# Appendix C
# Archaeological Assessment

- Stage 1 Archaeological Assessment
- Stage 2 Archaeological Assessment for the Mount Zion Cemetery

ARCHAEOLOGY | HERITAGE | OUTREACH | EDUCATION

# Stage 1 Archaeological Assessment
# Proposed Widening of Winston Churchill Boulevard
# from Highway 401 to Embleton Road
# Town of Halton Hills, Cities of Mississauga and Brampton,
# Regional Municipalities of Halton and Peel
# Multiple Lots and Concessions
# Geographic Townships of Esquesing, Trafalgar, Chinguacousy and Toronto
# Former Halton and Peel Counties, Ontario

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**MTCS Licence #P007**
Project #P007-0678
PIF #P007-0678-2014

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**Original Report**

# EXECUTIVE SUMMARY

Under a contract awarded by Hatch Mott McDonald in July 2014, Archaeological Research Associates Ltd. carried out a Stage 1 archaeological assessment of lands with the potential to be impacted by the proposed widening of Winston Churchill Boulevard from Highway 401 to Embleton Road (Project 14-4380) in the Town of Halton Hills, Regional Municipality of Halton Hills and the Cities of Mississauga and Brampton, Regional Municipality of Peel, Ontario. This report documents the background research and archaeological potential modelling involved in the assessment, and presents conclusions and recommendations pertaining to archaeological concerns within the assessed lands. The assessment was completed as a component of a Schedule 'C' Municipal Class Environmental Assessment, in compliance with the *Environmental Assessment Act*.

The Regional Municipality of Peel's 2012 Updated Long Range Transportation Plan (LRTP) was conducted as a Region-wide transportation master plan that followed the requirements of the Master Plan process. The LRTP identified the need to widen Winston Churchill Boulevard from Highway 401 to Embleton Road (a distance of approximately 4.2 km) to meet existing and future transportation needs. The LRTP recommended that the widening of Winston Churchill Boulevard to six lanes will be required by 2021 and 2031 for the sections south and north of Steeles Avenue, respectively (RMP 2014:6–7).

The Stage 1 assessment was conducted in November 2014 under licence #P007, PIF #P007-0678-2014. The study area comprised parts of the Winston Churchill Boulevard, Embleton Road, 5th Side Road, Steeles Avenue, Highway 407, Meadowpine Boulevard and Highway 401 Rights-of-Way, as well as parts of adjacent residential, agricultural and commercial properties (comprising a variety of paved driveways, parking lots, grassed areas and/or cultivated fields). The results of the assessment indicated that the study area currently comprises a mixture of areas of archaeological potential and areas of no archaeological potential.

Archaeological Research Associates Ltd. recommends that all areas of archaeological potential that could be impacted by the project be subject to a Stage 2 property assessment in advance of construction. The identified areas of no archaeological potential are not recommended for further assessment. It is requested that this report be entered into the *Ontario Public Register of Archaeological Reports*, as provided for in Section 65.1 of the *Ontario Heritage Act*.

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## GLOSSARY OF ABBREVIATIONS

ARA – Archaeological Research Associates Ltd.
CHVI – Cultural Heritage Value or Interest
HMM – Hatch Mott McDonald
LRTP – Long Range Transportation Plan
MTC – (Former) Ministry of Tourism and Culture
MTCS – Ministry of Tourism, Culture and Sport
PIF – Project Information Form
ROW – Right-of-Way
S&Gs – Standards and Guidelines for Consultant Archaeologists
WCR – West of Centre Road

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# 1.0 PROJECT CONTEXT

## 1.1 Development Context

Under a contract awarded by HMM in July 2014, ARA carried out a Stage 1 archaeological assessment of lands with the potential to be impacted by the proposed widening of Winston Churchill Boulevard from Highway 401 to Embleton Road (Project 14-4380) in the Town of Halton Hills, Regional Municipality of Halton Hills and the Cities of Mississauga and Brampton, Regional Municipality of Peel, Ontario. This report documents the background research and archaeological potential modelling involved in the assessment, and presents conclusions and recommendations pertaining to archaeological concerns within the assessed lands. The assessment was completed as a component of a Schedule 'C' Municipal Class Environmental Assessment, in compliance with the *Environmental Assessment Act*.

The Regional Municipality of Peel's 2012 Updated LRTP was conducted as a Region-wide transportation master plan that followed the requirements of the Master Plan process. The LRTP identified the need to widen Winston Churchill Boulevard from Highway 401 to Embleton Road (a distance of approximately 4.2 km) to meet existing and future transportation needs. The LRTP recommended that the widening of Winston Churchill Boulevard to six lanes will be required by 2021 and 2031 for the sections south and north of Steeles Avenue, respectively (RMP 2014:6–7).

The subject study area consists of a rectilinear 76.71 ha parcel of land located along Winston Churchill Boulevard from just south of Highway 401 to just north of Embleton Road in the eastern part of the Town of Halton Hills and western parts of the Cities of Mississauga and Brampton (see Map 1–Map 2). This parcel is generally bounded by undeveloped agricultural lands to the north, east and west and commercial lands to the south. The study area comprises parts of the Winston Churchill Boulevard, Embleton Road, 5$^{th}$ Side Road, Steeles Avenue, Highway 407, Meadowpine Boulevard and Highway 401 ROWs, as well as parts of adjacent residential, agricultural and commercial properties (comprising a variety of paved driveways, parking lots, grassed areas and/or cultivated fields). In legal terms, the study area falls on part of Lots 1–6, Concession 11 in the Geographic Township of Esquesing and Lots 13–15, Concession 11 in the Geographic Township of Trafalgar (former Halton County), and part of Lots 1–6, Concession 6 WCR in the Geographic Township of Chinguacousy and Lots 13–15, Concession 6 WCR in the Geographic Township of Toronto (former Peel County).

The Stage 1 archaeological assessment was conducted in November 2014 under licence #P007, PIF #P007-0678-2014. In compliance with the objectives set out in Section 1.0 of the *S&Gs* (MTC 2011:13–23), this investigation was carried out in order to:

- Provide information concerning the study area's geography, history and current land condition;
- Determine the presence of known archaeological sites in the study area;
- Present strategies to mitigate project impacts to such sites, if they are located;
- Evaluate in detail the study area's archaeological potential; and
- Recommend appropriate strategies for Stage 2 archaeological assessment, if some or all of the study area has archaeological potential.

The assessment was conducted in accordance with the provisions of the *Ontario Heritage Act*, R.S.O. 1990, c. O.18. All notes, photographs and records pertaining to the project are stored at ARA's processing facility located at 154 Otonabee Drive, Kitchener. The MTCS is asked to review the results and recommendations presented in this report and provide their endorsement through a *Letter of Review and Entry into the Ontario Public Register of Archaeological Reports*.

## 1.2 Historical Context

After a century of archaeological work in southern Ontario, scholarly understanding of the historic usage of lands in the Regional Municipalities of Halton and Peel has become very well-developed. What follows is a detailed summary of the archaeological cultures that have settled in the vicinity of the study area over the past 11,000 years; from the earliest Palaeo-Indian hunters to the most recent Euro-Canadian farmers.

### *1.2.1 Pre-Contact*

#### *1.2.1.1 Palaeo-Indian Period*

The first documented evidence of occupation in southern Ontario dates to around 9000 BC, after the retreat of the Wisconsinan glaciers and the formation of Lake Algonquin, Early Lake Erie and Early Lake Ontario (Karrow and Warner 1990; Jackson et al. 2000:416–419). At that time small Palaeo-Indian bands moved into the region, leading mobile lives based on the communal hunting of large game and the collection of plant-based food resources (Ellis and Deller 1990:38; MCL 1997:34). Current understanding suggests that Palaeo-Indian peoples ranged over very wide territories in order to live sustainably in a post-glacial environment with low biotic productivity. This environment changed considerably during this period, developing from a sub-arctic spruce forest to a boreal forest dominated by pine (Ellis and Deller 1990:52–54, 60).

An Early Palaeo-Indian period (ca. 9000–8400 BC) and a Late Palaeo-Indian period (ca. 8400–7500 BC) are discernable amongst the lithic spear and dart points. Early points are characterized by grooves or 'flutes' near the base while the later examples lack such fluting. All types would have been used to hunt caribou and other 'big game'. Archaeological sites from both time-periods typically served as small campsites or 'way-stations' (occasionally with hearths or fire-pits), where tool manufacture/maintenance and hide processing would have taken place. For the most part, these sites tend to be small (less than 200 sq. m) and ephemeral (Ellis and Deller 1990:51–52, 60–62). Many parts of the Palaeo-Indian lifeway remain unknown.

#### *1.2.1.2 Archaic Period*

Beginning in the early 8$^{th}$ millennium BC, the biotic productivity of the environment began to increase as the climate warmed and southern Ontario was colonized by deciduous forests. This caused the fauna of the area to change as well, and ancient peoples developed new forms of tools and alternate hunting practices to better exploit both animal and plant-based food sources. These new archaeological cultures are referred to as 'Archaic'. Thousands of years of gradual change in stone tool styles allows for the recognition of Early (7500–6000 BC), Middle (6000–2500 BC) and Late Archaic periods (2500–900 BC) (MCL 1997:34).

The Early and Middle Archaic periods are characterized by substantial increases in the number of archaeological sites and a growing diversity amongst stone tool types and exploited raw materials. Notable changes in Archaic assemblages include a shift to notched or stemmed projectile points, a growing prominence of net-sinkers (notched pebbles) and an increased reliance on artifacts like bone fish hooks and harpoons. In addition to these smaller items, archaeologists also begin to find evidence of more massive wood working tools such as ground stone axes and chisels (Ellis et al. 1990:65–67).

Towards the end of the Middle Archaic (ca. 3500 BC), the archaeological evidence suggests that populations were 1) increasing in size, 2) paying more attention to ritual activities, 3) engaging in long distance exchange (e.g. in items such as copper) and 4) becoming less mobile (Ellis et al. 1990:93; MCL 1997:34). Late Archaic peoples typically made use of shoreline/riverine sites located in rich environmental zones during the spring, summer and early fall, and moved further inland to deer hunting and fruit-gathering sites during late fall and winter (Ellis et al. 1990:114).

During the Late Archaic these developments continued, and new types of projectile points appeared along with the first true cemeteries. Excavations of burials from this time-frame indicate that human remains were often cremated and interred with numerous grave goods, including items such as projectile points, stone tools, red ochre, materials for fire-making kits, copper beads, bracelets, beaver incisors, and bear maxilla masks (Ellis et al. 1990:115–117). Interestingly, these true cemeteries may have been established in an attempt to solidify territorial claims, linking a given band or collection of bands to a specific geographic location.

From the tools unearthed at Archaic period sites it is clear that these people had an encyclopaedic understanding of the environment that they inhabited. The number and density of the sites that have been found suggest that the environment was exploited in a successful and sustainable way over a considerable period of time. The success of Archaic lifeways is attested to by clear evidence of steady population increases over time. Eventually, these increases set the stage for the final period of Pre-Contact occupation—the Woodland Period (Ellis et al. 1990:120).

#### *1.2.1.3 Early and Middle Woodland Periods*

The beginning of the Woodland period is primarily distinguished from the earlier Archaic by the widespread appearance of pottery. Although this difference stands out prominently amongst the archaeological remains, it is widely believed that hunting and gathering remained the primary subsistence strategy throughout the Early Woodland period (900–400 BC) and well into the Middle Woodland period (400 BC–AD 600). In addition to adopting ceramics, communities also grew in size during this period and participated in developed and widespread trade relations (Spence et al. 1990; MCL 1997:34).

The first peoples to adopt ceramics in the vicinity of the study area are associated with the Meadowood archaeological culture. This culture is characterized by distinctive Meadowood preforms, side-notched Meadowood points and Vinette 1 ceramics (thick and crude handmade pottery with cord-marked decoration). Meadowood peoples are believed to have been organized in bands of roughly 35 people, and some of the best documented sites are fall camps geared towards the hunting of deer and the gathering of nuts (Spence et al. 1990:128–137).

Ceramic traditions continued to develop during the subsequent Middle Woodland period, and three distinct archaeological cultures emerged in southern Ontario: 'Point Peninsula' north and northeast of Lake Ontario, 'Couture' near Lake St. Clair and 'Saugeen' in the rest of southwestern Ontario (see Map 3). These cultures all shared a similar method of decorating pottery, using either dentate or pseudo-scallop shell stamp impressions, but they differed in terms of preferred vessel shape, zones of decoration and surface finish (Spence et al. 1990:142–143).

The local Saugeen complex, which appears to have extended from Lake Huron to as far east as the Humber River and the Niagara Peninsula, is characterized by stamped pottery, distinctive projectile points, cobble spall scrapers and a lifeway geared towards the exploitation of seasonally-available resources such as game, nuts and fish (Spence et al. 1990:147–156). Although distant from the study area, the Donaldson site along the Saugeen River may be representative of a typical Saugeen settlement; it was occupied in the spring by multiple bands that came to exploit spawning fish and bury members who had died elsewhere during the year (Finlayson 1977:563–578). The archaeological remains from this site include post-holes, hearth pits, garbage-dumps (middens), cemeteries and even a few identifiable rectangular structures (Finlayson 1977:234–514).

During the Middle to Late Woodland transition (AD 600–900), major developments took place at the western end of Lake Ontario as maize (corn) horticulture was introduced and settled agriculturalists emerged (Fox 1990:171, Figure 6.1). This shift is linked to the development of the Princess Point complex, which is characterized by distinctively decorated ceramic vessels (combining cord roughening, impressed lines and punctuate designs), triangular projectile points, T-based drills, steatite and ceramic pipes and ground stone chisels and adzes (Fox 1990:174–188).

The Grand Banks site near Cayuga is one of the best known Princess Point sites, and a calibrated radiocarbon date of AD 406–586 indicates that it was home to the first maize horticulturalists in northeastern North America (Warrick 2000:427). Generally, Princess Point sites consist of what are called 'incipient' longhouses, circular or square houses and even rudimentary palisades. Excavated evidence suggests that a typical village would have contained upwards of five contemporary houses at any one time, serving a population of roughly 75 people for perhaps 40–50 years. The evidence also indicates that many of these villages were reoccupied repeatedly over the centuries (Warrick 2000:429–434).

Intriguingly, approximately half of the documented Princess Point sites in Ontario have been discovered along the Grand River, but examples have also been found in the vicinity of the Credit and Humber Rivers (see Map 4). The distinctive artifacts and horticultural practices of Princess Point peoples have led to the suggestion that they were the ancestors of the later Iroquoian-speaking populations of southern Ontario (Warrick 2000:427).

#### *1.2.1.4 Late Woodland Period*

In the Late Woodland period (ca. AD 900–1600), the practice of maize horticulture spread beyond the western end of Lake Ontario, allowing for population increases which in turn led to larger settlement sizes, higher settlement density and increased social complexity among the peoples involved. These developments are believed to be linked to the spread of Iroquoian-

speaking populations in the area; ancestors of the historically-documented Huron, Neutral and Haudenosaunee Nations. Other parts of southern Ontario, including the Georgian Bay littoral, the Bruce Peninsula and the vicinity of Lake St. Clair, were inhabited by Algonkian-speaking peoples, who were much less agriculturally-oriented.

Late Woodland archaeological remains from the greater vicinity of the study area show three major stages of cultural development prior to European contact: 'Early Iroquoian', 'Middle Iroquoian' and 'Late Iroquoian' (Dodd et al. 1990; Lennox and Fitzgerald 1990; Williamson 1990).

Early Iroquoians (AD 900–1300) lived in small villages (ca. 0.4 ha) of between 75 and 200 people, and each settlement consisted of four or five longhouses up to 15 m in length. The houses contained central hearths and pits for storing maize (which made up 20–30% of their diet), and the people produced distinctive pottery with decorative incised rims (Warrick 2000:434–438). The best documented Early Iroquoian culture in the local area is the Glen Meyer complex, which is characterized by well-made and thin-walled pottery, ceramic pipes, gaming discs, and a variety of stone, bone, shell and copper artifacts (Williamson 1990:295–304).

Over the next century (AD 1300–1400), Middle Iroquoian culture became dominant in southwestern Ontario, and distinct 'Uren' and 'Middleport' stages of development have been identified. Both houses and villages dramatically increased in size during this time: longhouses grew to as much as 33 m in length, settlements expanded to 1.2 ha in size and village populations swelled to as many as 600 people. Middle Iroquoian villages were also better planned, suggesting emerging clan organization, and most seem to have been occupied for perhaps 30 years prior to abandonment (Dodd et al. 1990:356–359; Warrick 2000:439–446).

During the Late Iroquoian period (AD 1400–1600), the phase just prior to widespread European contact, it becomes possible to differentiate between the archaeologically-represented groups that would become the Huron and the Neutral Nations. The study area itself lies within the territorial boundaries of the Pre-Contact Neutral Nation, documented in lands as far west as Chatham and as far east as New York State.

The Neutral Nation is well represented archaeologically: typical artifacts include ceramic vessels and pipes, lithic chipped stone tools, ground stone tools, worked bone, antler and teeth, and exotic goods obtained through trade with other Aboriginal (and later European) groups (Lennox and Fitzgerald 1990:411–437). The population growth so characteristic of earlier Middleport times appears to have slowed considerably during the Late Iroquoian period, and the Pre-Contact Neutral population likely stabilized at around 20,000 by the early 16$^{th}$ century (Warrick 2000:446).

Pre-Contact Neutral villages were much larger than Middleport villages, with average sizes in the neighbourhood of 1.7 ha. Exceptional examples of these could reach 5 ha in size, containing longhouses over 100 m in length and housing 2,500 individuals. This seemingly rapid settlement growth is thought to have been linked to Middleport 'baby boomers' starting their own families and needing additional living space (Warrick 2000:446–449).

It has been suggested that the size of these villages, along with the necessary croplands to sustain them, may have had some enduring impacts on the landscapes that surrounded them. In particular, there has been a correlation postulated between Pre-Contact era corn fields and modern stands of white pine (Janusas 1987:69–70, Figure 7). Aside from these villages, the Pre-Contact Neutral also made use of hamlets, agricultural field cabins, specialized camps (e.g., fishing camps) and cemeteries (MCL 1997:35; Warrick 2000:449).

For the most part, Pre-Contact Neutral archaeological sites occur in isolated clusters defined by some sort of geographic region, usually within a watershed or another well-defined topographic feature (see Map 5). It has been suggested that these clusters represent distinct tribal units, which may have been organized as a larger confederacy akin to the historic Five Nations Iroquois (Lennox and Fitzgerald 1990:410). Nineteen main clusters of villages have been identified, the closest manifestation of which is known as the 'Milton Cluster'. This cluster, comprising the McClellahan, Carton, Milton Heights, Brown, Milton and McCarthy sites, appears to have flourished primarily in the late 16$^{th}$ and 17$^{th}$ centuries, making it one of the latest manifestations of Neutral lifeways prior to Five Nations invasion (Lennox and Fitzgerald 1990:Table 13.1).

The end of the Late Woodland period can be conveniently linked to the arrival and spread of European fur traders in southern Ontario, and a terminus of AD 1600 effectively serves to demarcate some substantial changes in Aboriginal material culture. Prior to the establishment of the fur trade, items of European manufacture are extremely rare on Pre-Contact Neutral sites, save for small quantities of reused metal scrap. With the onset of the fur trade ca. AD 1580, European trade goods appear in ever-increasing numbers, and glass beads, copper kettles, iron axes and iron knives have all been found during excavations (Lennox and Fitzgerald 1990:425–432).

### *1.2.2 Early Contact*

#### *1.2.2.1 European Explorers*

The first European to venture into what would become southern Ontario was Étienne Brûlé, who was sent by Samuel de Champlain in the summer of 1610 to accomplish three goals: 1) to consolidate an emerging friendship between the French and the First Nations, 2) to learn their languages, and 3) to better understand their unfamiliar customs. Other Europeans would subsequently be sent by the French to train as interpreters. These men became *coureurs de bois*, "living Indian-style ... on the margins of French society" (Gervais 2004:182). Such 'woodsmen' played an essential role in all later communications with the First Nations.

Champlain himself made two trips to Ontario: in 1613, he journeyed up the Ottawa River searching for the North Sea, and in 1615/1616, he travelled up the Mattawa River and descended to Lake Nipissing and Lake Huron to explore Huronia (Gervais 2004:182–185). He learned about many First Nations groups during his travels, including prominent Iroquoian-speaking peoples such as the Wendat (Huron), Petun (Tobacco) and '*la nation neutre*' (the Neutrals), and a variety of Algonkian-speaking Anishinabeg bands.

Champlain's *Carte de la Nouvelle France* (1632) encapsulates his accumulated knowledge of the area (see Map 6). Although the distribution of the Great Lakes is clearly an abstraction in this early map, important details concerning the terminal Late Woodland occupation of southern Ontario are discernable. Numerous Aboriginal groups are identified throughout the area, for example, and prolific Neutral village sites can be seen 'west' of *Lac St. Louis* (Lake Ontario).

#### *1.2.2.2 Trading Contacts and Conflict*

The first half of the 17th century saw a marked increase in trading contacts between the First Nations and European colonists, especially in southern Ontario. Archaeologically, these burgeoning relations are clearly manifested in the widespread appearance of items of European manufacture by AD 1630, including artifacts such as red and turquoise glass beads, scissors, drinking glasses, keys, coins, firearms, ladles and medallions. During this time, many artifacts such as projectile points and scrapers began to be manufactured from brass, copper and iron scrap, and some European-made implements completely replaced more traditional tools (Lennox and Fitzgerald 1990:432–437).

Nicholas Sanson's *Le Canada, ou Nouvelle France* (1656) provides an excellent representation of southern Ontario at this time of heightened contact. Here the lands of the Neutral Nation are clearly labelled with the French rendering of their Huron name, '*Attawandaron*' (see Map 7). Unfortunately, this increased contact had the disastrous consequence of introducing European diseases into First Nations communities. These progressed from localized outbreaks to much more widespread epidemics (MCL 1997:35; Warrick 2000:457). Archaeological evidence of disease-related population reduction appears in the form of reduced longhouse sizes, the growth of multi-ossuary cemeteries and the loss of traditional craft knowledge and production skills (Lennox and Fitzgerald 1990:432–433).

#### *1.2.2.3 Five Nations Invasion*

The importance of European trading contacts eventually led to increasing factionalism and tension between the First Nations, and different groups began to vie for control of the lucrative fur trade (itself a subject of competition between the French and British). In what would become Ontario, the Huron, the Petun, and their Anishinabeg trading partners allied themselves with the French. In what would become New York, the League of the Haudenosaunee (the Five Nations Iroquois at that time) allied themselves with the British. The latter alliance may have stemmed from Champlain's involvement in Anishinabeg and Huron attacks against Iroquoian strongholds in 1609 and 1615, which engendered enmity against the French (Lajeunesse 1960:xxix). Interposed between the belligerents, the members of the Neutral Nation refused to become involved in the conflict.

Numerous military engagements occurred between the two opposing groups during the first half of the 17th century, as competition over territories rich in fur-bearing animals increased. These tensions boiled over in the middle of the 17th century, leading to full-scale regional warfare (MNCFN 2010:5). In a situation likely exacerbated by epidemics brought by the Europeans and the decimation of their population, a party of roughly 1,000 Mohawk and Seneca warriors set upon Huronia in March 1649. The Iroquois desired to remove the Huron Nation altogether, as they were a significant obstacle to controlling the northern fur trade (Hunt 1940:91–92).

The Huron met their defeat in towns such as Saint Ignace and Saint Louis (Sainte-Marie was abandoned and burned by the Jesuits in the spring of 1649). Those that were not killed were either adopted in the Five Nations as captives or dispersed to neighbouring regions and groups (Ramsden 1990:384). The Petun shared a similar fate, and the remnants of the affected groups formed new communities outside of the disputed area, settling in Quebec (modern-day Wendake), in the area of Michilimackinac and near Lake St. Clair (where they were known as the Wyandot).

Anishinabeg populations from southern Ontario, including the Ojibway, Odawa, and Pottawatomi, fled westward to escape the Iroquois (Schmalz 1977:2). The Neutral were targeted in 1650 and 1651, and the Iroquois took multiple frontier villages (one with over 1,600 men) and numerous captives (Coyne 1895:18). The advance of the Iroquois led to demise of the Neutral Nation as a distinct cultural entity (Lennox and Fitzgerald 1990:456).

For the next four decades, southern Ontario remained an underpopulated wilderness (Coyne 1895:20). This rich hunting ground was exploited by the Haudenosaunee to secure furs for trade with the Dutch and the English, and settlements were established along the north shore of Lake Ontario at places like Teiaiagon on the Humber River and Ganatswekwyagon on the Rouge River (Williamson 2008:51). The Haudenosaunee are also known to have traded with the northern Anishinabeg during the second half of the 17th century (Smith 1987:19).

Due to their mutually violent history, the Haudenosaunee did not permit French explorers and missionaries to travel directly into southern Ontario for much of the 17th century. Instead, they had to journey up the Ottawa River to Lake Nipissing and then paddle down the French River into Georgian Bay (Lajeunesse 1960:xxix). New France was consequently slow to develop in southern Ontario, at least until the fall of several Iroquoian strongholds in 1666 and the opening of the St. Lawrence and Lake Ontario route to the interior (Lajeunesse 1960:xxxii).

In 1669, the Haudenosaunee allowed an expedition of 21 men to pass through their territory. This expedition, which included François Dollier de Casson (a Sulpician priest) and René Bréhant de Galinée, managed to reach and explore the Grand River, which they named *le Rapide* after the swiftness of its current. These men descended the Grand to reach Lake Erie, and they wintered at the future site of Port Dover (Coyne 1895:21). Galinée's map is one of the earliest documented representations of the interior of southwestern Ontario (see Map 8). In it, he notes the locations of several former Neutral villages at the western end of Lake Ontario, likely consisting of abandoned ruins.

#### *1.2.2.4 Anishinabeg Influx*

The fortunes of the Five Nations began to change in the 1690s, as disease and casualties from battles with the French took a toll on the formerly-robust group (Smith 1987:19). On July 19, 1701, the Haudenosaunee ceded lands in southern Ontario to King William III with the provision that they could still hunt freely in their former territory (Coyne 1895:28). However, this agreement appears to have lacked any sort of binding formality.

According to the traditions of the Algonkian-speaking Anishinabeg, Ojibway, Odawa and Potawatomi bands began to mount an organized counter-offensive against the Iroquois in the late 17th century (MNCFN 2010:5). Around the turn of the 18th century, the Anishinabeg of the Great Lakes expanded into Haudenosaunee lands, and attempted to trade directly with the French and the English (Smith 1987:19). This led to a series of battles between the opposing groups, in which the Anishinabeg were more successful (Coyne 1895:28).

Haudenosaunee populations subsequently withdrew into New York State, and Anishinabeg bands established themselves in southern Ontario. Many of these bands were mistakenly grouped together by the immigrating Europeans under the generalized designations of 'Chippewa/ Ojibway' and 'Mississauga'. 'Mississauga', for example, quickly became a term applied to many Algonkian-speaking groups around Lake Erie and Lake Ontario (Smith 1987:19), despite the fact that the Mississaugas were but one part of the larger Ojibway Nation (MNCFN 2010:3).

The Anishinabeg are known to have taken advantage of the competition between the English and French over the fur trade, and they were consequently well-supplied with European goods. The Mississaugas, for example, traded primarily with the French and received "everything from buttons, shirts, ribbons to combs, knives, looking glasses, and axes" (Smith 1987:22). The British, on the other hand, were well-rooted in New York State and enjoyed mutually beneficial relations with the Haudenosaunee.

As part of this influx, many members of the Algonkian-speaking Ojibway, Potawatomi and Odawa First Nations came back to Lake Huron littoral. Collectively, these people came to be known as the Chippewas of Saugeen Ojibway Territory (also Saugeen Ojibway Nation). These Algonkian-speakers established themselves in the Bruce Peninsula, all of Bruce and Grey Counties, and parts of Huron, Dufferin, Wellington, and Simcoe Counties (Schmalz 1977:233).

Throughout the 1700s and into the 1800s, Anishinabeg populations hunted, fished, gardened and camped along the rivers, floodplains and forests of southern Ontario (Warrick 2005:2). However, their 'footprint' was exceedingly light, and associated archaeological sites are both rare and difficult to detect. Around 1720, French traders are known to have established a trading post at the western end of Lake Ontario, and the Mississaugas were actively involved in the regional fur trade (MNCFN 2010:09). In September 1750, construction began on another trading post in the vicinity of present-day Toronto, which was called Fort Rouillé, or Fort Toronto. Fort Rouillé was completed in Spring 1751 and served as an outstation for the larger Fort Niagara until it was abandoned and burned in 1759 (Williamson 2008:56).

Historical maps from the 18th century shed valuable light on the cultural landscape of what would become southern Ontario. H. Popple's *A Map of the British Empire in America* (1733), for example, shows the Neutral and Huron Nations destroyed by the Haudenosaunee ca. 1650, and also demonstrates the ephemeral environmental impact of the mobile Anishinabeg (see Map 9).

#### *1.2.2.5 Relations and Ambitions*

The late 17th and early 18th centuries bore witness to the continued growth and spread of the fur trade across all of what would become the Province of Ontario. The French, for example, established and maintained trading posts along the Upper Great Lakes, offering enticements to attract fur traders from the First Nations. Even further north, Britain's Hudson Bay Company dominated the fur trade. Violence was common between the two parties, and peace was only achieved with the Treaty of Utrecht in 1713 (Ray 2014). Developments such as these resulted in an ever-increasing level of contact between European traders and local Aboriginal communities.

As the number of European men living in Ontario increased, so too did the frequency of their relations with Aboriginal women. Male employees and former employees of French and British companies began to establish families with these women, a process which resulted in the ethnogenesis of a distinct Aboriginal people: the Métis. Comprised of the descendants of those born from such relations (and subsequent intermarriage), the Métis emerged as a distinct Aboriginal people during the 1700s (MNO 2015).

Métis settlements developed along freighting waterways and watersheds, and were tightly linked to the spread and growth of the fur trade. These settlements were part of larger regional communities, connected by "the highly mobile lifestyle of the Métis, the fur trade network, seasonal rounds, extensive kinship connections and a shared collective history and identity" (MNO 2015).

In 1754, hostilities over trade and the territorial ambitions of the French and the British led to the Seven Years' War (often called the French and Indian War in North America), in which many Anishinabeg bands fought on behalf of the French. After the French surrender in 1760, these bands adapted their trading relationships accordingly, and formed a new alliance with the British (Smith 1987:22). In addition to cementing British control over the Province of Quebec, the Crown's victory over the French also proved pivotal in catalyzing the Euro-Canadian settlement process. The resulting population influx caused the demographics of many areas to change considerably.

R. Sayer and J. Bennett's *General Map of the Middle British Colonies in America* (1776) provides an excellent view of the ethnic landscape of southern Ontario prior to the widespread arrival of European settlers (see Map 10). This map clearly depicts Grand and Humber Rivers, the territory of the Ojibway, and the virtually untouched lands of what would soon become southern Ontario.

### *1.2.3 The Euro-Canadian Era*

#### *1.2.3.1 British Colonialism*

With the establishment of absolute British control came a new era of land acquisition and organized settlement. In the *Royal Proclamation* of 1763, which followed the Treaty of Paris, the British government recognized the title of the First Nations to the land they occupied. In essence, the 'right of soil' had to be purchased by the Crown prior to European settlement (Lajeunesse 1960:cix). Numerous treaties and land surrenders were accordingly arranged by the

Crown, and great swaths of territory were acquired from the Ojibway and other First Nations. These first purchases established a pattern "for the subsequent extinction of Indian title" (Gentilcore and Head 1984:78).

The first land purchases in Ontario took place along the shores of Lake Ontario and Lake Erie, as well as in the immediate 'back country'. Such acquisitions began in August 1764, when a strip of land along the Niagara River was surrendered by Six Nations, Chippewa and Mississauga chiefs (NRC 2010). Although many similar territories were purchased by the Crown in subsequent years, it was only with the conclusion of the American Revolutionary War (1775–1783) that the British began to feel a pressing need for additional land. In the aftermath of the conflict, waves of United Empire Loyalists came to settle in the Province of Quebec, driving the Crown to seek out property for those who had been displaced. This influx had the devastating side effect of sparking the slow death of the fur trade, which was a primary source of income for many First Nations groups.

By the mid-1780s, the British recognized the need to 1) secure a military communication route from Lake Ontario to Lake Huron other than the vulnerable passage through Niagara, Lake Erie and Lake St. Clair; 2) acquire additional land for the United Empire Loyalists; and 3) modify the administrative structure of the Province of Quebec to accommodate future growth. The first two concerns were addressed through the negotiation of numerous 'land surrenders' with Anishinabeg groups north and west of Lake Ontario, and the third concern was mitigated by the establishment of the first administrative districts in the Province of Quebec.

On July 24, 1788, Sir Guy Carleton, Baron of Dorchester and Governor-General of British North America, divided the Province of Quebec into the administrative districts of Hesse, Nassau, Mecklenburg and Lunenburg (AO 2011). The vicinity of the study area fell within the Nassau District at this time, which consisted of a massive tract of land extending due north from the head of Bay of Quinte in the east and the tip of Long Point on Lake Erie in the west. According to early historians, "this division was purely conventional and nominal, as the country was sparsely inhabited … the necessity for minute and accurate boundary lines had not become pressing" (Mulvany et al. 1885:13).

Further change came in December 1791, when the Parliament of Great Britain's *Constitutional Act* created the Provinces of Upper Canada and Lower Canada from the former Province of Quebec. Colonel John Graves Simcoe was appointed as Lieutenant-Governor of Upper Canada, and he became responsible for governing the new province, directing its settlement and establishing a constitutional government modelled after that of Britain (Coyne 1895:33).

Simcoe initiated several schemes to populate and protect the newly-created province, employing a settlement strategy that relied on the creation of shoreline communities with effective transportation links between them. These communities, inevitably, would be composed of lands obtained from the First Nations, and many more purchases were subsequently arranged. In July 1792, Simcoe divided the province into 19 counties consisting of previously-settled lands, new lands open for settlement and lands not yet acquired by the Crown. These new counties stretched from Essex in the west to Glengarry in the east. Three months later, in

October 1792, an Act of Parliament was passed whereby the four districts established by Lord Dorchester were renamed as the Western, Home, Midland and Eastern Districts (AO 2011).

The vicinity of the study area nominally fell within the boundaries of the Home District at this time, and was bordered to the west and east by the respective ridings of York County (AO 2011). Technically, this area remained in the hands of Mississaugas, and was therefore not open for Euro-Canadian settlement. D.W. Smyth's *A Map of the Province of Upper Canada* (1800) clearly shows the layout of the earliest townships at the west end of Lake Ontario, as well as the territory of the Mississaugas (see Map 11).

#### *1.2.3.2 Halton and Peel Counties*

Shortly after the creation of Upper Canada, the original arrangement of the province's districts and counties was deemed inadequate. As population levels increased, smaller administrative bodies became desirable, resulting in the division of the largest units into more 'manageable' components. The first major changes in the vicinity of the study area took place in 1798, when an Act of Parliament called for the realignment of the Home and Western Districts and the formation of the London and Niagara Districts. Many new counties and townships were subsequently created (AO 2011).

The vicinity of the study area nominally became part of York County's West Riding in the Home District at this time (AO 2011), although the lands still belonged to the Mississaugas. The Aboriginal title to these lands was soon sought by the Crown, however, particularly due to the exponential growth of York (the seat of government) and the influx of Euro-Canadian settlers along the shore of Lake Ontario. In 1805, Lieutenant-Governor Peter Hunter decided that it was time to arrange for the surrender of the 'Mississauga Tract'. Hunter saw this time as ideal for the commencement of negotiations, as Joseph Brant was no longer the land agent for the Mississaugas (NRC 2010).

These dealings culminated with what is known as the First Purchase of the Mississauga Tract. The First Purchase (Treaty 13A, or the Mississauga Purchase) involved a meeting between William Claus, Deputy Superintendent of Indian Affairs, and the Mississaugas on August 1, 1805 near the mouth of the Credit River (NRC 2010). After long negotiations, the Mississaugas surrendered approximately 29,970 ha along the shore of Lake Ontario (save for a 1.6 km strip on either side of the river) in exchange for goods valued at 1,000 pounds and the right to retain their fishery sites (Surtees 1994:110; Heritage Mississauga 2009a). This tract was subsequently surveyed and became the southern parts of the Townships of Toronto, Trafalgar and Nelson. J. Purdy's *A Map of Cabotia* (1814) shows the layout of the first townships in this area, as well as the remaining lands that would become Halton and Peel Counties (see Map 12).

Eventually, as even smaller units of government became desirable, the Home and Niagara Districts were further divided. In 1816, large parts of York and Haldimand Counties were reincorporated as the newly-formed Halton and Wentworth Counties in the Gore District. The vicinity of the study area was divided between York County's West Riding and Halton County at this time. Halton County comprised the Townships of Beverley, West and East Flamborough, Nelson and Trafalgar, as well as numerous Crown Lands, Church Lands and

Reserve Lands (see Map 13). By 1817, the Gore District had 6,684 inhabitants (the majority of which were United Empire Loyalists), 18 grist mills and 41 saw mills (Cumming 1971:54).

Between 1815 and 1824, heavy immigration from the Old World resulted in the doubling of the non-Aboriginal population of Upper Canada from 75,000 to 150,000. This dramatic increase was a result of the outcome of the War of 1812 and the Crown's efforts to populate the province's interior (Surtees 1994:112). In order to obtain additional lands for settlement at the western end of Lake Ontario, the Crown negotiated the Second Purchase of the Mississauga Tract on October 28, 1818 (Treaty 19, the 'Ajetance Purchase'). Over 243,000 ha were acquired in this transaction, and the subject lands were divided amongst the Townships of Toronto, Trafalgar, Nelson, Chinguacousy, Caledon, Albion, Toronto Gore, Esquesing, Nassagaweya, Erin, Eramosa and Garafraxa (see Map 14). On February 28, 1820, the signing of Treaties 22 and 23 resulted in the surrender of the majority of the Credit Reserve lands (Heritage Mississauga 2009a).

As the first township surveyed in what would become Peel County, the Township of Toronto was the best settled. By 1821, the township had a population of 803, and 1,183 ha had been cleared for agricultural purposes. These numbers are far greater than those found in the neighbouring townships: Chinguacousy and Toronto Gore had only 412 people and 93 ha cleared, Albion had 110 people and 25 ha cleared, and Caledon had 100 people with no record of the amount of cleared land (PHC 2000:84). The Townships of Garafraxa, Erin, Eramosa, Esquesing, Nassagaweya, Guelph and Puslinch were formally added to Halton County in 1821 (AO 2011).

The original settlers in what would become Peel County had to deal with an extensive wilderness, but the numerous waterways provided power for early mills, and eventually a road pattern emerged that was augmented by the arrival of the rail lines. The earliest arrivals included settlers from New Brunswick, America and parts of Upper Canada, who settled in the Township of Toronto ca. 1810. Later arrivals (after the Second Purchase) consisted largely of Irish from New York. Chinguacousy was settled mainly by United Empire Loyalists, whereas the other townships were populated by immigrating Europeans (PHC 2000:84–85).

In the 1830s and early 1840s, the layout of what would become southern Ontario was significantly altered through the creation of the Huron, Brock, Wellington, Talbot and Simcoe Districts (AO 2011). The Townships of Puslinch, Guelph, Eramosa, Erin and Garafraxa were transferred to the newly-formed Wellington District at this time, as were the Townships of Waterloo, Woolwich, Pilkington and Nichol. Halton County comprised the Townships of Esquesing, Trafalgar, Nassagaweya, Nelson, Flamborough, Beverly and Dumfries during this period of change, whereas York County's 'Second Riding' consisted of the Townships of Caledon, Albion, Chinguacousy, Toronto Gore and Toronto (see Map 15). In February 1841, Halton and York Counties became part of Canada West in the new United Province of Canada.

The principal settlements in Halton County included the Town of Milton, the Town of Oakville, and the Villages of Georgetown, Burlington and Acton (Cumming 1971:54). The administrative heart of the future Peel County, on the other hand, was located in Brampton. Other key centres included Port Credit (a marketing centre on Lake Ontario), Streetsville (which had a well-known grist mill) and Bolton (on the Humber River). Other small villages and communities were located at Cooksville, Malton, Churchville, Meadowvale, Caledon and Alton (PHC 2000:4–5).

The principal road in the area was Dundas Street, which passed through the Townships of Toronto and Trafalgar from northeast to southwest and was gravelled as early as 1836.

Following the abolition of the district system in 1849, the counties of Canada West were reconfigured once again (see Map 16). The boundaries of Halton and York Counties were largely redefined: the southernmost townships of Halton were transferred to Wentworth County as compensation for losses associated with the formation of Brant County, and Peel and Ontario Counties were created at the western and eastern ends of York County, respectively. For the remainder of the Euro-Canadian era, Halton County consisted of the Townships of Trafalgar, Nelson, Esquesing and Nassagaweya (see Map 17), and Peel County comprised the Townships of Caledon, Albion, Chinguacousy, Toronto and Toronto Gore (see Map 18).

#### *1.2.3.3 Township of Esquesing*

The historic Township of Esquesing was bordered by the Township of Chinguacousy to the northeast, the Township of Erin to the northwest, the Township of Nassagaweya to the southwest, and the Township of Trafalgar to the southeast. The earliest settlers here enjoyed a favourable environmental setting: the land was well-watered by the Credit River and its tributaries, and it was richly forested with pine timber. According to one historic source, the township was named after this "magnificent pine timber … the word signifying in the Indian tongue, 'The Land of the Tall Pines'" (Cumming 1971:55).

The first Euro-Canadian settlers arrived in the township ca. 1819, after the Second Purchase of the Mississauga Tract. The majority of these settlers were emigrants from the British Isles, and prominent families included the Humes, McDonalds, McPhersons, McColls, Standishs, Reeds, Watkinses, Nickells, Frazers, Stewarts, Laidlaws, Dobbies, Neilsons, Campbells, Barbours, Kennedys, Robertsons and Swackhammers. The population of the township reached 424 by 1821 (Cumming 1971:55).

Many early settlers in the Township of Esquesing arrived via the York Road, which ran from York to Guelph and was opened as far as Georgetown by 1832. This road passed diagonally through the township, and it "served as the leading thoroughfare to which all the other roads were directed" (Cumming 1971:55). The first post office (Esquesing) was established along 7$^{th}$ Line on Lot 9, Concession 7, but it was later moved to Stewarttown ca. 1840. The Norval post office was also established ca. 1840 (Cumming 1971:55).

By the mid-19$^{th}$ century, a total of 23,225 ha had been taken up in the township, 7,947 ha of which were under cultivation. A total of four grist mills and eleven saw mills were in operation by 1846 (Smith 1846:56). The Grand Trunk Railway was built across the northern part of the township in the 1850s, and the Hamilton & Northwestern Railway was established through the centre of the township in the 1870s. The population of Esquesing reached 6,000 by 1877, excluding Georgetown and Acton (Cumming 1971:55).

The most prominent historic communities in the Township of Esquesing included Georgetown, Acton, Stewarttown, Limehouse, Hornby, Norval, Glenwilliams, Ballinafad, Silver Creek, Ashgrove, Speyside and Peru (see Map 21–Map 22).

Georgetown developed on the banks of the Credit River and was first settled by George Kennedy in 1820. Prior to 1837, there were only three families living in this area: the Goodenows, the Garrisons and the Kennedys. The Barber brothers arrived in 1837 and built several woollen mills. Known as 'Hungry Hollows' for a short time, Georgetown subsequently emerged as "one of the most enterprising villages of its size in the Province" (Cumming 1971:57). By 1846, the village had a population of approximately 700 and contained a grist mill, a saw mill, a cloth factory, two tanneries, two stores, a foundry, an ashery, a chair factory, a tavern, three wagon makers, a cabinet maker, four blacksmiths, two tailors and three shoemakers (Smith 1846:63). By 1877, the population of Georgetown reached 1,500, and the community boasted dozens of prominent businesses, many of which made use of the Credit River and its tributaries to supply power for "energetic manufacturers" (Cumming 1971:57).

Stewarttown, located on the west branch of the Credit River, was one of the first villages to develop in Halton County. This settlement served as a key centre of trade prior to the arrival of the Grand Trunk Railway and the resulting economic shift towards Georgetown. By 1877, Stewarttown had a population of over 200 and contained a steam saw mill, a flour mill, a saw and shingle mill, a tannery, a saddle and harness maker, a builder, a blacksmith, a brick school house, two churches, a public hall, a Drill Shed (No. 2 Company, 20th Battalion), three lodges, and the Esquesing post office (Cumming 1971:55).

Limehouse, situated on the Grand Trunk Railway, was renowned for its lime works and stone quarries. This area was first settled by the Hulls and Merediths, and in 1840, Mr. Clendenning acquired the property and named the settlement 'Fountain Green'. The first lime kilns were then built by Bescoby & Worthington and Lindsay & Farquhar. In 1857, the Bescoby & Worthington kilns were purchased by Gowdy & Moore, and Mr. Farquhar bought out Mr. Lindsay's share of their company. In 1877, Gowdy & Moore operated six kilns, a water lime mill and saw mill, and the Farquhar Limeworks ran four kilns and a free stone quarry. Mr. Newton built a water lime mill in 1850 and a woollen mill in 1862, and in 1872 he began to manufacture mineral/fire-proof paint. By 1877, Limehouse also contained a dry-goods store and an inn (Cumming 1971:55–56).

#### *1.2.3.4 Township of Trafalgar*

In historic times, the Township of Trafalgar was bordered by the Township of Esquesing to the northwest, the Township of Toronto to the northeast, Lake Ontario to the southeast, and the Township of Nelson to the southwest. The land was well-watered by Twelve Mile Creek, Sixteen Mile Creek and their various tributaries (Smith 1846:197). According to Walker & Miles' *Illustrated Historical Atlas of the County of Halton* (1877), the "land throughout the township is generally rolling and the timber, pine and various kinds of hardwood … the soil of the lower part is sandy and of the upper part clay" (Cumming 1971:59).

The first Euro-Canadian settlers arrived in the southern part of the township ca. 1807, "when wild land was selling at seven shillings and six-pence per acre" (Cumming 1971:59). These southern lands comprised the 'Old Survey', whereas the 'New Survey' consisted of the northern lands acquired in 1818 (see Section 1.2.3.2). The concessions in the Old Survey were numbered north and south from Dundas Street, and the lots were numbers from east to west. In the New Survey, however, the concessions were numbered from west to east, and the lots from south to north (Warnock 1862:4).

Prominent early families in the south included the Sovereigns, Proudfoots, Kattings, Freemans, Posts, Biggars, Mulhollands, Kenneys, Chalmers, Albertsons, Chisholms, Sproats, Browns and Hagars. By 1817, the population of the township reached 548, and there were four saw mills and one grist mill in operation (Cumming 1971:59). Richard Bristol surveyed the northern part of the Township of Trafalgar in 1819.

The first post office in the township (Trafalgar P.O.) was established at Post's Corners in 1820, and this was the only post office located between Toronto and Dundas at this time. Mail was carried on horseback along Dundas Street from Toronto to Niagara, and pioneers from as far as Erin journeyed to Trafalgar for their letters. In the early 19th century, there were several different churches in the township and three organized schools. According to one historical source, "the woods were in early times well stocked with deer, bears, game of all kinds, and the streams abounded in fish, particularly salmon … these have all long since disappeared, and in place of the forests are well tilled farms" (Cumming 1971:59).

By the mid-19th century, a total of 28,375 ha had been taken up in the township, 11,404 ha of which were under cultivation. There were 23 saw mills and 7 grist mills in operation at that time (Smith 1846:197). The population of Trafalgar reached 4,513 by 1850, and by 1862 there were three foundries, a woolen factory, a brewery, a tannery, a steam engine and machine works, and a shingle factory in operation (Warnock 1862:14). The 1871 census of Trafalgar, excluding the Towns of Oakville and Milton, enumerated a population of 5,027 (Cumming 1971:59).

The Township of Trafalgar contained numerous historic railways which contributed to the prosperity of the region. The Hamilton & Northwestern Railway traversed the western part of the township on its way from Burlington to Georgetown, and the Hamilton & Toronto Branch of the Great Western Railway traversed the southern part of the township with stations at Bronte and Oakville (Warnock 1862:15). The Credit Valley Railway traversed the northern part of the township from east to west, and was partly finished by 1877 (Cumming 1971:54). In 1883, the Credit Valley Railway was amalgamated with the Ontario & Quebec Railway, which was in turn was leased to the CP Railway in 1884.

The most prominent historic communities in the Township of Trafalgar included Milton, Hornby, Auburn, Boyne, Omagh and Drumquin in the north, and Oakville, Bronte, Palermo, Trafalgar, Munn's Corner and Sheridan in the south (see Map 21–Map 22).

#### *1.2.3.5 Township of Chinguacousy*

The historic Township of Chinguacousy was bordered on the northeast by the Townships of Albion and Toronto Gore, on the south by the Township of Toronto, on the west by the Townships of Esquesing and Erin, and on the north by the Township of Caledon. According to one early source, Chinguacousy was one of the best-settled townships in the Home District, featuring excellent land, many good farms and abundant hardwood (Smith 1846:32). It was relatively well-watered by the Credit River and Etobicoke Creek, which traversed the western and east-central parts of the township, respectively.

The Township of Chinguacousy was initially settled at the same time as the New Survey in 1818. This survey divided the area into western and eastern halves on either side of Hurontario Street (Centre Road), and the concessions were numbered sequentially east and west of the thoroughfare (e.g., Concession 1 WCR and Concession 1 ECR). The majority of the township's first settlers were from New Brunswick, the United States and parts of Upper Canada. Many were the children of United Empire Loyalists who settled in Niagara after the end of the war (PHC 2000:90). By 1821, the combined population of the Townships of Chinguacousy and Toronto Gore was 412, and only 93 ha were under cultivation (PHC 2000:84).

Over the following decades, however, the Township of Chinguacousy developed substantially. By 1841, the population of the township had grown to 3,721. By 1846, the population reached 3,965, and a total of 9,011 ha were under cultivation. At that time there were seven saw mills and one grist mill in the township (Smith 1846:32). Only five years later, in 1851, the population soared to 7,469 (PHC 2000:84). By the late 19th century, the area was characterized by excellent farms, and the township was "noted for its beautiful and substantial farm residences and commodious barns … the farms also are generally in the highest state of cultivation, while the grounds in front of the residences are for the most part tastefully arranged" (PHC 2000:90).

The principal settlement in the township was Brampton, which was incorporated as a village in 1852 and became a town in 1873. This settlement began with the founding of a tavern by William Buffy, and later Judge Scott added a small store, a pot ashery, a distillery and a mill. In 1834, John Elliott laid out the lots in the village, and the settlement was formally named 'Brampton'. It soon became a central settlement in the township, and many new businesses moved to the area. Brampton served as a major market for the region's agricultural products, and developed even further when a Grand Trunk Railway station was opened. By 1877, the Town of Brampton had a population of 2,551 (PHC 2000:87).

Cheltenham was another substantial settlement in the township, but unlike the central Town of Brampton, this community developed along the banks of the Credit River in the northwestern part of the township. This area was first settled in 1820 when Charles Haynes, a millwright who emigrated from England in 1816, arrived in the area. In 1827, Haynes built a grist mill which served the early settlers of the township. Later, Haynes built the larger Cheltenham Mill, and the settlement's first store followed in 1842. The first tavern was built in 1845. By 1877, this village had a population of approximately 350 (PHC 2000:90).

Other important communities developed at Salmonville, Victoria, Campbell's Cross, Kilmanagh, Sand Hill, Mayfield, Edmonton, Alloa, Norval Station, Westervelt's Corners, Woodhill, Springbrook and Huttonville (see Map 23–Map 24). Huttonville, for example, was home to the prosperous mills of J.P. Hutton. The original mills at Huttonville were founded by Mr. Brown in 1848, but J.P. Hutton purchased his business in 1855 and made many improvements. After the purchase, the mills began cutting from 10,000–20,000 feet of lumber per day. By 1877, Huttonville had a population of roughly 150 (PHC 2000:90–91).

#### *1.2.3.6 Township of Toronto*

The historic Township of Toronto was the southernmost township of Peel County, bounded on the northeast by the Township of Etobicoke, on the north by the Gore of Toronto, on the northwest by the Township of Chinguacousy and on the southwest by the Township of Trafalgar. It was the first to be settled due to its proximity to the shore of Lake Ontario, and was divided into two parts: the southern Old Survey (Toronto South) and the northern New Survey (Toronto North).

The Old Survey was conducted in 1806 by Mr. Wilmot, Deputy Surveyor. The first settler was Colonel Thomas Ingersoll, who ran the Government House and a Ferry at Port Credit even prior to 1806. The Government House was erected by the Crown for the purpose of trading with local First Nations. Seven families came to live in the township in 1808, all of which settled along Dundas Street in the Old Survey. Settlement continued to develop up until the War of 1812, and it resumed only after the conclusion of hostilities. The New Survey was carried out in 1819, and resulted in the opening of even more lands for the ever-growing numbers of settlers in the area (PHC 2000:86).

Most of the settlers who arrived at this time were Irish from the city of New York, who left America due to pressure and persecution associated with the war. They sent Joseph Graham and Thomas Reid to evaluate the land, and subsequently 26 Irish families headed for Canada on May 1, 1819. Arriving at Little York, they traveled down Dundas Street to Islington, and then struck out northwest into 'the Bush' to claim lands. Different groups settled near Meadowvale and between Centre Road (Hurontario Street) and Sixth Line (PHC 2000:86).

The Township of Toronto was very well-settled compared to other areas in southern Ontario, as it possessed excellent land and was well-timbered, with pine near the lake and high quality hardwoods further inland. Of the township's 23,985 ha, 11,521 ha were under cultivation by the mid-19$^{th}$ century. Prominent areas of settlement included the villages of Cooksville and Springfield on Dundas Street, and the villages of Streetsville, Churchville and Port Credit on the Credit River (see Map 25–Map 26). The population of the Township of Toronto was approximately 5,377 in 1842, and around that time it had 21 saw mills and 4 grist mills (Smith 1846:192–193). By 1851 the township had grown to 7,539, but by 1871 the population had dropped to 5,974.

The principal village of the Township of Toronto was Streetsville. Streetsville was surveyed in 1819 as part of the New Survey, and was established in quality farming country along the Credit River. The first settlers here were James Glendenning, Frank Lightheart and John Barnhart, the latter of which opened a small store and traded with local Aboriginal groups (PHC 2000:86). By the mid-19$^{th}$ century, Streetsville had about 550 inhabitants, three churches, one court-house, two doctors, two grist mills, three saw mills, one cloth factory, four stores, some forty-five other businesses, and a daily stage run to Toronto (Smith 1846:177).

Port Credit, located at the mouth of the Credit River at a natural good-quality harbour, was established by the government in 1834 as a shipping node for the surrounding area. The construction efforts at Port Credit were jointly funded by Euro-Canadian and First Nations groups, the latter of which owned a warehouse at the port. The original Credit Reserve had been

reduced to roughly 1,862 ha by this time, and the Mississaugas had their own village 3.2 km from port, with a chapel and a school. Port Credit primarily shipped farming produce (e.g., wheat and flour) and lumber, although pork, wool and whiskey were also transported on a more limited scale. The port was home to five schooners by 1846, at which time the village had about 150 inhabitants, two stores, two taverns and four other small businesses (Smith 1846:148–149).

Another major community of the Township of Toronto was Erindale, situated at the crossroads of Dundas Street, Mississauga Road and the Credit River. The first settler here was Thomas Racey, who purchased land in 1822 to build a mill and start a village. Unfortunately, Racey was unable to meet his payments, and he was forced to sell the land to other settlers. The village subsequently began to grow, and a saw mill, a flour mill, a post office and a church were established. The village was first named Toronto but quickly became known as Credit, and by the mid-1830s, the area was known as Springfield, and later Springfield-on-the-Credit. Erindale was chosen in 1890, named after the estate of a local Reverend of Irish descent (Mississauga Heritage 2009).

The community of Whaley's Corners, located in the northwestern corner of the township, developed at the intersection of Winston Churchill Boulevard (Town Line) and Steeles Avenue. Settlement began here when a wealthy American purchased land in the early 1800s to set up a colony for American citizens. The project was abandoned around the time of the War of 1812, however, and the land was sold to various United Empire Loyalists, many of whom were from Ireland. One early settler was William Whaley, who acquired land in both Toronto and Esquesing ca. 1819. After the establishment of the plank road along Town Line, a toll gate was added to Whaley's Corners (operated by William Alexander). In 1827, land was purchased for a cemetery to the north, and a church was built a short time later. The church was later rebuilt, and became known as the Mount Zion Methodist Church. The church closed in 1905, and the church and cemetery were auctioned off in 1918. The community also contained an inn (Whaley's Inn), an Orange Hall, a blacksmith shop and an ashery (Heritage Mississauga 2009b).

#### *1.2.3.7 The Study Area*

As discussed in Section 1.1, the study area falls on part of Lots 1–6, Concession 11 in the Geographic Township of Esquesing and Lots 13–15, Concession 11 in the Geographic Township of Trafalgar (former Halton County), and part of Lots 1–6, Concession 6 WCR in the Geographic Township of Chinguacousy and Lots 13–15, Concession 6 WCR in the Geographic Township of Toronto (former Peel County). The lots in this area were laid out during the early 19th century, and the vicinity of the study area was well-settled for the remainder of the Euro-Canadian period.

In an attempt to reconstruct the historic land use of the study area, ARA examined six historical maps that documented past residents, structures (e.g., homes, businesses and public buildings) and features during the mid- and late 19th centuries. Specifically, the following maps were consulted:

- G.C. Tremaine's *Tremaine's Map of the County of Halton, Canada West* (1858) at a scale of 50 chains to 1 inch;

- G.R. Tremaine's *Tremaine's Map of the County of Peel, Canada West* (1859) at a scale of 50 chains to 1 inch;
- the *Southern Part of Esquesing* from Walker & Miles' *Illustrated Historical Atlas of Halton County* (1877) at a scale of 40 chains to 1 inch;
- the *Northern Part of Trafalgar* from Walker & Miles' *Illustrated Historical Atlas of Halton County* (1877) at a scale of 40 chains to 1 inch;
- the *Southern Part of Chinguacousy* from Walker & Miles' *Illustrated Historical Atlas of the County of Peel* (1877) at a scale of 40 chains to 1 inch; and
- the *North Part of Toronto* from Walker & Miles' *Illustrated Historical Atlas of the County of Peel* (1877) at a scale of 40 chains to 1 inch.

Georeferenced views of these historical maps, showing the study area, appear in Map 27–Map 32 (University of Toronto 2009b; McGill University 2001).

These sources indicate that every lot and concession in the vicinity of the study area was settled by the late 1850s, and they also provide useful information concerning public buildings and prominent natural features in the area. The names of the historically-attested residents within the study area (and any additional relevant details) are summarized in Table 1.

**Table 1: Euro-Canadian Residents within or adjacent to the Subject Parcels**
**(University of Toronto 2009b; McGill University 2001)**

| Lot | Concession | Township | Property Owner (1858/1859) | Property Owner (1877) | Features or Structures (1877) |
|---|---|---|---|---|---|
| 1 | 11 | Esquesing | John Whaley | John Whaley | Structures and blacksmith shop southwest of study area; Whaley's Corners |
| | | | | Mrs. M.A. Whaley | Residential property within study area; Whaley's Corners |
| 2 | 11 | Esquesing | Mrs. M. Switzer | James A. Switzer | Homestead and orchard southwest of study area |
| | | | William Switzer | Samuel F. Switzer | Homestead and orchard southwest of study area |
| 3 | 11 | Esquesing | F. Kent | Francis Kent | Homestead and orchard southwest of study area |
| | | | Estate of William Kent | William R. Kent | None |
| 4 | 11 | Esquesing | Andrew Kyle | Thomas Black | Homestead and orchard southwest of study area |
| | | | J. Humphreys | John Humphreys | Homestead and orchard within the study area |
| 5 | 11 | Esquesing | William Early | Estate of William Early | Homestead and orchard southwest of study area |
| 6 | 11 | Esquesing | James Miller | James N. Miller | Homestead and orchard within the study area |
| 1 | 6 WCR | Chinguacousy | R. Nichols | R. Nichols | Homestead and orchard within study area |
| | | | William Alexander | William Alexander | Homestead and orchard within study area; church and cemetery, Whaley's Corners |
| 2 | 6 WCR | Chinguacousy | Henry May | Mrs. May | Homestead and orchard northeast of study area |
| 3 | 6 WCR | Chinguacousy | Francis Kent Esq. | William Kent | Homestead and orchard northeast of study area |

| Lot | Concession | Township | Property Owner (1858/1859) | Property Owner (1877) | Features or Structures (1877) |
|---|---|---|---|---|---|
| 4 | 6 WCR | Chinguacousy | John Hyatt | William Hyatt | Homestead and orchard northeast of study area |
| 5 | 6 WCR | Chinguacousy | John Miller | John Miller | Homestead and orchard within the study area |
| 6 | 6 WCR | Chinguacousy | William McDonald | Jonathan H. Miller | Homestead and orchard within the study area; Centreville structures |
| 13 | 11 | Trafalgar | Amos Kindre | William Justin | Homestead and orchard southwest of study area |
| 14 | 11 | Trafalgar | Jeremiah Hustler | J. Hustler | Homestead and orchard southwest of study area |
| 15 | 11 | Trafalgar | Joshua Switzer | Joshua Switzer | Homestead and orchard southwest of study area |
| 13 | 6 WCR | Toronto | Martin Justin | Martin Justin | Homestead and orchard northeast of study area |
| 14 | 6 WCR | Toronto | John McClure | John McClure | Homestead and orchard northeast of study area |
| 15 | 6 WCR | Toronto | John Ballard | William Haimen | Homestead northeast of study area; Whaley's Corners; Orange Hall northeast of study area |

ARA also consulted a historic aerial image from 1954 to gain a better understanding of the study area's more recent land use (see Map 33). The subject lands comprised primarily agricultural properties along Winston Churchill Boulevard at that time, and numerous homesteads are visible (University of Toronto 2009a).

### *1.2.4 Summary of Past and Present Land Use*

During Pre-Contact and Early Contact times, the vicinity of the study area would have comprised a mixture of deciduous trees and open areas. It seems clear that the First Nations managed the landscape to some degree, but the extent of such management is unknown. During the early 19th century, Euro-Canadian settlers arrived in the area and began to clear the forests for agricultural purposes. Over the course of the Euro-Canadian era, this locality would have comprised primarily agricultural lands along Town Line (modern Winston Churchill Boulevard) and the historic communities of Centreville and Whaley's Corners. Presently, the study area comprises parts of the Winston Churchill Boulevard, Embleton Road, 5th Side Road, Steeles Avenue, Highway 407, Meadowpine Boulevard and Highway 401 ROWs, as well as parts of adjacent residential, agricultural and commercial properties (comprising a variety of paved driveways, parking lots, grassed areas and/or cultivated fields).

### *1.2.5 Additional Background Information*

In the course of previous archaeological work conducted in the vicinity of the study area, additional research concerning local settlement history and land use was carried out. In accordance with the requirements set out in Section 7.5.7 of the *S&Gs* (MTC 2011:125), the title, author and PIF number of two related works appears below:

- Title: *Stage 1 Archaeological Assessment, Highway 401 Widening from East of the Credit River to Trafalgar Road, Class Environmental Assessment, Region of Peel and Region of Halton, Ontario.* Author: URS. PIF #P088-031-2010 (URS 2012).
- Title: *Stage 2 Archaeological Assessment, Steeles Avenue Improvements: Part Lot 15, Con. XI (EBR), Trafalgar Township, Halton; Part Lot 15, Con. VI (WHS), Toronto Township, Peel; Part Lot 1 Con. VI (WHS), Chinguacousy Township, Peel; Part Lot 1, Con. V (WHS), Chinguacousy Township, Peel; Part Lot 15, Con. IV (WHS), Toronto Township, Peel; Part Lot 1, Con. III (WHS), Chinguacousy Township, Peel; Part Lot 1, Conc. III (WHS), Chinguacousy Township, Peel, Ontario.* Author: AMEC. PIF #P141-0199-2013 (AMEC 2014).

The additional information included in 2012 report was considered during the archaeological potential modelling and formulation of recommendations pertaining to archaeological concerns within the study area (see Section 2.0). The 2014 report could not be provided by the MTCS, and therefore could not be directly consulted.

## 1.3 Archaeological Context

### *1.3.1 Previous Archaeological Work*

In order to determine whether any archaeological assessments had been previously conducted within the limits of, or immediately adjacent to the study area, ARA submitted an inquiry to the Archaeology Data Coordinator (MTCS 2014) and conducted extensive independent background research. As a result of these investigations, it was determined that there are two reports on record documenting past work within 50 m, only one of which could be provided by the MTCS. In accordance with the requirements set out in Section 7.5.8 of the *S&Gs* (MTC 2011:125), the assessment and its associated recommendations are summarized below.

In September and October 2010, URS conducted a Stage 1 assessment for proposed improvements to Highway 401 under licence #P088, PIF #P088-031-2010 (URS 2012). The 9.7 km long study corridor considered numerous lots and concessions in the Geographic Townships of Esquesing, Trafalgar, Toronto and Chinguacousy, and was conducted as part of a Transportation Corridor Class Environmental Assessment from east of the Credit River to Trafalgar Road. URS determined that the study area comprised a mixture of areas of archaeological potential and areas of no archaeological potential (e.g., the Highway 401 ROW), and recommended that a Stage 2 assessment be conducted in all areas outside the Highway 401 ROW that have not been previously assessed (URS 2012:5, 8, 15). The southern part of the subject study area is traversed by URS's Stage 1 study area, and parts of it were recommended for Stage 2 assessment (URS 2012:Figure 5).

### *1.3.2 Summary of Registered or Known Archaeological Sites*

An archival search was conducted using the MTCS's Ontario Archaeological Sites Database in order to determine the presence of any registered archaeological resources which might be located within a 1 km radius of the study area (MTCS 2014). The results of this search indicate that there is one registered site within these limits. The general characteristics of the site are summarized in Table 2.

**Table 2: Registered or Known Archaeological Sites within 1 km**

| Borden No. | Site Name | Year(s) Assessed | Cultural Affiliation | Site Type | Comments |
|---|---|---|---|---|---|
| AjGw-63 | Junction | 1985 (Mayer) | Undetermined Pre-Contact | Campsite | A 30 x 20 m lithic scatter with 1 side scraper, 2 flakes and 1 hammerstone; no further work recommended. |

AjGw-63 is not located within or immediately adjacent to the study area. Regardless, the presence of one registered site in the vicinity of the study area demonstrates the desirability of this locality for early settlement and resource exploitation.

### *1.3.3 Natural Environment*

Environmental factors played a substantial role in shaping early land-use and site selection processes, particularly in small Pre-Contact societies with non-complex, subsistence-oriented economies. Euro-Canadian settlers also gravitated towards favourable environments, particularly those with agriculturally-suitable soils. In order to fully comprehend the archaeological context of the study area, the following four features of the local natural environment must be considered: 1) forests; 2) drainage systems; 3) physiography; and 4) soil types.

The study area lies within the deciduous forest, which is the southernmost forest region in Ontario and is dominated by agricultural and urban areas. This region generally has the greatest diversity of tree species, while at the same time having the lowest proportion of forest. It has most of the tree and shrubs species found in the Great Lakes–St. Lawrence forest (e.g., eastern white pine, red pine, eastern hemlock, white cedar, yellow birch, sugar and red maple, basswood, red oak, black walnut, butternut, tulip, magnolia, black gum, and many types of oaks and hickories), and also contains black walnut, butternut, tulip, magnolia, black gum, many types of oaks, hickories, sassafras and red bud. The deciduous forest region has the most diverse forest life in Ontario, including rare species such as the southern flying squirrel, red-bellied woodpecker, black rat snake, milk snake and gray tree frog (MNRF 2014).

With an area of almost 3,000,000 ha, the deciduous forest region has largely been cleared, and only scattered woodlots remain on sites too poor for agriculture (MNRF 2014). In Pre-Contact times, however, these dense forests would have been particularly bountiful. It is believed that the First Nations of the Great Lakes region exploited close to 500 plant species for food, beverages, food flavourings, medicines, smoking, building materials, fibres, dyes and basketry (Mason 1981:59–60). Furthermore, this diverse vegetation would have served as both home and food for a wide range of game animals, including white tailed deer, turkey, passenger pigeon, cottontail rabbit, elk, muskrat and beaver (Mason 1981:60).

In terms of local drainage systems, the study area lies within the Levi Creek subwatershed in the north and the Mullet Creek subwatershed in the south, both of which comprise part of the Credit River watershed. The Credit River watershed drains an area of 1,000 sq. km and consists of nearly 1,500 km worth of tributaries (CVCA 2015). Specifically, the study area is traversed by multiple tributaries of Levi's Creek in the north and a tributary of Mullet Creek in the south, is adjacent to the Levi's Creek Wetland Complex Provincial Marsh in the northeast, and is located 4.0 km southwest of the Credit River.

Physiographically, the study area lies in the region known as the Peel Plain, which stretches across the central parts of Regional Municipalities of York, Peel and Halton. This plain is characterized by level-to-undulating clay soils which slope gradually toward Lake Ontario (Chapman and Putnam 1984:174–175). These physiographic elements have accumulated over red shale bedrock belonging to the Upper Ordovician Queenston formation (Davidson 1989:42).

A wide variety of soil types occur within the study area, including Bottomland soils, Chinguacousy clay loam, Fox sandy loam and Jeddo clay loam. The specific characteristic of the soil types, such as parent materials, drainage qualities and topography, are summarized in Table 3 (Hoffman and Richards 1953: Soil Map; Gillespie et al. 1971:Soil Map).

**Table 3: Summary of Soil Types**

| Soil Code | Soil Type | Great Soil Group | Parent Materials | Drainage Qualities | Topography and Surface Stoniness |
|---|---|---|---|---|---|
| B.L. | Bottomland Soils | Alluvial | Alluvial | Variable | Variable; variable |
| Chc/Ch | Chinguacousy clay loam | Grey-Brown Podzolic | Heavy textured till (shale and limestone) | Imperfect | Smooth, gently sloping; few stones |
| Fsl | Fox sandy loam | Grey-Brown Podzolic | Well sorted outwash (sandy) | Good | Smooth, gently sloping; stonefree |
| Jc | Jeddo clay loam | Dark Grey Gleisolic | Heavy textured till (shale and limestone) | Poor | Smooth, very gently sloping; few stones |

In summary, the study area possesses a number of environmental characteristics which would have made it attractive to both Pre-Contact and Euro-Canadian populations. The rich deciduous forest and the nearby waterways would have attracted a wide variety of game animals, and consequently, early hunters. The areas of well-drained soils would have been suitable for the maize horticulture of Middle to Late Woodland peoples and the mixed agriculture practiced by later Euro-Canadian populations. Finally, the proximity of the study area to the Credit River would also have influenced its settlement and land-use history. Such major waterways functioned as principal transportation routes in both Pre- and Post-Contact times.

### *1.3.4 Archaeological Fieldwork and Property Conditions*

The Stage 1 assessment was carried out in November 2014 under licence #P007, PIF #P007-0678-2014. A property inspection was conducted on November 25, 2014, which involved the visual survey of all areas of no archaeological potential. All field observations were made from accessible non-private lands; accordingly, no permissions were required for property access. Key personnel included P.J. Racher, Project Director; C.E. Gohm, Operations Manager; C.J. Gohm, Deliverables Manager; V. Cafik, Assistant Project Manager; and J. Haxell, Field Director.

As discussed in Section 1.2.4, the study area currently comprises parts of the Winston Churchill Boulevard, Embleton Road, 5th Side Road, Steeles Avenue, Highway 407, Meadowpine Boulevard and Highway 401 ROWs, as well as parts of adjacent residential, agricultural and commercial properties (comprising a variety of paved driveways, parking lots, grassed areas and/or cultivated fields). No unusual physical features were encountered during the property inspection that affected the results of the Stage 1 assessment.

# 2.0 STAGE 1 BACKGROUND STUDY

## 2.1 Summary

The Stage 1 assessment, conducted under licence #P007, PIF #P007-0678-2014, was accomplished through an examination of the archaeology, history, geography and current land condition of the vicinity of the study area. This background study was carried out using archival sources (e.g., historical publications and records) and current academic and archaeological publications (e.g., archaeological studies and reports). It also included the analysis of modern topographic maps (at a 1:50,000 scale), recent satellite imagery, and historical maps/atlases of the most detailed scale available (50 chains to 1 inch and 40 chains to 1 inch).

With occupation beginning in the Palaeo-Indian period approximately 11,000 years ago, the greater vicinity of the study area comprises a complex chronology of Pre-Contact and Euro-Canadian histories (see Section 1.2). Evidence of Archaic period, Woodland period and Early Contact period remains are well-attested in the Regional Municipalities of Halton and Peel, and Euro-Canadian archaeological sites dating to pre-1900 and post-1900 contexts are likewise common. The presence of one registered site in the vicinity of the study area demonstrates the desirability of this locality for early settlement and resource exploitation (see Section 1.3.2).

As mentioned in Section 1.3.3, the natural environment of the study area would have been attractive to both Pre-Contact and Euro-Canadian populations as a result of proximity to several water sources (Levi Creek and Mullet Creek). The areas of well-drained soils and the diverse local vegetation would also have encouraged settlement throughout Ontario's lengthy history. Euro-Canadian populations would have been particularly drawn to Winston Churchill Boulevard (historic Town Line), Steeles Avenue and Embleton Road, all of which were historically-surveyed thoroughfares, as well as the early settlements of Centreville and Whaley's Corners.

In summary, the Stage 1 assessment included an up-to-date listing of sites from the MTCS's Ontario Archaeological Sites Database (within at least a 1 km radius), the consideration of previous local archaeological fieldwork (within at least a 50 m radius), the analysis of topographic and historic maps (at the most detailed scale available), and the study of aerial photographs/satellite imagery. In this manner, the standards for background research set out in Section 1.1 of the *S&Gs* (MTC 2011:14–15) were met.

## 2.2 Field Methods (Property Inspection)

In order to gain first-hand knowledge of the geography, topography and current condition of the study area, a property inspection was conducted on November 25, 2014. Although optional, Section 1.2 of the *S&Gs* (MTC 2011:15–17) outlines the appropriateness of such an option when a greater level of detail is needed to recommend further assessment strategies. All field observations were made from accessible non-private lands; accordingly, no permissions were required for property access. Environmental conditions were ideal during the property inspection, with cloudy skies, a high of -10 °C and very good lighting. ARA therefore confirms that fieldwork was carried out under weather and lighting conditions that met the requirements set out in Section 1.2 Standard 2 of the *S&Gs* (MTC 2011:16).

Given the size of the study area, the lands were subjected to random spot-checking rather than a systematic inspection at a set interval, in accordance with the requirements set out in Section 1.2 of the *S&Gs* (MTC 2011:15–16). The visually surveyed areas were examined under ideal weather and lighting conditions with high ground surface visibility. ARA utilized a Garmin GPSMAP 64S high-sensitivity WAAS-enabled GPS receiver with GLONASS support (using the UTM17 NAD83 coordinate system) for recording photograph locations during the assessment.

The property inspection confirmed that all features of potential (e.g., watercourses, natural land formations, etc.) were present where they were previously identified, and identified no additional features of archaeological potential not visible on mapping (e.g., relic water channels, patches of well-drained soils, etc.). One cemetery was identified within the study area: the Mount Zion Cemetery located just south of 8149 Winston Churchill Boulevard (north of Whaley's Corners). According to the City of Brampton's plaque, the last of possibly three Methodist churches on the property closed in 1905, was sold at auction in 1918 and subsequently removed. Several other municipally-designated properties were also encountered (see below). The property inspection resulted in the identification of numerous disturbed areas, which are discussed in Section 2.3.

## 2.3 Analysis and Conclusions

In addition to the relevant historical sources and the results of past excavations and surveys (see Section 1.2–Section 1.3), the archaeological potential of a property can be assessed using its soils, hydrology and landforms as considerations. What follows is an in-depth analysis of the archaeological potential of the study area, which incorporates the results of the property inspection conducted in November 2014.

Throughout southern Ontario, scholars have noted a strong association between site locations and waterways. Young, Horne, Varley, Racher and Clish, for example, state that "either the number of streams and/or stream order is always a significant factor in the positive prediction of site presence" (1995:23). They further note that certain types of landforms, such as moraines, seem to have been favoured by different groups throughout prehistory (Young et al. 1995:33). According to Janusas (1988:1), "the location of early settlements tended to be dominated by the proximity to reliable and potable water resources." Site potential modeling studies (Peters 1986; Pihl 1986) have found that most prehistoric archaeological sites are located within 300 m of either extant water sources or former bodies of water, such as post-glacial lakes.

While many of these studies do not go into detail as to the basis for this pattern, Young, Horne, Varley, Racher and Clish (1995) suggest that the presence of streams would have been a significant attractor for a host of plant, game and fish species, encouraging localized human exploitation and settlement. Additionally, lands in close proximity to streams and other water courses were highly valued for the access they provided to transportation and communication routes. Primary water sources (e.g., lakes, rivers, streams and creeks) and secondary water sources (e.g., intermittent streams and creeks, springs, marshes and swamps) are therefore of pivotal importance for identifying archaeological potential (MTC 2011:17).

Section 1.3.1 of the *S&Gs* (MTC 2011:17–18) emphasizes the following six features and characteristics as being additional indicators of positive potential for Pre-Contact archaeological materials: 1) features associated with extinct water sources (glacial lake shorelines, relic river channels, shorelines of drained lakes, etc.); 2) the presence of pockets of well-drained soils (for habitation and agriculture); 3) elevated topography (e.g. drumlins, eskers, moraines, knolls, etc.); 4) distinctive landforms that may have been utilized as spiritual sites (waterfalls, rocky outcrops, caverns, etc.); 5) proximity to valued raw materials (quartz, ochre, copper, chert outcrops, medicinal flora, etc.); and 6) accessibility of plant and animal food sources (spawning areas, migratory routes, prairie lands, etc.).

Conversely, it must be understood that non-habitational sites (e.g., burials, lithic quarries, kill sites, etc.) may be located anywhere. Potential modeling appears to break down when it comes to these idiosyncratic sites, many of which have more significance than their habitational counterparts due to their relative rarity. The Stage 1 archaeological assessment practices outlined in Section 1.4.1 of the *S&Gs* (MTC 2011:20–21) ensure that these important sites are not missed, as no area can be exempted from further work unless it has been subjected to a Stage 1 property inspection or Stage 2 property survey.

With the development of integrated 'complex' economies in the Euro-Canadian era, settlement tended to become less dependent upon local resource procurement/production and more tied to wider economic networks. As such, proximity to transportation routes (roads, canals, etc.) became the most significant predictor of site location, especially for Euro-Canadian populations. In the early Euro-Canadian era (pre-1850), when transport by water was the norm, sites tended to be situated along major rivers and creeks—the 'highways' of their day. With the opening of the interior of the province to settlement after about 1850, sites tended to be more commonly located along historically-surveyed roads. Section 1.3.1 of the *S&Gs* (MTC 2011:18) recognizes trails, passes, roads, railways and portage routes as examples of such early transportation routes.

In addition to transportation routes, Section 1.3.1 of the *S&Gs* (MTC 2011:18) emphasizes three other indicators of positive potential for Euro-Canadian archaeological materials: 1) areas of early settlement (military outposts, pioneer homesteads or cabins, early wharfs or dock complexes, pioneer churches, early cemeteries, etc.); 2) properties listed on a municipal register, designated under the *Ontario Heritage Act* or otherwise categorized as a federal, provincial or municipal historic landmark/site; and 3) properties identified with possible archaeological sites, historical events, activities or occupations, as identified by local histories or informants.

Based on the location, drainage and topography of the subject lands and the application of land-use modelling, it seems clear that the study area, in its pristine state, would have potential for both Pre-Contact and Euro-Canadian archaeological sites. Local indicators of archaeological potential include two primary water sources (Levi Creek and Mullet Creek), three historically-surveyed roadways (Town Line/Winston Churchill Boulevard, Embleton Road and Steeles Avenue), two historic areas of settlement (Centreville and Whaley's Corners) and four municipally-registered properties (Mount Zion Cemetery and 8693 Winston Churchill Boulevard in the City of Brampton, and 8656 Winston Churchill Boulevard and 9118 Winston Churchill Boulevard in the Town of Halton Hills).

In its current state, however, the study area retains only part of this archaeological potential. Section 2.1 of the *S&Gs* (MTC 2011:28) states that only those lands that 1) are sloped greater than 20°, 2) are permanently wet, 3) consist of exposed bedrock or 4) have been subject to extensive and deep land alterations can be considered exempt from requiring Stage 2 assessment. These guidelines serve as effective criteria for identifying areas of no archaeological potential.

ARA's property inspection, coupled with the analysis of modern satellite imagery and topographic mapping, resulted in the identification of several areas of disturbance within the assessed area. Specifically, deep land alterations have resulted in the removal of archaeological potential from 1) the roadway platforms, embankments, culverts and ditches within the Embleton Road, Winston Churchill Boulevard, Steeles Avenue, Highway 407, Meadow Pine Boulevard and Highway 401 ROWs and 2) the extant residential and commercial buildings (e.g., Maple Lodge Farms, the Churchill Business Community) and their associated paved driveways/parking lots (see Image 1–Image 6). The remainder of the assessed area either has potential for Pre-Contact and Euro-Canadian archaeological materials or requires test-pitting to confirm disturbance.

Based on the results of the visual survey, the study area comprises a mixture of areas of archaeological potential and areas of no archaeological potential. In total, 56.16% (43.08 ha) of the study area was found to have archaeological potential and 43.84% (33.63 ha) was identified as disturbed. The identified areas of archaeological potential and areas of no archaeological potential (separated by class or category) are depicted in Map 34–Map 35.

# 3.0 RECOMMENDATIONS

The results of the assessment indicated that the study area currently comprises a mixture of areas of archaeological potential and areas of no archaeological potential (see Map 34–Map 35). ARA recommends that all areas of archaeological potential that could be impacted by the project be subject to a Stage 2 property assessment in advance of construction.

In accordance with the requirements set out in Section 2.1 of the *S&Gs* (MTC 2011:28–39), the following assessment strategies should be utilized:

- For recently cultivated or actively cultivated lands, the assessment must be conducted using the pedestrian survey method at an interval of ≤ 5 m. All ground surfaces must be recently ploughed, weathered by one heavy rainfall, and provide at least 80% visibility. If archaeological materials are encountered in the course of the pedestrian survey, the transect interval must be closed to 1 m and a close inspection of the ground must be conducted for 20 m in all directions.
- For lands where ploughing is not possible or viable (e.g., wooded areas; pasture with high rock content; abandoned farmland with heavy brush and weed growth; and gardens, parkland or lawns which will remain in use for several years after the survey), the assessment must be conducted using the test pit survey method. A test pit survey interval of ≤ 5 m is required in all areas less than 300 m from any feature of archaeological potential, and a test pit survey interval of ≤ 10 m is required in all areas more than 300 m from any feature of archaeological potential. Each test pit must be excavated into the first 5 cm of subsoil, and the resultant pits must be examined for stratigraphy, cultural features and/or evidence of fill. The soil from each test pit must be screened through mesh with an aperture of no greater than 6 mm and examined for archaeological materials.

The identified areas of no archaeological potential are not recommended for further assessment. It is requested that this report be entered into the *Ontario Public Register of Archaeological Reports*, as provided for in Section 65.1 of the *Ontario Heritage Act*.

# 4.0 ADVICE ON COMPLIANCE WITH LEGISLATION

Section 7.5.9 of the *Standards and Guidelines for Consultant Archaeologists* requires that the following information be provided for the benefit of the proponent and approval authority in the land use planning and development process (MTC 2011:126–127):

- 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 Ministry of Tourism, Culture and Sport, a letter will be issued by the ministry stating that there are no further concerns with regard to alterations to archaeological sites by the proposed development.
- It is an offence under Sections 48 and 69 of the *Ontario Heritage Act* for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed archaeological fieldwork on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeology Reports referred to in Section 65.1 of the *Ontario Heritage Act*.
- Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48 (1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48 (1) of the *Ontario Heritage Act*.
- The *Cemeteries Act*, R.S.O. 1990 c. C.4 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 and the Registrar of Cemeteries at the Ministry of Consumer Services.

# 5.0 IMAGES

**Image 1: Area of No Archaeological Potential – Disturbed**
**(Photo Taken on November 25, 2014; Facing Southeast)**

**Image 2: Area of No Archaeological Potential – Disturbed**
**(Photo Taken on November 25, 2014; Facing Northwest)**

**Image 3: Area of No Archaeological Potential – Disturbed**
**(Photo Taken on November 25, 2014; Facing Northwest)**

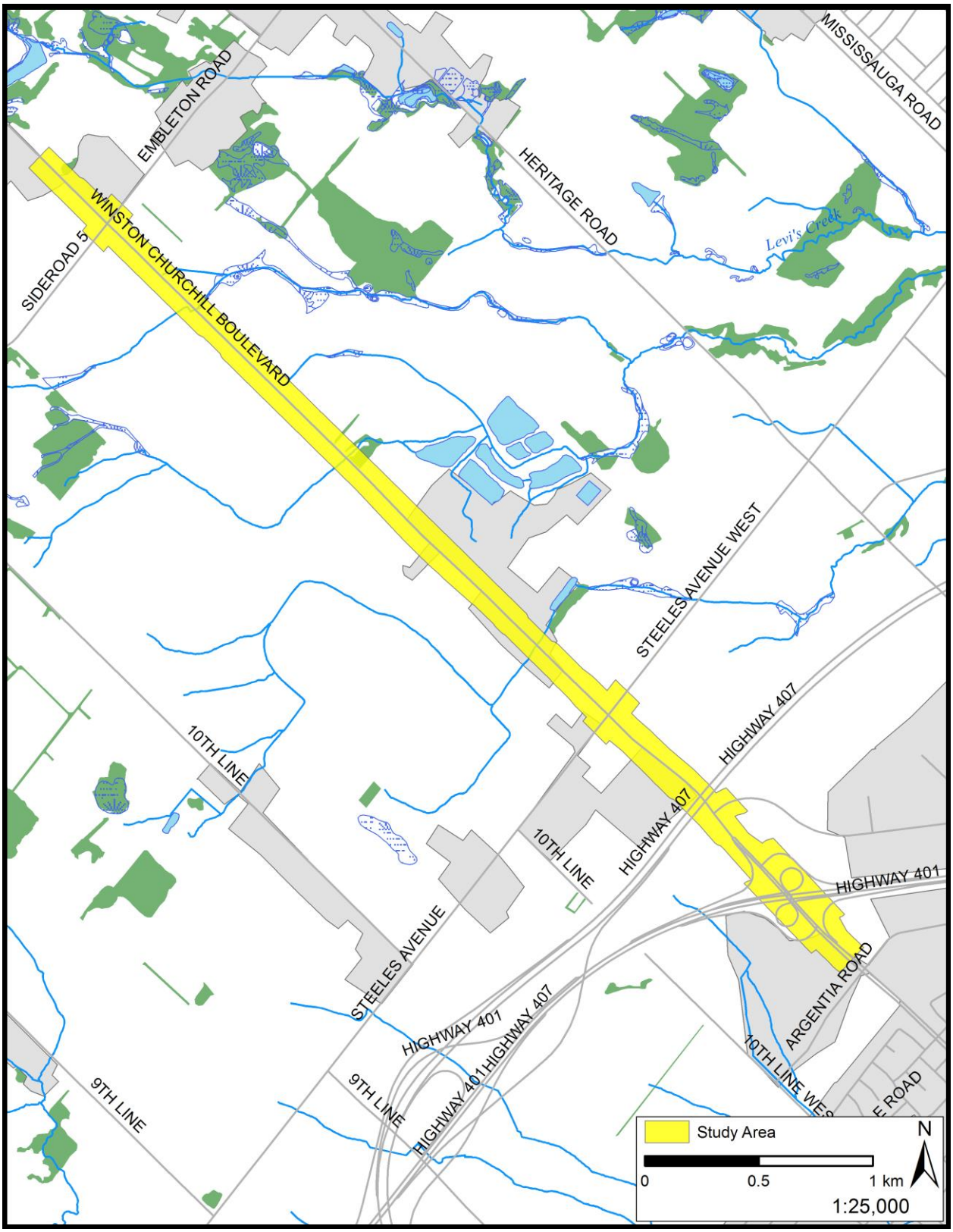
**Image 4: Area of No Archaeological Potential – Disturbed**
**(Photo Taken on November 25, 2014; Facing Northwest)**

**Image 5: Area of No Archaeological Potential – Disturbed**
**(Photo Taken on November 25, 2014; Facing Southeast)**

**Image 6: Area of No Archaeological Potential – Disturbed**
**(Photo Taken on November 25, 2014; Facing Northwest)**

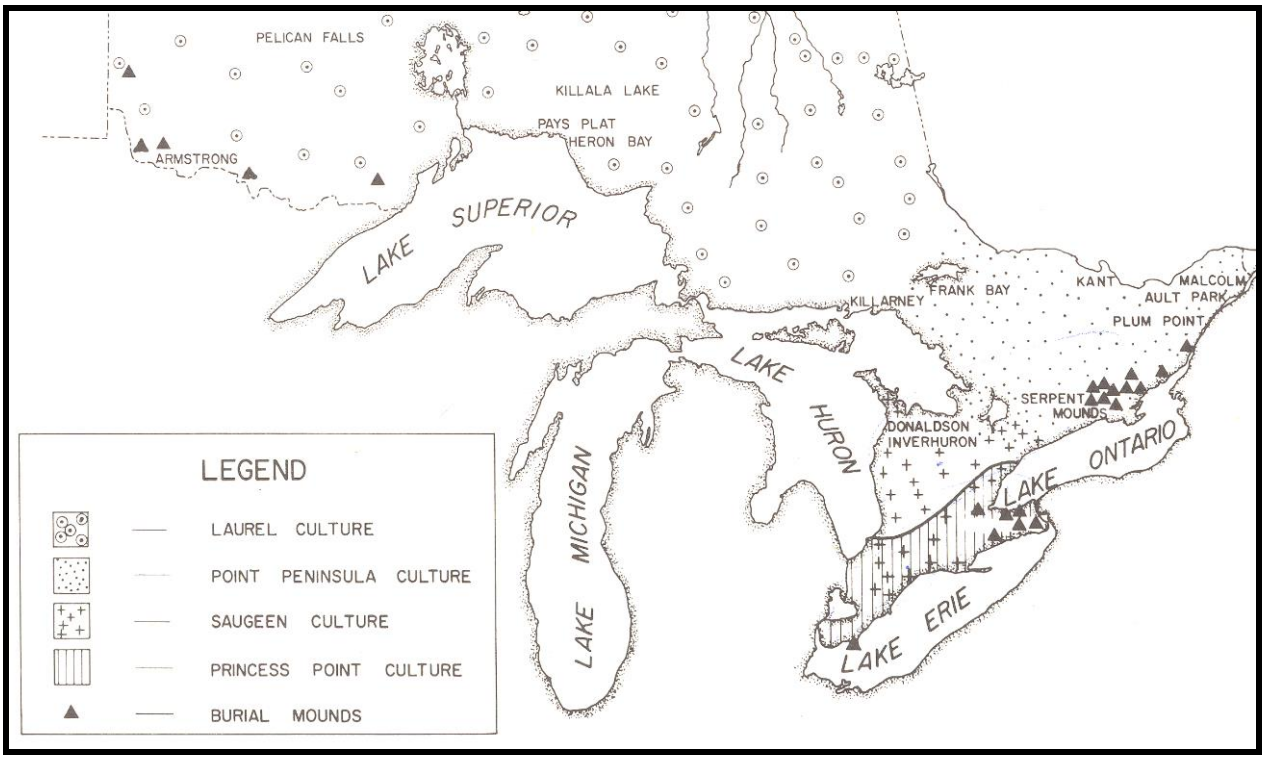
# 6.0 MAPS


**Map 1: Location of the Study Area in the Province of Ontario**
**(NRC 2002)**

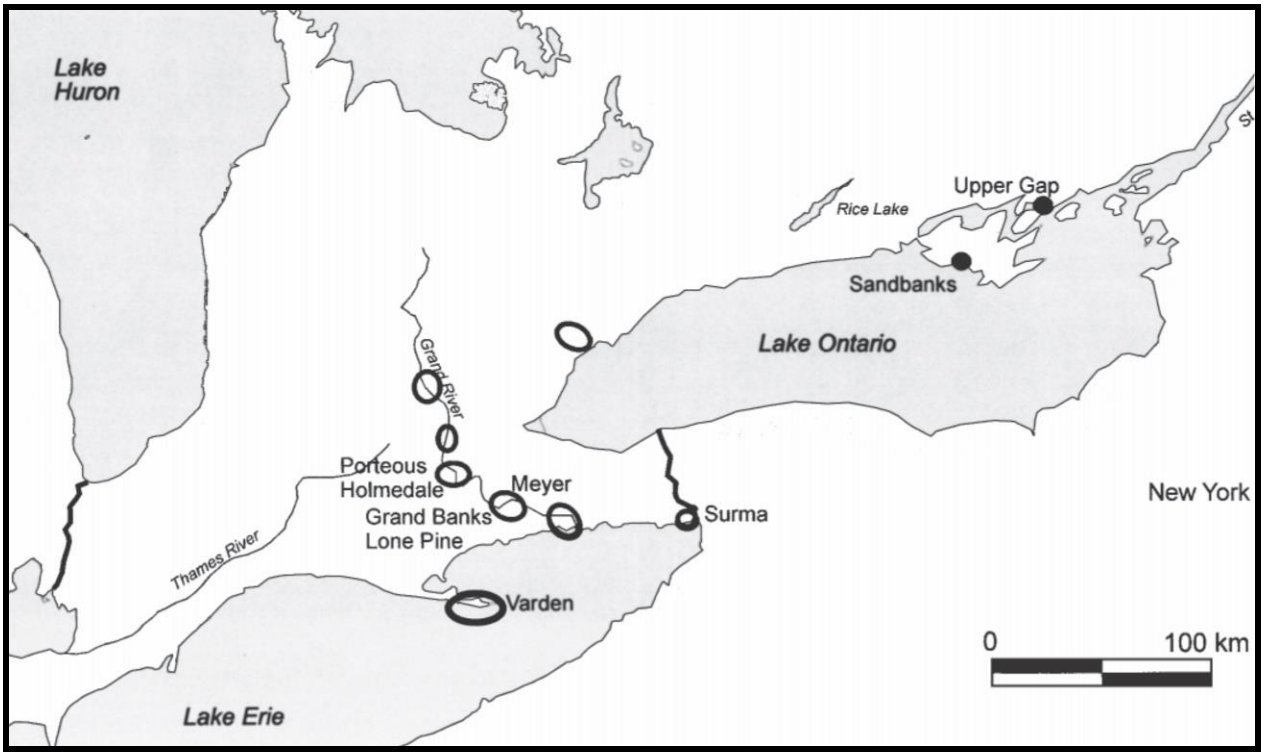



**Map 2: Location of the Study Area in the Town of Halton Hills, City of Mississauga and City of Brampton**

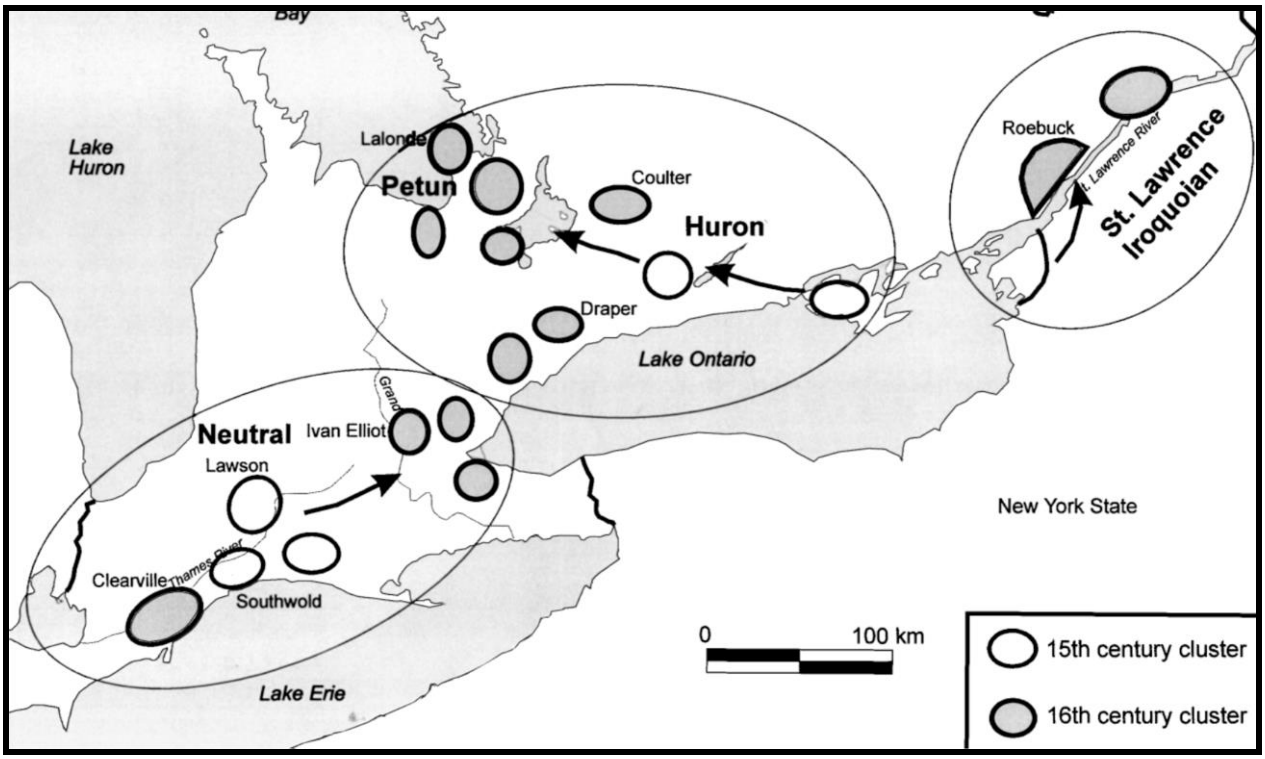
**(Produced by ARA under licence from Ontario MNRF, © Queen's Printer 2015)**




**Map 3: Middle Woodland Period Complexes**
**(Wright 1972:Map 4)**



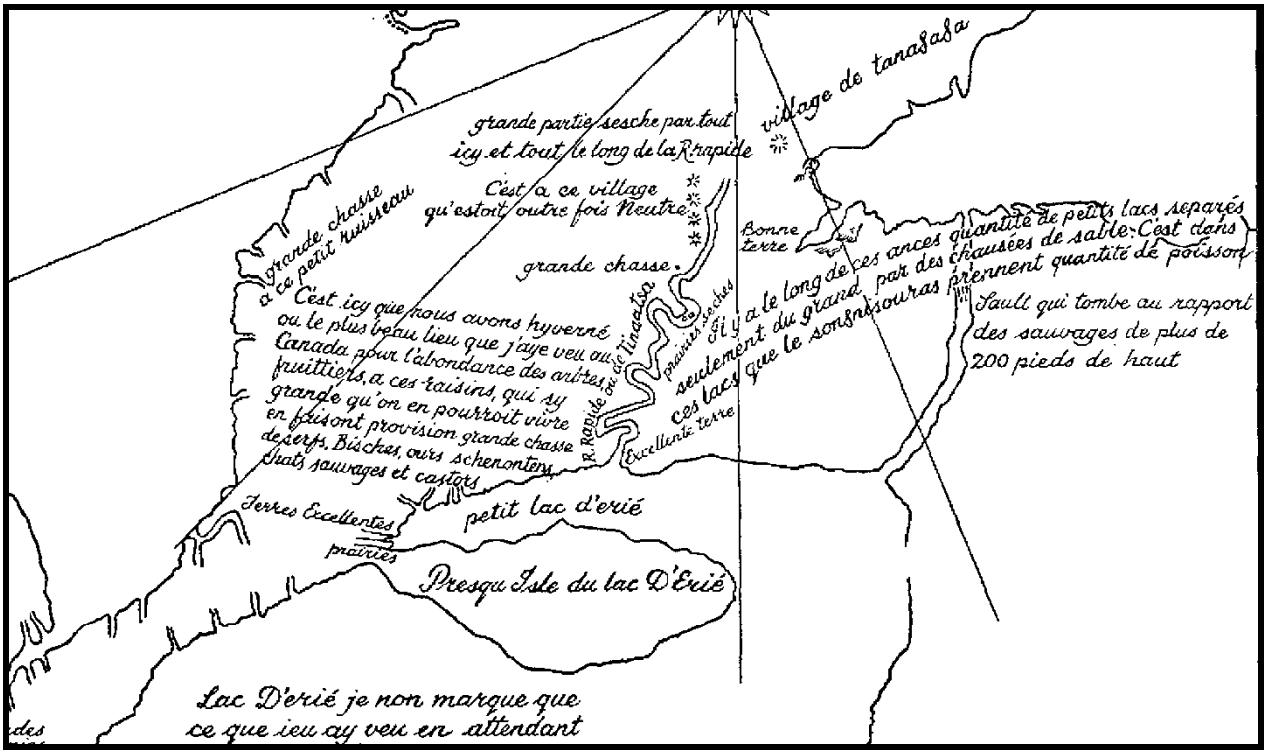

**Map 4: Princess Point Site Clusters**
**(Warrick 2000:Figure 3)**




**Map 5: Pre-Contact Iroquoian Site Clusters**
**(Warrick 2000:Figure 10)**


**Map 6: Detail from S. de Champlain's *Carte de la Nouvelle France* (1632)**
**(Gentilcore and Head 1984:Map 1.2)**

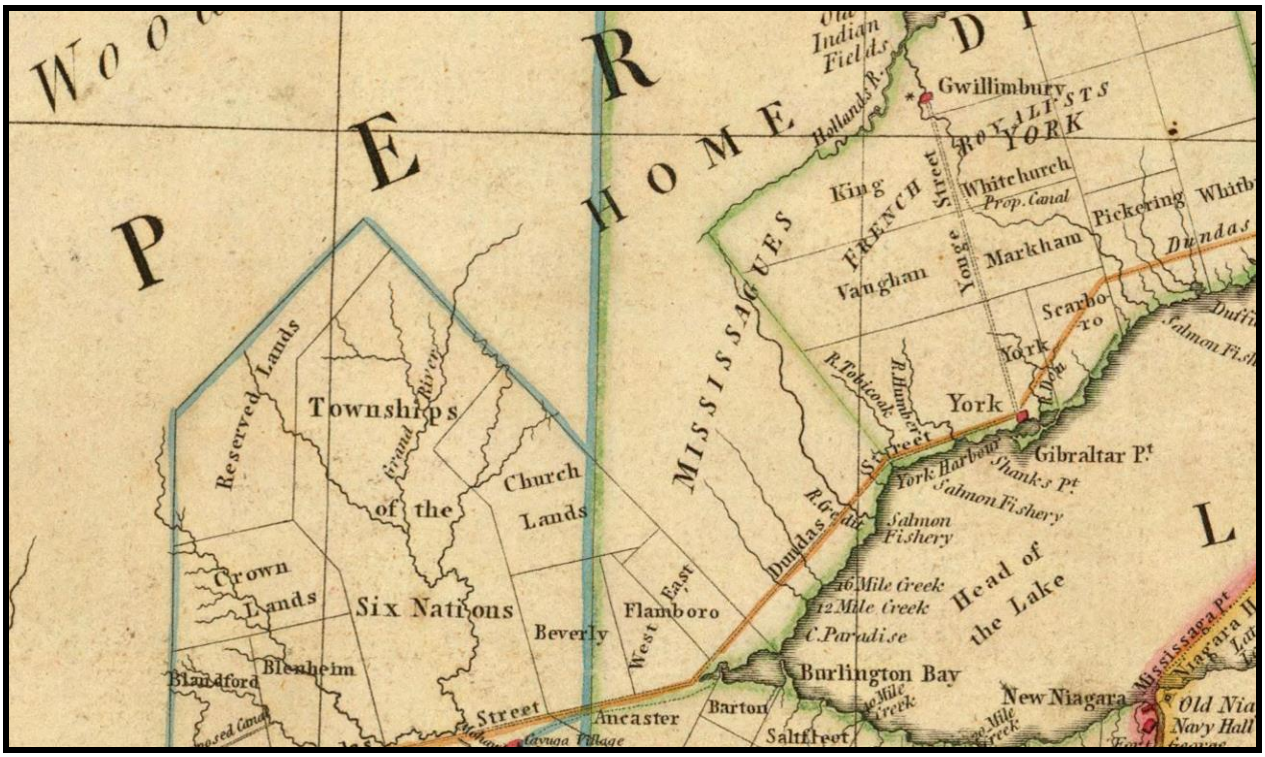

**Map 7: Detail from N. Sanson's *Le Canada, ou Nouvelle France* (1656)**
**(Gentilcore and Head 1984:Map 1.10)**




**Map 8: Detail from the Map of Galinée's Voyage (1670)**
**(Lajeunesse 1960:Map 2)**

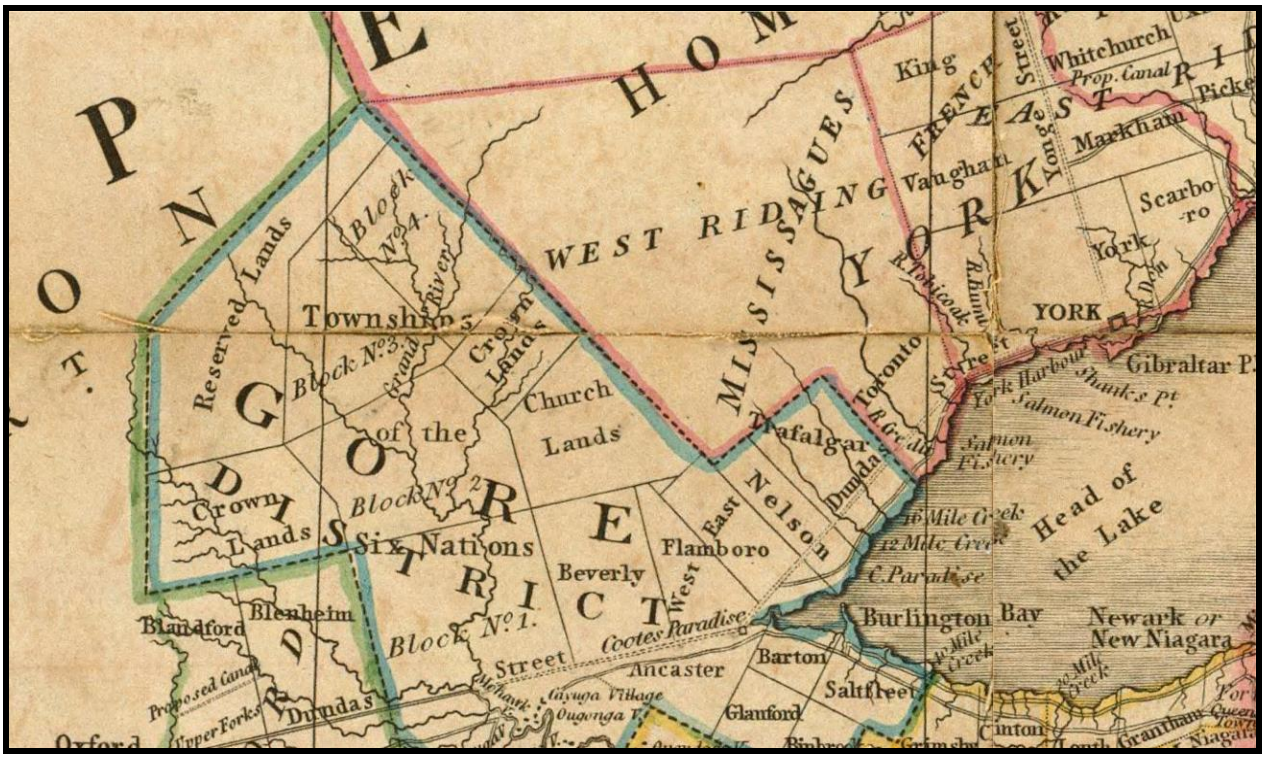

**Map 9: Detail from H. Popple's *A Map of the British Empire in America* (1733)**
**(Cartography Associates 2009)**


**Map 10: Detail from R. Sayer and J. Bennett's *General Map of the Middle British Colonies in America* (1776)**
**(Cartography Associates 2009)**



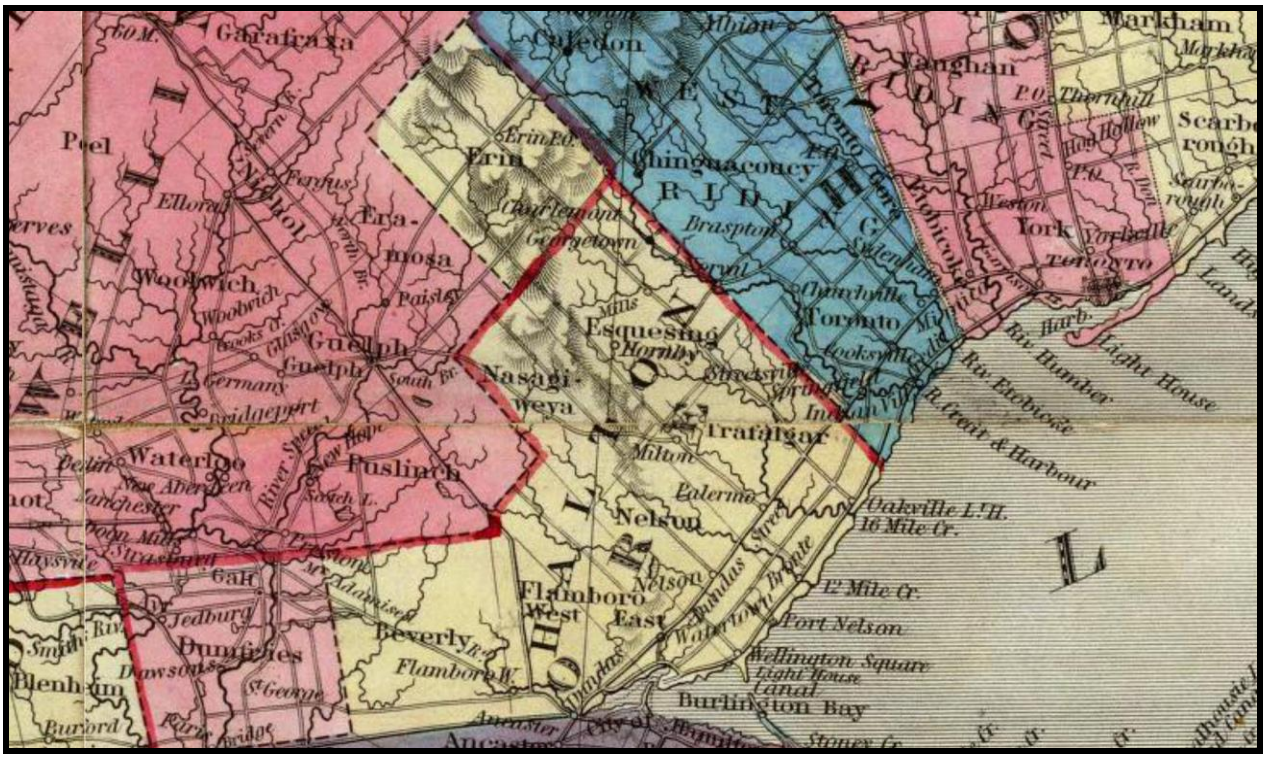

**Map 11: Detail from D.W. Smyth's *A Map of the Province of Upper Canada* (1800)**
**(Cartography Associates 2009)**


**Map 12: Detail from J. Purdy's *A Map of Cabotia* (1814)**
**(Cartography Associates 2009)**

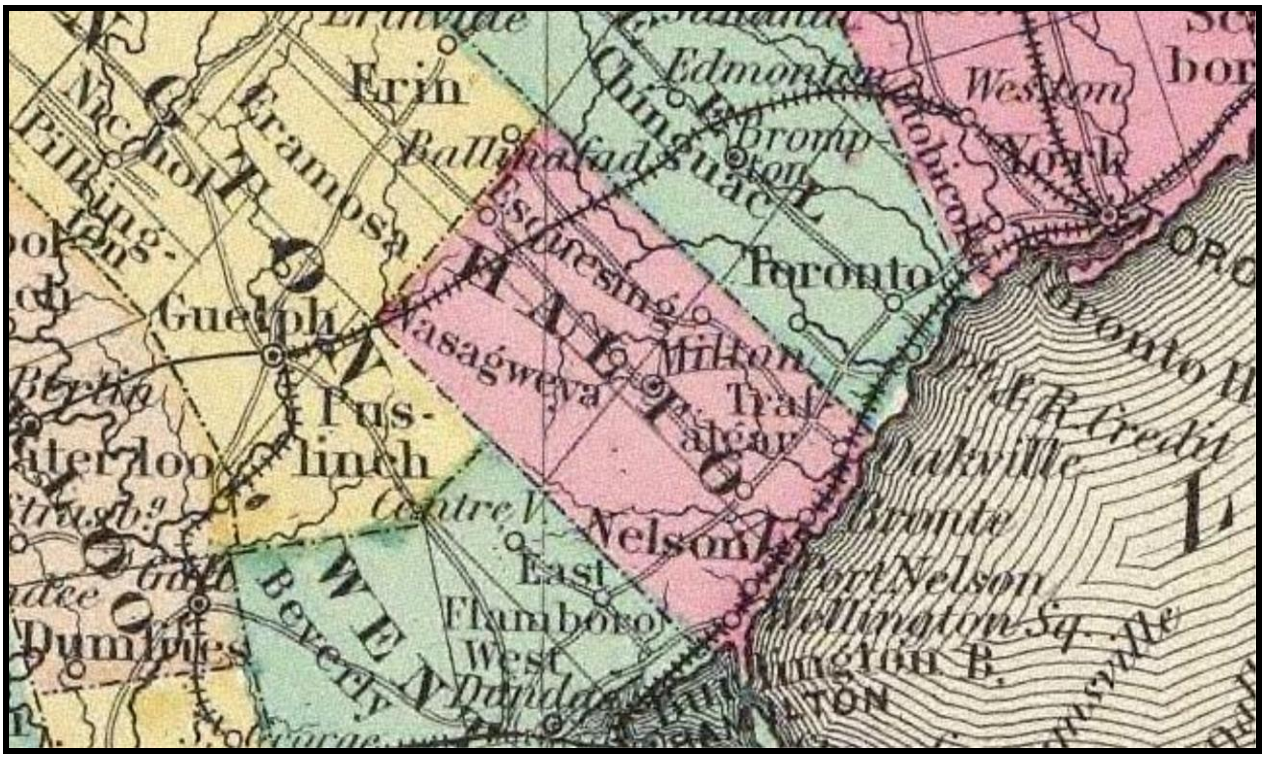



**Map 13: Detail from D.W. Smyth's *A Map of the Province of Upper Canada, 2nd Edition* (1818)**
**(Cartography Associates 2009)**

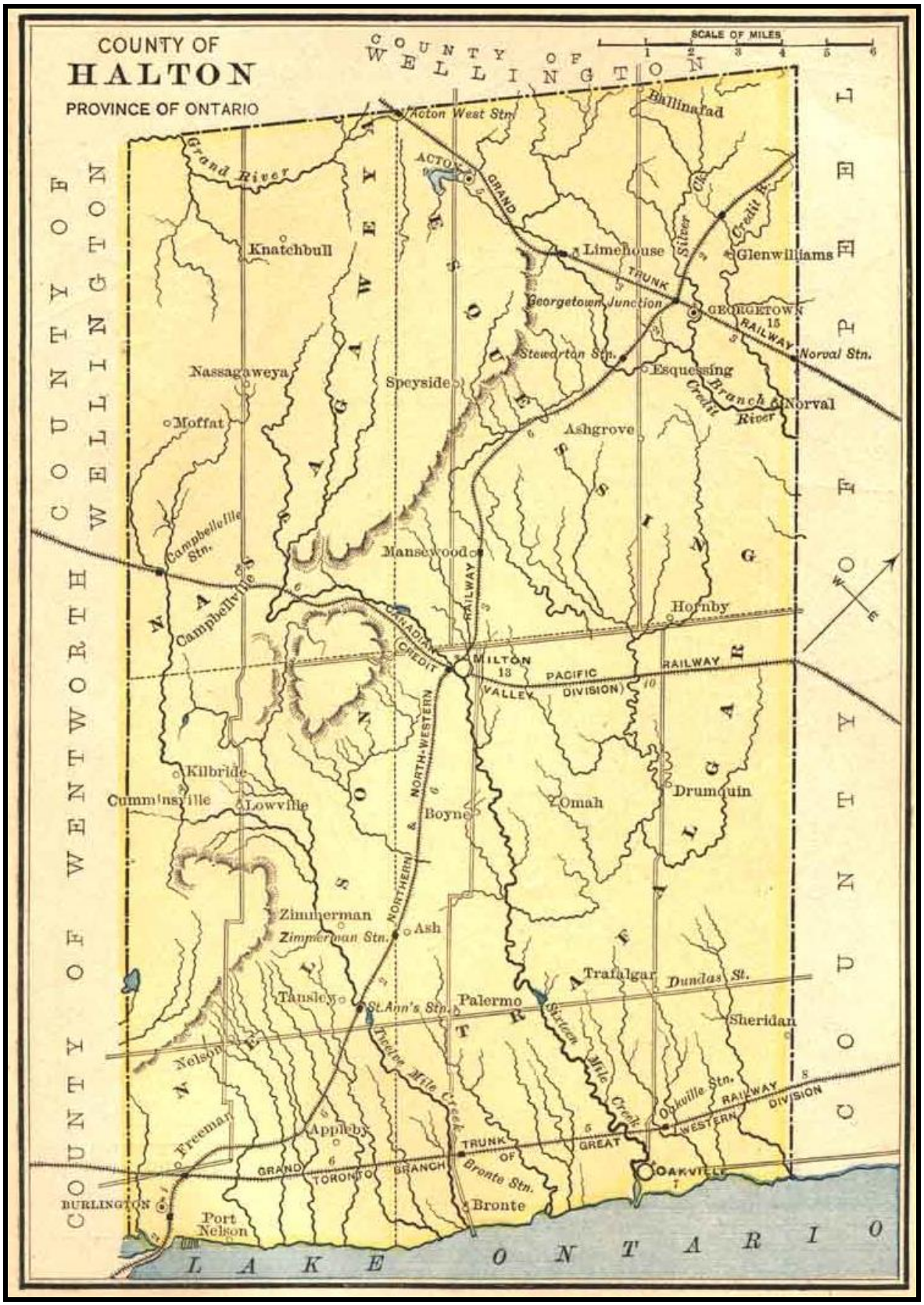

**Map 14: Detail from J. Arrowsmith's *Upper Canada* (1837)**
**(Cartography Associates 2009)**



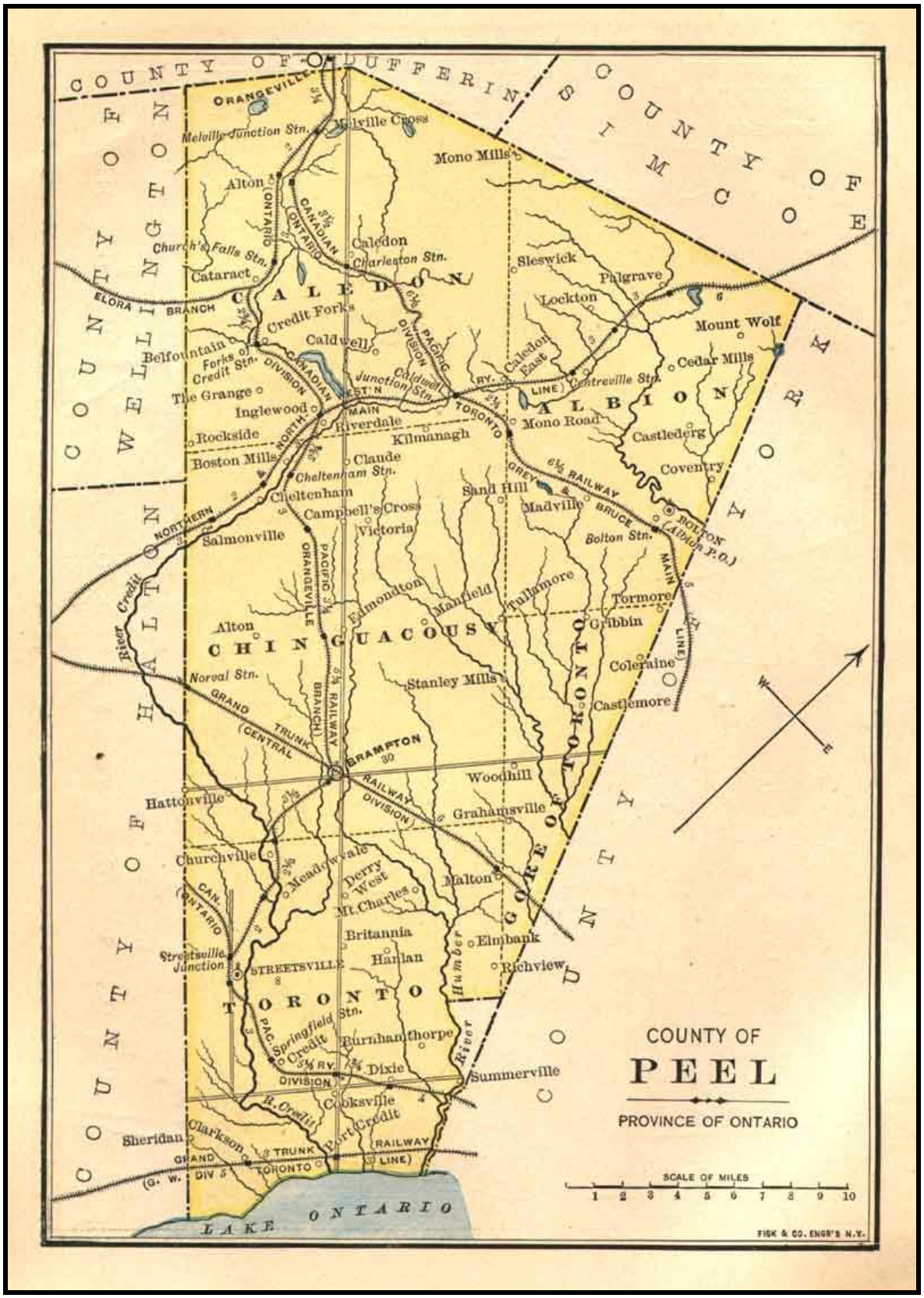

**Map 15: Detail from J. Bouchette's *Map of the Provinces of Canada* (1846)**
**(Cartography Associates 2009)**




**Map 16: Detail from G.W. Colton's *Canada West* (1856)**
**(Cartography Associates 2009)**

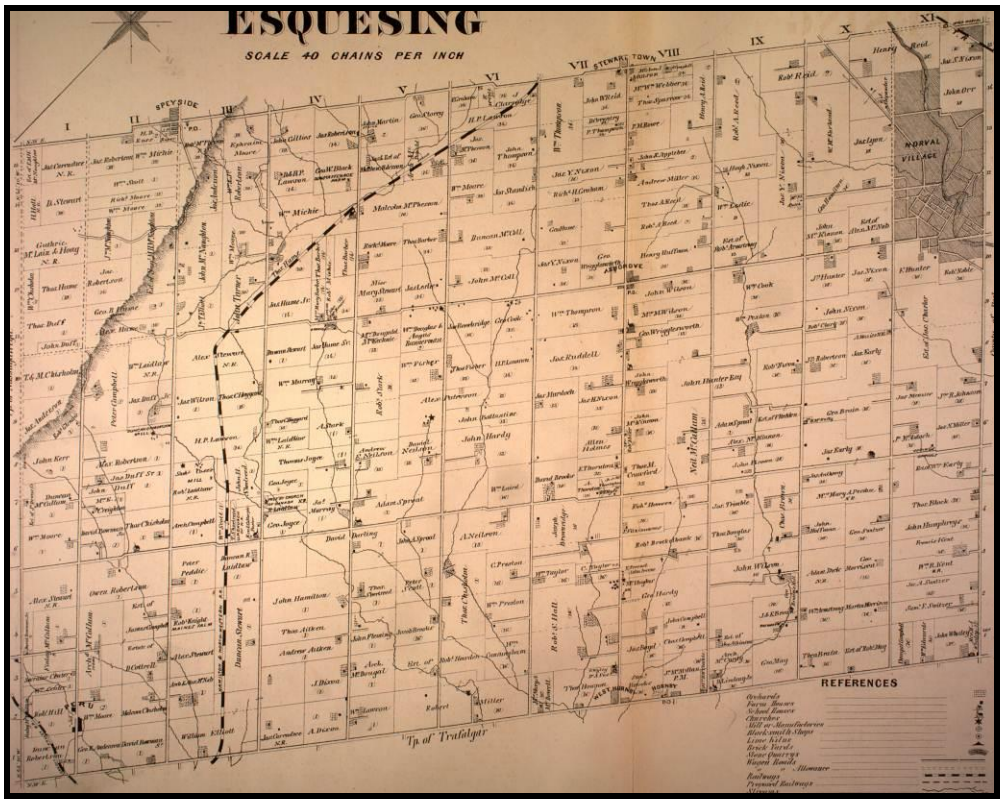



**Map 17: Halton County from W.J. Gage and Co.'s *Gage's County Atlas* (1886)**
**(W.J. Gage and Co. 1886)**

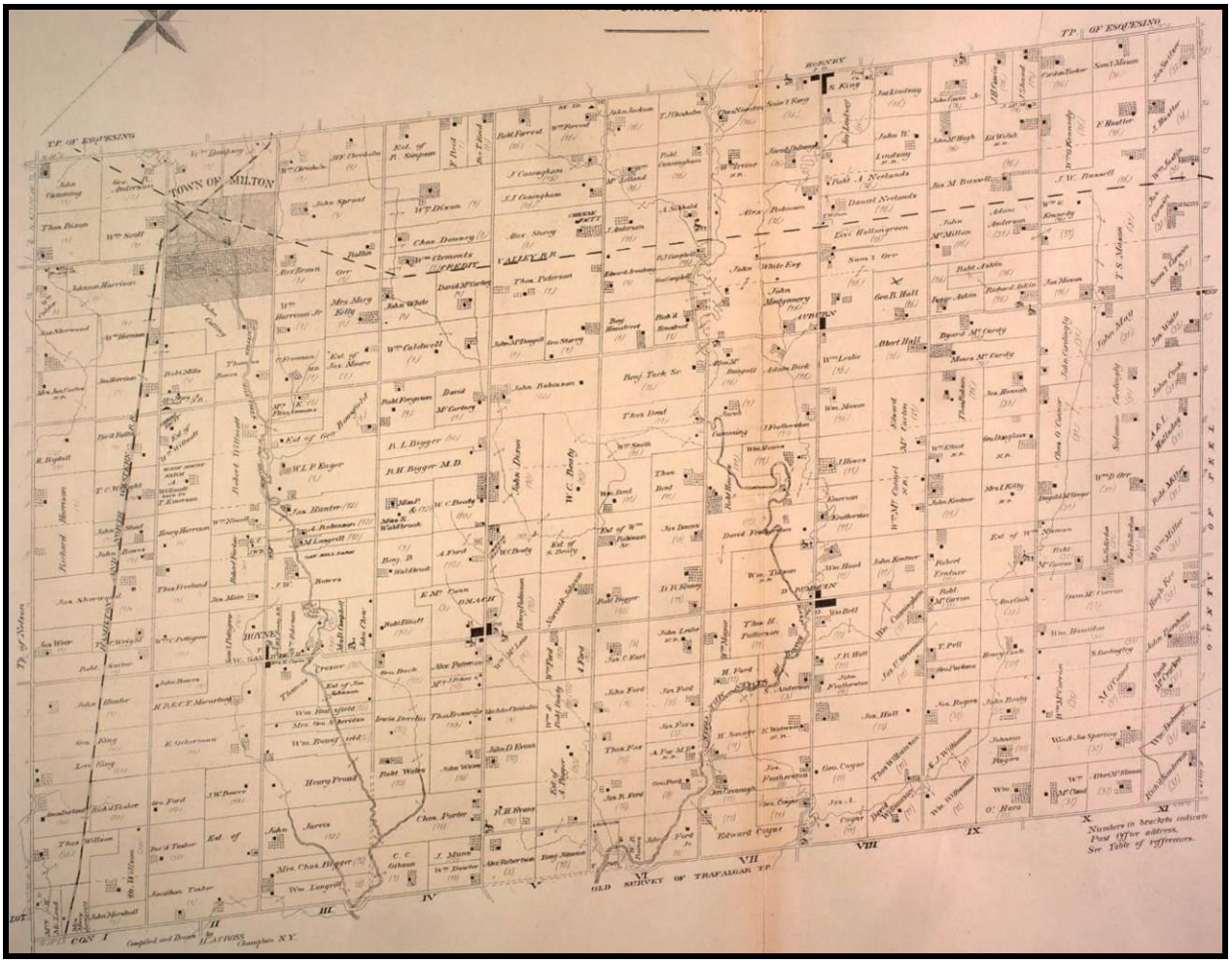



**Map 18: Peel County from W.J. Gage and Co.'s *Gage's County Atlas* (1886)**
**(W.J. Gage and Co. 1886)**

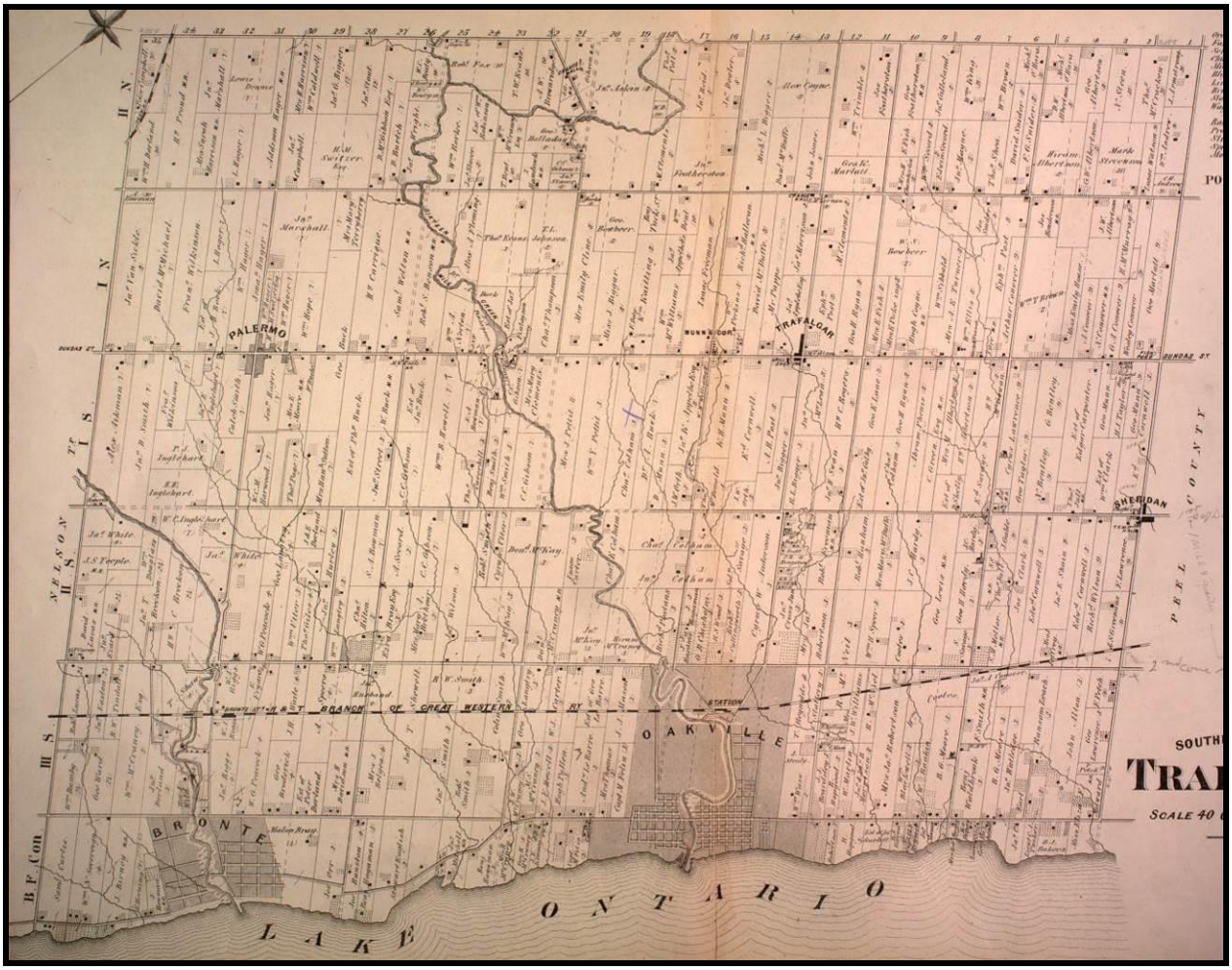

**Map 19: The *Northern Part of Esquesing* from Walker & Miles' *Illustrated Historical Atlas of the County of Halton* (1877)**
**(McGill University 2001)**



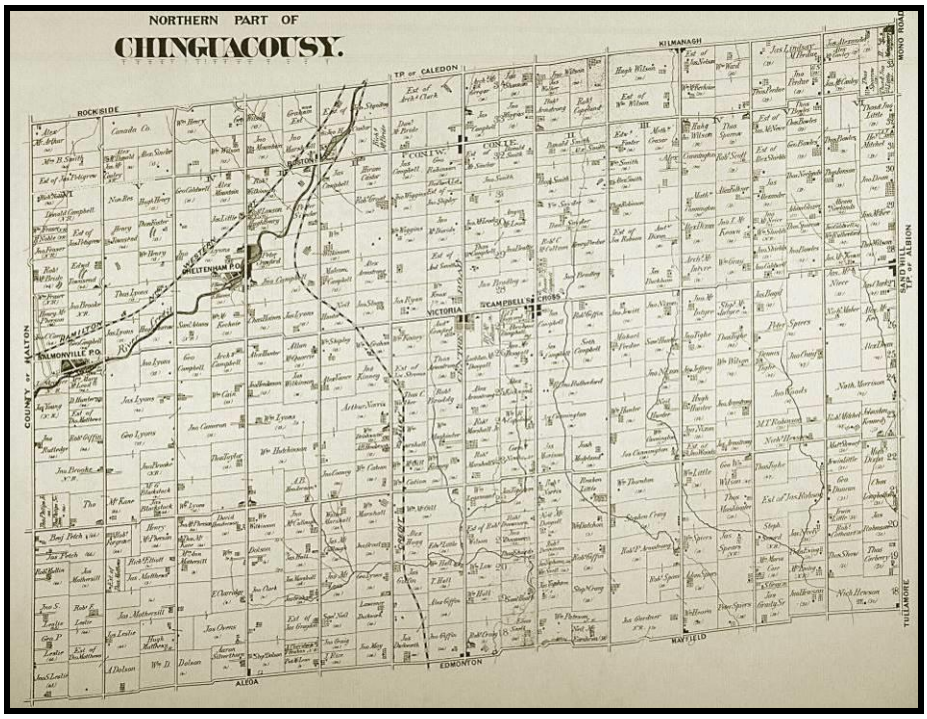

**Map 20: The *Southern Part of Esquesing* from Walker & Miles' *Illustrated Historical Atlas of the County of Halton* (1877)**
**(McGill University 2001)**



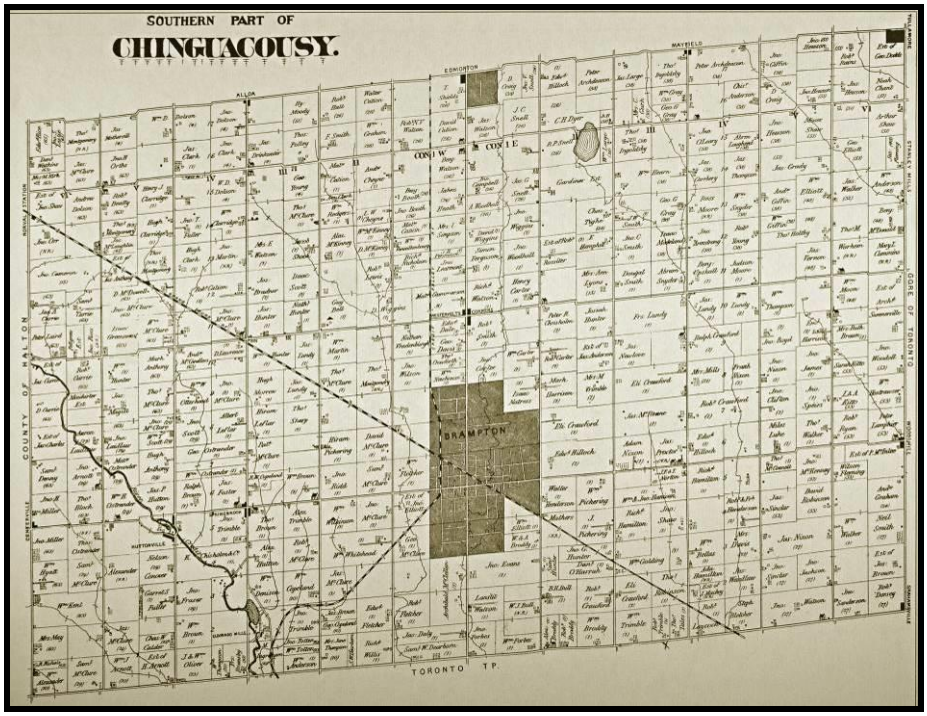

**Map 21: The *Northern Part of Trafalgar* from Walker & Miles' *Illustrated Historical Atlas of the County of Halton* (1877)**
**(McGill University 2001)**



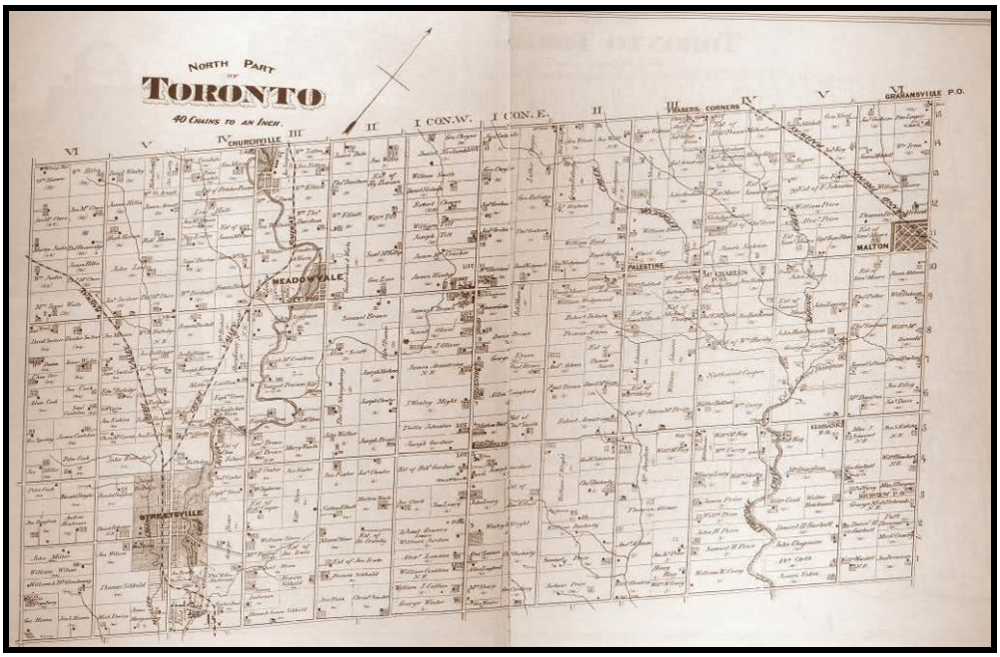

**Map 22: The *Southern Part of Trafalgar* from Walker & Miles' *Illustrated Historical Atlas of the County of Halton* (1877)**
**(McGill University 2001)**




**Map 23: The *Northern Part of Chinguacousy* from Walker & Miles' *Illustrated Historical Atlas of the County of Peel* (1877)**
**(McGill University 2001)**

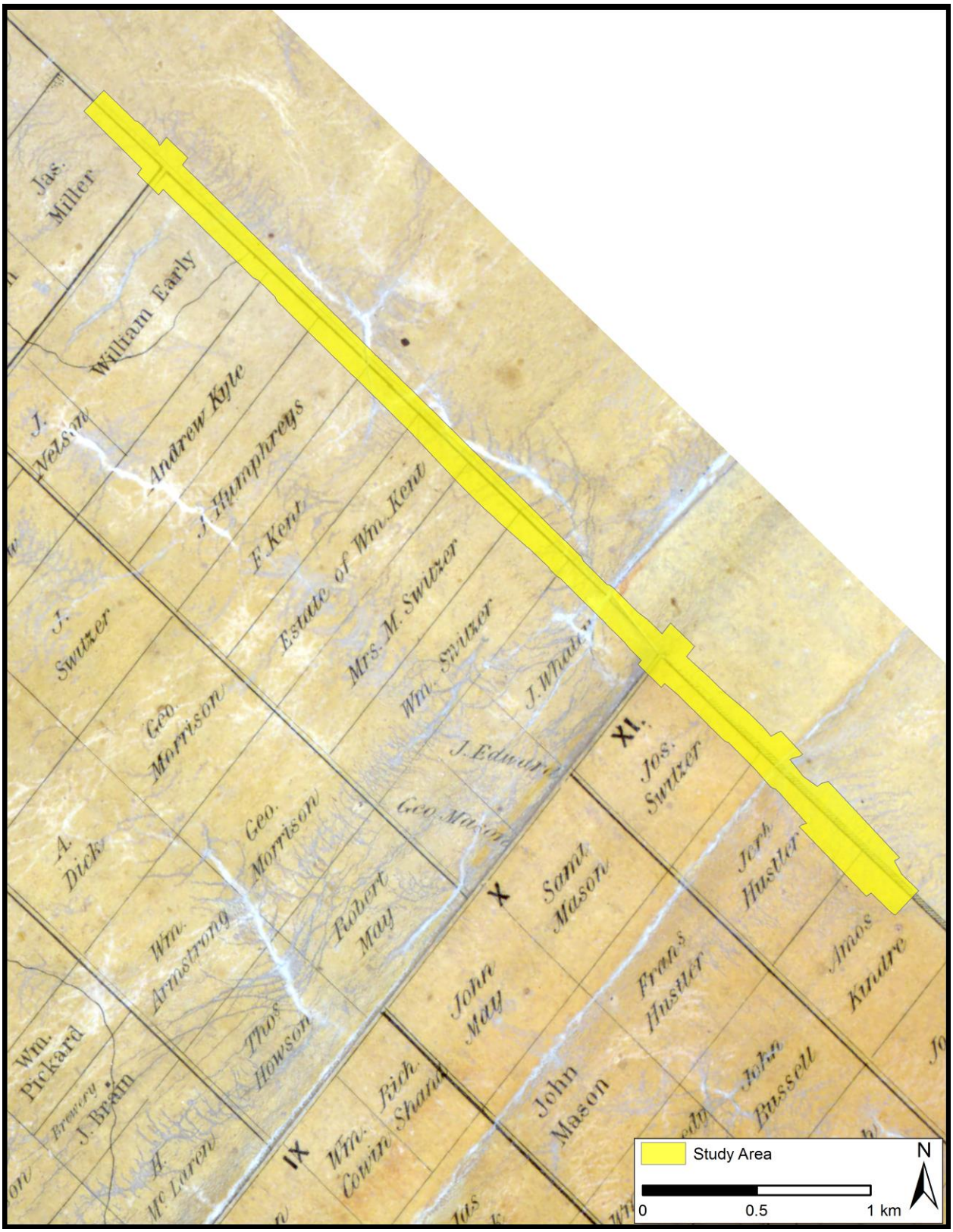



**Map 24: The *Southern Part of Chinguacousy* from Walker & Miles' *Illustrated Historical Atlas of the County of Peel* (1877)**
**(McGill University 2001)**

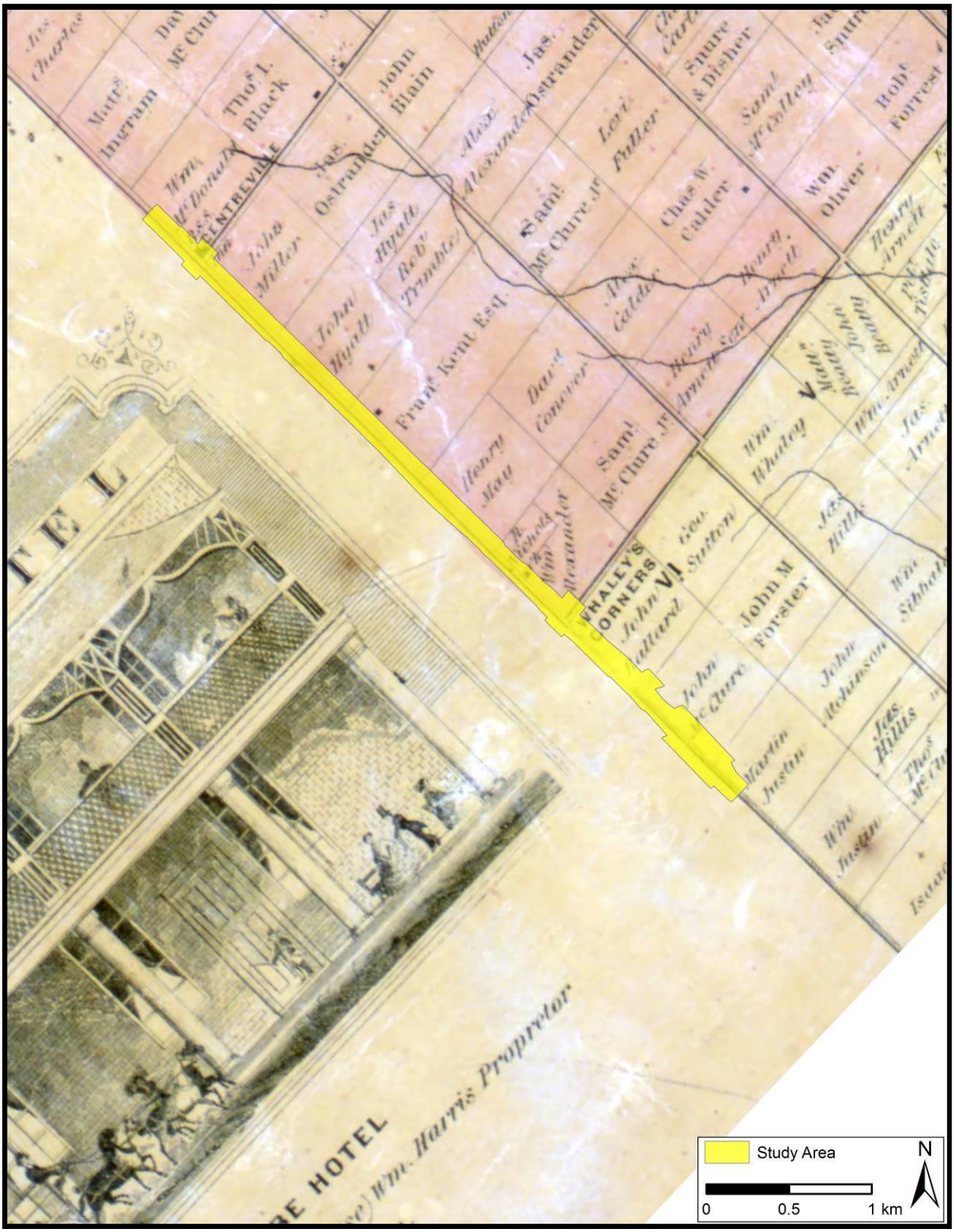



**Map 25: The *North Part of Toronto* from Walker & Miles' *Illustrated Historical Atlas of the County of Peel, Ontario* (1877)**
**(McGill University 2001)**

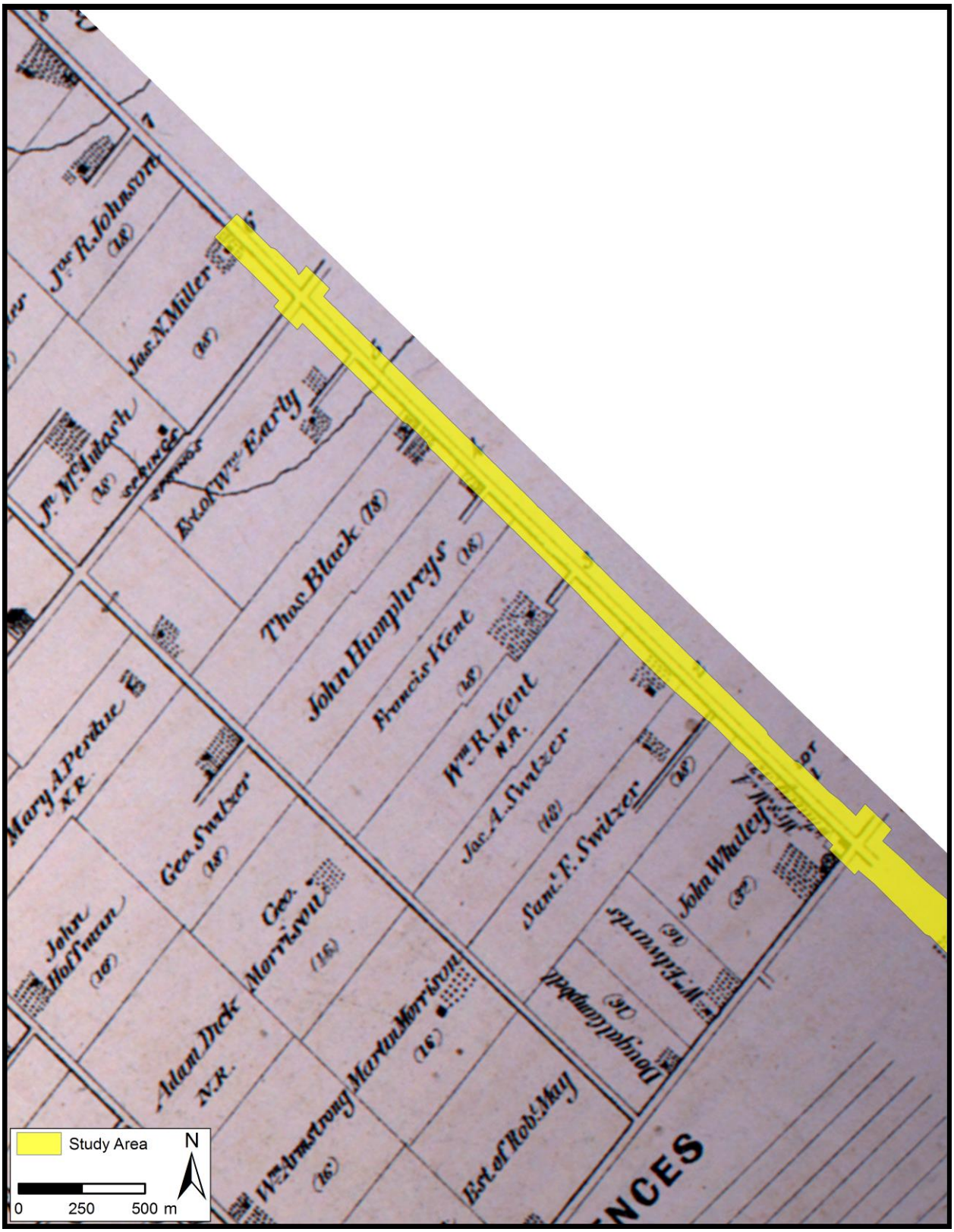

**Map 26: The *Southern Half Toronto Township* from Walker & Miles' *Illustrated Historical Atlas of the County of Peel, Ontario* (1877)**
**(McGill University 2001)**



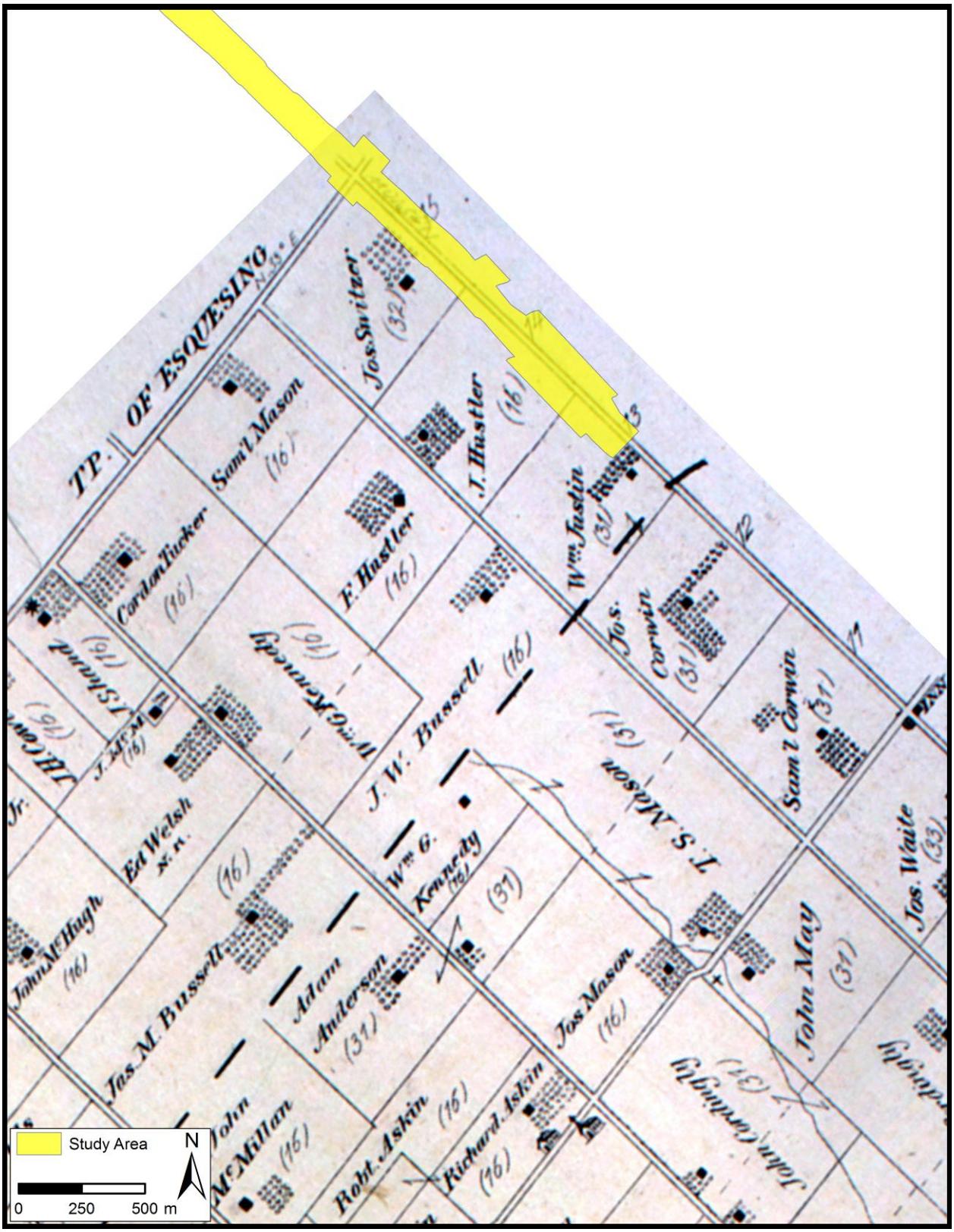

**Map 27: Detail of G.C. Tremaine's *Tremaine's Map of the County of Halton, Canada West* (1858), Showing the Study Area**
**(University of Toronto 2009b)**



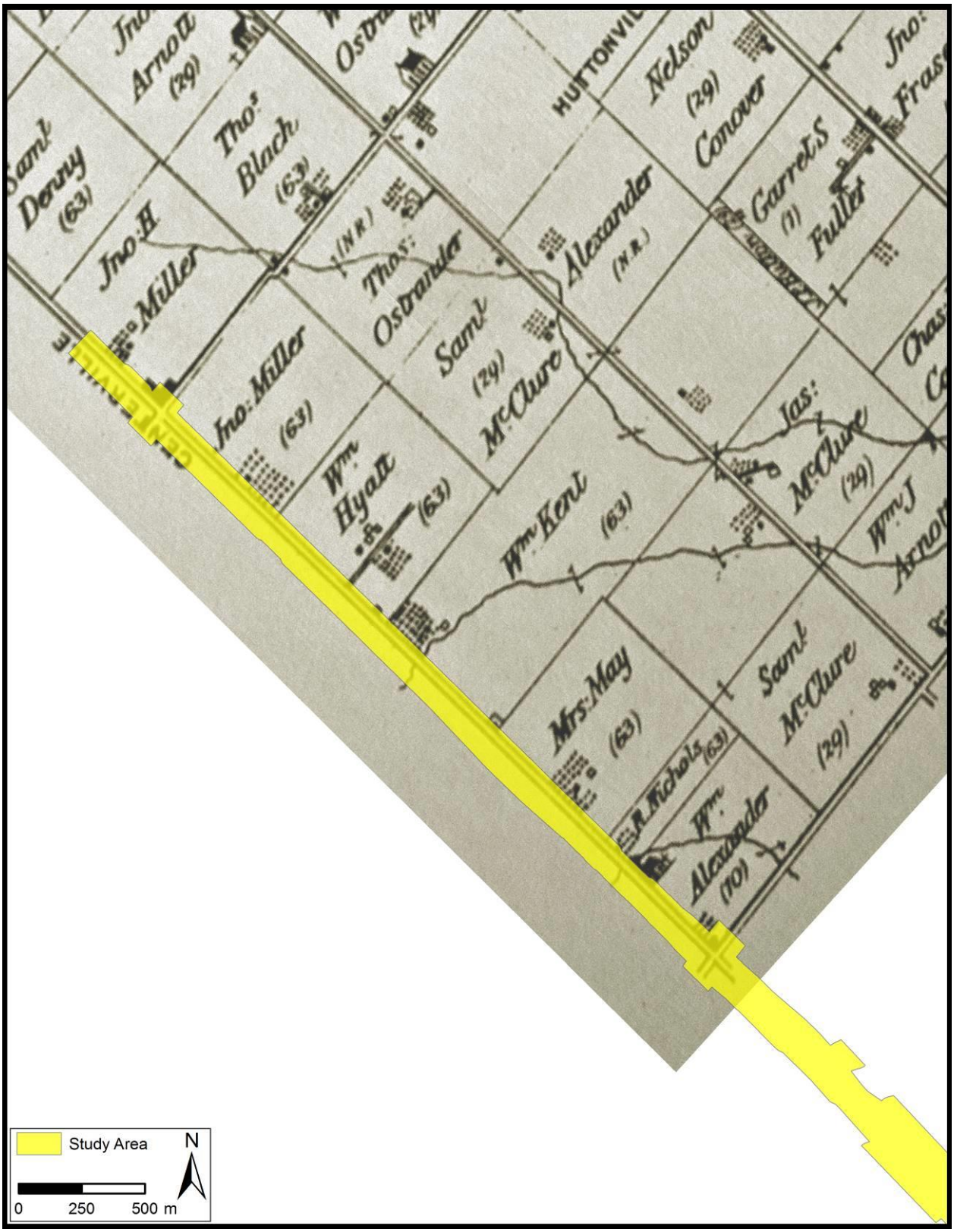

**Map 28: Detail of G.R. Tremaine's *Tremaine's Map of the County of Peel, Canada West* (1859), Showing the Study Area**
**(University of Toronto 2009b)**



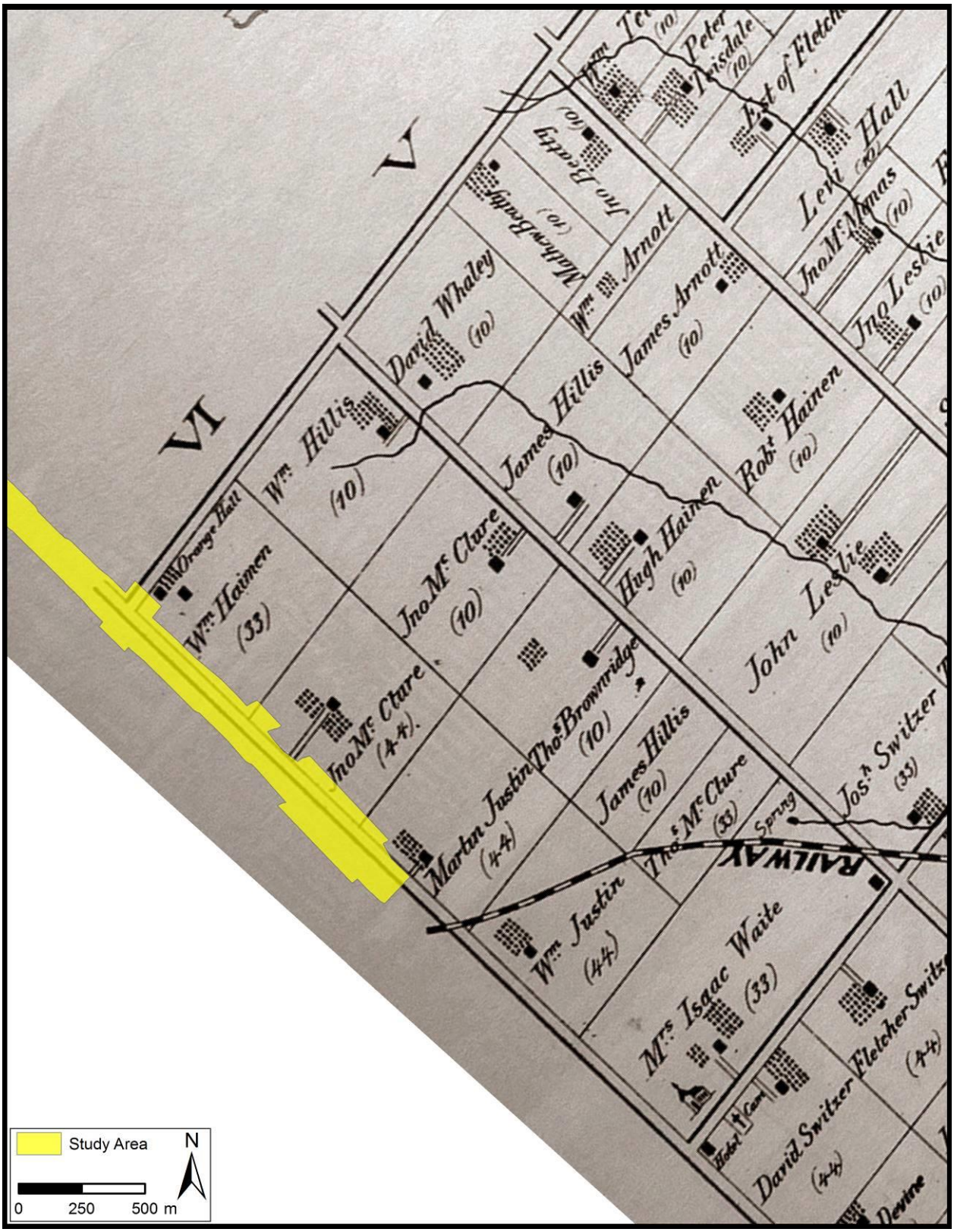

**Map 29: Detail of the *Southern Part of Esquesing* from Walker & Miles' *Illustrated Historical Atlas of Halton County* (1877), Showing the Study Area**
**(McGill University 2001)**



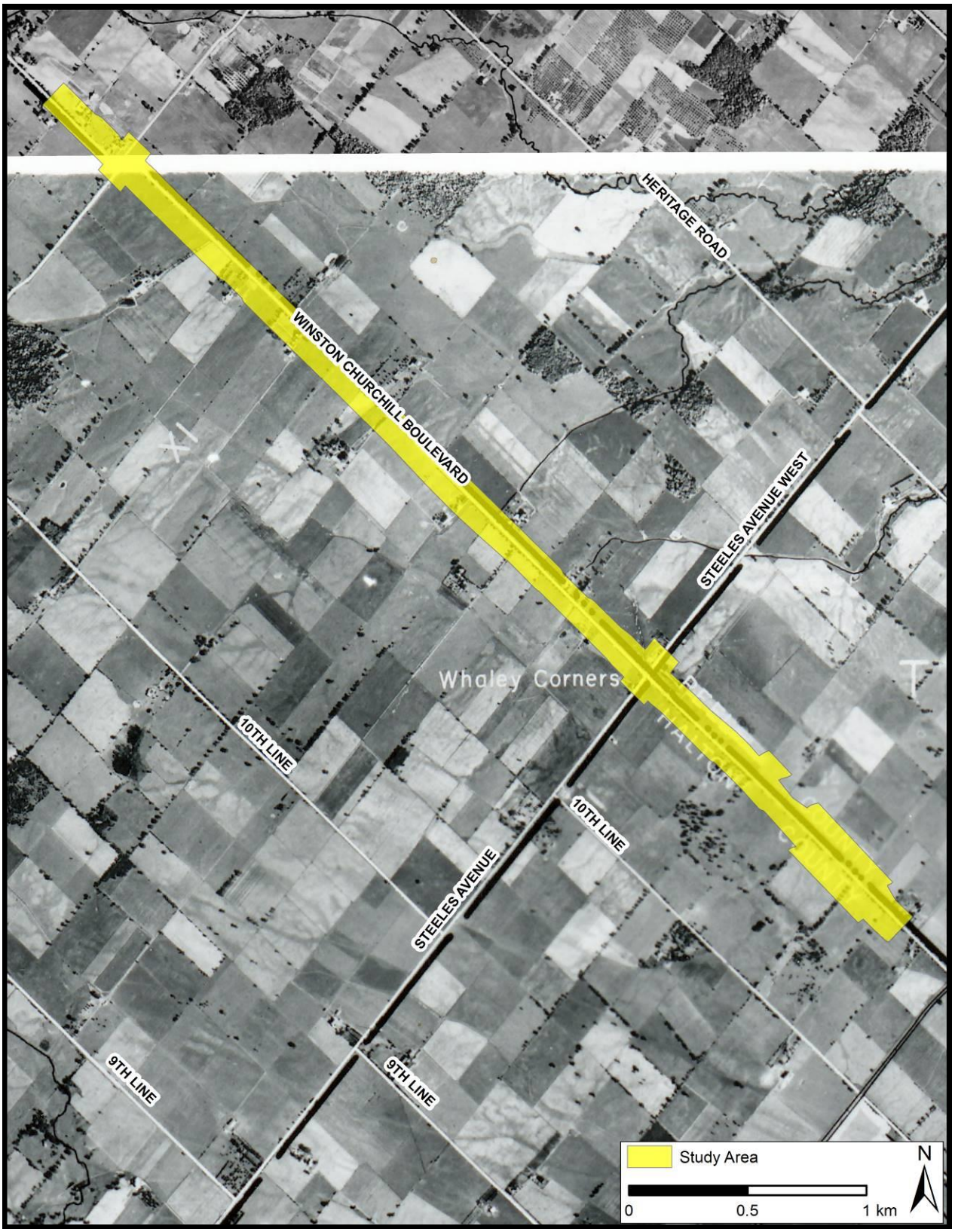

**Map 30: Detail of the *Northern Part of Trafalgar* from Walker & Miles' *Illustrated Historical Atlas of Halton County* (1877), Showing the Study Area**
**(McGill University 2001)**



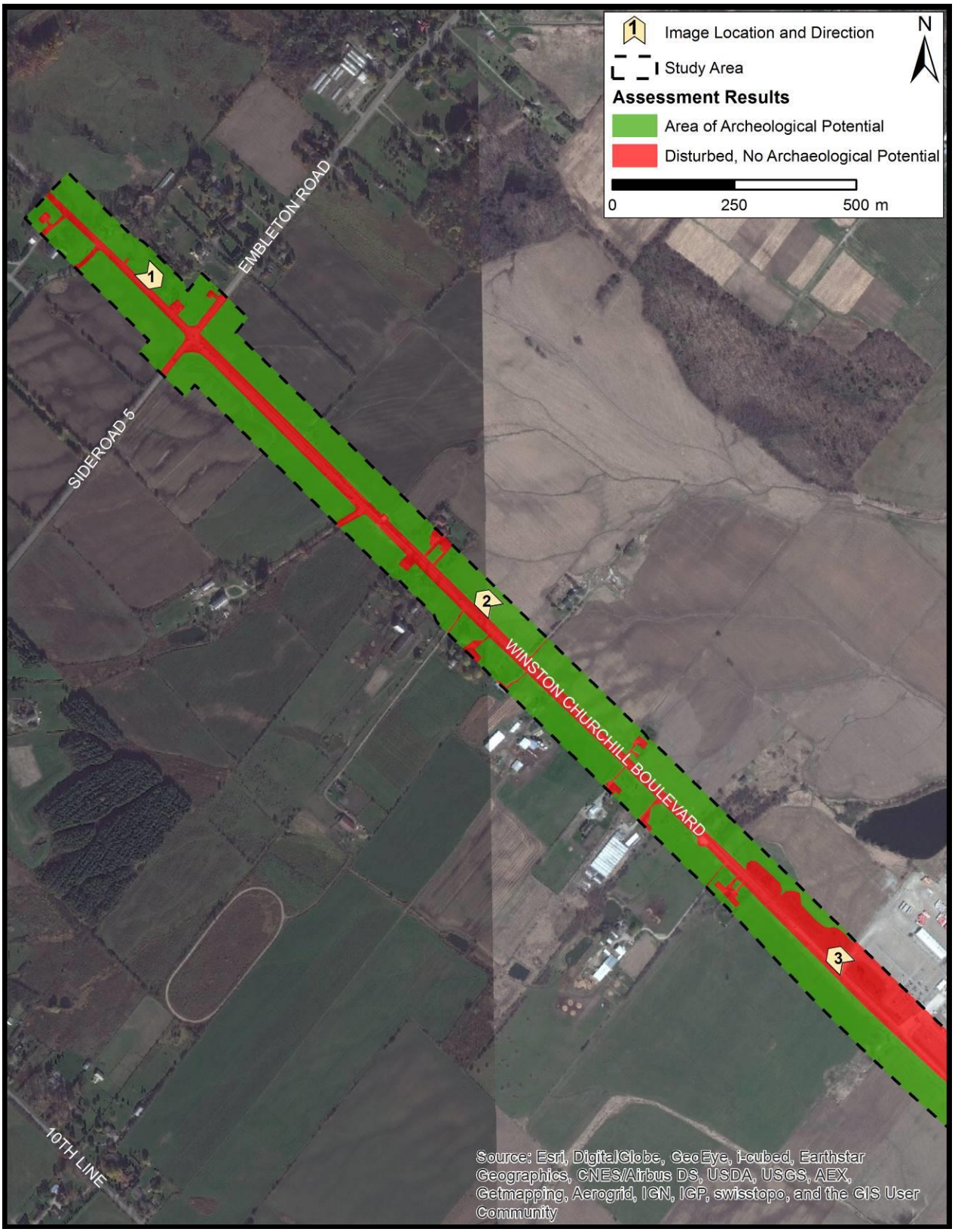

**Map 31: Detail of the *Southern Part of Chinguacousy* from Walker & Miles' *Illustrated Historical Atlas of the County of Peel* (1877), Showing the Study Area**
**(McGill University 2001)**



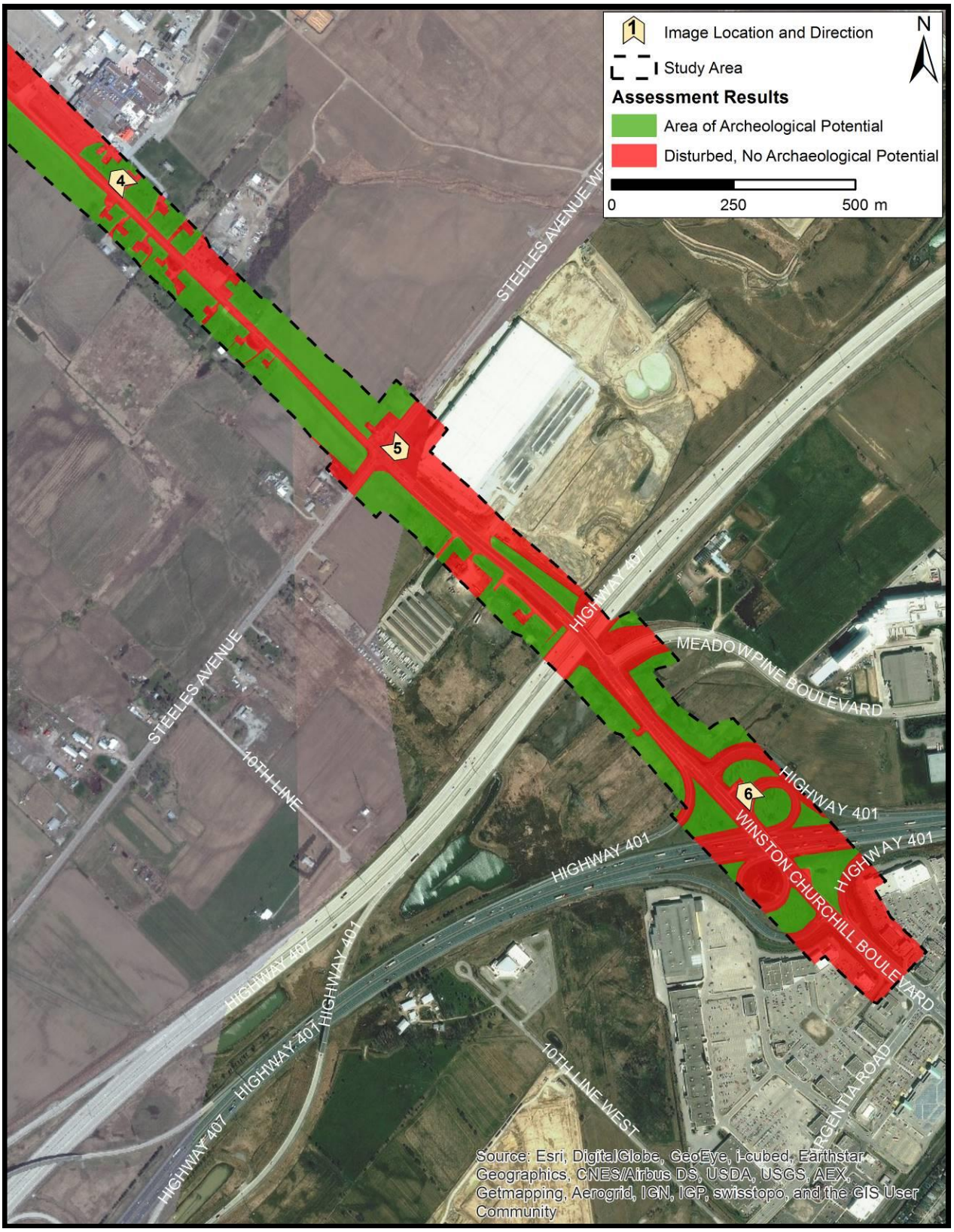

**Map 32: Detail of the *North Part of Toronto* from Walker & Miles' *Illustrated Historical Atlas of the County of Peel, Ontario* (1877), Showing the Study Area**
**(McGill University 2001)**




**Map 33: Historic Aerial Imagery (1954), Showing the Study Area**
**(University of Toronto 2009a)**




**Map 34: Assessment Results – Northern Portion**
**(Produced by ARA under licence using ArcGIS® software by Esri, © Esri 2015)**




**Map 35: Assessment Results – Southern Portion**
**(Produced by ARA under licence using ArcGIS® software by Esri, © Esri 2015)**

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Jul 24, 2015

Paul Racher (P007)
Archaeological Research Associates Ltd.
154 Otonabee Kitchener ON N2C 1L7

**RE: RE: Entry into the Ontario Public Register of Archaeological Reports: Archaeological Assessment Report Entitled, "Stage 1 Archaeological Assessment, Proposed Widening of Winston Churchill Boulevard from Highway 401 to Embleton Road, Town of Halton Hills, Cities of Mississauga and Brampton, Regional Municipalities of Halton and Peel, Multiple Lots and Concessions, Geographic Townships of Esquesing, Trafalgar, Chinguacousy and Toronto, Former Halton and Peel Counties, Ontario", Dated Jul 14, 2015, Filed with MTCS Toronto Office on N/A, MTCS Project Information Form Number P007-0678-2014, MTCS File Number 0003415**

Dear Mr. Racher:

The above-mentioned report, which has been submitted to this ministry as a condition of licensing in accordance with Part VI of the Ontario Heritage Act, R.S.O. 1990, c 0.18 has been entered into the Ontario Public Register of Archaeological Reports without technical review.[1]

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cc. Archaeology Licensing Officer
Melissa Alexander,Hatch Mott MacDonald
Gino Dela Cruz,Region of Peel

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ARCHAEOLOGY | HERITAGE | OUTREACH | EDUCATION

# Stage 2 Archaeological Assessment
# Mount Zion Cemetery Investigation
# Winston Churchill Boulevard from Highway 401 to Embleton Road/5 Side Road
# Municipal Class Environmental Assessment
# City of Brampton
# Regional Municipality of Peel
# Part of Lot 1, Concession 6 West of Centre Road
# Geographic Township of Chinguacousy
# Peel County, Ontario

Prepared for
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MTCS Licence #P007
PIF #P007-0831-2017
ARA File #2016-0370

**14/06/2019**

**Original Report**

# EXECUTIVE SUMMARY

Under a contract awarded in March 2017, Archaeological Research Associates Ltd. carried out a Stage 2 archaeological assessment as part of a cemetery investigation for the Mount Zion Cemetery located at Whaley's Corners in the City of Brampton, Regional Municipality of Peel, Ontario. The front part of the cemetery has the potential to be impacted by proposed improvements to Winston Churchill Boulevard from Highway 401 to Embleton Road/5 Side Road. The assessment was completed as a component of a Schedule 'C' Municipal Class Environmental Assessment, in compliance with the *Environmental Assessment Act*. An Investigation Order pursuant to subsections 96 (1), (2) and (3) of the *Funeral, Burial and Cremation Services Act, 2002* was issued on July 7, 2017 (SD Appendix A–SD Appendix B). This report documents the background research and fieldwork involved in addressing the requirements set out in the Investigation Order, and presents conclusions and recommendations pertaining to archaeological and human remains concerns within the assessed lands.

Winston Churchill Boulevard is a north-south arterial road and forms the boundary between the City of Brampton (Region of Peel) and the Town of Halton Hills (Region of Halton). Significant growth has been and is planned in/around the project lands, including the Bram-West Secondary Plan area to the east. The 2012 Long Range Transportation Plan Update identified transportation challenges for Winston Churchill Boulevard and an improvement plan to address them. Specifically, the update recommended that the widening of Winston Churchill Boulevard to six lanes will be required by 2021 and 2031 for the sections south and north of Steeles Avenue, respectively (RMP 2014:6–7). The Municipal Class Environmental Assessment study is considering the portion of Winston Churchill Boulevard extending for 4.2 km from Highway 401 to Embleton Road/5 Side Road. The study will examine the need and justification, as well as feasibility for improvements to address short- and long-term issues related to planned future growth, operational and servicing requirements, and road link capacity limitations. Proposed improvements include widening, changes to road and intersection geometrics, and pavement rehabilitation. The study will also review opportunities to better facilitate public transit and active transportation. Multiple assessments have already been carried out for road widening projects along Winston Churchill Boulevard (NDA 2010a–b; ARA 2015).

The Stage 2 assessment was conducted in August 2017 under Project Information Form #P007-0831-2017. The investigation encompassed the entirety of the project lands traversing the cemetery frontage and additional adjacent lands within the cemetery to further inform the preliminary design. Legal permission to enter and conduct all necessary fieldwork activities within the assessed lands was granted by the property owner. At the time of assessment, the study area comprised a mixture of manicured cemetery grounds, overgrown bushes, treed areas and funerary elements such as a memorial cairn, fence/gateposts and a consolidated monument.

The Stage 2 assessment involved visual inspection to evaluate archaeological potential, ground-penetrating radar survey within the open areas, and test pit survey in all identified areas of archaeological potential. The assessment of the identified areas of archaeological potential resulted in the identification of one location of archaeological materials: Site 1 (AjGw-581). The ground-penetrating radar survey did not result in the identification of any clear burial features, although

four significant anomalies were detected. Site 1 was found to be of further cultural heritage value or interest.

Site 1 was identified entirely within additional lands adjacent to the proposed project limits and will not be directly impacted by construction. However, all lands comprising the site extent and a 20 m protective buffer must be considered a 'protected area'. Protective buffers cannot traverse private properties for legal reasons and can be misleading when extended into adjacent unsurveyed lands; accordingly, a truncated buffer is warranted at Site 1. Given that part of the protective buffer traverses the project lands, a partial Stage 3 assessment must be carried out within the area of overlap to determine whether any areas of cultural heritage value or interest requiring Stage 4 hand excavation are present. It is recommended that this area be subject to a Stage 3 site-specific assessment in accordance with the requirements set out in Section 3.2, Section 3.2.2 and Section 3.2.3 of the *Standards and Guidelines for Consultant Archaeologists* (MTC 2011:47, 50–53). Additional detailed documentary research is not needed, as the subject report has already fulfilled the requirements set out in Section 3.1 of the *Standards and Guidelines for Consultant Archaeologists* (MTC 2011:46–47).

Given that the project lands traverse a registered cemetery, a cemetery investigation must be completed to confirm that no burial features are present either within or beyond the legal property line as it is currently defined. Provided that no surficial areas of cultural heritage value or interest are identified after test unit excavation at Site 1, the required cemetery investigation can then occur to ensure that there are no burial features or human remains within the traversed portion of the cemetery and a 10 m buffer around the limits of the cemetery. The cemetery investigation must be conducted in accordance with Section 3.3.3 and Section 4.2.3 of the *Standards and Guidelines for Consultant Archaeologists* (MTC 2011:55–56, 78–79). The Registrar, *Funeral, Burial and Cremation Services Act, 2002*, Bereavement Authority of Ontario must be engaged throughout the process. If the Stage 3 site-specific assessment results in the discovery of areas requiring Stage 4 hand excavation, then the cemetery investigation will need to be conducted after any recommended activities are completed. In such a case, the Stage 4 excavation and cemetery investigation should be carried out and reported on concurrently.

An avoidance strategy must also be implemented to ensure that the remainder of the protected area is not impacted during construction. A temporary barrier must be established along the interface of the protected area and the project limits prior to construction, and this barrier must extend for a minimum of 10 m beyond the cemetery limits to accommodate the required buffer. All adjacent construction activities must be monitored by a licensed archaeologist to ensure the effectiveness of the avoidance strategy. Specifically, the archaeologist will inspect the fence erection, be present on site during the initial excavations and periodically visit the site during construction to confirm that the avoidance measures are being followed. 'No go' instructions must be issued to all on-site work crews and engineers for the protected area, and the location of the protected area must be shown on all appropriate contract drawings. The protected area must be inspected by a licensed archaeologist once construction is complete, and the effectiveness of the avoidance strategy must be reported to the Ministry of Tourism, Culture and Sport.

Regarding the balance of the project lands, Archaeological Research Associates Ltd. reiterates the recommendation made under Project Information Form #P007-0678-2014 wherein all areas of archaeological potential that could be impacted by the project be subject to a Stage 2 property assessment in advance of construction (ARA 2015:29). Any areas of potential that fall outside of the preferred design and any areas that were previously assessed and cleared of further concerns would not need to be assessed in advance of construction.

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## GLOSSARY OF ABBREVIATIONS

ARA – Archaeological Research Associates Ltd.
CHVI – Cultural Heritage Value or Interest
EA – Environmental Assessment
GPR – Ground-Penetrating Radar
LRTP – Long Range Transportation Plan
MTCS – Ministry of Tourism, Culture and Sport
PIF – Project Information Form
PTP – Positive Test Pit
S&Gs – Standards and Guidelines for Consultant Archaeologists
WCR – West of Centre Road

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# 1.0 PROJECT CONTEXT

## 1.1 Development Context

Under a contract awarded in March 2017, ARA carried out a Stage 2 archaeological assessment as part of a cemetery investigation for the Mount Zion Cemetery located at Whaley's Corners in the City of Brampton, Regional Municipality of Peel, Ontario. The front part of the cemetery has the potential to be impacted by proposed improvements to Winston Churchill Boulevard from Highway 401 to Embleton Road/5 Side Road. The assessment was completed as a component of a Schedule 'C' Municipal Class EA, in compliance with the *Environmental Assessment Act*. An Investigation Order pursuant to subsections 96 (1), (2) and (3) of the *Funeral, Burial and Cremation Services Act, 2002* was issued on July 7, 2017 (SD Appendix A–SD Appendix B). This report documents the background research and fieldwork involved in addressing the requirements set out in the Investigation Order, and presents conclusions and recommendations pertaining to archaeological and human remains concerns within the assessed lands.

Winston Churchill Boulevard is a north-south arterial road and forms the boundary between the City of Brampton and the Town of Halton Hills. Significant growth has been and is planned in/around the project lands, including the Bram-West Secondary Plan area to the east. The 2012 LRTP Update identified transportation challenges for Winston Churchill Boulevard and an improvement plan to address them. Specifically, the update recommended that the widening of Winston Churchill Boulevard to six lanes will be required by 2021 and 2031 for the sections south and north of Steeles Avenue, respectively (RMP 2014:6–7). The Municipal Class EA study is considering the portion of Winston Churchill Boulevard extending for 4.2 km from Highway 401 to Embleton Road/5 Side Road. The study will examine the need and justification, as well as feasibility for improvements to address short- and long-term issues related to planned future growth, operational and servicing requirements, and road link capacity limitations. Proposed improvements include widening, changes to road and intersection geometrics, and pavement rehabilitation. The study will also review opportunities to better facilitate public transit and active transportation. Multiple assessments have already been carried out for road widening projects along Winston Churchill Boulevard (NDA 2010a–b; ARA 2015).

The subject study area consists of a rectangular parcel of land with a total area of 0.16 ha situated along the front of the Mount Zion Cemetery (Map 1). This parcel is bounded by the remainder of the cemetery to the northeast, agricultural lands to the southeast, Winston Churchill Boulevard to the southwest and the Mullet Creek riparian zone to the northwest. The greater project lands continue to the northwest and southeast, but this assessment was limited in scope to the cemetery frontage itself. In legal terms, the study area falls on part of Lot 1, Concession 6 WCR in the Geographic Township of Chinguacousy, Peel County.

The Stage 2 assessment was conducted in August 2017 under PIF #P007-0831-2017. The investigation encompassed the entirety of the project lands traversing the cemetery frontage and additional adjacent lands within the cemetery to further inform the preliminary design. Legal permission to enter and conduct all necessary fieldwork activities within the assessed lands was granted by the property owner. In compliance with the objectives set out in Section 2.0 of the *S&Gs* (MTC 2011:27–41), this investigation was carried out in order to:

- Empirically document all archaeological resources within the study area;
- Determine whether the study area contains archaeological resources requiring further assessment; and
- Recommend appropriate Stage 3 assessment strategies, if any archaeological resources requiring further assessment are identified.

The MTCS is asked to review the results and recommendations presented in this report and express their satisfaction with the fieldwork and reporting through a *Letter of Review and Entry into the Ontario Public Register of Archaeological Reports*.

## 1.2 Historical Context

After a century of archaeological work in southern Ontario, scholarly understanding of the historic usage of the area has become very well-developed. With occupation beginning in the Palaeo-Indian period approximately 11,000 years ago, the greater vicinity of the study area comprises a complex chronology of Indigenous and Euro-Canadian histories. Section 1.2.1 summarizes the region's settlement history, whereas Section 1.2.2 documents the study area's past and present land uses. Multiple previous archaeological reports containing relevant background information were obtained during the research component of the study. These reports are summarized in Section 1.3.3, and the references (including title, author and PIF number) appear in Section 7.0.

### *1.2.1 Settlement History*

#### *1.2.1.1 Pre-Contact*

The Pre-Contact history of the region is lengthy and rich, and a variety of Indigenous groups inhabited the landscape. Archaeologists generally divide this vibrant history into three main periods: Palaeo-Indian, Archaic and Woodland. Each of these periods comprise a range of discrete sub-periods characterized by identifiable trends in material culture and settlement patterns, which are used to interpret past lifeways. The principal characteristics of these sub-periods are summarized in Table 1.

**Table 1: Pre-Contact Settlement History**
**(Wright 1972; Ellis and Ferris 1990; Warrick 2000; Munson and Jamieson 2013)**

| Sub-Period | Timeframe | Characteristics |
|---|---|---|
| Early Palaeo-Indian | 9000–8400 BC | Gainey, Barnes and Crowfield traditions; Small bands; Mobile hunters and gatherers; Utilization of seasonal resources and large territories; Fluted projectiles |
| Late Palaeo-Indian | 8400–7500 BC | Holcombe, Hi-Lo and Lanceolate biface traditions; Continuing mobility; Campsite/Way-Station sites; Smaller territories are utilized; Non-fluted projectiles |
| Early Archaic | 7500–6000 BC | Side-notched, Corner-notched (Nettling, Thebes) and Bifurcate traditions; Growing diversity of stone tool types; Heavy woodworking tools appear (e.g., ground stone axes and chisels) |
| Middle Archaic | 6000–2500 BC | Stemmed (Kirk, Stanly/Neville), Brewerton side- and corner-notched traditions; Reliance on local resources; Populations increasing; More ritual activities; Fully ground and polished tools; Net-sinkers common; Earliest copper tools |

| Sub-Period | Timeframe | Characteristics |
|---|---|---|
| Late Archaic | 2500–900 BC | Narrow Point (Lamoka), Broad Point (Genesee) and Small Point (Crawford Knoll) traditions; Less mobility; Use of fish-weirs; True cemeteries appear; Stone pipes emerge; Long-distance trade (marine shells and galena) |
| Early Woodland | 900–400 BC | Meadowood tradition; Crude cord-roughened ceramics emerge; Meadowood cache blades and side-notched points; Bands of up to 35 people |
| Middle Woodland | 400 BC–AD 600 | Point Peninsula tradition; Vinette 2 ceramics appear; Small camp sites and seasonal village sites; Influences from northern Ontario and Hopewell area to the south; Hopewellian influence can be seen in continued use of burial mounds |
| Middle/Late Woodland Transition | AD 600–900 | Princess Point tradition; Cord roughening, impressed lines and punctate designs on pottery; Adoption of maize horticulture at the western end of Lake Ontario; Oval houses and 'incipient' longhouses; First palisades; Villages with 75 people |
| Late Woodland (Early Iroquoian) | AD 900–1300 | Glen Meyer tradition; Settled village-life based on agriculture; Small villages (0.4 ha) with 75–200 people and 4–5 longhouses; Semi-permanent settlements |
| Late Woodland (Middle Iroquoian) | AD 1300–1400 | Uren and Middleport traditions; Classic longhouses emerge; Larger villages (1.2 ha) with up to 600 people; More permanent settlements (30 years) |
| Late Woodland (Late Iroquoian) | AD 1400–1600 | Huron-Petun tradition; Globular-shaped ceramic vessels, ceramic pipes, bone/antler awls and beads, ground stone celts and adzes, chipped stone tools, and even rare copper objects; Large villages (often with palisades), temporary hunting and fishing camps, cabin sites and small hamlets; Territorial contraction in early 16th century; Fur trade begins ca. 1580; European trade goods appear |

Although Iroquoian-speaking populations tended to leave a much more distinctive mark on the archaeological record and are therefore emphasized in the Late Woodland entries above, it must be understood that Algonquian-speaking populations were also present in southern Ontario. Archaeological evidence directly associated with the Anishinaabeg remains elusive, particularly when compared to sites associated with the more sedentary agriculturalists. Many artifact scatters in southern Ontario were likely camps, chipping stations or processing areas associated with the more mobile Anishinaabeg, utilized during their travels along the local drainage basins while making use of seasonal resources.

#### *1.2.1.2 Post-Contact*

The arrival of European explorers and traders at the beginning of the 17th century triggered widespread shifts in Indigenous lifeways and set the stage for the ensuing Euro-Canadian settlement process. Documentation for this period is abundant, ranging from the first sketches of Upper Canada and the written accounts of early explorers to detailed township maps and lengthy histories. The Post-Contact period can be effectively discussed in terms of major historical events, and the principal characteristics associated with these events are summarized in Table 2.

**Table 2: Post-Contact Settlement History**
**(Smith 1846; Coyne 1895; Lajeunesse 1960; Ellis and Ferris 1990; Surtees 1994; Wilson's Publishing Co. 2000; AO 2015)**

| Historical Event | Timeframe | Characteristics |
|---|---|---|
| Early Exploration | Early 17th century | Brûlé explores southern Ontario in 1610; Champlain travels through in 1613 and 1615/1616, encountering a variety of Indigenous groups (including both Iroquoian-speakers and Algonquian-speakers); European goods begin to replace traditional tools |

| Historical Event | Timeframe | Characteristics |
|---|---|---|
| Increased Contact and Conflict | Mid- to late 17th century | Conflicts between various First Nations during the Beaver Wars result in numerous population shifts; European explorers continue to document the area, and many Indigenous groups trade directly with the French and English; 'The Great Peace of Montreal' treaty established between roughly 39 different First Nations and New France in 1701 |
| Fur Trade Development | Early to mid-18th century | Growth and spread of the fur trade; Peace between the French and English with the Treaty of Utrecht in 1713; Ethnogenesis of the Métis; Hostilities between French and British lead to the Seven Years' War in 1754; French surrender in 1760 |
| British Control | Mid-18th century | *Royal Proclamation* of 1763 recognizes the title of the First Nations to the land; Numerous treaties arranged by the Crown; First acquisition is the Seneca surrender of the west side of the Niagara River in August 1764 |
| Loyalist Influx | Late 18th century | United Empire Loyalist influx after the American Revolutionary War (1775–1783); British develop interior communication routes and acquire additional lands; *Constitutional Act* of 1791 creates Upper and Lower Canada |
| County Development | Late 18th to early 19th century | Area became part of York County's 'West Riding' in 1798; Southern portion acquired as part of the 'First Purchase of the Mississauga Tract' in 1805; Northern portion acquired as part of the 'Second Purchase' or 'Ajetance Purchase' in 1818; Peel County established after the abolition of the district system in 1849 |
| Township Formation | Early 19th century | Chinguacousy comprised lands from the 'Second Purchase'; Surveyed by R. Bristol in 1819, divided into west and east halves on either side of Hurontario Street (Centre Road); Majority of first settlers from New Brunswick, the United States and parts of Upper Canada; Combined population of Toronto Gore and Chinguacousy was only 412 by 1821 |
| Township Development | Mid-19th to early 20th century | Population reached 3,965 by 1842; 30,342 ha taken up by 1846, with 10,629 ha under cultivation; 7 saw mills and 1 grist mill in operation at that time; Traversed by the Grand Trunk Railway (1856), the Hamilton & North Western Railway (1877), the Credit Valley Railway (1878/79) and the Toronto Suburban Railway (1917); Brampton was the principal settlement; Other communities at Cheltenham, Salmonville, Victoria, Campbell's Cross, Kilmanagh, Sand Hill, Mayfield, Edmonton, Alloa, Norval Station, Westervelt's Corners, Woodhill, Springbrook and Huttonville |

### *1.2.2 Past and Present Land Use*

#### *1.2.2.1 Overview*

During Pre-Contact and Early Contact times, the vicinity of the study area would have comprised a mixture of coniferous trees, deciduous trees and open areas. Indigenous communities would have managed the landscape to some degree. During the early 19th century, Euro-Canadian settlers arrived in the area and began to clear the forests for agricultural and settlement purposes. The study area was located northwest of the historic community of Whaley's Corners. This small crossroads hamlet developed around the intersection of Town Line (now Winston Churchill Boulevard) and Steeles Avenue (HA 2018). Presently, the study area comprises part of the Mount Zion Cemetery, which formed part of the community of Whaley's Corners. This property is listed on Brampton's Municipal Register of Cultural Heritage Resources and has a pending heritage designation under Part IV of the *Ontario Heritage Act* (Brampton 2019:128). The land use at the time of assessment can be classified as funerary (the extant cemetery).

#### *1.2.2.2 Mapping and Imagery Analysis*

In order to gain a general understanding of the study area's past land uses, one patent plan, three historic settlement maps, one topographic map and one aerial image were examined during the research component of the study. Specifically, the following resources were consulted:

- The *Chinguacousy* Patent Plan (No Date) (AO 2015);
- G.R Tremaine's *Tremaine's Map of the County of Peel, Canada West* (1859) (University of Toronto 2019);
- Walker & Miles *Illustrated Historical Atlas of the County of Peel, Ont.* (1877) (McGill University 2001);
- A topographic map from 1909 (OCUL 2019); and
- An aerial image from 1954 (University of Toronto 2019).

The limits of the study area are shown on georeferenced versions of the consulted historical resources in Map 2–Map 6.

The *Chinguacousy* Patent Plan, initiated on a copy of an original survey plan and updated with patent information until the records were transferred to the Archives of Ontario, indicates that the southwestern half of Lot 1, Concession 6 WCR was patented to Levi Mayhew (Map 2). *Tremaine's Map of the County of Peel, Canada West* (1859) indicates that the study area comprised part of a larger property occupied by William Alexander in the mid-19th century (Map 3). A church is clearly illustrated in the central part of the parcel, the community of Whaley's Corners appears to the southeast, and a separate property occupied by R. Nichols appears to the northwest.

The *Illustrated Historical Atlas of the County of Peel, Ont.* (1877) confirms that William Alexander and R. Nichols continued to occupy the southwestern half of Lot 1, Concession 6 WCR later in the 19th century (Map 4). A church and cemetery are clearly illustrated within the study area, Mullet Creek is illustrated to the northwest, and the Nichols and Alexander farmhouses are shown to the northwest and southeast, respectively. The topographic map from 1909 indicates that study area traversed the southwestern part of the cemetery, and a church appears along the northeastern edge of the subject lands (Map 5). Wooden homes appear to the northwest and southeast, and Mullet Creek is illustrated to the northwest. The community of Whaley's Corners appears to have comprised four wooden homes, one brick home and a brick school.

The aerial image from 1954 has low resolution, but the limits of the cemetery are visible, and several potential monuments can be seen (Map 6). It is unclear if the church was still standing at this time, but the surrounding lands were primarily agricultural. Mullet Creek appears to the northwest, as does a large farmstead further along the road. The aerial image suggests that the cemetery continued to be maintained, with manicured grass distinct from the surrounding fields.

#### *1.2.2.3 Land Registry and Additional Sources*

In order to gain a better understanding of the land use and occupational history specific to the cemetery, land registry records and additional information sources were consulted as set out in Section 3.1 of the *S&Gs* (MTC 2011:46–47). The principal transactions documented in the land

registry records for the subject lands are summarized in Table 3. A full discussion of the results of the detailed documentary research appears below.

**Table 3: Land Transaction Summary**
**(LRO #43)**

| Instrument | Date | Grantor | Grantee | Acres |
|---|---|---|---|---|
| Patent | 12 Jan 1827 | Crown | Levi Mayhew | 100 (SW ½) |
| B & S | 11 Jun 1832 | Levi Mayhew | William Kent | 40 (pt. SW ½) |
| B & S | 18 Sep 1839 | William Kent | Robert Gardner et al | 1 |

In January 1827, Levi Mayhew received the Crown Patent to the southwestern half of Lot 1, Concession 6 WCR. A cemetery was subsequently established along the Townline Road (modern Winston Churchill Boulevard), and the earliest recorded interment was for Nicholas Kennedy, who died in December 1827 (OGS 2001:8-5). Sometime around 1830, a log church was erected to hold worship services (Gilchrist 1981:3). According to a descendant of the pioneer May family, the Zion Methodist Church was located at the front of the property, slightly north of the centre line. Zion Methodist was on the Brampton Circuit at this time (OGS 2001:8-1).

In 1832, Mayhew sold 40 acres of his holding to William Kent. A one-acre parcel that may have encompassed the cemetery and church was sold to Robert Gardner et al. in 1839, although a plaque on the property indicates that the cemetery lands were donated by the Kent family, and historic sources indicate that the Mays subsequently owned the property (Perkins Bull 1938:1–2). Regardless, based on the presence of the early interments, it is clear that the property was used as a burial ground prior to it being officially acquired by Kent.

In 1867, a new log and frame church was constructed to replace the earlier building, which was named the Wesleyan Methodist Church. It is unclear whether this structure was preceded by one or two versions of the earlier church. At the time of its construction, the church became part of the Streetsville Circuit and served the local community until its closure in 1905 (OGS 2001:1). The church and its contents were sold by public auction in December 1918. Robert J. Whaley purchased the church building for $300 and then sold it to Jack Fraser of Huttonville, who turned it into a driving shed for his farm. The church driving shed was sold for $188, and was relocated to a property on Lot 4, Concession 10 in the Geographic Township of Esquesing. Following the closure of the church in 1905, the Whaley family retained the cornerstone from 1867 (OGS 2001:8-1).

Tombstone transcriptions have occurred on multiple occasions at the cemetery, the first of which was carried out by someone acting on behalf of Brampton historian William Perkins Bull between 1935 and 1938 (Gilchrist 1981:1). At the time of this visit, the cemetery was enclosed with cedar fence posts, cement corner posts and page wire that was installed in 1919 (Perkins Bull 1938:2–3). The cement corner posts are still extant onsite. Perkins Bull also noted the presence of "a large shallow excavation [that] would indicate that earth has been removed to fill the roadway on the 6th Concession" (Perkins Bull 1938:3). The property owner at the time, Mr. May, stated that soil had not been removed from the cemetery, although he did not offer another explanation. A copy of the Perkins Bull sketch map and transcription are included in Map 7 and Table 4, respectively.

## Table 4: Burial Plot Transcriptions
**(Perkins Bull 1938:4–12)**

| Plot | Name | Comments |
|---|---|---|
| 1 | Paul McCauley, d. Dec. 30 1894 | 3 ft grey granite slab on a poor base |
| 2 | Amos Kindree, d. Jan 4, 1849 | 3 ft. grey flat stone slab, leaning |
| 2 | Catherine Kindree, d. Jan 28, 1873 | 2 ft. flat stone, erect |
| 2 | Phoebe Edwards, d. Dec 6, 1848 | 2 ft. grey flat slab |
| 3 | Richard Edwards, d. Nov. 14, 1872 | 6 ft. grey granite shaft surrounded by wrought iron fence |
| 3 | Rosanna Edwards, d. Nov 6, 1867 | 6 ft. grey granite shaft surrounded by wrought iron fence |
| 3 | Sarah Moore, d. Jul. 21, 1875 | Fallen and broken stone leaning against the wrought iron fence |
| 4 | Rebecca [Carly] Broom, d. Jun. 15, 1911 | 3 ft. grey granite stone in good repair |
| 5 | Robert May, Jan. 25, 1875 | 8 ft. grey granite square shaft |
| 5 | Ellen May, d. Mar. 14, 1899 | 8 ft. grey granite square shaft |
| 5 | Ann Jane (Buck) May, d. May 6, 1887 | 8 ft. grey granite square shaft |
| 5 | Hannah May d. Dec. 8, 1854 | 8 ft. grey granite square shaft |
| 5 | James May, d. Oct 30, 1855 | 8 ft. grey granite square shaft |
| 6 | John Alexander d. Nov. 22, 1882 | 2 ft. grey flat stone |
| 7 | John W. Hustler, 1858–1934 | 18 inch grey granite slab, recently attended to with flowers |
| 7 | Jeremiah Hustler, 1844–1933 | 18 inch grey granite slab, recently attended to with flowers |
| 8 | Robert J. Whaley, 1855–1933 | 5 ft. grey granite block in good repair, plot unkempt |
| 8 | Florence Johnston Whaley, 1869–1935 | 5 ft. grey granite block in good repair, plot unkempt |
| 8 | Eileen Whaley, 1905–1906 | 5 ft. grey granite block in good repair, plot unkempt |
| 8 | John Whaley, 1815–1906 | 5 ft. grey granite block in good repair, plot unkempt |
| 8 | Ann Wiggins Whaley, d. Jul. 17, 1883 | 5 ft. grey granite block in good repair, plot unkempt |
| 9 | Frances Ballard, d. Sep. 13, 1881 | 3 ft. grey granite block on solid base |
| 9 | Ann Ballard Switzer, d. Aug 11, 1844 | 3 ft. grey granite block on solid base |
| 9 | John Ballard, d. Dec. 23, 1873 | 3 ft. grey granite block on solid base |
| 10 | Joseph Switzer, d. Sep. 15, 1828 | 18-inch grey flat stone |
| 10 | John Switzer, d. Apr. 11, 1841 | 18-inch grey flat stone |
| 11 | Mary Cantelon, d. May 11, 1852 | 2 ft. grey flat stone |
| 12 | Nancy Perdue, d. Dec. 16, 1835 | 2 ft. grey flat stone |
| 13 | Alexander Trimble, d. Dec. 20, 1896 | 8 ft. grey granite shaft in poor repair and unkempt |
| 13 | Margaret Langtry Trimble, d. Sep. 17, 1903 | 8 ft. grey granite shaft in poor repair and unkempt |
| 13 | John Trimble, d. Dec. 23, 1889 | 8 ft. grey granite shaft in poor repair and unkempt |
| 13 | Sarah Trimble, d. May 30, 1862 | 8 ft. grey granite shaft in poor repair and unkempt |
| 13 | James Trimble, d. Jan. 9, 1847 | 8 ft. grey granite shaft in poor repair and unkempt |
| 13 | Sarah Trimble, d. Nov. 16, 1862 | 8 ft. grey granite shaft in poor repair and unkempt |
| 13 | George Trimble, Sep. 8, 1841 | 8 ft. grey granite shaft in poor repair and unkempt |
| 13 | Martha J. Trimble, d. Nov. 18, 1876 | 8 ft. grey granite shaft in poor repair and unkempt |
| 14 | Eliza Reeves, d. Oct. 14, 1844 | 10 ft. blue granite shaft |
| 14 | Sarah Ann Dale, d. May 12, 1845 | 10 ft. blue granite shaft |
| 14 | Nicholas Kennedy, d. Dec. 6, 1827 | 10 ft. blue granite shaft |
| 14 | Sarah Kennedy, d. May 24, 1880 | 10 ft. blue granite shaft |
| 14 | Martha J. (Kennedy) Reeves, d. Sep. 1, 1854 | 10 ft. blue granite shaft |
| 15 | Elizabeth Colclough, d. Feb, 12, 1837 | 6 ft. grey granite shaft |
| 15 | Noble Colclough, d. Jun 7, 1860 | 6 ft. grey granite shaft |
| 15 | William Colclough, d. Oct. 17, 1845 | 6 ft. grey granite shaft |
| 16 | Paul Smeltzer, d. Oct. 19, 1871 | 3 ft. grey flat stone |
| 17 | Isabella Nelson, d. Apr. 2, 1855 | 2 ft. grey flat stone |
| 18 | Eliza Atchison, May 8, 1843 | 5 ft. grey square shaft |
| 19 | Thomas Pickard, d. Apr. 18, 1851 | 18 inch grey flat stone |
| 19 | Elizabeth Pickard, d. May 3, 1851 | 18 inch grey flat stone |
| 20 | Margaret (Wright) Kent, 1819–1903 | 2 ft. grey flat stone |
| 21 | Margaret Kent, date illegible | 2 ft. grey flat stone |

| Plot | Name | Comments |
|---|---|---|
| 21 | William Kent, d. Apr. 26, 1849 | 2 ft. grey flat stone |
| 21 | Rebecca Kent, d. Apr. 3, 1878 | 7 ft. grey granite square shaft |
| 21 | Matilda (Kent) Wilson, d. Jul. 28, 1879 | 7 ft. grey granite square shaft |
| 21 | Jane Kent, d. Aug. 2, 1868 | 7 ft. grey granite square shaft |
| 21 | Francis Kent, 1810–1887 | 7 ft. grey granite square shaft |
| 21 | Susan V. Kent, 1839–1888 | 7 ft. grey granite square shaft |
| 21 | Eliza B. Kent, d. Dec. 23, 1845 | 7 ft. grey granite square shaft |
| 21 | Edmund S. Kent, d. Mar. 19, 1872 | 7 ft. grey granite square shaft |
| 21 | Mary Jane (Kent) Gage, 1841–1884 | 7 ft. grey granite square shaft |
| 21 | Eva E. Kent, d. Nov. 15, 1889 | 7 ft. grey granite square shaft |
| 21 | Major Kent, d. Jan 5, 1851 | 7 ft. grey granite square shaft |
| 21 | Mary Kent, d. Mar. 5, 1832 | 7 ft. grey granite square shaft |
| 21 | Francis Kent, d. Dec. 10, 1846 | 7 ft. grey granite square shaft |
| 21 | William Kent, d. Apr. 26, 1849 | 7 ft. grey granite square shaft |
| 22 | "no legible transcription" | 18-inch flat grey stone |
| 23 | Richard House, d. Feb. 24, 1852 | 3 ft. grey flat stone |
| 24 | John Leflar, d. Oct. 4, 1856 | 4 ft. grey granite shaft |
| 24 | Elizabeth Leflar, d. Sep. 23, 1854 | 4 ft. grey granite shaft |
| 25 | Ellen M. Howson, d. Jun. 11, 1849 | 18-inch grey flat stone |
| 26 | George May, d. Jul. 5, 1874 | 4 ft. grey slab (stone) |
| 27 | William H. May, d. Jun. 1853 | 18-inch grey flat stone |
| 28 | George May Sr., d. Sep. 29, 1861 | 6 ft. grey shaft |
| 28 | Mary May, d. Apr. 3, 1884 | 6 ft. grey shaft |
| 29 | Henry May, 1827–1872 | 3 ft. red granite block in good repair and attended |
| 29 | Mary (Bell) May, 1823–1899 | 3 ft. red granite block in good repair and attended |
| 29 | Martha May, 1852–1875 | 3 ft. red granite block in good repair and attended |
| 29 | Leotta (May) Wedgewood, 1876–1901 | 3 ft. red granite block in good repair and attended |

The second transcription was undertaken by William E. Britnell in Fall 1974, the third was carried out by Tim Wakely in either Fall 1975 or Spring 1976, and the fourth was prepared by Mary Manning, Lois McKinney and Terry Leek in 1980. The inventories resulted in four different totals of burials and tombstones, with tombstone counts ranging from 36–41 (Gilchrist 1981:2–3). An analysis of the distribution of interments indicates that the cemetery was heavily utilized from 1840–1856, with the majority of burials (15) being between 1844 and 1850. This was likely during the period of the log structure (Gilchrist 1981:8). The latest burial was seemingly from 1935. In 1980/81, the Parks Department of the City of Brampton undertook a restoration program at the cemetery. A cairn was erected to the memory of the pioneers of the area in 1983, and the cornerstone was laid at the foot of the cairn (OGS 2001:1).

## 1.3 Archaeological Context

The Stage 2 assessment was conducted from August 1–3, 2017 under PIF #P007-0831-2017. ARA utilized a Hemisphere S320 GNSS receiver with RTK correction providing a precision of 1 cm (UTM17/NAD83) and a Garmin eTrex 20x GPS receiver with WAAS correction providing a precision of 5 m (UTM17/NAD83) during the investigation. The limits of the study area were confirmed using project-specific GIS data translated into GPS points for reference in the field, in combination with georeferenced aerial imagery showing natural formations in relation to the project lands.

The archaeological context of any given study area must be informed by 1) the condition of the property as found (Section 1.3.1), 2) a summary of registered or known archaeological sites located within a minimum 1 km radius (Section 1.3.2) and 3) descriptions of previous archaeological fieldwork carried out within the limits of, or immediately adjacent to the subject lands (Section 1.3.3).

### *1.3.1 Condition of the Property*

The study area lies within the deciduous forest, which is the southernmost forest region in Ontario and is dominated by agricultural and urban areas. This region generally has the greatest diversity of tree and vegetation species, while at the same time having the lowest proportion of forest. It has most of the tree and shrubs species found in the Great Lakes–St. Lawrence forest (e.g., white pine, red pine, hemlock, white cedar, yellow birch, sugar and red maples, basswood and red oak), and also contains black walnut, butternut, tulip, magnolia, black gum, many types of oaks, hickories, sassafras and red bud (MNRF 2019).

In terms of local physiography, the study area falls within the region known as the Peel Plain, which traverses parts of the City of Toronto and the Regional Municipalities of York, Peel and Halton. This plain is characterized by level-to-undulating clay soils which slope gradually toward Lake Ontario. The region contains deep valleys cut by the Credit, Humber, Don and Rouge Rivers (as well as other smaller streams like the Bronte, Oakville, and Etobicoke Creeks), and generally lacks large undrained depressions, swamps and bogs (Chapman and Putnam 1984:174–175).

According to the Ontario Soil Survey, the study area consists of a small area of Bottom Land along the waterway and a larger area of Chinguacousy clay loam throughout the remainder. Bottom Land consists of low-lying Alluvial soils that are characterized by variable topography, variable surface stoniness and usually poor natural drainage. This type of soil is sometimes used for pasture, and it can be cultivated and used for general farm crops when the time and extent of flooding are considered. Chinguacousy clay loam is a Grey-Brown Podzolic developed on fine textured shale and limestone till that is characterised by smooth gently sloping topography, few surface stones and imperfect natural drainage. This type of soil is used mainly for dairying, although a certain amount of general farming also occurs. Chinguacousy clay loam is well suited to the production of cereal grains and forage crops (Hoffman and Richards 1953:42–44, 63).

The subject lands fall entirely within the Mullet Creek drainage basin, which is under the jurisdiction of the Credit Valley Conservation Authority (CVC 2019). Specifically, the study area is located 17 m east of Mullet Creek, 655 m south of Levi's Creek, 805 m south of the Levi's Creek Wetland Complex, 1.25 km northwest of a tributary of Eastern Sixteen Mile Creek and 4.3 km southwest of the Credit River.

At the time of assessment, the study area comprised a mixture of manicured cemetery grounds, overgrown bushes, treed areas and funerary elements such as a memorial cairn, fence/gateposts and a consolidated monument. The landscape was largely level to the south and east, whereas there was a downward slope toward Mullet Creek in the north. Field conditions were ideal during the assessment, with high ground surface visibility and dry soils for screening.

One physical feature was encountered that affected fieldwork strategy decisions, which consisted of the memorial cairn in the central part of the study area. This feature interrupted the standard survey interval and is further discussed in Section 2.1.4. No other unusual physical features were encountered that affected fieldwork strategy decisions or the identification of artifacts or cultural features (e.g., dense root mats, boulders, rubble, etc.).

### *1.3.2 Registered or Known Archaeological Sites*

The Ontario Archaeological Sites Database and the Ontario Public Register of Archaeological Reports were consulted to determine whether any registered or known archaeological resources occur within a 1 km radius of the study area. The available MTCS search facility returned one registered archaeological site within at least a 1 km radius (the facility returns sites in a rectangular area, rather than a radius, potentially resulting in results beyond the specified distance). In terms of other known resources (e.g., Isolated Non-Diagnostic Find Spots, Leads or unreported deposits), no unregistered sites were identified within a 1 km radius. The site is summarized in Table 5.

**Table 5: Registered or Known Archaeological Sites**

| Borden No. / ID No. | Site Name / Identifier | Time Period | Affinity | Site Type | Distance from Study Area |
|---|---|---|---|---|---|
| AjGw-63 | Junction | Pre-Contact | Indigenous | Campsite | 300 m–1 km |

The Junction site (AjGw-63) is not located within or immediately adjacent to the project lands; accordingly, it has no potential to traverse the study area.

### *1.3.3 Previous Archaeological Work*

Reports documenting assessments conducted within the subject lands and assessments that resulted in the discovery of archaeological sites that could extend into the subject lands were sought during the research component of the study. In order to ensure that all relevant past work was identified, an investigation was launched to identify all reports involving assessments within 50 m of the study area. The investigation determined that there are three reports documenting previous archaeological fieldwork within the specified distance. The relevant results and recommendations are summarized below as required by Section 7.5.8 Standards 4–5 of the *S&Gs* (MTC 2011:126).

#### *1.3.3.1 Initial Widening of Winston Churchill Boulevard (Stage 1–2)*

In September 2009, Stage 1 and 2 assessments were undertaken for the initial widening of Winston Churchill Boulevard between Steeles Avenue and Embleton Road/5 Side Road under PIF #P018-288-2009 (NDA 2010a). The project involved the widening of the roadway to a five lane urban cross section from Steeles Avenue to the north entrance of Maple Lodge Farms and a two lane rural cross section from this point northerly to Embleton Road. The assessed area considered both sides of the 3 km long corridor, including the southwestern part of the subject study area. No locations of archaeological materials were identified during the test pit survey. The corridor was determined to be disturbed from previous road construction and utilities installation, save for the Mount Zion Cemetery property where historical foundations and possible graves could

still exist. It was recommended that the cemetery frontage be avoided during construction, and that mechanical topsoil removal occur if avoidance was not possible (NDA 2010a:16).

#### *1.3.3.2 Mount Zion Cemetery Investigation (Stage 3)*

Following the completion of the Stage 1 and 2 assessments for the initial widening of Winston Churchill Boulevard, it was determined that the cemetery frontage could not be avoided. The area to be impacted was subjected to a Stage 3 assessment in June 2010 under PIF #P018-325-2010 (NDA 2010b). Mechanical topsoil removal was carried out within a 50 x 7 m area across the front of the cemetery and an additional 6 x 5 m area for a new gravel driveway using a Gradall machine. An initial 4 m wide strip of soil was removed over an extant pipeline, and a subsequent 3 m wide strip was removed to the east for the entire length of the cemetery. In order to manage the backdirt, small sections of 4–5 m in length were excavated and examined for cultural features at a time before being backfilled. No cultural features or burials were observed during the mechanical topsoil removal, and it was recommended that the excavated area be free of further archaeological concerns. It was also noted that if design changes required any other cemetery lands, additional mechanical topsoil removal must occur (NDA 2010b:8).

#### *1.3.3.3 Winston Churchill Boulevard Municipal Class EA (Stage 1)*

In November 2014, a Stage 1 assessment was carried out as part of the Municipal Class EA for the further widening of Winston Churchill Boulevard under PIF #P007-0678-2014 (ARA 2015). The assessed area consisted of a large rectilinear corridor encompassing all design alternatives as well as parts of additional adjacent residential, agricultural and commercial properties that could ultimately be required by the project (including the entirety of the subject study area). Based on the results of the background research and property inspection, it was determined that the assessed lands comprised a mixture of areas of archaeological potential and areas of no archaeological potential. It was recommended that all areas of archaeological potential that could be impacted by the project be subject to a Stage 2 property assessment in advance of construction (ARA 2015:29). The subject study area was modelled as having archaeological potential and was recommended for test pit survey at an interval of 5 m. The previous Stage 1–3 reports were not considered as part of the study, as they were not included in the list of potentially relevant past fieldwork provided by the MTCS. A letter of *Review and Entry into the Ontario Public Register of Archaeological Reports* was issued for the associated report on July 24, 2015.

# 2.0 STAGE 2 PROPERTY ASSESSMENT

## 2.1 Field Methods

### *2.1.1 Overview*

The Stage 2 assessment involved visual inspection to evaluate archaeological potential, GPR survey within the open areas, and test pit survey in all identified areas of archaeological potential. Environmental conditions were ideal during the investigation, permitting good visibility of land features and providing an increased chance of finding evidence of archaeological resources. A breakdown of the specific fieldwork activities and environmental conditions appears in Table 6. ARA therefore confirms that fieldwork was carried out under weather and lighting conditions that met the requirements set out in Section 1.2 Standard 2 and Section 2.1 Standard 3 of the *S&Gs* (MTC 2011:16, 29).

**Table 6: Fieldwork Activities and Environmental Conditions**

| Date | Activity | Field Director | Field Conditions | Weather Conditions | Temperature (°C) | Lighting Conditions |
|---|---|---|---|---|---|---|
| 01/08/2017 | GPR survey | JH | Damp | Partly Cloudy | 30 | Very Good |
| 02/08/2017 | GPR survey | JH | Dry | Sunny | 31 | Excellent |
| 03/08/2017 | Test pit survey | CR | Dry | Partly Cloudy | 27 | Very Good |

### *2.1.2 Visual Inspection*

The study area was subjected to a systematic visual inspection (at an interval of 5 m) in accordance with the requirements set out in Section 1.2 of the *S&Gs* (MTC 2011:15–17). This component of the investigation was conducted concurrently with the property survey. The inspection confirmed that all surficial features of archaeological potential (e.g., the historically-surveyed roadway, etc.) were present where they were previously identified, and did not result in the identification of any additional features of archaeological potential not visible on mapping (e.g., relic water channels, patches of well-drained soils, etc.).

The visual inspection did not document any areas that had been clearly disturbed by past construction activities (Image 1–Image 2, Image 4). The memorial cairn erected in 1983 was observed in the central part of the study area, a consolidated monument with tombstones was documented in the east, and various gate/fenceposts were observed near the front (Image 5–Image 9). Although representative of minor disturbances, these areas were not significant enough to be modelled as having no archaeological potential and were therefore included in the property survey. The previously excavated lands adjacent to the extant roadway were also documented (Image 3, Image 10). No natural features (e.g., permanently wet lands, sloped lands, overgrown vegetation, heavier soils than expected, etc.) or other significant built features (e.g., heritage structures, landscapes, etc.) that would affect assessment strategies were identified.

### *2.1.3 GPR Survey*

A geophysical survey using GPR was carried out prior to the test pit survey in order to test for potential subsurface features and to better inform the results of the cemetery investigation as set out in Section 2.1 Guideline 2 of the *S&Gs* (MTC 2011:28). ARA utilised a 250 MHz 'Noggin' transducer provided by Sensors and Software of Mississauga, Ontario (Image 11). A 250 MHz instrument was selected to ensure the penetration of the radar signal to a depth suitable for potentially deeply-buried interments, and the instrument was transported on a four-wheeled 'SmartCart' system. The methods and results of the GPR survey are fully discussed in a specialist report provided in Appendix A, and what follows is a summary of the key elements.

The GPR survey was limited by a mature hedgerow separating the cemetery from the agricultural fields to the southeast, and thick ground cover adjacent to Mullet Creek prevented extension of the survey beyond the manicured cemetery lawn to the northwest. The winding nature of this boundary relative to the northwest-corner concrete fencepost indicated that the survey fell short of the presumed cemetery boundary by between 2.25 and 4.5 m. Three parts of the study area were occupied by unmanaged shrubbery and secondary growth and were inaccessible to the survey. These included two areas on the western boundary of the cemetery, each associated with a concrete gatepost, and a central unmanaged area surrounding the memorial cairn.

Grids were established across the study area in order to facilitate data collection, all of which were collected using a high precision GPS device. Given that interments were likely to align parallel with the boundaries of the cemetery and to take advantage of the capacity of GPR to identify targets encountered broadside, each grid was surveyed in two directions. Transects were recorded both perpendicular to Winston Churchill Boulevard as well as parallel to the road. Perpendicular transects (running roughly northeast-southwest) were collected from west to east except where obstacles prevented completion of the transect. In this case, a secondary record of the transect was made from east to west to complete record. Parallel transects were collected from south to north unless similarly interrupted.

Longitudinal measures of transect distance were taken using the index wheel against one of the cart wheels. The index wheel also controlled survey station interval by triggering emission of a radar pulse at specified distances along each transect. A calibration exercise was initiated before data collection began to establish that the measuring wheel was correctly calculating distances on the surface conditions presented by the study area. Data were collected in the field in the form of individual transect records using a proprietary data logging device (DVL 400).

Survey data were collected within each grid on a 1 m transect interval and with a 5 cm station interval along each transect. Transects were established using 30 and 50 m fibre tapes pinned in place using plastic tent pegs (Image 12). During the survey, targets were noted beneath the consolidated concrete memorial in the southeast corner of the study area as well as within a band beginning some 12 m south of the northwest boundary adjacent to Mullet Creek. Additional west to east transects were added in these areas to reduce the transect interval to 0.5 m.

Recorded full and partial transect lines for all grids were downloaded to a notebook computer in the field. Data lines were subsequently combined into a single record of all transects collected during the survey using proprietary software provided by the instrument supplier. An analytical

package was employed to display a visual record of transect lines and to interpolate between multiple lines to provide 3-dimensional surface, 'time slices,' of the entire study area. The analytical software was also used to filter the data by removing average background values, reducing the noise that could obscure patterns in the data. Contrast representing differences of physical properties in the subsurface environment were adjusted to emphasize data patterns.

The collected data was used to generate several reflection profiles. Reflection profiles are representations of the data recorded for a number of radar pulses. Rather than representing the whole study area; however, they provide a view of a single survey transect. Reflection profiles are generated by representing the response from each radar pulse as a column. Low amplitude radar reflections are not represented (these are filtered out as they are likely to result from noise in the signal and thus have no interpretive value). Stronger reflections are recorded simply as black bands within the otherwise white column. To present the data for an entire transect, the columns representing each trace are aligned adjacent to each other in the order of their collection. The result is a two-colour display representing the targets encountered in a single transect. As such, they provide a cross-sectional view of the study area that each transect represents.

The GPR survey did not result in the identification of any clear burial features, although four significant anomalies were detected. As is common with the use of GPR, great care must be exercised in the interpretation of geophysical survey results given the strong influence of a number of variables. However, there is evidence to suggest that the four anomalies that were encountered are related to the property's use as a cemetery, along with the footprint of the demolished church (Section 2.2.1.2). The conditions of the study area combined with the largely organic elements of early historical interments, resulted in the lack of signal resolution required to identify individual interments. The study did, however, identify some anomalies potentially relevant to understanding extant subsurface features on the property.

### *2.1.4 Test Pit Survey*

The test pit survey method was utilized to complete the assessment within the maintained lawn, overgrown areas and treed areas because ploughing was not possible or viable. Using this method, ARA crewmembers hand-excavated small regular test pits with a minimum diameter of 30 cm at prescribed intervals in accordance with Section 2.1.2 of the *S&Gs* (MTC 2011:31–32). Since the areas were located less than 300 m from any feature of archaeological potential, the test pit survey was conducted at an interval of 5 m (Image 13–Image 16). Although the larger bushes and consolidated monument did not disrupt the standard survey interval, the memorial cairn (comprising a plaque, corner stone, another stone and thick surrounding bush) represented a physical constraint. Test pits were excavated at a modified interval around this area to compensate for the interruption and ensure adequate survey coverage.

As required by Section 2.1.2 Standard 4 of the *S&Gs* (MTC 2011:32), test pits were excavated to within 1 m of the built structures. Each test pit was excavated into at least the first 5 cm of subsoil, and the resultant pits were examined for stratigraphy, potential features and/or evidence of fill. Topsoil consisted of a friable dark brown silty clay loam, and subsoil was a very compact orange brown clay with whiteish gray mottling. Topsoil was moderately thick across the property, and subsoil was often encountered at depths between 40 and 50 cm (Image 17). It is possible that parts of the property were stripped or graded in the past to create the present topography, but there was

no clear evidence of disturbance. The soils from each test pit were screened through mesh with an aperture of no greater than 6 mm and examined for archaeological materials.

One location of archaeological materials was encountered during the test pit survey: Site 1 (AjGw-581). Each PTP was documented and all of the artifacts were collected according to their associated test pit. Intensification as outlined in Section 2.1.3 of the *S&Gs* (MTC 2011:33–34) was not conducted, as the site appeared to be of further CHVI at the time of fieldwork. All test pits were backfilled upon completion.

### *2.1.5 Summary of Methods*

The various methods utilized during the Stage 2 assessment are presented in Map 8–Map 9. The eastern limits of the project lands (i.e., the Ultimate 45 m ROW) and the subject study area are depicted as layers on these maps, as are the areas of previous assessment. A breakdown of the survey methods appears in Table 7.

**Table 7: Survey Methods**

| Category | Study Area |
|---|---|
| Property assessed by pedestrian survey at an interval of 5 m | 0.00% (0.00 ha) |
| Property assessed by test pit survey at an interval of 5 m | 71.26% (0.11 ha) |
| Property assessed by test pit survey at an interval of 10 m | 0.00% (0.00 ha) |
| Property assessed by combination of visual inspection and test pit survey to confirm disturbance | 0.00% (0.00 ha) |
| Property assessed with a modified survey interval due to a physical or cultural constraint | 3.37% (0.01 ha) |
| Property not assessed due to physical constraint | 0.00% (0.00 ha) |
| Property not assessed because of permanently wet areas | 0.00% (0.00 ha) |
| Property not assessed because of exposed bedrock | 0.00% (0.00 ha) |
| Property not assessed because of sloped areas | 0.00% (0.00 ha) |
| Property not assessed because of disturbed areas | 0.00% (0.00 ha) |
| Property previously assessed and of further concern | 14.51% (0.02 ha) |
| Property previously assessed and of no further concern | 10.86% (0.02 ha) |
| **Total** | **100% (0.16 ha)** |

As required by Section 2.1 Standard 4 of the *S&Gs* (MTC 2011:29), GPS coordinates were recorded for at least one local fixed reference landmark (e.g., a Land Surveyor benchmark, Hydro pole, standard iron bar, etc.). The GPS co-ordinates for the documented landmarks appear in Table 8, and the fixed reference landmark locations are shown in Map 9.

**Table 8: Fixed Reference Landmarks**

| Fixed Reference Landmark ID | Landmark Type | UTM Zone | Easting (m) | Northing (m) |
|---|---|---|---|---|
| FRL1 | Fire Hydrant | 17 | 596,737 | 4,829,285 |
| FRL2 | Utility Pole | 17 | 596,764 | 4,829,265 |

### *2.1.6 Artifact Documentation*

All of the archaeological resources encountered during the assessment were recorded on field maps, described in field notes and documented with a GPS unit in accordance with Section 5.0 Standard 2 of the *S&Gs* (MTC 2011:93). All maps and data revealing detailed site location information appear in the accompanying SD (SD Map 1–SD Map 2; SD Table 1). As required by Table 7.1, Section 7.8.2 and Section 7.8.3 of the *S&Gs* (MTC 2011:122, 137–139), distinct Record of Finds and Analysis and Conclusions discussions are presented in Section 2.2.1.

During the laboratory processing of the retained finds, detailed documentation and analyses were carried out in order to provide 1) a record of the archaeological materials, 2) a basis for all recommendations and 3) enough basic information to help future researchers determine relevancy to their studies (MTC 2011:97). All the finds were classified using ARA's devised typological system, which is an adaptation of the *Parks Canada Database Artifact Inventory Coding Guide* (Parks Canada 2002) and *Nomenclature 4.0 for Museum Cataloguing* (Bourcier et al. 2015). In this system, chert types are determined in accordance with the *Cherts of Southern Ontario* (Eley and von Bitter 1989), and lithics are classified using the definitions set out in the *Field Manual for Avocational Archaeologists in Ontario* (Adams et al. 1995) and *Archaeological Laboratory Methods: An Introduction* (Sutton and Arkush 2002). Euro-Canadian artifacts are divided into classes, materials, and object groups using a variety of reference aids (e.g., Adams et al. 1995; Kenyon and Kenyon 2008; Miller 2000; Lindsey 2019).

The archaeological materials from the Stage 2 assessment are housed in polyethylene bags that are stored in Archive Box A516. This is a 30.5 x 25.4 x 38.1 cm light duty, double bottom corrugated cardboard box, and is labelled with its Archive Box designation. Box numbers are assigned in numerical order, and all associated information is entered into a digital catalogue for accurate tracking. All collection information is kept on a secure server. Archive Boxes are stored on steel storage shelves at 1480 Sandhill Drive in Ancaster, Ontario.

## 2.2 Site 1 (AjGw-581)

### *2.2.1 Record of Finds*

Site 1 was identified during the test pit survey of the manicured lawn northeast of the previously assessed area (SD Map 2). The site consisted of a 39 x 23 m (NW-SE) scatter of Euro-Canadian archaeological materials, and the GPR survey identified several anomalies that will likely prove to comprise part of the site extent after the subsurface environment is empirically investigated. The results of the survey suggest that the site extends beyond the assessed area to the northeast. The topography of the site can be classified as relatively flat. The stratigraphic sequence consisted of friable dark brown silty clay loam topsoil (Lot 1) over very compact orange brown clay subsoil with whiteish gray mottling (Lot 2). Test pit depths varied between 13 cm (PTP 16) in the west and 54 cm (PTP 2) in the east.

#### *2.2.1.1 Archaeological Materials*

A total of 67 artifacts were observed during the test pit survey (PTPs 1–20). Sampling was not conducted, and the retained finds consisted exclusively of Euro-Canadian artifacts. A quantitative summary of the retained materials appears in Table 9, and the finds are fully documented in Appendix B, Records 1–40 (Image 21–Image 23).

**Table 9: Quantitative Summary of Archaeological Materials**

| Class | Object Group | Object Name | Count | % of Class | % of Assemblage |
|---|---|---|---|---|---|
| Architectural | Construction Material | Brick (Unglazed) | 10 | 20.83% | 14.93% |
| | | Foundation Material | 10 | 20.83% | 14.93% |
| | Hardware | Nail | 12 | 25.00% | 17.91% |
| | Window Glass | Sheet | 16 | 33.33% | 23.88% |
| Architectural Total | | | 48 | 100.00% | 71.64% |
| Foodways | Glass Storage Container | Beer Bottle | 3 | 18.75% | 4.48% |
| | Tableware | Tableware (Unidentifiable) | 13 | 81.25% | 19.40% |
| Foodways Total | | | 16 | 100.00% | 23.88% |
| Unclassifiable | Glass Storage Container | Storage (Unidentifiable) | 2 | 66.67% | 2.99% |
| | Miscellaneous | Miscellaneous (Unidentifiable) | 1 | 33.33% | 1.49% |
| Unclassifiable Total | | | 3 | 100.00% | 4.48% |
| **Grand Total** | | | **67** | | **100.00%** |

The assemblage consisted primarily of window glass (23.88%), foodways tablewares (19.40%), architectural hardware (17.91%), miscellaneous unclassifiable materials (29.96%), foundation construction material (14.93%) and unglazed brick (14.93%). A total of five artifacts (7.46%) exhibited evidence of burning or heat alteration, including architectural hardware (n=4) and miscellaneous unclassifiable materials (n=1). A total of 27 artifacts (40.30%) could be dated based on the presence of recognizable diagnostic characteristics. The chronological significance of the diagnostic artifacts is summarized in Table 10.

**Table 10: Analysis of Euro-Canadian Diagnostic Artifacts**

| Class | Material | Datable Attribute | Count | Date Range |
|---|---|---|---|---|
| Architectural | Ferrous | Cut Nail | 12 | ca. 1830–1890 |
| Foodways | Pearlware | Painted (Blue) | 1 | ca. 1815–1830 |
| | | Transfer (Blue) | 1 | ca. 1802–1840s |
| | Whiteware | Painted (Early Palette) | 3 | ca. 1830–1840 |
| | | Plain | 6 | ca. 1830–present |
| | | Transfer (Black) | 1 | ca.1830–1840s |
| | | Transfer (Blue) | 1 | ca. 1830–present |
| Unclassifiable | Glass | Solarized | 2 | 1880–ca.1920 |
| **Total** | | | **27** | |

The diagnostic assemblage included a variety of artifacts common during the mid- to late 19th century, along with limited materials dating to the early 20th century. Cut nails were the most frequent diagnostic artifact recovered, which were popular from ca. 1830–1890. The ceramic

foodways component included both early 19th-century decorated pearlware (blue painted and blue transfer) as well as plain and decorated whiteware (black and blue transfer, Early Palette painted). The presence of pearlware does not necessitate that the site has a distinct pre-1830 component, as these finds likely represent the beginning of the overall occupational sequence. Two pieces of solarized glass were also recovered, providing evidence of use during the late 19th and early 20th century. Based on the consideration of the assemblage as a whole, the artifacts generally date between the early 1800s and the early 1900s.

#### *2.2.1.2 Potential Features*

No potential features were identified during the test pit survey, although four anomalies were encountered during the GPR survey. These are summarized in Section 2.2.1.2.1–Section 2.2.1.2.4.

##### *2.2.1.2.1 Possible Interments Below the Consolidated Monument*

In the southeast, the GPR survey captured the concrete memorial consolidating displaced and fragmented monuments from the cemetery. This feature was obtrusive to roughly 50 cm below surface. As such, the memorial was most clearly defined between 50 and 60 cm. Below this depth, the footprint of the memorial was noticeably less pronounced. At between 1.2 and 1.3 m below surface, evidence of the consolidated memorial was replaced by a series of parallel targets with their long axes oriented with the property boundaries and closely adjacent in an easterly row.

It was not possible to estimate the length of each feature along its north/south axis. A wrought-iron fence along the southern border of the concrete memorial prevented complete coverage of the area. It is possible that these more deeply buried features may have been produced by events surrounding the construction of the consolidated memorial. However, the discrete nature of the features, their appearance below the memorial footprint, their orientation and the ordered distance between them are typical of patterns that might be expected for cemetery interments. Interestingly, a sketch of the cemetery plots dating to the 1930s (Map 7), places interments along the southeastern boundary of the property and perpendicular to it. A rough calculation of distance from the sketch places the first of these plots some 20 yards (18 m) from the western fence and provides good correspondence with the features encountered beneath the consolidated memorial.

##### *2.2.1.2.2 Potential Evidence of Buried Monument Bases*

Northwest of the memorial cairn, three isolated, near-surface and comparatively bright radar reflections were encountered. The northeasternmost of these in turn corresponded precisely with a partially-exposed flat rock (no natural rock outcrops were noted during fieldwork). The roughly rectangular block was level with the ground surface and of made of granite or a related material. As such, the feature was entirely consistent with a cemetery monument base. The two remaining radar reflections were similarly persistent to a depth approaching 50 cm though they were not visible at the surface. Their likeness to the known feature in size and amplitude of reflected radar energy implied that their structure was likely similar to the block identified on the surface. The presence of three potential near-surface stone blocks, in an area of the cemetery known to contain interments in the 1930s, suggests that they represent the subsurface remains of monuments.

#### *2.2.1.2.3 Possible Evidence of the Foundation of Mount Zion Methodist Church*

Immediately northeast of the memorial area, and slightly enclosed by the eastern boundary of the study area, a roughly rectangular, three-sided, linear structure was encountered approximately 30–40 cm below surface. The anomaly spanned some 7 m from north to south and 8 m from west to east, though its full dimensions were obscured by the area around the cairn. Given that natural processes rarely result in linear features with parallel sides and right-angled corners, it is unlikely that this feature was an artifact of the interpolation process. A review of the reflection profiles for transects across the region confirmed targets corresponding to the rectilinear feature. As such, it is likely that the feature marks the subsurface remains of the foundation of a modest country church.

Interestingly, this is also supported by the location of the feature relative to the extant gateposts. The feature was aligned to the property boundaries, with its short axis toward the entranceway, and on level ground set back approximately 10 m from it. The center of the west face of the anomaly was displaced to the north of the center line of the property entrance by about 4 m. A roughly comparable verbal description of the location of the church was encountered in the historical record (Section 1.2.2.3).

#### *2.2.1.2.4 Evidence of Distributed Disturbance in the Northwest*

Aside from the anomalies already discussed, no further conclusive evidence of substantial buried features was encountered within the southern and central parts of the study area. With data filters set as tolerantly as possible, and emphasizing even minor variations in subsurface condition, comparatively little differentiation in subsurface condition was encountered from the consolidated concrete memorial in the south to the region around the centrally-located unsurveyed areas. This observation cannot be taken as evidence that no interments were present in this portion of the study area. Given the numerous factors that affect the recognition of subsurface features to the GPR instrument, absence of indicators for buried features does not necessarily mean that none were present. All that can be demonstrated is that this region of the study area contained no features whose properties were distinct enough from the surrounding soil to make them detectable by GPR.

In the south, from the unsurveyed area to the consolidated concrete monument, radar reflections were diffuse and likely the result of background noise. Conversely, the northern part of the study area showed more substantial and persistent subsurface anomalies at a depth of approximately 1 m. In a 12 m wide band from approximately the northern point of the northernmost unsurveyed area to the limit of the study area, the underground environment was substantially more heterogeneous than elsewhere. It was not possible to distinguish features in this region as indicative of cemetery interments. However, if cultural or other disturbances to the underground environment were preserved, it may be that their evidence has persisted in the northern 12 m of the study area.

At a depth of 1.8 to 1.9 m, even with high gain, very little differentiation was detected across the study area. An exception to this was found in the northeastern corner, adjacent to the northern boundary, where an apparent anomaly was encountered. Organic in shape, the target varied in size with depth, reaching a maximum of about 4 m west to east and 1.5 m north to south. Although it reflected most strongly at depth, the anomaly did have a presence in the near surface environment.

The reflection from the apparent anomaly was bright compared with others detected across the study area. Additionally, the velocity of the reflected radar signal was substantially higher than encountered elsewhere during the investigation. The disturbance beginning at 1.6 m in depth and spanning the 14 m mark to approximately 25 m along the transect, was very broad in comparison with those produced by other targets. Others are visible in reflection profile, at approximately 6.5 m in the x-axis and approximately 20 m. A signal velocity calculation estimated a velocity (0.3 m/ns) that is substantially higher than the value expected (0.1 m/ns) for underground environments. These characteristics were in keeping with a response from an above-ground object.

Microwave energy moving through air above the surface travels at higher velocity and produces stronger responses from nearby objects than in an underground environment. No candidate for a strong above-ground target was noted during the survey. However, the proximity of the anomaly to the northwestern boundary of the study area and the secondary forest cover in the bottomland of Mullet Creek may have concealed the presence of a strongly-reflective above-ground feature. As such, it is possible that the near-surface responses at that location in the study area may have identified a subsurface anomaly. This formed one of several potential features in the 12 m band across the northern part of the study area that may require empirical investigation.

#### *2.2.1.3 Artifact Distributions and Frequencies*

The assessment suggests that the site consists of a Euro-Canadian scatter with a variable artifact distribution pattern. It is possible that the distribution pattern has been influenced by past land disturbances, but this has not been confirmed. High yielding PTPs included PTP 17 in the southwest (n=9), PTP 5 in the north (n=8) and PTP 18 in the west (n=8). No distinct concentrations of specific artifact classes (e.g., architectural, foodways and unclassifiable) were noted during the assessment, largely because artifact yields were sparse throughout the study area. The GPR survey identified possible structural foundations in the northeast (in the vicinity of PTP 5) and possible monument bases in the west-centre (near PTP 10).

#### *2.2.1.4 Documentary Record*

The inventory of the documentary record, which includes a quantitative summary of the field notes, photographs and mapping materials associated with the project, appears in Table 11.

**Table 11: Documentary Record**

| Field Documents | Total | Nature | Location |
|---|---|---|---|
| Photographs | 77 | Digital | On server at 219-900 Guelph Street, Kitchener |
| Notes | 4 | Digital and hard copy | Filed and on server at 219-900 Guelph Street, Kitchener |
| Maps | 13 | Digital and hard copy | Filed and on server at 219-900 Guelph Street, Kitchener |

### *2.2.2 Analysis and Conclusions*

The results of the test pit survey suggest that Site 1 comprises a moderately-sized deposit of Euro-Canadian archaeological materials, and the GPR survey demonstrated that a variety of potential subsurface features also exist in the area. Stratigraphy suggests that the site has a relatively

moderate level of integrity, as there was clear evidence of significant disturbance since the deposition of the artifacts.

The assemblage consisted primarily of window glass (23.88%), foodways tablewares (19.40%), architectural hardware (17.91%), miscellaneous unclassifiable materials (29.96%), foundation construction material (14.93%) and unglazed brick (14.93%). The diagnostic artifacts generally date between the early 1800s and early 1900s, and the presence of pearlware suggests that the beginning of the occupational sequence is ca. 1830/40. At this point, there is no evidence to suggest that the site has a distinct pre-1830 component. Possible burial shafts were identified near the northwestern boundary of the study area, possible interments were identified underneath the consolidated monument in the southeast, possible monument bases were identified in the centre, and a possible foundation was documented in the northeast. No funerary-specific diagnostic artifacts were recovered during the test pit survey, however.

Background research indicates that the property was first used for interments in 1827, and that the cemetery was most heavily utilized from 1840–1856. The first Zion Methodist Church was built ca. 1830, and a second (possibly third) iteration was built in 1867. Despite the closure of the church in 1905, the graveyard continued to be used into the early 20$^{th}$ century. A cairn was erected to the memory of the pioneers of the area in 1983, and the cornerstone was laid at the foot of the cairn.

Based on the diagnostic artifacts mentioned above, coupled with the detailed background research, ARA proposes that the general time frame of occupation for Site 1 is from ca. 1830 to ca. 1920. The available evidence suggests that Site 1 represents remains related to the construction, use and removal of the church(s) as well as potential features associated with the cemetery. The proposed date range reflects the period between the initial use of the church and its ultimate removal.

When evaluated against the criteria set out in Section 2.2 of the *S&Gs* (MTC 2011:40–41) and the additional guidance provided in Section 2.0 of the *RHF* (MTCS 2014:8–10), the available evidence indicates that Site 1 is of further CHVI. Specifically, at least 20 artifacts were recovered that when analyzed as an assemblage can date the period of occupation of the site at least in part to before 1900, potential subsurface features were identified during the GPR survey, and the site comprises part of a historic cemetery. Site 1 warrants a Stage 3 site-specific assessment, but it is unclear if the site will also require a Stage 4 mitigation of development impacts.

# 3.0 RECOMMENDATIONS

The Stage 2 assessment of the identified areas of archaeological potential resulted in the identification of one location of archaeological materials: Site 1 (AjGw-581). The GPR survey did not result in the identification of any clear burial features, although four significant anomalies were detected. Site 1 was found to be of further CHVI.

Site 1 was identified entirely within additional lands adjacent to the proposed project limits and will not be directly impacted by construction. However, all lands comprising the site extent and a 20 m protective buffer must be considered a 'protected area'. Protective buffers cannot traverse private properties for legal reasons and can be misleading when extended into adjacent unsurveyed lands; accordingly, a truncated buffer is warranted at Site 1 (SD Map 3). Given that part of the protective buffer traverses the project lands, a partial Stage 3 assessment must be carried out within the area of overlap to determine whether any areas of CHVI requiring Stage 4 hand excavation are present. It is recommended that this area be subject to a Stage 3 site-specific assessment in accordance with the requirements set out in Section 3.2, Section 3.2.2 and Section 3.2.3 of the *S&Gs* (MTC 2011:47, 50–53). Additional detailed documentary research is not needed, as the subject report has already fulfilled the requirements set out in Section 3.1 of the *S&Gs* (MTC 2011:46–47).

An appropriate assessment method for Site 1 would comprise test unit excavation using the strategy for Pre-Contact or Post-Contact sites where it is not yet evident that the level of CHVI will result in a recommendation to proceed to Stage 4 (MTC 2011:Table 3.1, Numbers 1 and 2). This would involve the excavation of grid test units at a 5 m interval along the interface of the project lands and the protected area, and additional test units amounting to at least 20% of the initial grid unit total in areas of interest. An additional row of units to the southwest may be required to meet the objectives set out in Section 3.2.3 of the *S&Gs* (MTC 2011:50). All test units must be excavated stratigraphically into at least the first 5 cm of subsoil, and all soils must be screened through mesh with an aperture of no greater than 6 mm. If a potential cultural feature is uncovered, the exposed plan of the feature must be recorded, and geotextile fabric must be placed over the unit floor prior to backfilling. Section 3.2.2 Guideline 3 of the *S&Gs* (MTC 2011:49) states that exposed cultural features may be excavated during a Stage 3 assessment only if the information is required to inform a recommendation for or against a Stage 4 mitigation of development impacts.

Given that the project lands traverse a registered cemetery, a cemetery investigation must be completed to confirm that no burial features are present either within or beyond the legal property line as it is currently defined. Provided that no surficial areas of CHVI are identified after test unit excavation at Site 1, the required cemetery investigation can then occur to ensure that there are no burial features or human remains within the traversed portion of the cemetery and a 10 m buffer around the limits of the cemetery. The cemetery investigation must be conducted in accordance with Section 3.3.3 and Section 4.2.3 of the *S&Gs* (MTC 2011:55–56, 78–79). The Registrar, *Funeral, Burial and Cremation Services Act, 2002*, Bereavement Authority of Ontario must be engaged throughout the process.

The deeply buried survey must comprise the mechanical excavation of all undisturbed lands within the cemetery buffer that were not previously cleared of concerns. An excavator or backhoe with an articulated wrist and a straight-bladed bucket must be utilized so that potential resources are not damaged. The mechanical excavation should continue until the topsoil/subsoil interface is reached, and the interface must be immediately subjected to a close examination for potential burial features (or other cultural features) and shovel shined to further clarify the interface in accordance with the requirements set out in Section 4.2.3 of the *S&Gs* (MTC 2011:78–79). The remainder of the cemetery buffer consists of the disturbed ditch and roadway platform (SD Map 3). Since it is not feasible to excavate this part of the buffer, archaeological monitoring must be carried out during construction as per Section 3.3.3 Standard 4 of the *S&Gs* (MTC 2011:55–56).

If any burial features (grave shafts or coffin stains) are encountered within the project lands, they must be fully documented and mapped in order to satisfy the requirements and objectives set out in the *Funeral, Burial and Cremation Services Act, 2002*, Section 174 of Ontario Regulation 30/11 as well as Section 4.2.1 Standard 9 and Section 4.2.2 Standard 7 of the *S&Gs* (MTC 2011:76–77). If directed by the Registrar, *Funeral, Burial and Cremation Services Act, 2002*, Bereavement Authority of Ontario, a sample of graves may be explored to determine if they still contain human remains. As required by Table 4.1 of the *S&Gs* (MTC 2011:85), excavations must be extended a minimum of 10 m beyond the outermost burial features (or other cultural features). If the Stage 3 site-specific assessment results in the discovery of areas requiring Stage 4 hand excavation, then the cemetery investigation will need to be conducted after any recommended activities are completed. In such a case, the Stage 4 excavation and cemetery investigation should be carried out and reported on concurrently.

An avoidance strategy must also be implemented to ensure that the remainder of the protected area is not impacted during construction. A temporary barrier must be established along the interface of the protected area and the project limits prior to construction, and this barrier must extend for a minimum of 10 m beyond the cemetery limits to accommodate the required buffer. All adjacent construction activities must be monitored by a licensed archaeologist to ensure the effectiveness of the avoidance strategy. Specifically, the archaeologist will inspect the fence erection, be present on site during the initial excavations and periodically visit the site during construction to confirm that the avoidance measures are being followed. 'No go' instructions must be issued to all on-site work crews and engineers for the protected area, and the location of the protected area must be shown on all appropriate contract drawings. The protected area must be inspected by a licensed archaeologist once construction is complete, and the effectiveness of the avoidance strategy must be reported to the MTCS.

Regarding the balance of the project lands, ARA reiterates the recommendation made under PIF #P007-0678-2014 wherein all areas of archaeological potential that could be impacted by the project be subject to a Stage 2 property assessment in advance of construction (ARA 2015:29). Any areas of potential that fall outside of the preferred design and any areas that were previously assessed and cleared of further concerns would not need to be assessed in advance of construction.

# 4.0 ADVICE ON COMPLIANCE WITH LEGISLATION

Section 7.5.9 of the *S&Gs* requires that the following information be provided for the benefit of the proponent and approval authority in the land use planning and development process (MTC 2011:126–127):

- 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 Section 48 (1) of the *Ontario Heritage Act*.
- 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.
- The *Funeral, Burial and Cremation Services Act*, 2002, S.O. 2002, c.33 requires that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ministry of Consumer Services.

# 5.0 IMAGES

**Image 1: Field Conditions**
**(August 3, 2017; Facing Northeast)**

**Image 2: Field Conditions**
**(August 3, 2017; Facing Northeast)**

**Image 3: Field Conditions**
**(August 3, 2017; Facing Northwest)**

**Image 4: Field Conditions**
**(August 3, 2017; Facing Southwest)**

**Image 5: Memorial Cairn**
**(August 3, 2017; Facing Northeast)**


**Image 6: Commemoration Plaque**
**(August 3, 2017; Facing Northeast)**

**Image 7: Consolidated Monument**
**(August 1, 2017; Facing Southwest)**

**Image 8: Northern Gatepost**
**(August 1, 2017; Facing Northwest)**

**Image 9: Southern Gatepost**
**(August 1, 2017; Facing Southeast)**

**Image 10: Gravel Driveway and Drainage**
**(August 3, 2017; Facing South)**

**Image 11: GPR Survey Instrument**
**(Stock Photo)**

**Image 12: GPR Transect Construction**
**(August 2, 2017; Facing Northeast)**

**Image 13: Test Pit Survey**
**(August 3, 2017; Facing Southwest)**

**Image 14: Test Pit Survey**
**(August 3, 2017; Facing Northwest)**

**Image 15: Test Pit Survey**
**(August 3, 2017; Facing North)**

**Image 16: Test Pit Survey**
**(August 3, 2017; Facing Southeast)**

**Image 17: Typical Test Pit**
**(August 3, 2017; Facing North)**

**Image 18: PTP 1**
**(August 3, 2017; Facing Northeast)**

**Image 19: PTP 16**
**(August 3, 2017; Facing North)**

**Image 20: PTP 17**
**(August 3, 2017; Facing North)**


**Image 21: Sample of Architectural Artifacts**
**(1: Brick; 2: Cut Nail)**

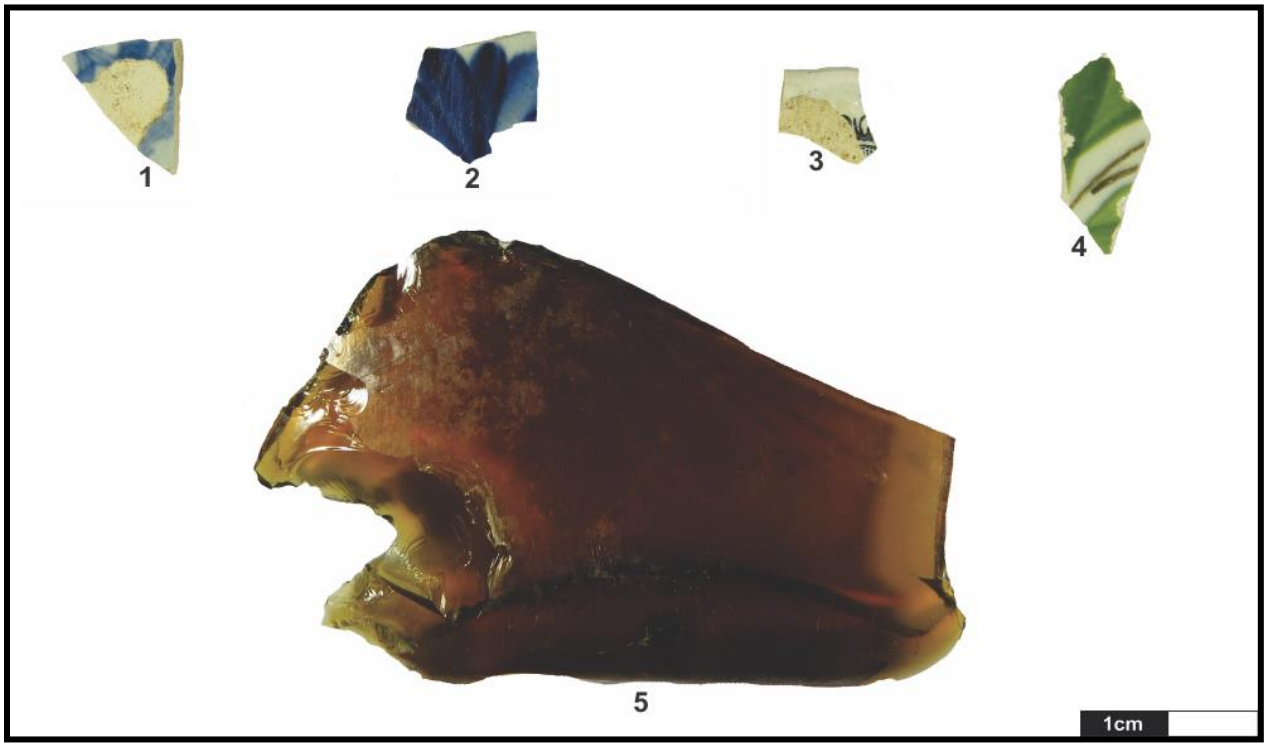
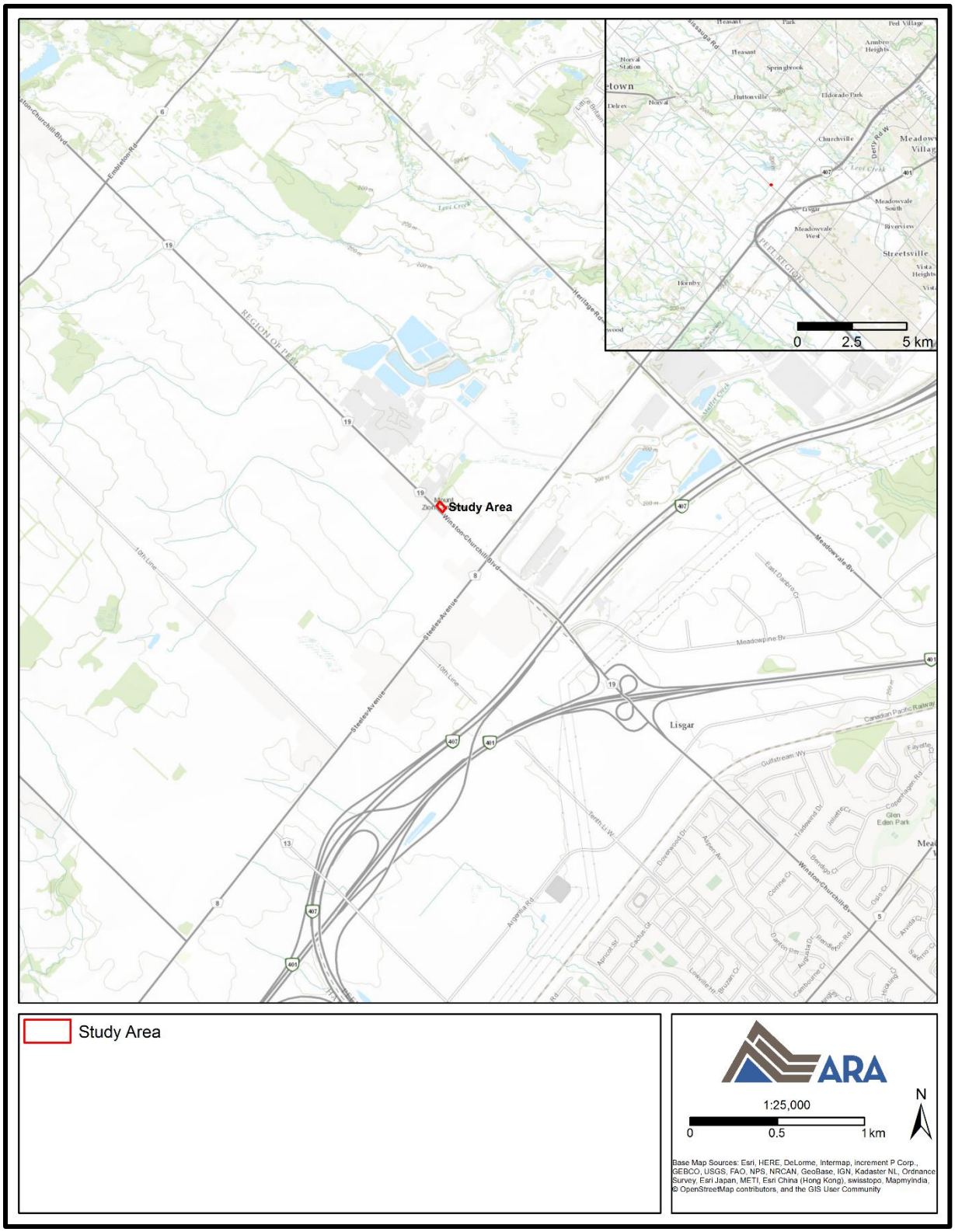



**Image 22: Sample of Foodways Artifacts**
**(1: Transfer Print Pearlware; 2: Blue Painted Pearlware; 3: Black Transfer Whiteware; 4: Early Palette Painted Whiteware; 5: Beer Bottle))**

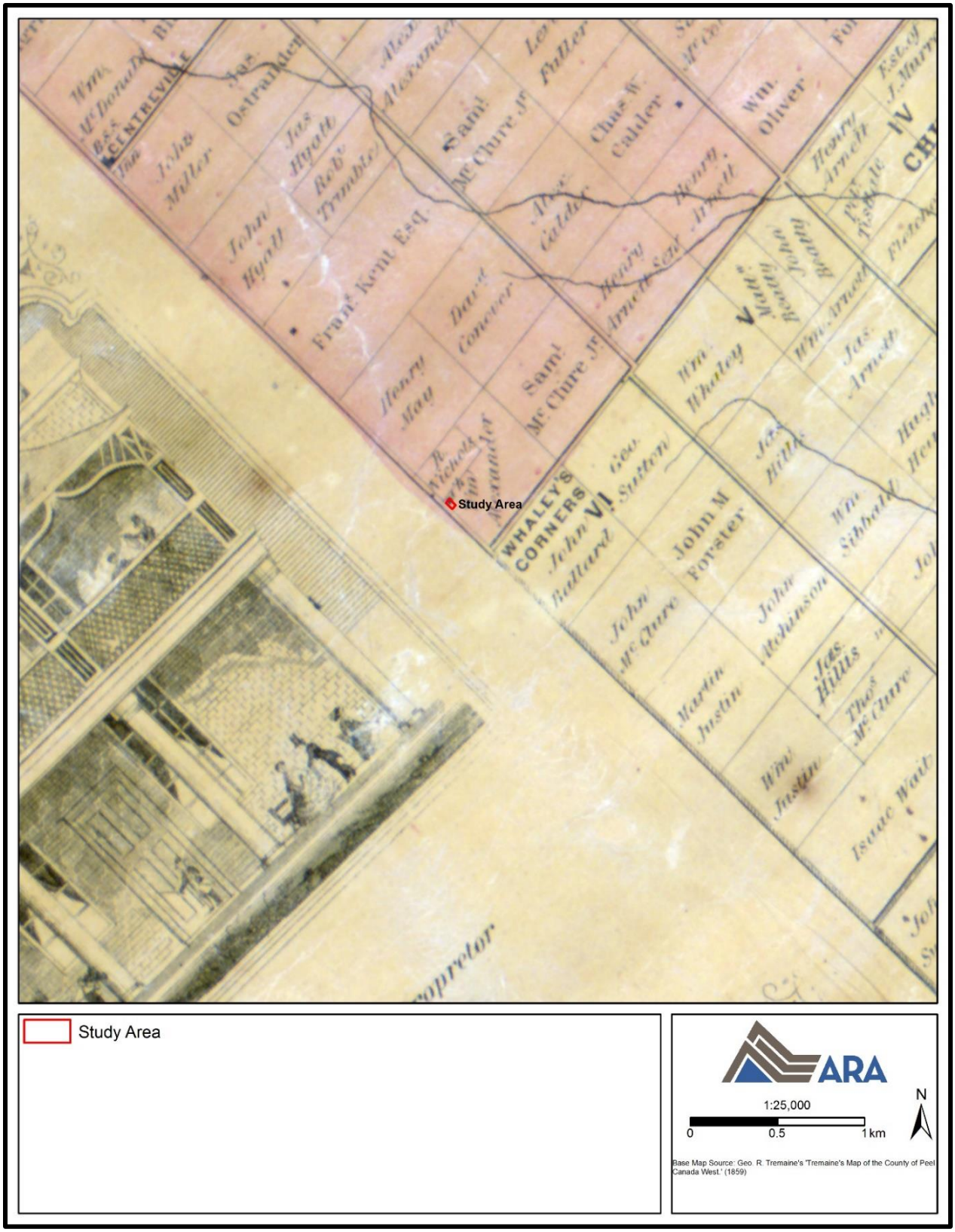

**Image 23: Sample of Unclassifiable Artifacts**
**(1: Exterior View; 2: Profile View; 3: Interior View)**

# 6.0 MAPS

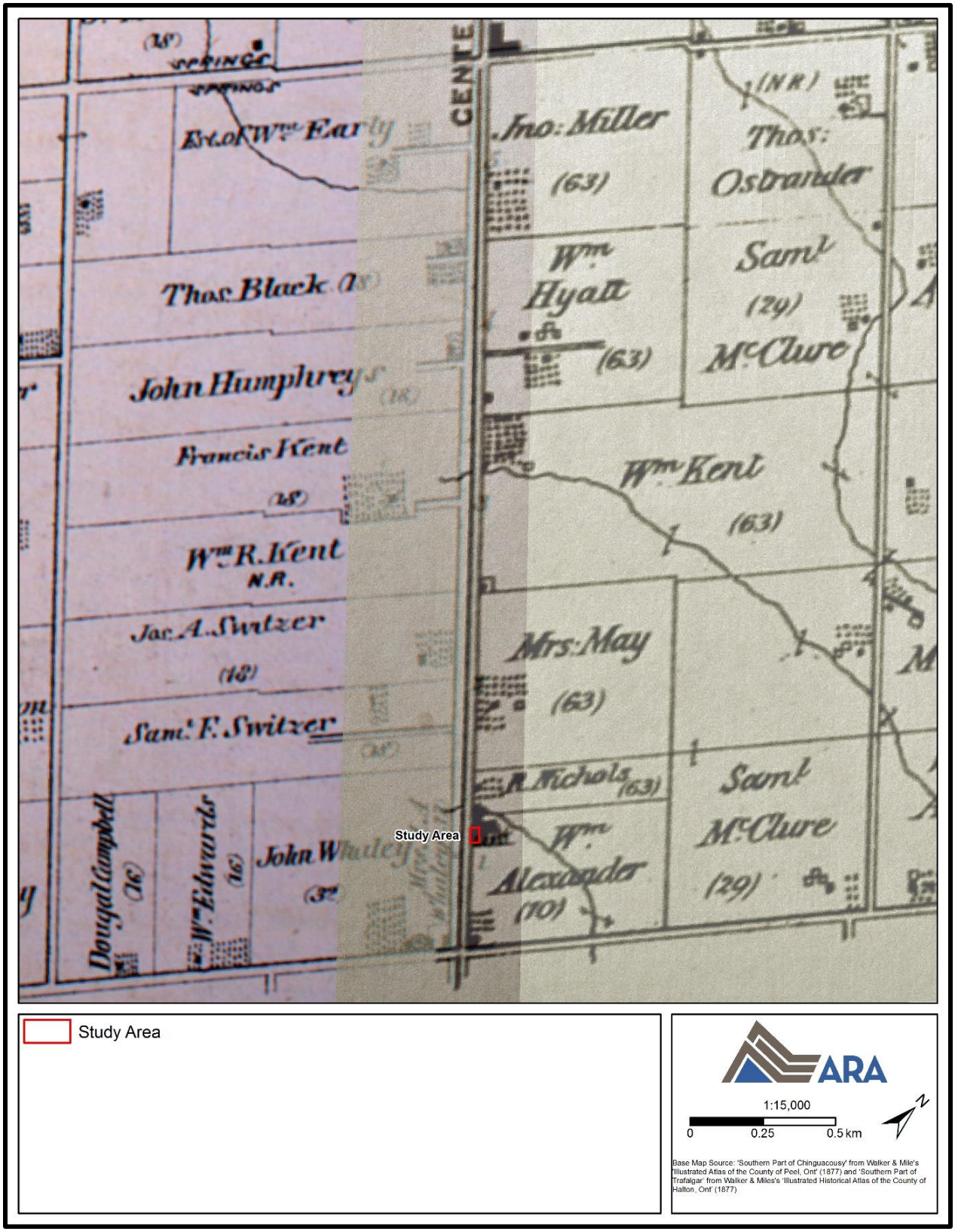



**Map 1: Location of the Study Area**
**(Produced under licence using ArcGIS® software by Esri, © Esri)**

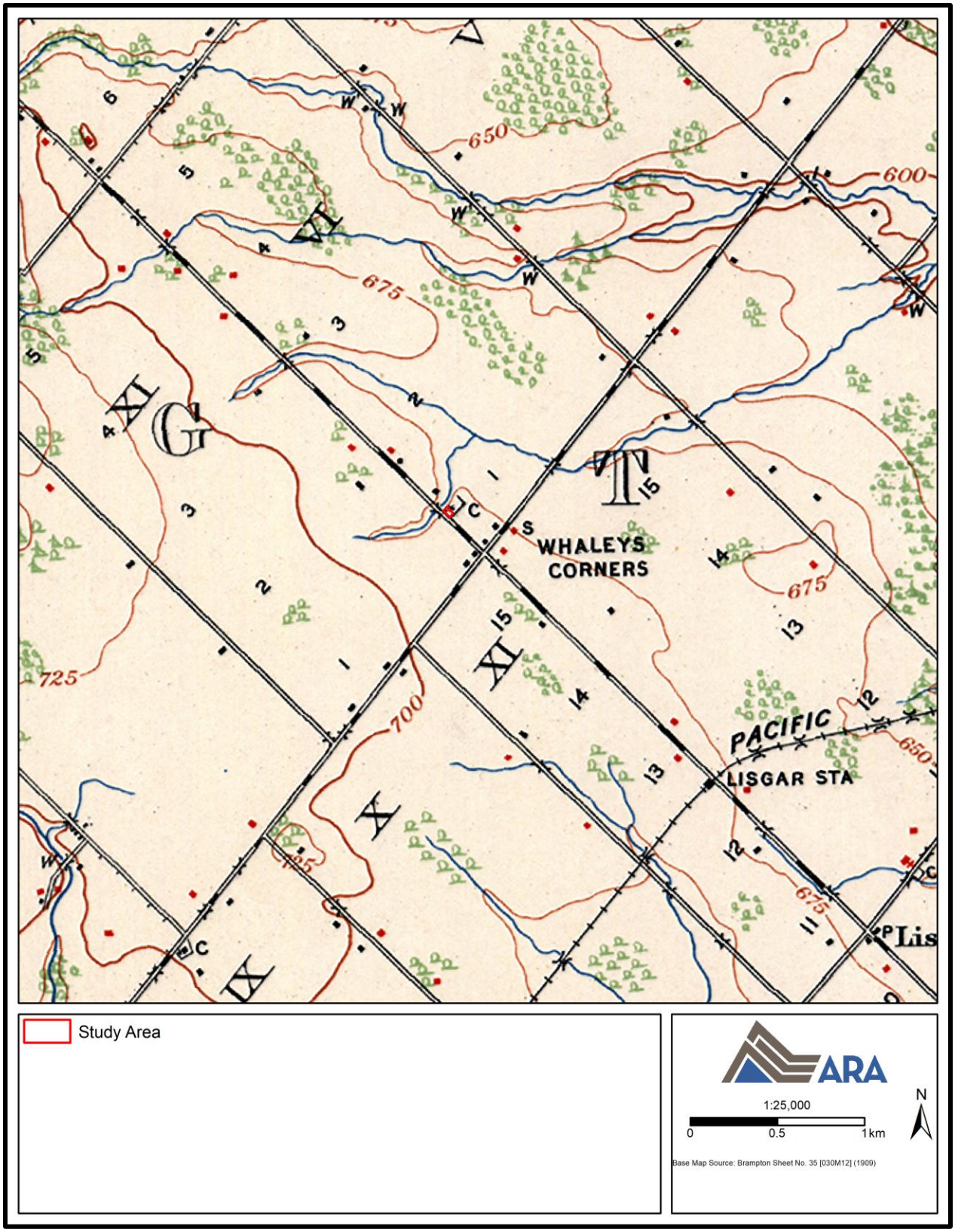

**Map 2: *Chinguacousy* Patent Plan**
**(Produced under licence using ArcGIS® software by Esri, © Esri; AO 2015)**




**Map 3: G.C. *Tremaine's Map of the County of Peel, Canada West* (1859)**
**(Produced under licence using ArcGIS® software by Esri, © Esri; University of Toronto 2019)**

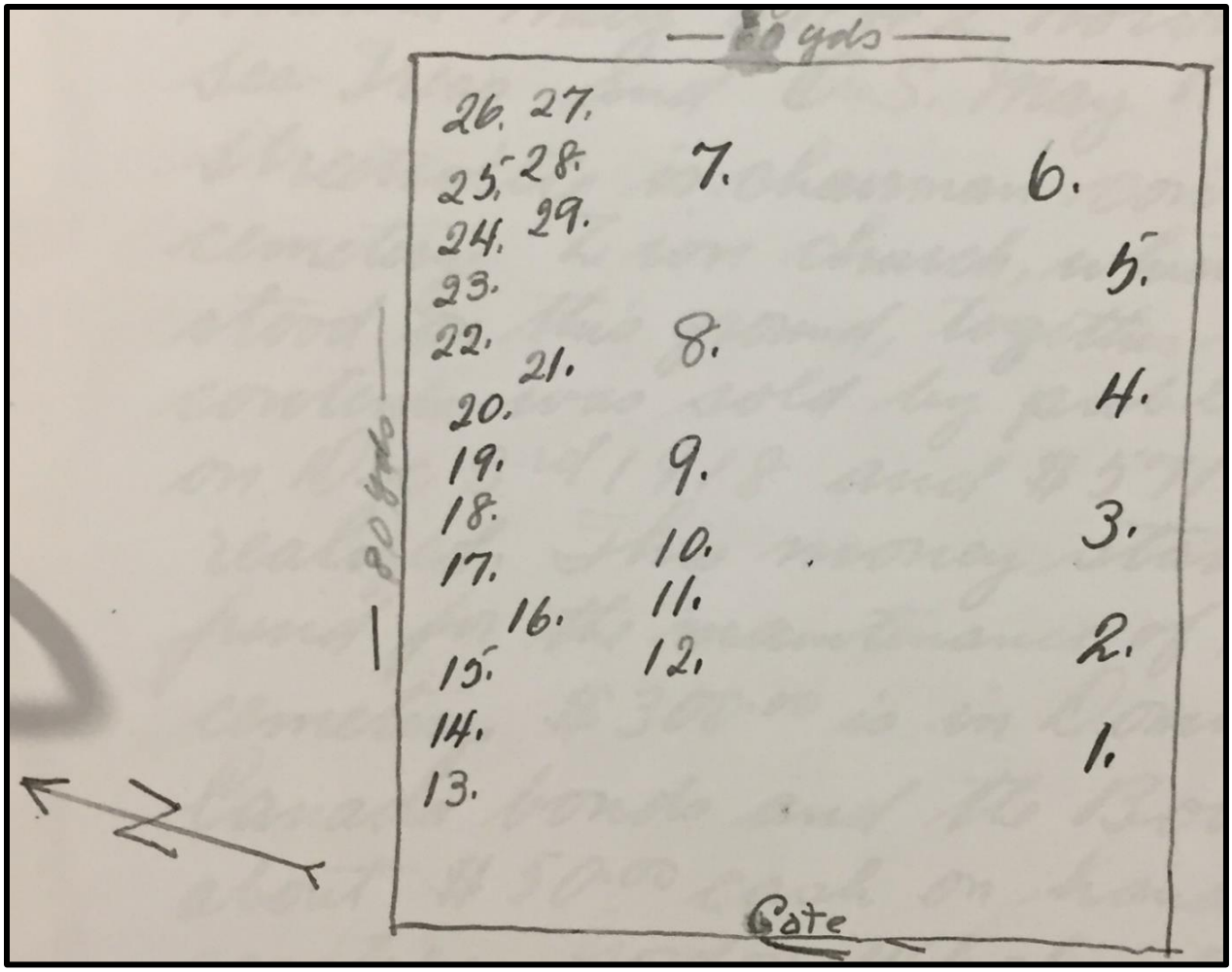



**Map 4: Walker & Miles' *Illustrated Historical Atlas of the County of Peel, Ont.* (1877)**
**(Produced under licence using ArcGIS® software by Esri, © Esri; McGill University 2001)**




**Map 5: Topographic Map (1909)**
**(Produced under licence using ArcGIS® software by Esri, © Esri; OCUL 2019)**


**Map 6: Aerial Image (1954)**
**(Produced under licence using ArcGIS® software by Esri, © Esri; University of Toronto 2019)**




**Map 7: Sketch Map of Mount Zion Cemetery (1938)**
**(Perkins Bull 1938:1)**


**Map 8: GPR Survey Methods**
**(Produced under licence using ArcGIS® software by Esri, © Esri)**


**Map 9: Test Pit Survey Methods**
**(Produced under licence using ArcGIS® software by Esri, © Esri)**

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# APPENDICES

# Appendix A: GPR Survey Preliminary Report

*Archaeological Research Associates Ltd.*
*Whaley's Corners Cemetery Investigation P007-0831-0832-2017 (2016-0370)*
*GPR Survey Preliminary Report*
*Aug. 23, 2017*

Summary:
Archaeological Research Associates Ltd. was contracted by Hatch Ltd. to conduct a Stage 2 and 3 archaeological assessment of part of the Mount Zion Cemetery in the historical community of Whaley's Corners in the Municipality of Peel. This unofficial and interim report constitutes a summary of the geophysical investigation of the study area that took place as one component of the Stage 2 archaeological assessment. The goal of the study was to help guide Stage 3, excavation-based investigation of the study area and potentially identify the locations of unmarked cemetery interments. The results of the geophysical survey will be included within the licence report submitted to the Ministry of Culture, Tourism, and Sport. It is this licence report that is required for clearance of the development project.

The cemetery associated with the historical Mount Zion Methodist Church was located on the east side of Winston Churchill Blvd. immediately south of the road crossing of Mullet Creek. The study area was 27m wide, encompassing the front portion of the cemetery, bordering Winston Churchill Blvd. The geophysical investigation was conducted by ARA personnel on August 1 and 2, 2017, using a ground-penetrating radar apparatus supplied by Sensors and Software of Mississauga, Ontario. The survey investigated the flat to moderately sloping, grassed landscape of the study area, exclusive of three small areas of unmaintained shrubbery that could not be accessed by the instrument.

The heavy, clay-rich soils encountered within the study area were not well suited to geophysical investigation. Much of the property provided insufficient variation in subsurface conditions to be differentiated by the instrument. Additionally, it might be expected that early historical interments were likely to be dominated by organic elements that provided little contrast with natural conditions. The result was that the study lacked the resolution required to identify individual interments. This report restricts itself to discussion of underground anomalies encountered during the survey that must depend on direct observation of the immediate subsurface environment to determine their nature.

Preliminary analysis of the results of the survey identified four areas of interest. In the southeastern corner of the study area, the instrument clearly identified the horizonal concrete memorial consolidating displaced and broken cemetery monuments. This structure persisted in the subsurface environment to some depth but subsequently was no longer detectable. Below the memorial, a further set of anomalies was encountered. It is certainly possible that these were also associated with construction of the combined concrete memorial. At the same time, the apparently discrete, ordered, and parallel nature of these targets was in keeping with expectations for cemetery interments.

Near the midpoint of the study area from north to south, and behind two surviving gateposts, an unmaintained area contained a stone memorial to the Mount Zion Methodist church, the cemetery, and the families they served. Immediately to the east of this unmaintained region, a three-sided roughly

rectangular subsurface anomaly was encountered during the survey. Oriented parallel to the property boundaries, the feature measured approximately 7m north to south and, although not closed on its western end, some 8m from east to west. The historical record described the location of the church as near the front and slightly north of the center line of the property. Given the orientation of this subsurface feature, and its relationship to the extant gateposts, it appeared to represent a good candidate for the foundation of a modest country church.

North and west of the memorial commemorating the church and its congregation, three isolated, near-surface targets occupied the largely flat landscape immediately above the moderate downward slope north and west to Mullet Creek. The eastern-most of these anomalies corresponded with a partly-exposed, roughly-rectangular, flat block, possibly of granite, and reasonably interpreted as a cemetery-monument base. The remaining two targets were not visible at surface. However, their similar features, including size and the amplitude of their radar reflections, implied a structure like that of the known feature. All three anomalies may mark the original location of cemetery monuments.

The central part of the study area, from the combined monument to and including the region immediately surrounding the three unmaintained areas, provided very little evidence of subsurface differentiation. It must be emphasized that this does not imply that no interments existed in this region. It may be that subsurface disturbances were present but constituted insufficient variation in physical properties from the surrounding underground environment to be detectable from the surface. At the same time, the comparatively more heterogeneous nature of the subsurface environment in the northern portion of the survey identified it as the more profitable candidate for direct investigation of the shallow subsurface environment. This area constituted a 12m band bordering the northwest end of the study area from the western boundary of the cemetery to the eastern border of the surveyed area.

## Background:

The historical community of Whaley's corners was situated at what is now the intersection of Steeles Ave. W. and Winston Churchill Blvd (Figure 1). Mount Zion Cemetery was located on the east side of Winston Churchill, some 400m north of the intersection with Steeles. It was bounded to the northwest by the bottomland of Mullet Creek and to the southeast by a mature hedgerow separating it from agricultural fields. Six concrete posts of considerable substance further delineated the boundaries of the cemetery, one in each corner and two gateposts centrally located on the western border adjacent to Winston Churchill Blvd. Research conducted as part of the archaeological-assessment process indicated that the community cemetery was established as early as 1827 (Mair 2009; Gilchrist 1981:3) and was subsequently accompanied by a log church in or about 1830 (Gilchrist 1981:3). By the 1860s, the church was replaced by a frame building, the Mount Zion Methodist Church (OGS 2001:1). This sold in 1918 at auction and was removed from the property (OGS 2001:1). Reportedly the most intensive use of the cemetery occurred during the period from 1840 to the mid 1850s (Gilchrist 1981:7).

The geophysical investigation was initiated to augment the Stage 2 archaeological assessment, and to inform a strategy for subsequent Stage 3 excavation intended to locate and characterize interments and other cultural features of the property. Geophysical survey generally is based on the principle that variations in the physical properties of features in the subsurface environment can be detected based on

the effect those variations have on instruments at the ground surface. This is roughly analogous to the experience of walking in hard shoes on a surface over differing conditions. Variations in subsurface hardness or density are reflected by differences in sound produced by the vibrations of footfalls. In the same fashion, geophysical instruments do not 'image' the underground environment in any immediately intuitive way. What they provide is a method of plotting the location of variations in subsurface conditions. It is necessary to seek patterns of configuration, shape, or other characteristics of these variations to estimate the nature and source of the subsurface features that produced them.

Several geophysical survey techniques are available to archaeological investigation, including magnetic, resistivity, and electromagnetic approaches. Ground-penetrating radar (GPR) was selected for the Mount Zion investigation because of its relative rapidity of data collection. GPR is a non-contact method and can thus collect data effectively continuously. It is also comparatively less sensitive to background conditions that impede especially magnetic approaches. In the case of the Mount Zion cemetery, overhead, high-voltage power lines and the proximity to vehicles travelling on Winston Churchill Blvd. selected against magnetic survey methods.

Ground-penetrating radar detects variation in the subsurface environment by emitting and detecting pulses of low-power microwave radiation. The burst of microwave energy propagates downward through the underground environment, reflecting with various amplitude from features with different properties. Technically, the physical property that GPR 'sees' is the variable 'dielectric permittivity' of subsurface features. Crudely, this is the ease with which a material polarizes energy as an electromagnet does. Some materials polarize microwave energy very readily, others do not. GPR energy is reflected with high amplitude at the interface between materials of highly-contrasting dielectric permittivity. In practice, it is the variation in underground material, density, and moisture content that produces comparatively bright GPR echoes. It remains however that it is only by the presence of pattern in the location or shape of these reflections that it becomes possible to estimate the nature of the feature that they represent.

### Study Area:

The northwestern and southeastern boundaries of the study area investigated by the GPR survey were effectively provided by topographical features. To the southeast, the survey was limited by a mature hedgerow separating the cemetery from agricultural fields beyond (Plate 1). The presence of a concrete corner fencepost implied that the hedge had expanded into the cemetery grounds by approximately 1.5m over time. To the northwest, the study area was limited by the extent of the maintained cemetery grounds (Plate 2). Given that the greatest contrast in conditions beneath the GPR apparatus is always between the air and ground, the technique depends on proximity between the emitter and the ground surface. Robust ground cover adjacent to Mullet Creek prevented extension of the survey beyond the manicured cemetery lawn. The sinuous nature of this boundary relative to the northwest-corner concrete fencepost indicated that the survey fell short of the presumed cemetery boundary by between 2.25 and 4.5m.

To the west, the boundary of the study area adjacent to Winston Churchill Blvd. was effectively determined by the base of the road embankment (Plate 3). This placed the study area limit

approximately 5.5m beyond the cemetery boundary as determined by a line between western concrete fenceposts. The eastern limit of the study area was established parallel to the center line of Winston Churchill Blvd., 27m northeast of the corresponding western limit. This placed the eastern study area boundary 1m northeast of the eastern end of the consolidated cemetery memorial (see Figure 2).

The surveyed landscape was largely level to the south and east. A slope downward, north toward Mullet Creek occupied the northern 1/3 of the study area. This began gradually and became more pronounced before levelling to form the bottomland of the creek. An accompanying downward slope from east to west produced a compound surface in the northern end of the survey (Plate 4). The manicured grass of the cemetery grounds had reportedly been cut one week before the assessment. The result was a ground cover of moderately-long grass. Three regions of the study area were occupied by unmanaged shrubbery and secondary growth and were inaccessible to the survey. These comprised two areas on the western boundary of the cemetery, each associated with a concrete gatepost, and a central unmanaged area surrounding the stone memorial to the church and its congregation (Plate 5).

## Apparatus and Methods:

The ground-penetrating radar survey of the Mount Zion Cemetery was conducted using a 250MHz 'Noggin' transducer supplied by Sensors and Software of Mississauga. A 250MHz instrument was selected to ensure propagation of the radar signal to a depth suitable for potentially deeply-buried interments. The instrument was transported on a four-wheeled 'SmartCart' system (Plate 6). Longitudinal measure of transect distance was accomplished using an index wheel against one of the cart wheels. The index wheel also controlled survey station interval by triggering emission of a radar pulse at specified distances along each transect. Calibration of the index against a measured distance occurred on the property before data collection to ensure accuracy given the surface conditions within the study area. Data were collected in the field in the form of individual transect records using a proprietary data logging device (DVL 400).

The study area presented several obstacles to a GPR survey. In addition to the unmaintained areas around two gateposts and the church memorial, a wrought-iron fence along the southern edge of the consolidated concrete memorial prevented unimpeded passage of the instrument. Three trees, a mature spruce at the western end of the consolidated monument and two saplings planted along the southwestern boundary of the cemetery, presented additional obstacles. To minimize the interruption of survey transects, the study area was divided into five rectangular grids (Figure 3). Grid 0 (15m east x 10m north) occupied the southwestern corner of the study area; Grid 1 (12m east x 10m north) completed the southern tier of the study area. To separate the unmaintained areas around gateposts from the church memorial, the central part of the study area was divided into Grid 2 to the west (14m east x 21m north) and Grid 3 (13m east x 21m north). Aside from its sinuous northern limit, the northern section of the study area contained only one impediment in the form of a comparatively recently-planted sapling. This was treated as a single grid, Grid 4 (27m east x 10m north). The northern boundary of Grid 4 was nominal in that survey transects were extended beyond 10m where possible and otherwise up to the end of the manicured cemetery grounds.

Survey data were collected within each grid on a 1m transect interval and with a 5cm station interval along each transect. Transects were established using 30 and 50m fibre tapes pinned in place using plastic tent pegs (Plate 7). In the case of GPR survey, subsurface features are most obtrusive when encountered by the instrument perpendicular to their longest axis. Given the anticipation that interments were most likely to align parallel with the boundaries of the cemetery, each grid was surveyed in two directions. Transects were recorded from grid south to grid north parallel to Winston Churchill Blvd. and again from grid west to grid east parallel with the hedgerow forming the southeastern boundary of the cemetery. Where a transect encountered an obstacle, an additional data line was added and the same transect was recorded from the opposite boundary of the grid in question. During the survey, targets were noted beneath the consolidated concrete memorial in the southeast corner of the study area as well as within a band beginning some 12m south of the northwest boundary adjacent to Mullet Creek. Additional west to east transects were added in these areas to reduce the transect interval to 0.5m. Careful notes were recorded cataloguing the data lines that together constituted each transect.

Recorded full and partial transect lines for all grids were downloaded to a notebook computer in the field. Data lines were subsequently concatenated into a single record of all transects collected during the survey using proprietary software (*GFP Edit*) provided by the instrument supplier (Figure 4). An analytical package (*EKKO Project 5*) was employed to display a visual record of transect lines and to interpolate between multiple lines to provide 3-dimensional surfaces, 'time slices,' of the entire study area. The analytical software was also used to filter the data by removing average background value and thus reduce the noise potentially obscuring pattern in the data. Contrast representing differences of physical properties in the subsurface environment was adjusted to emphasize data patterns.

## Results:

Fundamentally, the product of an individual radar ping is an echo in the form of microwave radiation. This is reflected by subsurface features with different physical properties, and detected by the transducer. The process can be envisioned as a graph of amplitude differences from a single ping over time (Figure 5). Early in the cycle, signal amplitude is comparatively high as features are comparatively close to the apparatus. Variations in amplitude illustrate changing subsurface conditions as the ping passes through the environment. As the radiation propagates further from the apparatus, the time required for an echo to return increases. As well, the energy attenuates and comparatively less is returned. Eventually, the signal reaches the maximum depth from which it can return and fades from detection.

Each transect in turn comprises many such individual radar pings. In this case, one every 5cm. To represent a transect, the record of each radar ping is effectively rotated 90 degrees so that time since emission becomes a measure of depth. As well, the amplitude line is simplified as a vertical bar divided into light or dark sections as determined by the amplitude of the signal at that point (Figure 6). Each bar representing a single radar ping is then arranged adjacent to the next traditionally to provide a greyscale representation of changes in the amplitude of received radiation for the whole transect. This is a 'reflection profile' (Figure 7). Features in the subsurface environment appear as parabolas in the reflection profile given the behaviour of microwave radiation in the subsurface environment. Much as a

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flashlight beam expands with distance from the source, microwave energy will begin to reflect from a buried object while still distant from it. Given that time-since-emission is interpreted by the system as depth, an object detected from afar will appear more deeply buried than it is until the apparatus passes directly over it. The apex of the parabola thus provides the true representation of the distance between the transducer and the target that generated it.

Reflection profiles provide a cross-sectional record of the underground environment along one transect. To represent the horizontal relationship between subsurface features, each transect record is arranged relative to others comprising the survey. A surface is produced for a series of depth levels with intermediate values interpolated by software. Representations of this nature are 'time slices' in that they represent the echoes received from across the study area common to the span from one point in time since emission of radar pings to another. Figures 8-10, 12 and 14-16 show examples of time slices for the study area for depths at roughly 10cm increments.

## Discussion:

Estimates of the depths of targets encountered by GPR survey depend on accurate measure of the velocity of microwave energy through the subsurface matrix. Such measures may be calculated using the shape of parabolic reflections from subsurface targets. This was the approach used during the Mount Zion Cemetery investigation. It remains however that signal velocity can be expected to vary across the study area. While depths are used in this report to reference features encountered during the survey, these must be understood as estimates only.

It is furthermore true that the resolution with which geophysical surveys can identify and characterize subsurface features depends on a complex set of interrelated variables. In general, homogeneous, sandy soils provide the best conditions for subsurface target detection. Conversely, heavy, clay-rich sediments such as those encountered during the survey, are not well suited to geophysical investigation. This is determined, in part, by their comparatively conductive nature. Microwave radiation tends to attenuate rapidly in conductive clay soils and returns a relatively small proportion of the signal to the surface. The result is a matrix that tends to be largely opaque to the instrument. The nature of the targets of the survey are also important. Materials, including metals, that differ dramatically from their surroundings in conductive and dielectric properties are relatively obtrusive to GPR. Organic materials provide much lower contrast. The conditions of the study area, in combination with the presumably largely organic elements of early historical interments, conspired so that the Mount Zion Cemetery survey lacked the resolution to identify individual interments. The study did however identify some anomalies potentially of pertinence in understanding the extant subsurface features on the property. As with all geophysical investigations, excavation-based ground truthing is required to evaluate the hypotheses proposed in this report. Five observations follow:

### 1. Possible interments below the consolidated monument:

In the southeast of the study area, the GPR survey readily captured the concrete memorial consolidating displaced and fragmented monuments from the cemetery. This feature was persistently obtrusive to roughly 50cm below surface. Perhaps in keeping with the principle that radar energy reflects most brightly from transitions; the memorial was most clearly defined between 50 and 60cm (Figure 8). Below

this depth, the footprint of the memorial reflected noticeably less brightly (Figure 9). By between 1.2 and 1.3m below surface, evidence of the consolidated memorial was replaced by a series of parallel targets with their long axes oriented with the property boundaries and closely adjacent in an easterly row (Figure 10). It was not possible to estimate the length of each feature along its north/south axis. A wrought-iron fence along the southern border of the concrete memorial prevented complete coverage of the area. It remains that these more deeply buried features may have been produced by events surrounding the construction of the consolidated memorial. However, the apparent discrete nature of the features, their appearance below the memorial footprint, their orientation, and the ordered distance between them were in keeping with patterns that might be expected for cemetery interments. Circumstantially, a sketch of the cemetery plots dating to the 1930s (Figure 11), places interments along the southeastern boundary of the property and perpendicular to it. A rough calculation of distance from the sketch places the first of these plots some 20 yards (18m) from the western fence and provides good correspondence with the features encountered beneath the consolidated memorial.

2. Possible evidence of the foundation of Mount Zion Methodist Church:

Figure 12 presents the time slice of the study area from approximately 30 to 40cm below surface. Near the center of the image, an ovoid absence of data marks the unmanaged area surrounding a modern stone cairn and plaque commemorating the cemetery, church, and community of Whaley's Corners. The corner stone of the Mount Zion Methodist Church was set in concrete immediately in front of the memorial. Immediately northeast of the unsurveyed region, and fractionally encapsulated by the eastern boundary of the study area, a roughly rectangular, three-sided, linear structure was encountered. The anomaly spanned some 7m from north to south and approximately 8m from west to east, although its full dimensions were obscured by the unsurveyed area around the cairn. Natural processes rarely result in linear features with parallel sides and right-angled corners. It is furthermore unlikely that this feature was an artifact of the interpolation process. A review of the reflection profiles for transects across the region confirmed targets corresponding to the rectilinear linear feature (see e.g. Figure 13). Conversely, it is not unreasonable to hypothesize that the feature marks the subsurface remains of the foundation of a modest country church. This proposal is supported by the location of the feature relative to the extant gateposts. The feature was aligned to the property boundaries, with its short axis toward the entranceway, and on level ground set back approximately 10m from it. The center of the west face of the anomaly was displaced to the north of the center line of the property entrance by about 4m. A roughly comparable verbal description of the location of the church was encountered in the historical record. An unconfirmed account in the archives of the Ontario Genealogical Society reported that the Mount Zion Methodist Church was located "…at front of [the] cemetery property and slightly north of the centre line." (OGS 2001:1).

To evaluate the proposal that this feature identified part of the foundation of the Mount Zion Methodist church, it is recommended that Stage 3, excavation-based assessment of the study area be organized to place hand-excavated units across elements of the subsurface linear feature east of the church memorial.

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### 3. Potential evidence of buried monument bases:

Northwest of the church memorial, three isolated, near-surface, and comparatively bright radar reflections were encountered by the survey (Figure 14). The northeastern-most of these in turn corresponded precisely with a partially-exposed, flat rock. No other natural rock outcrops were noted during fieldwork. The roughly rectangular block was level with the ground surface and of small crystal structure, likely granite or related material. As such, the feature was entirely consistent with a cemetery monument base. The two remaining radar reflections were similarly persistent to a depth approaching 50cm though had no visible representation at surface. Their likeness to the known feature in size and amplitude of reflected radar energy implied that their structure was likely analogous to the block identified on the surface. The presence of three potential near-surface stone blocks, in an area of the cemetery known to contain interments in the 1930s (see Figure 11), implies a reasonable probability that they represent the subsurface remains of cemetery monuments.

### 4. Evidence of distributed disturbance of the northern study area:

Except for anomalies already discussed, no further conclusive evidence of substantial buried features was encountered within southern and central parts of the study area. With data filters set as permissively as possible, and emphasizing even minor variations in subsurface condition, comparatively little differentiation in subsurface condition was encountered from the consolidated concrete memorial in the south to the region around the centrally-located unsurveyed areas. This observation cannot be taken as evidence that no interments were present in this portion of the study area. Given the numerous interacting variables that affect the obtrusiveness of subsurface features to the GPR apparatus, absence of indicators of buried features does not constitute evidence that none were present. All that can be demonstrated is that this region of the study area contained no features whose properties were distinct enough from the surrounding matrix to make them detectable by the instrument.

The same cannot be said for the northern portion of the survey. Figure 15 shows the time slice for the study area at a depth of approximately 1m. The comparative brightness of the representation results from a high gain filter set to emphasize very subtle differences in detected subsurface properties. The result is apparent differentiation between two parts of the study area. To the south, from the unsurveyed area to the consolidated concrete monument, radar reflections were diffuse and likely the result of background noise. Conversely, the northern part of the study area showed more substantial and persistent subsurface anomalies. In a 12m wide band from approximately the northern point of the northern-most unsurveyed area to the limit of the study, the underground environment was substantially more heterogeneous than elsewhere. It was not possible to distinguish features in this region with characteristics likely indicative of cemetery interments. However, if cultural or other disturbances of the underground environment were preserved, it may be that their evidence has persisted in the northern 12m of the study area. This region could profitably receive attention during the Stage 3 excavation-based assessment of the extent of subsurface cultural features.

By a depth of 1.8 to 1.9m, even with high gain, very little differentiation was detected across the study area. The exception to this observation was found in the northeastern corner of the study area, adjacent to its northern boundary (Figure 16). Here a comparatively obtrusive, apparent anomaly was

encountered. Organic in shape, the target varied in size with depth, reaching a maximum of about 4m west to east and 1.5m north to south. Though reflected most strongly at depth, the anomaly did have a presence in the near surface environment (compare Figure 15). The reflection from the apparent anomaly was bright compared with others detected across the study. Additionally, the velocity of the reflected radar signal was substantially higher than encountered elsewhere during the investigation. This is illustrated by Figure 17. The parabola beginning at 1.6m in depth and spanning the 14m mark to approximately 25m along the transect, was very broad in comparison with those elicited by other targets. Others are visible in figure, at approximately 6.5m in the x-axis and approximately 20m. Signal velocity calculation by parabolic fitting, estimated a velocity of 0.3m/ns for the deeply-detected anomaly, substantially higher than the 0.1m/ns expected for underground environments. These characteristics were in keeping with a response from an above-ground object. Microwave energy moving through air above the surface travels at higher velocity and produces comparatively stronger responses from nearby objects than in an underground environment. No candidate for a strong above-ground target was noted during the survey, however the proximity of the point of detection to the northwestern boundary of the study area and the secondary forest cover in the bottomland of Mullet Creek may have obscured the presence of a strongly-reflective above-ground feature. It remains that the near-surface responses at the same point in the study area may have identified a subsurface anomaly. This formed one of several potential features in the 12m band across the northern part of the study area that might benefit from excavation-based investigation.

### Conclusions and Recommendations:

The GPR survey of the westernmost 27m of the Mount Zion Methodist Cemetery north of the historical hamlet of Whaley's Corners did not yield clear evidence of extant interments within the study area. This does not imply that no such interments were present at the time of the survey. It may be that graves and other related features remained within the study area but were insufficiently distinct from the natural underground matrix to be detectable to the GPR apparatus. A series of apparently discrete, parallel targets were detected below the consolidated concrete monument in the southeastern corner of the study area. These may have been generated during construction of the monument. Equally, their orientation, order, and apparent location below the monument may imply that they predated it and relate to the use of the property as a cemetery. At least three anomalies were encountered that appear likely to represent the locations of cemetery monument bases. More such features may be present within the apparently-disturbed northern 12m of the study area. A rectilinear feature near the midpoint of the study area from north to south and immediately east of a memorial to the church and its congregation may mark the location of one or more of the church buildings constructed on the property.

The northern 12m of the study area, from its northern limit to the northernmost point of the unmaintained area around the cemetery gateposts, demonstrated evidence of a more heterogeneous subsurface environment than other regions of the study area. It is recommended that, in addition to hand excavation of units across the rectilinear feature potentially representing the church foundation, hand excavated units and mechanical stripping be employed to directly investigate the near surface environment of this area.

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Figures:

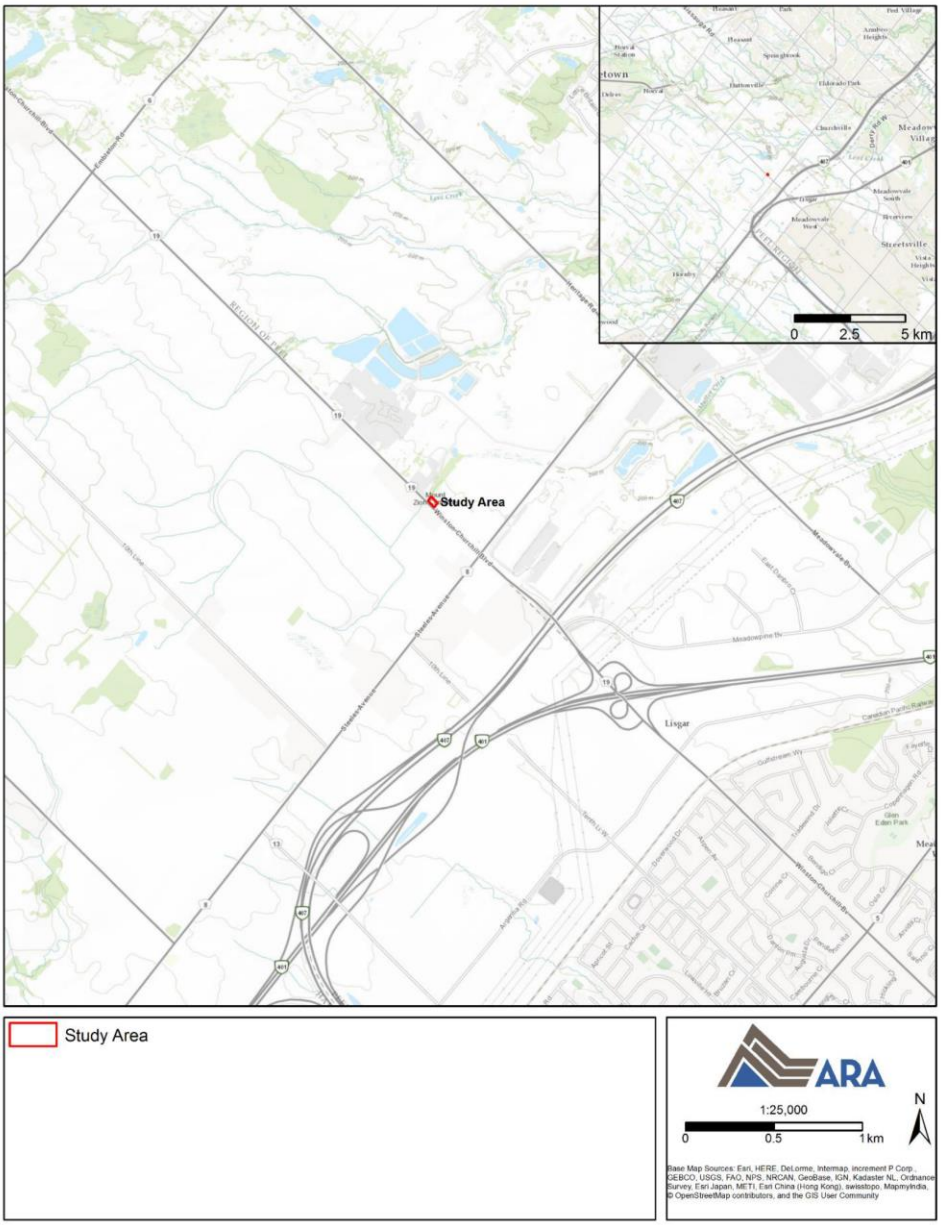


*Figure 1: Location of study area.*

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*Figure 2: Limits of study area.*

11


*Figure 3: GPR collection grids.*

12

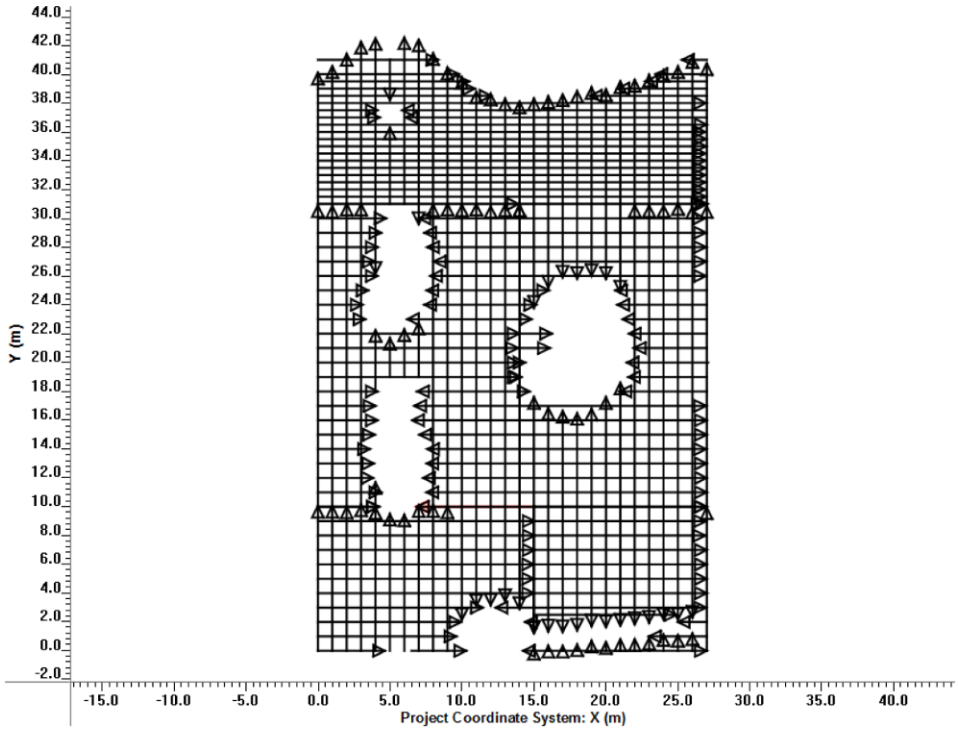


*Figure 4: Map of study-area transects.*

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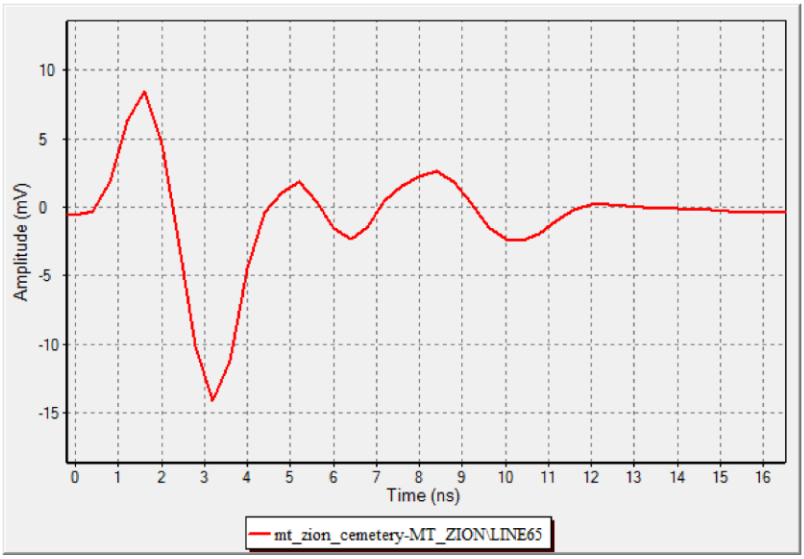


*Figure 5: Trace plot of a single radar ping.*

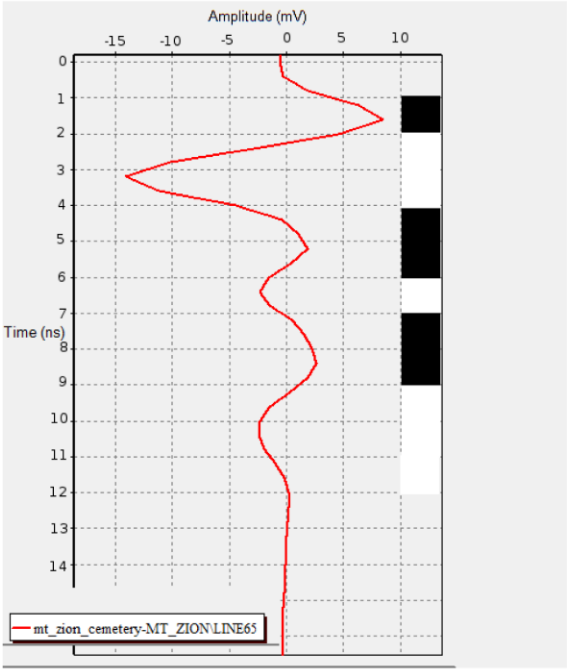


*Figure 6: Processed trace plot.*

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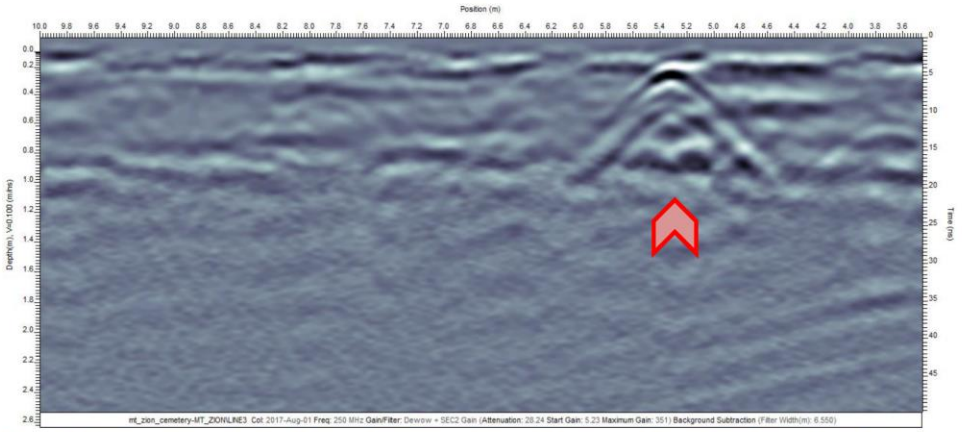


*Figure 7: Reflection profile constructed of many adjacent trace plots and showing parabolic reflection from a buried anomaly.*

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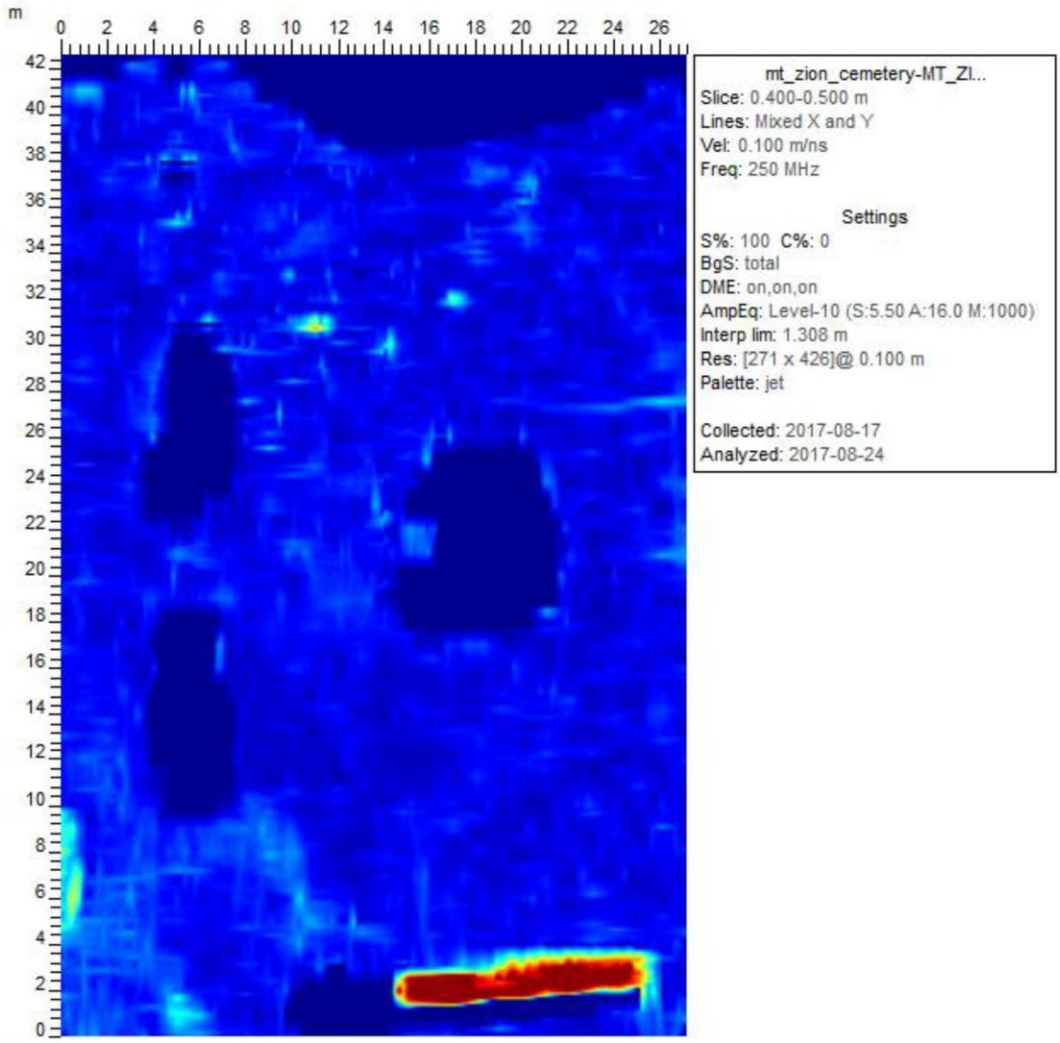


*Figure 8: Consolidated concrete monument in southeast study area.*

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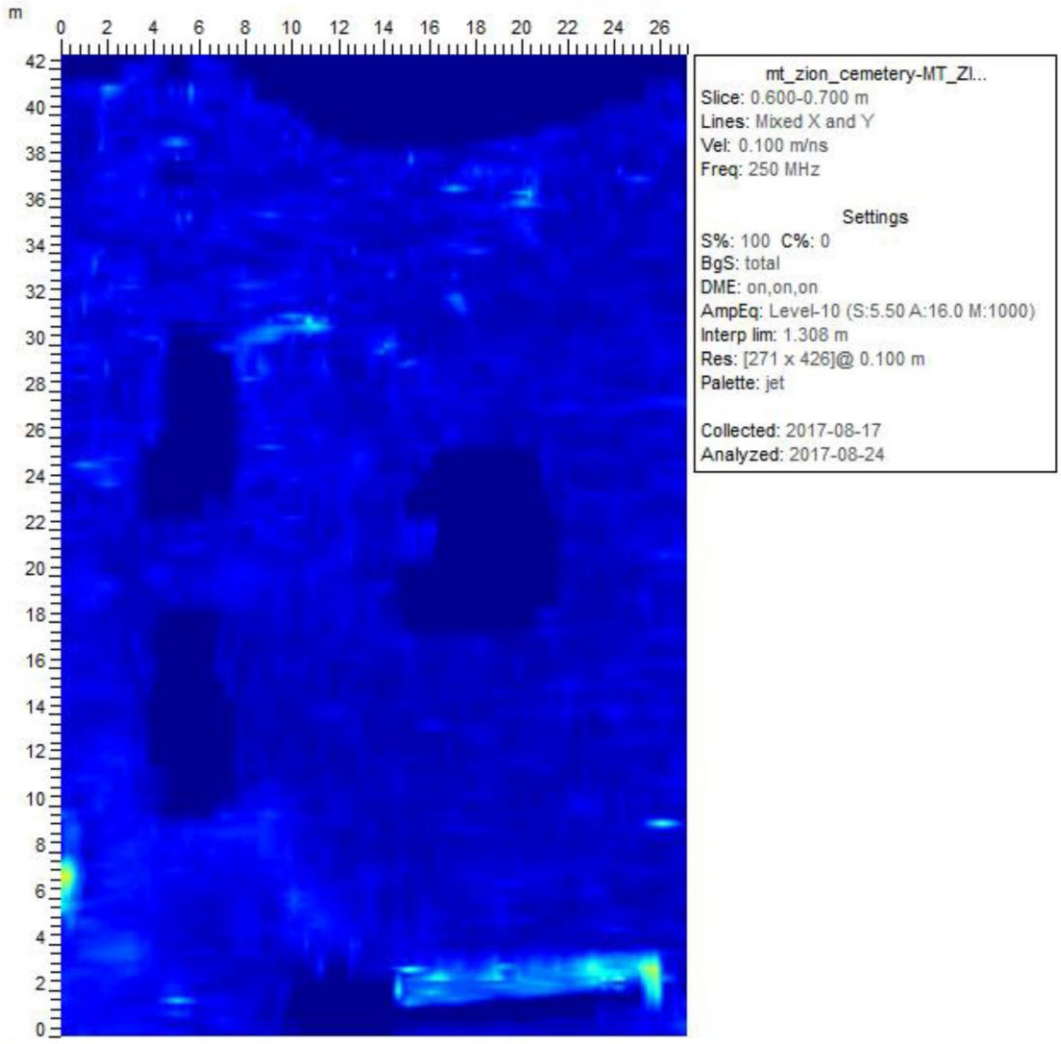


*Figure 9: Disappearance of consolidated concrete monument at 60-70cm below surface.*

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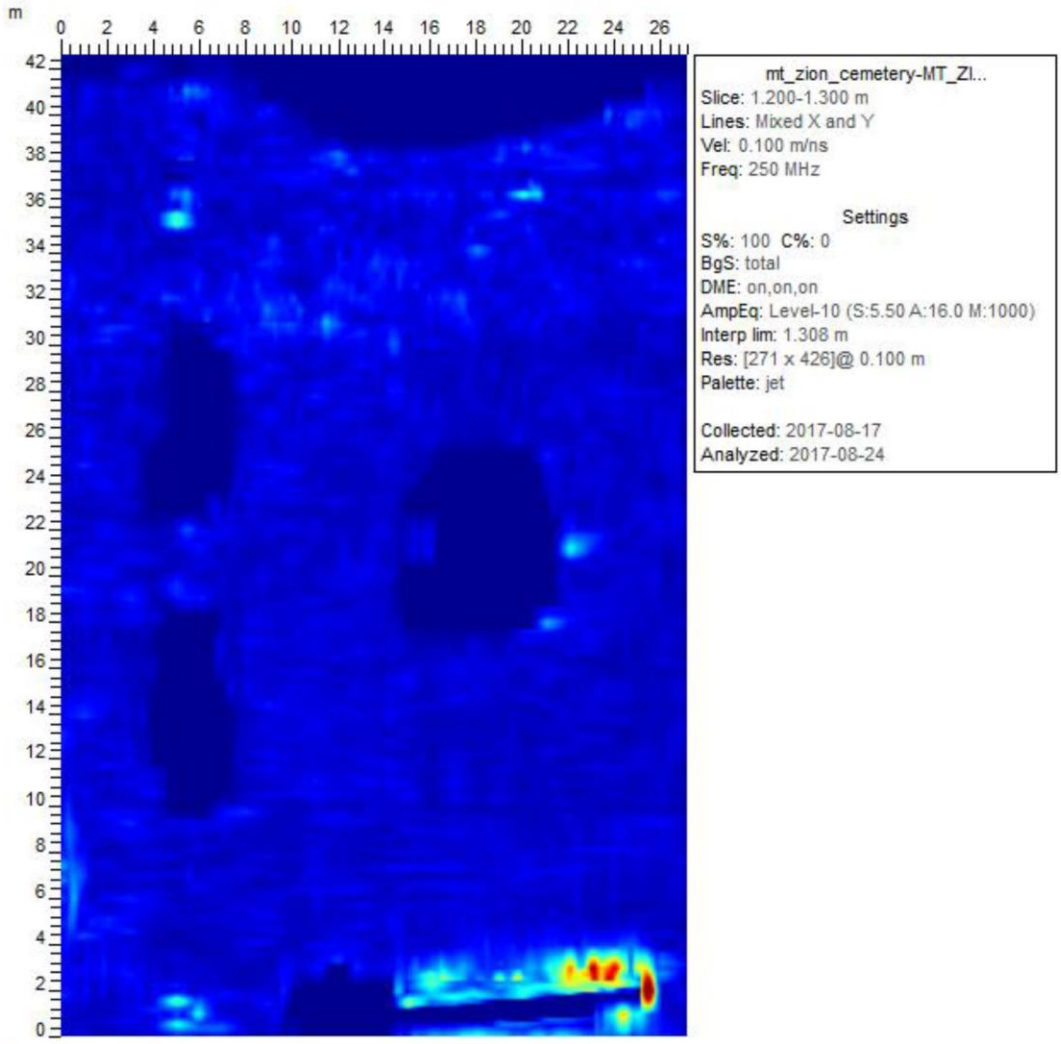


*Figure 10: Parallel, discrete anomalies below consolidaetd concrete monument.*

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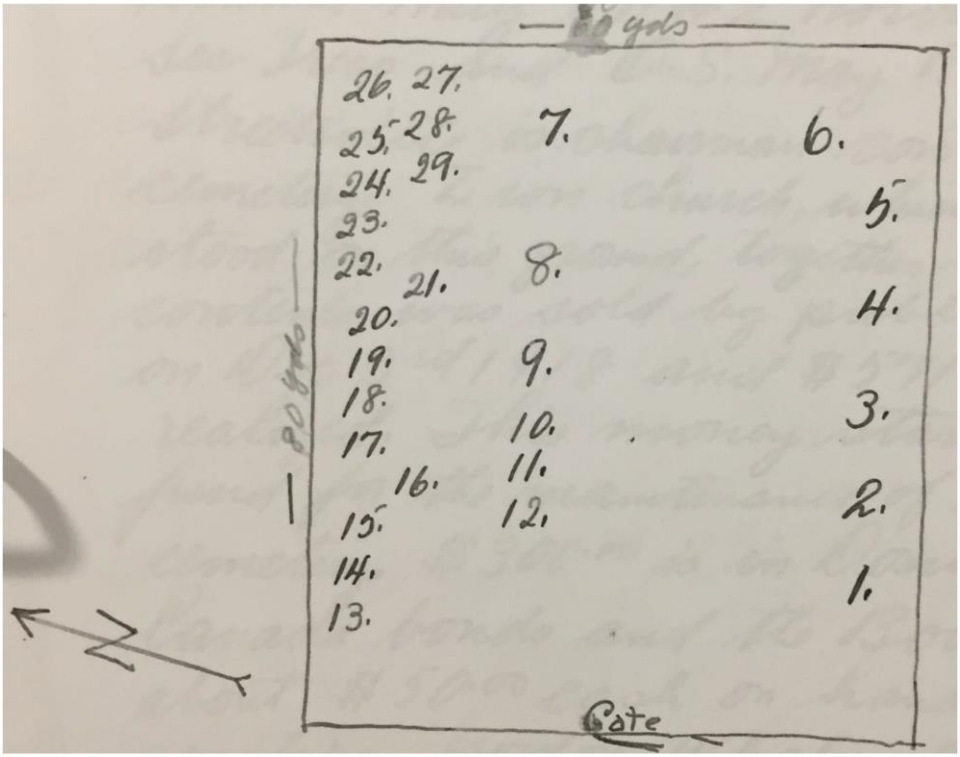


*Figure 11: Sketch Map of Mount Zion Cemetery, ca. 1938 (Perkins-Bull 1938:1).*

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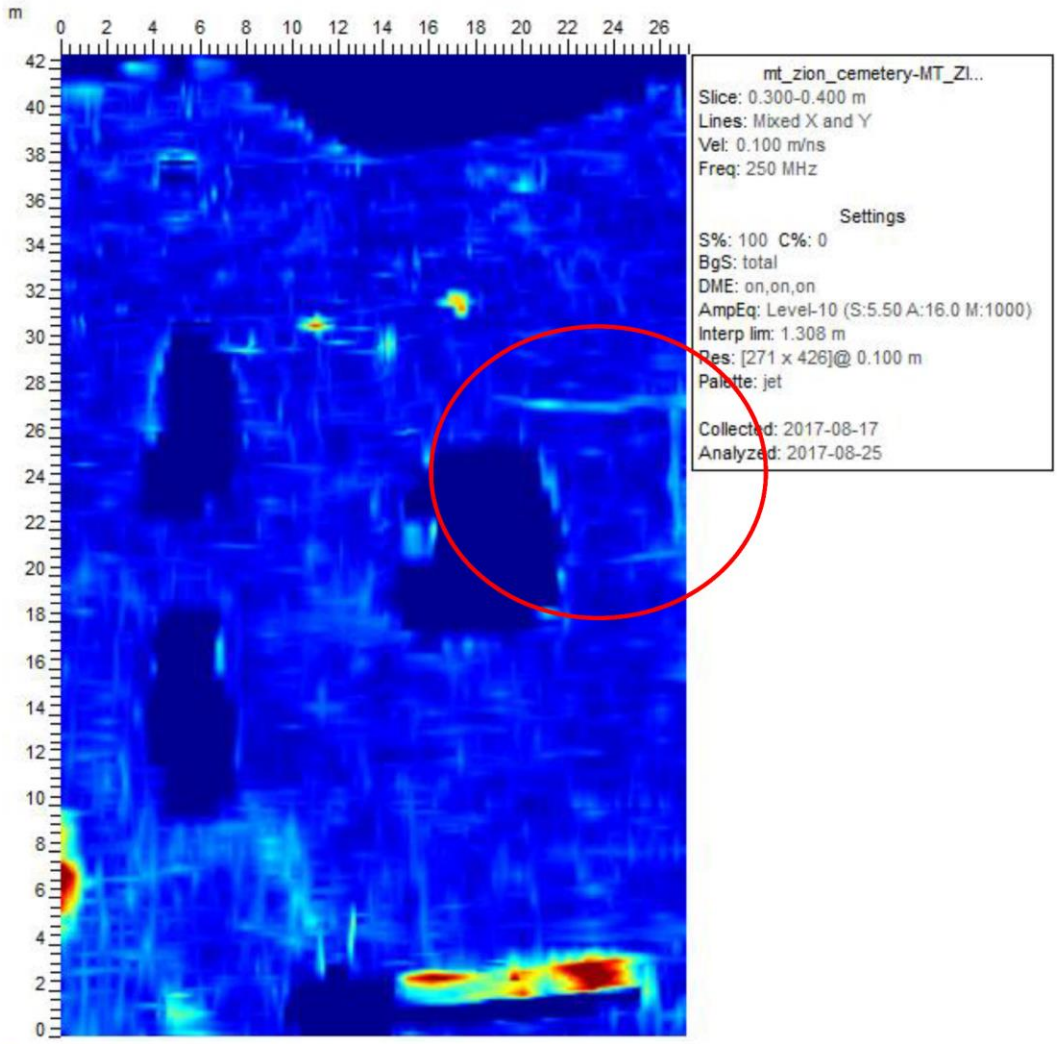


*Figure 12: Rectilinear feature east of church monument – possible church foundation.*

20

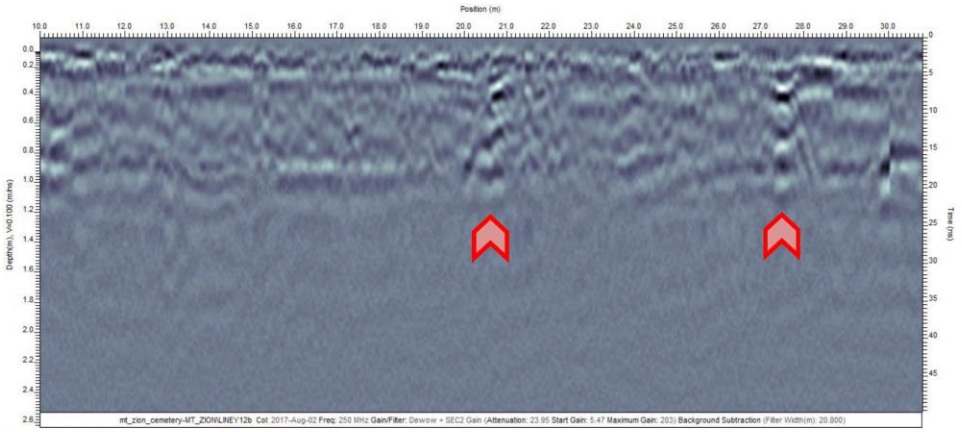


*Figure 13: Reflection profile, Line12b – a transect across the linear feature.*

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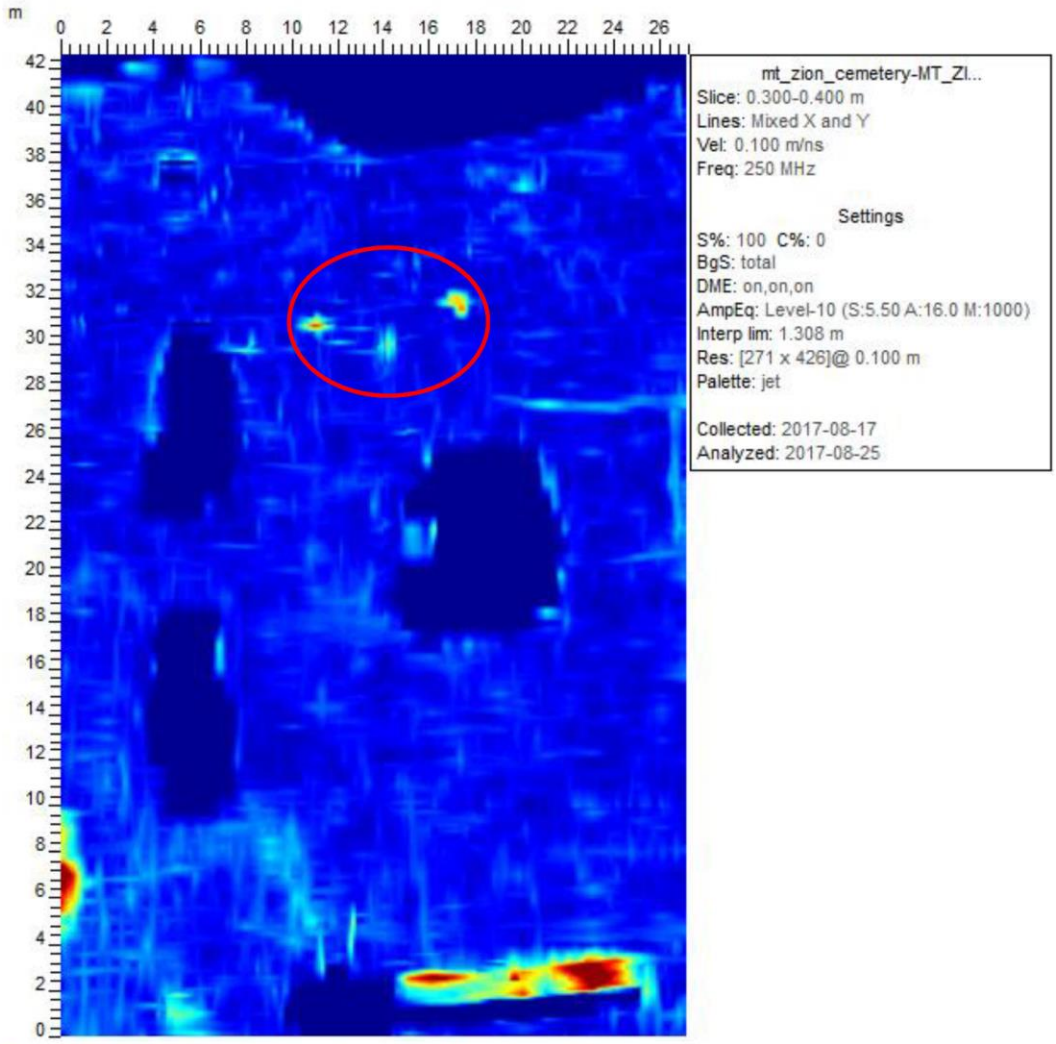


*Figure 14: Three bright, near-surface anomalies northwest of church memorial.*

22

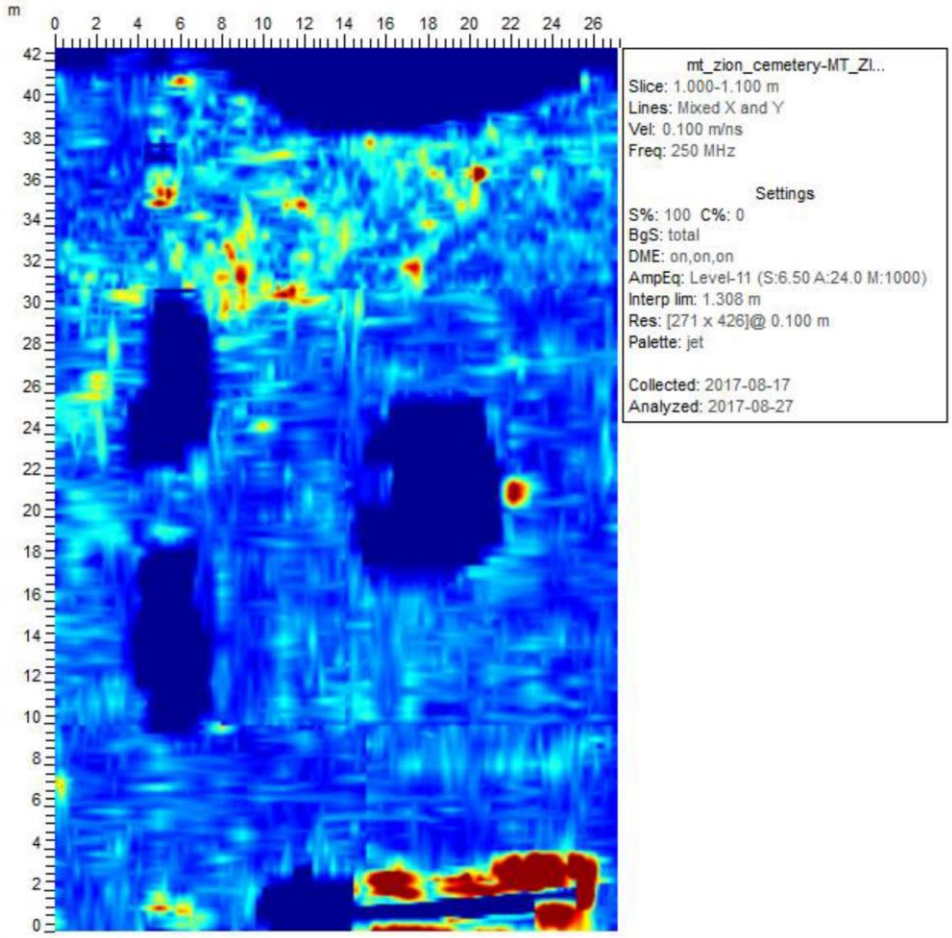


*Figure 15: High gain filter – bright reflections in northern 12m of study area.*

23

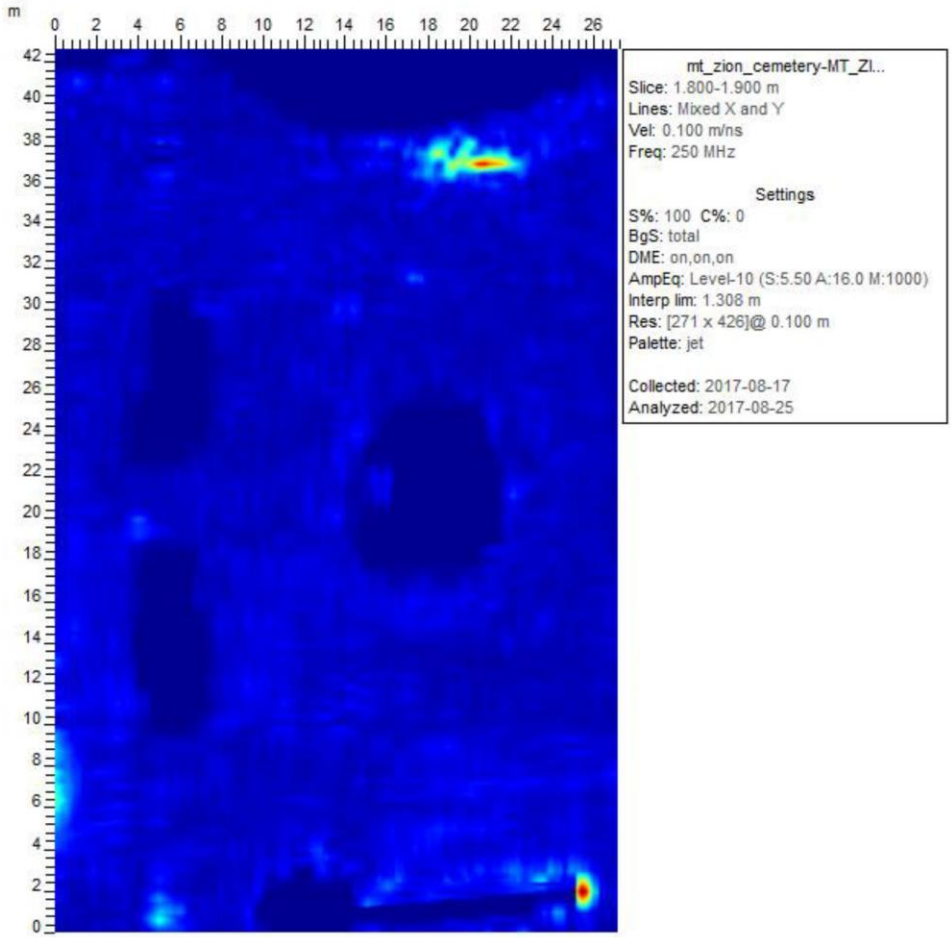


*Figure 16: Bright anomaly in northeast corner of study area – possible above ground object.*

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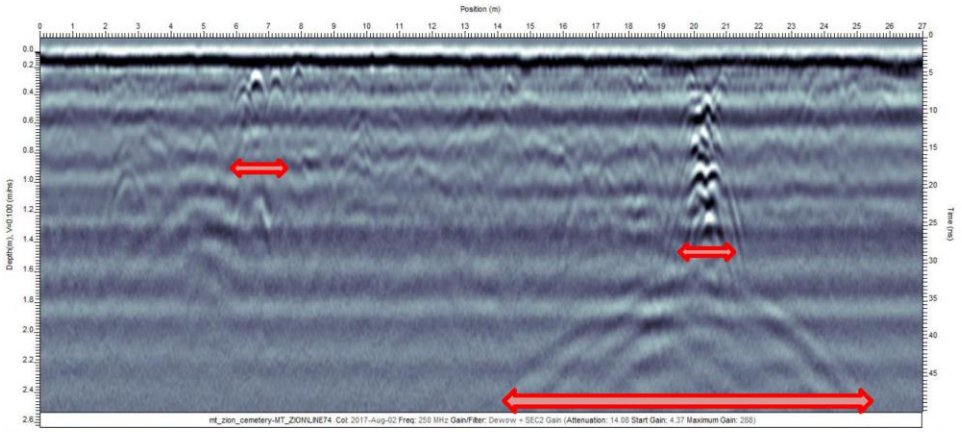


*Figure 17: Broad parabola at depth implies high velocity of signal through matrix – this implies probable movement through air.*

25

Plates:

*Plate 1: Southeastern limit of study area from southwest corner looking northeast.*

*Plate 2: Northwestern limit of study area from northwest corner looking northeast.*

26

*Plate 3: Limit of study area adjacent to Winston Churchill Blvd. – view south.*

*Plate 4: Sloped region in northern study area – view northwest.*

27

*Plate 5: Unmanaged areas near center of study – view northeast*

*Plate 6: Survey instrument.*

28

*Plate 7: Transcect construction.*

29

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1981 'Whaley's Corners Cemetery' in *City of Brampton Heritage Cemeteries Series, Report No. 5.* Brampton: City of Brampton. Accessed at PAMA (Archives) Brampton.

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Ontario Genealogical Society (OGS)
2001 **Mount Zion Methodist Church Cemetery**. Halton-Peel Branch: Ontario Genealogical Society. Accessed at PAMA (Archives) Brampton.

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30

# Appendix B: Archaeological Materials Catalogue

| Record | Provenience | Lot | Count | Class | Material | Object Group | Object Name | Datable Attribute | Date Range | Reference | Phase | Comments | Heat Altered | Box |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | PTP1 | 1 | 4 | Architectural | Clay | Construction Material | Brick (Unglazed) | | | | | | No | A470 |
| 2 | PTP1 | 1 | 1 | Architectural | Ferrous | Hardware | Nail | Cut Nail | ca. 1830–1890 | Adams et al. 1995:105 | pre-1900 | | No | A470 |
| 3 | PTP2 | 1 | 1 | Architectural | Glass | Window Glass | Sheet | | | | | | No | A470 |
| 4 | PTP3 | 1 | 1 | Architectural | Glass | Window Glass | Sheet | | | | | | No | A470 |
| 5 | PTP4 | 1 | 2 | Architectural | Ferrous | Hardware | Nail | Cut Nail | ca. 1830–1890 | Adams et al. 1995:105 | pre-1900 | | No | A470 |
| 6 | PTP5 | 1 | 4 | Architectural | Glass | Window Glass | Sheet | | | | | | No | A470 |
| 7 | PTP5 | 1 | 4 | Architectural | Mortar | Construction Material | Foundation Material | | | | | | No | A470 |
| 8 | PTP6 | 1 | 3 | Architectural | Ferrous | Hardware | Nail | Cut Nail | ca. 1830–1890 | Adams et al. 1995:105 | pre-1900 | | No | A470 |
| 9 | PTP6 | 1 | 1 | Architectural | Ferrous | Hardware | Nail | Cut Nail | ca. 1830–1890 | Adams et al. 1995:105 | pre-1900 | | Yes | A470 |
| 10 | PTP7 | 1 | 2 | Architectural | Ferrous | Hardware | Nail | Cut Nail | ca. 1830–1890 | Adams et al. 1995:105 | pre-1900 | | Yes | A470 |
| 11 | PTP7 | 1 | 1 | Architectural | Glass | Window Glass | Sheet | | | | | | No | A470 |
| 12 | PTP8 | 1 | 2 | Architectural | Mortar | Construction Material | Foundation Material | | | | | | No | A470 |
| 13 | PTP8 | 1 | 1 | Architectural | Glass | Window Glass | Sheet | | | | | | No | A470 |
| 14 | PTP9 | 1 | 2 | Architectural | Clay | Construction Material | Brick (Unglazed) | | | | | | No | A470 |
| 15 | PTP9 | 1 | 1 | Architectural | Ferrous | Hardware | Nail | Cut Nail | ca. 1830–1890 | Adams et al. 1995:105 | pre-1900 | | No | A470 |
| 16 | PTP10 | 1 | 1 | Architectural | Ferrous | Hardware | Nail | Cut Nail | ca. 1830–1890 | Adams et al. 1995:105 | pre-1900 | | No | A470 |
| 17 | PTP10 | 1 | 1 | Architectural | Glass | Window Glass | Sheet | | | | | | No | A470 |
| 18 | PTP11 | 1 | 2 | Architectural | Glass | Window Glass | Sheet | | | | | | No | A470 |
| 19 | PTP12 | 1 | 1 | Architectural | Clay | Construction Material | Brick (Unglazed) | | | | | | No | A470 |
| 20 | PTP13 | 1 | 1 | Architectural | Glass | Window Glass | Sheet | | | | | | No | A470 |
| 21 | PTP13 | 1 | 1 | Foodways | Pearlware | Tableware | Tableware (Unidentifiable) | Transfer (Blue) | ca. 1802–1840s | Kenyon 1991:9; Kenyon and Kenyon 2008:2 | pre-1830 | | No | A470 |
| 22 | PTP14 | 1 | 2 | Unclassifiable | Glass | Glass Storage Container | Storage (Unidentifiable) | Solarized | 1880–ca.1920 | Adams et al. 1995:100 | 1900–present | Turquoise | No | A470 |
| 23 | PTP14 | 1 | 1 | Foodways | Whiteware | Tableware | Tableware (Unidentifiable) | Plain | ca. 1830–present | Adams et al. 1995:102 | 1900–present | | No | A470 |
| 24 | PTP14 | 1 | 1 | Unclassifiable | Unidentifiable | Miscellaneous | Miscellaneous (Unidentifiable) | | | | | Grey Shiny, Rock-Like Material / Has Appearance of Bone / Possible Fossil | Yes | A470 |
| 25 | PTP15 | 1 | 1 | Foodways | Whiteware | Tableware | Tableware (Unidentifiable) | Plain | ca. 1830–present | Adams et al. 1995:102 | 1900–present | | No | A470 |
| 26 | PTP16 | 1 | 1 | Foodways | Whiteware | Tableware | Tableware (Unidentifiable) | Plain | ca. 1830–present | Adams et al. 1995:102 | 1900–present | | No | A470 |
| 27 | PTP16 | 1 | 1 | Foodways | Whiteware | Tableware | Tableware (Unidentifiable) | Transfer (Blue) | ca. 1830–present | Kenyon 1991:9; Adams et al. 1995:102 | 1900–present | | No | A470 |
| 28 | PTP16 | 1 | 1 | Foodways | Whiteware | Tableware | Tableware (Unidentifiable) | Painted (Early Palette) | ca. 1830–1840 | Miller 1991:8; Kenyon 1980:5 | pre-1900 | | No | A470 |
| 29 | PTP16 | 1 | 1 | Architectural | Mortar | Construction Material | Foundation Material | | | | | | No | A470 |
| 30 | PTP17 | 1 | 2 | Architectural | Clay | Construction Material | Brick (Unglazed) | | | | | | No | A470 |
| 31 | PTP17 | 1 | 2 | Foodways | Whiteware | Tableware | Tableware (Unidentifiable) | Plain | ca. 1830–present | Adams et al. 1995:102 | 1900–present | | No | A470 |
| 32 | PTP17 | 1 | 2 | Foodways | Whiteware | Tableware | Tableware (Unidentifiable) | Painted (Early Palette) | ca. 1830–1840 | Miller 1991:8; Kenyon 1980:5 | pre-1900 | | No | A470 |
| 33 | PTP17 | 1 | 3 | Foodways | Glass | Glass Storage Container | Beer Bottle | | | | | Brown | No | A470 |
| 34 | PTP18 | 1 | 4 | Architectural | Glass | Window Glass | Sheet | | | | | | No | A470 |
| 35 | PTP18 | 1 | 3 | Architectural | Mortar | Construction Material | Foundation Material | | | | | | No | A470 |
| 36 | PTP18 | 1 | 1 | Architectural | Clay | Construction Material | Brick (Unglazed) | | | | | | No | A470 |
| 37 | PTP19 | 1 | 1 | Foodways | Pearlware | Tableware | Tableware (Unidentifiable) | Painted (Blue) | ca. 1815–1830 | MACL 2002 | pre-1830 | | No | A470 |
| 38 | PTP19 | 1 | 1 | Foodways | Whiteware | Tableware | Tableware (Unidentifiable) | Plain | ca. 1830–present | Adams et al. 1995:102 | 1900–present | | No | A470 |
| 39 | PTP19 | 1 | 1 | Foodways | Whiteware | Tableware | Tableware (Unidentifiable) | Transfer (Black) | ca.1830–1840s | Kenyon 1987:25 | pre-1900 | | No | A470 |
| 40 | PTP20 | 1 | 1 | Architectural | Ferrous | Hardware | Nail | Cut Nail | ca. 1830–1890 | Adams et al. 1995:105 | pre-1900 | | Yes | A470 |

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Mar 19, 2020

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**RE: Review and Entry into the Ontario Public Register of Archaeological Reports: Archaeological Assessment Report Entitled, "Stage 2 Archaeological Assessment, Mount Zion Cemetery Investigation, Winston Churchill Boulevard from Highway 401 to Embleton Road/5 Side Road, Municipal Class Environmental Assessment, City of Brampton, Regional Municipality of Peel, Part of Lot 1, Concession 6 West of Centre Road, Geographic Township of Chinguacousy, Peel County, Ontario", Dated Jun 14, 2019, Filed with MTCS Toronto Office on Jun 26, 2019, MTCS Project Information Form Number P007-0831-2017, MTCS File Number 0003415**

Dear Mr. Racher:

This office has reviewed the above-mentioned report, which has been submitted to this ministry as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c 0.18.[1] This review has been carried out in order to determine whether the licensed professional consultant archaeologist has met the terms and conditions of their licence, that the licensee assessed the property and documented archaeological resources using a process that accords with the 2011 *Standards and Guidelines for Consultant Archaeologists* set by the ministry, and that the archaeological fieldwork and report recommendations are consistent with the conservation, protection and preservation of the cultural heritage of Ontario.

The report documents the Stage 2 assessment of the study area as depicted in Map 9 of the above titled report and recommends the following:

The Stage 2 assessment of the identified areas of archaeological potential resulted in the identification of one location of archaeological materials: Site 1 (AjGw-581). The GPR survey did not result in the identification of any clear burial features, although four significant anomalies were detected. Site 1 was found to be of further CHVI.

Site 1 was identified entirely within additional lands adjacent to the proposed project limits and will not be directly impacted by construction. However, all lands comprising the site extent and a 20 m protective buffer must be considered a ‘protected area’. Protective buffers cannot traverse private properties for legal reasons and can be misleading when extended into adjacent unsurveyed lands; accordingly, a truncated buffer is warranted at Site 1 (SD Map 3). Given that part of the protective buffer traverses the project lands, a partial Stage 3 assessment must be carried out within the area of overlap to determine whether any areas

of CHVI requiring Stage 4 hand excavation are present. It is recommended that this area be subject to a Stage 3 site-specific assessment in accordance with the requirements set out in Section 3.2, Section 3.2.2 and Section 3.2.3 of the S&Gs (MTC 2011:47, 50–53). Additional detailed documentary research is not needed, as the subject report has already fulfilled the requirements set out in Section 3.1 of the S&Gs (MTC 2011:46–47).

An appropriate assessment method for Site 1 would comprise test unit excavation using the strategy for Pre-Contact or Post-Contact sites where it is not yet evident that the level of CHVI will result in a recommendation to proceed to Stage 4 (MTC 2011:Table 3.1, Numbers 1 and 2). This would involve the excavation of grid test units at a 5 m interval along the interface of the project lands and the protected area, and additional test units amounting to at least 20% of the initial grid unit total in areas of interest. An additional row of units to the southwest may be required to meet the objectives set out in Section 3.2.3 of the S&Gs (MTC 2011:50). All test units must be excavated stratigraphically into at least the first 5 cm of subsoil, and all soils must be screened through mesh with an aperture of no greater than 6 mm. If a potential cultural feature is uncovered, the exposed plan of the feature must be recorded, and geotextile fabric must be placed over the unit floor prior to backfilling. Section 3.2.2 Guideline 3 of the S&Gs (MTC 2011:49) states that exposed cultural features may be excavated during a Stage 3 assessment only if the information is required to inform a recommendation for or against a Stage 4 mitigation of development impacts.

Given that the project lands traverse a registered cemetery, a cemetery investigation must be completed to confirm that no burial features are present either within or beyond the legal property line as it is currently defined. Provided that no surficial areas of CHVI are identified after test unit excavation at Site 1, the required cemetery investigation can then occur to ensure that there are no burial features or human remains within the traversed portion of the cemetery and a 10 m buffer around the limits of the cemetery. The cemetery investigation must be conducted in accordance with Section 3.3.3 and Section 4.2.3 of the S&Gs (MTC 2011:55–56, 78–79). The Registrar, Funeral, Burial and Cremation Services Act, 2002, Bereavement Authority of Ontario must be engaged throughout the process.

The deeply buried survey must comprise the mechanical excavation of all undisturbed lands within the cemetery buffer that were not previously cleared of concerns. An excavator or backhoe with an articulated wrist and a straight-bladed bucket must be utilized so that potential resources are not damaged. The mechanical excavation should continue until the topsoil/subsoil interface is reached, and the interface must be immediately subjected to a close examination for potential burial features (or other cultural features) and shovel shined to further clarify the interface in accordance with the requirements set out in Section 4.2.3 of the S&Gs (MTC 2011:78–79). The remainder of the cemetery buffer consists of the disturbed ditch and roadway platform (SD Map 3). Since it is not feasible to excavate this part of the buffer, archaeological monitoring must be carried out during construction as per Section 3.3.3 Standard 4 of the S&Gs (MTC 2011:55–56).

If any burial features (grave shafts or coffin stains) are encountered within the project lands, they must be fully documented and mapped in order to satisfy the requirements and objectives set out in the Funeral, Burial and Cremation Services Act, 2002, Section 174 of Ontario Regulation 30/11 as well as Section 4.2.1 Standard 9 and Section 4.2.2 Standard 7 of the S&Gs (MTC 2011:76–77). If directed by the Registrar, Funeral, Burial and Cremation Services Act, 2002, Bereavement Authority of Ontario, a sample of graves may be explored to determine if they still contain human remains. As required by Table 4.1 of the S&Gs (MTC 2011:85), excavations must be extended a minimum of 10 m beyond the outermost burial features (or other cultural features). If the Stage 3 site-specific assessment results in the discovery of areas requiring Stage 4 hand excavation, then the cemetery investigation will need to be conducted after any recommended activities are completed. In such a case, the Stage 4 excavation and cemetery investigation should be carried out and reported on concurrently.

An avoidance strategy must also be implemented to ensure that the remainder of the protected area is not impacted during construction. A temporary barrier must be established along the interface of the protected area and the project limits prior to construction, and this barrier must extend for a minimum of 10 m beyond

the cemetery limits to accommodate the required buffer. All adjacent construction activities must be monitored by a licensed archaeologist to ensure the effectiveness of the avoidance strategy. Specifically, the archaeologist will inspect the fence erection, be present on site during the initial excavations and periodically visit the site during construction to confirm that the avoidance measures are being followed. 'No go' instructions must be issued to all on-site work crews and engineers for the protected area, and the location of the protected area must be shown on all appropriate contract drawings. The protected area must be inspected by a licensed archaeologist once construction is complete, and the effectiveness of the avoidance strategy must be reported to the MTCS.

Regarding the balance of the project lands, ARA reiterates the recommendation made under PIF #P007-0678-2014 wherein all areas of archaeological potential that could be impacted by the project be subject to a Stage 2 property assessment in advance of construction (ARA 2015:29). Any areas of potential that fall outside of the preferred design and any areas that were previously assessed and cleared of further concerns would not need to be assessed in advance of construction.

Based on the information contained in the report, the ministry is satisfied that the fieldwork and reporting for the archaeological assessment are consistent with the ministry's 2011 *Standards and Guidelines for Consultant Archaeologists* and the terms and conditions for archaeological licences. This report has been entered into the Ontario Public Register of Archaeological Reports. Please note that the ministry makes no representation or warranty as to the completeness, accuracy or quality of reports in the register.

Should you require any further information regarding this matter, please feel free to contact me.

Sincerely,

Shari Prowse
Archaeology Review Officer

cc. Archaeology Licensing Officer
Melissa Alexander,Hatch Ltd.
Gino Dela Cruz,Region of Peel

[1] *In no way will the ministry be liable for any harm, damages, costs, expenses, losses, claims or actions that may result: (a) if the Report(s) or its recommendations are discovered to be inaccurate, incomplete, misleading or fraudulent; or (b) from the issuance of this letter. Further measures may need to be taken in the event that additional artifacts or archaeological sites are identified or the Report(s) is otherwise found to be inaccurate, incomplete, misleading or fraudulent.*