacial environment and region-wide population increases.

3.2.2 Archaic Period

During the Early Archaic Period (8000-6000 B.C.), the jack and red pine forests that characterized the Late Paleo-Indian environment were replaced by forests dominated by white pine with some associated deciduous trees (Ellis *et al.* 1990:68-69). One of the more notable changes in the Early Archaic Period is the appearance of side and corner-notched projectile points. Other significant innovations include the introduction of ground stone tools such as celts and axes, suggesting the beginnings of a simple woodworking industry. The presence of these often large and not easily portable tools suggests there may have been some reduction in the degree of seasonal movement, although it is still suspected that population densities were quite low, and band territories large.



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During the Middle Archaic Period (6000-2500 B.C.) the trend to more diverse toolkits continued, as the presence of netsinkers suggest that fishing was becoming an important aspect of the subsistence economy. It was also at this time that "bannerstones" were first manufactured.

Bannerstones are carefully crafted ground stone devices that served as a counterbalance for *atlatls* or spear-throwers. Another characteristic of the Middle Archaic is an increased reliance on local, often poor quality chert resources for the manufacturing of projectile points. It seems that during earlier periods, when groups occupied large territories, it was possible for them to visit a primary outcrop of high quality chert at least once during their seasonal round. However, during the Middle Archaic, groups inhabited smaller territories that often did not encompass a source of high quality raw material. In these instances lower quality materials which had been deposited by the glaciers in the local till and river gravels were utilized.

This reduction in territory size was probably the result of gradual region-wide population growth which led to the infilling of the landscape. This process forced a reorganization of Native subsistence practices, as more people had to be supported from the resources of a smaller area. During the latter part of the Middle Archaic, technological innovations such as fish weirs have been documented as well as stone tools especially designed for the preparation of wild plant foods.

It is also during the latter part of the Middle Archaic Period that long distance trade routes began to develop, spanning the northeastern part of the continent. In particular, native copper tools manufactured from a source located northwest of Lake Superior were being widely traded (Ellis *et al.* 1990:66). By 3500 B.C. the local environment had stabilized in a near modern form (Ellis *et al.* 1990:69).

During the Late Archaic (2500-950 B.C.) the trend towards decreased territory size and a broadening subsistence base continued. Late Archaic sites are far more numerous than either Early or Middle Archaic sites, and it seems that the local population had definitely expanded. It is during the Late Archaic that the first true cemeteries appear. Before this time individuals were interred close to the location where they died. During the Late Archaic, if an individual died while his or her group happened to be at some distance from their group cemetery, the bones would be kept until they could be placed in the cemetery. Consequently, it is not unusual to find disarticulated skeletons, or even skeletons lacking minor elements such as fingers, toes or ribs, in Late Archaic burial pits.

The appearance of cemeteries during the Late Archaic has been interpreted as a response to increased population densities and competition between local groups for access to resources. It is argued that cemeteries would have provided strong symbolic claims over a local territory and its resources. These cemeteries are often located on heights of well-drained sandy/gravel soils adjacent to major watercourses.

This suggestion of increased territoriality is also consistent with the regionalized variation present in Late Archaic projectile point styles. It was during the Late Archaic that distinct local styles of projectile points appear. Also during the Late Archaic the trade networks which had been established during the Middle Archaic continued to flourish. Native copper from northern Ontario and marine shell artifacts from as far away as the Mid-Atlantic coast are frequently encountered as grave goods. Other artifacts such as polished stone pipes and banded slate gorgets also appear on Late Archaic sites. One of the more unusual and interesting of the Late Archaic artifacts is the *birdstone*. Birdstones are small, bird-like effigies usually manufactured from green banded slate.



3.2.3 Woodland Period

The Early Woodland Period (940 to 400 B.C.) is distinguished from the Late Archaic Period primarily by the addition of ceramic technology. While the introduction of pottery provides a useful demarcation point for archaeologists, it may have made less difference in the lives of the Early Woodland peoples. The first pots were very crudely constructed, thick walled, and friable. It has been suggested that they were used in the processing of nut oils by boiling crushed nut fragments in water and skimming off the oil. These vessels were not easily portable, and individual pots must not have enjoyed a long use life. There have also been numerous Early Woodland sites located at which no pottery was found, suggesting that these poorly constructed, undecorated vessels had yet to assume a central position in the day-to-day lives of Early Woodland peoples.

Other than the introduction of this limited ceramic technology, the life-ways of Early Woodland peoples show a great deal of continuity with the preceding Late Archaic Period. For instance, birdstones continue to be manufactured, although the Early Woodland varieties have "pop-eyes" which protrude from the sides of their heads.

Likewise, the thin, well-made projectile points which were produced during the terminal part of the Archaic Period continue in use. However, the Early Woodland variants were side-notched rather than corner-notched, giving them a slightly altered and distinctive appearance.

The trade networks which were established in the Middle and Late Archaic also continued to function, although there does not appear to have been as much traffic in marine shell during the Early Woodland Period. During the last 200 years of the Early Woodland Period, projectile points manufactured from high quality raw materials from the American Midwest begin to appear on sites in southwestern Ontario.

In terms of settlement and subsistence patterns, the Middle Woodland (300 B.C. to 500 A.D.) provides a major point of departure from the Archaic and Early Woodland Periods. While Middle Woodland peoples still relied on hunting and gathering to meet their subsistence requirements, fish were becoming an even more important part of the diet.

In addition, Middle Woodland peoples relied much more extensively on ceramic technology. Middle Woodland vessels are often heavily decorated with hastily impressed designs covering the entire exterior surface and upper portion of the vessel interior. Consequently, even very small fragments of Middle Woodland vessels are easily identifiable.

It is also at the beginning of the Middle Woodland Period that rich, densely occupied sites appear along the margins of major rivers and lakes. While these areas had been utilized by earlier peoples, Middle Woodland sites are significantly different in that the same location was occupied off and on for as long as several hundred years and large deposits of artifacts often accumulated. Unlike earlier seasonally utilized locations, these Middle Woodland sites appear to have functioned as base camps, occupied off and on over the course of the year. There are also numerous small upland Middle Woodland sites, many of which can be interpreted as special purpose camps from which localized resource patches were exploited. This shift towards a greater degree of sedentism continues the trend witnessed from at least Middle Archaic times, and provides a prelude to the developments that follow during the Late Woodland Period.

The Late Woodland Period began with a shift in settlement and subsistence patterns involving an increasing reliance on corn horticulture (Fox 1990:185; Smith 1990; Williamson 1990:312). Corn may have been introduced



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into southwestern Ontario from the American Midwest as early as 600 A.D. or a few centuries before. Corn did not become a dietary staple, however, until at least three to four hundred years later, and then the cultivation of corn gradually spread into south-central and southeastern Ontario.

During the early Late Woodland, particularly within the Princess Point Complex (*circa* A.D. 500-1050), a number of archaeological material changes have been noted: the appearance of triangular projectile point styles, first seen during this period begin with the Levanna form; cord-wrapped stick decorated ceramics using the paddle and anvil forming technique take over from the mainly coil-manufactured and dentate stamped and pseudo-scallop shell impressed ceramics; and if not appearance, increasing use of maize (*Zea mays*) as a food source (e.g., Bursey 1995; Crawford et al. 1997; Ferris and Spence 1995:103; Martin 2004 [2007]; Ritchie 1971:31-32; Spence et al. 1990; Williamson 1990:299).

The Late Woodland Period is widely accepted as the beginning of agricultural life ways in south-central Ontario. Researchers have suggested that a warming trend during this time may have encouraged the spread of maize into southern Ontario, providing a greater number of frost-free days (Stothers and Yarnell 1977). Further, shifts in the location of sites have also been identified with an emphasis on riverine, lacustrine and wetland occupations set against a more diffuse use of the landscape during the Middle Woodland (Dieterman 2001).

The first agricultural villages in southern Ontario date to the 10th century A.D. Unlike the riverine base camps of the Middle Woodland Period, these sites are located in the uplands, on well-drained sandy soils. Categorized as "Early Ontario Iroquoian" (900-1300 A.D.), many archaeologists believe that it is possible to trace a direct line from the Iroquoian groups which later inhabited southern Ontario at the time of first European contact, back to these early villagers.

Village sites dating between 900 and 1300 A.D., share many attributes with the historically reported Iroquoian sites, including the presence of longhouses and sometimes palisades. However, these early longhouses were actually not all that large, averaging only 12.4 metres in length (Dodd et al. 1990:349; Williamson 1990:304-305). It is also quite common to find the outlines of overlapping house structures, suggesting that these villages were occupied long enough to necessitate re-building.

The Jesuits reported that the Huron moved their villages once every 10-15 years, when the nearby soils had been depleted by farming and conveniently collected firewood grew scarce (Pearce 2010). It seems likely that Early Ontario Iroquoians occupied their villages for considerably longer, as they relied less heavily on corn than did later groups, and their villages were much smaller, placing less demand on nearby resources.

Judging by the presence of carbonized corn kernels and cob fragments recovered from sub-floor storage pits, agriculture was becoming a vital part of the Early Ontario Iroquoian economy. However, it had not reached the level of importance it would in the Middle and Late Ontario Iroquoian Periods. There is ample evidence to suggest that more traditional resources continued to be exploited, and comprised a large part of the subsistence economy. Seasonally occupied special purpose sites relating to deer procurement, nut collection, and fishing activities, have all been identified. While beans are known to have been cultivated later in the Late Woodland Period, they have yet to be identified on Early Ontario Iroquoian sites.

The Middle Ontario Iroquoian Period (1300-1400 A.D.) witnessed several interesting developments in terms of settlement patterns and artifact assemblages. Changes in ceramic styles have been carefully documented, allowing the placement of sites in the first or second half of this 100-year period. Moreover, villages, which



STAGE 1 ARCHAEOLOGICAL ASSESSMENT - 21 KERR STREET, OAKVILLE, ONTARIO

averaged approximately 0.6 hectares in extent during the Early Ontario Iroquoian Period, now consistently range between one and two hectares.

House lengths also change dramatically, more than doubling to an average of 30 metres, while houses of up to 45 metres have been documented. This increase in longhouse length has been variously interpreted. The simplest possibility is that increased house length is the result of a gradual, natural increase in population (Dodd et al. 1990:323, 350, 357; Smith 1990). However, this does not account for the sudden shift in longhouse lengths around 1300 A.D. Other possible explanations involve changes in economic and socio-political organization (Dodd et al. 1990:357). One suggestion is that during the Middle Ontario Iroquoian Period small villages were amalgamating to form larger communities for mutual defense (Dodd et al. 1990:357). If this was the case, the more successful military leaders may have been able to absorb some of the smaller family groups into their households, thereby requiring longer structures. This hypothesis draws support from the fact that some sites had up to seven rows of palisades, indicating at least an occasional need for strong defensive measures. There are, however, other Middle Ontario Iroquoian villages which had no palisades present (Dodd et al. 1990). More research is required to evaluate these competing interpretations.

The lay-out of houses within villages also changes dramatically by 1300 A.D. During the Early Ontario Iroquoian Period villages were haphazardly planned, with houses oriented in various directions. During the Middle Ontario Iroquoian Period villages are organized into two or more discrete groups of tightly spaced, parallel aligned, longhouses. It has been suggested that this change in village organization may indicate the initial development of the clans which were a characteristic of the historically known Iroquoian peoples (Dodd et al. 1990:358).

Initially at least, the Late Ontario Iroquoian Period (1400-1650 A.D.) continues many of the trends which have been documented for the preceding century. For instance, between 1400 and 1450 A.D. house lengths continue to grow, reaching an average length of 62 metres. One longhouse excavated on a site southwest of Kitchener was an incredible 123 metres (Lennox and Fitzgerald 1990:444-445). After 1450 A.D., house lengths begin to decrease, with houses dating between 1500-1580 A.D. averaging 30 metres in length.

Why house lengths decrease after 1450 A.D. is poorly understood, although it is believed that the even shorter houses witnessed on Historical Period sites can be at least partially attributed to the population reductions associated with the introduction of European diseases such as smallpox (Lennox and Fitzgerald 1990:405, 410).

Village size also continues to expand throughout the Late Ontario Iroquoian Period, with many of the larger villages showing signs of periodic expansions. The Late Middle Ontario Iroquoian Period and the first century of the Late Ontario Iroquoian Period was a time of village amalgamation. One large village situated just north of Toronto has been shown to have expanded on no fewer than five occasions. These large villages were often heavily defended with numerous rows of wooden palisades, suggesting that defence may have been one of the rationales for smaller groups banding together. Late Ontario Iroquoian village expansion has been clearly documented at several sites throughout southwestern and south-central Ontario. The ongoing excavations at the Lawson site, a large Late Iroquoian village located in southwestern Ontario, has shown that the original village was expanded by at least twenty percent to accommodate the construction of nine additional longhouses (Anderson 2009).

During the late 1600s and early 1700s, the French explorers and missionaries reported a large population of Iroquoian peoples clustered around the western end of Lake Ontario. The area which was later to become Halton Region was known to have been occupied by ancestors of two different Late Ontario Iroquoian groups



who evolved to become the historically known Neutral and Huron. For this reason the Late Ontario Iroquoian groups which occupied parts of south-central Ontario prior to the arrival of the French are often identified as "Prehistoric Neutral" and "Prehistoric Huron" (Lennox and Fitzgerald 1990; Smith 1990:283).

3.3 Previously Identified Archaeological Sites and Surveys

In order that an inventory of archaeological resources could be compiled, the registered archaeological site records kept by the MTCS were consulted. In Ontario, information concerning archaeological sites is stored in the Ontario Archaeological Site Database maintained by the MTCS. This database contains archaeological sites registered according to the Borden system. Under the Borden system, Canada is divided into grid blocks based on latitude and longitude. A Borden Block is approximately 13 kilometres east to west and approximately 18.5 kilometres 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 area under review is within Borden Block A1Gw.

An examination of the OASD through Pastportal has indicated that no archaeological sites are registered within a 1 km radius of the Study Area, within Borden Block A1Gw (MTCS 2015). At the time of report submission, a listing of reports detailing archaeological work within 50 metres of the study area was not received by the MTCS.

Information concerning specific site locations is protected by provincial policy, and is not fully subject to the Freedom of Information Act. The release of such information in the past has led to looting or various forms of illegally conducted site destruction. Confidentiality extends to all media capable of conveying location, including maps, drawings, or textual descriptions of a site location. The MTCS will provide information concerning site location to the party or an agent of the party holding title to a property, or to a licensed archaeologist with relevant cultural resource management interests.



4.0 FIELD METHODS

4.1 Property Survey Methods

The Stage 1 property inspection of the study area was conducted on August 5, 2015 under archaeological consulting licence P1056, issued to Jamie Lemon of Golder. Mrs. Lemon designated Miss Kendra Patton (R453) to conduct the property inspection of the study area. The weather during the Stage 1 property inspection was sunny and warm. Lighting conditions were excellent, and at no time were field conditions found to be detrimental to the identification of archaeological resources or landscapes. The property inspection of the study area was conducted on foot, with existing conditions mapped and photographed. Coverage of the study area was considered to be excellent (Map 8).

An inventory of documentary records related to the Stage 1 assessment is provided in Table 2.

Table 2: Inventory of Documentary Records

Document Type	Current Location of Document	Additional Comments
Field Notes	Golder office in Whitby	2 pages in project file
Hand Drawn Maps	Golder office in Whitby	1 map stored in project file
Maps Provided by Client	Golder office in Whitby	1 map stored in project file
Digital Photographs	Golder office in Whitby	135 photographs stored digitally in project file

4.2 Existing Conditions

The study area includes land that is currently occupied by the Oakville Water Purification Plant and surrounding parkland. The area within the fenced Water Purification Plant (WPP) is considered to be disturbed entirely. A large portion of the area is either covered by asphalt pavement or buildings; the grass and landscaping within the property has been subject to intense grading and a variety of utilities are present in these areas (Images 9, 12, 14, 17, 18, and 44). The north, east, and south edges of the property are generally surrounded by areas of slope or concrete retaining walls (Images 6, 7, 20, 31, and 47) which suggests that the entire area was excavated during construction of the plant and the lawns were later graded to their current form (Images 15, 18, 45, and 46). Another area of disturbance due to construction and grading activities is present at the corner of Kerr and Burnett Streets, where another municipal building sits with paved asphalt surfaces to the side and rear of the building (Image 23-25). In between this building and the plant there is a flat clearing (Image 21), it is currently regarded to retain potential but it should be noted that in 2014, prior to the electrical boxes being installed along the edge of Kerr Street, that this clearing was covered with a sparse layer of gravel and likely used a parking area during construction activities in the area (Google Maps 2014).

Areas of slope greater than 20% were encountered surrounding a small waterway to the north of the WPP (Image 22), along portions of the north, east, and west of plant property (Image 31), a steep section of hill within Waterfront Park (Image 35), and the south and eastern edges of the parkland bordered by Kerr and Bath Street (Images 1 and 4).

Areas that appear to be relatively undisturbed were identified in the surrounding parkland (Map 7). These areas include portions of Burnett Park (north of WPP) (Image 29), Waterfront Park (south of WPP) (Image 33, 38, 39, and 40), a small grassed area east of the WPP (Image 31), and the parkland bordered by Kerr and Bath Street



STAGE 1 ARCHAEOLOGICAL ASSESSMENT - 21 KERR STREET, OAKVILLE, ONTARIO

to the west of the WPP (Image 3). With the exception of the small grassed area to the east, all of these sections of parkland retain large, well-established trees which suggest that the disturbance to these areas during the construction of the plant were minimal or non-existent.



5.0 ANALYSIS AND CONCLUSIONS

5.1 Assessing Archaeological Potential

Archaeological potential is established by determining the likelihood that archaeological resources may be present on a subject property. In accordance with the MTCS's 2011 *Standards and Guidelines for Consultant Archaeologists* the following are features or characteristics that indicate archaeological potential:

- Previously identified archaeological sites;
- Water sources:
 - Primary water sources (lakes, rivers, streams, creeks);
 - Secondary water sources (intermittent streams and creeks; springs; marshes; swamps);
 - Features indicating past water sources (e.g. glacial lake shorelines indicated by the presence of raised gravel, sand, or beach ridges; relic river or stream channels indicated by clear dip or swale in the topography; shorelines of drained lakes or marshes; and cobble beaches);
 - Accessible or inaccessible shoreline (e.g., high bluffs, swamps or marsh fields by the edge of a lake; sandbars stretching into marsh);
- 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 (there may be physical indicators of their use, such as burials, structures, offerings, rock paintings or carvings);
- Resource areas including:
 - Food or medicinal plants;
 - Scarce raw minerals (e.g. quartz, copper, ochre or outcrops of chert);
 - Early Euro-Canadian industry (fur trade, mining, logging);
- Areas of Euro-Canadian settlement; and,
- Early historical transportation routes.

In recommending a Stage 2 property survey based on determining archaeological potential for a study area, MTCS stipulates the following:

- No areas within 300 metres of a previously identified site; water sources; areas of early Euro-Canadian Settlement; or locations identified through local knowledge or informants can be recommended for exemption from further assessment;
- No areas within 100 metres of early transportation routes can be recommended for exemption from further assessment; and,
- No areas within the property containing an elevated topography; pockets of well-drained sandy soil; distinctive land formations; or resource areas can be recommended for exemption from further assessment.



5.1.1 Archaeological Integrity

A negative indicator of archaeological potential is extensive land disturbance. This includes widespread earth movement activities that would have eradicated or relocated any cultural material to such a degree that the information potential and cultural heritage value or interest has been lost.

Section 1.3.2 of the MTCS' 2011 Standards and Guidelines for Consultant Archaeologists states that:

Archaeological potential can be determined not to be present for either the entire property or a part(s) of it when the area under consideration has been subject to extensive and deep land alterations that have severely damaged the integrity of any archaeological resources.

MTCS 2011:18

The types of disturbance referred to above includes, but is not restricted to, quarrying, sewage and infrastructure development, building footprints and major landscaping involving grading below topsoil.

5.1.2 Potential for Pre- and Post-Contact Aboriginal Archaeological Resources

Following the criteria outlined above in Section 5.1 to determine pre- and post-contact Aboriginal archaeological potential, a number of factors can be highlighted: nearby potable water sources, known Aboriginal fishing locales at 16 and 12 Mile Creeks, as well as the sandy soils of the study area that would have been suitable for pre-contact Aboriginal agriculture; corn fields are illustrated on the 1806 Map of the territory not yet ceded (Map 2). It is also a part of the historical record that several years passed between the initial and secondary ceding of land from the Mississauga's to the Crown and on the 1877 map a portion of Lot 15 was still labelled as "reserve" (Map 5).

When the above noted archaeological potential criteria were applied to the study area, the study area exhibits archaeological potential for pre-contact and post-contact Aboriginal sites. While areas of previous disturbance and slope eradicate the potential for the recovery of archaeological resources, areas of no or low levels of previous disturbance retain their archaeological potential; these areas include the parklands and relatively flat treed areas near the lake shore. Map 7 illustrates areas of potential within the study area that were determined to require further Stage 2 assessment.

5.1.3 Potential for Historical Euro-Canadian Archaeological Resources

Following the criteria outlined above in Section 5.1 to determine historical Euro-Canadian archaeological potential, a number of factors can be highlighted. The study area is located in close proximity to the 19th century port-town of Oakville. There is evidence that Lot 15 was subdivided into town lots as early as 1835 but no certain evidence of occupation at this stage of historical research (Map 3).

When the above noted archaeological potential criteria were applied to the study area, the study area exhibits archaeological potential for historical Euro-Canadian sites. While areas of previous disturbance eradicate the potential for the recovery of archaeological resources, areas of no or low levels of previous disturbance retain their archaeological potential; these areas include the parklands and relatively flat treed areas near the lake shore. Map 7 illustrates areas of potential within the study area that were determined to require further Stage 2 assessment.



6.0 RECOMMENDATIONS

Given the findings of the Stage 1 archaeological assessment of the study area, the following recommendations are made:

- 1) Portions of the study area that were identified as sloped or previously disturbed, as illustrated in Map 7, do not exhibit archaeological potential and no further archaeological assessment of these areas is required. .
- 2) All remaining portions of the study area that archaeological potential, as illustrated in Map 7, are recommended Stage 2 archaeological assessment (test pit survey) prior to ground disturbance associated with any future development.

Areas recommended for further Stage 2 archaeological assessment should be subject to investigation by test pit survey at five metre intervals (MTCS 2011 Section 2.1.2 Standard 1.e., Standard 2). Each test pit should be excavated by shovel to be at least 30 centimetres in diameter, into the subsoil by five centimetres and examined for any stratigraphy or indication of cultural features or fill activities prior to being backfilled (MTCS 2011 Section 2.1.2 Standard 5 and 6). All soil should be screened through six millimetre hardware cloth and all artifacts collected and labelled according to their associated test pit (MTCS 2011 Section 2.1.2 Standard 7 and 8). Should artifacts be identified during the Stage 2 survey it may be necessary to intensify test pit intervals to 2.5 metres, and excavate a one-metre square unit. Any recovered artifacts should be bagged in the field according to their provenance and return to the laboratory for artifact analysis and reporting, consist with MTCS standards.



7.0 ADVICE ON COMPLIANCE WITH 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 O.18. The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Tourism, Culture and Sport, a letter will be issued by the ministry stating that there are no further concerns with regards 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 licenced 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 licenced archaeologist has completed archaeological fieldwork on the site, submitted a report to the Minister stating 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 representative of a new archaeological site or sites and therefore subject to Section 48(1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48(1) of the *Ontario Heritage Act*.

The Funeral, Burial and Cremation Services Act, 2002, S.O. 2002, c.33, requires that any person discovering or having knowledge of a burial site shall immediately notify the police or coroner. It is recommended that the Registrar of Cemeteries at the Ministry of Consumer Services is also immediately notified.

Archaeological sites recommended for further archaeological fieldwork or protection remain subject to Section 48 (1) of the *Ontario Heritage Act* and may not be altered, or have artifacts removed from them, except by a person holding an archaeological licence.



8.0 BIBLIOGRAPHY AND SOURCES

Bursey, Jeffrey

- 1995 The Transition from the Middle to Late Woodland Periods: A Re-Evaluation. In: *Origins of the People of the Longhouse: Proceedings of the 21st, Annual Symposium of the Ontario Archaeological Society*, André Bekerman and Gary Warrick (eds.), pp. 43-54. Ontario Archaeological Society, Toronto.

Chapman, Lyman John and Donald F. Putnam

- 1984 *The Physiography of Southern Ontario. 3rd edition.* Ontario Geological Survey Special Volume 2. Ontario Ministry of Natural Resources, Toronto.

Crawford, Gary, David Smith and Vandy Bowyer

- 1997 Dating the entry of corn (*Zea mays*) into the Lower Great Lakes region. *American Antiquity* 62(1):112-119.

Dieterman, Frank

- 2001 *Princess Point: the landscape of place.* Unpublished Ph.D. dissertation, Department of Anthropology, University of Toronto.

Dodd, Christine F., Dana R. Poulton, Paul A. Lennox, David G. Smith and Gary A. Warrick

- 1990 The Middle Ontario Iroquoian Stage. In: *The Archaeology of Southern Ontario to A.D. 1650.* Occasional Publication of the London Chapter, Ontario Archaeological Society, Number 5: 321-360.

Ellis, Chris J. and D. Brian Deller

- 1990 Paleo-Indians. In: *The Archaeology of Southern Ontario to A.D. 1650.* Occasional Publication of the London Chapter, Ontario Archaeological Society, Number 5: 37-64.

Ellis, Chris J. and Neal Ferris (editors)

- 1990 *The Archaeology of Southern Ontario to A.D. 1650.* Occasional Publication of the London Chapter, Ontario Archaeological Society, Number 5.

Ellis, Chris, Ian T. Kenyon and Michael W. Spence

- 1990 The Archaic. In: *The Archaeology of Southern Ontario to A.D. 1650*, Chris J. Ellis and Neal Ferris (eds.), Occasional Publication of the London Chapter, Number 5. Ontario, pp. 65-124.

Ferris, Neal

- 2009 *The Archaeology of Native-Lived Colonialism: Challenging History in the Great Lakes.* University of Arizona Press, Tucson.



STAGE 1 ARCHAEOLOGICAL ASSESSMENT - 21 KERR STREET, OAKVILLE, ONTARIO

Ferris, Neal and Michael Spence

1995 The Woodland traditions in southern Ontario. *Revista de Arqueología Americana* 9:83-138.

Fox, William

1990 The Middle Woodland to Late Woodland Transition. In: *The Archaeology of Southern Ontario to A.D. 1650*. Occasional Publication of the London Chapter, Ontario Archaeological Society, Number 5: 171-188.

Google Maps

2014 52 Kerr Street – Street View Aug 2014. [Online] https://www.google.ca/maps/@43.438739,-79.672776,3a,75y,353.18h,75.35t/data=!3m6!1e1!3m4!1s-UWcUf3gXkq_YQrvuSsZgQ!2e0!7i13312!8i6656!6m1!1e1. Last Accessed: 7 August 2015.

Halton Region

2015 *Halton's History: Changing Populations*. [Online] <http://www.halton.ca/cms/One.aspx?pageId=8875>. Last Accessed: 4 August 2015.

Kerr, Robert, W.

1837 *Map of the Town of Oakville*.

Lennox, P. A. and Fitzgerald, W.R.

1990 The Culture History and Archaeology of the Neutral Iroquoians. In: *The Archaeology of Southern Ontario to A.D. 1650*. Occasional Publication of the London Chapter, Ontario Archaeological Society, Number 5: 405-456.

Martin, Scott

2004 [2007] Lower Great Lakes Region Maize and Enchainment in the First Millennium AD. *Ontario Archaeology* 77/78:135-159.

Morris, J.L.

1943 *Indians of Ontario*. 1964 reprint. Department of Lands and Forests, Government of Ontario.

MTCS (Ministry of Tourism, Culture and Sport)

2011 *Standards and Guidelines for Consultant Archaeologists*. Ministry of Tourism, Culture and Sport, Culture Division, Programs and Services Branch, Culture Programs Unit, Toronto.

2015 *Ontario Archaeological Sites Database*. Ministry of Tourism, Culture and Sport, Culture Division, Programs and Services Branch, Culture Programs Unit, Toronto. Personal communication, Robert von Bitter.



STAGE 1 ARCHAEOLOGICAL ASSESSMENT - 21 KERR STREET, OAKVILLE, ONTARIO

Pearce, Robert J.

2010 Southwestern Ontario: The First 12,000 Years. Electronic Document: <http://www.diggingontario.uwo.ca>.

Ritchie, William

1971 *A Typology and Nomenclature for New York Projectile Points*. Revised Edition. New York State Museum and Science Service, Bulletin Number 384. The University of the State of New York, The State Education Department, Albany, New York.

Schmalz, Peter S.

1991 *The Ojibwa of Southern Ontario*. University of Toronto Press.

Smith, David G.

1990 Iroquoian Societies in Southern Ontario: Introduction and Historic Overview. In: *The Archaeology of Southern Ontario to A.D. 1650*. Occasional Publication of the London Chapter, Ontario Archaeological Society, Number 5: 279-290.

Smith, William H.

1846 *Canadian Gazetteer: Canada West*.

Town of Oakville

2015a *Founders of Oakville*. [Online] <http://www.oakville.ca/museum/founders-of-oakville.html>. Last Accessed: 4 August 2015.

2015b *Town and Township Information Station*. [Online] <http://www.oakville.ca/culturerec/is-towntownship.html>. Last Accessed: 4 August 2015.

2015c *Oakville Museum History*. [Online] <http://www.oakville.ca/museum/history.html>. Last Accessed: 7 August 2015.

Tremaine, George R.

1858 Map of the County of Halton – Southern Trafalgar Township.

Walker & Miles

1877 Illustrated Historical Atlas of the County of Halton, Ontario.

Williamson, Ronald F.

1990 The Early Iroquoian Period of Southern Ontario. In: *The Archaeology of Southern Ontario to A.D. 1650*. Occasional Publication of the London Chapter, Ontario Archaeological Society, Number 5: 291-320.



STAGE 1 ARCHAEOLOGICAL ASSESSMENT - 21 KERR STREET, OAKVILLE, ONTARIO

Wilmot, Samuel

1806 Trafalgar Township Map: "Trafalgar Plan of the Second Township in the Tract of Land Lately Purchased from the Mississauga Indians".



9.0 IMAGES



Image 1: Area of slope west of Kerr Street, facing northwest, August 5, 2015.



Image 2: Area of disturbance: paved asphalt road surface and concrete walkway, graded boulevard, facing northwest, August 5, 2015.



Image 3: Parkland with several established trees, facing southeast, August 5, 2015.



Image 4: Area of slope, west of Kerr Street, facing southeast, August 5, 2015.



STAGE 1 ARCHAEOLOGICAL ASSESSMENT - 21 KERR STREET, OAKVILLE, ONTARIO



Image 5: Area of disturbance, paved surfaces, building construction, graded landscaping, facing southwest, August 5, 2015.



Image 6: Area of disturbance, paved surfaces, retaining wall and slope, graded landscaping, facing east, August 5, 2015.



STAGE 1 ARCHAEOLOGICAL ASSESSMENT - 21 KERR STREET, OAKVILLE, ONTARIO



Image 7: Area of disturbance and slope, graded landscaping, facing northeast, August 5, 2015.



Image 8: Area of disturbance, paved surfaces, building construction, facing northwest, August 5, 2015.



STAGE 1 ARCHAEOLOGICAL ASSESSMENT - 21 KERR STREET, OAKVILLE, ONTARIO



Image 9: Area of disturbance, landscaping with visible cables and concrete inclusions in soil, facing northeast, August 5, 2015.



Image 10: Area of disturbance, paved surfaces, graded landscaping, facing northwest, August 5, 2015.



STAGE 1 ARCHAEOLOGICAL ASSESSMENT - 21 KERR STREET, OAKVILLE, ONTARIO



Image 11: Area of disturbance, paved surfaces, building construction, facing west, August 5, 2015.



Image 12: Area of disturbance, paved surfaces, graded landscaping, subsurface wiring, facing east, August 5, 2015.



STAGE 1 ARCHAEOLOGICAL ASSESSMENT - 21 KERR STREET, OAKVILLE, ONTARIO



Image 13: Area of disturbance, graded landscaping, facing northeast, August 5, 2015.



Image 14: Area of disturbance, building construction, graded landscaping, facing southwest, August 5, 2015.



STAGE 1 ARCHAEOLOGICAL ASSESSMENT - 21 KERR STREET, OAKVILLE, ONTARIO



Image 15: Area of disturbance, paved surfaces, building construction, graded landscaping, facing south , August 5, 2015.



Image 16: Paved road surface with building addition not on aerial imagery, facing southeast, August 5, 2015.



STAGE 1 ARCHAEOLOGICAL ASSESSMENT - 21 KERR STREET, OAKVILLE, ONTARIO



Image 17: Area of disturbance, building construction, graded landscaping, utilities, facing southwest, August 5, 2015.



Image 18: Area of disturbance, paved surfaces, building construction, graded landscaping, facing southeast, August 5, 2015.



Image 19: Paved asphalt road surface, landscaped gardens, utilities, facing northwest, August 5, 2015.



Image 20: Area of slope, facing northeast, August 5, 2015.



Image 21: Flat clearing, utilities along Kerr Street, facing southwest, August 5, 2015.



Image 22: Area of slope, facing southeast, August 5, 2015.



STAGE 1 ARCHAEOLOGICAL ASSESSMENT - 21 KERR STREET, OAKVILLE, ONTARIO



Image 23: Area of disturbance, paved surfaces, building construction, graded landscaping, facing southwest, August 5, 2015.



Image 24: Manicured lawn, facing northwest, August 5, 2015.



STAGE 1 ARCHAEOLOGICAL ASSESSMENT - 21 KERR STREET, OAKVILLE, ONTARIO



Image 25: Area of disturbance, paved surface, building construction, area of slope, facing southwest, August 5, 2015.



Image 26: Area of slop in forested section, facing southwest, August 5, 2015.



Image 27: Burnett Park, facing southeast, August 5, 2015.



Image 28: Burnett Park, area of slope in background, facing southwest, August 5, 2015.



STAGE 1 ARCHAEOLOGICAL ASSESSMENT - 21 KERR STREET, OAKVILLE, ONTARIO



Image 29: Burnett Park, facing northeast, August 5, 2015.



Image 30: Burnett Park, northeast corner of Water Purification Plant, facing southeast, August 5, 2015.



STAGE 1 ARCHAEOLOGICAL ASSESSMENT - 21 KERR STREET, OAKVILLE, ONTARIO



Image 31: Area of slope, facing northwest, August 5, 2015.



Image 32: Entrance to Waterfront Park, facing southwest, August 5, 2015.



Image 33: Waterfront Park trail, facing south, August 5, 2015.



Image 34: Waterfront Park Trail, facing southeast, August 5, 2015.



Image 35: Waterfront Park Trail, area of slope, facing northeast, August 5, 2015.



Image 36: Waterfront Park, facing southwest, August 5, 2015.



Image 37: Waterfront Park, facing northwest, August 5, 2015.



Image 38: Waterfront Park, facing northwest, August 5, 2015.



Image 39: Waterfront Park, facing southwest, August 5, 2015.



Image 40: Waterfront Park, facing east, August 5, 2015.



STAGE 1 ARCHAEOLOGICAL ASSESSMENT - 21 KERR STREET, OAKVILLE, ONTARIO



Image 41: Area of disturbance, paved asphalt surface, facing northeast, August 5, 2015.



Image 42: Area of disturbance, paved asphalt surface, facing southeast, August 5, 2015.



STAGE 1 ARCHAEOLOGICAL ASSESSMENT - 21 KERR STREET, OAKVILLE, ONTARIO

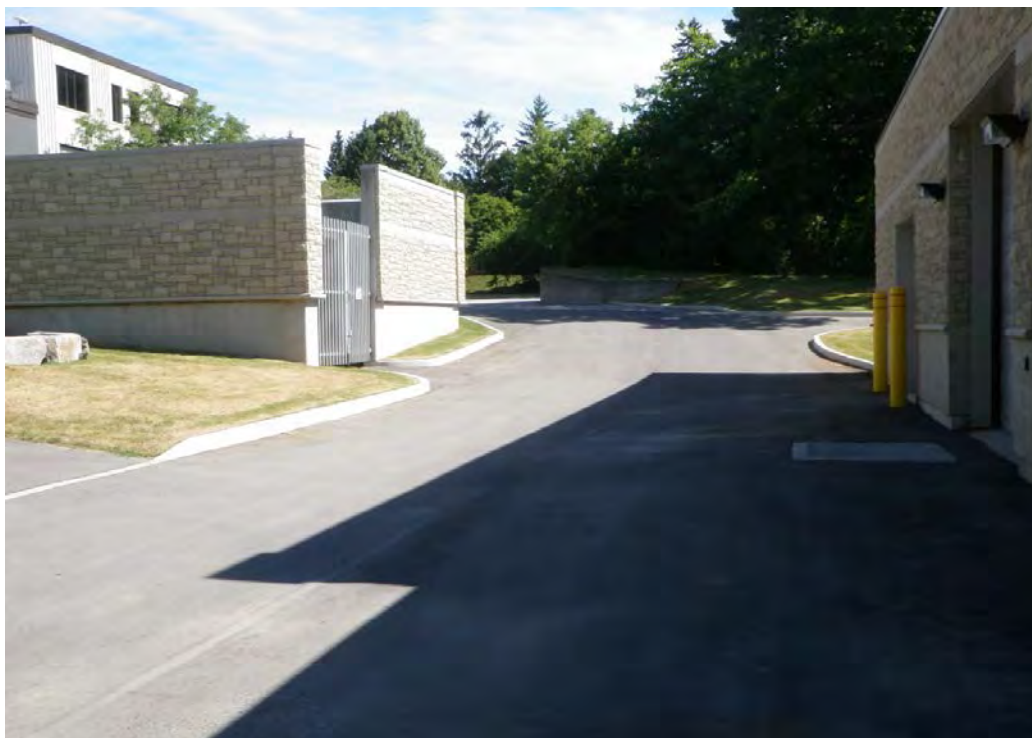


Image 43: Area of disturbance, paved asphalt surface, building construction, facing northeast, August 5, 2015.



Image 44: Area of disturbance, graded landscaping, utilities, facing southeast, August 5, 2015.



STAGE 1 ARCHAEOLOGICAL ASSESSMENT - 21 KERR STREET, OAKVILLE, ONTARIO



Image 45: Area of disturbance, paved surfaces, building construction, graded landscaping, facing north, August 5, 2015.



Image 46: Area of disturbance, paved surfaces, building construction, graded landscaping, facing southeast, August 5, 2015.



Image 47: Area of disturbance, paved surfaces, retaining wall, graded landscaping, facing northeast, August 5, 2015.

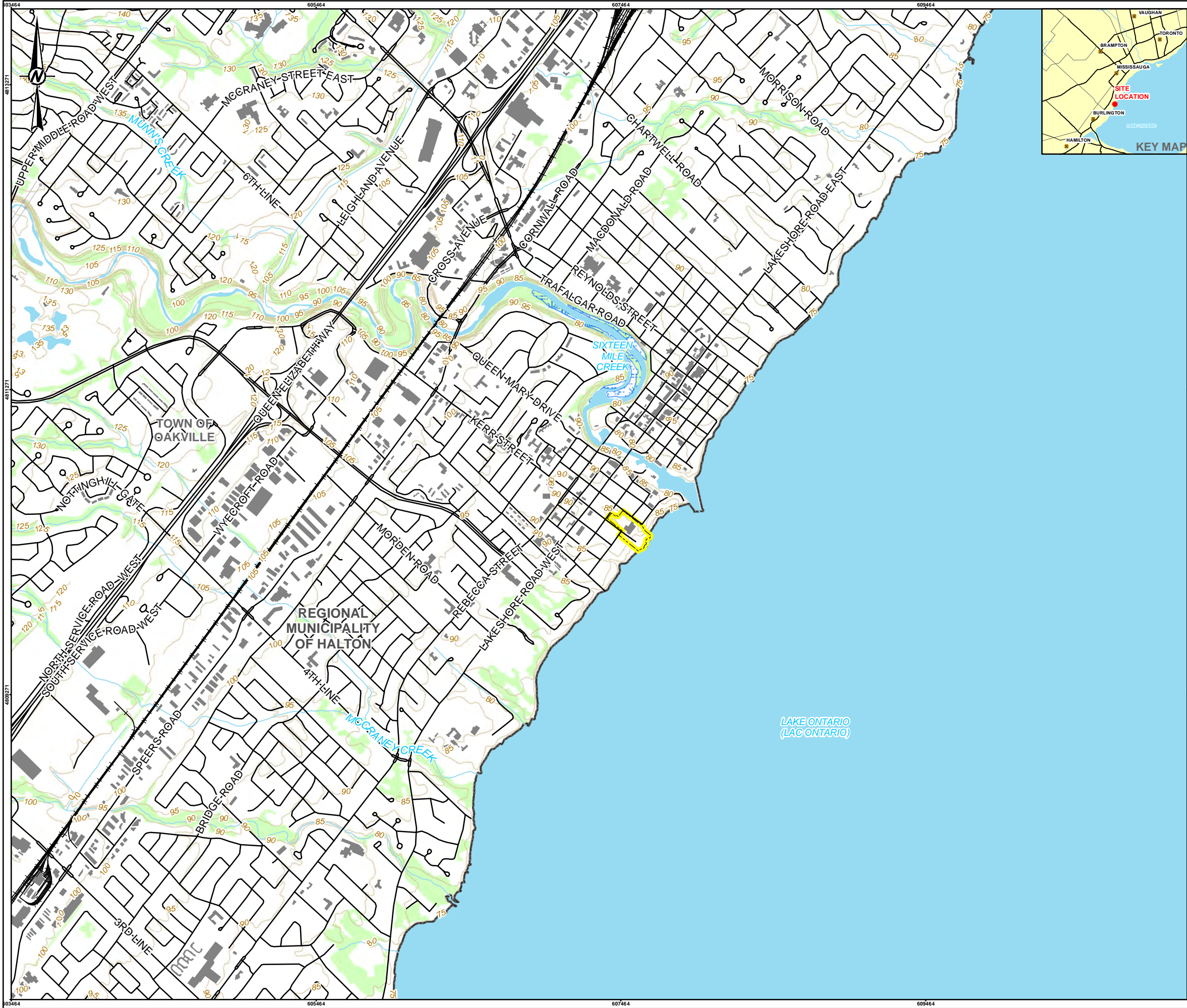


Image 48: Residence of Robert K. Chisolm, son of William Chisolm (1858 Tremaine)

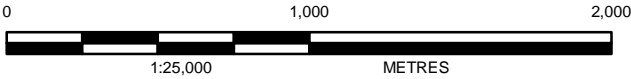


10.0 MAPS

All maps follow on succeeding pages.



- LEGEND**
- CONTOURS (M)
 - RAILWAY
 - ROAD
 - UTILITY LINE
 - WATERCOURSE
 - APPROXIMATE SITE BOUNDARY
 - BUILDING
 - MUNICIPAL BOUNDARY
 - WATERBODY
 - WETLAND
 - WOODED AREA




REFERENCE(S)
BASE DATA - ATLAS OF CANADA, NATURAL RESOURCES CANADA, 2011. MNR LIO, OBTAINED 2015
PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2015
BASE IMAGERY - MICROSOFT BING ©2015 MICROSOFT CORPORATION AND ITS DATA SUPPLIERS.
PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 17N

CLIENT
EXP SERVICES

PROJECT
STAGE 1 ARCHAEOLOGICAL ASSESSMENT
TOWN OF OAKVILLE WATER PURIFICATION PLANT
OAKVILLE, ONTARIO

TITLE
PROJECT LOCATION

	CONSULTANT	YYYY-MM-DD	2015-08-06
	DESIGNED	JT	
	PREPARED	JT	
	REVIEWED		
	APPROVED		

PROJECT NO. 1536759	CONTROL	REV.	MAP 1
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LEGEND

- Approximate Location of Study Area, Lot 15, Broken Front Concession
Trafalgar Township, Halton County, now Town of Oakville, Ontario


REFERENCE

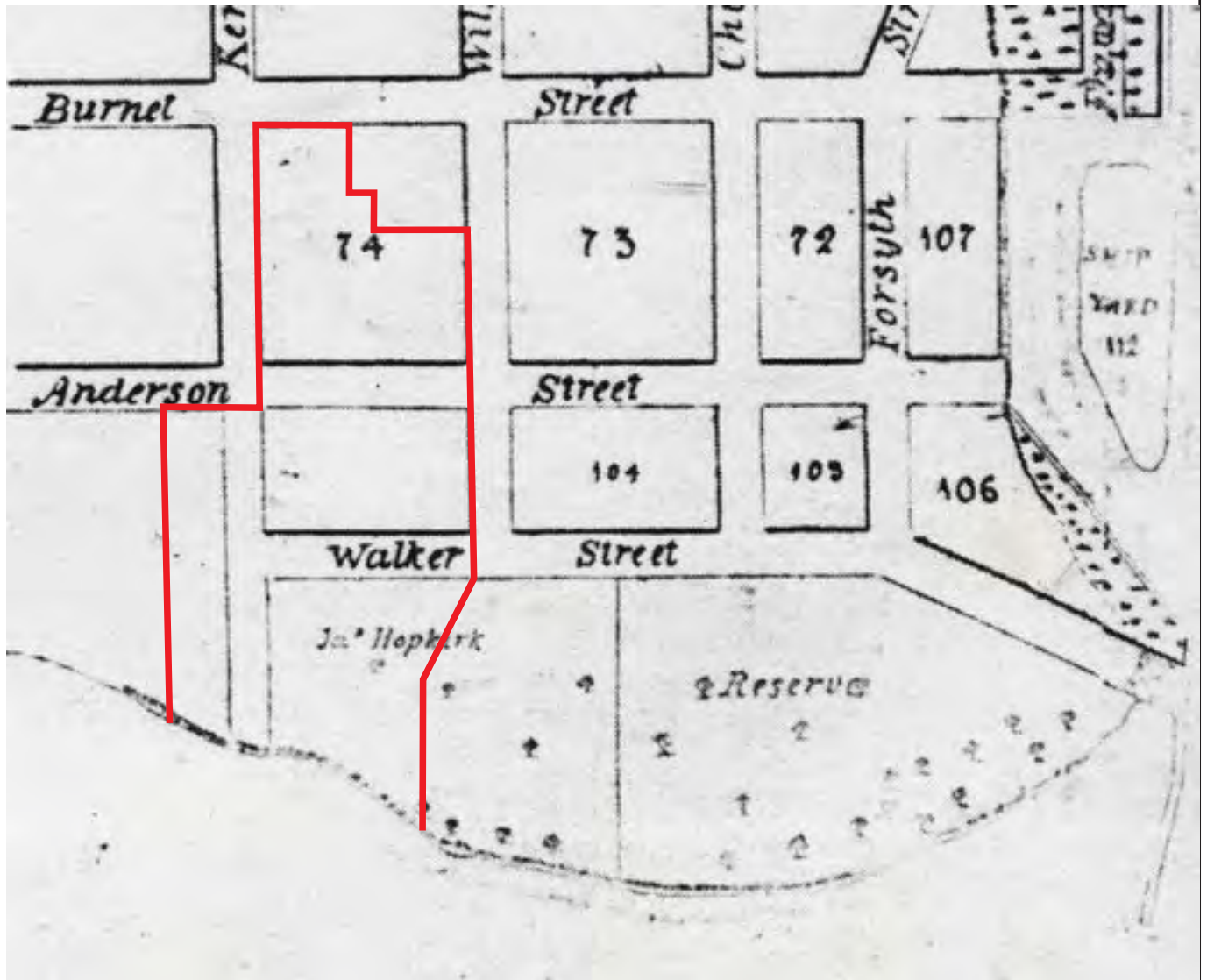
DRAWING BASED ON:
Wilmot, Samuel
1806 Trafalgar Township Map: "Trafalgar Plan of the Second
Township in the Tract of Land Lately Purchased from the
Mississauga Indians".

NOTES

THIS DRAWING IS SCHEMATIC ONLY AND IS TO BE READ
IN CONJUNCTION WITH ACCOMPANYING TEXT.

ALL LOCATIONS ARE APPROXIMATE.

PROJECT		Stage 1 Archaeological Assessment Town of Oakville Water Purification Plant Oakville, Ontario			
TITLE		Portion of 1806 Map of Trafalgar Township			
		PROJECT No.		1536759	
		FILE No.		1536759-R01-002	
		SCALE		N/A REV. 01	
		CADD	KNP	6 Aug 2015	
		CHECK	JLD	6 Aug 2015	
		MAP 2			



LEGEND

- Approximate Location of Study Area,
Trafalgar Township, Halton County, now Town of Oakville, Ontario


REFERENCE

DRAWING BASED ON:
Kerr, Robert. W.
1837 Map of The Town of Oakville

NOTES

THIS DRAWING IS SCHEMATIC ONLY AND IS TO BE READ
IN CONJUNCTION WITH ACCOMPANYING TEXT.

ALL LOCATIONS ARE APPROXIMATE.

PROJECT		Stage 1 Archaeological Assessment Town of Oakville Water Purification Plant Oakville, Ontario	
TITLE		Portion of 1837 Map of Town of Oakville	
PROJECT No.		1536759	FILE No. 1536759-R01-003
CADD		KNP	6 Aug 2015
CHECK		JLD	6 Aug 2015
SCALE		N/A REV. 01	
		MAP 3	



LEGEND

- Approximate Location of Study Area
Trafalgar Township, Halton County, now Town of Oakville, Ontario


REFERENCE

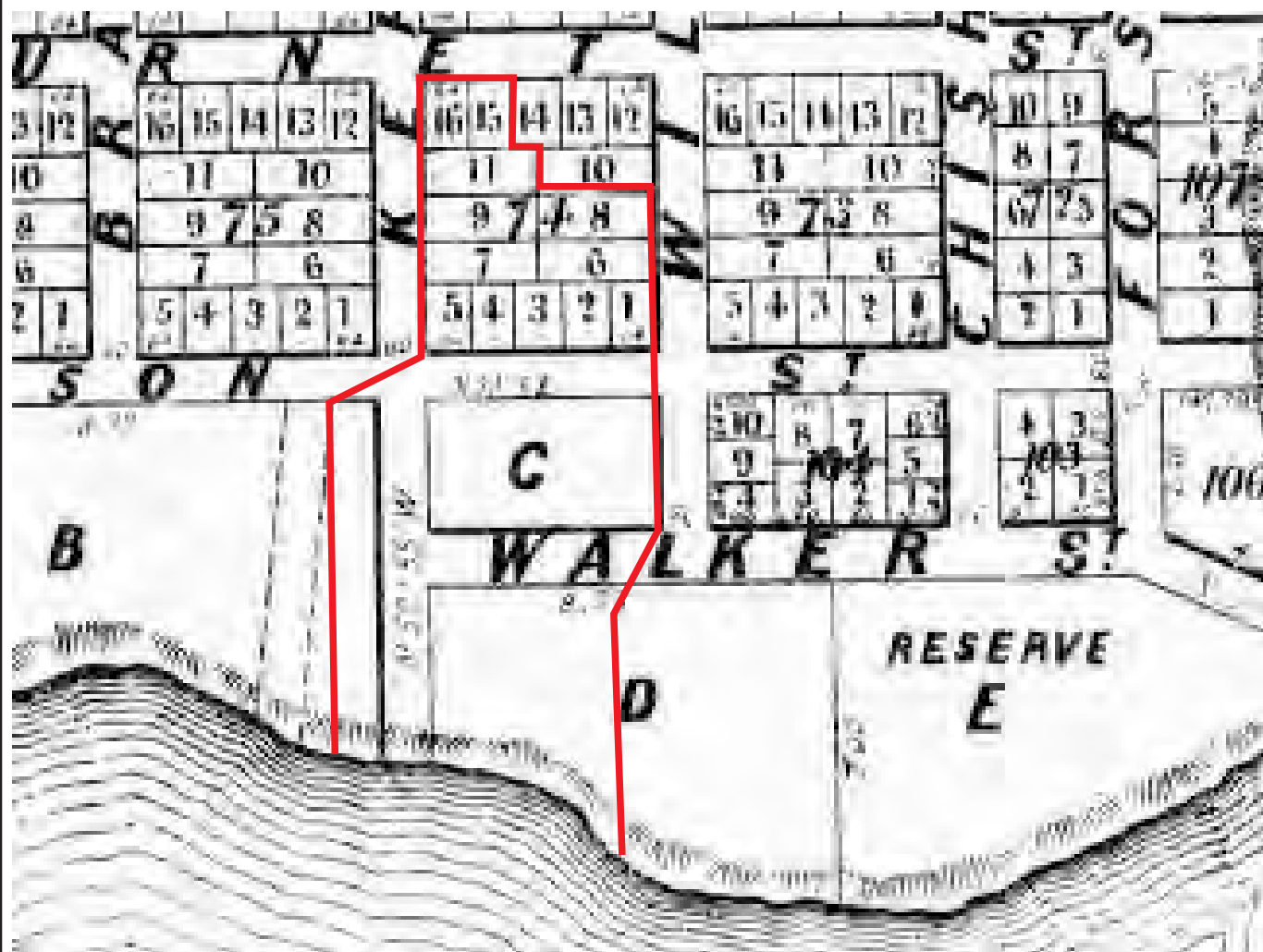
DRAWING BASED ON:
Tremaine, George R.
1858 Map of the County of Halton - Southern Trafalgar Township

NOTES

THIS DRAWING IS SCHEMATIC ONLY AND IS TO BE READ
IN CONJUNCTION WITH ACCOMPANYING TEXT.

ALL LOCATIONS ARE APPROXIMATE.

PROJECT		Stage 1 Archaeological Assessment Town of Oakville Water Purification Plant Oakville, Ontario					
TITLE		Portion of 1858 Map of Trafalgar Township					
		PROJECT No.		1536759			
		FILE No.		1536759-R01-004			
		SCALE		N/A REV. 01			
		CADD		KNP		6 Aug 2015	
		CHECK		JLD		6 Aug 2015	
						MAP 4	



LEGEND

- Approximate Location of Study Area
Trafalgar Township, Halton County, now Town of Oakville, Ontario


REFERENCE

DRAWING BASED ON:
Walker & Miles
1877 Illustrated Historical Atlas of the County of Halton, Ontario.

NOTES

THIS DRAWING IS SCHEMATIC ONLY AND IS TO BE READ
IN CONJUNCTION WITH ACCOMPANYING TEXT.

ALL LOCATIONS ARE APPROXIMATE.

PROJECT		Stage 1 Archaeological Assessment Town of Oakville Water Purification Plant Oakville, Ontario			
TITLE		Portion of 1877 Map of Trafalgar Township			
		PROJECT No.		FILE No.	
		1536759		1536759-R01-005	
		SCALE		N/A REV. 01	
		CADD	KNP	6 Aug 2015	MAP 5
		CHECK	JLD	6 Aug 2015	



LEGEND

APPROXIMATE SITE BOUNDARY

05001000

0

500

1,000

1:12,500

METRES

NOTE(S)
1. ALL LOCATIONS ARE APPROXIMATE

480643

REFERENCE(S)
BASE IMAGE - 1985 AERIAL PHOTOGRAPH, OBTAINED BY LGI COPY SERVICE CANADA.
PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 17N

CLIENT

EXP SERVICES

PROJECT

STAGE 1 ARCHAEOLOGICAL ASSESSMENT
TOWN OF OAKVILLE WATER PURIFICATION PLANT
OAKVILLE, ONTARIO


TITLE

AERIAL PHOTOGRAPH (1985)

CONSULTANT

YYYY-MM-DD

2015-08-06

Golder Associates

DESIGNED

JT

PREPARED

JT

REVIEWED

APPROVED

PROJECT NO.

1536759

CONTROL

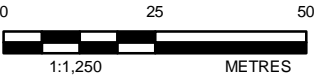
REV.

MAP

6



- LEGEND**
- AREA OF ARCHAEOLOGICAL POTENTIAL, STAGE 2 ASSESSMENT REQUIRED
 - AREA OF PREVIOUS DISTURBANCE, NO ARCHAEOLOGICAL POTENTIAL
 - AREA OF SLOPE GREATER THAN 20%, NO ARCHAEOLOGICAL POTENTIAL
 - APPROXIMATE SITE BOUNDARY



NOTE(S)
1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)
BASE DATA - ATLAS OF CANADA, NATURAL RESOURCES CANADA, 2011. MNR LIO, OBTAINED 2015
PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2015
BASE IMAGERY - MICROSOFT BING ©2015 MICROSOFT CORPORATION AND ITS DATA SUPPLIERS.
PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 17N

CLIENT
EXP SERVICES

PROJECT
STAGE 1 ARCHAEOLOGICAL ASSESSMENT
TOWN OF OAKVILLE WATER PURIFICATION PLANT
OAKVILLE, ONTARIO

TITLE
STAGE 1 AREAS OF ARCHAEOLOGICAL POTENTIAL

CONSULTANT	YYYY-MM-DD	2015-08-06
DESIGNED	JT	
PREPARED	JT	
REVIEWED		
APPROVED		



PROJECT NO. 1536759 CONTROL REV. MAP 7



LEGEND

1 PHOTOGRAPH LOCATION AND DIRECTION

APPROXIMATE SITE BOUNDARY

0 25 50

1:1,250 METRES

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

BASE DATA - ATLAS OF CANADA, NATURAL RESOURCES CANADA, 2011. MNR LIO, OBTAINED 2015
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PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 17N

CLIENT
EXP SERVICES

PROJECT
STAGE 1 ARCHAEOLOGICAL ASSESSMENT
TOWN OF OAKVILLE WATER PURIFICATION PLANT
OAKVILLE, ONTARIO

TITLE
PHOTOGRAPH DIRECTIONS AND LOCATIONS

CONSULTANT	YYYY-MM-DD	2015-08-06
DESIGNED	JT	
PREPARED	JT	
REVIEWED		
APPROVED		

Golder Associates

PROJECT NO. 1536759	CONTROL	REV.	MAP 8
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11.0 IMPORTANT INFORMATION AND LIMITATIONS OF THIS REPORT

Golder has prepared this report in a manner consistent with that level of care and skill ordinarily exercised by members of the archaeological profession currently practicing under similar conditions in the jurisdiction in which the services are provided, subject to the time limits and physical constraints applicable to this report. No other warranty, expressed or implied is made.

This report has been prepared for the specific site, design objective, developments and purpose described to Golder by exp Services Inc. (the Client). The factual data, interpretations and recommendations pertain to a specific project as described in this report and are not applicable to any other project or site location.

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Unless otherwise stated, the suggestions, recommendations and opinions given in this report are intended only for the guidance of the Client in the design of the specific project.

Special risks occur whenever archaeological investigations are applied to identify subsurface conditions and even a comprehensive investigation, sampling and testing program may fail to detect all or certain archaeological resources. The sampling strategies incorporated in this study comply with those identified in the Ministry of Tourism, Culture and Sport's 2011 *Standards and Guidelines for Consultant Archaeologists*.



Report Signature Page

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KNP/JLD/CP/lb

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